UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

AT&T SERVICES INC., T-MOBILE USA, INC., CELLCO PARTNERSHIP D/B /A VERIZON WIRELESS, ERICSSON INC. AND NOKIA OF AMERICA CORPORATION,
Petitioners,

v.

INNOVATIVE SONIC LIMITED AND CELERITY IP, LLC.,
Patent Owner.

Patent No. 9,237,489

DECLARATION OF CRAIG BISHOP

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I. INTRODUCTION

I, Craig Bishop, declare the following:

1. I have been retained as an independent expert witness on behalf of AT&T Services Inc., T-Mobile USA, Inc., Cellco Partnership d/b/a Verizon Wireless, Ericsson, Inc. and Nokia of America Corporation ("Petitioners"), related to the *Inter Partes* Review ("IPR") of U.S. Patent No. 9,237,489 ("the '489 patent").

2. I am being compensated for my work in this matter at my normal consulting hourly rate. I am also being reimbursed for reasonable and customary expenses associated with my work and testimony in this investigation. My compensation is not contingent on the results of my study, the substance of my opinions, or the outcome of this matter.

3. I have no financial interest in the '489 patent and have had no contact with the named inventors of said patent. Neither have I reviewed the '489 patent in detail, nor do I have any personal interest in the outcome of this IPR.

4. In forming the opinions expressed in this declaration, I have considered the reference materials cited herein and my own academic background and professional experiences as outlined below.

5. While I have attempted to organize the information presented in this declaration into helpful sections and/or divisions, my opinions are supported by the information in the declaration in its entirety.

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II. QUALIFICATIONS

6. My complete qualifications and professional experience are described in my *curriculum vitae*, a copy of which is attached as **Appendix 1**. The following is a summary of my relevant qualifications and professional experience.

7. I earned my Bachelor of Electronic Engineering degree with Honors from Polytechnic of Central London in 1989. In 2005, I earned my MSC in Computer Science with Distinction from the University of Kent.

8. After graduating with my first degree, I worked as an operations engineer at the British Broadcasting Corporation (BBC) for 4 years, then as a civil servant at the UK Radiocommunications Agency until 1996, during which time I became involved in telecommunications standardization in the European Telecommunication Standards Institute ("ETSI"), working in particular in Technical Committee Radio Equipment and Systems (TC RES2) concerned with the standardization of Private Mobile Radio (PMR). From 1994 through 1996, I acted as Rapporteur for voice and data related PMR standards ETS 300 113, ETS 300 219 and ETS 300 390. I participated as the only TC RES2 delegate on behalf of the UK Radiocommunications Agency, generating proposals in support of UK administration and business requirements, downloading and reviewing other meeting input documents, and proposing changes as necessary to ensure input documents and the resulting specifications were in line with said requirements.

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9. In 1996, I joined Samsung Electronic Research Institute as a Senior Standards Engineer where I worked for 16 years, eventually becoming Director of Standards and Industry Affairs in 2011. My work at Samsung mainly focused on the standardization of Global System for Mobile Communications (GSM)/ General Packet Radio Service (GPRS), Universal Mobile Telecommunications System (UMTS), the IP Multimedia subsystem (IMS), and Long-Term Evolution (LTE)/ Evolved Packet System (EPS) systems. Initially, I participated in ETSI Special Mobile Group (SMG) committees SMG1, SMG2, SMG4, SMG5, and SMG9, and relevant UMTS related sub-committees working on the air interface radio access network protocols, service, and terminal aspects of UMTS and GSM/GPRS until 1999. In particular, I was a participant in the ETSI SMG2 meetings leading up to selection of Wideband Code Division Multiple Access (WCDMA) as the radio access technology for the Frequency Division Duplex (FDD) mode of UMTS.

10. Beginning in 1998, I worked as a Principal Standards Engineer on the 3rd Generation Partnership Project (3GPP) on UMTS. I attended the inaugural 3GPP Technical Specification Group (TSG) meetings held in December 1998, and I began attending Working Group (WG) meetings in 1999. Specifically, I was a regular participant in Radio Access Network (RAN) WG1, Services & System Aspects (SA) WG1, Terminals (T) WG2, but I also attended TSG RAN and T plenary meetings and sometimes other Working Groups and covering similar technical aspects as in

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my previous work in ETSI. As an example, RAN WG2 was, and is, a Working Group responsible for the specification of layer 2 and layer 3 Radio Resource, protocols for the UE. As part of this work, I would prepare meeting contributions in support of Samsung's research and development activities. Also, by way of preparation for each meeting, I would download all contributions and review those of interest to Samsung, and where necessary, prepare additional input to the meeting based on said review.

11. Beginning in 2000, I acted as project manager and then as system engineering manager at Samsung, providing technical requirements for the team working on Samsung's UMTS modem development. This involved scrutiny of ongoing standardization work, particularly in RAN WG1, RAN WG2, and TSG Core Network (CN) WG1, from which I would download, and assess the impact of, contributions on Samsung's development projects, ensuring that Samsung's development team was kept informed about the latest developments as layers 2 and 3 of the UMTS standard were stabilized.

12. During this period, in addition to authoring and presenting technical contributions for the 3GPP standard, and producing technical requirements for the radio modem, I acted as Rapporteur for 3GPP Technical Reports covering User Equipment ("UE") capability requirements (3GPP TR 21.904) from 1999–2000, and the Evolution of the 3GPP System (3GPP TR 21.902) in 2003 (the first Study Item

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to consider the 3GPP system beyond UMTS towards LTE/EPS).

13. In 2005, I became Head of Advanced Technologies, Standards and Regulation (ATSR) at Samsung. In addition to my managerial duties which included responsibility for standards, research, and regulatory engineers including three standards engineers who were regularly attending 3GPP RAN WG2 and Core Network and Terminals (CT) WG1 Working Groups, I personally continued to work on 3GPP standardization issues. From 2005 until 2008, I regularly attended and participated in SA WG2 meetings, mainly focusing on IP Multimedia Subsystem (IMS) including voice over IMS but also looking at wider Evolved Packet System (EPS) related issues. From 2008 until 2011, I regularly attended and participated in SA WG1 meetings. I also attended SA plenary meetings from 2008 until I left Samsung in 2013. As well as generating contributions in support of Samsung's research and development as preparation for each meeting, I would download and review documents from other 3GPP members, identifying those of interest to Samsung and, where necessary, preparing additional contributions on behalf of Samsung. The work required a sound working knowledge of the broader 3GPP system to ensure effective management of the ATSR team, effective participation in meeting discussions, expert assessment of third-party standards contributions, and provision of implementation guidance to Samsung developers.

14. From 2005 until I stopped attending SA WG1 meetings in 2011, I

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authored and presented over 100 contributions to SA WG2 and SA WG1 meetings at 3GPP and appeared as an author/co-author on 18 patent applications related to User Equipment operation in the IMS and the 3GPP Core Network.

15. In 2011, I became Director of Standards and Industry Affairs at Samsung, and in November of that year I was elected to the Board of ETSI on which I served for a term of 3 years until November 2014. In this position I gained further perspective on the organisation, management, and activities of ETSI and its Technical Committees and Partnership Projects including 3GPP.

16. Since leaving Samsung in January 2013, I have formed my own consulting company which is a member of ETSI, and as part of various projects undertaken, I have continued to regularly access the ETSI and 3GPP document servers, and to keep abreast of ETSI and 3GPP document handling and publication practices.

17. Through my extensive work in ETSI and on 3GPP standardization issues over the years, I have become very familiar with ETSI and 3GPP practices for when and how the technical standards (including revisions thereto) and other standards-related contributions are made publicly available, including in the 1999-2012 timeframe when I was attending or monitoring various 3GPP Working Groups including RAN WG1 and RAN WG2, and since 2013 in support of my work as a independent standardisation consultant.

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18. For purposes of my analysis in this declaration, I have been informed that a person of ordinary skill in the art ("POSITA") in the field of the '489 patent at the time of the alleged invention of the '489 patent would have had the equivalent of an undergraduate degree in Electrical Engineering, Computer Science, or Computer Engineering, familiarity with the relevant 3GPP standards as of this time, and at least two years of experience in design, development, and/or testing of cellular networks. This definition is approximate, and more education may substitute for industry experience or vice versa.

III. PUBLIC AVAILABILITY OF 3GPP STANDARDS PROPOSALS AND OTHER DOCUMENTS

19. Based on my years of experience working in various capacities in 3GPP and on 3GPP standards issues, I am familiar with the operational practices of the 3rd Generation Partnership Project (3GPP) relating to technical documents including specifications, draft standards and proposals, and standards-related technical contributions, as well as the practices through which 3GPP makes these documents public.

A. Prominence and Purpose of 3GPP

20. 3GPP was inaugurated in December 1998 to produce Technical Specifications and Technical Reports for the Universal Mobile Telecommunications System (UMTS), a 3G Mobile System based on evolved GSM core networks and a

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new radio access network known as UTRA (UMTS Terrestrial Radio Access). **Appendix 2** at 2, 3 ("[3GPP] Partnership Project Description"); **Appendix 3** at 1; **Appendix 4** at 5. At that time, various standards organisations agreed to cooperate to produce a "complete set of globally applicable Technical Specifications" that would then be transposed into standards by the relevant standardization bodies (also known as Organizational Partners). **Appendix 2** at 3, 5 ("[3GPP] Partnership Project Description"). 3GPP "attracted a very strong commitment from organisations and companies around the world, reflecting the truly global nature of the project". **Appendix 4** at 7.

21. 3GPP is a global initiative partnership made up of Organizational Partners, Market Representation Partners, and Individual Members. **Appendix 5** at 7, 8; **Appendix 2** at 10. Today, 3GPP unites seven telecommunications standard development organisations ("Organizational Partners") from around the world: the Association of Radio Industries and Businesses (ARIB) and the Telecommunication Technology Committee (TTC) from Japan, the China Communications Standards Association (CCSA) from China, the Telecommunications Standards Development Society, India (TSDSI) from India, the Telecommunications Technology Association (TTA) from Korea, the European Telecommunications Standards Institute (ETSI), and the Alliance for Telecommunications Industry Solutions (ATIS) from the United States. These Organizational Partners are regional standards

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organisations that have the authority to define, publish, and set standards for their respective regions. **Appendix 2** at 12. 3GPP also includes "Market Representation Partners" that represent various industry perspectives and offer market advice. **Appendix 5** at 8 (3GPP Working Procedures, "Market Representation Partnership"); **Appendix 2** at 14; **Appendix 4** at 5. Additionally, 3GPP includes individual member companies ("Individual Members") that participate in 3GPP through their membership in a 3GPP Organizational Partner. **Appendix 5** at 8 (3GPP Working Procedures, "Individual Membership"); **Appendix 6** at 5 (textbook including a chart showing 3GPP structure at the time of publication); **Appendix 8** at 9, 10. As an example of how prominent 3GPP was and remains in the industry, there were 375 participating Individual Members in 2010. **Appendix 7** at 8 (3GPP Project Coordination Group document showing 3GPP membership numbers to 2017). There were 827 individual members as of June 2024. **Appendix 9**.

22. As noted in paragraph 20, a primary goal of 3GPP is to provide an environment to produce technical specifications and technical reports that define and standardise technologies covering cellular telecommunications networks, including User Equipment or Mobile Device (UE) technologies, Radio Access Network (RAN) technologies, Core Network (CN) technologies, and service and system capabilities such as work on codecs, security and quality of service. The specifications also provide hooks for interworking with non-3GPP networks

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including but not limited to Wi-Fi networks.

23. Given the prominence of 3GPP in the wireless communication industry, beginning in 1999 and continuing through today, interested POSITAs were tracking the developments of the latest 3GPP specifications and reports to ensure timely development of products and services by their companies that were consistent with the standards being developed. In other words, it is my opinion that a POSITA would have to be familiar with 3GPP and with the specification-related documents produced as part of the 3GPP process in order to properly perform his or her job. Without access to and knowledge of the 3GPP documentation, including for example the substantive contents of 3GPP technical specifications, an engineer could not develop products that were interoperable with the worldwide 3G, 4G, and 5G standards. Because 3GPP documents were an important aspect of a POSITA's professional experience, textbooks and articles about cellular communications commonly directed readers to the 3GPP website for information regarding standards development. **Appendix 4** at 9 (directing readers to the 3GPP website at the conclusion of the chapter on the success of 3GPP in the standards development process). As a POSITA myself, I would regularly visit the 3GPP website for the latest developments mobile communications standards setting and refer colleagues involved in the development of such devices to the 3GPP website as a valuable reference.

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24. My personal experience at Samsung confirms 3GPP's prominence in the wireless industry. For example, engineers and managers at Samsung who were responsible for implementing 3GPP compliant modem software (and who were not attending 3GPP meetings or involved with development of the 3GPP standard in any direct way) would often enquire as to which version of a given 3GPP specification they should be developing. Further, between 2000 and 2004, part of my role at Samsung involved advising software engineers implementing the 3GPP standard on the correct interpretation of the specifications and ensuring that they were made aware of any changes and proposals made during the 3GPP standards development process that would impact their work. I also for a time maintained an internal company database that tracked 3GPP approved changes, to help the software engineers at Samsung implementing the 3GPP standard more readily stay informed as to changes that would impact their work. The database also included links to relevant 3GPP documents so that engineers could access the documents directly. In short, the technical output of 3GPP was, and continues to be, well known at 3GPP member companies, even for engineers who were not directly involved with designing the 3GPP system or contributing to the 3GPP standard process.

B. 3GPP's Policy of Making Documents Public

25. 3GPP's policy was to make 3GPP documents available to the public, including to interested POSITAs. The free availability of 3GPP documents to any

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interested member of the public was widely recognized in the industry. As an example of the prominence of 3GPP and its place in the wireless standards industry, I note that textbooks directed readers to the 3GPP website for information about relevant standards. For example, **Appendix 6** at 6, 9 ("The latest specifications can be obtained from 3GPP [9]", "[9] http//:www.3GPP.org"); **Appendix 8** at 10 ("3GPP TSs and TRs are publicly available at the 3GPP web site at either of the following URIs: http://www.3gpp.org/specs/specs.htm http://www.3gpp.org/ftp/Specs/archive/"). Because the purpose of 3GPP is worldwide adoption of a common standard, no restrictions on distribution or discussion have ever been placed on 3GPP documents. **Appendix 10** at 9 ("No password is needed to access any information on the 3GPP Web site, all information is openly published").

C. 3GPP Structure and Standards Development Process

26. Within 3GPP, responsibility for producing specifications was delegated to the Technical Specification Groups (TSGs). **Appendix 5** at 12 (3GPP Working Procedures, "TSG tasks"). At its inception, 3GPP was divided into four Technical Specification Groups (TSGs), each covering a particular category of technology. **Appendix 2** at 31 (3GPP Partnership Project Description); **Appendix 6** at 5, 6 (textbook listing four TSGs and noting the subsequent addition of a fifth TSG); **Appendix 4** at 6, 11, 12. Each TSG is further divided into a number of Working

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Groups (WGs). **Appendix 8** at 8, 9; **Appendix 4** at 6; see also **Appendix 5** at 12 (3GPP Working Procedures). Two of the TSGs from 1999 are still in existence in 2024: TSG Radio Access Networks (RAN) and TSG Service & Systems Aspects (SA). The activities of two other TSGs, TSG Core Networks (CN) and TSG Terminals (T), were amalgamated under Core Network and Terminals (CT) following the closure of TSG T in 2005, with responsibility for terminal test specifications being moved to a RAN working group (RAN WG5). The fifth TSG, GSM EDGE Radio Access Networks (GERAN), was responsible for evolution of the GSM radio technology from 2000 until that TSG closed in 2016 and its work was transferred to a RAN working group (RAN WG6) which was itself closed in July 2020.

27. The TSGs held quarterly plenary meetings where members' contributions, draft specifications/reports, and other documents that had been agreed upon by the Working Groups were presented for discussion and approval. **Appendix 5** at 20 (3GPP Working Procedures, "Deliverable types," stating that Technical Specifications and Technical Reports are "drawn up by the TSGs" and are approved by TSGs); **Appendix 8** at 9 ("3GPP Deliverables"). Once a Technical Specification was or Change Requests creating a new version of a Technical Specification were, formally approved by TSG plenary, the latest version of said Technical Specification would be created by the Mobile Competence Centre (MCC) and uploaded to the file

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server. **Appendix 10** at 6; **Appendix 11** at 1. In that way, the conclusion of 3GPP TSG plenary meetings serves as notice that new versions of specifications incorporating Change Requests approved by the TSG meeting will shortly be made available on the public 3GPP server.

28. As part of the standards development process, delegates could submit contributions on behalf of the Individual Members. Members had an incentive to stay updated on 3GPP developments because those members usually wanted to contribute to the standard and make suggestions as to what technology and/or features should (or should not) be included. Delegates also attended 3GPP meetings to keep their employers abreast of developments related to the standards that would ultimately apply to those members and the products those members (*e.g.*, companies) produced. 3GPP members around the world and the interested POSITAs employed by them would have been motivated to stay up to date regarding 3GPP technology evolution to ensure their research and development programmes remained relevant to the systems being specified and that their products were compliant with the published 3GPP specifications. In light of this need to follow the standards development process, delegates often distributed 3GPP-related documents far beyond the attendees at 3GPP meetings. This was certainly my experience at Samsung.

D. 3GPP Documents

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1. Technical Specifications and Reports

29. The technical specifications and reports developed by 3GPP were, and still are, driven by the technical contributions of 3GPP members. As part of that development process, various types of documents were produced. The 3GPP process involved the consideration of temporary documents ("TDocs," also referred to as "contributions,"), many of which constituted technical proposals for how the system should be implemented and were adopted as the basis for parts of the technical specifications.

30. As I noted in paragraphs 20 and 22, a primary purpose of 3GPP is to prepare, approve, and maintain globally applicable Technical Specifications and Technical Reports. **Appendix 5** at 6 (3GPP Working Procedures, "Purpose"). A "Technical Specification," as defined by 3GPP, is "[a] 3GPP output document containing normative provisions approved by a Technical Specification Group". **Appendix 5** at 25. 3GPP would (and still does) periodically freeze a complete set of standards (referred to as a "Release"), and each set would include many new specifications. **Appendix 10** at 6. 3GPP would also make publicly available draft specifications that would usually be included as part of the next Release once approved.

31. It was widely known that Technical Specifications (and Technical Reports) were publicly available on 3GPP's website. It was also well known that the

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latest version of a given specification that was under change control would be made available following each TSG Plenary meeting responsible for that specification, and that TSG Plenary meetings usually occur four times per year. **Appendix 10** at 6; **Appendix 11** at 1.

32. Latest and previous versions of technical specifications could be easily accessed from the 3GPP website. The specifications page provided direct links to the specifications area in the 3GPP website's file repository. **Appendix 11** at 1. In the 2010 timeframe, the specifications page listed the specifications by the date of the approval of the latest versions reflecting the TSG plenary meeting date. *E.g.*, **Appendix 11** at 1.

33. Additionally, the 3GPP specifications followed a clear numbering scheme to help the public, including interested POSITAs, identify the subject matter of each specification. **Appendix 12** at 1. As described on the 3GPP Numbering Scheme webpage, all 3G and GSM specifications had a specification number of 4 or 5 digits, where the first two digits defined the series. **Appendix 12** at 2. The Numbering Scheme webpage included a table showing the subject matter corresponding to each series. **Appendix 12** at 1. For example, the "36 series" focused on Evolved UTRA (LTE) aspects. **Appendix 12** at 1. An interested POSITA could narrow down the relevant specifications based on whether the specification applied to only evolved UTRA (aka 4G or LTE), to 3G, to GSM, or to GSM, 3G and

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evolved UTRA (GSM only specifications were transferred from ETSI to 3GPP in July 2000). For a specification in the 21–35 series, this could be determined based on the third digit of the specification number, where a "0" would indicate that the specification applied to all systems. Specifications outside the 21–36 series in 2010 applied only to GSM systems. **Appendix 12** at 1.

34. The specifications were stored on the 3GPP website's file repository as zipped files, where the filenames followed the structure: SM[-P[-Q]]-V.zip. This format corresponded to the numbering scheme discussed in paragraph 33. "S" represented the series number; "M" represented the mantissa (the part after the series number); "P" represented an optional part number; "Q" represented an optional sub-part number; and "V" represented the version number (without the separating dots). **Appendix 12** at 2.

35. The Working Groups would create incremental versions of the draft specifications (*e.g.*, V0.2.1, V1.0.0, V1.1.0, etc.). These versions were made available on the 3GPP website's file repository which is accessible from the 3GPP specifications page. The version numbering scheme for Technical Specifications and Technical Reports was standardized by 3GPP. The version number included three fields: the major version field, the technical version field, and the editorial version field. **Appendix 13** at 1. The major version field reflects the stage of the specification, with "0" representing an immature draft and a value of "3" or greater

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representing a specification that has been approved by the relevant TSG and thus placed under change control. **Appendix 13** at 1. The technical version field begins at zero and is incremented every time a technical change is made to the specification (either as part of the drafting process or as part of an approved change request). **Appendix 13** at 1. The editorial version field begins at zero and is incremented each time a non-technical change is made to the specification (*e.g.*, to fix a typo or formatting issue). **Appendix 13** at 1.

36. I understand that the alleged invention in the ’489 patent relates to cellular telecommunications networks, and more particularly secondary cell release. Any POSITA interested in secondary cell release would have been monitoring 3GPP’s activities in this area and would probably have been already participating as a full or associate member or observer in the standard development process or would have at least known that information regarding the proposed revisions to the technical specifications under discussion were available through 3GPP.

2. 3GPP TDocs

37. As mentioned in paragraph 29, the technical specifications and reports developed by 3GPP were and are driven by the technical contributions of 3GPP member companies. As part of that development process, various types of documents were produced and submitted. As relevant to this case, the 3GPP process involved the consideration of temporary documents or “TDocs,” which are also

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referred to as proposals, contributions, or change requests. The agreement of proposals submitted as TDocs results in the production of technical specifications.

38. Prior to each Working Group meeting, members of the Working Group would prepare TDocs to identify, discuss, and/or propose a new feature or change(s) to an existing feature or to identify a technical issue for discussion. Interested POSITAs would have known that TDocs could be a helpful source of technical information regarding the 3GPP specifications.

39. Each TDoc was assigned a TDoc number, according to a standard format set by 3GPP.[1] As described in the 3GPP Working Procedures, the numbering system followed the format xminnzzzz. **Appendix 5** at 17. This general naming convention has been in use since at least 1999 with only minor variations. Within that format, "x" referred to the relevant TSG. For example, "R" was used for TSG RAN. Likewise, "m" referred to the relevant Working Group. **Appendix 5** at 17. A document for RAN WG2 would therefore begin with "R2". The two digits "nn" represented the year (*e.g.*, 10), and the digits "zzzz" represented the unique document number. This document number was used as the TDoc's filename.

40. Each TDoc would include in its header the meeting at which the contributor intended the TDoc to be discussed. Most TDocs were uploaded to the

[1] Documents other than technical contributions (such as meeting reports) were also assigned TDoc numbers for ease of reference.

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3GPP website for public viewing prior to the relevant Working Group meeting listed on the TDoc, although some TDocs including those created at meetings, were uploaded during or after the meeting. The documents were uploaded to the public file repository in an area allocated to the particular Working Group. **Appendix 10** at 8; **Appendix 14** at 1 (RAN WG2 homepage with link to WG2's "Documents area"). Immediately upon upload, any member of the public could download and access the TDocs and other documents offered for discussion. This process has been in place since I began attending Working Group meetings in 1999.

E. The 3GPP Website's Public File Repository

41. All TDocs, technical reports, and technical specifications were also freely available to interested member of the public through the public file repository accessible via the 3GPP website. Interested members of the public would have been well aware of 3GPP and of the 3GPP website. 3GPP documents were accessible to any member of the public through the 3GPP website without providing any login credentials or other exclusive access criteria.

42. It is my recollection that, during the 2010 timeframe, any interested member of the public could locate relevant documents of interest on the 3GPP website using reasonable diligence based on the website's indexing scheme or the TDoc's naming convention. The documents on the 3GPP website were (and remain) organized according to the relevant Working Groups within 3GPP (each of which

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focused on particular subject matter) and then further organized based on the meetings of those groups. POSITAs would have known which Working Groups focused on particular subject matter.

43. An interested member of the public could locate documents of interest by first navigating a web browser to the 3GPP website (www.3gpp.org). In the 2010 timeframe, to locate documents from the 3GPP home page, a user could have clicked "Specification Groups" **Appendix 15**. The corresponding webpages contained links to the 3GPP's public file repository (*e.g.*, through the "Documents area" link of the RAN WG2 page). **Appendix 14**. Instead of accessing the 3GPP file repository from the 3GPP website home page, a user could have also accessed the file repository through the web address www.3gpp.org/ftp or directly using ftp client software connected to ftp.3gpp.org. A POSITA was also able to search for relevant documents using keywords on the search facility on the 3GPP website from at least 2000.

44. The top two levels of indexing within the file repository were based wholly on subject matter, as reflected by the division of subject matter among the various TSGs and Working Groups, or into various "Specs". Specifically, an individual could select the relevant TSG covering the subject matter of interest. **Appendix 16**.

45. If the individual were interested in the radio access aspects of 3GPP, they would click "tsg_ran". From there, the individual would click on the particular

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RAN Working Group covering the subject matter of interest. **Appendix 17**.

46. For example, if the individual were interested in the Radio Interface Radio layer 2 and Radio layer 3 RRC, the individual would know to choose the folder for WG2. Once a user is in the relevant Working Group folder (RAN WG2 in this example), an individual would see a list of all meetings held by RAN WG2. **Appendix 18**.

47. As shown, a folder existed for each meeting. For example, "TSGR2_71bis" corresponded to TSG RAN WG2 Meeting #71bis, and the timestamp associated with the meeting #71bis directory indicates that, as of July 26, 2013, the TSGR1_71bis directory had most recently been updated on October 7, 2010. **Appendix 18** at 2.

48. A POSITA would know which meeting(s) would have covered particular subject matter based on the working groups area of responsibility (*e.g.* for RAN WG2 - **Appendix 14)**, and from publicly available meeting agendas. *E.g.*, **Appendix 19** (see link to agenda for RAN WG2 Meeting #71bis). Many POSITAs received a link to the meeting agenda directly via the 3GPP Working Group email reflector lists. **Appendix 20**. Further, an individual could ascertain what subject matter was addressed at each meeting by reviewing the report issued after each meeting, stored in the Report directory. **Appendix 19**.

49. In my experience, whilst the servers used for 3GPP file repository and

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many of its directories have been updated since 1999, and directories may as a result have later dates associated with them (*e.g.*, reflecting the last time they were modified in some way or their contents were updated), the original upload date for files including specifications has always been preserved, providing a true and accurate indication of their earliest availability for download.

50. Once an individual navigated to the desired meeting folder, for example "TSGR2_71bis" the individual could then select the "Docs" folder to view the documents associated with that meeting. The documents within this folder were listed by TDoc number, and interested members of the public would have known to review the meeting report for each meeting to confirm which topics were discussed at that meeting. *E.g.*, **Appendix 21**.

51. Many TDocs were uploaded to the public file server for public viewing prior to the relevant meeting (although some TDocs, particularly those created during meetings, were submitted during or soon after the meetings). Throughout and since my participation in 3GPP, it has always been recommended that delegates attending a meeting download the relevant set of documents from the 3GPP file repository onto their personal computers prior to each meeting. **Appendix 10** at 7. Given that any interested member of the public could and was likely to subscribe to the Working Group listserv, it would have been simple to locate the location of relevant TDocs on the 3GPP server based on the information sent out over the

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listserv.

52. 3GPP's public file repository provides a reliable mechanism for identifying the date and time a document was uploaded to the website and then available to download for public viewing. When a document is uploaded, the file server automatically assigns the document a time stamp—*i.e.*, an accurate and automatically computer-generated electronic record of when the document was uploaded—as part of the regular business practices of 3GPP. This has always been the practice regarding uploading documents to the 3GPP file repository, and my personal experience confirms that the time stamps have always been a reliable way to determine when a file was uploaded to the 3GPP website and immediately available for public download.

IV. 3GPP EXHIBITS

A. Ex-1004: R2-105472, TSG-RAN Working Group 2 Meeting #71bis; Agenda Item 7.1.2.3: "ASN.1 Structure for SCell Configuration"

53. R2-105472 is a technical contribution submitted to 3GPP TSG RAN WG2, meeting #71bis held between October 11 – 15, 2017. It follows the general naming format ("xminnzzzz") described in paragraph 39. Accordingly, "R2" indicates that the contribution was submitted to RAN WG2, "10" indicates the year (2010) that this technical contribution was submitted, and "5472" is the unique number that was assigned to this contribution document. It is titled "ASN.1 Structure

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for SCell Configuration".

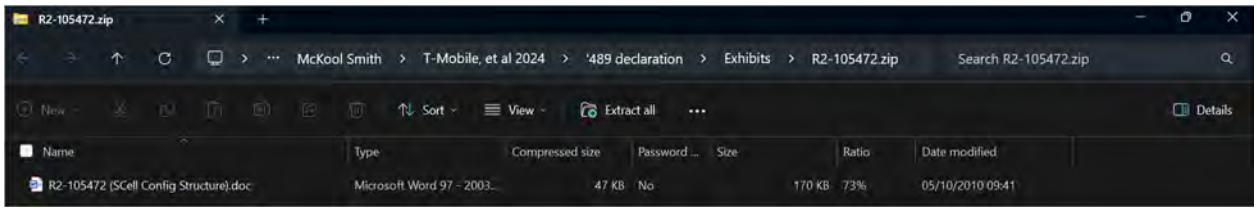
54. As I mention in paragraph 41 above, 3GPP meeting documents have always been and were in the 2010 timeframe, made publicly available on the 3GPP public file server from where an interested member of the public exercising reasonable diligence could freely access them. To confirm the availability of R2-105472 on the 3GPP document server in the 2010 timeframe, I navigated to the 3GPP website at http://www.3gpp.org, selected "3GPP Groups" from the drop down menu, and then selected the "RAN2 – Radio Layer 2 and Layer 3 RRC" from the 3GPP Groups page, and the "Meeting documents" link to access the public file server where documents for the TSG-RAN Working Group 2 are stored, and from where I navigated to the documents for RAN WG2 #71bis. A true and correct copy of the relevant portion of the Documents directory listing produced by the file server website is provided below and in **Appendix 22** at 6.



55. The Docs directory index stated that R2-105472 was uploaded on "2010/10/05". I selected the link for "R2-105472.zip" downloaded a zip file of the same name. The zip file contained a Microsoft Word document, "R2-105472 (SCell Config Structure).doc", with a date stamp of "05/10/2017" (European date format)

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the same day that the zip file was uploaded.



56. A true and correct copy of the document within the zip file (R2-105472 (SCell Config Structure).doc) is provided as Ex-1004. Based on my experience, I understand that these date stamps mean that R2-105472.zip was uploaded to 3GPP's publicly available website on October 5, 2010, prior to the RAN WG2 #71bis meeting, and that any member of the public could have downloaded the zip file, extracted the Word document enclosed, and viewed the contents of said document without restriction on October 5, 2010 and thereafter. The report from RAN WG2 #71bis confirms the availability of R2-105472 at the meeting (**Appendix 21** at 56). I have no reason to believe that either the date stamp or the report from RAN WG2 #71bis are inaccurate. I have therefore determined that R2-105472 was publicly available on the file server no later than October 5, 2010.

57. Based on the information above, it is my opinion that R2-105472 titled "ASN.1 Structure for SCell Configuration" and provided as Ex-1004 was publicly available to download from the 3GPP file server no later than October 5, 2010 and could have been distributed thereafter without restriction. Further, it was publicly available at the 3GPP TSG RAN WG2 #71bis meeting held October 11 – 15, 2010.

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B. Ex-1005: R2-105685, TSG-RAN Working Group 2 Meeting #71bis; Agenda Item 7.1.2.3: "Physical layer parameters to be configured by RRC"

58. R2-105472 is a technical contribution submitted to 3GPP TSG RAN WG2, meeting #71bis held between October 11 – 15, 2017. It follows the general naming format ("xminnzzzz") described in paragraph 39. Accordingly, "R2" indicates that the contribution was submitted to RAN WG2, "10" indicates the year (2010) that this technical contribution was submitted, and "5685" is the unique number that was assigned to this contribution document. It is titled "Physical layer parameters to be configured by RRC".

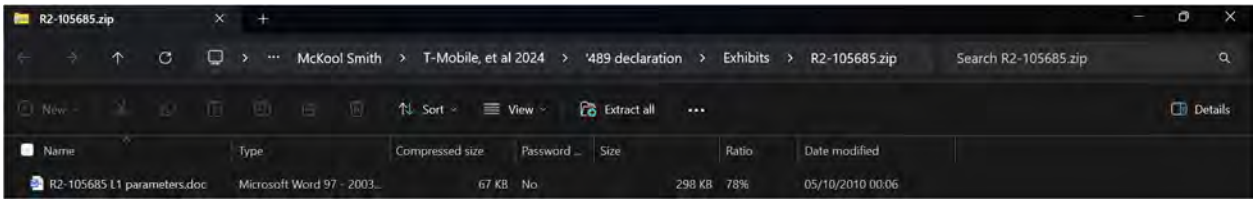
59. As I mention in paragraph 41 above, 3GPP meeting documents have always been and were in the 2010 timeframe, made publicly available on the 3GPP public file server from where an interested member of the public exercising reasonable diligence could freely access them. To confirm the availability of R2-105685 on the 3GPP document server in the 2010 timeframe, I navigated to the 3GPP website at http://www.3gpp.org, selected "3GPP Groups" from the drop down menu, and then selected the "RAN2 – Radio Layer 2 and Layer 3 RRC" from the 3GPP Groups page, and the "Meeting documents" link to access the public file server where documents for the TSG-RAN Working Group 2 are stored, and from where I navigated to the documents for RAN WG2 #71bis. A true and correct copy of the relevant portion of the Documents directory listing produced by the file server

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website is provided below and in **Appendix 22** at 12.



60. The Docs directory index stated that R2-105685 was uploaded on "2010/10/05". I selected the link for "R2-105685.zip" downloaded a zip file of the same name. The zip file contained a Microsoft Word document, "R2-105685 L1 parameters.doc", with a date stamp of "05/10/2017" (European date format) the same day that the zip file was uploaded.



61. A true and correct copy of the document within the zip file (R2-105685 L1 parameters.doc) is provided as Ex-1005. Based on my experience, I understand that these date stamps mean that R2-105685.zip was uploaded to 3GPP's publicly available website on October 5, 2010, prior to the RAN WG2 #71bis meeting, and that any member of the public could have downloaded the zip file, extracted the Word document enclosed, and viewed the contents of said document without restriction on October 5, 2010 and thereafter. The report from RAN WG2 #71bis confirms the availability of R2-105685 at the meeting (**Appendix 21** at 58). I have

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no reason to believe that either the date stamp or the report from RAN WG2 #71bis are inaccurate. I have therefore determined that R2-105685 was publicly available on the file server no later than October 5, 2010.

62. Based on the information above, it is my opinion that R2-105685 titled "Physical layer parameters to be configured by RRC" and provided as Ex-1005 was publicly available to download from the 3GPP file server no later than October 5, 2010 and could have been distributed thereafter without restriction. Further, it was publicly available at the 3GPP TSG RAN WG2 #71bis meeting held October 11 – 15, 2010.

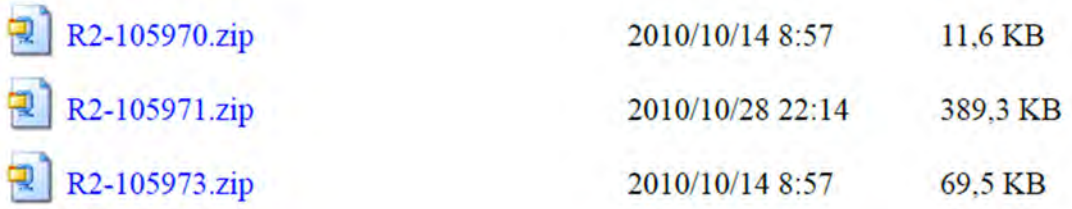
C. Ex-1008: R2-105971, TSG-RAN Working Group 2 Meeting #71bis; Draft CR TS 36.331 "Introduction of Carrier Aggregation and UL/ DL MIMO"

63. R2-105971 is a technical contribution submitted to 3GPP TSG RAN WG2, meeting #71bis held between October 11 – 15, 2017. It follows the general naming format ("xminnzzzz") described in paragraph 39. Accordingly, "R2" indicates that the contribution was submitted to RAN WG2, "10" indicates the year (2010) that this technical contribution was submitted, and "5971" is the unique number that was assigned to this contribution document. It is titled "Introduction of Carrier Aggregation and UL/ DL MIMO".

64. As I mention in paragraph 41 above, 3GPP meeting documents have always been and were in the 2010 timeframe, made publicly available on the 3GPP

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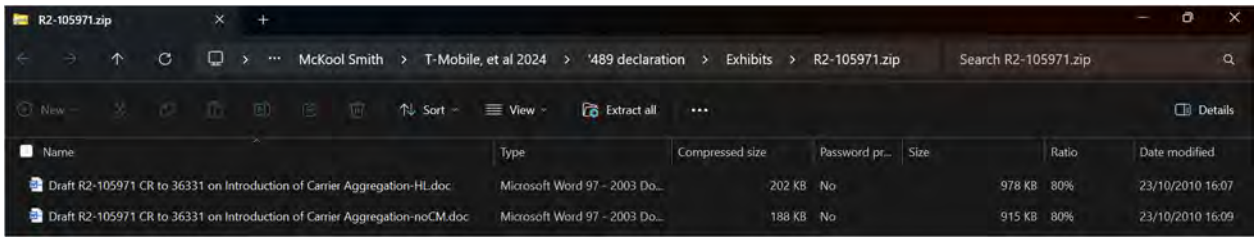
public file server from where an interested member of the public exercising reasonable diligence could freely access them. To confirm the availability of R2-105971 on the 3GPP document server in the 2010 timeframe, I navigated to the 3GPP website at http://www.3gpp.org, selected "3GPP Groups" from the drop down menu, and then selected the "RAN2 – Radio Layer 2 and Layer 3 RRC" from the 3GPP Groups page, and the "Meeting documents" link to access the public file server where documents for the TSG-RAN Working Group 2 are stored, and from where I navigated to the documents for RAN WG2 #71bis. A true and correct copy of the relevant portion of the Documents directory listing produced by the file server website is provided below and in **Appendix 22** at 20.



R2-105970.zip	2010/10/14 8:57	11,6 KB
R2-105971.zip	2010/10/28 22:14	389,3 KB
R2-105973.zip	2010/10/14 8:57	69,5 KB

65. The Docs directory index stated that R2-105971 was uploaded on "2010/10/28". I selected the link for "R2-105971.zip" downloaded a zip file of the same name. The zip file contained two Microsoft Word documents, a clean, and highlighted version of the CR: "Draft R2-105971 CR to 36331 on Introduction of Carrier Aggregation-HL.doc", with a date stamp of "23/10/2017" (European date format) five days before the zip file was uploaded.

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66. A true and correct copy of the document within the zip file (Draft R2-105971 CR to 36331 on Introduction of Carrier Aggregation-HL.doc) is provided as Ex-1008. Based on my experience, I understand that these date stamps mean that R2-105971.zip was uploaded to 3GPP's publicly available website on October 28, 2010, following the RAN WG2 #71bis meeting, and that any member of the public could have downloaded the zip file, extracted the Word document enclosed, and viewed the contents of said document without restriction on October 28, 2010 and thereafter. The report from RAN WG2 #71bis confirms the availability of R2-105971 following the meeting and that it was agreed via email on October 23, 2010 (**Appendix 21** at 6, 52, 53, 59, 139, 141); **Appendix 23**. I have no reason to believe that either the date stamp, the report from RAN WG2 #71bis or the RAN WG" email archive are inaccurate. I have therefore determined that R2-105971 was publicly available on the file server no later than October 28, 2010.

67. Based on the information above, it is my opinion that R2-105971 titled "Introduction of Carrier Aggregation and UL/ DL MIMO" and provided as Ex-1008 was publicly available to download from the 3GPP file server no later than October

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28, 2010 and could have been distributed thereafter without restriction. Further, it was publicly available on the RAN WG1 email reflector following the 3GPP TSG RAN WG2 #71bis meeting held October 11 – 15, 2010, where it was agreed on October 23, 2010.

D. Ex-1006: 3GPP TS 36.331 v9.4.0 (2010-09): "3rd Generation Partnership Project; Technical Specification Group Radio Access Network; Evolved Universal Terrestrial Radio Access (E-UTRA); Radio Resource Control (RRC); Protocol specification (Release 9)"

68. 3GPP TS 36.331 v9.4.0 is a Technical Specification titled "3rd Generation Partnership Project; Technical Specification Group Radio Access Network; Evolved Universal Terrestrial Radio Access (E-UTRA); Radio Resource Control (RRC); Protocol specification (Release 9)". The date on the face of the specification ("2010-09") corresponds to the year (2010) and month (September) that this version of the specification was approved by 3GPP TSG RAN and subsequently made publicly available.

69. 3GPP TS 36.331 v9.4.0 being an approved version of the Release 9 specification of evolved UTRA Radio Resource Control protocol was approved by TSG RAN #49 held September 14 – 17, 2010. An interested member of the public would know that the latest version of an approved specification or report would be available following the plenary meeting responsible for that specification (in this case TSG RAN) in accordance with 3GPP standard practice as described in

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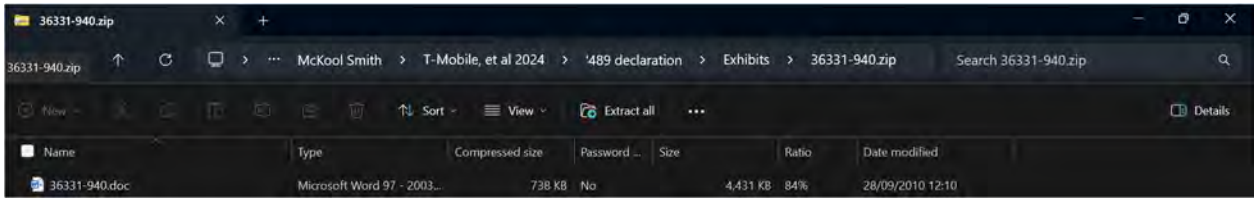
paragraphs 31. The approval of the TS 36.331 v9.4.0 is confirmed by the approval of the Change Requests to TS 36.331 v9.3.0 documented in the meeting report from TSG RAN #49 (**Appendix 24** at annex E, p.88).

70. The 3GPP file server is and always has been open to all and free from restriction such as username or password. By way of example of how an interested member of the public could access the TS 36.331 v9.4.0 technical specification from the 3GPP website, I accessed the file server by going to the 3GPP website at http://www.3gpp.org/, selected "Specifications & Technologies" from the menu bar, and then selected "Specifications by series" from the dropdown menu. I then selected the "36 Series" link to access the public file server where the specifications are stored. I then searched for "36.331" in the specification number search bar, and for the TS 36.331 specification selected the eyeglasses icon that says "See details" when a cursor is placed on it. From there, I selected "Click to see all versions of this specification," which took me to the archive housing all versions of TS 36.331 found at the following URL: https://www.3gpp.org/ftp/Specs/archive/36_series/36.331. A true and correct copy of the relevant portion of the directory listing produced by the file server website is provided below and in **Appendix 25** at 2.

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36331-930.zip	2010/06/17 17:16	711,2 KB
36331-940.zip	2010/09/28 10:10	737,7 KB
36331-950.zip	2010/12/18 0:12	763,9 KB

71. The archive directory index stated that TS 36.331 v9.4.0 was uploaded on "2010/09/28". Selecting the link for "36331-940.zip", I downloaded a zip file of the same name. The zip file contained a Microsoft Word document titled "36331-940.doc" with a date stamp of "28/09/2010" (European date format), the same day that the zip file was uploaded. An excerpt of the zip file directory is provided below.



72. I have confirmed that the document "36331-940.doc" is TS 36.331 v9.4.0. A true and correct copy of the Microsoft Word document titled "36331-940.doc" is the TS 36.331 v9.4.0 that is provided in Ex-1006.

73. Based on my experience, I understand these date stamps to mean that 36331-940.zip was uploaded to 3GPP's publicly available website on September 28, 2009, and that an interested member of the public could have downloaded the zip file, extracted the Word document enclosed, viewed the contents of the Word document, and further disseminated said document without restriction on September

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28, 2010 and thereafter.

E. Ex-1007: 3GPP TS 36.300 v9.5.0 (2010-09): "3rd Generation Partnership Project; Technical Specification Group Radio Access Network; Evolved Universal Terrestrial Radio Access (E-UTRA); Overall description; Stage 2 (Release 9)"

74. 3GPP TS 36.300 v9.5.0 is a Technical Specification titled "3rd Generation Partnership Project; Technical Specification Group Radio Access Network; Evolved Universal Terrestrial Radio Access (E-UTRA); Overall description; Stage 2 (Release 9)". The date on the face of the specification ("2010-09") corresponds to the year (2010) and month (September) that this version of the specification was approved by 3GPP TSG RAN and subsequently made publicly available.

75. 3GPP TS 36.300 v9.5.0 being an approved version of the Release 9 specification of evolved UTRA Radio Resource Control protocol was approved by TSG RAN #49 held September 14 – 17, 2010. An interested member of the public would know that the latest version of an approved specification or report would be available following the plenary meeting responsible for that specification (in this case TSG RAN) in accordance with 3GPP standard practice as described in paragraphs 31. The approval of the TS 36.300 v9.5.0 is confirmed by the approval of the Change Requests to TS 36.300 v9.4.0 documented in the meeting report from TSG RAN #49 (**Appendix 24** at annex E, p.87).

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76. The 3GPP file server is and always has been open to all and free from restriction such as username or password. By way of example of how an interested member of the public could access the TS 36.300 v9.5.0 technical specification from the 3GPP website, I accessed the file server by going to the 3GPP website at http://www.3gpp.org/, selected "Specifications & Technologies" from the menu bar, and then selected "Specifications by series" from the dropdown menu. I then selected the "36 Series" link to access the public file server where the specifications are stored. I then searched for "36.300" in the specification number search bar, and for the TS 36.300 specification selected the eyeglasses icon that says "See details" when a cursor is placed on it. From there, I selected "Click to see all versions of this specification," which took me to the archive housing all versions of TS 36.300 found at the following URL: https://www.3gpp.org/ftp/Specs/archive/36_series/36.300. A true and correct copy of the relevant portion of the directory listing produced by the file server website is provided below and in **Appendix 26** at 1.

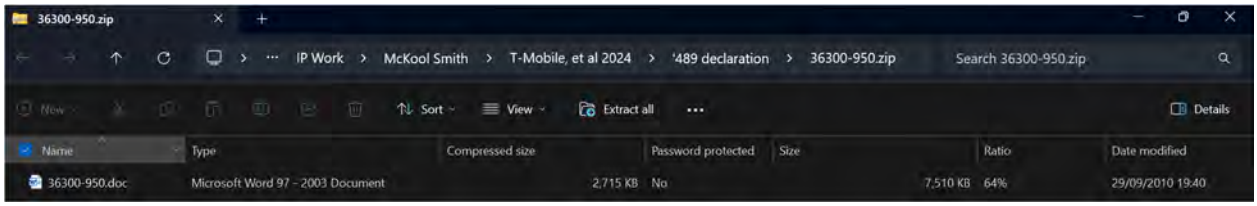


36300-940.zip	2010/06/17 14:50	2702,1 KB
36300-950.zip	2010/09/30 9:48	2714,4 KB
36300-960.zip	2010/12/17 22:57	2714,4 KB

77. The archive directory index stated that TS 36.300 v9.5.0 was uploaded on "2010/09/30". Selecting the link for "36300-950.zip", I downloaded a zip file of

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the same name. The zip file contained a Microsoft Word document titled "36300-950.doc" with a date stamp of "29/09/2010" (European date format), the day before the day that the zip file was uploaded. An excerpt of the zip file directory is provided below.



78. I have confirmed that the document "36300-950.doc" is TS 36.300 v9.5.0. A true and correct copy of the Microsoft Word document titled "36300-950.doc" is the TS 36.300 v9.5.0 that is provided in Ex-1007.

79. Based on my experience, I understand these date stamps to mean that 36300-950.zip was uploaded to 3GPP's publicly available website on September 30, 2010, and that an interested member of the public could have downloaded the zip file, extracted the Word document enclosed, viewed the contents of the Word document, and further disseminated said document without restriction on September 30, 2010 and thereafter.

F. Ex-1009: 3GPP TS 36.331 v10.0.0 (2010-12): "3rd Generation Partnership Project; Technical Specification Group Radio Access Network; Evolved Universal Terrestrial Radio Access (E-UTRA); Radio Resource Control (RRC); Protocol specification (Release 10)"

80. 3GPP TS 36.331 v10.0.0 is a Technical Specification titled "3rd

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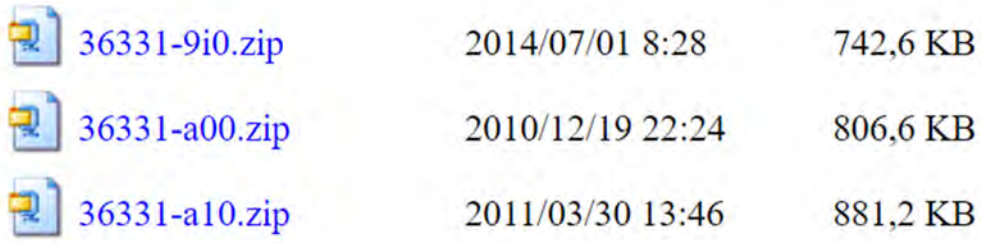
Generation Partnership Project; Technical Specification Group Radio Access Network; Evolved Universal Terrestrial Radio Access (E-UTRA); Radio Resource Control (RRC); Protocol specification (Release 10)". The date on the face of the specification ("2010-12") corresponds to the year (2010) and month (December) that this version of the specification was approved by 3GPP TSG RAN and subsequently made publicly available.

81. 3GPP TS 36.331 v10.0.0 being an approved version of the Release 10 specification of evolved UTRA Radio Resource Control protocol was approved by TSG RAN #50 held December 7 – 12, 2010. An interested member of the public would know that the latest version of an approved specification or report would be available following the plenary meeting responsible for that specification (in this case TSG RAN) in accordance with 3GPP standard practice as described in paragraphs 31. The approval of the TS 36.331 v10.0.0 is confirmed by the approval of the Change Requests to TS 36.331 v9.4.0 documented in the meeting report from TSG RAN #50 (**Appendix 27** at annex E, pp.115, 116).

82. The 3GPP file server is and always has been open to all and free from restriction such as username or password. By way of example of how an interested member of the public could access the TS 36.331 v10.0.0 technical specification from the 3GPP website, I accessed the file server by going to the 3GPP website at http://www.3gpp.org/, selected "Specifications & Technologies" from the menu bar,

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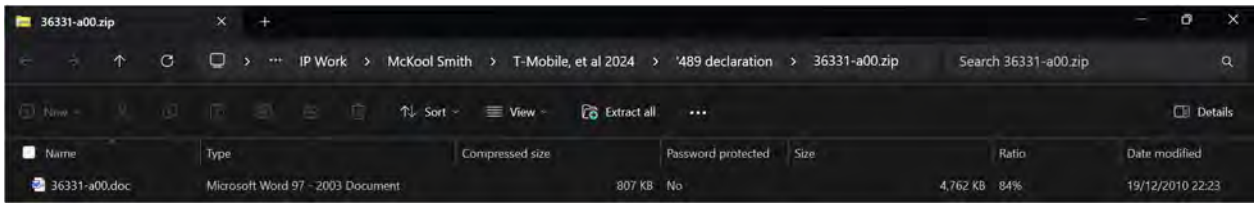
and then selected "Specifications by series" from the dropdown menu. I then selected the "36 Series" link to access the public file server where the specifications are stored. I then searched for "36.331" in the specification number search bar, and for the TS 36.331 specification selected the eyeglasses icon that says "See details" when a cursor is placed on it. From there, I selected "Click to see all versions of this specification," which took me to the archive housing all versions of TS 36.331 found at the following URL: https://www.3gpp.org/ftp/Specs/archive/36_series/36.331. A true and correct copy of the relevant portion of the directory listing produced by the file server website is provided below and in **Appendix 25** at 2.



36331-9i0.zip	2014/07/01 8:28	742,6 KB
36331-a00.zip	2010/12/19 22:24	806,6 KB
36331-a10.zip	2011/03/30 13:46	881,2 KB

83. The archive directory index stated that TS 36.331 v10.0.0 was uploaded on "2010/12/29". Selecting the link for "36331-a00.zip", I downloaded a zip file of the same name. The zip file contained a Microsoft Word document titled "36331-a00.doc" with a date stamp of "29/12/2010" (European date format), the same day that the zip file was uploaded. An excerpt of the zip file directory is provided below.

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84. I have confirmed that the document "36331-a00.doc" is TS 36.331 v10.0.0. A true and correct copy of the Microsoft Word document titled "36331-a00.doc" is the TS 36.331 v10.0.0 that is provided in Ex-1009.

85. Based on my experience, I understand these date stamps to mean that 36331-a00.zip was uploaded to 3GPP's publicly available website on December 19, 2010, and that an interested member of the public could have downloaded the zip file, extracted the Word document enclosed, viewed the contents of the Word document, and further disseminated said document without restriction on December 19, 2010 and thereafter.

V. CONCLUSION

86. Based on the information in section IV, A above, it is my option that Ex-1004, 3GPP R2-105472 titled: "ASN.1 Structure for SCell Configuration" was publicly available to download from the 3GPP server without restriction on October 5, 2010.

87. Based on the information in section IV, B above, it is my option that Ex-1005, 3GPP R2-105685 titled: "Physical layer parameters to be configured by RRC" was publicly available to download from the 3GPP server without restriction

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on October 5, 2010.

88. Based on the information in section IV, C above, it is my option that Ex-1008, 3GPP R2-105971 titled: "Introduction of Carrier Aggregation and UL/ DL MIMO" was publicly available to download from the 3GPP server without restriction on October 28, 2010.

89. Based on the information in section IV, D above, it is my option that Ex-1006, 3GPP TS 36.331 v9.4.0 titled: "3rd Generation Partnership Project; Technical Specification Group Radio Access Network; Evolved Universal Terrestrial Radio Access (E-UTRA); Radio Resource Control (RRC); Protocol specification (Release 9)", was publicly available to download from the 3GPP server without restriction on September 28, 2010.

90. Based on the information in section IV, D above, it is my option that Ex-1007, 3GPP TS 36.300 v9.5.0 titled: "3rd Generation Partnership Project; Technical Specification Group Radio Access Network; Evolved Universal Terrestrial Radio Access (E-UTRA); Overall description; Stage 2 (Release 9)", was publicly available to download from the 3GPP server without restriction on September 30, 2010.

91. Based on the information in section IV, D above, it is my option that Ex-1009, 3GPP TS 36.331 v10.0.0 titled: "3rd Generation Partnership Project; Technical Specification Group Radio Access Network; Evolved Universal

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Terrestrial Radio Access (E-UTRA); Radio Resource Control (RRC); Protocol specification (Release 10)", was publicly available to download from the 3GPP server without restriction on December 19, 2010.

92. I declare under penalty of perjury under the laws of the United States of America that the foregoing is true and correct. I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that wilful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code.

July 24, 2024



Printed Name: Craig Bishop

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APPENDIX 1

Curriculum Vitae

Name: Craig Bishop

Contact Tel No.: +44 (0)7984 564949 (mobile)

Email: craig@bishopcom.co.uk

Current job title: Independent Consulting Engineer, CEO

Address: 43 Ospringe Street, Faversham, Kent, ME13 8TW

Key Skills and Experience

- 35 years Telecoms, Radio and Broadcast experience
- 27 years experience of 2G/3G/4G telecoms standardisation
- Extensive knowledge of 3GPP and ETSI specifications and procedures including document handling and publication practices
- Sound understanding of 3GPP systems, including Radio Access Interfaces and Networks, Access Stratum protocols, Core Networks, Non-Access Stratum protocols, and IMS
- Experience of ETSI role from regulatory perspective (harmonised standards, mandates, spectrum, etc)
- Depositions, reports, and declarations as expert witness in cases on 3GPP technologies and on 3GPP & ETSI practices and procedures.
- Intellectual property analysis including prior art search and evaluation of patent essentiality
- Application of data analytics and machine learning techniques to standards and IP data
- Programming in Java, Python, C, Octave (Matlab)

Career History

Bishop Communications Ltd. 01/13 –

Independent Telecommuncations Standards and Intellectual Property Consultant

Company is a full ETSI member

Activities have included:

- Provision of expert support for IPR litigation from standards landscape analysis / background technical reports to expert testimony reports / declarations and depositions on matters including the public availability of 3GPP and ETSI prior art.
- Intellectual property analysis assessing strengths and weaknesses of patents and patent portfolios, conducting searches for prior art, evaluating patent essentiality, and acquring relevant documentation.
- Provision of expertise for EC funded ETSI Specialist Task Force (STF489) to produce implementation guidelines for Total Conversation for emergency services. Project delivered on time / budget and well received. Ouput published March 2016 as ETSI TR 103 201.
- Provision of expertise for ETSI Specialist Task Force (STF555) assessing the impact on existing standards of communications involving IoT devices in all types of emergency situations. Project delivered on time / budget and well received. Ouput published July 2019 as ETSI TR 103 582.
- Provision of standards consultancy services for Samsung Electronics in ETSI including membership of the ETSI Board until November 2014

Technologies covered in patent related work include: 3GPP GSM, UMTS, LTE, 5G NR radio interface technologies (Phy, MAC, RLC, RRC), 3GPP access and core networks (GPRS/UMTS & EPC NAS), IMS. Organisations covered include 3GPP & ETSI.

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Clients served / represented include: ADT, Apple, AT&T, Blackberry, Cradlepoint, DELL, Ericsson, Honeywell, HTC, Huawei, LG, Lenovo, Motorola, Nokia, Oneplus, Oppo, Samsung, Sierra Wireless, Thales, T-Mobile, Sprint, Verizon, Vodafone, Xiaomi, ZTE.

Working with: Addy Hart LLP, Alston & Bird LLP, Baker Botts LLP, Banner Witcoff LLP, DLA Piper LLP, European Telecommunications Standards Institute (ETSI), Fish & Richardson P.C., Gibson Dunn LLP, Haynes and Boone LLP, Hillebrand-CE GmbH, Kirkland & Ellis LLP, K&L Gates LLP, MckoolSmith LLP, PV Law LLP, Paul Hastings LLP, Perkins Coie LLP, Powell Gilbert LLP, Sidley Austin LLP, Samsung Electronics Research & Development Institute UK (SRUK), Taylor Wessing LLP, Williams & Connolly LLP, WilmerHale LLP.

Expert testimony through deposition:

- *Huawei Technologies Co. Ltd. vs. T-Mobile US, Inc., et al.*, Case Nos. 2:16-cv-0052-JRG-RSP, 2:16-cv-0055-JRG-RSP, 2:16-cv-0056-JRG-RSP, and 2:16-cv-0057-JRG-RSP (E.D. Tex.). On behalf of T-Mobile US Inc.
- *T-Mobile US, Inc., et al.* v. *Huawei Technologies Co. Ltd.*, Case Nos. IPR2017-00696 and IPR2017-00697 (PTAB). On behalf of T-Mobile US Inc.
- *LG Electronics, Inc., v. Koninklijke KPN N.V.*, Case No. IPR2018-00558 (PTAB). On behalf of LG Electronics, Inc.
- *Nokia of America Corp. and Ericsson Inc. v. IPCOM, GMBH & Co.,* Case No. IPR2021-00533 (PTAB). On behalf of Ericsson Inc.
- *IPCom, GmbH & Co., Plaintiff, v. AT&T Inc., et al, Defendant, Nokia of America Corp., Intervenor, Ericsson Inc., Intervenor.,* Civil Action No. 2:20-CV-322-JRG*, and IPCom, GmbH & Co., Plaintiff, v. Verizon Communications, et al., Defendant, Nokia of America Corp., Intervenor, Ericsson* nc*., Intervenor.,* Civil Action No. 2:20-CV-323-JRG. On behalf of Ericsson Inc.
- *Ericsson Inc. v. Koninklijke KPN N.V.,* Case No. IPR2022-00069 (PTAB). On behalf of Ericsson Inc.

Expert testimony in court:

- *Between IPCom GmbH and Vodafone, et al.,* Claim No. HP-2018-000030 Claim No. HP-2018-000031, High Court of Justice, Business & Property Courts of England and Wales, Intellectual Property List (ChD), Patents Court. Retained by Vodafone.
- *Between (1) Mitsubishi Electric Corporation (2) Sisvel International SA and Oneplus Mobiletech UK Limited, Oppo Mobile UK Ltd, Xiaomi Technology UK Limited, et al.,* Claim No. HP-2019-000014, High Court of Justice, Business & Property Courts of England and Wales, Intellectual Property List (ChD), Patents Court. Retained by Oneplus, Oppo, and Xiaomi (trial held remotely due to COVID-19 restrictions)

Samsung Electronics Research Institute (SERI) 12/96 – 01/13

Director Standards and Industry Affairs 03/11 – 01/13

Mission and Tasks as for previous role plus:

- Proactive member of ETSI Board following election as Board member in November 2011
- Worked with Samsung internal and external legal counsel in response to EC investigation into Samsung suspected abuse of Standards Essential Patents.
- Deposed by Apple as fact witness in ITC investigation 337-TA-794.

Head of Advanced Technologies Standards & Regulation 09/05 - 03/11

Mission: To help position Samsung and SERI at the forefront of mobile telecommunication developments through participation in and leadership of mobile communications standards and European regulatory affairs

Key tasks:

- Developed standards and research strategy and coordinated activites with head office, acting as official Samsung contact for the European Telecommunications Standars Institute.
- Programme managed standardisation and regulation projects covering 3GPP (RAN2, CT1, SA2, SA1, SA, RAN, CT), OMA, and mobile Broadcast strategies and technologies (DVB Forum), European Framework projects (FP7), Spectrum Management (CEPT, ETSI EM, TFES, BRAN, …) and European Regulatory affairs (Digital Europe, relations with European Commission, …). - Grew department from 3 to 12 persons to cater for these activities.
- Participated and actively contributed to 3GPP SA1 (11/08 – 11/11), SA2 (10/05 – 08/11) , SA and ETSI TC SCP groups on issues including IMS / CS Interworking (VCC / SRVCC, VoLTE, T-ADS, ICS), Local IP Access & Selected IP Traffic Offload (LIPA-SIPTO), MOSAP, M2M/MTC, Embedded / 4FF UICC.
- Drafted and filed communication technology related patents related to 3GPP SA2 and CT1 technologies – 18 filed, mainly IMS and 3GPP NAS related
- Supported Samsung IP team with analysis of Samsung and 3rd party communication technology related patents and claim charts including GSM/GPRS, UTRAN, NAS, and IMS patents
- Chaired SERI Patent Committee from 2007-2009 - SERI achieved patent targets for first time in 2007 and did so in every year following

Standards consultant – part time 09/04 – 09/05

(Whilst studying fulltime for MSC)

During this time, I conducted a review of the wireless communication technolgies and the associated standards space, with a particular emphasis on 802.16a, as well as 3G and 802.11 evolutions. I was also involved in analysis of 3rd party patents and claim charts on request from Samsung IP team.

Technology Manager System Engineering group 06/03 – 09/04

Mission: To establish a System Engineering group within SERI to support development of SERI's dual mode GSM/UMTS radio modem platform.

Key Tasks:

- Defined and implemented System Engineering group strategy including recruitment and line management of the group which grew from 3 to 10 engineers during this period.
- Developed detailed system requirements for SERI's dual mode 2G/3G radio modem platform(s) including production of background documentation describing system wide behaviour
- Defined system test programme for platform, including example test cases using off the shelf test equipment. This project outsourced (under my supervision) to a third party company for completion.
- Provided continued support to development engineers in terms of understanding specification and system requirements, particularly with respect to Access Stratum and Non Access Stratum specifications and protocols.
- Instigated and managed studies investigating optimised system architecture for future Samsung mobile platforms.
- Analysed Samsung and 3rd party 3GPP technology related patents and claim charts on request by Samsung IP team and reported on their value and standards essentiality.

Technology Manager Standards & System Group 04/02 – 06/03

Mission: To provide Standards support to SERI development teams and Samsung's global standardisation activities.

Key Tasks:

- Devised and implemented revised strategy to improve the focus of activities and provide improved support for software developers from a system perspective.

- Attended 3GPP TSG SA plenary and occasional SA WG1 meetings - acted as rapporteur for 3GPP Evolution technical report 3GPP TR 21.902.
- Analysed 3rd party GSM/GPRS technology related patents and claim charts on request by Samsung IP team and reported on their value and standards essentiality.
- Line managed 3 engineers, ensuring that the group provided expert support for SERI SW and HW developers in terms of standards interpretation and system requirements, particularly with respect to the Radio Access Network.

Project Manager 04/00 – 04/02

Mission: To establish and manage development of a dual mode GSM/UMTS modem platform.

Key tasks:

- Defined and managed work relating to core technology development for Samsung's 3G handsets.
- Determined major technical architecture and parameters for the platform producing high level system requirements specification and project development plan.
- As a technical authority on UMTS, supported the project in terms of requirements specification and interpretation (L1, MAC/RLC, RRC, and NAS specifications), and contributed towards the training of UMTS project team members.
- Acting in a consultative capacity, interfaced with other departments in Samsung and with external customers/suppliers on issues relating to 2G and 3G technologies
- Responsible for the overall planning, work allocation and co-ordination of engineers for the project, as well as being involved in recruitment – during this period the number of engineers working on the project increased from 10 to over 40.
- Instigated, defined and managed a feasibility study involving HW and SW engineers, as essential preparation for the development of a dual mode GSM/UMTS radio modem platform.

Senior/Principal Standards Engineer 12/96 – 04/00

Mission: To support Samsung standards and development activities in ETSI and 3GPP.

Key Tasks:

- Gathered and disseminated information throughout Samsung concerning latest specifications and trends in telecommunications, providing advice to Senior Management on future strategies for telecommunications development.
- Acted as sole Samsung representative in ETSI TC SMG2 from December 1996 and during the selection phase for the UMTS Radio Acces Technology providing training for Samsung engineers on elaborated technologies
- Participated in 3GPP TSG RAN WG1 (UTRA Physical Layer), and RAN WG2 (L2/3) contributing specifically in areas related to FEC, Common Packet Channel, and Transmit Diversity
- In 3GPP TSG T WG2 I initiated and acted as rapporteur for the UE capabilities work item. I also acted as liaison officer between TSG T WG2, TSG RAN WG1 and TSG SA WG1 (Service Aspects) on issues of common interest
- Acted as main spokesperson for and advisor on Samsung strategic activities in, 3GPP TSG RAN from 3GPP's creation until April 2000
- Acted in a consultative capacity advising the company on technical, commercial and regulatory issues relating to 3rd generation telecommunications development and implementation.
- Developed and promoted programme to co-ordinate standards activities throughout Samsung. – Samsung Global Standards Strategy Group established in September 1998.
- Attended ETSI TCs, SMG1, SMG4, SMG5, SMG7, SMG9 and SMG11 as required by Samsung to keep abreast of developments prior to establishment of 3GPP

Radiocommunications Agency 06/93 -11/96

HPTO Spectrum Engineer

- Responsible for the management of spectrum for use by PMR and Wireless LAN technologies.
- Defined and instigated development of an improved assignment methodology for Private Mobile Radio (PMR) channels, promoting increased quality and spectrum efficiency.
- Managed research projects involving the assessment and selection of bids from external companies, submitted under competitive tender.
- Represented the Agency in the National and International fora associated with the use of Land Mobile Radio, acting as rapporteur for PMR voice and data standards in ETSI Sub-Technical-Committee RES02, and as chairman of a sub-working group under ITU WP8A drafting the recommendation for use of the radio spectrum by Radio LANs.
- Involved in CEPT Spectrum Engineering Project Teams, dealing with spectrum for Narrow band PMR technology and co-ordination between that technology and T-DAB transmissions in Band III.
- Dispensed technical advice both within the Agency and to external customers, on national and international PMR standards, assessing requests for additional frequencies, and providing technical justification for assignments and wider spectrum policy

BBC Radio 11/89 – 05/93

Radio Operations Engineer

- Worked on projects requiring the design, development, maintenance and testing of equipment for use within the broadcasting chain.
- Responsible for acceptance testing of new studios for Radio 5, and in particular redesign of outside source circuits for the main sports continuity studio.
- Involved in acceptance testing for NICAM transmission routers. Designed and implemented modifications to synchronise transmission feeds, resulting in seamless switching between routers.

Education

1. MSC in Computer Science from the University of Kent

   Awarded (with distinction): 07/2006

   Dissertation title: Roles Variables and Program Analysis – Received prize for outstanding achievement

2. B.Eng. (Hons) in Electronic Engineering from the Polytechnic of Central London

   Awarded: 07/1989

3. In house and external technical and management training including: Learning Tree courses on System Analysis and Design, User Requirements, UML, and Project Management.
4. On-line courses from: Cousera, Udemy, and Zenva courses covering Machine Learning, Python, Data Science, and Natural Language Processing

APPENDIX 2

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THIRD GENERATION PARTNERSHIP PROJECT (3GPP)

PARTNERSHIP PROJECT DESCRIPTION

During the meeting held in Copenhagen, 2 - 4 December 1998 ARIB, ETSI, T1, TTA and TTC agreed this Partnership Project Description.

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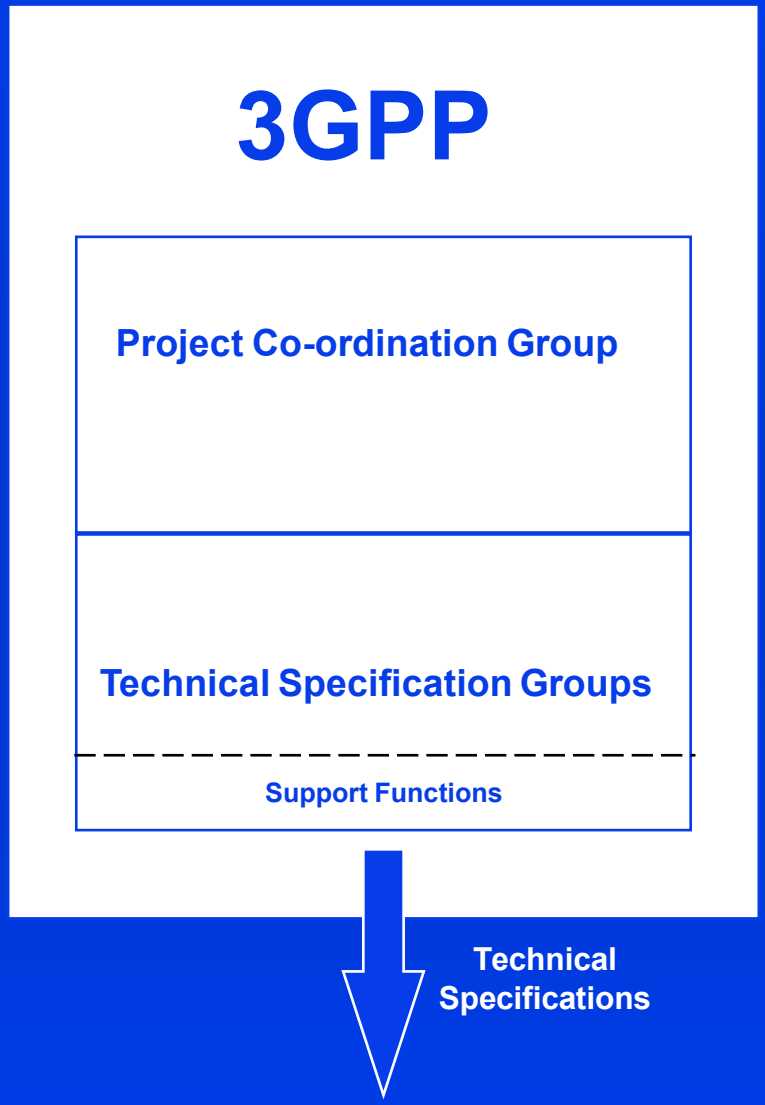
Preamble

Standards organizations and other related bodies have agreed to co-operate for the production of a complete set of globally applicable Technical Specifications for a 3rd Generation Mobile System based on the evolved GSM core networks and the radio access technologies supported by 3GPP partners (i.e., UTRA both FDD and TDD modes).

The Project is entitled the "Third Generation Partnership Project" and may be known by the acronym "3GPP".

3GPP has been established for the preparation and maintenance of the above mentioned Technical Specifications, and is not a legal entity.

3GPP Overview



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Definition of the Third Generation Partnership Project

3GPP will provide globally applicable Technical Specifications for a 3rd Generation Mobile System based on the evolved GSM core network, and the Universal Terrestrial Radio Access (UTRA), to be transposed by relevant standardization bodies (Organizational Partners) into appropriate deliverables (e.g., standards).

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Scope and objectives (1)

The Technical Specifications will be developed in view of global roaming and circulation of terminals.

The 3rd Generation Mobile System and its capabilities will be developed in a phased approach. Initially, 3GPP will elaborate, approve and maintain the necessary set of Technical Specifications for the first phase of a 3rd Generation Mobile System including:

- **UTRAN (including UTRA; W-CDMA in Frequency Division Duplex (FDD) mode and TD-CDMA in Time Division Duplex (TDD) mode)**
- **3GPP Core Network (Third Generation networking capabilities evolved from GSM . These capabilities include mobility management and global roaming.)**
- **Terminals for access to the above (including specifications for a UIM)**
- **System and service aspects**

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Scope and objectives (2)

The set of global specifications for the first phase of the 3GPP core network and the specifications for the GSM core network should be common to the largest extent possible and should not be needlessly different.

The results of the 3GPP work will form the basis of member contributions to the ITU in accordance with existing procedures.

3GPP will take account of emerging ITU recommendations on interworking between IMT-2000 family members.

In the framework of agreed relationships, 3GPP will elaborate Technical Specifications that will form the basis of standards, or parts of standards, of the Organizational Partners.

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Characteristics of 3GPP (1)

3GPP is characterized by the following attributes:

- **Minimum production time for Technical Specifications from conception to approval**
- **Fast, electronic based approval process**
- **Maximum use of modern (electronic) working methods**
- **Minimum number of hierarchical levels with decision making taking place at the lowest appropriate levels**

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Characteristics of 3GPP (2)

- **A Project Co-ordination function and a Technical Specification function**
- **Task oriented, ensuring that on completion of the tasks the future of the project is re-evaluated**
- **Cost effective use of financial/human resources provided by Partner Organizations (if required)**

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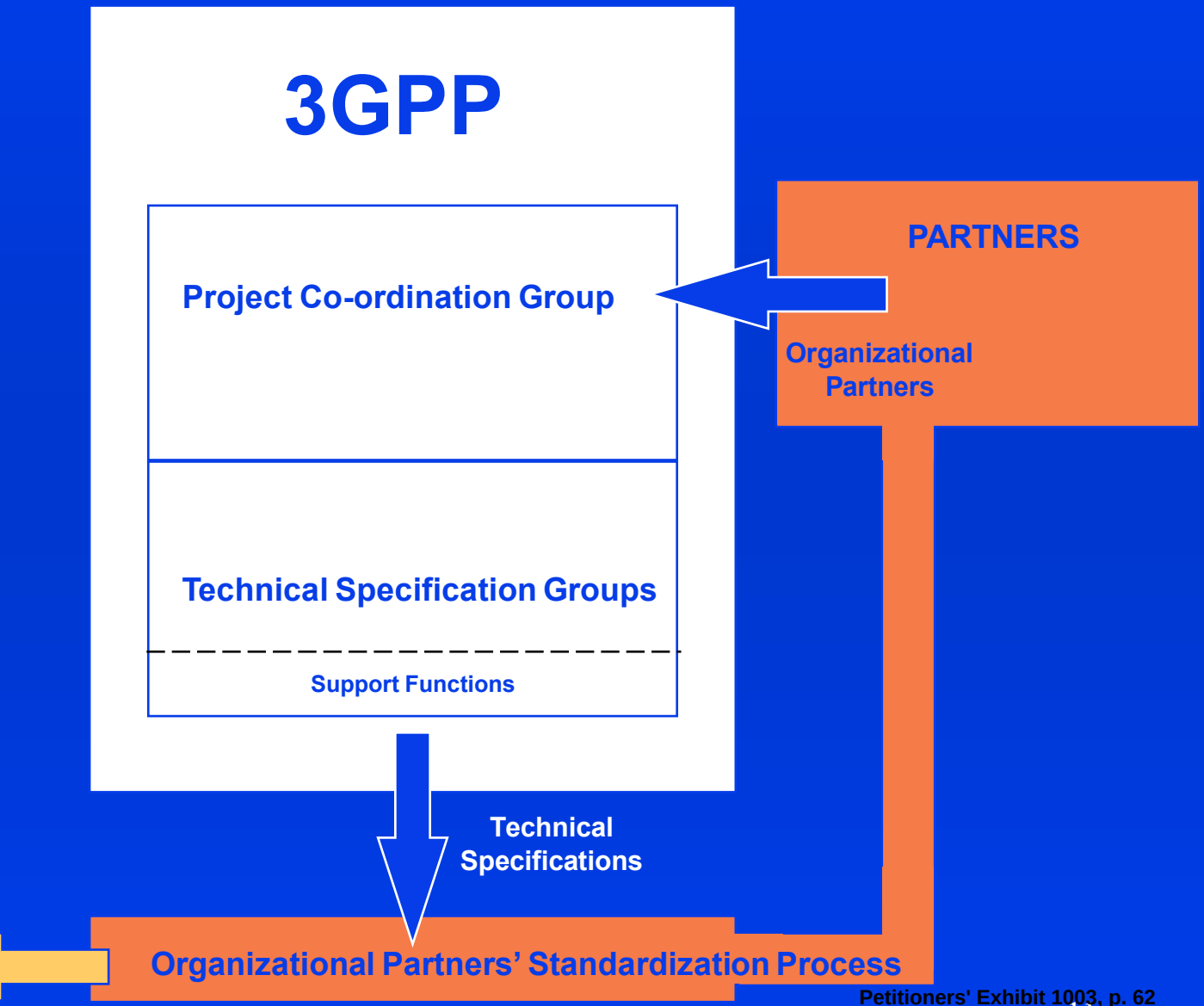
Partnership and Membership

3GPP comprises of:

- **Partners:**
  - **Organizational Partners**
    - **3GPP is open to all standards organizations irrespective of the geographical location.**
  - **Market Representation Partners**
- **Individual Members**

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Organizational Partners (1)



Organizational Partners (2)

An Organizational Partner is:

An open standards organization with a national, regional or other officially recognized status (in their country or region)

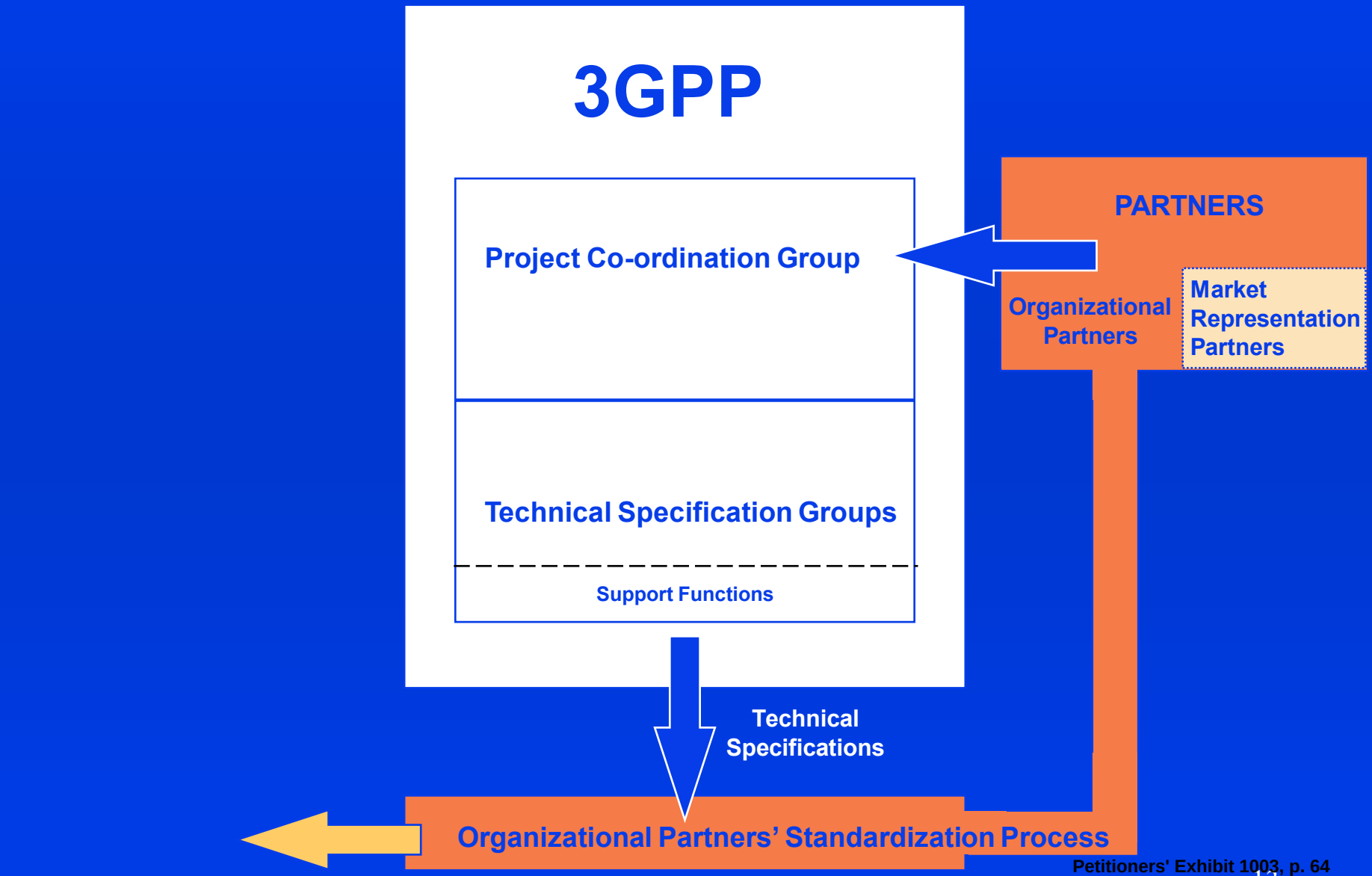
that:

- **has the capability and authority to define, publish and set standards nationally or regionally and**
- **has signed (or whose sponsor has signed) the Partnership Project Agreement**

Organizational Partners will meet as approriate and make decisions by consensus.

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Market Representation Partners (1)



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Market Representation Partners (2)

Standardization should meet market needs.

In order to identify market requirements, the high competence of Market Representation Partners should be used.

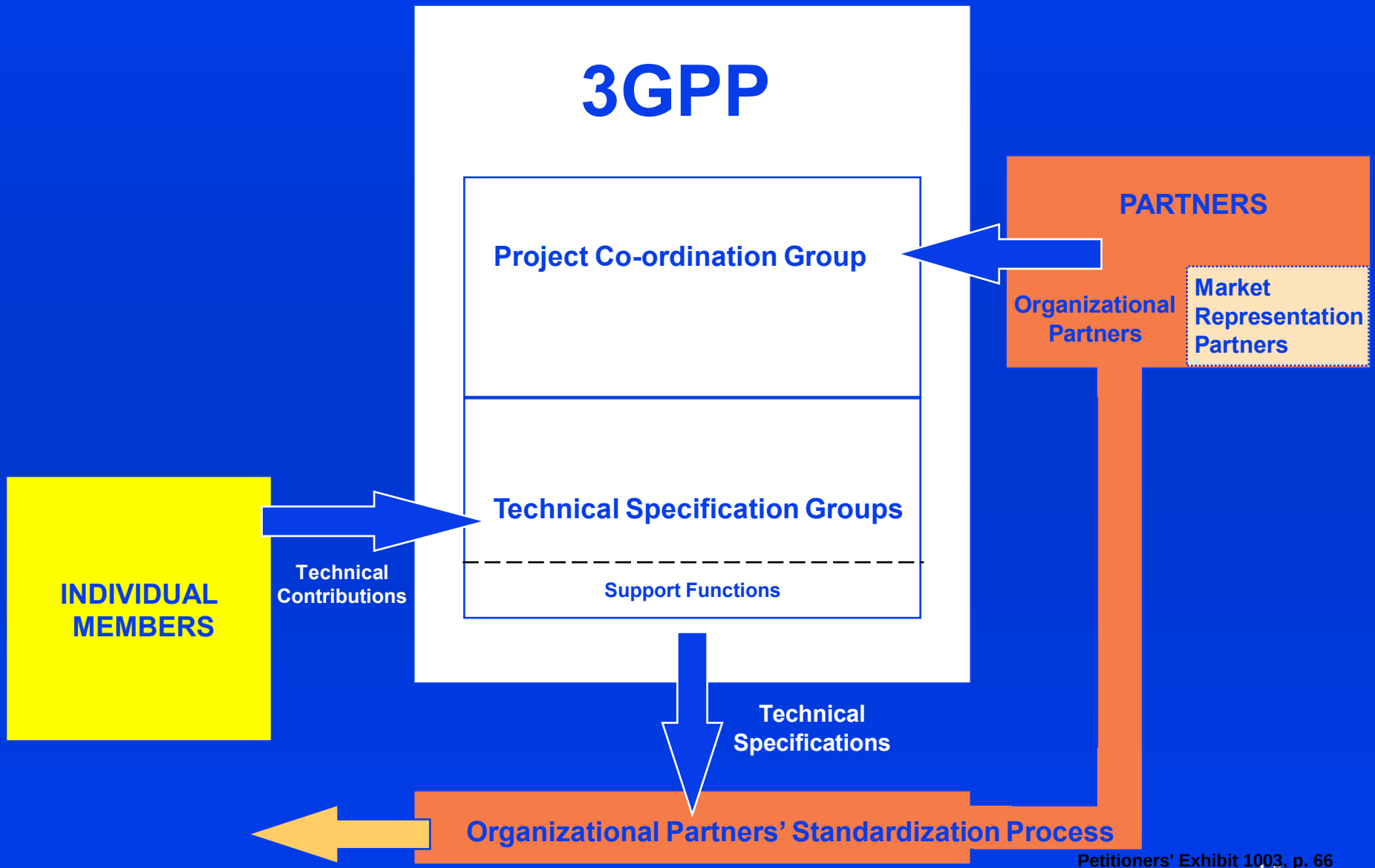
A Market Representation Partner is an organization invited to participate by the Organizational Partners to offer market advice to 3GPP and to bring into 3GPP a consensus view of market requirements (e.g. services, features and functionality) falling within the 3GPP scope.

A Market Representation Partner:

- **does not have the capability and authority to define, publish and set standards nationally or regionally**
- **has signed (or whose sponsor has signed) the Partnership Project Agreement**
- **has committed itself to the 3GPP scope**

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Individual Members (1)



Individual Members (2)

Membership in an Organizational Partner is a pre-requisite for Individual Membership in 3GPP.

Individual Membership is open to legal entities committed to support 3GPP and to:

- **contribute technically or otherwise to one or more of the Technical Specification Groups within the 3GPP scope**
- **use the 3GPP results to the extent feasible**

Individual Membership in 3GPP will be terminated by dissolution, abolition, resignation or expulsion from the related Organizational Partner.

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Individual Members (3)

All entities registered as members of an Organizational Partner and eligible for participation in the technical work of that Partner, can become Individual Members of 3GPP. Individual members shall apply to their Organizational Partner to participate in 3GPP.

Individual Members act in the 3GPP in their own right; they carry the full responsibility for their contributions.

Individual Membership applicants residing in a country/area without an Organizational Partner can apply for membership in an Organizational Partner according to the rules of each Partner. (e.g. ETSI Associate Membership is available)

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Observership

In order to ensure globally applicable Technical Specifications, the status of "Observer" may be granted by the Organizational Partners to an entity which has the qualifications to become a future Organizational Partner. The status of "Observer" includes obligations to:

- **identify as early as possible any regulatory requirements that may lead to options within Technical Specifications**
- **make their IPR policy available for consideration**
- **contribute to the common objective of the 3GPP and avoid duplication of work related to the 3GPP**

The participation rights of an Observer will be decided on a case by case basis.

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The following 3 documents describe 3GPP:

- **The Partnership Project Agreement**
- **The Partnership Project Description (this present document)**
- **The Partnership Project Working Procedures**

The Partnership Project Agreement (1)

The Partnership Project Agreement is a concise legal document signed by participating Partners (or their sponsor).

It contains the minimum legal text necessary for 3GPP to function correctly.

The Partnership Project Agreement refers to the Partnership Project Description and the Partnership Project Working Procedures.

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The Partnership Project Agreement (2)

The Partnership Project Agreement includes obligations on Organizational Partners to commit themselves to the 3GPP scope:

- **to encourage their members to contribute to the common set of Technical Specifications and to avoid duplication of work**
- **to convert / transpose / adopt all relevant Technical Specifications resulting from 3GPP into their own relevant deliverables through their normal processes**
- **to identify as early as possible, any national / regional regulatory requirements that may lead to options within the Technical Specifications**
- **to make their IPR Policy available for consideration**

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The Partnership Project Agreement (3)

The Partnership Project Agreement includes obligations on Market Representation Partners to identify market and service requirement of 3GPP and to contribute to:

- **the promotion of 3GPP**
- **the definition of 3GPP System and Service scenarios**

The Market Representation Partners should also encourage their members to contribute to the common objectives of 3GPP and to avoid duplication of work.

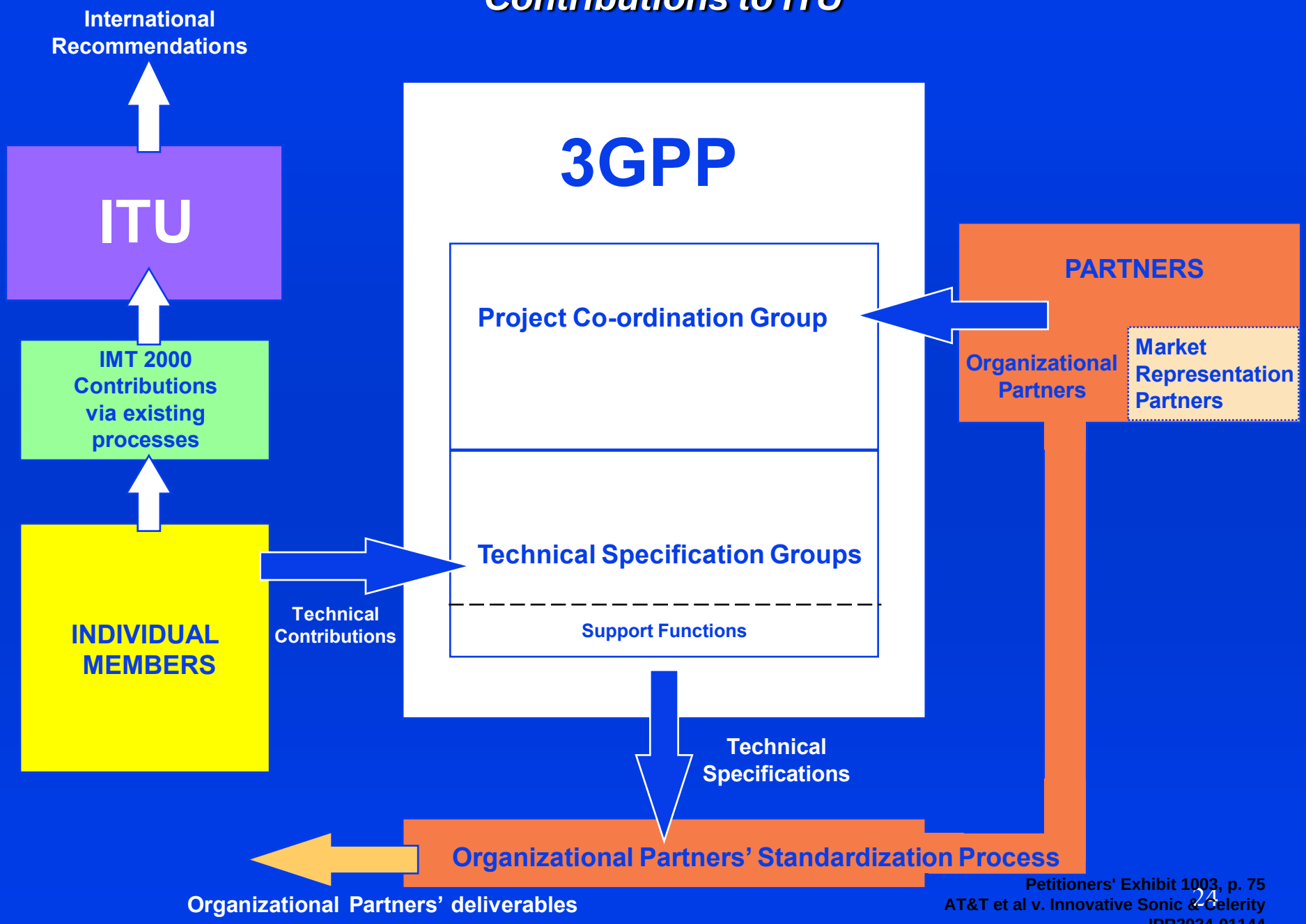
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Ownership of the Partnership Project results

The Organizational Partners of 3GPP will have joint ownership (including copyright) of the Technical Specifications.

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Contributions to ITU



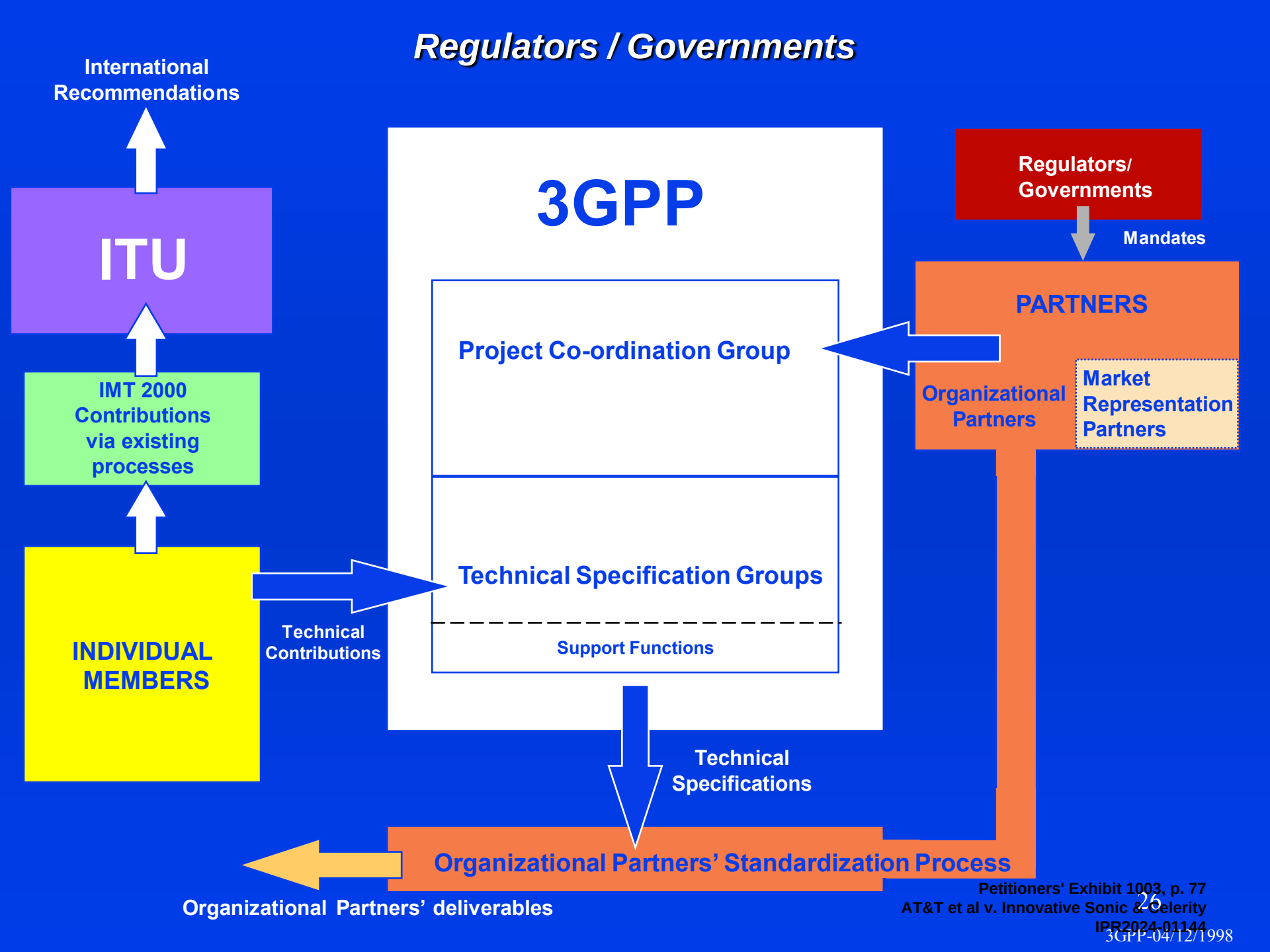
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Submission of 3GPP results to ITU

3GPP will not contribute directly to the ITU.

Formal contributions to ITU Study Groups are made by ITU members following existing national/regional processes.

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Regulators / Governments
International Recommendations
ITU
IMT 2000 Contributions via existing processes
INDIVIDUAL MEMBERS
3GPP
Project Co-ordination Group
Technical Specification Groups
Support Functions
Technical Contributions
Technical Specifications
Organizational Partners' Standardization Process
Organizational Partners' deliverables
Regulators/ Governments
Mandates
PARTNERS
Organizational Partners
Market Representation Partners

National / regional regulatory requirements

Variations imposed by national / regional regulatory requirements will be included in the Technical Specifications as defined by the Technical Specification Groups.

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Resource requirements for establishing 3GPP

ETSI will absorb the initial cost of establishing the 3GPP, if required.

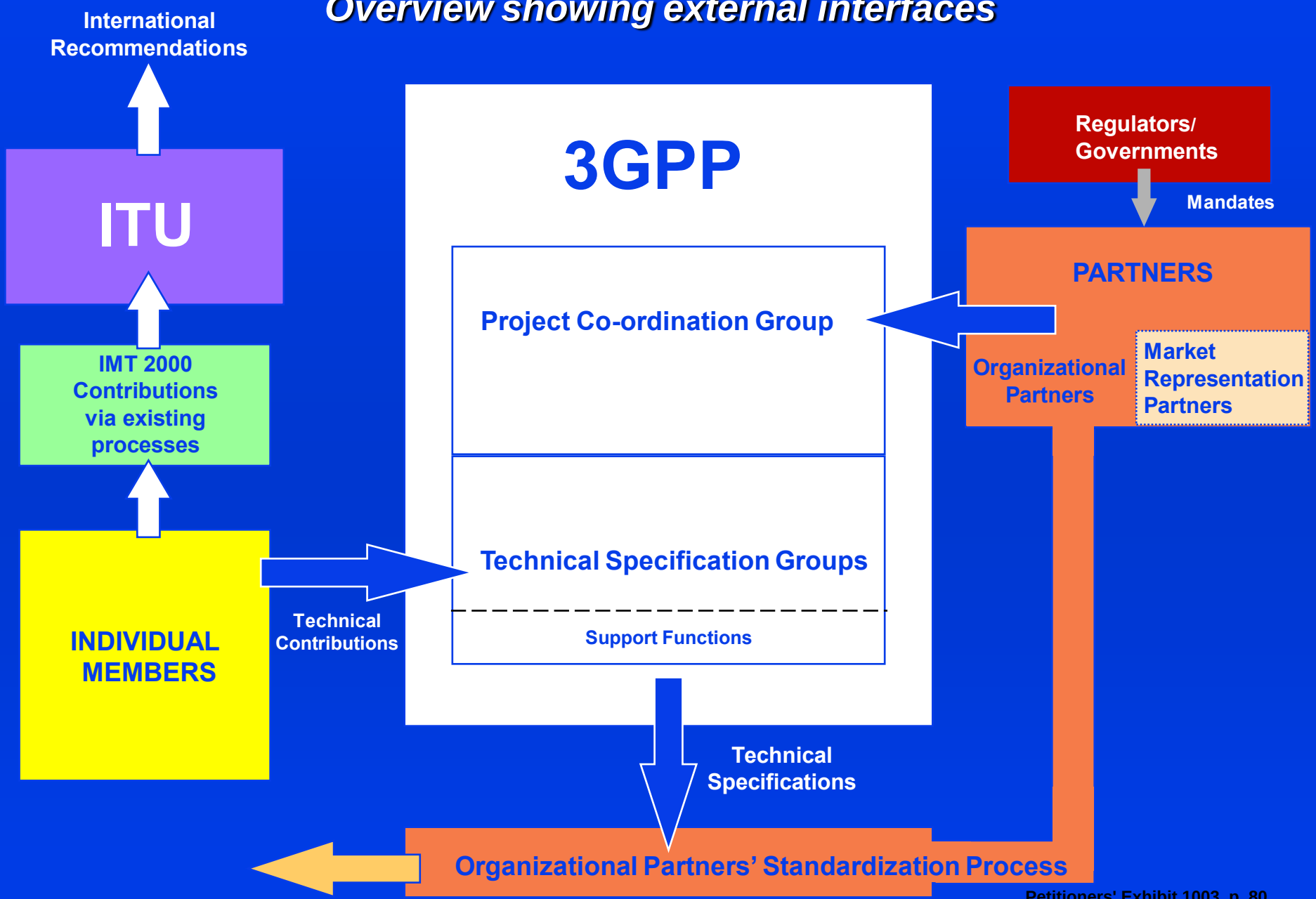
Thereafter, the costs will be shared by the Organizational Partners. There will be no direct 3GPP membership fee for Individual Members.

Partners and Individual Members may provide support functions to the extent that they are able (eg hosting of meetings and provision of Secretariat support).

The longer term financial requirements are for further study.

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Overview showing external interfaces



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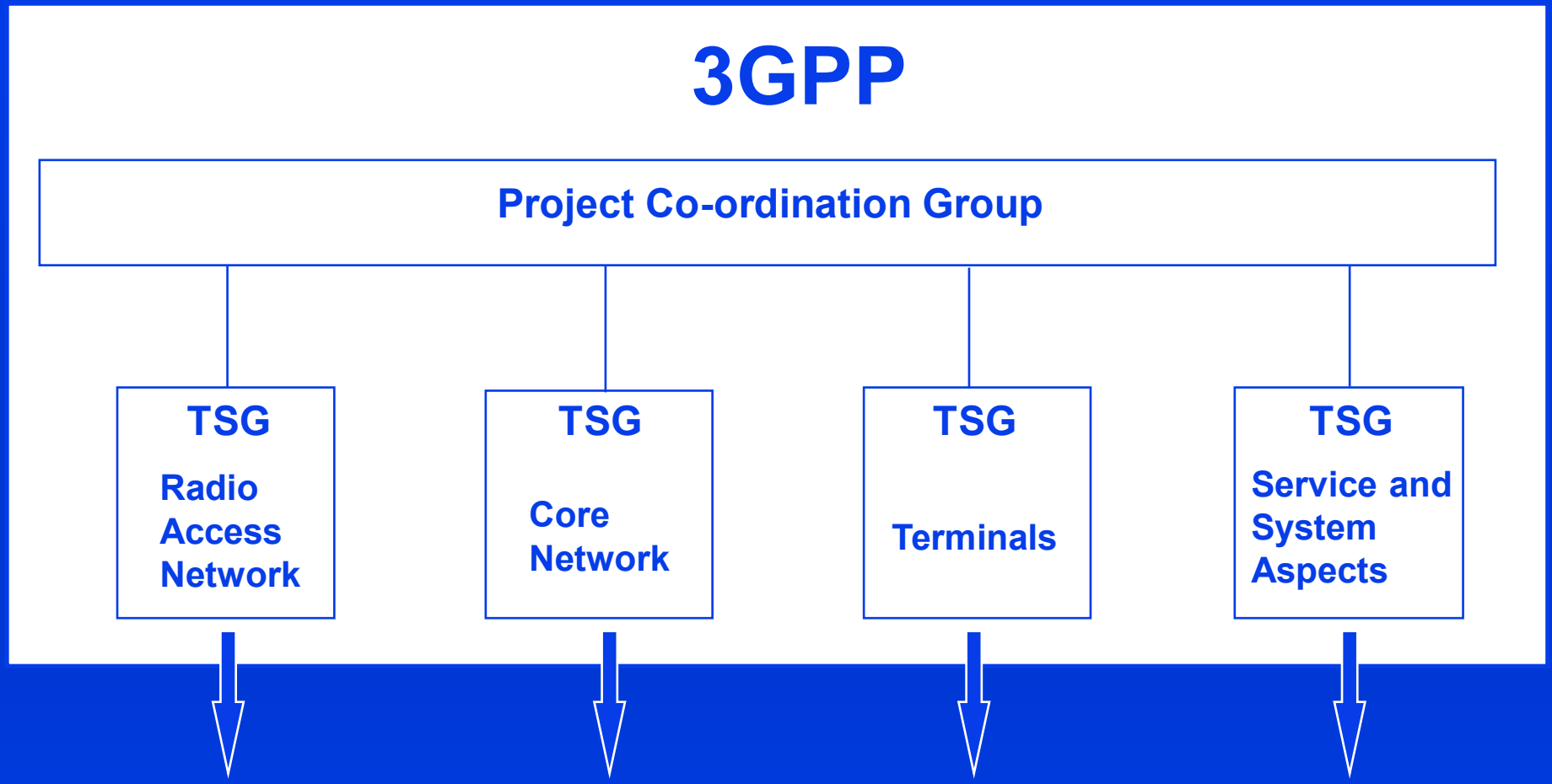
Internal structure of 3GPP (1)

3GPP consists of a Project Co-ordination Group (PCG) and Technical Specification Groups (TSGs).

To assist in the co-ordination of the technical activities, the TSGs are encouraged to meet at the same time and place, as and when appropriate (e.g. twice per year).

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Internal structure of 3GPP (2)



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Work areas to be covered by the Radio Access Network TSG

- Radio Layer 1 specification
- Radio Layer 2 specification
- Radio Layer 3 RR specification
- Iub specification
- Iur Interface
- Iu Interface
- UTRAN O&M requirements
- Base station radio performance specification
- Conformance test specification for testing of radio aspects of base stations
- Specifications for radio performance aspects from the system point of view

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Work areas to be covered by the Core Network TSG

- **Mobility management, call connection control signalling between the user equipment and the core network**
- **Core network signalling between the core network nodes. the signalling supports functionality such as user location information, subscription information and control of network services**
- **Definition of interworking functions between the core network and external networks**
- **Packet related questions such as mapping of QoS (e.g. transparency for IP domain applications, general for bearer types, special for optimized applications such as Voice over IP)**
- **Core network aspects of the Iu interface**
- **Core network O&M requiremnents**

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Work areas to be covered by the Terminal TSG

- **Service capability protocols**
- **Messaging**
- **Services end-to-end interworking**
- **USIM to Mobile Terminal interface**
- **Model/framework for terminal interfaces and services (application) execution**
- **Conformance test specifications of terminals, including radio aspects**

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Work areas to be covered by the Service and System Aspects TSG

- **Service capabilities**
  - **Definition of services and feature requirements**
  - **Development of service capabilities and a service architecture for cellular, fixed (and cordless) applications**

- **Stage one and two descriptions for:**
  - **Charging and accounting**
  - **Network Management**
  - **Security Aspects**

- **Architecture**
  - **Definition, evolution, and maintenance of overall architecture, including assignment of functions to particular sub-systems and identification of key information flows**
  - **In co-operation with other TSGs, define required services, service capabilities and bearer capabilities offered by the different sub-systems**

- **Codec aspects**
  - **Principles for definition of end-to-end transmission**
  - **Definition, evolution and maintenance of relevant specifications**

- **Project co-ordination**
  - **High level co-ordination of the work performed in other TSGs and monitoring of progress**

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Primary responsibilities of PCG and TSGs (1)

The primary responsibilities of PCG, TSGs and Organizational Partners are given in the following tables:

	Function	Org Partners collectively	PCG	TSGs
1	Approval of new Partners for 3GPP	X		
2	Approval of Organizational Partner funding requirements and contributions	X		
3	Allocation of human and financial resources provided by Partners to PCG	X		
4	Allocation of resources to TSGs		X	
5	Allocation of resources within TSGs			X

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Primary responsibilities of PCG and TSGs (2)

	Function	Org Partners collectively	PCG	TSGs
6	Allocation of voluntary human and financial resources by Market Representation Partners and Individual Members		X	X
7	Handling of appeals from Individual Members on procedural matters	2nd step	1st step	
8	Handling of appeals from Individual Members on technical matters		2nd step	1st step
9	Determine overall time frame and manage overall work progress		X	

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Primary responsibilities of PCG and TSGs (3)

	Function	Org Partner collectively	PCG	TSGs
10	Detailed time frame and manage detailed work progress			X
11	Approval of Technical Specifications			X
12	Proposal and approval of work items within the agreed scope and terms of reference			X
13	Final adoption of work items within the agreed scope and terms of reference		X	
14	Management of work items			X

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Primary responsibilities of PCG and TSGs (4)

	Function	Org Partners collectively	PCG	TSGs
15	Technical Co-ordination (System Aspects TSG will play a role here)			X
16	Appointment of Org Partners meeting Chairman (provided by host on a rotational basis)	X		
17	Appointment of PCG Chairman (for one year term)		X	
18	Election of TSG Chairman and Vice Chairmen			X
19	Creation of TSGs and approval of their terms of reference	X		

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Primary responsibilities of PCG and TSGs (5)

	Function	Org Partners collectively	PCG	TSGs
20	Creation of TSG working groups and approval of their terms of reference			X
21	Election of TSG Working Group Chairmen and Vice Chairmen			X
22	Confirmation of individual member participation rights	X		
23	Approval of 3GPP scope and terms of reference	X		
24	Maintain Partnership Project Agreement, Project Description and Working Procedures (consensus agreement by all Partners)	X		

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Participation rights in PCG and TSGs

The following have a right to participate in the PCG:

- **Representatives of participating Organizational Partners**
- **Representatives of participating Market Representation Partners**
- **Chairman and Vice Chairmen of the TSGs, as ex-officio members**

The following have a right to participate in the TSGs :

- **Representatives of members of participating Organizational Partners (i.e. Individual Members)**
- **Representatives of participating Organizational and Market Representation Partners**

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Principles for decision making within 3GPP

Decision making within PCGs

- **By consensus amongst the Organizational Partners**
- **By vote amongst the Organizational Partners in unavoidable cases**

Decision making within TSGs

- **By consensus amongst the Individual Members**
- **By vote amongst the Individual Members in unavoidable cases**

The Organizational Partners will conduct a fairness review of the decision making process six months after 3GPP start-up, taking into account all concerns raised

(Note: voting will not be permitted on National/Regional regulatory requirements)

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Principles for voting within TSGs

The following principles will be applied for voting within the TSGs

- **One "Individual company Member", one vote**
- **Organizational Partners to interpret " Individual company Member" according to its own rules of membership**
- **The PCG will maintain a register of eligible voters for the TSGs**
- **Each Individual Member may carry the proxy for up to five other Individual Members**

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Working language for 3GPP

The working language for 3GPP shall be English

- **Meetings of the PCG and TSGs shall be conducted in English**
- **3GPP Technical Specifications shall be prepared in English**

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Relationship with other groups

3GPP will establish and maintain good relationships with groups working on standards for other IMT-2000 family members.

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Intellectual Property Rights (IPR) Principles (1)

The Individual Members of 3GPP are bound by the IPR Policies of their respective Organizational Partner.

Individual Members are encouraged to declare at the earliest opportunity, any IPRs which they may have and believe to be essential, or potentially essential, to any work ongoing within 3GPP.

After comparing their respective IPR policies, ARIB, ETSI, T1, TTA and TTC have agreed that their IPR policies share common principles are quite similar and have agreed on the following additional principles to maximize the success of 3GPP.

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Intellectual Property Rights (IPR) Principles (2)

(i) **To encourage their respective members' declaration of willingness to grant licences on fair, reasonable terms and conditions on a non-discriminatory basis, and consistent with the respective Organizational Partners' IPR policies.**

(ii) **To encourage their respective members who may have IPR which they believe to be essential, or potentially essential, and are unwilling to license such IPR, that early indication of such unwillingness be provided to their respective Organizational Partners.**

(iii) **To understand that essential IPRs mean essential IPRs relative to any or all parts of the content of the 3GPP technical specifications.**

(iv) **A mechanism for exchanging information associated with the patent statement among the Organizational Partners will be introduced so that such information may be used when adopting relevant standards in each Partner Organization.**

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APPENDIX 3

Introducing 3GPP



The 3rd Generation Partnership Project (3GPP) unites seven telecommunications standard development organizations (ARIB, ATIS, CCSA, ETSI, TSDSI, TTA, TTC), known as “Organizational Partners” providing their members with a stable environment to produce the Reports and Specifications that define 3GPP technologies.

3GPP specifications cover cellular telecommunications technologies, including radio access, core network and service capabilities, which provide a complete system description for mobile telecommunications. The 3GPP specifications also provide hooks for non-radio access to the core network, and for interworking with non-3GPP networks

The Project’s Scope

The original scope of 3GPP (1998) was to produce Technical Specifications and Technical Reports for a 3G Mobile System based on evolved GSM core networks and the radio access technologies that they support (i.e., Universal Terrestrial Radio Access (UTRA) both Frequency Division Duplex (FDD) and Time Division Duplex (TDD) modes).

The scope was subsequently amended to include the maintenance and development of the Technical Specifications and Technical Reports for evolved 3GPP technologies, beyond 3G.

- The latest 3rd Generation Partnership Project Agreement (Annex 42).
- The discussions that led to the signing of the 3GPP Project Agreement were recorded in a series of slides called the “Partnership Project Description” that describes the basic principles and ideas on which the project is based. The document has not been maintained since its first creation, but the principles within do still remain valid.

Organizing the work

The 3GPP Working Procedures are the rule book of 3GPP, with sections covering:

- Description, Purpose, Scope and objectives
- Participation
- Structure
- Partners' collective responsibilities
- Project Coordination Group (PCG)
- Technical Specification Groups (Incl. Elections)
- Work Programme & technical co-ordination
- Deliverables (Technical Specifications and Technical Reports)
- Reporting

The 3GPP production of specifications and studies (TRs) are contribution-driven, by member companies, in Working Groups and at the Technical Specification Group (TSG) level. The Technical Specification Groups in 3GPP are:

- Radio Access Networks (RAN)
- Services & Systems Aspects (SA)
- Core Network & Terminals (CT)

The Working Groups, within the TSGs, meet regularly and come together for their quarterly TSG Plenary meeting, where their work is presented for information, discussion and approval. The last meeting of the week of TSG Plenary meetings is TSG SA, which also has responsibility for the overall coordination of the technical work and for the monitoring of its progress.

Generational Approach

The 3GPP technologies from these groups are constantly evolving through Generations of commercial cellular / mobile systems (see table below). With LTE and 5G work, 3GPP has become the focal point for the vast majority of mobile systems beyond 3G.

Although these Generations have become an adequate descriptor for the type of network under discussion, real progress on 3GPP standards is measured by the milestones achieved in particular Releases. New features

are 'functionality frozen' and are ready for implementation when a Release is completed. 3GPP works on a number of Releases in parallel, starting future work well in advance of the completion of the current Release. Although this adds some complexity to the work of the groups, such a way of working ensures that progress is continuous & stable.

Backward Compatibility

The major focus for all 3GPP Releases is to make the system backwards and forwards compatible where possible, to ensure that the operation of user equipment is uninterrupted.

For 5G, many operators are starting with dual connectivity between LTE and 5G NR equipment – using the 'Non-Standalone' work completed early in Release 15. In the process of completing the early drop of 5G NR care has been taken to build 'forward compatibility' into Non-Standalone NR equipment, to ensure that it will be fit for use on Standalone 5G NR systems.

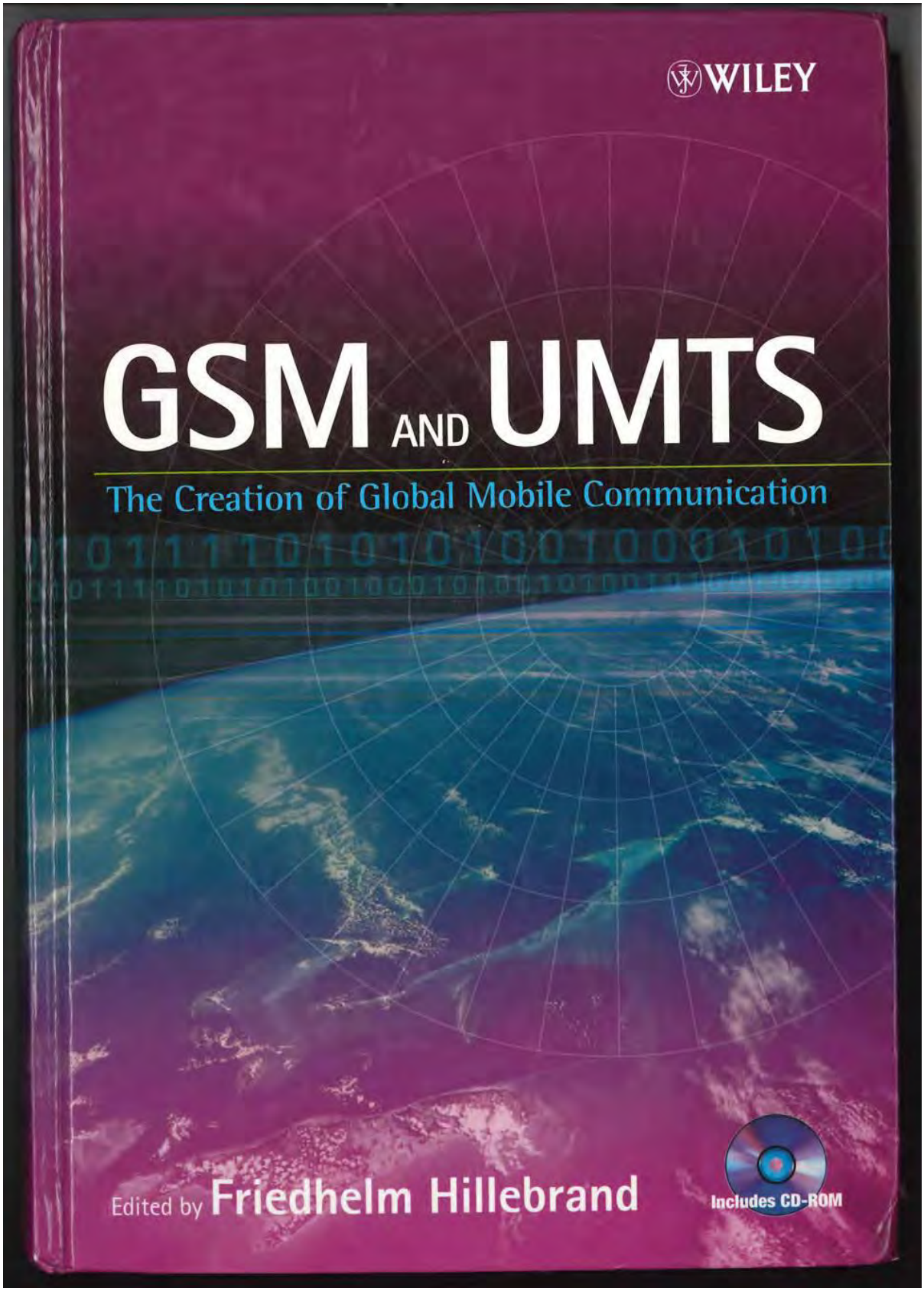
For details of the contents of each Release, see the appropriate 'Release Description' document or go to our dedicated Release page.

Details of all 3GPP Work Items are in the 3GPP Work Plan, which provides details of the cooperation between all of the 3GPP groups on "Features", defined as 'new or substantially enhanced functionality which represents added value to the existing 3GPP system'.

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APPENDIX 4



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GSM and UMTS

The Creation of Global Mobile Communication

Edited by

Friedhelm Hillebrand
Consulting Engineer, Germany

With contributions from 37 key players involved in the work for GSM and UMTS



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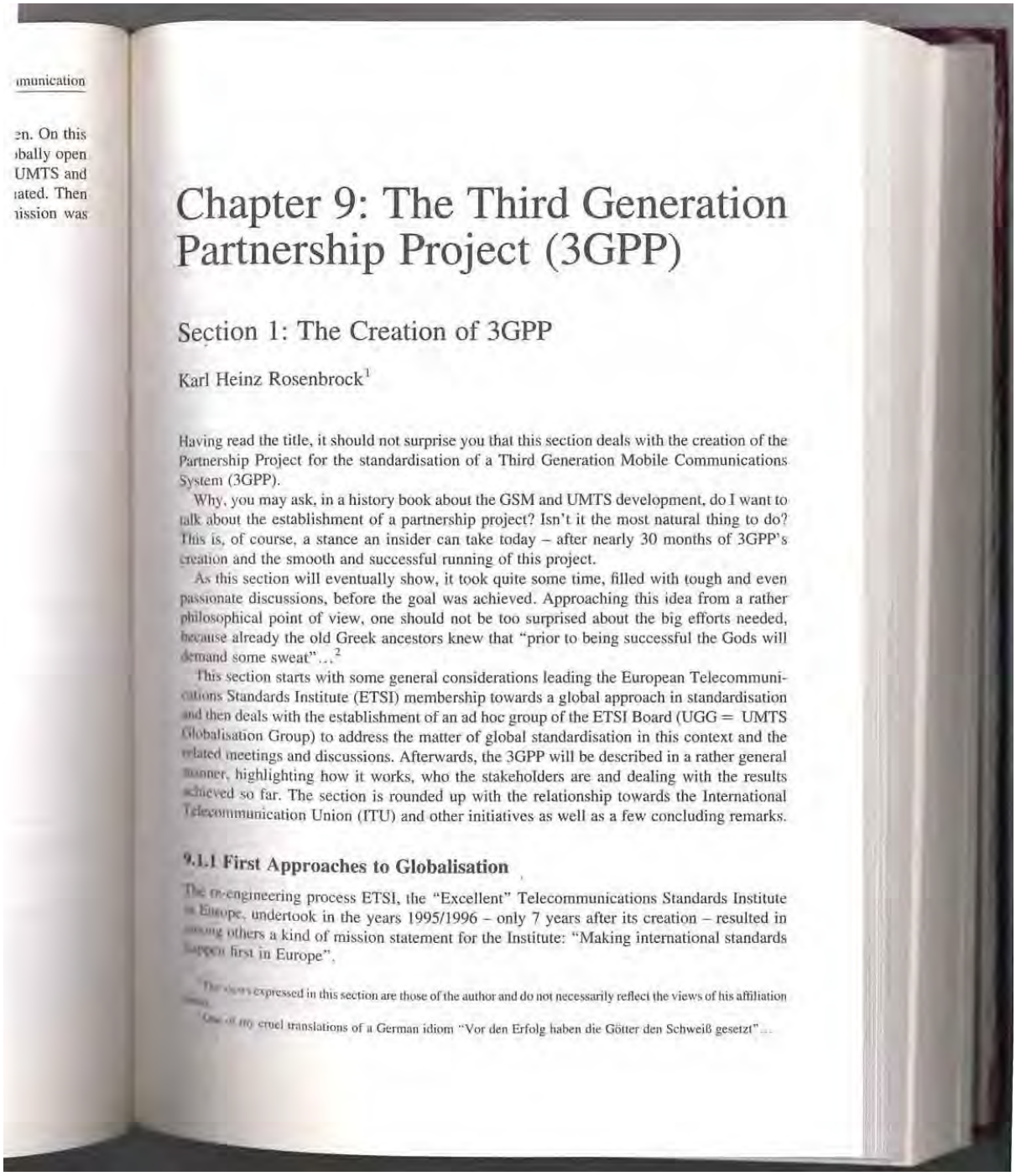
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Chapter 9: The Third Generation Partnership Project (3GPP)

Section 1: The Creation of 3GPP

Karl Heinz Rosenbrock[1]

Having read the title, it should not surprise you that this section deals with the creation of the Partnership Project for the standardisation of a Third Generation Mobile Communications System (3GPP).

Why, you may ask, in a history book about the GSM and UMTS development, do I want to talk about the establishment of a partnership project? Isn't it the most natural thing to do? This is, of course, a stance an insider can take today – after nearly 30 months of 3GPP's creation and the smooth and successful running of this project.

As this section will eventually show, it took quite some time, filled with tough and even passionate discussions, before the goal was achieved. Approaching this idea from a rather philosophical point of view, one should not be too surprised about the big efforts needed, because already the old Greek ancestors knew that "prior to being successful the Gods will demand some sweat"...[2]

This section starts with some general considerations leading the European Telecommunications Standards Institute (ETSI) membership towards a global approach in standardisation and then deals with the establishment of an ad hoc group of the ETSI Board (UGG = UMTS Globalisation Group) to address the matter of global standardisation in this context and the related meetings and discussions. Afterwards, the 3GPP will be described in a rather general manner, highlighting how it works, who the stakeholders are and dealing with the results achieved so far. The section is rounded up with the relationship towards the International Telecommunication Union (ITU) and other initiatives as well as a few concluding remarks.

9.1.1 First Approaches to Globalisation

The re-engineering process ETSI, the "Excellent" Telecommunications Standards Institute in Europe, undertook in the years 1995/1996 – only 7 years after its creation – resulted in among others a kind of mission statement for the Institute: "Making international standards happen first in Europe".

[1] The views expressed in this section are those of the author and do not necessarily reflect the views of his affiliation.

[2] One of my cruel translations of a German idiom "Vor den Erfolg haben die Götter den Schweiß gesetzt"...

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- unanimously requested the ETSI Board (through its UMTS Globalisation Group) to complete the negotiations with potential partners and to oversee the creation of the Partnership Project;
- unanimously requested the ETSI Board to agree and maintain on behalf of ETSI the final versions of the Partnership Project Description, the Partnership Project Working Procedures, and the Partnership Project Agreement;
- unanimously authorised the director-general to sign the Partnership Project Agreement.

9.1.2.4.14 Happy End in Copenhagen

It was in Copenhagen where the last 3GPP preparatory meeting with all six OPs took place on 2–4 December 1998.

Here, the final fine-tuning of the 3GPP documentation was achieved. In addition, the 3GPP agreement[8] was signed (in a nice framework provided by the host, TeleDenmark) by the following OPs: ARIB, ETSI, T1, TTA, and TTC.

Unfortunately, the partners from CWTS (China) were not authorised to sign the 3GPP agreement yet. Furthermore, owing to the fact that the UMTS Forum was unable to participate in Copenhagen, they were prevented from co-signing the 3GPP agreement as a first Market Representative Partner (MRP).

During that Copenhagen meeting, another discussion ensued about the role the MRPs should play. Finally, it was concluded that the high competence of MRPs should be used in order to identify market requirements, thus enabling 3GPP standardisation to meet the needs of the market. An MRP is an organisation invited by the OPs to participate in 3GPP with the objective of offering market advice to 3GPP and to bring into 3GPP a consensus view of market requirements.

9.1.3 What is 3GPP?

The 3GPP is a global standardisation initiative created in December 1998. Its task was to develop a complete set of globally applicable Technical Specifications for a third generation (3G) mobile telecommunications system based on the evolved GSM core network and an innovative radio interface known as UTRA. The Project is based on a concept devised by ETSI aimed at facilitating better co-operation between regional standards organisations, fora and other industry groupings. 3GPP is a collaborative activity between officially recognised SDOs, with the participation of other industry groups and individual members.

Partnership in 3GPP is open to all national, regional or other SDOs, irrespective of their geographical location – within the project the participating SDOs are referred to as OPs. The OPs may invite MRPs to participate: these may be any organisation from anywhere in the world that can offer market advice to 3GPP and bring a consensus view of market requirements that fall within the project's scope. Individual membership is open to companies and organisations within the communications industry that are active members of one of the OPs. The truly global nature and the breadth of the market interest in the task of specifying this 3G system is evident from the identity of the 3GPP partners (see further in sub-paragraph 9.1.3.2) and all agree that 3GPP is proving a highly successful initiative.

[8] The 3GPP Agreement and the 3GPP Project Description can be found on the attached CD-ROM in [illegible]

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The 3GPP has no legal status. Ownership (including copyright) of the specifications and reports it produces is shared between the partners. The 3GPP process includes a conversion (transposition) of the project's output into official standards and reports by one or more of the OPs.

The specifications being prepared by 3GPP are evolved in part from the enormously successful GSM standard, which is currently (February 2001) serving over 400 million subscribers in more than 140 countries. Building on this massive installed base, the system being specified by 3GPP will be an attractive upgrade path for existing operators and users. It also has an assured compatibility with GSM – good news for both operators and users who are unable, or unwilling, to upgrade to 3G.

Paramount among the 3GPP specifications is the definition of UTRA, the innovative radio access technology that is the key to the new system's high data rates and dramatically improved performance. UTRA is spectrum-efficient and supports FDD and TDD modes. This interface has been accepted by ITU as a member of the IMT-2000 family – or more correctly, as *two* family members: IMT-DS, the FDD mode; and IMT-TC, the TDD mode. IMT-2000 family membership requires the ability for users to roam globally and seamlessly, which implies interoperability with other family members: 3GPP thus co-operates closely with the 3GPP2 project which is specifying another family member, a 3G CDMA system based on an evolution of the ANSI-41 architecture.

9.1.3.1 How Does 3GPP Work?

3GPP has been designed to minimise delays and inefficiencies. As a result, it has a "flat" organisational structure and a large degree of distributed autonomy. Overall project planning and co-ordination is the responsibility of the PCG, with input primarily from the OPs, guided by the MRPs. It is mainly at this level that regulatory requirements, provided by the telecommunications administrations and governments around the world, are taken into account.

The development of the specifications is performed by TSGs and their subordinate working groups. Here, the main participation is by technical experts from the individual members of the OPs. Individual members in their capacity as ITU members are also responsible for carrying the results of the 3GPP work to the ITU.

At the time of the creation, 3GPP had structured around four principal aspects of the 3G system being defined as TSGs:

- TSG CN: core network
- TSG RAN: radio access network
- TSG SA: services and systems aspects
- TSG T: terminals

Each TSG is authorised to develop and approve specifications and reports within its scope, and TSG SA also has a role of co-ordinating the work of the TSGs at a more detailed level than the PCG. The result is a process that is able to rapidly produce and approve specifications and reports in response to the needs of the market, although it is important to note that the deliverables do not have a formal status until they have been transposed by one or more of the OPs.

The formal status is necessary for regulatory and other purposes in the various regions, and all the OPs have committed themselves to complete this process rapidly. Each OP will apply

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its own procedures, appropriate to their respective regions. As the official European SDO within 3GPP, ETSI recognises the 3GPP output as ETSI Technical Specifications and ETSI Technical Reports without a need for any further endorsement within the Institute. This means that the 3GPP documents are published – within a matter of a few weeks – as identical text directly as ETSI deliverables. In addition, ETSI is transposing, i.e. adapting, a few of the initial 3GPP specifications into ENs for specific European regulatory requirements. This is happening in parallel with the publication of the initial Technical Specifications and will not impede the implementation of 3G in Europe.

9.1.3.1.1 Electronic Working

3GPP has taken a leading role in changing the traditional ways of standards making. A very heavy dependence is now placed on electronic working, both outside and within meetings, advancing a trend that started in ETSI a year or two ago. This means that paper copies of draft documents have been almost entirely eliminated, saving time and expense, and making a significant contribution to the environment.

Given that 3GPP has participants from all over the world, the use of the Internet, e-mail exploders and other such facilities have proved invaluable for distributing and sharing information, working drafts and so on. Delegates to meetings had already become used to downloading working documents from the Internet and having updates to the documents distributed in meetings on CD-ROM. But in recent months, in meetings around the world participants have experienced the benefits of a local area network (LAN) solution as the latest step in improving working methods. ETSI's headquarters premises already have LANs in all its meeting rooms, but most other venues currently rely on temporary LANs (wired or radio) using equipment and support kindly donated by individual members.

Such facilities permit delegates to access all the meeting documents electronically from their laptop computers. As a result, the huge burden of producing paper copies (as many as 10 000 pages per delegate for some meetings) can be eliminated. Delegates can access new documents as soon as they are available, rather than having to wait for paper copies to be made or for the documents to be distributed by other means, such as diskette or CD-ROM.

9.1.3.1.2 Project Support

For administrative and support purposes the 3GPP Partners have established a Mobile Competence Centre (MCC) which is hosted by ETSI at its premises in Sophia Antipolis, Southern France. The MCC was created in March 1999 to provide support not only to the 3GPP but also to ETSI's own studies in mobile technologies. A full description of MCC including the financing is given in Chapter 15, Section 3.

9.1.3.2 Who are the Stakeholders in 3GPP?

3GPP has attracted a very strong commitment from organisations and companies around the world, reflecting the truly global nature of the project. There are currently six OPs (in alphabetical order):

- The Association of Radio Industries and Businesses (ARIB), Japan

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being TD-SCDMA, proposed by CWTS. A similar group, 3GPP2, is preparing the cdma2000 specifications, UWC-136 TDMA specifications are being developed principally by UWCC, and DECT specifications are defined by a set of ETSI standards (Figure 9.1.1).

Since the UWCC and ETSI are both partners in 3GPP (as an MRP and OP respectively), there is direct liaison between the Project and these two sources of specifications for other IMT-2000 family members.

When 3GPP and 3GPP2 were created it was felt that the interests of each group were sufficiently different to require them to remain separate but here again many of the OPs and MRPs are common to both groups, so there are natural channels for information exchange. Particular instances of formal co-operation between the groups were the two joint 3GPP-3GPP2 workshops held in 1999 to address the "Hooks and Extensions" issue aimed at ensuring interworking between the respective technologies.

In addition to all this, the 3GPP TSGs and their working groups are encouraged to liase directly with relevant technical bodies within the Project as well as among the Partners.

9.1.6 Conclusions

The attentive reader, and let's assume that you are one, may still be astonished to learn what big efforts have been necessary in order to establish 3GPP.

In the meantime, i.e. in the course of year 2000 nearly the whole work of the former ETSI TC SMG has been incorporated into 3GPP, to a large extent within the new TSG GERAN.

Well, our Japanese friends were not happy about this shift because they feared that it could result in delays in the 3G introduction in their country. They accepted this because a separate TSG for the GSM work was created.

Trying to recall the heated discussions within ETSI about the scope of 3GPP from 1998, one has to admit that such a move would have been violently rejected by a lot of ETSI members, maybe even by the majority. Using a philosophic approach, one can, of course, state that time helps healing (even wounds).

Today, i.e. February 2001, we can conclude from ETSI's point of view that all standardisation work related to further evolution of the second generation mobile system, i.e. GSM, and to UMTS is being done well within 3GPP. Thus, the objective to avoid parallel work within ETSI TBs and 3GPP has been fully achieved.

The ability of organisations and individuals around the world to co-operate and make available a full set of stable, agreed 3GPP specifications in 1 year is a remarkable achievement, one that is unprecedented in the world of standardisation. 3GPP meetings have taken place in many parts of the world, emphasising the strong commitment of the SDOs from China, Europe, Japan, Korea and the US. The MRPs have also lent very strong support to the work. Thanks to this widespread and determined commitment it has been possible to meet the very aggressive targets for 3G.

But Release 99 was only the first step – the workload has continued to intensify this year, as the initial specifications are refined and many new ones added, opening the path to full, seamless, global 3G services, changing forever the way that people communicate.

In the meantime, 3GPP has changed the designation of the releases and dropped to mention the year in order to avoid irritations and wrong expectations. Release 99 was first established in December 1999 and got its maturity in the course of year 2000. In 2000, more than 5700 change requests were implemented. The next big event will be Release #4 as a result of the

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series of TSG meetings scheduled for March 2001 in Palm Springs, US. This will obviously result in a further stabilisation and extension of the UMTS specifications.

3GPP is running very well. The individual members from the six OPs seem to be very satisfied with this arrangement – and the production line is in full swing.

Without exaggeration, one can give 3GPP the attribute of a success story. One may quote again here Mr Ed Roney who even addressed the 3GPP concept – prior to its realisation – as a "paradigm shift".

As the results of the GSM and UMTS related standardisation work represent a great part of ETSI's deliverables, it might be justified to note here that during the year 2000, ETSI published more than seven new deliverables each working day (Monday through Friday), i.e. one deliverable per hour!

Further information may be found on the 3GPP website at http://www.3gpp.org.

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Chapter 9: The Third Generation Partnership Project (3GPP)

Section 2: UMTS in 3GPP (December 1998–May 2001)

Niels Peter Skov Andersen[1]

9.2.1 A Change of Environment

In the period 1982 until end of 1998 the work on the GSM standard, and in the later part of the period on UMTS, had been performed in the same environment, starting under CEPT and later transferred into ETSI. The Technical Committee GSM, during this period renamed to SMG, and its working groups (Sub Technical Committees) had continuously existed and evolved. The same was the case for the working methods and procedures used within the work. Over time with the success of the GSM system more and more interested parties became involved in the work including parties from outside the original CEPT area. However, this was all a relatively slow evolution and no major revolutions in the organisation or the working methods occurred in this period.

After all these years of continuity in the work the discussions around the creation of 3GPP and the decision to establish 3GPP for the initial phase of UMTS[2] naturally created some uncertainty amongst the members of SMG. Especially the resulting split of the GSM standardisation, with the responsibility for the GSM core network transferred to 3GPP, but the responsibility for the GSM radio access Network maintenance remained in ETSI in SMG. This caused some concern amongst many delegates. Also the internal structure for the technical work within 3GPP was different from the well-known structure in SMG. SMG was based on a technical plenary with a number of working groups (SMG1, SMG2, ..., SMG12) performing the detailed technical work. The SMG plenary was the approving authority for the results of the work performed by the working groups. Also the plenary was the group responsible for approval of all new work items and the content of the releases. The structure for the work in 3GPP, as agreed by the partners, was quite different. The project

[1] The views expressed in this section are those of the author and do not necessarily reflect the views of his affiliation [illegible].

[2] The term UMTS is throughout this section used to keep consistency of terminology with the other chapters and sections. The term UMTS do not appear in the in 3GPP agreement, which defines the system as a third generation mobile system based on an evolved GSM core network and UTRAN (including UTRAN (FDD and TDD modes)).

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was organised with four equal Technical Specification Groups (TSGs), who had complete autonomy for their area of responsibility, i.e. they were responsible for approval of new work items and final approval of deliverables. The four technical groups originally defined were:

TSG CN	Responsible for the core network development
TSG-RAN	Responsible for the radio access network based on UTRAN (FDD and TDD modes)
TSG-SA	Responsible for services and system aspects
TST-T	Responsible for Terminal and UIM

In addition to the technical groups the 3GPP organisation has a Project Coordination Group (PCG). However, the role of this PCG cannot be compared to the role the SMG plenary played. The SMG plenary was an open technical group with the approving authority in all technical questions including approval of new work items. The 3GPP PCG is a closed group with a defined membership consisting of a limited number representative of each of the partners (SDOs, MRPs) and the leadership (chairman and two vice-chairmen) of each TSG. Thus as a closed group the role of the PCG becomes more like a board overlooking the overall well being of the project.

This structure made many long-term SMG delegates concerned about how the overall coordination of the project could be ensured. This new structure was not introduced to overcome known deficits of the SMG organisation, but in my opinion, by political considerations to ensure than no single individual, individual member, organisational partner could obtain a controlling position in the project.

9.2.2 The First Two TSG Meetings

The inauguration meeting of the 3GPP TSGs was held in December 1998 in Sophia Antipolis, France. In the process of creation of 3GPP this was the first time that the 3GPPs real work force – the technical experts – met. The main objectives for this first meeting was to get the work started. One of the elements of the meeting was a presentation from the different partners on the status of their work on the third generation mobile system, the work which they now were in the process of handing over to 3GPP.

Listening to the presentations and the discussions during the breaks it was very obvious that the background for standardization amongst the delegates was quite different. As an example, I remember that during the coffee break just after I, as chairman of ETSI SMG2, had presented the status of the UMTS radio work in ETSI, and had ended my presentation by stating that the UMTS radio work would only be on the agenda of one more meeting of ETSI SMG2. This was in order to complete the documentation to be handed over to 3GPP and then the work on UMTS radio in ETSI would cease, a small group of non-ETSI delegates came to me and asked "if all work on UMTS radio in ETSI ceases, how do the Europeans then coordinate their views on 3GPP?" Coming from the ETSI SMG background this was a completely unexpected question, as the working procedures for 3GPP were very similar to those of ETSI, it was clear to me that the contributions to 3GPP in general should come from the individual members – the companies, regulators etc. – in their own name and not as regional contributions. I explained this, but I also understood that for delegates with a background in international standardization from, e.g. ITU this was the normal way of thinking. During the

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Annex 2: Organisation Evolution of the Technical Groups

Section 3: 3GPP

Adrian Scrase[1]

A2.3.1 December 1998 to Mid-1999

During the preparatory talks that led to the creation of 3GPP, many discussions took place to find the optimum organizational structure. The ETSI TC SMG model had worked well for many years and it was very tempting to adopt a similar structure and just widen the sphere of participation. However, some voices called for a more radical approach in order to streamline the structure and to reduce the time taken for specifications production. As a result of these discussions, the following key principles were established on which 3GPP was structured:

- Minimum number of hierarchical levels;
- Large degree of distributed autonomy;
- Clear separation of technical activities from political and administrative activities.

When 3GPP was created, four Technical Specification Groups (TSGs) were formed to undertake the preparation of technical specifications. The four TSGs were as follows:

- TSG CN – core network
- TSG RAN – radio access network
- TSG SA – services and system aspects
- TSG T – terminals

Each of the TSGs was authorized to develop and approve specifications and reports within its terms of reference. This represented a departure from the more traditional approach where a single entity (i.e. a plenary) within a project has the authority to approve a project's output. It was believed that by distributing the approval authority, the time taken to produce specifications would be reduced since this effectively removes one level of hierarchy from the approval procedure. However, it was apparent from the outset that distributing the approval of specifications would lead to a greater requirement for technical co-ordination and thus TSG SA was tasked to perform a co-ordination role across all TSGs. This co-ordination role

[1] The views expressed in this section are those of the author and do not necessarily reflect the views of his affiliation entity.

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APPENDIX 5

Third Generation Partnership Project

3GPP

Working Procedures

23 April 2010

Deleted: 12 August 2009

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Foreword

These Working Procedures of the Third Generation Partnership Project (3GPP) are effective from 23 April 2010.

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An electronic version of these Partnership Project Working Procedures is available from the following address:

http://www.3gpp.org

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SECTION A: GENERAL

Article 1: Description

The Partnership Project is not a legal entity but is a collaborative activity between the following recognized Standards Development Organizations:

ARIB (Japan)

CCSA (China)

ETSI (Europe)

ATIS (US)

TTA (Korea)

TTC (Japan)

The Partnership Project is entitled the "THIRD GENERATION PARTNERSHIP PROJECT" and may be known by the acronym "3GPP".

Article 2: Purpose

The purpose of 3GPP is to prepare, approve and maintain globally applicable Technical Specifications and Technical Reports for

- a 3rd Generation Mobile System based on the evolved GSM core network, and the Universal Terrestrial Radio Access (UTRA),
- further development of radio technologies such as LTE, coupled with evolution of core network elements such as the Evolved Packet Core (EPC),
- continuing evolution of the 2nd generation GSM/EDGE Radio Access Network (GERAN),

to be transposed by the Organizational Partners into appropriate deliverables (e.g., standards).

Article 3: Scope and objectives

The 3rd Generation Mobile System and its capabilities shall be developed in a phased approach. Initially, 3GPP shall prepare, approve and maintain the necessary set of Technical Specifications and Technical Reports for a 3rd Generation Mobile System including:

- UTRAN (including UTRA; in Frequency Division Duplex (FDD) and Time Division Duplex (TDD) modes);
- 3GPP Core Network (Third Generation networking capabilities evolved from GSM. These capabilities include mobility management, global roaming, and utilisation of relevant Internet Protocols);
- Terminals for access to the above (including specifications for a UIM); and
- System and service aspects.

3GPP shall prepare, approve and maintain the necessary set of Technical Specifications and Technical Reports for:

- the Global System for Mobile communication (GSM) including GSM evolved radio access technologies (e.g., General Packet Radio Service (GPRS) and Enhanced Data rates for GSM Evolution (EDGE)).

3GPP shall consider the long term evolution.

The Technical Specifications and Technical Reports shall be developed in view of global roaming and circulation of terminals.

The set of 3GPP Technical Specifications and Technical Reports for the 3GPP core network and the specifications for the GSM core network should be common to the greatest extent possible and should not be unnecessarily different.

Options in the form of a regulatory requirement particular to one or more regions / nations shall be included in 3GPP specifications. TSGs should not debate the inclusion or rejection of such options.

The results of the 3GPP work shall form the basis of member contributions to the ITU in accordance with existing procedures.

3GPP shall take account of emerging ITU recommendations on interworking between IMT-2000 family members.

In the framework of agreed relationships, the 3GPP Technical Specifications and Technical Reports will form the basis of standards, or parts of standards, of the Organizational Partners.

SECTION B: PARTICIPATION

Article 4: Categories

Participation in 3GPP shall be classified into one of the following categories:

- Partners;
- Individual Members;
- ITU Representatives;
- Observers;
- Guests.

Article 5: Partnership

Partners in 3GPP shall be classified into one of the following two categories:

- Organizational Partners;
- Market Representation Partners.

Article 6: Organizational Partnership

Organizational Partnership is open to any Standards Organization, irrespective of its geographical location, which has:

- a national, regional or other officially recognized status and the capability and authority to define, publish and set standards within the 3GPP scope, in that nation or region;
- an Intellectual Property Rights (IPR) Policy which is compatible with those of the Organizational Partners;
- committed itself to all or part of the 3GPP scope;
- signed the Partnership Project Agreement.

Standards Organizations may apply to become an Organizational Partner by writing to any of the existing Organizational Partners.

Article 7: Market Representation Partnership

The Organizational Partners may invite Market Representation Partners to take part in 3GPP.

An invitation for Market Representation Partnership is open to any organization, irrespective of its geographical location, which:

- has the ability to offer market advice to 3GPP and to bring into 3GPP a consensus view of market requirements (e.g., services, features and functionality) falling within the 3GPP scope;
- does not have the capability and authority to define, publish and set standards within the 3GPP scope, nationally or regionally;
- has committed itself to all or part of the 3GPP scope;
- has signed the Partnership Project Agreement.

Organizations may apply to become Market Representation Partners by writing to any of the existing Partners. Further guidance for MRP applicants can be found in Annex E.

Article 8: Individual Membership

Membership in an Organizational Partner is a pre-requisite for Individual Membership of 3GPP. All entities registered as members of an Organizational Partner and eligible for participation in the technical work of that Organizational Partner, can become Individual Members of 3GPP if they are committed to support 3GPP and:

- to contribute technically or otherwise to one or more of the Technical Specification Groups within the 3GPP scope;
- to use the 3GPP results to the extent feasible.

An Individual Member has the right to participate in the work of 3GPP by attending meetings of the Technical Specification Groups and subtending groups.

Applications for Individual Membership of a Technical Specification Group shall be made in writing to the relevant Organizational Partner using the form given at **Annex C**. Applications may also be made on-line using the template available at http://www.3gpp.org.

Individual Members act in 3GPP in their own right and carry the full responsibility for their contributions.

Article 9: Termination of Individual Membership

Individual Membership of 3GPP may be terminated by dissolution, abolition, resignation or expulsion from the related Organizational Partner.

Article 10: Observers and Guests

The status of Observer may be granted by the Organizational Partners to an entity which has the qualifications to become a future Partner.

An Observer may send a single representative to an Organizational Partners or PCG meeting. An Observer may also have representatives at TSG meetings. Representatives of Observers may receive documents and contribute documents for information, but shall not submit documents that propose changes to the specifications, reports, work item descriptions, work plan, or any other document under the control of the TSG. Observers shall not take part in decision making or hold any leadership positions.

Additional participation rights of an Observer shall be decided by the Organizational Partners on a case-by-case basis.

The status of Guest may be granted for a limited period, by the Organizational Partners to an entity which has the qualifications to become a future Individual Member. The limited period shall be decided by the Organizational Partners on a case-by-case basis.

A Guest may have representatives at TSG and subtending group meetings. Representatives may receive documents but shall not take part in decision making, participate in discussions, contribute documents, or hold any leadership positions.

SECTION C: STRUCTURE

Article 11: Structure of 3GPP

3GPP shall consists of a Project Co-ordination Group (PCG) and Technical Specification Groups (TSGs). The Technical Specification Groups may establish Working Groups if required.

The Organizational Partners may decide to call a meeting of the full 3GPP membership if required.

SECTION D: PARTNERS' COLLECTIVE RESPONSIBILITIES

Article 12: Organizational Partners' Collective Responsibilities

The Organizational Partners shall determine the general policy and strategy of 3GPP.

In addition the Organizational Partners shall perform the following tasks:

- approval and maintenance of the 3GPP scope;
- maintenance the Partnership Project Description;
- taking decisions on the creation or cessation of Technical Specification Groups, and approving their scope and terms of reference;
- approval of Organizational Partner funding requirements;
- allocation of human and financial resources provided by the Organizational Partners to the Project Co-ordination Group;
- acting as a body of appeal on procedural matters referred to them.

Article 13: Collective responsibilities of all Partners

Organizational Partners and Market Representation Partners shall perform the following tasks:

- maintenance of the Partnership Project Agreement;
- approval of applications for 3GPP partnership;
- taking decisions relating to the dissolution of 3GPP.

SECTION E: PROJECT CO-ORDINATION GROUP (PCG)

Article 14: PCG tasks

The PCG shall perform the following tasks:

- appointment of PCG Chairman and Vice Chairmen;
- allocation of human and financial resources provided by Organizational Partners to TSGs;
- allocation of voluntary human and financial resources provided by Market Representation Partners and Individual Members;
- management of the 3GPP Support Team;
- handling of appeals from Individual Members on procedural matters referred to them;
- propose and approve modifications to the Partnership Project Working Procedures;
- handling of appeals from Individual Members on technical matters referred to them;
- determination of the overall time frame and manage overall work progress;
- final adoption of new and stopped work items proposed by the TSGs within the agreed 3GPP scope and objectives;
- when a work item is outside the scope of the 3GPP, and where a common global solution is desired, recommend how to achieve a global solution;
- appointment or dismissal of TSG Chairmen and Vice Chairmen, as proposed by TSGs based on election results. (The proposed candidate shall be appointed unless there are extraordinary reasons that prevent such an appointment, e.g., severe company or geographical imbalance within 3GPP. In such cases the TSG shall be requested to elect an alternative candidate. The decision not to appoint a candidate shall be made by consensus.);
- authorizing requests from the TSGs for approval to liaise with external organizations, and maintain a list of approved requests;
- maintenance of the register of Individual Members eligible to participate in 3GPP;
- maintenance of the register of IPR declarations relevant to 3GPP, received by the Organizational Partners.

The PCG may decide to call a meeting of the full 3GPP membership if required.

Article 15: PCG participation

The following shall have a right to participate in the PCG:

- Typically, a maximum of five representatives of each Organizational Partner (not counting the Chairman and Vice-Chairmen);
- A maximum of three representatives of each Market Representation Partner. (MRPs are however urged to limit their participation to one representative wherever possible.);
- The Chairmen and Vice Chairmen of the TSGs as ex-officio members;
- A maximum of three ITU representatives;
- One representative of each Observer.

Article 16: PCG appointment of Chairman and Vice Chairman

The PCG shall appoint their Chairman and Vice Chairmen from amongst the Organizational Partner representatives.

The Chairman and Vice Chairmen shall be appointed for a one year term of office.

The Chairman and Vice Chairmen shall normally serve one term of office. If no other candidates are available, the Chairman or Vice Chairmen may be appointed for a further term.

Successive Chairmen and Vice Chairmen should not be from the same Organizational Partner, the same region or from the same group of companies, unless no other candidate is available.

Article 17: PCG Chairman Responsibilities

The PCG Chairman is responsible for the overall management of the co-ordination work within 3GPP.

The Chairman has the overall responsibility to ensure that the Partnership Project Agreement, Partnership Project Description and Partnership Project Working Procedures are followed.

The Chairman may nominate officials to assist in the work.

The Chairman may be assisted by the Support Team.

The Chairman may delegate tasks to the Vice Chairmen.

In performing his tasks, the Chairman and Vice Chairmen shall maintain strict impartiality and act in the interest of the 3GPP.

Article 18: PCG meetings

A meeting of the PCG shall be held at least twice per year.

At least thirty days before the due date, a calling notice, draft agenda and supporting documents shall be issued.

Article 19: PCG decision making

In any meeting of the PCG, the quorum required for decision making shall be 50% of the total number of Organizational Partners. Proxies shall not be permitted.

The PCG shall endeavour to reach consensus on all issues. The views and opinions of the Market Representation Partners and the Chairmen and Vice Chairmen of the TSGs shall be taken into account during the consensus building process. If consensus cannot be achieved, the Chairman can decide to take a vote. The vote may exceptionally be performed by a secret ballot if decided by the PCG.

Each Organizational Partner shall have one vote. A proposal shall be deemed to be approved if 71% of the votes cast are in favour. Abstentions or failure to submit a vote shall not be included in determining the number of votes cast.

SECTION F: TECHNICAL SPECIFICATION GROUPS

Article 20: TSG tasks

The TSGs shall prepare, approve and maintain the 3GPP Technical Specifications and Technical Reports taking into account the market requirements provided by Market Representation Partners.

The TSGs shall also perform the following tasks:

- Propose to the PCG for appointment TSG Chairman and Vice Chairmen based on election results;
- Creation of TSG Working Groups and approval of their terms of reference;
- When a new Working Group is created, the appointment of TSG Working Group Convenor;
- Allocation of resources within the TSG;
- Allocation of voluntary human and financial resources provided by Market Representation Partners and Individual Members;
- Handling of appeals from Individual Members on technical matters;
- Preparation of a detailed time frame and management of detailed work progress;
- Management of work items;
- Technical Co-ordination;
- Proposal and approval of work items within the agreed scope and terms of reference of the TSG;
- Where a work item is outside the scope of the 3GPP, but a common global solution is desired, recommend an approach to the PCG;
- Assignment of work to Partners. (Specification development may be accomplished using various methods, including the assignment of work to Partners.);
- Maintenance of the list of Individual Members eligible to vote within the TSG (Voting Members).

Article 21: TSG participation

The following shall have a right to participate in the TSGs:

- Representatives of members of participating Organizational Partners (i.e. Individual Members);
- Representatives of Organizational Partners;
- Representatives of Market Representation Partners;
- Representatives of Observers;
- Representatives of Guests.

Article 22: TSG and WG election of Chairman and Vice Chairman

22.1 TSG elections

Regular TSG elections shall be held every two years in the first semester of odd numbered years.

The TSG Chairman and Vice Chairmen shall be elected by the Technical Specification Group from amongst the Individual Member representatives. Each TSG shall elect a maximum of three Vice Chairmen.

A candidate for election shall provide a letter of support from the Individual Member that he/she represents. Nominations may be made up to the point when an election takes place.

The Chairman and the Vice Chairmen shall be elected for a two year term of office. The Chairman and Vice Chairmen may offer themselves for election for a second consecutive term. Exceptionally, they may offer themselves for further consecutive terms, subject to the following:

- A two week deadline that expires at noon Central European Time on the Friday which falls between 20 and 14 days prior to the first day of the meeting at which elections are due to be held shall be established.
- A Chairman is not permitted to stand for another consecutive term if another candidate is announced via the 3GPP web site or via the relevant 3GPP email reflector prior to this deadline.
- A Chairman is not permitted to stand for another consecutive term until after this deadline.
- A Vice Chairman is not permitted to stand for another consecutive term in a Vice Chairman position for which there is a candidate announced via the 3GPP web site or via the relevant 3GPP email reflector prior to this deadline.
- A Vice Chairman is not permitted to stand for another consecutive term until after this deadline. If, by the deadline, the number of candidatures is less than the number of Vice Chairman positions, then any incumbent Vice Chairman may put forward his candidature.

There is no restriction on a Vice Chairman whose term of office is due to expire offering himself for the position of Chairman; neither is there any restriction on a Chairman whose term of office is due to expire offering himself as a Vice Chairman. There is no restriction of a retiring Chairman or Vice Chairman of one TSG offering himself for election as either Chairman or Vice Chairman of any other TSG (or WG).

Should the office of Chairman or Vice Chairman of a TSG become vacant for reasons other than expiration of term of office, a special election shall be conducted to fill the unexpired term. This special election shall be conducted at a meeting of the TSG, and shall be announced in the agenda according to the provisions of Article 32.

When such a special election is held to fill the office of Chairman, and one or more of the Vice Chairmen of the TSG intends to stand for election to that position, the announcement shall also indicate that there will be an election to fill the position of Vice Chairman in the event that a Vice Chairman be elected to the office of Chairman. If at the special election the Vice Chairman is elected to the office of Chairman, that individual shall become Chairman immediately, and, the position of Vice Chairman thus being vacant, an election shall be held for the office of Vice Chairman.

Similarly, if an incumbent Chairman intends to stand for election to the position of Vice Chairman, the same applies, with the necessary changes to the text above.

If a Chairman or Vice Chairman changes the Individual Member that he/she represents (e.g., job change, merger or acquisition) during his/her term of office, a new letter of support shall be provided. If the change of company affiliation is due to a move to another company, then the decision for the Chairman or Vice Chairman to continue in office shall be made by consensus of the TSG. If consensus cannot be achieved, a special election shall be held for the office.

The term of office for a Chairman or Vice Chairman elected at a special election is a partial term lasting until the end of the current term. A partial term of office does not count towards the two consecutive term limit.

Chairman and Vice Chairmen should not be from the same region, Organizational Partner, or from the same group of companies, unless no other candidate is available.

Successive Chairmen should not be from the same Organizational Partner, the same region or from the same group of companies, unless no other candidate is available. This does not apply to special elections or to regular elections for a second or subsequent consecutive term of office .

When a new TSG is established, the Organizational Partners shall appoint a convenor for the first two TSG meetings. The election for TSG Chairman and Vice Chairmen shall take place at the second TSG meeting. If the election takes place other than at the normal time for TSG elections (see above), the elected Chairman and Vice Chairman shall serve until the next regular TSG election. This partial term of office does not count towards the two consecutive term limit. The provisions of this paragraph may be overridden by consensus of the PCG where a new TSG is formed by the merger of existing TSGs; under these circumstances, the PCG shall establish a set of ad hoc rules for the creation of the new TSG.

Following election by the TSG, the TSG Chairman and Vice Chairmen shall be appointed by the PCG on the proposal of the TSG.

22.2 WG elections

The provisions concerning the election of WG Chairmen and Vice Chairmen shall be as for TSG Chairmen and Vice Chairmen as defined in 22.1 above, changing TSG to WG wherever TSG is mentioned, with the following differences.

Deleted: with the necessary changes,

Each WG shall elect a maximum of two Vice Chairmen.

WG elections shall be held when the corresponding terms of office expire or when an existing Chairman or Vice Chairman resigns. WG elections need not be synchronized within the WG (i.e. elections for Chairman and each Vice Chairmen may occur at different times), across different WGs of the same or other TSGs, nor with the regular TSG elections.

WG Chairmen and Vice Chairmen are always elected for a period of two years (and not, as is the case with special elections in TSGs, for the unexpired period of the present term of office).

Note: For this reason, elections for WG Chairmen and Vice Chairmen are likely to become spread over a period of time, rather than being grouped like the TSGs' regular elections.

When a new WG is established, the parent TSG is responsible for appointing a convenor for the first two meetings.

Following election by the WG, the Chairman and Vice Chairman hold office immediately, without need of appointment by TSG or PCG.

Article 23: TSG and WG Chairman responsibilities

The TSG Chairman is responsible for the overall management of the technical work within the TSG and its Working Groups. The Chairman has an overall responsibility to ensure that the activities of the TSG follow the Partnership Project Working Procedures.

The WG Chairman is responsible for the overall management of the technical work within the WG and its sub-groups.

The Chairman may nominate officials to assist in the work.

The Chairman may delegate tasks to the Vice Chairmen.

The Chairman may be assisted by the Support Team.

The Chairman shall form a Management Team, including the Vice Chairmen and Support Team, in order to assist in discharging his duties.

Recognizing the need to balance the requirement of rapid specification development with the limited resources of delegates, the Chairman should encourage a minimum number of meetings, especially parallel meetings, and maximize the use of electronic means to advance the work.

In performing TSG tasks, the Chairman shall maintain strict impartiality and act in the interest of 3GPP.

Article 24: TSG and WG Chairman and Vice Chairmen dismissal

A secret ballot shall be taken for the proposal to dismiss a TSG or WG Chairman or Vice Chairman because of a failure to effectively perform their duties, if requested by 30% of the TSG or WG membership list. 71% of the votes cast are required to recommend dismissal.

The PCG shall dismiss a Chairman or Vice Chairman on the proposal of the TSG.

Article 25: TSG and WG decision making

TSGs and WGs shall endeavour to reach consensus on all issues, including decisions on Technical Specifications and Technical Reports. Informal methods of reaching consensus are encouraged (e.g., a show of hands). If consensus cannot be achieved, the Chairman can decide to take a vote. The vote may exceptionally be performed by a secret ballot if decided by the TSG or WG. A vote may be conducted during a TSG or WG meeting or by correspondence.

A proposal shall be deemed to be approved if 71% of the votes cast are in favour. Abstentions or failure to submit a vote shall not be included in determining the number of votes cast.

It is the responsibility of the Chairman to ensure that questions to be voted upon are phrased in a positive yes/no manner, with 71% required to approve the question. Questions should not be phrased as the TSG shall not do something. Examples of appropriate questions are; Shall the TSG approve the Specification and send it to the SDOs? Shall the liaison be approved? Shall the new WI be approved? Shall the existing WI be stopped? If the issue is to choose option A or B, the question should be split into two questions, with the Chairman selecting the order. First, shall the TSG take option A as the way forward? If this question fails the second question is, shall the TSG take option B as the way forward?

Contributions on which decisions will be based should be made available in good time before each meeting. TSGs may establish informal guidelines for dealing with late contributions.

Working Agreements may be used to establish tentative agreements in cases where consensus cannot be obtained. The working agreement process is described in Annex G.

Article 26: TSG and WG voting during a meeting

The following procedures apply for voting during a TSG or WG meeting:

- before voting, a clear definition of the issues shall be provided by the Chairman;
- Voting Members shall only be entitled to one vote;
- if a Voting Member has more than one representative present, only one representative may vote;
- each Voting Member may only cast the vote once;
- each Voting Member may carry proxy votes for up to five other Voting Members. All proxy votes shall be accompanied by a letter of authority from the authorising Voting Member. Proxies will not be taken into account when determining the quorum;
- the quorum required for voting during a TSG or WG meeting shall be 30% of the total number of Voting Member companies on the TSG or WG voting list;
- the result of the vote shall be recorded in the meeting report.

For the determination of the quorum, see annex X.

Article 27: TSG or WG voting by correspondence

The following procedures apply for voting by correspondence:

- before voting, a clear definition of the issues shall be provided by the Chairman and disseminated to all on the TSG or WG membership list;
- Voting Members shall only be entitled to one vote;
- each Voting Member may only cast the vote once within the voting period;
- the voting period shall be 30 days;
- there are no quorum requirements;
- The result of the vote should be disseminated to the TSG or WG .

Article 28: TSG or WG voting for the election of TSG or WG Chairman and Vice Chairman

In the case where there is more than one candidate for TSG or WG Chairman or Vice Chairman, a secret ballot shall be used. For interpreting the result of the secret ballot the following procedure shall apply:

When, in the first ballot, no candidate has obtained 71% of the votes cast, a second ballot shall be held. In the second ballot, in cases where there are only two candidates, the candidate obtaining the higher number of votes is elected. In cases where there are more than two candidates, if none of them has obtained 71% of the votes, a third and final ballot shall be held among the two candidates who have obtained the highest number of votes in the second ballot. The candidate obtaining the higher number of votes in the third ballot is then elected.

The TSG or WG Chairman shall be responsible for the voting process and shall ensure that confidentiality is maintained.

Article 29: TSG or WG Chairman's decision appeal process

An Individual Member of 3GPP who opposes a Chairman’s ruling on a vote taken within a TSG or WG may submit its case to the PCG for decision. In such cases the Individual Member shall also inform the relevant TSG or WG Chairman.

When a TSG or WG Chairman has made a ruling, his decision shall be taken as the basis for future operations, unless or until overturned by the PCG.

Article 30: TSG and WG meetings

TSGs and WGs shall meet as necessary to complete their work within the prescribed timeframe. TSGs should endeavour to hold their meetings at the same time and place to assist in the overall co-ordination of the work.

Meeting locations should reflect the geographical diversity of the TSG and WG delegates.

Further information on meetings is given in Annex F.

Article 31: TSG and WG meeting invitation

The invitation to a TSG or WG meeting and the necessary logistical information should be disseminated as soon as practically possible, taking into account the need to obtain travel documentation. It shall be disseminated at least 28 days before the meeting to all on the TSG or WG membership list.

Article 32: TSG and WG meeting agenda

The draft agenda for a TSG or WG meeting shall be disseminated by the responsible Chairman to all on the TSG or WG membership list at least 21 days before a meeting. The draft agenda should indicate subject matters where voting may be required. The draft agenda shall indicate elections to be held (including known candidates).

Article 33: TSG and WG meeting registration

Every delegate shall register on arrival at each TSG or WG meeting. Each delegate who represents an Individual Member shall declare the precise name of that Individual Member. A delegate may only register to represent one Individual Member.

Article 34: TSG and WG meeting document and file naming

Documents for a TSG or WG meeting shall follow a consistent numbering system as shown in the following example:

xminnzzzz

This numbering system has six logical elements:

1) **x**: a single letter corresponding to the TSG;

   where x : **R** (Radio Access Network)

   N (Core Network) [TSG closed March 2005]

   S (Service and System Aspects)

   T (Terminals) [TSG closed March 2005]

   G (GSM/EDGE Radio Access Network)

   C (Core network and Terminals)

2) **m** A single character corresponding to the Working Group identity (typically 1, 2, 3, etc) or, in the case of the TSG itself, the letter "**P**".

3) **i**: Normally the hyphen character "-". May take on other values depending on the nature of the meeting at which the document is presented, eg the identity of a subgroup.

4) **(nn)**: two digits to indicate the year, i.e. 99, 00, 01, etc;

5) **zzzz**: unique number of the document

No provision is made for the use of revision numbers. Documents which are a revision of a previous version should indicate the document number of that previous version.

The filename of documents shall be the document number. Documents may be compressed to .Zip files (and thus bear a file extension ".zip"). For example, document **S1-060357** will be contained in file **S1-060357.zip**.

Article 35: TSG and WG Voting Membership List

35.1 Voting list

Each TSG and WG shall maintain a list of Individual Members eligible to vote in that group.

The voting list shall be used to establish quorum and for determining those eligible to take part in a vote.

NOTE 1: The term "membership list" has no particular significance in the context of TSG and WG meetings. The term "attendance list" is used for a list of individuals who attend a given meeeting representing an Individual Member or other entity entitiled to participate in meetings – see annex F.

For the determination of the quorum, see annex X.

35.2 On creation of new TSG or WG

When a new TSG or WG is formed an Individual Member is added to the voting list at the first meeting at which it is represented, and may vote at the second meeting where it is represented.

Exceptionally, if inadequate notice (less thanthe period of time given in article 31) had been given for the first meeting of the new group, an Individual Member shall be added to the voting list on its delegate's attending the second meeting (the election meeting) and vote at that meeting even if it had not been represented at the group's first meeting.

Only an Individual Member that had been represented at the group's first meeting may provide a proxy for the second meeting.

35.3 Established TSGs and WGs

To qualify for the voting list it is necessary for at least one delegate of an Individual Member to attend at least two meetings of the group concerned, without being removed according to the provisions of article 35.4..

An Individual Member having been represented at at least two ordinary meetings of the group has the right to cast a vote by proxy (see article 26). Thus an Individual Member may not cast a vote by proxy during a meeting at which it is not represented unless it had already been represented at two or more qualifying meetings of the group.

35.4 Removal from and reinstatement to voting list

An Individual Member which is not represented at three consecutive meetings of the TSG or WG shall be removed from the voting list.

The right to vote is reinstated at the second meeting which a delegate of the Individual Member attends without missing the number of consecutive meetings mentioned in the previous paragraph (but see article 35.3 for eligibility to cast a proxy vote).

EXAMPLE 1: If Individual Member Zis represented at meeting K and K+3 (and is thus eligible to vote) but is not represented at meetings K+4, K+5 and K+6, it is removed from the voting list.

EXAMPLE 2: If Individual Member X, not previously having been represented at a meeting of the group, is represented at meetings N and N+3, it may cast a vote at meeting N+3.

NOTE: Individual Member X might choose to cast a vote by proxy at meeting N+3, even though its delegate is physically present. This is sometimes useful for coordinating company positions where one large company has several Individual Memberships, possibly via several different Organizational Partners.

EXAMPLE 3: If Individual Member Y, not previously having been represented at a meeting of the group, is represented at meeting N only, it may not cast a vote by proxy at meeting N+2.

35.5 Meetings other than ordinary meetings

Any group that wants to call an electronic meeting (audio, video, document distribution by posting or e-mail, etc) may do so, although this works best with smaller groups. Therefore, all electronic meetings are allowed but only ordinary meetings (see annex F) count towards attendance. However, if a meeting is designated as face-to-face, provision of bridge and speakerphone capabilities for those requesting it would be at the discretion of the host. Those participating by speakerphone are not to be counted toward quorum or attendance, and are not allowed to vote.

For the determination of the quorum, see annex X.

Article 36: TSG Sub Working Groups

A Working Group may establish a Sub Working Group (SWG) with defined Terms of Reference. The Working Group shall appoint a SWG Chairman. The SWG shall work by consensus. The meeting notice requirements for a SWG meeting are the same as for TSGs and WGs.

SECTION G: WORK PROGRAMME AND TECHNICAL CO-ORDINATION

Article 37: Work Programme

The 3GPP Work Programme shall consist of Work Items defined by the TSGs.

Article 38: Work Items

A 3GPP Work Item is a specification task defined in terms of the following principal parameters:

- title;
- intended output (i.e. Technical Specifications or Technical Reports);
- impact on other Technical Specifications and Technical Reports;
- technical scope, including the field of application of the intended output;
- impact on other 3GPP Work Items;
- the schedule of tasks to be performed;
- the identities of the supporting Individual Members;
- the identity of the Work Item Rapporteurs.

Article 39: Work Item creation

Each proposed new Work Item shall be supported by at least four Individual Members, and their names shall be recorded in the Work Item definition prepared for the TSG approval. One or more persons shall be named as Rapporteur for the proposed Work Item, and the Rapporteur shall act as the prime contact point on technical matters and for information on progress throughout the drafting phases. The supporting Individual Members are expected to contribute to and progress the new work item throughout the drafting phases.

In addition to the above, TSGs shall approve new Work Items, giving all essential parameters. The proposal shall be entered into the 3GPP work programme, clearly marked as a new entry, for which a unique reference identity shall be allocated.

Article 40: Work Item adoption by PCG

The 3GPP work programme shall be made available to all Individual Members. A new Work Item shall remain flagged as "new" until the end of the month following the month during which the 3GPP work item was entered into the 3GPP work programme. A new Work Item shall be adopted by the PCG unless a substantial objection is received from an Individual Member or Partner during this period. At the end of the period, the "new" flag shall be removed (even if there is an objection) and it is the responsibility of any objecting Individual Member or Partner to discuss their objections with the TSG Chairman. If it is not possible to resolve the objection, it is the responsibility of the Individual Member or Partner to raise the issue with the PCG.

The TSGs shall ensure that the 3GPP Work Item details are maintained at regular intervals.

Article 41: Work Item stopping

Prior to completion of the intended 3GPP output, the responsible TSG may conclude that a Work Item is no longer required. Any Work Item shall automatically be considered by a TSG for stopping, if no progress has been achieved in a given period of time, typicallysix months, e.g. due to a lack of contribution. In such cases, the Work Item shall be flagged as "stopped" in the Work Programme. The proposal to stop a Work Item shall be fully justified.

The Work Programme shall be updated accordingly, and shall show the Work Item as "stopped" until the end of the month following the month during which the Work Item was initially flagged.

The Work Item will be stopped by the PCG unless substantial objection is received from an Individual Member during this period. It is the responsibility of any objecting Individual Member to discuss their objections with the TSG Chairman. If it is not possible to resolve the objection, it is the responsibility of the Individual Member to raise the issue with the PCG.

Article 42: Technical co-ordination

The PCG shall be responsible for determining the overall time frame and for managing the overall work progress. The System Aspects TSG shall have a particular responsibility for the technical co-ordination of work being undertaken within 3GPP, and for overall system architecture and system integrity. Problems encountered in performing this technical co-ordination role shall be reported immediately to the PCG.

SECTION H: DELIVERABLES

Article 43: Deliverable types

3GPP shall prepare, approve and maintain documents known as Technical Specifications and Technical Reports. Such documents shall be drawn up by the TSGs and shall, following approval at that level, be submitted to the participating Organizational Partners to be submitted to their respective standardization processes.

Article 44: Approval process

Approval of Technical Specifications and Technical reports by a TSG shall normally be by consensus.

Where consensus cannot be achieved in the TSG a vote may be taken.

When Technical Specifications and Technical Reports become sufficiently stable, they shall be put under change control of the relevant TSG. The further elaboration of these Technical Specifications and Technical Reports shall be achieved by change requests to be approved by the TSG.

Article 45: Drafting rules

The Technical Specifications and Technical Reports drafted by the TSGs shall follow the 3GPP drafting rules, using document processing facilities, format, languages and notations agreed by the Organizational Partners, and on a medium suited for electronic document handling and publishing.

Article 46: Copyright and ownership

The Organizational Partners will have joint ownership (including copyright) of the Technical Specifications and Technical Reports produced by 3GPP.

Article 47: Conversion by Organizational Partners

Organizational Partners shall use their best endeavours to convert the Technical Specifications and Technical Reports approved by the Partnership Project into national/regional deliverables in a timely manner through their normal processes.

The Organizational Partners are urged not to change the technical parts of the Technical Specifications and Technical Reports; they may add non-technical parts required by their own deliverable schemes and they may add descriptions of options selected.

Organizational Partners should ensure that all unresolved comments raised during their public enquiry and approval phases are delivered to the appropriate TSG.

SECTION I: REPORTING

Article 48: Chairman’s reporting obligations

A report shall be prepared by the Chairman following all PCG and TSG meetings.

Article 49: Changes to structure and officials

The Chairman of each TSG shall inform the PCG of all organizational changes concerning Working Groups and their officials. An up to date record of the 3GPP structure shall be maintained.

Article 50: Calendar of meetings

The PCG and TSGs shall maintain an up to date calendar of the dates and venues for future meetings.

SECTION J: EXTERNAL RELATIONS

Article 51: Relationship with the ITU

3GPP results should be submitted to the ITU as appropriate.

For working groups, the following handling of communications toward ITU shall apply:

1 Working groups shall send ITU submissions which are destined to become part of ITU deliverables to their parent TSG for review.

2 Working group communications towards the ITU which are NOT destined to become part of an ITU deliverable must be reviewed by the TSG chairman and the appropriate ITU sector convener (if one exists for the given ITU sector). The working group's TSG chairman and ITU sector convener will determine if such a communication should be sent to the parent TSG for review. If for some reason either the TSG chairman or ITU sector convener is not available, then it is sufficient for the remaining person to review the document and determine if it should be escalated to the TSG or not.

3 If the working group communication does not require TSG review, then it shall be conveyed to the ITU from the WG using one of the mechanisms described below.

For TSGs, the following handling of communications toward ITU shall apply:

1 TSGs shall send ITU submissions which are destined to become part of ITU deliverables to the PCG for review.

2 TSGs communications towards the ITU which are deemed sensitive by the TSG shall be sent to the PCG for review.

3 If the TSG does not judge the communication as sensitive, then it shall be conveyed to the ITU from the WG using one of the mechanisms described below.

To convey a communications towards the ITU, one of the following mechanisms shall be used based upon determination of the sending body (a body may determine a default mechanism).

a) The communication shall be sent from the OPs as a deliverable from their organizations (applicable to PCG reviewed communications only)

b) The communication shall be made by Individual Members who are also members of the ITU. In such a circumstance, the appropriate ITU sector convener will coordinate and handle the administrative matters for the submission. 3GPP Technical Specifications and Technical Reports may be taken as the technical content of such contributions (applicable to PCG reviewed communications or TSG reviewed communications).

c) The communication shall be sent directly from the 3GPP liaison coordinator to the appropriate ITU receiver in the ITU (applicable to TSG reviewed communications or WG reviewed communications).

Representatives of ITU-D, ITU-R and ITU-T are invited to participate in the Project Coordination Group for the efficient coordination and exchange of information.

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Deleted: 3GPP will not contribute directly to the ITU. Formal contributions to ITU Study Groups shall be made by Individual Members who are also members of the ITU. 3GPP Technical Specifications and Technical Reports may be taken as the technical content of such contributions.¶
PCG need only review those ITU LSs which are destined to become part of ITU deliverables.¶

Article 52: Relations with other groups

TSGs and WGs are encouraged to liaise directly with the relevant technical bodies within the 3GPP and Partners as appropriate.

A liaison statement shall clearly communicate what is expected from the receiver, i.e., which parts are for information, which questions are expected to be clarified and by whom (especially if there are multiple receivers), and also when an answer is needed, e.g., when is the next meeting of the group sending the liaison statement.

A TSG or any subtending Working Group may send individual liaisons to any external organization (other than ITU) without PCG approval, except if the statement is considered sensitive by the TSG Chairman, in which case PCG clearance is needed.

It is not necessary to have all external liaisons copied to the PCG and/or TSG SA. The liaison originating TSG should decide, at its own discretion, which should be copied. External liaisons that may have management implications such as schedules, organization, process, procedures, and policy shall be copied to the PCG, or approved by the PCG if sensitive.

Relations with the ITU are described in Article 51.

SECTION K: MISCELLANEOUS

Article 53: Resources

The resources for the operation of 3GPP shall be managed by the Organizational Partners. The resources are allocated to the TSGs by the PCG.

Article 54: Support Team

The Partners shall provide logistical support to, and assist in the operation of, 3GPP. The support shall be in the form of a Support Team which shall operate under the overall management of the PCG and the day to day management of TSGs.

Article 55: Intellectual Property Rights (IPR) Policy

Individual Members shall be bound by the IPR Policy of their respective Organizational Partner.

Individual Members should declare at the earliest opportunity, any IPRs which they believe to be essential, or potentially essential, to any work ongoing within 3GPP. Declarations should be made by Individual Members to their respective Organizational Partners.

Organizational Partners should encourage their respective members to grant licences on fair, reasonable terms and conditions and on a non-discriminatory basis.

The PCG shall maintain a register of IPR declarations relevant to 3GPP, received by the Organizational Partners.

Article 56: Working language

The working language for 3GPP shall be English.

Meetings of the PCG and TSGs shall be conducted in English.

3GPP Technical Specifications and Technical Reports shall be prepared in English (as defined by the Shorter Oxford English Dictionary).

Article 57: Duration

3GPP shall be task oriented and on completion of the tasks the future of 3GPP shall be re-considered. The continuation of 3GPP shall therefore be confirmed by the Organizational Partners on an annual basis.

Article 58: Review of activities

An evaluation of the activities of 3GPP should be made by the Organizational Partners at regular intervals.

Article 59: Dissolution, winding up

In the event of a voluntary dissolution of 3GPP, the Partners shall determine the terms of liquidation by consensus. All issues shall be documented and distributed at least 30 days prior to decisions being made.

Article 60: Amendments to 3GPP Working Procedures

These Partnership Project Working Procedures may only be amended by decision taken by the PCG.

Annex A: Definitions

Consensus:	General agreement, characterized by the absence of sustained opposition to substantial issues by any important part of the concerned interest and by a process that involves seeking to take into account the views of all parties concerned and to reconcile any conflicting arguments. (Note: consensus need not imply unanimity).
Conversion:	The transformation of a 3GPP output document into an Organizational Partners deliverable following the Organizational Partners' recognized processes.
Delegate:	An individual taking part in a TSG/WG meeting physically or by electronic means.
Drafting Rules:	A document approved by the Organizational Partners providing rules for the drafting of 3GPP Technical Specifications and Technical Reports.
Election:	The voting process used to identify an individual from a number of individuals.
Guest:	An entity fulfilling the criteria to become a future Individual Member, which has been granted temporary participation rights in the 3GPP
Individual Member:	A member of an Organizational Partner having participation rights within that Organizational Partner and which has registered to take part in 3GPP.
ITU Representative	Representatives of ITU-D, ITU-R and ITU-T invited to participate in the Project Coordination Group for the efficient coordination and exchange of information.
Market Representation Partner:	A Partner invited by the Organizational Partners to participate in 3GPP to offer advice and to bring into 3GPP a consensus view of market requirements.
Observer:	An Organization fulfilling the criteria to become a future Partner which has been granted temporary participation rights in 3GPP.
Organizational Partner:	A recognized Standards Organization which has been accepted as a Partner in 3GPP.
Partner:	An Organizational Partner or a Market Representation Partner of 3GPP.
Partnership Project Agreement:	The document signed by 3GPP Partners defining their rights and obligations.
Partnership Project Description:	A document which describes the overall structure and operation of 3GPP.
Represent:	Attend on behalf of. A person who attends a meeting on behalf of an Individual Member represents that Individual Member. The person is not necessarily employed by that Individual Member, but may be, for example, employed by a subsidiary company in the same group as the represented Individual Member; or the person may be an independent consultant under contract to the Individual Member. "Representation" sometimes influences the eligibility to vote – see article 35 and annexes A and F.
Sub Working Group	A subordinate body of a Working Group.
Support Team:	A number of persons dedicated to support 3GPP.
Technical Report:	A 3GPP output document containing mainly informative elements approved by a Technical Specification Group.
Technical Specification:	A 3GPP output document containing normative provisions approved by a Technical Specification Group.
Voting Member	An Individual Member who has voting rights within a TSG/WG.
Work Item:	The documented record of a specific technical activity of 3GPP.
Work Programme:	The documented record of the all technical activities of 3GPP.
Working Group:	A subordinate body of a Technical Specification Group.

Annex B: Abbreviations

3GPP	Third Generation Partnership Project
ARIB	Association of Radio Industries and Businesses
ATIS	Alliance for Telecommunications Industry Solutions (successor to T1)
CCSA	China Communications and Standards Association (successor to CWTS)
CDMA	Code Division Multiple Access
CWTS	China Wireless Telecommunications Standards Group (superseded by CCSA)
ETSI	European Telecommunications Standards Institute
FDD	Frequency Division Duplex
GSM	Global System for Mobile Communication
IMT-2000	International Mobile Telecommunication
ITU	International Telecommunication Union
MRP	Market Representation Partner
PCG	Project Co-ordination Group
SWG	Sub Working Group
T1	Standards Committee T1 (superseded by ATIS)
TDD	Time Division Duplex
TSG	Technical Specification Group
TTA	Telecommunications Technology Association
TTC	Telecommunication Technology Committee
UIM	User Identity Module
UTRA	Universal Terrestrial Radio Access
UTRAN	Universal Terrestrial Radio Access Network
WG	Working Group

Annex C: Individual member application form

APPLICATION FORM
for INDIVIDUAL MEMBERSHIP
of the THIRD GENERATION PARTNERSHIP PROJECT
Please complete this form and return it to your Organizational Partner

COMPANY NAME .....

Please indicate below which ORGANIZATIONAL PARTNER you are a member of

ARIB	
CCSA	
ETSI	
ATIS	
TTA	
TTC	

Please indicate below which Technical Specification Groups you wish to participate in:

Radio Access Network	
Core Network and Terminals	
Service and System Aspects	
GSM EDGE Radio Access Network (GERAN)	

Signed by (Authorized Representative) (See Note 1)	
Print name	
Position	
Date	
Telephone	
Fax	
Email	
Company Website URL	

Contact person's family name (See Note 2)	
Contact person's given name	
Job title	
Mailing address	
Telephone	
Fax	
Email	

Note 1: Is either the official contact person or voting contact of a company.

Note 2: People attending meetings and who can also have signing authority.

Annex D: (Void)

Annex E: Guidance for MRP applicants

E.1 Introduction

The conditions for the acceptance of Market Representation Partners (MRPs) in 3GPP are given in Article 7 of these Working Procedures. This Annex provides additional guidance to MRP Applicants.

E.2 Guidance

During the application process, the Organizational Partners will need to be assured that an Applicant:

(a) Has a field of interest directly or indirectly related to the work being undertaken by 3GPP;

(b) Has attained a demonstrable level of recognition within this field of interest;

(c) Has an understanding of the market requirements relevant to 3GPP;

(d) Is willing to actively contribute to the work of 3GPP and has sufficient resources for this purpose;

(e) Fully supports the goals and objectives of 3GPP and does not take part in activities that conflict with these goals and objectives.

In processing an application, the Organizational Partners will peruse openly available documentation published by an Applicant, including material posted on its Website, in order to confirm that the points listed above have been satisfied.

Annex F: Guidance on meeting organization

F.1 Meeting classification

TSG and WG Meetings are classified either:

- ordinary; or
- ad hoc.

F.2 Ordinary meetings

Ordinary meetings are ones where the regular business of the TSG or WG is conducted. Such meetings are normally chaired by the Group's chairman or, if unavailable, a vice-chairman. Ordinary meeting should be announced at least six months prior to the opening day of the meeting.

TSG and WG ordinary meetings shall follow an incrementing number sequence. If an additional ordinary meeting is required between two ordinary meetings, the sequence may be preserved, even though this means renumbering subsequent meetings, or the additional meeting may be numbered using the 'bis' suffix as a numbering scheme.

Attendance at an ordinary meeting counts towards an Individual Member's eligibility to cast a vote in the Group (see Articles 26 and 27). The Support Team shall record the participation in an ordinary meeting (each person and organization represented) and the attendance list shall be included in the meeting report.

F.3 Ad hoc meetings

An ad hoc meeting of a WG or a TSG is one called to address one or more particular topics. The ad hoc meeting shall be called by decision of the WG (or its parent TSG) or TSG concerned; the decision to hold any subsequent ad hoc meetings on the same topic may be made by the ad hoc meeting participants themselves without reference to the parent WG or TSG, although the parent WG or TSG shall review any ad hoc activity at every Ordinary meeting and determine to either continue or to close the ad hoc activity, even if the previous ad hoc meeting suggested a further meeting. The scope of each subsequent ad hoc meeting shall be indicated by the chairman at least 21 days before the meeting. The ad hoc meeting shall not expand or change the scope originally determined by the parent group. An ad hoc meeting is allowed to make decisions only within its pre-defined remit, and any such decisions shall be ratified by the parent WG or TSG unless, in the case of a WG, a decision was previously explicitly delegated by the WG to the ad hoc meeting.

An ad hoc meeting may be chaired as described for an ordinary meeting above, or, with the agreement of the WG or TSG concerned, by a Work Item rapporteur, or other appropriate person. Although open to all 3GPP Individual Members, ad hoc meetings may attract only a subset of Individual Member representatives who would normally participate in ordinary meetings.

Ad hoc meetings shall not be considered when calculating voting rights. That is, attendance at (or absence from) an ad hoc meeting shall not influence voting rights, which are determined solely by attendance at "ordinary" meetings.

No voting shall occur at ad hoc meetings.

F.4 Attendance register

F.4.1 Face to face meetings

A delegate is deemed to have attended a given meeting if the individual confirms his or her participation by signing the attendance list made available by the group's secretary during the meeting. If a delegate does not sign the attendance sheet during the meeting, the secretary shall assume that the individual did not attend.

Deleted: A delegate is deemed to have attended a given meeting once all the following conditions have been fulfilled:¶
- the individual has registered his intention to attend;¶
- the individual has physically picked up his badge at the meeting venue and, when possible, has been acknowledged by the meeting Secretary or a representative of the hosting organization as having done so;¶
- the individual has confirmed his participation by ticking the "yes" box on the delegate list circulated by the group's Secretary.¶

If any of these conditions are not fulfilled, the meeting Secretary will assume that the individual did not attend.¶

A delegate, having registered and begun to participate in a meeting, is not allowed to change the organization he represents during the course of that meeting. An individual delegate is not allowed to simultaneously represent two or more Individual Members at a meeting.

F.4.2 Electronic meetings

Electronic meetings such as audio / video conferences, email exchanges considered as meetings, etc, are encouraged where appropriate. For such events, the Secretary will establish the attendance list on the basis of those actually participating in the meeting (those dialling in to the conference bridge, those issuing and responding to emails, etc.) Nevertheless, advance registration is strongly encouraged.

Fully electronic meetings are to be considered as "ad hoc" as defined above.

Participation by Individual Member in fully electronic meetings, or electronic participation in a face to face meeeting (eg by phoning in) is not considered for the accrual or loss of voting rights.

Annex G: Working agreements

"Working agreements" are tentative decisions reached by 3GPP groups in order to make progress on matters where consensus (as defined in Annex A) cannot be reached. It is intended to be used in situations where there is a clear majority in favour of one approach, but a small minority has sustained opposition to that approach.

The working agreement process has the following steps:

- Consensus cannot be reached on an issue. A substantial majority of individual members prefer a given approach, but there is sustained opposition by a small minority of individual members, preventing consensus.
- The chair declares a working agreement. The working agreement is documented in the meeting report
- The approach agreed to by the majority and documented in the working agreement can continue unimpeded.
- The working agreement is entered into the 3GPP working agreements page on the 3GPP web site. The window for challenging the working agreement is now open.
- Working agreements may be challenged, resulting in a formal vote. This potential vote would be held at the next meeting of the WG or parent TSG (whichever comes first). If the next meeting is less than 14 days after the establishment of the working agreement, then that meeting is skipped in determining the next meeting. The meeting for potential voting is documented on the 3GPP working agreements page of the 3GPP web site (http://www.3gpp.org/TSG-Working-Agreements).
- The challenge cutoff date is established. This is 7 days before the start of the meeting for potential voting. The cutoff date is documented on the 3GPP working agreements page of the 3GPP web site.
- Organizations wishing to challenge the working agreement may do so until the challenge window closes. A challenge may be made by informing the chair of the group which will do the voting. Any received challenge is documented on 3GPP working agreements page of the 3GPP web site.
- The group which will be voting is informed of the intention to have a working agreement challenge vote and the specific voting question.
- If no challenge is received by the challenge cutoff date, then the working agreement is confirmed. The confirmation of the working agreement is documented on the 3GPP working agreements page of the 3GPP web site. The issue is closed.
- If a challenge is received, then a formal vote on the working agreement will occur at the designated meeting. Voting on working agreements is a standing part of meeting agendas. Voting is as described in articles 25 & 26 of the working procedures.
- If the challenge fails (at least 71% in favour of the working agreement), then the working agreement is confirmed. The confirmation of the working agreement is documented on the 3GPP working agreements page of the 3GPP web site. The issue is closed.
- If the challenge suceeds (less than 71% in favour of the working agreement), then the working agreement fails. All changes which were made based on the working agreement shall be reversed and the group must continue to search for consensus. The overturning of the working agreement is documented on the 3GPP working agreements page of the 3GPP web site.
- Organizations may withdraw a challenge at any time in the process. If the last challenge is withdrawn after the challenge cutoff, then the working agreement is confirmed. The confirmation of the working agreement is documented on the 3GPP working agreements page of the 3GPP web site. The issue is closed.

Annex H: Calculation of quorum in TSGs and WGs

Where calculation of a quorum is required in the context of a vote conducted in a TSG or a WG, the quorum shall be deemed to have been met if:

$(B - P) / V >= Q$

Where:

B is the number of ballot papers issued;

P is the number of proxy votes exercised (i.e. the number of ballot papers issued to delegates bearing authorization to cast votes by proxy);

V is the number of Individual Members having the right to vote at the meeting (including those with only the right to vote "in person" and not by proxy);

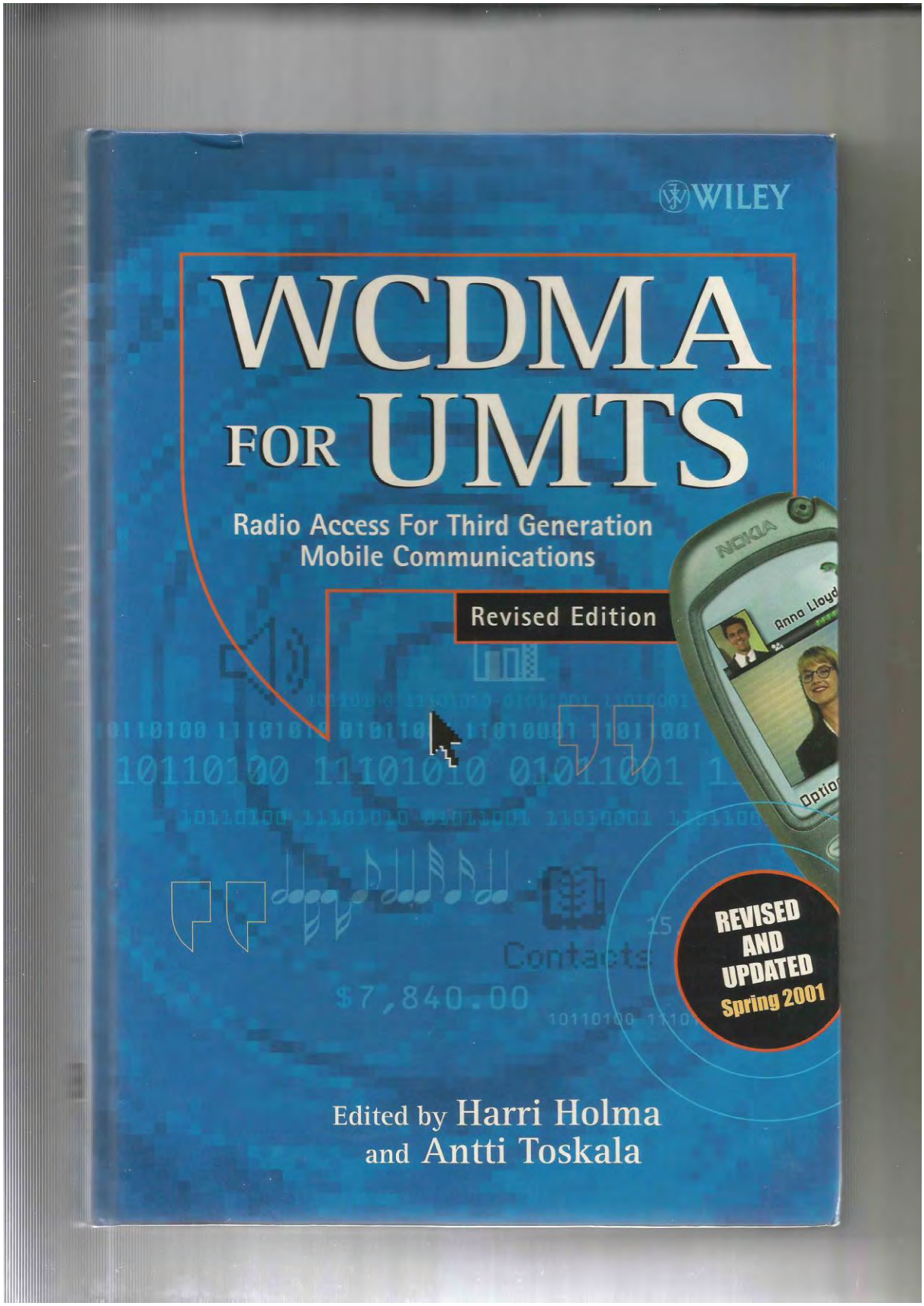
Q is the required quorum value given in article 26.

Deleted: H

Annex I: Change history

Date	PCG #	PCG Doc.	CR	Rev	Subject/Comment
2002-04-25	6				
2005-03-01	13				Changes agreed at PCG meeting incorporated. [No formal change control system yet in place]
2006-04-24	16	PCG16_07	2		ETSI proposal: Article 10 Clarify the rights of observers and guests
			3		ETSI proposal: Article 15 To allow leeway in the number of delegates representing each OP at PCG (To reflect the decision already taken by PCG#14 on PCG participation)
			9		ETSI proposal: Article 34 To cater for current TSG structure and to reflect common practice of Tdoc numbering
			1	1	Article 3 Reflect decision on regional options (To incorporate PCG#7 decision)
			4	1	Article 22 Clarification and codification of the rights to stand for elected positions in TSGs and WGs
			8		Article 30 & annex F Inclusion of an annex giving guidance on meeting organization
2006-10-27	17	PCG17_15 r1	10		Article 35 Clarification of voting rights
2009-05-18	22	PCG22_18	11	5	Changes resulting from the OP ad hoc group on improvements report and conclusions of OP#20. Articles affected: 22 23 31 35 41 52 Annex D plus sundry spelling corrections.
		PCG22_19	12	2	Rules on eligibility to cast votes at TSG and WG level.
		PCG22_20	13		Bring statement of purpose of 3GPP up to date
		PCG22_23	14		Adding Working Agreements to working procedures
		PCG22_30 r3	15	3	Change of ITU liaison process Note: PCG meeting #22 approved contribution PCG22_30r1 but this was subsequently revised to r3 after the meeting with the apparent approval of the PCG.
					Decision PCG22/11: clause 22.1 changed wording from "in the March time frame in" to "in the first semester of".
2009-08-12					Editorial correction to implementation of CR15r3. (article 52).
2010-04-23		PCG24_11	16		TSG vs WG election
		PCG24_12	17		Quorum
		PCG24_13	18		Communication with ITU
		PCG12_25	19		Attendance register for meetings

APPENDIX 6



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IPR2024-01144

WCDMA FOR UMTS

Radio Access For Third Generation Mobile Communications

Revised edition

Edited by
Harri Holma and Antti Toskala
Both of Nokia, Finland

JOHN WILEY & SONS, LTD
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4.5.3 *cdma2000*

The cdma2000 air interface proposal to ITU is the result of work in TR45.5 on the evolution of IS-95 towards the third generation. The cdma2000 proposal is based partly on IS-95 principles with respect to synchronous network operation, common pilot channels, and so on, but it is a wideband version with three times the bandwidth of IS-95. The ITU proposal contains further bandwidth options as well as the multi-carrier option for downlink. The cdma2000 proposal has a high degree of commonality with the Global CDMA 1 ITU proposal from TTA, Korea.

The cdma2000 multi-carrier option is covered in more detail in Chapter 13, as being currently standardised by 3GPP2.

4.5.4 *TR46.1*

The WIMS W-CDMA was not based on work derived from an existing second generation technology but was a new third generation technology proposal with no direct link to any second generation standardisation. It was based on the constant processing gain principle with a high number of multicodes in use, thus showing some fundamental differences but also a level of commonality with WCDMA technology in other forums.

4.5.5 *WP-CDMA*

WP-CDMA (Wideband Packet CDMA) resulted from the convergence between W-CDMA N/A of T1P1 and WIMS W-CDMA of TR46.1 in the US. The main features of the WIMS W-CDMA proposal were merged with the principles of W-CDMA N/A. The merged proposal was submitted to the ITU-R IMT-2000 process towards the end of 1998, and to the 3GPP process at the beginning of 1999. Its the most characteristic feature, compared with the other WCDMA-based proposals, was a common packet mode channel operation for the uplink direction, but there were also a few smaller differences.

4.6 Creation of 3GPP

As similar technologies were being standardised in several regions around the world, it became evident that achieving identical specifications to ensure equipment compatibility globally would be very difficult with work going on in parallel. Also, having to discuss similar issues in several places was naturally a waste of resources for the participating companies. Therefore initiatives were made to create a single forum for WCDMA standardisation for a common WCDMA specification.

The standardisation organisations involved in the creation of the 3rd Generation Partnership Project (3GPP) [9] were ARIB (Japan), ETSI (Europe), TTA (Korea), TTC (Japan) and T1P1 (USA) as shown in Figure 4.2. The partners agreed on joint efforts for the standardisation of UTRA, now standing for Universal Terrestrial Radio Access, as distinct from UTRA (UMTS Terrestrial Radio Access) from ETSI, also submitted to 3GPP. Companies such as manufacturers and operators are members of 3GPP through the respective standardisation organisation to which they belong.

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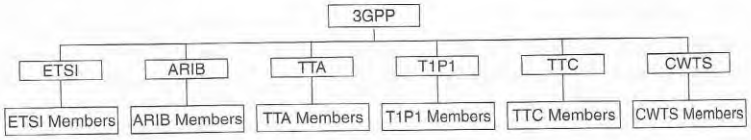


Figure 4.2. 3GPP organisational partners

Later during 1999, CWTS (the China Wireless Telecommunication Standard Group) also joined 3GPP and contributed technology from TD/SCDMA, a TDD-based CDMA third generation technology already submitted to ITU-R earlier.

3GPP also includes market representation partners: GSM Association, UMTS Forum, Global Mobile Suppliers Association, IPv6 Forum and Universal Wireless Communications Consortium (UWCC). In [9] there are up-to-date links to all participating organisations.

The work was initiated formally at the end of 1998 and the detailed technical work was started in early 1999, with the aim of having the first version of the common specification, called Release-99, ready by the end of 1999.

Within 3GPP, four different technical specification groups (TSG) were set up as follows:

- Radio Access Network TSG
- Core Network TSG
- Service and System Aspects TSG
- Terminals TSG

Within these groups the one most relevant to the WCDMA technology is the Radio Access Network TSG (RAN TSG), which has been divided into four different working groups as illustrated in Figure 4.3.

The RAN TSG will produce Release-99 of the UTRA air interface specification. The work done within the 3GPP RAN TSG working groups has been the basis of the technical description of the UTRA air interface covered in this book. Without such a global initiative, this book would have been forced to focus on a single regional specification, though with many similarities to those of other regions. Thus the references throughout this book are to the specification volumes from 3GPP.

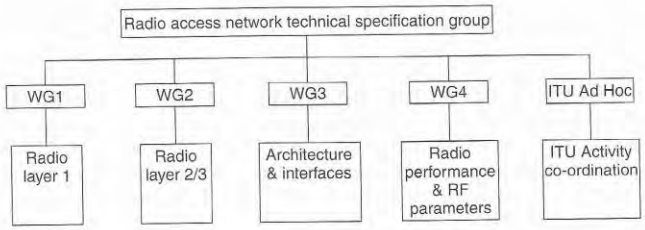


Figure 4.3. 3GPP RAN TSG working groups

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During the first half of 1999 the inputs from the various participating organisations were merged in a single standard, leaving the rest of the year to finalise the detailed parameters for the first full release, Release-99, of UTRA from 3GPP. The member organisations have undertaken individually to produce standard publications based on the 3GPP specification. Thus, for example, the Release-99 UMTS specifications from ETSI are identical to the Release-99 specifications produced by 3GPP. The latest specifications can be obtained from 3GPP [9].

During 2000, further work on GSM evolution was moved from ETSI and other forums to 3GPP, including work on GPRS and EDGE. A new TSG, TSG GERAN was set up for this purpose.

4.7 Creation of 3GPP2

Work done in TR45.5 and TTA was merged to form 3GPP2, focused on the development of cdma2000 Direct-Sequence (DS) and Multi-Carrier (MC) mode for the cdma2000 third generation component. This activity has been running in parallel with the 3GPP project, with participation from ARIB, TTC and CWTS as member organisations. Recently the main concentration has been on the MC mode work, due to decisions resulting from the global harmonisation efforts.

4.8 Harmonisation Phase

During the spring of 1999 several operators and manufacturers held series of meetings to seek further harmonisation and convergence between the CDMA-based third generation solutions, WCDMA and cdma2000. For the 3GPP framework the ETSI, ARIB, TTA and T1P1 concepts had already been merged to a single specification, while cdma2000 was still on its own in TR45.5. As a result of several meetings and telephone conferences, the manufacturers and operators agreed to adopt a harmonised global third generation CDMA standard consisting of three modes: Multi-Carrier (MC), Direct Spread (DS) and Time Division Duplex (TDD). The MC mode was based on the cdma2000 multi-carrier option, the DS mode on WCDMA (UTRA FDD), and the TDD mode on UTRA TDD. The agreement was to phase in a modular approach in which both core networks could be used with all air interface alternatives, as described in Figure 1.4 in Chapter 1.

The main technical impacts of these harmonisation activities were the change of UTRA FDD and TDD mode chip rate from 4.096 Mcps to 3.84 Mcps and the inclusion of a common pilot for UTRA FDD. The work in 3GPP2 focused on the MC mode, and the DS mode from cdma2000 was abandoned. The result is that globally there is only one Direct Spread (DS) wideband CDMA standard, WCDMA.

4.9 IMT2000 Process in ITU

In the ITU, recommendations have been developed for third generation mobile communications systems, the ITU terminology being called IMT-2000 [10], formerly FPLMTS. In the ITU-R, ITU-R TG8/1 has worked on the radio-dependent aspects, while the radio-independent aspects have been covered in ITU-T SG11.

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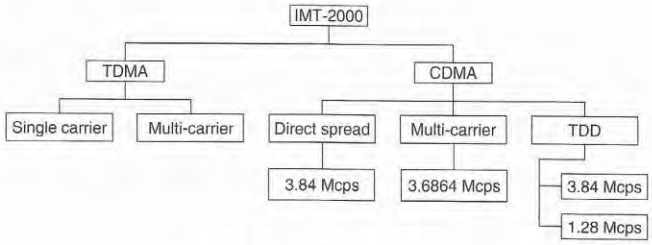


Figure 4.4. ITU-R IMT-2000 grouping

In the radio aspects, ITU-R TG8/1 received a number of different proposals during the IMT-2000 candidate submission process. In the second phase of the process, evaluation results were received from the proponent organisations as well as from the other evaluation groups that studied the technologies. During the first half of 1999 recommendation IMT.RKEY was created which describes the IMT-2000 multimode concept.

The ITU-R IMT-2000 process was finalised at the end of 1999, when the detailed specification (IMT-RSCP) was created and the radio interface specifications were approved by ITU-R [11]. The detailed implementation of IMT-2000 will continue in the regional standards bodies. The ITU-R process has been an important external motivation and timing source for IMT-2000 activities in regional standards bodies. The requirements set by ITU for an IMT-2000 technology have been reflected in the requirements in the regional standards bodies, for example in ETSI UMTS 21.01 [5], in order for the ETSI submission to fulfil the IMT-2000 requirements. The ITU-R interaction between regional standardisation bodies in the IMT-2000 process is reflected in Figure 4.5.

The ITU-R IMT-2000 grouping, with TDMA- and CDMA-based groups, is illustrated in Figure 4.4. The UTRA FDD (WCDMA) and cdma2000 are part of the CDMA interface, as CDMA Direct Spread and CDMA Multi-Carrier respectively. UWC-136 and DECT are part of the TDMA-based interface in the concept, as TDMA Single Carrier and TDMA Multi-Carrier respectively. The TDD part in CDMA consists of UTRA TDD from 3GPP and TD-SCDMA from CWTS. For the FDD part in the CDMA interface, harmonisation has been completed, and the harmonisation process is expected to continue for the CDMA TDD mode within 3GPP during 2000 and 2001.

4.10 Beyond 3GPP Release-99

Upon completion of the Release-99 specifications, work will concentrate on specifying new features as well as making the necessary corrections to Release-99. Typically such corrections arise as implementation proceeds and test systems are updated to include the latest changes in the specifications. As experience in various forums has shown, a major step forward in system capabilities with many new features requires a phasing-in period for the specifications. Fortunately, the main functions have been verified in the various test systems in operation since 1995, but only the actual implementation will reveal any errors and inconsistencies in the fine detail of the specifications.

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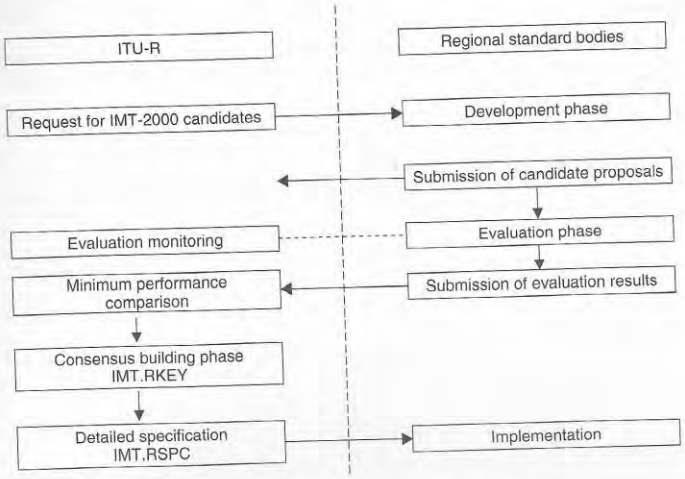


Figure 4.5. Relationship of ITU-R to the regional standards bodies

In 3GPP the next version of the specifications was originally considered as Release 2000, but since that the Release naming was adjusted so that next release is called Release 4 due to the 03/2001. Release 4 will contain only minor adjustment with respect to the Release'99. Bigger items are foreseen for inclusions in Release 5, including reaching for the data rates even up to the 10 Mbps in the downlink direction. Release 5 is due for the end of 2001. Release'99 specifications have a version number starting with 3 while Release 4 and 5 specifications have version number starting logically with 4 and 5 respectively.

During coming years, part of the process is to specify the extensions for connecting UTRA FDD to IS-41 based core networks. Work will be carried out on cdma2000 to allow connection to GSM-based core networks. This development will offer operators some degree of flexibility in selecting their third generation technology, assuming they are not aiming to launch such a service immediately, since Release-99 does not yet contain these options.

On the TDD side, further alignment is expected between the TDD mode in UTRA and the TDD mode from CWTS (China). This process is expected to continue after Release-99 is completed in 3GPP. 3GPP Release-4 is also planned to cover the lower chip rate (1.28 Mcps) TDD.

Other interesting developments are expected in the area of using IP based technology in UTRA. First step is going to be the IP based transport option in Release 4 and further releases are likely to see IP technology shaping the internal architecture of the UTRA Network (UTRAN). Also some of the protocols developed by the Internet Engineering Task Force (IETF) [12], such as robust IP header compression suitable for cellular transmission, are foreseen to be adopted as part the UTRA Rel'4 specifications.

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References

[1] Pajukoski, K. and Savusalo, J., 'Wideband CDMA Test System', *Proc. IEEE Int. Conf. on Personal Indoor and Mobile Radio Communications*, PIMRC'97, Helsinki, Finland, 1–4 September 1997, pp. 669–672.

[2] Nikula, E., Toskala, A., Dahlman, E., Girard, L., and Klein, A., 'FRAMES Multiple Access for UMTS and IMT-2000', *IEEE Personal Communications Magazine*, April 1998, pp. 16–24.

[3] Klein, A., Pirhonen, R., Sköld, J., and Suoranta, R., 'FRAMES Multiple Access Mode 1—Wideband TDMA with and without Spreading', *Proc. IEEE Int. Conf. on Personal Indoor and Mobile Radio Communications*, PIMRC'97, Helsinki, Finland, 1–4 September 1997, pp. 37–41.

[4] Ovesjö, F., Dahlman, E., Ojanperä, T., Toskala, A., and Klein, A., 'FRAMES Multiple Access Mode 2—Wideband CDMA', *Proc. IEEE Int. Conf. on Personal Indoor and Mobile Radio Communications*, PIMRC'97, Helsinki, Finland, 1–4 September 1997, pp. 42–46.

[5] Universal Mobile Telecommunications System (UMTS), Requirements for the UMTS Terrestrial Radio Access System (UTRA), ETSI Technical Report, UMTS 21.01 version 3.0.1, November 1997.

[6] Universal Mobile Telecommunications System (UMTS), Selection Procedures for the Choice of Radio Transmission Technologies of the UMTS, ETSI Technical Report, UMTS 30.03 version 3.1.0, November 1997.

[7] Universal Mobile Telecommunications System (UMTS), UMTS Terrestrial Radio Access System (UTRA) Concept Evaluation, ETSI Technical Report, UMTS 30.06 version 3.0.0, December 1997.

[8] ETSI Press Release, SMG Tdoc 40/98, 'Agreement Reached on Radio Interface for Third Generation Mobile System, UMTS', Paris, France, January 1998.

[9] http://www.3GPP.org

[10] http://www.itu.int/imt/

[11] ITU Press Release, ITU/99–22, 'IMT-2000 Radio Interface Specifications Approved in ITU Meeting in Helsinki', 5 November 1999.

[12] http://www.ietf.org

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APPENDIX 7

3GPP PCG#38
West Palm Beach, 25 April 2017
PCG38_20

MCC Activity Report

Source

Adrian Scrase

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- Departures and Arrivals
- Resource Allocation
- Personnel Changes
- Workload
- 3GPP Membership
- Antitrust Compliance Training
- Summary and Outlook

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Departures and Arrivals

Kyoungseok OH has joined MCC from the beginning of 2017 as the seconded expert from TTA. He has been allocated Working Group RAN4.



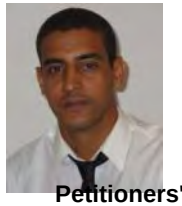
Hakim MKINSI has joined MCC from the beginning of February 2017 and has been allocated Working Group CT6 (as a part time assignment, the remainder of his time being allocated to ETSI TC SCP.)



As a result of these arrivals, Juha Korhonen has now been allocated Working Group RAN2, and Issam Toufik has been allocated Working Group RAN3.



Due to the increasing number of additional meetings, a flexible assignment may be necessary on a case by case basis.



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Resource Allocation



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Workload: Change Requests

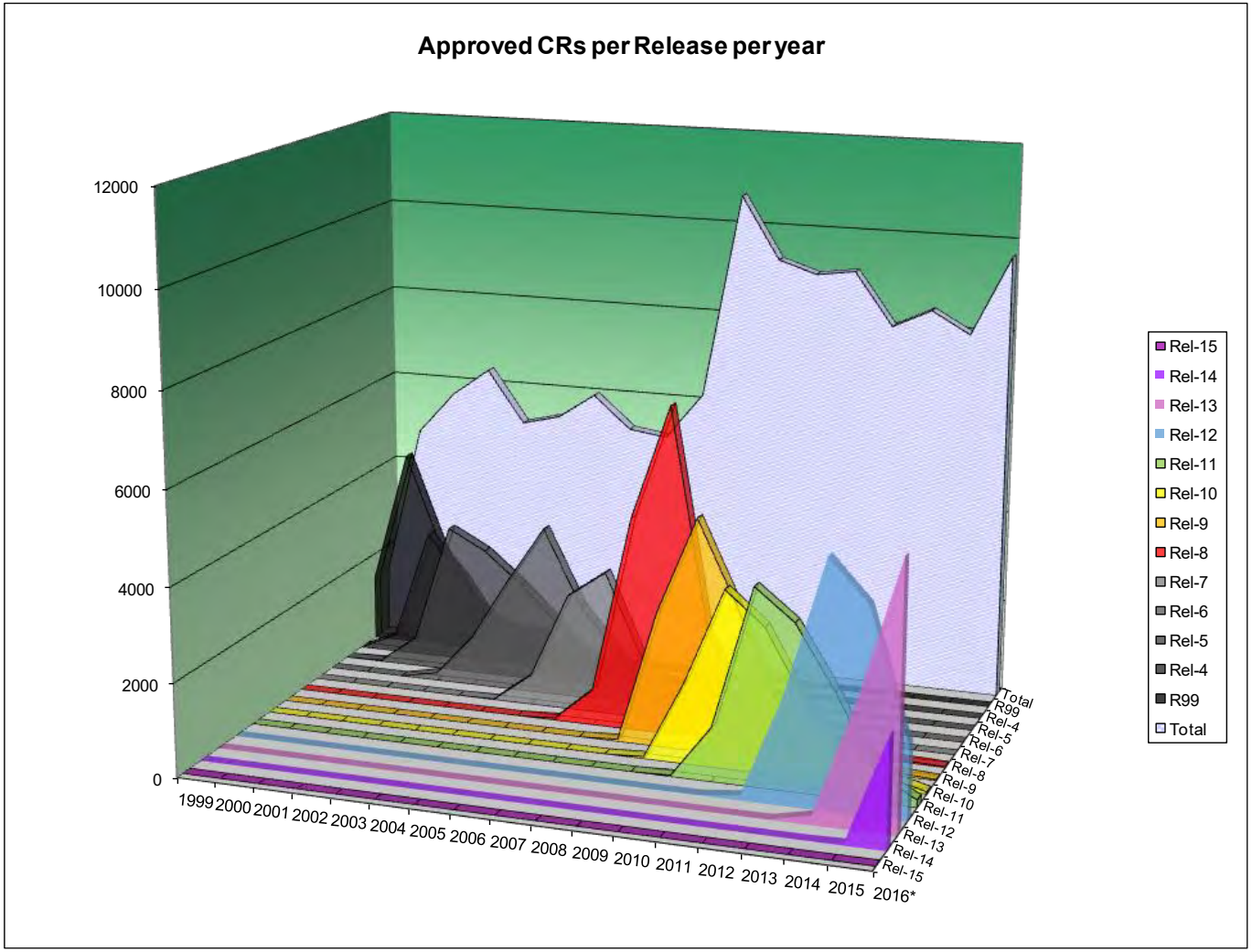
Approved CRs per Release per Year

Release	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016*	Total
R99	1408	4398	2266	1004	581	512	111	42	23	5	5	1	0						**10356**
Rel-4		376	2828	1900	690	257	122	63	48	22	20	13	11	8	7	2			**6367**
Rel-5		27	644	3274	2842	2162	1357	509	94	25	22	7	7	5	3	2			**10980**
Rel-6				172	1088	2458	3721	2074	1078	212	74	19	17	10	4	4			**10931**
Rel-7					1	20	663	2529	3132	1262	492	176	91	43	25	15			**8449**
Rel-8								49	777	4609	7073	2347	706	347	184	91	46	22	**16251**
Rel-9										49	2918	4991	3252	1366	376	165	70	26	**13213**
Rel-10											47	1722	3800	3103	1636	584	267	50	**11209**
Rel-11												32	1152	4178	3525	2186	622	163	**11858**
Rel-12													6	102	2254	5181	4287	1530	**13360**
Rel-13															8	200	2648	5571	**8427**
Rel-14																	24	2315	**2339**
Rel-15																		6	**6**
Total	**1408**	**4801**	**5738**	**6350**	**5202**	**5409**	**5974**	**5266**	**5152**	**6184**	**10651**	**9308**	**9042**	**9162**	**8022**	**8430**	**7964**	**9683**	**123746**

* It should be noted that **9683** Change Requests were processed during 2016, which represents the highest peak since 2009 (Release 8 (LTE) freeze). It is predicted that the Release 15 and Release 16 freezes (5G) will result in an even higher number of Change Requests to be processed (i.e., the Perfect Storm).

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Workload: CRs



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Workload: Committee Support

PCG#36 requested that MCC provide support to ad hoc meetings, bis meetings and workshops to the extent that this is possible within the overall budget. This request has been implement and, in most cases, such meetings have received support.

At PCG#37, I gave warning that the increasing workload was likely to become unsustainable and would necessitate an increase in MCC resources.

A proposal is therefore made at this PCG to increase MCC resources and this can be found in document PCG38_21.

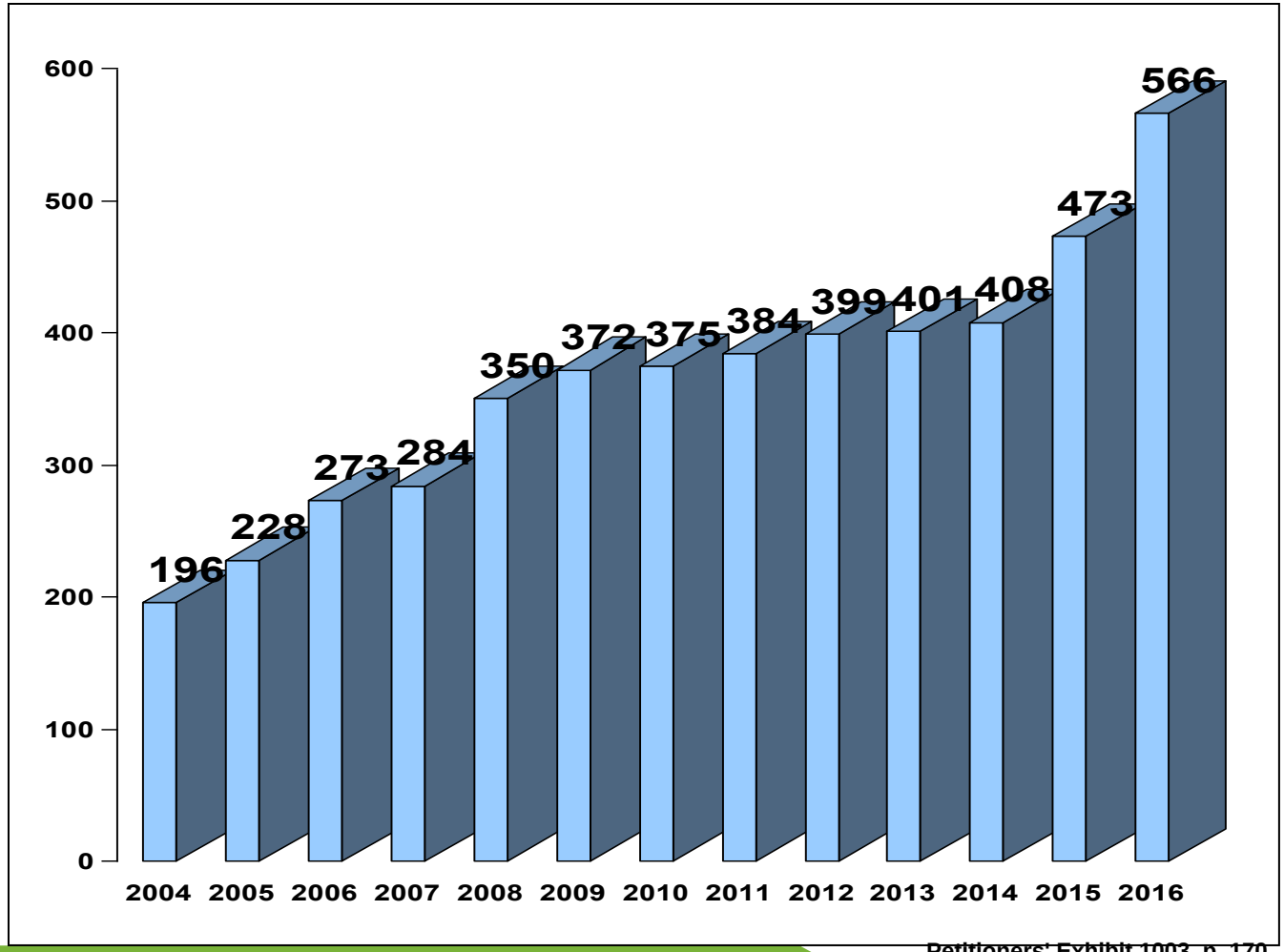
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3GPP Membership

3GPP Membership currently stands at *566* Individual Members. In addition, there are 26 companies having Guest Status, which are potential IMs

Number of Individual Members in 3GPP

3GPP Individual Members come from 45 Countries worldwide



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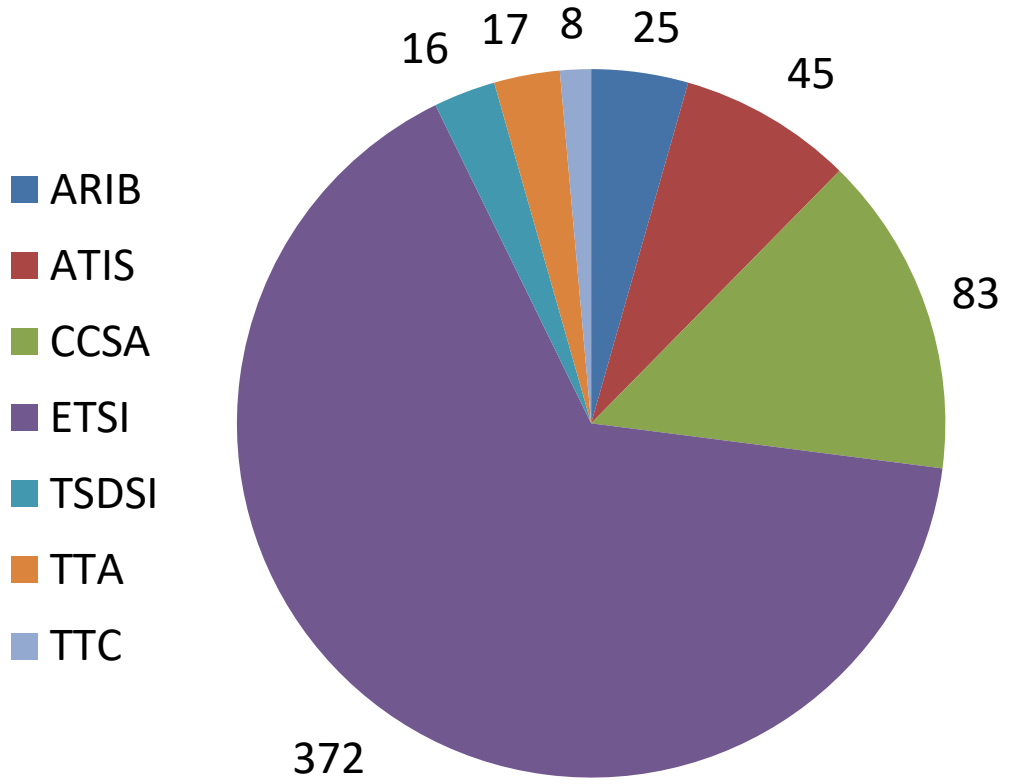
3GPP Member Territories

AUSTRALIA	DENMARK	ISRAEL	POLAND	SOUTH AFRICA
AUSTRIA	ESTONIA	ITALY	PORTUGAL	SPAIN
AZERBAIJAN	FINLAND	JAPAN	QATAR	SWEDEN
BELGIUM	FRANCE	KOREA (REPUBLIC OF)	ROMANIA	SWITZERLAND
BOTSWANA	GERMANY	LEBANON	RUSSIAN FEDERATION	TAIWAN, PROVINCE OF CHINA
BRAZIL	HONG KONG	LUXEMBOURG	SERBIA	TURKEY
CANADA	INDIA	MALAYSIA	SINGAPORE	UNITED ARAB EMIRATES
CHINA	INDONESIA	NETHERLANDS	SLOVAKIA	UNITED KINGDOM
CZECH REPUBLIC	IRELAND	NORWAY	SLOVENIA	UNITED STATES

Note: Membership is growing substantially, and also outside of traditional 3GPP territories. This may well lead to proposals for 3GPP meetings to be held in such locations.

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Individual Members in 3GPP



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Antitrust Training

Three antitrust and competition law training sessions are planned for 2017:

27 March:	convenient for European based leaders
03 May:	convenient for US based leaders
01 June:	convenient for Asian based leaders

Each session is delivered by trainers based in the specific region

These sessions are currently aimed at the TSG Leadership, MCC and OP staff. The question has been raised as to whether such training should be extended to delegates as well? Some advice from the PCG on this would be helpful.

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Summary and Outlook

3GPP Membership continues to show a 20% annual growth and there is no indication that this will reduce. On the contrary, as 5G normative work has only just begun, further growth is expected

The workload within the TSGs is increasing and will continue to do so in order to meet the accelerated timeline for Release 15 and 16 delivery

The increasing workload within the TSGs places a higher workload on MCC which is now working at capacity with no margin for the unforeseen

3GPP has become *the* focal point for delivery of 5G standards and it is important to ensure that the workload within the TSGs (and therefore within MCC) remains manageable

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APPENDIX 8

The 3G IP Multimedia Subsystem (IMS)

Merging the Internet and the Cellular Worlds

Gonzalo Camarillo and Miguel A. García-Martín

Both of
Ericsson, Finland



John Wiley & Sons, Ltd

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Chapter 2

The History of the IMS Standardization

In Chapter 1 we mentioned that the IMS uses Internet protocols. When the IMS needs a protocol to perform a particular task (e.g., to establish a multimedia session), the standardization bodies standardizing the IMS take the Internet protocol intended for that task and specify its use in the IMS. Still, no matter how simple this may sound the process of choosing protocols to be used in the IMS can sometimes get tricky. Sometimes, the Internet protocol that is chosen lacks some essential functionality, or does not even exist at all. When this happens the IMS standardization bodies contact the standardization body developing Internet protocols to work together on a solution. We will cover this collaboration in Section 2.5. Nevertheless, before jumping into that we will introduce in Section 2.1 all the standardization bodies involved in IMS development. We need to know who is who and which functions of the IMS each of them performs.

2.1 Relations between IMS-related Standardization Bodies

The ITU (International Telecommunication Union) IMT-2000 (International Mobile Telecommunications-2000) is the global standard for 3G (third generation) networks. IMT-2000 is the result of the collaboration between different standards bodies and aims at providing access to telecommunication services using radio links, which include satellite and terrestrial networks.

We will focus on two of the standard bodies involved in IMT-2000: 3GPP (Third Generation Partnership Project) and 3GPP2 (Third Generation Partnership Project 2). Still, they are not the only ones working within IMT-2000. Other bodies, such as the ITU-R (ITU-Radiocommunication Sector), for instance, are also involved in IMT-2000 but on different areas than the IMS.

Both 3GPP and 3GPP2 have standardized their own IMS (IP Multimedia Subsystem). The 3GPP IMS and the 3GPP2 IMS are fairly similar, but, nevertheless, have a few differences (Appendix A lists the most important differences).

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An important similarity between the 3GPP IMS and the 3GPP2 IMS is that both use Internet protocols, which have been traditionally standardized by the IETF (Internet Engineering Task Force). Consequently, both 3GPP and 3GPP2 collaborate with the IETF in developing protocols that fulfill their requirements. The following sections introduce the IETF, 3GPP, and 3GPP2 and provide a brief history of the IETF-3GPP/3GPP2 collaboration.

In addition to the standard bodies we have just mentioned, OMA (Open Mobile Alliance [144]) will play an important role in developing IMS services in the near future. While 3GPP and 3GPP have standardized (or are standardizing) a few IMS services, such as basic video calls or conferencing, from now on OMA will focus on service standardization for the IMS (of course, other standard bodies and third parties besides OMA may also develop services for the IMS).

2.2 Internet Engineering Task Force (IETF)

The Internet Engineering Task Force (IETF) is a loosely self-organized collection of network designers, operators, vendors, and research institutions that work together to develop the architecture, protocols, and operation of the public Internet. The IETF is body that is open to any interested individual. The IETF is not a corporation and, therefore, does not have a board of directors, members, nor dues.

The IETF is the standardization body that has developed most of the protocols that are currently used on the Internet. The IETF does not standardize networks, architectures combining different protocols, the internal behaviour of nodes, nor APIs (Application Programming Interface). The IETF is the protocol factory for IP-related protocols.

2.2.1 Structure of IETF

Work in the IETF is organized in working groups. Each working group is chartered to perform specific tasks, such as the delivery of a precise set of documents. Each working group has from one to three chairs, who take care that the working group completes its chartered tasks in time. Working groups have a temporary lifetime; so, once they have delivered their documents, either they are rechartered or they cease to exist. Figure 2.1 shows a few, but not all, of the working groups in the IETF; there are more than 100 active working groups in the IETF. The complete up-to-date list of active working groups is available at:

`http://www.ietf.org/html.charters/wg-dir.html`

Working groups get an acronym name that identifies the chartered task. For instance, SIPPING is the acronym of "Session Initiation Protocol Investigation", SIMPLE is the acronym of "SIP for Instant Messaging and Presence Leveraging Extensions" or AAA for "Authentication, Authorization and Accounting".

A collection of working groups form an Area Directorate. There are currently eight areas, as illustrated in Figure 2.1.

Each area has one or two area directors who, together with the IETF chairman, form the IESG (Internet Engineering Steering Group). The IESG is the technical

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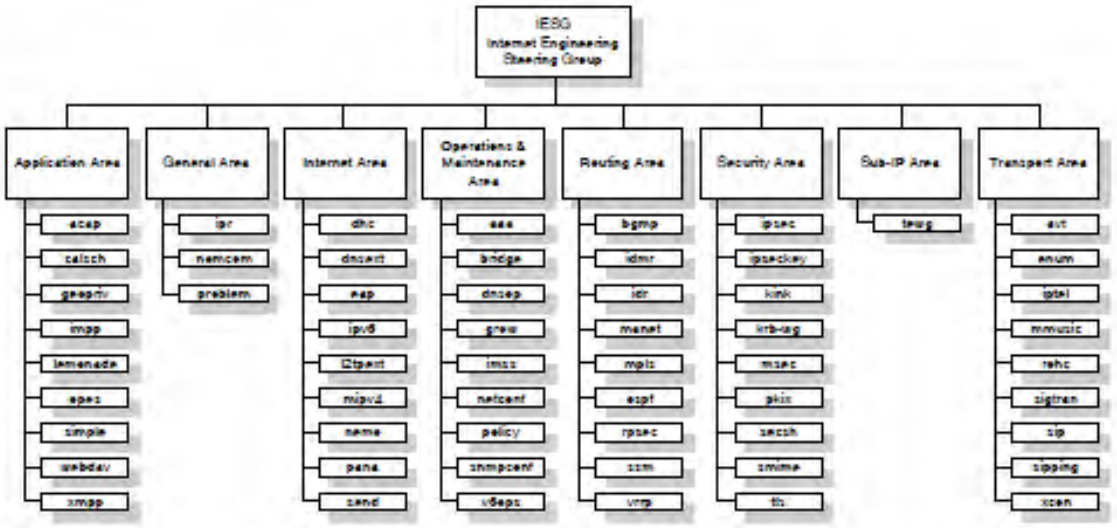


Figure 2.1: The structure of the IETF

management team of the IETF. They decide on which areas the IETF should work and review all the specifications that are produced.

The following web pages contain the complete list of the working groups of all areas and the charter of the SIPPING working group respectively.

```
http://www.ietf.org/html.charters/wg-dir.html
http://www.ietf.org/html.charters/sipping-charter.html
```

The IAB (Internet Architecture Board) is the body that provides technical leadership and handles appeals. Its web page is:

```
http://www.iab.org/
```

2.2.2 Working Group Operations

The technical work in the IETF is done within the working groups. Working groups do not have any kind of membership; they are formed by a number of volunteers that work as individuals. That is, they do not represent their companies when working for the IETF.

Most of the technical discussions within a working group take place in its mailing list. Even the decisions made at face-to-face meetings (held three times a year) have to be confirmed in the mailing list.

The technical documents used within the working groups are called Internet-Drafts. There are two types of them: individual submissions and working group items. Individual submissions are technical proposals submitted by an individual or individuals. If the working group decides that an individual submission is a good starting point to work on a particular topic, it becomes a working group item.

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Individual submissions and working group items can be distinguished by the name of the file where they are stored. Individual submissions start with:

```
draft-author's_name
```

while working group items start with:

```
draft-ietf-name_of_the_working_group
```

A list of all the Internet-Drafts can be found at:

```
http://www.ietf.org/internet-drafts/
```

When a working group feels that a working group item is ready for publication as an RFC the working group chairs send it to the IESG. The IESG may provide feedback to the working group (e.g., ask that working group to change something in the draft) and, eventually, decides whether or not a new RFC is published.

Although most of the Internet-Drafts that the IESG receives come from working groups an individual may also submit an Internet-Draft to the IESG. This usually happens with topics that are not large enough to grant the creation of a working group, but which, nevertheless, are of interest to the Internet community.

It is important to note that Internet-Drafts, even if they are working group items, represent work in progress and should only be referenced as such. Internet-Drafts are temporary documents that expire and cease to exist six months after they are issued. They can change at any time without taking into consideration backward compatibility issues with existing implementations. Only when a particular Internet-Draft becomes an RFC can it be considered a stable specification.

2.2.3 Types of RFCs

The technical documents produced by the IETF are called RFCs (Request For Comments). According to the contents of the document there are three main types of RFCs:

- Standards-track RFCs.
- Non-standards-track RFCs.
- BCP (Best Current Practise) RFCs.

Standards-track RFCs typically define protocols and extensions to protocols. According to the maturity of the protocol there are three levels of standards-track RFCs: proposed standard, draft standard, and Internet standard. Standards-track specifications are supposed to advance from proposed to draft and, finally, to Internet standard as they get more and more mature. An important requirement in this process is that a particular specification is implemented by several people to show that different independently built implementations that follow the same specification can successfully interoperate.

Nevertheless, in practise only a few RFCs reach the draft standard level and even fewer become Internet standards. At present, the specifications of many protocols that are used massively on the Internet are proposed standards.

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There are three types of non-standards-track RFCs: experimental, informational, and historical (which are called *historic* RFCs). Experimental RFCs specify protocols with a very limited use, while informational RFCs provide information for the Internet community about some topic, such as a requirements document or a process. When a standards-track RFC becomes obsolete, it becomes a historic RFC.

BCP RFCs record the best current practise known to the community to perform a particular task. They may deal with protocol issues or with administrative issues.

Figure 2.2 shows the relations between all the RFC types. A list of all the RFCs published so far and their status can be fetched from:

`http://www.ietf.org/iesg/1rfc_index.txt`

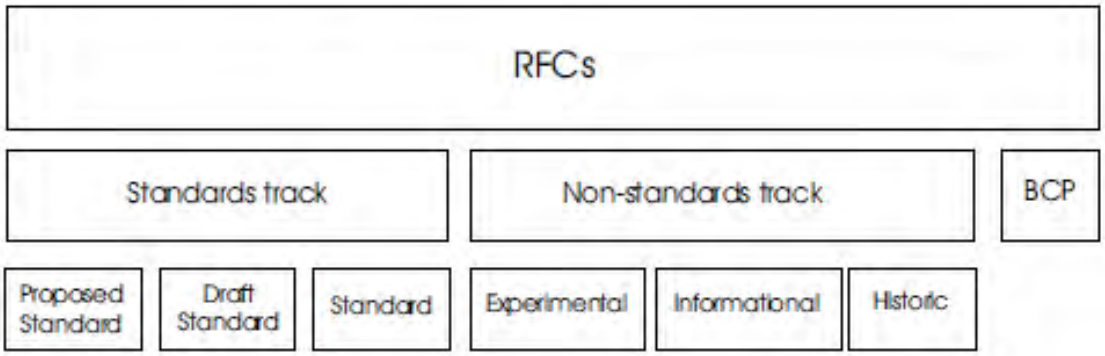


Figure 2.2: RFC types

RFCs can be downloaded from the following web page by just introducing the RFC number:

`http://www.ietf.org/rfc.html`

Additionally, the RFC Editor offers a web page that allows us to search for RFCs by title, number, author and keywords:

`http://www.rfc-editor.org/rfcsearch.html`

2.3 Third Generation Partnership Project (3GPP)

The Third Generation Partnership Project (3GPP) was born in 1998 as a collaboration agreement between a number of regional telecommunication standard bodies, known as *organizational partners*. The current 3GPP organizational partners are:

1. ARIB (Association of Radio Industries and Business) in Japan,

   `http://www.arib.or.jp/english/`

2. CCSA (China Communications Standards Associations) in China,

   `http://www.ccsa.org.cn/english/`

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3. ETSI (European Telecommunications Standards Institute) in Europe,

   `http://www.etsi.org/`

4. Committee T1 in the United States of America,

   `http://www.t1.org/`

5. TTA (Telecommunications Technology Association) of Korea

   `http://www.tta.or.kr/English/`

6. TTC (Telecommunication Technology Committee) in Japan,

   `http://www.ttc.or.jp/e/`

3GPP was originally chartered to develop globally applicable Technical Specifications and Technical Reports for a third-generation mobile system based on GSM. The scope has been reinforced to include maintenance and development of GSM specifications including the supported and evolved radio networks, technologies, and packet access technologies.

Besides the organizational partners, *market representation partners* provide the partnership with market requirements. Market representation partners include, among others, the UMTS Forum, 3G Americas, the GSM Association, the Global mobile Suppliers Association, the TD-SCDMA Forum, and the IPv6 Forum.

3GPP maintains an up-to-date web site at:

`http://www.3gpp.org/`

2.3.1 3GPP Structure

3GPP is organized in a Project Co-ordination Group (PCG) and Technical Specification Groups (TSGs), as illustrated in Figure 2.3. The PCG is responsible for the overall management of 3GPP, time plans, allocation of work, etc. The technical work is produced in the TSGs. At the moment there are five TSGs, responsible for the Core Network (CN), System and Services Aspects (SA), GSM EDGE Radio Access Network (GERAN), Radio Access Network (RAN), and Terminals (T). Each of the TSGs is further divided into Working Groups. Each of the Working Groups is allocated particular tasks. For instance, CN WG1 is responsible for all the detailed design of the usage of SIP and SDP in the IMS, CN WG3 for interworking aspects and CN4 for all the detailed design of the usage of Diameter. SA WG1 is responsible for the requirements, SA2 for the architecture, SA WG3 for the security aspects, SA WG4 for the codecs, and SA WG5 for the operation and maintenance of the network.

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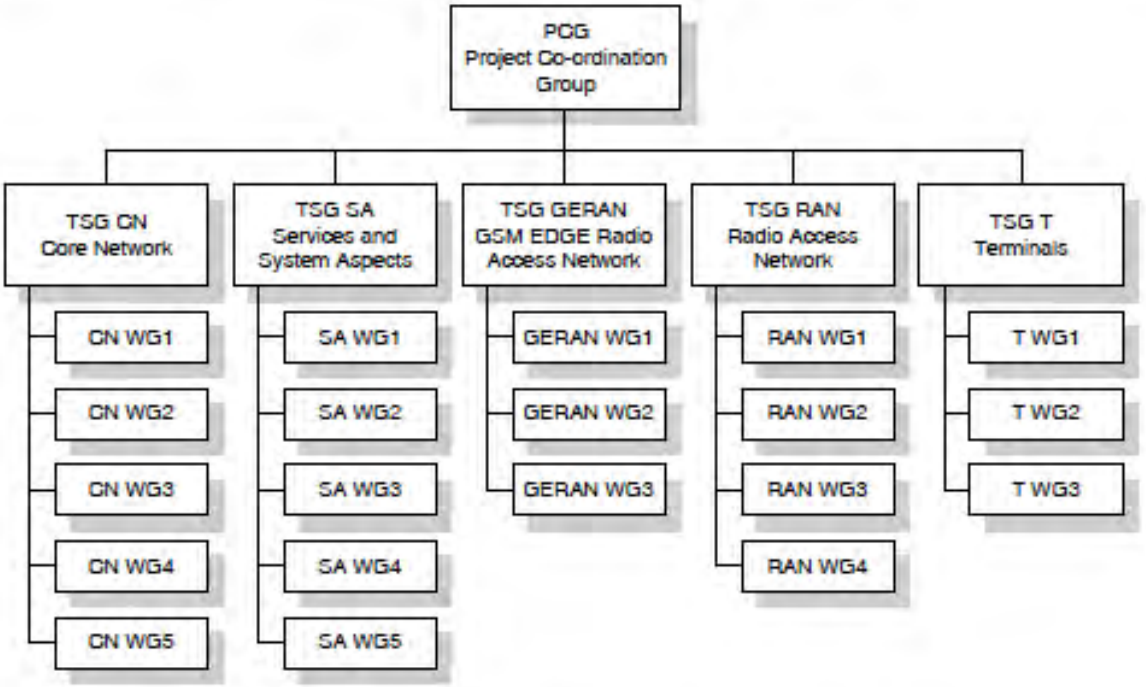


Figure 2.3: The structure of 3GPP

2.3.2 3GPP Deliverables

3GPP working groups do not produce standards. Instead, they produce Technical Specifications (TS) and Technical Reports (TR) that are approved by the TSGs. Once approved they are submitted to the organizational partners to be submitted to their respective standardization processes. The final part of the process is in the organizational partners' hands when they approve the TSs or TRs as part of their standards procedures. As a result, there is a set of globally developed standards that are ready to be used in a particular region.

3GPP TSs and TRs are numbered according to the sequence of four or five digits that follow the pattern "xx.yyy". The first two digits "xx" identify the series number, and the last two or three digits "yy" or "yyy" identify a particular specification within a series. For instance, 3GPP TS 23.228 [21] describes the architectural aspects of the IMS.

3GPP groups its specifications in what is called a *Release*. 3GPP Release 5 contains the first version of the IMS. 3GPP Release 6 contains enhancements to the IMS. The reader must note that the IMS is just a fraction of the 3GPP deliverables in a particular Release, as there are other non-IMS specifications included in a 3GPP Release. 3GPP TSs and TRs include a version number that follows the pattern "x.y.z", where "x" represents the 3GPP Release where the specification is published, "y" is the version number, and "z" is a sub-version number. So, 3GPP TS 23.228 version 5.8.0 means version 8.0 of the Release 5 version of TS 23.228.

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3GPP TSs and TRs are publicly available at the 3GPP web site at either of the following URIs:

`http://www.3gpp.org/specs/specs.htm`

`http://www.3gpp.org/ftp/Specs/archive/`

2.4 Third Generation Partnership Project 2 (3GPP2)

If 3GPP was born to evolve GSM specifications into a third-generation cellular system, the Third Generation Partnership Project 2 (3GPP2) was born to evolve North American and Asian cellular networks based on ANSI/TIA/EIA-41 standards and CDMA2000© radio access into a third-generation system. 3GPP2 like 3GPP is a partnership project whose members are also known as *organizational partners*. The current list of organizational partners include ARIB (Japan), CCSA (China), TIA (Telecommunications Industry Association) (North America), TTA (Korea), and TTC (Japan). Probably, the reader has noticed that most of them are also organizational partners of 3GPP.

Like 3GPP, 3GPP2 gets market requirements and advice from *market representation partners*. At the moment the list includes the IPv6 Forum and the CDMA Development Group.

2.4.1 3GPP2 Structure

The 3GPP2 structure mimics the structure of 3GPP, as illustrated in Figure 2.4. A Steering Committee (SC) is responsible for the overall standardization process and the planning. The technical work is done in Technical Specification Groups (TSGs). TSG-A is focused on the Access Network Interface, TSG-C on CDMA2000© technology, TSG-S on Service and System Aspects, and TSG-X in Intersystems Operations. TGS-X was born as a merger between the former TSG-N (Core Networks) and TSG-P (Packet Data) TSGs. The structure of TSN-X is not completely defined yet.

2.4.2 3GPP2 Deliverables

Like 3GPP, 3GPP2 does not produce standards but, instead, Technical Specifications (TSs) and Technical reports (TRs). The documents are created by the TSGs and approved by the SC. Then, they are submitted to the organizational partners to be submitted to their respective standardization processes.

3GPP2 TSs and TRs are numbered with a sequence of letters and digits that follows the scheme "A.Bxxxx-yyy-R" where "A" is a letter that represents the name of the TSG that delivers the document, "B" can be an "R" letter to indicate a TR or a requirements document, but it can also be an "S" letter to indicate a TS. "xxxx" is a sequential number allocated to the document. An optional "yyy" sequence of digits can further identify the chapter within a specification series. The "R" letter identifies the revision. The version number follows the specification and indicates a major and

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APPENDIX 9

3GPP MEMBERSHIP

2024-07-01 Version 1.1

New Query

Selected categories:

- **Individual Members (all partners)**

Choose csv separator : , export to csv file

INDIVIDUAL MEMBERS

Organization	Country	Partner
3in (Industrial Internet Innovation Center (Shanghai) Co.,Ltd.)	CHINA	CCSA
450connect GmbH (450connect GmbH)	GERMANY	ETSI
A.S.T.R.I.D. SA/NV (A.S.T.R.I.D. SA)	BELGIUM	ETSI
ABP, NRTA (Academy of Broadcasting Planning, NRTA)	CHINA	CCSA
ABS (Academy of Broadcasting Science)	CHINA	CCSA
AccelerComm Ltd (AccelerComm Ltd)	UNITED KINGDOM	ETSI
Acer Incorporated (Acer Incorporated)	TAIWAN, PROVINCE OF CHINA	ETSI
adare GmbH (adare GmbH)	GERMANY	ETSI
Airbus (Airbus DS SLC)	FRANCE	ETSI
Ajou University (Ajou University)	KOREA (REPUBLIC OF)	TTA
albis-elcon system GermanyGmbH (albis-elcon system Germany GmbH)	GERMANY	ETSI
Alibaba (China) Group., Ltd. (Alibaba (China) Group., Ltd.)	CHINA	CCSA
All Connected BV (Rail Connected)	NETHERLANDS	ETSI
Allot Ltd (Allot Ltd)	ISRAEL	ETSI
Altan Redes S.A.P.I. de C.V. (Altan Redes S.A.P.I. de C.V.)	MEXICO	ETSI
Amazon Web Services (Amazon Web Services EMEA SARL)	LUXEMBOURG	ETSI
Amdocs Software Systems Ltd (Amdocs Software Systems Limited)	IRELAND	ETSI
Analog Devices, Inc. (Analog Devices, Inc.)	UNITED STATES	ATIS
Anemone Technology (Anemone Technology)	DENMARK	ETSI
Anritsu Corporation (ANRITSU CORPORATION)	JAPAN	ARIB
Anritsu EMEA Ltd (Anritsu EMEA Ltd)	UNITED KINGDOM	ETSI
Anterix (Anterix)	UNITED STATES	ATIS
Apple	CHINA	CCSA

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(Apple Purchase Operation management)		
Apple (Guizhou) **(Apple Technology Services (Guizhou) Ltd.)**	CHINA	CCSA
Apple (UK) Limited **(Apple (UK) Limited)**	UNITED KINGDOM	ETSI
Apple (Ulanqab) **(Apple Technology Services (Ulanqab) Ltd)**	CHINA	CCSA
Apple AB Denmark **(Apple AB, filial AF Apple Aktiebolag, Sverige)**	DENMARK	ETSI
Apple Benelux B.V. **(Apple Benelux B.V.)**	NETHERLANDS	ETSI
Apple Benelux B.V. - Belgium **(Apple Benelux B.V. - Belgium Branch)**	BELGIUM	ETSI
Apple Computer Trading Co. Ltd **(Apple Computer Trading (Shanghai) Co., Ltd.)**	CHINA	CCSA
Apple Distribution Intl Ltd **(Apple Distribution International Limited)**	IRELAND	ETSI
Apple France **(Apple France)**	FRANCE	ETSI
Apple GmbH **(Apple GmbH)**	GERMANY	ETSI
Apple Inc **(Apple Inc)**	UNITED STATES	ATIS
Apple R&D **(Apple R&D)**	CHINA	CCSA
Apple Solutions **(Apple Solutions Consulting Services (Beijing) Company Limited)**	CHINA	CCSA
Apple Switzerland AG **(Apple Switzerland AG)**	SWITZERLAND	ETSI
Apple Trading **(Apple Trading (Shanghai) Company Limited)**	CHINA	CCSA
AQSACOM S.A.S. **(AQSACOM S.A.S.)**	FRANCE	ETSI
Arriver Software AB **(Arriver Software AB)**	SWEDEN	ETSI
ARTICLE19 **(ARTICLE19)**	UNITED KINGDOM	ETSI
ASELSAN **(ASELSAN Inc.)**	TÜRKIYE	ETSI
AsiaInfo **(Asialnfo Technologies (China), Inc.)**	CHINA	CCSA
AsiaInfo Technologies Inc **(Asialnfo Technologies Inc)**	CHINA	ETSI
ASR **(ASR Microelectronics Co., Ltd.)**	CHINA	CCSA
ASTRI **(Hong Kong Applied Science & Technology Research Institute)**	HONG KONG	ETSI
Astrome Technologies Pvt Lt **(Astrome Technologies Pvt Lt)**	INDIA	TSDSI
ASUSTEK COMPUTER (SHANGHAI) **(ASUSTEK COMPUTER (SHANGHAI) CO. LTD.)**	CHINA	CCSA
AT&T **(AT&T)**	UNITED STATES	ATIS
AT&T GNS Belgium SPRL **(AT&T Global Network Services Belgium SPRL)**	BELGIUM	ETSI
AT&T Labs, Inc **(AT&T Labs, Inc)**	UNITED STATES	ATIS
AT&T Services, Inc. **(AT&T Services, Inc.)**	UNITED STATES	ATIS
ATEME **(ATEME SA)**	FRANCE	ETSI
Avanti **(Avanti Communications Ltd)**	UNITED KINGDOM	ETSI
Axyom.Core **(Axyom.Core Inc)**	UNITED STATES	ETSI
BAE Systems AI Ltd	UNITED KINGDOM	ETSI

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(BAE Systems Applied Intelligence Limited)		
Baicells Technologies Co. Ltd **(Baicells Technologies Co. Ltd)**	CHINA	CCSA
BBC **(BRITISH BROADCASTING CORPORATION)**	UNITED KINGDOM	ETSI
B-Com **(B-Com)**	FRANCE	ETSI
BDBOS **(Federal Agency for Public Safety Digital Radio)**	GERMANY	ETSI
BeammWave AB **(BeammWave AB)**	SWEDEN	ETSI
Beijing Lenovo Software Ltd. **(Beijing Lenovo Software Ltd.)**	CHINA	CCSA
BEIJING SAMSUNG TELECOM R&D **(BEIJING SAMSUNG TELECOM R&D CENTER)**	CHINA	CCSA
Beijing Xiaomi Electronics **(Beijing Xiaomi Electronics)**	CHINA	CCSA
Beijing Xiaomi Mobile Software **(Beijing Xiaomi Mobile Software Co., Ltd)**	CHINA	CCSA
Beijing Xiaomi Mobile Software **(Beijing Xiaomi Mobile Software Co., Ltd.)**	CHINA	ETSI
Beijing Xiaomi Software Tech **(Beijing Xiaomi Software Technology)**	CHINA	CCSA
Bell Mobility **(Bell Mobility)**	CANADA	ETSI
BfV **(Bundesamt für Verfassungsschutz)**	GERMANY	ETSI
Bharti Airtel Limited **(Bharti Airtel Limited)**	INDIA	TSDSI
BIFNC **(BRICS Institute of Future Network)**	CHINA	CCSA
BIPT **(BIPT - Belgian Institute for Postal services & Telecommunications)**	BELGIUM	ETSI
Bittium Wireless Ltd. **(Bittium Wireless Ltd.)**	FINLAND	ETSI
BJTU **(Beijing Jiaotong University)**	CHINA	CCSA
BKA **(Bundeskriminalamt)**	GERMANY	ETSI
Bluetest AB **(Bluetest AB)**	SWEDEN	ETSI
BMF **(Austrian Federal Ministry of Finance)**	AUSTRIA	ETSI
BMW AG **(Bayerische Motoren Werke AG)**	GERMANY	ETSI
BMWK **(Bundesministerium für Wirtschaft und Klimaschutz)**	GERMANY	ETSI
BOCRA **(Botswana Communications Regulatory Authority)**	BOTSWANA	ETSI
BOUYGUES Telecom **(BOUYGUES Telecom)**	FRANCE	ETSI
Broadcom (EU) **(Broadcom Europe Ltd)**	UNITED KINGDOM	ETSI
BSI (DE) **(Bundesamt für Sicherheit in der Informationstechnik)**	GERMANY	ETSI
BSNL **(Bharat Sanchar Nigam Limited)**	INDIA	TSDSI
BT plc **(British Telecommunications plc)**	UNITED KINGDOM	ETSI
BTL Inc. **(BTL Inc.)**	CHINA	ETSI
BTPDI **(Beijing Telecom Planning & Designing Institute Co.,LTD.)**	CHINA	CCSA
BUPT **(Beijing University of Posts and Telecommunications)**	CHINA	CCSA
Bureau Veritas ADT	TAIWAN, PROVINCE OF CHINA	ETSI

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(Bureau Veritas Consumer Products Services (Hong Kong) Limited, Taoyuan Branch)		
Bytedance **(Bytedance (Nanjing) Technology Research and Development Co., Ltd.)**	CHINA	CCSA
C Spire Wireless **(C Spire Wireless)**	UNITED STATES	ATIS
CableLabs **(CableLabs)**	UNITED STATES	ETSI
Cadence Design Systems Inc. **(Cadence Design Systems Inc.)**	UNITED STATES	ETSI
CAICT. **(China Academy of Information and Communications Technology)**	CHINA	CCSA
CALTTA **(CALTTA TECHNOLOGIES CO., LTD.)**	CHINA	CCSA
Cambium Networks Limited **(Cambium Networks Limited)**	UNITED KINGDOM	ETSI
CAMBRIDGE CONSULTANTS LTD **(CAMBRIDGE CONSULTANTS LTD)**	UNITED KINGDOM	ETSI
CANON Research Centre France **(CANON Research Centre France SAS)**	FRANCE	ETSI
CAPGEMINI **(CAPGEMINI TECHNOLOGY SERVICES INDIA LIMITED)**	INDIA	TSDSI
Catapult **(Satellite Applications Catapult Ltd)**	UNITED KINGDOM	ETSI
CATT **(China Academy of Telecommunications Technology (CATT))**	CHINA	ETSI
CATT **(China Academy of Telecommunication Technology - (Datang Telecom Technology and Industry Group))**	CHINA	CCSA
CBN **(China Broadcasting Network Group Corporation Ltd.)**	CHINA	CCSA
CCU **(National Chung Cheng University)**	TAIWAN, PROVINCE OF CHINA	ETSI
C-DAC **(Centre for Development of Advanced Computing)**	INDIA	TSDSI
C-DOT **(C-DOT)**	INDIA	TSDSI
CEA **(Commissariat à l'Energie Atomique et aux Energies Alternatives)**	FRANCE	ETSI
Cellnex **(Cellnex Telecom)**	SPAIN	ETSI
CENC **(CETC Network & Communications Group Co., Ltd.)**	CHINA	CCSA
CEPRI **(China Electric Power Research Institute)**	CHINA	CCSA
Ceragon Networks AS **(Ceragon Networks AS)**	NORWAY	ETSI
CERTH **(CENTRE FOR RESEARCH AND TECHNOLOGY HELLAS)**	GREECE	ETSI
cetecom advanced GmbH **(cetecom advanced GmbH)**	GERMANY	ETSI
CEWiT **(Centre of Excellence in Wireless Technology (CEWiT))**	INDIA	TSDSI
CGL **(CHAZAH GROUP LTD)**	UGANDA	ETSI
Changeself **(Changeself Technology(Shenzhen)Co.,Ltd.)**	CHINA	ETSI
Charter Communications, Inc **(Charter Communications, Inc)**	UNITED STATES	ATIS
Chengdu OPPO Telecommunication **(Chengdu OPPO Mobile Telecommunications Corp., ltd.)**	CHINA	CCSA
CHENGDU TD TECH LTD. **(CHENGDU TD TECH LTD.)**	CHINA	CCSA
China Broadnet **(China Broadnet Mobile Communications Co., Ltd.)**	CHINA	CCSA
China Mobile (Hangzhou) Inf. **(China Mobile (Hangzhou) Information Technology Co., Ltd.)**	CHINA	CCSA
China Mobile (Suzhou) Software	CHINA	CCSA

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(China Mobile (Suzhou) Software Technology Co., Ltd.)		
China Mobile Com. Corporation **(China Mobile Communications Corporation (CMCC))**	CHINA	CCSA
China Mobile E-Commerce Co. **(China Mobile E-Commerce Co.)**	CHINA	CCSA
China Mobile Group Device Co. **(China Mobile Group Device Co., Ltd)**	CHINA	CCSA
China Mobile International Ltd **(China Mobile International Limited)**	CHINA	CCSA
China Mobile M2M Company Ltd. **(China Mobile M2M Company Ltd.)**	CHINA	CCSA
China Southern Power Grid Co. **(China Southern Power Grid Co., Ltd.)**	CHINA	CCSA
China Telecom Corporation Ltd. **(China Telecom Corporation Ltd.)**	CHINA	CCSA
China Telecommunications **(China Telecommunications Corporation)**	CHINA	ETSI
China Telecomunication Corp. **(China Telecomunication Corporation)**	CHINA	CCSA
China Unicom **(China Unicom)**	CHINA	CCSA
Chinatelecom Cloud **(China Telecom Cloud Technology Co., Ltd)**	CHINA	CCSA
Chongqing University **(Chongqing University)**	CHINA	CCSA
CHTTL **(Chunghwa Telecommunication Laboratories, Chunghwa Telecommunication Co.)**	TAIWAN, PROVINCE OF CHINA	ETSI
CICT **(China Information Communication Technologies Group)**	CHINA	ETSI
CICT **(China Information Communication Technologies Group Corporation)**	CHINA	CCSA
CICT Mobile **(CICT Mobile Communication Technology Co., Ltd.)**	CHINA	CCSA
CICTCI **(CICT Connected and Intelligent Technologies Co., Ltd)**	CHINA	CCSA
CIS **(Center for Internet Security)**	UNITED STATES	ETSI
CISA ECD **(Cybersecurity and Infrastructure Security Agency (CISA) ECD)**	UNITED STATES	ATIS
Cisco Systems **(Cisco Systems)**	UNITED STATES	ATIS
Cisco Systems Belgium **(Cisco Systems Belgium)**	BELGIUM	ETSI
Cisco Systems France **(Cisco Systems France)**	FRANCE	ETSI
CITC **(CHINA INFORMATION TECHNOLOGY DESIGNING&CONSULTING INSTITUTE CO.,LTD.)**	CHINA	CCSA
CKH IOD UK LIMITED **(CKH IOD UK LIMITED)**	UNITED KINGDOM	ETSI
CMDI **(China Mobile Group Design Institute Co., Ltd)**	CHINA	CCSA
CNC **(CLAP-N-CLANK)**	JAPAN	ETSI
CNES **(CNES - Centre National d'Etudes Spatiales)**	FRANCE	ETSI
Cobham SatCom A/S **(Thrane & Thrane A/S)**	DENMARK	ETSI
Cognyte **(Cognyte Technologies Israel Ltd.)**	ISRAEL	ETSI
Cohere Technologies **(Cohere Technologies)**	UNITED STATES	ATIS
Collins Aerospace **(Collins Aerospace)**	UNITED STATES	ATIS
Comba **(Comba Network Systems Company Limited)**	CHINA	CCSA
Comcast	UNITED STATES	ATIS

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(Comcast)		
Comprion GmbH **(Comprion GmbH)**	GERMANY	ETSI
Comtech Telecommunications Cor **(Comtech Telecommunications Corp)**	UNITED STATES	ATIS
Consort Digital **(Consort Digital Private Limited)**	INDIA	ETSI
Continental Automotive **(Continental Automotive Technologies GmbH)**	GERMANY	ETSI
Convida Wireless **(Convida Wireless, LLC)**	UNITED STATES	ETSI
Cosmian **(Cosmian Tech SAS)**	FRANCE	ETSI
CQUPT **(Chongqing University of Posts and Telecommunications)**	CHINA	CCSA
Crosscall **(Crosscall)**	FRANCE	ETSI
CSA **(Cyber Security Agency of Singapore)**	SINGAPORE	ETSI
CSCN **(CHINA SATELLITE NETWORK GROUP CO., LTD.)**	CHINA	CCSA
CSIRO **(Commonwealth Scientific and Industrial Research Organisation)**	AUSTRALIA	ETSI
cstconsultancy **(CyberSecurity & Technology Consultancy LTD)**	UNITED KINGDOM	ETSI
CTSI **(China Telecom System Integration Co., Ltd)**	CHINA	CCSA
CTTC **(Centre tecnologic de Telecomunicacions de Catalunya)**	SPAIN	ETSI
CU Digital Technology **(China Unicom Digital Technology Co., Ltd.)**	CHINA	CCSA
CUC **(Communication University of China)**	CHINA	CCSA
CUG **(China Unicom Global Limited)**	CHINA	CCSA
Cybercore **(Beijinig Cybercore Technology Co., Ltd.)**	CHINA	CCSA
Cygnusemi **(Cygnusemi)**	CHINA	CCSA
Czech Telecommunication Office **(Czech Telecommunication Office)**	CZECH REPUBLIC	ETSI
DAC-SSR-UPC **(D. Arquitectura de Computadores/GT Smart Sustainable Resources -Universidad Politecnica de Cataluna)**	SPAIN	ETSI
DanKook University **(DanKook University)**	KOREA (REPUBLIC OF)	TTA
DARS TELECOM S.L. **(DARS TELECOM S.L.)**	SPAIN	ETSI
Datang Linktester Technology **(Datang Linktester Technology Co., Ltd.)**	CHINA	CCSA
Datang Mobile Com. Equipment **(Datang Mobile Communications Equipment Co., Ltd)**	CHINA	CCSA
DeepSig Inc **(DeepSig Inc)**	UNITED STATES	ATIS
DEKRA **(DEKRA testing and Certification, S.A.U.)**	SPAIN	ETSI
Dell Technologies **(Dell Technologies)**	UNITED STATES	ATIS
DENSO CORPORATION **(DENSO CORPORATION)**	JAPAN	ARIB
Department of Telecom **(Department of Telecommunications)**	INDIA	TSDSI
Dept of Home Affairs **(Department of Home Affairs)**	AUSTRALIA	ETSI
Deutsche Telekom AG **(Deutsche Telekom AG)**	GERMANY	ETSI
DIGG	SWEDEN	ETSI

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(Agency for Digital Government)		
DISA **(Defense Information Systems Agency)**	UNITED STATES	ATIS
Dish Network **(Dish Network)**	UNITED STATES	ATIS
DLR **(Deutsches Zentrum für Luft- und Raumfahrt e.V.)**	GERMANY	ETSI
DOCOMO Beijing Labs **(DOCOMO Beijing Communications Laboratories Co., Ltd)**	CHINA	CCSA
DOCOMO Communications Lab. **(DOCOMO Communications Laboratories Europe GmbH)**	GERMANY	ETSI
Dolby France SAS **(Dolby France SAS)**	FRANCE	ETSI
Dolby Germany GmbH **(Dolby Germany GmbH)**	GERMANY	ETSI
Dolby Sweden AB **(Dolby Sweden AB)**	SWEDEN	ETSI
Dolby Technology India Pvt Ltd **(Dolby Technology India Pvt Ltd)**	INDIA	TSDSI
Douyin **(Beijing Douyin Information Service Co., Ltd.)**	CHINA	CCSA
DP **(DigitalPlatforms SpA)**	ITALY	ETSI
DSIT **(Department for Science, Innovation and Technology)**	UNITED KINGDOM	ETSI
DTCY **(Deloitte Tohmatsu Cyber LLC)**	JAPAN	TTC
DTS Licensing Limited **(DTS Licensing Limited)**	IRELAND	ETSI
EA Consult Services Ltd **(EA Consult Services Ltd)**	UNITED KINGDOM	ETSI
EBU **(EBU - European Broadcasting Union)**	SWITZERLAND	ETSI
EchoStar **(EchoStar)**	UNITED KINGDOM	ETSI
ECTL **(Enhanced Communications & Technologies Pvt Ltd)**	INDIA	TSDSI
EDF Recherche et Développement **(EDF)**	FRANCE	ETSI
EFORT **(Etudes et Formations en Telecommunication)**	FRANCE	ETSI
Elbit Systems **(Elbit Systems C4I and Cyber Ltd)**	ISRAEL	ETSI
Element Materials Technology **(Element Materials Technology Warwick Ltd)**	UNITED KINGDOM	ETSI
Elena **(Elena Geo Systems Pvt Ltd)**	INDIA	TSDSI
Embotech AG **(Embotech AG)**	SWITZERLAND	ETSI
EMITE **(EMITE Ingenieria S.L.)**	SPAIN	ETSI
ENENSYS **(ENENSYS Technologies SA)**	FRANCE	ETSI
Ericsson (China) **(Ericsson (China) Communications, Co.Ltd)**	CHINA	CCSA
Ericsson España S.A. **(Ericsson España S.A.)**	SPAIN	ETSI
Ericsson France S.A.S **(Ericsson France S.A.S)**	FRANCE	ETSI
Ericsson GmbH, Eurolab **(Ericsson GmbH, Eurolab - Unternehmensbereich Forschung und Entwicklung)**	GERMANY	ETSI
Ericsson Hungary Ltd **(Ericsson Hungary Ltd)**	HUNGARY	ETSI
Ericsson Inc. **(Ericsson Incorporated)**	UNITED STATES	ATIS
Ericsson India Private Limited	INDIA	TSDSI

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(Ericsson India Private Limited)		
Ericsson Japan K.K. **(Ericsson Japan K.K.)**	JAPAN	ARIB
Ericsson Limited **(Ericsson Limited)**	UNITED KINGDOM	ETSI
Ericsson LM **(Ericsson Telefonaktiebolaget LM)**	SWEDEN	ETSI
Ericsson Telecomunicazioni SpA **(Ericsson Telecomunicazioni SpA)**	ITALY	ETSI
Ericsson-LG Co., LTD **(Ericsson-LG Co., LTD)**	KOREA (REPUBLIC OF)	TTA
Erillisverkot **(Suomen Erillisverkot Oy)**	FINLAND	ETSI
ERNET India **(ERNET India)**	INDIA	TSDSI
ESA **(ESA - European Space Agency)**	NETHERLANDS	ETSI
E-SPACE **(E-SPACE SAS)**	FRANCE	ETSI
ESSEN INNOVATION **(ESSEN INNOVATION COMPANY LIMITED)**	CHINA	CCSA
E-surfing Digital **(E-surfing Digital Life Technology Co., Ltd)**	CHINA	CCSA
Esurfing IoT **(Esurfing IoT Tech Co., Ltd)**	CHINA	CCSA
ETELM **(Electronique Telematique ETELM)**	FRANCE	ETSI
Etherstack Wireless Limited **(Etherstack Wireless Limited)**	UNITED KINGDOM	ETSI
ETRI **(Electronics & Telecommunications Research Institute)**	KOREA (REPUBLIC OF)	TTA
ETS-Lindgren Europe **(ETS-Lindgren Europe)**	FINLAND	ETSI
EURECOM **(EURECOM)**	FRANCE	ETSI
Eurofins KCTL **(Eurofins KCTL Co. Ltd)**	KOREA (REPUBLIC OF)	ETSI
European Commission **(EC - European Commission)**	BELGIUM	ETSI
European Patent Organisation **(European Patent Organisation)**	GERMANY	ETSI
EUTC **(European Utilities Telecom Council (EUTC))**	BELGIUM	ETSI
Eutelsat Group **(Eutelsat S.A.)**	FRANCE	ETSI
EVE Compliancy Solutions **(EVE Compliancy Solutions)**	NETHERLANDS	ETSI
Everactive **(Everactive)**	UNITED STATES	ATIS
F5 **(F5, Inc.)**	UNITED STATES	ETSI
Fabasoft AG **(Fabasoft AG)**	AUSTRIA	ETSI
Facebook Japan G.K. **(Facebook Japan G.K.)**	JAPAN	ARIB
Fastweb S.p.A. **(Fastweb S.p.A.)**	ITALY	ETSI
FAU **(Friedrich-Alexander-Universität Erlangen-Nürnberg)**	GERMANY	ETSI
FBK **(Fondazione Bruno Kessler)**	ITALY	ETSI
FCC **(Federal Communications Commission)**	UNITED STATES	ATIS
Fiberhome Technologies Group **(Fiberhome Technologies Group)**	CHINA	CCSA
FirstNet	UNITED STATES	ATIS

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(FirstNet)		
FORCE Technology **(FORCE Technology)**	DENMARK	ETSI
Ford **(Ford Motor Company)**	UNITED STATES	ETSI
Fraunhofer FOKUS **(Fraunhofer Institute for Open Communication Systems FOKUS)**	GERMANY	ETSI
Fraunhofer HHI **(Fraunhofer Institute for Telecommunications, Heinrich Hertz Institute)**	GERMANY	ETSI
Fraunhofer IIS **(Fraunhofer Institut für Integrierte Schaltungen IIS)**	GERMANY	ETSI
Frequentis AG **(Frequentis AG)**	AUSTRIA	ETSI
Fujitsu Limited **(Fujitsu Limited)**	JAPAN	ETSI
Fujitsu Limited. **(Fujitsu Limited.)**	JAPAN	TTC
Fujitsu Limited.. **(Fujitsu Limited..)**	JAPAN	ARIB
Futurewei **(Futurewei Technologies Inc.)**	UNITED STATES	ETSI
Futurewei Technologies **(Futurewei Technologies)**	UNITED STATES	ATIS
G+D MS **(Giesecke+Devrient Mobile Security Germany GmbH)**	GERMANY	ETSI
Gatehouse Satcom A/S **(Gatehouse Satcom A/S)**	DENMARK	ETSI
GDCNI **(Guangdong Communications and Networks Institute)**	CHINA	CCSA
GE Network Technologies, LLC **(GE Network Technologies, LLC)**	UNITED STATES	ATIS
GEESPACE **(ZHE JIANG GEESPACE TECHNOLOGY CO., LTD.)**	CHINA	CCSA
Gigaset Technologies **(Gigaset Technologies GmbH)**	GERMANY	ETSI
Gilat **(Gilat Satellite Networks Ltd)**	ISRAEL	ETSI
GIST **(Gwangju Institute of Science and Technology)**	KOREA (REPUBLIC OF)	TTA
GLOBALSTAR Inc. **(GLOBALSTAR Inc.)**	UNITED STATES	ETSI
GM - ATCI **(General Motors - ATCI)**	ISRAEL	ETSI
Google Ireland Limited **(Google Ireland Limited)**	IRELAND	ETSI
Group 2000 **(Group 2000 Nederland B.V.)**	NETHERLANDS	ETSI
GTRC **(Georgia Tech Research Corporation)**	UNITED STATES	ETSI
GUANGDONG GENIUS TECHNOLOGY CO **(GUANGDONG GENIUS TECHNOLOGY CO., LTD.)**	CHINA	CCSA
Guangdong OPPO Mobile Telecom. **(Guangdong OPPO Mobile Telecommunications Corp., Ltd)**	CHINA	CCSA
GW **(Greenerwave)**	FRANCE	ETSI
HA/ST **(HARTING Stiftung & Co. KG)**	GERMANY	ETSI
Hangzhou Mengyuxiang **(Hangzhou Mengyuxiang Network Technology Corp., Ltd.)**	CHINA	CCSA
Harman GmbH **(Harman Becker Automotive Systems GmbH)**	GERMANY	ETSI
HEAD acoustics GmbH **(HEAD acoustics GmbH)**	GERMANY	ETSI
Hewlett-Packard Enterprise **(Hewlett-Packard Enterprise)**	FRANCE	ETSI
HiSilicon Technologies Co. Ltd	CHINA	CCSA

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(HiSilicon Technologies Co.Ltd)		
HISPASAT SA **(HISPASAT SA)**	SPAIN	ETSI
HOME OFFICE **(HOME OFFICE)**	UNITED KINGDOM	ETSI
Honda Motor Co., Ltd **(Honda Motor Co., Ltd)**	JAPAN	ARIB
Honor **(Honor Device Co., Ltd.)**	CHINA	CCSA
Honor **(Honor Device Co., Ltd)**	CHINA	ETSI
HTC Communications Co., Ltd. **(HTC Communications Co., Ltd.)**	CHINA	CCSA
Huawei Device Co., Ltd **(Huawei Device Co., Ltd)**	CHINA	CCSA
HUAWEI TECH. GmbH **(HUAWEI TECHNOLOGIES Duesseldorf GmbH)**	GERMANY	ETSI
Huawei Tech.(UK) Co.. Ltd **(Huawei Technologies (UK) Co., Ltd.)**	UNITED KINGDOM	ETSI
Huawei Technologies (Korea) **(Huawei Technologies (Korea))**	KOREA (REPUBLIC OF)	TTA
HUAWEI TECHNOLOGIES Co. Ltd. **(Huawei Technologies Co. Ltd.)**	CHINA	ETSI
HuaWei Technologies Co., Ltd **(HuaWei Technologies Co., Ltd)**	CHINA	CCSA
Huawei Technologies France **(Huawei Technologies France)**	FRANCE	ETSI
Huawei Technologies Japan K.K. **(Huawei Technologies Japan K.K.)**	JAPAN	TTC
HUAWEI Technologies Japan K.K. **(HUAWEI Technologies Japan K.K.)**	JAPAN	ARIB
Huawei Technologies R&D UK **(Huawei Technologies Research & Development (UK) Limited)**	UNITED KINGDOM	ETSI
Huawei Technologies Sweden AB **(Huawei Technologies Sweden AB)**	SWEDEN	ETSI
Huawei Telecommunication India **(Huawei Telecommunication (India) Co. Pvt. Ltd.)**	INDIA	TSDSI
Husqvarna AB **(Husqvarna AB (publ))**	SWEDEN	ETSI
Hytera Communications Corp. **(Hytera Communications Corporation Limited)**	CHINA	CCSA
Hyundai Motor Company **(Hyundai Motor Company)**	KOREA (REPUBLIC OF)	TTA
IBM Europe **(IBM Europe)**	GERMANY	ETSI
ICS **(Institute for Communication Systems - University of Surrey)**	UNITED KINGDOM	ETSI
IDEMIA **(IDEMIA)**	FRANCE	ETSI
IDRBT **(Institute for Development and Research in Banking Technology)**	INDIA	TSDSI
III **(Institute for Information Industry)**	TAIWAN, PROVINCE OF CHINA	ETSI
IIIT Bangalore **(International Institute of Information Technology - Bangalore)**	INDIA	TSDSI
IIIT Naya Raipur **(International Institute of Information Technology, Naya Raipur)**	INDIA	TSDSI
IISc, Bangalore **(Indian Institute of Science, Bangalor)**	INDIA	TSDSI
IIT Bhilai **(Indian Institute of Technology Bhilai)**	INDIA	TSDSI
IIT Bombay **(Indian Institute of Technology Bombay)**	INDIA	TSDSI
IIT Delhi **(Indian Institute of Technology Delhi)**	INDIA	TSDSI
IIT Gandhinagar	INDIA	TSDSI

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(Indian Institute of Technology Gandhinagar)		
IIT JODHPUR **(Indian Institute of Technology Jodhpur)**	INDIA	TSDSI
IIT Kanpur **(Indidan Institute of Technology Kanpur)**	INDIA	TSDSI
IIT Mandi **(Indian Institute of Technology Mandi)**	INDIA	TSDSI
IIT Patna **(Indian Institute of Technology Patna)**	INDIA	TSDSI
IIT, Kharagpur **(IIT, Kharagpur)**	INDIA	TSDSI
IMDA **(Infocomm Media Development Authority)**	SINGAPORE	ETSI
Imperial College London **(Imperial College of Science Technology and Medicine)**	UNITED KINGDOM	ETSI
IMU **(Istanbul Medipol University)**	TÜRKIYE	ETSI
Indian Institute of Tech (H) **(Indian Institute of Technology Hyderabad)**	INDIA	TSDSI
Indian Institute of Tech (M) **(Indian Institute of Technology Madras)**	INDIA	TSDSI
INFINEON TECHNOLOGIES **(Infineon Technologies)**	GERMANY	ETSI
Inmarsat **(Inmarsat)**	UNITED KINGDOM	ETSI
Institut Mines-Telecom **(Institut Mines-Telecom)**	FRANCE	ETSI
Institute VEDECOM **(Institute VEDECOM)**	FRANCE	ETSI
Intel **(Intel)**	UNITED STATES	ATIS
Intel Belgium SA/NV **(Intel Belgium SA/NV)**	BELGIUM	ETSI
Intel China Ltd. **(Intel China Ltd.)**	CHINA	CCSA
Intel Corporation (UK) Ltd **(Intel Corporation (UK) Ltd)**	UNITED KINGDOM	ETSI
Intel Corporation Italia SpA **(Intel Corporation Italia SpA)**	ITALY	ETSI
Intel Corporation SAS **(Intel Corporation SAS)**	FRANCE	ETSI
Intel Deutschland GmbH **(Intel Deutschland GmbH)**	GERMANY	ETSI
Intel Ireland **(Intel Ireland Ltd)**	IRELAND	ETSI
Intel Sweden AB **(Intel Sweden AB)**	SWEDEN	ETSI
Intel Technology India Pvt Ltd **(Intel Technology India Pvt. Ltd.)**	INDIA	TSDSI
Intel Technology Poland SP Zoo **(Intel Technology Poland SP Zoo)**	POLAND	ETSI
Intellian Technologies **(Intellian Technologies)**	KOREA (REPUBLIC OF)	TTA
Intelsat **(Intelsat)**	UNITED STATES	ATIS
InterDigital Belgium. LLC **(InterDigital Belgium, LLC)**	BELGIUM	ETSI
InterDigital Canada **(InterDigital Canada)**	CANADA	ATIS
InterDigital Communications **(InterDigital Communications Corporation)**	UNITED STATES	ATIS
InterDigital Finland Oy **(InterDigital Finland Oy)**	FINLAND	ETSI
InterDigital France R&D, SAS **(InterDigital France R&D, SAS)**	FRANCE	ETSI
InterDigital New York	UNITED STATES	ATIS

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(InterDigital New York)		
InterDigital Pennsylvania **(InterDigital Pennsylvania)**	UNITED STATES	ATIS
InterDigital, Europe, Ltd. **(InterDigital, Europe, Ltd.)**	UNITED KINGDOM	ETSI
InterDigital, Inc. **(InterDigital, Inc.)**	UNITED STATES	ETSI
Intersec **(Intersec SA)**	FRANCE	ETSI
Intertek **(Intertek)**	UNITED KINGDOM	ETSI
IPCom GmbH & Co.KG **(IPCom GmbH & Co.KG)**	GERMANY	ETSI
IPLOOK **(IPLOOK Networks Co., Ltd.)**	CHINA	CCSA
iQoo **(iQoo Software Technology (Shanghai) Co., Ltd.)**	CHINA	CCSA
Iridium Satellite LLC **(Iridium Satellite LLC)**	UNITED STATES	ATIS
IRT Saint Exupery **(Institut de recherche technologique Saint Exupery)**	FRANCE	ETSI
ISED **(Innovation, Science and Economic Development Canada)**	CANADA	ETSI
ISRO **(Indian Space Research Organisation)**	INDIA	TSDSI
ISSDU **(Information Security Service Digital United Inc.)**	TAIWAN, PROVINCE OF CHINA	ETSI
ITL **(Innovative Technology Lab Co., Ltd)**	KOREA (REPUBLIC OF)	TTA
ITOCHU Techno-Solutions Corp **(ITOCHU Techno-Solutions Corporation)**	JAPAN	TTC
ITRI **(Industrial Technology Research Institute)**	TAIWAN, PROVINCE OF CHINA	ETSI
ITRON SAS **(ITRON SAS)**	FRANCE	ETSI
Ittiam System Pvt Ltd **(Ittiam System Pvt Ltd)**	INDIA	TSDSI
Japan Radio Co., Ltd **(Japan Radio Co., Ltd)**	JAPAN	ARIB
Jetflow **(Jetflow Technologies Co., Ltd)**	CHINA	CCSA
Jio **(Jio Estonia OÜ)**	ESTONIA	ETSI
JMA Wireless **(JMA Wireless)**	UNITED STATES	ATIS
John Deere GmbH & Co. KG **(John Deere GmbH & Co. KG)**	GERMANY	ETSI
Johns Hopkins University APL **(Johns Hopkins University Applied Physics Laboratory)**	UNITED STATES	ATIS
JSI GmbH **(JSI GmbH)**	GERMANY	ETSI
Juniper Networks **(Juniper Networks)**	UNITED STATES	ETSI
KAIST **(Korea Advanced Institute of Science and Technology)**	KOREA (REPUBLIC OF)	TTA
Kapsch TrafficCom AG **(Kapsch TrafficCom AG)**	AUSTRIA	ETSI
KDDI Corporation **(KDDI Corporation)**	JAPAN	TTC
KDDI Corporation **(KDDI Corporation)**	JAPAN	ARIB
Kepler **(Kepler Communications GmbH)**	GERMANY	ETSI
Keysight Technologies UK Ltd **(Keysight Technologies UK Ltd)**	UNITED KINGDOM	ETSI
KIPO	KOREA (REPUBLIC OF)	TTA

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(Korean Intellectual Property Office)		
Kontron Transportation France **(Kontron Transportation France S.A.S)**	FRANCE	ETSI
Korea Testing Laboratory **(Korea Testing Laboratory)**	KOREA (REPUBLIC OF)	TTA
Korea University **(Korea University)**	KOREA (REPUBLIC OF)	TTA
KPN N.V. **(Koninklijke KPN N.V.)**	NETHERLANDS	ETSI
KRRI **(Korea Railroad Research Institute)**	KOREA (REPUBLIC OF)	TTA
KT Corp. **(KT Corporation)**	KOREA (REPUBLIC OF)	TTA
Kymeta Corporation **(Kymeta Corporation)**	UNITED STATES	ETSI
Kyocera Corporation **(Kyocera Corporation)**	JAPAN	ARIB
Kyonggi University **(Kyonggi University)**	KOREA (REPUBLIC OF)	TTA
Kyoto University **(Kyoto University)**	JAPAN	ETSI
L.M. Ericsson Limited **(L.M. Ericsson Limited)**	IRELAND	ETSI
L3Harris Technologies **(L3Harris Technologies)**	UNITED STATES	ATIS
Langbo **(Shanghai Langbo Communication Technology Co., Ltd.)**	CHINA	CCSA
Lansus **(Lansus Technologies Inc.)**	CHINA	CCSA
LEGRAND FRANCE **(LEGRAND FRANCE ISERE)**	FRANCE	ETSI
Lekha Wireless Solutions **(Lekha Wireless Solutions Pvt Ltd)**	INDIA	TSDSI
Lenovo (Beijing) Ltd **(Lenovo (Beijing) Ltd)**	CHINA	CCSA
Lenovo Future Communications **(Lenovo Future Communications Technology (Chongqing) Co., Ltd.)**	CHINA	CCSA
Lenovo Information Technology **(Lenovo (Beijing) Information Technology Co., Ltd.)**	CHINA	CCSA
Leonardo SpA **(Leonardo SpA)**	ITALY	ETSI
LG Electronics Deutschland **(LG Electronics Deutschland GmbH)**	GERMANY	ETSI
LG Electronics Finland **(LG Electronics Finland Lab Oy)**	FINLAND	ETSI
LG Electronics France **(LG Electronics France)**	FRANCE	ETSI
LG Electronics Inc. **(LG Electronics Inc.)**	KOREA (REPUBLIC OF)	TTA
LG Electronics Polska **(LG Electronics Polska Sp. z.o.o.)**	POLAND	ETSI
LG Electronics UK **(LG Electronics UK Ltd)**	UNITED KINGDOM	ETSI
LG Uplus **(LG Uplus)**	KOREA (REPUBLIC OF)	TTA
Ligado Networks **(Ligado Networks)**	UNITED STATES	ETSI
LKA Niedersachsen **(Landeskriminalamt Niedersachsen)**	GERMANY	ETSI
Lockheed Martin **(Lockheed Martin)**	UNITED STATES	ATIS
Logius **(Logius)**	NETHERLANDS	ETSI
Lynk Global **(Lynk Global)**	UNITED STATES	ATIS
Magister Solutions Ltd	FINLAND	ETSI

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(Magister Solutions Ltd)		
Maketh Secure Limited **(Maketh Secure Limited)**	UNITED KINGDOM	ETSI
Marquis Technologies **(Marquis Technologies Pvt Ltd)**	INDIA	TSDSI
MATRIXX Software **(MATRIXX Software, Inc.)**	UNITED STATES	ETSI
Mavenir **(Mavenir Systems, Inc)**	UNITED STATES	ETSI
MaxWave Micro **(MaxWave Microelectronics Ltd.)**	CHINA	CCSA
MediaTek (Chengdu) Inc. **(MediaTek (Chengdu) Inc.)**	CHINA	CCSA
MediaTek (Hefei) Inc. **(MediaTek (Hefei) Inc.)**	CHINA	CCSA
MediaTek (Shenzhen) Inc. **(MediaTek (Shenzhen) Inc.)**	CHINA	CCSA
MediaTek (Wuhan) Inc. **(MediaTek (Wuhan) Inc.)**	CHINA	CCSA
MediaTek Beijing Inc. **(MediaTek Beijing Inc.)**	CHINA	CCSA
MediaTek Finland **(MediaTek Wireless Finland Oy)**	FINLAND	ETSI
MediaTek Germany GmbH **(MediaTek Germany GmbH)**	GERMANY	ETSI
MediaTek Inc. **(MediaTek Incorporated)**	TAIWAN, PROVINCE OF CHINA	ETSI
Mediatek India Technology Pvt. **(Mediatek India Technology Pvt. Ltd.)**	INDIA	TSDSI
MediaTek Korea Inc. **(MediaTek Korea Inc.)**	KOREA (REPUBLIC OF)	TTA
MediaTek Sweden AB **(MediaTek Sweden AB)**	SWEDEN	ETSI
MediaTek UK **(MTK Wireless Ltd)**	UNITED KINGDOM	ETSI
MeitY **(Ministry of Electronics & Information Technology)**	INDIA	TSDSI
Meizu Technology **(Meizu Technology)**	CHINA	CCSA
Mercedes-Benz AG **(Mercedes-Benz AG)**	GERMANY	ETSI
Mesaqin.com s.r.o (Ltd.) **(Mesaqin.com s.r.o (Ltd.))**	CZECH REPUBLIC	ETSI
Meta India **(Meta India Online Services Pvt Ltd)**	INDIA	TSDSI
Meta Ireland **(Meta Platforms Ireland Ltd.)**	IRELAND	ETSI
Meta USA **(Meta USA)**	UNITED STATES	ATIS
Microchip Technology, Inc. **(Microchip Technology, Inc.)**	UNITED STATES	ATIS
Microsoft Europe SARL **(Microsoft Europe SARL)**	FRANCE	ETSI
MidWave Wireless **(MidWave Wireless)**	UNITED STATES	ATIS
MIMIT **(Ministry of Enterprises and Made in Italy)**	ITALY	ETSI
MinEA **(Ministry of Economic Affairs and Climate Policy)**	NETHERLANDS	ETSI
MINISTERE DE L'INTERIEUR **(MINISTERE DE L'INTERIEUR)**	FRANCE	ETSI
Ministère Economie et Finances **(Ministère de l'Economie et des Finances)**	FRANCE	ETSI
Ministry for Digital - Spain **(Ministry for Digital Transformation and of Civil Service)**	SPAIN	ETSI
Ministry of Transport SR	SLOVAKIA	ETSI

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(Ministry of Transport of the Slovak Republic)		
MITRE Corporation **(MITRE Corporation)**	UNITED STATES	ETSI
MITRE-FFRDC **(MITRE-FFRDC)**	UNITED STATES	ATIS
Mitsubishi Electric Co. **(Mitsubishi Electric Co.)**	JAPAN	ARIB
Mitsubishi Electric Corp **(Mitsubishi Electric Corporation)**	JAPAN	TTC
Mitsubishi Electric RCE **(Mitsubishi Electric R&D Centre Europe)**	FRANCE	ETSI
Motorola Mobile Com Technology **(MOTOROLA MOBILE COMMUNICATION TECHNOLOGY LTD.)**	CHINA	CCSA
Motorola Mobility España SA **(Motorola Mobility España SA)**	SPAIN	ETSI
Motorola Mobility France S.A.S **(Motorola Mobility France S.A.S)**	FRANCE	ETSI
Motorola Mobility Germany GmbH **(Motorola Mobility Germany GmbH)**	GERMANY	ETSI
Motorola Mobility UK Ltd. **(Motorola Mobility UK Ltd.)**	UNITED KINGDOM	ETSI
Motorola Solutions Germany **(Motorola Solutions Germany GmbH)**	GERMANY	ETSI
Motorola Solutions UK Ltd. **(Motorola Solutions UK Ltd.)**	UNITED KINGDOM	ETSI
MTCC **(Mobile Technology Convergence Center)**	KOREA (REPUBLIC OF)	TTA
Murata Manufacturing Co Ltd. **(Murata Manufacturing Co Ltd.)**	JAPAN	ARIB
MVG Industries **(MVG Industries)**	FRANCE	ETSI
Nanjing vivo Software Tech. **(Nanjing vivo Software Technology Co., Ltd.)**	CHINA	CCSA
Nanjing Weibo **(Nanjing Weibo Software Technology Co., Ltd.)**	CHINA	CCSA
National Instruments Corp. **(National Instruments Corporation)**	UNITED STATES	ETSI
National Radio Research Agency **(National Radio Research Agency)**	KOREA (REPUBLIC OF)	TTA
National Spectrum Consortium **(National Spectrum Consortium)**	UNITED STATES	ATIS
National Technical Assistance **(National Technical Assistance Centre)**	UNITED KINGDOM	ETSI
nbn co Limited **(nbn co Limited (ABN 86 136 533 741))**	AUSTRALIA	ETSI
NCI Agency **(NATO Communication and Information Agency)**	NETHERLANDS	ETSI
NCIS **(National Criminal Investigation Service)**	NORWAY	ETSI
NCSC **(National Cyber Security Centre)**	UNITED KINGDOM	ETSI
NDRE **(National Defence Radio Establishment)**	SWEDEN	ETSI
NEC Corporation **(NEC Corporation)**	JAPAN	ARIB
NEC Corporation **(NEC Corporation)**	JAPAN	ETSI
NEC Corporation. **(NEC Corporation)**	JAPAN	TTC
NEC Europe Ltd **(NEC Europe Ltd)**	UNITED KINGDOM	ETSI
NEC Telecom MODUS Ltd. **(NEC Telecom MODUS Ltd.)**	UNITED KINGDOM	ETSI
NEMERGENT **(NEMERGENT SOLUTIONS SL)**	SPAIN	ETSI
NERCDTV	CHINA	CCSA

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(Shanghai National Engineering Research Center of Digital Television Co.,Ltd.)		
Netherlands Police **(Netherlands Police, Division MDC)**	NETHERLANDS	ETSI
Netscout Systems Inc. **(Netscout Systems Inc.)**	UNITED STATES	ETSI
Network Rail **(Network Rail infrastructure limited)**	UNITED KINGDOM	ETSI
New H3C Technologies Co., Ltd. **(New H3C Technologies Co., Ltd.)**	CHINA	CCSA
NextNav **(NextNav)**	UNITED STATES	ATIS
NHK **(NHK (Japan Broadcasting Corporation))**	JAPAN	ARIB
NICT **(National Institute of Information and Communications Technology)**	JAPAN	ARIB
Niral **(Niral Networks Private Limited)**	INDIA	TSDSI
NIST **(National Institute of Standards and Technology)**	UNITED STATES	ATIS
Nkom **(Norwegian Communications Authority)**	NORWAY	ETSI
Nokia **(Nokia)**	UNITED STATES	ATIS
Nokia Belgium **(Nokia Bell N.V.)**	BELGIUM	ETSI
Nokia Corporation **(Nokia Corporation)**	FINLAND	ETSI
Nokia Denmark **(Nokia Denmark A/S)**	DENMARK	ETSI
Nokia France **(Nokia Networks France)**	FRANCE	ETSI
Nokia Germany **(Nokia Solutions and Networks GmbH & Co. KG)**	GERMANY	ETSI
Nokia Hungary **(Nokia Solutions and Networks Kft.)**	HUNGARY	ETSI
Nokia Japan **(Nokia Japan)**	JAPAN	ARIB
Nokia Korea **(Nokia Korea)**	KOREA (REPUBLIC OF)	TTA
Nokia Poland **(Nokia Solutions and Networks Sp. z.o.o.)**	POLAND	ETSI
Nokia Shanghai Bell **(Nokia Shanghai Bell Co., Ltd)**	CHINA	CCSA
Nokia Solutions & Networks (I) **(Nokia Solutions and Networks India Pvt. Ltd.)**	INDIA	TSDSI
Nokia UK **(Nokia UK Ltd.)**	UNITED KINGDOM	ETSI
Nordic Semiconductor ASA **(Nordic Semiconductor ASA)**	NORWAY	ETSI
NOVAMINT **(NOVAMINT)**	UNITED KINGDOM	ETSI
NTIA **(National Telecommunications and Information Administration)**	UNITED STATES	ATIS
NTPU **(National Taipei University)**	TAIWAN, PROVINCE OF CHINA	ETSI
NTT **(Nippon Telegraph and Telephone Corporation (NTT))**	JAPAN	TTC
NTT corporation **(Nippon Telegraph and Telephone Corporation)**	JAPAN	ETSI
NTT DOCOMO INC. **(NTT DOCOMO INC.)**	JAPAN	TTC
NTT DOCOMO INC.. **(NTT DOCOMO INC.)**	JAPAN	ARIB
NTT-AT Corp. **(NTT Advanced Technology Corporation)**	JAPAN	TTC
NTU	TAIWAN, PROVINCE OF CHINA	ETSI

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(National Taiwan University)		
Nubia Technology Co.,Ltd **(Nubia Technology Co.,Ltd)**	CHINA	CCSA
NUFRONT **(Nufront (Beijing) Technology Co., Ltd.)**	CHINA	CCSA
NVIDIA **(NVIDIA Corporation)**	UNITED STATES	ATIS
NXP Semiconductors Netherlands **(NXP Semiconductors Netherlands B.V.)**	NETHERLANDS	ETSI
NYCU **(National Yang Ming Chiao Tung University)**	TAIWAN, PROVINCE OF CHINA	ETSI
Obvios **(Obvios)**	FRANCE	ETSI
Odido **(Odido Netherlands B.V.)**	NETHERLANDS	ETSI
Ofcom (CH) **(Ofcom (CH))**	SWITZERLAND	ETSI
Ofcom (U.K.) **(Ofcom - Office of Communications (U.K.))**	UNITED KINGDOM	ETSI
Oki Electric Industry Co. Ltd. **(OKi Electric Industry Co., Ltd)**	JAPAN	TTC
Omnispace **(Omnispace)**	UNITED STATES	ATIS
ONE Media 3.0 LLC **(ONE Media 3.0 LLC)**	UNITED STATES	ATIS
one2many B.V. **(one2many B.V.)**	NETHERLANDS	ETSI
OnePlus **(OnePlus (Shenzhen) Technology Co., LTD)**	CHINA	CCSA
OPPO **(Guangdong OPPO Mobile Telecommunications Corp.,Ltd.)**	CHINA	ETSI
OPPO (chongqing) Intelligence **(OPPO (chongqing) Intelligence Technology Limited)**	CHINA	CCSA
OPPO Beijing **(Beijing OPPO Telecommunications Corp., ltd.)**	CHINA	CCSA
OptM Media **(OptM Media Solutions Private Limited)**	INDIA	TSDSI
OQTEC **(OQ TECHNOLOGY)**	LUXEMBOURG	ETSI
Oracle Corporation **(Oracle Corporation)**	UNITED STATES	ETSI
Orange **(Orange)**	FRANCE	ETSI
Orange Romania **(Orange Romania)**	ROMANIA	ETSI
Orange Spain **(France Telecom España S.A.U.)**	SPAIN	ETSI
Orange UK **(Orange Brand Services Ltd)**	UNITED KINGDOM	ETSI
ORS **(Österreichische Rundfunksender GmbH & Co KG)**	AUSTRIA	ETSI
OTD_US **(OTD_US)**	UNITED STATES	ATIS
OTE S.A **(OTE S.A)**	GREECE	ETSI
P.I. WORKS **(P.I. WORKS TR BILISIM HIZMETLERI A.S.)**	TÜRKIYE	ETSI
Pairpoint **(DABCO Ltd)**	UNITED KINGDOM	ETSI
Panasonic Holdings Corporation **(Panasonic Holdings Corporation)**	JAPAN	ARIB
PANASONIC R&D Center Germany **(PANASONIC R&D Center Germany GmbH)**	GERMANY	ETSI
PCCW Global B.V. **(PCCW Global B.V.)**	FRANCE	ETSI
Peking University	CHINA	CCSA

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(Peking University)		
Pengcheng laboratory **(Pengcheng laboratory)**	CHINA	CCSA
Peraton Labs **(Peraton Labs)**	UNITED STATES	ATIS
Philips International B.V. **(Philips International B.V.)**	NETHERLANDS	ETSI
PHY Wireless **(PHY Wireless)**	UNITED STATES	ATIS
PIDS **(PIDS)**	NETHERLANDS	ETSI
Plan-S **(Plan S Uydu ve Uzay Teknolojileri A.S)**	TÜRKIYE	ETSI
PML **(Purple Mountain Laboratories: Networking, Communications and Security)**	CHINA	CCSA
Polaris Wireless **(Polaris Wireless)**	UNITED STATES	ATIS
Polisen **(Polismyndigheten)**	SWEDEN	ETSI
POST Luxembourg **(POST Luxembourg)**	LUXEMBOURG	ETSI
Prasar Bharati **(Prasar Bharati)**	INDIA	TSDSI
Proximus Plc **(Proximus Plc)**	BELGIUM	ETSI
PSCE **(Public Safety Communication Europe Forum)**	BELGIUM	ETSI
PT PORTUGAL SGPS SA **(PT Portugal SGPS SA)**	PORTUGAL	ETSI
PTS **(Swedish Post and Telecom Authority)**	SWEDEN	ETSI
Public Safety Canada **(Public Safety Canada)**	CANADA	ETSI
Qihoo 360 **(Qihoo 360 Technology Co., Ltd.)**	CHINA	CCSA
Qorvo **(Qorvo)**	UNITED STATES	ETSI
Qualcomm Austria RFFE GmbH **(Qualcomm Austria RFFE GmbH)**	AUSTRIA	ETSI
QUALCOMM Europe Inc. - Italy **(QUALCOMM Europe Inc. - Italy Branch Office)**	ITALY	ETSI
QUALCOMM Europe Inc. - Spain **(QUALCOMM Europe Inc. - Spain Branch Office)**	SPAIN	ETSI
Qualcomm Finland RFFE Oy **(Qualcomm Finland RFFE Oy)**	FINLAND	ETSI
Qualcomm France **(Qualcomm France SARL)**	FRANCE	ETSI
Qualcomm Germany **(Qualcomm Germany GmbH)**	GERMANY	ETSI
Qualcomm Incorporated **(Qualcomm Incorporated)**	UNITED STATES	ATIS
Qualcomm India Pvt Ltd **(Qualcomm India Pvt Ltd)**	INDIA	TSDSI
QUALCOMM JAPAN LLC. **(QUALCOMM JAPAN LLC.)**	JAPAN	ARIB
Qualcomm Korea **(Qualcomm Korea)**	KOREA (REPUBLIC OF)	TTA
Qualcomm Tech. Netherlands B.V **(Qualcomm Technologies Netherlands B.V.)**	NETHERLANDS	ETSI
Qualcomm Technologies Int **(Qualcomm Technologies International, Ltd)**	UNITED KINGDOM	ETSI
Qualcomm Technologies Ireland **(QT Technologies Ireland Limited)**	IRELAND	ETSI
Quanray **(Shanghai Quanray Electronics Co., Ltd.)**	CHINA	CCSA
Quectel	CHINA	CCSA

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(Quectel Wireless Solutions Co., Ltd.)		
RadiSys **(RadiSys Inc.)**	CANADA	ETSI
Rakuten Mobile, Inc **(Rakuten Mobile, Inc)**	JAPAN	ARIB
RATEL **(Regulatory Authority For Electronic Communications and Postal Services)**	SERBIA	ETSI
Realme (Shenzhen) **(Realme Mobile Telecommunications (Shenzhen) Co., Ltd.)**	CHINA	CCSA
Reflection B.V. **(Reflection Investment B.V.)**	NETHERLANDS	ETSI
Reliance Jio **(Reliance Jio)**	INDIA	TSDSI
RICHTEK KOREA **(RICHTEK KOREA)**	KOREA (REPUBLIC OF)	TTA
RISE **(RISE Research Institutes of Sweden)**	SWEDEN	ETSI
ROBERT BOSCH GmbH **(ROBERT BOSCH GmbH)**	GERMANY	ETSI
Rogers Communications Canada **(Rogers Communications Canada Inc.)**	CANADA	ETSI
ROHDE & SCHWARZ **(ROHDE & SCHWARZ GmbH & Co.KG)**	GERMANY	ETSI
Ruijie Network Co. Ltd **(Ruijie Network Co. Ltd)**	CHINA	CCSA
SageRAN **(Guangdong Sageran Technology Co., Ltd)**	CHINA	CCSA
SAICT **(Shenzhen Academy of Information and Communication Technology)**	CHINA	CCSA
Samsung Electronics Co., Ltd **(Samsung Electronics Co., Ltd.)**	KOREA (REPUBLIC OF)	TTA
Samsung Electronics Czech **(Samsung Electronics Czech)**	CZECH REPUBLIC	ETSI
Samsung Electronics France SA **(Samsung Electronics France SA)**	FRANCE	ETSI
Samsung Electronics GmbH **(Samsung Electronics GmbH)**	GERMANY	ETSI
Samsung Electronics Iberia SA **(Samsung Electronics Iberia SA)**	SPAIN	ETSI
Samsung Electronics Nordic AB **(Samsung Electronics Nordic AB)**	SWEDEN	ETSI
Samsung Electronics Polska **(Samsung Electronics Polska)**	POLAND	ETSI
Samsung Guangzhou Mobile R&D **(Samsung Guangzhou Mobile R&D Center)**	CHINA	CCSA
Samsung Nanjing **(Samsung Electronic (China) R&D Center)**	CHINA	CCSA
Samsung R&D Institute India **(Samsung R&D Institute India - Bangalore Pvt. Ltd)**	INDIA	TSDSI
SAMSUNG R&D INSTITUTE JAPAN **(SAMSUNG R&D INSTITUTE JAPAN)**	JAPAN	ARIB
Samsung R&D Institute UK **(Samsung R&D Institute UK)**	UNITED KINGDOM	ETSI
Samsung Research America **(Samsung Research America)**	UNITED STATES	ATIS
Samsung Shenzhen **(Samsung Network R&D Center-Shenzhen)**	CHINA	CCSA
Sanechips **(Sanechips Technology Co. , Ltd.)**	CHINA	CCSA
Sateliot **(Satelio IoT Services)**	SPAIN	ETSI
Schindler **(Schindler Elevator Ltd)**	SWITZERLAND	ETSI
SDI Squared **(SDI Squared LLC)**	UNITED STATES	ETSI
Sectra Communications AB	SWEDEN	ETSI

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(Sectra Communications AB)		
Security Service **(Swedish Security Service)**	SWEDEN	ETSI
Semtech Neuchatel SA **(Semtech Neuchatel SA)**	SWITZERLAND	ETSI
Sennheiser electronic SE **(Sennheiser electronic SE & Co. KG)**	GERMANY	ETSI
Sensus UK **(Sensus UK Systems Limited)**	UNITED KINGDOM	ETSI
Sepura Ltd **(Sepura Limited)**	UNITED KINGDOM	ETSI
Sequans Communications **(Sequans Communications)**	FRANCE	ETSI
SES S.A. **(SES S.A.)**	LUXEMBOURG	ETSI
SETS **(Society for Electronic Transactions and Security)**	INDIA	TSDSI
SEU **(Southeast University)**	CHINA	CCSA
SGDSN **(Secrétariat Général de la Défense et de la Sécurité Nationale (SGDSN))**	FRANCE	ETSI
SGITG **(State Grid Information & Telecommunication Group Co., Ltd.)**	CHINA	CCSA
SGS Wireless **(SGS Wireless)**	UNITED KINGDOM	ETSI
Shanghai Chen Si Electronics **(Shanghai Chen Si Electronics Technology Co., Ltd)**	CHINA	CCSA
Shanghai Jiao Tong University **(Shanghai Jiao Tong University)**	CHINA	CCSA
Shanghai Tejet Com Technology **(Shanghai Tejet Communications Technology Co., Ltd.)**	CHINA	CCSA
SHARP Corporation **(SHARP Corporation)**	JAPAN	ARIB
Shenzhen Heytap **(Shenzhen Heytap Technology Corp.,Ltd.)**	CHINA	CCSA
ShenZhen Zhongxing Shitong **(ShenZhen Zhongxing Shitong Tech. Co.,Ltd.)**	CHINA	CCSA
SIA **(Shenyang Institute of Automation, Chinese Academy of Sciences)**	CHINA	CCSA
Siemens AG **(Siemens AG)**	GERMANY	ETSI
Signalchip Innovations Pvt. **(Signalchip Innovations Pvt. Ltd.)**	INDIA	TSDSI
SIST **(Slovenian Institute for Standardisation)**	SLOVENIA	ETSI
Sisvel **(Sisvel International S.A.)**	LUXEMBOURG	ETSI
SK Telecom **(SK TELECOM)**	KOREA (REPUBLIC OF)	TTA
SKY Perfect JSAT Corporation **(SKY Perfect JSAT Corporation)**	JAPAN	ARIB
Skylo Technologies **(Skylo Technologies)**	UNITED STATES	ATIS
Skyworks Solutions Inc. **(Skyworks Solutions Inc.)**	UNITED STATES	ETSI
Smart Internet Lab **(Smart Internet Lab, University of Bristol)**	UNITED KINGDOM	ETSI
SmarterMicro Inc. **(Smarter Microelectronics(Guangzhou) Co.,Ltd)**	CHINA	CCSA
SnT - University of Luxembourg **(Interdisciplinary Centre for Security, Reliability and Trust/University of Luxembourg)**	LUXEMBOURG	ETSI
SoftBank Corp. **(SoftBank Corp.)**	JAPAN	ARIB
Softel Systems **(Softel Systems Pty Ltd)**	AUSTRALIA	ETSI
Softil Ltd	ISRAEL	ETSI

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(Softil Ltd)		
Sony Corporation **(Sony Corporation)**	JAPAN	ARIB
Sony Europe B.V. **(Sony Europe B.V.)**	UNITED KINGDOM	ETSI
Sony Group Corporation **(Sony Group Corporation)**	JAPAN	ARIB
Sooktha Consulting Pvt Ltd **(Sooktha Consulting Pvt Ltd)**	INDIA	TSDSI
Soongsil University **(Soongsil University)**	KOREA (REPUBLIC OF)	TTA
SOS Alarm **(SOS Alarm Sverige AB)**	SWEDEN	ETSI
Southern Linc. **(Southern Linc.)**	UNITED STATES	ATIS
Southwest Jiaotong university **(Southwest Jiaotong university)**	CHINA	CCSA
SpaceX **(SpaceX Netherlands B.V)**	NETHERLANDS	ETSI
Spark NZ Ltd **(Spark NZ Ltd)**	NEW ZEALAND	ATIS
Spirent Communications **(Spirent Communications)**	UNITED STATES	ETSI
Sporton International Inc **(Sporton International Inc.)**	TAIWAN, PROVINCE OF CHINA	ETSI
Spreadtrum Communications **(Spreadtrum Communications (Shanghai) Co., Ltd.)**	CHINA	CCSA
SRTC **(The State Radio_monitoring_center Testing Center)**	CHINA	CCSA
SS8 **(SS8 Networks Inc.)**	UNITED STATES	ETSI
SSNS **(Special Service for the National Security of Hungary)**	HUNGARY	ETSI
Starpoint **(Beijing Starpoint Technology Company Limited)**	CHINA	CCSA
STE IDIRECT IRELAND LTD **(ST ENGINEERING IDIRECT (IRELAND) LIMITED)**	IRELAND	ETSI
STMicroelectronics **(STMicroelectronics International NV)**	SWITZERLAND	ETSI
Sumitomo Elec. Industries, Ltd **(Sumitomo Electric Industries, Ltd.)**	JAPAN	ARIB
SUNGKYUNKWAN UNIVERSITY **(SUNGKYUNKWAN UNIVERSITY)**	KOREA (REPUBLIC OF)	TTA
SUTD **(Singapore University of Technology and Design)**	SINGAPORE	ETSI
Swift Navigation **(Swift Navigation)**	UNITED STATES	ATIS
SWISSCOM **(SWISSCOM SA)**	SWITZERLAND	ETSI
SWR **(Südwestrundfunk)**	GERMANY	ETSI
SyncTechno Inc. **(SyncTechno Inc.)**	KOREA (REPUBLIC OF)	TTA
Syniverse **(M/s Syniverse Technologies Services India Pvt. Ltd.)**	INDIA	TSDSI
TA **(Tantra Analyst)**	UNITED STATES	ETSI
Tait Europe Limited **(Tait Europe Limited)**	AUSTRIA	ETSI
TATA Communications Ltd **(TATA Communications Ltd)**	INDIA	TSDSI
Tata Elxsi Limited. **(Tata Elxsi Limited.)**	INDIA	TSDSI
TCL **(Shenzhen TCL New Technology Company Ltd.)**	CHINA	CCSA
TCS	INDIA	TSDSI

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(TATA Consultancy Services)		
TD Tech Ltd **(TD Tech Ltd)**	CHINA	CCSA
TDF **(TDF SAS)**	FRANCE	ETSI
Tech Mahindra Limited **(Tech Mahindra Limited)**	INDIA	TSDSI
Tejas Network Limited **(Tejas Network Limited)**	INDIA	TSDSI
Tektronix GmbH **(Tektronix GmbH)**	GERMANY	ETSI
TELECOM ITALIA S.p.A. **(Telecom Italia S.p.A.)**	ITALY	ETSI
Telefonica Germany GmbH **(Telefónica Germany GmbH & Co OHG)**	GERMANY	ETSI
TELEFONICA S.A. **(TELEFONICA S.A.)**	SPAIN	ETSI
Telekom Deutschland GmbH **(Telekom Deutschland GmbH)**	GERMANY	ETSI
TELENOR ASA **(Telenor ASA)**	NORWAY	ETSI
Telesat International Limited **(Telesat International Limited)**	UNITED KINGDOM	ETSI
Telia Company AB **(Telia Company AB)**	SWEDEN	ETSI
Telit Communications S.p.A. **(Telit Communications S.p.A.)**	ITALY	ETSI
Telstra Limited **(Telstra Limited)**	AUSTRALIA	ETSI
TELUS **(TELUS)**	CANADA	ATIS
Tencent **(Shenzhen city Tencent computer system Co. Ltd.)**	CHINA	CCSA
Tencent Cloud **(Tencent cloud computing Beijing Co., Ltd)**	CHINA	CCSA
Teradyne **(Teradyne)**	UNITED STATES	ATIS
TerreStar Solutions Inc. **(TerreStar Solutions Inc.)**	CANADA	ATIS
Texas A&M University **(Texas A&M University)**	UNITED STATES	ETSI
TEXAS Instruments **(Texas Instruments France)**	FRANCE	ETSI
THALES **(THALES)**	FRANCE	ETSI
THURAYA TELECOM CO. **(THURAYA TELECOMMUNICATIONS COMPANY)**	UNITED ARAB EMIRATES	ETSI
Tiami Networks **(Tiami Networks)**	UNITED STATES	ATIS
TII **(Technology Innovation Institute)**	UNITED ARAB EMIRATES	ETSI
T-Mobile Austria GmbH **(T-Mobile AUSTRIA GmbH)**	AUSTRIA	ETSI
T-Mobile Polska S.A. **(T-Mobile Polska Spolka Akcyjna)**	POLAND	ETSI
T-Mobile USA **(T-Mobile USA, Inc.)**	UNITED STATES	ETSI
T-Mobile USA Inc. **(T-Mobile USA Inc.)**	UNITED STATES	ATIS
TNO **(TNO)**	NETHERLANDS	ETSI
Tomorrow's Creation Labs **(Tomorrow's Creation Labs)**	JAPAN	ARIB
Tongji University **(Tongji University)**	CHINA	CCSA
Toshiba	UNITED KINGDOM	ETSI

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(Toshiba)		
TOWE Wireless **(Sushi TOWE Wireless Testing (Shenzhen) Co.,Ltd.)**	CHINA	ETSI
TOYOTA Info Technology Center **(TOYOTA Info Technology Center USA, Inc.)**	UNITED STATES	ETSI
TOYOTA MOTOR CORPORATION **(TOYOTA MOTOR CORPORATION)**	JAPAN	TTC
TRAFICOM **(The Finnish Transport and Communications Agency)**	FINLAND	ETSI
Trafikverket **(Trafikverket)**	SWEDEN	ETSI
Transsion Holdings **(Transsion Holdings)**	CHINA	CCSA
TransUnion **(TransUnion)**	UNITED STATES	ATIS
Trimble **(Trimble)**	UNITED STATES	ATIS
Tron Future Tech Inc. **(Tron Future Tech Inc.)**	TAIWAN, PROVINCE OF CHINA	ETSI
TTP plc **(TTP plc)**	UNITED KINGDOM	ETSI
Turk Telekomunikasyon A.S. **(Turk Telekomunikasyon A.S.)**	TÜRKIYE	ETSI
TURKCELL **(Turkcell Iletisim Hizmetleri A.S.)**	TÜRKIYE	ETSI
U.S. Department of Defense **(U.S. Department of Defense)**	UNITED STATES	ATIS
U.S. Department of Transport. **(U.S. Department of Transportation)**	UNITED STATES	ATIS
U.S. National Security Agency **(US National Security Agency)**	UNITED STATES	ATIS
Uangel **(Uangel Corporation)**	KOREA (REPUBLIC OF)	TTA
Ubiik **(Ubiik SAS)**	FRANCE	ETSI
ubinexus **(Beijing Ubinexus Technology Development Co., Ltd)**	CHINA	CCSA
u-blox AG **(u-blox AG)**	SWITZERLAND	ETSI
UESTC **(University of Electronic Science and Technology of China)**	CHINA	CCSA
UL VS Ltd **(UL VS Ltd)**	UNITED KINGDOM	ETSI
UMA **(Universidad de Malaga)**	SPAIN	ETSI
umlaut **(umlaut communications GmbH)**	GERMANY	ETSI
UNIBO **(ALMA MATER STUDIORUM Università di Bologna)**	ITALY	ETSI
UniBw M **(University of the Bundeswehr Munich)**	GERMANY	ETSI
Unicom Broadband Online **(Unicom Broadband Online Co., Ltd.)**	CHINA	CCSA
Unicompay **(Unicompay Co., Ltd.)**	CHINA	CCSA
Union Inter. Chemins de Fer **(Union Internationale des Chemins de Fer)**	FRANCE	ETSI
Union Telephone Company **(Union Telephone Company)**	UNITED STATES	ATIS
Unisoc **(Unisoc (Shanghai) Technologies Co., Ltd.)**	CHINA	CCSA
Unisoc Beijing **(Beijing Unisoc Communications Technology Co., Ltd.)**	CHINA	CCSA
UPV/EHU **(Universidad del País Vasco/Euskal Herriko Unibertsitatea)**	SPAIN	ETSI
US Cellular Corporation.	UNITED STATES	ATIS

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(US Cellular Corporation/TDS.)		
US DHS Science & Technology **(US DHS Science & Technology)**	UNITED STATES	ATIS
UTIMACO TS GmbH **(UTIMACO TS GmbH)**	GERMANY	ETSI
UTokyo **(The University of Tokyo)**	JAPAN	ETSI
Vaan Megam **(Vaan Megam Networks)**	INDIA	TSDSI
Valeo **(Valeo Telematik und Akustik GmbH)**	GERMANY	ETSI
VALID SOLUCIONES TECNOLÓGICAS **(VALID SOLUCIONES TECNOLÓGICAS S.A.U)**	SPAIN	ETSI
Valid8 **(Valid8.com, Inc.)**	UNITED STATES	ETSI
Vanchip **(Vanchip (Tianjin) Technology Co., Ltd.)**	CHINA	CCSA
Verizon Denmark **(Verizon Denmark A/S)**	DENMARK	ETSI
Verizon Finland **(Verizon Finland Oy)**	FINLAND	ETSI
Verizon France **(Verizon France SAS)**	FRANCE	ETSI
Verizon Netherlands **(Verizon Nederland B.V)**	NETHERLANDS	ETSI
Verizon Spain **(Verizon Spain S.L.)**	SPAIN	ETSI
Verizon Sweden **(Verizon Sweden Aktiebolag 2116)**	SWEDEN	ETSI
Verizon Switzerland AG **(Verizon Switzerland AG)**	SWITZERLAND	ETSI
Verizon UK Ltd **(Verizon UK Ltd)**	UNITED KINGDOM	ETSI
Vestel **(Vestel Elektronik Sanayi ve Ticaret A.S)**	TÜRKIYE	ETSI
ViaSat Satellite Holdings Ltd **(ViaSat Satellite Holdings Ltd)**	UNITED KINGDOM	ETSI
VIAVI Solutions **(Viavi Solutions UK Ltd.)**	UNITED KINGDOM	ETSI
vivo Mobile Com. (Chongqing) **(vivo Mobile Communication (Chongqing) Co., Ltd)**	CHINA	CCSA
vivo Mobile Communication (H) **(vivo Mobile Communication (Hangzhou) Co., Ltd.)**	CHINA	CCSA
vivo Mobile Communication (S) **(vivo Mobile Communication (Shenzhen) Co., Ltd.)**	CHINA	CCSA
vivo Mobile Communication Co., **(vivo Mobile Communication Co., Ltd)**	CHINA	CCSA
vivo Software Technology **(vivo Software Technology (Xi'an) Co., Ltd.)**	CHINA	CCSA
VIVO TECH GmbH **(VIVO TECH GmbH)**	GERMANY	ETSI
vivo Wisdom Technology **(vivo Wisdom Technology Co., Ltd.)**	CHINA	CCSA
Vodafone GmbH **(Vodafone GmbH)**	GERMANY	ETSI
VODAFONE Group Plc **(Vodafone Group Plc)**	UNITED KINGDOM	ETSI
Vodafone Ireland Plc **(Vodafone Ireland Plc)**	IRELAND	ETSI
Vodafone Italia SpA **(Vodafone Italia SpA)**	ITALY	ETSI
Vodafone Romania S.A. **(Vodafone Romania S.A.)**	ROMANIA	ETSI
Vodafone Telekomünikasyon A.S. **(Vodafone Telekomünikasyon A.S.)**	TÜRKIYE	ETSI
VoiceAge Corporation	CANADA	ETSI

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(VoiceAge Corporation)		
Volkswagen AG **(Volkswagen AG)**	GERMANY	ETSI
VSENS **(Unicom Vsens Telecommunications Co., Ltd)**	CHINA	CCSA
VTT **(VTT Technical Research Centre of Finland)**	FINLAND	ETSI
WE Certification Oy **(WE Certification Oy)**	FINLAND	ETSI
Wiliot Ltd. **(Wiliot Ltd.)**	ISRAEL	ETSI
WILUS Inc. **(WILUS Inc.)**	KOREA (REPUBLIC OF)	TTA
Wipro **(Wipro Limited)**	INDIA	TSDSI
Wipro GE **(Wipro GE Healthcare Private Limited)**	INDIA	TSDSI
Wisig Networks Pvt Ltd **(Wisig Networks Pvt Ltd)**	INDIA	TSDSI
Wuhan Hongxin Technology **(Wuhan Hongxin Technology Development Co., Ltd.)**	CHINA	CCSA
XGN **(XGen Network LLC)**	UNITED STATES	ETSI
Xiamen Sanan Integr. Circuit **(Xiamen Sanan Integrated Circuit Co., Ltd.)**	CHINA	CCSA
Xiaomi Communications **(Xiaomi Communications)**	CHINA	CCSA
Xiaomi Digital Technology **(Beijing Xiaomi Digital Technology Co., Ltd.)**	CHINA	CCSA
Xiaomi Electronic Software **(Beijing Xiaomi Electronic Software Co., Ltd.)**	CHINA	CCSA
Xiaomi EV Technology **(Xiaomi EV Technology Co., Ltd.)**	CHINA	CCSA
Xiaomi Technology **(Xiaomi Technology)**	CHINA	CCSA
Xiaomi Technology (Polska) sp. **(XIAOMI TECHNOLOGY (POLSKA) SPOLKA Z OGRANICZONA ODPOWIEDZIALNOSCIA)**	POLAND	ETSI
Xiaomi Technology France **(Xiaomi Technology France)**	FRANCE	ETSI
Xiaomi Technology Germany GmbH **(Xiaomi Technology Germany GmbH)**	GERMANY	ETSI
Xiaomi Technology Italy srl **(Xiaomi Technology Italy srl)**	ITALY	ETSI
Xiaomi Technology Netherlands **(Xiaomi Technology Netherlands B.V.)**	NETHERLANDS	ETSI
Xiaomi Technology Spain S.L **(Xiaomi Technology Spain S.L)**	SPAIN	ETSI
Xiaomi Technology UK Limited **(Xiaomi Technology UK Limited)**	UNITED KINGDOM	ETSI
Xidian University **(Xidian University)**	CHINA	CCSA
Xilinx Ireland **(Xilinx Ireland)**	IRELAND	ETSI
XNET **(ZGC Institute of Ubiquitous-X Innovation and Applications)**	CHINA	ETSI
X-Net **(ZGC Institute of Ubiquitous-X Innovation and Applications)**	CHINA	CCSA
Yonsei University **(Yonsei University)**	KOREA (REPUBLIC OF)	TTA
Zhejiang Lab **(Zhejiang Lab)**	CHINA	CCSA
Zhejiang University **(Zhejiang University)**	CHINA	CCSA
ZITiS **(Central Office for Information Technology in the Security Sector)**	GERMANY	ETSI
Zollkriminalamt (ZKA)	GERMANY	ETSI

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(Zollkriminalamt (ZKA))		
ZONSON **(ZONSON SAMRT AUTO CORPORATION)**	CHINA	CCSA
ZTE **(ZTE Telecom India Pvt Ltd)**	INDIA	TSDSI
ZTE Corporation **(ZTE Corporation)**	CHINA	CCSA
ZTE Corporation **(ZTE Corporation)**	CHINA	ETSI
ZTE Deutschland **(ZTE Deutschland GmbH)**	GERMANY	ETSI
ZTE FRANCE SASU **(ZTE FRANCE SASU)**	FRANCE	ETSI
ZTE Italia **(ZTE Italia S.R.L)**	ITALY	ETSI
ZTE JAPAN K.K. **(ZTE JAPAN K.K..)**	JAPAN	TTC
ZTE Japan K.K. **(ZTE Japan K.K.)**	JAPAN	ARIB
ZTE Korea Limited **(ZTE Korea Limited)**	KOREA (REPUBLIC OF)	TTA
ZTE Photonics **(ZTE Photonics Technology Co.,Ltd.)**	CHINA	CCSA
ZXNE **(ZXNE CORPORATION)**	CHINA	CCSA

Total : 827 Individual Members

Any comments or problems with this application? Please let us know...

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APPENDIX 10

The Wayback Machine - https://web.archive.org/web/20081210044159/http://www.3gpp.org:80/FAQ

About 3GPP

FAQ

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Membership

Who can become an Individual Member of 3GPP and how much does it cost?

Individual Members are by definition members of the Organizational Partners of 3GPP. This means that members of standardization bodies such as ETSI, ARIB, TTA, TTC, ATIS and CCSA have a right to take part in 3GPP. If your company becomes an ETSI member, please be informed that for participation in 3GPP you need to pay 3 units of contribution as a minimum except SMEs, Users, Universities, Public Research Bodies who should pay 2 units (instead of 1). If you determine 2 units for your company based on ICT business turnover, you have to add another unit of contribution. If you require further guidance on how to participate in 3GPP activities you should contact 3GPP Membership

Who may participate in 3GPP meetings?

To attend a 3GPP meeting, you must be a 3GPP Individual Member (i.e. you must be a Member of one of the Organizational Partners involved in the project; ARIB, CCSA, ETSI, T1, TTA or TTC. A non-member company should seek membership with one of the above partners to be eligible to contribute and participate at 3GPP Meetings.

Who shall fill in the 3GPP Individual Member Application form?

The person legally responsible for the requesting company shall fill in the form.

What shall I do if a 3GPP company or official contact details change?

All changes of correspondence should be notified to 3GPPContact@3gpp.org

Different membership categories?

The different membership categories of 3GPP are described in Section B of the 3GPP Working Procedures.

Who may become an observer?

Who may become a Guest Member and do guests have to pay any fees?

3GPP News
3GPP Partners News

Search for:
In: Entire Site Search

12328 unique visitors average per day

343 connected visitors

2008 - 2009
2009, 26 Jan. ATIS 3GPP LTE Conference

Other conferences »

Partners
Project Coordination Group (PCG)
Membership
Mobile Competence Centre
Funding & Finance
Liaisons-page
Legal matters

3GPP scope
Tools and Templates

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The Guest Status is for potential Individual Members who may be granted permission to participate in 3GPP for a maximum period of 6 months. Guest status is granted on a case-by-case basis by the Organizational Partners (see also Working Procedures Article 10). If you like to apply for a Guest status, please send an email to 3GPPContact@etsi.org

No membership fees are requested for Guest applications.

Who can apply for market representative Partnership?

Can an ETSI Observer become an Individual Member of 3GPP?

No, an ETSI Observer may "observe" all activities, but their participation is limited to the ETSI General Assembly only. Therefore, ETSI Observers have no participation rights in 3GPP. ETSI Observers have access to ETSI documentation and of course to 3GPP documentation since that is openly published on the web.

3GPP does have it's own category called "Observer" but that is entirely different and is used for potential Partners.

Can an ETSI Applicant apply for 3GPP Membership?

YES, an Applicant means that your request to become an ETSI Member will be addressed (and normally approved) at the next General Assembly and that the company has specified they want to participate in 3GPP activities. See also above regarding 3GPP fees.

My company is already an ETSI Member, what do I have to do to join 3PP and do I have to pay any fees?

As an ETSI member your company is eligible for a 3GPP Individual Membership and you will be able to attend any of the 3GPP Meetings. Please fill in the on-line 3GPP Application form and your company will be then listed on the 3GPP Website (add link to the form)

There are currently no additional costs involved for participation in 3GPP (the membership fees for ETSI covers the cost of 3GPP participation).

3GPP email exploder lists

Are there discussion archives for the 3GPP exploder lists?

Home page of listserv

Then, just follow the links to the archives. For example, the archives for the main RAN email list

How do I subscribe to the 3GPP exploder lists?

follow the instructions found >>>here

Legal Matters

What is the 3GPP IPR Policy?

The 3GPP Organizational Partners have agreed that their IPR policies should be respected and that their respective members should be encouraged to declare "their willingness to grant licenses on fair reasonable terms and conditions and on non discriminatory basis" (Article 3.1 of the Third Generation Partnership Project). For more information Look Here >>>

The above-mentioned principles are further reflected in Article 55 of the 3GPP Technical Working Procedures which request that each Individual Members should declare "at the earliest opportunity, any IPR which they believe to be essential, or potentially essential, to any work ongoing within 3GPP".

What is the 3GPP policy on licensing?

Some aspects of 3GPP systems are covered by essential Intellectual Property Rights (IPR) - that is, patented technologies without which equipment cannot be implemented. The IPR vests in - i.e. the patents are held by - individual companies, and not by 3GPP itself or any of its Organizational Partners (OPs). All Individual Members of 3GPP abide by the IPR policies of the OP to which they belong; all such policies are broadly similar (see FAQ 3.1), and require IPR holders to make licences available to all third parties, whether or not they are 3GPP Individual Members, under fair, reasonable and non-discriminatory (FRAND) terms.

Neither 3GPP nor its component OPs offer an IPR search service. It is the responsibility of each manufacturer / system implementor to seek and obtain its own licences from the individual IPR holders.

For more information, and a guide to the IPRs declared to each 3GPP OP, look here >>>

(Answer drafted 2005-09-12 by JMM.)

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What is the 3G Patent Platform?

On the fringe of standardization activities some telecom companies have set up a voluntary arrangement for the licensing of essential patents required to meet the standards published for 3G systems has emerged.

Please find a historical recap of the creation of the 3G Patent Platform. Thank you to note that Phase 3 has not started yet.

1. Discussions started in the UMTS IPR working Group (1998).

2. The UMTS IPR working group operated within the UIAP (UMTS Intellectual Property Association) to define the functions of the 3G Patent Platform.

The 3G Patent Platform will provide services for:

Evaluating,
Certifying and,
Licensing

essential patents for 3G Mobile communications.

3. Implementation of the 3G Patent Platform scheme.

The 3G Patent Platform will operate within a new profit service company governed by the members (essential patent holders and licensees). As of today this NEW CO is not operational since it is waiting for the approval of the US/EC/Japanese competition law authorities in order to launch the above-described activities.

More information...

Is it true that a number 3GPP members are looking at setting up a patents cooperative, with the aim of reducing the royalties they pay each other for the use of patented technology in third-generation mobile systems?

1. Discussion started in the UMTS IPR working Group (1998),
2. Creation of the UIAP (UMTS Intellectual Property Association) which has performed the function of the definition the 3G Patent Platform scheme (Evaluation of a patent, certification of essentiality, licensing arrangements, etc.) and which is the legal owner of the 3G Patent Platform Specification.
3. Implementation of the scheme:

As of today NEW CO (implementing the 3G Patent Platform) has not be incorporated and the Patent Platform scheme is not operational as it is awaiting for the approval of the US/EC competition law authorities.

ETSI follows the development of the 3G Patent Platform but, as a neutral standard body, cannot take an active participation in this market initiative.

Who owns the Technical Specifications and the Technical Reports approved by 3GPP?

According to the Article 3.2.2 of the Third Generation Partnership Project Agreement, the 3GPP Organizational Partners jointly own copyright on the Technical Specifications and the Technical Reports approved by 3GPP.

Does a company implementing a product based on the 3GPP specifications have to pay any royalties to the 3GPP organization?

The Third Generation Partnership Project is not a legal entity but a Partnership Project between different standardization organizations in the field of telecommunications.

Is permission needed to use the 3GPP logo in marketing collaterals or on a web site?

ETSI (European Telecommunications Standards Institute) is the sole owner of the following acronyms:

ETSI,
DECT,
UMTS,
3GPP and
TIPHON,

as well as the ETSI, TIPHON and 3GPP logos. ETSI Members shall use these Trade Marks in accordance with Collective Letter 1943. Authorization is needed to use the above mentioned acronyms and logos.

For further information please contact : 3GPP Legal

Can I use computer code included with a 3GPP TS to implement a product?

Yes. Some 3GPP Technical Specifications include computer code such as ASN.1 or XML (protocols), C language (codecs), ...; and some include test patterns (codecs) for verifying implementations. These are published to allow users of these TSs to implement real-world products. No permission is required from 3GPP or its Organizational Partners (OPs) to use this code in the design of products - e.g. to compile the C to implement a codec in machine code.

Nevertheless, there may be essential IPR involved with such a design, and implementors are obliged to seek licences to use that technology. See FAQ 3.2.

Moreover, the copyright of all 3GPP TSs and TRs vests jointly by all the 3GPP OPs. Other than for in-house copies for the purpose of further development of the 3GPP standard or for product design purposes, etc. you may not reproduce any part of a 3GPP TS or TR without seeking permission: use the form available here. This means that you must not provide verbatim copies of source code (or lightly modified copies) without seeking permission from 3GPP.

Finally, you are reminded that 3GPP TSs and TRs have no legal status, and you should not design products directly to them. See the advice notice on the cover page of every 3GPP TS and TR. Instead, use the technically identical publication of one of the OPs.

(Answer drafted 2005-09-12 by JMM.)

Specifications

Where can the rules, protocols or software needed to develop applications for UMTS be found?

A good place to start is on the 3GPP website , and particularly the specifications list.

Look at the titles of the specs for those which are appropriate. Perhaps 21.111, 31.102 and 31.111 might be relevant.

What is the correlation between Stage 1, Stage 2 (GSM 3.90 and GSM 02.90) and Phase 1, Phase 2?

The "stage" nomenclature was an ancient CCITT invention, related to ISDN standardisation. "Stage 1" refers to the service description from a service-user's point of view. "Stage 2" is a logical analysis, breaking the problem down into functional elements and the information flows amongst them. "Stage 3" is the concrete implementation of the protocols between physical elements onto which the functional elements have been mapped.

Is there any simple guide to the different CAMEL specifications?

Unfortunately there is no single document acting as a guide to the CAMEL standards. Initial plans were published in ETSI ETR 244 in 1995, though this is so old as to be more or less useless now. GSM 10.78 is the CAMEL project plan, and this is probably the best thing. This may have been available as a temp doc to SMG meeting no. 25, but is still only in draft form, and has never been made publicly available.

In the SS7 arena,

GSM 02.78 / UMTS 22.078 is the Stage 1 (requirements) document.
GSM 03.78 / UMTS 23.078 is the Stage 2 (functions, conceptual data flow)
GSM 09.78 / UMTS 29.078 is the Stage 3 (protocol) - CAMEL Application Part (CAP)
CAP has been released in several phases:

Release 1996 = Phase 1
Release 1997 = Phase 2
Release 1998 = Phase 2
Release 1999 = Phase 3 (GSM and UMTS common spec)

For UMTS, 21.978 is a feasibility study on CAMEL control of Voice over IP.

In the Intelligent Network area, CAMEL is an extension of Core INAP, under the control of ETSI SPAN3 (formerly SPS3) - ignore for simplicity the Stage 1 and Stage 2 specifications, which were under ETSI SPAN6 (formerly NA6). Core INAP was released in sevaral phases:

CS1 = ETS 300 374 series,
CS2 = EN 301 140 series,
CS3 = EN 301 931 series.

It had originally been intended to split CS3 into two releases, and also to produce a CS4. These plans now seem to be on hold. Tthe ETSI phasing of the various Capability Sets was not strictly aligned with the ITU-T "equivalents", and this was a source of some confusion. For further information on SPAN please contact : spansupport@etsi.org Very recently, SPAN has been reorganised, and SPAN3's work is now to be found within SPAN12.

IN CAMEL phase 1 is an enhancement of Core INAP CS1. The protocol is defined in the ETSI EN 301 152 series, which is a "delta" to ETS 300 374, and assumes a CAP according to GSM 09.78 v5.5.x (Phase 2+, Release 1996). IN CS3 includes CAMEL aspects (which were ignored for IN CS2).

Where are the specifications which identify the Vcc voltages for the SIM interface?

3V and 1.8 V SIMs for GSM are specified in GSM 11.12 (phase 2) and GSM 11.18 (release 98) respectively. However, in 3GPP we have developed a new specification (3G TS 31.101) which combines the physical/electrical/logical aspects of GSM 11.11, GSM 11.12 and GSM 11.18 into a single specification. The electrical and physical aspects have not really been changed compared to the GSM specification mentioned above (the logical and security aspects have been enhanced). It is recommended that you use this new specification as the basis for any new work.

Are the 3GPP specifications produced only in word?

The 3GPP specs are published as ETSI deliverables, and these are available in PDF from http://www.etsi.org/key . But you can download a free Word viewer (ie read only) from the Microsoft web site. PDF is inherently secure (more so than html, in fact), and because WordViewer is very simple (it can not handle macros, for example), it is pretty safe too.

ETSI has no plans at present to publish specifications in plain text or in html.

Which group works with specifications covering the use of the GSM codec (either in C or Java based)?

The SMG11 and 3GPP SA4 specifications available from http://www.3gpp.org respectively deal with this. It gives you a list of specifications via the status list (look for the GSM specs in the MS-Access database at : and you can then download the specs you need. If you do not have an ETSI EOL account, you can download the ETSI equivalent standards from http://www.etsi.org/key .

Does the ETSI GSM standard document collection also include GSM standard documents produced by the GSM Association and exactly what kind of GSM standards does ETSI produce?

The GSM specifications were originally started in committee GSM of CEPT. There (as "CEPT Recommendations") they were allocated a reference number of the form nn.nn, for example GSM 06.12. Even after transfer to ETSI about ten years ago, the GSM community (in Technical Committee SMG) continue to use these spec identifiers.

The specifications are grouped into 'Releases'. The original specifications were published by ETSI in 1994 and are now known as 'Phase 1'. The next release was known as 'Phase 2', and the next one as ... 'Phase 2+'. Within Phase 2+, there have been annual releases since 1996, which are known as R96, R97, R98 and R99. You can find the specifications on the SMG file server http://docbox.etsi.org/tech-org/smg... grouped into directories by Release. (You need an account on the ETSI server to have access to this directory.) Looking at a spec, you can tell which release it belongs to by the version number:

Version release:

- 3.x.x Phase 1
- 4.x.x Phase 2
- 5.x.x Phase 2+, R96
- 6.x.x Phase 2+, R97
- 7.x.x Phase 2+, R98
- 8.x.x Phase 2+, R99

There will (probably) not be a Release 2000, since the work has been subsumed by the third generation specifications under 3GPP.

All (nearly) the specs of all releases are published as ETSI deliverables, and most have undergone several revisions in each release. In order to match a GSM spec number and version with the corresponding ETSI deliverable, you should go to http://www.etsi.org/key/ .

Where would I find a document (e.g. UMTS 30.03 version 3.1.0) which does not appear on the 3GPP Status List?

Look at http://docbox.etsi.org/tech-org/smg... but, an ETSI server account is needed to access this. It is a document stemming from the initial TC-SMG studies on UMTS, not a product of 3GPP. It was, in fact, published as an ETSI deliverable, TR 101 112, and this may be downloaded via http://pda.etsi.org/pda .

In general, the cross-referencing between GSM and ETSI deliverables, and between 3GPP and ETSI deliverables may be found at http://www.etsi.org/key

Where are all the Change Requests (CRs) located?

The information on CRs is available via the 3GPP website .

The information is classed by series so it is very easy to locate the particular specification which interests you.

If, for example, you are looking for CRs on GSM 08.18 then you would use this link:

http://www.3gpp.org/ftp/Specs/html-...

Where are all the current ETSI SMG specs located?

All the archives for the GSM documentation

An ETSI On-Line account is needed to access these documents. You can apply for an ETSI online account .

In general, the cross-referencing between GSM and ETSI deliverables, and between 3GPP and ETSI deliverables may be found here .

Which group works on the W-CDMA and the Physical Layer of W-CDMA?

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The radio aspects are standardised in TSG-RAN. The technical work is done in the 4 Working Groups of RAN (WG1 radio layer 1, WG2 radio layer 2/3, WG3 interfaces, WG4 RF measurements). I'd say you are interested in TSG-RAN WG1 then. Their specifications are numbered 25.2xx.

The temporary documents (meeting documents etc.) of WG1 are stored on ftp://ftp.3gpp.org/TSG_RAN/WG1_RL1 and the latest specifications (December 99) are or will be provided on ftp://ftp.3gpp.org/Specs/December_99/25_series.

Where can I find the list of Abstract syntax notation (ASN.1) object identifiers?

The expandable list of object identifiers is available here >>>. To see the formal definition of the object identifiers, see the document cited on the right. The tree is not necessarily complete; further extensions may be included in the referenced document. For more information look here >>>

Where can I find the 3GPP Confidentiality and Integrity algorithms?

The 3GPP Confidentiality and Integrity algorithms F8 & F9 (KASUMI) have been developed through the collaborative efforts of the 3GPP Organizational Partners. For more information and in order to download the algorithms look here >>>

What is a Release - how does specification version numbering work?

To meet new market requirements, 3GPP specifications are continually being enhanced with new features. In order to provide developers with a stable platform for implementation while at the same time allowing the addition of new features, the 3GPP uses a system of parallel "releases". For more information look here >>>

Where can I find information on the current status of 3GPP specifications?

New versions of many 3GPP specifications are made available shortly after the 3GPP TSG plenary meetings which take place four times a year (March, June, September and December). In order to identify what the current version is or and how to find information about older versions of specifications look here >>>.

What is the system for numbering specifications? Which specifications contain information on specific topics?

All 3G and GSM specifications have a 3GPP specification number consisting of 4 or 5 digits. (e.g. 09.02 or 29.002). For a more complete description and examples look here >>>

Technical Specification Group/Working Group

Who are the TSG/WG Officials and Support team and Where can I find their contact details?

Each TSG/WG has a Chairman, up to two Vice-Chairmen (three Vice-Chairmen) in the case of TSGs), a secretary and a member of the support team. From the 3GPP structural organization page, click on the TSG or WG of interest to reach its home page. From there, click on the "List of elected officials" entry in the table.

Where can I find the Terms of Reference for my TSG/WG?

The current Terms of Reference for each TSG/WG appear on the web pages of each TSG/WG.

When did the Officials begin their Term of Office?

The four Technical Specification Groups (TSGs) have elected their 3GPP TSG officials at the Fort Lauderdale (FL) meeting in March.

The meeting reports for each TSG/WG will indicate the election/re-election/resignation of an official. A complete list of TSG/WG officials is available on the 3GPP web site.

May I become an Official?

The TSG Chairman and Vice Chairmen are elected by the Technical Specification Group from amongst the Individual Member representatives. Each TSG can elect a maximum of two Vice Chairmen. Once elected, these candidates are proposed to the PCG for appointment.

The Working Group Chairman and Vice Chairmen are elected by the Working Group from amongst the Individual Member representatives. Each Working Group can elect a maximum of two Vice Chairmen.

A candidate for TSG or Working Group election shall provide a letter of support from his Organization and nominations may be made up to the point when an election takes place.

The TSG Chairman and Vice-Chairmen shall be appointed by the PCG on the proposal of the TSG.

The Chairman and the Vice-Chairmen shall be appointed for a two year term of office. The Chairman and Vice-Chairmen may be appointed for one further consecutive term. If, at the end of a Chairman or Vice Chairmans second term, no other candidates are available, the Chairman or Vice Chairmen may be appointed for a further term.

Chairman and Vice Chairmen should not be from the same region, Organizational Partner, or from the same group of companies, unless no other candidate is available.

Successive Chairmen should not be from the same Organizational Partner, the same region or from the same group of companies, unless no other candidate is available

Where are my TSG/WGs documents stored?

Each TSG/WG has a specific area allocated on the 3GPP ftp server.

Is the ETSI Secretariat responsible for the management of the Application Provider Codes for 3GPP ?

The ETSI secretariat does not actually allocate these number - unique number are obtained by the coding scheme that is defined in 31.110. Application identifiers for consist of two parts - a RID and a PIX.

The RID is simple: ISO/IEC have allocated the number 'A000000087' to the 3GPP. This was allocated to ETSI on behalf of the 3GPP.

The coding of the PIX is specified in annex B of 31.110. There are three different sorts of PIX:

3G UICC,
3G USIM, and
3G USIM toolkit

Each of these requires the use of the "Card issuer code" as defined in ITU-T recommendation E.118 [3]. This is a unique code given to each card issuer (for example, each GSM operator in the world has requested a card issuer code). So, any 3G operator that does not have a 2G system that uses SIMs will have to apply to the ITU-T in accordance with the procedures in E.118.

Documents and TSG/WG Meetings

How do I register for a meeting?

If you are a TSG/WG member you will receive information about forthcoming meetings via the e-mail exploder. This will indicate the path on the ftp server where the invitation and related documents may be found. You may also consult the Meetings area on the 3GPP Web where the latest invitations of each TSG/WG are stored together with the calendar of meetings.

How do I submit a contribution for a meeting?

Each meeting invitation will contain details of how to register contributions for that meeting and who to send your contributions to.

How do I obtain a document number for my contribution?

Each meeting invitation will contain details of how to register contributions for that meeting and who to send your contributions to.

Where can I download documents for an upcoming meeting?

Each meeting invitation will contain details of where the documents are stored for the meeting. It is advisable for delegates attending a meeting to download the documents available prior to the meeting from the ftp server and onto their personal computers.

Where can I find a temporary document template?

The document template is made available by each TSG/WG in the meeting respective folder on the ftp server.

What happens if I am unable to attend a meeting?

You should contact your chairman and the meeting host indicating when you will be absent.

Work Items and Deliverables

What is my role when my TSG/WGs has to approve a deliverable?

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Approval of Technical Specifications and Technical reports by a TSG shall normally be by consensus.

Where consensus cannot be achieved in the TSG a vote may be taken.

When Technical Specifications and Technical Reports become sufficiently stable, they shall be put under change control of the relevant TSG. The further elaboration of these Technical Specifications and Technical Reports shall be achieved by Change Requests (CRs) to be approved by the TSG.

What are the different types of deliverables?

3GPP shall prepare, approve and maintain documents known as Technical Specifications and Technical Reports. Such documents shall be drawn up by the TSGs and shall, following approval at that level, be submitted to the participating Organizational Partners to be submitted to their respective standardization processes.

Can I write an 3GPP Document myself?

Why not?! If you wish to propose a deliverable then bring it to the attention of your chairman and the other members of the TSG/WG in order to discuss the subject.

Each proposed new Work Item shall be supported by at least four Individual Members, and their names shall be recorded in the Work Item definition prepared for the TSG approval. One or more persons shall be named as Rapporteur for the proposed Work Item, and the Rapporteur shall act as the prime contact point on technical matters and for information on progress throughout the drafting phases.The supporting Individual Members are expected to contribute to and progress the new work item throughout the drafting phases.

In addition to the above, TSGs shall approve new Work Items, giving all essential parameters. The proposal shall be entered into the 3GPP work programme, clearly marked as a new entry, for which a unique reference identity shall be allocated.

Do I and my company have to support my TSG/WGs Work Items?

Neither you or your company is obliged to support the work items of your TSG/WG, however it is normal that if you and your company are supporting members of a Work Item that you be in agreement with their work and will normally support the production of the related deliverable.

Miscellaneous

How do I resolve the problem with the corrupt file warning in MSWord. Note that this only applies to MSWord2000?

Problem: When opening a document in Word 2000, the following error message appears: This document may be corrupt. To preserve the contents: Choose Select All from the Edit menu, then choose Copy from the Edit menu. Create a new document, then choose Paste from the Edit menu.

Cause: This may be related to something called list templates. A list template is created for every numbering or bulleting scheme defined in the document. Apparently, a minor change in a scheme, or even switching a list from numbered to bulleted creates a new template. In an arcane way, tables are also related to list templates. The template count increases automatically, but cannot be decreased by the user. When more than 1500 templates are defined in the list, the document becomes corrupt. There are more reasons why a document is corrupt, so the fix proposed will not solve the problem 100% of the times.

Resolution:

1. To solve the problem, you need to have MS Office 2000 Service Release 1/1a installed . To check this, in Word on the "Help" menu point to "About Microsoft Word". The first line in the window shows you the MSWord version you have. You should get something like: "Microsoft Word 2000 (9.0.3821 SR-1)". If you don't get SR-1 (or SR-1a) at the end, you need to install the Service Release. Contact your IT department or follow this link: http://support.microsoft.com/suppor...
2. You have to introduce a new entry in the Windows registry. You can do this simply by clicking twice in the file "word_bug_fix.reg" attached. Note that modifying the Windows Registry incorrectly can cause serious problems; this fix simply introduces a new entry in a MSWord part of the registry, but if you don't feel confident, contact your IT department or check the Microsoft link below.
3. Open MSWord normally. The fix proposed will open the corrupted files without warning and delete the unused list templates, so its count goes under 1500. The user will not notice anything, but this implies that the document is modified. When closing, MSWord will ask the user if he wants to save the changes, even if apparently no change has been made.

This bug is confirmed by Microsoft and it is listed in its Support Web Site. Follow this link to get the complete report: http://support.microsoft.com/suppor...

Where is the information regarding the Core Network located ?

Unfortunately, there is no one document that describes the Core Network, as it is an area of work far too involved to be contained in one specification. For a general overview document of Network Architecture TS 23.002 may be downloaded from our FTP server. ftp://ftp.3gpp.org/Specs/October_99/23_series. For more general organizational information, have a look at the 3GPP web site which shows the individual areas of 3GPP and in particular Core Network. http://www.3gpp.org/TSG/CN.htm .

Do I need a password and user name to access the 3GPP Web site ?

No password is needed to access any information on the 3GPP Web site, all information is openly published.

Can you give me information about which companies manufacture particular types of equipment. Or about what services are available on particular networks?

No. The 3GPP Support Team must remain neutral and must not show bias to any of its Individual Members. Such information may be available from the Global Mobile Suppliers Association (www.gsacom.com) where you will find a statistics area which could be of help.

Technical topics

Where can I find a list of technical terms and abbreviations used in 3GPP documents?

Individual terms are defined in each 3GPP Technical Specification and Technical Report. A compendium of terms and abbreviations can be found in 3GPP TR 21.905. ETSI maintains a list of all terms and abbreviations defined in its publications in "TEDDI".

What is the difference between a SIM and a USIM? What is a UICC?

The Universal Integrated Circuit Card (UICC) is the removable card bearing a silicon chip which holds 3GPP system subscriber information. The UICC is a general purpose card having both non-volatile memory and a general-purpose processor. Thus while it is used, in a 3GPP terminal, to hold (U)SIM information / applications, it is can also be used for other purposes, possibly unrelated to telecommunications. A common use of UICCs is in the well-known credit card format, and there is no reason why a single card could not hold (U)SIM functionality in addition to electronic purse / credit card functionality, or indeed any other application / data.

The Subscriber Identity Module (SIM) is the collection of functions which personalize a 3GPP terminal. The SIM contains static information about the services subscribed to, the phone number, the identity of the home network, a list of preferred roaming networks, and so on. The SIM also contains storage capacity for the subscriber's contacts' phone numbers. The term "SIM" is often misused for "UICC". The SIM concept was created during the early development of the GSM standards, and second-generation (based on GERAN) terminals up to and including Release 4 use SIM functionality.

For third generation systems (based on UTRAN), more complex functionality was called for, and the SIM evolved into the USIM or Universal Subscriber Identity Module. Release 99 3rd generations onwards use USIMs rather than SIMs. From Release 5 onwards, both second and third generation terminals use USIMs (though to maintain backwards compatibility with older networks and terminals, later Release 2nd generation USIMs are likely to implement Rel-4 SIM functionality in addition to Rel-5 or later USIM functionality).

For further information on the 3GPP Release system, see the Release page.

What is an R-UIM?

Short answer: nothing to do with us!

Longer answer: the R-UIM is to 3GPP2 systems what the USIM is to 3GPP systems. (3GPP2 is an independent organization responsible for the standardization of CDMA2000.)

I have transferred a movie file from my phone to my PC. Where can I find a player for 3gp files?

The 3gp file format is defined in 3GPP TS 26.244 and in TS 26.412. However, 3GPP has not defined a decoder. Your phone manufacturer may have supplied a player (check the CD-ROM which came with your phone) or look on its web site. Alternatively, search the Internet: a number of commercial players exist, and trial versions of some may be downloaded without charge.

What formalities do I have to go through to get type approval for terminal equipment in Europe? Is there a single point of contact? What standards does my equipment need to conform to in order that I can place it on the market?

The legal requirements for the marketing of electrical products in Europe are governed by various EU Directives, depending on the nature of the equipment. Conformity with any of these Directives can be demonstrated by the use of Harmonized Standards, whose title has been cited in the Official Journal of the European Union. The lists of relevant standards can be found on the Commission web site which can be accessed via http://www.newapproach.org .

General electrical equipment is covered by the EMC Directive & Low Voltage Directives, see http://ec.europa.eu/enterprise/elec... . The harmonized standards are listed at http://ec.europa.eu/enterprise/newa... and

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http://ec.europa.eu/enterprise/newa... respectively. More general information on procedures to declare conformity and how equipment should be marked are contained on the web sites related to the two Directives.

Radio Equipment and Telecommunications Terminal Equipment is covered by the Radio and Telecommunications Terminal Equipment Directive, see http://ec.europa.eu/enterprise/rtte... , which also includes a link to the one-stop procedure for "placing on the market" (http://ec.europa.eu/enterprise/rtte...). The standards are listed at http://ec.europa.eu/enterprise/newa... .

Further information on EU harmonized standards relevant to telecommunications can be found on the ETSI site at http://www.etsi.eu/WebSite/Standard... , and the published standards themselves can be downloaded via http://pda.etsi.org/pda/queryform.asp .

Where can I find the specification of the SIM Lock feature?

In clause 8 of 3GPP TS 22.022 .

3GPP Plenary Meetings

Full Meeting Calendar

3GPP GERAN#41 - Valetta (tbc) MT - From 16 to 20 February 2009
3GPP RAN/CT/SA #43 - Biarritz FR - From 3 to 12 March 2009
3GPP GERAN#42 - Shenzhen CN - From 11 to 15 May 2009
3GPP RAN/CT/SA #44 - TBD US - From 26 May 2009 to 6 June 2009

Releases

About Releases

Release 9
Release 8
Release 7
Release 6
Release 5
Release 4
Release 1999
Functionality in early GSM releases

Keywords

Browse Technologies

UMTS
GPRS & EDGE
HSPA
IMS
LTE-Advanced
LTE
W-CDMA

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APPENDIX 11

The Wayback Machine - https://web.archive.org/web/20081026202407/http://www.3gpp.org:80/specs/specs.htm

3GPP Specifications Home Page

Spec download | Titles and spec numbers | Current version | Releases | Numbering scheme | Change Requests
Published specifications | Historical information | Work plan | TSG Working methods | Drafting rules | Delegates corner | ASN.1

Quick link to the specifications file server area (http) for those who know where they are going!

To find a particular spec quickly, go here and click on the links in the spec-series in the table or use the links in the "further information" section.

The term "***3GPP specification***" covers all **GSM** (including **GPRS** and **EDGE**) and **W-CDMA** specifications. The following terms are also used to describe networks using the 3G specifications: **UTRAN**, **UMTS** (in Europe) and **FOMA** (in Japan). Revised versions of many of these specifications are produced up to four times a year following the quarterly TSG plenary meetings. (TSG GERAN meets five times a year.) See the table below which gives links to lists of specifications arising from each plenary TSG meeting since the freezing of Release 1999. The month of the meeting and the meeting number are shown in each case. Note that **the tables show only those specifications newly approved or modified at the meeting concerned**; they do *not* contain a complete list of all specifications current following the meeting. For such a list, consult the "status list" - see below.

Following each TSG SA plenary meeting, a complete set of specifications is produced. This set includes not only the new specifications generated at that meeting, but also the latest versions of each specification that was not changed at that meeting. i.e. each directory holds a complete set of specifications. Each set has an associated **status list** as detailed in the table below. Each set (and corresponding status list) includes the specs arising from the TSG GERAN meetings held since the preceding SA meeting. (GERAN meets asynchronously from the other TSGs.)

The **Status List** (ZIPped RTF or Word format) summarizes the current version number for every release of every 3GPP specification following each TSG plenary meeting. Also listed for each specifications are:

- the 3GPP working group and rapporteur responsible for the specification
- the Project Manager in MCC (Mobile Competence Centre) responsible for the specification
- the meeting at which it was, or is expected to be, "frozen" (i.e. the point after which only corrections are allowed)

Full details of the Specifications, their history and current status can be found in the 3GPP Specifications Status database.

Missing Specs: Click **here** to see those Specs not yet available following the most recent round of TSG meetings.

year-month	remark	latest status	specs directory	TSG CN meeting number	TSG RAN* meeting number	TSG T meeting number	TSG SA meeting number	TSG GERAN meeting number	TSG CT meeting number
2008-09		StatusList	ftp://ftp.3gpp.org/specs/2008-09		41		41	39	41
2008-06		StatusList	ftp://ftp.3gpp.org/specs/2008-06		40		40	38	40
2008-03		StatusList	ftp://ftp.3gpp.org/specs/2008-03		39		39	37	39
2007-12		StatusList	ftp://ftp.3gpp.org/specs/2007-12		38		38	36	38
2007-09		StatusList	ftp://ftp.3gpp.org/specs/2007-09		37		37	35	37
2007-06		StatusList	ftp://ftp.3gpp.org/specs/2007-06		36		36	34	36
2007-03		StatusList	ftp://ftp.3gpp.org/specs/2007-03		35		35	33	35
2006-12		StatusList	ftp://ftp.3gpp.org/specs/2006-12		34		34	32	34
2006-09	GERAN henceforward meets synchronously with other TSGs, so no further "delta" directories necessary.	StatusList	ftp://ftp.3gpp.org/specs/2006-09		33		33	31	33
2006-06	New at GERAN only.		ftp://ftp.3gpp.org/specs/2006-06-geran-mtg-30-delta/					30	
2006-06		StatusList	ftp://ftp.3gpp.org/specs/2006-06		32		32		32
2006-04	New at GERAN only.		ftp://ftp.3gpp.org/specs/2006-04-geran-mtg-29-delta/					29	
2006-03		StatusList	ftp://ftp.3gpp.org/specs/2006-03		31		31		31
2006-01	New at GERAN only.		ftp://ftp.3gpp.org/specs/2006-01-geran-mtg-28-delta/					28	
2005-12		StatusList	ftp://ftp.3gpp.org/specs/2005-12		30		30		30
2005-11	New at GERAN only.		ftp://ftp.3gpp.org/specs/2005-11-geran-mtg-27-delta/					27	
2005-09		StatusList	ftp://ftp.3gpp.org/specs/2005-09		29		29		29
2005-08/09	New at GERAN only.		ftp://ftp.3gpp.org/specs/2005-09-geran-mtg-26-delta/					26	
2005-06	New at GERAN only.		ftp://ftp.3gpp.org/specs/2005-06-geran-mtg-25-delta/					25	

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2005-06		StatusList	ftp://ftp.3gpp.org/specs/2005-06		28		28		28
2005-04	New at GERAN only.		ftp://ftp.3gpp.org/specs/2005-04-geran-mtg-24-delta/					24	
2005-03	RAN closed and RANnew opened. CN and T closed. CT opened.	StatusList	ftp://ftp.3gpp.org/specs/2005-03	27	27bis 27	27	27		27
2005-01	New at GERAN only.		ftp://ftp.3gpp.org/specs/2005-01-geran-mtg-23-delta/					23	
2004-12		StatusList	ftp://ftp.3gpp.org/specs/2004-12	26	26	26	26		
2004-11	New at GERAN only.		ftp://ftp.3gpp.org/specs/2004-11-geran-mtg-22-delta/					22	
2004-09		StatusList	ftp://ftp.3gpp.org/specs/2004-09/	25	25	25	25		
2004-08	New at GERAN only.		ftp://ftp.3gpp.org/specs/2004-08-geran-mtg-21-delta/					21	
2004-06	New at GERAN only.		ftp://ftp.3gpp.org/specs/2004-06-geran-mtg-20-delta/					20	
2004-06		StatusList	ftp://ftp.3gpp.org/specs/2004-06/	24	24	24	24		
2004-04	New at GERAN only.		ftp://ftp.3gpp.org/specs/2004-04-geran-mtg-19-delta/					19	
2004-03		StatusList	ftp://ftp.3gpp.org/specs/2004-03/	23	23	23	23		
2004-02	New at GERAN only.		ftp://ftp.3gpp.org/specs/2004-02-geran-mtg-18-delta					18	
2003-12		StatusList	ftp://ftp.3gpp.org/specs/2003-12/	22	22	22	22		
2003-11	New at GERAN only.		ftp://ftp.3gpp.org/specs/2003-11-geran-mtg-17-delta					17	
2003-09		StatusList	ftp://ftp.3gpp.org/specs/2003-09/	21	21	21	21		
2003-09	New at GERAN only.		ftp://ftp.3gpp.org/specs/2003-09-geran-mtg-16-delta					16	
2003-06	New at GERAN only.		ftp://ftp.3gpp.org/specs/2003-06-geran-mtg-15-delta					15	
2003-06		StatusList	ftp://ftp.3gpp.org/specs/2003-06/	20	20	20	20		
2003-04	New at GERAN only.		ftp://ftp.3gpp.org/specs/2003-04-geran-mtg-14-delta					14	
2003-02		StatusList	ftp://ftp.3gpp.org/specs/2003-03/	19	19	19	19		
2003-02	New at GERAN only.		ftp://ftp.3gpp.org/specs/2003-02-geran-mtg-13-delta					13	
2002-12 2002-11		StatusList	ftp://ftp.3gpp.org/specs/2002-12/	18	18	18	18	12	
2002-09		StatusList	ftp://ftp.3gpp.org/specs/2002-09/	17	17	17	17	11	
2002-06	Rel-5 GERAN features content functionally frozen		ftp://ftp.3gpp.org/specs/2002-06-geran-mtg-10-delta/					10	
2002-06	Rel-5 features content functionally frozen (remainder, non-GERAN)	StatusList	ftp://ftp.3gpp.org/specs/2002-06/	16	16	16	16		
2002-04			ftp://ftp.3gpp.org/specs/2002-04-geran-mtg-09-delta/					9	
2002-03	Rel-5 features content functionally frozen (part)	StatusList	ftp://ftp.3gpp.org/specs/2002-03/	15	15	15	15		
2002-02								8	
2001-12		StatusList	ftp://ftp.3gpp.org/specs/2001-12/	14	14	14	14		
2001-11								7	
2001-09		StatusList	ftp://ftp.3gpp.org/specs/2001-09/	13	13	13	13		
2001-08								6	
2001-06		StatusList	ftp://ftp.3gpp.org/specs/2001-06/	12	12	12	12	5	
2001-06	Rel-4 GERAN features content functionally frozen							4	
2001-03	Rel-4 non-GERAN features content functionally frozen	StatusList	ftp://ftp.3gpp.org/specs/2001-03/	11	11	11	11		
2001-01								3	
2000-12 2000-11		StatusList	ftp://ftp.3gpp.org/specs/2000-12/	10	10	10	10	2	
2000-11									
2000-09		StatusList	ftp://ftp.3gpp.org/specs/2000-09/	9	9	9	9	1	
2000-06		StatusList	ftp://ftp.3gpp.org/specs/2000-06/	8	8	8	8		
2000-03				7	7	7	7		
1999-12	R99 features content functionally frozen			6	6	6	6		
1999-10				5	5	5	5		

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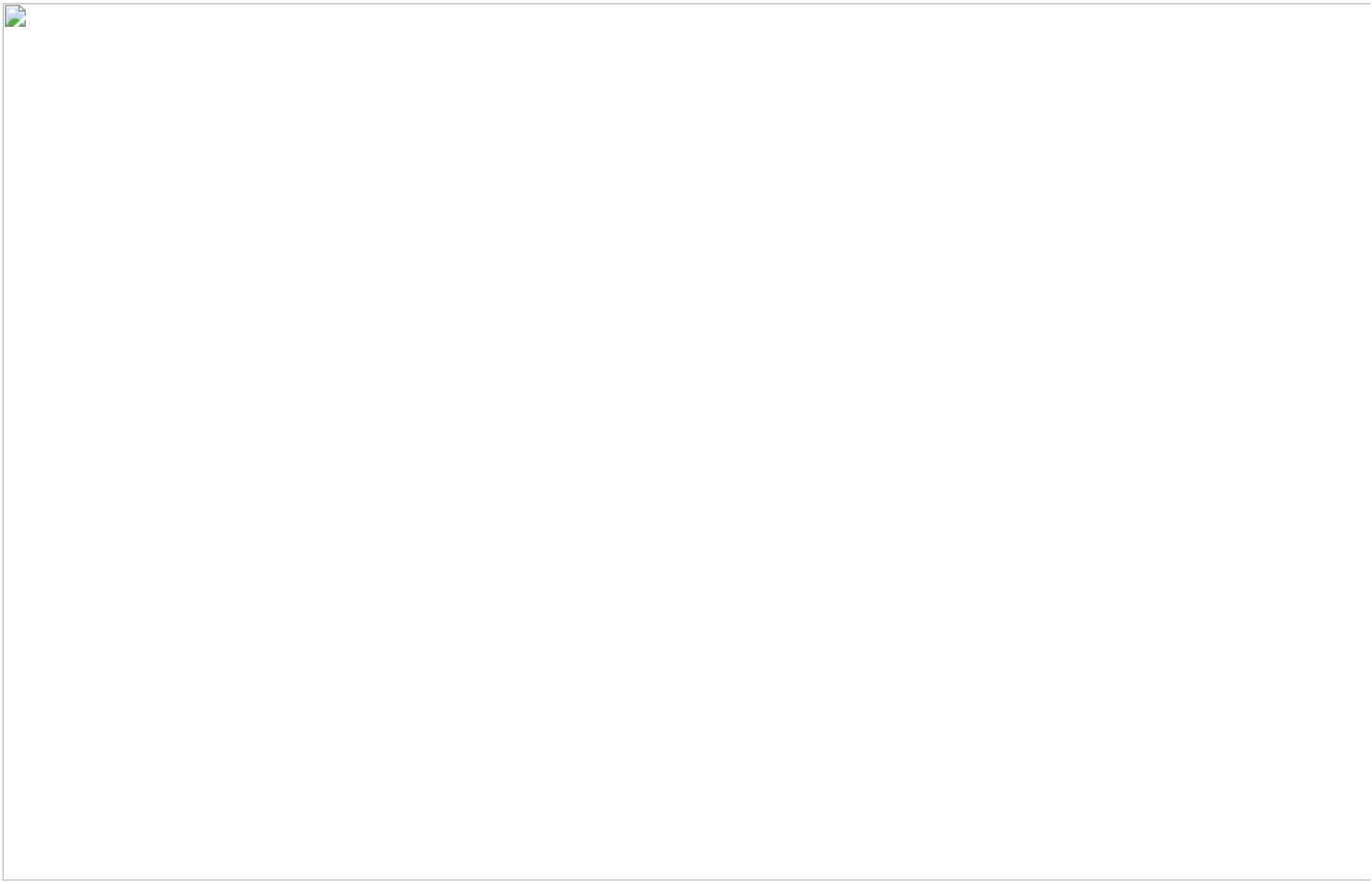
1999-06					4	4	4		
1999-05				4					
1999-04				3	3	3	3		
1999-03				2	2	2	2		
1998-12				1	1	1	1		

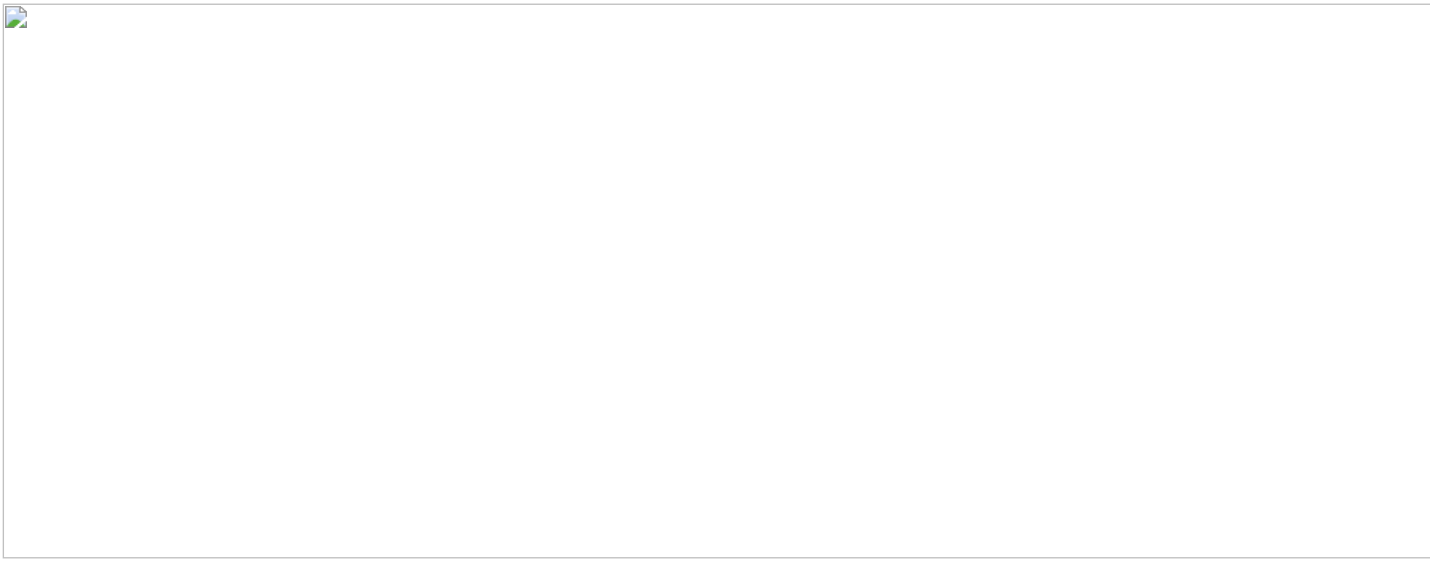
* TSG RAN was closed at the end of meeting 27 and re-opened for meeting 27 bis.

If you plan to download a large number of specifications and are using MS Explorer 4.0 or earlier, it may be worthwhile acquiring an FTP client software tool such as:

- Ipswitch WS_FTP Pro® : This general purpose file transfer program simplifies the process of downloading large numbers of files from an FTP site.
- FTPSync®: This tool allow the user to specify a directory on their local disk and synchronize it with a directory on an FTP site.

For additional information relating to 3GPP Specifications, their creation and maintenance, etc, go here.





This page maintained by Specifications Manager.

last updated:
2008-10-06: #41 (#39) added, charts updated.

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2008-06-09: #40 (#38) added.
2008-03-20: #39 (#37) added, charts updated
2008-01-28: Link to missing specs page added
2007-09-24: #38 (#36) added, charts updated
2007-09-24: #37 (#35) added, charts updated
2007-06-13: #36 (#34) added, charts updated
2007-04-20: typo and link corrected
2007-03-21: typo corrected
2007-03-19: TSGs#35 (GERAN#33) added
2006-12-08: TSGs#34 (GERAN#32) added, charts updated
2006-09-13 (2): Other TSGs#33 added on same line.
2006-09-13: GP-31 added.
2006-07-06: GP-30 added.
2006-06-12: TSGs#32 added, charts updated
2006-05-02: GP-29 added
2006-03-20: TSGs#31 added
2006-01-23: GP-28 added
2006-01-17: charts updated
2005-12-15: hyperlinks to status lists fixed
2005-12-12: TSGs#30 added
2005-11-15: GP-27 added
2005-10-03: RP-29, CP-29, SP-29 added
2005-09-18: GP-26 misprint corrected
2005-09-06: GP-26 added.
2005-06-28: GP-25 added.
2005-06-13: Hyperlinks for TSGs#28 added
2005-04-28: Charts updated.
2005-04-21: GP-24 directory included.
2005-04-19: Hyperlink for GP-24 list added.
2005-04-04: All TSG links changed as to point to auto pages.
2005-04-01: Links for TSGs#27 changed to point to experimental pages automatically generated from status database rather than manually maintained pages.
2005-03-29: early TSG meeting entries added; GERAN#24 and other TSGs#28 entries added (no hyperlinks); column for TSG CT added
2005-03-21: TSGs#27 added, charts updated
2005-02-01: GERAN#23 added
2005-01-26: broken link to chart fixed
2005-01-19: charts updated
2004-12-23: TSGs#25 added
2004-11-19: GERAN#22 added
2004-11-03: charts updated
2004-09-28: TSGs#25 added, link to 2004-06 status list corrected.
2004-09-01: GERAN#21 added
2004-08-02: Spec availability chart updated.
2004-07-01: GERAN#20 added
2004-06-18: TSGs 24 added
2004-05-07: GP-19 added; clarifications to introductory text above the table of meetings.
2004-04-14: Specs delivery chart updated.
2004-03-26: minor errors in hyperlinks fixed.
2004-03-22: table entry for TSGs 23 added.
2004-02-18: table entry for GP-18 added.
2004-01-27: chart of spec delivery added.
2004-01-05: table entry for TSGs 22 added.
2003-12-03: table entry for GP-17 added.
2003-10-21: "further information" section moved to the "numbering" page.
2003-09-26: table entries for GP-16 and other TSGs 'P-21 added
2003-08-18: broken link repaired, links to cited spec pages made relative.
2003-07-02: typo corrected
2003-06-26: Further GERAN#15 info added; minor cosmetic improvements to text; hyperlinks for identified specs are now to their info page, not their archive storage directory
2003-06-23 - CN, RAN, T, SA #20 info and preliminary GERAN#15 info added
2003-04-25 - GERAN#14 info added
2003-04-24 - quick link to spec series table page added near top; from this it is possible to get to lists of specs in each series, and thence to details of the individual specs.
2003-03-25 - table entry for TSGs#19 added
2003-02-24 - table entry for GERAN#13 added
2003-01-13 - link to CR trends page added.
2002-12-15 - TSGs#18 (GERAN#12) line added; quick link to specs file at top of page added.
2002-10-18 - reference to 3GPP Specifications Status database added.

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The Wayback Machine - https://web.archive.org/web/20081030112056/http://www.3gpp.org:80/specs/numbering.htm

3GPP Specifications - Numbering scheme

Spec download | Titles and spec numbers | Current version | Releases | Numbering scheme | Change Requests
Published specifications | Historical information | Work plan | TSG Working methods | Drafting rules | Delegates corner| ASN.1

All 3G and GSM specifications have a 3GPP specification number consisting of 4 or 5 digits. (e.g. 09.02 or 29.002). The first two digits define the series as listed in the table below. They are followed by **2** further digits for the 01 to 13 series or **3** further digits for the 21 to 55 series. The term "3G" means a 3GPP system using a UTRAN radio access network; the term "GSM" means a 3GPP system using a GERAN radio access network. (Thus "GSM" includes GPRS and EDGE features.)

The full title, specification number and latest version number for every specification can be found in the current status list [**warning: large file!**] (see also main specs page for status lists pertaining to each TSG SA meeting) and more information about terms such as R99 and Rel-4 can be found on the Releases and phases page.

A specification in the 21 to 35 series may apply either to 3G only or to GSM *and* 3G. A clue lies in the third digit, where a "0" indicates that it applies to both systems. For example, 29.002 applies to 3G and GSM systems whereas 25.101 and 25.201 apply only to 3G. Most specs in all other series apply only to GSM systems. However, as the spec numbering space has been used up, this guide is frequently broken, and it is necessary to examine the information page for each spec (see the table below) or to check the lists in 01.01 / 41.101 (GSM) and 21.101 (3G) for the definitive specification sets for each system and each Release.

Subject of specification series	3G/GSM R99 and later	GSM only (Rel-4 and later)	GSM only (before Rel-4)
General information *(long defunct)*			00 series
Requirements	21 series	41 series	01 series
Service aspects ("stage 1")	22 series	42 series	02 series
Technical realization ("stage 2")	23 series	43 series	03 series
Signalling protocols ("stage 3") - user equipment to network	24 series	44 series	04 series
Radio aspects	25 series	45 series	05 series
CODECs	26 series	46 series	06 series
Data	27 series	47 series (none exists)	07 series
Signalling protocols ("stage 3") -(RSS-CN)	28 series	48 series	08 series
Signalling protocols ("stage 3") - intra-fixed-network	29 series	49 series	09 series
Programme management	30 series	50 series	10 series
Subscriber Identity Module (SIM / USIM), IC Cards. Test specs.	31 series	51 series	11 series
OAM&P and Charging	32 series	52 series	12 series
Access requirements and test specifications		13 series (1)	13 series (1)
Security aspects	33 series	(2)	(2)
UE and (U)SIM test specifications	34 series	(2)	*11 series*
Security algorithms (3)	35 series	55 series	(4)
Evolved UTRA aspects	36 series	-	-

Note (1): The 13 series GSM specifications relate to European-Union-specific regulatory standards. On the closure of ETSI TC SMG, responsibility for these specifications was transferred to ETSI TC MSG, (Mobile Specification Group) and they do not appear on the 3GPP file server.

Note (2): The specifications of these aspects are spread throughout several series.

Note (3): Algorithms may be subject to export licensing conditions. See the relevant 3GPP page. See also the relevant ETSI pages.

Note (4): The original GSM algorithms are not published and are controlled by the GSM Association.

Technical Reports are of two classes:

- Those intended to be transposed and issued by the Organizational Partners as their own publications; and
- Those not intended for publication but which are simply 3GPP internal working documents, used, for example, for documenting planning and scheduling of work, or for holding the interim results of feasibility studies.

The first category have numbers of the form:
xx.**9**xx

The second category have numbers of the form:
xx.**8**xx (feasibility study reports, etc) or, more rarely,
30.xxx / **50**.xxx (planning and scheduling)

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Missing Specs: Click **here** to see those Specs not yet available following the most recent round of TSG meetings.

The 3GPP Specifications are stored on the file server as zipped MS-Word files. The filenames have the following structure:

SM[-P[-Q]]-V.zip

where the character fields have the following significance ...

S = series number - 2 characters (see the table above)
M = mantissa (the part of the spec number after the series number) - 2 or 3 characters (see above)
P = optional part number - 1 or 2 digits if present
Q = optional sub-part number - 1 or 2 digits if present
V = version number, without separating dots - 3 digits

So for example:
21900-320.zip is 3GPP TR 21.900 version 3.2.0
0408-6g0.zip is 3GPP TS 04.08 version 6.16.0
32111-4-410 is 3GPP TS 32.111 part 4 version 4.1.0
29998-04-1-100 is 3GPP TS 29.998 part 4 sub-part 1 version 1.0.0

Further information:

Latest version

The latest versions of the approved specifications in the "latest" directory. The latest version of draft specs (i.e. those not yet under change control) are in the "latest-drafts" directory. See also the page on version numbering.

Particular version

All older versions of specifications (where available) are stored in the archive subdirectory. All versions of all releases of a given specification are placed directly under the name of the specification.

Title or subject

If you only know the **title** or the subject, but not the specification number, the best place to start looking is the complete list of all 3GPP specification numbers and titles. This list also shows the most recent version in each Release.

Specs related to a particular working group

Each 3GPP TSG Working Group has a home page, which lists the specifications under its responsibility. Follow the links from here....

Official versions published by recognized Standards Development Organizations

The 3GPP Technical Specifications (and Technical Reports) which are publicly available from this site have, in themselves, no legal standing. They only become "official" when transposed into corresponding publications of the Partner Organizations. If you are looking for the **official versions**, see the official publications page.

Yet more information:

- **Work plan.** The 3GPP Work plan describes the new functionality currently being elaborated in the TSG working groups. It also indicates the expected timescales for their finalization.
- **Releases (and phases, stages).** An introduction to the 3GPP mechanism for specifications releases can be found here.
- **Historical information.** If you need to look for old / superseded specifications or change requests, start here.
- **TSG working methods.** The procedures for creating, enhancing and maintaining specifications are described in TR 21.900. A presentation outlining the release and change request process can be found here.
- **3GPP Drafting rules.** The rules for drafting specifications are described in TR 21.801.
- **Change Requests (CRs).** The change request mechanism is used when a correction or new functionality is required for an existing specification. Here you can find all information related to change requests.
- **Version numbering.** More information on the version numbering page.
- **Issuing new TS/TR numbers.** More information on this page.

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last updated:
2008-08-19: Link to guidance on new spec numbers added; guidance on TR numbering added.
2008-01-28: Link to missing specs page added.
2006-09-04: 36.- series added.
2005-08-05: Title for table entry 32/52/12.- series changed from "O&M".
2005-07-29: Title for 34.-series changed from "(U)SIM test specs" to add "UE" as well.
2005-07-21: corrects hyperlink to TB chart; adds links to info on version numbering
2004-08-02: missing bracket inserted
2004-03-02: typo in hyperlink to 45-series specs corrected.
2003-10-21: "further information" section originally in main specs page transferred to this page; sundry editorial improvements.
2003-09-10: links to current status list and to spec numbering system added.
2003-07-10: minor editorial clarifications
2003-06-27: 00.-series added to table; URLs to spec lists made relative rather than absolute (to aid site mirroring)
2003-09-26: minor corrections and clarifications
2003-04-24: links to specs series indexes added
2002-10-10: mention of 55 series specs added, plus notes 3 & 4.

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APPENDIX 13

The Wayback Machine - https://web.archive.org/web/20080912163040/http://www.3gpp.org:80/specs/version-numbering.htm

3GPP Specifications - Version numbering scheme

Spec download | Titles and spec numbers | Current version | Releases | Numbering scheme | Change Requests
Published specifications | Historical information | Work plan | TSG Working methods | Drafting rules | Delegates corner| ASN.1

As 3GPP Technical Specifications and Technical Reports evolve from the early drafting stages, though progressively more stable versions, to being brought under change control, so the version number of the document changes. The rules for maintaining the version number are contained in clause 4.4 of 3GPP TR 21.900, but are briefly summarized here.

The "version" is comprised of three fields:

- major
- technical
- editorial

and each has a numeric value, starting with zero. The fields are separated with dots, and the version number shows major, technical and editorial fields respectively from left to right. Thus a spec whose major field is 4, whose technical field is 7 and whose editorial field is 1 would be shown as **version 4.7.1**.

The **major version field** reflects the stage of the spec:

- 0 = immature draft
- 1 = draft which is at least 50% complete and has been presented / will shortly be presented to the responsible TSG for *information*
- 2 = draft which is at least 80% complete and has been presented / will shortly be presented to the responsible TSG for *approval*
- 3 or greater = spec which has been approved by the responsible TSG and is under change control.

Once under change control, the major field indicates the Release to which the spec applies. Thus it is quite normal for a Release 7 specification to go, on TSG approval, from version 2.0.0 directly to version 7.0.0. There will be no versions 3.0.0, 4.0.0 etc between.

The **technical version field** is incremented each time a technical change is made to the spec as a result of the drafting process (major version <= 2) or as a result of the incorporation of one or more approved Change Requests (major version > 2).

The **editorial version** field is incremented each time a non-technical change is made to the spec, for example to correct trivial typographical errors. Note that any change which could conceivably have an effect on the interpretation of the *technical* provisions of a spec cannot be considered as *editorial*. (Thus changing the greater-than symbol > into the less-than symbol <, although only the result of a mistyped character, is *not* considered editorial, since it makes a profound difference to the interpretation of the technical provisions of the document.) Exceptionally, the editorial version is used to show the replacement of a new version of a spec within the period (normally three working weeks) immediately following the end of a TSG meeting prior to the "all specs available" deadline, even though the modification might be more than purely editorial. Such circumstances cover, for example, the late availability of C code or TTCN associated with a spec. The document's change history annex will always explain the nature of any such change.

The version number, consisting of the three numeric fields, is reflected in the filename of the TS or TR concerned. Each field is represented by a single character, and the mapping between version field value and the character representing that value in the filename is as shown in the table below:

version field value	filename character
0	0
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	a
11	b
12	c
13	d
14	e
15	f
16	g
17	h

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18	i
19	jh
20	k
21	l
22	m
23	n
24	o
25	p
26	q
27	r
28	s
29	t
30	u
31	v
32	w
33	x
34	y
35	z
36 onwards	for further study

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last updated:
2005-07-21: original

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The Wayback Machine - https://web.archive.org/web/20081013061724/http://www.3gpp.org/TB/RAN/RAN2/RAN2.htm

TSG RAN WG2 (Radio layer 2 and Radio layer 3 RR)

Overview:

TSG RAN WG2 is in charge of the Radio Interface architecture and protocols (MAC, RLC, PDCP), the specification of the Radio Resource Control protocol, the strategies of Radio Resource Management and the services provided by the physical layer to the upper layers.

Useful links and information			
About RAN2	List of elected officials and contact points	**Meetings**	Next meeting information & previous meeting reports and documents
	Terms of Reference		Liaisons Statements
			Full RAN2 meeting calendar
Documents	Documents area	**General info**	Email exploder lists
	Specifications		
	Work items		

Last update:
2008-08-04: Removed election information
2008-06-30: Added Etienne Chaponniere
2008-05-29: Election information added
2007-08-27: Editorial
2007-06-28: Election information added
2006-01-09: Election information removed
2005-03-24: Election information page link added
2005-01-10: Link to meetings page changed
2004-11-25: Next meeting information updated

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APPENDIX 15

The Wayback Machine - https://web.archive.org/web/20091015091823/http://www.3gpp.org/

IMT-Advanced

Press Release - 8t

The 3GPP Partner ng mobile technology companies, made a formal submission to the ITU yesterday, proposing that LTE Release 10 & beyond (LTE-Advanced) be evaluated as a candidate for IMT-Advanced.

The ITU had set a deadline of 7 October for proposals to be received and 3GPP responded by submitting a comprehensive description of LTE-Advanced, an evolution of the LTE technology which has received considerable support from the world's leading mobile operators. The submission was made jointly in the name of the 3GPP Organizational Partners: ARIB, ATIS, CCSA, ETSI, TTA and TTC, which represent the North American, European and Asian regions and make 3GPP a truly global initiative.

» (...more)

3GPP News
3GPP Partners News

3GPP Website: Search

Search for:
In: Inbox Search

8635 unique visitors average per day

446 connected visitors



The ATIS Technology Conference will be co-located with SUPERCOMM 2009 at the McCormick Place in Chicago, October 21 – 22, 2009 and will feature presentations from 3GPP Officials for more...

LTE - the Global Opportunity - UMTS Forum Report



The UMTS Forum have made their latest Report - *LTE Mobile Broadband Ecosystem: the Global Opportunity* available for free download

The report presents a positive picture of LTE's transformation of the global market for mobile broadband. The UMTS Forum web site promises that *"This unique study offers detailed analysis and insight into key issues shaping tomorrow's mobile broadband ecosystem. It also explores key success factors, enablers, challenges and risk factors that will determine the global market success of 3G LTE (Long Term Evolution)....*

» (...more)

« Previous News

3GPP Plenary Meetings

Full Meeting Calendar

GERAN #44 - Sophia Antipolis FR - From 16 to 20 November
RAN/CT/SA #46 - TBD CN - From 1 to 10 December

GERAN #45 - Berlin DE - From 1 to 5 March 2010

Releases

About Releases

- Release 10
- Release 9
- Release 8
- Release 7
- Release 6
- Release 5
- Release 4
- Release 1999
- Functionality in early GSM releases

Keywords (WCDMA, HSPA, LTE, etc)

Browse Technologies

- eCall specifications set to save lives
- Conformance Testing (UE)
- UMTS
- GPRS & EDGE
- HSPA
- IMS
- LTE-Advanced
- LTE
- W-CDMA

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APPENDIX 16

The Wayback Machine - https://web.archive.org/web/20081026082655/http://www.3gpp.org:80/FTP/

www.3gpp.org - /FTP/

[To Parent Directory]

20 October 2008	14:04	<dir>	.Trash-root
03 October 2008	21:18	<dir>	Inbox
08 October 2008	13:37	<dir>	Information
29 March 2007	16:26	<dir>	Invitation
05 April 2007	09:03	<dir>	Joint_Meetings
26 August 2008	09:30	<dir>	Op
26 August 2008	09:29	<dir>	PCG
24 September 2008	11:33	<dir>	Specs
04 November 2007	18:34	<dir>	tsg_cn
29 March 2007	20:22	<dir>	tsg_ct
29 March 2007	20:44	<dir>	tsg_geran
20 October 2008	14:04	<dir>	tsg_ran
29 March 2007	23:33	<dir>	tsg_sa
30 March 2007	00:25	<dir>	tsg_t
17 October 2008	08:47	<dir>	workshop

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The Wayback Machine - https://web.archive.org/web/20081027182226/http://www.3gpp.org:80/FTP/tsg_ran/

www.3gpp.org - /FTP/tsg_ran/

[To Parent Directory]

29 March 2007	20:44	<dir>	AHG1_ITU_Coord
04 August 2008	08:59	<dir>	TSG_RAN
20 September 2008	20:34	<dir>	WG1_RL1
12 September 2008	11:22	<dir>	WG2_RL2
04 August 2008	08:55	<dir>	WG3_Iu
20 October 2008	08:33	<dir>	WG4_Radio
21 October 2008	08:12	<dir>	WG5_Test_ex-T1
29 March 2007	22:10	<dir>	WGs_LongTermEvolution

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The Wayback Machine - https://web.archive.org/web/20130726014253/http://www.3gpp.org/ftp/tsg_ran/W…

Index of /ftp/tsg_ran/WG2_RL2

Name	Last modified	Size	Description
Parent Directory		-	
Invitation/	08-Feb-2011 11:34	-	
Org/	19-May-2013 18:42	-	
Outgoing_Liaisons/	04-Nov-2008 20:35	-	
R2_1999.zip	30-Apr-2004 15:00	93K	
R2_2000.zip	21-Dec-2000 20:03	117K	
R2_2001.zip	04-Jan-2002 19:12	134K	
R2_2002.zip	21-Jan-2003 15:07	156K	
R2_2003.zip	24-Nov-2003 11:08	122K	
R2_2004.zip	01-Dec-2004 10:45	138K	
R2_2005.zip	14-Nov-2005 13:57	171K	
R2_2008.zip	02-Feb-2009 09:12	1.0M	
R2_2009.zip	07-Jan-2012 03:26	1.4M	
R2_2010.zip	07-Jan-2012 03:27	1.2M	
R2_2011.zip	14-Feb-2012 01:07	1.2M	
R2_2012.zip	17-Mar-2013 23:32	1.1M	
R2_TSs_TRs_early_ver..>	27-Apr-2013 18:18	-	
Specifications/	22-Jun-2013 21:36	-	
TSGR2_01/	04-Nov-2008 20:35	-	
TSGR2_02/	04-Nov-2008 20:35	-	
TSGR2_03/	04-Nov-2008 20:35	-	
TSGR2_04/	04-Nov-2008 20:35	-	
TSGR2_05/	04-Nov-2008 20:35	-	
TSGR2_06/	04-Nov-2008 20:36	-	
TSGR2_07/	04-Nov-2008 20:36	-	
TSGR2_08/	04-Nov-2008 20:36	-	
TSGR2_09/	04-Nov-2008 20:36	-	
TSGR2_10/	04-Nov-2008 20:36	-	
TSGR2_11/	04-Nov-2008 20:36	-	
TSGR2_12/	04-Nov-2008 20:36	-	
TSGR2_13/	04-Nov-2008 20:36	-	
TSGR2_14/	04-Nov-2008 20:36	-	
TSGR2_15/	04-Nov-2008 20:36	-	
TSGR2_16/	04-Nov-2008 20:36	-	
TSGR2_17/	04-Nov-2008 20:37	-	
TSGR2_18/	04-Nov-2008 20:37	-	
TSGR2_19/	04-Nov-2008 20:37	-	
TSGR2_20/	04-Nov-2008 20:37	-	
TSGR2_21/	04-Nov-2008 20:37	-	
TSGR2_22/	04-Nov-2008 20:37	-	
TSGR2_23/	04-Nov-2008 20:37	-	
TSGR2_24/	04-Nov-2008 20:37	-	
TSGR2_25/	04-Nov-2008 20:37	-	
TSGR2_26/	04-Nov-2008 20:38	-	
TSGR2_27/	04-Nov-2008 20:38	-	
TSGR2_28/	04-Nov-2008 20:38	-	
TSGR2_29/	04-Nov-2008 20:38	-	
TSGR2_30/	04-Nov-2008 20:38	-	
TSGR2_31/	04-Nov-2008 20:38	-	
TSGR2_32/	04-Nov-2008 20:38	-	
TSGR2_33/	04-Nov-2008 20:38	-	
TSGR2_34/	04-Nov-2008 20:39	-	
TSGR2_35/	04-Nov-2008 20:39	-	
TSGR2_36/	04-Nov-2008 20:39	-	
TSGR2_37/	04-Nov-2008 20:39	-	
TSGR2_38/	04-Nov-2008 20:39	-	
TSGR2_39/	04-Nov-2008 20:39	-	
TSGR2_40/	04-Nov-2008 20:39	-	
TSGR2_41/	04-Nov-2008 20:39	-	
TSGR2_42/	04-Nov-2008 20:39	-	

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TSGR2_43/	04-Nov-2008 20:40	-
TSGR2_44/	04-Nov-2008 20:40	-
TSGR2_45/	04-Nov-2008 20:40	-
TSGR2_45bis/	04-Nov-2008 20:40	-
TSGR2_46/	04-Nov-2008 20:40	-
TSGR2_46bis/	04-Nov-2008 20:40	-
TSGR2_47/	04-Nov-2008 20:40	-
TSGR2_48/	04-Nov-2008 20:41	-
TSGR2_48bis/	04-Nov-2008 20:41	-
TSGR2_49/	04-Nov-2008 20:41	-
TSGR2_50/	04-Nov-2008 20:41	-
TSGR2_51/	04-Nov-2008 20:41	-
TSGR2_52/	04-Nov-2008 20:41	-
TSGR2_53/	04-Nov-2008 20:41	-
TSGR2_54/	04-Nov-2008 20:41	-
TSGR2_55/	04-Nov-2008 20:42	-
TSGR2_56/	04-Nov-2008 20:42	-
TSGR2_56bis/	04-Nov-2008 20:42	-
TSGR2_57/	04-Nov-2008 20:42	-
TSGR2_57bis/	04-Nov-2008 20:42	-
TSGR2_58/	04-Nov-2008 20:42	-
TSGR2_58bis/	04-Nov-2008 20:43	-
TSGR2_59/	04-Nov-2008 20:43	-
TSGR2_59bis/	04-Nov-2008 20:43	-
TSGR2_60/	04-Nov-2008 20:44	-
TSGR2_60bis/	04-Nov-2008 20:44	-
TSGR2_61/	04-Nov-2008 20:44	-
TSGR2_61bis/	04-Nov-2008 20:44	-
TSGR2_62/	04-Nov-2008 20:45	-
TSGR2_62bis/	04-Nov-2008 20:45	-
TSGR2_63/	04-Nov-2008 20:46	-
TSGR2_63bis/	04-Nov-2008 20:46	-
TSGR2_64/	04-Nov-2008 20:46	-
TSGR2_64bis/	18-Dec-2008 01:09	-
TSGR2_65/	26-Jan-2009 12:47	-
TSGR2_65bis/	12-Mar-2009 01:54	-
TSGR2_66/	06-Apr-2009 12:42	-
TSGR2_66bis/	16-Jun-2009 12:47	-
TSGR2_67/	10-Aug-2009 08:37	-
TSGR2_67bis/	29-Sep-2009 18:56	-
TSGR2_68/	28-Oct-2009 23:37	-
TSGR2_68bis/	03-Jan-2010 00:02	-
TSGR2_69/	24-Feb-2010 02:47	-
TSGR2_69bis/	27-Mar-2010 15:34	-
TSGR2_70/	28-Apr-2010 18:09	-
TSGR2_70bis/	05-Jul-2010 11:29	-
TSGR2_71/	11-Aug-2010 08:23	-
TSGR2_71bis/	07-Oct-2010 16:29	-
TSGR2_72/	01-Nov-2010 09:40	-
TSGR2_72bis/	08-Dec-2010 01:09	-
TSGR2_73/	04-Feb-2011 12:38	-
TSGR2_73bis/	30-Mar-2011 01:02	-
TSGR2_74/	26-Apr-2011 00:19	-
TSGR2_75/	30-Jul-2011 19:31	-
TSGR2_75bis/	28-Sep-2011 23:33	-
TSGR2_76/	10-Nov-2011 22:06	-
TSGR2_77/	20-Dec-2011 23:36	-
TSGR2_77bis/	11-Mar-2012 12:29	-
TSGR2_78/	21-Apr-2012 10:55	-
TSGR2_79/	12-Aug-2012 13:56	-
TSGR2_79bis/	16-Sep-2012 05:10	-
TSGR2_80/	29-Oct-2012 13:10	-
TSGR2_81/	21-Dec-2012 04:02	-
TSGR2_81bis/	16-Mar-2013 22:14	-
TSGR2_82/	28-Apr-2013 01:45	-
TSGR2_83/	23-Jul-2013 17:38	-
TSGR2_83bis/	20-Apr-2013 16:54	-
TSGR2_AHs/	04-Nov-2008 20:47	-

APPENDIX 19

The Wayback Machine - https://web.archive.org/web/20140327013614/http://3gpp.org/ftp/tsg_ran/WG2_…

3gpp.org - /ftp/tsg_ran/WG2_RL2/TSGR2_71bis/

[To Parent Directory]

9/29/2010 11:00 PM	<dir>	Agenda
11/15/2010 1:20 PM	<dir>	Docs
6/4/2010 3:10 AM	<dir>	Invitation
11/15/2010 1:21 PM	<dir>	LSin
10/28/2010 10:26 PM	<dir>	LSout
2/7/2011 9:39 AM	<dir>	Report
11/21/2010 9:48 PM	<dir>	Tdoclist

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APPENDIX 20

3GPP_TSG_RAN_WG2 Archives

September 2010, Week 1

3GPP_TSG_RAN_WG2@LIST.ETSI.ORG

Options: Use Monospaced Font
Show Text Part by Default
Show All Mail Headers

Message: [<< First] [< Prev] [Next >] [Last >>]
Topic: [<< First] [< Prev] [Next >] [Last >>]
Author: [<< First] [< Prev] [Next >] [Last >>]

Subject: Draft agenda proposal RAN2#71bis
From: Gert-Jan van Lieshout <[log in to unmask]>
Reply To: Gert-Jan van Lieshout <[log in to unmask]>
Date: Thu, 2 Sep 2010 09:34:53 +0200
Content-Type: multipart/mixed
Parts/Attachments: text/plain (3507 bytes) , text/html (11 kB) , R2-10xxx1 Proposed agenda.doc (118 kB)

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Dear all

I realise it is a bit early (since all email discussions are just started), but hope still this early preview on the agenda proposal for RAN2#71bis is useful for companies when starting preparations for RAN2#71bis.

During RAN2#71bis we should move away from Stage-2 aspects and really start to focus on Stage-3 aspects in order to finalise WI's in December. Therefore also the agenda puts a bit more focus on Stage-3 compared to the past. Many important listed open issues are covered by email discussions. For these topics I am hoping that companies are primarily active in the email discussions and trying to come to a good way forward, rather than submitting opinion documents to RAN2#71bis.

This agenda will still be updated based on RAN discussions/decisions. Your first round of comments is appreciated , preferable before Monday September 20 when an updated version will be distributed.

Some additional remarks:

1) Deadlines:
- Document request deadline: Sunday October 3 Midnight Pacific time
- Submission deadline for documents up to and including Release-9: Sunday October 3 Midnight Pacific time
- Submission deadline for documents for Rel-10: Monday October 4 Midnight Pacific time

Upload requests on the RAN2 reflector are not required for Tdoc's submitted before the submission deadline. In the exceptional case that you upload a document after the submission deadline, an announcement is required to be sent on the RAN2 reflector. Based on discussions with other RAN WG chairmen, we agreed to be more strict on applying submission deadlines thus late submissions might not be treated.

2) As discussed, we want high quality CR coversheets along the agreed guidelines for isolated impact statements and consequences if not approved for all CR's up to and including Rel-9.

3) W.r.t. meeting organization, the UMTS breakout session will start Tuesday morning and will continue no later than Friday lunch. Before/after we might handle UMTS revisits or joint issues.

CU in Xi'an,

GJ

==========

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7411GS Deventer
The Netherlands

ATOM RSS1 RSS2

APPENDIX 21

3GPP TSG-RAN Working Group 2 meeting #72
Jacksonville, USA, November 15 – 19, 2010

R2-106041

Agenda Item: 2.2

Source: ETSI MCC

Title: Draft Report of 3GPP TSG RAN WG2 meeting #71bis, Xian, China, October 11 - 15, 2010

Document for: Approval

Draft Report of 3GPP TSG RAN WG2 meeting #71bis

held in Xian, China
October 11 - 15, 2010



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Organisation of the meeting

Meeting:	3GPP TSG RAN WG2 #71bis	
Meeting location:	Xian, China	
Duration:	Monday 11.10.2010 - Friday 15.10.2010	
Host:	ZTE	
TSG RAN WG2 Chairman:	Gert-Jan van Lieshout (Samsung)	email: Gert.vanLieshout@samsung.com
TSG RAN WG2 Vice chairman:	Etienne Chaponniere (Qualcomm)	email: echaponn@qualcomm.com
TSG RAN WG2 Vice chairman:	Benoist Sebire (Nokia Siemens Networks)	email: Benoist.Sebire@nsn.com
TSG RAN WG2 MCC Support:	Joern Krause (ETSI MCC)	email: Joern.Krause@etsi.org
Email reflector:	3GPP_TSG_RAN_WG2@LIST.ETSI.ORG	
Technical documents:	ftp://ftp.3gpp.org/tsg_ran/WG2_RL2/TSGR2_71bis/Docs	
Ad hocs:	Parallel ad hoc held (see agenda item 2.1) on - UTRA (see agenda items 8-11, Tue - Fri noon): chaired by Etienne Chaponniere - LTE Advanced Carrier Aggregation user plane (see agenda item 7.1.3, Wed): chaired by Benoist Sebire No joint ad hocs with other WGs were held.	
next meetings:	TSG RAN WG2 #72, 15.11. - 19.11.2010 Jacksonville, USA TSG RAN #50, 07.12. - 10.12.2010 Istanbul, Turkey TSG RAN WG2 #72bis, 17.01. - 21.01.2011 Dublin, Ireland	

Statistics/Executive Summary

TSG RAN WG2 #71bis was held in Xian, China, hosted by ZTE and co-located with RAN1 and RAN3. This RAN WG2 meeting had 2 parallel sessions: UTRA session (see agenda items 8-11; Tue - Fri noon) and an LTE Advanced session on user plane aspects of the REL-10 WI Carrier Aggregation (see agenda item 7.1.3; Wed). All other topics were treated in the main session (Note: Remaining part of the MTC agenda item 4.3.2 that was not finished on Monday was finished on Tue evening in a joint session).

- 193 participants (registered before the meeting: 239).
- 760 Tdocs allocated with 718 available contributions.
- 40 incoming liaison statements: 9 received during RAN2 #71bis, all 40 LSs were treated.
- 17 outgoing liaison statements (2 related to UTRA, 9 on LTE; and 6 on joint aspects). 3 of the 17 agreed by email after RAN2 #71bis.
- 18 email discussions scheduled after RAN2 #71bis (see Annex H).
- About 1,5 days were spent on REL-10 WI Carrier aggregation (see AI 7.1). Results are captured in CRs to 36.300 (R2-105897), 36.302 (R2-105997), 36.321 (R2-105960) and 36.331 (R2-105971). In addition 2 LSs were sent out: R2-106010 and R2-106016.
- About half a day spent on REL-10 WI on Relays (see AI 7.2). Results are captured in CRs to 36.300 (R2-105976), 36.321 (R2-105986) and 36.331 (R2-105985). In addition 3 LSs were sent out: R2-105996, R2-105999 and R2-106000.
- Progress of REL-10 WI Minimisation of Drive Tests (MDT) is captured in stage 2 TS 37.320 v1.1.0 R2-106018 and CRs to 25.304 (R2-105882), 25.331 (R2-105880), 36.304 (R2-105881) and 36.331 (R2-105879). In addition 3 LSs were sent out: R2-106020, R2-106021 and R2-106025.
- Progress of REL-10 WI on Machine Type Communications (MTC) is captured in SI TR 37.868 v0.7.0 R2-106033. In addition LS R2-105994 with status/questions was sent to SA1, SA2 and CT1.
- Progress of REL-10 WI on MBMS enhancements for LTE is captured in CRs to 36.300 (R2-105810) and 36.331 (R2-105975). Furthermore an LS was sent to SA4 in R2-106030.
- Progress of REL-10 SI on signalling and procedure for interference avoidance for in-device coexistence is captured in TR 36.816 v0.2.0 (R2-106004).

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- Among 239 change requests (CRs) in total: 91 CRs (57 for UTRA specs, 34 for LTE specs) were agreed in principle. They will be (re)submitted to RAN2 #72 for final agreement.

Note: The sequence in which the different topics appear in this report is related to the agenda of the meeting. However, the Tdocs do not necessarily appear in the sequence as they were treated in the meeting.

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1 Opening of the meeting

TSG RAN WG2 chairman Gert-Jan van Lieshout (Samsung) opened the meeting RAN WG2 #71bis on Monday morning 11.10.2010 at 09:00 o'clock.

On behalf of the host, ZTE, Zhongda Du welcomed the delegates to Xian, China and explained organisational issues.

RAN WG2 meeting rooms:

Main RAN2 room:	Grand Ballroom C (3rd floor),	planned for 220 participants, Mon-Fri
RAN2 ad hoc room 1:	Pissaro (ground floor = 1st floor),	planned for 50 participants, Tue-Fri noon (UTRA)
RAN2 ad hoc room 2:	Paris (2nd floor),	planned for 80 participants, Thu (LTE CA)

RAN1 in Grand Ballroom AB, RAN3 in Arc de Triomphe (Mercure building).

1.1 Call for IPR

Gert-Jan van Lieshout (TSG RAN WG2 chairman) made the following call for IPRs and reminded the delegates of their obligations with respect to IPRs:

> The attention of the delegates of this Working Group is drawn to the fact that **3GPP Individual Members have the obligation** under the IPR Policies of their respective Organizational Partners to **inform their respective Organizational Partners of Essential IPRs they become aware of**.
>
> The delegates were asked to take note that they were hereby invited:
>
> - to investigate whether their organization or any other organization owns IPRs which were, or were likely to become Essential in respect of the work of the work of 3GPP.
> - to notify their respective Organizational Partners of all potential IPRs, e.g., for ETSI, by means of the IPR Statement and the Licensing declaration forms (http://webapp.etsi.org/Ipr/).

NOTE: IPRs may be declared to the Director-General or Chairman of the SDO, but not to the RAN WG2 chairmen.

2 General: Agenda / Organisation

2.1 Proposed Agenda

R2-105275: Proposed agenda for RAN2 #71bis, Xian, China, 11.10.-15.10.2010 Samsung (RAN2 chairman) Agenda
=> Approved

Time-schedule, only indicative (i.e. topics might move forward/backward !):

Indicative Time-schedule	**Main room**	**LTE room2**	**UMTS room**
Monday	[2],[3],[4]		
Tuesday	[5][6][7.1.1]		[8 non TDD] [9] [8 TDD]
Wed: before morning coffee	[7.1.2][7.3][7.2]	[7.1.3]	[10.1][10.2][10.5]
Wed: morning coffee -> lunch			
Wed: lunch -> afternoon coffee			

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Wed: after afternoon coffee			
Thu: before morning coffee	[7.4] - [7.9]		All day: [10.4][10.6][10.7][10.8] After-Lunch: Come-back session
Thu: morning coffee -> lunch			
Thu: lunch -> afternoon coffee			
Thu: after afternoon coffee			
Fri: before morning coffee	Left-overs [12][13][14]		Come –back session
Fri: morning coffee -> lunch			
Fri: lunch -> until 5pm			

RAN2 chairman: THANK YOU to companies that submit contributions early; early submissions are appreciated. Documents submitted after the deadline will most likely not be treated.

2.2 Minutes of previous meeting

R2-105276: Draft report of RAN2 #71, Madrid, Spain, 23.07.-27.08.2010 ETSI MCC Report
=> No further comments. Some email discussion reports will be updated.
=> Final version is approved R2-106031

2.3 Reporting from other meetings

TSG-RAN

Main highlights:

- *New RAN2 WI's on MTC and UMTS inter-freq detected cells (see table below); MTC SI on hold at least until December*
- *RAN2 is allowed to start working on Network-Based positioning Support for LTE*
- *Rel-9 FGI way forward and CR agreed in RP-101007/RP-101008 respectively*
- *RAN2 can start to work on eICIC for non-CA (see RP-101005), although probably not many decisions can be taken until more clarity is obtained from RAN1 on e.g. time patterns.*

TSG-SA

Main highlights relevant for RAN2 (as reported by RAN chairman):

<< WI on MTC >>
Importance of inter-TSG WGs cooperation was well recognized and encouraged to complete related WIs in Release 10 time frame.
I asked SA1 and SA2 to check our WID on MTC approved in RAN#49 to avoid misalignment between SA1/SA2 thinking and RAN.

<< Relay node security >>
At SA#48, possibility of Release misalignment between SA3 and RAN on Relay was discussed. At SA#49, it was identified that most of delegates prefer Relay node security in same Release as RAN specs, i.e. REL-10. SA agreed to submit an LS to SA3 in SP-100627 to suggest to prioritize this work to include this feature in Release 10. In this LS, it is suggested to communicate with RAN WGs at earliest opportunity to avoid serious problem with RAN REL-10 time frame. This LS will be submitted to RAN, RAN2 and RAN3, also.

<< SRB only PS HO >>
At RAN#49, we confirmed RAN2 decision, i.e. removal of SRB only PS HO. At SA#49, CRs to SA2 spec, 23.401 to remove this feature, was presented and agreed in SP-100614. It was also noted in SP-100614 that CT#49 rejected CRs to allow SRB only PS HO considering the RAN#49 decision. In summary, all TSG specs are aligned now and this issue was concluded.

<< Release 11 time plan >>
Followings are agreed in SP-100654:
Stage 1 freeze target: Sep. 2011
Stage 2 freeze target: Mar. 2012
Stage 3 freeze target: Sep. 2012
ASN.1 freeze: 3 month after the stage 3 freeze

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2.4 Other

Reminder: Please do wear meeting badges at all times in the meeting room.

Changes of rapporteurship:

Spec	Previous rapporteur:	Proposed rapporteur:
25.331	Kai-Erik Sunell (Ericsson)	Simone Provvedi (Ericsson)=> Approved

Planning

For information, main open WIs/SIs with RAN2 responsible for certain output to a certain RAN meeting:

Main RAN2 related WI/SIs	*RAN Tdoc*	*Lead WG*	*WI or SI*	*RAN2 Agenda*	*Planning w.r.t. RAN delivery*	*Remarks*
UMTS + LTE						
Minimisation of Drive Test	*RP-100360*	*2*	*WI*	*4.3.1/ 7.4/10.4*	*TS37.320 for info: RAN#49 TS37.320 for appr: RAN#50 All CRs: RAN#50*	
RAN mechanisms to avoid CN overload due to Machine-Type Communications	*RP-101026*	*2*	*WI*	*4.3.2*	*All CRs: RAN#51*	
RAN Improvements for Machine-type Communications	*RP-100330*	*2*	*SI*	*-*	*TR37.868 for appr: RAN#50*	*Put on hold until Dec 2010*
UMTS						
LCR TDD MC-HSUPA	*RP-090990*	*1*	*WI*	*10.1*	*Stage-3: RAN#49*	
4C-HSDPA	*RP-100991*	*1*	*WI*	*10.2*	*Stage-3: RAN#49*	
RF pattern matching in UMTS	*RP-091427*	*2*	*WI*	*10.3*	*All CRs: RAN#48*	
Automatic Neighbour Relation	*RP-100688*	*3*	*WI*	*10.5*	*All CRs: RAN#50*	
Interfrequency detected set measurements for UMTS	*RP-101015*	*2*	*WI*	*10.6*	*All CRs: RAN#50*	
LTE						
Carrier aggregation	*RP-100661*	*1*	*WI*	*7.1*	*All CRs: RAN#50*	
Relay	*RP-100953*	*1*	*WI*	*7.2*	*All CRs: RAN#50*	
Latency reduction	*RP-091449*	*2*	*WI*	*-*	*All CRs: RAN#50*	*Put on hold until Dec 2010*
MBMS enhancements	*RP-100691*	*2*	*WI*	*7.3*	*All CRs: RAN#50*	
MBMS Service Continuity in Connected / Location info	*RP-100690*	*2*	*WI*	*-*	*All CRs: RAN#52*	*Put on hold until Dec 2010*
Network-Based positioning Support for LTE	*RP-100135*	*2*	*WI*	*7.5*	*36.300, 36.305, 36.331: RP#49 36.455: RP#50*	*RAN#49 decided that RAN2 can start looking into this in parallel to the benefit analysis of RAN1*
LTE Self Optimizing Networks (SON) enhancements	*RP-101004*	*3*	*WI*	*7.7*	*All CRs: RAN#50*	
Enhanced ICIC for non_CA	*RP-100383*	*1*	*WI*	*7.7*	*All CRs: RAN#50*	
In-device coexistence interference avoidance	*RP-100671*	*2*	*SI*	*7.8*	*TR 36.xxx for info/appr: RAN#50*	
Network Energy Saving for E-UTRAN	*RP-100674*	*3*	*SI*	*7.9*	*TR 36.xxx for info/appr: RAN#50*	

3 Incoming liaisons

3.1 Joint UMTS/LTE relevance

Rel-8:

R2-105291: Reply LS to RP-100693 on Introduction of CSG reselection requirements in RAN4 (Nokia)
RAN4
=> Noted

Rel-9:

R2-105293: Reply LS to GP-101089 on Handling of Hybrid cells (Vodafone) SA1
=> Noted (no impact to RAN2)

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R2-105296: LS on PS handover failure during the SRVCC (NTT DOCOMO) SA2
- NSN assumes for SRVCC to UMTS, if either domain fails, SRVCC fails. NSN assumes in DTM handover, SRVCC handover is succesfull if CS is succesfull (even if PS fails). The SRVCC limitation to UMTS is a RAN3 limitation (RANAP) according to NSN. Samsung also understands that RAN3 does not support partial success.
- NSN thinks we support CS SRB only handover, so even without RAB the handover can succeed.

=> Should find out what the detailed limitation is from RAN2 point of view (no limitation?) and can also indicate that RAN3 might have stronger restrictions. Will see LS in R2-105862

R2-105299: LS to RAN2 on handling of UTRAN Mobility Information (Ericsson) SA2
- Ericsson indicates SA2 is meeting this week in Prague

Question 1:
- Yes in a sensible RNC implementation

Question 2:
- Yes in a sensible RNC implementation, however RNC implementation dependant.

Question 3/4:
- Ericsson thinks there might be procedures to wait from CN point of view, e.g. security.
- If UE sends anything before UMI, he cannot make assumption on LAI.

=> Can continue a bit offline. Will sent response from UMTS session in R2-105863.

UMTS session:
- There are offline discussions ongoing, no strong view to send the LS in this meeting.
- SA2 has already treated this AI.
- We can reply in the next meeting, from the common session on Monday preferably
- Panasonic: Question 3 involves some RNC Iu behavior, companies should check with their RAN3 delegates

=> Draft reply in R2-105863 Ericsson/Alcatel-Lucent

=> We will reply at the next meeting

Later R2-105863 was withdrawn since; after offline discussion some more time was requested after this meeting. Will try to respond from Monday of our next RAN2 meeting #72.

Rel-10: MDT

R2-105300: Reply LS to R2-103461 on Location Information for MDT (Huawei) SA5

=> Withdrawn (already treated in RAN2#71)

R2-105301: LS on measurement frequency and collection period definitions for Logged MDT (NSN) SA5

=> Withdrawn (already treated in RAN2#71)

R2-105303: LS on MDT related UE measurement clarification (Alcatel-Lucent) SA5
- ALU thinks TS is clear on question 1 and 2. For 3 we can list what the measurements for immediate MDT are used for today.

1) IMM MDT <-> LOG MDT
- Vdf would prefer to have this configurable by OAM
- Nokia wonders how the OAM will have sufficient awareness of the UE capabilities ? ALU assumes measurements quantities are fixed. Will OAM know the UE capability ? NSN thinks maybe the OAM will not know the capability, but OAM will have to specify some parameters and these parameters might need to be different for the case of LOG and IMM ?
- ALU thinks the RAN can just reject a request if OAM asks for LOG MDT and the UE does not support it.
  a) OAM indicates LOG/IMM, and RAN would reject if UE does not support
  b) OAM just configure periodicity/duration, and RAN selects mode based on UE capability, RAN policy,...
- DT assumes approach b) is the only way to go if e.g. RAN load is also a factor in the decision.
- Ericsson assumes a) is the way to go since it gives more flexibility to the operator (i.e. can determine whether the UE does it in IDLE or CONN). RNC can reject if UE does not support, if RNC load is to high,....
- ALU points out some measurements are only applicable in Connected, which seems we have to go for option a).

=> Will assume option a, i.e. OAM can configure mode, and RAN might reject if not possible

2) Configurability of measurements

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- Can look at input. For LOG MDT probably little to configure, for IMM MDT more to configure.

=> Will write one response LS on parameters (periodicity, duration, mode, measurement configurability,...) from this RAN2 meeting in R2-105864

R2-105309: LS reply to S2-103201 on Location Information for MDT (Huawei) SA5 LSin to: RAN2 REL-10 MDT_UMTSLTE-CoreS5-102526

- ALU thinks we have discussed this and no new input is available. Have already agreed that we will not enhance LTE positioning further. Will will leave other actions to other groups.

=> Will sent a small response indicating current status in R2-105865

Rel-10: MTC

R2-105278: Reply LS to RP-100669 on “communications from ITU-R WP5A” and on “Mobile Wireless access systems providing telecommunications for a large number of ubiquitous sensors and/or actuators scattered over wide areas in the land mobile service” (Telecom Italia) GERAN

=> Noted

R2-105297: LS on Release 10 NIMTC Conclusion (Samsung) SA2 LSin

- DT wonders ACB and backoff time are the mechanisms to be applied. Does this mean other mechanisms are ruled out. Chairman thinks this should be discussed, but most companies seems to prefer to focus on the SA2 agreements. DT thinks we should have a future proof solution.
- NSN is suprised that SA2 was more worried about CN overload than eNB overload. Maybe SA2 did not focus sufficiently on RAN aspects. So RAN2 should still do their own analysis.
- Vdf thinks RAN2 should not rediscuss the requirements that SA2 has agreed.

=> Noted (will discuss further under agenda item)

Rel-10: Other

R2-105277: Response LS to LS S2-103205 on support for Priority for terminating sessions for MPS (Ericsson) GERAN

=> Noted

R2-105288: Reply LS to S2-103098 on support for Priority for terminating sessions for MPS (NTT DOCOMO) RAN3

=> Noted: issue will be discussed under LTE TEI-10.

Rel-11

R2-105298: LS on new Study Item on Core Network Overload issues (Vodafone) SA2

- DT wonders if this means in Rel-11 we might get a new WI on CN overload due to smart phones ? We should try to have one solution for MTC/smart phones. DT thinks the smart phone issue is more severe problem than MTC. DT sees e.g. smart phones which are repeatedly trying to access a non-existing server.
- Vdf understands this WI would possibly not impact the UE, only CN based solutions.

=> Noted

Late LSs:

R2-105979: LS on Clarification for Iu Flex usage with MTC devices (Huawei) RAN3 LSin

=> Noted

R2-105981: Reply LS to R3-103015 on Clarification for Iu Flex usage with MTC devices (Samsung) SA2 LSin

=> Noted

R2-106001: Reply LS on Release 10 NIMTC Conclusions (Interdigital) CT1 LSin

=> Noted

R2-106009: Reply LS on Comments on Rel-10 issues for NIMTC (Samsung) SA2 LSin

- The "MTC indicator" is not service agnostic

=> Noted

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3.2 LTE relevance

Rel-10: CA

R2-105281: LS response to R2-104264 on CIF values (LG Electronics) RAN1
- Original RAN2 LS was in R-204209
- QC wonders if related to question 2, it is clear that the CIF does not need to change ? Today in the draft RRC CR, an Scell can just remain e.g. after Pcell change intra-eNB.

=> Noted (contributions available)

R2-105283: LS on Rel-10 UE category (NTT DOCOMO) RAN1
=> Noted (contibutions available)

R2-105284: LS on draft RAN1 CRs for Carrier Aggregation, Enhanced Downlink Multiple Antenna Transmission and Uplink Multiple Antenna Transmission Work Items (Alcatel-Lucent) RAN1
=> Noted

Rel-10: Relay

R2-105287: Reply LS to S3-100924 OAM security and OAM connection issues of RN (NSN) RAN3
=> Noted

R2-105294: LS on Relay Node Security (Vodafone) SA
=> Noted

R2-105304: LS on How to differentiate RN and UE (CMCC) SA3 LSin cc: RAN2REL-10 LTE_Relay-CoreS3-101107
=> Noted

R2-105305: LS on requirements for handling AS key refresh in relay nodes (Huawei) SA3 LSin to: RAN2 REL-10 LTE_Relay-Core S3-101110
- NSN thinks we have no intention to introduce a new mechanism, and intra-cell handover can be used as before.

=> Will sent small response LS in R2-105866

R2-105306: Reply LS to R2-105204 on Progress on relay node security (NSN)SA3 LSin to: RAN2 REL-10 LTE_Relay-Core S3-101105
=> RAN2 supports all handovers (no restrictions)
- ALU wonders if SA3 is assuming ciphered DRB's or not ? NSN understand that TEID would be in fixed position so even if ciphered, an attacker could change it/insert packets. Also it should be possible to crack the security quite soon (19 hours). So therefore maybe we need IP.
- Vdf understands that there is concerns on the implementation complexity, so maybe we should start to work on this anyway ?

=> Can indicate that we assume RN is network node so there is no reason not to have ciphering; is it still relevant to IP all DRB's with this understanding ?
=> Can see offline if there is any other feedback after RN session
=> Will sent small response LS in R2-105867

R2-105307: Reply LS to R3-102539 on OAM security and OAM connection issues of RN (Ericsson) SA3 LSin cc: RAN2 REL-10 LTE_Relay-Core S3-101119
=> Noted

R2-105308: LS to RAN2 on Integrity protection for Un (NTT DOCOMO) SA3 LSin to: RAN2 REL-10 LTE_Relay-Core S3-101114
- See discussion under R2-105306

=> Noted

Rel-10: eICIC

R2-105282: LS on eICIC progress in RAN1 (CMCC) RAN1
=> Noted (will see contibutions)

Rel-10: Energy saving

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R2-105280: Reply LS to R2-104214 on intra-eNB energy saving solutions (Ericsson) RAN1
- Some energy saving with all solutions

R2-105290: Reply LS to R2-104211 on intra-eNB energy saving solutions (Huawei) RAN4
So it seems:
A) Increase MBSFN subframes: solution already possible today
B) Increase MBSFN above 5/6: do not consider this solution further
C) Decreasing BW: contact RAN4/5 for proper test availability ? NCL aspect
D) Decrease #antennas: backward compatibility problems (contribution available). Should discuss further.
- QC thinks for case C), that one could decrease the BW of the serving cell, but there is also the case of changing the BW w.r.t. neighbour cell measurements.

=> A) is supported already
=> Will do no attempt to address B) in near future
=> Case C) and D) will have to be discussed further based on contribution

Rel-10: SON

R2-105289: UE-originated RLF reporting after fresh RRC connection setup (NSN) RAN3
=> Noted

R2-105302: LS on Access Delay estimation for RACH Optimization (Ericsson) SA5
- Ericsson thinks RAN2 has agreed not to have the explicit signal because it can be derived in eNB.

Question 1:
- Ericsson proposes "yes".

Question 2:
- Ericsson thinks both can be used based on implementation.

Question 3:
- Ericsson thinks derivaition in eNB is sufficient.

General
- NSN agrees that the eNB can already derive this. We have discussed this extensively and then concluded we would only report two parameters from the UE. The eNB (also knowing the backoff time) would have sufficient information. Samsung agrees.

=> Will see draft response in R2-105868

Other

R2-105279: OMA LPP Extensions Requirements OMA LOC WG
- Attached document is kind of Stage-2 document
- QC assumes there is nothing we need to take a specific action on

=> Noted

R2-105285: LS on MBR to be greater than GBR for MBMS services (Huawei) RAN3
=> Noted

R2-105286: LS on support of PWS in RAN Sharing Environment (Alcatel-Lucent) RAN3
=> Noted

Late LSs:

R2-105869: LS on UE capability for inter-frequency positioning measurements - RAN4
- Ericsson has draft CR in R2-105719. Can discuss details with that document.

=> Noted

R2-105875: Reply LS on MBR to be greater than GBR for MBMS services - SA2
=> Noted

R2-105991: LS on time-domain extension of Rel 8/9 backhaul-based ICIC for Macro-Pico scenario
- Huawei wonders if the macro-femto has been considered in RAN1 ? ALU indicates the LS focusses on macro-pico. CMCC thinks macro-femto still needs to be considered, based on more static OAM control.
- Intel wonders if this LS means that the CRE benefit is now concluded as beneficial ? ALU indicates that the benefit of CRE is still being discussed in RAN1. The open issue in RAN1 is on the use of a large bias (which might require CRS interference cancellation). It is true that the usage pattern itself is already a kind of CRE.

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- CATT wonders if we should wait for RAN4 evaluation results ? CATT thinks RRM measurements will be impacted.
- Nokia understands the LS as that RAN2 should still determine whether the pattern for serving and neighbouring cells for RLM/RRM should be potentially different, or can be the same.

=> Noted

3.3 UMTS relevance

Rel-9

R2-105295: Reply LS to C1-103553 on Inclusion of the "RRC Establishment Cause" in the "(RANAP) Initial UE message" (Huawei) SA2
=> Noted

Rel-10

R2-105292: Reply LS to GP-101660 to on Enhancements of Iur-g interface (Qualcomm) RAN
=> Noted (wait for Stage-2)

Late LSs:

R2-105871: Inclusion of the "RRC Establishment Cause" in the "(RANAP) Initial UE message"
=> Noted

R2-105980 LS on Clarification for Cell_FACH mobility of CSG UEs (Huawei) RAN3 LSin to: RAN2; REL-10
- NEC: legacy procedures still apply to legacy UEs, UE in CSG coverage would still be able to send CU message.
- HW: CSG-capable UEs aren't capable to reselect to csg hnb in cell-fach state.
- Nokia: autonomous search applies to idle and pch states, not cell-fach. If csg neighbor isn't listed then UE cannot find it, however if it's listed then legacy reselection applies and any UE can find it.
- Interdigital: in cell-fach state, the measurement occasions may not be enough.
- NEC: Maybe we should indicate to RAN3 what RAN2 has done for CSG support in rel'8/9.

=> HW will draft a reply LS in R2-105944

4 UMTS/LTE joint session

Contributions submitted under this agenda item will be handled in a joint UMTS/LTE session. Documents should focus on Stage-2 aspects common for both UTRA and E-UTRA, but also common stage-3 aspects should be submitted here (e.g. 25/36.304).

4.1 Release 8

R2-105493: UE behaviour for Release with redirection from E-UTRAN Telecom Italia LTE L23
- Vdf sees no confusion: if it was to be the strongest cell that would have been mentioned. So it is interpretation 2.
- DT thinks so far we have not specified any cell selection performance requirements. DT thinks a good solution would anyway do its best. Chairman indicates last meeting we have agreed this is not normal cell selection as discussed last meeting.
- DT sees no action is needed: every UE would already do its best. Nokia agrees.

=> UE should try to find suitable cell asap. No need to guarantee it is the strongest cell.

4.2 Release 9

R2-105588: Validity of system information in System Information Container Qualcomm Incorporated
R2-105589: Validity of system information in System Information Container Qualcomm Incorporated
- Nokia wonders what is really unclear. Is this not sufficiently clear already (Nokia agrees the UE does not need to check) ?

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- QC agrees it is quite clear, but when discussing with other companies this seems not completely clear.
- LG wonders if this proposal means the MIB should be provided in the container ? QC thinks MIB is provided. Nokia agrees with QC.
- Nokia thinks everything is sufficiently clear already.
- NSN thinks if the MIB is in the container, it is obvious that the UE should use this. NTT DCM agrees, and sees no need for further clarification.

=> Confirm that the UE does not need to check the MIB of the target cell: i.e. UE can assume the provided system information is valid upon first access to the target cell.

4.3 Release 10

4.3.1 Minimisation of Drive Test (RP-100360)

(MDT_UMTSLTE-Core, leading WG: RAN2, started: Dec. 09, target: Dec. 10, WID: RP-100360)

From this meeting, focus is expected to change from Stage-2 work to stage-3 aspects. UMTS/LTE common stage-2/3 aspects can be discussed under this agenda item. LTE specific stage-2/3 aspects should be submitted under 7.4, UMTS specific under 10.4.

4.3.1.1 Stage-2: Corrections

Proposals from rapporteur to correct/improve Stage-2 TS37.320 shall be submitted under this agenda item. Also proposed non-contentious corrections to the TS can be submitted here.

R2-105787: Stage-2 TS 37.320 update Nokia Siemens Networks, Nokia Corporation TP 37.320

- Vdf wonders what "logging duration times stops" means ? NSN clarifies that the timer can expire (at end of time) or be stopped (when log buffer is full). This is capturing current status correctly.
- Ericsson proposes to remove the last sentence of 5.1.2.1.

=> Changes are agreed, and this version can be used as baseline for further updates

R2-105662: Semi-editorial update proposals for 37.320 Alcatel-Lucent TP 37.320

=> Change to 5.3.2 is not agreed

- NSN wonders if the "shall" in 5.1.1.3.3 first paragraph, just not change previous agreemenst on cases where the UE does not have measurements available.
- Huawei wonders why "only" is inserted in 5.1.1.1.1. ? ALU wanted to clarify that only the measurement object is configured, not other parameters.

=> All changes except the one in 5.3.2 can be included in update of TS

R2-105520: Start of 48 hr MDT Timer Vodafone CR 37.320 F

- Vdf wants to enable the logging to start again when part of the logging is retrieved
- LG supports the proposal
- NSN thinks this brings complexity to overall approach. Why continue the on-duration when you cannot perform the logging. NSN prefers to stick to the previous agreement. Ericsson agrees with NSN. We should have a sensible requirement on the minimum UE log size.
- Samsung supports the proposal. QC does not see complexity. The change would enable the network to know in a deterministic way when the measurement configuration is released. Huawei also supports the proposal.
- Nokia thinks there is clearly some complexity. With this proposal, network could ask for loggig and then the UE would have to restart the logging again. Nokia thinks the easiest is to just stop once. Currently we have one clear point when the UE clears the configuration.
- DT thinks we should first discuss the minimum memory size. Also DT thinks this enhancement does not seem so needed.
- Vdf thinks the part of duration timer expiring starting the 48hour timer is not captured.

=> Noted

4.3.1.2 Stage-2: Architecture

E.g. relation/interaction with trace functionality. We have sent our assumptions to SA5 from RAN2#71. Anything else to discuss/capture?

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R2-105314: MDT Configuration profile Huawei, HiSilicon Disc
=> Samsung wonders for management based, area scope is mandatory ? Area scope should be optional (i.e. then whole PLMN)
- Samsung wonders whether the OAM needs to configure the reporting trigger ?
=> No reporting trigger configuration for LOG MDT; for IMM MDT, configuration is possible
=> NSN points out we have some papers on measurement interval. So should wait a bit for these discussions
=> LS should also be sent to RAN3
=> NSN thinks for some parameters, the UTRAN parameters should be added.
=> IP address of TCE should be marked as FFS (waiting response). NSN thinks it could always be sent to the RAN. The open issue is whether it should be sent to the UE. DT thinks this should not be sent over the radio.
=> Trace reference can be left to RAN3
- CATT wonders if the MDT task duration is mandatory for IMM MDT ?
=> NTT DCM wonders about the UE identifier. NTT DCM assumes we do not indicate the IMEI/IMSI to RAN nodes. Instead the UE would be identified with S1-AP id/Iu id.
=> Scope of table should be clarified, that this is information coming to RAN.
=> Assumption is that with these modifications, the table can be included in the outgoing LS in R2-105864. However should check again after further discussions in this meeting

4.3.1.3 Stage-2: Logged MDT in IDLE

E.g. Do we need to be able to configure neighbour cell reporting and if so how ? Any event based location logging ? What is the max log size ? Anything to be clarified w.r.t. clearing on PLMN change ?
=> Email discussion output for [71#50] UMTS/LTE: MDT - Need to configure (if so, how) limitations for neigh cell reporting ? [CMCC]
=> Email discussion output for [71#51] UMTS/LTE: MDT - Potential enhancements related to location info reporting [NTT DCM]

=> Result of email discussion [71#50]: Configuration of neighbour cell configuration
R2-105664: Email discussion on [71#50] UMTS/LTE MDT - Need to configure (if so, how) limitations for neighbor cell reporting CMCC Report related to email discussion [71#50]
R2-105813: The limitation of neighbouring cell logging LG Electronics Inc. Disc

1) Introduce a maximum number ??
a) Total reported neighbours
b) Reported neighours per freq/RAT type (e.g. N for intra-freq, N for inter-f1, N for inter-f2..., N for UMTS, N for GSM)
c) Configure N1 for intra-freq, N2 for per inter-freq, N3 for GSM, N4 for UMTS,

Discussion:
- DT thinks option c) is too complex.
- Nokia wonders if we have a), will there be rules on how the UE decides for what freq/RAT to report ? DT thinks a) does not work easily.
- Nokia wonders if it can be a fixed value. DT thinks it should be configurable.
- Samsung thinks we could have one total for E-UTRA, instead of per frequency. Nokia assumes it would be needed per freq in order not have the UE choose. Nokia thinks also per UMTS freq we would have one value.
- Ericsson would like to be able to configure different numbers per RAT/freq. Nokia does not see a real reason
- Vdf thinks we might want to have higher value for intra-freq than for inter-freq.
- Ericsson thinks it would be sufficient to only have "1"; i.e. strongest. DT thinks for intra-freq a different value might be needed.
- NTT DCM would like to have more for non-intra-freq. Vdf would like more for intra-freq (e.g. 6). Vdf is ok with the value '1' for the other cases.
- CATT wonders what the relation is between the RF fingerprint (max 6 cells) and a limitation of 3 here.
- NTT DCM would like to have a value of more than 1 for non-intra-freq reporting

Agreements: 1) We will define a value for the max cells the UE can report per:

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- intra-freq reporting: - inter-freq reporting (max per freq) - GSM - UMTS per freq (if non-serving) - LTE per freq (if non-serving) Values are FFS

=> Will have EMAIL DISC [71b#20] to determine the values up to next meeting [CMCC]

2) The reporting parameters for the neighbour cells logging should include:
- *Measurement results for the neighbouring cells: both RSRP and RSRQ for EUTRA, both RSCP and Ec/No for UTRA, Rxlev for GERAN*
- *Carrier frequency (for inter-frequency/RAT)*
- *Physical cell identity of the logged cell*

Discussion:
- Huawei thinks only L1-id is enough; freq is not needed. DT does not understand why we would not have the same L1-id on 2 frequencies.

Agreements: 2) The reporting for neighbour cells will include: - both RSRP and RSRQ for EUTRA, both RSCP and Ec/No for UTRA, Rxlev for GERAN - carrier frequency (for inter-frequency/RAT) - physical cell identity of the logged cell i.e. nothing is configurable in this respect

R2-105319: Text proposal on clarification of available neighbour cell log Huawei, HiSilicon Disc
- LG wonders if there is a timegap between neighbour cell reporting and serving cell reporting ? It would still only be a small timegap.
- CMCC thinks many measurements will not be made in the same DRX cycle especially inter-RAT. So we should allow any measurement available during this reporting period. DT agrees with CMCC.
- Ericsson agrees that inter-freq measurements cannot be made so frequently.
- Nokia thinks all measurements are L3 filtered and you will report the latest value available. Nothing else needs to be specified. I.e. we do not need to specify what exactly can be included w.r.t. timing
- Vdf thinks the measurement do not need to be taken at the same time.
- NTT DCM wonders what the time-stamp indicates.
- QC thinks we have not defined L3 filtering for IDLE mode. Also this will put a new requirement on storing the information for some time.
- NTT DCM wonders if we can discriminate between no coverage and an old measurement ?
- QC wonders if we should be able to report "nothing new"

Agreements: 1) Timestamp indicates when the periodic timer expired 2) For any reported cell (neighbour or serving), latest available measurement made for cell reselection purposes is included, while measurement are performed in accordance with RAN4 performance requirements

=> Result of email discussion [71#51]: Potential enhancements related to location info reporting

R2-105738: Summary of email discussion [71#51] UMTS/LTE: MDT - Potential enhancements related to location info reporting NTT DOCOMO, INC. Report related to email discussion [71#51]

No positioning triggered logging/reporting ?
Reporting include either meas + detailed position, or meas+RF fingerprint ?

Agreements: 1) For Rel-10 we only have periodic logging - i.e. for LOG MDT only periodic; also no enhancements for IMM MDT 2) For Rel-10, a LOG MDT log will either consist of either: a) time-info + RF measurements + RF fingerprint

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b) time-info + RF measurements + detailed location info

R2-105460: Location Information Provisioning LG Electronics Inc. Disc
Only proposal 2 is relevant:
- LG assumes it is not needed to specify an explicit validity for the GNSS information. The validity time is the logging interval. CATT wonders why delete if it is still valid ?
- DT assumes that even a stationary UE would possibly periodically acquire GNSS information, and thus report multiple times. Nokia agrees. Nokia thinks this is quite a simple rule.
- NTT DCM wonders if the periodicity is long (e.g. 10s), is it still relevant to include the location information obtained at the beginning of the interval ?
- ZTE thinks the eNB could still associate the location information with several measurements reported by the UE.
- NSN supports the proposal.

Agreement
3) UE tags available "detailed location information" only once with upcoming measurement sample, and then the "detailed location information" is discarded. I.e., the validity of "detailed location information" is implicitly assumed to be one logging interval long.

R2-105731: Uncertainty IE as part of positioning information for MDTNTT DOCOMO, INC., NEC, Polaris Wireless
- CATT thinks that the measurement will be logged periodically with detailed location information or RF fingerprint. So option 2 is already ruled out.
- NTT DCM indicates that the application the UE is running might determine the accuracy of the positioning estimate.
- DT thinks this are optimisations: we can just always report the position.
- Nokia thinks if the accuracy information is available it can be included.
- Ericsson wonders what the 7 bits would indicate: the inaccuracy to the lat/long ? NTT DCM confirms.
- Ericsson wonders if we will indicate what type of positioning was used by the UE to come to the estimate. So far not agreed.
- Samsung is worried that we start to log more and more information.
- Samsung thinks we could consider this for Rel-11. NSN has the same opinion that this is a kind of optimisation. We are every time increasing the log size. DT could also live without the uncertainty.
- NTT DCM points out that this is already part of LPP. TIM supports the addition of the uncertainty information. Samsung wonders what the value of the uncertainty is when we do not have a separate timestamp for the location information.
- DT thinks we should keep it simple. DT thinks the accuracy could also be addressed by the operator basing its decisions on more UE measurements.
  - Important to allow inclusion of accuracy information [4]
  - Not important [8]
- NSN thinks anyway this information would be optional, so it might not always be there and the network should be able to work if it does not get it.

=> Will not include accuracy information in Rel-10

R2-105331: Consideration on Location Information Reporting CATT Disc
not teated

Transport/Minimum log size

R2-105799: Max MDT Log Size SamsungDisc
-

R2-105465: MDT Log Transport LG Electronics Inc. Disc
-

R2-105311: Logged MDT reporting HTC Disc
R2-105332: Memory Size and Signalling Amount CATT Disc
R2-105817: MDT log size restriction issuesEricsson, ST-Ericsson Disc
All 3 Tdocs not treated.

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Multiple messages ?
Req/response for each message ?
More indicator/Last segment indicator
Size limits for each individual message ?
Minimum memory size = ??

Discussion:
- It was questioned what "self-decodable" means ? LG assumes the information from one measurement instance should not be split over 2 messages. Also the absolute timestamp should be included in every message.
- Ericsson agrees with the "self-decodable" and assumes it means that the message should look as if the whole log was this big. CATT agrees with Ericsson. QC agrees that this is beneficial, but wonders if it is easy to do ?

Proposal 3 below:
- NTT DCM thinks we could indicate "this is 3 out of total 5"
- Nokia wonders about the segment size ? Can we leave this completely to UE implementation ? DT thinks we do not need to fix it in the spec.
- Nokia wonders if the UE cannot sent all RRC message on one request ? DT thinks it might be nice for the network to be able to stop the retrieval.
- Samsung thinks we only need one bit in the last message.

Do we need to have requirements for the "part size" i.e. minimum size one reporting RRC message ?
- HTC thinks we need to specify this, e.g. how many measurement results should be included. Nokia thinks there are other tools for limiting the message by limiting the log.
- Nokia thinks UE's will be intelligent enough not to come with very short messages.

Log size:
- DT thinks 32KB seems a realistic minimum size. Samsung clarified that scenario 6 would suffice for half an hour. NTT DCM wonders if it would not be more logical to agree on the "value N". Samsung indicated they already assumes 1 inter-freq and 2 intra-freq

Other
- NSN wonders if there is a requirement on log order ? I.e. old measurement instance first ? Can think more about this.

Agreements:
1 UE IDLE Mode MDT Log buffer size shall not be restricted with the PDCP SDU size of 8188 Bytes, i.e. Transport of MDT log using multiple RRC messages is supported in Rel-10
2 With every request, the network can receive part of the total UE log (one RRC response message). This reported part should be "self-decodable", i.e. is understandable on its own e.g. even if all other parts would be lost
3 Indicate "data available" indication in response message to say more data is available.
4 Tentatively agreed on a minimum UE LOG MDT buffer size of [32KB]

For now, no requirements on the size of the different parts i.e. leave to UE implementation.

Log removal by UE on confirmation ?

R2-105752: Further consideration for MDT report SamsungDisc
-

R2-105734: Logged MDT report during handover NTT DOCOMO, INC. Disc
- Mediatek wonders if the UE woudl just sent it spontanuously after the handover, or does the UE wait for a network request ? NTT DCM thinks the UE should wait for a request.
- LG wonders if we have multiple segments, does the UE need multiple timers for how long to resent after handover ?
- CATT wonders how the target RAN node will know there is log MDT available ? NTT DCM thinks an indication from the UE.

Any special mechanism by UE ?

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Discussion:
- Nokia wonders whether it is really critical if you loose one segment of the log ? If it is self-decodable, the rest is useable and you also have many other UE's. DT agrees.
- Ericsson sees no reason to enhancements. Nokia thinks network can be smart w.r.t. when to retrieve.
- Samsung thinks if cell radius is small, it is not so easy to find good time to ask.
- NTT DCM agrees that if we have several segments for the log this is not so necessary

=> No need for a special mechanism.

PLMN handling

R2-105470: PLMN change during logged MDT reporting Nokia Corporation, Nokia Siemens Networks Disc
- Chairman wonders if this solution would solve the problem that the availability indicator referring to a different PLMN than the target cell. Nokia agrees: so the UE could set the availability indicator, but when the request comes, nothing can be handed over.
- DT thinks if operators support inter-PLMN handover, there is some mutual trust amongst the operators.
- Mediatek is not sure there is a real problem: the UE can just check the PLMN-id before sending a response.

R2-105421: Impact of PLMN changes on MDT TeliaSonera, Ericsson, ST-Ericsson Disc
- HTC wonders if this means the UE has to maintain multiple LOG;s for different PLMN's. DT thinks it can be handled the same as for RAT's.
- Mediatek supports the proposal

R2-105732: MDT support in Inter PLMN: network sharing and roaming NTT DOCOMO, INC. Disc
- Mediatek assumes that in a network sharing scenario, the majority of the UE's woudl not be registered on the primary-PLMN.
- Chairman wonders why section 3 cannot directly be brought to SA2/SA5 ?

1) PLMN valid for configuration is determined by (MDT-PLMN):
a) PLMN indicated in configuration message
b) Primary PLMN of the cell in which the configuration message is received
c) PLMN of the RPLMN at the time the message is received

Discussion:
- DT agrees it is clear that the rPLMN is the MDT-PLMN. Nokia agrees, but in connected mode the UE does not have a rPLMN.
- NSN thinks c) is the current situation. Also when no area scope is indicated, the configuration is valid in the whole rPLMN.

2) Measurements are taken when:
a) Primary PLMN = MDT-PLMN
b) any PLMN broadcast in the cell = MDT-PLMN
c) rPLMN = MDT-PLMN

Discussion:
- NSN thinks if we go for 1c), also 2c) would be logical.

3) Log can be retrieved when:
a) PLMN indicated in req msg = MDT-PLMN
b) Primary PLMN of the cell = MDT-PLMN
c) any PLMN broadcast in the cell = MDT-PLMN
d) RPLMN = MDT-PLMN

4) What if in different PLMN ?

General

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- NTT DCM thinks that in network sharing case, we don't want the sharing network to be able to retrieve information that is not related to this rPLMN itself, but e.g. to the primary PLMN.
- NTT DCM thinks there might be a problem if the shared PLMN is operated by a 3rd operator (RAN-operator) not having CN. DT thinks in such a case this RAN operator would have an agreement with the CN operators and they could make MDT part of this SLA.
- NTT DCM wonders what if this RAN-operator has different OAM ?
- QC thinks if this is an important restriction, maybe we should not rely on UE. The RAN operator is always in control.

Option 1:
a) PLMN valid for the MDT configuration is the rPLMN at time of configuration (MDT-PLMN)
b) MDT LOG measurements are made as long as the rPLMN = MDT-PLMN
c) MDT LOG can be retrieved when the rPLMN = MDT-PLMN

Option 2:
a) PLMN valid for the MDT configuration is the primary at time of configuration (MDT-PLMN)
b) MDT LOG measurements are made as long as the primary = MDT-PLMN
c) MDT LOG can be retrieved when the primary = MDT-PLMN

Suspension or release configuration at PLMN change ?
- Vdf thinks one concern is that the log could be stored longer, and retrieved. Vdf thinks this should be discussed with SA3 if we agree. DT would prefer to stick to the current agreement.
- Teliasonera thinks we can only test if it is retrievable, not whether it is cleared or not.
- LG thinks it is nice to have consistent behaviour accross RAT change and PLMN change.
- Nokia thinks RAT change and PLMN change are quite different aspects. Nokia thinks we should stick to the current behaviour.
- CATT thinks suspension in case of PLMN change is beneficial.
- Ericsson thinks the main aspects is that it cannot be retrieved from other PLMN. Even if we clear, it can remain physically in the UE.
- Teliasonera thinks depending on deployments , you could have a lot of roaming.
- NTT DCM thinks suspension would be preferable
- ALU wonders if we are discussing security problems (SA3) or requirements (SA1)

Agreements:
1) PLMN valid for the MDT configuration is the rPLMN at time of configuration (MDT-PLMN)
2) MDT LOG measurements are made as long as the rPLMN = MDT-PLMN
3) MDT LOG can be retrieved when the rPLMN = MDT-PLMN
- UE shall sent empty report when retrieval is attempted in other cases
4) MDT LOG is suspended when rPLMN is not equal to MDT-PLMN (i.e. like being in other RAT of MDT-PLMN, i.e. suspend MDT measurements, overwrite configuration/ remove log when configuration in other rPLMN is received)

Other open issues

R2-105675: MDT - issues for discussion Alcatel-Lucent Disc

Proposal 1/2:
- Nokia wonders if we could specify the values as multiples of the largest paging DRX ? Nokia is ok with proposal 1. Nokia wonders why proposal 2 is needed ? Nokia thinks if the value are multiple of the largest DRX period, there is no rounding/selection to do by the UE.
- Nokia thinks by selecting multiples of the largest DRX, we can ensure that there is always a number of IDLE DRX fitting in the reporting interval (2.56s in LTE, 5.12s in UMTS).
- NTT DCM thinks there might be a problem if we can only work with 10s in UMTS, if we have a validity of the positioning info of 1 logging interval.
- Samsung agrees with Nokia for simplicity. Huawei also supports this approach
- LG wonders what happens if we add larger values in the future ? Nokia thinks we can discuss it then.
- NTT DCM wonders whether we can not state that if the MDT logging interval is shorter than the DRX period configured to the UE, the UE can ignore the shorter logging interval. I.e. the largest value in the specification might not actually be used by an operator.

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Proposal 3:
- Ericsson thinks it might be nice to keep them independant (measurements and location).

=> Can see in detail of stage-3 specification; for now not agreed.

Proposal 4:
- CATT wonders if we need release for the IDLE mode UE with broadcast ? E.g. broadcast of trace id means broadcast.

Agreements:
1. Stage 2 and Stage 3 documents should reflect that the logging interval in the logged MDT configuration is specified in seconds. The values will be 1.28s, 2,56s, 5.12s,..
   - UE behaviour is unspecified when the UE is configured with a DRX period larger than the logging interval.

4. No need to specify a release operation for the Logged MDT configuration (i.e. only clearing at duration timer expiry/stop, or clear when overwritten).

R2-105778: MDT logging duration timer and periodicity Nokia Siemens Networks, Nokia Corporation Disc
Only proposals 1,3,4
Proposal 4:
- Samsung thinks durations longer than 2 hours is not really needed.
- Vdf thinks lower values are required if we want to log very frequently. DT agrees

=> Can be discussed offline up to next meeting

Agreements:
1: For Logged MDT periodic downlink pilot strength measurement configuration the parameter which specifies the periodicity for storing MDT measurement results is named ‘logging interval’.
3: Logging duration timer starts at time of configuration, and continues independant of RAT or rPLMN change. Wil be named "Logging Duration". Values FFS

R2-105315: Text proposal on correction of idle log MDT configuration Huawei, HiSilicon Disc
- CATT supports the proposal, and sees no need for the measurement object.
- Samsung assumes that currently only when the UE is camping on the indicated frequency, the UE will perform the logging. This is somewhat different from the area scope we also have.
- If we remove the measurement object, irrespective of the frequency the UE is camping on the logging could be performed.
- CATT wonders if the UE performs inter-freq cell reselection ? Would the MDT logging suspend ? CATT assumes that OAM might also not be so aware of the frequencies.
- Nokia was assuming that it was indicating from what frequency you would log for the case the network is only interested in a specific RAT/freq.
- Samsung thinks it is clear that it is the camped frequency, and then a separate discussion was on neighbour cell reporting.

=> Will remove the measurement object; so can still limit with area scope. (Stage-2 and stage-3 impact)

R2-105316: Consideration on the MDT log available indication Huawei, HiSilicon, China Unicom Disc
- LTE specific proposal
- Nokia is fine with the proposal.
- LG sees no problem with the current behaviour. RIM also sees no benefit of the proposal.
- Ericsson thinks there are cases when the reconfiguration will not happen (e.g. TAU case) and then it would be good to have it in the setup complete.
- Huawei wonders how we get SRB2 if we only have TAU ? Would eNB indicate to MME that it wants SRB2 ?

=> Will stick to current behaviour

Enhancements

R2-105808: Serving cell threshold to reduce MDT log size Ericsson, ST-Ericsson Disc
- DT supports this proposal.
- CMCC wonders if we have this, whether OAM will be able to distinghuish the coverage hole from too "good quality".

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- Nokia thinks we ruled this type of triggering out already in the past.

=> Noted (not for Rel-10)

R2-105696: Reporting of neighbour Cells in Logged MDT Research In Motion UK Limited TP 37.320
Only proposal 2 and 3
Proposal 2:
- Chairman wonders if this really helps ? RIM thinks we have to specify how to determine the N best cells. Nokia thinks we should like according to ranking quantity.
- QC points out that this is still only for available meaurements.

=> N best cells should be determine based on the quantity used for ranking
Proposal 3:
- Nokia wonders what the benefit for the network would be ? RIM thinks it eases interpretation of the results. Nokia assumes if there is a higher priority layer, the UE would go there. So allmost in all cases, reported good neighbours will be of lower priority.

=> Not agreed (no support)

> Agreements:
> 1) When logging neighbour cells measurements, the UE should determine the "n" best cells based on the measurement quantity used for ranking during cell reselection.

R2-105397: Retrieval of time split logged MDT measurements CHTTL, HTC Disc
- Mediatek wonders why we need to align measurement periods ?
- NSN thinks it is not possible for OAM to configure when the UE goes to IDLE. HTC agrees, but therefore wants to have a start time.

=> Noted (no support)

R2-105592: Logging of state transition Qualcomm Incorporated Disc
- Mediatek supports this proposal
- Nokia thinks for UMTS state transitions the network is already informed. QC agrees that in real-time the network is aware, but not as part of the log. So it will be difficult/impossible for the network to correlate.
- QC only proposes ("out of coverage" / "other") and "other" would cover PLMN change, RAT change, going to non-logging state,...
- CATT thinks at least IDLE->CONN would be known to the network
- NSN thinks network is sufficiently aware of this information collected real-time, and it should be possible for the network to determine whether this is out of coverage or state transition.
- NTT DCM/TIM also supports this proposal.
- TIM wonders if the network, although currently able to collect this information, would provide this to OAM. NSN clarifies that UE information response messages can be traced, and they would indicate the UE state.

=> Noted (limited support; can be considered for future release)

R2-105607: MDT logging stoppage based on battery threshold level Kyocera Disc
R2-105776: UE speed impact to granularity of coverage map LG Electronics Inc. Disc
R2-105333: Introduction of Deactivating Function for MDT CATT Disc
R2-105334: Blacklist in Log MDT CATT Disc
R2-105396: Considerations on UE mobility for Logged MDT CHTTL, HTC Disc
R2-105362: Enhancements for MDT UE selection ZTE Disc
R2-105463: Revisit on UE actions at MDT memory full LG Electronics Inc. Disc
R2-105605: MDT log deletion issue after 48-hour timer expiry Kyocera Disc
R2-105606: MDT Configuration and logged data status request Kyocera Disc
All 9 Tdocs not treated.

Not available/too late/withdrawn:
R2-105736: MDT Log Size Issue NTT DOCOMO, INC. Disc
R2-105737: MDT Logging Contents NTT DOCOMO, INC. Disc
R2-105791: periodic and event triggered MDT reporting Pantech Disc

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4.3.1.4 Stage-2: Immediate MDT

R2-105471: MDT configuration during HO Nokia Corporation, Nokia Siemens Networks Disc
- Nokia thinks maybe the simplest is to assume MDT is supported quite widely
- Samsung wonders if there is a problem to release a specific measurement identity ? The target cell would just release a measurement it does not need.
- ALU thinks we generally agreed we optimise for source-target being of the same release, not different releases. So why optimise for this case. If we have different release eNB's, we will typicaly use full configuration.
- NSN agrees nothing is needed.

=> Noted; currently no strong need identified to enhance this.

4.3.1.5 Stage-2: Other

UE capability

R2-105807: UE capabilities for MDT Ericsson, ST-Ericsson Disc
-

R2-105313: UE capabilities and resource information for MDT Huawei, HiSilicon Disc
-

- Support for LOG_MDT capability bit ?
- Other ?

Discussion:
- Nokia thinks LOG_MDT capability is logical.
- Vdf thinks IMM_MDT is very simple, so why not one indicator for both modes ? Huawei thinks they are clearly different features.
- Chairman wonders what IMM_MDT supports really means ? Does it mean you get the RF fingerprint when configured (or even serving cell) ? DT assumes so, and then it can be mandatory.
- Nokia wonders in general how we start discussing UE capability for Rel-10 ? NTT DCM agrees we have to start at some point but maybe a bit to early.

Probable solution direction (can still think further about): 1) Will have at least one capability bit for MDT - FFS if this is for LOG_MDT only (and IMM_MDT is mandatory), or whether this indicates support for both LOG_MDT and IMM_MDT. Any other capability subdivision is FFS.

Other

R2-105521: Need for SA3 Review of MDT Design Vodafone Disc
- Draft LS is in R2-105522
- DT thinks it would be good for SA3 to check security/privacy aspects. LG supports this proposal.
- Chairman wonders if a-c is not more general requirements, so maybe SA1 ? NTT DCM thinks this are not service level requirements, so maybe RAN2 can take a decision.
- ALU wonders how much of this impacts our specification work ? Vdf is not sure: this might depend on SA3 response.
- Nokia sees a relation between a) and privacy. So is there a problem with UE privacy if the network can log this mobility.
- Huawei sees no real need to sent LS to SA3. NTT DCM also sees no strong need and thinks RAN2 can handle this by itself. Vdf would have strong concerns if we do not involve SA3.
- ALU wonders if SA3 has concerns, what is supposed to happen ? All aspects seem to be outside RAN2 (e.g. terminal implementation, user interface,...) . Vdf thinks some aspects might concern RAN2.
- TIM supports the initiative, but should not express that we have concerns ourselves. We should state that from our point of view we saw no problems with this solutions.
- Took a look at the draft in R2-105522

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=> Will sent LS to SA3 to ask if there is privacy concerns with the current agreements. Latest TS will be attached. Will see draft LS in R2-105876. Email discussion [71b#01].

4.3.1.6 Stage-3

R2-105499: Procedural specification MDT measurement logging Samsung Disc 36.331
Proposal 2:
- NSN wonders if entering/leaving area scope is not sufficient with xx.331 ?

Proposal 3
- Nokia is ok with xx.304, but wonders how much details would need to be specified ? E.g. detailed usage of the ASN.1 fields ?

Proposal 5:
- Nokia is ok, although we have not used variables very much so far.

Agreements:
2 Specify the actions upon UE mobility (e.g. entering/ leaving idle, leaving PLMN, leaving/ re-entering RAT, entering leaving area scope) by means of separate procedures in TS xx.304
3 What the UE shall store when performing measurement logging is specified in xx.304
4 Specify when the UE should perform measurement logging without introducing additional constraints on UE implementation i.e. do not specify clear restrctions regarding the timing of the measurement logging.

Detailed text proposal:
- Can discuss offline whether simplifications are possible, e.g. whether both variables are required

=> Will see updated stage-3 text proposal for structure split in R2-105878

R2-105878: Procedural specification MDT measurement logging
- DT wonders why there is no text in xx.304 ? Samsung indicates that for UMTS the logging is also in PCH states, and there were concerns to use the detailed parameter names in 304, therefore xx.331 is proposed now.
- ALU thinks now we move UMTS IDLE mode in 25.331.
- Nokia thinks so far no variables are described in xx.304. Nokia thinks a very basic description could be in xx.304.

=> In addition to this text in xx.331, there will be an additional section in xx.304 listing the main action for MDT in IDLE/PCH (i.e. at periodica intervals the UE does....), and refers to the corresponding section in xx.331.
=> Will this additional decision, this text shall be used as baseline for the stage-3 CR updates.

Not available/too late/withdrawn:
R2-105844 Procedural split for logging procedures Nokia Siemens Networks, Nokia Corporation Disc not treated

<u>Continuation up to next meeting for MDT:</u>

Rapporteur Updated TS 37.320 including all stage-2 agreements by Friday:

R2-105877: TS 37.320 v1.0.2 reflecting agreements from this meeting
=> Remove in 5.1.1.3.2: "which matches one RRC response message size"
=> 5.1.1.3.3, second editors note can be removed
- Samsung assumes that the log availability would only be indicated if the rPLMN is the MDT-PLMN. That may not be exactly accurate so then when asked the UE might reject the request.
- NTT DCM/DT think the UE should check whether RPLMN=MDT-PLMN when sending "mdt-info-available" indication. The same check is made at info retrieval and might result in an empty report being sent.

=> Section 5.1.4: add " which indicates at least support for LOG MDT. FFS if it implies other MDT functionality."
=> Add "and independent state changes" to second bullet in 5.1.1.1.1.
=> With these four changes, the TS is agreed in R2-106018 v1.1.0

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Rapporteur 36.331 running CR 1 week email endorsement; final version in R2-105879 [EMAIL DISC [71b#03]]
Rapporteur 25.331 running CR 1 week email endorsement; final version in R2-105880 [EMAIL DISC [71b#04]]
Rapporteur 36.304 running CR 1 week email endorsement; final version in R2-105881 [EMAIL DISC [71b#03]]
Rapporteur 25.304 running CR 1 week email endorsement; final version in R2-105882 [EMAIL DISC [71b#04]]
Email discussions:
1) Definition of number of neighbours to be reported [CMCC]

4.3.2 RAN mechanisms to avoid CN overload due to MTC(WI: RP-101026)

(NIMTC-RAN_overload, leading WG: RAN2, started: Sep.10, target: March 11, WID: RP-101026)

RAN#49 agreed on a new WI on MTC and put the existing SI on hold. In line with the prioritisation that RAN2 already made for the SI, this means that focus of the RAN2 MTC work will remain to be on overload control but now with a clearer scope and an intended Rel-10 stage-3 finalisation. My proposal is that RAN2 will continue to update the TR to document our progress in this area.

Note that the WI in RP-101026 is focussing on the CN overload scenarios identified by SA2. This implies a slight focus change compared to the focus of the SI (which was focussing on RAN overload): e.g. preventing RACH overload is not a prime concern of the WI, but if a RACH overload prevention mechanisms turns out to be the best approach for addressing the CN overload scenarios, then this mechanism can still be considered/selected in the WI.

4.3.2.1 TR Corrections

Proposals from rapporteur to correct/improve TR 37.868 shall be submitted under this agenda item. Also proposed non-contentious corrections to the TR can be submitted here.

No contributions.

4.3.2.2 RAN overload: Capacities of current RATs

=> Email discussion output for [71#52] UMTS/LTE: MTC - Simulations assumptions and output w.r.t. RACH capacity [Huawei]

=> Result of email discussion [71#52]: UMTS/LTE RACH capacity simulations

R2-105634: Email discussion output - [71#52] UMTS/LTE: MTC - Simulations assumptions and output Huawei, HiSilicon Report related to email discussion [71#52]
=> revised in R2-105857

R2-105857: Email discussion output - [71#52] UMTS/LTE: MTC - Simulations assumptions and output Huawei, HiSilicon Report
=> Revised in R2-105873

R2-105873: Email discussion output - [71#52] UMTS/LTE: MTC - Simulations assumptions and output Huawei, HiSilicon Report
General:
- Qualcomm thinks there are key results not captured in this document w.r.t. UMTS FDD. Huawei would be ok to put the optimised parameters in the TR.

Proposal 1:
- ZTE thinks UMTS FDD should be further discussed.

Proposal 2:
- ALU thinks the simulations are performed with quite ideal assumptions, e.g. inter-cell interference is not considered, fading is not considered. ALU thinks also PDCCH capacity might be an issue. ALU thinks we should capture these points. ALU has taken this into account. ALU thinks it is better to include all results and list the differences in simulation results. ALU e.g. included delays caused by unsuccesfull attempts. Huawei thinks it is clearly indicated that we should consider single cell case.
- Huawei thinks it is clear that the results are only for the succesfull case.
- ZTE thinks we want one set of results.
- ZTE thinks we should study further what happens inbetween 10k and 30k.

=> Will include the average of the 7 "majority companies"

Agreements:

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1: Capture the simulation assumptions for each RAT into the TR 37.868. (basically section 2) for all RAT's except for UMTS FDD

2: Regarding the simulation results for LTE FDD, will take the average of the 7 majority simulations and include that into the TR 37.868.
3: Regarding the simulation results for LTE TDD, will take the average of the 2 simulations and include that into the TR 37.868.
4: Regarding the simulation results for UMTS 1.28Mcps TDD, capture the average of the 2 simulations result into the TR 37.868. (one from CATT, one from TDTech)
5: Regarding the simulation results for UMTS FDD, allow more time for companies to redo the simulation based on the synchronized simulation assumptions and then capture the simulation results into the TR 37.868.

- Vdf thinks the simulation results will have no relevance for the WI. So the UMTS FDD results might take more time (not necessarily at the next RAN2 meeting) unless we detect that we need these results.
- Huawei agrees this work needs to be done offline.

R2-105635: Text proposals on MTC simulation assumptions and outputs for current RACH capacity for UMTS/LTE Huawei, HiSilicon Disc
=> Should be updated in line with agreements from email discussion
=> QC would like to indicate that the choice of 10s is quite arbitrary
=> Will see update in R2-105883 v0.6.2

R2-105883: Text proposals on MTC simulation assumptions and outputs for current RACH capacity for UMTS/LTE Huawei, HiSilicon Disc
=> One week email approval. Final version v0.6.3 can be provided in R2-106028 [EMAIL DISC [71b#05]]

R2-105619: Simulation Assumptions for MTC and RACH Load Simulation Results for UMTS Qualcomm Incorporated Disc
- Chairman wonders how realistic the results are ? QC points out that since the latency requirements are not that stringent, we can afford to delay. Also QC points out that they assume a concentrated one time access during 10s, not repeatedly during 10s. ZTE confirms this was the intention.
- ZTE agrees that if we support more delay we can handle more UE's. ZTE thinks the delays are magnitude higher in these simulation results.
- ZTE thinks that for UMTS the other considerations like noise rise can not be ignored.

=> Will see further contributions in the future which should be the result of simulations by several companies. Can continue offline to discuss simulation parameters and also what configuration should be simulated. Simulation results should correspond to realistic single cell situation.

Not available/too late/withdrawn:
R2-105626 MTC RACH Overload Simulations output for 1.28Mcps TDD TD Tech Disc
R2-105860 TP to TR37.868 on MTC simulation assumptions and outputs for current RACH capacity for UMTS
Both Tdocs not treated

4.3.2.3 CN overload: Potential RAN enhancements and enhancement comparisons

General/scope
R2-105525: Overview of AS impacts for support of EPC overload control IPWireless Disc
Should we include description of SA2 related WI aspects in the TR ?
- Huawei thinks it is not essential to include the SA2 aspects in the TR: SA2 aspects are focussing on CN overload control, whereas the TR is focussing on RAN overload control.
- ALU shares this opinion. Decision can be captured in the stage-2 immediately.
- Vdf thanks for the analysis which Vdf likes. However Vdf thinks it might be better to only have stage-2 description immediately. Vdf indicates we have to consider both UMTS and LTE
- Chairman wonders where we capture if we want to capture immediately for Stage-2 ? For LTE in 36.300 ? For UMTS ? Vdf wonders if we could start a new TS only for MTC ?

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=> Noted: Assume we will not update the SI TR for this, but capture directly in stage-2. Can continue offline what is the best place to capture

After offline discussion:

- Most companies seem to want to capture the stage-3, and the stage-2 in the TR.

=> Will decide next meeting also based on SA2 response, whether and if so how to capture stage-2.

R2-105744: MTC Agnostic RAN Ericsson, ST-Ericsson Disc

- DT supports the proposal. RAN should be MTC agnostic and there are many interpretations for this abbereviation. NSN supports the proposal. It will simplify our work and enable us to handle low priority access in general (future safety)
- Samsung wonders whether the whole concept would then be "low priority access", or would it be service/application specific control ? Ericsson indicates that this contribution does not address this. Ericsson thinks we could have low priority ACB handling.Ericsson would prefer NAS level would choose the ACB to apply. Ericsson has no service specific ACB in mind.
- Vdf is concerned about MTC signalling, not about MTC data: Signalling load caused by a large number of users coming at the same time. Then Vdf wants to handle these specific UE's with lower priority, and not their own users.
- Vdf thinks if we go this way, that CT1 would have to define what maps to this low priority.
- DT thinks e.g. an MTC device in a car can for metering have low priority, but for alarms have high priority. DT thinks MTC should not be equal to low priority.
- Samsung thinks service specific access control is quite new compared to the status in SA1/SA2 so far. Samsung wonders if we can finalise this type of solution in Rel-10.
- IPW thinks it is a good idea to try keep MTC agnostic but address low priority in general. IPW wonders what entity in NAS would define the priority ? E.g. would it be CT1 or an application ? Ericsson would like to have it transpartent from AS, so NAS might be ok.
- ZTE thinks the proposal is deviating from the SA2 agreements, but it makes sense.
- Huawei thinks it is clear there is no service specific/smart phone work in this WI. We should focus on MTC.
- ALU thinks so far we have always been service agnostic, and we should attempt to do this. We can see what happens while we go along.
- NSN understands the SA2 agreements related to RAN2 aspects are recommendations, so we can look at this in RAN2.
- LG wonders if the WI would have to be updated for this.
- ZTE thinks if we start to have MTC indicator, then we have to clarify what that means: low priority and even lower priority ? Then with emergency call we have higher priority ? So MTC itself does not mean anything.
- Vdf is fine with having low priority in RAN, but we have to make sure MTC maps to this in Rel-10.
- Intel understanding from SA2 that it is ok to have a low priority indicator, but Intel is not sure we can rule e.g. out MTC specific causes.
- Ericsson wonders why we cannot rule it out now.
- Samsung thinks the main concern is that we address MTC in Rel-10.
- NTT DCM agrees to the Ericsson proposal. We have already specified service specific access control (SSAC in Rel-9), and maybe we can take a similar approach for MTC. NTT DCM assumes we might need per APN access control in the end. NTT DCM thinks we should ask SA2 whether they have considered other mechanisms.
- IPW wonders if low priority = high latency tolerance ? Or could there be differences e.g. for UL and DL ?
- Vdf thinks having only "low priority" is not sufficient. Vdf thinks that SA2 has already for Rel-10 identified a class of devices that is delay tolerant (low priority MTC) and not so delay tolerant (normal MTC)

=> Should try to stay service agnostic in RAN. Will see in detailed analysis whether this is possible.

R2-105479: Overview of CN Overload Scenarios and RAN2 Requirements Vodafone Disc

=> Revised before presentation in R2-105855

R2-105855: Overview of CN Overload Scenarios and RAN2 Requirements Vodafone Disc

Requirement 1:

- Nokia wonders if the real thing we try to control is restricting going from IDLE to CONN ? Vdf agrees it is more or less the same. DT has the same understanding.

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- Huawei wonders how we handle overload control for registered MTC devices ? Vdf clarifies that Huawei also wants to block service request, i.e. also signalling for establishing data bearers.
- NSN wonders if also e.g. TAU should be descriminated ? Vdf thinks in congestion situation they want to control any IDLE->CONN transition from MTC device.
- LG wonders if there would be a max delay for MTC devices before sending the connection request ? Vdf is not sure. LG understands from SA2 CR it could be 1 hour, 2 hour even several days. This type of delay seems only applicable to MTC devices. Vdf assumes something like up to 1 hour would be sufficient.
- NTT DCM wonders what "devices configured for MTC means" ? Who configures this ? Is this static for a device. Vdf assumes "MTC device" is configured by OMA-DM, and also the "low priority" is configured "OMA-DM" and for Rel-10 it would be fixed attributes of the device.
- DT wonders if all MTC devices have equal priorities, i.e. no subgrouping ? Vdf proposes several subgroups a bit later.
- Intel agrees subgrouping is possible, but might not be essential for Rel-10
- Ericsson thinks we should be able to handle the load of lower-priority devices independently from normal priority devices. Ericsson thinks this is sufficient if NAS classifies MTC as low priority.
- Samsung thinks if we change the scope of the work in RAN2, we should consult with CT1/SA2.
- ALU wonders if requirement 1 corresponds to all MTC devices or only "low priority" ? Vdf clarifies the first requirement is for all MTC devices.
- NTT DCM wonders if the devices also have USIM, so the device has an access class and this "MTC/low priority" characteristic ? E.g. can an MTC device be AC=11. Vdf assumes the USIM is configured for "MTC". Vdf thinks it is possible to have a device with AC=11 and configured for MTC.
- Vdf is ok with trying for the RAN to be MTC-agnostic, as long as the mapping is done somewhere.
- Huawei assumes SA2/CT1 will answer "no" on the question.
- Nokia wonders if we want to be able to only reduce, or even completely shut off ? Vdf thinks it should be configurable.

Requirement 2:

- ALU wonders why MSC is mentioned here ? Vdf thinks this is for the UMTS case. ALU wonders what kind of traffic the MSC is carrying ? Is it only SMS ? Only initial attach ? Why would an MTC device access an MSC ?
- Huawei supports the requirement.
- DT wonders to achieve this differentiation, what mechanism will we need ? Vdf clarifies that ACB can only be used if there is a general overload.
- Ericsson indicates we already have a mechanism in S1 for an MME to indicate it is overloaded for specific traffic ? So is this not completely RAN3 ? Vdf confirms there is RAN3 aspects for S1 (add classes), but also for RAN2 there are impacts because it shows that having only ACB is insufficient.
- NSN thinks rejecting on S-TMSI in eNB might already be enough. Ericsson thinks the overload handling is described in RAN3 specs. But we can see if additional information is needed to be provided to the RAN.
- NSN assumes we might have another indication from MME that low priority needs to be stopped, and this can be provided with the same mechanism as is already present today.
- NTT DCM wonders whether per-CN node is the correct approach ? The devices are probably connecting to a specific APN ? But maybe this is more a SA2 decision. Vdf points out this is a requirement directly coming from SA2.

Requirement 3:

- ZTE thinks this is not a requirement yet, not even from SA2. There is an LS from SA1 to SA2, but SA2 has not confirmed this for Rel-10. Vdf agrees it is not mentioned in the SA2 TS yet, but Vdf assumes there is a requirement to have this coming from SA1. Vdf sees this as the first step for MTC differentiation. ZTE agrees that there might be different classes, but now it seems SA2 has only considered delay tolerance. ZTE thinks SA2 has not fully agreed low/lower priority. If we want a quick solution, we should keep it simple
- NSN wonders if we now have low priority and even lower priority ?
- LG thinks this requirement will have sub-category for MTC

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- NSN understands low priority MTC is lower priority than normal UE. How is the priority between non-low priority ACB and normal UE ? Vdf assumes in general MTC is lower priority than normal UE activity.
- DT thinks having differentiation will be expensive, so we should only do when we are very sure.
- ALU wonders if there is no requirement to route MTC traffic to a specific CN node ? Vdf points out this is a UMTS specific requirement only. Vdf assumes all MME's in LTE will be high capacity nodes.
- Nokia thinks we should be very carefull that we do not end up with a solution in Rel-10 that is scrapped in Rel-11.

Requirement 4:

- LG wonders how the RAN knows the access attempt is made in a synchronised manner ?
- DT thinks todays RACH access mechanisms already decorelate attempts made at the same time. Vdf's intention is to have this requirement to cover the longer times.
- Ericsson wonders why we need the longer times ? If we only use the rejections when a specific CN node is overloaded (i.e. ACB for other cases), then a UE might try again quite quickly ?
- Vdf assumes having continuous attempts is not advantaguous. Ericsson wonders if this is not an optimisation for a non-scarce resource (i.e. maybe the RACH is not the bottleneck).
- Vdf thinks the new thing is that we can delay the access longer, e.g. several hours. If the network can remove the overload due to attempts, then the network can start to serve users again.
- ZTE agrees with Ericsson, but if we do not do anything, the RAN node will increase due to continuous attempts. ZTE thinks there is a explicit SA2 requirement for longer times.
- DT thinks this relates to whether all solutions are really needed
- Ericsson thinks the feature is not needed if it is only to protect a specific CN node. We woudl not apply ACB because the RAN is not overloaded. Then we reject the UE's that want to access that CN and after some period, only start to allow a small number of them (e.g. 10%), so reject 90% for 16s. The CN node will see a distribution in time.
- ZTE thinks in practise this is not a real solution. So do we want to reject the SA2 requirement ?
- LG agrees with Ericsson, but thinks we could have longer times.
- Samsung thinks we have both AS level and NAS level rejections.
- NTT DCM wonders why we need ACB if it is only to protect specific CN nodes. Vdf assumes ACB is the only really good mechanism in case of general overload.
- Ericsson assumes that in most cases either there is no overload or complete CN overload. This because we have load balancing mechanisms amongst CN nodes. Vdf thinks in existing networks, some nodes might be specific for MTC. Ericsson thinks this sounds like inventing a new problem for which we need a solution. If we would equally distribute, this problem would not exist.

Requirements 5:

- Intel wonder if differentiating roaming/non-roaming would be sufficient ?
- ZTE could agree with the requirement, but wonders if it could not be better addressed in Rel-10 in NAS level. I.e. if "MTC" is a device propertry, why not have PLMN selection rules that avoid this type of problem ?
- Vdf assumes it is not possible to prevent this that is why the RAN should defend itself. We should not do the same discussion as in SA2.
- Huawei supports the requirement, but would like to limit the number of categories in Rel-10.

Confirmed requirements:

1: It shall be possible for the network to reduce signalling load caused by devices configured for MTC independently from signalling load caused by devices not configured for MTC.
   - RAN2 would like to do this in a MTC-agnostic way (i.e. RAN knows about "low priority"), so should consult with CT1/SA2 whether this is possible for CT1 to do the rest.

2: Overload control shall be possible with a granularity of a single CN node (SGSN, MME, MSC).
   - Ask SA2 whether it is likely that a specific CN node becomes overloaded, or whether it is more likely the CN as a whole becomes overloaded

3: Ask SA2: should we be able to distinguish two lower priorities, or is one sufficient ?

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4:	It shall be possible for the network to decorrelate access attempts from devices configured for MTC which have been rejected by the network - Ask SA2 for how long we should be able to decorrelate (what period) - Ask SA2: decorrelate for whom ? I.e. is this concerning overload of a specific CN node ? Is a RAN solution of multiple rejects sufficient for this case ?
5:	It shall be possible for network to prevent access to CN (for signalling connections) from devices configured for MTC if they are of a certain roaming sub-category.

=> Will sent LS to SA2/CT1 with the indicated questions in R2-105970

R2-105632: General considerations on MTC WI Huawei, HiSilicon Disc
R2-105633: RAN2 solutions for MTC Huawei, HiSilicon Disc
R2-105659: Discussion on RAN impacts from SA2 requirements/MTC WI Alcatel-Lucent Disc
R2-105680: Release 10 MTC Nokia Corporation, Nokia Siemens Networks Disc
R2-105773: RAN enhancements for MTC Samsung Disc
All 5 Tdocs not treated

Establishment cause

R2-105484: On the Need of New Establishment Causes for Devices Configured for MTC-LTE Vodafone Disc
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R2-105363: Consider Some Issues for MTC ZTE Disc
R2-105387: RRC Connection Control for MTC devices CATT Disc
R2-105490: 36331_CRxxx_Indications for Devices Configured for MTC Vodafone CR 36.331 B
R2-105491: On the Need of New Establishment Causes for Devices Configured for MTC-UMTS Vodafone Disc
R2-105492: 25331_CRxxx_Indications For Devices Configured for MTC Vodafone CR 25.331 B
R2-105609: MTC indication in RRC signalling for overload prevention Intel Corporation (UK) Ltd. Disc
R2-105660: Discussion on LTE solutions for MTC Alcatel-Lucent, Alcatel-Lucent Shanghai Bell Disc
All 7 Tdocs not treated

- Request or Response message ?
- How many new codepoints ?

Discussion:

- ZTE assumes we have no requirement for differentiation yet. So one cause in request is sufficient. ZTE assumes that if we get more priorities, we probably should stick to the one cause in the request, and extend other messages.
- Ericsson wonders if having only in the complete is not a waste of RAN resources ? Also the RAN3 mechanisms are more tuned to reject than to release.
- Panasonic thinks bits in request are more expensive than in the complete. If we already have the ACB, maybe indication in complete is sufficient.
- Intel thinks if we only indicate in the complete this might have more RRC impact. E.g the connection release does not have wait timers. Vdf thinks it is a compromise between less impact to connection release, and more impact on other parts.
- LG thinks it would be good to have indication in Req, although more detailed information can be in provided in complete.
- Chairman wonders this cause would always be used by MTC, e.g. even in case of paging ? Vdf confirms. ZTE thinks we should use the low priority when we have mobile originated low priority traffic. Other cases might use other causes. Vdf thinks CT1 would decide on the mapping, and MO and MT from MTC in Rel-10 should be mapped to this low priority cause.
- ALU thinks connection request is very expensive. It should be sufficient to have only in complete because we can only identify the CN node in LTE after the connection complete
- DT assumes the size of the connection request is very critical especially for UMTS.
- QC wonders if not simpler solutions are possible, e.g. mapping the MTC devices to specific preambles/RACH resources. Then the NACK can be handled at low level. QC wonders why we do not consider this type of solution ? ZTE assumes this type of solution will be very difficult for Rel-10.

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- NSN assumes high priority MTC devices could e.g. be AC (e.g. 11). Still NSN assumes one device is one priority (fixed). Vdf assumes MTC in Rel-10 is always lower priority than normal UE's. We can see again for the future.
- NSN thinks rejections and releases might be handled differently at NAS layer e.g. w.r.t. retransmissions.
- DT wonders if there is any limitation on only MTC devices able to use the "low priority" cause ?
- Vdf assumes one fixed setting for the priority in Rel10. ZTE wonders if we care ? We could have different mapping at different times by higher layers, but RAN does not care. DT agrees and thinks there is no reason to limit the MTC device to always use the low priority cause in Rel-10. Vdf thinks in order for a RAN to be able to identify the MTC device, it has to come always with "low priority" or "MTC cause"
- Samsung assumes that SA2 has decided this week that a MTC device is only MTC (i.e. no mix). NSN assumes that if it is configured by OMA-DM, it seems the UE needs to contact the network first.

=> Ask SA2: whether if we would introduce a cause for "low priority" or "MTC", whether in Rel-10 a MTC device would always be using this cause, or whether it could also use other causes (i.e. loose possibility to identify MTC device always).

=> Ask SA2: Thus the RAN need to know more than "low priority", i.e. does it need to know that it is an MTC device. If so, why does the RAN need to know this ?

=> Ask SA2: is having MTC specific CN nodes a general assumption in SA2 ?

- Chairman wonders if we can limit these connection requests rejection cases to some information in Connection request/response complete ? NSN thinks the majority of companies seems to be thinking on this type of solution for Rel-10. QC would like one more meeting cycle. Huawei thinks that most companies thinks some new indication in request is needed so we should take this as baseline. DT thinks UE specific scaling for ACB can also support this so we should not rush.
- Vdf wonders why e.g. QC did not bring the solution to this meeting.

=> Assume that for Rel-10 we will extend either connection req and/or connection setup to indicate that the device can be handled with lower priority

Agreement: 1) Assume that for Rel-10 we will extend either connection req and/or connection setup complete to indicate that the device can be handled with lower priority

Reject/Release/Waittime

R2-105512: Feasibility of Applying Selection Rejection of Connections Towards a CN Node Vodafone Disc

- ALU points out in LTE the S-TMSI is only included for the service request, not for e.g. TAU.
- Vdf assumes the UMTS connectino request contains P-TSMI and RAI in the request, which can identify the destination node.
- Ericsson thinks in case of pooled solutions, you can select the CN node quite randomly and achieve load balancing accross different nodes. Ericsson assumes this type of load balancing could solve a number of the single-node CN overload cases.

=> We confirm that in certain cases the request contain information identifying the target CN node. In other cases the information from the connection setup complete is required.

R2-105494: Decorrelation of Connection Attempts from Devices Configured for MTC Vodafone Disc noted

R2-105365: Extension of Wait Time after RRC connection reject ZTE Disc
R2-105495: 36331_CRxxx_Decorrelation of Connection Attempts from Devices Configured for MTC Vodafone CR 36.331 B
R2-105496: 25331_CRxxx_Decorrelation of Connection Attempts from MTC devices Vodafone CR 25.331 B
R2-105610: Rejection of MTC RRC Connection establishment Intel Corporation (UK) Ltd. Disc
R2-105727: Extended Wait Time in RRC Connection Reject for MTC LG Electronics Inc. Disc
All 5 Tdocs not treated

Will included extended wait time in connection reject/release?
Range up to one hour?

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Discussion:
- QC thinks there are simpler mechanisms in UMTS e.g. by using the RACH persistency values. Vdf understands that the correlation with the persistency values could only go up to 500ms. QC confirms it is not up to 1 hour but something like 15s.
- ZTE is not against extension of the wait timers but thinks it should not be up to the RAN to determine a value to each UE value individually. ZTE thinks the UE could randomise.
- ZTE also wonders about the max delay.
- Vdf has concerns about randomisation in the UE and would prefer not to rely on that. It also makes the testing of the UE more difficult.
- CATT wonders if the wait time is only provided to upper layers ? Vdf assumes if we have connection reject, it is a mechanism in AS. If we use the release, then Vdf is proposing to give it to NAS.
- Huawei thinks it is ok to have the RAN do the randomisation.
- Intel wonders about the rejection cause. Intel indicates that LTE has no rejection cause currently.
- QC thinks if we would have RAN overload as well, then the connection req/resp might not get through.
- Huawei thinks we could agree to extend the current wait time. Samsung thinks we could agree to extend, but still need to discuss whether it would be the reject or the release ?
- ALU thinks if we use a timer value of e.g. 1 hour, if we in Rel-11 we allow a device to have different priorities, a device can come earlier then deferred. Can be sorted in Rel-11
- Nokia wonders if the extended timers are also used in redirection cases, or only in cases of non-redirection ?

Agreement:
1) Agree to support longer "wait timers" in UMTS & LTE.

Can be revisited if this brings big problem. FFS whether this will be introduce for connection release, connection reject or both

ACB

R2-105498: Applicability of ACB for CN Overload Protection from MTC Devices-LTE Vodafone Disc
=> Revised before presentation in R2-105856
R2-105856: Applicability of ACB for CN Overload Protection from MTC Devices-LTE Vodafone Disc noted

R2-105621: Assessment of UMTS PRACH procedure to handle severe Core Network overloading scenarios Qualcomm Incorporated Disc
R2-105583: ACB and Establishment Cause for Low Priority Access Ericsson, ST-Ericsson Disc
R2-105364: Consideration of AC barring for CN overload ZTE Disc
R2-105366: Solution of CN protection from roaming MTC devices ZTE Disc
R2-105388: Access Control for MTC CATT Disc
R2-105500: Applicability of ACB for CN Overload Protection from MTC Devices-UMTS Vodafone Disc
R2-105504: 25331_CRxxx_ACB for MTC Devices Vodafone CR 25.331 B
R2-105502: 36331_CRxxx_ACB for MTC Devices Vodafone CR 36.331 B
R2-105620: RAN Impacts On CN Overload Due To MTC Traffic Sharp Corp. Disc
R2-105821: Further analysis on the overload control methods ITRI Disc
All 10 Tdocs not treated.

Discussion
Proposal 1:
- ALU thinks ACB is only really required when the RAN is overloaded, not when the CN is overloaded. I.e. handling with reject is sufficient. So ALU thinks this should be discussed as part of RAN overload solutions in Rel-11. NSN tends to agree with ALU. Why do we need both ACB and rejections ? Maybe rejections are sufficient. NSN thinks we already have a lot of ACB. LG fully agrees with ALU/NSN. We should start from existing mechanism with rejection and first see if this is sufficient. Huawei thinks ACB is very important as baseline mechanism to cope with very big loads.
- ZTE assumes ACB is a bit of a grey area for this WI. It is mainly RAN overload but also addresses general CN overload. So ZTE thinks it is in the scope. ZTE is ok to have it

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when it is very simple. No new Access Classes. ZTE thinks it will be easier to accept if we introduce a mechanism general for low priority than specific for MTC.
- QC thinks SA2 has clear consensus that we need a broadcast mechanism to block the load. Samsung agrees
- Samsung thinks ACB can also be used for CN overload: e.g. we do this in UMTS with domain specific ACB
- Vdf thinks yes we have rejections, but if we have many devices to reject, is it not easier to have broadcast ? Also this is the only solution not impacting the normal UE population.
- DT agrees with ALU, NSN, LG. Rejection might be sufficient for CN overloads.
- NTT DCM indicates they are a heavy user of ACB and if you want to address this type of overload, ACB is a good approach. NTT DCM does not like how we discuss in RAN2. For SSAC or other ACB solutions, we have always gone via SA1. Also SA1 should come with this type of requirements in 22.011. By discussing the SA2 requirements, Vdf thinks we bypassing the 3GPP procedures.
- NSN does not understand why ACB is the requirement. It is a solution.
- Chairman wonders how a reject solution works ? RAN will not know the roaming type. ALU thinks the GUMMEI would indicate a previously registered PLMN.
- ALU thinks we should not rush just to complete in Rel-10.
- Vdf thinks the solution is not ACB, but to have a broadcast solution. NSN thinks connection rejection is one solution, so why more ? ACB for CN overload can also only be used if all CN nodes are overloaded.
- ZTE thinks new AC factor could be ok if in combination with low priority cause.
- NSN thinks ACB definitions should come from SA1.

=> Will indicate to SA2 that several companies in RAN2 indicated that it is not obvious that a CN overload mechanism automatically requires ACB type of solution, and a reject solution might be sufficient if RAN is not overloaded. Also RAN2 assumes that ACB mechanisms are normally described in 22.011 (SA1) before RAN2 would work on it.

Other (non-common ACB) mechanisms

Chairman wonders if we should still consider these solutions for the Rel-10 WI, or whether they can be consdired out for the Rel-10 WI ?

- Huawei thinks these mechanisms should not be considered as part of the Rle-10 WI given the time limit.
- LG thinks these solutions can still be discussed
- Samsung thinks most companies want simple solutions for Rel-10, so we should not consider other solutions then discussed above.
- ALU thinks if common ACB is to be considered, then all these solutions should be considered.
- Vdf understands that these solutions are mainly on RACH overload, so not specific CN overload.
- DT thinks if ACB is considered, also these solutions need to be considered. Vdf wonders if the DT solution assumes ACB is always turned on. DT wants to only introduce additional scaling if ACB is turned on. Vdf thinks we can never have a solution which relies on having ACB to be always turned on.

=> Not ruled these solution out yet. Depending on SA2 response w.r.t. ACB. E.g. if no common-ACB, we do not consider these solutions further.

R2-105478: Text proposal for TR 37.868 on Access Barring Scaling for MTC Deutsche Telekom TP 37.868
R2-105623: Comparison on RAN Loading Control Schemes for MTC Alcatel-Lucent, Alcatel-Lucent Shanghai Bell Disc
R2-105730: Use of Backoff for Overload Control LG Electronics Inc. Disc
R2-105437: Dispersed Access Load over Time VIA Telecom Disc
R2-105822: Further considerations on group paging for MTC ITRI Disc
All 5 Tdocs not treated

4.3.3 Other

No contributions.

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5 LTE Release 8

(LTE-L23, leading WG: RAN2, REL-8, started: Sep. 06, closed: Dec. 08, WID: RP-080747)

R2-105323: Clarification on Default Configuration for CQI-ReportConfig CATT
- Samsung thinks this was discussed earlier, and then we did not find the need to define the default configuration because the network can always configure the CQI before starting to use it again.
- Ericsson thinks for initial connection setup it is clear that a configuration needs to be done.
- Ericsson thinks interpretation 2 is correct and the eNB has to reconfigure. Nokia/NSN have same understanding.
- NSN wonders if we need default for parameters that are not "ON" ? Samsung indicates there are cases where the UE starts or switches back to default.
- Samsung thinks it might be sufficient to capture this in the minutes
- Panasonic thinks it is clear that the network has to configure aperiodic CQI before using.
- ALU thinks it would be good to capture this alternative 2 to have a clear handling of all IE's.
- NSN thinks it is not essential for Rel-9 either

=> Will see Rel-10 CR according to alternative 2 in R2-105884

R2-105884: Clarification on Default Configuration for CQI-ReportConfig CATT

=> CR is in principle agreed (Rel-10!)

R2-105547: Clarification of feature group indicator settings for inter-RAT periodical measurement reporting Motorola
- NTT DCM thinks interpretation A is correct. NEC agrees.
- Nokia agrees for interpretation A for inter-freq, but is not sure for inter-RAT cases. Nokia thinks if the UE supports a RAT and sets bit 16, it will support periodic measurements for that RAT. DT has the same understanding as Nokia.
- NTT DCM thinks bit 15 has clarification, and the same clarification was not introduced for bit16 because periodical measurements also concerns intra-freq measurements. NTT DCM thinks we should have the same approach for bit15 and bit16.
- Huawei wonders whether interpretation A means that if a UE does not support B2, it can also not support periodical measurements ?
- NTT DCM thinks it is clear that the bits 22-26 are about being able to perform measurements on an object. The minimum the UE should support if supporting measurements is B2. Then B1 and periodic are additional capabilities.
- Ericsson shares the NTT DCM view.
- QC supports Nokia/Huawei view.
- QC thinks e.g. CSFB will rely on a periodic measurement. B2 is only needed for handover
- Samsung supports interpretation B.
- ALU thinks interpretation A.
- NTT DCM wonders if we a discussing the intention, or do we want to change the intention. NSN thinks most important is what is written in the spec.
- TIM wonders if there is any impact to FGI Rel-9 bits if we go for interpretation B ?
- Ericsson thinks the risk with B is that the UE can support periodic intra-freq measurements, but not inter-RAT periodic measurements.
- NTT DCM thinks e.g. description of bit 22 is sufficiently clear. It talks about "UTRAN measurements"
- NTT DCM thinks changing to interpretation B is non-backward compatible change. QC thinks it depends on the interpretation from the beginning.
- Ericsson thinks if there are UE's that have interpretation A, even if we would now decide on interpretation B, then still the network would have to act according to interpretation A.

After offline discussion
- There seems to be consensus on interpretation A.

=> Will clarify along the lines of interpretation A in Rel-8. Will see CR's in R2-105987 R8, R2-105988 R9

R2-105987: Clarification of FGI settings for inter-frequency and inter-RAT periodical measurement reporting
- Chairman wonders if we shoudl not clarify that e.g. if bit 22 is set, then UMTS periodic is supported, if bit 23 is set,.... NSN agrees this might be better clarified
- NSN would also like to clarify what non-ANR measurements are in the next meeting

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=> CR is in principle agreed

R2-105988: Clarification of FGI settings for inter-frequency and inter-RAT periodical measurement reporting
=> CR is in principle agreed

R2-105682: Clarification regarding reconfiguration of the quantityConfig Ericsson, ST-Ericsson, Nokia Siemens Networks, Nokia Corporation, Samsung

R2-105684: Clarification regarding reconfiguration of the quantityConfig Ericsson, ST-Ericsson, Nokia Siemens Networks, Nokia Corporation, Samsung
- Panasonic agrees the first change is an alignment between ASN.1 and procedure text. Panasonic thinks the second change is an optimisation and could be introduced later.
- NTT DCM agrees with Panasonic that the second change might not be essential for Rel-8.
- Huawei agrees with the CR.
- NSN thinks the network has to know whether the UE is removing all measurement reporting entries or not. E.g. T321 has to be restarted by configuring the meas id again for entries where it was stopped, so it is important to know whether all measurements or only from one RAT are stopped.
- DT supports the CR.
- LG thinks the second proposal is an optimisation.
- Samsung thinks we did discuss in the past that the network could configure all quantities upfront (even before configuring the measurement). Then there is no need to optimise the configuration.
- DT has already seen problems in networks with this shoudl we should make it clear

=> Will see Rel-8 CR with only first change. Can redicuss the second change for a later release. Will see update CR's in R2-105885 Rel8, R2-105886 Rel9

R2-105885: Clarification regarding reconfiguration of the quantityConfig Ericsson, ST-Ericsson, Nokia Siemens Networks, Nokia Corporation, Samsung
=> CR is in principle agreed

R2-105886: Clarification regarding reconfiguration of the quantityConfig Ericsson, ST-Ericsson, Nokia Siemens Networks, Nokia Corporation, Samsung
=> CR is in principle agreed

R2-105853: Clarification on Meaning of FGI Bits Vodafone CR 36.331 F REL-8LTE-L23
R2-105854: Clarification on Meaning of FGI Bits Vodafone CR 36.331 A REL-9LTE-L23

=> QC supports the intention, but thinks the clarification is not correct, because there is a dependancy on other capability bits (e.g. RAT support). QC is also not so sure the CR is needed.
- Ericsson thinks this is already quite clear, and the activity for Rel-9 is more important. So the CR is not really needed.
- Orange would prefer to have the CR
- LG is fine with having the CR. TIM supports the CR, also from formal point of view to clarify the difference between FGI and optional.
- Ericsson thinks the CR will not change anything. Vdf thinks it will remove the confusion about what FGI bits are for.
- Motorola thinks in general the FGI bits show that the network vendors have to implement something so that IOT is possible. Stating that the features are mandatory does not help.
- Vdf wants to ensure that when IOT is available, UE vendors feel obliged to support the functionality. Motorola thinks it is really clear that IOT from network vendors might be the main problem currently.
- NTT DCM thinks it would be sufficient to capture this in the meeting minutes. E.g. "Features covered by an FGI bit are mandatory features. The FGI bits are only there to indicate IOT testing of such a feature."
- Vdf would prefer to see more than capturing in the minutes.

=> Will see updated CR's in R2-105887 R8, R2-105888 R9

R2-105887: Clarification on Meaning of FGI Bits Vodafone CR 36.331 F REL-8LTE-L23
=> RAN box should be unticket
- Ericsson still thinks the text will not really change anything. Rel-8 changes should only be done when it is really important/something broken. Motorola agrees with Ericsson. DT also thinks the CR has no real benefit.
- Nokia thinks it might be better to technically endorse (there is nothing wrong with the CR) and take it in plenary. Ericsson thinks majority view was that it would be sufficient to have it in the minutes

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- NTT DCM thinks such small issues should not be taken to plenary. NTT DCM is ok with only in the minutes.
- Vdf/TIM would really like to have a CR. So either agreed or taken to plenary.

=> CR is in principle with this one change in R2-106002

R2-105888: Clarification on Meaning of FGI Bits Vodafone CR 36.331 A REL-9LTE-L23

=> CR is in principle agreed with the same change in R2-106003

6 LTE Release 9

6.1 Positioning Support for LTE (RP-091389)

(LCS_LTE, leading WG: RAN2, started: Dec. 08, closed: June 10, WID: RP-091389)

R2-105601: Correction of reliable transport terminology in description of LPP-Message Qualcomm Incorporated

=> NSN is ok with the intention. However "fields associated with reliable transport functionality" is also vague, so some reformulation might be beneficial. E.g. a message only acknowledging a previously received message or something like that.

=> NTT DCM points out that "transport level ack" is used in the transaction id field description.

=> Will see updated CR in R2-105889

R2-105889: Correction of reliable transport terminology in description of LPP-Message Qualcomm Incorporated

=> In principle agreed

R2-105710: Clarification on UE capability provisioning Ericsson, ST-Ericsson CR 36.355 F REL-9 LCS_LTE

- Huawei wonders if this means that the UE has to transmit all LPP capabilities in one message ? Huawei thinks the UE could only indicate the prefered positioning method. If the E-SMLC wants to have all capabilities, the E-SMLC can ask
- Ericsson wants to avoid the additional req/response.
- Huawei assumes this procedure is only used for MO-LR case. In this case there is no problem to only indicate the prefered positioning methods. In the Req/Resp case, the network can indicate which capabilities he wants to be informed about.
- NSN thinks the OTDOA mode can indicate whether it is UE based or not. If all bits are set to zero, then the UE indicates it does not support any OTDOA.
- HTC thinks this clarification is not needed, and the request message can ask for specific capabilities.

=> Not agreed: understanding is that the UE may limit indications to preferred positioning methods.

R2-105714: One cell with known SFN in OTDOA assistance data Ericsson, ST-Ericsson

- Huawei thinks if the UE does not know the SFN the UE does not know the PRS occasions, so Huawei supports this clarification. NSN supports the intention, but thinks it wants to forbid an error case which will anyway happen. So it is better to describe what the UE is supposed to do when the error case happens. I.e. when the UE does not know the SFN of any cell for which the assistance data is provided, the OTDOA procedure will fail. QC agrees with the NSN clarification. QC thinks a note on network behaviour would be sufficient. I is already clear that when the UE cannot perform the OTDOA measurements, it will fail. We don't have to specify every specific failure case. Can discuss the detailed wording offline.

=> Will see updated CR in R2-105890

R2-105890: One cell with known SFN in OTDOA assistance data Ericsson, ST-Ericsson

=> CR is in principle agreed

R2-105719: UE frequency capability for LPP Ericsson, ST-Ericsson

- NSN agrees that the capability is needed in the E-SMLC. Would it not be enough to add it in Rel-10 (it can still work in Rel-9). Ericsson understands it is a Rel-9 requirement from RAN4. QC agrees with the Ericsson understanding. It is true that OTDOA does not break, but also this introduction seems quite minor. NSN thinks RAN4 did not indicate the

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release. NSN thinks it is a kind of optimisation, but this can be a matter of opinion. Ericsson thinks the release is clearly indicated in the RAN4 LS.
- Chairman wonders if when we signal the bands does it mean the UE can do the measurement in any of the signalled bands irrespective of which band it currently is ? Ericsson understands this is currently discussed in RAN4. NSN thinks this shows it is not Rel-9. Ericsson clarifies that RAN4 is still discussing how the eNB would know about measurement gaps which would be required.
- Samsung thinks interoperability statement should be improved.
- QC thinks the immediate value of this information is that the E-SMLC can limit the assistance data it sends (not sent data for bands the UE can never measure on). Then RAN4 is still working on what combinations of bands the UE would really be able to work on in this condition.
- Ericsson wonders why not in Rel-9 ? NSN thinks we should only do critical thinks in Rel-9.
- Ericsson thinks there is a clear benefit already for the limitation of the assistance data. Then the rest can wait for RAN4.

After offline discussion it was concluded it should be possible to in principle agree the CR:
- NSN is ok to agree this in principle for Rel-9. However we should have then the complete solution for inter-freq OTDOA working in Rel-9. So the signalling for the measurement gap configuration also needs to be resolved.
- QC thinks this does not depend on measurement gaps: some UE's might have the ability to perform these measurements without gaps. Also it restricts the assistance data. So the CR is usefull on its self, and there are other aspects to still look into.

=> CR is in principle agreed

6.2 Support for IMS Emergency Calls over LTE (RP-081140)

(IMS_EMER_LTE, leading WG: RAN2, started: Dec. 08; closed: Sep. 09, WID: RP-081140)

No contributions.

6.3 MBMS over LTE (RP-091457)

(MBMS_LTE, leading WG: RAN2, started: March 09; closed: March 10, WID: RP-091457)

R2-105389: MAC padding on MCH CATT
- Huawei supports the intention, but stage-3 clarification is sufficient. ZTE agrees with Huawei
- ZTE thinks all cells should set the same value.
- LG agrees with the intention.
- NTT DCM understands this a how the network should act, and thinks it is more stage-2 than stage-3. Samsung agrees with NTT DCM, and it is better to only impact stage-2.
- Nokia thinks stage-3 should work without stage-2.
- CATT is worried if we only have the stage-2 CR, then the stage-3 where "padding may have any value" is misunderstood.

=> Intention is agreed.

R2-105390: Correction on MAC padding on MCH CATT
R2-105391: Correction on MAC padding on MCH CATT

=> QC thinks the coversheet should be updated (no UE impact)
- ALU wonders whether the new text should be a subbullet of bullet 2 ? CATT thinks bullet 2 is about configuration

=> Will see updates in R2-105891, R2-105892

R2-105891: Correction on MAC padding on MCH CATT

=> CR is in principle agreed

R2-105892: Correction on MAC padding on MCH CATT

=> CR is in principle agreed

R2-105392: Correction on MAC padding on MCH CATT CR 36.321 F REL-9 MBMS_LTE
- Samsung thinks the CR is not needed because UE implementation are not impacted. QC thinks the current sentence would be inaccurate for MCH. Samsung thinks the basic principle for the MAC spec is that is for the UE.

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- Ericsson thinks a small CR would be usefull e.g. adding "except on MCH". Mediatek agrees with Ericsson.
- HTC indicates it is clear that 6.1.2 is not applicable to MCH. QC assumes it is intended to be in the scope of this section. LG confirms it is applicable.
- Motorola agrees with Samsung. LG thinks if the bits are not the same is not important to UE MAC (it would already fail in UE L1). So it is not important to the UE.
- ALU has sympathy for the clarification. Samsung thinks it is clear the MAC spec is not about network implementation. Mediatek thinks that e.g. setting reserved bits to zero is also network implementation. Samsung indicates this is for future proof.

=> Not agreed

6.4 Home-eNB enhancements (RP-091392)

(EHNB-RAN2, leading WG: RAN2, started: March 09, closed: March 10, WID: RP-091392)

R2-105518: 36300_CRxxx_Handover for Hybrid Cells Vodafone, Nokia, Nokia Siemens Networks

R2-105519: 36300_CRxxx_Handover for Hybrid Cells_REI10 Vodafone, Nokia, Nokia Siemens Networks

- LG agrees with the intention, but thinks it should be clarifies that the added sections only apply if the UE is a member. DT agrees with LG. QC thinks the section also applies to non-member UE's for PCI confusion.

=> DT thinks effected specs should be ticked "N"

- QC wonders if this is a technical correction, or just an editorial update ? Vdf thinks it is an editorial correction, but still considers important to have it corrected. DT thinks this might not be so essential for Rel-9, or maybe not at all.
- QC thinks it would be good to fill the empty section.

=> Ericsson would like to reformulate the text a bit, i.e. not talk about "requirements"

=> Should change category to "editorial"

=> Will see updates in R2-105893, R2-105894

R2-105893: 36300_CRxxx_Handover for Hybrid Cells Vodafone, Nokia, Nokia Siemens Networks

- Vdf points out that for this CR the category is change to "F"

=> CR is in principle agreed

R2-105894: 36300_CRxxx_Handover for Hybrid Cells_REI10 Vodafone, Nokia, Nokia Siemens Networks

=> CR is in principle agreed

6.5 Public Warning System (PWS) (RP-090649)

(PWS-RAN, leading WG: RAN2, started: June 09, closed: Dec. 09, WID: RP-090649)

No contributions.

6.6 Vocoder Adaptation (RP-090978)

(LTEimp-Vocoder, leading WG: RAN2, started: June 09, closed: Sep. 09, WID: RP-090978)

No contributions.

6.7 TEI9

36.321

R2-105372: Correction to UL-SCH data transfer after PUSCH resource allocation being discarded Potevio
CR 36.321 B REL-9 TEI9, LTE-L23

- LG thinks we have discussed this long time ago, and we agreed the UE only processes valid grants.
- Panasonic thinks nothing needs to be done. MAC will not see the grants for the retransmissions.
- NSN points out that anyway there is only a problem if the network sends an NACK. If the grant is protected with an ACK together with a PDCCH, this will not happen. Panasonic agrees: a network performing an adaptive retransmission should always sent an ACK at the same time.

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- Samsung assumes the invalid grant is a false alarm. Then there should be no impact to ongoing HARQ retransmissions. Ericsson agrees: UE should act on ACK and NACK. The fix would protect against invalid grants which are from invalid network implementations but we should not focus on that.

=> Not agreed

R2-105702: Single and two byte padding in MAC PDU Research In Motion UK Limited CR 36.321 F REL-9TEI9, LTE-L23

- Nokia thinks if we delete the whole sentence, there could also be a misunderstanding that only 1 LCID is allowed for padding. So maybe some parts should remain
- LG thinks the CR is not needed: 6.1.2. indicates the location very clearly. 6.2.1. does not state anything about the location.
- Huawei thinks the clarification is not needed.

=> Not agreed (already sufficiently clear)

36.331

R2-105425: Clarification on default configuration for CQI parameters ASUSTeK CR 36.331 F REL-9 TEI9, LTE-L23

- NSN wonders if we should list in 5.3.13 the parameters for which the default configuration is "not applicable" ? QC wonders what it means that we refer to default value and default value says "not appicable". Samsung assumes that with "release" we mean that the functionality is released. Ericsson thinks "release" or "NA" means the same in this case because CQI-periodic is released as well.
- Samsung wonders what the problem is for cqi-mask ?
- Samsung thinks applying a default value of "N/A" means the network can no longer assume the UE has stored a value.
- QC thinks it would be good to investigate in detail if "N/A" is used consistently, and what it actually means.
- Ericsson clarifies that the pmi-RI-Report is only 1 but indicating that the restriction is applicable for TM8.
- QC wonders what the network behaviour is supposed to be after the UE has executed 5.3.13 w.r.t. the pmi-RI-Report ? Ericsson thinks the default transmission modes are TM0 or 1, so the codebook restriction for TM8 are no longer applicable. QC wonders if this means it does not matter whether the UE keeps the value stored or not ?

=> Not agreed; no need for change identified currently. Companies may check if the meaning of N/A is clear and used consistently.

R2-105590: Inclusion of fields in RadioResourceConfigCommon in case of full configuration Qualcomm Incorporated

- LG supports the CR, however it should be "Cond FullConfig"
- NSN points out that this is part of MCI, and the network is supposed to include the correct contents of this MCI. It is network error if the confguration is not correct. Also it is network choice if the network does not want to provide a sounding reference configuration.
- ALU points out that the first CR for fullconfig had these conditions, but then we decided to not have this spread all over the spec, and have it clear from the release that the network needs to provide this
- QC thinks for dedicatedConfig we follow the condition for setup, but we have not covered the commonConfig in a similar fashion.
- NSN thinks it is clear from 5.3.5.8 the UE releases the commonConfig
- Samsung thinks it is clear the UE does not have anything anymore, but sometimes the conditions are also provided to show the network has to provide something. Samsung points out that the same issue exists with handover to EUTRAN.
- QC would be ok to only minute this in the meeting minutes

=> Confirm that the UE release the common configuration at full configuration (see 5.3.5.8), and the network will have to provide any relevant parts to the UE.

R2-105760: Corrections to the presence of IE regarding DRX and CQI ASUSTeK

- ALU points out that the short-DRX impacts Rel-8. NSN assumes anyway the table is more for assistance.
- NTT DCM thinks it is more an editorial CR, because the table only aligns to the ASN.1. LG thinks it is more a category "F".NSN clarifies that editorial CR's should not have impact on any implementation and are not allowed on a frozen release.

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=> In principle agreed

R2-105800: The field descriptions of MeasObjectEUTRA Huawei, HiSilicon
=> LG in principle agrees with the CR. LG points out the maxCellMeas definition also only talks about neighbouring cells.
=> Also cells remove list should be corrected
=> Samsung thinks maybe it is simpler to just remove "neighbour"
=> Intention agreed but can work on wording. Will see update in R2-105896

R2-105896: The field descriptions of MeasObjectEUTRA Huawei, HiSilicon
=> Ericsson points out that there is still on place where it says "neighbours" in the measuerment object (below offsetFreq IE). Should be removed
=> CR is agreed in principle with this change in R2-106023

6.8 LTE-A (SI: RP-091360)

(FS_RAN_LTEA, leading WG: RAN1, started: June 08, closed: March 10, WID: RP-091360)

No contributions.

6.9 Other LTE Rel-9 WIs

No contributions.

7 LTE Release 10

7.1 WI: Carrier aggregation (RP-100661)

(LTE_CA-Core, leading WG: RAN1, started: Dec. 09, target: Dec. 10, WID: RP-100661)

7.1.1 Stage-2

7.1.1.1 Stage-2 Corrections

Proposals from rapporteur to correct/improve current agreement status in 36.300 shall be submitted under this agenda item. Also proposed non-contentious corrections to the stage-2 can be submitted here.

R2-105398: Corrections to 36.300 for Carrier Aggregation New Postcom CR 36.300 F REL-10 LTE_CA-Core
General
- NSN points out that CR is not based on latest specification. E.g. reference in 7.5 is already corrected in v10.1.0

Change 1:
- NSN supports this change; they think all other changes are not needed.

=> Can be included in rapporteur CR

Change 2:
- already ok in latest version of 36.300

=> Not agreed

Change 3:
- Huawei supports something like this change, but it should be reworded. Probably better to look at Huawei paper.

=> Not agreed

Change 4:
- NSN points out that we agreed this is more stage-3 in the previous meeting.

=> Not agreed

Change 5:
- Intention is to indicated that cells supporting camping shall broadcast SI

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=> No change needed

R2-105480: Corrections on PCell change and measurement result delivery Huawei, HiSilicon CR 36.300 F REL-10 LTE_CA-Core
Change 1 is no longer relevant.
Change 2:
=> To be included in rapporteur CR
Change 3:
=> Editorial corrections can be included in rapporteur CR

R2-105843: Clarification on additional information forwarding in CA handover ITRI CR 36.300 F REL-10 LTE_CA-Core
- Chairman assumes we have agreed that the additional reporting by the UE concerns "non-serving cells", but the forwarding from source to target concerns the best cell on the frequency.

=> Not agreed

R2-105897: Stage-2 CR capturing agreements from this meeting (NSN)
- Panasonic thinks it would be good to mention SRS handling at deactivation in 11.2 ? NSN thinks this might be sufficiently addressed by "cannot transmit in the uplink".

=> CR is in principle agreed and will be considered as baseline for further stage-2 work.

Not available/too late/withdrawn:
R2-105841 Clarification on additional information forwarding in CA handover ITRI CR 36.300 F REL-10 LTE_CA-Core
R2-105842 Clarification on additional information forwarding in CA handover ITRI CR 36.300 F REL-10 LTE_CA-Core
=> Both are withdrawn.

7.1.1.2 Activation/Deactivation

E.g. can we continue based on the assumption that there is no glitch at activation/deactivation in Rel-10 (dependant on RAN4 input) ? Do we need to be able to enable/disable UL related functionality with lower layer signalling ? What are the measurement requirements for deactivated CC's (RAN4 input)?
=> Email discussion output for [71#56] LTE: CA - Enabling/Disabling of UL functionality [IDT]

=> Result of email discussion [71#56]: Enabling/Disabling UL Functionality InterDigital
R2-105703: Report of email discussion [71#56] Enabling/Disabling UL Functionality InterDigital
noted

R2-105409: UL CC activation deactivation and linkage to DL CC New Postcom Disc
R2-105446: Discussion on Scell UL Scheduling MediaTek Disc
R2-105529: Uplink Activation & Deactivation of SCells Nokia Corporation, Nokia Siemens Networks Disc
R2-105627: Further Consideration on Enabling SRS Transmission ITRI Disc
R2-105745: UL SCell deactivation timing ETRI Disc
R2-105751: UL functionality on deactivated SCell Sharp Corporation Disc
R2-105759: Clarifications on UL (de)activation Panasonic Disc
R2-105792: Further issue on UL CC configuration with activation / deactivation Pantech Disc
All 8 Tdocs not treated.

Will have UL activation/deactivation, linked to SIB2 DL cell activation/deactivation ?
Will change terminology to "Scell activation/deactivation" ?:
- stop UL SRS tx
- stop monitoring search space for this Scell for UL grants and DL allocations
- stop any PUSCH (re-)transmission (including autonomous retransmissions) and PDSCH (re-)transmissions
Text proposa ?

Discussion:
- ZTE wonders if we need some linking for the scheduling reference deactivation ? IDT confirms it may not be SIB2 linked.

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- ITRI is not sure we should link UL activation to DL activation, e.g. if we have different Timing Advance. So ITRI thinks starting of SRS should not depend on DL activation.
- Mediatek thinks it would be nice to have independant activation.
- RIM indicates that it is not so nice to have DL always activated for UL traffic.
- -` Ericsson is still concerned that we do not link it to the scheduling cell.
- NTT DCM thinks it is not very constructive to continue repeating comments. NTT DCM has been reading all comments from companies and taking everything into account, NTT DCM is fine as this as a baseline.
- NSN points out that they provided a table looking at all cases in the email discussion.
- IDT assumes the Scell scheduling another Scell is quite a rare configuration so we should not focus our solution on that.
- Newpostcom points out that there are cases where SIB2 linking will deactivate the UL unnecessarily.
- Samsung agrees that no simple solution is perfect. E.g. we can have strange cases where the Scell is activated but scheduling cell is deactivated. But these cases should not really be a problem.

Agreements:
1. When an SCell DL is activated/deactivated, also the SIB2 linked UL is activated/deactivated
2. UL deactivation means:
   a) Stop SRS transmissions
   b) Stop PDCCH search space monitoring for UL grants
   c) Stop all PUSCH transmission (including retransmissions)
3. Will talk about Scell activation/deactivation. Deactivation of Scell means:
   a) Stop search space monitoring for this Scell (wherever it is)
   b) Stop PDCCH reception on this Scell
   c) Stop PDSCH reception
   d) Stop PUSCH transmissions
   e) Stop SRS transmissions
   f) Stop CQI transmissions

Other:

R2-105692: Simplification of timer based CC deactivation Research In Motion UK Limited Disc
R2-105642: Simplification of deactivation timer Fujitsu Disc
Both Tdocs not treated.

7.1.1.3 CC/cell management: CC/cell configuration

Aspects of CC/cell management not related to mobility/ addition/removal. E.g. what happens at TAT expiry with AckNack resources and status of Scells?

CIF configuration

R2-105761: CIF presence and CIF value ASUSTeK Disc
noted

R2-105765: Further discussion on CIF value Panasonic Disc
R2-105665: Cell Identity and CIF index Alcatel-Lucent Disc
R2-105824: Cell Index to CIF mapping NTT DOCOMO, INC. Disc
R2-105693: Cell index and CIF Research In Motion UK Limited Disc
R2-105339: Discussion mapping between CIF and Cell Index ZTE Disc
R2-105436: CIF and Cell Index LG Electronics Inc. Disc
All 6 Tdocs not treated

CIF presence determined per PDCCH cell ? Implicitly or explicitly ?
CIF Alternatives (already agreed: Pcell CIF= 0):
1) CIF = Cell Index
2) CIF is explicitly configured
3) CIF is explicitly configured but every Scell scheduling itself also has zero

Discussion:

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- Huawei thinks even if the CIF is unique, it can still be configured ? Asustek agrees but thinks if the CIF is unique, it seems more logical to use the CellIndex.
- Panasonic thinks RAN1 has agreed RRC would configure whether CIF is present or not.

Proposal 2
- Nokia points out this is the first time we explicitly configure something to the UE with dedicated signalling for PDCCH reception.
- Nokia thinks every time the CIF presence is reconfigured there is some uncertainty on the configuration. So that would favour explicit signalling.
- NSN thinks the network might want to use the CIF even if only one cell is scheduled from a PDCCH cell. Ericsson supports this view.
- Huawei wonders if this means that every cell always has a CIF value.

CIF value:
- Panasonic thinks for simplicity reasons the easiest is if the CIF=Cell Index for now. Samsung agrees. We should not prepare something for unknown problems.
- ALU thinks we should not link values/functionality unnecessarily. NSN agrees. QC agrees with ALU.
- ZTE prefers option 3
- NSN thinks scheduling cell can have zero.
- Nokia thinks there might be search space optimisations if we can allocate the CIF explicitly. Panasonic understands you might be able to re-use Rel-8 search space, but if you configure with/without CIF, you will impact the search space because of PDCCH size differences.
- Huawei thinks all options can work.
- CATT thinks option 2) is probably safest, but assumes it is ok to start from option 1) in Rel-10.
- NTT DCM thinks unless we see a problem we can link so option 1. CMCC prefers option 1 since it limits overhead.
- QC wonders what we do in the case of Pcell change ? NTT DCM thinks RAN1 was not so sure on the life-time. NTT DCM understands there is no need for CIF change needed at Pcell change for Scell.
- LG prefers option 1. Motorola thinks many other thinks are linked across layers.
- Ericsson sees no need for separate values now, but maybe in the future. So that is why maybe it is good to already now have the possibility.

CIF Alternatives (already agreed: Pcell CIF= 0):
1) CIF = Cell Index [13]
2) CIF is explicitly configured [11]

- NTT DCM thinks flexibility needs more testing. So if we don't see the need now, why more testing. QC thinks only if we have cross layer tests.
- Motorola thinks we should first try to understand what future functionality we are talking about ? LG thinks it could be the case of more than 8 cells configured.
- NSN thinks layer independance is the most important aspect.
- Huawei thinks if we need to support more than 8 cells, we need to extend the cell index also.
- Motorola wonders how the layer independance changes anything.
- LG is not sure about layer independance. E.g. the index we use in MAC, what index will we use ? A different one from CIF and Cell Index ?
- NTT DCM thinks offline will not help in this case.
- ALU thinks we have already agreed Pcell Cell Index = 0, so CIFpcell=0.

Agreements: 1: CIF presence is determined per Cell having PDCCH (i.e. cell performing scheduling) 2: We configure explicitly in RRC for every cell with PDCCH whether the CIF is present in dedicated search spaces or not. 3: CIF value = Cell Index If any problem is shown with the 3rd decision, this can be revisited.

=> Will sent LS to RAN1 informing them about all decision impacting/related to RAN1 in R2-105898

TAT expiry/max D-SR

R2-105647: Status of SCell and A/N resources after TAT expiry Alcatel-lucent, Alcatel-Lucent Shanghai Bell Disc

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noted

R2-105324: TAT Expiry CATT, Nokia Siemens Networks, Nokia Corporation Disc
R2-105382: SCell Status and AN Release after TAT Expiry Huawei, HiSilicon Disc
R2-105401: Discussion on TAT expiry Samsung Disc
R2-105643: TAT expiry and CC deactivation Fujitsu Disc
R2-105747: SCell status at TAT expiry LG Electronics Inc. Disc
All 5 Tdocs not treated

R2-105754: TAT expiry and D-SR failure InterDigital Disc
revised in R2-105861
R2-105861 TAT expiry and D-SR failure InterDigital Disc
not treated

R2-105758: TA timer expiry and SCell activation status Panasonic Disc
R2-105801: UE behaviour upon TAT expiry HT mMobile Inc. Disc
R2-105819: SCells deactivation upon TAT expiry HTC Disc
R2-105825: TAT expiry and Carrier Aggregation NTT DOCOMO, INC. Disc
All 4 Tdocs not treated

Discussion AN:
- CATT thinks Scell AN resource is not fixed allocated (more like SPS AN), so we do not need to release.
- Huawei agrees the AN resource is some what dynamic so if we want to keep there is no problem, but if we want to release we have to wait for RAN1 progress.
- Ericsson also thinks we should wait a bit, to see how the single Pcell case turns out. If that is always the Rel89 PUCCH approach, then we could release, but otherwise we cannot release.

=> Wait for RAN1

Discussion Scell activation/deactivation:
- IDT thinks if we deactivate at TAT expiry, UE's are in a common state after TAT expiry. Impact on specifications is little.
- Samsung agrees it is small issue but thinks there is some impact for deactivation. So what is the benefit.
- CATT thinks the deactivation state has less UE actions. CATT thinks it would be nice to have uniform UE state after TAT expiry. We can not 100% ensure the deactivation has already happened.
- Huawei thinks if MBMS is received on an Scell, the Scell cannot be deactivated ?
- Nokia thinks it is better to have less differences. So it seems simpler to have it deactivated.
- LG thinks deactivation in two cases is not necessary.
- Ericsson thinks the case will happen very rarely, so no deactivation is needed.
- IDT assumes it could be possible to have no deactivation timer configured.
- NTT DCM thinks either way is fine. NTT DCM wonders if there is any particular concern not to have deactivation ?
  A) Scell should be deactivated at TAT expiry [12]
  B) No change of Scell status due to TAT expiry [11]
- ZTE sees no consequence if we do not deactivate. ZTE thinks UE autonomous behaviour should be limited, so not deactivate is the simplest.
- NSN points out that for fast dormance, some companies propose TAT expiry behaviour. Then it would be good to also have deactivation.
- LG thinks it is additional functionality.
- NSN thinks there is more work to do for the UE if the Scell is not deactivated. Samsung assumes in 99.9% of the cases it will be deactivated already or will be deactivated soon.
- Chairman assumes the only difference that there is a possibility to have the UE receive DL transmissions on Scells after TAT expiry, but this does not see relevant.
- Nokia thinks there is just more work for the UE, e.g. continuing measurements. Panasonic thinks you do not report CQI, do not transmit SRS, .. so from UE point of view it is the same behaviour.
- CATT thinks if we do not agree that deactivated of Scells, we have to agree it happened before.
- LG thinks it is too little to optimise.

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- ALU thinks we should deactivate because it is more aligned to other cases like handover or re-establishment.
- Ericsson thinks if it is a rare case, we consider it an optimisation and can add it later.

After offline discussion:
- In offine no consensus is achieved yet. However 2 points were agreed:
  1. Issue is relatively small, not so important
  2. Autonomous deactivation at TAT expiry is uncommon case.
- Probably companies will accept any decision.

Agreement: At TAT expiry, Scell activation status does not change

Scell RLM?

R2-105809: Radio Link Monitoring on SCells LG Electronics Inc. Disc
- NTT DCM wonders for proposal 5, the UE never resumes autonomously ?
- QC wonders why the UE would not resume ? LG assumes it is unlikely that the UE woudl recover. So it is sufficient to inform the failure to eNB.

R2-105321: Radio Link Monitoring of SCells Nokia Siemens Networks, Nokia Corporation Disc
- How would the UE inform the eNB ? NSN thinks a MAC CE in UL could be used

R2-105591: RL monitoring for pathloss reference SCell Qualcomm Incorporated Disc

R2-105337: SCell Radio Link Monitoring ZTE Disc

Both Tdocs not treated

Scell is deactivated or transmissions is just stopped?
Inform eNB (If so how)?
RLM on deactivated Scells?

Discussion
- Samsung assumes RAN4 has not taken a decision yet, so it is premature to discuss this.
- QC sees no need for UL message because the eNB can detect no UL transmissions.
- Ericsson assumes that RAN4 assumes that the RAN4 decision would not impact the RAN2 proposals. So before seeing any change of procedures in RAN2, we need to demonstrate the benefit. NSN it is RAN2 decision to see if the RAN4 decision is impacting RAN2 or not.

Issues to be solved would be:
- Autonomous resumption or not ?
- Explicit message to eNB or not ?
- Scell deactivation or not ?
- Different parameters or not.

Other:

R2-105624: DRX related timers in carrier aggregation NEC Disc

not treated

7.1.1.4 CC/cell management: CC/cell change

Aspects of CC/cell management related to mobility/ addition/removal. Any stage-2 aspects left?

No contributions.

7.1.1.5 PHR aspects

E.g. Do we have PHR reporting for non-scheduled CC's ? Do we have Type2 reporting when PUCCH is not transmitted ? Is the prohibit timer per UE or per CC ? Do we have per-UE-PHR (wait for RAN1 input) ?
=> Email discussion output for [71#57] LTE: CA - PHR reporting [Ericsson]

=> Result of email discussion [71#57]: CA - PHR reporting [Ericsson]

R2-105462: Summary of e-mail discussion [71#57] LTE: CA - PHR reporting Ericsson Report noted

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R2-105379: RHR remaining issues Nokia Siemens Networks, Nokia Corporation Disc
R2-105345: PHR remain issues ZTE Disc
R2-105410: Discussion of PHR open issues New Postcom Disc
R2-105554: LTE-A PHR issues Qualcomm Incorporated Disc
All 4 Tdocs not treated

MPR used for PHR reporting ?:
a) CC-PHR only takes into account MPR that would be needed if only this CC was scheduled
b) CC-PHR for scheduled CC's takes into account actual MPR:
CC-PHRfor non-scheduled CC's takes into account MPR as if this CC was scheduled only
c) ....

Discussion
- Nokia thinks the problem for the virtual PHR is that there are any different understandings. Nokia would like to see the solution for the virtual PHR before we take the decision.
- Samsung thinks we have been discussing this for a long time, Nokia should be aware of proposals on the table.
- QC is also not in favour of virtual PHR for non-scheduled.
- Ericsson thinks there was a significant majority to have PHR for all configured PHR.
- Huawei sees just complexity because of virtual PHR. NSN also sees virtual PHR is not clear and brings issues with RAN1/4. NSN thinks it will just create many decisions in RAN1/4 which might delay completion of the WI.
- ZTE thinks PHR for scheduled CC's + additional ifnormation is enough
- Ericsson thinks the additional work for RAN1 will be similar to the work for the virtual PUCCH format. Panasonic agrees. Panasonic also sees no RAN4 work.
- Ericsson would be ok to restrict it to activated CC's.
- Mediatek thinks virtual PHR is not very usefull. Meditek thinks if we have virtual PHR, we might need indication in PHR report whether virtual PHR or real PHR is reported. Motorola wonders why since an eNB should know whether a CC was scheduled or not ? Mediatek thinks for the PDCCH miss detection case. RIM thinks this is 1% probability. Ericsson thinks stil the eNB could probably detect with DTX detection.
- IDT supports not reporting PHR for deactivated CC's.
- NSN thinks for the MPR for virtual PHR there are different solutions on the table. NSN thinks this is a minor optimisation.
- Newpostcom thinks it is usefull to have virtual PHR for future scheduling.
- Samsung thinks it is clear we should stick to the current agreement.
- Ericsson thinks virtual PHR is usefull for the case this CC is scheduled individually or in combination with other CC's in the future.
- Huawei thinks if the first scheduling in Rel-89 can be done without PHR, it can also be done in Rel-10 on a CC.
  A) Report PHR for all activated CC [18]
  B) Report PHR for all scheduled CC's [8]

Proposal 3:
- QC thinks Type-2 always regardless of any Type-1, regardless of any transmission on PUCCH or PUSCH. IDT assumes with a virtual-PUSCH transmission, there is always a type-1.

Agreements:
1: PHR is reported for all activated CCs
2: Wait for RAN1 before discussing/agreeing additional PHR information like UE-PHR
3: For UE's for which parallel PUCCH+PUSCH is configured, always report Type 2 PHR when Type 1 PHR is reported for the PCC. Use the PUCCH reference format defined by RAN1.
4: One prohibit timer (per UE)

Type1 PHR: Virtual PUSCH
R2-105756: Calculation of Virtual power headroom report Panasonic Disc
noted

R2-105403: PH calculation of non-transmitting CC SamsungDisc
R2-105748: PHR remaining issues LG Electronics Inc. Disc

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Both Tdocs not treated

Discussion:
- Samsung thinks there are 2 issues: how to determine Pcmax, and how to determine transport format. Samsung understands Panasic proposes to use the fixed Pcmax, and a virtual transport format. Samsung thinks there are some other proposals.
- Panasonic thinks if we define a reference format, Pcmax is always related to the PUSCH transmissions.
- Huawei thinks we can leave all this to RAN1, including the format. Huawei thinks we could leave the whole decision, also including whether we have a virtual format, can be left to RAN1.
- Nokia assumes that the virtual PHR is calculated independantly from the other scheduled CC's. The PHR for the scheduled CC's should not be impacted by the virtual transmissions.

Agreements:
1) Will ask RAN1 to define
   a) reference PUSCH format
   b) further configuration aspects so that the UE can determine Pcmax
2) Will indicate to RAN1/4 that virtual transmissions should not impact PHR reporting for scheduled CC's

Type2 PHR: Virtual PDSCH

R2-105757: Open issue for power headroom reporting Panasonic Disc
Only proposal 2 & 3 remain
-

R2-105648: Discussion on PHR remaining issuesAlcatel-lucent, Alcatel-Lucent Shanghai Bell Disc
not treated

Discussion:
Proposal 2:
- NTT DCM thinks it follows from our previous agreements.

Proposal 3:
- QC supports proposal 3.
- Chairman wonders if this means that if there is no PUCCH and PUSCH in the Pcell, the UE would use the "virtual power" for the type-1, and zero power for the type-2 for the virtual PUSCH transmission. Panasonic confirms. The benefit is that the Type-2 will give information really focussed on the PUCCH transmission.
- RIM wonders why not use the virtual power also for the PUSCH in Type2; by comparing type 1 and type 2, the eNB can work out what the PHR for PUCCH is. NSN wonders why not use the same ? Panasonic agrees this also works but though have zero power is a bit easier.
- Samsung sees no real difference. Samsung assumes it is more consistent to have the same approach for Type1 and Type2 reporting. Ericsson agrees it is more consistent to have the same approach. LG also thinks we should have same approach.
- Huawei wonders if this zero power is relevant for the MPR calculation, or for the used power by the virtual TB ? Panasonic clarifies it impacts the power assumed for the virtual PUSCH transmission

Agreements:
2) UE uses the reference PUSCH format when reporting Type2 when no PUSCH transmission was scheduled in the Pcell.
3) Usage of the virtual PUSCH transmission in Type1 and Type2 reporting is identical (i.e. same virtual power will be assumed in both cases).

Triggers and timers

R2-105408: Discussion on PHR triggers SamsungDisc
Only proposal 3 is remaining:

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- LG wonders if only 1 CC would be configured for PHR triggering ? LG thinks only 1 CC would be insufficient for scenarios 3 ? Samsung thinks that even in case of different sectorisation, the amount of pathloss change will be quite similar in similar layers.
- NSN thinks there are only 2 possibilities for pathloss reference: Pcell or SIB2-linked cell. In case of SIB2-linked cell is used, then also pathloss changes to that cell should be able to trigger PHR. So NSN thinks all CC's can trigger PHR.
- Ericsson sees no benefit to tying it to one specific CC ? Samsung assumes that e.g. in scenario 1, typically the higher frequency carrier will trigger the PHR, but still UE monitors and triggers also when the other CC has pathloss change.
- Ericsson thinks the prohibit timer will ensure we have insufficient reporting.
- Panasonic thinks if we have 2 cells as pathloss reference, also PHR should be triggered in case of pathloss change for both carriers.
- Huawei thinks when SIB2-linke pathloss reference is used, anyway the UE has to trace the pathloss on that CC.
- ALU agrees with Ericsson: prohibit timer should take care of too frequent reporting.

=> Noted (no support)

R2-105649: PHR triggers and timer handling Alcatel-lucent, Alcatel-Lucent Shanghai Bell Disc
not treated

UE-PHR:

R2-105402: PHR for single PUSCH scheduling and multiple PUSCH scheduling Samsung Disc
R2-105442: On providing UE remaining power information MediaTek Disc
R2-105650: Discussion on per-UE PHR and additional PHR info Alcatel-lucent Disc
R2-105788: Issues on PHR for dynamic CC scheduling Pantech Disc
All 4 Tdocs not treated, will wait for input from RAN1.

Not available/too late/withdrawn:

R2-105459 PHR reporting for CA Ericsson, ST-Ericsson Disc
R2-105711 Power Headroom Reporting for Carrier Aggregation Motorola Disc

7.1.1.6 Other

E.g. UE (measurement) capability modelling (dependant on RAN4 input),...

UE capability

R2-105468: UE Capabilities for Carrier Aggregation and MIMO Nokia Corporation, Nokia Siemens Networks Disc

- Mediatek assumes we still need to wait for some more progress in RAN4. Nokia agrees.
- Samsung wonders if the network would be able to configure a measurement gap for a specific component carrier ? Nokia assumes measurement gaps are common for all carriers but we have not really concluded on this yet.
- Huawei wonders why we split the contiguous aggregation and the non-contiguous aggration capabilities ? Nokia's understanding is that the BW will be different for the 2 cases. Huawei wonders why ?
- Note that every band combination will be defined as a new "band".
- Question is e.g. if the UE capabilities for band2 used in combination band2-3 can be different for band2 in combination band2-4.
- DT hopes RAN1/4 limit the combination possibilities. NTT DCM thinks RAN4 is trying to limit the flexibility. NTT DCM assumes that only the combinations defined in RAN4 will need to be supported in signalling. Nokia agrees. QC agrees: it would be good that the signalling does not need to be updated everytime RAN4 defines new bands.

=> Will wait for more progress in RAN1/4. If we have concerns from RAN2 point of view, it might be good to discuss them in the coming meeting.

R2-105455: Discussion on RAN1 LS on Rel-10 UE Category MediaTek
=> Noted (wait for more progress)

36.302

R2-105658: Introduction of CA to TS36.302 Alcatel-Lucent, Alcatel-Lucent Shanghai Bell Disc

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- NSN wonders whether we need to duplicate the rows for MBMS and ETWS. NSN assumes if the UE needs to monitor e.g. CA and MBMS, it needs to monitor both combinations.
- ALU indicates that R2-105367 is simpler because CA and non-CA are handled together. In addition the TPC is handled differently.
- NSN points out that currently RAN1 has agreed there is no common search space on Scells. So TPC handling is not clear yet.
- Ericsson thinks it might be good to update the table, but maybe we should wait a bit untill RAN1 has progressed.
- NSN thinks RAN1 has agreed on number of blind decodes and we should be able to work on that.
- Ericsson thinks there are unsettled issues for the UL (PUCCH, PUSCH and PRACH combinations).

=> Can try to work together on update, which does not change UL table, and updates DL table but not considering any TPC commands for Scells in R2-105899 Cat B CR

R2-105899: Introduction of CA to TS36.302 Alcatel-Lucent, Alcatel-Lucent Shanghai Bell Disc

=> Should talk about FS2 rather than TDD: "for UE's supporting FS2,..."

- Ericsson wonders what is mandatory for UE's supporting MBMS ? NSN indicates that the assumption is you receive MBMS on one of the carriers, and potentially still unicast on other carriers.
- Ericsson wonders if an MBMS UE would support MBMS on any serving cell ? Seems so,. Note that such a UE would also have to be able to read broadcast from such a serving cell (SIB13) however not at the same time as receiving MBMS

=> With this change the CR is in principle agreed in R2-105997, and will be used as baseline for further work on 36.302.

R2-105367: CR on Parallel reception of simultaneous Physical Channels with CA Nokia Siemens Networks, Nokia Corporation CR 36.302 ?

Other

R2-105383: Need for idle mode distribution with LTE-A carrier aggregation Deutsche Telekom, Alcatel-Lucent, Intel Corporation, Mediatek Disc

- NSN wonders what the relation to CA is ? It can happen in any network with more than 1 carrier ? DT agrees it is relevant independant from CA.
- Samsung agrees this is not so relevant for CA. Samsung wonders if the periodical TAU does not address the problem ? DT thinks if we would have a broadcast means to shift portions of users, we can shift users independantly of TAU periodicity. Samsung assumes the TAU periodic can be configured from almost 0 to 6 hours. DT assumes typical period is e.g. 3 hours.
- Nokia wonders why it is not enough to move the UE's in connected mode, so that the IDLE mode UE's have no problem ? This should be possible very quickly. DT thinks the drawback is that you have to do it terminal by terminal causing signalling overhead.
- Nokia assumes there is all the time UE's going to IDLE. By giving dedicated priorities to them, do you not have sufficient control. DT was considering the handover signalling for the overhead.
- Chairman was assuming that a small fraction of UE's was cause a large part of overhead. E.g. we assume a low fraction of UE's configured for CA.
- ALU thinks handover increase the probability of handover failure.
- NSN wonders what the limiting factor in the network is that we try to avoid. E.g. having 2 carriers would always help the load balancing.
- LG is not sure there is a real problem. In principle we have the same problem as in Rel-8. LG thinks it would be nice to see some proof of the imbalance. For the moment, Samsung agrees with LG. Samsung thinks e.g. a smart network could give a smart phone a different TAU periodicity.
- Vdf thinks if we only have 1 UL, we cannot distribute the UL load. DT thinks this might be typical for the UE but not a typical configuration for the network.
- Mediatek thinks there is a difference between Rel8 and Rel10; We will have more hotspots which might require more inter-freq measurements. NSN thinks if we talk about hotspots, we migh have to handle every UE individually because of different speeds.

=> Noted (not for Rel10; can reconsider for future releases)

R2-105720: Reception of PWS messages for UE supporting CA LG Electronics Inc. Disc

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- Huawei thinks it is clear that the UE only monitors paging from the Pcell. So the UE will only receive PWS from Pcell. Nokia has the same understanding. Nokia assumes the network cannot assume the UE is receiving it anywhere else.

=> Noted; whole PWS reception is assumed to be according to Rel89 i.e. on Pcell only.

R2-105340: Discussion on measurement requirement on SCCZTE Disc
- Nokia assumes this are all more RAN4 related proposals. Samsung agrees with Nokia.
- ZTE thinks it is somewhat related to RAN2
- QC agrees this is RAN4 issue since RAN4 determines how frequent the measurement on deactivated Sell will be. QC points out that also for DRX in Rel-8, RAN4 has agreed on a varying measurement periodicity based on DRX

=> Noted

R2-105412: PDCP and RLC SN shortage in CA LG Electronics Inc. Disc
- NSN thinks this was discussed many times in the past. What is the new element ? LG thinks max buffer size was discussed in last meeting.
- Samsung thinks max BSR is assuming the UE is working on max rate for 16 TTI's. So the number of PDU's transmitted in one TTI should be divided by 16
- LG will be happy if we do not have to increase, but LG understands that allready for LTE there might be some concerns.

=> Noted (no other company with a concern)

7.1.2 Stage-3 Control Plane

7.1.2.1 Running CR

Latest version of the running CR for 36.331 from rapporteur, as well as corrections of obvious errors from rapporteur or other companies.
=> Email discussion output for [71#20] LTE: CA - 36.331 baseline CR was already endorsed in R2-104991. Should be provided again here based on latest spec version [Samsung]

=> Result of email discussion [71#20]: CA - 36.331 baseline CR

R2-105507 Introduction of Carrier Aggregation Rapporteur (Samsung) CR 36.331 B
=> Agreed as baseline for further work; We will see updated CR in R2-105971

R2-105971: Will be made available Monday next week latest. One week for email approval. **[EMAIL DISC [71b#07]]**

R2-105811: Additional comments on carrier aggregation RRC changes Nokia Siemens Networks, Nokia Corporation CR 36.331 F
- IDT points out that there is an additional change in 5.2.1.1 (last highlighted sentence).

=> Last highlighted change in 5.2.1.1. is not needed
- LG wonders about the restriction on A6 to be on the same frequency ? NSN does not intend to make any changes

5.3.1.1:
- Rapporteur indicates that similar text as for DRB establishment is included now. So is it really the intention to handle Scell establishment differently ? NSN can understand that DRB establishment is very urgent, but why would Scell establishment be so urgent ? Huawei thinks it would be good to configure the Scell together with the DRB based on QCI. ALU agrees with Huawei, just to avoid having to have 2 reconfigurations.

=> Will not have first highlighted change to 5.3.1.1

5.3.7.1:
- Huawei now reads the updated text to say that re-establishment is only possible in the original Pcell

=> Change in 5.3.7.1. is not needed, but remove the "()" around the "only"

=> All remaining highlight changes can be included in R2-105971

R2-105707: Editorial proposals to the CA RRC CR InterDigital Disc
Change 1
- Samsung points out we do not have a single target cell during handover. Nokia thinks only the new primary cell is "the target cell". ALU agrees with Nokia that it would be the cell in which the UE makes the RACH access. Huawei thinks we don't have "target cell" in CA;

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we talk about "primary target cell". Samsung points out this is the only occurence of target cell. Everywhere else we say "target Pcel".
=> Updated text in text proposal can be included in R2-105971, but change last part of primary cell to "indicated as the primary cell in the handover procedure"
Change 2
=> Not needed: already covered
Change 3
=> CATT thinks we should talk about "add, remove or modify Scells"
=> Should talk about "E-UTRAN" in two places, not "E-UTRA"
=> Agreed with this change to be included in R2-105971
Change 4
- IDT wonders if the Pcell is determined before or after succesfull completion of the re-establishment. No actual change included.
=> No change for now
Change 5
=> Agree to change, but updated with "Physical layer monitoring and ..."
Change 6
- Change proposed is actually in 5.5.1
=> Change is agreed to be included in rapporteur CR
Change 7
- RIM is fine with the change, but RIM has detailed values proposed also
=> Not agreed now
Change 8
=> Change is agreed to be included in rapporteur CR

R2-105790: Clarification on RRC connection re-establishment in CA HTC TP 36.331
- ALU wonders if in 5.3.7.2 we know what the Scells are. HTC thinks the UE is still in connected and might be configured with Scells, so it can release them. Nokia agrees.
- IPW wonders if the sentence is more logical in 5.3.7.3 ? HTC points out now the location is the same as the connection establishment.
=> Change is agreed to be included in rapporteur CR

R2-105695: CR for clarification of PDSCH start offset Research In Motion UK Limited TP 36.331
- Huawei wonders if 4 is really needed; we could have values 1..3, and have interpretation according to system BW ? RIM agrees this would be an alternative possibility, but thinks their proposal is simpler. Samsung prefers RIM proposal. Huawei indicates currently in L1 the UE uses this BW dependant interprepation. Ericsson agrees the 36.212 has BW dependant, but 36.213 does not have this dependancy. So Ericsson is fine with the RIM CR.
=> Change is agreed to be included in rapporteur CR

R2-105399: Definition of PDSCH starting point New Postcom TP 36.331

7.1.2.2 Measurements

E.g. Can additional reporting also concern carriers without Scell ? Is there a need to have the additional reporting for other carriers configurable e.g. per event ? Is there always a (used?) measurement object for each secondary DL frequency ?..

Mandate measurement Object for Scell carrier?

R2-105531: Stage-3 details on serving cell reporting for CAEricsson, ST-Ericsson Disc
-

R2-105655: The need of Scell measurement object Alcatel-Lucent, Alcatel-Lucent Shanghai Bell Disc
R2-105326: Measurement Object for Secondary Frequency CATT Disc
R2-105450: Measurement object on secondary carriers LG Electronics Inc. Disc
All 3 Tdocs not treated

Mandate configuration or not?

Discussion:

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- Mediatek wonders how often the eNB will configure an Scell without A1 or A2 ? So is it not simpler to always have a measurement object ? Mediatek for the swapping we also need a measurement object on the Scell
- Nokia wonders why not mandate an object ?
- Samsung points out that the swapping in re-establishment is ok with not having a configured object for the target frequency
- Samsung also concluded that there seems no strong need to mandate an object for the Scell frequencies. We have no swapping for Scells.
- Nokia points out that we have agreed to always have measurements reported for Scells.
- IDT wonders if there is any benefit of not configuring a measurement object ?
- Panasonic thinks it is easier to always have a measurement object so that it is clear w.r.t. measurement performance requirements on what frequencies the UE is measuring
- LG would like to have measurement objects on all serving frequencies. CATT agrees that the A2 would typically be there.
- NTT DCM thinks the reason for the object for serving freq in Rel89 is measurement BW. NTT DCM thinks it would be logical to have an object for secondary frequencies also. Neighbour cells might have the same center freq but different BW.
- Nokia thinks we do not necessarily have a measurement on each secondary frequency.

=> Network should always have a measurement object configured for secondary frequencies.

Agreements: 1) Network should always have a measurement object configured for secondary frequencies 2) No requirement for at least one reportConfig Note that Scell measurements are always done, and neighbour cell meaurements on a secondary frequency are not mandated by just having the measurement object. Only if a concerning mearuement is configured.

Additional measurement reporting

R2-105532: Stage-3 details of Additional Reporting for CA Ericsson, ST-Ericsson Disc

General
- NTT DCM supports the proposals.

Proposal 2:
- NSN thinks the main purpose is to build an Scell candidate list. Why make this solution more general ? NTT DCM thinks this information could be used for IMM MDT; for MDT it is nice to collect coverage information of other layers. Nokia thinks we agreed that for Rel-10 the current measurements are sufficient for IMM MDT.
- Huawei thinks it is usefull, but maybe it can be discussed separately since not relevant to CA.

Proposal 3:
- LG thinks based on A3-on leave, this information can be obtained ?
- Nokia thinks limiting to current secondary serving frequencies is sufficient.

Proposal 4:
- CATT thinks neighbours will be provided in best cell approach. If no cells are provided, you know there is no cell seen by the UE. So why explicit indication ? Ericsson woudl like to distnghuish between "UE did not make measurement and therefore does not report" and "UE did perform measurement but did not find any cell"

R2-105469: Additional Measurements for Carrier Aggregation Nokia Corporation, Nokia Siemens Networks Disc
- QC wonders what the action is to remove the brackets ? How will we determine the value ? Hopefully RAN4 does not need to be involved.

R2-105380: Detail Issues for Additional Reporting in CA. Huawei, HiSilicon Disc
-

R2-105325: Further Consideration on Additional Measurement Reporting CATT, Samsung, ITRI, Panasonic, CMCC Disc

R2-105344: Additional measurment reporting ZTE Disc

R2-105656: Remaining issues on additional UE measurement Alcatel-Lucent, Alcatel-Lucent Shanghai Bell Disc

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R2-105746: Additional Measurement reporting InterDigital Disc
R2-105762: Contents and Behaviour of Additional Measurement Reporting in CA Panasonic Disc
R2-105777: Clarification on additional measurement reporting in connected mode LG Electronics Inc. Disc
All 6 Tdocs not treated

Concerns non-serving carriers with configured measurement ?
- *Yes*
- *No*

Additional measurement reporting ?
a) Always applicable
b) Configurable per report config
c) Always applicable, but only for cells which are fixed threshold better than Scell on carrier
d) Always applicable for A2-A6, not for A1, B1, B2 and periodical
e) Always applicable but only for first event based report: not for (further) periodical reports

Outcome of ofline discussion:
- There seems to be about equal split to have not have support for non-serving frequencies, but strong concerns were expressed.
- Probably consensus not to have a, e), and b) slightly more support.

Further discussion
- CATT thinks decide "no" on first question the inter-freq will not benefit. NSN thinks inter-freq Scell change.

Agreements: 1) Will not support additional measurement reporting for non-serving frequencies 2) Will be able to configure with one bit the additional available measurement reporting per report Configuration - i.e. per measurement report config we can configure whether measurement reports from this report configuration should include additional available measurement reports or not.

=> Should included in rapporteur stage-3 CR.

Other

R2-105510: Carrier Aggregation: measurement related open issues SamsungDisc
Section 2.1 no longer relevant; Proposal 4 already treated.
Proposal 3
- NTT DCM reported that RAN4 is still discussing glitch, and there seems to be a quite even split. Feeling of NTT DCM is that they would either forbid split or allow it without signalling (i.e. quite infrequent)
- Samsung thinks anyway there is no text proposal.

=> Wait for RAN4; maybe no impact on our spec. One option would be to redefine intra-inter to something like primary freq, secondary freq, non-serving freq.

Proposal 5
- LG wonders why the condition on measConfig ? Rapporteur explains that only first reconfiguration message after connection establishment configures measConfig
- NTT DCM wonders whether it applies during T311 ? Samsung assumes that since we do not remove the measurement configuration during re-establishment, so it is still applicable.

Proposal 6
- Nokia thinks the structure can be simplified since we now limit to serving frequencies.
- Samsung assumes that for Rel-10 it might be ok to limit, but maybe the ASN.1 should be able to cope with other frequencies if we extend in Rel-11 ?
- Nokia thinks we can report the additional measurement reports to the serving cell reporting.

=> Structure for additional cell reporting should revisited based on previous decisions. Can be discuss offline.

Proposal 7
- Asustek remarked that since all serving cells need to be included, it should be possible to define an order and no identification per entry.

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- Samsung wonders if this will not increase the risk of misalignment between UE and network ? Seems like small optimisation. Nokia agrees misalignment is really problem because measurement triggering can easily happen around reconfiguration.
- Asustek thinks this is not a real problem since the measurement report and the reconfiguration complete are both sent on SRB2.
- NSN thinks this is really a small optimisation (3 bits). NSN would prefer a clear indication.

Agreements:
5: Clarify the requirements regarding serving cell measurement as in the attached TP
7: Within IE MeasResultSCell-r10 use the sCellIndex to indicate the cell/ frequency

R2-105343: Discussion on forwarding informationZTE Disc
Proposal 1:
- CATT wonders what the intention is of providing measurements for the target Pcell ? Is it to support target Pcell change ? ZTE thinks to select target Scells. CATT thinks if the target Pcell does not change, there is no need to provide the RSRP information for the Pcell.
- ZTE thinks it was shown that CA is most beneficial if the cell quality is similar. So then it is good for the target eNB to know the target Pcell quality in order to decide what Scells to add.
- QC supports the proposal. RAN4 is also concerned of link imbalance.
- NSN thought it would be sufficient for the target eNB not to get this information. It seems more tuned at Pcell change
- NTT DCM was assuming that already this list would include best cell reporting for the target primary frequency. Huawei had the same understanding.
- NSN what happens if there is no additional measurement available ? E.g. can we support blind handovers ?
- NSN wonders if this list is still provided if CA is not configured ? NSN thinks it should not be necessary to sent this information in the non-CA case.

=> Noted. Pcell reporting not explicitly needed; the list will include the available best cell for each frequency for which measurements are available, including target primary frequency.

Proposal 2:

=> Proposal is agreed. Will be included in rapporteur CR.

Not available/too late/withdrawn:

R2-105858: CR to 36.331 adding best Scell list to HandoverPreparationInformatin message MediaTek
CR 36.331
not treated

7.1.2.3 Other

UL/DL IE structure

R2-105472: ASN.1 Structure for SCell Configuration Nokia Siemens Networks, Nokia Corporation Disc
Proposal 1&2&3 only.
- Samsung wonders why a separate group for DL parameters ? This is for the case if we want to only change UL parameters, not because we can have a cell with only UL. NSN confirms.

R2-105657: Stage 3 IE grouping and other issue Alcatel-Lucent, Alcatel-Lucent Shanghai Bell Disc
-

R2-105513: Carrier aggregation, information structure related issues SamsungDisc 36.331
-

Discussion:
- Ericsson would prefer to keep the common/dedicated structure split eventhough everything is signalled with dedicated signalling. This because parameters will be handled differently and because it closed to Rel89.
- Ericsson has no strong opinion on whether a separate group is needed for DL although we do not save many bits.
- NSN is fine with ALU proposal

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- Samsung wonders whether the common parameters go ? ALU thinks they can go in the DL part. Samsung wonders whether we have the split only for physical parameters ? We have the split in common/dedicated only for physical parameters.

=> Will take the structure from the ALU paper.

Where do we put the cross carrier scheduling ?

- For each Scell
  - Which cell is scheduling this Scell (scheduling cell)
  - In case of cross carrier, the PDSCH start
- For each scheduling cell (PDCCH cell)
  - CIF used yes/no

- Huawei thinks these parameters should be in physical configuration. Huawei thinks it can be outside downlink/uplink, so parameters outside DL/UL. ALU thinks this can be part of the DL group.

=> Will put the cross carrier scheduling parameters for Scells in the DL part of the physicalConfigDedicatedScell

- Huawei wonders where we signal whether CIF is used for primary cell ? Can be considered later.

R2-105472: ASN.1 Structure for SCell Configuration Nokia Siemens Networks, Nokia Corporation Disc

Proposal 3:

- Samsung thinks that if we have agreed to continue with separation between common and dedicated, then this approach was ruled out.
- Ericsson thinks it is more logical to keep where it is, i.e. directly in the reconfiguration message.

=> Not agreed.

Delta signalling

R2-105816: SCell configuration at handover LG Electronics Inc. Disc

=> Updated before presentation in R2-105859

R2-105859: SCell configuration at handover LG Electronics Inc. Disc

- Panasonic wonders if 1b is meaning that 1 old Scell could be used as basis for 2 new Scells ? LG confirms.

R2-105763: Scell configuration at Scell addition and HO Panasonic Disc
R2-105328: SCell Configuration at Cell Change CATT Disc
R2-105342: Discussion on delta signaling ZTE Disc
R2-105371: Cell index for delta signalling Potevio Disc
R2-105586: The change of L1 identity/frequency in delta signalling Huawei, HiSilicon Disc
R2-105775: Change of L1 cell identifiers at SCell reconfiguration LG Electronics Inc. Disc

All 6 Tdocs not treated

Options (in increasing flexibility/complexity?):
1) ScellIndex, L1-id, Freq cannot be change (i.e. only by release+addition of new Scell)
2a) For given Scell Index, L1-Id/Freq can be changed at handover
2b) For given Scell Index, L1-Id/Freq can be changed at reconfiguration/handover
3) At Scell addition (or even reconfiguration?):
3a) use signalled Scell (identified by ScellIndex) as reference for delta configuration
3b) use Pcell as reference for delta configuration

Discussion

- Nokia thinks the 3rd alternatives are quite new/different from what we have today: it would mean a delta to a quite different part of the configuration
- LG thinks Rel89 interfreq handover is a bit like the 3rd option. NSN thinks in Rel89 the Pcell is always the reference for the Pcell.
- CATT thinks option 3 is not relevant because we have agreed that at Scell addition we have full configuration. CATT thinks it is not nice to have delta signalling from Pcell for Scell since IE's are different.
- Samsung thinks we first need to decide if we need anything. Samsung thinks we can at most save something like 15 bytes per Scell. If we also do Scell addition at handover maybe signalling size is not so critical, so maybe option 1) is sufficient. QC shares this view. Also it seems to create UE complexity if you can change L1/freq. Panasonic shares this view.

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- Huawei wonders what the complexity is for option 2.
- Chairman thinks we have agreed no change of common information with Scell modification (only release/addition). So options 2a/2b can only be used if the common information between 2 cells is exactly the same.
- CATT does not see complexity for option 2.

=> Limit options to 1 & 2a & 2b.

- NSN has the feeling that 1 is too limited, e.g. for inter-eNB handover case.
- Nokia does not like 2a because it means different handover of Scell information depending on MCI being present or not.
- QC thinks with 2b is that you might change the CIF if you change frequency. It is better to have RACH in this case.
- LG thinks if the gain is something like 15bytes, maybe no so relevant.
- Concerns are expressed about deactivation status in 2b. Nokia assumes if the L1/freq changes we have to handle it like addition for lower layers, and if not changed like a reconfiguration for lower layers.

=> Will go for option 1: i.e. only full configuration signalling at Scell addition. I.e. CellIndex, L1-Id and Freq are fixed during lifetime of Scell.

Agreement:
- Only full configuration signalling at Scell addition. I.e. CellIndex, L1-Id and Freq are fixed during lifetime of Scell.

Other

R2-105685: Physical layer parameters to be configured by RRC Ericsson, ST-Ericsson Disc

Following proposals already covered by previous papers: 4,5

Proposal 1-3:

- NSN indicates the way it is extended, also UE's not configured with CA could receive this parameter. Do we intend to have a condition that makes it clear it is only for CA UE's ? NSN thinks it might be good to clarify somewhere that it can never be used if we only have Pcell. Can think about it for the future.
- Ericsson poihts out that e.g. for format3 RAN1 is still discussing whether it could be used in Pcell only case.

Proposal 12

- Samsung understands it is still under discussion in RAN1 what part of the configuration of aperiodic sounding is in RRC and what part is on PDCCH. So maybe we should not agree on proposal 12 yet.
- NSN thinks maybe we could include with FFS, and remove if not needed ? Samsung is ok.

Agreements:
0: Will handle UL/DL MIMO in CA RRC CR
1: Introduce a new parameter pucch-Format and included as an extension to the PUCCH-ConfigDedicated within physicalConfigDedicated. The pucch-Format is a UE specific parameter and applicable to only Pcell.
2: Introduce a new parameter for A/N resources of PUCCH format 3 and included as an extension to the PUCCH-ConfigDedicated within physicalConfigDedicated. This parameter is a UE specific parameter and applicable to only Pcell.
3: Introduce a new parameter for A/N resources when the UE is configured for channel selection and when a Scell is not scheduled from Pcell in case of cross-carrier scheduling. This parameter can be included as an extension to the PUCCH-ConfigDedicated within physicalConfigDedicated and it is a UE specific parameter and applicable to only Pcell.
6: No need to signal separately the number of configured cells in RRC.
7: Introduce a new transmission mode tm9 and a Rel-10 version of antennaInfoDedicated to include tm9. (relevant for all serving cells)
8: Introduce the codebook subset restriction bitmap for tm9 and included in codebookSubsetRestriction-r10. (relevent for all serving cells)
9: Introduce a group IE CSI-RS-Config and include as an extension in physicalConfigDedicated with FFS. (relevent for all serving cells)
10: Introduce a new parameter ul-TransmissionMode and allocate 3 bits for future extensions. (relevant for all serving cells)
11: Introduce a placeholder PUSCH-ConfigDedicated-v10x0 in physicalConfigDedicated

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prepared for multi-CW PUSCH transmission offsets parameters. (relevant for all serving cells)
12: Introduce a set of UE specific parameters for aperiodic sounding and they are configurable per cell, marked with FFS. Include for all serving cell separately.

=> Agreements can be captured in rapporteur CR according to the text proposal. Additional changes can be made by rapporteur for cases where we agreed the parameter also need to be included in the Scell configuration (in R2-105971)

R2-105511: Carrier Aggregation: connection control related open issuesSamsungDisc 36.331
Proposals no longer relevant: 1,2
Proposal 4:
- CATT assumes maxScell should be 4, not 5.
- Nokia wonders if we have agreed to have "infinity" for deactivation timer ? ALU thinks we have not agreed but supports the proposal. Nokia would prefer to always have it configured.

Proposal 5:
- QC thinks we could agree to the principle, but invite for a contribution next time to show the impact to the spec. QC would prefer to only have a clarification for the parameters that are not clear already.
- NSN thinks we should try to keep a rule that anything in Scell configuration only applies to Scell, anything in Pcell applies only to Pcell. Samsung thinks the Pcell parameters sometimes apply to the Scells.
- NSN thinks in many cases it is clear, e.g. common DRX,...

Proposal 6:
- Samsung thinks a simplification would be possible in the ASN.1 even with variable size bitstring rather than forcing constraints in the ASN.1

=> Noted (can think more about this)

Agreements:
3 The need codes are updated in accordance with the table included in this contribution
4 Apply the value ranges/ values in accordance with the table included in this contribution, but changing maxScell to 4, no range for deactivation timer

For parameters where the situation is unclear, we should clarify whether they are applicable to Pcell or common. We invite CR proposals for next meeting, i.e. clarifications not included in rapporteur CR yet.

R2-105608: Update of 'serving cell' terminology in 36.355 Qualcomm Incorporated CR 36.355 F
- NSN wonders if "primary cell" is sufficiently clear in 36.355 context ? QC thinks it is sufficiently clear.

=> CR is in principle agreed

R2-105375: Clarification on CA configuration in handover to E-UTRAN - " Alt1 HTC TP 36.331
- CATT wonders if we really support this in the inter-RAT handover ? Huawei thinks we have discussed this in the past and agreed it could happen based on blind Scell addition. CATT thinks bitrate will anyway be quite different from UMTS->LTE. QC thinks MC-HSDPA situation might have quite high bitrates (e.g. MC UMTS -> MC LTE)
- NSN thinks in the future we might also interwork with other RAT's.

=> TP is agreed, change can be included in rapporteur CR

R2-105376: Clarification on CA configuration in handover to E-UTRAN - Alt 2 HTC TP 36.331
=> Not treated (no longer relevant)

R2-105585: Consideration on undecided parameters for CA Huawei, HiSilicon Disc
Only proposal 1 left.
- Samsung wonders if there are no power related requirements related to the band ? Huawei thinks UE can deduce the band from the UL and DL BW.
- HTC shares the concern of Samsung. Some bands have same UARFCN, but different RF requirements.

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- NTT DCM thinks if we signal EARFCN, that EARFCN is always uniqualy identifying a frequency band. Then the frequency band would not need to be signalled explicitly.

=> Rapporteur can remove frequency band indicator for Scells

R2-105794: Clarification on SCell configuration in full configuration HTC TP 36.331
- Huawei thinks Scell configuration is part of common and dedicated configuration. So the change seems not needed. Samsung agrees with Huawei.

=> Not agreed

R2-105420: Consideration on the SCell measurement results ASUSTeK Disc

=> Not treated (already covered)

R2-105584: Consideration on cross-scheduling configuration Huawei, HiSilicon Disc
R2-105327: Grouping of Cross-carrier Related Parameters CATT Disc
R2-105346: Some clarifications of CA ZTE Disc
R2-105347: Discussion on category of dedicated parameters for CA ZTE Disc
All 4 Tdocs not treated

7.1.3 Stage-3 User Plane

Treated in LTE Carrier Aggregation User Plane session, see Annex B.

7.2 WI: Relays (RP-100953)

(LTE_Relay-Core, leading WG: RAN1, started: Dec. 09, target: Dec. 10, WID: RP-100953)

7.2.1 Stage-2

7.2.1.1 Stage-2 Corrections

Proposals from rapporteur to correct/improve current agreement status in 36.300 shall be submitted under this agenda item. Also proposed non-contentious corrections to the stage-2 can be submitted here.

R2-105348: RN Reconfiguration Procedure for relays ZTE CR 36.300 ?
- CATT agrees to the change in the text part, but thinks we do not need to restrict it to after X2 setup, so the update to the figure is not required. ZTE agrees it is implement consideration when to do this.
- Ericsson thinks there is a dependancy on the type indicator. Ericsson would therefore prefer not to have this in this section.

After we took decision of the RN Type signalling:
- Ericsson think it is still not clear what is the end of the startup.
- LG is fine with the proposal. Huawei is fine with the change, but thinks the rapporteur could also place it somewhere else.

=> Procedure part of the proposal can be included in R2-105976

R2-105613: Corrections to relaying description Ericsson, ST-Ericsson CR 36.300 F
R2-105473: Relay Agreements Nokia Siemens Networks, Nokia Corporation Disc
Question is whether non-Type1 would receive SI information with dedicated information ?
- Samsung thinks an RN receiving both dedicated and broadcast would be quite complex. What is parameters are different. NSN thinks that is more in the context of CA.

=> LG proposes to say "the RN should ignore PWS" rather than "may"
=> DeNB should not provide system information with dedicated signalling to a non-type1 RN
=> R2-105613 will be updated to clearly reflect this decision in R2-105976, and this CR can included further agreements from this meeting

R2-105976: Additions and corrections to relaying description

=> In principle agreed

7.2.1.2 Stage-2 Architecture

Any aspects left related to architecture or distribution of functionality to entities or protocols?

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MBMS

R2-105677: Further discussion on deployment of both relay and MBMS CMCC Disc
- NSN wonders if any study has been done how much interference there would be ? CMCC foresees in some cases some problems. CMCC targetted the worst case. CMCC could agree that proposal 1 is the baseline, but why not do better.
- Ericsson wonders if really all proposals are needed to have the interference avoidance or only a subset ?
- Orange wonders whether it would be better for the RN to ask for this signalling, rather than the DeNB just providing the MBSFN subframe information ? I.e. an RN supporting "blank subframes" could request the information.
- ZTE agrees with the paper. ZTE thinks MBSFN transmissions will impact transmission in the RN and thus improve the situation for the RN
- NSN wonders if the main problem RN interfereing MBSFN, or MBSFN interfering RN transmissions ? CMCC is worried about both directions.
- NSN wonders if main intention for RN is coverage in Rel-10, how important is this really ? E.g. if this is coverage hole, how can RN interfere MBSFN. CMCC thinks it is difficult to evaluate.
- ALU wonders how in Type-1a, the SIB13 is provided ? It is SI for another layer. CMCC is mainly worried if Un and Uu are on same frequency.

R2-105803: Supporting MBMS over relays in Rel-10 timeframe Samsung Disc
- NSN thinks we have already agreed not to support it. Samsung thinks it would be quite bad if we introduce a lot of mechanisms because in Rel-10 we would not support MBMS in the RN (but in Rel-11 we might support), especially if the solution to support MBMS would be simpler.

R2-105840: Relays and MBMS Ericsson, ST-Ericsson Disc
- CMCC wonders why the MBMS service would be lost before unicast service ? Ericsson thinks if you loose 1 or 2 of the MBMS transmitters (which is similar to entering the RN), you will loose MBMS. Ericsson agrees it depends on cell reselection parameters.
- CMCC wonders if there would not be cases when an operator has insufficient frequency bands to have Un and RN-Uu on different frequencies.

Do we still want to support MBMS over Un?
If we do not want to support, any impact to Un signaling?

Discussion:
- NSN sees no need to do anything. NSN internally concluded that the interference is no real problem if we focus on coverage extension. NSN thinks before we would take an action, there should be a clear indication from RAN1 that there is a problem.
- NTT DCM agrees that we should not introduce mechanisms because we temporarily do not support MBMS, especially if these problems are not really shown. NTT DCM thinks it is more appropriate to support MBMS then in a future release.
- LG thinks the maximum would be to signal the MBSFN subframes.
- CMCC thinks the solutions are quite simple. CMCC is ok if we limit to proposal 1 from their paper.
- NSN is not convinced there is any problem
- CMCC's main intention is to introduce a safety mechanism. CMCC is targetting 2 steps: avoid interference and reduce MBSFN hole.
- Ericsson thinks the RN has awareness of MBSFN subframes in the DeNB. This could be used by the RN especially if capacity in the RN-Uu is not a problem.

=> RAN2 will not take any action in Rel-10 (which is focussing on RN for coverage reasons) until a serious interference problem is really demonstrated in coverage related deployments.

Other

R2-105654: In-sequence delivery during handover Alcatel-Lucent Disc
- CATT agrees that there might be a problem but can this not be addressed by handling the data with proper QCI on Un ?
- ZTE wonders if this is a real problem, depending on Un latency. Will e.g. the UE not take more time to handover ? So we should first see more detailed timing solutions.

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- DT thinks that since in Rel8 deployment with radio backhauls (non-LTE) and we seem to manage. So is there really a problem ?
- LG thinks if there is a problem, it seems a DeNB->GW problem ?
- DT assumes we would have the same problem with Home-eNB's on DSL ?
- NSN is not aware of a real problem
- Samsung assumes that if there is a problem, the solution is in the SGW
- ALU is not sure there is a problem, but just wanted to bring up the issue

=> Noted; see no need to address this so far.

Not available/too late/withdrawn:
R2-105839 Relays and MBMS Ericsson, ST-Ericsson Disc

7.2.1.3 Stage-2 Control plane procedures

"I'm RN"/RN Type indication
R2-105847: RRC message for RN type indication LG electronics inc. Disc
noted

R2-105310: Transmission of RN Indicator New Postcom Disc
R2-105349: Considerations on the details of RN type indication ZTE Disc
R2-105474: Issues about RN indication during RN startup procedure Nokia Siemens Networks, Nokia Corporation Disc
R2-105384: How to indicate RN type? CATT Disc
R2-105550: RN role indicator and RN type indication Huawei, HiSilicon Disc
R2-105831: RN Indication for MME selection NTT DOCOMO, INC. Disc
R2-105837: RN configuration and resource partitioning of Un Ericsson, ST-Ericsson Disc
All 7 Tdocs not treated

"I'm RN": connection request or setup complete?
RN Type "Type1/not Type1": connection request, complete, separate msg?

Discussion "I'm RN":
- NSN sees no reason for inclusion in the req. The main reason is to select the correct MME.
- CATT points if a connection req cause is used, there is less impact in RAN3 because DeNB can forward this cause in the initial direct transfer.

Discussion RN Type:
- Ericsson wonders why it is to late to sent the type after connection complete ? LG does not say "too late" but bit late
- ZTE wonders if we know the type at connection establishment of phase 2 ?
- NSN assumes the RN knows its type at phase 2 connection establishment. The RN would know from phase 1. Ericsson thinks we could mandate this, but we could also keep it flexible during phase 2. NSN thinks we should not introduce unnecessary flexibility.
- Chairman wonders if companies wanting to use a separate message, also want the RN to be able to change its interest.
- ALU wonders why we cannot use S1AP for this ? QC thinks it is a radio related parameter which will trigger the subframe configuration. So it seems better located in RRC. Vdf agrees. We should avoid radio related parameters in S1.
- DT thinks multiple codepoints in the SPID could be used to signal the RN type. NSN thinks something has to come from the HSS.
- Ericsson agrees this will be really static. Ericsson would be ok to have it over OAM.
- NSN you cannot change type while connected.
- NSN thinks it is simple to have one optional field in the connection setup complete with 2 values "RN Type 1, RN non Type 1" . LG thinks we could have other RN types later.
- CATT wonders if we need to be able to change the RN-Uu frequency but not release Un ?
- NTT DCM wonders if UE capability would be an option. Would mean you have to detach between phase 1 and phase 2 ? NSN thinks it would show up in 306 which is not really nice ?
- ALU thinks UE capability would make sense. ALU thinks if we have more parameters, probably S1-AP should even be more considered.

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- Ericsson thinks with using UE capabilities we mix RN and UE capabilities. Then we might go to a new message

Agreements: 1) "I'm RN" indication will be in RRC Connection Setup Complete 2) Second indicator in RRC Connection Setup Complete ("need subframe part", "do not need subframe part") Note: If we have more characteristics of the RN need to be informed to the DeNB over RRC about, we could consider to move the RN type indication to a separate message

Other

R2-105551: Configuration for RN-Uu Related Parameters Huawei, HiSilicon Disc
- Ericsson agrees with the conclusion.

=> No RN-Uu parameters will be signalled over Un RRC

R2-105350: Failure handling for RN reconfiguration ZTE Disc
R2-105351: Two-phase RN Start-up Procedure ZTE Disc
R2-105400: on the signalling for the starting symbol of R-DPSCH LG-Ericsson Disc
R2-105735: Communication between RN and DeNB Fujitsu Disc
All 4 Tdocs not treated

Not available/too late/withdrawn:

R2-105846 Synchronization of QCIuu-Un DRB mapping between DeNB and RN LG electronics inc. Disc
=> Withdrawn

7.2.1.4 Stage2 Other

DRB mapping

R2-105815: Uu to Un bearer mapping for relays Qualcomm Incorporated Disc, Deutsche Telekom
- Ericsson wonders why the DeNB would have to know the mapping ? QC wants to preserve operation today.
- CATT wonders if we specify this mapping, or who will take this into account ? QC assumes RAN3 and/or SA5 would take this into account.
- NSN does not understand why the eNB has to know the mapping ? The DeNB will get the QCI setting for the different bearers.
- QC assumes that the DeNB needs to know the mapping e.g. to configure the PBR for the Un bearers. NSN was assuming this could all be quite static. NSN assumes the DeNB knows but it is static

R2-105742: Uu to Un bearer mapping Ericsson, ST-Ericsson Disc
-

R2-105832: Uu to Un bearer mapping NTT DOCOMO, INC. Disc
R2-105386: How to map UE EPS bearers to Un bearers CATT Disc
R2-105552: The method of Uu to Un bearer mapping Huawei, HiSilicon Disc
R2-105845: Synchronization of QCIuu-Un DRB mapping between DeNB and RN LG electronics inc. Disc
All 4 Tdocs not treated

QCI->QCI or QCI->DSCP
Inform RAN3/SA5?

Discussion:
- Vdf thinks if you look at both solutions, indeed QCI->DSCP is more complex. But if you look at what we already have today and operators already do this kind of mapping, it seems easier to keep the same mechanism. Thus Vdf supports QCI->DSCP mapping. Orange shares this view.
- Huawei thinks if we haev QCI->QCI, we have 2 different mappings for different traffic (RN traffic, and RN-Uu UE traffic). So Huawei prefers QCI->DSCP. CATT agrees.
- NSN can accept QCI->DSCP mapping

Agreement:

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1) Will indicate to SA5/RAN3 that a QCI->DSCP mapping should be configured.

=> Will see LS in R2-105982

Connection release

R2-105722: RRC Connection Release on Un Interface LG Electronics Inc. Disc
LG proposes to only discuss proposal 2:
- Huawei wonders if we need to support this load balancing to be supported by RN ? The RN will cause very low signalling load. CATT agrees the MME could release the normal UE's first
- ALU wonders if we should forbid ? Normally we do not do this.
- Ericsson we have discuss this TAU/ATTACH cases, and then we agreed this could be left to RN implementation. Ericsson assumes also this case can be left to RN implementation. NSN agrees.
- QC thinks for the re-establishment case we say both TAU and ATTACH can be used. Should we say similar thing for this case in the stage-2 ? NSN sees no real reason.

=> Agree that whether TAU or ATTACH is used in this case can be left to RN implementation.
=> Noted (assumed no action is needed in specifications)

R2-105369: Handling load re-balancing for RN deployment Potevio Disc
not treated

Other:

R2-105414: PDCP and RLC SN shortage in Relay Node LG Electronics Inc. Disc
R2-105415: BSR of Relay Node LG Electronics Inc. Disc
R2-105368: Discussion on UE dedicated bearer deactivation Potevio Disc
R2-105385: Impacts on L2 measurements CATT Disc
R2-105487: Relay Node energy saving NEC Disc
R2-105721: Efficient RN Power Consumption LG Electronics Inc. Disc

Not available/too late/withdrawn:

R2-105733 DRB Mapping for Relays Fujitsu Disc
=> Withdrawn

7.2.2 Stage-3

=> Email discussion output for [71#30] LTE: Relays - 36.331 baseline CR was already endorsed in R2-105207. Should be provided again here based on latest spec version [Ericsson]
=> Email discussion output for [71#31] LTE: Relays - 36.321 baseline CR was already endorsed in R2-105210. Should be provided again here based on latest spec version [Ericsson]

=> Result of email discussion [71#30]: RN - 36.331 baseline CR

R2-105741: Introduction of relays in RRC Ericsson CR 36.331 B
=> Agreed as baseline for further work.
=> Update will be provided reflecting decision from this meeting in R2-105985

R2-105985: Introduction of relays in RRC
=> ALU wonders if the "I'm RN" indicator is mandatory for all RNs ? Ericsson assumes it is optional; i.e. in phase 1 you do not sent it. ALU thinks it is essential in phase 2 that the RN sets the indicator. Can think about updated formulation of sentence in 5.3.3.4 for next meeting.
=> CR is in principle agreed

=> Result of email discussion [71#31]: RN - 36.321 baseline CR

=> No new MAC spec was created; Will see update of R2-105210 reflecting additional agreements from this meeting in R2-105986

R2-105986: Introduction of relays in MAC
=> CR is in principle agreed (coversheet style should be updated for next meeting)

Applicable functionality

R2-105515: RN-UE functionality identification in RRC SamsungDisc 36.331
- QC thinks it is a good idea to specify what functionality is not needed. Maybe we should first have a discussion about what functionality, and then later decide where to capture.

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QC thinks there is more than this functionality that does not need to be supported, e.g. SPS. Ericsson points out that SPS is already captured in MAC.
- NSN wonders if the rest (not listed in annex C) is applicable to the RN ? E.g. a fixed deployed RN has to support measurements ? ALU agrees with NSN. ALU also thinks if we add an exclusoin list, the risk is that new features added later are forgotten.
- Vdf appreciates this type of clarification.
- NSN wonders if we should not list the mandatory functionality ? QC thinks having a list of what is not supported seems simpler. It can also be at a high level. Ericsson agrees to the NSN comment and think it can be listed as high level.
- LG thinks for procedures not listed, there might differences in operation eventhough the procedure is supported. Samsung thinks for these cases we have explicit text with "RN" in the spec.
- Huawei thinks maybe RAN2 should only this type of attempt when RAN asks. DT agrees with NSN and Ericsson
- LG thinks alternatively we could capture in 36.300

=> Noted

R2-105611: TTI bundling for RNs Ericsson, ST-Ericsson Disc
- CATT supports the proposal.
- QC wonders if "does not apply" the best way to capture this ? Or should we say "should not be configured". NSN thinks "does not apply" is clearer. Ericsson points out we already use "does not apply" for SPS.
- Samsung thinks we could capture something with the IE's in RRC.
- NTT DCM wonders about "communication with E-UTRAN" ? NSN thinks we could change to "communication with DeNB". Samsung thinks we could talk about "UE-RN" which would imply communication over Un. QC thinks current text is fine.

=> Change is agreed but changing to "is not supported", and same change should be made for SPS. Can be included in R2-105986.

Other

R2-105476: Separation of Relay descriptions Nokia Siemens Networks, Nokia Corporation Disc
- DT supports some kind of separation. Ericsson thinks we should be a bit carefull about separate tagging/separate sections in the text. It might easily lead to duplication.
- NSN thinks some kind of separation would be nice. NSN is open for better appraoches.
- Nokia/ALU support trying to separte.

=> Some support; could think more about this. Discussion can continue offline.

R2-105352: HARQ changes for Relay in MAC ZTE CR 36.321
- Should change to "except for RN with RN subframe configuration"
- Ericsson thinks there are still some open issues on this in RAN1 so maybe it is better to wait a bit. NSN agrees
- ZTE understands that the TDD timing is not changed. ZTE agrees some open issue are existing for FDD, but should not impact this text. CATT thinks there might also be changes to the TDD timing.

=> Noted (wait for RAN1)

R2-105475: Discussion on system information update over Un interface Nokia Siemens Networks, Nokia Corporation Disc
- Vdf thinks it might be safer for future extensions to sent the whole SIB1.
- CATT wonders why the MBSFN subframeconfiguration is not needed ? Ericsson agrees before discussion yesterday this was indeed not so usefull for the RN, but yesterday it was mentioned it could be used as interference avoidance. But anyway Ericsson agrees with the NSN proprosal to sent the whole SIB2.

=> No change for now; can see how the Pmax situation evolves

R2-105612: Start symbol of PDSCH for RNs Ericsson, ST-Ericsson Disc
- Huawei thinks in Rel-89 we have kept configuration of control and data configuration separate. So it might be better to separate R-PDCCH and PDSCH configuration. NSN thinks CR is ok for now.
- Huawei points out that the end symbol is missing in this proposal. Ericsson thinks the end symbol would not vary: it depends on whether you have a globally synchronised network

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which you would know. Ericsson assumes that OAM has configured whether the network is synchronised or not and based on that the RN would know what the end symbol is.
- Vdf would prefer not to have this dependancy on deployment.
- Alternative proposal in R2-105553

R2-105553: 36331_CRxxx_Un PDSCH Configuration _REL10 Huawei, HiSilicon CR 36.331 B
- Ericsson is not sure about the grouping
- Ericsson does not understand why the end symbol should be configured. Vdf thinks it would be nice to limit OAM involvement and agrees with the Huawei proposal. QC wonders if we would derive from OAM, then would the spec have to say that the RN derives this second slot configuration from OAM ?

=> Ericsson would prefer not to use Un in the naming. Alternative name can be discussed offline
=> Text proposal is agreed with removal of Un naming and can be included in R2-105985

R2-105740: RN subframe configuration Ericsson, ST-Ericsson Disc
- Samsung wonders why we cannot re-use the MBSFN subframe configuration for this purpose ? Ericsson agrees it could be used since it is very flexible. Ericsson thinks given the agreements in RAN1, it seems easier to match to an 8 bit pattern agreed by RAN1. Samsung thinks the explanations seems quite extensive, whereas the MBSFNsubframe configuratoin signalling is already there.
- Huawei thinks the wording is quite extensive and could possibly be simplified in the future (e.g. reference RAN1). Ericsson agrees. We can wait for RAN1.
- Huawei assumes we do not have to signal the offset for FDD. Ericsson agrees. QC thinks if the RN supports MBMS in the future, it would be good to have the offset. CATT thinks RAN1 is still working on the FDD pattern, so maybe we should not capture yet.
- Samsung thinks currently the CR is too complex.

=> TDD configurations should be extended to 18. Ericsson proposes range up to 31
=> FDD parameters can also be included but with no values INT(0)
=> With the corrections, updates can be made to R2-105985

R2-105827: RN behaviors upon leaving RRC_CONNECTED HTC CR 36.331 F
- Ericsson thinks this is covered by "releasing all radio resources"

=> Noted

R2-105534: RN indicator in RRC connection establishment Ericsson, ST-Ericsson Disc
=> R2-105985 will be updated in line with previous decision (stage-2): will include one optional bit, with values "I'm RN and need subframe configuratoin; I'm RN and don't need subframe configuration"

7.3 WI: MBMS enhancements (RP-100691)

(MBMS_LTE_enh-Core, leading WG: RAN2, started: June 10, target: Dec. 10, WID: RP-100691)

7.3.1 Stage-2

E.g. Can we count service interest before service start (depending on RAN3/SA2 input) ? Do we need to provide a deactivation counting mechanism or is a network internal solution possible (depending on SA2 input) ?..
=> Email discussion output for [71#21] LTE: MBMS - 36.300 baseline CR was already endorsed in R2-104993. Should be provided again here based on latest spec version [Huawei]

=> Result of email discussion [71#31]: Running MBMS stage-2 CR

R2-105810: [71#21] LTE - Stage 2 agreements on MBMS enhancement Huawei (Rapporteur) Report 36.300
=> In principle agreed; to be used as basis for further work.

Counting general

R2-105683: Information bits for scenario determination Orange Disc
- Samsung assumes that with the counting so far we can count interest in both current and future services. Will the bitmap split these countings ? Orange thinks it is anyway two different use cases.

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- ZTE wonders about the scenario 2: the user would be involved ? Chairman assumes we cannot afford real-time involvement of the user in the counting. Huawei thinks the UE could just store the users interest.
- Samsung wonders why the availability to the user has to be indicated ? Orange agrees it could be managed by the application layer.
- Chairman wonders why UE's would continue to receive a service on unicast if a service is provided by broadcast ? Orange thinks due to bad implementations the UE could continue to listen to the unicast. QC assumes these bad implemented UE's would not respond to counting w.r.t. broadcast (e.g. not monitor MCCH). Orange agrees if this is true, we would not need the differentiation in the counting.

=> Noted: can think if really a differentiation is needed.

R2-105602: On using unicast bearer for MBMS Qualcomm Incorporated Disc

=> Updated in R2-105870 (unlink figure)

R2-105870: On using unicast bearer for MBMS Qualcomm Incorporated Disc

Only proposal 4/5

Proposal 4:

- Chairman thinks WI scope and we have discussed this in the past. Also we have discussed that interest might be more for UE's with already receiving unicast. DT thinks discussed this in the past and the majority might be in connected mode.

Proposal 5:

- Samsung wonders if MBMS is becoming interested with 1 receiver per 5 cells, then the number of UE's responding to counting would always be very low. Then why do we need a PF ? QC assumes you have no precounting knowledge. Samsung assumes that e.g. for somewhat popular services you would not count. So only for very unpopular services you would count.
- Huawei sees no reason why the eNB should estimate the PF and sent separately based on its estimation. Even if the breakpoint is low, as long as the decision is to be taken over the whole MBSFN area and include many cells, it should be a joined counting.
- Nokia thinks is the reasoning of proposal 4 is true, then counting with a PF of less than 1 is also not usefull.

=> Noted

R2-105663: NW/UE behaviour considering MBMS deactivation ETRI Disc

- Orange thinks the deactivation is not linked to this WI/counting. The deactivation could be done by the network because of different reasons. Normally we deactivate because the number of UE's is very low. Orange assumes application part in UE is able to handle this.
- QC wonders if the application layer can distinghuish between termination because of end-of-service, and termination because of end-of-broadcast ? Orange thinks the UE does not need to distinghuish. The UE will just see from MCCH that the service is no longer provided.
- QC wonder how the UE knows it should start a unicast bearer.
- Samsung assumes in general MCCH does not provide any information about service availability on unicast. That is a separate issue. Huawei thinks the UE could always establish the unicast bearer and if it cannot get the service via unicast, it knows the service is no longer available. One could argue this is more service continuity.

=> Noted (not considered part of this WI; more related to service continuity).

R2-105527: Counting for Activation and use of TMGIIPWireless Inc. Disc

=> R2-105973

R2-105973: Counting for Activation and use of TMGIIPWireless Inc. Disc

- After offline discussion, there seems to reasonable acceptance that RAN can solve this but RAN3 will be involved (MCE actions; MCE being informed about MBMS service not always provided), and SA4 that the TMGI is available even though the service might not be provided by broadcast yet. The application layer would have to make the association betwen the unicast and the broadcast bearer.
- Samsung wonders if we cannot model this as always start from broadcast and deactivate. Then the TMGI always exists. IPW wants the BMSC to always start the broadcast service, but the MCE might filter and only based on counting provide on MBSFN area.

=> LS to SA4, Cc: RAN3, SA2; Indicate that we want a TMGI for counting even if the service is not provided yet, and aks them is this can be arranged. Will see the LS in R2-105974

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R2-105805: Considerations on MBMS Service Activation CATR Disc
not treated

Other

R2-105393: How to read counting request before a session start CATT Disc
- ZTE thinks with choice2 when we have counting at session start, it cannot be done with one indication ? At least one bit would be set to TRUE for session start.
- Huawei thinks choice1 might be more logical. The counting procedure is not supposed to be triggered often, e.g. only once a day. ZTE agrees choice1 is better than choice2, however it will wakeup all Rel9 UE's including IDLE mode UE's.
- Samsung assumes there is no big gain in power consumption of we stay with the current notification, so choice 1. ZTE would prefer choice3.
- Nokia thinks anyway a Rel-9 will wakeup quite frequently due to other session starts, so having the wakeup for the counting does not seem a real burden.
- LG supports 1

=> No need to enhance the MBMS change notification for counting

R2-105353: Notification for non-ongoing MBMS service counting requesZTE,CATR Disc
R2-105826: Correction on MBMS stage-2 agreements HTC CR
Both not treated.

7.3.2 Stage-3

Details of the request (e.g. including SN ? load control enhancements ?), and the response (e.g. bitmap or list of service indices) ?
=> Email discussion output for [71#58] LTE: MBMS - Stage-3 progress [Huawei]

=> Result of email discussion [71#58]: MBMS stage-3 progress

R2-105812: Summary of Email Discussion [71#58] LTE - MBMS Stage-3 progress Huawei (Rapporteur)

Discussion:
Proposal 2:
- ZTE thinks SN is usefull. ZTE would like to count multiple periods. Samsung does not understand why we would have multiple subsequent countings ? Probably periodic would be more logical

Proposal 3:
- ZTE prefers 8. Huawei thinks the 16 is only a maximum in signalling; if an operator does not want, it could e.g. always limit to 8 anyway.
- DT thinks 16 is already rather low.

Agreements:
1: Not to introduce probability factor (PF) in Counting Request in Rel-10;
3: In maximum, 16 services are allowed to be included in one Counting Request message
4: To use the “indices of service Id” to identify the MBMS service in the Counting Response message

R2-105814: Stage-3 CR for MBMS enhancement Huawei (Rapporteur) CR 36.331
- Samsung indicates that it was not completely clear to them whether a separate message would be used on MCCH, or whether this would be IE's in the existing MBSFNarea message. It does not really seem needed to have a separate message. Samsung thinks RAN2 procedures would be a bit simpler but RAN3 has similar impact
- Huawei understands that we agreed to extend the MCCH directly, which would mean a new message.
- ZTE understands that all the responses concern one MBSFN area ? Huawei agrees this is the current limitation. IPW thinks this is logical.

=> Nokia would like to make the service id optional in the response message
=> Remove "and optionally" in all places in 5.8.2.3, and just keep "and the CountingRequest if present"
=> Should also change section 5.8.1.3 to indicate that the MCCH change notification is also used for the counting request
=> Will see update also including further agreements from this meeting in R2-105975

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R2-105975: Stage-3 CR for MBMS enhancement Huawei (Rapporteur) CR 36.331
=> CR is agreed in principle

Load distribution

R2-105528: Mechanism to avoid RAN overload due to MBMS counting Nokia Corporation, Nokia Siemens Networks Disc
General
- CATT thinks we have agreed to only count UE's in CONN. Then UE will sent DSR. CATT assumes eNB can handle very high UE load on D-SR. For RACH we have the BO to distribute the load. So CATT assumes this is not really needed.
- Ericsson supports distribution in time.
- LG thinks if we only consider connected mode this is not urgent in this Release. We can reconsider when we have counting for IDLE mode UE's. CATR the LG view. We could use the PF rather than the distribution.
- Samsung also thinks this is not essential for Rel-10. Motorola thinks if many UE's signal D-SR, we could have a D-SR interference issue. Samsung thinks this is always network triggered. Motorola indicates there is a limited number of codes on the D-SR.
- QC thinks we should have decide to have load control or not, and then decide which mechanism. Not take the decisions in the reverse order. Huawei thinks the difference between PF and load distribution is that with this solution we do not need different phases.
- ZTE agrees with the proposal.
- QC thinks maybe time distribution is more suitable for CONN, and PF is more for IDLE. But it would mean we have another solution in Rel11 which is not so nice.
- ALU agrees no further enhancements are needed in Rel-10.
- Ericsson thinks we should have some load distribution mechanism. Ericsson is concerned about D-SR usage if we have no distribution. DT sees no need to enhance, but if we have an enhancement we can do time distribution.

Options:
Need to have load distribution mechanism in Rel-10 [8]
Need not to have a load distribution mechanism in Rel-10 [15]
=> No load distribution mechanism in Rel-10

R2-105739: Uplink load control and sequence number for MBMS counting Ericsson, ST-Ericsson Disc
R2-105774: UL Load Control in MBMS Counting Procedure Motorola Disc
Both Tdocs not treated

Can MCCH change w.r.t. counting in modification period ?
Counting is limited to one MCCH MP ?
If counting in subsequent MCCP MP, new counting procedure ?
Load distribution in MCCH MP ?

Other

R2-105354: Stage3 issues related with counting procedure ZTE Disc
noted

R2-105355: Discussion on some issues related with MBMS Counting Report ZTE Disc
R2-105653: Notification mechanism for MBMS counting request Alcatel-Lucent Disc

7.4 WI: Minimisation of Drive Test (RP-100360)

(MDT_UMTSLTE-Core, leading WG: RAN2, started: Dec. 09, target: Dec. 10, WID: RP-100360)

7.4.1 LTE specific stage-2 aspects

E.g. is it necessary to enhance RLF reporting in Rel-10?

R2-105312: Extension to Radio Link Failure report for MDT Huawei, HiSilicon, China Unicom Disc
-

R2-105604: Time information of RLF reporting after fresh RRC connection setup Kyocera Disc
R2-105698: Availability of GNSS location information in RLF Research In Motion UK Limited Disc

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R2-105356: RLF enhancement for immediate MDT ZTE Disc
All 3 Tdocs not treated

Discussion
General
- LG thinks RAN3 is still discussing this. Is there any new decision from RAN3 ? Huawei thinks at least RAN3 has agreed this IDLE survival. DT confirms this conclusion and supports most of the proposals.

Proposal 1:
- Motorola wonders why LOG MDT is not sufficient to address this ? DT thinks then we would have to configured LOG MDT for many UE's.
- QC wonders what the validity is of the information ? QC thinks depending on if we target SON or MDT, the validity might be more relevant for longer/shorter period.
- NSN thinks for SON the report will be exchanged between eNB's, but also for MDT the information will be forwarded to the source eNB and depending on whether the trace is still active will be forwarded to OAM.
- Samsung understands the existing report can distinghuish coverage hole and to late handover. Why do we need the IDLE surviving then ? Huawei thinks because the RLF may fail.
- LG wonders when this indicator is set ? E.g. inter-RAT mobility ?
- NTT DCM agrees with proposals 1-4.
- NTT DCM thinks it would be interesting to retrieve in another RAT. NSN thinks we have agreed this was an LTE only extension. NSN thinks covering multi-RAT is not very straightforward.

Proposal 2:
- TIM thinks the basis solution does not involve inter-RAT. TIM would prefer a completely solution for inter-RAT handling in later release.
- NSN thinks the storing during other RAT means we would have logging now for IMM MDT. Then the mechanism starts to look at logged in IDLE. DT agrees. TIM thinks we are introducing log in CONN. TIM thinks maybe we do not need to specify all the details.

Proposal 4:
- CATT wonders whether with "RACH problem" the network can really distinghuish UL or DL problem ? Huawei thinks it can.
- Samsung thinks PHR and other DL measurements are reported in connected. That should be sufficient for UL/DL detection. NSN agrees we have additional information for UL. Huawei thinks it would be easier if the UE indicates this. DT agrees.
- Nokia could agree it may be easier, but there is a good possibility for the network to have all relevant information without this.
- Proposal 4 seems to be a contradiction of the first bullet.

Proposal 5:
- DT would prefer a periodical logging of measurements. NTT DCM thinks RAN3 did not conclude on this yet. NTT DCM would prefer to have a timestamp. Huawei thinks introducing timestamp wil be complex since we have no absolute/relative timestamp.

=> Noted (very limited support)

Agreements:
1: The UE shall store the information for RLF failure when going to IDLE after the failure, for later reporting to the network.
2: The “rlf-InfoAvailable” IE for LTE RLF-reporting of Rel-9 will be reused to report the RLF report in MDT.
2b: The indicator is only set if the RLF happens in LTE, in the next connection establishment in LTE. The indicator is only set in one connection establishment after RLF.
- FFS if the information would survive connection establishment in other RATs.
3: The last cell where UE was successfully connected before the failure event shall be identified. CGI shall be provided.

7.4.2 LTE stage-3

=> Including email discussion output: [71#41] LTE: MDT - 36.331 baseline CR [NSN]

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=> Result of email discussion [71#41]: LTE: MDT - 36.331 baseline CR [NSN]

R2-105781: Baseline CR to 36.331 on MDT Nokia Siemens Networks, Nokia Corporation CR 36.331 B

- Huawei indicates that in 5.6.6.2, the carrier frequency should be removed. Will be done in update

=> Agreed as baseline for further work

=> Rapporteur will provide update capturing agreements from this meeting in R2-105879

Other

R2-105497: Miscellaneous MDT related stage 3 issues SamsungDisc 36.331

Not relevant now are 1,2,6

Proposal 3:

- DT agrees with the proposal

=> Agreed

Proposal 4:

- Huawei thinks this is difficult to agree if we do not know how many intra-freq neighbours we can report as part of the radio meas. (e.g. 6 for RF fingerprint, but only 3 for neighbour meas).
- CATT wonders if this means we provide the fingerprint even if we have accurate location ? CATT has sympathy for the proposal if this is not the case, to limit duplication. Samsung does not want to change stage-2 agreement. LG supports the proposal.

Proposal 7:

- Nokia wonders if this proposal is only for immediate reporting ?
- Nokia wonders if the current ASN.1 already allows CGI reporting ?

Proposal 8:

=> Can be handled offline

Proposal 9:

- Nokia wonders if this means different handling for UEInformationResponse for different cases ? Samsung proposes that if logMDT is request, then SRB2 is used. Otherwise SRB1 is used.
- Ericsson thinks alternative is not to allow mixed requests.
- ALU wonders if the request remains always on SRB1 ?
- Huawei wonders if there is a backward compatibility problem e.g. for RACH reporting ? Samsung does not think so.
- ALU indicates that on SRB1 we can have multiple outstanding messages. This proposal means that we could have the response to a next SRB1 req arrive on SRB1 before this response on SRB2 comes. Maybe no strong concern in this case but something to consider.
- Nokia thinks maybe we should use a new procedure.
- ALU thinks the could allow the req for this case also to come in RAN2. ALU agrees probably there is no real problem in this specific case.
- Samsung thinks we anyway have the transaction id. NSN agrees. NSN is ok with the proposal
- Should we forbid combinations of information asking ? I.e. MDT info together with other info ? ALU thinks if we forbid the combinations, then the request could as well go on SRB2.
- ALU would prefer req and response to go on the same SRB.
- NTT DCM sees no reason to allow request on SRB2. NTT DCM thinks it will be more options so more complexity. DL and UL are anyway decoupled.

A) Who thinks request is sufficient only on SRB1 [9]

B) Who thinks request should be able to go on SRB2 also [3]

Agreements:

3 The maximum size of the TA list (maxAreaCodes) is 8

4 The RF fingerprint information is provided within the (existing) fields used for neighbour cell measurement reporting (and not within the locationInfo)

5 Reflect the current status together with the outcome of the previous proposals on the idle mode logging information by introducing the ASN.1 shown in the above. RAN2 is requested to discuss whether or not to re-use the existing MeasResultRAT IEs.

7 As part of the location info for IMM MDT, the CGI is not provided (eNB knows the serving cell) [not applicable to RLF reporting after IDLE survival]

9 Whenever E-UTRAN requests the UE to report logged measurements, the UE applies

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SRB2 for the UEInformationResponse message (regardless if other reporting information is included in the message).
- Request is only over SRB1 like in Rel89

=> Will be included in R2-105879

R2-105661: SRB for logged reporting Alcatel-Lucent Disc
=> Noted (already covered)

R2-105378: Clarification on logging duration HTC TP 36.331
- Nokia agrees.
=> Change can be included in rapporteur CR (R2-105879)

R2-105523: 36331_CRxxx_Inter-Frequency MDT Logging Vodafone CR 36.331 F
- We agreed on Monday to remove the measurement object, so no longer relevant
=> Noted

R2-105377: CR to Logged MDT reporting in E-UTRAN HTC TP 36.331
Only change to procedure text still relevant
- Nokia thinks with this proposal it seems we sent the response twice. Samsung agrees that it could be better done without the double sending.
=> Not agreed

7.5 WI: Network based positioning support for LTE (RP-100135)

(LCS_LTE-NBPS, leading WG: RAN2, started: March 09, target: March 11, WID: RP-100135)

R2-105394: Call Flow to Support UTDOA TruePosition Disc
- Ericsson wonders if this has been discussed in RAN3 ? Trueposition agrees it should also be discussed in RAN3, but RAN2 is stage-2 responsible and lead WG.
- QC assumes it should be discussed in both places. QC assumes RAN3 should first discuss.
- NSN thinks there is an implicit assumption on the architecture. NSN wonders who talks to the LMU ? Trueposition assumes the LMU is not specified, and part of the SMLC cloud. NSN thinks the paper assumes that the SMLC can talk to the LMU's.

=> Would be good to include architecture picture, showing interface between LMU's and SMLC

- NSN wonders if SA2 should not been involved in this type of discussion ?
- Trueposition thinks in UMTS there are 2 types of LMU's: Typea stand alone, and TypeB which connects with a specified interface to the basestation. Trueposition proposes only TypeA for LTE at this stage. QC sees no reason to involve SA2.

=> QC thinks it should be made clear that LPPa is not used inbetween LMU's.

- Trueposition intends to bring an update at the next meeting, so that RAN2 could technically endorse a CR so that RAN2 is "ready" when RAN would agree on the benefits
- W.r.t. the handling, RAN3 should probably try to agree a CR from RAN3 point of view early in the next meeting, and then RAN2 would have final approval
- NSN assumes that SA2 would have to be involved and refer to the same architecture. Trueposition indicates SA2 has considered UTDOA in their architecture. It does not show LMU.
- Trueposition thinks RAN23 could endorse a CR.
- ALU wonders what the interface between SMLC and LMU is ? Is the LMU a RAN node ? Trueposition considers the LMU a proprietary box not part of the RAN. Trueposition is open for discussion.
- Ericsson wonders about the semi-persistent allocations; is the eNB assumed to indicate upfront for how long the allocation is valid ? If so, this does not seem feasible due to unexpected future events. Trueposition indicates that the eNB does not indicate upfront: it will sent an indication whenever the resource change. Ericsson points out that LTE is a fully scheduled system, so thinks can change very frequently. Ericsson thinks SPS reconfiguration possibilities should not be limited since that would be limitations to the scheduler. So woudl this not result in very frequent LPPa messages ?

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- Trueposition thinks the main RAN2 issue is feasibility of having the eNB sending LPPa messages on change of SPS or SRS. Ericsson thinks eNB can send messages, but how do we guarantee we do not sent it too frequently ? E.g. 1s intervals ?
- Andrew Corp thinks that e.g. SRS is to be reconigured by RRC, and then RRC will also put some limits on how often it is changed. Ericsson agrees concerns for SRS are probably less.
- Trueposition thinks SPS is typicaly used for VOIP. Trueposition assumes SPS allocation is not changed during a talkspurt.

=> ALU would prefer to see more inputs on this stability/feasibility aspects.
=> Will have email discussion up to next meeting to see if we can conclude this method is feasible from RAN2 point or not **[EMAIL DISC [71b#25] Trueposition]**

R2-105678: Network based positioing support Andrew Corp Disc
not treated

7.6 WI: TEI10

Corrections/Clarifications

R2-105317: SIB Size Limitations Nokia Siemens Networks CR 36.331 F
=> CR is in principle agreed

R2-105687: Addition of UE-EUTRA-Capability descriptions Research In Motion UK Limited CR36.331 F
=> Contents of field descriptions should not be in italic
- NTT DCM thinks we do not need to list all fields in the field description ? E.g. 36.306 fields do not seem needed.

=> CR is agreed in principle with this change in R2-105990

R2-105688: Redundancy version for system info reception Research In Motion UKLimited CR 36.321 F
- Panasonic agrees the CR correctly captures the intention from RAN1.
- Samsung thinks it was already sufficiently clear (subframe number increments one by one). NSN points out that the window in RRC also defines the window in ms.

=> Noted (very limited support)

R2-105802: Msg3 transmission for HO Complete message Huawei, HiSilicon CR 36.300 F
- LG thinks the level of detail is a bit too much.
- NSN thinks "endeavor" is also a bit confusing
- Ericsson assumes the priority order is sufficiently clear from the LCP.
- Huawei thinks the current spec is wrong which will confuse eNB implementators.
- QC agrees that this level of detail can be left to stage-3
- Ericsson thinks the same question has been discussed and decided not to do this.

=> Noted

New functionality: MPS

R2-105483: Priority handling of MT calls from LTE into UMTS via eMPS using CSFB AT&T
-

R2-105359: Priority indication for CSFB with re-direction ZTE Disc
-

Is it something we want to adress in Rel-10?
Paging cause or Release cause?

Discussion
- NTT DCM wonders why current mechanisms are insufficient, i.e. paging drop.
- NTT DCM wonders why place 1 is not enough, and place 3 is needed ? ZTE wants to prevent that this UE has to follow all access mechanisms like normal UE's. We want to prioritise the access. NTT DCM thinks since PPAC is used, any redirected UE bypasses access checks.
- QC thinks the point is that PPAC is a solution where it is present. QC supports the AT&T proposal as complementary to the PPAC proposal.

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- NSN understands that RAN3 would have to enhance load sharing mechanisms, so also enhancement is needed then. NSN thinks maybe paging cause is simpler then. If we go for the connection release solution, the context over S1 will have to be updated. Ericsson indicates CSFB is already there: two values, including one for high priority (emergency call).
- NSN thinks connection release does not pass information to NAS yet. ALU assumes NAS impact is always there (for paging and connection release solution).
- ALU points out that there is already a load balancing TAU cause. The delay is the same in both approaches because also in the paging solution you have to get a connection release
- QC thinks from UE implementation, connection release might be a bit simpler.
- NTT DCM thinks ACB is the best solution, but can understand that operators want to avoid legacy impact. NTT DCM would like to ensure that operators are not required to use this information. So no mandatory eNB implementation aspects.
- NTT DCM would still like to see the load sharing enhancement in RAN3. Ericsson wonders why we would ask RAN3 to do this ? NTT DCM would like to ensure that networks using ACB will also work accurately. Ericsson thinks NTT DCM can bring any contribution to RAN3. NSN agrees with Ericsson. Huawei thinks it is ok to ask this. QC agrees that PPAC should also work well.
- NSN is not sure about a high priority indication in the initial context message over S1. ZTE thinks this IE is present in initial context and context modification as shown in the ZTE paper.

Agreement:
1) Will add CSFB high priority cause in connection release message.
2) UE should use "Terminating high Priority Signalling"
3) Indicate to RAN3 that we see this as a different solution and RAN3 are still invited to discuss necessary enhancements to complete a PPAC based solution e.g. load information exchange enhancements

=> Will see CR in R2-105992
=> Will sent LS to SA2, RAN3 and CT1 about this decision in R2-105993

R2-105992: Release cause for high priority CSFB
- NTT DCM thinks it might be more logical to call this "high priority redirection"

=> NSN would like to use "CSFB high priority" which is the RAN3 name
=> Will include in the field description that this cause can only be used for high priority redirection to UMTS
=> NSN would prefer not to simplify the procedure text
=> Will see update in R2-106022

R2-106022: Release cause for high priority CSFB
=> CR is in principle agreed

New functionality: CSFB to UMTS

R2-105724: AC-Barring for Mobile Originating CSFB call NTT DOCOMO, INC., NEC, Qualcomm Incorporated Disc

Proposal 1:
- Nokia wonders if this is a RAN2 decision ? NTT DCM indicates that CT1 has already agreed this.

Proposal 4:
- NSN is not clear. NSN understands the majority of the CSFB UE's will be Rel89 UE's, so this enhancement not seem so needed. NTT DCM thinks this is important to meet the SA1 requirement of "independant". NSN thinks if there is no Rel-10 ACB, Rel89 is applicable. NTT DCM thinks this is not fully independant: NTT DCM assumes the control as a whole should be differentiated. NTT DCM thinks this is a Rel-10 service requirement.
- Huawei is ok with the NTT DCM proposal.
- NSN thinks ACB is already sufficiently complicated. QC is fine with the NTT DCM proposal and sees no big complexity. Panasonic agrees with QC. DT thinks in general it is late only for Rel-10 UE's.

=> Offline compromise for proposals 4 and timer handling can be discussed.
- main question is whether Rel89 behaviour is completely applied if this Rel-10 ACB is not provided, or if more independent control needs to be provided.

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Agreements:
1: A new call type is defined, i.e., “mobile originating CS fallback”, that is provided from the NAS layer to the RRC layer internally in the UE upon connection establishment.
2: A new Rel-10 CSFB barring information should be defined.
3: If CSFB barring information is not included in SIB2, Rel-10 UE shall apply Rel-8/9 ACB.

Following proposals are FFS:
4: The newly defined Rel-10 CSFB barring information IE should consist of a choice between “barring”, which has an AC-BarringConfig type, and explicit “no barring”.
5: A timer T306 should be introduced to manage barring time for MO CSFB calls.

After offline discussion:
=> Agree that T306 is only applied when the barring info is in SIB2
=> No agreement could be reached on the "no barring" so it is proposed to sent an LS to SA1.
Updated document in R2-106019, LS in R2-106013.

R2-106019: AC-Barring for Mobile Originating CSFB call
=> CR is in principle agreed

R2-105729: AC-Barring for Mobile Originating CSFB call NTT DOCOMO, INC., NEC, Qualcomm Incorporated CR 36.331 B
=> Updated in R2-105984
R2-105984: AC-Barring for Mobile Originating CSFB call NTT DOCOMO, INC., NEC, Qualcomm Incorporated CR 36.331 B
=> Starting of T306 in case no Rel-10 ACB, and separate "no barring" codepoint dependant on offline discussion
- no other comments so far
=> Noted

R2-105357: Further clarification on accessc control of CSFB ZTE Disc
R2-105358: CR for Further clarification on accessc control of CSFB ZTE CR 36.331 B
Both not treated

New functionality: Dual Tx/Dual Rx CSFB to 1xRTT

R2-105595: Discussion on handling dual transmission capable devices Verizon Disc
- Verizon clarifies this is not only applicable to CSFB to 1xRTT, but all dual Tx cases
- DT assumes this is more a RAN4 issue. Verizon agrees RAN4 should be involved in this discussion, but it would be good to hear some first opinions.
- KDDI thinks it would be good to consider this aspect
- QC indicated they have some discussion papers in RAN4, but thinks since RAN2 is heavily involved in PHR design, it also concerns RAN2. QC thinks it is a problem that should be adressed; the eNB will overestimate the UE power. QC thinks this is a good opportunity since we now fix the PHR for Rel-10.
- Samsung agrees it is good to study but is not sure if there is really a problem. There is only impact if the dual-tx is really on. Also if the UE is in good transmission conditions, total tx power might still be no problem. It might also depend on FCC testing approach. QC agrees in good radio conditions it might not be a problem, but there are also other conditions. Samsung thinks it would be good to get better understanding of the problematic situation. LG wonders how critical it is, but does see the problem in real-life: in this case LG just backoff's the power but thinks this should be studied.
- Verizon has received feedback from vendors that this problem exists. Verizon thinks there is the power backoff aspect and the signalling aspect. Ericsson wonders how dynamic this phenomenon is. E.g. if you start the second transmitter, you lower you first transmitter max with 3dB (in that case the eNB will probably learn). If it is more dynamic, then there might be more impact on us. QC understands it is quite dynamic e.g. based on voice activity.
- Chairman wonders if the same problem does not exist for BT or WiFi. Samsung indicates for BT the relative power is much less so probably less of a problem. Ericsson understands that the SAR is a range, so then you might exceed at least for some time the max total power e.g. 2dB (e.g. 25dBm instead of 23dBm) but this might depend on market.

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=> Invite papers for next meeting to better understand this phenomenon. Also companies are invited to contribute in RAN4 directly.

R2-105548: CR to 36.300 adding e1xCSFB support for dual Rx/Tx UE Motorola, Hitachi, KDDI, NEC, QUALCOMM Incorporated CR 36.300 B
=> Updated before presentation in R2-105977
R2-105977: CR to 36.300 adding e1xCSFB support for dual Rx/Tx UE Motorola, Hitachi, KDDI, NEC, QUALCOMM Incorporated CR 36.300 B
- NSN would prefer "retuning" is more appropriate than "redirection" ? Motorola indicates it is using the redirection IE's in the stage-3. No better term has so far been. It is more a turning on of a second radio.

=> CR is in principle agreed: better terminology can still be discussed offline.

R2-105549: CR to 36.331 adding e1xCSFB support for dual Rx/Tx UE Motorola, Hitachi, KDDI, NEC, QUALCOMM Incorporated CR 36.331 B
=> Updated before presentation in R2-105978
R2-105978: CR to 36.331 adding e1xCSFB support for dual Rx/Tx UE Motorola, Hitachi, KDDI, NEC, QUALCOMM Incorporated CR 36.331 B
=> CR is in principle agreed: better terminology can still be discussed offline.

New functionality: Fast dormancy

R2-105848: Fast Dormancy in LTE NTT DOCOMO, INC. Disc
- DT wonders if the important point is how long in typical network implementations it takes before long DRX is entered. NTT DCM confirms. NTT DCM assumes that if already smaller values are well possible in well implemented networks, the need for fast dormancy is reduced.
- RIM assumes that long DRX is a kind of minimum solution ? But RIM assumes also RRC IDLE is a good solution, especially for high mobility ? NTT DCM wanted to say that in some cases you might want to sent the UE to IDLE, but in some cases you might want to keep him in connected.

R2-105407: Discussion on LTE fast dormancy Samsung Disc
- NSN clarifies that SCRI was intended for solving UE problems, not for actively autonomously releasing the connection. RIM agrees: the problem in UMTS was caused by misusing this feature by UE's.

Discussion: do we need to enhance ?
- Vdf think in UMTS the UE was allowed to release the connection autonomously and was then creating problems. In LTE we do not allow this and UE is always under control of network. DT agrees. DT thinks we should not allow the UE to autonomously release by the UE in LTE.
- ALU wonders if the UE has more intelligence than the network ? RIM assumes so.
- ALU points out that we have been discussing in the LTE context that most UE's would be in connected ?
- NSN is fine to have no solutions as long as it does not mean that UE's do not autonomously release the connection.

After offline discussion:
Difficult discussion without real consensus emerging. Many companies argue no strong need seems to be identified so far. Many companies seem to think more evidence is needed before doing anything.
- RIM thinks we do have mechanisms but have no guarantees as a UE. RIM thinks we should first have a good understanding of what an efficient state is.
- Offline seemed to agree on 2 points:
  - Comparing to UMTS, eNB has good mean to set inactivity timer aggresively.
  - Some UE's might use the trigger strangely, especially if every application triggers independantly. RIM thinks there are GSMA guidelines.
- TIM thinks if we would go forward this, we should also have a clear view on how to test this. RAN 5 should then also be involved.

=> Noted; can think more about this.

R2-105477: UE power saving and fast dormancy in LTE network Nokia Siemens Networks Disc
R2-105533: DISC on the UE fast dormancy controlled by the network NEC Disc

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R2-105686: RRC considerations for power consumption in LTE Research In Motion UK Limited Disc
All 3 Tdocs not treated

New functionality: Blind scheduling optimisation

R2-105318: Padding BSR and Empty Transmission Buffers Nokia Siemens Networks Disc
-

R2-105406: On protecting UE battery from the blind scheduling Samsung Disc
- NSN wonders if as a result of this proposal, the UE will never sent a empty PDU with only a zero contents padding BSR. Samsung indicates it will still be sent if the last SDU leaves enough room in the grant to sent the padding BSR. Also in the case of a small PDU the BSR would still be sent.
- NSN thinks the problem is that eNB cannot differentiate PDCCH loss from a UE with zero data. So the UE should always react once (in a while).

Discussion
- Samsung why the eNB needs to inform a zero BSR once in a while ? In the low load system the eNB will probably anyway continue to sent grants. NSN thinks the Samsung fix e.g. removes scenarios configured with no BSR triggering configured. The only an explicit poll would help. Samsung thinks you could still give a 2 or 3 byte grant.
- Ericsson sees no real benefit with either solution.
- Samsung assumes without these enhancements, blind scheduling power consumption is not acceptable. So will it not be used at all ? Ericson thinks you could still use it for shorter periods of time.

=> No blind scheduling enhancements assumed for Rel-10

New functionality: Other

R2-105806: Combined Quantity Report for IRAT measurement of UTRAN Huawei, HiSilicon
R2-105804: Combined Quantity Report for IRAT measurement of UTRAN Huawei, HiSilicon
- ZTE wonders whether the ping-pong would arise in colocated RAT's ? Huawei assumes that the RAT's can be in the same area/sites. ZTE wonders why there would be ping-pong in this case ? Huawei thinks the network might make the handover decision on different inputs, e.g. LTE->UMTS on RSRP, UMTS->LTE on both quantities.
- Nokia is not sure if there is really a problem. Nokia understands that for inter-freq, there is only 1 measurement quantity in UTRAN. Also network knows handover just occured.
- Huawei is especially concerned about LTE handing over to f1, and then UMTS internally always handing over immediately to f2 due to considering other measurement quantities.

=> Noted (no support)

R2-105603: Broadcast of positioning assistance data Qualcomm Incorporated, NTT DOCOMO INC. Disc
- Huawei wonders if the intention is to do IDLE mode positioining in IDLE mode ? QC thinks that is already possible today. Now it would be made easier. Huawei agrees it will have some benefits, but thinks this service is not really related to 3GPP. QC can agree it is not related to emergency calls, but why would it not be general beneficial e.g for UE battery consumption point of view. Huawei thinks latency requirements for positioning are not very stringent.
- NTT DCM thinks this is usefull for IDLE as well as CONN mode. In addition, the time reference could be used for MDT.
- DT thinks SIB15 is not really used in UMTS, so DT sees no motivation for connected mode.
- Ericsson thinks many operators will not want to broadcast eNB location. So you would have to encrypt the assistance data but that seems not possible in this solution.
- DT confirms that basestations are more and more hidden. DT is not very confortable with broadcasting the position.
- Intel thinks from UE implementation point of view, this is quite interesting. Also it would reduce network load. Huawei thinks we should maybe investigate the requirement first.
- NSN has a concern w.r.t. violation of the LPP architecture.
- HTC thinks the feature might be interesting, but would like to investigate more. E.g. how many assistance data requests you can really save. Support by 4.5 companies.

=> Noted (limited support; can be revisited if significant more support is present)

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R2-105322: Clarifications on the proposal of improving end user satisfaction in LTE Rel-10 KDDI Corporation Disc
- Chairman does not really understand the proposal yet. DT also does not understand. DT thinks scheduling is something between operator and vendor so no work for 3GPP.
- KDDI explains that the selected UE will have more satisfaction, but ofcourse some less satisfaction. KDDI thinks 30% users will have benefit, and something like 5% will have degradation.
- QC wonders if the simulations have looked at network capacity and fairness ? KDDI has simulated this and sees only very limited impact on network capacity and fairness.

=> Noted (no support)

R2-105466: HetNet improvements for Mobility Nokia Corporation, Nokia Siemens Networks Disc
- So Nokia sees no strong need for Rel-10 to enhance cell specfic TTT's
- Motorola wonders how the L3-filter was set ? Nokia clarifies it was not used.
- Samsung understands these simulations only simulate at 0.5 of cell size. Have simulatinos been performed for 1/4, 1/8th of 1/16th of cell size. Nokia indicates they have not done these simulations yet. Samsung indicates that their previous papers showed least problems at 0.5 of radius. Samsung assumes the RLF rate will increase if the simulations would have been performed closer to the macro cell center.
- Vdf thinks it would be good to compare to the case of no cell specific offset. Nokia indicates offset 3 is 0/0dB, so no cell specific offsets.
- Samsung assumes offset 3 and 4 are not realistic, since they will result in ping-pong. So if you compare to offset 2 which seems most realistic, TTT can bring 50% gain.
- ALU indicates they have also been doing some simulations and intends to bring them to the next meeting, and the ALU simulations showed quite a few more handover failures. ALU would prefer to give it some more time.
- Vdf thinks it would be good to investigate macro to pico mobility in detailed manner.

=> Noted; can study a bit more.

R2-105681: Setting of Maximum Bit Rate (MBR) to be greater than the Guaranteed Bit Rate (GBR) over E-UTRA: MBR enforcement Orange, Deutsche Telekom, Telecom Italia, Qualcomm CR ?

7.7 WI: Other LTE Rel-10 WIs

(LTE_UL_MIMO-Core, leading WG: RAN1, started: Dec.09, target: Dec.10, WID: RP-100959)

R2-105464: Introduction of UL spatial multiplexing in MAC Ericsson, ST-Ericsson Disc
General
- Huawei assumes it is better to wait for RAN1 progress: currently the DCI format is not yet known. It is e.g. unclear how the grants are delivered to MAC, as one grant or 2 grants. It is also unclear how many HARQ processes will be used.
- Ericsson thinks this is mainly about modelling. Ericsson assumes it would be easiest to model the UL as one HARQ process per UL TB.
- Panasonic also assumes there is one DCI format with 2 resource allocations. RAN1 has agreed the number of HARQ processes is doubled. Panasonis supports that in MAC it would be modelled as receiving 2 grants (from one DCI).
- NSN understands the AN and retransmision handling is independant. NSN assumes the handling can be as for DL.
- Ericsson assumes it would be better to model it completely independantly, so that if one of the TB's gets a adaptive retransmission, the other one still continue with autonomous retransmission. NSN agrees that they should both be progressed independantly based on AN/adaptive grants.
- Ericsson thinks if we want to sent an LS to RAN1 on receiving two seprate grants, then we should rather do it sooner than later.
- ALU tends to agree with Huawei that RAN1 has not progressed sufficiently.
- Huawei thinks it would be no problem to have the CR prepared in one meeting.

=> Will have email discussion up to next meeting to try to prepare MAC CR for UL MIMO (including technical discussions which are required) **[EMAIL DISC [71b#24] Ericsson]**

(eICIC_LTE-Core, leading WG: RAN1, started: March 10, target: Dec.10, WID: RP-100383)

TDM: Stage-2

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R2-105467: RRC impact of eICIC Nokia Corporation, Nokia Siemens Networks Disc
- Huawei supports the intention of this contribution. Huawei thinks we should carefully study all aspects of the solution, including IDLE mode.
- QC assumes that in the macro-pico case, also for the case the UE is served by the macro and needs to measure on the pico, you need to use the same restriction. ZTE does not think so. QC explains that if a macro-UE is measuring on a pico and the RSRP is strong interefered, the RSRP measurement becomes inaccurate. So the UE should measure in the ABS. ZTE thinks the RSRP accuracy is not impacted.

Current understanding:

Macro<->Pico:
- macro UE/pico UE: macro ABS pattern is used for measuring on pico (otherwise to strong macro interference)

Macro <-> Femto:
- macro UE: femto pattern is used for measuring on macro (otherwise to strong femto interference)

- ZTE wonders if the macro-UE measuring the pico has to limit to macro ABS, this will impact measurement ? QC thinks this limitation will be required. Samsung has same understanding as QC, but we will have to discuss whether same pattern is applied for serving and neighbour measurements
- RIM now understands that CSI subframes and RLM subframes might be different. This is also the Nokia understanding based on the LS.
- QC explains that the pattern works with low/medium bias. If you would not have a pattern, QC thinks you could not apply a low/medium bias. QC explains that the pattern provides control channel interference lowering. Motorola thinks the work in RAN1 is not conclusive enough to start the work in RAN2/3. QC thinks the work is conclusive enough to start the work in RAN2/3, but not in RAN4.
- Motorola thinks that there is no conclusion in RAN1 that with medium/low bias, there is a problem with control channels. Chairman assumes we have to work on the bases of the liaisons. If RAN1 reconsiders, they should inform RAN2 to stop the work.

=> Noted

R2-105360: Resource participation and measurement for eICIC ZTE Disc
- RIM thinks obs1 and ob2, RIM is not sure about cell specific. Only a pico-UE closed to the edge of the pico has to use the ABS pattern of the macro in RIM's understanding. ZTE thinks the pico cells are small so the effect is the same in the whole pico. RIM understands that in center of pico there are no problems since pico is already stronger. ZTE can agree for the RSRP measurement, but for RSRQ there will be a difference. It will also depend on where the pico cell is in the macro cell.

=> Noted

R2-105793: Backward compatibility issues with agreements described in RAN1 LS on eICIC progress Motorola Disc
- Motorola points out that now interference and CQI will vary from subframe to subframe. So a Rel89 UE will not know what is really going on in the channel (e.g. CQI does not work anymore).
- Huawei shares the same view as Motorola: the CQI/measurement reports from Rel89 UE's will have a big problem. For the CQI, we might e.g. need resource specific CQI.
- Ericsson does not agree with Motorola/Huawei. The legacy UE will not have the bias/CRE, so the pico cell will look smaller to the Rel89 UE, but the measurement will work as normal. QC agrees with Ericsson. QC thinks already in Rel89 bursty traffic can happen.
- CMCC thinks the RLF problem indicated is not due to TDM, but due to strong femto present.
- RIM agrees with Ericsson/QC: the Rel89 UE will not have CRE so always be on the stronger cell.
- Motorola thinks still for CSI measurements there is still a problem. CMCC thinks the Rel89 UE is not aware of the restrictions, but the eNB is and can try to schedule even the Rel89 UE's on the best suitable subframes. Motorola thinks the Rel89 CRS measurements will be impacted since you do not know whether it is from restricted or unrestricted subframe. Samsung understands the timing for the CQI measurment is defined w.r.t. the reporting time. Motorola indicate the measurement time is not fixed.

=> Noted; discussion can continue offline/next meeting.

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R2-105593: Introduction of enhanced ICIC Qualcomm Incorporated CR 36.300 B
- ZTE wonders what the intention for the stage-2 CR is ? QC would like to show the way it could be captured in the stage-2.

=> Postponed

R2-105786: eICIC: Idle Mode considerations Qualcomm Incorporated Disc
- Intel wonders if SIB1 is delivered differently from Rel89, how will the Rel89 UE receiving it ? QC indicates the Rel89 UE will be in outage and not able to receive SIB1.
- ZTE wonders whether the ABS patterns cannot be such that paging/SIB1 can be received. QC argees that this would be the easiest solution.
- Nokia thinks Rel89 UE should be quite ok anyway so why do anything ?
- QC explains the UE could be using the restricted subframes always, or only when seeing strong interference
- RIM wonders whether this PDSCH reception for paging would require coordination between macro and femto cell ? QC assumes all of this is based on OAM.
- QC could agree the IDLE case is lower priority than connected mode even for femto. QC thinks we could also go in a direction that a UE receives information in connected and stores it for using in IDLE.
- Nokia thinks maybe we could refrain from handling IDLE at all in Rel-10.
- ZTE wonders if cell selection and reselection would be impacted by eICIC ? QC thinks primarily cell reselection, but also cell selection if you power up immediately under the femto. DT wonders why this case is important ? QC agrees that power on in the femto is maybe not so likely.
- Intel is not sure IDLE can be low priority because many UE's will be in IDLE. So not receiving paging seems a serious problem.
- Ericsson thinks the easiest is if the macro would just page in the blank subframes of the femto (i.e. tune the femto ABS such that paging can be received). QC agrees this could be a solution; it would mean you cannot use 4 subframes in the femto (at max).

=> Noted

R2-105600: Analysis on TDM based RLM/RRM/CSI measurement impact Huawei, HiSilicon Disc
R2-105753: Impacts of non-regular subframes in eICIC time-domain solution Intel Corporation (UK) Ltd. Disc
R2-105335: Some Potential Impacts of eICIC Time-domain Solutions on UE CATT Disc
All 3 Tdocs not treated

TDM: Stage-3
R2-105594: Stage-3 text proposal on RRM/RLM restriction for eICIC Qualcomm Incorporated TP 36.331
not treated

Continuation up to next meeting:
- Motorola thinks we should focus on pico case. DT support this view. QC thinks we have received the first LS which clearly indicated TDM for both. CMCC agrees with QC.

EMAIL DISC on mobility scenarios **[EMAIL DISC [71b#26] QC]**:
IDLE /CONN, what patterns have to be considered in the different scenarios:
- UE measuring on femto, macro and pico at the same time; what pattern is he using ?
- IDLE: does the UE have to switch himself between different patterns ?
- CONN: does the network have to reconfigure the patterns in different situations ?
  - based on what triggers can the network do this ?

Other
R2-105782: HeNB frequency selection in MeNB-HeNB deployment NEC Disc
not treated

7.8 SI: In-device coexistence interference avoidance (RP-100671)

(FS_SPIA_IDC, leading WG: RAN2, started: June 10, target: Dec. 10, WID: RP-100671)

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=> Including email discussion output: [71#32] LTE: ICO - In-Device Coexistence TR update [CMCC]

=> Result of email discussion [71#32]: LTE: IDC [CMCC]

R2-105668: TR 36.816 v0.1.2 Rapporteur (CMCC) TR36.816 related to email discussion [71#32]
=> Version is approved as v0.2.0 in R2-106004
=> Will see updated TR v0.2.1 including agreements from this meeting **[EMAIL DISC [71b#10] CMCC; 2 week].** v0.2.1. can be provided in R2-106008

General

R2-105785: TR Text Proposal: RF analysis for LTE ISM coexistence Qualcomm Incorporated Disc
- Huawei agrees this information is usefull for the work in RAN2. However the simulations should probably be discussed in RAN4. QC indicates this contents has been discussed. This contents was one of the basis for sending the LS.
- Motorola thinks already last time it was noted that this was based on quite worst case assumptions.
- CMCC indicates that several companies have submitted papers to RAN4 and offline coordination is ongoing. RAN4 might try to come with text proposal for the TR.
- Huawei wonders for section 3 whether there is service dependancy. QC agrees: this paper focussed on voice: if bluetooth is more active, more collisions.
- Mediatek wonders what the difference is between blue and white in figures in section 2. QC thinks >3dB but this should be checked
- RIM wonders if the collision indication in figure 3 is purely based on collisions, or also the actual interference level increase is taken into account (i.e. could still survive). QC points out that hopping is taken into account, but for some of the LTE frequencies all BT frequencies are impacted.
- Samsung point out we do not have the scenario in 3.3
- Mediatek wonders why the interference condition goes from red to white if LTE goes from 2375 to 2365. QC assumes due to filter steepness.

=> Noted: will wait for RAN4 input to show seriousness of interference conditions

R2-105743: Methods for in-device coexistence interference avoidance Ericsson, ST-Ericsson Disc
Proposal 1:
- Mediatek wonders whether the FDM solution can always work ?
- TDM wonders if for TDM the focus is on pure TDM solutoins, i.e. no interferer transmissions at all during some time.
- QC thinks TDM is for the case no alternative spectrum is available. QC assumes we should focus on this case. Addressing the CA cases seems more a second priority.
- Samsung assumes even if you have multiple carriers, still all carriers might be impacted.

Proposal 2
- Intel thinks we have a TDM frequency solution, the channels that remain might overload.
- Samsung thinks figure 3 is not applicable to voice, but could be applicable to other cases.
- Samsung has some sympathy for deactivating Scells

Proposal 4:
- Motorola wonders if we have confirmed that we have a persistent problem for GPS ? Ericsson has no new information, so based on information presented in this meeting. Motorola thinks this is not clear yet.
- CATT wonders the UE knows ahead of time when to receive the GPS receiver. Ericsson understands the patterns are somewhat predictable.
- Verizon agrees that with GPS, complete TDM might not be possible. So maybe pusching scheduling to certain RB's might be more suitable. But Verizon assumes this might still be possible within one carrier.

Proposal 5:
- LG thinks network can in general deactivate the Scell when the quality is not good. Ericsson points out that if the receiver does to retune its receiver away from the interferer, all carriers might have reception problems. So then it seems better that the UE could autonomously update the receiver BW/filter.
- CMCC thinks mismatch between eNB and UE might happen.
- CATT wonders how the eNB would know about the deactivation ? Ericsson agrees the eNB should be informed, see proposal 6: radio front end is retuned asap, and then CQI/RRM measurements indicate the deactivation on the Pcell.

Proposal 6:

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- What is meant by persistent ? Ericsson would think it is not based on actual interference, but on the fact that the ISM receiver is turned on.

General:

Discussion context: 1. The "TDM approach" refers to the scenario the LTE/ISM cannot transmit+receive (one transmit and the other receive) simultaneously. 2. Alternatives to pure TDM solution exist with TDM of additional resources. They do not seem to be the main priority as of now. Focus should first probably be at FDM and TDM solutions without CA

FDM solution

R2-105673: Discussion on moving LTE signal away from ISM band for in-device coexistence CMCC Disc

- Huawei agrees eNB needs help from the UE. Huawei assumes the assistance is also applicable for TDM
- Mediatek wonders if we need some additional measuremnt information from the UE ? CMCC does not asssume so: the presence of ISM reception can be detected by the UE itself.
- Samsung assumes it is up to the UE when to inform. In some cases there is no problem, so then there is no need for the UE to inform the network.
- Motorola thinks the difference between coordinate/uncoordinated is a quite detailed internal UE aspect. Motorola is ok with proposal 1. QC thinks the distinction is quite nice to have in the TR.
- QC assumes that if even if the LTE RSRQ is very good, still the UE could declare RLF in case of coordination. That is not really compliant to normal operation.
- Mediatek wonders if the UE would now have lot of influence on network and limit network flexibility ?
- ZTE thinks the discussion on coordination mode will make it clear to understand scenarios.

Proposal 2:

- LG thinkks Type/freq could be indicated in UE capability. Chairman assumes this depends on the timescale of the information. QC assumes the timescale would be e.g. when turn on/off BT headset. CATT assumes the information is not so static.
- Samsung agrees with QC.
- Huawei thinks we should have a clearer view before we can decide on the parameters.
- Mediatek thinks the usage will depend on the scenario. E.g. the portable router might turn this on for very long time.
- Eriscson thinks the type of interferer might not be so important. Impact might e.g. depend on filter types. Maybe the UE should just report measurements on potentially useable frequencies. Samsug agrees that UE implementations might limit the impact largey, therefore it shoudl be a UE decision when to inform the network.
- CMCC thinks BT and Wifi have different charactiristics so it is important to inform.
- Samsung thinks it is more logical to inform victim LTE frequencies. If we inform about non-LTE technology then network has to be upgraded at every new technology
- Mediatek thinks information 2b is probably easier than 2a
- Ericsson thinks moving away in a carrier is reflected in CQI reporting

R2-105336: FDM-based Approach for In-device Coexistence Interference CATT Disc
R2-105448: Investigation on RRM Solutions for In-device Coexistence MediaTek Disc
R2-105573: Possible FDM solution for in-device coexistence interference mitigation SamsungDisc
All 3 Tdocs not treated

Agreements: 1) Can include as first FDM solution that the UE informs the LTE network when LTE tx/rx or other tx/rx would benefit / would no longer benefit from LTE not using certain carriers/frequency resources. 2) Candidate information (still FFS): a) Frequency of aggresor/victim non-LTE tech (LTE network judgement), or b) LTE frequencies that are probably still usable/not useable (UE judgement)

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TDM: General

R2-105767: Requirements on gap patterns for TDM solutions to LTE ISM coexistence scenarios Qualcomm IncorporatedDisc
- Motorola wonders if it would not be easier to look at it from the point of DRX ? Why have gaps ? QC tried to just list activity requirements, not at the mechanism how the interuptions are achieved.

Proposal 3:
- Huawei wonders whether a solution with only UL can work ? UE will have to sent AN for DL transmissions ? QC understands that in some cases, PUCCH might not create so much problems than PUSCH. Huawei thinks this should be shown by RAN4. QC agrees; maybe proposal 3 is to early.
- Mediatek wonder if proposal 3 assumes ISM radio can autonomously perform interference avoidance ? QC is not assuming any fancy operation so far.
- ZTE thinks we should first have a common understand on who adapts to whom.
- ZTE wonders why we need a TDM solution for scenario 3 ?
- Samsung is not sure about the numbers, but thinks it shows that except 1, the rest can work with relaxed timeline. QC thinks we could leave the number in square brackets.

Agreements: Add summary for scenarios 2-4 in TR. Offline discussion work out details. Numbers in brackets

=> Text proposal can be provided in R2-106005

R2-106005: TR 36.816 Text Proposal - Gap patterns requirements for LTE ISM coexistence

=> One week [EMAIL DISC [71b#09] QC.] Final version in R2-106024

R2-105587: Consideration on the details of in-device interference Huawei, HiSilicon Disc

Proposals 3:
- QC assumes some more analysis is needed: DRX , measurement gaps or UE controled by BSR.
- QC thinks an active UE/network can have transmissions continuosly, i.e. DRX itself does not guarantee any interruptions. Huawei is thinking about a best effort solution, so if LTE continuous too long there is collisions.
- Samsung wonder how DRX can work for cases where the timeline is not relaxed (voice case) ?
- CMCC thinks DRX mechanism cannot be directly re-used since no guarantee of interruptions. CMCC thinks maybe DRX with certain scheduler restrictions could work. CMCC thinks this type of modified DRX would almost be like gaps.
- Motorola agrees with Huawei that DRX is a logical start. Quite a lot unnecessary functionality is attached to measurement gaps. Here we want to create unscheduled periods. Mediatek agrees.
- Huawei thinks e.g. in WiFi offloading, LTE is more important. Samsung thinks we have to think about user experience.
- Ericsson thinks e.g. voice on BT, just for 0.5s give priority to LTE because of DRX seems not acceptable.
- ZTE wonders what the strategy is in data offloading case ? E.g. 50/50 split ? more to LTE ? DT thinks LTE should be prioritised because it is licensed spectrum
- Samsung thinks if we have an inactivity timer of 1ms, quite often there will be gap in LTE.

=> Noted

R2-105764: Types of TDM Solutions for LTE ISM CoexistenceQualcomm Incorporated Disc
- ZTE wonders if in the last solution, the UE would dynamically based on the interference situation control the UE ? QC was not thinking about interference situation, but more related to the traffic on the other radio
- Intel wonders if BSR delay would not be large due to HARQ retransmissions ? QC agrees that there is a timeline and thus the UE would have to anticipate the sending of the BSR with when it would like to receive the gap.

R2-105572: Possible TDM Solution for LTE, WiFi and BT In-device Coexistence SamsungDisc
- CMCC wonders whether the bitmap is sent dynamically or semi-static. Samsung assumes the bitmap would be applicable at least for several hundred of ms.
- Figure 1: Motorola is not sure in case data is received, whether the reception is really limited to within 1 LTE TTI. Samsung thinks they have shown the largest realistic packet.

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Motorola wonders if the assumption is that the transmission is at the highest Wifi rate ? Samsung agrees the simulation has assumed 54Mbps. If the rate is lower, the transmission would not be limited to 1ms. Overall Motorola is not sure a bitmap solution is working.

Proposal 2:

- LG wonders if certain subframes would be statically configured for ISM ? Samsung confirms. LG wonders how the UE would know the timeline of ISM upfront. Samsung thinks longer gaps like shown by QC are possible if you have scenrio2,3,4. However for voice Samsung assumes we shorter periodicities.
- Huawei wonders if the bitmap solution will not break the current scheduling freedom of the the eNB. Also if many UE's ask the same pattern/subframes, the eNB has a problem ? Samsung assumes the UE can suggest a pattern, but maybe eNB can provide an adusted pattern. Samsung thinks that for BT voice, 2 out of every 15 subframes woudl not be scheduled in LTE. So still a lot of freedom to the eNB.

Proposal 4:

- Intel thinks an alternative would be to make the pattern friendly for beacon transmission/ reception. Samsung assumes skipping the beacon reception once in a while is ok. Then if we just interrupt LTE reception for the beacon reception this would lead to very low LTE reception misses.
- Motorola wonders if you can delay the beacon at will ? QC indicates that if you delay the beacon, the receivers will have to try to receive it for a longer period (some additional power consumption). Motorola thinks if the medium is free, the beacon cannot be delayed by the Wifi AP. If this happens a few times, STA's might want to look for another Wifi network.
- QC thinks in general thinks the radio conditions are different at AP and STA, the AP can always delay within the requirements and the STA cannot make conclusions from that. So QC assumes there is no Wifi compliane issue.
- LG wonders if you have the bitmap, what if the ISM system does not transmit at that point. You waste capacity ? Samsung confirms.

R2-105666: TDM Solutions for In-Device Coexistence Intel Corporation (UK) Ltd Disc

- Huawei wonders how the new mechanism work together with DRX ? Intel has not considered combination of new scheme and DRX yet.

Discussion:

- QC thinks all solutions have some potential, so maybe they can all be included.
- Motorola thinks we should first have some proof of concept. Maybe A) can be included, but the rest seems to detailed.
- Ericsson would not like to list the details yet.
- LG thinks compared to FDM, TDM sacrifices the LTE performance. So FDM seems preferable from that perspective if FDM is possible.
- Mediatek thinks we shoudl discuss how to continue.
- Ericsson is also a bit sceptical about the TDM solutions.

Schemes on the table:
Include the following potential mechanism to support TDM-based solutions (feasibility not proven so far):

A) TDM solutions where patterns are set by eNB after UE signals the interferer type, mode, (and the appropriate offset in sub-frames)

B) TDM solutions where patterns are suggested by UE:

a) semi-statically
- option 1: bitmap from UE
- option 2: pattern with longer on/off periods, maybe aligned to HARQ processes

b) dynamically e.g. controlling the ON duration, the OFF duration and pattern offset in sub-frames using CQI=0 (to control DL) and BSR=0 (to control UL)

=> High level description of A) and B) can be included in the TR (italics text).

How do we continue ? When is a solution sufficiently proven to work?

- Ericsson agrees a more carefull analysis will have to be performed before we can take any decision on feasibility. E.g. simulation showing throughput in combined link would have to be shown.

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- QC assumes that very detailed analysis on radio level is not required by RAN2. Probably it is sufficient on timeline analysis. Then RAN4 will have to look at radio aspects.

=> At least detailed timeline analysis/simulations, and complexity analysis, will have to be brought before we can conclude a solution may work and would ask RAN4 to investigate radio aspects.

R2-105449: Analysis on Potential TDM Coexistence Solutions MediaTek Disc
R2-105452: Investigation on applying DRX mechanism for In-device coexistence MediaTek Disc
R2-105779: Possible solutions according to the coordination mode LG Electronics Inc. Disc
R2-105454: Clarification on Modes of Interference Avoidance for each Potential Resolution Direction MediaTek Disc
All 4 Tdocs not treated

What is the assumed typical periodicity / gap length of a gap pattern?
What do we need in order to conclude that a certain solution is feasible in the SI phase?

TDM: BT specific considerations

R2-105576: LTE and BT in-device coexistence possible without TDM gap pattern? SamsungDisc

- Chairman wonders if this means we do not need to inform the LTE network in case of scenario 1 ? Samsung this only in case of 2-EV3. If the channel conditions are less optimal, some minimum impact will exist.
- Samsung clarifies that in the 2-EV3 solution is done for all LTE TDD cases, the other one could be brought next meeting.
- Intel thinks for LTE FDD we would still need solutions. Samsung assume in case of FDD the UL grant gives 4ms reaction time. Intel thinks if you schedule the UE continuously in LTE, there is no gap. Samsung indicates this is not an agreed scenario.
- Motorola assumes we still have to wait for BT-Sig. Samsung thinks anyway we can analyse in parallel.
- QC indicates that BT has not started any technical work yet.

=> Noted

R2-105783: Short terms TDM solutions for LTE and Bluetooth voice coexistence Qualcomm Incorporated Disc

=> Should upload with word2003 in R2-106006

- Chairman wonders if we have to consider the UE as BT-slave case ? Probably headset is always slave ?
- Chairman wonders if it would not be more logical to look at the eICIC patterns (or some other pattern more aligned to HARQ) ? QC thinks we have to transmit packets every 3.x ms, so the latence requirements are quite strict.

=> Noted

Discussion

- QC thinks there might maybe be no problem to solve, e.g. master case only, very infrequent collisions especially in case of higher modulation ?
- Samsung wonders if eNB can reliable detect DTX always ?

TDM: WiLan

R2-105361: Further analysis on in-device coexistence interference ZTE Disc

- CMCC has the understanding that there is no clear QOS requirement for WiFi. ZTE just thinks we should investigate what time split we should have for WiFi and LTE. E.g. 50/50 ? QC assumes that in the offloading case, we still talk about the same QCI's.
- Ericsson understands that it is not one IP connection going over 2 radios: i.e. one IP flow will go over one radio. You can configure which ones/sort should go over what radio.
- Samsung understands for offloading case there would be a policy manager. Samsung thinks the split could be e.g. something like 50/50 or based on channel conditions.
- ZTE wonders if it could be done at application layer ? Samsung understands that for offloading case, the quality manager could be in higher layers.

=> Noted

Solution based only on UE-internal coordination not excluded ?

Other:

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R2-105574: Analysis of GNSS and LTE coexistence solution possibilities SamsungDisc
R2-105575: Effect of In-Device coexistence on LTE current Implementations SamsungDisc
Both Tdocs not treated

Continuation up to next meeting

- QC thinks this analysis takes quite some time internally. QC assumes a WI will only happen for Rel-11. So probably no need to have extensive work in the coming weeks.
- Mediatek thinks we could have an email discussion on what information is best to report for FDM solution ?
- CMCC also understands the WI would only be in Rel-11. CMCC intends to extend the SI after December so that we can study the TDM solution more.

=> EMAIL DISC up to next meeting FDM: **[EMAIL DISC [71b#27] MEDIATEK]**
1) What approach should be followed ("eNB judgement" (UE informs about aggresor/victom, and eNB decides available freq), or "UE judgement" (UE informs eNB about useable freq))
2) What detailed information is best provided by the UE

Not available/too late/withdrawn:

R2-105700 Proposed handover solution for in-device coexistence Research In Motion UK Limited Disc
R2-105701 Proposed signaling procedures for in-device coexistence Research In Motion UK Limited Disc
Both Tdocs not available and therefore withdrawn

R2-105712: Solution Directions for LTE-ISM Coexistence Motorola Disc
not treated

7.9 SI: Other LTE Rel-10 SIs

Contributions related to SI on intra-eNB energy saving can be submitted under this agenda item.

(FS_Energy_LTE, leading WG: RAN3, started: March 10, target: Dec. 10, WID: RP-100674)

R2-105676: Solutions for Intra-eNB Energy Saving CMCC Disc
Proposal1:

- CMCC indicates RAN1 responded it might be usefull to check with RAN4/5 whether there are sufficient test cases.
- Ericsson indicates RAN1 also indicated the power gain is not that significant. CMCC indicates that RAN1 also indicated future gains might be larger.
- Ericsson would prefer not to include this solution as long as RAN4/5 have not confirmed this testing.
- Motorola thinks we should first check with RAN4/5 if legacy UE's are sufficient addressed. Ericsson thinks that since the energy saving is not so big and there might be problems with the legacy UE's, Ericsson would propose to conclude that this is not a solution for energy saving.

=> For the moment we do not consider a feasible solution for energy saving since further actions would be required

Proposal 2:

- NSN understands that also this solution has problems with legacy UE's so should be sturied further before including in the TR.
- CMCC thinks an implementation could handover all legacy UE's before doing this. Ericsson wonders about IDLE UE's. CMCC thinks the IDLE UE will consider the frequency as barred and reselect to other frequency.
- NSN thinks there might be solutions to handle legacy UE's, but this would not allow to handle the reconfiguration quickly.

Proposal 3:

- Ericsson indicates that this brings 30-40% energy reduction

Agreements:
1: Decreasing the eNB bandwidth is so far not considered a feasible solution for energy saving since further actions would be required.
2: Decreasing the number of eNB transmit antenna ports is so far not considered a

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feasible solution for energy saving since further actions would be required.
3: Increasing the number of MBSFN subframes according to current specification limitation can be introduced in TR 36.927 as a solution to intra-eNB energy saving.
4: Since the UE measurement performance degradation resulted from increasing the number of MBSFN subframes beyond 5/6 cannot be eliminated, it is proposed NOT to capture this solution in TR 36.927.
5: For TDD, it is proposed to capture configuring DwPTS in subframes 1 and 6 (where applicable) to the minimum length as a solution to intra-eNB energy saving.

=> Will sent short LS to RAN3 with text proposal for the TR in R2-106007

R2-105370: Consideration on reducing number of antenna ports for energy saving Huawei, HiSilicon Disc
- CMCC supports the proposals 1 and 2. CMCC thinks proposal 3 is not needed and the CR is sufficient.
- Samsung thinks if the operator has only 1 frequency, during 300s the UE receives no service ? Huawei thinks the operator can choose when to use this solution. Samsung does not understand how the operator can know there is no IDLE mode UE.
- NSN thinks that to cope with legacy UE's, the network has to e.g. perform handovers which will delay the switch. In the end we might not gain much. Huawei thinks the solution will be used when there is not many UE's in the cell, so delay is not a big deal.
- QC understands that this is not only about barring: the UE is also allowed to select another cell on the same frequency, which will increase the UL interference.
- Ericsson would prefer not to include this solution since it is not backward compatible solution. If we allow non-backward compatible solutions, there are better solution.
- Orange would be happy to include this solution in the TR.
- Motorola thinks the backward compatibility problem is not solveable.
- CMCC thinks if this is performed when there is not many UE's, is there really a lot of impact on legacy UE's.
- TIM is not convinced that the solution is really acceptable w.r.t. backward compatibility.

=> Noted

Not available/too late/withdrawn:
R2-105755: Scenario for Intra-eNB Energy Saving CHTTL Disc
=> Withdrawn

8 UTRA Release 8 and earlier releases

Treated in UTRA session, see Annex A.

9 UTRA Release 9

Treated in UTRA session, see Annex A.

10 UTRA Release 10

Treated in UTRA session, see Annex A.

11 Outgoing LS and email discussions for UTRA

Treated in UTRA session, see Annex A.

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12 Left-overs

12.1 LTE CA UP adhoc

R2-105962: Report from LTE UP session
- It was questioned whether we will always have the ACK or not w.r.t. deactivation timing ? Nokia clarifies that ACK's are always sent on Pcell anyway, so it should always be sent.

=> Agreed

R2-105960 Introduction of Carrier Aggregation Ericsson CR 36.321 B
=> EMAIL DISC on week email approval [71b#08].

12.2 UMTS

No contributions.

13 Outgoing LS and output to other groups for LTE

To: SA3; Cc: SA5:

R2-105522 Draft LS on Security Issues with MDT Design Vodafone LSout REL-10 MDT_UMTSLTE-Core
- Should be updated for PLMN change case.
- Action should be updated to also concern privacy
- Can discuss detailed comments offline

=> Will see update in R2-105876

R2-105876 Draft LS on Security Issues with MDT Design Vodafone LSout REL-10
=> Latest TS should be attached (v1.1.0)
=> One week email approval; final version in R2-106025 [EMAIL DISC [71b#01]]

To: SA5:

R2-105780: Draft LS on MDT logging duration timer and periodicity Nokia Siemens Networks LSout REL-10 MDT_UMTSLTE-Core

To: SA2; Cc: RAN3, GERAN2:

R2-105862: Reply LS on PS handover failure during the SRVCC
- NSN agrees with the LS that if we have CS signalling connection (after SRVCC), we don't need any RAB's.

=> LS is approved in R2-106012

To: SA5; Cc: RAN3:

R2-105864: [DRAFT] Reply LS on MDT related UE measurement clarification
=> Revised in R2-106017

R2-106017: [DRAFT] Reply LS on MDT related UE measurement clarification
- Huawei thinks we should not list the detailed value of reporting interval and reporting amount.
- The value are not checked with UMTS yet. DT thinks the higher values are not relevant for MDT

=> For reporting interval and reporting amount, the values should be replaced, and separately indicated for UMTS and LTE according to existing specifications.
=> Nokia thinks reporting trigger and reporting interval should not be mandatory for immediate reporting (it should be one or the other)
=> The logging interval is not in seconds (should be removed)
=> LCT TDD measurements should also be listed
=> Can indicate this is work in progress
=> Change "FFS" for logging duration to "will be provided later by RAN2"
=> Allow 1 week for email approval to see if other changes have to be made. Final version to be provided in R2-106021 **[EMAIL DISC [71b#02] ALU]**

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To: SA5; Cc: SA2, RAN3, SA1:
R2-105865: [Draft] LS reply on Location Information for MDT
=> LS is approved in R2-106020

To: SA3:
R2-105866: [draft] Reply LS on requirements for handling AS key refresh in relay nodes
=> One editorial correction inside brackets (add space)
=> LS is approved with this change in R2-105999

To: SA3; Cc: RAN3:
R2-105867: [draft] Reply LS on Progress on relay node security
- Ericsson thinks it would be good if we could have an opinion.
- NSN understand the overhead is 5 times higher with IPSEC (20 bytes instead of 4 bytes). NSN does have a concern if really integrity protection would have to be provided for all bearers.
- Huawei thinks IPSEC still is prefered.
- Ericsson shares NSN concern on the overhead.
- NSN thinks there are also problem with key provisioning for IPSEC to the RN.
- NTT DCM is in favour of an AS solution because we already have the key handling mechanism, and it is less power consuming in implementation.
- Vdf thinks it would help if we give some additional information.
- Intel has paper in RAN1 to show efficiency in Un is important

=> Remove 3rd paragraph
=> Can add in last sentence: "RAN2 is not aware of any showstopper for an AS based solution, but did not have enough time to study a comparison in detail and thus has no preference yet."
=> With these 2 changes, the LS is approved in R2-106000

To: SA5:
R2-105868: Access Delay estimation for RACH optimisation
=> Next meeting location Dublin is missig
=> With this one change the LS is approved in R2-106011

To: SA2; CT1; Cc: RAN3, GERAN2, SA1:
R2-105970: [DRAFT] Reply LS on Release 10 NIMTC Conclusions
=> Remove one "devices" in Q1
=> In Q3b) Change "all devices configured for MTC" to "other devices configured for MTC"
- NSN wonders if Q3b is actually asking about 3 levels ?

=> Add "and those 2 priorities from other UE's" to the end of Q3b
=> Update Q3c to: "is considered necessary in the RAN in addition to low priority indicator(s)"
=> NTT DCM would like to ask question 5 also to SA1. Vdf wonders if we would need to wait for also an explicit SA1 answer ? NTT DCM thinks time should not be a reason. NSN thinks we should ask SA1 explicitly. Samsung wonders why ask SA1 ? The question is why we need an ACB for CN load. That seems more SA2. We will ask SA1
=> We should add the original Tdoc number in response title line
- Huawei points out that there are no questions related to roaming UE's. Huawei thinks if the ACB is not agreed, we can probably not reject different groups of roaming UE's.

=> Can continue offline e.g. w.r.t. question IU flex/load sharing
=> Update can be sent from LTE session
=> We will see update in R2-105983
R2-105983: [DRAFT] Reply LS on Release 10 NIMTC Conclusions
- NTT DCM thinks we would ask why this is specific for MTC

=> Add "and why this is specific for MTC"
=> With this one change the LS is approved in R2-105994

To: RAN1:
R2-105898: [DRAFT] LS on RAN2 CA decisions related to RAN1
=> NTT DCM wonders if the understanding is correct that at Pcell change there is no Cell Index change for an Scell ? LG confirms. Note that this is the situation for a cell on a 3rd frequency, i.e. not the cells on the source and target frequencies at Pcell change. Try to clarify this a bit.
=> Can see updated CR in R2-105995

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R2-105995: [DRAFT] LS on RAN2 CA decisions related to RAN1
- Huawei thinks we have also made some agreements on activation/deactivation which are relevant for RAN1.

=> Liaison should include decision on Scell deactivation (list all consequences of deactivation)
=> Try to further improve bullet A) under question
=> We will see update in R2-105998

R2-105998: [DRAFT] LS on RAN2 CA decisions related to RAN1
- Nokia wonders about stop CQI transmissions. Nokia would prefer "stop CQI reporting"

=> Change to stop CQI reporting
=> With this change the LS is approved in R2-106010

To: SA4; Cc: SA2, RAN3:

R2-105974: [Draft]LS on Counting for Activation of an MBMS Bearer Service
=> Add "RAN3" ?
- Chairman thinks the question on whether the TMGI can be used for counting before a serviec can start. Orange thinks RAN3 has agreed on a pending status for a service.
- Huawei thinks RAN3 has agreed that when the MCE has received the session start (TMGI is available). For the case where the RAN has not received the session start, the question is still how the MCE can be informed about the counting.
- IPW thinks we can add a question w.r.t. that we want to use TMGI.
- Samsung thinks this could e.g. be addressed by ensuring that the MCE gets the session start as soon as the service is provided by unicast

=> Will add question that RAN2 would like to be able to use the TMGI for counting even if the service is not provide via broadcast yet, and would like confirmation that this is posislbe
=> Will see update in R2-106015

R2-106015: [Draft] LS on Counting for Activation of an MBMS Bearer Service
=> LS is approved with removal of highlighting in R2-106030

To: SA5; RAN3:

R2-105982: [DRAFT] LS on mapping Uu bearers to Un bearers for relays
=> LS is approved in R2-105996

To: SA2, RAN3, CT1:

R2-105993: [Draft] Reply LS Follow on to LS response on support for Priority for terminating sessions for MPS
- NTT DCM would prefer to have the text from the minutes

=> Will update to text from the minutes instead of the highlighted text
=> With this change the LS is agreed in R2-106027

To: RAN3:

R2-106007: LS on intra-eNB energy saving update of TR 36.927
=> LS is approved in R2-106029

To: RAN1,RAN4:

R2-105961 Draft LS activation timing Ericsson LS
=> Updated before presentation in RP-106014

R2-106014 Draft LS activation timing Ericsson LS
=> Reference should be R2-106010
=> LS is approved in R2-106016 with this change of reference

To: SA1:

R2-106013: [DRAFT] LS on service requirement for Rel-10 UE CSFB call
- Ericsson thinks the text is not sufficiently clear

=> One week email approval; final LS in R2-106026 [EMAIL DISC [71b#06]]

14 Any other business

Meeting schedule 2010/2011/2012:

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MEETING	DATES	LOCATION	HOST	CO-LOCATION
RAN2 #68bis	18 Jan – 22 Jan 2010	Valencia, Spain	EF3	RAN 1/2/3
RAN2 #69	22 Feb – 26 Feb 2010	San Francisco, USA	NAF3	RAN1/2/3/4/5 ++
RAN #47	16 March – 19 March 2010	Vienna, Austria	EF3	
RAN2 #69bis	12 April – 16 April 2010	Beijing, China	Huawei	RAN1/2/5
RAN2 #70	10 May – 14 May 2010	Montreal, Canada	RIM	RAN 1/2/3/4/5
RAN #48	1 June – 4 June 2010	Seoul, Korea	TTA	
RAN2 #70bis	28 June – 2 July 2010	Stockholm, Sweden	Ericsson	RAN 2
RAN2 #71	23 Aug. – 27 Aug. 2010	Madrid, Spain	EF3	RAN 1/2/3/4/5
RAN #49	14 Sep. – 17 Sep. 2010	San Antonio, USA	NAF3	
RAN2 #71bis	11 Oct. – 15 Oct. 2010	Xian, China	ZTE	RAN 1/2/3 (RAN4)
RAN2 #72	15 Nov. – 19 Nov. 2010	Jacksonville, USA	NAF3	RAN1/2/3/4 +++
RAN #50	7 Dec. – 10 Dec. 2010	Istanbul, Turkey	EF3	
RAN2 #72bis	17 Jan – 21 Jan 2011	Dublin, Ireland	EF3	RAN1/2/3
RAN2 #73	21 Feb – 25 Feb 2011	Taipei, Taiwan	HTC	RAN 1/2/3/4/5
RAN #51	15 March – 18 March 2011	Kansas City, USA	Sprint	
RAN2 #73bis	11 April – 15 April 2011	Shanghai (tbc), China	ZTE	RAN 2/4
RAN2 #74	9 May – 13 May 2011	Kobe (tbc), Japan	JF3	RAN 1/2/3/4/5
RAN #52	31 May – 3 June 2011	Bratislava, Slovakia	EF3	
RAN2 #75	22 Aug. – 26 Aug. 2011	Athens, Greece	EF3	RAN 1/2/3/4/5
RAN #53	13 Sep. – 16 Sep. 2011	Japan (tbc)		
RAN2 #75bis	10 Oct. – 14 Oct. 2011	?, China	CATT	RAN1/2/3/4
RAN2 #76	14 Nov. – 18 Nov. 2011	Mega meeting?, USA	NAF3	RAN 1/2/3/4/5
RAN #54	6 Dec. – 9 Dec. 2011	Berlin, Germany	EF3	
RAN2 #77	6 Feb – 10 Feb 2012	Dresden, Germany	EF3	RAN 1/2/3/4/5
RAN #55	28 Feb – 2 March 2012			
RAN2 #77bis	26 March – 30 March 2012		*host requested*	
RAN2 #78	21 May – 25 May 2012	Rhodes, Greece	EF3	RAN 1/2/3/4/5
RAN #56	12 June – 15 June 2012	?, Europe	EF3	
RAN2 #79	13 Aug. – 17 Aug. 2012	?, China	Huawei	RAN 1/2/3/4/5
RAN #57	4 Sep. – 7 Sep. 2012			
RAN2 #79bis	8 Oct. – 12 Oct. 2012		*host requested*	
RAN2 #80	12 Nov. – 16 Nov. 2012	?, India (tbc)		RAN 1/2/3/4/5
RAN #58	4 Dec. – 7 Dec. 2012	?, Europe	EF3	

EF3: European Friends of 3GPP
NAF3: North American Friends of 3GPP
JF3: Japanese Friends of 3GPP

++: SA1, SA2, CT1, CT3, CT4, CT6 also co-located
+++: SA2, SA5, CT1, CT3, CT4 also co-located

For plans for email discussions after RAN2 #71bis see Annex H.

15 Closing of the meeting

The TSG RAN WG2 chairman Gert-Jan van Lieshout thanked the delegates for participating and contributing to RAN WG2 meeting #71bis. He thanked ZTE for hosting this meeting and closed the meeting on Friday October 15th, 2010 at about 17:00.

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Annex A:
Report of UTRA session

This Annex A includes the report of the UTRA session (agenda items 8-11).

8 UTRA Release 8 and earlier releases

REL-7 RANimp-CPC (RAN1):

R2-105526 Clarification to the default SG in DTX Cycle 2 Qualcomm Incorporated CR 25.321 F REL-7 RANimp-CPC

- ALU: agree with the intention that the dflt value applies only at the first TTI. Not clear that new text captures it. That can be worked on

=> The group agrees with the intention; the dflt value applies only at the first TTI, not the subsequent TTI.

- Samsung indicates it's understood in MAC that serving_grant is set per TTI, this is already covered in serving_grant update procedure.
- ALU: need to come back to check on wording

=> The CR is revised in R2-105931

R2-105931 Clarification to the default SG in DTX Cycle 2 Qualcomm Incorporated CR 25.321 F REL-7 RANimp-CPC

=> The CR is agreed in principle

R2-105566 Discussion on CPC issues Huawei, HiSilicon Disc 25.331 REL-8 RANimp-CPC

- Infineon: Different view on this issue. What is the use case of NW indicating new config with new timing when UE is monitoring continuously? HW agrees in general there is no use case, if there is no serving cell change, the timing should be kept. However the possibility is in the spec so it needs to be addressed. QC indicates in this case, the cell is the same, UE monitors continuously, and new timing is set… The CPC status should be reset in this case.
- HW: Does QC want to disallow the config? That's not QC's intention.
- Nokia: UE has to keep the CPC status unless serving cell is changed. If NW wants to reconfigure CPC parameters, NW has to provide new timing and CPC status has to be kept because L1 doesn't say status is reset.
- Infineon: if we go along HW and Nokia proposal, some text would need to be added to indicate what UE behavior is in this case. HW thinks no spec change is needed, only if we don't keep CPC status.
- Infineon: Also in case of new timing info received. CPC status should be re-activated to be able to apply to reconfiguration. HW would like to keep RRC msg and NB order independent. QC indicates there is no case that both are independent.
- ZTE: agree with Infineon's concern. Isn't sure which command should take precedence, RRC reconfig or order.
- Qualcomm: agrees with Infineon's order.
- Chairman: if different UE behaviors happen in the field, we need to find a resolution either way. Companies to discuss offline how to go forward: 1: how to address issue for legacy UEs, 2: how to clarify in spec.
- HW: Need to find a NW workaround, 2 options discussed:
  1- avoid the use case (reconfig with new timing)
  2- in the use case, NB sends an HS-SCCH order to (de-)activate CPC to re-synchronize UEs.
- Need to discuss how to capture option
- Ericsson: need to ensure there is really a need for NW workaround. We still need to way forward for spec, starting from an appropriate release.
- Infineon: What about option1? Isn't that simple as well? E///: that may not always be possible. Nokia: in case TTI is changed, NW will have to provide a new timing so option1 cannot be acceptable.

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- Way forward: Companies to discuss/contribute on NW workaround and how to capture in spec (if needed at all). Need to discuss how to harmonize the spec going forward and in which release.

=> Noted

REL-7 RANimp-EnhState (RAN2):

R2-105416 Clarification of the applicability of IE Number of PCCH transmissions Infineon Technologies, Qualcomm IncorporatedCR 25.331 F REL-7RANimp-EnhState
- Ericsson: not clear on the intention. Qulacomm indicates this is a UE requirement.
- Ericsson: in the tabular, why mention HS-SCCH? In case of no dedicated H-RNTI, there is HS-SCCH-less hence no HS-SCCH. Samsung proposes to refer to HS-DSCH subframe instead, that would cover both cases.
- The wording can be updated to refer to "subframes" instead of "HS-SCCH subframes" in the tabular. QC has concerns with this approach since [26] refers to association of HS-SCCH subframes with PICH frame.
- QC: what is the issue if we keep HS-SCCH in the tabular? Issue is when HS-SCCH-less needs to be used.
- 25.211 section 7.2a defines the association.

=> The CR is postponed to the next meeting

R2-105543 HARQ buffer upon H-RNTI switch in Enhanced CELL_FACH Qualcomm Incorporated CR 25.321 F REL-7RANimp-EnhState
- HW: UTRAN has no knowledge about UE capability, how can it decide what to do? This note doesn't help UTRAN.
- Ericsson: Notes provide an option to the UTRAN and NW can decide to design the system in a way that benefits from both possibilities. Nokia: How is UTRAN prevented to do the same today. Ericsson: It isn't. The note reminds UTRAN of what can be done. HW: The note could harm NW not reading spec carefully. QC: There is no confusion in the text, the mandated UE behavior is very clear 2 bullets above.
- HW: would prefer to take this into account in RAN5 rather than RAN2. HW to discuss with E///.

=> CATT: the "for FDD" can be removed starting from release 8

=> The principle of the CR is agreed (F/a/a/a with "other comments" in rel'8 to indicate the change with "for FDD")

R2-105628 Enhancement of HS-DSCH reception in CELL_PCH state Huawei, HiSilicon Disc see R2-105629 instead REL-8RANimp-EnhState

=> withdrawn

R2-105438 Correction to the IE name for determination of HS-DSCH retransmission number in Enhance CELL-FACH ZTE CR ? ? ? ?
- Need to fill in ADN tool
- Infineon: can do more corrections: mac-hs->mac-ehs
- Infineon: remove "URA_PCH" part in TSN sub-bullets.

=> The CR is revised in R2-105900

R2-105900 Correction to the IE name for determination of HS-DSCH retransmission number in Enhance CELL-FACH ZTE CR ? ? ? ?
- "or" can be added between CELL_FACH and CELL_PCH
- Remove mention of "incorporating infineon's comments"

=>With those changes the CR is agreed in principle in R2-105933

R2-105439 Correction to the IE name for determination of HS-DSCH retransmission number in Enhance CELL-FACH ZTE CR 25.321 A REL-8 RANimp-EnhState

=> Not treated

R2-105440 Correction to the IE name for determination of HS-DSCH retransmission number in Enhance CELL-FACH ZTE CR 25.321 A REL-9RANimp-EnhState

=> Not treated

R2-105441 Correction to the IE name for determination of HS-DSCH retransmission number in Enhance CELL-FACH ZTE CR 25.321 A REL-9RANimp-EnhState

=> Not treated

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REL-7 MIMO-L23 (RAN2):

R2-105771 MIMO configured without MAC-ehs Panasonic CR 25.331 F REL-9MIMO-L23
- Nokia: agrees with intention but would like to reword the procedural text to make it clearer.
- Ericsson: 306 is already indicating UE shall support mac-ehs. But this CR takes care of the NW configuration part.
- Chairman: when MIMO was introduced, there was a discussion on whether is should be allowed with MAC-hs. This is not needed anymore
- Panasonic: this is rel'9 CR because the change was captured in a note. If we capture in normative text, this needs to be done in rel'7.

=> to check MIMO with MAC-hs config
=> The CR is revised in R2-105924 as a rel'7 CR

R2-105924 MIMO configured without MAC-ehs Panasonic CR 25.331 F REL-7MIMO-L23
- Samsung: move "variable" before variable name
- QC: move this sentence in the MIMO_STATUS variable setting section. Samsung agrees.
- Ericsson: Reason it's there is that in future release the txaa part is in the same location.
- Ericsson: from mac spec it's already obvious that MIMO requires mac-ehs. That can be checked.
- Panasonic: even if it's in MAC, makes sense to capture in RRC as well.
- Samsung: it's already in MAC, in 4.2.3.5, 4.2.3.3, also from architecture figure. This it not a critical correction, only a clarification.

=> The CR is not agreed

R2-105928 MIMO configured without MAC-ehs Panasonic CR 25.331 A REL-8MIMO-L23
=> Not treated

R2-105929 MIMO configured without MAC-ehs Panasonic CR 25.331 A REL-9MIMO-L23
- Samsung: Maybe only the word "only" can be removed. Nokia: this term is used elsewhere, would be confusing to remove it.

=> The CR is not agreed

R2-105772 MIMO configured without MAC-ehs Panasonic CR 25.331 A REL-10 MIMO-L23
=> The CR is revised in R2-105930

R2-105930 MIMO configured without MAC-ehs Panasonic CR 25.331 A REL-10 MIMO-L23
=> Not treated

[CB TDD] REL-7 LCRTDD-EDCH-L23 (RAN2):

R2-105535 Correction on equal priority MAC-d flow for E-TFC selection for LCR TDD TD Tech CR 25.321 F REL-8EDCH-L23
- Wrong WI code, should be LCRTDD-EDCH-L23
- Magic sentence cannot start from rel'6 (LCRTDD-EDCH-L23 is a rel'7 WI)

=> The CR is revised in R2-105906

R2-105906 Correction on equal priority MAC-d flow for E-TFC selection for LCR TDD TD Tech CR 25.321 F REL-8LCRTDD-EDCH-L23
=> The CR is agreed in principle

R2-105536 Correction on equal priority MAC-d flow for E-TFC selection for LCR TDD TD Tech CR 25.321 A REL-9EDCH-L23
- Wrong WI code, should be LCRTDD-EDCH-L23

=> Not treated

REL-7 RANimp-L2DataRates (RAN2):

R2-105614 RLC UM Flexible for MAC-ehs Qualcomm Incorporated Disc REL-7RANimp-L2dataRates
- Late
- Nokia: for proposal 1, rlc UM needs to be configured with MAC-ehs because of CSoHS. So is should apply already in rel'7. Agrees RLC needs to be updated. For RLC UM, RRC doesn't need to configure the min/max RLC PDU sizes, only needs to configure RLC UM and flex size is supported.
- HW: agrees with Nokia, no need to change ASN.1.

=> Noted, CR needed for this meeting? That can be discussed
=> The topic is postponed to the next meeting

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REL-7 TEI7:

R2-105395 Handling of 2 Byte AMD RLC PDU (zero payload) issue Qualcomm Incorporated Disc REL-7 TEI7
- ALU: are we disallowing a semantically correct packet?
- Chairman: HE field in a 2 bytes RLC AM packet cannot be correct because it indicates neither LI nor data.
- HW: is this a real issue? This can be answered offline.

=> The topic is postponed to the next meeting

R2-105615 On the need for Corresponding RLC Side re-establishment, when the 'Use special value of HE field' is no longer configured Qualcomm Incorporated Disc REL-7TEI7
- Broadcom: HE field applies to both UL/DL at the same time, there is a note in RRC that HE field should be included for both UL/DL. The note is in 10.3.4.23 RLC Info that says UE behavior is unspecified if HE field isn't included for both UL/DL at the same time. Broadcom indicates there is only one field for UL/DL.
- QC indicates if NW does a full re-establishment then there is no issue.

=> Companies need to discuss offline what is the expected rel'7 behavior and how this impact R2-105615 and R2-105581. No progress offline
- Ericsson: when rlc is changed from fixed to flex, there is a re-establishment. However there is no link to the HE field.
- Nokia: the other solution proposes that UE handles both types of UEs, that is more optimum
- Ericsson: we have to avoid flushing all buffers.
- Qualcomm: This is adding a new procedure in the spec to address a rare case.
- Nokia: The Ericsson solution can be applied for rel'7, it implies no change in UE in rel'7 since it only impact NW implementation. Qualcomm's proposal is a UE change however.

=> The CRs are postponed to the next meeting

R2-105616 Re-establish RLC entity when the 'Use special value of HE field' is changed to not configured Qualcomm Incorporated CR 25.331 F REL-7TEI7

=> Not treated

REL-8 RANimp-UplinkL2dataRates (RAN2):

R2-105578 Power offset for Scheduling Info in MAC-i Ericsson, ST-Ericsson CR 25.331 F REL-8RANimp-UplinkL2dataRates

=> The CR is revised in R2-105921

R2-105921 Power offset for Scheduling Info in MAC-i Ericsson, ST-Ericsson CR 25.331 F REL-8RANimp-UplinkL2dataRates

=> The CR is agreed in principle
- The shadow CRs will be provided in the next meeting.

REL-8 RInImp8-CsHspa (RAN2):

R2-105558 Correction on CS voice over HSPA SDU discard timer configuration (Rel-10) Huawei, HiSilicon CR 25.331 A REL-10 RInImp8-CsHspa

not treated

R2-105557 Correction on CS voice over HSPA SDU discard timer configuration Huawei, HiSilicon CR 25.331 F REL-9 RInImp8-CsHspa
- There is an issue in rel'9 and 10 only. Not present in release 8.
- Ericsson: agrees this is a correction, not an editorial issue.
- Qualcomm: this is a CR integration issue.

=> We agree with the principle of the CR.

R2-105716 Editorial correction for CS voice over HSPA SDU discard timer configuration Nokia Corporation, Nokia Siemens Networks CR 25.331 D REL-9RInImp8-CsHspa
- Same as R2-105557

=> Withdrawn

R2-105717 Editorial correction for CS voice over HSPA SDU discard timer configuration Nokia Corporation, Nokia Siemens Networks CR 25.331 A REL-10 RInImp8-CsHspa

=> Withdrawn

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R2-105429 Correction of RAB information for setup ZTE Disc ? ?
- Need to fill in ADN tool
- Nokia: what is the use case where there is a problem? CS 64k voice doesn't exist, it's CS 64k video (for video conf).
- Nokia: even if the use case existed, the spec is already clear that RBs need to be re-established.

=> Noted

REL-8 RANimp-UplinkEnhState (RAN2):

R2-105770 Correction on wrong intension for else case in clause 8.5.56 Panasonic Disc REL-8 RANimp-UplinkEnhState
- The group agrees with conclusion 1 for 8.5.56: READY_FOR_COMMON_EDCH will always be determined to TRUE if HSPA_RNTI_STORED_CELL_PCH is TRUE
- The group agrees with proposal 2 for 8.5.56: Even if HSPA_RNTI_STORED_CELL_PCH is set to FALSE, seamless transition is possible i.e. RNTIs should not be cleared, RACH should not be configured and Cell Update could be skipped.
- Ericsson: what happens in case NW decides to stop common e-dch access? Panasonic indicates this is already captured in sib5 reading procedures.
- Broadcom: agree with panasonic changes but more changes are needed to clearly indicate to UE which procedure should be used.

=> The CR will be provided in R2-105901

R2-105901 Correction on actions related to HSPA_RNTI_STORED_CELL_PCH Panasonic, Broadcom CR 25.331 F REL-8RANimp-UplinkEnhState

=> The CR is agreed in principle

R2-105447 Correction to handling of variable HSPA_RNTI_STORED_CELL_PCH Broadcom Corporation CR 25.331 F REL-8RANimp-UplinkEnhState
- Nokia: agrees with point 3 of the CR but wording should say "move to cell-fach as specified in subclause 8.5.56".
- Infineon: need to verify that we don't have multiple moves to cell-fach.
- Ericsson: coversheet needs to indicate the version on which the CR was actually written.
- HW: is it possible that HSPA_RNTI_STORED_CELL_PCH is true when READY_FOR_COMMON_EDCH is false.

=> We agree to capture point 3 of the CR which will be captured in R2-105901.

R2-105451 Correction to handling of variable HSPA_RNTI_STORED_CELL_PCH Broadcom Corporation CR 25.331 A REL-9RANimp-UplinkEnhState

=> Not treated

R2-105453 Correction to handling of variable HSPA_RNTI_STORED_CELL_PCH Broadcom Corporation CR 25.331 A REL-10 RANimp-UplinkEnhState

=> Not treated

R2-105561 Correction of actions related to HSPA_RNTI_STORED_CELL_PCH (Rel-8) Huawei, HiSilicon CR 25.331 F REL-8RANimp-UplinkEnhState
- HW to check if there is a need to add the determination of HS-DSCH-reception-variable in R2-105901.

=> The CR is merged in R2-105901

R2-105562 Correction of actions related to HSPA_RNTI_STORED_CELL_PCH (Rel-9) Huawei, HiSilicon CR 25.331 A REL-9RANimp-UplinkEnhState

=> Not treated

R2-105564 Correction of actions related to HSPA_RNTI_STORED_CELL_PCH (Rel-10) Huawei, HiSilicon CR 25.331 A REL-10 RANimp-UplinkEnhState

=> Not treated

R2-105563 Correction of actions related to HSPA_RNTI_STORED_CELL_PCH (Rel-10) Huawei, HiSilicon CR 25.331 - REL-8RANimp-UplinkEnhState

=> Withdrawn

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R2-105577 Error in actions related to HSPA_RNTI_STORED_CELL_PCH Ericsson, ST-Ericsson CR 25.331 F REL-8RANimp-EnhState
- Wrong WI code, should be RANimp-UplinkEnhState
=> Already handled in R2-105901
=> Withdrawn

R2-105637 Wrong indentation for else case in sub-clause 8.5.56 Infineon Technologies CR 25.331 F REL-8TEI8
- Inconsistent WI code in ADN and coversheet (TEI8 vs RANimp-Enhstate)
- Wrong WI code in ADN (TEI8 -> RANimp-UplinkEnhState)
- Wrong WI code in coversheet (RANimp-Enhstate -> RANimp-UplinkEnhState)
=> Already handled in R2-105901
=> Withdrawn

R2-105638 Wrong intention for else case in sub-clause 8.5.56 Infineon Technologies CR 25.331 A REL-8TEI8
=> Not treated

R2-105579 Correction in release of common E-DCH resources Ericsson, ST-Ericsson CR 25.321 F REL-8RANimp-UplinkEnhState
- Broadcom: does this apply to CCCH? There is no retx and harq there… Ericsson indicates E-HICH resources are indicated in the common E-DCH resources.
- Ericsson: the SI would need to be sent to explicitly indicate to NW that transmission is done.
- Infineon: Agrees that SI=0 doesn't apply to CCCH.
- Nokia: Also agrees that SI=0 doesn't apply.
- Ericsson: SI=0 transmission is clear from 11.8.1.6. SI info transmission. HW agrees this is clear.
- Infineon: we had discuss a case when CCCH doesn't need to report SI=0 to NW because amount of data was very limited.
- Ericsson: CCCH can be segmented so NB needs to know which PDU contains the last PDU.
- Qualcomm: agrees the CR captures the existing behavior. The "(re-)" can be removed because it's already clear that in MAC a transmission includes a new tx and a retx.
=> The principle of the CR is agreed.

R2-105580 Correction on READY_FOR_COMMON_EDCH definition Ericsson, ST-Ericsson CR 25.331 F REL-8RANimp-UplinkEnhState
- CR also impacts RANimp-EnhState1.28TDD and same correction applies
- Infineon: In the sentence, it should be made explicit which part applies to FDD/TDD. "for 1.28 Mcps TDD" can be added after "E-PUCH transmission procedure".
=> The principle fo the CR is agreed
=> The CR is revised in R2-105920

R2-105920 Correction on READY_FOR_COMMON_EDCH definition Ericsson, ST-Ericsson CR 25.331 F REL-8RANimp-UplinkEnhState
=> The CR is agreed in principle

R2-105828 Evaluation of SIB5 length and impact for Enhanced Uplink in CELL_FACH Ericsson, ST-Ericsson Disc REL-8RANimp-UplinkEnhState
- Nokia: this is a fundamental to rel'8. Is the feature broken or is it an optimization? E/// considers it's a fundamental optimization.
- Nokia: how is the proposal improving the access delay? UE has to read all the SIBs… is the assumption that SIB5 only need to be optimized? Or all the SIBs? E/// considers SIB5 is a major contributor to the overall SIB space.
- NSN: this needs to be a critical correction.. we need to look at the details of the proposals.
- E///: realizes this is a late change but it seems really necessary, the R99 RACH would have better performance than this new feature.
- NSN doesn't think we can take a principle decision to fix this now. The details need to be evaluated first. NSN welcomes improvements to SIBs but maybe SIB5 isn't sufficient.

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- NSN would like to see how much time can be gained by the enhancements.
- ALU: Agrees there is an issue with SIB5 and would like to look at the enhancements
- E///: agrees there is a problem with the SIBs in general and we can look at the problem in general. The problem at hand is in rel'8 and would need to be fixed there without impacting legacy UEs.
- Qualcomm: agrees with ALU that enhancements need to be considered for SIB5.
- Nokia: this change would also impact the legacy UEs because they would have to read the SIB5.
- DT: This is impacting release 8 and this look like an optimization. Need to be convinced that with the current feature the situation already bad.
- Companies need to discuss what way forward to take
- Some interest in checking this issue further.
- NSN: Checking whether this is an actual issue.
- Orange: Considers this is an worth looking at for release 8.
- DT: We need functions in the spec which are of practical use hence need to make it work in rel'8.

=> There is some interest in solving the issue. Contributions are invited at the next meeting.

R2-105829 E-DCH transmission continuation back off and Maximum E-DCH resource allocation for CCCH values Ericsson, ST-Ericsson Disc REL-8RANimp-UplinkEnhState
=> Not treated

R2-105830 SIB5 changes for E-DCH in CELL_FACH and Idle Mode Ericsson, ST-Ericsson CR 25.331 F REL-8RANimp-UplinkEnhState
=> Not treated

[CB TDD] REL-8 RANimp-EnhState1.28TDD (RAN2):

R2-105514 Clarification on the initial E-PUCH transmission power for LCR TDD CATT CR ? F REL-8RANimp-EnhState1.28TDD
=> Withdrawn

R2-105516 Clarification on the initial E-PUCH transmission power for LCR TDD CATT CR ? A REL-9RANimp-EnhState1.28TDD
=> Withdrawn

R2-105517 Clarification on the initial E-PUCH transmission power for LCR TDD CATT CR ? A REL-10 RANimp-EnhState1.28TDD
=> Withdrawn

REL-8 RANimp-HSDSCH (RAN2):

R2-105567 Discussion on T324 timer usage Huawei, HiSilicon Disc 25.331 REL-8RANimp-HSDSCH

- Broadcom: remembers the intention wasn't as proposed. The intention was to stop monitoring is UE changes cell or sends 1d to a different cell. If for example ASU deletes a RL that isn't being monitored, why stop monitoring?
- Nokia: agrees with proposal from HW, there is no advantage in continuing to monitor HS-SCCH after reconfig.
- Qualcomm: why should UE stop monitoring in case 1? In NW, if a reconfig is sent, NW won't change serving cell. Nokia also considers it's better to stop because there is a reconfig in NW.
- ALU: in use case 3, if UE has just sent 1D and receives the ASU just after, it should not stop monitoring otherwise it may miss the order. HW states that can be handled by NW, since NW knows that UE stopped.
- Nokia: if in use case 3 NW changes ASU then target cell preconfig is changed and UE/NW will be out of sync.
- Infineon supports the proposal from HW.
- Ericsson: agrees with this proposal
- Interdigital agrees.

=> We agree with the proposal from Huawei and HiSilicon, this is captured in R2-105568.

R2-105456 Correction to Enhanced serving cell change procedure Broadcom Corporation CR 25.331 F REL-8RANimp-HSDSCH
=> Not treated

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R2-105457 Correction to Enhanced serving cell change procedure Broadcom Corporation CR 25.331 A REL-9RANimp-HSDSCH
=> Not treated

R2-105458 Correction to Enhanced serving cell change procedure Broadcom Corporation CR 25.331 A REL-10 RANimp-HSDSCH
=> Not treated

R2-105568 CR on T324 timer usage (Rel-8) Huawei, HiSilicon CR 25.331 F REL-8 RANimp-HSDSCH
- Broadcom: the second change isn't needed, the full condition should be removed.
- ALU: there may be more changes needed in 13.1 with definition of T324.
- Ericsson: first change should be in 2 lines
=> The CR is revised in R2-105902

R2-105902 CR on T324 timer usage (Rel-8) Huawei, HiSilicon CR 25.331 F REL-8 RANimp-HSDSCH
=> The CR is agreed in principle

R2-105569 CR on T324 timer usage (Rel-9) Huawei, HiSilicon CR 25.331 A REL-9 RANimp-HSDSCH
=> Not treated

R2-105570 CR on T324 timer usage (Rel-10) Huawei, HiSilicon CR 25.331 A REL-10 RANimp-HSDSCH
=> Not treated

R2-105766 Deletion of target cell preconfiguration for existing RL by ASU Panasonic CR 25.331 F REL-8RANimp-HSDSCH
- There has been comments made offline and the CR needs to be reviewed. NSN indicates the rewording is to point the UE to enter 8.5.52.
- Broadcom: is it allowed to have else if in the same sentence? That can be checked.
=> The CR is revised in R2-105903

R2-105903 Deletion of target cell preconfiguration for existing RL by ASU Panasonic CR 25.331 F REL-8RANimp-HSDSCH
=> The CR is revised in R2-105943

R2-105943 Deletion of target cell preconfiguration for existing RL by ASU Panasonic CR 25.331 F REL-8RANimp-HSDSCH
=> The CR is revised in R2-105955

R2-105955 Deletion of target cell preconfiguration for existing RL by ASU Panasonic CR 25.331 F REL-8RANimp-HSDSCH
- Nokia: why change "shall" to "is to be"
- Samsung: Intention was to avoid storing action redundancy. In 8.3.4.3 the intention is to describe the action and 8.5.52 checks that the action has been done.
=> The CR is postponed to the next meeting

R2-105768 Deletion of target cell preconfiguration for existing RL by ASU Panasonic CR 25.331 A REL-9RANimp-HSDSCH
=> Not treated

R2-105769 Deletion of target cell preconfiguration for existing RL by ASU Panasonic CR 25.331 A REL-10 RANimp-HSDSCH
=> Not treated

REL-8 MBSFN-DOB (RAN1):

R2-105524 Clarification of the operation of RRC for 3.84 Mcps TDD IMB MBSFN (Rel-8) IPWireless Inc. CR 36.331 F REL-8MBSFN-DOB
- Wrong spec in ADN tool
- Chairman: what is the issue in RAN5 conformance test? IPW indicates a RAN5 test needs to be revised and that statement is needed to clarify the assumption in RAN2.
=> The CR is agreed in principle

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[CB TDD] REL-8 RANimp-MIMOLCR (RAN1):

R2-105537 Clarification for MIMO parameters configuration for LCR TDD TD Tech CR 25.331 F REL-8RANimp-MIMOLCR
=> The CR is withdrawn

R2-105539 Clarification for MIMO parameters configuration for LCR TDD TD Tech CR 25.331 A REL-9RANimp-MIMOLCR
=> The CR is revised in R2-105907

R2-105907 Clarification for MIMO parameters configuration for LCR TDD TD Tech CR 25.331 F REL-9RANimp-MIMOLCR
- NSN: "FDD only" is already included in sentence above, no need for CR.
=> CR is not agreed

R2-105540 Clarification for MIMO parameters configuration for LCR TDD TD Tech CR 25.331 A REL-10 RANimp-MIMOLCR
=> Not treated

REL-8 PPACR (SA1):

R2-105486 UE behaviour when PPAC and DSAC parameters not present in SIB3 NEC CR 25.331 F REL-8PPACR
=> The principle of the CR is agreed.

REL-8 TEI8:

R2-105639 Coding of the Variable bitmap format in the GSM cell group Infineon Technologies CR 25.331 F REL-8TEI8
- Nokia: this is not a critical correction, "first" is also understandable.
- Infineon: it's critical if it creates mis-understanding with developpers.
- ALU: the impact analysis is very severe compared to actual issues that can happen.
- Ericsson: ok with CR but there shouldn't be an interop issue.
- Infineon will revise the impact analysis
- Nokia: this "first" is used in other places since r99.
- We can have the CR for rel'10 and say it's implementable by earlier releases.

=> The CR is revised in R2-105904

R2-105904 Coding of the Variable bitmap format in the GSM cell group Infineon Technologies CR 25.331 F REL-8TEI8
=> The document is withdrawn

R2-105640 Coding of the Variable bitmap format in the GSM cell group Infineon Technologies CR 25.331 A REL-9TEI8
=> Not treated

R2-105667 Addition of ROHC target mode in SRNS relocation message Alcatel-Lucent CR 25.331 F REL-8TEI8
- Chairman: why rel'8 CR? Earliest possible release.
- Nokia: Why does target RNC need to know target RoHC mode? ALU: To ensure target RNC will configure RoHC with same target mode in source/target RNCs. Nokia: if target RNC doesn't provide a mode, UE will keep the same. ALU: the point is to inform the target RNC of what mode to use.
- Nokia: in case SRNC didn't provide a target mode, it's up to UE to decide. Then RNC doesn't need to know.
- HW: agrees target RNC should know the target mode
- Companies need to discuss offline: companies agree the correction is needed.
- HW: we can specify the actual release instead of xy
- We need to move the `SRNC-RelocationInfo-v8xyext-Ies` Line below

=> The CR is revised in R2-105939

R2-105939 Addition of ROHC target mode in SRNS relocation message Alcatel-Lucent CR 25.331 F REL-8TEI8
- What to do with the hyperlinks? Not clear, don't change in this CR.

=> The CR is agreed in principle

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R2-105669 Addition of ROHC target mode in SRNS relocation message Alcatel-Lucent CR 25.331 A REL-9TEI8
- Ericsson: intention is to have NCE for both rel'8/9? Yes.
- HW: we can specify the actual release instead of xy
- We need to move the `SRNC-RelocationInfo-v8xyext-Ies` Line below

=> The CR is revised in R2-105940

R2-105940 Addition of ROHC target mode in SRNS relocation message Alcatel-Lucent CR 25.331 A REL-9TEI8
=> The CR is agreed in principle

R2-105670 Addition of ROHC target mode in SRNS relocation message Alcatel-Lucent CR 25.331 A REL-10 TEI8
- The IE needs to be added in CE of Rel'10.
- Ericsson: Should that be cat F or A? Should be F because we're changing from NCE to CE.
- To be checked with RAN2 secretary
- HW: Hyperlinks need to be verified

=> The CR is revised in R2-105941

R2-105941 Addition of ROHC target mode in SRNS relocation message Alcatel-Lucent CR 25.331 A REL-10 TEI8
- Cat F or A? Need to check with RAN2 secretary
- PDCP-ROHC-TargetMode needs to be imported in srns reloc for rel'8/9 as well.

=> The CR is postponed to the next meeting (note: This REL-10 CR will be split into 2 CRs at RAN2 #72: a pure cat.A REL-10 CR and a new cat.F(?) CR for REL-10.)

R2-105430 Correction of RAB information for setup ZTE CR 25.331 F REL-8 TEI8
=> Not treated

R2-105431 Correction of RAB information for setup ZTE CR 25.331 A REL-9 TEI8
=> Not treated

R2-105432 Correction of RAB information for setup ZTE CR 25.331 A REL-10 TEI8
=> Not treated

Not available:

R2-105849 Correction related to 'inter-RAT' and 'inter-frequency' measurements on a frequency other than the used frequencyQualcomm Incorporated CR 25.331 F REL-8TEI8
- Provided late, needs to be checked by companies.
- Qualcomm: offline comment that measurement capability is not so clear anymore because of changes made in rel'8/9.

=> The CR is postponed to the next meeting

R2-105850 Correction related to 'inter-RAT' and 'inter-frequency' measurements on a frequency other than the used frequencyQualcomm Incorporated CR 25.331 A REL-9TEI8
=> Not treated

R2-105851 Correction related to 'inter-RAT' and 'inter-frequency' measurements on a frequency other than the used frequencyQualcomm Incorporated CR 25.331 A REL-10 TEI8
- There are some changes compared to the rel'8 CR because of additional text being added, however principle is the same.

=> Not treated

9 UTRA Release 9

9.1 DC-HSDPA with MIMO (RP-090332)

(RANimp-DC_MIMO, leading WG: RAN1, started: March 09, closed: Dec. 09, WID: RP-090332)

R2-105690 Correction for value range of total RLC AM, MAC-hs and MAC-ehs buffer size Nokia Corporation, Nokia Siemens Networks CR 25.306 F REL-9RANimp-DC_MIMO

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- Rel'10 shadow should be here.

=> The principle of the CR is agreed

R2-105942 Correction for value range of total RLC AM, MAC-hs and MAC-ehs buffer size Nokia Corporation, Nokia Siemens Networks CR 25.306 A REL-10 RANimp-DC_MIMO

=> The CR is agreed in principle

9.2 DC-HSUPA (RP-090014)

(RANimp-DC_HSUPA, leading WG: RAN1, started: March 09, closed: March 10, WID: RP-090014)

No contributions.

9.3 Home-NB enhancements (RP-091392)

(EHNB-RAN2, leading WG: RAN2, started: March 09, closed: March 10, WID: RP-091392)

R2-105559 Correction to the limitation of SI acquisition (Rel-9) Huawei, HiSilicon CR 25.331 F REL-9EHNB-RAN2

=> The principle of the CR is agreed.

R2-105560 Correction to the limitation of SI acquisition (Rel-10) Huawei, HiSilicon CR 25.331 A REL-10 EHNB-RAN2

=> Not treated

R2-105565 Correction to the limitation of SI acquisition Huawei, HiSilicon CR 25.367 F REL-9EHNB-RAN2

- Nokia: not clear we need to mention RAN4 specs in stage 2.
- We can remove RAN4 spec reference and "within the limits (the limit is currently FFS)"

=> With this change the CR is agreed in principle in R2-105905

9.4 TEI9

R2-105433 Introduction of REL-9 access stratum release indicator ZTE CR ? ? REL-9 TEI9

- Cat should be F, not B
- Where is the rel'10 shadow?

=> The CR is revised in R2-105909

R2-105909 Introduction of REL-9 access stratum release indicator ZTE CR ? ? REL-9 TEI9

- Space needed between ",REL-9"

=> With this change, the CR is agreed in principle in R2-105934

R2-105932 Introduction of REL-9 access stratum release indicator ZTE CR ? ? REL-10 TEI9

=> That can be provided at the next meeting

R2-105581 When to discard RLC PDUs with special value HE field set Ericsson, ST-Ericsson, Nokia Corporation, Nokia Siemens Networks CR 25.322 F REL-9TEI9, LTE-L23

=> To be treated with R2-105615

=> The CR is postponed to the next meeting

9.5 Other UTRA Rel-9 WIs

(RANimp-TxAA_nonMIMO; leading WG: RAN1, started: March 08, closed: Dec. 09, WID: RP-090013)

No contributions.

(RANimp-MultiBand_DC_HSDPA; leading WG: RAN4, started: March 08, closed: Dec. 09, WID: RP-090973)

No contributions.

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10 UTRA Release 10

10.1 WI: LCR TDD MC-HSUPA (RP-090990)

(TDD_MC_HSUPA; leading WG: RAN1, started: Sep. 09, target: Dec. 10, WID: RP-090990)

10.1.1 CRs

Including CRs to stage 2, analysis on stage 3 impact, proposal on RRC tabular

R2-105501 Introduction of LCR TDD MC-HSUPA in 25.322 CATT CR 25.322 B
- No change on the CR compared to last time

=> The principle of the CR is agreed

R2-105538 Introduction of LCR TDD MC-HSUPA in 25.321 TD Tech CR 25.321 B
- Coversheet doesn't see to have the right format
- Version should be 9.2.0
- CATT: SNPL bitmap can be more explicit. That can be checked
- CATT: we should call "HARQ sub-entity" instead of entity. Is there a functional difference? No. We should keep the same name if the functionality is the same. CATT: Use "sub-entity" to be consistent with DL-MC-HSDPA. Then maybe we can keep sub-entity but it needs to be consistent.
- Infineon: "one or more" is unclear, we can specify the number: up to 6.
- Chairman: In 9.2.6.3 we should describe when the extended SI format is used, only describe the format. In another section (SI transmission) we should describe when to use the extended format and when to use the legacy format.

=> The CR is revised in R2-105913

R2-105913 Introduction of LCR TDD MC-HSUPA in 25.321 TD Tech CR 25.321 B
=> withdrawn as not available (can come back next meeting)

R2-105542 Introduction of LCR TDD MC-HSUPA in 25.306 TD Tech CR 25.306 B
- CATT: cat2 nb of bits appears smaller than what is needed. That needs to be corrected in 5.1m-a.
- CATT: We need to capture the restriction between nb of timeslots in SC and what is configured in MC. That could be captured in RRC.
- CATT: why is RTT 70ms? Maybe a different number can be used. That's to be discussed.
- Chairman: min RLC buffer value needs to be available in RRC to be signaled.
- see if we can decide on the RTT value. More offline discussion needed

=> The CR is postponed to the next meeting

R2-105596 Introduction of MC-HSUPA for 1.28Mcps TDD ZTE CR 25.302 B
=> The CR is revised in R2-105912

R2-105912 Introduction of MC-HSUPA for 1.28Mcps TDD ZTE CR 25.302 B
- Infineon: section 6.1 No need to repeat "for each UL carrier", this is already clear from the same sentence.
- Infineon: in 7.2, the change should be place under the dedicated trch type #2.

=> The CR is revised in R2-105914

R2-105914 Introduction of MC-HSUPA for 1.28Mcps TDD ZTE CR 25.302 B
- ALU: in row 17, second column, "+"=>"or"
- Ericsson: should align the naming of UL carrier to frequency. "For each UL carrier" -> "for each UL frequency"

=> CR is agreed in principle, changes mentioned above will be included in resubmission to RAN2 #72

R2-105597 Introduction of MC-HSUPA for 1.28Mcps TDD ZTE CR 25.331 B
=> The CR is revised in R2-105908

R2-105908 Introduction of MC-HSUPA for 1.28Mcps TDD ZTE CR 25.331 B
- CATT: we shouldn't list IE names in definition.
- CATT: 8.5.x1: we shouldn't mention actions (not perform) on IEs which aren't present. We can add "if configured" at the end the statement.

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- CATT: 10.2.16a, do we need MC info in HO to UTRAN? That can be used. It should be at same level as IE above (>>). ZTE: if NW finds a use it can utilize this method, otherwise it can omit the config. Same thing was done for MC-HSDPA. That can be checked offline.
- CATT: why mention “tsn field extension” here? ZTE: this is primitive between RRC/RLC.
- CATT: in 10.3.7.13, semantics need to be clarified, what is working frequency in this context? Also, we need to explain use of all 5 bits, not only bits 0/1 (use generic language e.g. nth bit…). “working frequency” is used elsewhere to describe the frequency UE is on. That can be discussed.
- Editorials: remove curly brackets, no space between bracket and IE name.
- Ericsson: need to see ASN.1 before submission deadline. Through email discussion.

=> The CR is postponed to the next meeting, will include ASN.1.
-Email discussion [71b#22] to provide ASN.1: Deadline Friday before submission deadline.
-Contact: ZTE.

10.1.2 Scheduling

10.1.2.1 SI format

Do we need to add a new extended SI format to report SNPL of other carriers?

No contributions.

10.1.2.2 SI triggers

For periodic triggers, which triggers are re-used from single-carrier mode, are new ones needed, are triggering conditions per carrier or per UE?

No contributions.

10.1.2.3 Other issues related to scheduling

No contributions.

10.1.3 E-TFC selection

Details on how to perform E-TFC selection, how to allocate power to different channels, how to allocate power between the different carriers

R2-105506 Further discussion on E-TFC selection in MC-HSUPA CATT Disc
- ZTE: in proposal 2, does it mean UE can allocate diff power per carrier per timeslot? CATT: no. UE finds total available power and it needs to be same in different timeslots.
- Proposal 2 should be: transmission power for E-PUCH per carrier should be identical for the different timeslots, however total power per timeslot may be different.
- TD-Tech: what is the purpose of Proposal 2? Purpose is for UE to know available power for each timeslot.
- ZTE: Which precedence between proposals 3 and 4? Guarantee retx or E-UCCH? CATT considers retx has higher priority. ZTE: this means E-UCCH may not be always guaranteed for new tx.

R2-105544 E-TFC selection for MC-HSUPA LCR TDD TD Tech Disc
=> The document is revised in R2-105910

R2-105910 E-TFC selection for MC-HSUPA LCR TDD TD Tech Disc
- Chairman: in proposal 1, what are the rules? TD-Tech, different rules are given for different scenarios but all rules reside in UE

R2-105598 Discussion on E-TFC selection scheme for 1.28M TDD MC-HSUPA ZTE Disc
- CATT: When are those principles supposed to be applied? The SC E-TFC selection scheme applies once the power is determined for that carrier.
- CATT: What is Pmax,tx? This is the total power before backoff, backoff will be determined and applied after.

Discussion:
- How to split power for the different carriers?

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-Parallel power split according to some metric such as Power grant, TSRI, CRRI, Pe-Base (exactly which mix of metric is FFS)
2 companies support
-Sequential power split according to some metric (priority of different carriers, according to UE implementation)
6 companies support
- Chairman proposal: simplest solution with rules residing in UE only.
- CATT: not acceptable

=> Agreement: Sequential power split
=> The details (priority, amount of power for each carrier…) to be resolved at the next meeting.

10.1.4 Configuration

Including UE categories, common or carrier specific parameters

No contributions.

10.1.5 Others

R2-105508 Further discussion on UE measurement occasion in MC-HSUPA CATT Disc
- TD-Tech: TS0 is a release 9 feature and MC-HSDPA is rel'7.. this is not related to MC-HSUPA, it should be in a different Agenda Item (e.g. rel'9 correction or TEI10).
- CATT: should we optimize the measurement occasion? TD-Tech thinks UE can do it on its own.
- ZTE: this is up to UE, no impact on spec is expected.
- CATT: NW needs to know what UE can support in order to configure the measurement occasions. ZTE: NW will anyways need to configure the measurement occasion to ensure all frequencies are measured.

=> Noted

10.2 WI: 4C-HSDPA (RP-100991)

(4C_HSDPA-Core; leading WG: RAN1, started: Dec. 09, target: Dec. 10, WID: RP-100991)

10.2.1 CRs

Including CRs to stage 2 and 3

R2-105427 Some clarifications of 4C-HSDPA behavior ZTE CR ? ?
- Title needs to be more specific
- Chairman: prefer to have rel'8/9 WI related CRs in different CRs with correct Wis
- HW: change in 8.1.6.2 isn't needed, text isn't ambiguous.
- HW: change in 10.3.6.42 not needed, this is already covered in the carrier combinations. ZTE wants to capture the dependency. Need to find a place where to capture.
- HW: last 2 changes not needed. QC: agree it's incorrect to add this in the note.
- QC: last change of 10.3.6.42 not needed as well.
- Ericsson: There is no way to define a UE that supports 2DC-DB+MIMO. Should we define it? What ZTE is providing could be one way. QC: if we want to address this, this is not the right place. That would be a confusing way to do it (UE signals 3c and doesn't actually support 3c). This is not the right WI. NSN: we need to discuss this elsewhere.
- Ericsson: change in 8.6.6.48 should be in 8.5.57 as well… that should be checked.
- Nokia: in 3.1, should also indicate "associated with secondary UL freq".

=> ZTE will provide a revision of 4C related corrections in R2-105915
=> ZTE will provide non-4C related editorial corrections for rel'10 in R2-105916

R2-105915 Some clarifications of 4C-HSDPA behavior ZTE CR ? ?
- 1 Samsung: &=>"and"
- 2 Ericsson: "1> " need to be a space (correction: should be a tab)
- 3 Else/Set->else/set? Need to be checked

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- 4 Qualcomm: move “If the IE "Secondary cell MIMO parameters" is included” to level 1, bullets “Determine” to level 2, and else to level 1
- NSN: semantics text in 10.3.6.42 needed? Ericsson: There is no normative text capturing this, we need this clarification to ensure NW knows how to make sense of UE capability reporting. NSN: preference to have normative text. Let’s leave the text as it is for now and provide an update at the next meeting if better wording can be found
- Let’s separate the issues.
- Ericsson: what happens to flag on Tx diversity support when MC is configured? There is already an assumption that the functionality is extended to ¾ cells.
- QC: we can’t change the IE name which will be inconsistent between different release.
- E///: if we don’t change the name, we need to make sure the flag is understood by all Ies.
- ZTE will incorporate the changes 1/2/3/4.

=> The CR is revised in R2-105935

R2-105935 Some clarifications of 4C-HSDPA behavior ZTE CR ? ?

- “1> “ need to be a tab
- Ericsson: no “,” after else.
- 8.6.6.5y: delete first “and” and “,”
- “and set both the…”

=> The CR is revised in R2-105945

R2-105945 Some clarifications of 4C-HSDPA behavior ZTE CR ? ?

- The impact analysis can be removed

=> With this change the CR is agreed in principle in R2-105950

R2-105916 Some legacy editorial corrections for TEI10 ZTE CR ? ?

- Magic sentence to be moved to “summary of changes” and changed to a regular magic sentence
- E///: cat should be F
- Nokia: in 3.1: “UL”->”uplink”
- Nokia: “the secondary downlink” -> “the downlink”

=> The CR is revised in R2-105936

R2-105936 Some legacy corrections for TEI10 ZTE CR ? ?

=> The CR is revised in R2-105948

R2-105948 Some legacy corrections for TEI10 ZTE CR ? ?

- Impact analysis needs to be removed
- Magic sentence should read: “The implementation of this CR in earlier releases doesn’t cause interoperability issues.”

=> With these changes the CR is agreed in principle in R2-105951

R2-105488 Measurements without compressed mode if Dual Cell E-DCH operation is configured with 4C Ericsson, ST-Ericsson, Nokia Siemens Networks, Nokia Corporation CR 25.331 F

- QC: contents of note should be moved down in second >5 bullet.
- Ericsson: offline comment on how to handle the inter-freq as well. That should be considered further and can be seen in a revision in the next meeting.

=> The CR is postponed.

R2-105697 Correction for value range of total RLC AM, MAC-hs and MAC-ehs buffer size Nokia Corporation, Nokia Siemens Networks CR 25.306 F

- Need to separate rel’9 from rel’10 corrections.
- Ericsson: please add comment from ST-E on enhanced measurement capabilities in final version

=> The CR is revised in R2-105917

R2-105917 Correction for value range of total RLC AM, MAC-hs and MAC-ehs buffer size Nokia Corporation, Nokia Siemens Networks CR 25.306 F

- Need to separate rel’9 from rel’10 corrections.

=> The CR is revised in R2-105938

R2-105938 Correction for value range of total RLC AM, MAC-hs and MAC-ehs buffer size Nokia Corporation, Nokia Siemens Networks CR 25.306 F

- Impact analysis needs to be removed

=> The CR is agreed in principle in R2-105952

R2-105820 Correction to 4C-HSDPA Samsung CR 25.331 F

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- Title needs to be more sepific
- QC: there should be no concern on what UE can support, that's signaled in the category. NSN: not a critical modification but thinks it's acceptable.
- Ericsson: ok with CR, coversheet NW box should be impacted.
- QC: this change creates more ambiguity as the "additional" has no reference anymore.

=> better wording can be discussed offline
=> The CR is revised in R2-105925

R2-105925 Correction to 4C-HSDPA SamsungCR 25.331 F
=> The CR is agreed in principle

10.2.2 Others

R2-105418 4C-HSDPA UE Measurement Capability Flag Settings Alcatel-Lucent, Alcatel-Lucent Shanghai Bell Disc

- NSN: setting 2 can still be applicable for a rel'10 UE, it should be possible to indicate that.
- Interdigital: agree with NSN
- Qualcomm: We should leave this up to UE to decide how to indicate.
- HW: setting 3 is also possible. Samsung: that shouldn't be possible, a 3/4c UE has to be able to support at least 2 adjacent. QC agrees. Interdigital agrees

=> The setting of the rel'8/9 flags (when rel'10 flag is true) left up to UE implementation
=> Noted

R2-105419 4C-HSDPA Downlink Secondary Carrier Reconfiguration Alcatel-Lucent, Alcatel-Lucent Shanghai Bell Disc

- NSN: Prefers to not do any auto-reconfiguration. Companies don't seem to see a big improvement in signaling.
- Ericsson: Since the explicit reconfig can be done, sees little value in re-config. Is there an issue with signaling?
- ALU: we did this because QC proposed it earlier and it could be investigated.

=> Noted.

R2-105631 Open issue for UE measurement capability signalling for 4C-HSDPA Huawei, HiSilicon Disc

- ALU: what is the difference between proposal 2 and existing rel'9 flag? Only difference is
- Samsung: these extensions could create confusion because the flag means something different for rel'8 or rel'10.
- Ericsson: sees some use cases for extension of these flags but asks why such a UE wouldn't signal the rel'10 flag if it supports rel'8/9 extended flags. HW: There can be UEs without the searcher capabilities for the rel'10 flag. Ericsson: from a NW point of view, would much prefer to handle less UE flavors, every new flavor requires more complexity in the NW.

=> Noted

R2-105852 Draft LS on Latest RAN2 agreements on 4C-HSDPA (to: RAN4; cc: -; contact: Qualcomm) Qualcomm Incorporated Lsout

- Ericsson: What is the purpose of sending the LS? QC: we have received LSs asking questions and we're answering them. E/// considers RAN1/3/4 can simply read the specific specs. No need to mention new agreements.
- QC: RAN4 has not finalized the work on 4C measurements, we made a decision today.
- Infineon: ok to send an LS to say the work is completed.
- Chairman: we typically send LSs indicated additional agreements to other groups. Otherwise we may face issues if they find a problem with our agreements.
- Ericsson: Ok to send an LS if group is ok and chairman in favor but need to see a revision.
- NSN: NSN RAN4 delegates are fine with RAN2 agreements
- Ericsson: we should ask RAN4 about inter/intra frequency measurements happening at the same time. This is partly related to a CR from Ericsson/ST-Ericsson and which has been postponed.
- QC: RAN3 needs to know about RAN2 agreement, for example agreements on category dependencies.
- HW: we prefer sending the LS. ALU: we don't see a harm in sending the exta info to other groups
- Ericsson: Why didn't we send the LS after last RAN2 meeting.
- Samsung: fine sending an LS.

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- Nokia: No point sending an LS to other groups
- Changes:
  -open issue on rel'8/9 flags needs to be removed
  -NSN: "on 3 carriers" -> "on 2 additional carriers". Use the text from RRC instead.
  -NSN: what to say on DB-DB? Just that it's an open issue? We can just indicate the limitation.
  -Ericsson: need to add the measurement issue which is a rel'9 issue. Maybe have a second LS?

=> The LS is revised in R2-105918

R2-105918 Draft LS on Latest RAN2 agreements on 4C-HSDPA (to: RAN4; cc: -; contact: Qualcomm) Qualcomm Incorporated Lsout

- Ericsson: we don't need to say how the rel'8/9 apply if the rel'10 flag is false
- Ericsson: In the action to RAN4, correct title to "Inter-Frequency Measurement with and without compressed mode"

=> The LS is revised in R2-105953

R2-105953 Draft LS on Latest RAN2 agreements on 4C-HSDPA (to: RAN4; cc: -; contact: Qualcomm) Qualcomm Incorporated Lsout

=>The LS is approved in R2-105954

10.3 WI: RF pattern matching in UMTS (RP-091427)

(LCS_UMTS_RFPMT-Core; leading WG: RAN2, started: Dec. 09, target: Dec. 10, WID: RP-091427)

No contributions.

10.4 WI: Minimisation of Drive Test (RP-100360)

(MDT_UMTSLTE-Core, leading WG: RAN2, started: Dec. 09, target: Dec. 10, WID: RP-100360)

No contributions.

10.4.1 UMTS specific stage-2 aspects

E.g. Need for "data available" indication in more messages due to LOG-MDT support in PCH ?

R2-105674 Discussion on SRB for UMTS MDT Alcatel-Lucent Disc

- NSN: Agree and support the proposal.
- Samsung: SRB3 is for high prio NAS messages and MDT logs can be large. That could delay NAS messages for quite a bit.
- If we don't have the proposal, this means MDT cannot be enabled if SRB4 isn't configured.

=> Noted.

R2-105919 Messages involved in MDT report indication for UMTS NSN, Nokia Disc

- Broadcom: why do we need to add measurement report? NSN: that's for the case where UE doesn't move and changes state.
- Panasonic: utran mobility isn't listed there. This document reflects stage 2, HTC has such a proposal to add to stage 2.
- Panasonic: there is a different behavior for transitions from idle where report is in RRC cntn complete and in transition from pch where report is in first message. NSN: for cell pch state it's required to report the log availability in CU.
- QC: What if UE is stationary and has an MDT config? Why report in this case, even at change of state? Do we need to handle this?
- NSN: The current stage 2 is missing some messages that are required. We will be missing some messages
- Nokia: we can update CU, or NW can page UE when timer expires, or we don't add anything (and in some cases UE won't be able to report it has a log).
- Ericsson: if UE moves to cell-fach, would like to know if it has a log or not.
- Panasonic: which state transitions require UE to report log? Right now, only transition to RRC connected requires a log.
- TIM: good to indicate availability at the earliest, maybe some of these transitions (i.e. to cell-fach) could be useful before CU or timer expiry.

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- Way forward: Companies need to provide proposals of when to report log availability (which events: mobility, state transitions, others..)

=> We can have an email discussion on this deadline is next meeting submission deadline -Lead: NSN.

10.4.2 UMTS stage-3

=> Including email discussion output: [71#40] UMTS: MDT - 25.331 baseline CR [NSN]

R2-105784 Baseline CR to 25.331 on MDT Nokia Siemens Networks CR 25.331 B related to email discussion [71#40]

- ASN.1 not available yet.
- ZTE: many editorial mistakes need to be handled (spaces, comma, curly brackets) NSN: this is not a final version, comments are welcome.
- ALU: how to handle case of CPICH RSCP of serving cell not available? We can't force UE to have measurement if it's not available, would need to discuss what is UE behavior in this case.
- CATT: LCRTDD measurements would need to be added as well. NSN: there is no such measurement in stage 2, that would need to be added there. CATT will provide a stage 2 document for next meeting to indicate which measurements are needed. Would need to provide a proposal for stage 3 as well to ensure work is done on time.
- Qualcomm: in 10.3.7.y what is the type of measurement->serving cell. NSN: agrees that would need to be provided. For "neighboring cells", this is a choice between GNSS or neighboring cells.
- QC: why is neighboring cell stated twice? The redundancy would need to be removed
- QC: Reports should be grouped per Frequency info to avoid duplication.
- HW: in 8.1.3.6 we should specify UE only reports UTRAN MDT report.
- Ericsson: We anyways don't report logs across RATs so the MDT report isn't available if it's not UTRAN.

=> The CR is postponed (finally revised in R2-105880)

R2-105797 Clarification on availability indication of MDT logs HTC CR 25.331 F

=> Agreement:
add log availability to HANDOVER TO UTRAN COMPLETE

- Already covered in stage 2, only impact in stage 3.

=> CR finally merged into R2-105880

R2-105836 Consideration on the log available indication in UMTS LG Electronics Inc. Disc

=> Not available.

10.5 ANR for UTRA

(ANR_UTRAN-Core, leading WG: RAN3, started: June 10, target: Dec. 10, WID: RP-100688)

=> Email discussion output for [71#53] UMTS: SON ANR – Discussion CELL_DCH based approach [ZTE]
=> Email discussion output for [71#54] UMTS: SON ANR – Discussion non CELL_DCH based approach (cell reselection) [Nokia]
=> Email discussion output for [71#55] UMTS: SON ANR – Discussion non CELL_DCH based approach (log approach) [Huawei]

10.5.1 ANR measurement control and reporting

Including how UE indicates support, how NW configures ANR measurements and how UE reports measurements

Email discussions

R2-105428 [71#53] UMTS SON ANR Email Discussion Report on CELL_DCH Based (SI-Reading) Approach ZTE Report related to email discussion [71#53]

- Chairman: an email discussion report shouldn't be giving the rapporteur's view. Companies views need to be reported.
- Nokia: concerns with handling of email discussion, some companies views were ignored.
- ALU: Is RAN3 looking at issue 19 on RNC/Cell ID? No, issue is FFS.
- Nokia: concern point 8 is not about complexity but impact of solution.

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- QC: on concern point 3 we cannot compare interruption due to LTE-ANR with UTRA ANR given difference in SIB scheduling.
- Nokia: yellow points are no-consensus points, red points were actually understood and should be treated as non-consensus.

=> Noted

R2-105571 Report on [71#55] UMTS ANR non CELL_DCH based approach (log approach) Huawei Report 25.331 related to email discussion [71#55]

- Vodafone: will UE read SI of detected cells? That is the intention. Will it also camp there or just read SI? Yes. TIM thinks this is a variant of cell-reselection approach, it's 4th approach.
- DT: Will UE record every single found neighbor for the operator to postprocess and derive the neighbor relationship? HW: the intention was for the UE to record the detected cell satisfying the reselection rules.
- VDF: in option b, does UE have to read the SI twice? For best cell and detected cell? That is the intention.
- Nokia: How can UE/NW/Operator figure out the neighbor relationship if only the cell is reported? NW would have to do that; UE would have to read both source and target cells and report that.

=> Noted

R2-105718 report on [71#54] UMTS: SON ANR - Discussion non CELL_DCH based approach (cell reselection) Nokia Corporation Report related to email discussion [71#54]

- ALU: Should we link the DRX cycles to config of ANR? Nokia's assumption is UE performs ANR during DRX, if DRX isn't sufficient then UE won't be able to perform ANR.
- TIM: Operator can blacklist known "un-welcome" cells, but operators doesn't always know if target cell is welcome or not. In this case the UE behavior is unpredictable.
- DT: The important use case is continuity of voice call. It's not clear that this can be addressed with reselection criterias. Nokia indicates the ANR parameters can be set for that purpose.

=> Noted

Supporting docs (not treated):

R2-105422	Specification Impact Analysis of SI-reading Based ANRF Solution	ZTE Disc
R2-105672	Provisioning UE for ANR, comparison of methods	Alcatel-Lucent Disc
R2-105723	Choosing an appropriate solution for UTRA ANR	Nokia Corporation, Nokia Siemens Networks Disc
R2-105725	ANR Configuration and Reporting	Nokia Corporation, Nokia Siemens Networks Disc

Discussion:

- Agreements from email discussions (apply to any method)
- ANR capability will be signaled by UE to NW
- Whether 1 flag is used or several flags are needed is FFS (several may be needed to distinguish inter/intra-RAT)
- ANR capability is separate from CSG capability
- For rel'10 ANR, UE should focus on rPLMNs (ffs what to do if additional info comes for free when we define the full solution)

- Ericsson: should we consider ePLMN?
- Ericsson: for CELL_DCH method, does PLMN restriction apply? Seems we can keep this.
- TIM: initial answer was related to whether we should ask UE to measure other PLMNs however if info on other PLMNs comes for free then we shouldn't restrict.
- Nokia: In MDT there was some concern from operators, is this not the same here?
- VDF: we don't want to allow reselection to other PLMNs. Same for ePLMN.

- CELL_DCH based method
  - Agreements

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- For detection, CM need to be used in inter-freq case/inter-RAT
- For SI reading: Autonomous Gaps need to be used for inter-freq/inter-RAT

- Issues to discuss:
  - When to trigger CM/AG procedures for ANR purposes
  - Nokia: on CM activation, it is desirable to limit the CM gaps. ZTE indicates UE can report other information (measurement reports) to help NW make good decisions on when to trigger CM gaps). ALU: There is already some info in the NW to make decision regarding service/location of when to make decisions on triggering CM gaps. Also, a UE performing CM gap doesn't have to be doing SI reading later, that can be another UE.
  - QC: We need to make sure CM gaps are well chosen because finding inter-freq/inter-rat cells is slow.
  - QC: if we limit high speed UEs from doing ANR we may miss a large number of UEs.
  - ZTE: QC is too pessimistic. ANR is best effort, we don't have to force UEs to do ANR if it's not appropriate. Nokia: We need to look at technical solutions, not generic statement.
  - TIM: No big difference in scenario between LTE and UTRA in terms of when to start ANR, what is the technical difference between LTE/UTRA in this case? QC: there are 2 differences, compared to LTE detection we don't have the same detection time with UTRA. For SI reading in UMTS, the max is 600ms for LTE it's in the low ms delay; this comes from fact that LTE SIBs are much shorter than UMTS and relevant info is in LTE MIB so UE can stop much faster from reading. QC: Also in LTE we re-use long DRX gaps which doesn't involve dropping of frames. ALU: For CSG cells however we agreed to limit the SI reading to 50ms. Nokia remembers the 600 is the total amount of time needed to read SIB3. VDF: the interruption would be more severed for voice compared to data, operator can distinguish between the 2 before activating ANR.
  - DT: the LS answer was for both UMTS and LTE so the impact on performance should be ok. Maybe we'll have to start measurements earlier but that shouldn't be a breaking point.
  - NSN: For UTRA we'll have to start the gaps much earlier compared to LTE
  - NSN: Is the intention from ZTE that RAN4 would need to change requirements? That isn't the intention.
  - Ericsson: is the intention from ZTE to change CSG perf requirments and SIB scheduling? That isn't the intention.
  - Nokia: in ANR case, we need to start CM earlier to cover longer detection time. Similarly for SI reading.
  - VDF: for CSG we were ok to loose a few voice frames, for ANR it may be fine to not schedule UEs during that time.
  - Ericsson: are operators ok to impact performance due to ANR? Nokia considers from UE vendors the goal is not to impact UE service.
  - DCM: we need to minimize impact on performance, it's not acceptable to have service impact.
  - ZTE: The service impact can be limited through scheduling and finding the right UEs.
  - TIM: issues for CELL_DCH is how to start CM gaps for detected sets, this will be discussed also in another WI. Other issue on SI reading, a disruption of 600ms can be expected and we'll need to decide if that is acceptable.
  - TIM: for CM gaps, we have to analyze the other WI, for SI reading operators need to see if it's acceptable.
  - Impact of CM/AG procedures on real-time/non-real-time service performance
    - Treated simultaneously.
  - Cell-id / RNC-id issue
  - ZTE: simplest solution is to force existing NW to ensure cell-id is included in extended RNC-id
  - ALU: this is looked at in RAN3.
  - Nokia: UE today cannot know whether this is solved. That would need to be solved there.
  - How to ensure NW doesn't add implausible NRs (e.g. strong neighbor is across a river, with no bridge)
  - ZTE: The NW has to filter out the NRs reported by NW through its own blacklist and O&M database. NSN: if NW already knows the cells then ARN isn't needed.
  - Nokia: that issue won't happen for the cell reselection case, in this case if the UE can reselect it's a valid neighbor. ZTE doesn't agree because the parameters may be

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biased. TIM thinks for the reselection it can be worse because UE isn't looking at NCL. Nokia indicates UE would have to ensure the cell isn't barred or the cell update succeeds to ensure the new NR is a valid one.
- Ericsson: there shouldn't be a big difference between both methods for this issue. If NW knows the NR isn't valid it will either not send the UE to do SI reading there, or tell UE not go reselect to that Neighbor.
- CATT: not a big issue, if a bad NR is added it can be removed later.
- Nokia: in case of reselection, UE won't be able to complete the procedure.
- How to perform inter-RAT ANR
- Nokia: how to enable detected set measurements for GERAN? There is no procedure for this.
- ZTE: That needs to be worked on.
- TIM: What is the intention for LTE-ANR? Same technique as inter-freq.

Status:
-cell-id/RNC-id: open
-inter-RAT ANR to GERAN: open
-triggering ANR due to RF conditions (UE at cell edge) / impact to service
-Companies to check amount of CM/SI gap and see if interruption is acceptable.
-triggering ANR for service based conditions (UE isn't at cell edge): How to minimize CM/SI reading in this case?

- <u>Non-CELL-DCH based method (reselection method)</u>
- Issues to discuss
  - How to prevent UE from reporting unwanted neighbor?
    - What if unwanted neighbor isn't known to operator?
  - Nokia: UEs which are restricted to the other cell due to barred cell or any restriction won't be able to get to that cell. Similarly for not-appropriate cells.
  - ZTE: if restriction is valid only for the ANR UE then NR wouldn't be established when it's needed. Nokia: ANR needs to be enabled on more than one UEs and restrictions.
  - Nokia: For other cells, UE can be pre-loaded with non-allowed NRs if those are known.
  - Nokia: an ANR indicator can be added in target cells to ensure forbidden cells aren't selected to.
  - Nokia: during CU procedure CUC needs to be integrity protected for which key comes from source rnc, that would ensure UE can establish relation with target
  - ZTE: If target cell overshoots its signaled, UE will establish NR with it. Nokia: those problems shouldn't exist in practice
  - ALU: There is complexity in maintaining/broadcasting a blacklist if UE is in Idle. Nokia: Intention is that UE gets the blacklist in dedicated mode, wouldn't use this method in Idle.
  - TIM: Is intention to update blacklist in CUC? What is the limit for UEs; the longer the list the easier the list becomes for operators (less local). Nokia: UE shouldn't be a limit. And this blacklist maintainence should be identical for SI reading? NSN: if operators don't want UEs to camp on target cell, there can be a flag added. Orange: That won't be always the case. NSN: Anyways you won't be able to bar all UEs, regardless of ANR.
  - ALU: How would flag prevent UE from accessing wrong frequency? Nokia: that would be listed in blacklist
  - What if operator doesn't know cell needs to be black listed? NSN: the entire frequency maybe blacklisted.
  - HW: Is NR established immediately? TIM: no, info will be gathered over time before NCL is updated. HW: If NR is in target RNC, how to find source? Nokia: CU contains RNC id so it's up to NW to decide but info is available to establish in any direction
  - ALU: should UE in ANR be kept in CELL_PCH during all ANR session? When UE is sent to Idle it will forget config hence ANR config as well.
  - QC: should URA-PCH be considered as well? That can be discussed later.

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- DT: main goal is to enable voice continuity, would need to understand how cell reselection can be made to work for HO decision? Nokia: the thresholds can be set to similar value to what HO values would be. DT: HO decisions would use absolute thresholds. Nokia: cell suitability criteria can be used. DT: we would need new cell suitability criteria. Nokia: yes, sent to the ANR UE. DT: need to ensure result would be useful for HO case. NSN: used parameters are similar to cell-fach which should be compatible with HO. DT: we want to target similarity with cell-dch.
- DT: will ANR-UEs behave as per new criterias or legacy criterias? Nokia: for ANR only a new trigger is added. DT: concern that criteria cannot be set similarly between reselection and HO.
- ALU: How can UTRAN set the ANR parameters when UE comes from LTE/GSM? Nokia's intention is to reuse the existing reselection between RATs.
- Status: Need to verify that reselection criteria for ANR can be tuned to ensure NR can be done for HO.

- Issue with UEs performing cell reselection based ANR not behaving according to normal cell reselection rules
- ALU: what if UE has a CSG whitelist, would it go towards other cell to do ANR? Nokia understands CSG has highest priority and ANR is lowest, UE wouldn't reselect to other cells. Is there a reason in performing ANR for CSG-capable UEs? UE isn't always close to his home cell… ANR can be useful in other cases.
- HW: in case absolute priority is configured in NW, how does UE behave? Nokia: either UE doesn't do abs priority in this case. HW: that would modify mobility in NW. Nokia; anyways, all legacy UEs would behave as per legacy rules. HW: those UEs won't behave as per abs priority.
- How to address case where cell update isn't successful (due to load condition, access restrictions…)?
- Nokia: if NW rejects UE, then there isn't a NR to have. What about temporary load condition? Nokia: ANR is collected over time, temporary conditions shouldn't be an issue.
- ZTE: in CELL_DCH based technique, the NR would be faster. Nokia: speed is not the goal of the WI and it's not clear cell-dch method is faster.
- ZTE: for irat case there may not be many UEs camping in GSM. Nokia: UEs camp in GSM due to coverage issue. Nokia: didn't intend to change GSM rules.
- HW: how does Irat ANR case work for cell reselection? Nokia: nothing needs to be changed, from LTE and GSM cells UE already uses detected set cells to reselect. HW: We have to wait for UE to reselect from GSM/LTE? Yes.
- ZTE: in case of irat from GSM to UMTS, UE may reselect to the macro cell only, not any capacity-boosting pico cell (for example if operator doesn't want GSM UEs to come into pico-cell frequency, but wants NR to allow UEs go from pico to GSM).
- =>Need to understand from operator if that use case is necessary.
- How to address case where UE reselect to target cell due to ANR and UE has to return because ANR is de-activated (and reselection bias is removed)?
  - Nokia: if ANR is de-activated in NW, CUC can be used to send the UE back to the source. ZTE: That will create a ping-pong. Nokia: NW can handle that.
  - ZTE: The ANR parameter would need to be adapted in case RF conditions change. NSN: this is not something specific to ANR.

- Non-CELL-DCH based method (logging method)
  - Issues to discuss:
  - In which states should this be applied?
  - How to handle additional SI reading?
  - What to log to ensure minimal post-processing?
  - Nokia: hard to see what do discuss, there isn't much detail on this feature. We need to know how SI reading would be performed/triggered.
  - Orange/TIM: too early to exclude a solution. That can be done at next meeting.

Way forward:

-Answer the questions raised for SI-reading and cell reselection for next meeting. Decision on cell-dch-based vs non-cell-dch-based will be made in next meeting.

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-Other solution can be provided but it would need to contain as many details as other solutions.

10.5.2 ANR Measurements

Including how UE performs ANR measurements in intra-frequency, inter-frequency and inter-RAT cases, in which states are measurements performed

R2-105726 ANR Measurements and Triggering Nokia Corporation, Nokia Siemens Networks Disc
=> Not treated

R2-105622 ANR Support in UTRAN Qualcomm Incorporated Disc
=> Not treated

10.5.3 Other ANR issues

R2-105489 Parameters for ANR NEC Disc
=> Not treated

R2-105625 UMTS ANR solution for 1.28Mcps TDD TD Tech Disc
- TD-Tech: Need to address TS0 enhancement in case we choose cell-dch-based method.

=> Noted

R2-105671 ANR scenarios for discussion Alcatel-Lucent Disc
=> Not treated

R2-105728 ANR Security Risk Nokia Corporation, Nokia Siemens Networks Disc
=> Not treated

10.6 WI: Interfrequency detected set measurements (RP-101015)

(Interf_dset_meas_UMTS, leading WG: RAN2, started: Sep. 10, target: Dec. 10, WID: RP-101015)

R2-105423 Considerations of Inter-frequency Detected Set Measurements ZTE Disc
- Open issue 1: Is IFDS mandatory or optional for Rel-10 UE. DT: we could decide this later when we see the solutions. We typically decide this later on. QC: Principle is for UE to indicate to NW if UE supports the feature.
- Open issue 5: DT: main intention is to improve HHO method. Orange: need to decorrelate both WI.

=> Noted

R2-105424 Specification Impact Analysis of Inter-frequency Detected Set Measurements ZTE Disc
- Nokia: what was the intention for listing reporting quantities for detected cells? ZTE considered it would be similar with intra-frequency detected cells. Nokia: Is there an intention to use different reporting quantities between monitored and detected cells? E///: at first glance no, need to analyze further.

=> Noted

R2-105709 Impact for introduction of inter-frequency detected set measurement and reporting Nokia Corporation, Nokia Siemens Networks Disc
- ALU: in option 2, why are the bits need to indicate to NW the measurement included connected cells
- QC: what happens in legacy NWs when Ies are renamed? The proposal is to add a new IE.
- QC: is there an underlying assumption that RNC is expecting the detected cell to be reported? Proposal 1 is to extend existing IE.
- HW: what does it mean to mirror the intra-freq? Proposal is to allow intra-freq report to indicate detected set cell for inter-freq.
- E///: in option 1, can NW configure the new event completely independantly? What is mirrored? Mirror is on the procedures (triggers). Nokia: the values in the measurment controls are independant.

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- E///: the mirrored event could be used immediately to trigger a HO? Nokia: that wouldn't work in all cases because more info may be needed.
- E///: on advantage b, is the expectation that NCL needs to be updated on the fly or later after post-processing? Nokia is talking about updating the UE NCL. DT: the main goal of this WI is not to upgrade the NCL but to have new cells to select from?
- QC: The WI is not about inter-freq HO. Nokia: the WI justification implied HO. QC: not agree, the WI is only talking about NCL. DT: HO was the intention.
- ZTE: What is expected impact for the UE? Primary purpose is to ensure the inter-freq HO can work. ZTE: are there concerns on the quality of the HO quality (dropped calls or other). Nokia: Intention is to re-use existing performance requirements for inter-freq HO.
- HW: if primary goal is HO, should we assume we have to create the NR? The assumption is NR already exists.
- QC: what is the impact of adding detected set in the VAS? It will modify the result. The result of adding a new cell in the VAS will only increase the result. The result is the HO will be triggered early. Nokia: if that was right what is the point? QC: it would always an advantage. What is the issue with triggering early? Nokia: it would be a different triggering point compared to today without the NW knowing whether the trigger happens due to detected cells or cells in NCL. Nokia: there are scenarios where NW wouldn't want to HO the UE to the detected cells. QC: Not clear what that use case would be where there would be a mix of desired or non-desired detected cells in the report.
- E///: if the goal is for HHO and there is no need to remember about the neighbor, then it's not needed. If however the goal is update the NCL then NW wants to know who are those detected cells.
- E///: in option 1, both goals are met. In option 2, that can be used for HHO primarily.
- Nokia: option 2 is more optimized for HHO and option 1 provides more info for NCL update but both can provide enough info to achieve the goals.
- E///: slight concern on getting 2 population of UEs with different behavior, would be good to be able to distinguish both populations.
- QC: not clear we need the triggers. That would need to be discussed. DT: Would be good to have an email discussion between options 1 or 2.
- DT: since this needs to be used for HHO, the best solution is to use triggers.
- E///: How is it possible to have a report without triggers? QC points to periodic reporting. E/// thinks periodic triggering cannot be used.
- QC: issue is we're discussing this for HHO and RAN4 isn't geared towards HHO.
- DT: The goal of this feature was always for HHO. Periodic reporting isn't suitable for HHO.
- TIM: Intention is also to improve HHO.
- Proposals for agreement:

- Proposal 1: Modify "Reporting Cell Status" IE values and options to allow configuration whether detected set cells should be reported in inter-frequency measurements, by adding new values for reporting detected set cells on a non-used frequency.

- QC: doesn't seem controversial but no need to agree before we see the full details.
- Nokia: What details are missing?
- Proposal 2: No change required in signalling to include detected set cells in the "Inter-frequency measured results"
- HW: Too early to agree on this.
- Email discussion [71b#23]:
  - Lead: Nokia
  - Deadline: Thursday before submission deadline of next meeting
  - Merits of Options 1 and 2, method with no new event triggering
- TIM: what are the RAN4 dependencies? Nokia: should be independent.

10.7 WI: TEI10

R2-105435 Introduction of REL-9 and REL-10 access stratum release indicator ZTE CR ? ? REL-10 TEI10

- Incorrect procedure: need a rel'9 CR with rel'10 shadow for adding rel'9 AS release indicator, need a rel'10 CR for rel'10 AS release indicator.
- Cat is F, not B

=> The CR is revised in R2-105926

R2-105926 Introduction of REL-9 and REL-10 access stratum release indicator ZTE CR ? ? REL-10 TEI10

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- Chairman: CR must be built on top of existing spec. Rel'9 is not in current spec, it's added in a different CR.

=> The CR is revised in R2-105927

R2-105927 Introduction of REL-9 and REL-10 access stratum release indicator ZTE CR ? ? REL-10 TEI10

- Only rel'10 should be mentioned. Not rel'9.

=> The CR is revised in R2-105937

R2-105937 Introduction of REL-10 access stratum release indicator ZTE CR 25.306 F REL-10 TEI10

- Ericsson: Why indicate anything in other comments? There is no clash.
- Chairman: only an indication that we are modifying the same cell in two CRs.
- Other comments should indicate that another CR (give Tdoc #) is changing the same place in the same table
- Ericsson: Impact analysis should be moved to "Summary of changes".
- Nokia: Impact analysis not needed. That can be removed.

=> With this change the CR is agreed in principle in R2-105949

R2-105481 Default Configuration for 12.2/7.4/5.9/4.75 kbps speech + 3.4 kbps (without SRB#5) Ericsson, ST-Ericsson CR 25.331 B REL-10 TEI10

- Nokia: lastTransmissionPDU-Poll / lastReTransmissionPDU-Poll should be set to TRUE. The configuration with FALSE is creating a problem today. This is preventing the recovery of potentially missing config packets in RB2/3.
- Samsung: we have the poll periodic set to true as well as a periodic status so there is no blocking from RLC. If we set the poll to true it will only help the UL direction, NW is always able to set the poll bit in last tx PDU on DL direction.
- HW: only change is 7.95 to 7.4.. what is the justification for this one? There is a demand for this config.
- Nokia: 7.4kbps is noted in AMR spec as TDMA-EFR
- HW: Why is there no reference to 34.108? It's not present there. Is it in 25.993?
- The config should be added in 25.993.

=> The CR is postponed to the next meeting

R2-105555 Corrections to HS-SCCH Less in RRC CONNECTION SETUP Stage Huawei, HiSilicon CR 25.331 F REL-10 TEI10

- WI is TEI10, magic sentence can be added
- ZTE: current version of spec should be 10.1.0.
- Panasonic: other features also could be covered in this CR, such as 64QAM
- Nokia: no real need for specifying behavior for all missing UE capabilities. We could leave that for NW config. Panasonic: maybe situation is already clear from NW about which features are supported or not.
- Samsung: we need to decide what happens if feature is supported but not indicated in request message. The opposite is clear from NW, no need to capture that part.

=> The CR is not agreed.

R2-105689 Enhanced Security Mode procedure handling in case of delayed L2 ACK Research In Motion UK Limited, Qualcomm Incorporated CR 25.331 C REL-10 TEI10

- Nokia: this is 2 solutions, would prefer only 1. The inclusion of the new flag completely addresses the problem so the other part isn't needed. RIM: the new flag requires support in both UTRAN/UE and the implementation in UTRAN isn't immediate hence correcting UE behavior today would already solve some of the cases.
- RIM: in the UE implementation part, there was no mention of which SRB on which packets are received that the UE can use to make that decision.
- DT: in the UE implementation part, is the understanding that UE will try with new and old security modes? RIM: UE will only try with new mode, but uses reception of packet on DL to decide whether to continue or not.
- Ericsson: solution from QC alone requires both UE/UTRAN implementation which isn't immediate, it's good to have it in the spec for later. We should also have the UE implementation solution to allow fast implementation. Only concern is current text says any data from DL can be used by UE to continue on new security mode, that could instead be limited to reception of data on DL SRB3.

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- HW: Why indicate to the NW that UE has reverted, can't the NW figure it out? QC: there is an assumption that NW is able to revert, this solution just tells the NW what the UE did. QC doesn't think NW can actually detect that UE has reverted.
- DT: the new flag assumes the NW is able to revert back, then why can't the NW also detect that? QC: it's not possible for the NW to detect the revert back because security context may not be present if RNC has changed. HW disagrees; NW can do it. QC would like to know how, a contribution was provided earlier to indicate the information wasn't available. DT: in this case we are still asking with the new flag to ensure NW has this capability. Ericsson: there is still usefulness in this flag.
- DT: we still need the first part of CR with UE behavior. Second part with indication to NW is questionable.
- Panasonic: if we agree on UE implementation part we need to change the note.
- Nokia: we cannot the statement of UE implementation with the "shall". Otherwise UE will be obligated to implement the change.
- DT: are there also other cases where UE falls back to the old configuration? Should we handle those cases as well?
- Ericsson: Not all cases can be solved by NW looking at integrity protection. Nokia: with the CR we are creating different combinations of what UE may be doing.
- HW: need some convincing of why NW cannot be always able to detect the issue, but in this case we will need to define how long it takes for UE to send this flag

=> Not agreed.

R2-105618 PLMN identity MCC mismatch between RRC and NAS Qualcomm Incorporated Disc REL-10 TEI10

- Nokia: Why is it that future NWs would use the "abnormal" case listed by NAS? QC understands that today, NAS can use 1-16 values.
- NSN: This abnormal case is an error case. Why should we handle it at RRC? If we want to do this then we should inform CT1. Regarding future uses, that should be triggered by CT1.
- Panasonic: would like to understand from CT1 if we should address this inconsistency or not?
- Qualcomm: We have to clarify the situation between NAS and AS because currently UE behavior is unspecified. Should we send an LS to CT1? Ericsson: no. QC: if we don't inform CT1 we have to respect their requirements.
- Ericsson: is this a problem today? This has not been seen today.
- QC: We should agree on what the UE behavior should be.
- HW: is that a problem in rel'10? QC: no it's an old problem in the spec. HW: why change ASN.1 for that? QC: then let's define what UE has to do in this case.
- Ericsson: There doesn't seem to be an actual problem. No need to fix the spec for theoretical problems.

=> Noted

R2-105713 RRC connection request message size analysis Nokia Corporation, Nokia Siemens Networks Disc REL-10 TEI10

- Ericsson: Agree it's a problem that needs to be solved and there can be even worse cases. Analysis is under way.
- Ericsson: how is the early implementability addressed? Is it only the RACH measurement result part? Nokia considers that's where the main issue comes from.
- Ericsson: Without the RACH measurement issue (i.e. if NW doesn't need it), does that change the early implementability part of the proposal? Nokia: in this case we would be ok until rel'9/10.
- Ericsson: Are UEs reporting measurements today? Or limiting those? That isn't the case today but would come soon
- QC: no need to high level agreements before we see actual savings.

=> Noted

R2-105715 Addition of optimised RRC Connection Request Nokia Corporation, Nokia Siemens Networks CR 25.331 B REL-10 TEI10

=> Not available.

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R2-105795 Consideration on successful transmission of HANDOVER TO UTRAN COMPLETE NTT DOCOMO, INC. CR 25.331 F REL-10 TEI10
- Nokia: We've had an LS exchange with SA3 about this issue and SA3 indicated they did solve the issue, then what is the need for the CR?
- QC: the changes in the CR are needed. Nokia: then why did we ask SA3 to solve this?
- QC understood SA3 CR takes care of HO not successful at NW side. This CR isn't the same. Nokia's original proposal did take care of both sides but during LS exchange with SA3 it was already answered that solution at NW side takes care of both directions.
- Nokia: if we have this CR we will out of sync with SA3 and create another behavior.

=> The CR is not agreed

R2-105796 More consideration on the cell reselection to LTE from UTRA cell PCH NTT DOCOMO, INC. Disc REL-10 TEI10, LTE-L23
- Nokia: Use case isn't clear. HW: don't think there is a problem, 23.401 states that will do TAU regardless of ISR.
- ALU: The understanding in this paper isn't correct, when UE moves to E-UTRA from PCH, ISR will be deactivated and TAU will be performed.

=> Noted

R2-105833 Speed dependent scaling rules in HCS environment Ericsson, ST-Ericsson CR 25.331 F REL-10 TEI10

=> The principle of the CR is agreed

R2-105835 RLC reset on a Signalling Radio Bearer Ericsson, ST-Ericsson Disc REL-10 TEI10
- DCM: if legacy NW uses different value for srb2, it will have to change with proposal 2. Hence release 9 proposal is more acceptable
- Ericsson: if we have rel'10 CR, this would mean all NWs have some time until rel'10 UEs are in the field.
- QC: Why don't NW set this value to 1? That seems easy.
- HW: Don't support this type of CR asking NW to implement something.
- Ericsson: probably better to have the CR to give guidelines to NW implementation.
- Nokia: agrees with E/// it's better to give the guideline. It's important for this parameter to be set correctly.
- NSN: There was a NAS requirement to have value 1. The other specs should comply with this
- HW: Guideline can be that UE overrides NW value. Ericsson: principle should be that UE does what NW says. How does that handle legacy UEs? There will be 2 UE implementations in the field… NSN: we would like to avoid this.
- Nokia: would prefer earlier than rel'10.
- DCM: fine with release 9.
- QC: no need before release 10. This is a small problem, why change release 9 for that.

=> We agree to have a UE "behavior unspecified" starting from release 10

=> Noted

R2-105556 Discussion on removal of redundant Cell Update Procedure for CELL_PCH Huawei, HiSilicon Disc REL-7RANimp-EnhState
- ZTE: There are issues in inter-RNC scenario. Concerned UEs may collide with other RNTIs from other UEs.
- HW: in case of inter-RNC, there would need to be a CU anyways.
- NSN: Ok with proposal 1 but proposal 2 would imply 2 different UE behaviors from early on.
- Samsung: the behavior of the UE exists in a rel'10 feature, no need to decouple it from there. QC agrees and is concerned that would fragment the different UE behaviors in the field.
- Nokia: agree with proposal 1 because there is some benefit for those UEs. Proposal 2 is not welcome as this is a r99 behavior.
- QC: if UE reports measurements, why not do a cell update. Nokia: you can avoid some additional information, the measurement report only contains the rach results.

=> Noted

R2-105629 Enhancement of HS-DSCH reception in CELL_PCH state Huawei, HiSilicon Disc REL-8RANimp-EnhState

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- NSN: problem looks worthy of a check.
- Chairman: if RAN1/2/3 specs are expected to be impacted. WI is in principle required
- Infineon: Can the issue be mitigated by proper setting of DRX cycles? Like offsetting cycles for the different UEs. HW: this is difficult to achieve with a large number of UEs.
- HW: there are further enhancements for other UEs in different states
- HW: this was discussed in RAN1 and analysis would need to be provided.
- Ericsson: There was no way forward in rAN1 apart from noting the document.

=> Noted

R2-105630 Support of 64QAM for enhanced CELL_FACH Huawei, HiSilicon Disc REL-8 RANimp-EnhState

- Nokia: Intention is rel'8? That was the original intention but document was moved to rel'10 because it's an enhancement. Nokia: why stop at 64QAM?
- NSN: RAN1 would still need to be changed. At least some evaluation is required. Also for RAN2, benefit isn't so clear, the UE can also be moved to CELL_DCH

=> Noted

Not available/Withdrawn/Late

R2-105434 Introduction of REL-9 and REL-10 access stratum release indicator ZTE CR ? ? REL-10 TEI10

R2-105485 URA identity handling clarification Ericsson, ST-Ericsson CR 25.331 F REL-10 TEI10

R2-105617 Enhanced Security Mode procedure handling in case of delayed L2 ACK Qualcomm Incorporated CR 25.331 F REL-10 TEI10

R2-105679 MIMO support for DB-DC-HSDPA UEs Qualcomm Incorporated Disc REL-10 TEI10

10.8 Other UTRA Rel-10 WIs/SIs

(MUMIMO_LCR_TDD-Core, leading WG: RAN1, started: March 10, target: Dec. 10, WID: RP-100347)

R2-105503 Discussion on introduction of MU-MIMO in RAN2 CATT Disc

It is proposed the MU-MIMO capability is reported in RRC CONNECTION REQUEST message.

- Ericsson: Why is there a confusion at NW side? What is the functional difference?
- Ericsson: NW needs to wait for L2 Ack before indicating UE supports MIMO in NB
- That can be considered further
- Agreement:
- It is proposed to introduce new MU-MIMO variable to determine MU-MIMO operation.

=> Noted

R2-105505 Introduction of MU-MIMO for LCR TDD in 25.331 CATT CR 25.331 B

- TD-Tech: The MU-MIMO capability may need to be separated between UL/DL. CATT: this is being discussed in RAN1.
- ASN.1 needs to be updated, RB setup modifications are missing
- TD-Tech: standalone midamble info; this is being discussed in RAN1 and may need to be modified. This is left FFS for now since it depends in RAN1.
- Ericsson: Where is the setting of the capability by the UE?
- Need to update the CR to ensure RRC cntn request isn't listed
- CATT will provide the CR at the next meeting with these changes

=> The CR is postponed

R2-105545 Introduction of MU-MIMO for LCR TDD in 25.308 TD Tech CR 25.308 B

=> Revised in R2-105922

R2-105922 Introduction of MU-MIMO for LCR TDD in 25.308 TD Tech CR 25.308 B

- CATT: definition should have a tab, not …, same issue in 13.b

=> With this change the CR is agreed in principle in R2-105946

R2-105546 Introduction of MU-MIMO for LCR TDD in 25.319 TD Tech CR 25.319 B

=> Revised in R2-105923

R2-105923 Introduction of MU-MIMO for LCR TDD in 25.319 TD Tech CR 25.319 B

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- CATT: definition should have a tab, not …, same issue in 20

=> With this change the CR is agreed in principle in R2-105947

11 Outgoing LS and email discussions for UTRA

11.1 Agreed outgoing LS for UTRA

R2-105944 [draft] Reply LS on Clarification for Cell_FACH mobility of CSG UEs Huawei LSout

- Nokia: question is related to release 10, no need to mention where this starts from in the spec.
- NEC: would be good to indicate from which release we do this. Nokia: Why? The RAN3 question is about rel'10.
- Change sentence to say: "It is stated in the specification TS 25.304 and 25.367 that autonomous…"
- NSN: Source should be HW

=> With the change in the sentence, the LS is agreed in R2-105956

R2-105956 Reply LS on Clarification for Cell_FACH mobility of CSG UEs
agreed

R2-105954 LS on latest RAN2 agreements on 4C-HSDPA
agreed

11.2 Email discussions for UTRA

- Email discussion [71b#22] to verify ASN.1 implementation for MC-HSUPA TDD
  - Contact: ZTE
  - Deadline: Thursday November 11th
  - Expected output: CR at RAN2#72
- Email discussion [71b#21] to converge on when to report log availability in MDT (which events: mobility, state transitions, others…)
  - Contact: NSN
  - Deadline: Thursday November 12th
  - Expected output: Email discussion report at RAN2#72
- Email discussion [71b#23] to discuss merits of option 1 and 2 from R2-105709, as well as other method without new event triggering
  - Contact: Nokia
  - Deadline: Thursday November 11th
  - Expected output: Email discussion report at RAN2#72

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Annex B:
Report of LTE Carrier Aggregation User Plane session

This Annex B includes the report of the LTE Carrier Aggregation User Plane session (agenda items 7.1.3).
Note: This report was agreed separately in the main LTE session on Friday in R2-105962 and it is copied here for convenience.
Additional corrections are added in grey.

7.1.3 Stage-3 User Plane

7.1.3.1 Running CR

Latest version of the running CR for 36.321 from rapporteur was already endorsed in R2-105220; update version according to latest spec version should be provided here, as well as corrections of obvious errors from rapporteur or other companies.

R2-105599 Miscellaneous corrections to TS36.321 on CA Huawei, HiSilicon CR ? ?
Change 1
- InterDigital does not think it is required and even seems incorrect. Also cross-carrier scheduling is currently not defined. Huawei point out that the sentence is what was agreed in the previous meeting. Fujitsu agrees. Ericsson mentions that CIF is not mentioned either currently so the note is probably not required.

⇒ not agreed.
Change 2
⇒ agreed and will be included in R2-105960
Change 3
- NSN does not see the need for it. Ericsson & Alcatel-Lucent agree.

⇒ not agreed
Change 4
- NSN does not see the need for it. Ericsson & Alcatel-Lucent agree.

⇒ not agreed
⇒ CR is not agreed~~contribution is noted~~

R2-105694 CR for clarification of PDCCH reception for cross-carrier scheduling Research In Motion UK Limited TP 36.321
- InterDigital, Nokia and Ericsson would not like adding a new term “SchedulingCell”. RIM believes this is already defined in RRC.
- Nokia thinks “corresponding to this Serving Cell” is redundant and could be misleading. LGE thinks there is no need for such distinction in MAC. Ericsson would also prefer not to make that change.
- NSN wonders why we need the note in the first place as this is related to Physical layer operation. Huawei asks if cross-carrier scheduling needs to be exposed at MAC. Samsung agrees with NSN in principle but we need to capture RAN2 decision somewhere. For cross-carrier scheduling of PCell, NSN thinks it should be clear from RRC that you cannot configure cross-carrier scheduling. Chairman suggests first fixing the note and then investigating whether cross-carrier scheduling can be made invisible to MAC or not.

⇒ TP is not agreed~~contribution is noted~~

R2-105705 Editorial proposals to the CA MAC CR InterDigital Disc
Change 1
- Ericsson would prefer to keep the MAC definition as long as the ones in RRC are not fixed. InterDigital believes it is important to avoid possible discrepancies. NSN thinks we could have definitions from different angles: MAC and RRC. Alcatel-Lucent supports the idea of having the definitions in one place only. Docomo thinks they could be defined in two places as long as there is no contradiction.

⇒ to be worked offline between MAC and RRC editor.
Change 2
- Samsung supports the change.

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- Ericsson supports the change but would like to avoid “handles”
- In 5.3.1 & 5.4.1, Nokia believes there is no need to restrict the scope of the note.
- Huawei believes that in most cases, the restriction “If the UE is configured with at least one SCell” is not required. Chairman suggests investigating this aspect offline but for the time being replace the wording “when CA is configured” as suggest by InterDigital.

⇒ agreed but for the notes in 5.3.1 and 5.4.1, the restriction is removed altogether i.e. note in 5.3.1 will become “*downlink assignments valid for the PCell are always provided on the PCell’s PDCCH only*”

Change 3

- Chairman points out that we usually capture what we support and not what we do not. InterDigital agrees and suggests rephrasing the sentence to focus on PCell.
- Ericsson would prefer having “If the UE is configured with at least one SCell, a PDCCH order occurs on the PCell only” as PDCCH restriction should be captured elsewhere.
- NSN prefers “The Random Access procedure and the reception of a PDCCH order is only supported for PCell”. Panasonic agrees.
- Samsung thinks the wording still is a little bit ambiguous.

⇒ “*The Random Access procedure and the reception of a PDCCH order is only supported for PCell*” is agreed. Better wording to address Samsung’s concern can be investigated offline.

Change 4

- Ericsson does not think the change is needed as PDCCH decoding is a L1 aspect. NSN agrees. Chairman also wonders the value of the note with the Change 3 agreed. NSN agrees.

⇒ Note remains a note but with the clarification “*If the UE is configured with at least one SCell*”.

Change 5

⇒ agreed.

Change 6

⇒ agreed.

Change 7

- Ericsson would prefer keeping the original text but would be fine with removing the sentence “each LCG shall report…”. LGE would not like to remove that sentence as it refers to an agreement and do not see any duplication. Nokia agrees.

⇒ not agreed.

Change 8 & 9

- Ericsson do not see the need for a change at least for PCH reception as “of the PCell” already restricts reception. Nokia agrees.
- Alcatel-Lucent wonders how that would work with PWS. HTC points out that PWS reception is agreed to be limited to PCell.
- Nokia also asks how MBMS would then work. Mediatek agrees.
- Samsung thinks the common understanding is that PCH/BCH reception is limited to PCell.

⇒ can think about it until the next meeting.

Change 10

- Ericsson points out that this was agreed at the last meeting and would prefer not re-discuss it. Nokia thinks that something is anyway required at SCell addition.

⇒ not agreed.

Change 11

- Ericsson & Alcatel-Lucent prefer to keep the note.

⇒ keep the note but rephrase the beginning to “If at least one SCell is configured”

Change 12

- Ericsson believes the note is required for measurement gap handling. Samsung agrees with InterDigital that the note is currently not required. NSN and CATT are also fine with removing the note.

⇒ agreed.

⇒ contribution is noted

Withdrawn

R2-105749 Msg4 reception and PCell restriction LG Electronics Inc. CR ? ?
withdrawn

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7.1.3.2 MAC Activation/Deactivation

E.g. MAC CE format. Detailed timing of activation/deactivation after receiving MAC CE,...

Procedure

R2-105704 Editorial proposal for activation/deactivation InterDigital Disc
- Panasonic wonders if we really should prohibit when the UE is not monitoring? InterDigital thinks this we could as well have "not required to".
- Nokia thinks that RRC does not control the deactivation timer but rather configures it. Ericsson agrees.
- Ericsson believes that a complete re-write may not be required.

⇒ to be worked offline to agree on a text to be included in R2-105960.
⇒ contribution is noted

Activation Timing

Do we define a point in time where the eNB knows the UE is ready? and if so where do we capture it?

R2-105530 Timing of SCell activation/deactivation Nokia Corporation, Nokia Siemens Networks Disc
- LGE asks where the activation timing would be specified? RAN1 specification.
- Docomo asks if proposal 2 is related to measurement or actual reporting? Nokia clarifies that reporting was meant. The question then is whether CQI reporting would be accurate… probably. Panasonic points out that in Rel-8, 3 or 4ms are required to get accurate CQI reporting so for activation, measurement should start only at x+6.
- HT mMobile thinks fixed timing is only useful to allow scheduling before receiving ACK from UE.

R2-105706 On the timing of activation of DL SCells Ericsson, ST-Ericsson Disc
⇒ noted, no questions.

R2-105482 Timing of SCell activation/deactivation Huawei, HiSilicon Disc
⇒ noted, no questions.

R2-105329 Detail Timing on CC Activation CATT Disc

R2-105338 Discussion on activation status sychronization ZTE Disc

⇒ Both not treated~~ed without presentation~~

Discussion activation

Do we define a point in time where the eNB knows the UE is ready?
- Hitachi would like to have activation timing specified but also point out that since timing for ACK/NAK is already specified, we do not need a new one. Nokia points out that x+6 in practise matches the first point in time where the eNB can be ready after receiving ACK. Samsung prefers to have timing specified as it impacts SRS/CQI transmission. CATT also wants to specify the timing but would like to have it specified in RAN4 specification.
- Alcatel-Lucent wonders why do we have timing in the first place, seem like an optimisation. LGE agrees. Ericsson does not see this as an optimisation, it is important for the eNB to know when the UE is ready to start receiving/transmitting.
- LGE thinks this is similar to RRC reconfiguration for which no timing is required. Samsung believes the difference with RRC reconfiguration is that MAC activation/deactivation will be used much more frequently.
- ZTE points out that it also affects how CQI/UCI are reported and therefore a minimum requirement is therefore required. Docomo shares this understanding.
- Panasonic & InterDigital prefer to have the timing specified.
- RIM thinks the sharing of dedicated resources is an optimisation and do not see the need for specifying a timing. NSN points out that the problem is more related to reporting format which depends on the number of activated CCs.
- HTC thinks the ACK is enough. NSN thinks the difference is then whether we have 4 or 6ms.
- New Postcom prefers just to use the ACK.
- Mediatek would prefer also have a timing specified but wonders how it affects PUCCH resources. Nokia thinks that RAN1 agreement is that ACK/NAK resources are configured based on the number of configured SCells.
- Nokia points out that due to changes in RF, using ACK as reference does not seem possible.

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- ZTE thinks the issue boils down to whether the UE can process the MAC CE before or after the ACK. Docomo believes that going below 6ms would be useless for an eNB as an eNB would typically prefer to wait for an ACK before blindly allocating resources.
- Huawei asks if e.g. 6ms is defined, does it mean that the UE is not allowed to activate beforehand?

⇒ ask RAN4 to define the timing requirement to activate an SCell in R2-105961 **[CB Friday]** also mention that from RAN2 viewpoint, only one timing for all cases is preferable.

PDCCH monitoring: can it start before the agreed timing
- Samsung believes there is no reason to monitor the grants.
- Docomo thinks it can but should ignore the grants.
- Nokia believes the UE should not be required to monitor the grants
- ZTE thinks this is a modelling issue: is the SCell activated before the agreed timing or not.
- Panasonic thinks it would probably not be tested anyway.
- CATT thinks typically the eNB would not schedule the UE before timing

⇒ UE is not required to monitor before timing, SCell becomes activated for the UE and eNB at the point in time defined by the timing.

CQI and SRS: can it start before the agreed timing
- Nokia thinks that for CQI, the timing probably refers to starting corresponding measurements rather than being able to send the first report. Panasonic would like to ask this to RAN1 in R2-105961.

⇒ CQI/SRS reporting cannot start before the SCell becomes activated as defined by the timing. For CQI, relationship between measurement and report to be clarified by RAN1.

⇒ CQI/SRS transmissions – if configured - shall start when the SCell becomes activated as defined by the timing

Agreements
1) ask RAN4 to define the timing requirement to activate an SCell in R2-105961, also mention that from RAN2 viewpoint, only one timing for all cases is preferable.
2) SCell becomes activated for the UE and eNB at the point in time defined by the timing and UE is not required to monitor PDCCH before that.
3) CQI/SRS reporting cannot start before the SCell becomes activated as defined by the timing. For CQI, relationship between measurement and report to be clarified by RAN1.
4) CQI/SRS transmissions – if configured - shall start when the SCell becomes activated as defined by the timing

Deactivation Timing

For deactivation we have already agreed that it takes place as soon as possible after receiving MAC CE but detailed timing FFS (e.g. only after sending ACK).

R2-105834 Synchronized deactivation of SCells HTC Disc
- Nokia wonders what the proposal means. HTC clarifies that ACK must be sent regardless of deactivation. Docomo thinks that this is the expected behaviour.

⇒ already possible with RAN1 agreement on having ACK/NAK resources configured as a function of the number of configured SCells. Contribution is noted

R2-105641 SCell deactivation timing Fujitsu Disc
- Fujitsu clarifies that this proposal is only for DL.
- ZTE tends to agree that a timing is not required.
- HTC thinks that ACK timing can be used or at least that the timing is not smaller than 4. ZTE would prefer not to couple the two.
- CATT thinks a timing must be specified.
- NSN thinks it is similar to activation but also believes it does not matter if the UE decides to stop earlier as an eNB would typically not schedule a UE after sending deactivation command.
- Samsung would prefer to align the behaviour between activation and deactivation and therefore have timing for both. Panasonic agrees. Nokia also would prefer to have timing but would still prefer to allow the e.g. to stop processing grants earlier. Panasonic is concerned about CSI format issues.
- RIM does not see the need for any timing.

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- Docomo point out that whether or not to allow the UE to deactivate earlier than a minimum timing can be dealt with equally well by an eNB.
- Alcatel-Lucent thinks that because we have the deactivation timer, timing is not required. NSN does not see the relationship between the two.
- Nokia thinks there are no RF issues related to deactivation.
- Mediatek prefers having a timing defined for simplicity reason.
- Nokia sees no harm in stopping periodic CQI, SRS, PDCCH monitoring earlier. Question is how to cope with aperiodic CQI between sending MAC CE and actual deactivation. ZTE wonders the value in stopping periodic CQI, SRS, PDCCH monitoring earlier.
- Docomo still believes we need a maximum allowed time. If we allow deactivation to stop earlier than the maximum, then the eNB should not request aperiodic CQI in the meantime.
- Ericsson wonders why aperiodic CQI would be requested for an SCell being deactivated? Chairman clarifies that CQI for more than one cell are sent.

⇒ contribution is noted

Agreements
1) timing also defined for deactivation, same value as for activation for simplicity – to be confirmed by RAN4
2) maximum allowed time, deactivation can take place earlier than the maximum at the UE (the eNB should not request aperiodic CQI in the meantime).

R2-105330 Deactivation Timer Maintenance for UL Non-adaptive Retransmission CATT Disc
- Ericsson thinks it would be simpler to have a long timer configured to take non-adaptive retransmissions into account. LGE agrees, also a dynamic grant can reset the timer. Alcatel-Lucent thinks this is similar to what we did for DRX and does not see the need for restarting the timer.
- CATT wonders why having a different behaviour between adaptive and non-adaptive retransmissions. NSN points out that currently we restart the timer based on PDCCH reception.

⇒ Noted (no support).

MAC CE

Bitmap of 8 bits, 4 bits or something else?

R2-105404 Discussion on Activation MAC CE format SamsungDisc
R2-105320 MAC CE for Activation Deactivation Nokia Siemens Networks, Nokia Corporation Disc
Both noted

Discussion
- Samsung believes that one reason why 4 bits is still on the table was to allow for separate UL and DL activation in one byte. Samsung also wonders what the benefit is to have 4 bits only.

The options are
1) 4 bits
2) 8 bits

⇒ Large majority for having 8 bits

R2-105644 MAC CE for SCells (de)activation Fujitsu Disc
- Samsung, because the bitmap is dedicated, a new MAC CE.

⇒ Noted (no support)

Agreement
1) CA activation bitmap is 8 bits long, based on cell index

R2-105413 Activation/Deactivation MAC Control Element LG Electronics Inc. CR 36.321 B
- ZTE would like to set C0 bit to 1. Docomo would prefer describing C0 bit as reserved bit i.e. set it to zero. C0 bit will be changed to R bit i.e. kept on the right.
- Ericsson would like to align the terminology: cell → SCell.
- Mediatek would like to distinguish state change from non changes. ZTE agrees. Mediatek worries that without the distinction, a UE may be triggered to perform actions to activation

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even though no real activation is required. Ericsson, Qualcomm and Samsung do not see the need. Samsung thinks that later we may have to make the distinction. Huawei wonders if it does not impact the handling of inactivity timer. HT mMobile agrees with ZTE and Mediatek. Qualcomm and RIM think that the distinction can be made in the activation/deactivation procedure.

⇒ will be incorporated in R2-105960 taking the above comments into account.

Agreement
1) right most bit of the bitmap is reserved.

R2-105443 MAC CE for SCell activation deactivation MediaTek Disc
R2-105789 MAC CE of activation / deactivation on DL SCC Pantech Disc

⇒ Both not treated~~ed without presentation~~

HARQ Buffer

R2-105798 HARQ Buffer and UL Activation/Deactivation SamsungDisc
Do we clear the HARQ buffer upon deactivation?

- Panasonic, LGE, HTC believe we should clear the HARQ buffers.
- Alcatel-Lucent would like to support the scenario where the scheduling cell is deactivated but SCell still activated. Panasonic thinks it would be a eNB strange behaviour. NSN thinks that if scheduling cell is deactivated, PHICH for non-adaptive retransmissions cannot be received anyway. Alcatel-Lucent believes we should. Nokia thinks this contradict the agreement we have on stopping retransmissions.

⇒ contribution is noted

Agreement
1) clear the HARQ buffers at SCell deactivation.

R2-105652 Handling of non-adaptive re-transmission w.r.t deactivated UL/DL Alcatel-Lucent Disc
Issue remaining is what happens when scheduling SCell is deactivated but not SCell

- InterDigital sees this as a network error. Samsung thinks there maybe cases where scheduling Scell needs to be reconfigured. InterDigital sees this as a tiny case. Chairman also points out that Scell can be deactivated to avoid this.

⇒ noted (no support)

Other

R2-105636 Retransmission on SCell deactivation ETRI Disc
Only proposal 2 is left: eNB stops PDCCH orders for retransmission right after SCell deactivation signalling

⇒ reasonable assumption but cannot be captured in specification. Contribution is noted.

Withdrawn

R2-105445 Timing of activation/deactivation MediaTek Disc

7.1.3.3 MAC PHR reporting

E.g. MAC CE format.

MAC CE

Agreements of previous meeting:
1) will only have 1 PHR MAC CE transmitted by a UE in a TTI. FFS if this is new MAC CE or redefinition of Rel89 codepoint.
2 this MAC CE can be included in any TB
3) the network will not be able to exclude certain CC's from PHR reporting/triggering
Open issues
- fixed reporting or dynamic?
- If dynamic, bitmap or cell index?
- type 1/type 2 indication?
- If dynamic, is an L field required?
- what happens when only PCell is activated and no parallel PUCCH/PUSCH configured, is Rel-8 PHR reported?
- new LCID or reuse the current one

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R2-105341 PHR MAC CE design ZTE Disc
- Ericsson thinks the lines for Alt.2 and 3 may have been swapped and therefore questions the validity of the conclusions.
- Samsung thinks we need L field in the subheader i.e. 2 bytes subheader.
- NSN wonders why reusing the same LCID since the MAC CE is completely different (different from the BSR). ZTE thinks that the eNB will always know when CA is configured. NSN thinks that when PCell only is active and no parallel PUCCH/PUSCH configured, Rel-8 format should be used.

⇒ noted

R2-105381 PHR MAC CE Format Huawei, HiSilicon Disc

⇒ noted (no questions)

R2-105417 PHR format for CA LG Electronics Inc. Disc

⇒ noted (no questions)

R2-105874 PHR Format for Rel-10 Ericsson, ST-Ericsson Disc
- Panasonic asks why the flag is required since we have agreed that for PCell, the two are always reported. Ericsson thinks this is required to cope with (re)configuration of parallel PUCCH/PUSCH. Panasonic thinks this is similar to what happens with BSR at reconfiguration. Ericsson thinks the possibility of having PHRs during RRC reconfiguration is likely. CATT stresses that unlike BSR, PHR format varies and it would be best to indicate the details in the MAC CE. Samsung thinks that reconfiguration of parallel PUSCH/PUCCH is very rare. Ericsson would be fine with not having the indication if we all agree that parallel PUSCH/PUCCH reconfiguration is very rare.

Discussion:

1) should we use bitmap or cell index to make the PHR dynamic?
- Nokia thinks that the L field may be enough. Samsung likes the approach but points out that a possible error case is that a MAC CE is lost. However, Samsung do not see any big issue as the eNB should be able to detect the losses. NSN believes that putting the bitmap in the subheader guarantees that no problems can happen. Ericsson thinks the L field is anyway required. NSN thinks the bitmap is required to cope with a possible de-synchronisation between eNB and UE on activation status.

⇒ wait for a better understanding regarding the information RAN1 will agree to report.

2) do we need an L field in the subheader?
- CATT and Panasonic supports.
- Huawei also prefers an L field to comply with Rel-8/9 principles.
- Alcatel-Lucent & Ericsson also want to have an L field.
- NSN agreed

⇒ L field included in the subheader of the MAC CE.

3) do we need Type 1/Type indication

⇒ wait for a better understanding regarding the need for parallel PUSCH/PUCCH reconfiguration

4) what happens in CA, when only PCell is activated and no parallel PUCCH/PUSCH configured, is Rel-8 PHR reported?

⇒ wait for a better understanding regarding the information RAN1 will agree to report.

5) new LCID?
- CATT, NSN, Alcatel-Lucent would like to use new LCID.
- Huawei would like to reuse the existing LCID.
- Ericsson would prefer to wait for an answer to question 4.

Agreements
1) PHR reporting is dynamic: only activated serving cells.
2) L field included in subheader

R2-105373 New PHR MAC format HTC Disc

R2-105405 Discussion on PHR format Samsung Disc

R2-105411 PHR MAC CE format design and analysis of relevant issues New Postcom Disc

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R2-105651 MAC PHR CE format design for LTE-A CA scenario Alcatel-Lucent, Alcatel-Lucent Shanghai Bell
R2-105691 PHR MAC CE formats Research In Motion UK Limited Disc
R2-105374 Variable size PHR MAC CE design for CA Potevio Disc
⇒ all 6 contributions not treated~~ed without presentation~~.

Indication for virtual PHR?

R2-105444 Further details for Rel-10 PHR MediaTek Disc
R2-105818 PHR format for CA ITRI Disc
⇒ Both Noted (no questions)

Discussion: do we need to indicate to the eNB whether virtual PHR was used or not.
- InterDigital; isn't it possible for the eNB to detect the DTX. LGE thinks the error case is low and it is an issue only if the real power is close to the max i.e. when over allocation cannot be accommodated.
- Panasonic believes it would be much simpler for the eNB to identify which PHR was used. NSN agrees. Qualcomm also agrees.
- Alcatel-Lucent points out that currently RAN1 is thinking about sending PCmax for all cells. Nokia believes this hasn't been discussed with virtual PHR and therefore do not see the need for indicating it.
- Ericsson does not see the need but has no problem with having it if there is a strong support.
- RIM thinks we should first wait for RAN1.
- Docomo supports the idea of indicating whether virtual PHR was used or not.
- RIM believes that DTX detection was discussed in RAN1 and required for UCI transmission on PUCCH/PUSCH so the indication (to cope with missed allocation) is not required. Ericsson agrees.
- CATT supports the indication.

⇒ wait for RAN1 agreement on PHR reporting
⇒ contribution is noted.

PHR Trigger

R2-105708 Activation/deactivation MAC CE InterDigital Disc
- NSN supports the proposal as we have agreed to have PHR for activated cells only.
- HT mMobile wonders if activating and already activated SCell will trigger a PHR. InterDigital thinks both are possible but focused primarily on real activation. NSN do not see any issue with having one more PHR. Samsung thinks it would be better to trigger PHR only when activated.
- HTC believe the periodic PHR timer is enough.
- Docomo supports the proposal as it is very similar to the "reconfig" trigger of Rel-8. LGE thinks that in Rel-8, the reason was for timer initialisation. Docomo thinks this was only valid for HO.
- Panasonic supports the proposal but would like to restrict it to real activation.
- HTC asked how it affects the timer? In their TP, InterDigital have proposed to reset the prohibit timer.
- Huawei thinks activation is similar to DRX and do not see the need for the new PHR trigger.
- Ericsson supports the proposal but asks how the prohibit timer is restarted. InterDigital confirms.
- HTC asks how it interacts with periodic timer. NSN does not see any problem.

⇒ PHR is triggered upon activation. Contribution is noted.

Agreements
1) PHR is triggered upon activation

7.1.3.4 Other

MSG4

R2-105646 Finalisation of cross carrier scheduling for Msg4 Fujitsu Disc
⇒ agreed i.e. no change to existing agreement. Contribution is noted.

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R2-105823 Cross-carrier scheduling of Msg4 on SCell to resolve RA HTC Disc
⇒ not treated~~ed without presentation.~~

MISC

R2-105426 BSR Trigger for New BSR Table ASUSTeK Disc
- Ericsson assumes that the eNB would typically not switch the BSR table and therefore thinks that this new trigger would not be required. NSN agrees and points out that in any case, high priority data arrival will trigger a BSR. ASUSTeK thinks that it depends on which data is buffered e.g. there could be measurement reports waiting.

⇒ Noted (no support)

R2-105645 Finalisation of PDCP SN size Fujitsu Disc
⇒ not treated~~ed without presentation.~~

R2-105750 Pcmax and RACH LG Electronics Inc. Disc
- Samsung thinks this should already be obvious.
- LGE would prefer to make the distinction as PCmax is ambiguous (not sure it refers to UE or PCell). Ericsson supports the clarification.

⇒ clarification is agreed (wording to be agreed offline) and will be included in R2-105960. Contribution is noted.

R2-105838 SR and CALG Electronics Inc. Disc
- NSN believes that in the case discussed by LGE, the SR cannot be sent but BSR will be sent so it should be ok not to send any SR. LGE clarifies that it is about retransmissions. NSN also thinks that from UE power consumption viewpoint, it is best to avoid transmitting the SR.
- Samsung thinks the case is tricky and would like to study it.

⇒ Understanding from LGE is confirmed, study it offline to see if there is a problem. Contribution is noted.

Come Back Friday

R2-105960 Introduction of Carrier Aggregation Ericsson CR 36.321 B
R2-105961 Draft LS Ericsson LS

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Annex C:
List of participants

The list of participants of this RAN WG2 meeting #71bis is attached to this report.

Total number of participants: 193 (registered before the meeting: 239)

Annex D:
List of Tdocs

The list of Tdocs of this RAN WG2 meeting #71bis is attached to this report.

Total number of Tdocs: 760 (R2-105275 - R2-106034) of which 42 Tdocs are not available, i.e. 718 Tdocs available.

Annex E:
Incoming liaison statements for TSG RAN WG2 #71bis

RAN2 Tdoc	title (contact)	source	original Tdoc	status	final LS answer	additional comments
R2-105277	Response LS to LS S2-103205 on support for Priority for terminating sessions for MPS (Ericsson)	GERAN	GP-101631	noted	-	
R2-105278	Reply LS to RP-100669 on “communications from ITU-R WP5A” and on “Mobile Wireless access systems providing telecommunications for a large number of ubiquitous sensors and/or actuators scattered over wide areas in the land mobile service” (Telecom Italia)	GERAN	GP-101653	noted	-	
R2-105279	OMA LPP Extensions Requirements	OMA LOC WG	OMA-LS_878	noted	-	
R2-105280	Reply LS to R2-104214 on intra-eNB energy saving solutions (Ericsson)	RAN1	R1-105092	noted	-	
R2-105281	LS response to R2-104264 on CIF values (LG Electronics)	RAN1	R1-105093	noted	-	
R2-105282	LS on eICIC progress in RAN1 (CMCC)	RAN1	R1-105094	noted	-	
R2-105283	LS on Rel-10 UE category (NTT DOCOMO)	RAN1	R1-105095	noted	-	

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RAN2 Tdoc	title (contact)	source	original Tdoc	status	final LS answer	additional comments
R2-105284	LS on draft RAN1 CRs for Carrier Aggregation, Enhanced Downlink Multiple Antenna Transmission and Uplink Multiple Antenna Transmission Work Items (Alcatel-Lucent)	RAN1	R1-105099	noted	-	
R2-105285	LS on MBR to be greater than GBR for MBMS services (Huawei)	RAN3	R3-102465	noted	-	
R2-105286	LS on support of PWS in RAN Sharing Environment (Alcatel-Lucent)	RAN3	R3-102507	noted	-	
R2-105287	Reply LS to S3-100924 OAM security and OAM connection issues of RN (NSN)	RAN3	R3-102539	noted	-	
R2-105288	Reply LS to S2-103098 on support for Priority for terminating sessions for MPS (NTT DOCOMO)	RAN3	R3-102544	noted	-	
R2-105289	UE-originated RLF reporting after fresh RRC connection setup (NSN)	RAN3	R3-102551	noted	-	
R2-105290	Reply LS to R2-104211 on intra-eNB energy saving solutions (Huawei)	RAN4	R4-103456	noted	-	
R2-105291	Reply LS to RP-100693 on Introduction of CSG reselection requirements in RAN4 (Nokia)	RAN4	R4-103460	noted	-	
R2-105292	Reply LS to GP-101660 to on Enhancements of Iur-g interface (Qualcomm)	RAN	RP-101016	noted	-	
R2-105293	Reply LS to GP-101089 on Handling of Hybrid cells (Vodafone)	SA1	S1-102325	noted	-	
R2-105294	LS on Relay Node Security (Vodafone)	SA	SP-100627	noted	-	
R2-105295	Reply LS to C1-103553 on Inclusion of the “RRC Establishment Cause” in the “(RANAP) Initial UE message” (Huawei)	SA2	S2-104371	noted	-	
R2-105296	LS on PS handover failure during the SRVCC (NTT DOCOMO)	SA2	S2-104424	noted	R2-106012	
R2-105297	LS on Release 10 NIMTC Conclusion (Samsung)	SA2	S2-104432	noted	R2-105994	
R2-105298	LS on new Study Item on Core Network Overload issues (Vodafone)	SA2	S2-104444	noted	-	
R2-105299	LS to RAN2 on handling of UTRAN Mobility Information (Ericsson)	SA2	S2-104449	noted	postponed	LS answer postponed to RAN2 #72
R2-105302	LS on Access Delay estimation for RACH Optimization (Ericsson)	SA5	S5-102476	noted	R2-106011	LS was not treated at RAN2 #71 in R2-105203
R2-105303	LS on MDT related UE measurement clarification (Alcatel-Lucent)	SA5	S5-102568	noted	R2-106021	
R2-105304	LS on How to differentiate RN and UE (CMCC)	SA3	S3-101107	noted	-	
R2-105305	LS on requirements for handling AS key refresh in relay nodes (Huawei)	SA3	S3-101110	noted	R2-105999	
R2-105306	Reply LS to R2-105204 on Progress on relay node security (NSN)	SA3	S3-101105	noted	R2-106000	
R2-105307	Reply LS to R3-102539 on OAM security and OAM connection issues of RN (Ericsson)	SA3	S3-101119	noted	-	
R2-105308	LS to RAN2 on Integrity protection for Un (NTT DOCOMO)	SA3	S3-101114	noted	-	
R2-105309	LS reply to S2-103201 on Location Information for MDT (Huawei)	SA5	S5-102526	noted	R2-106020	
R2-105869	LS on UE capability for inter-frequency positioning measurements (Ericsson)	RAN4	R4-103451	noted	-	received on Monday of RAN2 #71bis
R2-105871	Inclusion of the “RRC Establishment Cause” in the “(RANAP) Initial UE message” (Interdigital)	CT1	C1-103553	noted	-	received on Mon of RAN2 #71bis

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RAN2 Tdoc	title (contact)	source	original Tdoc	status	final LS answer	additional comments
R2-105875	Reply LS to R3-102465 on MBR to be greater than GBR for MBMS services (Huawei)	SA2	S2-105035	noted	-	received on Tue of RAN2 #71bis, see R2-105285
R2-105979	LS on Clarification for Iu Flex usage with MTC devices (Huawei)	RAN3	R3-103015	noted	-	received on Wed of RAN2 #71bis
R2-105980	LS on Clarification for Cell_FACH mobility of CSG UEs (Huawei)	RAN3	R3-103029	noted	R2-105956	received on Wed of RAN2 #71bis
R2-105981	Reply LS to R3-103015 on Clarification for Iu Flex usage with MTC devices (Samsung)	SA2	S2-105133	noted	-	received on Wed of RAN2 #71bis; see R2-105979
R2-105991	LS on time-domain extension of Rel 8/9 backhaul-based ICIC for Macro-Pico scenario (Alcatel-Lucent)	RAN1	R1-105793	noted	-	received on Thu of RAN2 #71bis
R2-106001	Reply LS to R2-105994 on Release 10 NIMTC Conclusions (to: RAN2; cc: SA2, SA1, RAN3, GERAN2; contact: Interdigital)	CT1	C1-104273	noted	-	received on Fri of RAN2 #71bis
R2-106009	Reply LS to C1-103561 on Comments on Rel-10 issues for NIMTC (to: CT1; cc: CT4, RAN2, GERAN2; contact: Samsung)	SA2	S2-105074	noted	-	received on Fri of RAN2 #71 bis

postponed: LS answer was postponed to next RAN2 meeting (note: incoming LS will not be presented again at the next meeting and involved parties are requested to submit proposal for draft outgoing LS answer to next meeting).

Summary:

- In total: 40 LSs received for RAN2 #71bis
- 1 resubmission from RAN2 #71:
  - R2-105302 = S5-102476 = R2-105203
- all 40 incoming LSs were noted, no incoming LS will be resubmitted to RAN2 #72
- 9 of the 42 incoming LSs were received during the RAN2 #71bis meeting:
  - R2-105869 = R4-103451
  - R2-105871 = C1-103553
  - R2-105875 = S2-105035
  - R2-105979 = R3-103015
  - R2-105980 = R3-103029
  - R2-105981 = S2-105133
  - R2-105991 = R1-105793
  - R2-106001 = C1-104273
  - R2-106009 = S2-105074

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Annex F:
Outgoing liaison statements of TSG RAN WG2 #71bis

Only final outgoing LSs are listed here.

final LS Tdoc	title	to	cc	contact	reply to	release	WI	comments
R2-105954	Latest RAN2 agreements on 4C-HSDPA	RAN1, RAN3, RAN4	-	Qualcomm	-	REL-10	4C_HSDPA-Core	
R2-105956	Clarification for Cell_FACH mobility of CSG UEs	RAN3	-	Huawei	R3-103029 = R2-105980	REL-10	HNB_HENB_mob_enh-Core	
R2-105994	Release 10 NIMTC Conclusions	SA1, SA2, CT1	RAN3, GERAN2	Ericsson	S2-104432 = R2-105297	REL-10	NIMTC-RAN_overload	sent out on Thu of the meeting
R2-105996	Mapping Uu bearers to Un bearers for relays	RAN3, SA5	-	Qualcomm	-	REL-10	LTE_Relay-Core	
R2-105999	Requirements for handling AS key refresh in relay nodes	SA3	-	NSN	S3-101110 = R2-105305	REL-10	LTE_Relay-Core	
R2-106000	Progress on relay node security	SA3	RAN3	NSN	S3-101105 = R2-105306	REL-10	LTE_Relay-Core	
R2-106010	RAN2 CA decisions related to RAN1	RAN1	RAN4	LG	-	REL-10	LTE_CA-Core	
R2-106011	Access Delay estimation for RACH Optimization	SA5	-	Ericsson	S5-102476 = R2-105302	REL-10	SONenh_LTE-Core	
R2-106012	PS handover failure during the SRVCC	SA2	RAN3, GERAN2	NTT DOCOMO	S2-104424 = R2-105296	REL-9	TEI9	
R2-106016	Timing Requirements for Activation and Deactivation of SCells	RAN1, RAN4	-	Ericsson	-	REL-10	LTE_CA-Core	
R2-106020	Location Information for MDT	SA5	SA2, RAN3, SA1	Alcatel-Lucent	S5-102526 = R2-105309	REL-10	MDT_UMTSLTE-Core	
R2-106021	MDT related UE measurement clarification	SA5, RAN3	-	Alcatel-Lucent	S5-102568 = R2-105303, S5-102079 = R2-104241	REL-10	MDT_UMTSLTE-Core	agreed by email [71b#02]
R2-106025	Status of MDT Stage 2 Design in RAN2	SA3	SA5, RAN3	Vodafone	-	REL-10	MDT_UMTSLTE-Core	agreed by email [71b#01]
R2-106026	Service requirement for REL-10 UE CSFB call	SA1	CT1	NTT DOCOMO	-	REL-10	TEI10, LTE-L23	agreed by email [71b#06]
R2-106027	Support for Priority for terminating sessions for MPS	CT1, SA2, RAN3	-	Alcatel-Lucent	S2-103205 = R2-104232	REL-10	TEI10, eMPS	

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final LS Tdoc	title	to	cc	contact	reply to	release	WI	comments
R2-106029	Intra-eNB energy saving update of TR 36.927	RAN3	-	CMCC	-	REL-10	FS_Energy_LTE	
R2-106030	Counting for Activation of an MBMS Bearer Service	SA4, RAN3	SA2	IPWireless	-	REL-10	MBMS_LTE_enh-Core	

Summary:

In total 17 outgoing LSs of RAN2 #71bis (3 of them agreed by email):
9 related to LTE/E-UTRA, 2 related to UTRA, 6 related to joint aspects.

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Annex G:
List of in principle agreed CRs of RAN2 #71bis

In total 91 in principle agreed CRs (including 27 which are implicitly in principle agreed since their cat.F CRs were in principle agreed, marked in yellow below) of RAN2 #71bis (incl. cat.A: 57 for UTRA specs, 34 for LTE specs) will be resubmitted to RAN2 #72:

The following table includes already Tdoc and CR numbers allocated for RAN2 #72 for all in principle agreed CRs of RAN2 #71bis:

RAN2 #72 Tdoc	Title	Source	Spec	CR #	rev	cat	Release	SI/WI	RAN2 #71bis Tdoc
R2-106066	Introduction of MC-HSUPA for 1.28Mcps TDD	ZTE	25.302	0082	-	B	REL-10	TDD_MC_HSUPA	R2-105914
R2-106067	25.304 CR on MDT	NSN	25.304	0262	-	B	REL-10	MDT_UMTSLTE-Core	R2-105882
R2-106068	Correction for value range of total RLC AM, MAC-hs and MAC-ehs buffer size	Nokia Corporation, Nokia Siemens Networks	25.306	0277	-	F	REL-9	RANimp-DC_MIMO	R2-105690
R2-106069	Correction for value range of total RLC AM, MAC-hs and MAC-ehs buffer size	Nokia Corporation, Nokia Siemens Networks	25.306	0278	-	F	REL-10	4C_HSDPA-Core	R2-105952
R2-106070	Correction for value range of total RLC AM, MAC-hs and MAC-ehs buffer size	Nokia Corporation, Nokia Siemens Networks	25.306	0279	-	A	REL-10	RANimp-DC_MIMO	R2-105942
R2-106071	Introduction of REL-10 access stratum release indicator	ZTE	25.306	0280	-	F	REL-10	TEI10	R2-105949
R2-106072	Introduction of REL-9 access stratum release indicator	ZTE	25.306	0281	-	F	REL-9	TEI9	R2-105934
R2-106073	Introduction of REL-9 access stratum release indicator	ZTE	25.306	0282	-	A	REL-10	TEI9	R2-105934
R2-106074	Introduction of MU-MIMO for LCR TDD in 25.308	TD Tech	25.308	0104	-	B	REL-10	MUMIMO_LCR_TDD-Core	R2-105946
R2-106075	Introduction of MU-MIMO for LCR TDD in 25.319	TD Tech	25.319	0073	-	B	REL-10	MUMIMO_LCR_TDD-Core	R2-105947
R2-106076	Clarification to the default SG in DTX Cycle 2	Qualcomm Incorporated	25.321	0704	-	F	REL-7	RANimp-CPC	R2-105931
R2-106077	Clarification to the default SG in DTX Cycle 2	Qualcomm Incorporated	25.321	0705	-	A	REL-8	RANimp-CPC	R2-105931

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RAN2 #72 Tdoc	Title	Source	Spec	CR #	rev	cat	Release	SI/WI	RAN2 #71bis Tdoc
R2-106078	Clarification to the default SG in DTX Cycle 2	Qualcomm Incorporated	25.321	0706	-	A	REL-9	RANimp-CPC	R2-105931
R2-106079	Clarification to the default SG in DTX Cycle 2	Qualcomm Incorporated	25.321	0707	-	A	REL-10	RANimp-CPC	R2-105931
R2-106080	Correction in release of common E-DCH resources	Ericsson, ST-Ericsson	25.321	0708	-	F	REL-8	RANimp-UplinkEnhState	R2-105579
R2-106081	Correction in release of common E-DCH resources	Ericsson, ST-Ericsson	25.321	0709	-	A	REL-9	RANimp-UplinkEnhState	R2-105579
R2-106082	Correction in release of common E-DCH resources	Ericsson, ST-Ericsson	25.321	0710	-	A	REL-10	RANimp-UplinkEnhState	R2-105579
R2-106083	Correction to the IE name for determination of HS-DSCH retransmission number in Enhance CELL-FACH	ZTE	25.321	0711	-	F	REL-7	RANimp-EnhState	R2-105933
R2-106084	Correction to the IE name for determination of HS-DSCH retransmission number in Enhance CELL-FACH	ZTE	25.321	0712	-	A	REL-8	RANimp-EnhState	R2-105933
R2-106085	Correction to the IE name for determination of HS-DSCH retransmission number in Enhance CELL-FACH	ZTE	25.321	0713	-	A	REL-9	RANimp-EnhState	R2-105933
R2-106086	Correction to the IE name for determination of HS-DSCH retransmission number in Enhance CELL-FACH	ZTE	25.321	0714	-	A	REL-10	RANimp-EnhState	R2-105933
R2-106087	HARQ buffer upon H-RNTI switch in Enhanced CELL_FACH	Qualcomm Incorporated	25.321	0715	-	F	REL-7	RANimp-EnhState	R2-105543
R2-106088	HARQ buffer upon H-RNTI switch in Enhanced CELL_FACH	Qualcomm Incorporated	25.321	0716	-	A	REL-8	RANimp-EnhState	R2-105543
R2-106089	HARQ buffer upon H-RNTI switch in Enhanced CELL_FACH	Qualcomm Incorporated	25.321	0717	-	A	REL-9	RANimp-EnhState	R2-105543
R2-106090	HARQ buffer upon H-RNTI switch in Enhanced CELL_FACH	Qualcomm Incorporated	25.321	0718	-	A	REL-10	RANimp-EnhState	R2-105543
R2-106091	Introduction of LCR TDD MC-HSUPA in 25.322	CATT	25.322	0388	-	B	REL-10	TDD_MC_HSUPA	R2-105501
R2-106092	25.331 CR on MDT	NSN	25.331	4328	-	B	REL-10	MDT_UMTSLTE-Core	R2-105880, R2-106553
R2-106093	Addition of ROHC target mode in SRNS relocation message	Alcatel-Lucent	25.331	4329	-	F	REL-8	TEI8	R2-105939
R2-106094	Addition of ROHC target mode in SRNS relocation message	Alcatel-Lucent	25.331	4330	-	A	REL-9	TEI8	R2-105940
R2-106095	Addition of ROHC target mode in SRNS relocation message	Alcatel-Lucent	25.331	4331	-	A	REL-10	TEI8	R2-105941
R2-106096	Clarification of the operation of RRC for 3.84 Mcps TDD IMB MBSFN	IPWireless Inc.	25.331	4332	-	F	REL-8	MBSFN-DOB	R2-105524

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RAN2 #72 Tdoc	Title	Source	Spec	CR #	rev	cat	Release	SI/WI	RAN2 #71bis Tdoc
R2-106097	Clarification of the operation of RRC for 3.84 Mcps TDD IMB MBSFN	IPWireless Inc.	25.331	4333	-	A	REL-9	MBSFN-DOB	R2-105524
R2-106098	Clarification of the operation of RRC for 3.84 Mcps TDD IMB MBSFN	IPWireless Inc.	25.331	4334	-	A	REL-10	MBSFN-DOB	R2-105524
R2-106099	Correction on actions related to HSPA_RNTI_STORED_CELL_PCH	Panasonic, Broadcom	25.331	4335	-	F	REL-8	RANimp-UplinkEnhState	R2-105901
R2-106100	Correction on actions related to HSPA_RNTI_STORED_CELL_PCH	Panasonic, Broadcom	25.331	4336	-	A	REL-9	RANimp-UplinkEnhState	R2-105901
R2-106101	Correction on actions related to HSPA_RNTI_STORED_CELL_PCH	Panasonic, Broadcom	25.331	4337	-	A	REL-10	RANimp-UplinkEnhState	R2-105901
R2-106102	Correction on CS voice over HSPA SDU discard timer configuration	Huawei, HiSilicon	25.331	4338	-	F	REL-9	RInImp8-CsHspa	R2-105557
R2-106103	Correction on CS voice over HSPA SDU discard timer configuration	Huawei, HiSilicon	25.331	4339	-	A	REL-10	RInImp8-CsHspa	R2-105557
R2-106104	Correction on READY_FOR_COMMON_EDCH definition	Ericsson, ST-Ericsson	25.331	4340	-	F	REL-8	RANimp-UplinkEnhState	R2-105920
R2-106105	Correction on READY_FOR_COMMON_EDCH definition	Ericsson, ST-Ericsson	25.331	4341	-	A	REL-9	RANimp-UplinkEnhState	R2-105920
R2-106106	Correction on READY_FOR_COMMON_EDCH definition	Ericsson, ST-Ericsson	25.331	4342	-	A	REL-10	RANimp-UplinkEnhState	R2-105920
R2-106107	Correction to the absence of IE additional Cells in 4C-HSDPA	Samsung	25.331	4343	-	F	REL-10	4C_HSDPA-Core	R2-105925
R2-106108	Correction to the limitation of SI acquisition	Huawei, HiSilicon	25.331	4344	-	F	REL-9	EHNB-RAN2	R2-105559
R2-106109	Correction to the limitation of SI acquisition	Huawei, HiSilicon	25.331	4345	-	A	REL-10	EHNB-RAN2	R2-105559, R2-106667
R2-106110	CR on T324 timer usage	Huawei, HiSilicon	25.331	4346	-	F	REL-8	RANimp-HSDSCH	R2-105902
R2-106111	CR on T324 timer usage	Huawei, HiSilicon	25.331	4347	-	A	REL-9	RANimp-HSDSCH	R2-105902
R2-106112	CR on T324 timer usage	Huawei, HiSilicon	25.331	4348	-	A	REL-10	RANimp-HSDSCH	R2-105902
R2-106113	Power offset for Scheduling Info in MAC-i	Ericsson, ST-Ericsson	25.331	4349	-	F	REL-8	RANimp-UplinkL2dataRates	R2-105921
R2-106114	Power offset for Scheduling Info in MAC-i	Ericsson, ST-Ericsson	25.331	4350	-	A	REL-9	RANimp-UplinkL2dataRates	R2-105921
R2-106115	Power offset for Scheduling Info in MAC-i	Ericsson, ST-Ericsson	25.331	4351	-	A	REL-10	RANimp-UplinkL2dataRates	R2-105921
R2-106116	Some clarifications of 4C-HSDPA behavior	ZTE	25.331	4352	-	F	REL-10	4C_HSDPA-Core	R2-105950
R2-106117	Some legacy editorial corrections for TEI10	ZTE	25.331	4353	-	F	REL-10	TEI10	R2-105951
R2-106118	Speed dependent scaling rules in HCS environment	Ericsson, ST-Ericsson	25.331	4354	-	F	REL-10	TEI10	R2-105833
R2-106119	UE behaviour when PPAC and DSAC parameters not present in SIB3	NEC	25.331	4355	-	F	REL-8	PPACR	R2-105486
R2-106120	UE behaviour when PPAC and DSAC parameters not present in SIB3	NEC	25.331	4356	-	A	REL-9	PPACR	R2-105486

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RAN2 #72 Tdoc	Title	Source	Spec	CR #	rev	cat	Release	SI/WI	RAN2 #71bis Tdoc
R2-106121	UE behaviour when PPAC and DSAC parameters not present in SIB3	NEC	25.331	4357	-	A	REL-10	PPACR	R2-105486
R2-106122	Correction to the limitation of SI acquisition	Huawei, HiSilicon	25.367	0019	-	F	REL-9	EHNB-RAN2	R2-105897
R2-106123	36.300 CR for RAN2 #71bis agreements on Carrier Aggregation	NSN	36.300	0269	-	F	REL-10	LTE_CA-Core	R2-105897, R2-106186
R2-106124	36300_CRxxx_Handover for Hybrid Cells	Vodafone, Nokia, Nokia Siemens Networks	36.300	0270	-	F	REL-9	EHNB-RAN2	R2-105893
R2-106125	36300_CRxxx_Handover for Hybrid Cells	Vodafone, Nokia, Nokia Siemens Networks	36.300	0271	-	A	REL-10	EHNB-RAN2	R2-105894
R2-106126	Correction on MAC padding on MCH	CATT	36.300	0272	-	F	REL-9	MBMS_LTE	R2-105891
R2-106127	Correction on MAC padding on MCH	CATT	36.300	0273	-	A	REL-10	MBMS_LTE	R2-105892
R2-106128	Corrections to relaying description	Ericsson	36.300	0274	-	F	REL-10	LTE_Relay-Core	R2-105976
R2-106129	LTE - Stage 2 agreements on MBMS enhancement	Huawei (Rapporteur)	36.300	0275	-	B	REL-10	MBMS_LTE_enh-Core	R2-105810
R2-106130	CR to 36.300 adding e1xCSFB support for dual Rx/Tx UE	Motorola, Hitachi, KDDI, NEC, QUALCOMM Incorporated	36.300	0276	-	B	REL-10	TEI10, LTE-L23	R2-105977
R2-106131	36.302 CR to introduce carrier aggregation	Alcatel-Lucent	36.302	0021	-	B	REL-10	LTE_CA-Core	R2-105997
R2-106132	36.304 CR on MDT	NSN	36.304	0140	-	B	REL-10	MDT_UMTSLTE-Core	R2-105881
R2-106133	Introduction of Carrier Aggregation	Ericsson	36.321	0436	-	B	REL-10	LTE_CA-Core	R2-105960
R2-106134	Introduction of relays in MAC	Ericsson	36.321	0437	-	B	REL-10	LTE_Relay-Core	R2-105986
R2-106135	36.331 CR on MDT	NSN	36.331	0476	-	B	REL-10	MDT_UMTSLTE-Core	R2-105879
R2-106136	AC-Barring for Mobile Originating CSFB call	NTT DOCOMO, INC., NEC, Qualcomm Incorporated, Panasonic, ZTE	36.331	0477	-	B	REL-10	TEI10, LTE-L23	R2-106019
R2-106137	Addition of UE-EUTRA-Capability descriptions	Research In Motion UK Limited	36.331	0478	-	F	REL-10	TEI10, LTE-L23	R2-105990
R2-106138	Clarification of feature group indicator settings for inter-RAT periodical measurement reporting	Motorola, NTT DOCOMO	36.331	0479	-	F	REL-8	LTE-L23	R2-105987
R2-106139	Clarification of feature group indicator settings for inter-RAT periodical measurement reporting	Motorola, NTT DOCOMO	36.331	0480	-	A	REL-9	LTE-L23	R2-105988
R2-106140	Clarification on Default Configuration for CQI-ReportConfig	CATT	36.331	0481	-	F	REL-10	TEI10, LTE-L23	R2-105884
R2-106141	Clarification on Meaning of FGI Bits	Vodafone	36.331	0482	-	F	REL-8	LTE-L23	R2-106002
R2-106142	Clarification on Meaning of FGI Bits	Vodafone	36.331	0483	-	A	REL-9	LTE-L23	R2-106003

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RAN2 #72 Tdoc	Title	Source	Spec	CR #	rev	cat	Release	SI/WI	RAN2 #71bis Tdoc
R2-106143	Clarification regarding reconfiguration of the quantityConfig	Ericsson, ST-Ericsson, Nokia Siemens Networks, Nokia Corporation, Samsung	36.331	0484	-	F	REL-8	LTE-L23	R2-105885
R2-106144	Clarification regarding reconfiguration of the quantityConfig	Ericsson, ST-Ericsson, Nokia Siemens Networks, Nokia Corporation, Samsung	36.331	0485	-	A	REL-9	LTE-L23	R2-105886
R2-106145	Corrections to the presence of IE regarding DRX and CQI	ASUSTeK	36.331	0486	-	F	REL-9	TEI9, LTE-L23	R2-105760
R2-106146	CR to 36.331 adding e1xCSFB support for dual Rx/Tx UE	Motorola, Hitachi, KDDI, NEC, QUALCOMM Incorporated	36.331	0487	-	B	REL-10	TEI10, LTE-L23	R2-105978
R2-106147	Introduction of Carrier Aggregation	Rapporteur (Samsung)	36.331	0488	-	B	REL-10	LTE_CA-Core	R2-105971
R2-106148	Introduction of relays in RRC	Ericsson	36.331	0489	-	B	REL-10	LTE_Relay-Core	R2-105985
R2-106149	Priority indication for CSFB with re-direction	ZTE	36.331	0490	-	F	REL-10	TEI10, LTE-L23, eMPS	R2-106022
R2-106150	SIB Size Limitations	Nokia Siemens Networks	36.331	0491	-	F	REL-10	TEI10, LTE-L23	R2-105317
R2-106151	Stage-3 CR for MBMS enhancement	Huawei (Rapporteur)	36.331	0492	-	B	REL-10	MBMS_LTE_enh-Core	R2-105975
R2-106152	The field descriptions of MeasObjectEUTRA	Huawei, HiSilicon	36.331	0493	-	F	REL-9	TEI9, LTE-L23	R2-106023
R2-106153	Correction of reliable transport terminology in description of LPP-Message	Qualcomm Incorporated	36.355	0037	-	F	REL-9	LCS_LTE	R2-105889
R2-106154	One cell with known SFN in OTDOA assistance data	Ericsson, ST-Ericsson	36.355	0038	-	F	REL-9	LCS_LTE	R2-105890
R2-106155	UE frequency capability for LPP	Ericsson, ST-Ericsson	36.355	0039	-	F	REL-9	LCS_LTE	R2-105719
R2-106156	Update of 'serving cell' terminology in 36.355	Qualcomm Incorporated	36.355	0040	-	F	REL-10	LTE_CA-Core	R2-105608

Note: The following cat.F CR was in principle agreed in R2-105906 at RAN2 #71bis, however REL-9 cat.A CR R2-105536 was provided to RAN2 #71bis but not treated and REL-10 cat.A CR was not provided so it will need more discussion at RAN2 #72 and is therefore not included in the table above,

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not included in the statistics about in principle agreed CRs and no cat.A CRs were implicitly in principle agreed.

RAN2 #72 Tdoc	Title	Source	Spec	CR #	rev	cat	Release	SI/WI	RAN2 #71bis Tdoc
R2-106641	correction on equal priority in E-TFC selection for 1.28Mcps TDD	TD Tech	25.321	-	-	F	REL-8	LCRTDD-EDCH-L23	R2-105906

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Annex H:
RAN WG2 meeting #71bis post processing

Email discussions/approvals

Rapporteur companies are requested to kick-off email discussions as soon as possible via the RAN2 email reflector. Important: In the beginning of the subject of each email the corresponding identifier [...] of the email discussion has to be used in order to allow sorting of the different email discussions.

Email discussions with finalisation date of Friday 22 October, 2010 midnight Pacific:

[71b#01]: UMTS/LTE: MDT - Outgoing LS to SA3 on Status of MDT Stage 2 Design [Vodafone]
- Concerns update of R2-105876
=> Final version in R2-106025
conclusion: Email discussion was kicked off by Assen Golaup (Vodafone) on 18.10.2010. Final LSout was agreed in R2-106025 on 25.10.2010.

[71b#02]: UMTS/LTE: MDT - Outgoing LS to SA5 on MDT parameters configured by OAM [ALU]
- Concerns update of R2-106017
=> Final version in R2-106021
conclusion: Email discussion was kicked off by Sudeep Palat (Alcatel-Lucent) on 18.10.2010. Final LSout was agreed in R2-106021 on 25.10.2010.

[71b#03]: LTE: MDT - Running CR for 36.331&36.304 [NSN]
=> Final version in R2-105879 (36.331) and R2-105881 (36.304)
conclusion: Email discussion was kicked off by Malgorzata Tomala (NSN) on 19.10.2010. CRs R2-105879 (36.331) and R2-105881 (36.304) were in principle agreed on 25.10.2010.

[71b#04]: UMTS: MDT - Running CR for 25.331 & 25.304 [NSN]
=> Final version in R2-105880 (25.331) and R2-105882 (25.304)
conclusion: Email discussion was kicked off by Guillaume Decarreau (NSN) on 19.10.2010. CRs R2-105880 (25.331) and R2-105882 (25.304) were in principle agreed on 25.10.2010.

[71b#05]: UMTS/LTE: MTC - Update of TR37.868 with simulation outcome [Huawei]
- Concerns update of R2-105883
=> Final draft v0.6.3 to be provided in R2-106028
conclusion: Email discussion was kicked off by Jeff Gao (Huawei) on 19.10.2010. R2-106028 was revised in R2-106032 TR 37.868 v0.6.4 to show revision marks compared to v0.6.0. Final agreed TR 37.868 v0.7.0 was agreed in R2-106033 on 30.10.2010.

[71b#06]: UMTS/LTE: CSFB ACB requirements [NTT DOCOMO]
- Add clarifications to R2-106013 where necessary
=> Final version to be provided in R2-106026
conclusion: Email discussion was kicked off by Wuri Hapsari (NTT DOCOMO) on 18.10.2010. Final LSout was agreed in R2-106026 on 25.10.2010.

[71b#07]: LTE: CA - Running CR for 36.331 [Samsung]
- Concerns update of R2-105507 with agreements from this meeting
=> Final version to be provided in R2-105971
conclusion: Email discussion was kicked off by Himke van der Velde (Samsung) on 19.10.2010. 36.331 CR R2-105971 was in principle agreed on 23.10.2010.

[71b#08]: LTE: CA - Running CR for 36.321 [Ericsson]
- Concerns agreement / potential updates to R2-105220 (of RAN2 #71)
conclusion: Email discussion was kicked off by Lisa Boström (Ericsson) on 20.10.2010.

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36.321 CR R2-105960 was in principle agreed on 23.10.2010.

[71b#09]: LTE: ICO - Scenario clarifications [Qualcomm]

- Concerns text proposal in R2-106005

=> Final version in R2-106024

conclusion: Email discussion was kicked off by Rajat Prakash (Qualcomm) on 19.10.2010. TP to TR 36.816 was agreed in R2-106024 on 23.10.2010.

Email discussions with finalisation date of Friday 29 October, 2010 midnight Pacific:

[71b#10]: LTE: ICO - TR36.816 v0.2.1 [CMCC]

=> Final draft version including all agreements from RAN2#71bis can be provided in R2-106008

conclusion: Email discussion was kicked off by Zhenping Hu (CMCC) on 19.10.2010. Final agreed TR 36.816 v0.3.0 was agreed in R2-106034 on 02.11.2010.

Email discussions with finalisation date of Monday 8 November, 2010 midnight Pacific (email discussion summaries to be provided to RAN2 #72):

[71b#20]: UMTS/LTE: MDT - Values for max neighbour cell reporting [CMCC]

- What are the values for max neighbour cell reporting for intra-freq reporting, inter-freq reporting (max per freq), GSM, UMTS per freq (if non-serving RAT), LTE per freq (if non-serving RAT)?

conclusion: Email discussion was kicked off by Zhenping Hu (CMCC) on 22.10.2010. Email discussion summary provided to RAN2 #72 in R2-106380.

[71b#21]: UMTS: MDT - log availability indication [NSN]

- When to signal log availabiliy?

conclusion: Email discussion was kicked off by Guillaume Decarreau (NSN) on 22.10.2010. Email discussion summary provided to RAN2 #72 in R2-106221.

[71b#22]: UMTS: MC-HSUPA TDD - Verify ASN.1 implementation [ZTE]

=> CR with necessary changes can be provided to RAN2#72

conclusion: Email discussion was kicked off by Huang He (ZTE) on 01.11.2010. Email discussion summary provided as a 25.331 CR to RAN2 #72 in R2-106410.

[71b#23]: UMTS: Inter-freq detected set measurements [Nokia]

- Discuss merits of option 1 and 2 from R2-105709 as well as other method without new event triggering

conclusion: Email discussion was kicked off by Brian Martin (Nokia) on 23.10.2010. Email discussion summary provided to RAN2 #72 in R2-106480.

[71b#24]: LTE: UL MIMO - MAC CR [Ericsson]

- Related to R2-105465: Try to come to agreeable MAC CR for UL MIMO

conclusion: Email discussion was kicked off by Lisa Boström (Ericsson) on 28.10.2010. Email discussion summary provided to RAN2 #72 in R2-106256.

[71b#25]: LTE: Network based positioning [TruePosition]

- Related to R2-105394: Can we conclude network based positioning based on SPS/SRS is feasible from RAN2 point of view (especially w.r.t. update frequency of configuration to be sent over LPPa) ?

conclusion: Email discussion was kicked off by Simon Issakov (TruePosition) on 20.10.2010. Email discussion summary provided to RAN2 #72 in R2-106324.

[71b#26]: LTE: Enhanced ICIC - Mobility scenarios [Qualcomm]

- What pattern(s) have to be considered in the different scenarios ?
  - IDLE and CONN, measuring on femto, macro, pico

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- CONN: does the network have to reconfigure the patterns in different situations ? If so, based on what triggers can the network do this ?
- IDLE: does the UE have to switch himself between different patterns ?

conclusion: Email discussion was kicked off by Masato Kitazoe (Qualcomm) on 22.10.2010.
Email discussion summary provided to RAN2 #72 in R2-106244.

[71b#27]: LTE: ICO - Information from UE for FDM solution [MediaTek]

1) What approach should be followed ("eNB judgement" (UE informs about aggresor/victom, and eNB decides available freq), or "UE judgement" (UE informs eNB about useable freq))
2) What detailed information is best provided by the UE

conclusion: Email discussion was kicked off by I-Kang Fu (MediaTek) on 25.10.2010.
Email discussion summary provided to RAN2 #72 in R2-106291.

Petitioners' Exhibit 1003, p. 394
AT&T et al v. Innovative Sonic & Celerity
IPR2024-01144

Annex I: History

Document history		
Date	**TSG RAN WG2 Tdoc**	**Subject**
05.10.2010	-	Skeleton report for RAN WG2 #71bis provided before the meeting.
06.10.2010	-	First update of skeleton report for RAN WG2 #71bis provided before the meeting.
07.10.2010	-	Second update of skeleton report for RAN WG2 #71bis provided before the meeting.
11.10.2010	-	Third update of skeleton report for RAN WG2 #71bis provided at the start of the meeting.
22.10.2010	-	Draft report v0.1 after RAN2 #71bis
12.11.2010	R2-106041	Draft report v1.0 of RAN2 #71bis with revision marks relative to v0.1, provided as input for RAN2 #72

Author: **Dr. Joern Krause (3GPP TSG RAN WG2 MCC Support)**

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email: Joern.Krause@etsi.org

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APPENDIX 22

www.3gpp.org / ftp / tsg_ran / WG2_RL2 / TSGR2_71bis / Docs

sort by name/desc	sort by date/desc	sort by size/desc
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R2-105602.zip	2010/10/05 0:08	120,9 KB
R2-105603.zip	2010/10/05 0:09	35 KB
R2-105604.zip	2010/10/05 2:35	17,2 KB
R2-105605.zip	2010/10/05 2:38	17,6 KB
R2-105606.zip	2010/10/05 2:46	46,6 KB
R2-105607.zip	2010/10/05 2:48	17,5 KB
R2-105608.zip	2010/10/05 0:09	39,7 KB
R2-105609.zip	2010/10/05 4:28	213,5 KB
R2-105610.zip	2010/10/05 4:57	17,4 KB
R2-105611.zip	2010/10/05 5:12	19,3 KB
R2-105612.zip	2010/10/05 5:26	18,3 KB
R2-105613.zip	2010/10/05 5:30	78 KB
R2-105614.zip	2010/10/07 11:34	14,3 KB
R2-105615.zip	2010/10/04 3:17	35,1 KB
R2-105616.zip	2010/10/04 3:17	20,6 KB
R2-105618.zip	2010/10/05 7:07	14,8 KB
R2-105619.zip	2010/10/05 7:04	381,3 KB

sort by name/desc	sort by date/desc	sort by size/desc
R2-105620.zip	2010/10/04 23:13	750 KB
R2-105621.zip	2010/10/05 7:06	72,1 KB
R2-105622.zip	2010/10/07 11:34	15,2 KB
R2-105623.zip	2010/10/05 4:29	63,2 KB
R2-105624.zip	2010/10/05 3:53	30,5 KB
R2-105625.zip	2010/10/03 7:01	21,7 KB
R2-105626.zip	2010/10/03 7:34	39,5 KB
R2-105627.zip	2010/10/05 6:42	16,9 KB
R2-105629.zip	2010/10/04 7:05	25,8 KB
R2-105630.zip	2010/10/04 7:08	24,1 KB
R2-105631.zip	2010/10/04 7:10	26,4 KB
R2-105632.zip	2010/10/04 12:33	26,6 KB
R2-105633.zip	2010/10/04 12:48	211,7 KB
R2-105634.zip	2010/10/05 6:10	93,6 KB
R2-105635.zip	2010/10/05 12:13	410,3 KB
R2-105636.zip	2010/10/05 4:59	25,3 KB
R2-105637.zip	2010/10/04 2:13	17,6 KB
R2-105638.zip	2010/10/04 2:18	17,7 KB
R2-105639.zip	2010/10/04 2:19	20,6 KB
R2-105640.zip	2010/10/04 2:22	18,4 KB
R2-105641.zip	2010/10/05 5:45	118,7 KB
R2-105642.zip	2010/10/05 5:47	42,8 KB
R2-105643.zip	2010/10/05 5:48	45,2 KB
R2-105644.zip	2010/10/05 5:48	92,3 KB
R2-105645.zip	2010/10/05 5:51	41,3 KB
R2-105646.zip	2010/10/05 5:51	10,5 KB
R2-105647.zip	2010/10/04 22:32	16,5 KB
R2-105648.zip	2010/10/04 22:09	16,8 KB
R2-105649.zip	2010/10/04 22:10	22,2 KB
R2-105650.zip	2010/10/04 22:12	15,6 KB
R2-105651.zip	2010/10/04 22:13	73,1 KB
R2-105652.zip	2010/10/04 22:14	20,4 KB
R2-105653.zip	2010/10/04 22:15	22,2 KB
R2-105654.zip	2010/10/04 22:16	268,8 KB

sort by name/desc	sort by date/desc	sort by size/desc
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R2-105656.zip	2010/10/04 22:15	14,7 KB
R2-105657.zip	2010/10/04 22:28	20,8 KB
R2-105658.zip	2010/10/04 22:38	1750,3 KB
R2-105659.zip	2010/10/04 23:43	13,5 KB
R2-105660.zip	2010/10/04 23:47	10 KB
R2-105661.zip	2010/10/04 23:48	7,8 KB
R2-105662.zip	2010/10/04 23:48	37,2 KB
R2-105663.zip	2010/10/05 4:41	42,4 KB
R2-105664.zip	2010/10/07 11:34	50,4 KB
R2-105665.zip	2010/10/04 23:49	7,8 KB
R2-105666.zip	2010/10/05 6:01	72,9 KB
R2-105667.zip	2010/10/03 15:47	60,7 KB
R2-105668.zip	2010/10/05 6:59	989,8 KB
R2-105669.zip	2010/10/03 15:50	55,7 KB
R2-105670.zip	2010/10/03 15:53	55,8 KB
R2-105671.zip	2010/10/04 16:26	907,3 KB
R2-105672.zip	2010/10/04 16:29	16 KB
R2-105673.zip	2010/10/05 7:00	35,9 KB
R2-105674.zip	2010/10/04 16:24	10,5 KB
R2-105675.zip	2010/10/04 16:22	13,3 KB
R2-105676.zip	2010/10/04 15:41	37 KB
R2-105677.zip	2010/10/05 7:03	170,3 KB
R2-105678.zip	2010/10/05 3:33	61,3 KB
R2-105680.zip	2010/10/05 7:05	32,2 KB
R2-105681.zip	2010/10/04 17:39	17 KB
R2-105682.zip	2010/10/03 21:03	20,5 KB
R2-105683.zip	2010/10/04 18:13	36,7 KB
R2-105684.zip	2010/10/03 21:06	20,5 KB
R2-105685.zip	2010/10/05 5:57	66,7 KB
R2-105686.zip	2010/10/05 5:08	16,5 KB
R2-105687.zip	2010/10/04 22:20	62,7 KB
R2-105688.zip	2010/10/04 22:22	29 KB
R2-105689.zip	2010/10/04 22:48	31 KB

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sort by name/desc	sort by date/desc	sort by size/desc
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R2-105692.zip	2010/10/04 22:25	20,5 KB
R2-105693.zip	2010/10/04 22:30	19,5 KB
R2-105694.zip	2010/10/04 22:35	39,5 KB
R2-105695.zip	2010/10/04 22:19	41,6 KB
R2-105696.zip	2010/10/04 22:18	64,3 KB
R2-105697.zip	2010/10/03 19:53	25,9 KB
R2-105698.zip	2010/10/04 22:17	15,6 KB
R2-105702.zip	2010/10/03 20:28	87,7 KB
R2-105703.zip	2010/10/07 21:41	50,1 KB
R2-105704.zip	2010/10/05 0:34	23,3 KB
R2-105705.zip	2010/10/05 0:37	61,3 KB
R2-105706.zip	2010/10/05 7:04	15,8 KB
R2-105707.zip	2010/10/05 0:40	43,9 KB
R2-105708.zip	2010/10/05 0:43	54,2 KB
R2-105709.zip	2010/10/05 6:57	125,2 KB
R2-105710.zip	2010/10/04 6:50	36,9 KB
R2-105712.zip	2010/10/07 11:34	26,1 KB
R2-105713.zip	2010/10/05 6:57	28,1 KB
R2-105714.zip	2010/10/04 6:54	28,1 KB
R2-105716.zip	2010/10/03 20:41	21,4 KB
R2-105717.zip	2010/10/03 20:40	21,3 KB
R2-105718.zip	2010/10/07 11:12	37,6 KB
R2-105719.zip	2010/10/04 6:48	19,6 KB
R2-105720.zip	2010/10/04 14:51	31,3 KB
R2-105721.zip	2010/10/04 14:52	36,8 KB
R2-105722.zip	2010/10/04 14:50	39,2 KB
R2-105723.zip	2010/10/05 6:57	20,6 KB
R2-105724.zip	2010/10/04 18:22	68,2 KB
R2-105725.zip	2010/10/05 6:59	18,6 KB
R2-105726.zip	2010/10/05 6:57	176,8 KB
R2-105727.zip	2010/10/04 20:13	40,4 KB
R2-105728.zip	2010/10/05 6:59	34,9 KB

sort by name/desc	sort by date/desc	sort by size/desc
R2-105729.zip	2010/10/04 18:24	42,8 KB
R2-105730.zip	2010/10/04 20:14	39,1 KB
R2-105731.zip	2010/10/04 17:51	32,1 KB
R2-105732.zip	2010/10/05 7:03	33,7 KB
R2-105734.zip	2010/10/04 17:59	307,3 KB
R2-105735.zip	2010/10/05 6:59	46,7 KB
R2-105736.zip	2010/10/05 7:18	32,8 KB
R2-105737.zip	2010/10/07 11:34	119,8 KB
R2-105738.zip	2010/10/07 11:34	326,5 KB
R2-105739.zip	2010/10/05 5:56	23,2 KB
R2-105740.zip	2010/10/05 5:51	22,2 KB
R2-105741.zip	2010/10/05 5:06	48,7 KB
R2-105742.zip	2010/10/05 5:49	17,4 KB
R2-105743.zip	2010/10/05 6:28	39,5 KB
R2-105744.zip	2010/10/05 5:09	15,9 KB
R2-105745.zip	2010/10/05 4:56	22 KB
R2-105746.zip	2010/10/05 0:45	33,4 KB
R2-105747.zip	2010/10/05 5:44	46,7 KB
R2-105748.zip	2010/10/05 5:45	47,4 KB
R2-105750.zip	2010/10/05 5:47	46,1 KB
R2-105751.zip	2010/10/05 5:11	63,4 KB
R2-105752.zip	2010/10/05 4:09	20,8 KB
R2-105753.zip	2010/10/05 6:51	18,9 KB
R2-105754.zip	2010/10/05 0:54	28,4 KB
R2-105755.zip	2010/10/04 6:57	115,8 KB
R2-105756.zip	2010/10/05 3:46	25,9 KB
R2-105757.zip	2010/10/05 3:48	23,5 KB
R2-105758.zip	2010/10/05 3:49	12 KB
R2-105759.zip	2010/10/05 3:55	64,9 KB
R2-105760.zip	2010/10/04 5:00	27,5 KB
R2-105761.zip	2010/10/04 10:52	32,8 KB
R2-105762.zip	2010/10/05 4:03	42 KB
R2-105763.zip	2010/10/05 6:42	81,7 KB
R2-105764.zip	2010/10/05 5:47	925 KB

sort by name/desc	sort by date/desc	sort by size/desc
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R2-105766.zip	2010/10/04 6:53	20,1 KB
R2-105767.zip	2010/10/05 5:47	44,9 KB
R2-105768.zip	2010/10/04 6:54	21,6 KB
R2-105769.zip	2010/10/04 6:56	22,9 KB
R2-105770.zip	2010/10/04 6:59	15,1 KB
R2-105771.zip	2010/10/04 7:01	19 KB
R2-105772.zip	2010/10/04 7:02	19,1 KB
R2-105773.zip	2010/10/05 6:38	23,7 KB
R2-105774.zip	2010/10/05 6:11	11,9 KB
R2-105775.zip	2010/10/05 6:59	112,6 KB
R2-105776.zip	2010/10/05 6:59	85,9 KB
R2-105777.zip	2010/10/05 4:28	66,8 KB
R2-105778.zip	2010/10/05 6:59	14,8 KB
R2-105779.zip	2010/10/05 4:31	27,8 KB
R2-105780.zip	2010/10/05 6:59	8,2 KB
R2-105781.zip	2010/10/05 7:12	85,1 KB
R2-105782.zip	2010/10/05 2:25	51,7 KB
R2-105783.zip	2010/10/05 5:49	508,3 KB
R2-105784.zip	2010/10/05 3:46	113,9 KB
R2-105785.zip	2010/10/05 5:51	476,8 KB
R2-105786.zip	2010/10/05 6:07	19,6 KB
R2-105787.zip	2010/10/05 7:21	178,7 KB
R2-105788.zip	2010/10/05 7:05	25,1 KB
R2-105789.zip	2010/10/05 5:54	15,8 KB
R2-105790.zip	2010/10/05 5:51	32,8 KB
R2-105791.zip	2010/10/05 7:52	24,3 KB
R2-105792.zip	2010/10/05 5:56	97,3 KB
R2-105793.zip	2010/10/05 6:15	23,6 KB
R2-105794.zip	2010/10/05 3:03	20,8 KB
R2-105795.zip	2010/10/05 5:20	31,5 KB
R2-105796.zip	2010/10/05 5:22	91,7 KB
R2-105797.zip	2010/10/05 4:23	27,4 KB
R2-105798.zip	2010/10/05 3:51	6,8 KB

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sort by name/desc	sort by date/desc	sort by size/desc
R2-105799.zip	2010/10/05 3:54	23 KB
R2-105800.zip	2010/10/04 5:37	18,8 KB
R2-105801.zip	2010/10/05 6:22	13,5 KB
R2-105802.zip	2010/10/04 8:36	38,3 KB
R2-105803.zip	2010/10/05 4:19	177,9 KB
R2-105804.zip	2010/10/04 8:41	20,8 KB
R2-105805.zip	2010/10/05 6:18	41,2 KB
R2-105806.zip	2010/10/04 8:45	30,3 KB
R2-105807.zip	2010/10/05 6:56	14,2 KB
R2-105808.zip	2010/10/05 7:01	15,4 KB
R2-105809.zip	2010/10/05 7:00	24,6 KB
R2-105810.zip	2010/10/04 8:46	20 KB
R2-105811.zip	2010/10/05 3:27	179,4 KB
R2-105812.zip	2010/10/05 5:46	61,6 KB
R2-105813.zip	2010/10/05 6:50	31,1 KB
R2-105814.zip	2010/10/05 5:49	44,2 KB
R2-105815.zip	2010/10/05 5:44	138,5 KB
R2-105816.zip	2010/10/05 7:01	25,9 KB
R2-105817.zip	2010/10/05 6:50	20,5 KB
R2-105818.zip	2010/10/05 6:48	134 KB
R2-105819.zip	2010/10/05 6:50	8,6 KB
R2-105820.zip	2010/10/05 6:28	17,4 KB
R2-105821.zip	2010/10/05 6:44	59,6 KB
R2-105822.zip	2010/10/05 6:46	32,9 KB
R2-105823.zip	2010/10/05 6:55	7,6 KB
R2-105824.zip	2010/10/05 6:26	28,9 KB
R2-105825.zip	2010/10/05 6:29	52,1 KB
R2-105826.zip	2010/10/05 6:54	20,2 KB
R2-105827.zip	2010/10/05 6:59	20,1 KB
R2-105828.zip	2010/10/04 6:48	22,9 KB
R2-105829.zip	2010/10/04 6:51	24,4 KB
R2-105830.zip	2010/10/04 6:53	36,4 KB
R2-105831.zip	2010/10/05 6:44	17 KB
R2-105832.zip	2010/10/05 6:50	182,3 KB

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sort by name/desc	sort by date/desc	sort by size/desc
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R2-105834.zip	2010/10/05 7:04	7,1 KB
R2-105835.zip	2010/10/05 5:20	16 KB
R2-105837.zip	2010/10/05 5:39	16,6 KB
R2-105838.zip	2010/10/05 5:48	76,4 KB
R2-105840.zip	2010/10/05 5:48	91,1 KB
R2-105843.zip	2010/10/05 6:48	20,2 KB
R2-105844.zip	2010/10/11 14:08	11,5 KB
R2-105845.zip	2010/10/05 5:58	114,7 KB
R2-105847.zip	2010/10/05 6:00	47,6 KB
R2-105848.zip	2010/10/05 7:11	20,9 KB
R2-105849.zip	2010/10/07 11:34	23,7 KB
R2-105850.zip	2010/10/07 11:34	24,7 KB
R2-105851.zip	2010/10/07 11:34	24,9 KB
R2-105852.zip	2010/10/11 14:08	10,7 KB
R2-105853.zip	2010/10/06 14:02	27,6 KB
R2-105854.zip	2010/10/06 14:02	29,3 KB
R2-105855.zip	2010/10/06 14:02	19 KB
R2-105856.zip	2010/10/06 14:02	38,7 KB
R2-105857.zip	2010/10/11 9:28	96,1 KB
R2-105858.zip	2010/10/07 14:29	28,8 KB
R2-105859.zip	2010/10/07 14:29	26,8 KB
R2-105860.zip	2010/10/11 14:09	399,1 KB
R2-105861.zip	2010/10/11 14:09	29,2 KB
R2-105862.zip	2010/10/15 2:24	6,7 KB
R2-105864.zip	2010/10/15 9:37	17,8 KB
R2-105865.zip	2010/10/15 9:37	10,1 KB
R2-105866.zip	2010/10/15 2:24	9,5 KB
R2-105867.zip	2010/10/15 2:24	10,4 KB
R2-105868.zip	2010/10/15 4:10	8,3 KB
R2-105869.zip	2010/10/11 14:09	21,5 KB
R2-105870.zip	2010/10/11 14:09	114,3 KB
R2-105871.zip	2010/10/11 14:09	7,2 KB
R2-105873.zip	2010/10/11 14:09	96 KB

sort by name/desc	sort by date/desc	sort by size/desc
R2-105874.zip	2010/10/11 14:09	33,5 KB
R2-105875.zip	2010/10/11 14:09	9 KB
R2-105876.zip	2010/10/15 9:37	12,6 KB
R2-105877.zip	2010/10/15 9:37	176 KB
R2-105878.zip	2010/10/15 9:37	33,9 KB
R2-105879.zip	2010/10/28 22:13	102,7 KB
R2-105880.zip	2010/10/28 22:13	123,6 KB
R2-105881.zip	2010/10/28 22:13	26,5 KB
R2-105882.zip	2010/10/28 22:13	47,2 KB
R2-105883.zip	2010/10/15 9:38	406,2 KB
R2-105884.zip	2010/10/14 8:53	19,3 KB
R2-105885.zip	2010/10/15 2:24	20,2 KB
R2-105886.zip	2010/10/15 2:25	20,2 KB
R2-105887.zip	2010/10/15 2:25	28,3 KB
R2-105888.zip	2010/10/15 2:25	29,9 KB
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R2-105890.zip	2010/10/15 2:25	28,3 KB
R2-105891.zip	2010/10/14 8:54	22,7 KB
R2-105892.zip	2010/10/14 8:54	22,7 KB
R2-105893.zip	2010/10/15 2:25	16,7 KB
R2-105894.zip	2010/10/15 2:25	16,3 KB
R2-105896.zip	2010/10/15 9:38	20,2 KB
R2-105897.zip	2010/10/15 2:25	23,4 KB
R2-105898.zip	2010/10/15 2:25	12,7 KB
R2-105899.zip	2010/10/15 2:26	1191,6 KB
R2-105900.zip	2010/10/14 8:54	19 KB
R2-105901.zip	2010/10/14 8:54	37,6 KB
R2-105902.zip	2010/10/14 8:54	26,4 KB
R2-105903.zip	2010/10/14 8:54	20,6 KB
R2-105905.zip	2010/11/04 8:57	44,4 KB
R2-105906.zip	2010/10/14 8:54	26,5 KB
R2-105907.zip	2010/10/14 8:54	23,4 KB
R2-105908.zip	2010/10/14 8:54	100 KB
R2-105909.zip	2010/10/14 8:54	28,5 KB

sort by name/desc	sort by date/desc	sort by size/desc
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R2-105914.zip	2010/10/14 8:56	758,8 KB
R2-105915.zip	2010/10/14 8:56	30 KB
R2-105916.zip	2010/10/14 8:56	21,7 KB
R2-105917.zip	2010/10/14 8:56	26 KB
R2-105918.zip	2010/10/15 2:26	11,8 KB
R2-105919.zip	2010/10/14 8:56	14,2 KB
R2-105920.zip	2010/10/14 8:56	16,6 KB
R2-105921.zip	2010/10/14 8:56	22,6 KB
R2-105922.zip	2010/10/14 8:56	21,9 KB
R2-105923.zip	2010/10/14 8:56	20 KB
R2-105924.zip	2010/10/14 8:56	17,6 KB
R2-105925.zip	2010/10/14 8:56	17,5 KB
R2-105926.zip	2010/10/14 8:56	28,7 KB
R2-105927.zip	2010/10/14 8:56	28,6 KB
R2-105928.zip	2010/10/14 8:56	17,7 KB
R2-105929.zip	2010/10/14 8:56	18,9 KB
R2-105930.zip	2010/10/14 8:57	19,2 KB
R2-105931.zip	2010/10/14 8:57	18,7 KB
R2-105933.zip	2010/10/15 2:26	19 KB
R2-105934.zip	2010/10/15 2:26	28,5 KB
R2-105935.zip	2010/10/15 2:26	30,6 KB
R2-105936.zip	2010/10/15 2:26	21,8 KB
R2-105937.zip	2010/10/15 2:26	28,6 KB
R2-105938.zip	2010/10/14 8:57	26 KB
R2-105939.zip	2010/10/15 2:26	60,8 KB
R2-105940.zip	2010/10/15 2:26	56 KB
R2-105941.zip	2010/10/15 2:27	57,9 KB
R2-105942.zip	2010/10/15 2:27	25,8 KB
R2-105943.zip	2010/10/15 2:27	20,7 KB
R2-105944.zip	2010/10/15 4:10	11,4 KB
R2-105945.zip	2010/10/15 2:27	30,8 KB
R2-105946.zip	2010/10/15 2:27	22,2 KB

sort by name/desc	sort by date/desc	sort by size/desc
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R2-105948.zip	2010/10/15 2:27	21,8 KB
R2-105949.zip	2010/10/15 2:27	28,5 KB
R2-105950.zip	2010/10/15 2:27	30,4 KB
R2-105951.zip	2010/10/15 2:27	21,6 KB
R2-105952.zip	2010/10/15 2:27	25,9 KB
R2-105953.zip	2010/10/15 2:27	12,1 KB
R2-105954.zip	2010/10/15 4:10	11,8 KB
R2-105955.zip	2010/10/15 4:10	21,1 KB
R2-105956.zip	2010/10/15 9:38	11,4 KB
R2-105960.zip	2010/10/28 22:13	671 KB
R2-105961.zip	2010/10/15 4:11	10,2 KB
R2-105962.zip	2010/10/14 8:57	29,9 KB
R2-105970.zip	2010/10/14 8:57	11,6 KB
R2-105971.zip	2010/10/28 22:14	389,3 KB
R2-105973.zip	2010/10/14 8:57	69,5 KB
R2-105974.zip	2010/10/15 9:38	9,5 KB
R2-105975.zip	2010/10/15 9:38	58,5 KB
R2-105976.zip	2010/10/15 9:38	95,8 KB
R2-105977.zip	2010/10/14 8:57	23,4 KB
R2-105978.zip	2010/10/14 8:57	48,3 KB
R2-105979.zip	2010/10/14 8:57	15,3 KB
R2-105980.zip	2010/10/14 8:57	10,3 KB
R2-105981.zip	2010/10/14 8:57	9,6 KB
R2-105982.zip	2010/10/15 2:27	9,5 KB
R2-105983.zip	2010/10/14 8:57	12,2 KB
R2-105984.zip	2010/10/14 8:57	42,8 KB
R2-105985.zip	2010/10/15 9:38	61,5 KB
R2-105986.zip	2010/10/15 9:39	622 KB
R2-105987.zip	2010/10/15 2:27	26,7 KB
R2-105988.zip	2010/10/15 2:27	27 KB
R2-105990.zip	2010/10/19 9:21	62,8 KB
R2-105991.zip	2010/10/14 8:57	34 KB
R2-105992.zip	2010/10/15 9:39	27,3 KB

sort by name/desc	sort by date/desc	sort by size/desc
R2-105993.zip	2010/10/15 9:39	8,8 KB
R2-105994.zip	2010/10/14 8:57	56,9 KB
R2-105995.zip	2010/10/15 2:27	12,8 KB
R2-105996.zip	2010/10/15 9:39	9,3 KB
R2-105997.zip	2010/10/15 2:28	1191,8 KB
R2-105998.zip	2010/10/15 9:39	13,8 KB
R2-105999.zip	2010/10/15 2:28	9,5 KB
R2-106000.zip	2010/10/15 2:29	10,1 KB
R2-106001.zip	2010/10/15 2:29	8,4 KB
R2-106002.zip	2010/10/15 9:39	28,2 KB
R2-106003.zip	2010/10/15 9:39	29,9 KB
R2-106004.zip	2010/10/19 9:21	493,9 KB
R2-106005.zip	2010/10/15 9:39	26,3 KB
R2-106006.zip	2010/10/15 9:40	1149 KB
R2-106007.zip	2010/10/15 9:40	13,6 KB
R2-106008.zip	2010/11/01 9:14	502,2 KB
R2-106009.zip	2010/10/15 9:40	13,2 KB
R2-106010.zip	2010/10/15 9:40	13,7 KB
R2-106011.zip	2010/10/15 9:40	8,5 KB
R2-106012.zip	2010/10/15 9:41	6,6 KB
R2-106013.zip	2010/10/15 9:41	10,1 KB
R2-106014.zip	2010/10/15 9:41	10,3 KB
R2-106015.zip	2010/10/15 9:41	9,8 KB
R2-106016.zip	2010/10/15 9:41	10,3 KB
R2-106017.zip	2010/10/15 9:41	14,4 KB
R2-106018.zip	2010/10/15 9:41	172,4 KB
R2-106019.zip	2010/10/15 9:41	42,8 KB
R2-106020.zip	2010/10/15 9:41	10,1 KB
R2-106021.zip	2010/10/28 22:14	15,7 KB
R2-106022.zip	2010/10/15 9:41	27,9 KB
R2-106023.zip	2010/10/15 9:41	20,3 KB
R2-106024.zip	2010/10/28 22:14	26,1 KB
R2-106025.zip	2010/10/28 22:14	185,2 KB
R2-106026.zip	2010/10/28 22:14	11,4 KB

sort by name/desc	sort by date/desc	sort by size/desc
R2-106027.zip	2010/10/15 9:41	8,7 KB
R2-106028.zip	2010/10/28 22:14	381,3 KB
R2-106029.zip	2010/10/15 9:41	13,6 KB
R2-106030.zip	2010/10/15 9:41	9,7 KB
R2-106031.zip	2010/10/17 13:44	711,4 KB
R2-106032.zip	2010/10/30 10:26	390,3 KB
R2-106033.zip	2010/10/30 10:26	381,4 KB
R2-106034.zip	2010/11/15 13:21	500,7 KB
TDoc_List_Meeting_RAN2#71-BIS.xlsm	2016/05/31 20:34	110,5 KB
TDoc_List_Meeting_RAN2#71-BIS.xlsx	2021/09/02 10:01	131,5 KB
TDoc_List_Meeting_RAN2#71-BIS.zip	2018/01/10 16:47	138,6 KB

721 items.

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APPENDIX 23



3GPP_TSG_RAN_WG2 Archives

October 2010, Week 4

3GPP_TSG_RAN_WG2@LIST.ETSI.ORG



Options: Use Monospaced Font
Show Text Part by Default
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Message: [<< First] [< Prev] [Next >] [Last >>]
Topic: [<< First] [< Prev] [Next >] [Last >>]
Author: [<< First] [< Prev] [Next >] [Last >>]

Subject: Re: [71b#07]: LTE: CA - Running CR for 36.331 [Samsung]
From: Himke van der Velde <[log in to unmask]>
Reply To: Himke van der Velde <[log in to unmask]>
Date: Sat, 23 Oct 2010 16:21:22 +0200
Content-Type: multipart/mixed
Parts/Attachments: text/plain (7 kB) , text/html (21 kB) , R2-105971.zip (399 kB)

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Petitioners' Exhibit 1003, p. 421
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Dear all,

Thanks to all that carefully reviewed the draft CR and provided the good comments. Attached is an updated version in which I have attempted to address the comments that were provided, except for the ones that seem to require further discussion. The changes compared to the previous version are highlighted using turquoise. Please note that the zip file also includes a version without change marks and highlighting (that may be used for further text proposals)

Some further remarks:

- NSN.5: Clarify the description of A6 (and possibly other events) to reflect that the type of neighbor cells in A6 and A3 are different
  HV> I have introduced some notes (as 5.5.4.1 already clarifies in general that the UE shall only report neighbor cells that are detected on the associated frequency (applicable neighbours), also taking into account ASU.6 (see below)
- QC.1: Clarify which quantity is used for determining the best cell of each serving frequency
  HV> As there were no explicit agreements on this, I prefer to defer handle this outside the scope of this e-mail discussion
- ASU.5, DAT.3: The information structure of the additional measurement reporting should be changed e.g. MeasResultServFreq should not include the best cell for the primary frequency, signal the best neighbour separate from the SCell, ..
  HV> It does not seem appropriate to change the information structure while there is still an FFS on the question whether additional reporting applies for the frequency indicated by the associated *measObject*. I have included a comment that the information structure is still FFS
- ASU.3, ERI.4: Why is the signaling of *cif-Presence* different for PCell and SCell i.e. {setup, release} with Need ON vs. {setup} with Need OR.
  HV> I agree it is somewhat strange to have a different approach, but this is because for the PCell it seems desirable to have delta signalling, while for the SCell delta signalling does not seem appropriate at this level. For the SCell we could change to a mandatory {setup, release}, but typically we use {setup} with need OR for such cases.
- ASU.6: If event A3 or A5 is configured for a secondary frequency, the concerned SCell may trigger a measurement report (i.e. triggering is not just for applicable neighbours)
  HV> I have added clarification that an SCell is an 'applicable cell' in 5.5.4.1, as suggested, but some additional changes may be desirable (e.g. the description of the event 'Neighbour becomes offset better than PCell'
- ASU.7: MAC-MainConfig should be extended to indicate if the extended BSR size levels apply. Moreover, the default configuration needs to cover this
  HV> Although I am somewhat reluctant to handle changes like as part of the e-mail review, I have included field extendedBSR-Sizes in MAC-Mainconfig. In 9.2.2 I have included an FFS whether a default is needed
- ERI.5: the sCellDeactivationTimer-r10 should be added in RadioResourceConfigDedicatedSCell-r10
  HV> In my understanding we previously agreed that the value RRC configures for the deactivation timer is common for all SCells and hence not signalled per SCell
- ZTE.4: The fields for RSRP and RSRQ measurement results within CellInfoList-r10 over X2 should be optional because they might not be both available always
  HV> I apparently removed the optionalities (was present in R2-105507) assumingly because there was an agreement, but as I could not trace back the agreement I re-instated the optionality for rsrq (we order based on RSRP, so I assume it is always included)..
- ZTE.5: the value range of csi-RS-Ports-r10 should be ENUMERATED {p1, p2, p4, p8} according to RAN1 agreement
  HV> I prefer to defer this to the next meeting (as for all new RAN1 agreements)

If you have any other small comments/ suggestions please don't hesitate to forward these to me so they may be included in a small update to the next meeting.

With kind regards, Himke

From: Himke Vandervelde [mailto:[log in to unmask]]
Sent: 19 October 2010 08:47

To: [log in to unmask]
Subject: [71b#07]: LTE: CA - Running CR for 36.331 [Samsung]

Dear all,

Please find attached the updated Running CR on the introduction of Carrier Aggregation into 36.331 that aims to capture the agreements from the RAN2#71bis meeting. All changes compared to the previous version are highlighted (green highlighting are straightforward inclusions of text proposals/ agreements, while for yellow highlighted parts either concern agreements for which there was no a TP, for which the change was not really obvious or there was some other modification)

Some further remarks:

- Straightforward application of the agreements regarding the information structure for UL/ DL (as in R2-105657) would introduce a limited form of delta signalling i.e. it would at least be possible to add/ remove the uplink without (again) providing the dl-configuration. Since this kind of delta signalling was not explicitly agreed, an editors note is introduced reflecting that this aspect is still FFS.
- The agreements regarding additional measurement reporting are captured largely in accordance with the ASN.1 structure as proposed in R2-105469 i.e. by means of an IE *MeasResultServFreq* which includes for the measurement results of SCells as well as those of the best neighbours on each serving frequency (primary and secondary) except for the one corresponding with the associated measurement object. Off

ATOM RSS1 RSS2

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APPENDIX 24

3GPP TSG RAN meeting #50
Istanbul, Turkey, Dec. 7 – 12, 2010

RP-101373

Agenda Item: 3

Source: ETSI MCC

Title: Report of 3GPP TSG RAN meeting #49,
San Antonio, USA, September 14 – 17, 2010

Document for: Approval

Report of 3GPP TSG RAN meeting #49

held in San Antonio, USA
September 14 – 17, 2010



colour code:
green: approved new TSs/TRs/WIs/SIs
grey: outgoing LSs
red: WI/SI closed or moved to next REL

The present document has been developed within the 3rd Generation Partnership Project (3GPP ™) and it has not been subject to any approval process by the 3GPP Organizational Partners.

Keywords
RAN, UTRA, LTE

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Meeting Organisation

Meeting:	3GPP TSG RAN #49		
Meeting location:	San Antonio, USA		
Duration:	Tuesday 14.09.2010 - Friday 17.09.2010		
Host:	North American Friends of 3GPP		
TSG RAN Chairman:	Takehiro Nakamura (NTT DOCOMO)	email: nakamurata@nttdocomo.co.jp	
TSG RAN Vice chairman:	Marc Grant (AT&T)	email: MG6217@att.com	
TSG RAN Vice chairman:	Han van Bussel (Deutsche Telekom)	email: han.van.bussel@telekom.de	
TSG RAN Vice chairman:	Hai Tang (China Mobile)	email: tanghai@chinamobile.com	
TSG RAN MCC Support:	Joern Krause (ETSI MCC)	email: Joern.Krause@etsi.org	
Email reflector:	3GPP_TSG_RAN@LIST.ETSI.ORG		
Technical documents:	ftp://ftp.3gpp.org/tsg_ran/TSGR_48/Docs		
next meetings:	TSG RAN #50, 07.12. - 10.12.2010	Istanbul, Turkey	host: EF3
	TSG RAN #51, 15.03. - 18.03.2011	tbd, USA	host: tbd

Executive Summary

3GPP TSG RAN meeting #49 was held in San Antonio, Texas, USA, September 14-17, 2010, hosted by the North American Friends of 3GPP. The meeting had 124 participants (see Annex A) and 327 Technical Documents (see Annex B).

- Main topics/decisions:
  - **Working agreement** on "E-UTRA Band 20 Rx requirements" of RAN #48 was not challenged, so no voting at RAN #49 instead CR0617r1 to TS 36.101 REL-9 was approved in RP-100919 (see 13.1).
  - The feature "**SRB only PS handover** from LTE to UMTS" was finally removed and 25.331 CRs R2-104945 (REL-9) and R2-105228 (REL-10) in RP-100851 were approved (see 8.2.2 and 8.2.5.1).
  - **REL-8 Feature Group Indicator (FGI) handling in REL-9**: Finally a way foward (RP-101007) with 3 categories for FGI features was approved (A: sufficient confidence of IOT availability in 2010, B: IOT availability is expected no later than end of June 2011, C: IOT availability is not anticipated before the end of June 2011) and also a CR to TS 36.331 was approved in RP-101008 (see 8.2.5.1).
  - **RAN5 Terms of Reference (ToR)**: Triggered by an LS from GCF SG to RAN5 (R5-104166) and its RAN5 reply LS RP-100713 an extension of the RAN5 ToR (to include the development of test procedures such as 'end to end data performance measurement procedures') was discussed. As a result 2 LSs were sent: To RAN5 (RP-101025) to analyse and reply to RAN #50 and to GCF SG (RP-101024) to indicate status and way forward (see 8.5.2).
  - **Relay Node (RN) testing** (REL-10): The decision about conformance testing of relay nodes raised with RAN2 LS RP-100719 could not be concluded and was postponed to RAN #50 asking proponents to provide more detailled requirements (see 10.4.6.1).
  - **HNB-HNB enhanced mobility** (REL-10): As RAN3 has problems to select among 3 alternatives (RANAP based, HNBAP based, direct interface based), a voting might take place at RAN #50 if RAN3 does not reach an agreement by then (see 8.3.2, RP-100364, RP-100726).

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- **Network-Based Positioning** Support for LTE: No consensus yet in RAN1 on potential performance improvement relative to existing positioning methods. RAN1 is asked to provide results to RAN #50 for decision. After RAN#49, RAN2/RAN3 can work on this topic in parallel to RAN1 evaluation (see 10.4.1).

- **Guidance on REL-10 finalization process and start for REL-11** in TSG-RAN was provided (RP-100884):
  - CRs for REL-10 TSs to be submitted to ITU-R WP5D for IMT-Advanced to be approved at RAN#50
  - Core part WIs and performance part WIs related to ITU-R submission towards M.[IMT.RSPEC] to be completed by RAN#50 and RAN#52, respectively
  - Stage 3 freeze at TSG#51 in March 2011 and handling of exception sheets to be started
  - Stage 3 specs' ASN.1 freeze in June 2011 at RAN #52
  - REL-11: RAN1 part and RAN2/3/4 parts can start at RAN#50 and RAN#51, respectively.

- **Information exchange with ITU-R** (see 7.1/7.2):
  - ITU-R WP5D: RP-100704 answered in RP-100997
  - ITU-R WP5D: RP-100705 answered in RP-100971 (to be reviewed by SA & PCG)
  - ITU-R WP5A: RP-100425 (RAN #48) answered (with support from SA1, SA2, RAN2, GERAN, CT) in RP-101023 (to be reviewed by SA)
  - ITU-R WP5A: RP-100427 (RAN #48) answered (with support from GERAN) in RP-100872 (to be reviewed by SA & PCG)
  - ITU-R WP5A: RP-100428 (RAN #48) answered (with support from RAN4) in RP-100873

- **submission to ITU-R for IMT Advanced** (see 7.1/7.2):
  Information was provided to CT and SA in LS RP-100983 for review and feedback with some attachments:
  RP-100706: Schedule & technical and administrative inputs as requested byt ITU-R
  RP-100930: Preparation & Structure of LTE-Adv. Overview & Global Core Specification (GCS) Sections
  Note: Meanwile RP-100930 was revised in RP-101006 and 3GPP ITU-R ad hoc will further work on it.
  RP-100939: 3GPP schedule and deliverables in 2010 and 2011
  RP-100982: 3GPP Specifications Required for the Global Core Specification (CGS)
  Note: Meanwhile feedback from CT was received to RP-100982 in RP-101021.

- **Enhanced ICIC** for non-CA based deployments of heterogeneous networks for LTE (REL-10): Triggered by discussions about the progress report LS from RAN1 in RP-100708 finally a way forward on the work split for the different RAN WGs was approved in RP-101005 (see 10.4.8.1).

- **Enhanced Iur-g**: Based on the GERAN LS RP-100718 where GERAN introduced a REL-10 WI for this topic and requested RAN3 to provide the stage 3 work a RAN WI was started for this topic (RP-101013) and an LS was sent to GERAN (RP-101016) clarifying that RAN3 work will start as soon as GERAN2 provides a stable version for the stage 2.

- **Machine-type communications**: Triggered by SA1/SA2 activities in this area (RP-100957/RP-100963) RAN has started now a late REL-10 WI "RAN mechanisms to avoid CN overload due to Machine-Type Communications" RP-101026 and put the ongoing SI "Study on RAN improvements for Machine-Type Communications" on hold (see 11.3 and 12.1)

- Incoming Liaison Statements: 23, see Annex C

- Outgoing Liaision Statements: 10, see Annex D

- 10 closed work items (WI) in Sep. 2010:

  RAN4 WIs:

  - LTE TDD in 2600MHz for US:
    Core part: REL-10 (470108, LTE_TDD_2600_US-Core)
  Perf. part: REL-10 (470208, LTE_TDD_2600_US-Perf)- Support of New Band Combinations for Dual-Band Dual Cell HSDPA:
    Perf. part: REL-10 (480221, DB_DC_HSDPA-Perf) terminated as as WI not needed

  RAN3 WI:
  - Enhanced Interference Management for Home NodeBs:
    Core part: REL-10 (470106, HNB_IM-Core) terminated as no impact on specifications

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RAN5 WIs on UE Conformance test aspects for:

REL-8:
- Enhanced CELL_FACH State in LCR TDD (440009, RANimp-UEConTest_EnhancedCellFACHStateLCRTDD)
- 1.28Mcps TDD Improved L2 support for high data rates (440010, RANimp-UEConTest_ImprovedL2LCRTDD)
- Mobility management based on Dual-Stack Mobile IPv6 (450022, DSMIPv6_UEConTest)
- Continuous Connectivity for packet data users for 1.28 Mcps TDD (450024, RANimp-UEConTest_CPCLCRTDD)
- Mobility between 3GPP WLAN Interworking and 3GPP Systems (460006, IWLAN_Mob_UEConTest)

REL-9:
- UMTS/LTE in 800 MHz for Europe (440007, RInImp-UEConTest-UMTSLTE800EU)

- 1 closed study item (SI) in Sep. 2010:

RAN1 SI:

- Study on Solutions for energy saving within UTRA Node B REL-10 (460016, FS_Energy_UMTS)
  SI terminated as no consensus to standardize anything

- 3 work items (WI) are on hold in the next quarter (i.e. no activity):

- Core part: Latency reductions for LTE RAN2 REL-10 (460112, LTE_LATRED-Core)

- Core part: LTE-Advanced Carrier Aggregation of Band 3 and Band 7 RAN4 REL-10 (480123, LTE_CA_B3_B7-Core)

- Core part: Service continuity in connected mode and location information for MBMS for LTE RAN2 REL-10 (480126, MBMS_LTE_SC-Core)

- 2 study items (SI) are on hold in the next quarter (i.e. no activity):

- Study on RAN improvements for Machine-Type Communications RAN2 REL-10 (450015, FS_NIMTC_RAN)

- Study on Coordinated Multi-Point Operation for LTE RAN1 REL-10 (470014, FS_COMP_LTE)

- 9 new approved work items (WI) related to 9 topics to start in REL-7/8/9 (only RAN5) and REL-10:

UTRA only WIs on RAN5 UE Conformance Test Aspects:

- Multiple Band and Multiple Frequency operation for LCR TDD	REL-7	RP-100805
- Paging Permission with Access Control (PPAC)	REL-8	RP-100806
- Home NB enhancements for FDD	REL-9	RP-100935
- Combination of DC-HSDPA with MIMO	REL-9	RP-101001

LTE only WI on RAN5 UE Conformance Test Aspects:

- Enhanced Dual-layer transmission for LTE TDD	REL-9	RP-100868

UTRA only for REL-10:

- Interfrequency detected set measurements for UMTS	REL-10	RAN2	RP-101015
- Core part: Enhancements of Iur-g interface – RAN part	REL-10	RAN3	RP-101013
- Core part: MIMO operation with non-MIMO coexistence in HSDPA	REL-10	RAN4	RP-100993

LTE & UTRA related for REL-10:

- RAN mechanisms to avoid CN overload due to Machine-Type Communications	REL-10	RAN2	RP-101026

- 0 new approved study item (SI) for to start in REL-10:

Three proposals (RP-100890, RP-100933, RP-100942) were postponed and one (RP-100891) was withdrawn

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- 1 new approved Technical Specification (TS), i.e. now under CR control:

  RP-100967 TS 36.216 REL-10 RAN1 LTE_Relay-core
- 2 new approved Technical Reports (TR), i.e. now under CR control:

  RP-101009 TR 25.927 REL-10 RAN1 FS_Energy_UMTS (as SI was terminated TR work is stopped)
  RP-100945 TR 36.812 REL-10 RAN4 LTE_TDD_2600_US-Core

- 1 new Technical Specification (TR) provided for information:

  RP-100803 TS 37.320 REL-10 RAN2 MDT_UMTSLTE-Core

- 2 new Technical Reports (TR) provided for information:

  RP-100804 TR 36.811 REL-10 RAN4 S_Band_LTE_ATC_MSS-Core
  RP-100995 TR 36.813 REL-10 RAN4 L_Band_LTE_ATC_MSS-Core

- Change requests statistics (see also Annex E): 1056 CRs handled with 999 approved CRs.

Phase	Cat	all CRs	Approved CRs	approved RAN1	approved RAN2	approved RAN3	approved RAN4	approved RAN5
Rel-7	F	18	18	4	10	0	4	0
Rel-8	A	17	17	4	10	0	3	0
Rel-8	B	125	125	0	0	0	2	123
Rel-8	C	1	1	0	1	0	0	0
Rel-8	D	1	1	0	1	0	0	0
Rel-8	F	118	116	2	15	10	31	58
Rel-9	A	75	75	6	25	9	35	0
Rel-9	B	5	5	0	0	0	4	1
Rel-9	C	5	5	0	4	0	1	0
Rel-9	D	3	3	0	2	0	1	0
Rel-9	F	613	567	6	44	27	56	434
Rel-10	A	28	27	0	26	0	1	0
Rel-10	B	41	33	4	13	7	9	0
Rel-10	C	2	2	0	2	0	0	0
Rel-10	D	2	2	0	2	0	0	0
Rel-10	F	2	2	0	2	0	0	0
sum		**1056**	**999**	**26**	**157**	**53**	**147**	**616**

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1 Opening of the Meeting

TSG RAN chairman Takehiro Nakamura (NTT DOCOMO) opened the meeting RAN #49 on Tuesday morning Sep. 14th, .2010 at 09:00.

On behalf of the host, the North American Friends of 3GPP, Marc Grant (AT&T) welcomed the delegates to San Antonio, Texas, USA and explained organisational issues of the meeting.

2 Approval of the Agenda

RP-100700 Agenda for RAN #49 held in San Antonio, USA, 14.09.-17.09.2010 RAN chairman (NTT DOCOMO) Agenda
conclusion: approved

3 Approval of the meeting report of TSG-RAN #48

RP-100701 Draft report of RAN #48 held in Seoul, Korea, 01.06.-04.06.2010 MCC Report
conclusion: revised in RP-100965 before the meeting (minor corrections, shown with revision marks
RP-100965 Revised draft report of RAN #48 held in Seoul, Korea, 01.06.-04.06.2010 MCC Report
discussion: MCC: If there are any further comments please provide them before the end of Tuesday 14.09.10.
conclusion: revised in RP-100969 which is the approved report

4 Reminder for IPR declaration

The RAN chairman made the following call for IPRs and reminded the delegates of their obligations with respect to IPRs:

> The attention of the delegates to the meeting of this Technical Specification Group is drawn to the fact that 3GPP Individual Members have the obligation under the IPR Policies of their respective Organizational Partners to inform their respective Organizational Partners of Essential IPRs they become aware of.
>
> The delegates are asked to take note that they are thereby invited:
>
> - to investigate whether their organization or any other organization owns IPRs which were, or were likely to become Essential in respect of the work of 3GPP.
> - to notify their respective Organizational Partners of all potential IPRs, e.g., for ETSI, by means of the IPR Statement and the Licensing declaration forms (http://webapp.etsi.org/Ipr/).

5 RAN Chairman's Report of meetings

5.1 Report from TSG SA

RAN chairman reported RAN aspects from TSG SA #48 as follows:

1) 2012 meeting schedule approved as presented at RAN#48(see RP-100695/SP-100414).

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2) An error was found in the results of the MCC survey as presented by the MCC to RAN #48. John Meredith (MCC) submitted a corrected version to SA #48 in SP-100369.
3) It was reported that SA3 #59 progressed on security analysis for relay node security, and it is probable that needed security solutions will be provided in Rel-11 time frame. In the discussion it was highlighted RAN is currently progressing Relay Nodes for Release 10, and the question was raised what the consequences of divergent Releases in SA3 and RAN would be. It was clarified that this was not expected to impact the RAN Release 10 specification work, but may impact deployments.
RAN chairman suggested that SA3 progress should be reviewed and necessary coordination between SA3 and RAN should be made at SA#49. Possible impact to RAN Release 10 activities should be identified in this week if it exists.

5.2 Report from PCG and OP

Nothing to report.

5.3 Report from other meetings

Nothing to report.

6 Liaison activity of TSG RAN

6.1 Groups outside 3GPP

ITU-R WP5A:

RP-100704 LS on REVISION OF RECOMMENDATION ITU-R M.1580-3 AND M.1581-3 (WORKING DOCUMENT TOWARDS M.1580-4 AND M.1581-4) - -
(ITU-R WP5D/TEMP/349rev1; to: ext. organisations (3GPP); cc: -; contact: ITU-R WP5D Counsellor) ITU-R WP5D
related to out-of-band emission masks and spurious emission limits for IMT base stations and mobile stations;
conclusion: LS will be treated under 7.1

RP-100705 LS on REVISION OF REPORT ITU-R M.2039-1 AND WORK ON UHF SHARING STUDIES
(ITU-R WP5D/TEMP/367; to: ext. organisations (3GPP); cc: -; contact: ITU-R WP5D Counsellor) ITU-R WP5D
related to CHARACTERISTICS OF TERRESTRIAL IMT-2000 SYSTEMS FOR FREQUENCY SHARING/INTERFERENCE ANALYSES;
conclusion: LS will be treated under 7.1

RP-100706 LS on THE SCHEDULE AND TECHNICAL AND ADMINISTRATIVE INPUTS FOR THE COMPLETION OF THE FIRST RELEASE OF RECOMMENDATION ITU-R M.[IMT.RSPEC]
(ITU-R WP5D/TEMP/358; to: ext. organisations (3GPP); cc: -; contact: ITU-R WP5D Counsellor) ITU-R WP5D
no explicit RAN action requested;related to completion of the terrestrial radio interface specifications planned for Recommendation ITU-R M;
conclusion: LS will be treated under 7.1

RP-100707 LS on FINAL IMT-ADVANCED EVALUATION REPORTS
(ITU-R WP5D/TEMP/392rev1; to: INDEPENDENT EVALUATION GROUPS; cc: IMT-ADVANCED TECHNOLOGY PROPONENTS (3GPP); contact: SWG chairman (Ericsson)) ITU-R WP5D
no RAN action requested;
conclusion: LS will be treated under 7.1

IEEE P802.19:

RP-100703 Reply LS to RP-100670 on 802.19 response to questions from 3GPP
(IEEE P802.19-10/00102r1; to: RAN; cc: -; contact: NICT) IEEE P802.19 Wireless Coexistence WG
no RAN action requested; no LS answer? related to Wireless Coexistence in the TV White Space;
LS presented by Qualcomm

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discussion: RAN chairman: no further answer seems to be needed
conclusion: noted, no LS answer

GSMA:

RP-100720 LS on Best Practices for Fast Dormancy REL-8 -
(-; to: RAN; cc: GSMA devices group; contact: GSMA) GSMA
no RAN action requested; no LS answer?
LS presented by Telefonica
discussion: RAN chairman: is just for information so no answer needed
conclusion: noted, no LS answer

6.2 TSG SA, TSG CT, TSG GERAN

GERAN:

RP-100714 Reply LS to RP-100669 on "communications from ITU-R WP5A" and to RT-100055 on "REVISION WORK ON RECOMMENDATION ITU-R F.757-3 - Basic system requirements and performance objectives for fixed wireless access using mobile-derived technologies offering telephony and data communication service" - -
(GP-101448; to: 3GPP TSG RAN ITU-R Ad Hoc; cc: RAN; contact: Telecom Italia) GERAN
no RAN action requested;
conclusion: LS will be treated under 7.2

RP-100715 Reply LS to R4-103395 = RP-100711 to "LS on Status of the MSR Work Item" REL-9 RF requirements for Multicarrier and Multi-RAT BS (GERAN part)
(GP-101560; to: RAN, RAN4; cc: ETSI TC MSG, ETSI TC MSG TFES; contact: Ericsson) GERAN1
no explicit RAN action requested; no LS answer?
conclusion: LS will be treated under 8.4.5.2

RP-100716 Reply LS to R4-102735 = RP-100702 on "MSR BS RF requirements for non-contiguous spectrum deployments" REL-10 MSR_NC
(GP-101646; to: RAN, RAN4; cc: -; contact: Ericsson)GERAN1
no explicit RAN action requested; no LS answer?
conclusion: LS will be treated under 10.3.5.1

RP-100717 Reply LS to RP-100669 on "communications from ITU-R WP5A" and to RT-100054 on "Mobile Wireless access systems providing telecommunications for a large number of ubiquitous sensors and/or actuators scattered over wide areas in the land mobile service"- -
(GP-101653; to: 3GPP TSG RAN ITU-R Ad Hoc; cc: RAN, SA1, SA2, RAN2; contact: Telecom Italia) GERAN
no explicit RAN action requested; no LS answer?
conclusion: LS will be treated under 7.2

RP-100718 LS on Enhancements of Iur-g interface REL-10 -
(GP-101660; to: RAN3; cc: RAN; contact: ZTE) GERAN
no RAN action requested; LS answer drafted?
note: GERAN approved a GERAN WI with a RAN3 task; WI proposal to cover this task by a RAN WI in RP-100962 and more explanation in RP-100946
discussion: RAN chairman: new WI RP-100962 will be treated later this week
RAN3 chairman: offline discussion planned for Tue morning coffee break, please join if interested in this topic
RAN chairman: any comments from GERAN chairman
GERAN chairman: stage 2 in GERAN and stage 3 in RAN is the plan
RAN chairman: RAN has a tight schedule so please discuss
RAN3 chairman: a WI is in general not linked with a release
conclusion: noted, decision about LS answer postponed to treatment of RP-100962;
finally LS answer was sent in RP-101016

SA:

RP-100963 LS on Release 10 NIMTC Conclusion REL-10 FS_NIMTC_RAN
(S2-104432; to: GERAN, GERAN2, CT1, CT4, SA1, SA3, SA5, RAN2, RAN3; cc: SA; contact: Samsung) SA2

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note: This LS was provided to RAN on request of SA2 who forgot to add RAN on this LS;
conclusion: LS will be treated under 11.3

CT:
The following 2 LSs were received on Friday of RAN #49:

RP-101020 Reply to LS to RP-100972 on "Mobile Wireless access systems providing telecommunications for a large number of ubiquitous sensors and/or actuators scattered over wide areas in the land mobile service" (CP-100630; to: RAN; cc: SA; contact: Telecom Italia) CT LSin REL-10 FS_NIMTC_RAN
reply LS to RP-100972 asking to revise RP-100871; RAN action requested;
conclusion: LS will be treated under 7.2

RP-101021 Reply LS to RP-100983 on ITU-R M.[IMT.RSPEC] (CP-100643; to: RAN, SA; cc: -; contact: CT chairman (Nokia)) CT LSin - -
RAN action requested;
conclusion: LS will be treated under 7.2

6.3 TSG RAN WG1, WG2, WG3, WG4, WG5

ITU-R related:

RP-100709 LS on the response to ITU-R WP5D on "REVISION OF RECOMMENDATION ITU-R M.1580-3 AND M.1581-3 (WORKING DOCUMENT TOWARDS M.1580-4 AND M.1581-4)" - -
(R4-102796; to: RAN; cc: 3GPP TSG RAN ITU-R Ad Hoc; contact: Telecom Italia) RAN4
This is a reply LS drafted by RAN4 to the ITU-R WP5D LS in RP-100704;
conclusion: LS will be treated under 7.1

RP-100710 LS on the response to ITU-R WP5D on "REVISION OF REPORT ITU-R M.2039-1 AND WORK ON UHF SHARING STUDIES" - -
(R4-102797; to: RAN; cc: 3GPP TSG RAN ITU-R Ad Hoc; contact: Telecom Italia) RAN4
This is a reply LS drafted by RAN4 to the ITU-R WP5D LS in RP-100705; RAN action requested; no LS answer?
conclusion: LS will be treated under 7.1

Enhanced inter-cell interference coordination (eICIC):

RP-100708 LS on eICIC progress in RAN1 REL-10 eICIC_LTE-Core
(R1-105094; to: RAN, RAN2, RAN3, RAN4; cc: -; contact: CMCC) RAN1
no explicit RAN action requested; no LS answer?
conclusion: LS will be treated under AI 10.4.8.1

Multi-Standard Radio (MSR):

RP-100702 LS on MSR BS RF requirements for non-contiguous spectrum deployments REL-10 MSR_NC
(R4-102735; to: GERAN; cc: RAN; contact: Ericsson) RAN4
no RAN action requested; no LS answer?
conclusion: LS will be treated under 10.3.5.1

RP-100711 LS on Status of the MSR Work Item REL-9 RInImp9-RFmulti
(R4-103395; to: GERAN1; cc: RAN; contact: Ericsson) RAN4
MSR = Multi-Standard Radio; no RAN action requested; no LS answer?
conclusion: LS will be treated under 8.4.5.2

LTE Relay:

RP-100719 LS on Relay Node (RN) testing REL-10 LTE_Relay-core
(R2-105247; to: RAN; cc: RAN1, RAN3, RAN4, RAN5; contact: Ericsson) RAN2
RAN action requested, LS answer drafted?
conclusion: LS will be treated under 10.4.6.1

Other topics:

RP-100712 Reply LS to RP-100693 on Introduction of CSG reselection requirements in RAN4 REL-8 LTE-L23, HNB-supp, LTE-UEConTest, HNB-UEConTestFDD
(R4-103460; to: RAN; cc: RAN2, RAN5, GERAN; contact: Nokia) RAN4

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no explicit RAN action requested; no LS answer?
conclusion: LS will be treated under 8.4.2

RP-100713 Reply LS to GCF SG LS S-10-103 = R5-104166 on RAN5 Terms of Reference - -
(R5-104673; to: GCF SG, PTCRB; cc: RAN; contact: RAN5 chairman, NTT DOCOMO) RAN5
no explicit RAN action requested; no LS answer?
conclusion: LS will be treated under 8.5.2

RP-100964 LS on draft RAN1 CRs for Carrier Aggregation, Enhanced Downlink Multiple Antenna Transmission and Uplink Multiple Antenna Transmission Work Items REL-10 LTE_CA, LTE_eDL_MIMO, LTE_UL_MIMO
(R1-105099; to: RAN2, RAN3, RAN4; cc: RAN; contact: Alcatel-Lucent) RAN1 LSin
no RAN action requested; no LS answer?
conclusion: noted, no LS answer to RAN1; CRs are only provided for information at RAN #49

7 ITU-R Ad hoc

7.1 Status report

RP-100721 Status Report ITU-R Ad hoc ITU-R Ad Hoc Contact (Telecom Italia) Report
conclusion: noted

RP-100704 LS on REVISION OF RECOMMENDATION ITU-R M.1580-3 AND M.1581-3 (WORKING DOCUMENT TOWARDS M.1580-4 AND M.1581-4) - -
(ITU-R WP5D/TEMP/349rev1; to: ext. organisations (3GPP); cc: -; contact: ITU-R WP5D Counsellor) ITU-R WP5D
related to out-of-band emission masks and spurious emission limits for IMT base stations and mobile stations;
conclusion: noted, LS answer drafted in RP-100709

RP-100709 LS on the response to ITU-R WP5D on "REVISION OF RECOMMENDATION ITU-R M.1580-3 AND M.1581-3 (WORKING DOCUMENT TOWARDS M.1580-4 AND M.1581-4)" - -
(R4-102796; to: RAN; cc: 3GPP TSG RAN ITU-R Ad Hoc; contact: Telecom Italia) RAN4
This is a reply LS drafted by RAN4 to the ITU-R WP5D LS in RP-100704;
discussion: Telecom Italia: proposing to add another sentence to second paragraph of the attachment (ACLR value band independent and handling of non IMT bands)
Motorola: needs to clarify justifaction for extra sentence
Telecom Italia: no need to bring this to PCG, as per Art.51 of the 3GPP WP
RAN chairman: since this is RAN specific we do not need approval of this communication with ITU-R in SA #49
conclusion: revised in RP-100970

RP-100970 Draft LS on the response to ITU-R WP5D on "REVISION OF RECOMMENDATION ITU-R M.1580-3 AND M.1581-3 (WORKING DOCUMENT TOWARDS M.1580-4 AND M.1581-4)" (to: ITU-R WP5D; contact: Telecom Italia) Telecom Italia LSout - -
is a revision of the attachment of RP-100709
conclusion: revised in RP-100997

RP-100997 LS on the response to ITU-R WP5D on "REVISION OF RECOMMENDATION ITU-R M.1580-3 AND M.1581-3 (WORKING DOCUMENT TOWARDS M.1580-4 AND M.1581-4)" (to: ITU-R WP5D; contact: Telecom Italia) RAN LSout
conclusion: approved, will be provided to ITU-R WP5D by 3GPP ITU-R ad hoc convener via Individual members

RP-100705 LS on REVISION OF REPORT ITU-R M.2039-1 AND WORK ON UHF SHARING STUDIES
(ITU-R WP5D/TEMP/367; to: ext. organisations (3GPP); cc: -; contact: ITU-R WP5D Counsellor) ITU-R WP5D

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related to CHARACTERISTICS OF TERRESTRIAL IMT-2000 SYSTEMS FOR FREQUENCY SHARING/INTERFERENCE ANALYSES;
conclusion: noted, LS answer drafted in RP-100710

RP-100710 LS on the response to ITU-R WP5D on "REVISION OF REPORT ITU-R M.2039-1 AND WORK ON UHF SHARING STUDIES" - -
(R4-102797; to: RAN; cc: 3GPP TSG RAN ITU-R Ad Hoc; contact: Telecom Italia) RAN4
This is a reply LS drafted by RAN4 to the ITU-R WP5D LS in RP-100705;
discussion: Telecom Italia: reference needs to be updated
conclusion: noted, no LS answer from RAN to RAN4; Telecom Italia will provide update of the attachment in RP-100971

RP-100971 LS on the response to ITU-R WP5D on "REVISION OF REPORT ITU-R M.2039-1 AND WORK ON UHF SHARING STUDIES" (to: ITU-R WP5D; contact: Telecom Italia) RAN LSout LS02 - -
conclusion: is a revision of the attachment of RP-100710; RP-100971 will be reviewed by SA and PCG and if no further comments RP-100971 is approved (RAN chairman will provide RP-100971 to SA/PCG and ITU-R ad hoc convener will take care of ITU-R submission via Individual members)

RP-100706 LS on THE SCHEDULE AND TECHNICAL AND ADMINISTRATIVE INPUTS FOR THE COMPLETION OF THE FIRST RELEASE OF RECOMMENDATION ITU-R M.[IMT.RSPEC]
(ITU-R WP5D/TEMP/358; to: ext. organisations (3GPP); cc: -; contact: ITU-R WP5D Counsellor) ITU-R WP5D
no explicit RAN action requested; related to completion of the terrestrial radio interface specifications planned for Recommendation ITU-R M;
conclusion: noted, no LS answer from RAN, OPs (the "3GPP Proponent") to fill in "Form A" and submit it to ITU-R by 06.10.2010

RP-100707 LS on FINAL IMT-ADVANCED EVALUATION REPORTS
(ITU-R WP5D/TEMP/392rev1; to: INDEPENDENT EVALUATION GROUPS; cc: IMT-ADVANCED TECHNOLOGY PROPONENTS (3GPP); contact: SWG chairman (Ericsson)) ITU-R WP5D
no RAN action requested;
conclusion: noted, no LS answer

7.2 Submission to ITU-R

Note: RAN #48 postponed the answer to 4 LSs received from ITU-R WP5A (see RP-100425, RP-100427, RP-100428, RP-100429) to consult 3GPP ad hoc group and GERAN (see RP-100669).

Reply to ITU-R WP5A LS received at RAN #48 in RP-100425:

RP-100717 Reply LS to RP-100669 on "communications from ITU-R WP5A" and to RT-100054 on "Mobile Wireless access systems providing telecommunications for a large number of ubiquitous sensors and/or actuators scattered over wide areas in the land mobile service"- -
(GP-101653; to: 3GPP TSG RAN ITU-R Ad Hoc; cc: RAN, SA1, SA2, RAN2; contact: Telecom Italia) GERAN
no explicit RAN action requested;
conclusion: noted, no LS answer from RAN to GERAN

RP-100871 Draft Response to ITU-R WP5A on “Mobile Wireless access systems providing telecommunications for a large number of ubiquitous sensors and/or actuators scattered over wide areas in the land mobile service” ITU-R Ad Hoc LSout REL-10 FS_NIMTC_RAN
LS reply proposal of 3GPP ITU-R Ad Hoc group to ITU-R WP5A, reviewed by SA1, SA2, RAN2, and GERAN LSin RP-100425 received at RAN #48; to be provided also to CT
discussion: RAN chairman: CT and SA need to review, RAN endorsement needed first
conclusion: Answer is endorsed by RAN (note: RP-100871 was later revised in RP-101019), CT & SA approval needed, Telecom Italia will draft an LS to CT in RP-100966 (final LS to be treated in CT on Wed)

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RP-100966 [Draft] LS on "Mobile Wireless access systems providing telecommunications for a large number of ubiquitous sensors and/or actuators scattered over wide areas in the land mobile service" (to: CT; cc: 3GPP RAN ITU-R ad hoc; contact: Telecom Italia) Telecom Italia LSout REL-10 FS_NIMTC_RAN
draft LS to CT to get ok for RP-100871 LSout to ITU-R WP5A
conclusion: revised in RP-100972 to provide final LSout to CT

RP-100972 LS on "Mobile Wireless access systems providing telecommunications for a large number of ubiquitous sensors and/or actuators scattered over wide areas in the land mobile service" (to: CT; cc: 3GPP RAN ITU-R ad hoc; contact: Telecom Italia) RAN LSout REL-10 FS_NIMTC_RAN
LS to CT to get ok for RP-100871 LSout to ITU-R WP5A,
conclusion: approved unseen, will be presented in CT on Wed afternoon

RP-101020 Reply to LS to RP-100972 on "Mobile Wireless access systems providing telecommunications for a large number of ubiquitous sensors and/or actuators scattered over wide areas in the land mobile service" (CP-100630; to: RAN; cc: SA; contact: Telecom Italia) CT LSin REL-10 FS_NIMTC_RAN
reply LS to RP-100972 asking to revise RP-100871; RAN action requested;
discussion: Telecom Italia: will not remove reference [1], all other changes will be included
conclusion: noted, no LS answer to CT, as a consequence RP-100871 will be revised in RP-101019

RP-101019 Draft Response to ITU-R WP5A on "Mobile Wireless access systems providing telecommunications for a large number of ubiquitous sensors and/or actuators scattered over wide areas in the land mobile service" Telecom Italia LSout REL-10 FS_NIMTC_RAN
revision of RP-100871 after having received CT feedback in RP-101020;
discussion:
conclusion: revised in RP-101023 to provide final version

RP-101023 Response to ITU-R WP5A on "Mobile Wireless access systems providing telecommunications for a large number of ubiquitous sensors and/or actuators scattered over wide areas in the land mobile service" RAN LSout REL-10 FS_NIMTC_RAN
conclusion: approved, RAN chairman will provide this document to SA #49 together with the RAN chairman's report
Telecom Italia: it is likely that SA will comment to add SA part and RP-101023 will be revised for approval in SA; but this can be done without further review in RAN.
ITU-R ad hoc convener will take care of ITU-R submission via Individual members.

Reply to ITU-R WP5A LS received at RAN #48 in RP-100427:

RP-100714 Reply LS to RP-100669 on "communications from ITU-R WP5A" and to RT-100055 on "REVISION WORK ON RECOMMENDATION ITU-R F.757-3 - Basic system requirements and performance objectives for fixed wireless access using mobile-derived technologies offering telephony and data communication service" - -
(GP-101448; to: 3GPP TSG RAN ITU-R Ad Hoc; cc: RAN; contact: Telecom Italia) GERAN
no RAN action requested;
conclusion: noted, no LS answer from RAN to GERAN

RP-100872 Draft Response to ITU-R WP5A on "REVISION WORK ON RECOMMENDATION ITU-R F.757-3 - Basic system requirements and performance objectives for fixed wireless access using mobile-derived technologies offering telephony and data communication service" ITU-R Ad Hoc LSout - -
LS reply proposal of 3GPP ITU-R Ad Hoc group (reviewed by GERAN) to ITU-R WP5A LSin RP-100427 received at RAN #48
conclusion: if no further comments from SA/PCG RP-100872 is the approved version that will be provided to ITU-R,
RAN chairman will provide it to SA & PCG for review, if no further comments from SA & PCG ITU-R ad hoc convener will transfer RP-100872 to ITU-R WP5A via Individual members

Reply to ITU-R WP5A LS received at RAN #48 in RP-100428:

RP-100873 Draft Response to ITU-R WP5A on "COMPATIBILITY OF BROADBAND WIRELESS ACCESS SYSTEMS AND FIXED-SATELLITE SERVICE NETWORKS IN THE 3400-4200 MHz BAND" ITU-R Ad Hoc LSout - -
LS reply proposal of 3GPP ITU-R Ad Hoc group (reviewed by RAN4) to ITU-R WP5A LSin RP-100428 received at RAN #48

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conclusion: approved, no need to provide this to SA for review, ITU-R ad hoc convener will provide RP-100873 to ITU-R WP5A via Individual members

Reply to ITU-R WP5A LS received at RAN #48 in RP-100429:
3GPP ITU-R ad hoc did not feel that any response is necessary to this ITU-R WP5A LS since this LS is focused on the fixed service.

RP-100870 Proposed Update Reminder for the OPs on the compliance with ITU-R procedures as it relates to Revision 10 of Recommendation ITU-R M.1457 ITU-R Ad Hoc Disc - -
conclusion: noted, ITU-R ad hoc's reminder for the OPs is confirmed by RAN;
RAN chairman will provide it to OPs as a reminder

RP-100930 Preparation and Structure of the LTE-Advanced Overview & Global Core Specification (GCS) Sections of Recommendation ITU-R M.[IMT.RSPEC] CATR, AT&T, CATT, CMCC, Ericsson, Huawei, ZTE Disc - -
discussion: RAN1 chairman: further updates on draft text is needed
conclusion: noted, structure is approved, text agreed as starting point;
finally RP-100930 was revised in RP-101006

RP-101006 Preparation and Structure of the LTE-Advanced Overview & Global Core Specification (GCS) Sections of Recommendation ITU-R M.[IMT.RSPEC] AT&T, CATR, CATT, CMCC, Ericsson, Huawei, ZTE Disc
revision of RP-100930
conclusion: noted, 3GPP ITU-R ad hoc will review this document and come back to RAN #50

RP-100939 3GPP schedule and deliverables in 2010 and 2011 for the initial release of Recommendation ITU-R M.[IMT.RSPEC] for IMT-Advanced and for Revision 10 of Recommendation ITU-R M.1457 for IMT-2000 AT&T, Telecom Italia, Ericsson, CATR, NTT DoCoMo Disc - -
conclusion: noted, timeplan is approved, chairman will report agreement to PCG

RP-100936 3GPP Specifications Required for the Global Core Specification (CGS) for LTE-Advanced in Rec. M.[IMT. RSPEC] AT&T, Telecom Italia, NTT DoCoMo, Ericsson Disc - -
discussion: RAN chairman: relay specs will be added as well; final list will be agreed in Dec. but this is a starting point
Motorola: do we need to create REL-10 specs in Dec.?
RAN chairman: if RAN #50 approve REL-10 CRs we will automatically create related REL-10 specs
MCC: all ITU-R related specs will be put under CR control in Dec., for specs not related to ITU-R we can still continue until March without putting them under CR control
RAN chairman: so all 36 series and 37 series specs are needed but not the 25 series specs
RAN3 chairman: remote electrical tilting 25 series spec (25.46x) also needed?
Telecom Italia: would be good to provide them as well
AT&T: would prefer to take this offline
Telecom Italia: document should be provided to CT as well so would be good to have the list stable by the end of the day
Motorola: would be also an approach to define a minimum set of specs to be submitted to ITU-R, might be especially easier for RAN4
RAN chairman: the final list of specifications will be decided at RAN #50 in Dec.
conclusion: noted, further offline discussion on the list of specs to be submitted to ITU-R
Updated list will be provided in RP-100974

RP-100974 3GPP Specifications Required for the Global Core Specification (CGS) for LTE-Advanced in Rec. M.[IMT. RSPEC] AT&T, Telecom Italia, NTT DoCoMo, Ericsson Disc - -
discussion: MCC: there is no 25.465 spec
RAN2 chairman: bit strange to include 25.331; when we submitted UMTS submission we did not include GSM specs
AT&T: we could indicate "to be confirmed at RAN #50" for the moment for this spec
RAN3 chairman: 25.463 was superseded, so you can remove 25.463, 25.464 and 25.465 from the list

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RAN2 chairman: 36.307 should be included as well? but it is empty
RAN4 chairman: we can check in Dec.
Telecom Italia: is 36.307 specific to carrier aggregation?
RAN4 chairman: no
RAN4 chairman: spec is empty since no new bands for REL-10 so far
Qualcomm: if we include 25.331 with tbc we should also consider 25.304 with tbc
RAN chairman: Tdoc is supposed to be submitted to CT and SA as well but we can indicate that this is a tentative information
Telecom Italia: for RAN WGs it is not tentative
Vodafone: we should also add 25.133 with tbc

conclusion: 25.463-25.465 will be removed, 25.133, 25.304, 25.331 will be added tbc, 36.307 will be added;
revised in RP-100982

RP-100982 3GPP Specifications Required for the Global Core Specification (CGS) for LTE-Advanced in Rec. M.[IMT. RSPEC] Telecom Italia, AT&T, NTT DoCoMo, Ericsson Disc - -
conclusion: approved unseen, to be provided to CT and SA (see RP-100983)

RP-100937 [Draft] LS on "Schedule, Structure, and Deliverables toward the completion of the first Release of Rec. ITU-R M.[IMT.RSPEC]" (to: CT, SA; cc: 3GPP ITU-R Ad Hoc; cc: -) Telecom Italia LSout - -
editorial issue to be fixed (IMT=>LTE) in final version

discussion: Telecom Italia: final version of RP-100974 will be attached to this LS; will change last sentence in action paragraph of the LS
SA chairman: necessary to create REL-10 versions of these SA/CT specs in Dec.2010?
Telecom Italia: no, not needed; you could point to REL-9 specs where needed
AT&T: RAN specs have to be at REL-10 level for transposition; system view information is also needed but for the related specs it is sufficient to provide an overview
Qualcomm: from RP-100936 discussion we assume now to include relaying in ITU-R submission but relaying was not part of simulation campaign and by this approach we raise priority of relay, we do not feel comfortable with this
RAN chairman: we need to distinguish RAN internal scheduling (relay status will be checked in Dec) and ITU-R submission (does not see it critical to include relay spec in GCS spec set)
Qualcomm: so we want to confirm that inclusion in the spec set does not raise priority of relay in WGs
RAN chairman: correct, we will review relay WI in Dec.
RAN4 chairman: xx.900 TRs also to be submitted to ITU-R?
Telecom Italia: no TRs need to be provided to ITU-R

conclusion: revised in RP-100975 by Telecom Italia to provide updated LS

RP-100975 [Draft] LS on "Schedule, Structure, and Deliverables toward the completion of the first Release of Rec. ITU-R M.[IMT.RSPEC]" (to: CT, SA; cc: 3GPP ITU-R Ad Hoc; cc: -) Telecom Italia LSout - -
conclusion: revised in RP-100983 to provide the final version (reference to RP-100974 will be updated to RP-100982)

RP-100983 LS on "Schedule, Structure, and Deliverables toward the completion of the first Release of Rec. ITU-R M.[IMT.RSPEC]" (to: CT, SA; cc: 3GPP ITU-R Ad Hoc; cc: -) Telecom Italia LSout
LS to CT and SA asking for review of RP-100706, RP-100930, RP-100939, RP-100982;
LS was sent out on Tue of RAN #49; RP-100983 will be presented in CT on Wed afternoon;
conclusion: approved unseen

RP-101021 Reply LS to RP-100983 on ITU-R M.[IMT.RSPEC] (CP-100643; to: RAN, SA; cc: -; contact: CT chairman (Nokia)) CT LSin - -
related to specification list in RP-100982; RAN action requested;
conclusion: noted, no LS answer to CT, MCC will provide the corresponding input

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8 RAN WGs: WG Status Reports & CR Approvals Rel-99 to REL-9

8.1 TSG RAN WG1

8.1.1 Report from RAN WG1 including report on actions required from the previous meeting

RP-100722 Status Report RAN WG1 RAN1 chairman (Alcatel-Lucent) Report

- RAN1 specs up to and including Rel-9 are very stable
- Rel-10 WIs of relevance to ITU remain on track and very substantial progress has been made
- Other lower-priority WIs for both LTE-A and HSPA are also being completed on schedule
- Work load in RAN1 remains very high, and is likely to remain so until December
- Very large attendance and numbers of contributions
- Extensive use made of parallel sessions and email discussions to keep progress efficient

discussion: RAN chairman: thanks to RAN1 and RAN1 chairman for the good progress
LG: difference in terminology (cell vs. CC)
RAN1 chairman: is already aligned
Panasonic: WI code on LTE CRs (provided by LS)?
RAN1 chairman: all 3 WI codes
conclusion: noted

RP-100723 List of CRs from RAN WG1 RAN1 Info
conclusion: noted

8.1.2 Discussions on decisions from RAN WG1

No contributions.

8.1.3 Approval of CRs to Rel-99, Rel-4, Rel-5, Rel-6 and Rel-7 with linked CRs

RP-100892 CRs to 25.211 to clarify PICH/HS-SCCH timing relation RAN1 CRset REL-7 RANimp-EnhState
conclusion: approved

RP-100893 CRs to 25.214 to clarify CQI definition in MIMO mode RAN1 CRset REL-7 MIMO-Phys
conclusion: approved

RP-100894 CRs to 25.214 to clarify E-AGCH/E-RGCH monitoring RAN1 CRset REL-7 RANimp-CPC
conclusion: approved

8.1.4 Approval of CRs to Rel-8

8.1.4.1 CRs for LTE [LTE-Phys]

No contributions.

8.1.4.2 Other Closed Work Items and Small Technical Enhancements and Improvements [TEI8]

RP-100895 CRs to 25.221 correcting E-DCH Physical Uplink Channel for LCRTDD RAN1 CRset REL-8 RANimp-L2DataRates

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conclusion: approved

RP-100896 CRs to 25.224 clarifying HS-DSCH transmission in CELL_PCH or URA_PCH state for LCRTDD RAN1 CRset REL-8 RANimp-EnhState1.28TDD
conclusion: approved

8.1.5 Approval of CRs to Rel-9

8.1.5.1 CRs related to LTE

RP-100899 CR to 36.212 to clarify LTE MBMS operation RAN1 CRset REL-9 MBMS_LTE
conclusion: approved

RP-100900 CR to 36.213 to clarify Extended CP support with Transmission Mode 8 RAN1 CRset REL-9 LTEimp-eDL
conclusion: approved

8.1.5.2 Other Closed Work Items and Small Technical Enhancements and Improvements [TEI9]

RP-100897 CRs to 25.212, 25.213 & 25.214 (Rel-9) to clarify uplink frequencies and the variable "Secondary_Cell_Active" RAN1 CRset REL-9 RANimp-DC_HSUPA
conclusion: approved

RP-100898 CR to 25.214 (Rel-9) to clarify the interruption time for DB-HSDPA due to HS-SCCH order (de)activation RAN1 CRset REL-9 RANimp-MultiBand-DC_HSDPA
conclusion: approved

8.1.6 Approval of linked CRs where the leading one originated from RAN WG1

No contributions.

8.2 TSG RAN WG2

8.2.1 Report from RAN WG2 including report on actions required from the previous meeting

RP-100724 Status Report RAN WG2 RAN2 chairman (Samsung) Report
- Rel-99,4,5,6,7: Still some activity on Enhanced CELL_FACH otherwise low activity
- Rel-8: Low activity
- Rel-9: UMTS: Low activity, LTE: CRs mainly on Positioning and TEI-9 (no ASN.1 backward incompatibility)
- Rel-10: Good progress on Rel-10 WIs, but still a lot of work to do for most WIs, RAN guidance requested w.r.t. RN testing & MTC activity for Rel-10

discussion: RAN3 chairman: for LCR TDD MC-HSUPA are postponed? we brought our CRs to RAN #49 but in this case we would postpone them to RAN #50 to bring all CRs together
RAN2 chairman: agrees
Panasonic: slide 23: relation to RAN1/RAN4?
RAN2 chairman: in general we should avoid dependencies of different WGs and taking different decisions
conclusion: noted

RP-100725 List of CRs from RAN WG2 RAN2 Info
conclusion: noted

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8.2.2 Discussions on decisions from RAN WG2

RP-100938 SRB Only PS Handover Ericsson, ST-Ericsson Disc REL-9 TEI9
related to RAN2 LS R2-105231 (sent to SA2, CT4; cc: RAN3, RAN5) and CRs R2-104945 and R2-105228 in RP-100851 (see 8.2.5.1); also related CT4 CR
Proposal: UEs supporting PS Handover to UTRA support also SRB-only PS Handover to UTRA.
discussion: RAN chairman: RAN2 meeting sent already LS to SA2
NSN: motivation in RAN2 (supported by network operators) was to reduce the number of options; this is an option for the UE so assuming that it would be supported in all UEs would be also against former agreements
Ericsson: removal of data radio bearers is already there so removing all is not a real additional functionality for the UE
NTT DOCOMO: supports removal of the feature, SRB only handover was also not among NGMN recommendations, other solutions could address the failure case
Ericsson: eNode B might not be aware of situation in RNC, redirect is not a nice solution for this case
NTT DOCOMO: from success rate point of view there should be no difference (maybe just some more delay)
Huawei: supports NTT DOCOMO position
Panasonic: IOT problem if this feature is not supported by most of the vendors?
Ericsson: we would support the feature
LG: supports NTT DOCOMO
Orange: prefers to stick to the RAN2 agreement to remove the feature
RAN chairman: majority wants to remove it, can we decide to stick to RAN2 decision?
Ericsson: could accept to stick to RAN2 decision (i.e. removal of SRB only PS Handover)
Alcatel-Lucent: any need to inform CT about this?
RAN2 chairman: we sent already RAN2 LS to CT4
MCC: CT4 will take SRB only handover removal into account (CR update planned)
conclusion: noted, RAN2 decision will be kept

8.2.3 Approval of CRs to Rel-99, Rel-4, Rel-5, Rel-6 and Rel-7 with linked CRs

RP-100840 RAN2 CRs for REL-7 WI Enhanced CELL_FACH State in FDD RAN2 CRset REL-7 RANimp-EnhState
conclusion: approved

RP-100841 RAN2 CRs for REL-7 WI Improved L2 support for high data rates RAN2 CRset REL-7 RANimp-L2dataRates
conclusion: approved

RP-100842 RAN2 CRs for REL-7 WI MIMO - Layer 2,3 aspects RAN2 CRset REL-7 MIMO-L23
conclusion: approved

RP-100843 RAN2 CRs for REL-7 WI 16QAM in HSUPA (FDD) RAN2 CRset REL-7 RANimp-16QamUplink
conclusion: approved

RP-100844 RAN2 CRs for REL-7 Small Technical Enhancements and Improvements RAN2 CRset REL-7 TEI7
conclusion: approved

8.2.4 Approval of CRs to Rel-8

8.2.4.1 CRs for LTE [LTE-L23]

RP-100845 RAN2 CRs for REL-8 WI LTE RAN2 CRset REL-8 LTE-L23
conclusion: approved

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8.2.4.2 Other Closed Work Items and Small Technical Enhancements and Improvements [TEI8]

RP-100846 RAN2 CRs for REL-8 WI Dual-Cell HSDPA operation on adjacent carriers RAN2 CR set REL-8 RANimp-DCHSDPA
conclusion: approved

RP-100847 RAN2 CRs for REL-8 WI 3.84 Mcps TDD MBSFN Integrated Mobile Broadcast RAN2 CR set REL-8 MBSFN-DOB
conclusion: approved

RP-100848 RAN2 CRs for REL-8 WI HSPA VoIP to WCDMA/GSM CS continuity RAN2 CR set REL-8 RANimp-HSPAVoIP
conclusion: approved

RP-100849 RAN2 CRs for REL-8 WI Enhanced Uplink for CELL_FACH State in FDD RAN2 CR set REL-8 RANimp-UplinkEnhState
conclusion: approved

RP-100850 RAN2 CRs for REL-8 Small Technical Enhancements and Improvements RAN2 CR set REL-8 TEI8
conclusion: approved

8.2.5 Approval of CRs to Rel-9

8.2.5.1 CRs related to LTE

RP-100851 RAN2 & RAN3 CRs for REL-9 Small Technical Enhancements and Improvements related to LTE RAN2 CR set REL-9 TEI9, LTE-L23
company contribution RP-100882 is providing missing cat.A REL-10 CR to R2-105216
conclusion: all approved apart from CRs R2-104945 and R2-105228 in RP-100851;
after RP-100938 discussion also R2-104945 and R2-105228 were approved so all CRs of RP-100851 were approved

RP-100882 CSFB summary Nokia Siemens Networks CR 36.300 0268 - A REL-10 TEI9, LTE-L23
36.300 cat.A REL-10 CR to REL-9 CR R2-105216 (see RP-100851) was missing after RAN2 #71, RP-100882 is providing it
conclusion: approved

RP-100852 RAN2 CRs for REL-9 WI Positioning Support for LTE RAN2 CR set REL-9 LCS_LTE
conclusion: approved

RP-100853 RAN2 & RAN3 CRs for REL-9 WI MBMS support in LTE RAN2 CR set REL-9 MBMS_LTE
conclusion: approved

RP-100854 RAN2 CRs for REL-9 WI Service Specific Access Control RAN2 CR set REL-9 TEI9, LTE-L23, SSAC
conclusion: approved

RP-100855 RAN2 CRs for REL-9 WI Home NB and Home eNB enhancements - RAN2 aspects RAN2 CR set REL-9 EHNB-RAN2
conclusion: approved

FGI bits for REL-9:

RP-100947 FGI settings in Rel-9 NTT DOCOMO, INC, Deutsche Telekom, AT&T, Telecom Italia, CMCC, TeliaSonera, Orange CR 36.331 0475 - F REL-9 TEI9, LTE-L23
company contribution
conclusion: revised in RP-101008

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RP-101008 FGI settings in Rel-9 NTT DOCOMO, INC, Deutsche Telekom, AT&T, Telecom Italia, CMCC, TeliaSonera, Orange CR36.3310475 1 F REL-9TEI9, LTE-L23
company contribution
conclusion: approved

RP-100929 Clarification of the meaning of FGI bit 1 and bit 2 for Rel-9 KDDI, Telecom Italia CR36.3310473 - F REL-9TEI9, LTE-L23
conclusion: revised in RP-100949 before the meeting

RP-100949 Clarification of the meaning of FGI bit 1 and bit 2 for Rel-9 KDDI, Telecom Italia CR36.3310473 1 F REL-9TEI9, LTE-L23
company contribution related to R2-104933; to be checked that R2-105234 of RP-100851 is not overlapping (in case of approval)
discussion: RAN chairman: conflict with RP-100949?
NTT DOCOMO: no, they are orthogonal
conclusion: withdrawn (proponents plan to bring a new CR to RAN after discussion of test cases for these features in RAN4)

RP-100943 FGI settings in Rel-9 KDDI CR36.3310474 - F REL-9TEI9, LTE-L23
conclusion: revised in RP-100948 before the meeting

RP-100948 FGI bits related to CDMA2000 in Rel-9 KDDI CR36.3310474 1 F REL-9TEI9, LTE-L23
company contribution also on FGI bit table as RP-100929 but on a different aspect
discussion: Telefonica: bit 19 is not clear since there is an "or"
RAN2 chairman: if any of these RATs is supported the bit should be set
RAN chairman: has to be clarified in case we approve the CR
conclusion: withdrawn

RP-100951 FGI bits in REL9 and REL9 UE CSG capabilities Nokia, ST Ericsson Disc REL-9 -
discussion: RAN chairman: NTT DOCOMO prepared a comparison paper in RP-100977
conclusion: noted

RP-100977 REL-8 FGI handling in REL-9 - proposed way forward NTT DOCOMO Inc. Disc REL-9TEI9, LTE-L23
discussion: NTT DOCOMO: independent KDDI proposals are not addressed
ST Ericsson: there seem to be different understandings about the meaning of the bits
NTT DOCOMO: original intention of FGI was early introduction of REL-8 in the market, e.g. longDRX can be mandated as it was already tested; operator's intention was not to set bits to 1 without being tested
Motorola: agrees with Nokia, ST-Ericsson paper (RP-100951), opinion about how many IOT possibilities?
NTT DOCOMO: operators agree that at least 2 IOT opportunities should be available
Qualcomm: same view as Nokia, ST-Ericsson, bit should only be set if there is IOT testing (but difficult to forsee the future); some IOT opportunities might exist earlier or later, a lot of information is needed to decide this (who are the vendors which commit to IOT testing?) so more transparency would be beneficial; proposes to have a table where UE and network vendors can commit there plans for IOT
RAN2 chairman: first way forward seems not be controversial so we might decide this already
Motorola: we need to agree on semantics first (what does it mean to set the bit), consistency of the features needed (not that one vendor supports one feature and another one a different one)
Verizon: criteria to set bit to 1 seems to be just to have 2 or more network vendors; did you check all vendors? information might be difficult to collect as it is touching companies' roadmaps; to RAN2 chairman's proposal: doesn't support this
Ericsson: we have not provided any information to this network vendor IOT view collection;
RAN chairman: topic to be postponed to offline discussion
NTT DOCOMO: 36.331 is already clear about what the setting of a bit to 1 means

offline discussion (rapporteur: RAN2 chairman):
Following sentences were suggested in the offline discussion on how to capture that certain FGI bits are expected to be set to TRUE by Rel-9 UE:

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Alternative 1: "A Rel-9 UE is expected to set the following bits to TRUE because sufficient IOT possibilities are expected to be available: x,y,z ...."

Alternative 2: "A rel-9 UE shall set the following bits to TRUE because sufficient IOT possibilities have been shown to exist: x,y,z ..."

Alternative 3: "A Rel-9 UE should have IOTed the following set of features (and thus set corresponding FGI bits to TRUE) because sufficient IOT possibilities are expected to be available: x,y,z...."

Alternative 3 seems to have the most support and should probably be used as basis in the continued offline discussion.

conclusion: Postponed to further offline discussion,
After offline discussion way forward update was provided in RP-101007

RP-101007 Way forward on REL-8 FGI handling in REL-9 NTT DOCOMO Inc. Disc REL-9 TEI9, LTE-L23

discussion: NTT DOCOMO: related CR in RP-101008
Sequans Communication: what about UEs supporting TDD bands?
NTT DOCOMO: also for those UEs the feature has to be implemented and tested
ST Ericsson: is a good way forward to categorise the feature groups according to their expected availability for testing. We have concerns that there is not "sufficient confidence" that testing could be available by the end of this year for bits 13, 25 and so we would prefer that they are set from A to B
ST Ericsson: is a good way forward, we would prefer that bits 13, 25 are set from A to B
NTT DOCOMO: giving the discussion of last evening and the number of companies have co-signed, we would like to keep the proposal as it is
Qualcomm: also supports the way forward, yesterday we were the only company that had concerns so we gave up, now it seems another company came up
Alcatel-Lucent: supports the way forward although we did not co-sign, was a very useful exercise
RAN chairman: can ST Ericsson accept the way forward as well?
ST Ericsson: we at least want to raise our concerns here; in addition we remind in general it's not just having UE implementations ready but also network implementations must be ready

conclusion: noted, way forward is approved

8.2.5.2 Other Closed Work Items and Small Technical Enhancements and Improvements [TEI9]

RP-100856 RAN2 CRs for REL-9 WI TxAA extension for non-MIMO UEs RAN2 CR set REL-9 RANimp-TxAA_nonMIMO
conclusion: approved

RP-100857 RAN2 CR for REL-9 WI Combination of DC-HSDPA with MIMO RAN2 CR 25.306 0273 - F REL-9 RANimp-DC_MIMO
conclusion: approved

RP-100858 RAN2 CRs on REL-9 WI Dual-Cell HSUPA RAN2 CR set REL-9 RANimp-DC_HSUPA
conclusion: approved

RP-100859 RAN2 CRs for REL-9 Small Technical Enhancements and Improvements RAN2 CR set REL-9 TEI9
conclusion: approved

8.2.6 Approval of linked CRs where the leading one originated from RAN WG2

RP-100883 RAN1 & RAN2 linked CRs for REL-7 WI Enhanced CELL_FACH State in FDD RAN2 CR set REL-7 RANimp-EnhState

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conclusion: package was at first approved but later it was detected that R2-105136 in this package was based on v10.0.0 instead of v10.1.0 (note: The changes of 25.308 from v10.0.0 to v10.1.0 do not affect the changes in R2-105136; nevertheless it was revised to correct this.)
so all CRs of the package except R2-105136 are approved;
a revision of R2-105136 is provided in RP-101000

RP-101000 Corrections to Enhanced CELL_FACH state for FDD Qualcomm Incorporated, Infineon Technologies CR 25.3080103 2 A REL-10 RANimp-EnhState
company contribution to replace R2-105136 in RP-100883 since it was based on v10.0.0 instead of v10.1.0
conclusion: approved

8.3 TSG RAN WG3

8.3.1 Report from RAN WG3 including report on actions required from the previous meeting

RP-100726 Status Report RAN WG3 RAN3 chairman (Qualcomm) Report

- Good stability of legacy releases: Very few Rel-8 UTRAN CRs, no Rel-8 E-UTRAN CR, Reduction of number of Rel-9 CRs w.r.t. to last quarter
- Overall good progress on Rel-10 items: One criticality: no convergence on HNB-to-HNB mobility enhancements; various solutions on the table (work currently progressing in parallel); if no compromise can be reached, then a vote may be required to determine which feature should be standardized in Rel-10

discussion: RAN3 chairman: LCR MC-HSUPA CRs will be provided to RAN #50 (mixed this up before)
Telecom Italia: slide 12: 3 options, can RAN give some guidance?
RAN3 chairman: RAN guidance is always welcome, if not available we might work on 3 options and bring them to RAN #50 for a voting
RAN chairman: this is related to HNB not home eNB so ITU-R submission is not affected
NEC: to premature to select one of the options at RAN #49 as further review is needed
conclusion: noted; preparations for a voting at RAN #50 will be made for enhanced HNB to HNB mobility

RP-100727 List of CRs from RAN WG3 RAN3 Info
conclusion: noted

8.3.2 Discussions on decisions from RAN WG3

RP-100961 A Way Forward for HNB-to-HNB enhanced mobility Alcatel-Lucent Disc REL-10 HNB_HENB_mob_enh-Core
discussion: RAN chairman: no long discussion planned on this we will rather shift the discussion to RAN3
NSN: fine to shift the topic back to RAN3
NEC: also supports to go back to RAN3
RAN chairman: if it cannot be solved, voting questions have to be prepared for RAN #50
conclusion: noted, topic shifted back to RAN3

8.3.3 Approval of CRs to Rel-99, Rel-4, Rel-5, Rel-6 and Rel-7 with linked CRs

No contributions.

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8.3.4 Approval of CRs to Rel-8

8.3.4.1 CRs for LTE [LTE-interfaces]

No contributions.

8.3.4.2 Other Closed Work Items and Small Technical Enhancements and Improvements [TEI8]

RP-100904 TEI8 CRs RAN3 CR set REL-8 TEI8
conclusion: approved

RP-100905 Other Rel-8 UTRAN CRs RAN3 CR set REL-8 RANimp-EnhState, RANimp-EnhState1.28TDD, RANimp-LCRCPC
conclusion: approved

8.3.5 Approval of CRs to Rel-9

8.3.5.1 CRs related to LTE

RP-100860 RAN3 CRs to RAN2 TS 36.300 on REL-9 Small Technical Enhancements and Improvements for LTE – eUTRAN Interfaces RAN2 CR 36.300 set REL-9 TEI9, LTE-interfaces
discussion: RAN3 chairman: also later checking with SA2 and CT1 needed
conclusion: approved

RP-100906 Rel-9 CRs related to LTE RAN3 CR set REL-9 LTE-interfaces, MBMS_LTE, LCS_LTE
conclusion: approved

8.3.5.2 Other Closed Work Items and Small Technical Enhancements and Improvements [TEI9]

RP-100907 TEI9 CRs for UTRAN RAN3 CR set REL-9 TEI9
conclusion: approved

RP-100908 TEI9 CRs for LTE RAN3 CR set REL-9 TEI9
conclusion: approved

RP-100909 Other Rel-9 UTRAN CRs RAN3 CR set REL-9 CP_LCRTDD, EHNB-RAN3, RANimp-DCHSDPA, RANimp-MultiBand_DC_HSDPA, RANimp-SrnsReloc
conclusion: approved

8.3.6 Approval of linked CRs where the leading one originated from RAN WG3

No contributions.

8.4 TSG RAN WG4

8.4.1 Report from RAN WG4 including report on actions required from the previous meeting

RP-100728 Status Report RAN WG4 RAN4 chairman (Fujitsu) Report
conclusion: revised in RP-100973
RP-100973 Status Report RAN WG4 RAN4 chairman (Fujitsu) Report

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conclusion: revised in RP-100979

RP-100979 Status Report RAN WG4 RAN4 chairman (Fujitsu) Report
conclusion: revised in RP-100980

RP-100980 Status Report RAN WG4 RAN4 chairman (Fujitsu) Report
discussion: MCC: slide 24: printing error, should say TR 25.968;
NEC: only if really final decision we use "approved"
conclusion: noted

RP-100729 List of CRs from RAN WG4 RAN4 Info
conclusion: noted

8.4.2 Discussions on decisions from RAN WG4

RP-100712 Reply LS to RP-100693 on Introduction of CSG reselection requirements in RAN4 REL-8 LTE-L23, HNB-supp, LTE-UEConTest, HNB-UEConTestFDD
(R4-103460; to: RAN; cc: RAN2, RAN5, GERAN; contact: Nokia) RAN4
no explicit RAN action requested; no LS answer?
discussion: RAN chairman: related to topic we had at RAN #49, CRs are already provided in this meeting, RAN2 CRs are already approved
Panasonic: RAN4 REL-8 & REL-9 CRs but RAN2 agreed only REL-9 CRs
NTT DOCOMO: RAN2 agreed REL-9 CRs with "magic sentence" (i.e. can be applied in earlier releases)
conclusion: noted, no LS answer

8.4.3 Approval of CRs to Rel99, Rel-4, Rel-5, Rel-6 and Rel-7 with linked CRs

RP-100913 CRs for the Maintenance of the UMTS rel-7 requirements RAN4 CR set REL-7 TEI7
conclusion: approved

8.4.4 Approval of CRs to Rel-8

8.4.4.1 CRs for LTE [LTE-RF]

RP-100914 CRs for the Maintenance of the LTE rel8 specifications core requirements RAN4 CR set REL-8 LTE-RF
conclusion: approved

RP-100915 CRs for the Maintenance of the LTE 36.133-rel8 specification performance requirements RAN4 CR 36.133 set REL-8 LTE-RF
conclusion: approved

RP-100916 CRs for the Maintenance of the LTE rel-8 specifications performance requirements RAN4 CR 36.101, 36.141 set REL-8 LTE-RF
conclusion: approved

RP-100917 CRs for the Maintenance of the Multicarrier and Multi RAT BS performance requirements - rel 8 RAN4 CR 36.141 set REL-8 LTE-RF
conclusion: approved

8.4.4.2 Other Closed Work Items and Small Technical Enhancements and Improvements [TEI8]

RP-100918 CRs for the Maintenance of the UMTS rel-8 requirements RAN4 CR set REL-8 TEI8
conclusion: approved

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8.4.5 Approval of CRs to Rel-9

8.4.5.1 CRs related to LTE

RP-100919 CRs for the Maintenance of the LTE rel-9 specifications core requirements RAN4 CR36.101, 36.133 set REL-9 LTE-RF
conclusion: approved

RP-100920 CRs for the Maintenance of the LTE rel-9 specifications Performance requirements RAN4 CR set REL-9 LTE-RF
conclusion: approved

RP-100926 CRs for Enhanced Dual-Layer transmission for LTE RAN4 CR36.101 set REL-9 LTEimp-eDL
conclusion: approved

8.4.5.2 Other Closed Work Items and Small Technical Enhancements and Improvements [TEI9]

RP-100711 LS on Status of the MSR Work Item REL-9 RInImp9-RFmulti
(R4-103395; to: GERAN1; cc: RAN; contact: Ericsson) RAN4
MSR = Multi-Standard Radio; no RAN action requested; no LS answer?
Note: 18 CRs for a closed REL-9 WI attached (performance part?); number of attachments listed in the LS does not fit with real attachments; corresponding GERAN reply LS see RP-100715
discussion: RAN4 chairman: attachments are correct, numbers of LSs in the LS body are wrong
conclusion: noted; no LS answer

RP-100715 Reply LS to R4-103395 = RP-100711 to "LS on Status of the MSR Work Item" REL-9 RF requirements for Multicarrier and Multi-RAT BS (GERAN part)
(GP-101560; to: RAN, RAN4; cc: ETSI TC MSG, ETSI TC MSG TFES; contact: Ericsson) GERAN1
no explicit RAN action requested; no LS answer?
discussion: RAN chairman: so all CRs provided by RAN4 were confirmed by GERAN
conclusion: noted; no LS answer

RP-100922 CRs for the Maintenance of the Multicarrier and Multi RAT BS core requirements - rel 9 RAN4 CR set REL-9 RInImp9-RFmulti
conclusion: approved

RP-100923 CRs for the Maintenance of the Multicarrier and Multi RAT BS performance requirements - rel 9 RAN4 CR set REL-9 RInImp9-RFmulti
conclusion: approved

RP-100921 CRs for the Maintenance of the UMTS rel-9 requirements RAN4 CR25.101 set REL-9 TEI9
conclusion: approved

RP-100924 CRs for HeNB/HNB inbound mobilities [EHNB-RAN2] RAN4 CR25.133, 36.133 set REL-9 EHNB-RAN2
conclusion: approved

RP-100925 CRs for New bands RAN4 CR set REL-9 TEI9
conclusion: approved

8.4.6 Approval of linked CRs where the leading one originated from RAN WG4

No contributions.

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8.5 TSG RAN WG5

8.5.1 Report from RAN WG5 including report on actions required from the previous meeting

RP-100730 Status Report RAN WG5 RAN5 Chairman (NTT DOCOMO) Report
conclusion: revised after presentation in RP-100996
RP-100996 Status Report RAN WG5 RAN5 Chairman (NTT DOCOMO) Report
provided after presentation of RP-100730 to do some corrections
conclusion: noted

RP-100731 List of CRs from RAN WG5 RAN5 Info
conclusion: revised in RP-100984
RP-100984 List of CRs from RAN WG5 RAN5 Info
conclusion: revised in RP-100999
RP-100999 List of CRs from RAN WG5 RAN5 Info
conclusion: noted

RP-100732 Status Report MCC TF160 (for Approval) MCC TF 160 Leader Report
discussion: Sharp: slide 6: only one UE available on band 40? or others available?
RAN5 chairman: for TDD 1 UE available for verification
Huawei: discrepancy of slide 2 with slide 8?
RAN5 chairman: test cases or man months? need to check home NB test case number
NSN: wish list does not include any new WIs/extension of scope?
RAN5 chairman: correct, based on current status, since we budget a year in advance extra money would be needed if new work is included
conclusion: approved, RAN chairman will report this to PCG

8.5.2 Discussions on decisions from RAN WG5

Slide 13 of RP-100730: GCF steering group sent an LS to RAN5 (see R5-104166, not sent to RAN) and answered in RP-100713 = R5-104673.

RP-100713 Reply LS to GCF SG LS S-10-103 = R5-104166 on RAN5 Terms of Reference - - (R5-104673; to: GCF SG, PTCRB; cc: RAN; contact: RAN5 chairman, NTT DOCOMO) RAN5
no explicit RAN action requested; no LS answer?
discussion: RIM: did RAN see the GCF LS
RAN5 chairman: no, but essential parts are included in this answer
AT&T: worried that we might see test for which there are no related RAN4 requirements
RAN5 chairman: used [1] as an example
Deutsche Telekom: RAN ToR only consider conformance testing so if we want to change the RAN5 ToR we would also need to change RAN ToR which requires PCG approval
conclusion: noted; finally an LS answer was sent in RP-101025; in addition to the LS reply RP-101025 also an LS was sent to GCF SG in RP-101024

RP-100802 RAN5 Terms of Reference (ToR) Scope Review RAN5 Chairman (NTT DOCOMO) Disc
This may result in a proposed change to RAN5 ToR
discussion: Sharp: current ToR does not include e2e but some basic tests seem to be done already so what is the addition that is needed
RAN5 chairman: the question is how tight we are limited to RAN4 requirements
Sharp: testing of integrity of the bearer seems to be possible already
RAN5 chairman: this depends on your view point
AT&T: did RAN5 discuss the possibility that RAN4 could derive requirements for which RAN5 could then provide the testing
RAN5 chairman: usually we follow the core specs provided, we did not discuss about what RAN4 could do
Nokia: we need to understand the details better to make sure that there is a benefit for the industry, we are actually not really talking about end-to-end; discussing the ToRs is a bit premature at the moment; we could indicate to GCF that we are studying the details

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Motorola: RAN5 is testing only a part of the core requirements, would extension of the ToR mean that RAN5 will also develop core requirements?
RAN5 chairman: it is not intended that RAN5 develops core requirements
RIM: supports Nokia, we should not change ToRs based on one new WI/request
RAN5 chairman: this was just an example
Qualcomm: agrees with Nokia, worried that the ToR change would be a big change and seems to be rather open ended
Samsung: similar to Nokia and Qualcomm we do not know what are the consequences/changes if we update the ToR, so we need to be able to estimate the effort
Nokia: ToRs changes are so generic that details are unclear
Telecom Italia: strong request from the industry (GCF) so it would be a risk for 3GPP if we do not address this issue appropriately
RAN5 chairman: GCF LS is supported by several operators but not many manufacturers
RIM: one thing is the GCF request which could be detached from ToR discussion; but maybe also RAN5 should clarify the activities they would plan in such a new area
RAN5 chairman: an example list (like considering video telephony) might not help too much
KDDI: maybe we need to check first if RAN ToR need to be changed then this has to be discussed at PCG
RAN chairman: it seems RAN ToR would be impacted
RAN5 chairman: test procedures (would reduce options) need to be distinguished from test cases
Sharp: we have to decide about anual budget for TTCN test cases so we also need to take care that we limit the scope
RAN5 chairman: does not see a relation between test procedures and TTCN test cases i.e no impact on the budget here
RAN chairman: if we have to go to PCG then funding is an important topic so this point has to be clarified
LG: impact on core specifications would have to be clarified
RAN5 chairman: difficult to answer but RAN5 does not intend to write core specifications, however it is difficult to predict that there is no impact to any other WG
Motorola: a WI would have to be very detailled to limit the scope and impacts on other WGs
Orange: operators run similar tests but everyone runs his own tests so there would be a benefit to harmonize
RAN5 chairman: there were not all operators in GCF but a number of operators; usually a bit careful with good ideas from companies who do not attend RAN5 or do not provide many contributions, so who will do the work?
AT&T: impact on RAN4 ToR? cost impact need to be checked, OTA was an example where we went a long road (do we want to bring this to RAN5 now as well?)
Nokia: details of the test cases needed
Clearwire: supports AT&T that open-ended ToR changes are dangerous, test procedures are usually implementation dependent and that's why they are done bilaterally so far; do we want to enter this area?
RAN5 chairman: doesn't want to come to a case where RAN5 debates whether operator A's configuration is better than the configuration of operator B
AT&T: danger of entering application layer aspects; we need the potential problems but we need to clarify the benefits
Telecom Italia: so far each operator has different requirements and there is some reluctance from the vendors to accept this
Vodafone: we see a benefit in extension of the RAN5 scope (although maybe some limitation is needed here), reasons for 3 years OTA work was since we had to agree on performance requirements

conclusion: noted

RP-100931 RAN5 ToR scope considerations Ericsson, ST-Ericsson Disc

proposal for update of latest RAN5 ToR in RP-070834 (RAN #38)

discussion: RAN chairman: understands that this is an example of modified RAN5 ToR under the assumption that we would agree to change RAN5 ToR which is not yet decided

conclusion: noted

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RAN chairman: there seem to be several concerns to change RAN5 ToR and there is also support for a change so it will be difficult to conclude, offline discussion in Wednesday morning coffee break

Way forward summarized by RAN5 chairman:
- RAN #49 cannot change RAN5 ToR since there is no consensus, so topic has to continue at RAN #50
- RAN5 chairman will draft an LS proposal to GCF indicating that an outcome is expected at RAN #50
- RAN5 cannot start related work but it would be useful that RAN5 provides an input to RAN #50 with potential examples of WIs (not for RAN5 agreement), so interested parties are invited to bring proposal
- companies are free to bring inputs to RAN #50 for
  - ToR should be changed for the following reasons....
  - ToR should not be changed for the following reasons ...

discussion:
AT&T: it might be a bit too early to indicate that a decision is expected from RAN #50 since if we need PCG involvement the process can take a bit longer
Nokia: could operators provide a list of test types so that we can understand what is lacking?
RAN5 chairman: LS will be a situation report
RIM: what is RAN5 expected to do at their next meeting?
RAN5 chairman: interested parties can submit WI proposals for information, this allows estimations of time and resources
RIM: do we need any more information from GCF?
Nokia: LS from RAN to RAN5 possible to make sure that everyone is aware of what is expected to do
RAN5 chairman: would like to avoid time consuming RAN5 discussions on whether ToR needs to be changed or not
conclusion: RAN5 chairman will draft LS to GCF SG in RP-100989
RIM will draft LS to RAN5 in RP-100990

RP-100989 Draft LS on RAN5 Terms of Reference Considerations (to: GCF SG; cc: RAN5, PTCRB; contact: NTT DOCOMO) RAN5 Chairman (NTT DOCOMO) LSout
discussion: AT&T: we are going beyond what we discussed before; just say request is beyond ToR and further information will follow; AT&T has a draft proposing this
Telecom Italia: request from GCF was not so clear so some clarification is needed, therefore we support the NTT DOCOMO proposal
Vodafone: if we do not indicate when we will conclude this would be a bit strange
RAN5 chairman: we could remove the attachment to RAN5
TeliaSonera: supports to provide GCF as much information as possible
Orange: does not think that the LS is bringing an extremely positive message to GCF so it is a balanced LS
AT&T: in LS we say it doesn't cover; so LS as it is would send a mixed message
conclusion: postponed to Friday; revised in RP-101017

RP-101017 Draft LS on RAN5 Terms of Reference Considerations (to: GCF SG; cc: RAN5, PTCRB; contact: NTT DOCOMO) RAN5 Chairman (NTT DOCOMO) LSout - -
discussion: RAN5 chairman: would like to attach this LS also to the LS to RAN5 (see RP-101018)
AT&T: would not like to attach this LS to GCF to the LS we will send to RAN5
AT&T: we are fine to attach RP-101025 (LS to RAN5)
MCC: we could also put GCF on cc for the LS RP-101025
RAN5 chairman: prefers to attach to keep the linking
conclusion: revised in RP-101024 to attach RP-101025 and provide final version

RP-101024 LS on RAN5 Terms of Reference Considerations (to: GCF SG; cc: RAN5, PTCRB; contact: NTT DOCOMO) RAN LSout - -
conclusion: approved

RP-100990 Draft reply LS to R5-104673 = RP-100713 on Request to RAN5 to analyse proposal for performance testing (to: RAN5; cc: -; contact: RIM) Research in Motion LSout
discussion: AT&T: our comments were ignored here; so we would like to have some offline discussion
RIM: sorry, the update was coming very late and we could have this offline discussion
Telecom Italia: comments from AT&T seem not be in line with the way forward we discussed before, so offline discussion is needed
conclusion: postponed to Friday, revised in RP-101018

RP-101018 Draft reply LS to R5-104673 = RP-100713 on Request to RAN5 to analyse proposal for performance testing (to: RAN5; cc: -; contact: RIM) Research in Motion LSout - -

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discussion: Samsung: action point 1: wonders if it useful to have this statement (prior coordinated input)
RAN5 chairman: wants to see in RAN5 a paper that is already coordinated since RAN5 has no time for long discussions
Samsung: there should be a contact/rapporteur for this in RAN5
Telecom Italia: prior coordination is useful, suggests that RAN5 chairman moderates this discussion on RAN5 reflector
RAN5 chairman: will report from RAN and inform RAN5 but it is up to proponents to do the work
Samsung: we volunteer to be the rapporteur for this discussion in RAN5
RAN5 chairman: will report this to RAN5
Nokia: main emphasis should be that we get all the inputs whether this is one or more Tdocs is less important
RAN5 chairman: we do not need to be too descriptive on how RAN5 will do the work; in next meeting we will dedicate time for this topic but we have still important LTE work to do
Vodafone: is the intention that RAN5 will already endorse a RAN5 WI (as they usually do) so that we avoid longer delays
RAN5 chairman: it is maybe not realistic that we agree already on a WI proposal but we try to clarify the implications so that RAN will be able to take decisions
RAN chairman: can inform PCG in October meeting about these discussions, PCG approval can done by correspondence so there should be no delay here (if we need to modify RAN ToR)
Vodafone: so at next RAN #50 we could agree a potential WI on this?
RAN chairman: can not promise this we need to see RAN5 discussions but you could prepare a proposal
Telecom Italia: will this topic be discussed at PCG?
RAN chairman: no discussion intended, just a status report
RAN5 chairman: we really need to see RAN5 discussions first to see whether it will be possible to agree a WI at RAN #50
KDDI: at first RAN ToR has to be modified which requires PCG approval only then we can modify RAN5 ToR; so it has to be discussed at PCG or it will be unrealistic that a WI can be approved at RAN #50
RAN chairman: correct, would then rather be a conditional endorsement

conclusion: revised in RP-101025

RP-101025 Reply LS to R5-104673 = RP-100713 on Request to RAN5 to analyse proposal for performance testing (to: RAN5; cc: -; contact: RIM) RAN LSout LS03 - -

conclusion: approved

8.5.3 Approval of CRs to Rel99, Rel-4, Rel-5, Rel-6 and Rel-7 with linked CRs

RP-100808 RAN5 agreed non TTCN CR(s) under WI Small Technical Enhancements and Improvements for Rel 99 Conformance Testing(TEI_Test) RAN5 CRset - - F R99 TEI_Test

discussion: RIM: clauses affected are empty on several CR cover sheets, request that RAN5 chairman pass this request (to fill out clauses affected) to RAN5

conclusion: approved

RP-100809 RAN5 agreed non TTCN CR(s) under WI Small Technical Enhancements and Improvements for Rel-5 Conformance Testing(TEI5_Test) RAN5 CRset - - F REL-5 TEI5_Test

conclusion: approved

RP-100810 RAN5 agreed non TTCN CR(s) under WI Small Technical Enhancements and Improvements for Rel 6 Conformance Testing(TEI6_Test) RAN5 CRset - - F REL-6 TEI6_Test

conclusion: approved

RP-100811 RAN5 agreed non TTCN CR(s) under WI Small Technical Enhancements and Improvements for Rel-7 Conformance Testing(TEI7_Test) RAN5 CRset - - F REL-7 TEI7_Test

conclusion: approved

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8.5.4 Approval of CRs to closed Rel-8 & REL-9 WIs

8.5.4.1 CRs for LTE [LTE-UEConTest_RF, LTE-UEConTest_SIG]

RP-100812 RAN5 agreed non TTCN CR(s) under WI LTE Terminal Radio Transmission and Reception Conformance Test Specifications (LTE-UEConTest_RF) (Batch 1) RAN5 CRset - - F REL-8 LTE-UEConTest_RF
conclusion: approved

RP-100813 RAN5 agreed non TTCN CR(s) under WI LTE Terminal Radio Transmission and Reception Conformance Test Specifications (LTE-UEConTest_RF) (Batch 2) RAN5 CRset - - F REL-8 LTE-UEConTest_RF
conclusion: approved

RP-100814 RAN5 agreed non TTCN CR(s) under WI LTE Terminal Radio Transmission and Reception Conformance Test Specifications (LTE-UEConTest_RF) (Batch 3) RAN5 CRset - - F REL-8 LTE-UEConTest_RF
conclusion: approved

RP-100815 RAN5 agreed non TTCN CR(s) under WI LTE Terminal Radio Transmission and Reception Conformance Test Specifications (LTE-UEConTest_RF) (Batch 4) RAN5 CRset - - F REL-8 LTE-UEConTest_RF
conclusion: withdrawn

RP-100816 RAN5 agreed non TTCN CR(s) under WI 3G LTE Terminal Protocol Conformance Test Specifications (LTE-UEConTest_SIG) (Batch 1) RAN5 CRset - - F REL-8 LTE-UEConTest_SIG
conclusion: approved

RP-100817 RAN5 agreed non TTCN CR(s) under WI 3G LTE Terminal Protocol Conformance Test Specifications (LTE-UEConTest_SIG) (Batch 2) RAN5 CRset - - F REL-8 LTE-UEConTest_SIG
conclusion: approved

RP-100818 RAN5 agreed non TTCN CR(s) under WI 3G LTE Terminal Protocol Conformance Test Specifications (LTE-UEConTest_SIG) (Batch 3) RAN5 CRset - - F REL-8 LTE-UEConTest_SIG
conclusion: approved

RP-100819 RAN5 agreed non TTCN CR(s) under WI 3G LTE Terminal Protocol Conformance Test Specifications (LTE-UEConTest_SIG) (Batch 4) RAN5 CRset - - F REL-8 LTE-UEConTest_SIG
conclusion: approved

RP-100885 Introduction of default message contents for HRPD overhead messages Anite, R&S, Anritsu, MCC TF160 CR36.5080165 - F REL-9 LTE-UEConTest_SIG
company contribution as an update of R5-105035 (which is not provided in RAN5 packages)
discussion: RAN5 chairman: was distributed on RAN reflector
conclusion: approved

RP-100940 Correction of status for RF performance test case Anritsu CR36.521-1 0351 - F REL-9 LTE-UEConTest_RF
conclusion: wrong CR0351 was allocated instead of CR0352, therefore see RP-100987;
note: CR database shows CR0352 for RP-100940 to avoid any mixing up with R5-105065 in RP-100813 which is the correct CR0351;
reissued in RP-100987

RP-100987 Correction of status for RF performance test case Anritsu CR36.521-1 0352 - F REL-9 LTE-UEConTest_RF
company contribution to complete test case; CR number corrected
conclusion: approved

RP-100941 Correction of status for RRM test cases and missing information in Annex Anritsu CR36.521-3 0254 - F REL-9 LTE-UEConTest_RF
company contribution to complete test case
conclusion: approved

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RP-100998 RAN5 agreed non TTCN CR(s) under WI Conformance test aspects – LTE TDD in 2600MHz for US (LTE_TDD_2600_US-UEConTest) RAN5 CR set - - F REL-10 LTE_TDD_2600_US-UEConTest
conclusion: approved

8.5.4.2 Other Closed Work Items and Small Technical Enhancements and Improvements [TEI8_Test, TEI9_Test]

RP-100820 RAN5 agreed non TTCN CR(s) under WI Small Technical Enhancements and Improvements for Rel-8 Conformance Testing(TEI8_Test) RAN5 CR set - - F REL-8 TEI8_Test
conclusion: revised in RP-100985 to correct CR cover

RP-100985 RAN5 agreed non TTCN CR(s) under WI Small Technical Enhancements and Improvements for Rel-8 Conformance Testing(TEI8_Test) RAN5 CR set - - F REL-8 TEI8_Test
conclusion: approved

RP-100821 RAN5 agreed non TTCN CR(s) under WI Small Technical Enhancements and Improvements for Rel-9 Conformance Testing(TEI9_Test) RAN5 CR set - - F REL-9 TEI9_Test
conclusion: revised in RP-100986 to correct spec and CR number for R5-105056

RP-100986 RAN5 agreed non TTCN CR(s) under WI Small Technical Enhancements and Improvements for Rel-9 Conformance Testing(TEI9_Test) RAN5 CR set - - F REL-9 TEI9_Test
conclusion: approved

RP-100822 RAN5 agreed non TTCN CR(s) under WI Non-modem procedures of eCall sessions in UTRA (UMTS_eCall_UEConTest) RAN5 CR set - - F REL-8 UMTS_eCall_UEConTest
conclusion: approved

8.5.5 Approval of linked CRs where the leading one originated from RAN WG5

RP-100823 CR to 34.123-3: Add new verified and e-mail agreed TTCN test cases in the TC lists in 34.123-3 (prose), Annex A RAN5 CR 34.123-3 2816 - F REL-8 TEI8_Test
conclusion: approved

RP-100824 CR to 34.123-3: Add new verified and e-mail agreed TTCN test cases in the TC lists in 34.123-3 (TTCN), Annex A RAN5 CR 34.123-3 set - - REL-8 TEI8_Test
TTCN batch; 20 Test Cases
conclusion: approved

RP-100825 CR to 34.229-3 (prose) update to v850 RAN5 CR 34.229-3 - - F REL-8 TEI8_Test
conclusion: withdrawn

RP-100826 CR to 36.523-3: Add new verified and e-mail agreed TTCN test cases in the TC lists in 36.523-3 (prose), Annex A RAN5 CR 36.523-3 0146 - F REL-8 LTE-UEConTest_SIG
conclusion: approved

RP-100827 CR to 36.523-3: Add new verified and e-mail agreed TTCN test cases in the TC lists in 36.523-3 (TTCN), Annex A RAN5 CR 36.523-3 set - - REL-8 LTE-UEConTest_SIG, LTE-UEConTest_RF
TTCN batch; 154 Test Cases
conclusion: approved

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9 Open Conformance Testing Work Items (Rel-8 and beyond)

9.1 Conformance test aspects – UMTS-LTE 3500

9.1.1 Conformance test aspects – LTE 3500 [420013, LTE-UEConTest_LTE3500, 12/2010]

RP-100733 Status report for WI Conformance test aspects – LTE 3500, rapporteur : Ericsson RAN5 Report REL-10 LTE-UEConTest_LTE3500
420013, WID: RP-080859; RAN #48: 4%, Dec.10;
proposal: 5%, Dec.10;
discussion: RAN5 chairman: we will review completion date next time
conclusion: noted, approved: 5%, Dec.10

9.1.2 Conformance test aspects – UMTS 3500 [420014, RInImp-UEConTest_UMTS3500, 12/2010]

RP-100734 Status report for WI Conformance test aspects – UMTS 3500, rapporteur : Nokia RAN5 Report REL-10 RInImp-UEConTest_UMTS3500
420014, WID: RP-080870; RAN #48: 4%, Dec.10;
proposal: 5%, Dec.10;
discussion: RAN chairman: we will keep target date for the moment and RAN5 will review
conclusion: noted, approved: 5%, Dec.10

9.2 Conformance Test Aspects – Enhanced CELL_FACH State in LCR TDD [440009, RANimp-UEConTest_EnhancedCellFACHStateLCRTDD, 09/2010]

RP-100735 Status report for WI Conformance Test Aspects – Enhanced CELL_FACH State in LCR TDD, rapporteur : CATT RAN5 Report REL-8 RANimp-UEConTest_EnhancedCellFACHStateLCRTDD
440009, WID: RP-090490; RAN #48: 75%, Sep.10;
proposal: 100%, Sep.10;
conclusion: noted, approved: 100%, Sep.10, WI completed/closed

RP-100828 RAN5 agreed non TTCN CR(s) under WI Conformance Test Aspects – Enhanced CELL_FACH State in LCR TDD (RANimp-UEConTest_EnhancedCellFACHStateLCRTDD) RAN5 CRset - - F REL-8 RANimp-UEConTest_EnhancedCellFACHStateLCRTDD
conclusion: approved

9.3 Conformance Test Aspects – UMTS/LTE in 800 MHz for Europe [440007, RInImp-UEConTest-UMTSLTE800EU, 09/2010]

RP-100736 Status report for WI Conformance Test Aspects – UMTS/LTE in 800 MHz for Europe, rapporteur : Ericsson RAN5 Report REL-9 RInImp-UEConTest-UMTSLTE800EU
440007, WID: RP-090485; RAN #48: 85%, Sep.10;
proposal: 100%, Sep.10;
conclusion: noted, approved: 100%, Sep.10, WI completed/closed

RP-100829 RAN5 agreed non TTCN CR(s) under WI Conformance Test Aspects – UMTS/LTE in 800 MHz for Europe (RInImp-UEConTest-UMTSLTE800EU)) RAN5 CRset - - F REL-9 RInImp-UEConTest-UMTSLTE800EU
conclusion: approved

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9.4 Conformance Test Aspects – 1.28Mcps TDD Improved L2 support for high data rates [440010, RANimp-UEConTest_ImprovedL2LCRTDD, 09/2010]

RP-100737 Status report for WI Conformance Test Aspects – 1.28Mcps TDD Improved L2 support for high data rates, rapporteur : CATT RAN5 Report REL-8 RANimp-UEConTest_ImprovedL2LCRTDD
440010, WID: RP-090491; RAN #48: 75%, Sep.10;
proposal: 100%, Sep.10;
conclusion: noted, approved: 100%, Sep.10, WI completed/closed

RP-100830 RAN5 agreed non TTCN CR(s) under WI Conformance Test Aspects – 1.28Mcps TDD Improved L2 support for high data rates (RANimp-UEConTest_ImprovedL2LCRTDD) RAN5 CRset - - F REL-8 RANimp-UEConTest_ImprovedL2LCRTDD
conclusion: approved

9.5 Conformance Test Aspects – Mobility management based on DSMIPv6 (Dual-Stack Mobile IPv6) [450022, DSMIPv6_UEConTest, 09/2010]

RP-100738 Status report for WI Conformance Test Aspects – Mobility management based on DSMIPv6 (Dual-Stack Mobile IPv6), rapporteur : Qualcomm RAN5 Report REL-8 DSMIPv6_UEConTest
"450022, WID: RP-090754;
RAN #48: 85%, Sep.10;
proposal: 100%, Sep.10;
conclusion: noted, approved: 100%, Sep.10, WI completed/closed

RP-100831 RAN5 agreed non TTCN CR(s) under WI Conformance Test Aspects – Mobility management based on DSMIPv6 (DSMIPv6_UEConTest) RAN5 CRset - - F REL-8 DSMIPv6_UEConTest
conclusion: approved

9.6 Conformance Test Aspects – Continuous Connectivity for packet data users for 1.28 Mcps TDD [450024, RANimp-UEConTest_CPCLCRTDD, 09/2010]

RP-100739 Status report for WI Conformance Test Aspects – Continuous Connectivity for packet data users for 1.28 Mcps TDD, rapporteur : ZTE RAN5 Report REL-8 RANimp-UEConTest_CPCLCRTDD
450024, WID: RP-090751; RAN #48: 75%, Sep.10;
proposal: 100%, Sep.10;
conclusion: noted, approved: 100%, Sep.10, WI completed/closed

RP-100832 RAN5 agreed non TTCN CR(s) under WI Conformance Test Aspects – Continuous Connectivity for packet data users for 1.28 Mcps TDD (RANimp-UEConTest_CPCLCRTDD) RAN5 CRset - - F REL-8 RANimp-UEConTest_CPCLCRTDD
conclusion: approved

9.7 Conformance test aspects – Mobility between 3GPP WLAN Interworking and 3GPP Systems [460006, IWLAN_Mob_UEConTest, 09/2010]

RP-100740 Status report for WI Conformance test aspects – Mobility between 3GPP WLAN Interworking and 3GPP Systems, rapporteur : Qualcomm RAN5 Report REL-8 IWLAN_Mob_UEConTest
460006, WID: RP091349; RAN #48: 75%, Sep.10;
proposal: 100%, Sep.10;
conclusion: noted, approved: 100%, Sep.10, WI completed/closed

RP-100833 RAN5 agreed non TTCN CR(s) under WI Conformance test aspects – Mobility between 3GPP WLAN Interworking and 3GPP Systems (IWLAN_Mob_UEConTest) RAN5 CRset - - F REL-8 IWLAN_Mob_UEConTest

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conclusion: approved

9.8 Conformance test part: Fixed Wireless Customer-Premises Equipment (CPE) RF Requirements [460210, FW_CPE_RF-UEConTest, 12/2010]

RP-100741 Status report for WI Test part: Fixed Wireless Customer-Premises Equipment (CPE) RF Requirements, rapporteur : Verizon RAN5 Report REL-10 FW_CPE_RF-UEConTest
460210, WID: RP-091432; RAN #48: 0%, Dec.10;
proposal: 0%, June 11;
discussion: RAN5 chairman: we are waiting for RAN4, is there RAN4 progress?
Verizon: yes, there is
Motorola: RAN4 is hghly loaded at the moment
conclusion: noted, approved: 0%, June 11

9.9 Conformance Test Aspects – Support for IMS Emergency Calls over LTE [470017, IMS_EMER_LTE_UEConTest, 09/2010]

RP-100742 Status report for WI Conformance Test Aspects – Support for IMS Emergency Calls over LTE, rapporteur : Ericsson RAN5 Report REL-9 IMS_EMER_LTE_UEConTest
470017, WID: RP-100118; RAN #48: 5%, Sep.10;
proposal: 50%, Dec. 10;
conclusion: noted, approved: 50%, Dec. 10

RP-100834 RAN5 agreed non TTCN CR(s) under WI Conformance test aspects – Support for IMS Emergency Calls over LTE (IMS_EMER_LTE_UEConTest) RAN5 CR set - - F REL-9 IMS_EMER_LTE_UEConTest
conclusion: approved

9.10 Conformance Test Aspects – LTE Positioning [470018, LCS_LTE_UEConTest, 03/2011]

RP-100743 Status report for WI Conformance Test Aspects – LTE Positioning, rapporteur : Alcatel-Lucent RAN5 Report REL-9 LCS_LTE_UEConTest
470018, WID: RP-100617; RAN #48: 15%, March 11;
proposal:40%, March 11;
discussion:
conclusion: noted, approved: 40% March 11

RP-100835 RAN5 agreed non TTCN CR(s) under WI Conformance test aspects – LTE Positioning (LCS_LTE_UEConTest) RAN5 CR set - - F REL-9 LCS_LTE_UEConTest
conclusion: approved

9.11 AGNSS test case development for UMTS [New WI: 480018, AGNSSTest_UTRAN, 03/2011]

RP-100744 Status report for WI AGNSS test case development for UMTS, rapporteur : Thales RAN5 Report REL-10 AGNSSTest_UTRAN
480018, WID: RP-100609; RAN #48: 0%, March 11;
proposal: 50%, March 11;
presented by Alcatel-Lucent on behalf of Thales
conclusion: noted, approved: 50%, March 11

RP-100836 RAN5 agreed non TTCN CR(s) under WI Conformance test aspects – AGNSS test case development for UMTS (AGNSSTest_UTRAN) RAN5 CR set - - F REL-10 AGNSSTest_UTRAN
conclusion: approved

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RP-100861 RAN5 CR to RAN2 TS 34.109 for REL-10 WI AGNSS test case development for UMTS RAN2 CR 34.1090044 - F REL-10 AGNSSTest_UTRAN
conclusion: approved

9.12 UE conformance test part: LTE TDD in 2600MHz for US

[New WI: 480019, LTE_TDD_2600_US-UEConTest, 03/2011]

RP-100745 Status report for WI UE conformance test part: LTE TDD in 2600MHz for US, rapporteur : Clearwire RAN5 Report REL-10 LTE_TDD_2600_US-UEConTest
480019, WID: RP-100615; RAN #48: 0%, March 11;
proposal: 5%, March 11;
discussion: Cleawire: since RAN4 progressed well we can keep the RAN5 target date
conclusion: noted, approved: 5%, March 11

RP-100837 RAN5 agreed non TTCN CR(s) under WI Conformance test aspects – LTE TDD in 2600MHz for US (LTE_TDD_2600_US-UEConTest) RAN5 CRset - - F REL-10 LTE_TDD_2600_US-UEConTest
conclusion: CR package was approved in the first place but later revised in RP-100998 as wrong WI code led to wrong title and agenda item, see 8.5.4.1

9.13 Conformance Test Aspects - CT1 aspects of IMS Emergency Calls over GPRS and EPS

[New WI: 480029, IMS_EMER_GPRS_EPS_UEConTest, 03/2011]

RP-100746 Status report for WI Conformance Test Aspects - CT1 aspects of IMS Emergency Calls over GPRS and EPS, rapporteur : Samsung RAN5 Report REL-9 IMS_EMER_GPRS_EPS_UEConTest
480029, WID: RP-100567; RAN #48: 0%, March 11;
proposal: 10%, March 11;
conclusion: noted, approved: 10%, March 11

RP-100838 RAN5 agreed non TTCN CR(s) under WI Conformance Test Aspects – CT1 aspects of IMS Emergency Calls over GPRS and EPS (IMS_EMER_GPRS_EPS_UEConTest) RAN5 CRset - - F REL-9 IMS_EMER_GPRS_EPS_UEConTest
conclusion: approved

9.14 Conformance Test Aspects: Small Technical Enhancements and Improvements for Rel-9 [TEI9_Test]

RP-100839 RAN5 agreed non TTCN CR(s) under WI Conformance Test Aspects – Small Technical Enhancements and Improvements for Rel-9 (TEI9_Test) RAN5 CRset - - F REL-9 TEI9_Test
conclusion: withdrawn (not available)

10 Work Items with target Rel-10 and beyond (not related to conformance testing)

10.1 Closed REL-10 work items and TEI10 CRs

10.1.1 1.28 Mcps TDD Repeater [380077, RANimp-Repeaters1.28TDD, 03/2010]

No contributions.

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10.1.2 1.28Mcps TDD Home NodeB RF requirements

10.1.2.1 Core part [460114, HNB_LCRTDD_RF-Core, 06/2010]

No contributions.

10.1.3 Performance Requirements for two-antenna 1.28Mcps TDD Type 1 & 2 UE receiver

10.1.3.1 Core part [470113, 2ant_UE_LCR_TDD-Core, 06/2010]

No contributions.

10.1.4 Small Technical Enhancements and Improvements for Rel-10 [TEI10]

RP-100862 RAN2 CRs for REL-10 Small Technical Enhancements and Improvements RAN2 CRset REL-10 TEI10
conclusion: approved

RP-100910 TEI10 CRs (linked package with a RAN2 CR) RAN3 CRset REL-10 TEI10
conclusion: approved

10.2 Open UTRA related WIs

10.2.1 AGNSS Minimum Performance for UTRAN [450027, AGNSSPerf_UTRAN, 09/2010]

RP-100747 Status report for WI AGNSS Minimum Performance for UTRAN, rapporteur : Thales RAN4 Report REL-10 AGNSSPerf_UTRAN
450027, WID: RP-100363; RAN #48: 80%, Sep.10;
proposal: 95%, Dec. 10;
presented by Alcatel-Lucent on behalf of Thales
conclusion: noted, approved: 95%, Dec. 10

10.2.2 1.28Mcps TDD Multi-carrier HSUPA [450019, TDD_MC_HSUPA, 12/2010]

RP-100748 Status report for WI 1.28Mcps TDD Multi-carrier HSUPA, rapporteur : CATR RAN1 Report REL-10 TDD_MC_HSUPA
450019, WID: RP-090990; RAN #48: 50%, Dec.10;
proposal: 75%, Dec.10;
presented by CATT on behalf of CATR
conclusion: noted, approved: 75%, Dec.10

RP-100901 Set of CRs for the introduction of MC HSUPA feature RAN1 CRset REL-10 TDD_MC_HSUPA
discussion: Qualcomm: we should follow the usual procedure to approve RAN1, RAN2, RAN3 CRs together
RAN chairman: should we postpone the approval of the CRs to RAN #50
conclusion: CR package is postponed to RAN #50 to approve RAN1, RAN2, RAN3 CRs together

10.2.3 UE Over the Air (Antenna) conformance testing methodology- Laptop Mounted Equipment Free Space test [450016, UEAnt_FSTest, 09/2011]

RP-100749 Status report for WI UE Over the Air (Antenna) conformance testing methodology- Laptop Mounted Equipment Free Space test, rapporteur : CATR RAN4 Report REL-10 UEAnt_FSTest

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450016, WID: RP-090778; RAN #48: 35%, Sep.11;
proposal: 45%, Sep.11;
presented by ZTE on behalf of CATR
conclusion: noted, approved: 45%, Sep.11

10.2.4 1.28Mcps TDD Home NodeB RF requirements

Note: Core part already completed (see 10.1.2.1)

10.2.4.1 Performance part [460214, HNB_LCRTDD_RF-Perf, 12/2010]

RP-100750 Status report for WI Perf. part: 1.28Mcps TDD Home NodeB RF requirements, rapporteur : TD Tech RAN4 Report REL-10 HNB_LCRTDD_RF-Perf
460214, WID: RP-100607; RAN #48: 20%, Dec.10;
proposal: 50%, Dec.10;
conclusion: noted, approved: 50%, Dec. 10

10.2.5 Four carrier HSDPA

RP-100886 Revised WID for Four carrier HSDPA Qualcomm Inc WID REL-10 4C_HSDPA-Core
revision of WID RP-091438 to include RAN4 TR (see RP-100887)
discussion: RAN chairman: request for TR 25.8xx
Qualcomm: RAN4 has not yet seen the TR, can we bring it for approval?
MCC: if everyone is fine with this
Samsung: was it agreed in RAN4 to bring it for approval?
RAN4 chairman: is a skeleton so far in RAN4
Ericsson: TR was not presented for agreement in RAN4, maybe we can approve it at RAN next time
RAN4 chairman: suggests to provide TR for approval at next RAN meeting
Sharp: strange that rapporteur is bringing spec for approval without agreement by WG and without TR number
conclusion: specification manager allocated TR 25.864
specification manager: now only 1 number left in 25.8xx series;
WID is revised in RP-100991 to add TR number and change target date for TR

RP-100991 Revised WID for Four carrier HSDPA Qualcomm Inc WID REL-10 4C_HSDPA-Core
conclusion: approved (unseen)

10.2.5.1 Core part [460115, 4C_HSDPA-Core, 12/2010]

RP-100751 Status report for WI Core part: Four carrier HSDPA, rapporteur : Qualcomm RAN1 Report REL-10 4C_HSDPA-Core
460115, WID: RP-091438; RAN #48: 60%, Dec.10;
proposal: 80%, Dec.10;
discussion:
conclusion: noted, approved: 80%, Dec.10

RP-100902 Set of CRs for the introduction of 4C HSDPA feature RAN1 CRset REL-10 4C_HSDPA
conclusion: approved

RP-100863 RAN2 CRs for REL-10 WI Core part: Four carrier HSDPA RAN2 CRset REL-10 4C_HSDPA-Core
conclusion: approved

RP-100911 Four carrier HSDPA CRs RAN3 CRset REL-10 4C_HSDPA-Core
conclusion: approved

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RP-100887 TR 25.9xx v2.0.0 on Downlink Configurations for 4C-HSDPA (for approval) Qualcomm Inc TR 25.9xx REL-10 4C_HSDPA-Core
RAN4 TR 25.9xx on 4C-HSPDA band combinations is provided for approval
conclusion: withdrawn

10.2.5.2 Performance part [460215, 4C_HSDPA-Perf, 06/2011]

RP-100752 Status report for WI Perf. part: Four carrier HSDPA, rapporteur : Qualcomm RAN4 Report REL-10 4C_HSDPA-Perf
460215, WID: RP-091438; RAN #48: 5%, June 11;
proposal: 10%, May 11;
conclusion: noted, approved: 10%, June 11

10.2.6 Inclusion of "RF Pattern Matching Technologies" as positioning method in the UTRAN

10.2.6.1 Core part [460105, LCS_UMTS_RFPMT-Core, 12/2010]

RP-100753 Status report for WI Inclusion of "RF Pattern Matching Technologies" as positioning method in the UTRAN, rapporteur : Polaris Wireless RAN2 Report REL-10 LCS_UMTS_RFPMT-Core
460105, WID: RP-091427; RAN #48: 0%, Dec.10;
proposal: 70%, Dec.10;
discussion: RAN chairman: history of RAN #47, RAN #48 missing, add this next time
RAN3 chairman: stage 3 will be done in RAN3?
Polaris Wireless:
conclusion: noted, approved: 70%, Dec. 10

RP-100864 RAN2 CR for REL-10 WI Core part: Inclusion of RF Pattern Matching Technologies as positioning method in the UTRAN RAN2 CR25.3050119 1 B REL-10 LCS_UMTS_RFPMT-Core
conclusion: approved

10.2.7 Enhanced Interference Management for Home NodeBs

10.2.7.1 Core part [470106, HNB_IM-Core, 03/2011]

RP-100754 Status report for WI Core part: Enhanced Interference Management for Home NodeBs, rapporteur : Qualcomm RAN3 Report REL-10 HNB_IM-Core
470106, WID: RP-100392; RAN #48: 10%, March 11;
proposal: 100%, March 11;
conclusion: noted, approved: 100%, Sep.10; WI closed as concluded that there is no impact on specifications.

10.2.8 MU-MIMO for 1.28Mcps TDD

10.2.8.1 Core part [470112, MUMIMO_LCR_TDD-Core, 12/2010]

RP-100755 Status report for WI Core part: MU-MIMO for 1.28Mcps TDD, rapporteur : CATT RAN1 Report REL-10 MUMIMO_LCR_TDD-Core
470112, WID: RP-100347; RAN #48: 15%, Dec.10;
proposal: 70%, Dec.10;
conclusion: noted, approved: 70%, Dec.10

RP-100903 Set of CRs for the introduction of MU-MIMO feature RAN1 CRset REL-10 MUMIMO_LCR_TDD-Core
discussion: RAN chairman: should we also postpone the CRs?
CATT: do we need to resubmit them
MCC: as usual CRs need to be based on latest specs when submitted to RAN #50

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RAN1 chairman: CRs are agreed in RAN1, we can update them if there is a need
conclusion: postponed to RAN #50 to bring complete RAN1/2/3 CR set

10.2.8.2 Performance part [470212, MUMIMO_LCR_TDD-Perf, 03/2011]

RP-100756 Status report for WI Perf. part: MU-MIMO for 1.28Mcps TDD, rapporteur : CATT RAN4 Report REL-10 MUMIMO_LCR_TDD-Perf
470212, WID: RP-100347; RAN #48: 0%, March 11;
proposal: 0%, March 11;
conclusion: noted, approved: 0%, March 11

10.2.9 Performance Requirements for two-antenna 1.28Mcps TDD Type 1 & 2 UE receiver

Note: Core part already completed (see 10.1.3.1)

10.2.9.1 Performance part [470213, 2ant_UE_LCR_TDD-Perf, 12/2010]

RP-100757 Status report for WI Perf. part: Performance Requirements for two-antenna 1.28Mcps TDD Type 1 and Type 2 UE receiver, rapporteur : TD Tech RAN4 Report REL-10 2ant_UE_LCR_TDD-Perf
470213, WID: RP-100168; RAN #48: 25%, Dec.10;
proposal: 45%, Dec. 10;
conclusion: noted, approved: 45%, Dec.10

10.2.10 Support of New Band Combinations for Dual-Band Dual Cell HSDPA

10.2.10.1 Core part [New WI: 480121, DB_DC_HSDPA-Core, 03/2011]

RP-100758 Status report for WI Core part: Support of New Band Combinations for Dual-Band Dual Cell HSDPA, rapporteur : AT&T RAN4 Report REL-10 DB_DC_HSDPA-Core
480121, WID: RP-100657; RAN #48: 0%, March 11;
proposal: 5%, March 11;
discussion:
conclusion: noted, approved: 5%, March 11

10.2.10.2 Performance part [New WI: 480221, DB_DC_HSDPA-Perf, 09/2011]

RP-100759 Status report for WI Perf. part: Support of New Band Combinations for Dual-Band Dual Cell HSDPA, rapporteur : AT&T RAN4 Report REL-10 DB_DC_HSDPA-Perf
480221, WID: RP-100657; RAN #48: 0%, Sep.11;
proposal: 0%, Sep.11;
discussion: RAN chairman: so RAN4 decided that no performance part is needed so WI is closed
conclusion: noted, approved: 0%, Sep.10; WI is closed as not needed

10.2.11 Perf. part: MIMO testing in HSDPA

RP-100888 Revised WID on MIMO operation with non-MIMO coexistence in HSDPA (formerly called "MIMO testing in HSDPA") Qualcomm Inc WID REL-10 MIMO_HSDPA
revision of WID RP-100687 correcting title and adding core requirement
conclusion: revised in RP-100992 before presentation

RP-100992 Revised WID on MIMO operation with non-MIMO coexistence in HSDPA (formerly called "MIMO testing in HSDPA") Qualcomm Inc WID REL-10 MIMO_HSDPA
discussion: RAN chairman: so title was changed and core part added
Ericsson: core and perf. part at RAN #51? Normally 6 months needed, in this case 3 months would be ok.
NSN: would a legacy UE still work?

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Qualcomm: for the legacy UE the work-around would not work
NSN: do we need a WI for the base station then? looking at tight RAN4 time schedule
Ericsson: there is a WI and RAN4 should analyse
Alcatel-Lucent: we need to have a study phase whether core requirements are needed for the Node B
AT&T: if RAN4 concludes that no core part is needed, what about the performance aspect?
Alcatel-Lucent: we can add a sentence to the WID to clarify
NSN: supports to add some clarification
Qualcomm: it is important to get this topic solved so it would be good that RAN4 reserves some time for it
Vodafone: RAN1 has done some work on it, so when we will decide? on which basis will they decide that nothing is needed?
NSN: if it doesn't work we need a requirement
RAN chairman: please discuss offline and come with a revision

conclusion: revised in RP-100993

RP-100993 Revised WID on MIMO operation with non-MIMO coexistence in HSDPA (formerly called "MIMO testing in HSDPA") Qualcomm Inc WID REL-10 MIMO_HSDPA
revision of WID RP-100687
conclusion: approved

10.2.11.1 Performance part [New WI: 480122, MIMO_HSDPA-Perf, 12/2010]

RP-100760 Status report for WI Perf. part: MIMO testing in HSDPA, rapporteur : Qualcomm Inc RAN4 Report REL-10 MIMO_HSDPA-Perf
480122, WID: RP-100687; RAN #48: 0%, Dec.10;
proposal: 20%, Dec.10;
discussion: AT&T: impact on RAN4?
Qualcomm: is RAN4 WI, title is confusing, also indicated by MCC so we will update WID
conclusion: noted, approved: 20%, Dec.10
Note: As revised WID RP-100993 shows that 25.141 changes will be approved in June 2011 it will not be possible to close the WI already in Dec. 10. Therefore target date of performance part has to be updated at RAN #50.

10.2.12 Automatic Neighbour Relation (ANR) for UTRAN

10.2.12.1 Core part [New WI: 480120, ANR_UTRAN-Core, 12/2010]

RP-100761 Status report for WI Core part: Automatic Neighbour Relation (ANR) for UTRAN, rapporteur : ZTE RAN3 Report REL-10 ANR_UTRAN-Core
480120, WID: RP-100688; RAN #48: 0%, Dec.10;
proposal: 8%, Dec.10;
discussion: NSN: discrepancy between date and RAN meeting in completion date
RAN chairman: Dec. or March?
ZTE: Dec.10
RAN chairman: so let's see whether RAN3 can do miracles
conclusion: noted, approved: 8%, Dec.10

10.3 Open UTRA & LTE related WIs

10.3.1 UMTS/LTE 3500 MHz [380073, RInImp8-UMTSLTE3500, 12/2010]

RP-100762 Status report for WI UMTS/LTE 3500MHz, rapporteur : EricssonRAN4 Report REL-10 RInImp8-UMTSLTE3500
380073, WID: RP-081380; RAN #48: 60%, Dec.10;
proposal: 65%, Dec.10;
discussion: Sharp: realistic that WI can finish in Dec.?
Ericsson: we should revisit in Dec.
RAN chairman: so completion date is kept and we can see in Dec.
conclusion: noted, approved: 65%, Dec.10

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10.3.2 Minimization of drive tests for E-UTRAN and UTRAN

10.3.2.1 Core Part [460103, MDT_UMTSLTE-Core, 12/2010]

RP-100763 Status report for WI Core part: Minimization of drive tests for E-UTRAN and UTRAN, rapporteur : Nokia Siemens Networks RAN2 Report REL-10 MDT_UMTSLTE-Core
460103, WID: RP-100360; RAN #48: 35%, Dec.10;
proposal: 60%, Dec.10;
discussion: RAN3 chairman: list of open issues: what OAM functionality are we talking about and whether there is a RAN3 impact?
NSN: need to check offline
workplan manager: SA5 has a WI where there will need support from RAN3, LS will
RAN3 chairman: is worried now; normally RAN3 establishes requirements for OAM and SA5 is working on stage 3 but now it seems we are turning this around
Clearwire: any SA1 requirements here?
RAN3 chairman: not needed here, is network management related
Clearwire: does not agree
AT&T: NSN should clarify item 4
NSN: looking at WID the WI is led by RAN2 with RAN3 impact and this item is the RAN3 aspect
RAN2 chairman: that's why I mentioned RAN3 impact in RAN2 status report
RAN chairman: still a need to involve SA5?
RAN3 chairman: will at first check with RAN2 chairman and then we can see the SA5 impact, will also see the mentioned SA5 LS
RAN chairman: so discuss offline
conclusion: noted, approved: 60%, Dec.10

RP-100803 TS 37.320 v1.0.0 on Radio measurement collection for Minimization of Drive Tests (MDT); Overall description; Stage 2 (for information)Nokia Siemens Networks TS 37.320 REL-10 MDT_UMTSLTE-Core
RAN2 TS 37.320 is provided for information
conclusion: noted

10.3.3 HNB and HeNB Mobility Enhancements

RP-100874 Update to WID HNB and HeNB Mobility Enhancements Alcatel-Lucent WID REL-10 HNB_HENB_mob_enh-Core
revision of WID RP-100371; RAN3 TS 25.4xx added without revision marks
discussion: Alcatel-Lucent: split in core and feature part and adding TS 25.4xx are the only changes
Ericsson: 3 solutions on the table and plan is to hopefully reduce it to one solution so it is premature to allocate a TS
RAN chairman: so there is no consensus about this in RAN3?
RAN3 chairman: correct, we are also working on gateway based solution and we decide at next meeting among 3 solutions
conclusion: postponed, RAN will decide at RAN #50 whether there is a need for a TS

10.3.3.1 Core part [470105, HNB_HENB_mob_enh-Core, 12/2010]

RP-100764 Status report for WI Core part: HNB and HeNB Mobility Enhancements, rapporteur : Alcatel-Lucent RAN3 Report REL-10 HNB_HENB_mob_enh-Core
470105, WID: RP-100371; RAN #48: 8%, Dec.10;
proposal: 50%, Dec.10;
conclusion: noted, approved: 50%, Dec.10

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10.3.4 Expanded 1900 MHz Band for UTRA and LTE

10.3.4.1 Core part [New WI: 480124, E1900-Core, 12/2010]

RP-100765 Status report for WI Core part: Expanded 1900 MHz Band for UTRA and LTE, rapporteur : Sprint
RAN4 Report REL-10 E1900-Core
480124, WID: RP-100676; RAN #48: 0%, Dec.10;
proposal: 5%, Dec.10;
discussion: RAN chairman: no concerns about 5% and Dec. 10, seems so
conclusion: noted, approved: 5%, Dec.10

10.3.4.2 Performance part [New WI: 480224, E1900-Perf, 12/2010]

RP-100766 Status report for WI Perf. part: Expanded 1900 MHz Band for UTRA and LTE, rapporteur : Sprint
RAN4 Report REL-10 E1900-Perf
480224, WID: RP-100676; RAN #48: 0%, Dec.10;
proposal: 5%, Dec.10;
conclusion: noted, approved: 5%, Dec.10

10.3.5 Multi-standard radio BS RF requirements for non-contiguous spectrum deployments

RP-100807 Revised WID: Multi-standard radio BS RF requirements for non-contiguous spectrum deployments
Ericsson WID REL-10 MSR_NC
revision of WID RP-100689
conclusion: revised in RP-100960 before the meeting

RP-100960 Revised WID: Multi-standard radio BS RF requirements for non-contiguous spectrum deployments
Ericsson WID REL-10 MSR_NC
revision of WID RP-100689 adding RAN4 TR 37.8xx
discussion: Ericsson: TR will be presented to RAN #50 for information
conclusion: approved, specification manager allocated TR 37.802

10.3.5.1 Core part [New WI: 480125, MSR_NC-Core, 03/2011]

RP-100767 Status report for WI Core part: Multi-standard radio Base Station RF requirements for non-contiguous spectrum deployments, rapporteur : Ericsson RAN4 Report REL-10 MSR_NC-Core
480125, WID: RP-100689; RAN #48: 0%, March 11;
proposal: 5%, March 11;
conclusion: noted, approved: 5%, March 11

RP-100702 LS on MSR BS RF requirements for non-contiguous spectrum deployments REL-10 MSR_NC
(R4-102735; to: GERAN; cc: RAN; contact: Ericsson) RAN4
no RAN action requested; no LS answer?
conclusion: noted, no LS answer

RP-100716 Reply LS to R4-102735 = RP-100702 on "MSR BS RF requirements for non-contiguous spectrum deployments" REL-10 MSR_NC
(GP-101646; to: RAN, RAN4; cc: -; contact: Ericsson) GERAN1
no explicit RAN action requested; no LS answer?
conclusion: noted, no LS answer

10.3.5.2 Performance part [New WI: 480225, MSR_NC-Perf, 09/2011]

RP-100768 Status report for WI Perf. part: Multi-standard radio Base Station RF requirements for non-contiguous spectrum deployments, rapporteur : Ericsson RAN4 Report REL-10 MSR_NC-Perf
480225, WID: RP-100689; RAN #48: 0%, Sep. 11;
proposal: 0%, Sep.11;
conclusion: noted, approved: 0%, Sep.11

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10.4 Open LTE related WIs

10.4.1 Network-Based Positioning Support for LTE [430011, LCS_LTE-NBPS, 12/2010]

RP-100769 Status report for WI Network-Based Positioning Support for LTE, rapporteur : TruePosition RAN2 Report REL-10 LCS_LTE-NBPS
430011, WID: RP-100135; RAN #48: 30%, Dec.10;
proposal: 30%, Dec.10;
conclusion: noted, approved: 30%, March 11 (after discussion of RP-100944 target date was shifted)

RP-100944 Network-Based Positioning Support in LTE TruePosition Disc REL-10 LCS_LTE-NBPS
discussion: RAN chairman: RAN1 status seems to be that there is no consensus so far
TruePosition: Madrid meeting had 4 Tdocs, 1 without simulation results but raised further open issues, accuracy has been proven and we should start work in RAN2 and RAN3
AT&T: would like to see the work to go on now in RAN2 and RAN3 after the long study we had
Ericsson: wish to progress is fair enough but RAN1 chair's status report showed that this is problematic, the difference in intereference levels let us assume that it will not work
RAN1 chairman: concerns raised by 1 company, simulation results by 3 companies, performance compared to existing technologies were questioned, in summary no consensus was possible
NSN: from some simulation results we could assume it works and from others we would assume it doesn't work
Polaris Wireless: although we are competing with TruePosition, we have to say: network operators have shown interest, technology is deployed on other air interfaces, there was a long study phase in RAN1 so we should go forward now with the WI
RAN chairman: so we are again in the same blocking situation but REL-10 deadline is approach; we could continue to discuss in RAN1 for one more cycle and decide then
TruePosition: if we go on for another quarter in RAN1 then we need:
- Xian meeting should clarify interference issue scenario as this is the final contentious issue that has been holding up progress
- simulation results have to be provided to Jacksonville
- parallel work in RAN2 and RAN3
RAN chairman: ok then by October simulation scenarios have to be fixed, by Nov. simulation results have to be provided; if no consensus in RAN1 then we need to stop
T-Mobile: if just one company objects does it mean there will be no consensus?
Ericsson: We are ok with the chairman's proposal. We are not a negative company, and we are not the only company that wants to believe in what they see in the evaluation.
AT&T: benefits need to be shown acc. to WID?
TruePosition: we have some deployment benefits, so it is not just about accuracy
RAN1 chairman: acc. to WID RAN1 could evaluate simulations, RAN1 will complete the evaluation and provide the results to the RAN Plenary. The Plenary may then use both the information from RAN1 and any other related factors to decide a way forward in December.
TruePosition: what about parallel continuation in RAN2 and RAN3?
RAN chairman: if RAN2/RAN3 part is small we could still have it after December
TruePosition: would prefer to start work already in RAN2 and RAN3 so that we do not miss anything
Ericsson: question to RAN2 and RAN3 chairman whether this is possible
RAN2 chairman: just some stage 2 impact, no stage 3 impact assumed
TruePosition: some LPPa messages
NSN: need for an architectural discussion on how the connection is to other nodes in the network
TruePosition: no need, SA/CT work done, only some LPPa messages
AT&T: acc. to the WID there is no limit to continue work in RAN2 and RAN3
RAN chairman: any objection against RAN2/RAN3 continuing in parallel to RAN1?
Ericsson: would prefer to see RAN1 results first
TruePosition: multiple companies ask for parallel work only one company against
Andrew Corporation: benefit in going on in parallel
TruePosition: we don't expect specification changes in RAN2/RAN3 in this quarter but to start discussion

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conclusion: noted, decision:
by October simulation scenarios have to be fixed in RAN1,
by Nov. simulation results have to be provided in RAN1 and conclusion has to be provided to RAN #50
RAN2/RAN3 will continue in parallel on this WI in the next quarter

Ericsson: We have reviewed the draft meeting report regarding the discussion on Tdoc RP-100944 and do not think they accurately reflect the discussion that took place during the meeting.
MCC: MCC tried to capture the discussion as good as possible but every company is free to update their own statements; nevertheless to clarify: The discussion parts are provided for information only, what counts is the conclusion part.

10.4.2 Fixed Wireless Customer-Premises Equipment (CPE) RF Requirements

10.4.2.1 Core part [460110, FW_CPE_RF-Core, 09/2010]

RP-100770 Status report for WI Core part: Fixed Wireless Customer-Premises Equipment (CPE) RF Requirements, rapporteur : Verizon RAN4 Report REL-10 FW_CPE_RF-Core
460110, WID: RP-091432; RAN #48: 20%, Sep.10;
proposal: 40%, March 11;
conclusion: noted, approved: 40%, March 11

10.4.2.2 UE conformance testing part [460210, FW_CPE_RF-UEConfTest, 12/2010]

All Tdocs related to 10.4.2.2 will be treated under 9.8.

10.4.3 Enhanced Downlink Multiple Antenna Transmission for LTE

10.4.3.1 Core part [460108, LTE_eDL_MIMO-Core, 12/2010]

RP-100771 Status report for WI Core part: Enhanced Downlink Multiple Antenna Transmission for LTE, rapporteur : NTT DOCOMO RAN1 Report REL-10 LTE_eDL_MIMO-Core
460108, WID: RP-100196; RAN #48: 40%, Dec.10;
proposal: 80%, Dec.10;
conclusion: noted, approved: 80%, Dec.10

10.4.3.2 Performance part [460208, LTE_eDL_MIMO-Perf, 06/2011]

RP-100772 Status report for WI Perf. part: Enhanced Downlink Multiple Antenna Transmission for LTE, rapporteur: NTT DOCOMO RAN4 Report REL-10 LTE_eDL_MIMO-Perf
460208, WID: RP-091429; RAN #48: 0%, June 11;
proposal: 0%, June 11;
conclusion: noted, approved: 0%, June 11

10.4.4 UL multiple antenna transmission for LTE

RP-100934 WID update: UL multiple antenna transmission for LTE Huawei WID REL-10 LTE_UL_MIMO-Core
revision of WID RP-091430 to update core part adding RAN4 TR 36.8xx
conclusion: revised in RP-100959 before the meeting

RP-100959 WID update: UL multiple antenna transmission for LTE Huawei WID REL-10 LTE_UL_MIMO-Core
revision of WID RP-091430 to update core part adding RAN4 TR 36.8xx
conclusion: approved, specification manager allocated TR 36.817

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10.4.4.1 Core part [460109, LTE_UL_MIMO-Core, 12/2010]

RP-100773 Status report for WI Core part: UL multiple antenna transmission for LTE, rapporteur : Huawei RAN1 Report REL-10 LTE_UL_MIMO-Core
460109, WID: RP-091430; RAN #48: 55%, Dec.10;
proposal: 70%, Dec.10;
conclusion: noted, approved: 70%, Dec.10

10.4.4.2 Performance part [460209, LTE_UL_MIMO-Perf, 06/2011]

RP-100774 Status report for WI Perf. part: UL multiple antenna transmission for LTE, rapporteur : Huawei RAN4 Report REL-10 LTE_UL_MIMO-Perf
460209, WID: RP-091430; RAN #48: 5%, June 11;
proposal: 10%, June 11;
discussion:
conclusion: noted, approved: 10%, June 11

10.4.5 Carrier Aggregation for LTE

10.4.5.1 Core part [460107, LTE_CA-Core, 12/2010]

RP-100775 Status report for WI Core part: Carrier Aggregation for LTE, rapporteur : Nokia RAN1 Report REL-10 LTE_CA-Core
460107, WID: RP-100661; RAN #48: 45%, Dec.10;
proposal: 70%, Dec.10;
discussion: Motorola: there is a UE TR 36.807 in R4-103431, this is not mentioned in the status report
conclusion: noted, approved: 70%, Dec.10

RP-100865 RAN2 CR for REL-10 WI Core part: Carrier Aggregation for LTE RAN2 CR 36.300 0248 4 B REL-10 LTE_CA-core
conclusion: approved

10.4.5.2 Performance part [460207, LTE_CA-Perf, 06/2011]

RP-100776 Status report for WI Perf. part: Carrier Aggregation for LTE, rapporteur : Nokia RAN4 Report REL-10 LTE_CA-Perf
460207, WID: RP-100661; RAN #48: 5%, June 11;
proposal: 5%, June 11;
conclusion: noted, approved: 5%, June 11

10.4.6 Relays for LTE

RP-100953 Revised WID for Relays for LTE Ericsson WID REL-10 LTE_Relay-Core
revision of WID RP-091434
discussion: Ericsson: has removed a not relevant RAN4 aspect
Vodafone: core minimum requirements is part of the core WI
RAN4 chairman: core parts for CA and Relay have to be completed by Dec., maybe we need to clarify which RAN4 specs have to be provided to ITU-R
conclusion: approved, new TS number provided by specifications manager: TS 36.216

10.4.6.1 Core part [460113, LTE_Relay-Core, 12/2010]

RP-100777 Status report for WI Core part: Relays for LTE, rapporteur : Ericsson RAN1 Report REL-10 LTE_Relay-Core
conclusion: revised in RP-100952 before the meeting

RP-100952 Status report for WI Core part: Relays for LTE, rapporteur : Ericsson RAN1 Report REL-10 LTE_Relay-Core
460113, WID: RP-091434; RAN #48: 30%, Dec.10;

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proposal: 50%, Dec.10;
conclusion: noted, approved: 50%, Dec.10

RP-100866 RAN2 & RAN3 CRs to TS 36.300 for REL-10 WI Core part: Relays for LTE RAN2 CR36.300set REL-10 LTE_Relay-Core
discussion: LG: misalignment between RAN1 and RAN2 in CR0249r1 which types of relay are supported; problem is in informative part so CR approval is not critical but alignment is needed
RAN1 chairman: type 1 and 1a are considered by RAN1 as part of LTE-A
RAN2 chairman: so we will not mention 1b. in stage 3; when stage 3 specs are introduced stage 2 informative part will be removed
conclusion: approved

RP-100967 TS 36.216 v1.0.0 on Physical layer for relaying operation (for approval) Ericsson TS 36.216 REL-10 LTE_Relay-core
RAN1 TS 36.216 is presented for approval
conclusion: TS 36.216 is approved as v10.0.0

RP-100719 LS on Relay Node (RN) testing REL-10 LTE_Relay-core
(R2-105247; to: RAN; cc: RAN1, RAN3, RAN4, RAN5; contact: Ericsson) RAN2
RAN action requested, LS answer drafted?
discussion: RAN chairman: there is a related input in RP-100954
RAN chairman: RAN4 regulatory part needs to be specified
Sharp: why "tentative"? Was there a RAN2 view?
RAN2 chairman: we have not discussed it in detail so LS is to trigger discussion at RAN
Sharp: shouldn't RAN2 not come up with a proposal before bringing it to RAN?
Vodafone: testing decision is more a RAN issue than a RAN2 issue
NSN: RAN4 RF part is easy to understand, we do not want to have this a permanent discussion in RAN5 on this since they focus on UE aspects so we need to limit and clarify the scope; we should discuss this topic in RAN5 only when co-located with RAN4
conclusion: noted, LS answer postponed to RAN #50, further discussion about the details with some operators' guidance (input for RAN #50)

RP-100954 View on Relay testing Vodafone, NTT DoCoMo, SK Telecom Disc REL-10 LTE_Relay-Core
discussion: Ericsson: procedures? L2 in MAC or RRC?
Telecom Italia, Orange, Huawei: support Vodafone view in the document
Huawei: RAN5 has not yet looked at network nodes so this needs to be carefully looked at
AT&T: supports the paper and we can decide the details later after the high level agreements
LG: we support this Tdoc; so far RAN2 has assumed that Relay Node is a network node and some relay node features are up to implementation and this needs to reconsidered in RAN2
Sharp: supports the Tdoc
RAN chairman: further discussion needed, at RAN or WG level?
Vodafone: WGs are busy, more offline discussion needed, so leaving it on RAN level is ok
Huawei: anything needed for RAN2 to proceed?
RAN2 chairman: sufficient to have an answer from RAN #50
conclusion: noted

10.4.6.2 Performance part [460213, LTE_Relay-Perf, 03/2011]

RP-100778 Status report for WI Perf. part: Relays for LTE, rapporteur : Ericsson RAN4 Report REL-10 LTE_Relay-Perf
460213, WID: RP-091434; RAN #48: 0%, March 11;
proposal: 0%, March 11;
conclusion: noted, approved: 0%, March 11

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10.4.7 Latency reductions for LTE

10.4.7.1 Core part [460112 LTE_LATRED-Core, 12/2010; WI on hold until 12/2010]

RP-100779 Status report for WI Core part: Latency reductions for LTE, rapporteur : Ericsson RAN2 Report REL-10 LTE_LATRED-Core
460112, WID: RP-091449; RAN #48: 20%, Dec.10; (on hold until Dec.10)
proposal: 20%, Dec.10;
discussion: Ericsson: we need to revisit the target date at Dec.
conclusion: noted, approved: 20%, Dec.10 (still on hold until Dec.10)

10.4.8 Enhanced ICIC for non-CA based deployments of heterogeneous networks for LTE

RP-100867 Revised WID: Enhanced ICIC for non-CA based deployments of heterogeneous networks for LTE CMCC (Rapporteur) WID REL-10 eICIC_LTE
revision of WID RP-100383; includes only core part
conclusion: revised in RP-100978

RP-100978 Revised WID: Enhanced ICIC for non-CA based deployments of heterogeneous networks for LTE CMCC (Rapporteur) WID REL-10 eICIC_LTE
conclusion: revised in RP-100994

RP-100994 Revised WID: Enhanced ICIC for non-CA based deployments of heterogeneous networks for LTE CMCC (Rapporteur) WID REL-10 eICIC_LTE
discussion: RAN1 chairman: procedural question: why is it needed to update the WID? Status should be tracked in status report
RAN4 chairman: RAN4 should start after RAN #51; 3 months only for perf. part
RAN chairman: normally RAN4 needs 6 months for perf. part; can we keep RAN #50 for the core part?
RAN1 chairman: RAN #50 still possible
RAN chairman: plan is core parts need to be completed by Dec. 10 and perf. parts by June 11
Nokia: RAN4 discussed time schedule and target March 11 for core part was considered to be a challenge for core part
RAN2 chairman: we have not yet started the work in RAN2 but we can review the situation in Dec.
Ericsson: 2 parts based on RAN1 agreements, no standardardization impact from macro/femto was expected but now it seems we will do something here,it is useful to keep this open when we are having already a tight time schedule
CMCC: optimizations were not excluded
Ericsson: we should focus on macro/pico part; so we should revisit the sub-bullet
Huawei: it will be difficult to deviate from RAN1 agreements in the WID formulation
conclusion: will revisit this after offline discussion;
withdrawn after offline discussion

10.4.8.1 Core part [470107, eICIC_LTE-Core, 12/2010]

RP-100780 Status report for WI Core part: Enhanced ICIC for non-CA based deployments of heterogeneous networks for LTE, rapporteur : CMCC RAN1 Report REL-10 eICIC_LTE-Core
470107, WID: RP-100383; RAN #48: 15%, Dec.10;
proposal: 40%, Dec.10;
conclusion: revised in RP-100968 before presentation

RP-100968 Status report for WI Core part: Enhanced ICIC for non-CA based deployments of heterogeneous networks for LTE, rapporteur : CMCC RAN1 Report REL-10 eICIC_LTE-Core
470107, WID: RP-100383; RAN #48: 15%, Dec.10;
proposal: 40%, March 11;
discussion: RAN3 chairman: there was an LS from RAN1 to RAN3 which had a task for RAN3 but I do not see this in the open issues;
Huawei: will not be easy to describe what is missing for RAN3 as discussion about this is ongoing in RAN1
Nokia: also RAN4 part has to be listed

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Alcatel-Lucent: power control open issue also missing
RAN chairman: so we need to see a revision
conclusion: revised in RP-101002

RP-101002 Status report for WI Core part: Enhanced ICIC for non-CA based deployments of heterogeneous networks for LTE, rapporteur : CMCC RAN1 Report REL-10 eICIC_LTE-Core
470107, WID: RP-100383; RAN #48: 15%, Dec.10;
proposal: 40%, March 11;
conclusion: withdrawn as covered sufficiently by RP-101005
RP-100968 is considered to be the final status report, RP-100968 is noted;
approved: 40%, Dec. 10

RP-100708 LS on eICIC progress in RAN1 REL-10 eICIC_LTE-Core
(R1-105094; to: RAN, RAN2, RAN3, RAN4; cc: -; contact: CMCC) RAN1
no explicit RAN action requested; no LS answer?
discussion: Huawei: when RAN1 has decided we could send another LS to RAN3 and they could provide the corresponding container
RAN1 chairman: agrees that eICIC signalling needs further discussion in RAN1
Qualcomm: we had an agreement for macro/pico not just a baseline assumption
Samsung: RAN2/RAN3 can start their work without further input from RAN1
RAN1 chairman: we will have a time domain component, that was agreed
Huawei: further details of time domain component can be solved in RAN1 and other WGs can be informed later
RAN3 chairman: requests guidance from RAN1 chairman on way forward in RAN3
RAN1 chairman: suggest to take the LS for information so far since RAN3 might not be able to work already based on this LS, so RAN3 will receive another LS from RAN1
Sharp: it is not up to RAN1 to tell RAN3 what they should do, this is RAN3 decision
Samsung: strange that we are disputing the RAN3 has to work on TD solution
CMCC: RAN2/RAN3 could start their work and they are contribution driven
RAN3 chairman: not happy with this approach
conclusion: noted; offline discussion in coffee break on Thu morning (rapporteur: RAN1 chairman) on a way forward;
no LS answer

conclusions of offline discussion reported by RAN1 chairman:

- RAN1 will discuss details of TD ICIC and send LS to RAN2, RAN3, RAN4
- RAN3 will not discuss TD ICIC until LS from RAN1 is received
- After LS RAN1 & RAN3 can discuss possible enhancements to ICIC procedure
- RAN2/RAN4 work on TD ICIC may continue in parallel on general aspects (depends on RAN1 LS)
- WID will not be revised
- RAN #50 target remains
- LS RP-100708 and planned work is noted, no LS answer

Report of offline discussion will be made available in RP-101005
Motorola: RAN2 should not start in parallel
Motorola: RAN4 work can not go in parallel at next meeting as it will take time before we get the RAN1 LS
Huawei: would be good that RAN4 looks at RAN1 decisions and reviews them

RP-101005 Way forward about WI Enhanced ICIC for non-CA based deployments of heterogeneous networks for LTE RAN1 chairman (Alcatel-Lucent) Report REL-10 eICIC_LTE-Core
conclusion: RP-101005 is approved

10.4.8.2 Performance part [470207, eICIC_LTE-Perf, 06/2011]

RP-100781 Status report for WI Perf. part: Enhanced ICIC for non-CA based deployments of heterogeneous networks for LTE, rapporteur : CMCC RAN4 Report REL-10 eICIC_LTE-Perf
470207, WID: RP-100383; RAN #48: 5%, June 11;
proposal: 5%, June 11;
conclusion: noted, approved: 5%, June 11

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10.4.9 LTE TDD in 2600MHz for US (Region 2)

RP-101003 Revised WID for LTE TDD in 2600MHz for US (Region 2) Clearwire WID REL-10 LTE_TDD_2600_US
revision of WID RP-100694
conclusion: approved (unseen)

10.4.9.1 Core part [470108, LTE_TDD_2600_US-Core, 12/2010]

RP-100782 Status report for WI Core part: LTE TDD in 2600MHz for US, rapporteur: Clearwire RAN4 Report REL-10 LTE_TDD_2600_US-Core
470108, WID: RP-100694; RAN #48: 20%, Dec.10;
proposal: 100%, Dec.10;
discussion: Clearwire: should we update WID to reflect TR and target completion?
RAN chairman: yes please, updated WID has to be provided in RP-101003 and it is approved unseed (WID will include core % performance part)
RAN5 chairman: keeping target March 11 in RAN5?
Clearwire: plans to come with RAN5 CRs to the next RAN5 meeting but we will see
conclusion: noted, approved: 100%, Sep.10, WI completed/closed

RP-100912 LTE TDD for 2600MHz for US CRs RAN3 CR set REL-10 LTE_TDD_2600_US-Core
conclusion: approved

RP-100927 CRs for LTE TDD in 2600MHz for USA - Core requirements [LTE_TDD_2600_US-Core] RAN4 CR set REL-10 LTE_TDD_2600_US-Core
discussion: RAN4 chairman: one CR includes [ ]
conclusion: approved

RP-100945 TR 36.812 v1.0.0 on LTE TDD in 2600MHz for US Work Item Technical Report (for approval) Clearwire TR 36.812 REL-10 LTE_TDD_2600_US-Core
RAN4 TR 36.812 is presented for approval
conclusion: TR 36.812 is approved as v10.0.0

10.4.9.2 Performance part [470208, LTE_TDD_2600_US-Perf, 12/2010]

RP-100783 Status report for WI Perf. part: LTE TDD in 2600MHz for US, rapporteur : Clearwire RAN4 Report REL-10 LTE_TDD_2600_US-Perf
470208, WID: RP-100694; RAN #48: 0%, Dec.10;
proposal: 100%, Dec.10;
conclusion: noted, approved: 100%, Sep.10, WI completedW/closed

RP-100928 CRs for LTE TDD in 2600MHz for USA - Performance requirements [LTE_TDD_2600_US-Perf] RAN4 CR36.141, 37.141 set REL-10 LTE_TDD_2600_US-Perf
discussion: KDDI: wondering why this WI needs a performance part
RAN4 chairman: this part of the spec was considered to be performance part; we can reconsider this for future WIs
conclusion: approved

10.4.10 Adding 2 GHz band LTE for ATC of MSS in North America

10.4.10.1 Core part [470109, S_Band_LTE_ATC_MSS-Core, 12/2010]

RP-100784 Status report for WI Core part: Adding 2 GHz band LTE for ATC of MSS in North America, rapporteur: TerreStar Networks RAN4 Report REL-10 S_Band_LTE_ATC_MSS-Core
470109, WID: RP-100376; RAN #48: 10%, Dec.10;
proposal: 60%, Dec.10;
conclusion: noted, approved: 60%, Dec.10

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RP-100804 TR 36.811 v1.0.0 on Adding 2 GHz band LTE for ATC of MSS in North America (for information) TerreStar Networks, DBSD TR 36.811 REL-10 S_Band_LTE_ATC_MSS-Core
RAN4 TR 36.811 is provided for information
conclusion: noted

10.4.10.2 Performance part [470209, S_Band_LTE_ATC_MSS-Perf, 06/2011]

RP-100785 Status report for WI Perf. part: Adding 2 GHz band LTE for ATC of MSS in North America, rapporteur: TerreStar Networks RAN4 Report REL-10 S_Band_LTE_ATC_MSS-Perf
470209, WID: RP-100376; RAN #48: 5%, June 11;
proposal: 10%, June 11;
conclusion: noted, approved: 10%, June 11

10.4.11 Adding L-Band LTE for ATC of MSS in North America

10.4.11.1 Core part [470110, L_Band_LTE_ATC_MSS-Core, 12/2010]

RP-100786 Status report for WI Core part: Adding L-Band LTE for ATC of MSS in North America, rapporteur : LightSquared RAN4 Report REL-10 L_Band_LTE_ATC_MSS-Core
470110, WID: RP-100640; RAN #48: 5%, Dec.10;
proposal: 60%, Dec.10;
conclusion: noted, approved: 60%, Dec.10

RP-100995 Presentation of TR 36.813 v1.0.0 on Adding L-Band LTE for ATC of MSS in North America (for information)LightSquared TR 36.813 REL-10 L_Band_LTE_ATC_MSS-Core
RAN4 TR 36.813 is provided for information
discussion: LightSquared: there are 3 bands 22, 23, 24; band available by Dec.?
RAN4 chairman: RAN4 is taking care of band numbers and we could use band 24 in Dec.
conclusion: noted

10.4.11.2 Performance part [470210, L_Band_LTE_ATC_MSS-Perf, 06/2011]

RP-100787 Status report for WI Perf. part: Adding L-Band LTE for ATC of MSS in North America, rapporteur : LightSquared RAN4 Report REL-10 L_Band_LTE_ATC_MSS-Perf
470210, WID: RP-100640; RAN #48: 5%, June 11;
proposal: 10%, June 11;
discussion: Panasonic: do we need to change WID to reflect new company name?
RAN chairman: not necessary now, can be updated next time
conclusion: noted, approved: 10%, June 11

10.4.12 LTE Self Optimizing Networks (SON) enhancements

10.4.12.1 Core part [470111, SONenh_LTE-Core, 12/2010]

RP-100788 Status report for WI Core part: LTE Self Optimizing Networks (SON) enhancements, rapporteur : Nokia Siemens Networks RAN3 Report REL-10 SONenh_LTE-Core
470111, WID: RP-100606; RAN #48: 10%, Dec.10;
proposal: 25%, Dec.10;
discussion: NSN: will update WID to add 36.331 as affected specification
RAN chairman: please provide the updated WID in RP-101004 which is approved unseen
conclusion: noted, approved: 25%, Dec.10

10.4.13 LTE-Advanced Carrier Aggregation of Band 3 and Band 7

10.4.13.1 Core part [New WI: 480123, LTE_CA_B3_B7-Core, 12/2011]

RP-100789 Status report for WI Core part: LTE-Advanced Carrier Aggregation of Band 3 and Band 7, rapporteur : TeliaSonera RAN4 Report REL-10 LTE_CA_B3_B7-Core

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480123, WID: RP-100668; RAN #48: 0%, Dec.11;
proposal: 0%, Dec.11;
discussion: RAN chairman: core and perf. part have same target
Motorola: this WI is not for ITU-R
Nokia: would suggest to keep it on hold until Dec.10 to complete more urgent parts
TeliaSonera: would like to keep it on the RAN4 agenda to treat it when time is available (so do not put it on hold)
Qualcomm: supports TeliaSonera view to keep the topic on the RAN4 agenda
RAN4 chairman: supports to keep it on the agenda for Nov. and we can see whether we have time, companies are requested to prioritize internally
Motorola: we had the problem in REL-8 that rushing is not useful (i.e. one company is making a proposal, others have no time to check and then we need to do corrections later)
RAN chairman: since target is Dec. 11 suggests to put the WI on hold until Dec.10, after Dec.10 it will be on RAN4 agenda
TeliaSonera: can accept this
conclusion: noted, approved: 0%, Dec.11, WI will be kept on hold until Dec.10

10.4.13.2 Performance part [New WI: 480223, LTE_CA_B3_B7-Perf, 12/2011]

RP-100790 Status report for WI Perf. part: LTE-Advanced Carrier Aggregation of Band 3 and Band 7, rapporteur : TeliaSonera RAN4 Report REL-10 LTE_CA_B3_B7-Perf
480223, WID: RP-100668; RAN #48: 0%, Dec.11;
proposal: 0%, Dec.11;
conclusion: noted, approved: 0%, Dec.11

10.4.14 Further enhancements to MBMS for LTE

10.4.14.1 Core part [New WI: 480127, MBMS_LTE_enh-Core, 12/2010]

RP-100791 Status report for WI Core part: Further enhancements to MBMS for LTE, rapporteur : Huawei RAN2 Report REL-10 MBMS_LTE_enh-Core
480127, WID: RP-100691; RAN #48: 0%, Dec.10;
proposal: 30%, Dec.10;
conclusion: noted, approved: 30%, Dec.10

10.4.15 Service continuity in connected mode and location information for MBMS for LTE

10.4.15.1 Core part [New WI: 480126, MBMS_LTE_SC-Core, 06/2011; WI on hold until 12/2010]

RP-100792 Status report for WI Core part: Service continuity in connected mode and location information for MBMS for LTE, rapporteur : Huawei RAN2 Report REL-10 MBMS_LTE_SC-Core
480126, WID: RP-100690; RAN #48: 0%, June 11; (on hold until Dec.10)
proposal: 0%, June 11;
conclusion: noted, approved: 0%, June 11

11 Study Items

11.1 Study on Measurement of Radiated Performance for MIMO and multi-antenna reception for HSPA and LTE terminals

[430020, FS_HSPA_LTE_measRP_MIMO_multi-antenna, 12/2010; SI on hold in RAN4 until 09/2010]

RP-100793 Status report for SI Study on Measurement of Radiated Performance for MIMO and multi-antenna reception for HSPA and LTE terminals, rapporteur: Vodafone RAN4 Report REL-10 FS_HSPA_LTE_measRP_MIMO_multi-antenna

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430020, SID: RP-090352; RAN #48: 85%, Dec.10; (on hold until Sep.10 in RAN4)
proposal: 85%, Dec.10;
discussion: RAN4 chairman: will review situation in Oct. meeting
conclusion: noted, approved: 85%, Dec.10

11.2 Study on Extending 850MHz [440016, FS_e850, 12/2010]

RP-100794 Status report for SI Study on Extending 850MHz, rapporteur : Ericsson RAN4 Report REL-10 FS_e850
440016, SID: RP-090666; RAN #48: 35%, Dec.10;
proposal: 45%, Dec.10;
conclusion: noted, approved: 45%, Dec.10

11.3 Study on RAN improvements for Machine-Type Communications [450015, FS_NIMTC_RAN, 12/2010]

RP-100795 Status report for SI Study on RAN improvements for Machine-Type Communications, rapporteur : Huawei RAN2 Report REL-10 FS_NIMTC_RAN
450015, SID: RP-100330; RAN #48: 30%, Dec.10;
proposal: 40%, Dec.10;
discussion: Huawei: rapporteur has changed
RAN chairman: we will see how to continue with the SI after treatment of the new WI proposal
RAN chairman: we will keep the SI on hold due to approval of the WI, target date of the SI is kept so far but we will review again in Dec.
conclusion: noted, approved: 40%, Dec.10, SI on hold until WI (see RP-101026) is closed

RP-100876 Standardization of Machine-type Communications MCC Info REL-10 FS_NIMTC_RAN
discussion: MCC: We were tasked by SA #48 to collect ongoing work inside 3GPP and outside on machine time communication
Samsung: is useful information, just wondering that there was no input from TTA how can we contribute?
MCC: just send information to MCC
Alcatel-Lucent: relation of SI to new proposed WI unclear
RAN chairman: we will address this later
conclusion: noted

RP-100963 LS on Release 10 NIMTC Conclusion REL-10 FS_NIMTC_RAN
(S2-104432; to: GERAN, GERAN2, CT1, CT4, SA1, SA3, SA5, RAN2, RAN3; cc: SA; contact: Samsung) SA2
note: This LS was provided to RAN on request of SA2 who forgot to add RAN on this LS;
discussion: RAN2 chairman: This LS is the motivation why we see now a new WI proposal.
conclusion: noted, no LS answer

11.4 Study on Solutions for energy saving within UTRA Node B
[460016, FS_Energy_UMTS, 12/2010; SI on hold in RAN1 until 09/2010]

RP-100796 Status report for SI Study on Solutions for energy saving within UTRA Node B, rapporteur : Vodafone RAN1 Report REL-10 FS_Energy_UMTS
460016, SID: RP-091439; RAN #48: 40%, Dec.10; (on hold until Sep.10 in RAN1)
proposal: 100%, Sep.10;
discussion: RAN chairman: what is the status of the TR 25.927?
Vodafone: did not reach v1.0.0, some solutions were in it
MCC: did never see a draft version of it
RAN1 chairman: TR exists
Vodafone: would like to keep the TR
MCC: either we remove the TR or we raise it to v10.0.0

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RAN chairman: so please provide the latest TR in RP-101009 and we will then approve it as v10.0.0
Telecom Italia: since we have a lack of 25.8xx numbers how do we continue there
MCC: we will use 25.7xx for 3GPP internal TRs
conclusion: noted, approved: 100%, Sep.10, SI closed/terminated

RP-101009 TR 25.927 v1.0.0 on Solutions for energy saving within UTRA Node B (for approval) Vodafone TR 25.927 REL-10 FS_Energy_UMTS
discussion: Telefonica: are all solutions contentious?
NSN: figure numbers etc. need cleanup
RAN chairman: let's don't care about this
conclusion: TR 25.927 is approved as v10.0.0

11.5 Study on Coordinated Multi-Point Operation for LTE

[470014, FS_COMP_LTE, 06/2011; SI on hold until 09/2010]

RP-100797 Status report for SI Study on Coordinated Multi-Point Operation for LTE, rapporteur : Samsung RAN1 Report REL-10 FS_COMP_LTE
470014, SID: RP-100370; RAN #48: 0%, June 11; (on hold until Sep.10)
proposal: 0%, June 11;
discussion: Sharp: any Tdocs on this at last RAN1 meeting
Samsung: no since there was no agenda item
RAN chairman: keep SI on hold for 3 more months?
Huawei: when we have finalized ITU-R inputs in Dec. this should be one of the first topics we should look at
Ericsson: we would like to focus our work on the topics to be finished by Dec.
RAN chairman: it is difficult to decide when we can restart the SI but acc. to RAN1 chairman it is realistic that we can restart after Dec.
conclusion: noted, approved: 0%, June 11; SI will be kept on hold until Dec.10

11.6 Study on Network Energy Saving for E-UTRAN [470015, FS_Energy_LTE, 12/2010]

RP-100798 Status report for SI Study on Network Energy Saving for E-UTRAN, rapporteur : CMCC RAN3 Report REL-10 FS_Energy_LTE
470015, SID: RP-100674; RAN #48: 25%, Dec.10;
proposal: 40%, Dec.10;
discussion: Panasonic: nothing to be done in RAN2?
RAN3 chairman: probably no other things in RAN2 needed
RAN2 chairman: we could add something
RAN chairman: status report should capture open issues correctly
conclusion: revised in RP-101010 to update open issues

RP-101010 Status report for SI Study on Network Energy Saving for E-UTRAN, rapporteur : CMCC RAN3 Report REL-10 FS_Energy_LTE
470015, SID: RP-100674; RAN #48: 25%, Dec.10;
proposal: 40%, Dec.10;
conclusion: noted, approved: 40%, Dec. 10

11.7 Study on Improvements of distributed antenna for 1.28Mcps TDD

[470016, FS_distr_ant_LCR_TDD, 12/2010]

RP-100799 Status report for SI Study on Improvements of distributed antenna for 1.28Mcps TDD, rapporteur : ZTE RAN1 Report REL-10 FS_distr_ant_LCR_TDD
470016, SID: RP-100178; RAN #48: 5%, Dec.10;
proposal: 25%, Dec.10;
conclusion: noted, approved: 25%, Dec.10

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11.8 Study on signaling and procedure for interference avoidance for in-device coexistence

[New SI: 480028, FS_SPIA_IDC, 12/2010]

RP-100800 Status report for SI Study on signaling and procedure for interference avoidance for in-device coexistence, rapporteur : CMCC RAN2 Report REL-10 FS_SPIA_IDC
480028, SID: RP-100671; RAN #48: 0%, Dec.10;
proposal: 25%, Dec.10;
discussion: RAN chairman: there are problems to communicate with the Bluetooth side
conclusion: noted, approved: 25%, Dec.10

11.9 Closed study items

RP-100956 Proposed way forward on Open Loop Tx diversity in uplink Vodafone Disc REL-10 FS_UL-TxDiv-HSPA
discussion: Huawei: fine with the proposal, offline discussion proposed until next meeting?
Vodafone: yes
Huawei: so we would be happy to participate
conclusion: noted, way forward is agreed

12 New Work Items/Study Items

RAN chairman: Following the guidance provided on the RAN reflector on 20 August we need to limit the number of new WI/SI proposals.

12.1 New Work Items

related to UTRA:

RP-100801 New work item proposal: Conformance Test Aspects – Combination of DC-HSDPA with MIMO Ericsson, Alcatel-Lucent, ST-Ericsson, Telecom Italia, ZTE WID new REL-9-
new WI proposal for UTRA (leading: RAN5); target: June 11 (testing);
working area CT?
conclusion: revised in RP-101001

RP-101001 New work item proposal: Conformance Test Aspects – Combination of DC-HSDPA with MIMO Qualcomm WID new REL-9-
new WI proposal for UTRA (leading: RAN5); target: June 11;
conclusion: approved

RP-100805 New work item proposal: Conformance Test Aspects – Multiple Band and Multiple Frequency operation for LCR TDD CATR WID new REL-7-
new WI proposal for UTRA (leading: RAN5); target: Dec.11 (testing)
core part of the WI was introduced under TEI7 (RAN #37 RP-070650) and the 2 REL-8 WIs RInImp9-UMTS1880TDD and RInImp8-UMTS2300TDD.
conclusion: approved

RP-100806 New work item proposal: PPAC (Paging Permission with Access Control) - UE Conformance tests NTT DOCOMO, INC., NEC, Fujitsu, Panasonic, Sony Ericsson, Anritsu, Qualcomm WID new REL-8-
new WI proposal for UTRA (leading: RAN5); target: June 11 (testing);
WI code of SA1 WI: PPACR (treated in RAN under TEI8);
conclusion: approved

RP-100869 New WI proposal: UE demodulation performance requirements under multiple-cell scenario for 1.28Mcps TDD CMCC WID new REL-10 -
new WI proposal for UTRA (leading: RAN4); target: June 11 (perf.)
feature part really needed?
WID shortly presented on Tue evening

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discussion: RAN4 chairman: we can cover this in parallel
RAN chairman: interested companies? 3
conclusion: postponed to Dec.

RP-100932 Proposed Work Item on Enhancements of Iur-g interface – RAN part ZTE WID new REL-10 -
discussion: RAN3 chairman: draft LS provided in RP-100981 to clarify the topic
RAN chairman: ok, let's see RP-100981
conclusion: revised in RP-100962

RP-100962 Proposed Work Item on Enhancements of Iur-g interface – RAN part ZTE WID new REL-10 -
new WI proposal for UTRA (leading: RAN3); target: March 11 (core);
related LSin from GERAN in RP-100718; GERAN background information in GP-101232
discussion: ZTE: needs a revision (e.g. Alcatel missing in Alcatel-Lucent)
conclusion: revised in RP-101013

RP-101013 Proposed Work Item on Enhancements of Iur-g interface – RAN part ZTE WID new LS06 REL-10 -
conclusion: approved (unseen)

RP-100946 Requirements on enhancement of Iur-g interface CMCC Info REL-10 -
conclusion: noted

RP-100981 Draft reply LS to GP-101660 = RP-100718 on Enhancements of Iur-g interface (to: GERAN; cc: -; contact: Qualcomm) RAN3 chairman (Qualcomm) LSout LS06 REL-10 -
discussion: RAN chairman: can be used for offline discussion, we will come back to it on Thu
conclusion: revised in RP-100988

RP-100988 Draft reply LS to GP-101660 = RP-100718 on Enhancements of Iur-g interface (to: GERAN; cc: -; contact: Qualcomm) RAN3 chairman (Qualcomm) LSout LS06 REL-10 -
conclusion: revised in RP-101014 to provide the final LS which is approved unseen

RP-101014 Reply LS to GP-101660 = RP-100718 on Enhancements of Iur-g interface (to: GERAN; cc: -; contact: Qualcomm) RAN LSout REL-10 -
conclusion: approved; note: RP-101014 was at first approved. But since RP-101014 has still "draft" on the cover and not RAN as source, RP-101014 was revised in RP-101016.

RP-101016 Reply LS to GP-101660 = RP-100718 on Enhancements of Iur-g interface (to: GERAN, RAN3, GERAN2, RAN2; cc: SA; contact: Qualcomm) RAN LSout REL-10 -
conclusion: approved (unseen)

RP-100935 New work item proposal: UE Conformance Test Aspects – Home NB enhancements for FDD Huawei WID new REL-9 -
new WI proposal for UTRA (leading: RAN5); target: Dec.11 (testing)
conclusion: approved

RP-100950 New WID : Interfrequency detected set measurements for UMTS Nokia, Nokia Siemens Networks WID new REL-10 -
new WI proposal for UTRA (leading WG: RAN2); target: Dec.10 (core)
discussion: ZTE: any relation to existing ANR work?
Nokia: ANR has more extensions/features, so smaller scope here, was discussed in LS between RAN2 and RAN4
ZTE: should WI not be linked?
Nokia: not needed
RAN2 chairman: some time in UMTS session would be available to start this
RAN chairman: this topic was already treated in RAN2/RAN4, work seems to be limited and some operators seem to be interested
RAN chairman: how many companies want to make comments on this WI? 3
conclusion: revised in RP-101012

RP-101012 New WID : Interfrequency detected set measurements for UMTS Nokia, Nokia Siemens Networks WID new REL-10 -
discussion: Nokia: It was clarified that the intention of the work item is to extend the existing interfrequency measurements and measurement reporting to the detected set case in a similar manner as intrafrequency detected set measurements and measurement reporting.
KDDI: justification for the WI is small and WI is already ongoing so would like to have some clarification
RAN chairman: belongs to the third category of the guidance email on RAN reflector
Vodafone: should it be a building block, there is no feature?

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Nokia: if we need a perf. part later we could have it in REL-11
RAN2 chairman: I thought it is clear there would be performance requirements
Nokia: no, they are core requirements
Ericsson: what about the perf. part requirements then?
KDDI: why was this work started without WI?
Qualcomm: was introduced under TEI in the first place
conclusion: revised in RP-101015 to have this WI as a feature,
assumed that no performance part is needed

RP-101015 New WID : Interfrequency detected set measurements for UMTS Nokia, Nokia Siemens Networks
WID new REL-10 -
conclusion: approved

related to LTE:

RP-100868 New WI proposal: UE conformance test aspects for Enhanced Dual-layer transmission for LTE TDD
CMCC WID new REL-9-
new WI proposal for LTE (leading: RAN5); target: March 11 (testing)
conclusion: approved

related to UTRA & LTE:

RP-100955 Proposed new Work Item "RAN mechanisms to avoid CN overload due to MTC" Vodafone WID
new REL-10 -
new WI proposal for UTRA & LTE (leading WG: RAN2); target: Dec.10 (core);
related LS in RP-100963.
supporting companies are missing, related SI is still ongoing;
discussion: Ericsson: we withdraw our alternative RP-100976
RAN chairman: seems several companies are interested in this topic
conclusion: revised in RP-101011

RP-101011 Proposed new Work Item "RAN mechanisms to avoid CN overload due to MTC" Vodafone WID
REL-10 -
new WI proposal for UTRA & LTE (leading WG: RAN2); target: Dec.10 (core);
linked to SA2 feature and supporting companies missing?
discussion: RAN3 chairman: does WI supersede SI?
RAN2 chairman: a parallel WI puts more pressure on SI for overload control in order to be able to finish WI, so need to structure the agenda carefully
NSN: would say for SI only overload aspects can be considered in SI
KDDI: what is the reason to handle this WI differently from other WIs (since we have not received any LS)
Qualcomm: SA2 created a feature and we are contributing the RAN part
RAN chairman: heard some concerns to the WI but on the other hand SA work will go on; so this concern and the tight time schedule needs to be solved
Vodafone: we have 15 supporting companies which will do the work
RAN chairman: freezing of REL-10 in March 11 and ASN.1 freeze in June 11 possible?
NTT DOCOMO: doesn't think this is feasible, esp. access class barring aspect; since we have functionality freeze in Dec. this is critical
RAN3 chairman: we could take SA2 LS and start work then in RAN2/RAN3 and then we can start WI in Dec. if needed
Vodafone: usually we prefer to avoid TEI CRs but to have related WIs in the workplan
Alcatel-Lucent: we can implicitly assume that there are two classes
Telefonica: we could start the WI and minute this as an open issue
NTT DOCOMO: it took us about 1 year to finalize SSAC because of the modelling so is it really feasible to do SA2 work in 3 months and do the RAN work in parallel?
Huawei: suggests that RAN continues SI and RAN #50 will check whether we have more concrete proposals from SA1/SA2 to start the WI
Ericsson: suggest to put SI on hold and agree the WI
NTT DOCOMO: there are 7 solutions in RAN2 and access class barring is only one solution
LG: agrees with NTT DOCOMO that picking out one specific solution is strange
Vodafone: there is no exclusion of other solutions
RAN2 chairman: 7 proposals on the table and we started to evaluate
Huawei: we co-signed assuming that the SI would continue to solve overload aspect first
Ericsson: intention is to complete the WI by March 2011
RAN chairman: difficult to have a quick decision, suggests to have offline discussion

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NTT DOCOMO: is interested in studying MTC but we think it needs more discussion, this could easily fill a year
conclusion: postponed to offline discussion
Vodafone's report of offline discussion: Everybody is fine now to have the WI, rapporteur changed to Huawei, we will put the SI on hold until WI is complete
MCC: since it is a feature below an SA2 feature we can remove the feature part and call the current core part a building block below
RAN2 chairman: since currently the WI is linked to the SI it is better to revise this, remove the link, keep SI on hold
NSN: you continue the WI with the same scope as the SI?
RAN2 chairman: no, SI scope is wider
conclusion: revised in RP-101022; SI (see RP-100795) will be kept on hold until WI is closed
offline discussion on how to revise the WID

RP-101022 Proposed new Work Item "RAN mechanisms to avoid CN overload due to MTC" Vodafone WID new LS07 REL-10 -
new WI proposal for UTRA & LTE (leading WG: RAN2); target: March 11;
linked to SA2 feature, related SI will be kept on hold;"
discussion: LG: we will consider bullet point 1 in RAN1 but we do not need it here for RAN2, also title
conclusion: revised in RP-101026

RP-101026 Proposed new Work Item "RAN mechanisms to avoid CN overload due to MTC" Vodafone WID new LS07 REL-10 -
new WI proposal for UTRA & LTE (leading WG: RAN2); target: March 11;
linked to SA2 feature, related SI will be kept on hold;
discussion: NTT DOCOMO: not happy to approve the WI since we might need exception in March 2011 but since there are so many companies supporting we will not object but we would like to have a checkpoint in Dec. whether we can really finish the work by March
conclusion: approved, RAN chairman: we will check at RAN #50 whether the WI can be completed in time especially looking at work in other TSGs

RP-100976 New WI proposal: "Overload protection of RAN from MTC communication: Alternative version" Ericsson, ST-Ericsson WID new REL-10 -
new WI proposal for UTRA & LTE (leading WG: RAN2); target: Dec.10 (core);
alternative proposal to RP-100955, SI is still ongoing
conclusion: withdrawn

RP-100957 LS from SA1 on Congestion Control Requirements in TS 22.368 Vodafone Info REL-10 NIMTC
This LS S1-102293 is provided here for information and it is related to RP-100955.
discussion: RAN chairman: let's try to clarify SA1 status before we consider approval of new WID
KDDI: SA1 has not yet decided to communicate with RAN
conclusion: noted

RP-100958 Proposed new work item on e2e application testing in the UE Vodafone WID new REL-10 -
new WI proposal for UTRA & LTE (leading WG: RAN5); target: June 11 (testing);
1 supporting company is missing
discussion: RAN chairman: is related to RAN5 ToR discussion that we will treat on Wednesday
AT&T: proposal has to go to RAN5 to discuss it there
conclusion: not agreed, just for information so far as not covered by current RAN5 ToR

12.2 New Study Items

related to UTRA:

RP-100890 Proposed Study Item on Single Frequency Dual Cell Operation for UTRA FDD Qualcomm Inc SID new REL-10 -
new SI proposal for UTRA (leading: RAN1); target: March 11
supporting companies missing, no impact?
discussion: Qualcomm: ME and AN impacted, China Unicom, Telefonica, Deutsche Telekom interested to co-sign
RAN chairman: SI has lower priority and this is not related to ITU-R submission; can RAN1 treat this already or would it be better to start later?

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Motorola: impact in work item phase?
Qualcomm: scope in WI might be different but we look at SI in RAN1 UTRA session so far
Motorola: we also need to consider later impact on RAN4 since RAN4 has to discuss several topics
NSN: can we come back in Dec. as suggested in the guidance from RAN chairman?
Qualcomm: in case we strictly apply the guidance we need to apply it in the same way to all of the WIs/SIs
RAN chairman: it seems a larger number of companies are interested in discussing this topic
conclusion: postponed

RP-100891 Proposed Study Item on Improvements of resource utilization mechanism for 1.28Mcps TDD HSUPA System Qualcomm Inc SID new REL-10 -
new SI proposal for UTRA (leading: RAN1);
conclusion: withdrawn

RP-100933 SI proposal: Study of Uplink Closed Loop Transmit Diversity for UTRAN Huawei SID new REL-10 -
new SI proposal for UTRA (leading: RAN1); target: June 11;
supporting companies missing, no impact?
discussion: Huawei: reasons why we present it here: good progress in CDMA in RAN1 and topic was already discussed twice in RAN1
RAN chairman: it seems a larger number of companies are interested in discussing this topic
conclusion: postponed

related to LTE:

RP-100942 SI proposal: Inclusion of RF Pattern Matching as a positioning method in the E-UTRAN Polaris Wireless SID new REL-10 -
new SI proposal (actually proposed for REL-11 time frame) for LTE (leading: RAN4); target: Sep.11
discussion: RAN chairman: not related to ITU-R submission but related to RAN4 and LTE so it would be rather critical in terms of work load
RAN chairman: 3 companies interested to discuss this topic
RAN chairman: any objection to postpone all SI proposals?
Qualcomm: ok, if we apply the same rules to WIs
Polaris Wireless: postponing to next RAN meeting?
RAN chairman: yes, so far
RAN chairman: we will further discuss new WIs/SIs on Thu but it is realistic that we will postpone a number of SIs/WIs
conclusion: postponed

related to UTRA & LTE:

No contributions.

13 Technical co-ordination among WGs

13.1 Working Agreements

RAN #48 had one working agreement on "E-UTRA Band 20 Rx requirements": http://www.3gpp.org/TSG-Working-Agreements
This working agreement can be challenged before 07.09.2010 end of this day (CEST).
In case it is challenged a **voting** will take place at RAN #49. Corresponding announcements will be made on the RAN reflector.

Working agreement was not challenged. Therefore no voting needed.

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But RAN4 meeting #56 in August 2010 agreed an additional 36.101 CR0617r1 in R4-103463 which will be provided to RAN #49 for approval (see RP-100919).

14 Outputs to other groups

For draft outgoing LSs see agenda items under which they were drafted. For final LSs see Annex D.

15 Project management

RP-100875 3GPP Work Plan review at Plenary #49 MCC Workplan - -
discussion: NSN: machine to machine in SA all work delayed?
MCC: difficult to predict what they will decide next week
NSN: who created the predication?
MCC: this is a collection of MCC input
RAN1 chairman: assuming that this will be updated to the latest status, e.g. we put 25.927 under CR control and closed the SI
RAN chairman: correct, MCC will update this; functional freeze will be in Dec.2010, ASN.1 freeze will be in June 2011
conclusion: noted

RP-100877 3GPP Green activities / Energy Saving MCC Info REL-10 FS_Energy_UMTS, FS_Energy_LTE
discussion: MCC: collection of work on energy saving
conclusion: noted

RP-100878 3GPP work items on HN(e)B and SON MCC Info REL-8 -
conclusion: noted

RP-100879 3GPP Releases Descriptions – R99 to Rel-11 MCC Info - -
conclusion: noted

RP-100880 CRs to 21.801 (3GPP drafting rules) MCC CR21.801set REL-10 TEI10
discussion: MCC: is just for information for RAN, will be seen by SA
Telefonica: normal view exist only in WORD 2003
RAN chairman: lack of space on 25.8xx series will lead to usage of 25.7xx, this should also be reflected
MCC: ok
conclusion: noted (just for information as will be for approval in SA #49)

RP-100881 Support Team report MCC Report - -
conclusion: noted

RP-100884 Guidance on the Release 10 finalization process and start of Release 11 RAN Leaders Disc REL-10 -
discussion: CATT: section 3 last paragraph: not all REL-10 WIs have separate core part and perf. part, e.g. MC-HSUPA
RAN chairman: then bullet 5 has to be applied
LG: RAN2 or RAN3 specific WI will not be started?
RAN chairman: correct
Huawei: LTE and UTRA will be distinguished?
RAN chairman: UMTS part can be more flexible since in parallel in RAN1 and RAN2
NSN: would not like to see new UTRA work for RAN4 until March, so would rather apply the same principle for both
Alcatel-Lucent: with ASN.1 freeze in June this should not invite for new REL-10 WIs
RAN chairman: correct, of course
RAN2 chairman: in Dec. we can look whether we could start some new UTRA REL-11 work
RAN chairman: would like to approve this guidance for now and we can check the UMTS situation in Dec.

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KDDI: RAN4 perf. part can be delayed by 2 TSG cycles, no limit for RAN5?
RAN chairman: testing is handled separately
RAN5 chairman: our WIs are anyway decoupled from the WIs of other groups
RIM: cut-off for TEI WIs in Dec.? since there is now rapporteur
RAN chairman: after functional freeze new features under TEI are not allowed
conclusion: approved, possibility of introduction of new REL-11 UTRA SIs/WIs after Dec. will be reviewed at RAN #50

16 Future meeting schedule

Meeting schedule 2010/2011/2012:

MEETING	DATES	LOCATION	HOST
RAN #47	16 March – 19 March 2010	Vienna, Austria	EF3
RAN #48	1 June – 4 June 2010	Seoul, Korea	TTA
RAN #49	14 Sep. – 17 Sep. 2010	San Antonio, USA	NAF3
RAN #50	7 Dec. – 10 Dec. 2010	Istanbul, Turkey	EF3
RAN #51	15 March – 18 March 2011	?, USA	
RAN #52	31 May – 3 June 2011	Bratislava, Slovakia	EF3
RAN #53	13 Sep. – 16 Sep. 2011	?, Japan (tbc)	
RAN #54	6 Dec. – 9 Dec. 2011	Berlin, Germany	EF3
RAN #55	28 Feb. – 2 March 2012		
RAN #56	12 June – 15 June 2012	?, Europe	EF3
RAN #57	4 Sep. – 7 Sep. 2012		
RAN #58	4 Dec. – 7 Dec. 2012	?, Europe	EF3

17 Any other business

Nothing to report.

18 Closing of the meeting

The TSG RAN chairman Takehiro Nakamura (NTT DOCOMO) thanked the delegates for participating and contributing to RAN meeting #49 and RAN vice chairmen and RAN secretary for their support of the meeting. He thanked the North American Friends of 3GPP for hosting this meeting and closed the meeting on Friday September 17th, 2010 at about 11:45.

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Annex A:
List of participants

The list of participants of this RAN meeting #49 is attached to this report.

Total number of participants: 124 (registered before the meeting: 142)

Annex B:
List of Tdocs

The list of Tdocs of this RAN meeting #49 is attached to this report.

Total number of Tdocs: 327 (RP-100700 - RP-101026) of which 319 Tdocs are available, i.e. 8 are not available and they are withdrawn.

Annex C:
Incoming liaison statements (LSin)

In total 23 LSs were received for RAN #49 (3 of them received during the meeting). All 23 were treated.

RAN Tdoc	title (incoming LS, to, cc, contact)	source	REL	WI	RAN action requested	status	final LS answer	additional comments
RP-100702	LS on MSR BS RF requirements for non-contiguous spectrum deployments (R4-102735; to: GERAN; cc: RAN; contact: Ericsson)	RAN4	REL-10	MSR_NC	no	noted	none	
RP-100703	Reply LS to RP-100670 on 802.19 response to questions from 3GPP (IEEE P802.19-10/00102r1; to: RAN; cc: -; contact: NICT)	IEEE P802.19 Wireless Coexistence WG	-	-	no	noted	none	related to Wireless Coexistence in the TV White Space

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RAN Tdoc	title (incoming LS, to, cc, contact)	source	REL	WI	RAN action requested	status	final LS answer	additional comments
RP-100704	LS on REVISION OF RECOMMENDATION ITU-R M.1580-3 AND M.1581-3 (WORKING DOCUMENT TOWARDS M.1580-4 AND M.1581-4) (ITU-R WP5D/TEMP/349rev1; to: ext. organisations (3GPP); cc: -; contact: ITU-R WP5D Counsellor)	ITU-R WP5D	-	-	no	noted	RP-100997	related to out-of-band emission masks and spurious emission limits for IMT base stations and mobile stations
RP-100705	LS on REVISION OF REPORT ITU-R M.2039-1 AND WORK ON UHF SHARING STUDIES (ITU-R WP5D/TEMP/367; to: ext. organisations (3GPP); cc: -; contact: ITU-R WP5D Counsellor)	ITU-R WP5D	-	-	not explicitly	noted	RP-100971	related to CHARACTERISTICS OF TERRESTRIAL IMT-2000 SYSTEMS FOR FREQUENCY SHARING/INTERFERENCE ANALYSES
RP-100706	LS on THE SCHEDULE AND TECHNICAL AND ADMINISTRATIVE INPUTS FOR THE COMPLETION OF THE FIRST RELEASE OF RECOMMENDATION ITU-R M.[IMT.RSPEC] (ITU-R WP5D/TEMP/358; to: ext. organisations (3GPP); cc: -; contact: ITU-R WP5D Counsellor)	ITU-R WP5D	-	-	not explicitly	noted	none	related to completion of the terrestrial radio interface specifications planned for Recommendation ITU-R M
RP-100707	LS on FINAL IMT-ADVANCED EVALUATION REPORTS (ITU-R WP5D/TEMP/392rev1; to: INDEPENDENT EVALUATION GROUPS; cc: IMT-ADVANCED TECHNOLOGY PROPONENTS (3GPP); contact: SWG chairman (Ericsson))	ITU-R WP5D	-	-	no	noted	none	
RP-100708	LS on eICIC progress in RAN1 (R1-105094; to: RAN, RAN2, RAN3, RAN4; cc: -; contact: CMCC)	RAN1	REL-10	eICIC_LTE-Core	not explicitly	noted	none	
RP-100709	LS on the response to ITU-R WP5D on "REVISION OF RECOMMENDATION ITU-R M.1580-3 AND M.1581-3 (WORKING DOCUMENT TOWARDS M.1580-4 AND M.1581-4)" (R4-102796; to: RAN; cc: 3GPP TSG RAN ITU-R Ad Hoc; contact: Telecom Italia)	RAN4	-	-	yes	noted	none	this is a reply LS drafted by RAN4 to the ITU-R WP5D LS in RP-100704; attachment of RP-100709 was revised further in RP-100997

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RAN Tdoc	title (incoming LS, to, cc, contact)	source	REL	WI	RAN action requested	status	final LS answer	additional comments
RP-100710	LS on the response to ITU-R WP5D on "REVISION OF REPORT ITU-R M.2039-1 AND WORK ON UHF SHARING STUDIES" (R4-102797; to: RAN; cc: 3GPP TSG RAN ITU-R Ad Hoc; contact: Telecom Italia)	RAN4	-	-	yes	noted	none	this is a reply LS drafted by RAN4 to the ITU-R WP5D LS in RP-100705; attachment of RP-100710 was revised further in RP-100971
RP-100711	LS on Status of the MSR Work Item (R4-103395; to: GERAN1; cc: RAN; contact: Ericsson)	RAN4	REL-9	RInImp9-RFmulti	no	noted	none	MSR = Multi-Standard Radio; GERAN1 replied to RP-100711 in RP-100715
RP-100712	Reply LS to RP-100693 on Introduction of CSG reselection requirements in RAN4 (R4-103460; to: RAN; cc: RAN2, RAN5, GERAN; contact: Nokia)	RAN4	REL-8	LTE-L23, HNB-supp, LTE-UEConTest, HNB-UEConTestFDD	not explicitly	noted	none	
RP-100713	Reply LS to GCF SG LS S-10-103 = R5-104166 on RAN5 Terms of Reference (R5-104673; to: GCF SG; cc: RAN; contact: RAN5 chairman, NTT DOCOMO)	RAN5	-	-	not explicitly	noted	RP-101025	PTCRB = PCS Type Certification Review Board; latest RAN5 ToR: RP-070834 (RAN #38); in addition to the LS reply RP-101025 also an LS was sent to GCF SG in RP-101024
RP-100714	Reply LS to RP-100669 on "communications from ITU-R WP5A" and to RT-100055 on "REVISION WORK ON RECOMMENDATION ITU-R F.757-3 - Basic system requirements and performance objectives for fixed wireless access using mobile-derived technologies offering telephony and data communication service" (GP-101448; to: 3GPP TSG RAN ITU-R Ad Hoc; cc: RAN; contact: Telecom Italia)	GERAN	-	-	no	noted	none	

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RAN Tdoc	title (incoming LS, to, cc, contact)	source	REL	WI	RAN action requested	status	final LS answer	additional comments
RP-100715	Reply LS to R4-103395 = RP-100711 to "LS on Status of the MSR Work Item" (GP-101560; to: RAN, RAN4; cc: ETSI TC MSG, ETSI TC MSG TFES; contact: Ericsson)	GERAN1	REL-9	RF requirements for Multicarrier and Multi-RAT BS (GERAN part)	not explicitly	noted	none	GERAN1 answer to RAN4 LS which is also received at RAN #49 (see RP-100711)
RP-100716	Reply LS to R4-102735 = RP-100702 on "MSR BS RF requirements for non-contiguous spectrum deployments" (GP-101646; to: RAN, RAN4; cc: -; contact: Ericsson)	GERAN1	REL-10	MSR_NC	not explicitly	noted	none	GERAN1 answer to RAN4 LS which is also received at RAN #49 (see RP-100702)
RP-100717	Reply LS to RP-100669 on "communications from ITU-R WP5A" and to RT-100054 on "Mobile Wireless access systems providing telecommunications for a large number of ubiquitous sensors and/or actuators scattered over wide areas in the land mobile service" (GP-101653; to: 3GPP TSG RAN ITU-R Ad Hoc; cc: RAN, SA1, SA2, RAN2; contact: Telecom Italia)	GERAN	-	-	not explicitly	noted	none	
RP-100718	LS on Enhancements of Iur-g interface (GP-101660; to: RAN3; cc: RAN; contact: ZTE)	GERAN	REL-10	-	no	noted	RP-101016	note: GERAN approved a GERAN WI with a RAN3 task; WI proposal to cover this task by a RAN WI in RP-100962 and more explanation in RP-100946; in addition to the LS reply RP-101016 a new WI was approved in RP-101013
RP-100719	LS on Relay Node (RN) testing (R2-105247; to: RAN; cc: RAN1, RAN3, RAN4, RAN5; contact: Ericsson)	RAN2	REL-10	LTE_Relay-core	yes	noted	postponed	LS answer postponed to RAN #50
RP-100720	LS on Best Practices for Fast Dormancy (-; to: RAN; cc: GSMA devices group; contact: GSMA)	GSMA	REL-8	-	no	noted	none	
RP-100963	LS on Release 10 NIMTC Conclusion (S2-104432; to: GERAN, GERAN2, CT1, CT4, SA1, SA3, SA5, RAN2, RAN3; cc: SA; contact: Samsung)	SA2	REL-10	FS_NIMTC_RAN	-	noted	none	RAN was not addressed by this LS, provided on SA2 request

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RAN Tdoc	title (incoming LS, to, cc, contact)	source	REL	WI	RAN action requested	status	final LS answer	additional comments
RP-100964	LS on draft RAN1 CRs for Carrier Aggregation, Enhanced Downlink Multiple Antenna Transmission and Uplink Multiple Antenna Transmission Work Items (R1-105099; to: RAN2, RAN3, RAN4; cc: RAN; contact: Alcatel-Lucent)	RAN1	REL-10	-	no	noted	none	LS was received on Tuesday of RAN #49; attached CRs were only provided for information, not for approval
RP-101020	Reply to LS to RP-100972 on “Mobile Wireless access systems providing telecommunications for a large number of ubiquitous sensors and/or actuators scattered over wide areas in the land mobile service” (CP-100630; to: RAN; cc: SA; contact: Telecom Italia)	CT	REL-10	FS_NIMTC_RAN	yes	noted	none	LS was received on Friday of RAN #49; as a consequence RP-100871 was revised in RP-101019
RP-101021	Reply LS to RP-100983 on ITU-R M.[IMT.RSPEC] (CP-100643; to: RAN, SA; cc: -; contact: CT chairman (Nokia))	CT	-	-	yes	noted	none	LS was received on Friday of RAN #49

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Annex D:
Outgoing liaison statements (LSout)

Only final outgoing LSs are listed here.
10 outgoing LSs (0 LSs approved by email after RAN #49):

final LS Tdoc	title	to	cc	contact	reply to	release	WI	comments
RP-100972	Mobile Wireless access systems providing telecommunications for a large number of ubiquitous sensors and/or actuators scattered over wide areas in the land mobile service	CT	3GPP RAN ITU-R ad hoc	Telecom Italia	-	REL-10	FS_NIMTC_RAN	related to LSin RP-100696 of RAN #48and RP-100871; LS RP-100972 was sent out on Tuesday of RAN #49; CT answered RP-100972 on Friday in RP-101020
RP-100983	Schedule, Structure, and Deliverables toward the completion of the first Release of Rec. ITU-R M.[IMT.RSPEC]	CT, SA	3GPP ITU-R Ad Hoc	Telecom Italia	-	-	-	LS RP-100983 was sent out on Tuesday of RAN #49; CT answered RP-100983 on Friday in RP-101021
RP-101016	Enhancements of Iur-g interface	GERAN, RAN3, GERAN2, RAN2	SA	Qualcomm	GP-101660 = RP-100718	REL-10	-	in addition to the LS reply RP-101016 a new WI was approved in RP-101013
RP-101024	RAN5 Terms of Reference Considerations	GCF SG	RAN5, PTCRB	NTT DOCOMO	-	-	-	PTCRB = PCS Type Certification Review Board; LSout RP-101024 was triggered by LSin RP-100713 from RAN5
RP-101025	Request to RAN5 to analyse proposal for performance testing	RAN5	-	RIM	R5-104673 = RP-100713	-	-	

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The following documents are related to communication with ITU-R:

final LS Tdoc	title	to	cc	contact	reply to	release	WI	comments
RP-100872	REVISION WORK ON RECOMMENDATION ITU-R F.757-3 - Basic system requirements and performance objectives for fixed wireless access using mobile-derived technologies offering telephony and data communication service	ITU-R WP5A	-	Telecom Italia	RP-100427 (RAN #48)	-	-	LS answer RP-100872 was prepared by 3GPP ITU-R Ad Hoc; RP-100872 will be further reviewed by SA, PCG
RP-100873	COMPATIBILITY OF BROADBAND WIRELESS ACCESS SYSTEMS AND FIXED-SATELLITE SERVICE NETWORKS IN THE 3400-4200 MHz BAND	ITU-R WP5A	-	Telecom Italia	RP-100428 (RAN #48)	-	-	LS answer RP-100873 was prepared by 3GPP ITU-R Ad Hoc; RP-100873 does not need to be further reviewed by SA, PCG
RP-100971	REVISION OF REPORT ITU-R M.2039-1 AND WORK ON UHF SHARING STUDIES	ITU-R WP5D	-	Telecom Italia	RP-100705	-	-	RP-100971 will be further reviewed by SA, PCG
RP-100997	REVISION OF RECOMMENDATION ITU-R M.1580-3 AND M.1581-3 (WORKING DOCUMENT TOWARDS M.1580-4 AND M.1581-4)	ITU-R WP5D	-	Telecom Italia	RP-100704	REL-10	FS_NIMTC_RAN	RP-100997 does not need to be further reviewed by SA, PCG
RP-101023	Mobile Wireless access systems providing telecommunications for a large number of ubiquitous sensors and/or actuators scattered over wide areas in the land mobile service	ITU-R WP5A	-	Telecom Italia	RP-100425 (RAN #48)	REL-10	FS_NIMTC_RAN	RP-101023 was drafted by support of 3GPP ITU-R Ad Hoc (RP-100871) and CT (RP-101020); RP-101023 will be further reviewed by SA

RAN chairman will take care that reviews will take place at SA and PCG.

3GPP ITU-R Ad Hoc convener will take care of final submissions to ITU-R via Individual members.

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Annex E:
List of Change Requests (CRs)

This list of 1056 CRs includes all CRs submitted at RAN #49.

Spec	CR	Rev	Phase	Cat	Plenary doc	WG doc	TSG status	Subject	CR to	Resulting vers	WG	Workitem
25.101	0722	-	Rel-9	F	RP-100921	R4-102888	approved	Clarification of primary uplink frequency and secondary uplink frequency	9.4.0	9.5.0	R4	4C_HSDPA-Core
25.101	0723	-	Rel-7	F	RP-100913	R4-102970	approved	Corrections to CQI reporting requirements	7.17.0	7.18.0	R4	TEI7
25.101	0724	-	Rel-8	F	RP-100918	R4-102971	approved	Corrections to CQI reporting requirements	8.11.0	8.12.0	R4	TEI8
25.101	0725	-	Rel-9	A	RP-100918	R4-102972	approved	Corrections to CQI reporting requirements	9.4.0	9.5.0	R4	TEI8
25.101	0728	-	Rel-9	F	RP-100921	R4-103071	approved	Correction to Rx core requirements for DC-HSUPA	9.4.0	9.5.0	R4	RANimp-DC_HSUPA
25.102	0329	-	Rel-7	F	RP-100913	R4-102989	approved	Correction of 1.28Mcps TDD spectrum emission mask requirement	7.17.0	7.18.0	R4	TEI7
25.102	0330	-	Rel-8	A	RP-100913	R4-102990	approved	Correction of 1.28Mcps TDD spectrum emission mask requirement	8.7.0	8.8.0	R4	TEI7
25.102	0331	-	Rel-9	A	RP-100913	R4-102991	approved	Correction of 1.28Mcps TDD spectrum emission mask requirement	9.1.0	9.2.0	R4	TEI7
25.104	0372	-	Rel-8	F	RP-100918	R4-102775	approved	Corrections on Home BS spurious emission limits for co-existence with Home BS operating in other bands	8.10.0	8.11.0	R4	HNB-RF
25.104	0373	-	Rel-9	A	RP-100918	R4-102776	approved	Corrections on Home BS spurious emission limits for co-existence with Home BS operating in other bands	9.4.0	9.5.0	R4	HNB-RF
25.104	0374	1	Rel-9	C	RP-100921	R4-103358	approved	Revision of Time Alignment Error requirement	9.4.0	9.5.0	R4	4C_HSDPA-Core
25.105	0276	1	Rel-9	F	RP-100922	R4-103379	approved	Clarification on applicability of requirements for multi-carrier BS	9.1.0	9.2.0	R4	RInImp9-RFmulti
25.106	0064	-	Rel-9	F	RP-100925	R4-102390	approved	Introduction of operating band XIX, XX and XXI and correction of band XI	9.0.0	9.1.0	R4	TEI9
25.106	0065	1	Rel-7	F	RP-100913	R4-103324	approved	RCDE for 64QAM modulated codes for FDD Repeater	7.3.0	7.4.0	R4	TEI7
25.106	0066	1	Rel-8	A	RP-100913	R4-103325	approved	RCDE for 64QAM modulated codes for FDD Repeater	8.3.0	8.4.0	R4	TEI7
25.106	0067	1	Rel-9	A	RP-100913	R4-103326	approved	RCDE for 64QAM modulated codes for FDD Repeater	9.0.0	9.1.0	R4	TEI7
25.113	0048	-	Rel-9	F	RP-100923	R4-103244	approved	Clarification of radiated emissions requirement	9.2.0	9.3.0	R4	RInImp9-RFmulti
25.123	0478	-	Rel-8	F	RP-100918	R4-102890	approved	Correction on UTRAN TDD - E-UTRAN cell re-selection requirements in R8	8.7.0	8.8.0	R4	LTE-RF
25.123	0479	-	Rel-9	A	RP-100918	R4-102891	approved	Correction on UTRAN TDD - E-UTRAN cell re-selection requirements in R9	9.2.0	9.3.0	R4	LTE-RF
25.123	0480	-	Rel-8	F	RP-100918	R4-102892	approved	Correction on location band 11 in 25.123(R8)	8.7.0	8.8.0	R4	LTE-RF
25.123	0481	-	Rel-9	A	RP-100918	R4-102893	approved	Correction on location band 11 in 25.123(R9)	9.2.0	9.3.0	R4	LTE-RF
25.123	0482	-	Rel-8	F	RP-100918	R4-102933	approved	Adding the test case for cell re-selection in enhanced CELL_FACH state in 1.28Mcps TDD	8.7.0	8.8.0	R4	RANimp-EnhState1.28TDD
25.123	0483	-	Rel-9	A	RP-100918	R4-102934	approved	Adding the test case for cell re-selection in enhanced CELL_FACH state in 1.28Mcps TDD	9.2.0	9.3.0	R4	RANimp-EnhState1.28TDD
25.133	1065	1	Rel-9	F	RP-100921	R4-103437	approved	Clarification of primary uplink frequency and secondary uplink frequency	9.4.0	9.5.0	R4	4C_HSDPA-Core
25.133	1066	-	Rel-9	F	RP-100924	R4-102965	approved	Introduction of intrafrequency HNB test case	9.4.0	9.5.0	R4	EHNB-RAN2

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25.141	0550	-	Rel-8	F	RP-100918	R4-102777	approved	Corrections on Home BS spurious emission limits for co-existence with Home BS operating in other bands	8.10.0	8.11.0	R4	HNB-RF
25.141	0551	-	Rel-9	A	RP-100918	R4-102778	approved	Corrections on Home BS spurious emission limits for co-existence with Home BS operating in other bands	9.4.0	9.5.0	R4	HNB-RF
25.141	0552	-	Rel-8	F	RP-100918	R4-102782	approved	Clarifications on Base Station transmit and receive configurations	8.10.0	8.11.0	R4	TEI8
25.141	0553	-	Rel-9	A	RP-100918	R4-102783	approved	Clarifications on Base Station transmit and receive configurations	9.4.0	9.5.0	R4	TEI8
25.142	0264	1	Rel-9	F	RP-100922	R4-103380	approved	Clarification on applicability of requirements for multi-carrier BS	9.2.0	9.3.0	R4	RInImp9-RFmulti
25.143	0080	-	Rel-9	F	RP-100925	R4-102391	approved	Introduction of operating band XIX, XX and XXI and correction of band XI	9.0.0	9.1.0	R4	TEI9
25.143	0081	2	Rel-7	F	RP-100913	R4-103398	approved	RCDE for 64QAM modulated codes for FDD Repeater	7.3.0	7.4.0	R4	TEI7
25.143	0082	2	Rel-8	A	RP-100913	R4-103399	approved	RCDE for 64QAM modulated codes for FDD Repeater	8.4.0	8.5.0	R4	TEI7
25.143	0083	2	Rel-9	A	RP-100913	R4-103400	approved	RCDE for 64QAM modulated codes for FDD Repeater	9.0.0	9.1.0	R4	TEI7
25.211	0284	2	Rel-10	B	RP-100902	R1-105044	approved	Introduction of 4C-HSDPA	9.1.0	10.0.0	R1	4C_HSDPA
25.211	0285	1	Rel-7	F	RP-100892	R1-105089	approved	Clarification of PICH/HS-SCCH timing relation	7.9.0	7.10.0	R1	RANimp-EnhState
25.211	0286	1	Rel-8	A	RP-100892	R1-105090	approved	Clarification of PICH/HS-SCCH timing relation	8.6.0	8.7.0	R1	RANimp-EnhState
25.211	0287	1	Rel-9	A	RP-100892	R1-105091	approved	Clarification of PICH/HS-SCCH timing relation	9.1.0	9.2.0	R1	RANimp-EnhState
25.212	0287	1	Rel-9	F	RP-100897	R1-104152	approved	Clarification of uplink frequencies	9.2.0	9.3.0	R1	RANimp-DC_HSUPA
25.212	0288	3	Rel-10	B	RP-100902	R1-105045	approved	Introduction of 4C-HSDPA	9.2.0	10.0.0	R1	4C_HSDPA
25.213	0107	1	Rel-9	F	RP-100897	R1-104153	approved	Clarification of uplink frequencies	9.1.0	9.2.0	R1	RANimp-DC_HSUPA
25.213	0108	2	Rel-10	B	RP-100902	R1-105046	approved	Introduction of 4C-HSDPA	9.1.0	10.0.0	R1	4C_HSDPA
25.214	0602	5	Rel-7	F	RP-100893	R1-105002	approved	Clarification of the CQI definition when the UE is configured in MIMO mode	7.15.0	7.16.0	R1	MIMO-Phys
25.214	0603	5	Rel-8	A	RP-100893	R1-105003	approved	Clarification of the CQI definition when the UE is configured in MIMO mode	8.9.0	8.10.0	R1	MIMO-Phys
25.214	0604	5	Rel-9	A	RP-100893	R1-105004	approved	Clarification of the CQI definition when the UE is configured in MIMO mode	9.2.0	9.3.0	R1	MIMO-Phys
25.214	0605	4	Rel-7	F	RP-100883	R1-104974	approved	Clarification of HS-DSCH and HS-SCCH reception in CELL_FACH, CELL_PCH and URA_PCH states	7.15.0	7.16.0	R1	RANimp-EnhState
25.214	0606	3	Rel-8	A	RP-100883	R1-104975	approved	Clarification of HS-DSCH and HS-SCCH reception in CELL_FACH, CELL_PCH and URA_PCH states	8.9.0	8.10.0	R1	RANimp-EnhState
25.214	0607	3	Rel-9	A	RP-100883	R1-104976	approved	Clarification of HS-DSCH and HS-SCCH reception in CELL_FACH, CELL_PCH and URA_PCH states	9.2.0	9.3.0	R1	RANimp-EnhState
25.214	0611	3	Rel-10	B	RP-100902	R1-105047	approved	Introduction of 4C-HSDPA	9.2.0	10.0.0	R1	4C_HSDPA
25.214	0612	-	Rel-7	F	RP-100894	R1-104154	approved	Clarification of E-AGCH/E-RGCH monitoring in a CM gap when DL_DRX_Active is TRUE	7.15.0	7.16.0	R1	RANimp-CPC
25.214	0613	-	Rel-8	A	RP-100894	R1-104155	approved	Clarification of E-AGCH/E-RGCH monitoring in a CM gap when DL_DRX_Active is TRUE	8.9.0	8.10.0	R1	RANimp-CPC
25.214	0614	-	Rel-9	A	RP-100894	R1-104156	approved	Clarification of E-AGCH/E-RGCH monitoring in a CM gap when DL_DRX_Active is TRUE	9.2.0	9.3.0	R1	RANimp-CPC
25.214	0615	2	Rel-9	F	RP-100898	R1-105105	approved	Clarification on the interruption time for DB-HSDPA due to HS-SCCH order (de)activation	9.2.0	9.3.0	R1	RANimp-MultiBand_DC_HSDPA
25.214	0616	-	Rel-9	F	RP-100897	R1-104371	approved	Clarification on Secondary_EDCH_Cell_Active upon reception of redundant HS-SCCH order	9.2.0	9.3.0	R1	RANimp-DC_HSUPA
25.221	0209	-	Rel-8	F	RP-100895	R1-104826	approved	Correction of E-DCH Physical Uplink Channel for 1.28Mcps TDD	8.9.0	8.10.0	R1	RANimp-L2DataRates

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25.221	0210	-	Rel-9	A	RP-100895	R1-104827	approved	Correction of E-DCH Physical Uplink Channel for 1.28Mcps TDD	9.2.1	9.3.0	R1	RANimp-L2DataRates
25.221	0211	1	Rel-10	B	RP-100901	R1-105100	postponed	Introduction of MC-HSUPA for 1.28Mcps TDD	9.2.1		R1	TDD_MC_HSUPA
25.221	0212	-	Rel-10	B	RP-100903	R1-105104	postponed	Introduction of MU-MIMO for 1.28Mcps TDD	9.2.1		R1	MUMIMO_LCR_TDD-Core
25.222	0207	-	Rel-10	B	RP-100903	R1-105108	postponed	Introduction of MU-MIMO for LCR TDD	9.2.0		R1	MUMIMO_LCR_TDD-Core
25.223	0062	1	Rel-10	B	RP-100901	R1-105101	postponed	Introduction of MC-HSUPA for 1.28Mcps TDD	9.0.0		R1	TDD_MC_HSUPA
25.223	0063	-	Rel-10	B	RP-100903	R1-105109	postponed	Introduction of MU-MIMO for LCR TDD	9.0.0		R1	MUMIMO_LCR_TDD-Core
25.224	0253	2	Rel-8	F	RP-100896	R1-104987	approved	Clarification on HS-DSCH transmission in CELL_PCH or URA_PCH state for 1.28Mcps TDD	8.7.0	8.8.0	R1	RANimp-EnhState1.28TDD
25.224	0254	2	Rel-9	A	RP-100896	R1-104988	approved	Clarification on HS-DSCH transmission in CELL_PCH or URA_PCH state for 1.28Mcps TDD	9.1.0	9.2.0	R1	RANimp-EnhState1.28TDD
25.224	0257	2	Rel-10	B	RP-100901	R1-105102	postponed	Introduction of MC-HSUPA for LCR TDD	9.1.0		R1	TDD_MC_HSUPA
25.224	0259	-	Rel-10	B	RP-100903	R1-105110	postponed	Introduction of MU-MIMO for LCR TDD	9.1.0		R1	MUMIMO_LCR_TDD-Core
25.225	0099	1	Rel-10	B	RP-100901	R1-105103	postponed	Introduction of MC-HSUPA for 1.28Mcps TDD	9.2.0		R1	TDD_MC_HSUPA
25.302	0199	-	Rel-7	F	RP-100883	R2-105113	approved	Corrections to physical channel combinations for Enhanced CELL_FACH state for FDD	7.8.0	7.9.0	R2	RANimp-EnhState
25.302	0200	-	Rel-8	A	RP-100883	R2-105114	approved	Corrections to physical channel combinations for Enhanced CELL_FACH state for FDD	8.6.0	8.7.0	R2	RANimp-EnhState
25.302	0201	-	Rel-9	A	RP-100883	R2-105115	approved	Corrections to physical channel combinations for Enhanced CELL_FACH state for FDD	9.1.0	9.2.0	R2	RANimp-EnhState
25.302	0202	-	Rel-10	B	RP-100863	R2-105139	approved	Introduction of 4C-HSDPA for FDD	9.1.0	10.0.0	R2	4C_HSDPA-Core
25.304	0258	-	Rel-9	F	RP-100855	R2-104243	approved	Clarification on CSG aunotomous search	9.2.0	9.3.0	R2	EHNB-RAN2
25.304	0259	1	Rel-8	F	RP-100849	R2-105100	approved	Triggering of absolute priority based reselection while common E-DCH allocated	8.10.0	8.11.0	R2	RANimp-UplinkEnhState
25.304	0260	1	Rel-9	A	RP-100849	R2-105101	approved	Triggering of absolute priority based reselection while common E-DCH allocated	9.2.0	9.3.0	R2	RANimp-UplinkEnhState
25.304	0261	-	Rel-9	C	RP-100851	R2-105091	approved	Correction to EUTRA Qqualmin handling in reselection from UTRA	9.2.0	9.3.0	R2	LTE-L23
25.305	0119	1	Rel-10	C	RP-100864	R2-105088	approved	Support of RF Pattern Matching in UTRAN	9.0.0	10.0.0	R2	LCS_UMTS_RFPMT-Core
25.306	0271	-	Rel-8	F	RP-100846	R2-105035	approved	Clarification on the code rate restriction in HS-DSCH UE Categories 19.	8.9.0	8.10.0	R2	RANimp-64QamMimoHsdpa, RANimp-DCHSDPA
25.306	0272	-	Rel-9	A	RP-100846	R2-105036	approved	Clarification on the code rate restriction in HS-DSCH UE Categories 19.	9.3.0	9.4.0	R2	RANimp-64QamMimoHsdpa, RANimp-DCHSDPA
25.306	0273	-	Rel-9	F	RP-100857	R2-105056	approved	Clarification on the code rate restriction in HS-DSCH UE Categories 25 and 27.	9.3.0	9.4.0	R2	RANimp-DC_MIMO
25.306	0275	1	Rel-10	B	RP-100863	R2-105262	approved	Introduction of 4C-HSDPA categories	9.3.0	10.0.0	R2	4C_HSDPA-Core
25.308	0100	1	Rel-7	F	RP-100883	R2-105133	approved	Corrections to Enhanced CELL_FACH state for FDD	7.10.0	7.11.0	R2	RANimp-EnhState
25.308	0101	1	Rel-8	A	RP-100883	R2-105134	approved	Corrections to Enhanced CELL_FACH state for FDD	8.8.0	8.9.0	R2	RANimp-EnhState
25.308	0102	1	Rel-9	A	RP-100883	R2-105135	approved	Corrections to Enhanced CELL_FACH state for FDD	9.3.0	9.4.0	R2	RANimp-EnhState
25.308	0103	2	Rel-10	A	RP-101000	-	approved	Corrections to Enhanced CELL_FACH state for FDD	10.1.0	10.2.0	R2	RANimp-EnhState
25.308	0103	1	Rel-10	A	RP-100883	R2-105136	revised	Corrections to Enhanced CELL_FACH state for FDD	10.0.0	10.1.0	R2	RANimp-EnhState
25.319	0072	-	Rel-10	F	RP-100863	R2-105063	approved	Update of DC-HSUPA stage 2 description reflecting latest 4C-HSDPA agreements	10.1.0	10.2.0	R2	4C_HSDPA-Core
25.321	0676	-	Rel-8	F	RP-100847	R2-104245	approved	Clarification of the TCTF field encoding for 3.84 Mcps TDD IMB MBSFN (Rel-8)	8.10.0	8.11.0	R2	MBSFN-DOB

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25.321	0677	-	Rel-9	A	RP-100847	R2-104246	approved	Clarification of the TCTF field encoding for 3.84 Mcps TDD IMB MBSFN (Rel-9)	9.3.0	9.4.0	R2	MBSFN-DOB
25.321	0678	-	Rel-9	D	RP-100858	R2-104247	approved	Clarification of primary uplink frequency and secondary uplink frequency	9.3.0	9.4.0	R2	RANimp-DC_HSUPA
25.321	0679	-	Rel-9	F	RP-100858	R2-104248	approved	Clarification on the DTX operation for DC-HSUPA	9.3.0	9.4.0	R2	RANimp-DC_HSUPA
25.321	0680	-	Rel-9	F	RP-100859	R2-104249	approved	Clarification to the CELL_DCH measurement occasion in MAC for 1.28Mcps TDD	9.3.0	9.4.0	R2	TEI9
25.321	0681	-	Rel-10	B	RP-100863	R2-104250	approved	Introduction of 4C-HSDPA in 25.321	9.3.0	10.0.0	R2	4C_HSDPA-Core
25.321	0682	-	Rel-7	F	RP-100843	R2-105078	approved	Corrections to Serving Grant Update procedure to support Absolute Grant value ôZero_Grantö	7.17.0	7.18.0	R2	EDCH-L23, RANimp-16QamUplink
25.321	0683	-	Rel-8	A	RP-100843	R2-105079	approved	Corrections to Serving Grant Update procedure to support Absolute Grant value ôZero_Grantö	8.10.0	8.11.0	R2	EDCH-L23, RANimp-16QamUplink
25.321	0684	-	Rel-9	A	RP-100843	R2-105080	approved	Corrections to Serving Grant Update procedure to support Absolute Grant value ôZero_Grantö	9.3.0	9.4.0	R2	EDCH-L23,RANimp-16QamUplink
25.321	0685	-	Rel-8	F	RP-100849	R2-105102	approved	Clarification on the use of timer T2 in Enhanced Uplink in CELL_FACH state and Idle mode for FDD	8.10.0	8.11.0	R2	RANimp-UplinkEnhState
25.321	0686	-	Rel-9	A	RP-100849	R2-105103	approved	Clarification on the use of timer T2 in Enhanced Uplink in CELL_FACH state and Idle mode for FDD	9.3.0	9.4.0	R2	RANimp-UplinkEnhState
25.321	0699	1	Rel-8	F	RP-100849	R2-105123	approved	Corrections for Enhanced Uplink in CELL_FACH state and idle mode	8.10.0	8.11.0	R2	RANimp-UplinkEnhState
25.321	0700	1	Rel-9	A	RP-100849	R2-105124	approved	Corrections for Enhanced Uplink in CELL_FACH state and idle mode	9.3.0	9.4.0	R2	RANimp-UplinkEnhState
25.321	0701	1	Rel-7	F	RP-100840	R2-105263	approved	MAC-ehs PDU discard in enhanced CELL_FACH state	7.17.0	7.18.0	R2	RANimp-Enhstate
25.321	0702	1	Rel-8	A	RP-100840	R2-105264	approved	MAC-ehs PDU discard in enhanced CELL_FACH state	8.10.0	8.11.0	R2	RANimp-Enhstate
25.321	0703	1	Rel-9	A	RP-100840	R2-105265	approved	MAC-ehs PDU discard in enhanced CELL_FACH state	9.3.0	9.4.0	R2	RANimp-Enhstate
25.323	0320	1	Rel-9	F	RP-100859	R2-105266	approved	Removal of Context Identifier in PID of PDCP header	9.0.0	9.1.0	R2	TEI9
25.331	4191	-	Rel-7	F	RP-100844	R2-104251	approved	Incorrect inconsisitency check on MAC-ehs reordering queue	7.17.0	7.18.0	R2	RANimp-L2DataRates
25.331	4192	-	Rel-8	A	RP-100844	R2-104252	approved	Incorrect inconsisitency check on MAC-ehs reordering queue	8.11.0	8.12.0	R2	RANimp-L2DataRates
25.331	4193	-	Rel-9	A	RP-100844	R2-104253	approved	Incorrect inconsisitency check on MAC-ehs reordering queue	9.3.0	9.4.0	R2	RANimp-L2DataRates
25.331	4194	-	Rel-10	A	RP-100844	R2-104254	approved	Incorrect inconsisitency check on MAC-ehs reordering queue	10.0.0	10.1.0	R2	RANimp-L2DataRates
25.331	4198	-	Rel-8	D	RP-100850	R2-104258	approved	Correction to VAS updating	8.11.0	8.12.0	R2	TEI8
25.331	4199	-	Rel-9	A	RP-100850	R2-104259	approved	Correction to VAS updating	9.3.0	9.4.0	R2	TEI8
25.331	4200	-	Rel-10	A	RP-100850	R2-104260	approved	Correction to VAS updating	10.0.0	10.1.0	R2	TEI8
25.331	4201	-	Rel-9	D	RP-100858	R2-104261	approved	Clarification of primary uplink frequency and secondary uplink frequency	9.3.0	9.4.0	R2	RANimp-DC_HSUPA
25.331	4202	-	Rel-10	A	RP-100858	R2-104262	approved	Clarification of primary uplink frequency and secondary uplink frequency	10.0.0	10.1.0	R2	RANimp-DC_HSUPA
25.331	4205	1	Rel-9	F	RP-100856	R2-105069	approved	Correction to MIMO_STATUS and SECONDARY_CELL_MIMO_STATUS setting for Single Stream MIMO	9.3.0	9.4.0	R2	RANimp-TxAA_nonMIMO
25.331	4206	-	Rel-10	A	RP-100856	R2-104266	approved	Correction to MIMO_STATUS and SECONDARY_CELL_MIMO_STATUS setting for Single Stream MIMO	10.0.0	10.1.0	R2	RANimp-TxAA_nonMIMO
25.331	4207	-	Rel-10	B	RP-100862	R2-104267	approved	Introduction of Rel-10 access stratum release indicator	10.0.0	10.1.0	R2	TEI10

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25.331	4215	-	Rel-8	F	RP-100842	R2-105008	approved	Correction to RRC Signaling of S-CPICH power offset for MIMO UEs	8.11.0	8.12.0	R2	MIMO-L23
25.331	4216	-	Rel-8	F	RP-100842	R2-105073	approved	Correction to missing ASN.1 for MIMO parameters	8.11.0	8.12.0	R2	MIMO-L23
25.331	4217	-	Rel-9	A	RP-100842	R2-105089	approved	Correction to missing ASN.1 for MIMO parameters	9.3.0	9.4.0	R2	MIMO-L23
25.331	4218	-	Rel-10	A	RP-100842	R2-105090	approved	Correction to missing ASN.1 for MIMO parameters	10.0.0	10.1.0	R2	MIMO-L23
25.331	4219	-	Rel-8	F	RP-100850	R2-105044	approved	Correction to deferred SIB11/11bis/12 reading	8.11.0	8.12.0	R2	TEI8
25.331	4220	-	Rel-9	A	RP-100850	R2-105045	approved	Correction to deferred SIB11/11bis/12 reading	9.3.0	9.4.0	R2	TEI8
25.331	4221	-	Rel-10	A	RP-100850	R2-105046	approved	Correction to deferred SIB11/11bis/12 reading	10.0.0	10.1.0	R2	TEI8
25.331	4222	-	Rel-9	C	RP-100859	R2-105061	approved	Pre-redirection info setting after the redirection/CSFB from E-UTRA	9.3.0	9.4.0	R2	TEI9
25.331	4223	-	Rel-10	A	RP-100859	R2-105062	approved	Pre-redirection info setting after the redirection/CSFB from E-UTRA	10.0.0	10.1.0	R2	TEI9
25.331	4237	-	Rel-7	F	RP-100841	R2-105017	approved	Clarification of SRBs configuration with flexible RLC PDU size.	7.17.0	7.18.0	R2	RANimp-L2dataRates
25.331	4238	1	Rel-8	A	RP-100841	R2-105137	approved	Clarification of SRBs configuration with flexible RLC PDU size.	8.11.0	8.12.0	R2	RANimp-L2dataRates
25.331	4239	-	Rel-9	A	RP-100841	R2-105019	approved	Clarification of SRBs configuration with flexible RLC PDU size.	9.3.0	9.4.0	R2	RANimp-L2dataRates
25.331	4240	-	Rel-10	A	RP-100841	R2-105020	approved	Clarification of SRBs configuration with flexible RLC PDU size.	10.0.0	10.1.0	R2	RANimp-L2dataRates
25.331	4242	-	Rel-7	F	RP-100883	R2-105119	approved	LI size for CCCH(SRB#0)	7.17.0	7.18.0	R2	RANimp-Enhstate
25.331	4243	1	Rel-8	A	RP-100883	R2-105138	approved	LI size for CCCH(SRB#0)	8.11.0	8.12.0	R2	RANimp-Enhstate
25.331	4244	-	Rel-9	A	RP-100883	R2-105121	approved	LI size for CCCH(SRB#0)	9.3.0	9.4.0	R2	RANimp-Enhstate
25.331	4245	-	Rel-10	A	RP-100883	R2-105122	approved	LI size for CCCH(SRB#0)	10.0.0	10.1.0	R2	RANimp-Enhstate
25.331	4250	1	Rel-10	B	RP-100910	R2-105116	approved	Small Technical Enhancements and Improvements for GNSS	10.0.0	10.1.0	R2	TEI10
25.331	4251	1	Rel-10	B	RP-100863	R2-105128	approved	Introduction of 4C-HSDPA	10.0.0	10.1.0	R2	4C_HSDPA-Core
25.331	4258	-	Rel-9	C	RP-100855	R2-105059	approved	Update of virtual active set handling for inter-frequency CSG measurements	9.3.0	9.4.0	R2	EHNB-RAN2
25.331	4259	-	Rel-10	A	RP-100855	R2-105060	approved	Update of virtual active set handling for inter-frequency CSG measurements	10.0.0	10.1.0	R2	EHNB-RAN2
25.331	4269	-	Rel-8	A	RP-100844	R2-105014	approved	Correction to default radio configuration #20	8.11.0	8.12.0	R2	TEI7
25.331	4270	-	Rel-9	A	RP-100844	R2-105015	approved	Correction to default radio configuration #20	9.3.0	9.4.0	R2	TEI7
25.331	4271	-	Rel-10	A	RP-100844	R2-105016	approved	Correction to default radio configuration #20	10.0.0	10.1.0	R2	TEI7
25.331	4272	-	Rel-7	F	RP-100844	R2-104954	approved	Clarifications to the intra-frequency measurement event for 1.28Mcps TDD	7.17.0	7.18.0	R2	TEI7
25.331	4273	-	Rel-8	A	RP-100844	R2-104955	approved	Clarifications to the intra-frequency measurement event for 1.28Mcps TDD	8.11.0	8.12.0	R2	TEI7
25.331	4274	-	Rel-9	A	RP-100844	R2-104956	approved	Clarifications to the intra-frequency measurement event for 1.28Mcps TDD	9.3.0	9.4.0	R2	TEI7
25.331	4275	-	Rel-10	A	RP-100844	R2-104957	approved	Clarifications to the intra-frequency measurement event for 1.28Mcps TDD	10.0.0	10.1.0	R2	TEI7
25.331	4279	-	Rel-7	F	RP-100844	R2-105013	approved	Correction to default radio configuration #20	7.17.0	7.18.0	R2	TEI7
25.331	4285	1	Rel-9	F	RP-100858	R2-105125	approved	Correction to the state of the secondary uplink frequency in case of hard handover	9.3.0	9.4.0	R2	RANimp-DC_HSUPA
25.331	4286	1	Rel-10	A	RP-100858	R2-105126	approved	Correction to the state of the secondary uplink frequency in case of hard handover	10.0.0	10.1.0	R2	RANimp-DC_HSUPA
25.331	4287	1	Rel-8	C	RP-100846	R2-105130	approved	Explicit HARQ Memory partitioning for dual cell operation	8.11.0	8.12.0	R2	RANimp-DCHSDPA

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Spec	CR	Rev	Phase	Cat	Plenary doc	WG doc	TSG status	Subject	CR to	Resulting vers	WG	Workitem
25.331	4288	1	Rel-9	A	RP-100846	R2-105131	approved	Explicit HARQ Memory partitioning for dual cell operation	9.3.0	9.4.0	R2	RANimp-DCHSDPA, RANimp-DC_MIMO
25.331	4289	1	Rel-10	A	RP-100846	R2-105132	approved	Explicit HARQ Memory partitioning for dual cell operation	10.0.0	10.1.0	R2	RANimp-DCHSDPA, RANimp-DC_MIMO
25.331	4292	-	Rel-10	D	RP-100862	R2-105048	approved	Editorial Corrections to 25.331	10.0.0	10.1.0	R2	TEI10
25.331	4293	-	Rel-8	F	RP-100850	R2-105049	approved	Correction to default configuration #23	8.11.0	8.12.0	R2	TEI8
25.331	4294	-	Rel-9	A	RP-100850	R2-105050	approved	Correction to default configuration #23	9.3.0	9.4.0	R2	TEI8
25.331	4295	-	Rel-10	A	RP-100850	R2-105051	approved	Correction to default configuration #23	10.0.0	10.1.0	R2	TEI8
25.331	4296	2	Rel-10	B	RP-100862	R2-105129	approved	UE supported Frequency band indicator for redirection in RRC CONNECTION REQUEST	10.0.0	10.1.0	R2	TEI10
25.331	4298	-	Rel-7	F	RP-100842	R2-105009	approved	Clarification of when to clear IE "Precoding weight set restriction" from MIMO_PARAMS	7.17.0	7.18.0	R2	MIMO-L23
25.331	4299	-	Rel-8	A	RP-100842	R2-105010	approved	Clarification of when to clear IE "Precoding weight set restriction" from MIMO_PARAMS	8.11.0	8.12.0	R2	MIMO-L23
25.331	4300	-	Rel-9	A	RP-100842	R2-105011	approved	Clarification of when to clear IE "Precoding weight set restriction" from MIMO_PARAMS	9.3.0	9.4.0	R2	MIMO-L23
25.331	4301	-	Rel-10	A	RP-100842	R2-105012	approved	Clarification of when to clear IE "Precoding weight set restriction" from MIMO_PARAMS	10.0.0	10.1.0	R2	MIMO-L23
25.331	4305	-	Rel-10	D	RP-100862	R2-105038	approved	Editorial changes for MIMO UE variables	10.0.0	10.1.0	R2	MIMO-L23
25.331	4308	-	Rel-10	F	RP-100862	R2-105108	approved	Use of ôNavigational Model Additional dataö	10.0.0	10.1.0	R2	TEI10
25.331	4309	-	Rel-8	F	RP-100848	R2-105041	approved	Security procedures for intra-UTRAN SR-VCC	8.11.0	8.12.0	R2	RANimp-HSPAVoIP
25.331	4310	-	Rel-9	A	RP-100848	R2-105042	approved	Security procedures for intra-UTRAN SR-VCC	9.3.0	9.4.0	R2	RANimp-HSPAVoIP
25.331	4311	1	Rel-10	A	RP-100848	R2-105099	approved	Security procedures for intra-UTRAN SR-VCC	10.0.0	10.1.0	R2	RANimp-HSPAVoIP
25.331	4314	1	Rel-9	F	RP-100851	R2-105235	approved	Clarification on FGI setting for inter-RAT features not supported by the UE	9.3.0	9.4.0	R2	LTE-L23, TEI9
25.331	4315	1	Rel-10	A	RP-100851	R2-105236	approved	Clarification on FGI setting for inter-RAT features not supported by the UE	10.0.0	10.1.0	R2	LTE-L23, TEI9
25.331	4317	-	Rel-9	F	RP-100851	R2-104945	approved	Removal of PS SRB only Handover	9.3.0	9.4.0	R2	TEI9
25.331	4318	1	Rel-10	A	RP-100851	R2-105228	approved	Removal of PS SRB only Handover	10.0.0	10.1.0	R2	TEI9
25.331	4321	-	Rel-9	C	RP-100859	R2-105074	approved	Redirection enhancements: addition of system information container indication	9.3.0	9.4.0	R2	TEI9
25.331	4322	-	Rel-10	A	RP-100859	R2-105075	approved	Redirection enhancements: addition of system information container indication	10.0.0	10.1.0	R2	TEI9
25.331	4323	2	Rel-8	F	RP-100846	R2-105117	approved	Correction of the DC-HSDPA procedures	8.11.0	8.12.0	R2	RANimp-DCHSDPA
25.331	4324	1	Rel-9	A	RP-100846	R2-105118	approved	Correction of the DC-HSDPA procedures	9.3.0	9.4.0	R2	RANimp-DCHSDPA
25.413	1074	-	Rel-9	F	RP-100907	R3-102350	Approved	Correction of Forwarding TNL IE for Enhanced Relocation	9.3.0	9.4.0	R3	TEI9
25.413	1075	-	Rel-9	F	RP-100907	R3-102351	Approved	Correction of the interaction between CN Invoke Trace and Enhanced Relocation	9.3.0	9.4.0	R3	TEI9
25.413	1076	-	Rel-9	F	RP-100907	R3-102354	Approved	Correction of inconsistencies between tabular, procedural text and ASN.1 code for Enhanced Relocation	9.3.0	9.4.0	R3	TEI9
25.420	0061	-	Rel-9	F	RP-100909	R3-102293	Approved	CS Data forwarding support for Iur interface	9.0.0	9.1.0	R3	RANimp-SrnsReloc
25.423	1632	1	Rel-8	F	RP-100904	R3-102470	Approved	Clarification of 64 QAM usage at intra Node B serving HS-DSCH RL change	8.9.0	8.10.0	R3	TEI8
25.423	1633	1	Rel-9	A	RP-100904	R3-102471	Approved	Clarification of 64 QAM usage at intra Node B serving HS-DSCH RL change	9.3.0	9.4.0	R3	TEI8
25.423	1634	2	Rel-9	F	RP-100909	R3-102528	Approved	Corrections to HSDPA secondary serving cell list handling	9.3.0	9.4.0	R3	RANimp-DCHSDPA, RANimp-MultiBand_DC_HSDPA

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Spec	CR	Rev	Phase	Cat	Plenary doc	WG doc	TSG status	Subject	CR to	Resulting vers	WG	Workitem
25.423	1635	2	Rel-10	B	RP-100911	R3-102549	approved	Introduction of 4C-HSDPA	9.3.0	10.0.0	R3	4C_HSDPA-Core
25.423	1636	-	Rel-8	F	RP-100905	R3-102210	Approved	Correction of procedure text for E-DCH SPS operation	8.9.0	8.10.0	R3	RANimp-LCRCPC
25.423	1637	-	Rel-9	A	RP-100905	R3-102211	Approved	Correction of procedure text for E-DCH SPS operation	9.3.0	9.4.0	R3	RANimp-LCRCPC
25.423	1638	1	Rel-10	B	RP-100910	R3-102545	approved	Small Technical Enhancements and Improvements for GNSS (RNSAP)	9.3.0	10.0.0	R3	TEI10
25.423	1640	-	Rel-8	F	RP-100904	R3-102405	Approved	Addition of UE with enhanced HS-SCCH support indicator IE for Cell_FACH	8.9.0	8.10.0	R3	TEI8
25.423	1641	-	Rel-9	A	RP-100904	R3-102406	Approved	Addition of UE with enhanced HS-SCCH support indicator IE for Cell_FACH	9.3.0	9.4.0	R3	TEI8
25.433	1821	-	Rel-8	F	RP-100904	R3-102031	Approved	Incorrect message reference	8.9.0	8.10.0	R3	TEI8
25.433	1824	1	Rel-8	F	RP-100904	R3-102468	Approved	Clarification of 64 QAM usage at intra Node B serving HS-DSCH RL change	8.9.0	8.10.0	R3	TEI8
25.433	1825	1	Rel-9	A	RP-100904	R3-102469	Approved	Clarification of 64 QAM usage at intra Node B serving HS-DSCH RL change	9.3.0	9.4.0	R3	TEI8
25.433	1830	-	Rel-9	F	RP-100909	R3-102102	Approved	Best CELL Portions measurement report On Modification for 1.28Mcps TDD	9.3.0	9.4.0	R3	CP_LCRTDD
25.433	1831	2	Rel-10	B	RP-100911	R3-102550	approved	Introduction of 4C-HSDPA	9.3.0	10.0.0	R3	4C_HSDPA-Core
25.433	1832	-	Rel-8	F	RP-100905	R3-102212	Approved	Correction of procedure text for E-DCH SPS operation	8.9.0	8.10.0	R3	RANimp-LCRCPC
25.433	1833	-	Rel-9	A	RP-100905	R3-102213	Approved	Correction of procedure text for E-DCH SPS operation	9.3.0	9.4.0	R3	RANimp-LCRCPC
25.433	1834	1	Rel-10	B	RP-100910	R3-102547	approved	Small Technical Enhancements and Improvements for GNSS (NBAP)	9.3.0	10.0.0	R3	TEI10
25.433	1837	3	Rel-9	F	RP-100907	R3-102552	Approved	Clarifications to the common measurement for 1.28Mcps TDD	9.3.0	9.4.0	R3	TEI9
25.433	1838	2	Rel-8	F	RP-100905	R3-102408	Approved	Corrections to the mismatch between tabular and ASN.1 for E-FACH 1.28Mcps TDD	8.9.0	8.10.0	R3	RANimp-EnhState1.28TDD
25.433	1839	2	Rel-9	A	RP-100905	R3-102409	Approved	Corrections to the mismatch between tabular and ASN.1 for E-FACH 1.28Mcps TDD	9.3.0	9.4.0	R3	RANimp-EnhState1.28TDD
25.433	1840	2	Rel-8	F	RP-100905	R3-102410	Approved	Corrections to the range of Enabling Delay for CPC 1.28Mcps TDD	8.9.0	8.10.0	R3	RANimp-LCRCPC
25.433	1841	2	Rel-9	A	RP-100905	R3-102411	Approved	Corrections to the range of Enabling Delay for CPC 1.28Mcps TDD	9.3.0	9.4.0	R3	RANimp-LCRCPC
25.433	1842	-	Rel-9	F	RP-100909	R3-102485	Approved	Corrections to HSDPA cell capability container	9.3.0	9.4.0	R3	RANimp-DCHSDPA
25.435	0239	1	Rel-8	F	RP-100904	R3-102403	Approved	Addition of enhanced HS-SCCH support indicator in CELL_FACH	8.5.0	8.6.0	R3	TEI8
25.435	0240	1	Rel-9	A	RP-100904	R3-102404	Approved	Addition of enhanced HS-SCCH support indicator in CELL_FACH	9.2.0	9.3.0	R3	TEI8
25.435	0243	-	Rel-8	F	RP-100905	R3-102425	Approved	HS-DSCH data transmission in enhanced CELL_FACH state and the relation to HS-DSCH physical layer category	8.5.0	8.6.0	R3	RANimp-EnhState
25.435	0244	-	Rel-9	A	RP-100905	R3-102426	Approved	HS-DSCH data transmission in enhanced CELL_FACH state and the relation to HS-DSCH physical layer category	9.2.0	9.3.0	R3	RANimp-EnhState
25.453	0123	1	Rel-10	B	RP-100910	R3-102546	approved	Small Technical Enhancements and Improvements for GNSS (PCAP)	9.1.0	10.0.0	R3	TEI10
25.453	0124	1	Rel-9	F	RP-100907	R3-102504	Approved	DGANSS ASN.1 correction	9.1.0	9.2.0	R3	TEI9
25.461	0059	-	Rel-10	B	RP-100912	R3-102433	Approved	Spectrum band definition additions for TDD 2600 MHz	9.2.0	10.0.0	R3	LTE_TDD_2600_US-Core
25.466	0025	-	Rel-10	B	RP-100912	R3-102431	Approved	Spectrum band definition additions for TDD 2600 MHz	9.2.0	10.0.0	R3	LTE_TDD_2600_US-Core
25.468	0030	1	Rel-9	F	RP-100909	R3-102422	Approved	Add missing cause value descriptions	9.2.0	9.3.0	R3	EHNB-RAN3
25.469	0051	1	Rel-9	F	RP-100909	R3-102421	Approved	Add missing cause value descriptions	9.2.0	9.3.0	R3	EHNB-RAN3

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Spec	CR	Rev	Phase	Cat	Plenary doc	WG doc	TSG status	Subject	CR to	Resulting vers	WG	Workitem
34.108	0834	-	Rel-9	F	RP-100811	R5-104320	approved	Correction to Radio Bearer Setup message for MiMo configurations	9.1.0	9.2.0	R5	TEI7_Test
34.108	0835	-	Rel-9	F	RP-100811	R5-104321	approved	Updating code allocation for MiMo configurations	9.1.0	9.2.0	R5	TEI7_Test
34.108	0836	-	Rel-9	F	RP-100830	R5-104359	approved	Addition of new combinations on HS-PDSCH and E-PUCH for LCR TDD improved L2	9.1.0	9.2.0	R5	RANimp-UEConTest_ImprovedL2LCRTDD
34.108	0837	-	Rel-9	F	RP-100833	R5-104397	approved	Addition of default message contents for WLAN interworking testing	9.1.0	9.2.0	R5	IWLAN_Mob_UEConTest
34.108	0838	-	Rel-9	F	RP-100985	R5-104470	approved	Update of the default RADIO BEARER SETUP message (FDD) for support of Dual Carrier HSDPA	9.1.0	9.2.0	R5	TEI8_Test
34.108	0838	-	Rel-9	F	RP-100820	R5-104470	reissued	Update of the default RADIO BEARER SETUP message (FDD) for support of Dual Carrier HSDPA	9.1.0		R5	TEI8_Test
34.108	0839	-	Rel-9	F	RP-100811	R5-104570	approved	Correction to RB Setup message condition used for testcase 14.7.6b	9.1.0	9.2.0	R5	TEI7_Test
34.108	840	-	Rel-9	F	RP-100808	R5-104679	approved	Correcting default USIM contents	9.1.0	9.2.0	R5	TEI_Test
34.108	0841	-	Rel-9	F	RP-100985	R5-104680	approved	Correction to the explanation of A25 set of RBsetup	9.1.0	9.2.0	R5	TEI8_Test
34.108	0841	-	Rel-9	F	RP-100820	R5-104680	reissued	Correction to the explanation of A25 set of RBsetup	9.1.0		R5	TEI8_Test
34.108	0842	-	Rel-9	F	RP-100811	R5-105018	approved	Change the default value of Qrxlevmin for LCR TDD	9.1.0	9.2.0	R5	TEI7_Test
34.108	0843	-	Rel-9	F	RP-100808	R5-105031	approved	Clarification to the FDD inter-band network environment	9.1.0	9.2.0	R5	TEI_Test
34.109	0044	-	Rel-9	F	RP-100861	R2-105248	approved	Addition of RESET command for GNSS	9.0.0	9.1.0	R2	AGNSSTest_UTRAN
34.121-1	1257	-	Rel-9	F	RP-100812	R5-104187	approved	CR to 34.121-1: Update to Inter-system Handover from UTRAN FDD to E-UTRAN FDD test case	9.1.0	9.2.0	R5	LTE-UEConTest_RF
34.121-1	1258	-	Rel-9	F	RP-100810	R5-104373	approved	Clarifications to applicabilities of TC 5.13.2A and TC 5.13.2B	9.1.0	9.2.0	R5	TEI6_Test
34.121-1	1259	-	Rel-9	F	RP-100811	R5-104376	approved	Addition of CQI fading test case for 64QAM UEs	9.1.0	9.2.0	R5	TEI7_Test
34.121-1	1260	-	Rel-9	F	RP-100811	R5-104379	approved	Addition of CQI fading test case for 64QAM UEs into annexes	9.1.0	9.2.0	R5	TEI7_Test
34.121-1	1261	-	Rel-9	F	RP-100809	R5-104382	approved	Small corrections to all CQI tests	9.1.0	9.2.0	R5	TEI5_Test
34.121-1	1262	-	Rel-9	F	RP-100811	R5-104384	approved	Modification of MIMO CQI fading test case and propagation condition names	9.1.0	9.2.0	R5	TEI7_Test
34.121-1	1263	-	Rel-9	F	RP-100812	R5-104530	approved	34121-1 General update of sections 00 to 06: for E-UTRA testing	9.1.0	9.2.0	R5	LTE-UEConTest_RF
34.121-1	1264	-	Rel-9	F	RP-100812	R5-104531	approved	34121-1 Editorial update of sections 08 for E-UTRA testing	9.1.0	9.2.0	R5	LTE-UEConTest_RF
34.121-1	1265	-	Rel-9	F	RP-100985	R5-104592	approved	Simplified connection for type 3i performance tests	9.1.0	9.2.0	R5	TEI8_test
34.121-1	1265	-	Rel-9	F	RP-100820	R5-104592	reissued	Simplified connection for type 3i performance tests	9.1.0		R5	TEI8_Test
34.121-1	1266	-	Rel-9	F	RP-100985	R5-104593	approved	Further simplification for type 3i performance tests	9.1.0	9.2.0	R5	TEI8_Test
34.121-1	1266	-	Rel-9	F	RP-100820	R5-104593	reissued	Further simplification for type 3i performance tests	9.1.0		R5	TEI8_Test
34.121-1	1267	-	Rel-9	F	RP-100812	R5-104615	approved	34.121-1: Annex K update	9.1.0	9.2.0	R5	LTE-UEConTest_RF
34.121-1	1268	-	Rel-9	F	RP-100811	R5-104651	approved	Removing editors notes in HS in CELL_FACH test cases	9.1.0	9.2.0	R5	TEI7_Test
34.121-1	1269	-	Rel-9	F	RP-100808	R5-104831	approved	34.121-1_TC9.2.1HA_Definition and applicability correction	9.1.0	9.2.0	R5	TEI_Test
34.121-1	1270	-	Rel-9	F	RP-100808	R5-104832	approved	34.121-1 Correction parameters of Chapter 9	9.1.0	9.2.0	R5	TEI_Test
34.121-1	1271	-	Rel-9	F	RP-100811	R5-104833	approved	Correction in Initial Settings references correlating to Test Requirements Tables for test case 10.2.1.1A	9.1.0	9.2.0	R5	TEI7_Test
34.121-1	1272	-	Rel-9	F	RP-100811	R5-104834	approved	Correction in Initial Settings references correlating to Test Requirements Tables for test case 10.4.1A	9.1.0	9.2.0	R5	TEI7_Test
34.121-1	1273	-	Rel-9	F	RP-100809	R5-104835	approved	Correction in Annex E.2.1 to refer Downlink Physical Channels settings for test case 5.13.4	9.1.0	9.2.0	R5	TEI5_Test
34.121-1	1274	-	Rel-9	F	RP-100811	R5-104836	approved	Adding RX diversity further to TC 5.4.4 (out of synch handling)	9.1.0	9.2.0	R5	TEI7_Test

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34.121-1	1275	-	Rel-9	F	RP-100811	R5-104837	approved	TT and uncertainties for TC 5.4.4A (out of synch handling / RX diverstity)	9.1.0	9.2.0	R5	TEI7_Test
34.121-2	0079	-	Rel-9	F	RP-100808	R5-104189	approved	Correction 34.121-2 Table 1 TC 7.8.1A_add test 1	9.1.0	9.2.0	R5	TEI_Test
34.121-2	0080	-	Rel-9	F	RP-100810	R5-104374	approved	Addition of TC 5.13.2A and TC 5.13.2B into TS 34.121-2	9.1.0	9.2.0	R5	TEI6_Test
34.121-2	0081	-	Rel-9	F	RP-100811	R5-104381	approved	Addition of CQI fading test case for 64QAM UEs into TS 34.121-2	9.1.0	9.2.0	R5	TEI7_Test
34.121-2	0082	-	Rel-9	F	RP-100811	R5-104385	approved	Modification of MIMO CQI fading test case names	9.1.0	9.2.0	R5	TEI7_Test
34.121-2	0083	-	Rel-9	F	RP-100812	R5-104838	approved	34121-2 General update to add-E-UTRA TCs applicability and editorials	9.1.0	9.2.0	R5	LTE-UEConTest_RF
34.121-2	0084	-	Rel-9	F	RP-100808	R5-104841	approved	Correction 34.121-2 TC7.8.1 add test 2	9.1.0	9.2.0	R5	TEI_Test
34.121-2	0085	-	Rel-9	F	RP-100811	R5-104842	approved	Applicability for TC 5.4.4A (out of synch handling / RX diverstity)	9.1.0	9.2.0	R5	TEI7_Test
34.121-2	0086	-	Rel-9	F	RP-100808	R5-104858	approved	34.121-2 Correction to the applicability of test case 9.2.1F, 9.2.1J,9.2.2D, and 9.2.3D	9.1.0	9.2.0	R5	TEI_Test
34.122	0354	-	Rel-9	F	RP-100809	R5-104223	approved	Correction to test case 5.5.2.1 and 5.5.2.1B - Remove 0.8M offset of Spectrum emission mask for 1.28M TDD	9.1.0	9.2.0	R5	TEI5_Test
34.122	0355	-	Rel-9	F	RP-100809	R5-104227	approved	Correction to test case 8.3.4 - Cell Re-selection in CELL_FACH	9.1.0	9.2.0	R5	TEI5_Test
34.122	0356	-	Rel-9	F	RP-100809	R5-104228	approved	Correction to test case 8.3.5 - Cell Re-selection in CELL_PCH	9.1.0	9.2.0	R5	TEI5_Test
34.122	0357	-	Rel-9	F	RP-100809	R5-104229	approved	Correction to test case 8.3.6 - Cell Re-selection in URA_PCH	9.1.0	9.2.0	R5	TEI5_Test
34.122	0358	-	Rel-9	F	RP-100812	R5-104349	approved	maximum output power with E-DCH for TDD	9.1.0	9.2.0	R5	LTE-UEConTest_RF
34.122	0359	-	Rel-9	F	RP-100812	R5-104350	approved	ACLR with E-DCH for TDD	9.1.0	9.2.0	R5	LTE-UEConTest_RF
34.122	0360	-	Rel-9	F	RP-100828	R5-104386	approved	Test case of E-UTRAN TDD - UTRAN TDD handover: unknown target cell	9.1.0	9.2.0	R5	RANimp-UEConTest_EnhancedCellFACHStateLCRTDD
34.122	0361	-	Rel-9	F	RP-100812	R5-104843	approved	SEM with E-DCH for TDD	9.1.0	9.2.0	R5	LTE-UEConTest_RF
34.123-1	2788	-	Rel-9	F	RP-100810	R5-104123	approved	Correction to GCF WI-025 HSUPA testcase 7.1.6.4.2	9.1.0	9.2.0	R5	TEI6_Test
34.123-1	2789	-	Rel-9	F	RP-100808	R5-104124	approved	Correction to GCF WI-010 MM test case 9.4.4	9.1.0	9.2.0	R5	TEI_Test
34.123-1	2790	-	Rel-9	F	RP-100810	R5-104125	approved	Correction to GCF WI-025 HSUPA test case 7.1.6.3.2	9.1.0	9.2.0	R5	TEI6_Test
34.123-1	2791	-	Rel-9	F	RP-100811	R5-104126	approved	Correction to GCF WI-070 CPC testcase 8.3.4.11	9.1.0	9.2.0	R5	TEI7_Test
34.123-1	2792	-	Rel-9	B	RP-100985	R5-104171	approved	Correction of ETWS test cases	9.1.0	9.2.0	R5	TEI8_Test
34.123-1	2792	-	Rel-9	F	RP-100820	R5-104171	reissued	Correction of ETWS test cases	9.1.0		R5	TEI8_Test
34.123-1	2793	-	Rel-9	F	RP-100809	R5-104224	approved	Correction to test case 6.2.2.2a - Cell reselection if cell becomes barred or C10: GSM to UTRAN for 1.28 Mcps TDD	9.1.0	9.2.0	R5	TEI5_Test
34.123-1	2794	-	Rel-9	F	RP-100809	R5-104225	approved	Correction to test case 6.2.2.3a - Cell reselection timings: GSM to UTRAN for 1.28 Mcps TDD	9.1.0	9.2.0	R5	TEI5_Test
34.123-1	2795	-	Rel-9	F	RP-100809	R5-104226	approved	Correction to test case 8.4.1.31 - Measurement Control and Report Inter-RAT measurement in CELL_DCH state	9.1.0	9.2.0	R5	TEI5_Test
34.123-1	2796	-	Rel-9	F	RP-100811	R5-104322	approved	Correction to RRC testcases (8.2.2.x series) to update mimo configuration.	9.1.0	9.2.0	R5	TEI7_Test
34.123-1	2797	-	Rel-9	F	RP-100811	R5-104323	approved	Correction to RRC testcases (8.2.6.x series) to update mimo configuration.	9.1.0	9.2.0	R5	TEI7_Test
34.123-1	2798	-	Rel-9	F	RP-100811	R5-104324	approved	Correction to RRC testcases (8.3.4.x series) to update mimo configuration.	9.1.0	9.2.0	R5	TEI7_Test
34.123-1	2799	-	Rel-9	F	RP-100811	R5-104325	approved	Correction to RAB testcases to update mimo configuration.	9.1.0	9.2.0	R5	TEI7_Test

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34.123-1	2800	-	Rel-9	F	RP-100811	R5-104326	approved	Correction to generic test procedure for Mimo and Dual cell testcases.	9.1.0	9.2.0	R5	TEI7_Test
34.123-1	2801	-	Rel-9	F	RP-100811	R5-104327	approved	Corrections to Enhanced Cell-FACH DL MAC testcases 7.1.5a.6 & 7.1.5a.7	9.1.0	9.2.0	R5	TEI7_Test
34.123-1	2802	-	Rel-9	F	RP-100811	R5-104328	approved	Corrections to HS-SCCH Less testcases 8.2.1.39 & 8.2.6.56	9.1.0	9.2.0	R5	TEI7_Test
34.123-1	2803	-	Rel-9	F	RP-100811	R5-104329	approved	Corrections to CPC testcases 8.2.6.61	9.1.0	9.2.0	R5	TEI7_Test
34.123-1	2804	-	Rel-9	F	RP-100830	R5-104360	approved	Addition of new mac test case 7.1.7.6 for LCR TDD improved L2	9.1.0	9.2.0	R5	RANimp-UEConTest_ImprovedL2LCRTDD
34.123-1	2805	-	Rel-9	F	RP-100828	R5-104361	approved	Addition of new mac test case 7.1.8.10 for LCR TDD enhanced CELL_FACH	9.1.0	9.2.0	R5	RANimp-UEConTest_EnhancedCellFACHStateLCRTDD
34.123-1	2806	-	Rel-9	F	RP-100828	R5-104362	approved	Addition of new mac test cases for LCR TDD enhanced CELL_FACH	9.1.0	9.2.0	R5	RANimp-UEConTest_EnhancedCellFACHStateLCRTDD
34.123-1	2807	-	Rel-9	F	RP-100809	R5-104363	approved	Correction the contents of testcase 8.1.10.1 for LCR TDD in 34.123-1	9.1.0	9.2.0	R5	TEI5_Test
34.123-1	2808	-	Rel-9	F	RP-100828	R5-104364	approved	Addition of new test cases 8.1.10.3 for LCR TDD enhanced CELL_FACH	9.1.0	9.2.0	R5	RANimp-UEConTest_EnhancedCellFACHStateLCRTDD
34.123-1	2809	-	Rel-9	F	RP-100828	R5-104365	approved	Addition of conformance requirement and message contents in test case 8.4.1.18a for LCR TDD enhanced CELL_FACH	9.1.0	9.2.0	R5	RANimp-UEConTest_EnhancedCellFACHStateLCRTDD
34.123-1	2810	-	Rel-9	F	RP-100809	R5-104366	approved	Addition of general information interoperability radio bearer tests for HS-DSCH for LCR TDD	9.1.0	9.2.0	R5	TEI5_Test
34.123-1	2811	-	Rel-9	F	RP-100830	R5-104367	approved	Addition of new test cases 18.1.6.3a, 18.1.6.21 and 18.1.6.22 for LCR TDD improved L2	9.1.0	9.2.0	R5	RANimp-UEConTest_ImprovedL2LCRTDD
34.123-1	2812	-	Rel-9	F	RP-100828	R5-104368	approved	Addition of new test cases 18.1.6.20 and 18.1.6.20a for LCR TDD enhanced CELL_FACH	9.1.0	9.2.0	R5	RANimp-UEConTest_EnhancedCellFACHStateLCRTDD
34.123-1	2813	-	Rel-9	F	RP-100833	R5-104393	approved	Addition of new WLAN interworking test case for Termination of protection of DSMIPv6 tunnel traffic by Home Agent	9.1.0	9.2.0	R5	IWLAN_Mob_UEConTest
34.123-1	2814	-	Rel-9	F	RP-100833	R5-104394	approved	Update of WLAN interworking test cases	9.1.0	9.2.0	R5	IWLAN_Mob_UEConTest
34.123-1	2815	-	Rel-9	F	RP-100833	R5-104395	approved	Removal of WLAN interworking test case 17.3.3	9.1.0	9.2.0	R5	IWLAN_Mob_UEConTest
34.123-1	2816	-	Rel-9	F	RP-100822	R5-104487	approved	Removal of Test Case 13.3.1.8 for eCall	9.1.0	9.2.0	R5	UMTS_eCall_UEConTest
34.123-1	2817	-	Rel-9	F	RP-100832	R5-104526	approved	Introduction of Physical Channel Reconfiguration test case for CPC of 1.28Mcps TDD	9.1.0	9.2.0	R5	RANimp-UEConTest_CPCLCRTDD
34.123-1	2818	-	Rel-9	F	RP-100985	R5-104554	approved	Corrections to test case 7.1.8.3	9.1.0	9.2.0	R5	TEI8_Test
34.123-1	2818	-	Rel-9	F	RP-100820	R5-104554	reissued	Corrections to test case 7.1.8.3	9.1.0		R5	TEI8_Test
34.123-1	2819	-	Rel-9	F	RP-100985	R5-104555	approved	Corrections to test case 7.1.8.1	9.1.0	9.2.0	R5	TEI8_Test
34.123-1	2819	-	Rel-9	F	RP-100820	R5-104555	reissued	Corrections to test case 7.1.8.1	9.1.0		R5	TEI8_Test
34.123-1	2820	-	Rel-9	F	RP-100985	R5-104556	approved	Corrections to test case 7.1.8.4	9.1.0	9.2.0	R5	TEI8_Test
34.123-1	2820	-	Rel-9	F	RP-100820	R5-104556	reissued	Corrections to test case 7.1.8.4	9.1.0		R5	TEI8_Test
34.123-1	2821	-	Rel-9	F	RP-100985	R5-104557	approved	Corrections to test case 7.1.8.5	9.1.0	9.2.0	R5	TEI8_Test
34.123-1	2821	-	Rel-9	F	RP-100820	R5-104557	reissued	Corrections to test case 7.1.8.5	9.1.0		R5	TEI8_Test
34.123-1	2822	-	Rel-9	F	RP-100985	R5-104559	approved	Corrections to 8.3.4.x Dual Carrier HSDPA testcases	9.1.0	9.2.0	R5	TEI8_Test
34.123-1	2822	-	Rel-9	F	RP-100820	R5-104559	reissued	Corrections to 8.3.4.x Dual Carrier HSDPA testcases	9.1.0		R5	TEI8_Test

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34.123-1	2823	-	Rel-9	F	RP-100811	R5-104639	approved	Corrections to test case 8.2.2.62 and 8.3.4.14	9.1.0	9.2.0	R5	TEI7_Test
34.123-1	2824	-	Rel-9	F	RP-100811	R5-104648	approved	Correction to test case 6.1.1.13	9.1.0	9.2.0	R5	TEI7_Test
34.123-1	2825	-	Rel-9	F	RP-100808	R5-104649	approved	Correction to test case 9.4.2.3	9.1.0	9.2.0	R5	TEI_Test
34.123-1	2826	-	Rel-9	F	RP-100811	R5-104682	approved	Correction to GCF WI-070 CPC testcase 7.1.6.2.11	9.1.0	9.2.0	R5	TEI7_Test
34.123-1	2827	-	Rel-9	F	RP-100811	R5-104687	approved	Corrections to Enhanced Cell FACH DL testcases 8.2.2.60	9.1.0	9.2.0	R5	TEI7_Test
34.123-1	2828	-	Rel-9	F	RP-100985	R5-104688	approved	Update to Test Case 8.3.4.15a	9.1.0	9.2.0	R5	TEI8_Test
34.123-1	2828	-	Rel-9	F	RP-100820	R5-104688	reissued	Update to Test Case 8.3.4.15a	9.1.0		R5	TEI8_Test
34.123-1	2829	-	Rel-9	F	RP-100985	R5-104689	approved	Update to Test Case 8.3.4.16a	9.1.0	9.2.0	R5	TEI8_Test
34.123-1	2829	-	Rel-9	F	RP-100820	R5-104689	reissued	Update to Test Case 8.3.4.16a	9.1.0		R5	TEI8_Test
34.123-1	2830	-	Rel-9	F	RP-100836	R5-104693	approved	New test case 17.2.6.2: MO-LR position estimate for UE-assisted A-GNSS	9.1.0	9.2.0	R5	AGNSSTest_UTRAN
34.123-1	2831	-	Rel-9	F	RP-100836	R5-104694	approved	Default conditions for A-GNSS test cases	9.1.0	9.2.0	R5	AGNSSTest_UTRAN
34.123-1	2832	-	Rel-9	F	RP-100836	R5-104695	approved	New test case 17.2.6.1: MO-LR position estimate for UE-based A-GNSS	9.1.0	9.2.0	R5	AGNSSTest_UTRAN
34.123-1	2833	-	Rel-9	F	RP-100836	R5-104696	approved	New test case 17.2.5.1: NI-LR Emergency Call for UE-based A-GNSS	9.1.0	9.2.0	R5	AGNSSTest_UTRAN
34.123-1	2834	-	Rel-9	F	RP-100836	R5-104697	approved	New test case 17.2.5.2: NI-LR Emergency Call for UE-assisted A-GNSS	9.1.0	9.2.0	R5	AGNSSTest_UTRAN
34.123-1	2835	-	Rel-9	F	RP-100811	R5-104772	approved	Corrections to test case 8.2.2.60 and 8.2.2.65	9.1.0	9.2.0	R5	TEI7_Test
34.123-1	2836	-	Rel-9	F	RP-100809	R5-105019	approved	Correction the contents of RAB testcases for LCR TDD in 34.123-1	9.1.0	9.2.0	R5	TEI5_Test
34.123-1	2837	-	Rel-9	F	RP-100822	R5-105020	approved	Correction to Location area update type and RRC Connection cause for eCall test cases	9.1.0	9.2.0	R5	UMTS_eCall_UEConTest
34.123-1	2838	-	Rel-9	F	RP-100811	R5-105030	approved	Correction to WI 68 Rel-7 Improved L2 testcase 8.2.2.57	9.1.0	9.2.0	R5	TEI7_Test
34.123-1	2839	-	Rel-9	F	RP-100810	R5-105033	approved	Corrections to test case 7.1.6.2.10	9.1.0	9.2.0	R5	TEI6_Test
34.123-1	2840	-	Rel-9	F	RP-100836	R5-105066	approved	New test case 17.2.6.3: MO-LR Position Estimate: UE-Based A-GNSS - Failure Not Enough Satellites	9.1.0	9.2.0	R5	AGNSSTest_UTRAN
34.123-1	2841	-	Rel-9	F	RP-100836	R5-105067	approved	New test case 17.2.6.4: MO-LR Assistance Data: UE-Based or UE-Assisted A-GNSS - Success	9.1.0	9.2.0	R5	AGNSSTest_UTRAN
34.123-1	2842	-	Rel-9	F	RP-100836	R5-105068	approved	New test case 17.2.6.5: MO-LR Assistance Data: UE-Based or UE-Assisted A-GNSS - Failure	9.1.0	9.2.0	R5	AGNSSTest_UTRAN
34.123-1	2843	-	Rel-9	F	RP-100986	R5-105051	approved	Addition of 8.1.5.7 as audit of UE capabilities	9.1.0	9.2.0	R5	TEI9_Test
34.123-1	2843	-	Rel-9	F	RP-100821	R5-105051	reissued	addition of 8.1.5.7 as audit of UE capabilities	9.1.0		R5	TEI9_Test
34.123-1	2844	-	Rel-9	F	RP-100808	R5-104683	approved	Correction to GCF WI-010 MM test case 9.4.3.3	9.1.0	9.2.0	R5	TEI_Test
34.123-1	2845	-	Rel-9	F	RP-100811	R5-104684	approved	Correction to test case 8.2.2.51	9.1.0	9.2.0	R5	TEI7_Test
34.123-1	2846	-	Rel-9	F	RP-100836	R5-105069	approved	New test case 17.2.7.2: MT-LR: UE-Based A-GNSS - Failure Not Enough Satellites	9.1.0	9.2.0	R5	AGNSSTest_UTRAN
34.123-1	2847	-	Rel-9	F	RP-100822	R5-105021	approved	Addition of Test Case 13.3.1.9 for eCall - Measurement of start and finish of eCall PUSH/INITIATION sequence	9.1.0	9.2.0	R5	UMTS_eCall_UEConTest
34.123-2	0491	-	Rel-9	F	RP-100985	R5-104111	approved	Update of condition C593	9.1.0	9.2.0	R5	TEI8_Test
34.123-2	0491	-	Rel-9	F	RP-100820	R5-104111	reissued	Update of condition C593	9.1.0		R5	TEI8_Test
34.123-2	0492	-	Rel-9	F	RP-100808	R5-104156	approved	Correction to Number of TC Executions for the test case 8.2.6.39, 8.2.6.44, 8.3.1.25	9.1.0	9.2.0	R5	TEI_Test
34.123-2	0493	-	Rel-9	F	RP-100830	R5-104371	approved	Addition test applicability and conditions for LCR TDD Improved L2 in 34123-2	9.1.0	9.2.0	R5	RANimp-UEConTest_ImprovedL2LCRTDD
34.123-2	0494	-	Rel-9	F	RP-100833	R5-104396	approved	Update of applicability for WLAN interworking test cases	9.1.0	9.2.0	R5	IWLAN_Mob_UEConTest
34.123-2	0495	-	Rel-9	F	RP-100836	R5-104468	approved	Applicability of new test cases for GNSS	9.1.0	9.2.0	R5	AGNSSTest_UTRAN

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34.123-2	0496	-	Rel-9	F	RP-100832	R5-104475	approved	Introduction of Recommended test case applicability for CPC 1.28Mcps TDD	9.1.0	9.2.0	R5	RANimp-UEConTest_CPCLCRTDD
34.123-2	0497	-	Rel-9	F	RP-100811	R5-104690	approved	Correction of test case titles 8.2.2.60 and 8.2.2.65	9.1.0	9.2.0	R5	TEI7_Test
34.123-2	0498	-	Rel-9	F	RP-100808	R5-104691	approved	Correction of comments in applicability table for test cases using conditions C01d, C05d, C88d, C90d, C98d, C356, C369, C409, C411, C481d, C658 and C659	9.1.0	9.2.0	R5	TEI_Test
34.123-2	0499	-	Rel-9	F	RP-100828	R5-105017	approved	Addition test applicability and conditions for LCR TDD Enhanced CELL_FACH in 34123-2	9.1.0	9.2.0	R5	RANimp-UEConTest_EnhancedCellFACHStateLCRTDD
34.123-2	0500	-	Rel-9	F	RP-100822	R5-105022	approved	Updating applicability of the eCall test cases	9.1.0	9.2.0	R5	UMTS_eCall_UEConTest
34.123-2	0501	-	Rel-9	F	RP-100986	R5-105072	approved	Add new PICS for UTRA UE capabilities	9.1.0	9.2.0	R5	TEI9_Test
34.123-2	0501	-	Rel-9	F	RP-100821	R5-105072	reissued	Add new PICS for UE UTRA capabilities	9.1.0		R5	TEI9_Test
34.123-3	2793	-	Rel-8	F	RP-100985	R5-104203	approved	ASP documentation for TDD and maintenance	8.6.0	8.7.0	R5	TEI8_Test
34.123-3	2793	-	Rel-8	F	RP-100820	R5-104203	reissued	ASP documentation for TDD and maintenance	8.6.0		R5	TEI8_Test
34.123-3	2794	-	Rel-8	F	RP-100985	R5-105034	approved	Routine maintenance	8.6.0	8.7.0	R5	TEI8_Test
34.123-3	2794	-	Rel-8	F	RP-100820	R5-105034	reissued	Routine maintenance of TS 34.123-3	8.6.0		R5	TEI8_Test
34.123-3	2795	-	Rel-8	F	RP-100985	R5-105027	approved	Add new PIXIT related to UE classmarks	8.6.0	8.7.0	R5	TEI8_Test
34.123-3	2795	-	Rel-9	F	RP-100820	R5-105027	reissued	Add new PIXIT related to GERAN UE classmarks	8.6.0		R5	TEI8_Test
34.123-3	2796	-	Rel-8	F	RP-100824	R5s100185	approved	Correction to the GCF WI-24 test case 6.2.1.11	8.6.0	8.7.0	R5	TEI6_Test
34.123-3	2797	-	Rel-8	F	RP-100824	R5s100207	approved	Corrections to Rel-99 NAS testcases	8.6.0	8.7.0	R5	TEI_Test
34.123-3	2798	-	Rel-8	F	RP-100824	R5s100206	approved	Corrections to Rel-7 testcases	8.6.0	8.7.0	R5	TEI7_Test
34.123-3	2799	-	Rel-8	F	RP-100824	R5s100186	approved	Regression CR on wk16 UMTS ATS	8.6.0	8.7.0	R5	TEI_Test
34.123-3	2800	-	Rel-8	F	RP-100824	R5s100255	approved	Correction to GCF WI-025 E_DCH Testcase 7.1.6.2.1	8.6.0	8.7.0	R5	TEI6_Test
34.123-3	2801	-	Rel-8	F	RP-100824	R5s100276	approved	Correction to GCF WI 25 HSU test cases 7.1.6.4.2 and 7.1.6.2.1	8.6.0	8.7.0	R5	TEI6_Test
34.123-3	2802	-	Rel-8	F	RP-100824	R5s100290	approved	Corrections to Rel-6 HSUPA MAC test cases	8.6.0	8.7.0	R5	TEI6_Test
34.123-3	2803	-	Rel-8	F	RP-100824	R5s100275	approved	Regression CR on wk21 UMTS ATS	8.6.0	8.7.0	R5	TEI_Test
34.123-3	2804	-	Rel-8	F	RP-100824	R5s100280	approved	Correction to GCF WI-070 CPC Test Cases 7.1.6.3.3, 7.1.6.3.4	8.6.0	8.7.0	R5	TEI7_Test
34.123-3	2805	-	Rel-8	F	RP-100824	R5s100297	approved	Correction to Rel-99 SMS test case 16.3	8.6.0	8.7.0	R5	TEI_Test
34.123-3	2806	-	Rel-8	F	RP-100824	R5s100328	approved	Correction to GCF WI 25 HSUPA MAC test case 7.1.6.3.2	8.6.0	8.7.0	R5	TEI6_Test
34.123-3	2807	-	Rel-8	B	RP-100824	R5s100277	approved	Addition of GCF WI 70 Rel-7 CPC test case 8.3.4.11	8.6.0	8.7.0	R5	TEI7_Test
34.123-3	2808	-	Rel-8	F	RP-100824	R5s100355	approved	Correction to GCF WI 25 HSUPA test case 7.1.6.3.2	8.6.0	8.7.0	R5	TEI6_Test
34.123-3	2809	-	Rel-8	F	RP-100824	R5s100484	approved	Correction to GCF WI-070 CPC test case 8.2.3.37	8.6.0	8.7.0	R5	TEI7_Test
34.123-3	2810	-	Rel-8	F	RP-100824	R5s100483	approved	Correction to GCF WI-025 HSUPA test case 7.1.6.3.2	8.6.0	8.7.0	R5	TEI6_Test
34.123-3	2811	-	Rel-8	F	RP-100824	R5s100404	approved	Correction to GCF WI-070 CPC Test Cases 7.1.6.3.3, 7.1.6.3.4	8.6.0	8.7.0	R5	TEI7_Test
34.123-3	2812	-	Rel-8	F	RP-100824	R5s100397	approved	Correction to GCF WI 10 RRC test case 6.1.2.2.	8.6.0	8.7.0	R5	TEI_Test
34.123-3	2813	-	Rel-8	F	RP-100824	R5s100396	approved	Correction to GCF WI 10 IR_U test case 8.3.9.5.	8.6.0	8.7.0	R5	TEI_Test
34.123-3	2814	-	Rel-8	F	RP-100824	R5s100482	approved	Corrections to R7 CPC test cases	8.6.0	8.7.0	R5	TEI7_Test
34.123-3	2815	-	Rel-8	F	RP-100824	R5s100481	approved	Corrections to HSUPA MAC test case 7.1.6.3.2 & 7.1.6.2.6	8.6.0	8.7.0	R5	TEI6_Test
34.123-3	2816	-	Rel-8	F	RP-100823	-	approved	CR to 34.123-3: Add new verified and e-mail agreed TTCN test cases in the TC lists in 34.123-3 (prose), Annex A	8.6.0	8.7.0	R5	TEI8_Test
34.229-1	0240	-	Rel-9	F	RP-100985	R5-104113	approved	Correction to default Status Report for MO SMS	9.1.0	9.2.0	R5	TEI8_Test
34.229-1	0240	-	Rel-9	F	RP-100820	R5-104113	reissued	Correction to default Status Report for MO SMS	9.1.0		R5	TEI8_Test
34.229-1	0241	-	Rel-9	F	RP-100985	R5-104291	approved	Add new test case 15.x Communication Forwarding not reachable	9.1.0	9.2.0	R5	TEI8_Test

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34.229-1	0241	-	Rel-9	F	RP-100820	R5-104291	reissued	Add new test case 15.x Communication Forwarding not reachable	9.1.0		R5	TEI8_Test
34.229-1	0242	-	Rel-9	F	RP-100985	R5-104292	approved	Add new test case 15.x Communication Waiting and cancelling the call	9.1.0	9.2.0	R5	TEI8_Test
34.229-1	0242	-	Rel-9	F	RP-100820	R5-104292	reissued	Add new test case 15.x Communication Waiting and cancelling the call	9.1.0		R5	TEI8_Test
34.229-1	0243	-	Rel-9	F	RP-100986	R5-104309	approved	Update annex C.6	9.1.0	9.2.0	R5	TEI9_Test
34.229-1	0243	-	Rel-9	F	RP-100821	R5-104309	reissued	Update annex C.6	9.1.0		R5	TEI9_Test
34.229-1	0244	-	Rel-9	F	RP-100986	R5-104310	approved	Add generic procedure for PDP context activation	9.1.0	9.2.0	R5	TEI9_Test
34.229-1	0244	-	Rel-9	F	RP-100821	R5-104310	reissued	Add generic procedure for PDP context activation	9.1.0		R5	TEI9_Test
34.229-1	0245	-	Rel-9	F	RP-100986	R5-104311	approved	Add generic procedure for EPS bearer context activation	9.1.0	9.2.0	R5	TEI9_Test
34.229-1	0245	-	Rel-9	F	RP-100821	R5-104311	reissued	Add generic procedure for EPS bearer context activation	9.1.0		R5	TEI9_Test
34.229-1	0246	-	Rel-9	F	RP-100986	R5-104429	approved	Remove clause 8 test cases for early IMS security	9.1.0	9.2.0	R5	TEI9_Test
34.229-1	0246	-	Rel-9	F	RP-100821	R5-104429	reissued	Remove clause 8 test cases for early IMS security	9.1.0		R5	TEI9_Test
34.229-1	0247	-	Rel-9	F	RP-100986	R5-104430	approved	Add new test case for initial registration using GIBA	9.1.0	9.2.0	R5	TEI9_Test
34.229-1	0247	-	Rel-9	F	RP-100821	R5-104430	reissued	Add new test case for initial registration using GIBA	9.1.0		R5	TEI9_Test
34.229-1	0248	-	Rel-9	F	RP-100986	R5-104431	approved	Add new test case for initial registration using IMS AKA and GIBA against a network with GIBA support only	9.1.0	9.2.0	R5	TEI9_Test
34.229-1	0248	-	Rel-9	F	RP-100821	R5-104431	reissued	Add new test case for initial registration using IMS AKA and GIBA against a network with GIBA support only	9.1.0		R5	TEI9_Test
34.229-1	0249	-	Rel-9	F	RP-100986	R5-104433	approved	Add new test case for user initiated de-registration using GIBA	9.1.0	9.2.0	R5	TEI9_Test
34.229-1	0249	-	Rel-9	F	RP-100821	R5-104433	reissued	Add new test case for user initiated de-registration using GIBA	9.1.0		R5	TEI9_Test
34.229-1	0250	-	Rel-9	F	RP-100986	R5-104434	approved	Update annex A for GIBA	9.1.0	9.2.0	R5	TEI9_Test
34.229-1	0250	-	Rel-9	F	RP-100821	R5-104434	reissued	Update annex A for GIBA	9.1.0		R5	TEI9_Test
34.229-1	0251	-	Rel-9	F	RP-100986	R5-104435	approved	Update test case 13.1	9.1.0	9.2.0	R5	TEI9_Test
34.229-1	0251	-	Rel-9	F	RP-100821	R5-104435	reissued	Update test case 13.1	9.1.0		R5	TEI9_Test
34.229-1	0252	-	Rel-9	F	RP-100985	R5-104522	approved	Add new test case 15.X Three way session creation	9.1.0	9.2.0	R5	TEI8_Test
34.229-1	0252	-	Rel-9	F	RP-100820	R5-104522	reissued	Add new test case 15.X Three way session creation	9.1.0		R5	TEI8_Test
34.229-1	0253	-	Rel-9	F	RP-100986	R5-104738	approved	Update generic procedures C.1, C.2 and C.2a	9.1.0	9.2.0	R5	TEI9_Test
34.229-1	0253	-	Rel-9	F	RP-100821	R5-104738	reissued	Update generic procedures C.1, C.2 and C.2a	9.1.0		R5	TEI9_Test
34.229-1	0254	-	Rel-9	F	RP-100986	R5-104739	approved	Add new test case for user initiated re-registration using GIBA	9.1.0	9.2.0	R5	TEI9_Test
34.229-1	0254	-	Rel-9	F	RP-100821	R5-104739	reissued	Add new test case for user initiated re-registration using GIBA	9.1.0		R5	TEI9_Test
34.229-1	0255	-	Rel-9	F	RP-100985	R5-104740	approved	Add new test case 15.X Communication Waiting and answering the call	9.1.0	9.2.0	R5	TEI8_Test
34.229-1	0255	-	Rel-9	F	RP-100820	R5-104740	reissued	Add new test case 15.X Communication Waiting and answering the call	9.1.0		R5	TEI8_Test
34.229-1	0256	-	Rel-9	F	RP-100838	R5-105023	approved	Changes to common messages for IMS emergency session setup	9.1.0	9.2.0	R5	IMS_EMER_GPRS_EPS_UEConTest
34.229-2	0063	-	Rel-9	F	RP-100985	R5-104293	approved	Introducing new MTSI test cases for CF and CW	9.1.0	9.2.0	R5	TEI8_Test
34.229-2	0063	-	Rel-9	F	RP-100820	R5-104293	reissued	Introducing new MTSI test cases for CF and CW	9.1.0		R5	TEI8_Test
34.229-2	0064	-	Rel-9	F	RP-100986	R5-104312	approved	Add radio capabilities	9.1.0	9.2.0	R5	TEI9_Test
34.229-2	0064	-	Rel-9	F	RP-100821	R5-104312	reissued	Add radio capabilities	9.1.0		R5	TEI9_Test
34.229-2	0065	-	Rel-9	F	RP-100986	R5-104436	approved	Update security scheme with GIBA	9.1.0	9.2.0	R5	TEI9_Test
34.229-2	0065	-	Rel-9	F	RP-100821	R5-104436	reissued	Update security scheme with GIBA	9.1.0		R5	TEI9_Test

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34.229-2	0066	-	Rel-9	F	RP-100986	R5-104438	approved	Update applicability for clause 8 registration test cases	9.1.0	9.2.0	R5	TEI9_Test
34.229-2	0066	-	Rel-9	F	RP-100821	R5-104438	reissued	Update applicability for clause 8 registration test cases	9.1.0		R5	TEI9_Test
34.229-2	0067	-	Rel-9	F	RP-100986	R5-104439	approved	Update applicability for test case 13.1	9.1.0	9.2.0	R5	TEI9_Test
34.229-2	0067	-	Rel-9	F	RP-100821	R5-104439	reissued	Update applicability for test case 13.1	9.1.0		R5	TEI9_Test
34.229-2	0068	-	Rel-9	F	RP-100838	R5-104737	approved	Introducing new test cases for IMS emergency registration	9.1.0	9.2.0	R5	IMS_EMER_GPRS_EPS_UEConTest
36.101	0575	1	Rel-9	F	RP-100925	R4-102716	approved	Correction to band 20 ue to ue Co-existence table	9.4.0	9.5.0	R4	RInImp9-UMTSLTE800EU
36.101	0576	1	Rel-9	D	RP-100926	R4-102750	approved	Clarification on DL-BF simulation assumptions	9.4.0	9.5.0	R4	LTEimp-eDL
36.101	0580	1	Rel-8	F	RP-100916	R4-103359	approved	Test configuration corrections to CQI reporting in AWGN	8.10.0	8.11.0	R4	LTE-RF
36.101	0581	1	Rel-9	A	RP-100916	R4-103360	approved	Test configuration corrections to CQI reporting in AWGN	9.4.0	9.5.0	R4	LTE-RF
36.101	0582	1	Rel-9	F	RP-100920	R4-103412	approved	Introduction of additional Rel-9 scenarios	9.4.0	9.5.0	R4	LTE-RF
36.101	0583	-	Rel-9	F	RP-100919	R4-102894	approved	Editorial corrections of 36.101	9.4.0	9.5.0	R4	LTE-RF
36.101	0586	-	Rel-9	F	RP-100920	R4-102897	approved	Addition of minimum performance requirements for low UE category TDD tests	9.4.0	9.5.0	R4	LTE-RF
36.101	0587	-	Rel-8	F	RP-100914	R4-102935	approved	Missing note in Additional spurious emission test with NS_07	8.10.0	8.11.0	R4	LTE-RF
36.101	0588	-	Rel-9	A	RP-100914	R4-102936	approved	Missing note in Additional spurious emission test with NS_07	9.4.0	9.5.0	R4	LTE-RF
36.101	0589	1	Rel-8	F	RP-100914	R4-103354	approved	Downlink power for receiver tests	8.10.0	8.11.0	R4	LTE-RF
36.101	0590	1	Rel-9	A	RP-100914	R4-103355	approved	Downlink power for receiver tests	9.4.0	9.5.0	R4	LTE-RF
36.101	0591	-	Rel-9	F	RP-100920	R4-102939	approved	OCNG use and power in beamforming tests	9.4.0	9.5.0	R4	LTE-RF
36.101	0592	-	Rel-8	F	RP-100916	R4-102940	approved	Throughput for multi-datastreams transmissions	8.10.0	8.11.0	R4	LTE-RF
36.101	0593	-	Rel-9	A	RP-100916	R4-102941	approved	Throughput for multi-datastreams transmissions	9.4.0	9.5.0	R4	LTE-RF
36.101	0594	-	Rel-8	F	RP-100916	R4-102942	approved	Corrections to RF OCNG Pattern OP.1 and 2	8.10.0	8.11.0	R4	LTE-RF
36.101	0595	-	Rel-9	A	RP-100916	R4-102943	approved	Corrections to RF OCNG Pattern OP.1 and 2	9.4.0	9.5.0	R4	LTE-RF
36.101	0596	2	Rel-10	B	RP-100927	R4-103413	approved	CR LTE_TDD_2600_US spectrum band definition additions to TS 36.101	9.4.0	10.0.0	R4	LTE_TDD_2600_US-Core
36.101	0597	1	Rel-9	F	RP-100920	R4-103436	approved	Beamforming model for transmission on antenna port 7/8	9.4.0	9.5.0	R4	LTEimp-eDL
36.101	0598	-	Rel-8	F	RP-100916	R4-103126	approved	Correction of PDCCH content for PHICH test	8.10.0	8.11.0	R4	LTE-RF
36.101	0599	-	Rel-9	A	RP-100916	R4-103127	approved	Correction of PDCCH content for PHICH test	9.4.0	9.5.0	R4	LTE-RF
36.101	0600	1	Rel-9	F	RP-100920	R4-103361	approved	Correction of full correlation in frequency-selective CQI test	9.4.0	9.5.0	R4	LTE-RF
36.101	0601	-	Rel-9	F	RP-100920	R4-103131	approved	Correction on single-antenna transmission fixed reference channel	9.4.0	9.5.0	R4	LTE-RF
36.101	0604	-	Rel-8	F	RP-100914	R4-103188	approved	Reference sensitivity requirements for the 1.4 and 3 MHz bandwidths	8.10.0	8.11.0	R4	LTE-RF
36.101	0605	-	Rel-9	A	RP-100914	R4-103189	approved	Reference sensitivity requirements for the 1.4 and 3 MHz bandwidths	9.4.0	9.5.0	R4	LTE-RF
36.101	0608	1	Rel-9	F	RP-100920	R4-103454	approved	CR for DL sustained data rate test	9.4.0	9.5.0	R4	TEI9
36.101	0611	-	Rel-9	F	RP-100919	R4-103243	approved	Correction of references in section 10 (MBMS performance requirements)	9.4.0	9.5.0	R4	MBMS_LTE
36.101	0612	-	Rel-8	F	RP-100914	R4-103271	approved	Band 13 and Band 14 spurious emission corrections	8.10.0	8.11.0	R4	LTE-RF
36.101	0613	-	Rel-9	A	RP-100914	R4-103272	approved	Band 13 and Band 14 spurious emission corrections	9.4.0	9.5.0	R4	LTE-RF
36.101	0614	2	Rel-9	F	RP-100920	R4-103457	approved	Add OCNG to MBMS requirements	9.4.0	9.5.0	R4	LTE-RF
36.101	0617	1	Rel-9	F	RP-100919	R4-103463	approved	Rx Requirements	9.4.0	9.5.0	R4	RInImp9-UMTSLTE800EU
36.104	0173	-	Rel-10	B	RP-100927	R4-102786	approved	CR LTE_TDD_2600_US spectrum band definition additions to TS 36.104	9.4.0	10.0.0	R4	LTE_TDD_2600_US-Core
36.104	0178	-	Rel-9	F	RP-100920	R4-103350	approved	UL Timing Adjustment: Stationary UE propagation channel clarification	9.4.0	9.5.0	R4	TEI9
36.106	0015	-	Rel-9	F	RP-100925	R4-102388	approved	Introduction of operating band 18, 19, 20 and 21 and correction of band 11.	9.1.0	9.2.0	R4	TEI9

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36.113	0009	-	Rel-10	B	RP-100927	R4-102788	approved	CR LTE_TDD_2600_US spectrum band definition additions for BS to TS 36.113	9.1.0	10.0.0	R4	LTE_TDD_2600_US-Core
36.113	0010	-	Rel-9	F	RP-100923	R4-103245	approved	Clarification of radiated emissions requirement	9.1.0	9.2.0	R4	RInImp9-RFmulti
36.124	0006	-	Rel-10	B	RP-100927	R4-102789	approved	CR LTE_TDD_2600_US spectrum band definition additions for UE to TS 36.124	9.1.0	10.0.0	R4	LTE_TDD_2600_US-Core
36.133	0476	1	Rel-8	F	RP-100914	R4-103342	approved	Cell identity change time in RRM Test cases	8.10.0	8.11.0	R4	LTE-RF
36.133	0477	1	Rel-9	A	RP-100914	R4-103343	approved	Cell identity change time in RRM Test cases	9.4.0	9.5.0	R4	LTE-RF
36.133	0478	1	Rel-8	F	RP-100914	R4-103348	approved	Scrambling code change time in RRM Test cases	8.10.0	8.11.0	R4	LTE-RF
36.133	0479	1	Rel-9	A	RP-100914	R4-103349	approved	Scrambling code change time in RRM Test cases	9.4.0	9.5.0	R4	LTE-RF
36.133	0482	-	Rel-8	F	RP-100914	R4-102810	approved	Clarification of Radio link monitoring test cases	8.10.0	8.11.0	R4	LTE-RF
36.133	0483	-	Rel-9	A	RP-100914	R4-102811	approved	Clarification of Radio link monitoring test cases	9.4.0	9.5.0	R4	LTE-RF
36.133	0484	-	Rel-8	F	RP-100915	R4-102898	approved	Test case for E-UTRA TDD event triggered reporting when L3 filtering is used in R8	8.10.0	8.11.0	R4	LTE-RF
36.133	0485	-	Rel-9	A	RP-100915	R4-102899	approved	Test case for E-UTRA TDD event triggered reporting when L3 filtering is used in R9	9.4.0	9.5.0	R4	LTE-RF
36.133	0486	-	Rel-8	F	RP-100915	R4-102900	approved	E-UTRA TDD - UTRA TDD cell reselection in fading propagation conditions: UTRA TDD is of lower priority in R8	8.10.0	8.11.0	R4	LTE-RF
36.133	0487	-	Rel-9	A	RP-100915	R4-102901	approved	E-UTRA TDD - UTRA TDD cell reselection in fading propagation conditions: UTRA TDD is of lower priority in R9	9.4.0	9.5.0	R4	LTE-RF
36.133	0488	2	Rel-9	F	RP-100920	R4-103422	approved	Test case for TDD UE Rx-Tx time difference measurement	9.4.0	9.5.0	R4	LCS_LTE
36.133	0492	-	Rel-9	F	RP-100924	R4-102912	approved	Test case for E-UTRAN TDD in the existence of non-allowed CSG cell	9.4.0	9.5.0	R4	EHNB
36.133	0493	-	Rel-8	F	RP-100915	R4-102944	approved	PDCCH Aggregation level for RRM tests	8.10.0	8.11.0	R4	LTE-RF
36.133	0494	-	Rel-9	A	RP-100915	R4-102945	approved	PDCCH Aggregation level for RRM tests	9.4.0	9.5.0	R4	LTE-RF
36.133	0495	-	Rel-8	F	RP-100915	R4-102946	approved	Corrections to RRM OCNG Patterns	8.10.0	8.11.0	R4	LTE-RF
36.133	0496	-	Rel-9	A	RP-100915	R4-102947	approved	Corrections to RRM OCNG Patterns	9.4.0	9.5.0	R4	LTE-RF
36.133	0497	-	Rel-10	B	RP-100927	R4-102953	approved	CR LTE_TDD_2600_US spectrum band definition additions to TS 36.133	9.4.0	10.0.0	R4	LTE_TDD_2600_US-Core
36.133	0498	-	Rel-9	F	RP-100919	R4-102962	approved	RRC timer accuracy requirement	9.4.0	9.5.0	R4	LTE-L23
36.133	0500	-	Rel-8	F	RP-100915	R4-103011	approved	Correction of OCNG	8.10.0	8.11.0	R4	LTE-RF
36.133	0501	-	Rel-9	A	RP-100915	R4-103012	approved	Correction of OCNG	9.4.0	9.5.0	R4	LTE-RF
36.133	0502	-	Rel-8	F	RP-100915	R4-103013	approved	Correction of ES/Iot value in E-UTRAN RSRQ FDD intra frequency test	8.10.0	8.11.0	R4	LTE-RF
36.133	0503	-	Rel-9	A	RP-100915	R4-103014	approved	Correction of ES/Iot value in E-UTRAN RSRQ FDD intra frequency test	9.4.0	9.5.0	R4	LTE-RF
36.133	0504	1	Rel-8	F	RP-100915	R4-103366	approved	Corrections to 36.133(R8)	8.10.0	8.11.0	R4	LTE-RF
36.133	0505	1	Rel-9	A	RP-100915	R4-103367	approved	Corrections to 36.133(R9)	9.4.0	9.5.0	R4	LTE-RF
36.133	0506	-	Rel-9	F	RP-100920	R4-103017	approved	Correction of drx-RetransmissionTimer parameters	9.4.0	9.5.0	R4	LTE-RF
36.133	0507	-	Rel-8	F	RP-100915	R4-103018	approved	Correction of Io value in RSRP FDD and TDD Intra frequency test	8.10.0	8.11.0	R4	LTE-RF
36.133	0508	-	Rel-9	A	RP-100915	R4-103019	approved	Correction of Io value in RSRP FDD and TDD Intra frequency test	9.4.0	9.5.0	R4	LTE-RF
36.133	0521	1	Rel-9	F	RP-100920	R4-103364	approved	Editorial corrections to 36.133 (R9)	9.4.0	9.5.0	R4	LTE-RF
36.133	0522	-	Rel-8	F	RP-100914	R4-103035	approved	Alignment of REFSENS between 36.101 and 36.133(R8)	8.10.0	8.11.0	R4	LTE-RF
36.133	0523	-	Rel-9	A	RP-100914	R4-103036	approved	Alignment of REFSENS between 36.101 and 36.133(R9)	9.4.0	9.5.0	R4	LTE-RF
36.133	0525	1	Rel-9	F	RP-100920	R4-103371	approved	Correction of Time to Trigger unit for 36.133(R9)	9.4.0	9.5.0	R4	LTE-RF
36.133	0527	-	Rel-9	F	RP-100920	R4-103040	approved	correction of redundant Hysteresis(Hys) for 36.133(R9)	9.4.0	9.5.0	R4	LTE-RF

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36.133	0528	1	Rel-9	B	RP-100920	R4-103439	approved	E-UTRAN FDD Intra Frequency RSTD Measurement Accuracy test case	9.4.0	9.5.0	R4	LCS_LTE
36.133	0537	-	Rel-9	F	RP-100919	R4-103153	approved	A clarification text in the RSTD intra-frequency accuracy requirements	9.4.0	9.5.0	R4	LCS_LTE
36.133	0538	1	Rel-9	F	RP-100919	R4-103339	approved	Correction to Enhanced BSIC Verification Requirements	9.4.0	9.5.0	R4	TEI9
36.133	0539	-	Rel-9	F	RP-100919	R4-103231	approved	Enhanced CSFB Requirements with DRX	9.4.0	9.5.0	R4	TEI9
36.133	0540	-	Rel-9	F	RP-100919	R4-103232	approved	Correction to E-CID Requirements	9.4.0	9.5.0	R4	LCS_LTE
36.133	0544	1	Rel-9	F	RP-100920	R4-103386	approved	Addition of UTRA and GSM enhanced cell identification test cases	9.4.0	9.5.0	R4	TEI9
36.133	0547	1	Rel-9	B	RP-100920	R4-103423	approved	E-UTRAN FDD UE Rx – Tx Time Difference Measurement Accuracy test case	9.4.0	9.5.0	R4	LCS_LTE
36.133	0548	-	Rel-8	B	RP-100914	R4-103458	approved	Introduction of CSG cell reselection requirements	8.10.0	8.11.0	R4	LTE-L23
36.133	0549	-	Rel-9	A	RP-100914	R4-103459	approved	Introduction of CSG cell reselection requirements	9.4.0	9.5.0	R4	LTE-L23
36.141	0192	-	Rel-8	F	RP-100916	R4-102784	approved	Clarifications on Base Station transmit and receive configurations	8.7.0	8.8.0	R4	LTE-RF
36.141	0193	-	Rel-9	A	RP-100916	R4-102785	approved	Clarifications on Base Station transmit and receive configurations	9.4.0	9.5.0	R4	LTE-RF
36.141	0194	-	Rel-10	B	RP-100928	R4-102787	approved	CR LTE_TDD_2600_US spectrum band definition additions to TS 36.141	9.4.0	10.0.0	R4	LTE_TDD_2600_US-Perf
36.141	0196	-	Rel-9	F	RP-100920	R4-102862	approved	UL Timing Adjustment: Stationary UE propagation channel clarification	9.4.0	9.5.0	R4	TEI9
36.141	0197	1	Rel-8	F	RP-100917	R4-103434	approved	Modification on testing of time mask of E-UTRA TDD base station in R8	8.7.0	8.8.0	R4	LTE-RF
36.141	0198	1	Rel-9	A	RP-100917	R4-103435	approved	Modification on testing of time mask of E-UTRA TDD base station in R9	9.4.0	9.5.0	R4	LTE-RF
36.141	0206	-	Rel-8	F	RP-100916	R4-103166	approved	Adding operating unwanted emissions test to tests applicable to Ancillary RF Amplifiers	8.7.0	8.8.0	R4	LTE-RF
36.141	0207	-	Rel-9	A	RP-100916	R4-103167	approved	Adding operating unwanted emissions test to tests applicable to Ancillary RF Amplifiers	9.4.0	9.5.0	R4	LTE-RF
36.143	0015	-	Rel-9	F	RP-100925	R4-102389	approved	Introduction of operating band 18, 19, 20 and 21 and correction of band 11.	9.0.0	9.1.0	R4	TEI9
36.212	0099	-	Rel-9	F	RP-100899	R1-104187	approved	Clarify soft buffer size determination for MCH	9.2.0	9.3.0	R1	MBMS_LTE
36.213	0269	-	Rel-9	F	RP-100900	R1-105013	approved	Clarification on Extended CP support with Transmission Mode 8	9.2.0	9.3.0	R1	LTEimp-eDL
36.300	0248	4	Rel-10	B	RP-100865	R2-105268	approved	Corrections and new Agreements on Carrier Aggregation	10.0.0	10.1.0	R2	LTE_CA-Core
36.300	0249	1	Rel-10	C	RP-100866	R2-104998	approved	Additions to Stage-2 description of relaying	10.0.0	10.1.0	R2	LTE_Relay-Core
36.300	0254	1	Rel-9	F	RP-100851	R2-105216	approved	CSFB Summary	9.4.0	9.5.0	R2	TEI9
36.300	0255	-	Rel-10	B	RP-100866	R3-105202	approved	Start-up procedure for relays	10.0.0	10.1.0	R2	LTE_Relay-Core
36.300	0256	-	Rel-9	F	RP-100851	R2-105249	approved	Keeping neighbouring eNBs up-to-date with complete list of served cells	9.4.0	9.5.0	R2	TEI9
36.300	0257	-	Rel-10	A	RP-100851	R2-105250	approved	Keeping neighbouring eNBs up-to-date with complete list of served cells	10.0.0	10.1.0	R2	TEI9
36.300	0258	-	Rel-9	F	RP-100851	R2-105251	approved	Description of Energy Saving mechanisms	9.4.0	9.5.0	R2	TEI9
36.300	0259	-	Rel-10	A	RP-100851	R2-105252	approved	Description of Energy Saving mechanisms	10.0.0	10.1.0	R2	TEI9
36.300	0260	-	Rel-10	B	RP-100866	R2-105253	approved	Handover request routing toward RN	10.0.0	10.1.0	R2	LTE_Relay-Core
36.300	0261	-	Rel-9	F	RP-100853	R3-105254	approved	MBMS Session Update procedure	9.4.0	9.5.0	R2	MBMS_LTE
36.300	0262	-	Rel-10	A	RP-100853	R3-105255	approved	MBMS Session Update procedure	10.0.0	10.1.0	R2	MBMS_LTE
36.300	0263	-	Rel-9	F	RP-100860	R2-105256	approved	CS Fallback Indication and Handover Restriction List	9.4.0	9.5.0	R2	TEI9, LTE-interfaces

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36.300	0264	-	Rel-10	A	RP-100860	R2-105257	approved	CS Fallback Indication and Handover Restriction List	10.0.0	10.1.0	R2	TEI9, LTE-interfaces
36.300	0265	-	Rel-10	B	RP-100866	R2-105258	approved	X2-AP non UE dedicated messages handling	10.0.0	10.1.0	R2	LTE_Relay-Core
36.300	0266	-	Rel-10	B	RP-100866	R2-105259	approved	Detach procedure for relays	10.0.0	10.1.0	R2	LTE_Relay-Core
36.300	0267	1	Rel-10	B	RP-100866	R2-105261	approved	RN and DeNB OAMs should be able to exchange info	10.0.0	10.1.0	R2	LTE_Relay-Core
36.300	0268	-	Rel-10	A	RP-100882	-	approved	CSFB Summary	10.0.0	10.1.0	R2	TEI9
36.304	0134	-	Rel-9	F	RP-100855	R2-104270	approved	Clarification on CSG aunotomous search	9.3.0	9.4.0	R2	EHNB-RAN2
36.304	0136	1	Rel-9	F	RP-100851	R2-105232	approved	Clarifications Regarding Redirection from LTE	9.3.0	9.4.0	R2	TEI9, LTE-L23
36.304	0137	-	Rel-8	F	RP-100845	R2-104967	approved	Correct the PEMAX_H to PEMAX	8.8.0	8.9.0	R2	TEI8, LTE-L23
36.304	0138	-	Rel-9	A	RP-100845	R2-104968	approved	Correct the PEMAX_H to PEMAX	9.3.0	9.4.0	R2	TEI8, LTE-L23
36.304	0139	1	Rel-9	F	RP-100851	R2-105222	approved	Clarification on the use of RSRQ for cell reselection towards GERAN or CDMA	9.3.0	9.4.0	R2	TEI9, LTE-L23
36.305	0018	-	Rel-9	F	RP-100852	R2-104271	approved	Corrections on LPP session identifier in Stage 2	9.3.0	9.4.0	R2	LCS_LTE
36.305	0019	-	Rel-9	F	RP-100852	R3-104976	approved	Clarifications to LPP transferred information	9.3.0	9.4.0	R2	LCS_LTE
36.306	0035	-	Rel-9	F	RP-100853	R2-104939	approved	Clarification of MBMS UE capability	9.2.0	9.3.0	R2	MBMS_LTE
36.307	0001	-	Rel-8	B	RP-100927	R4-102951	approved	CR LTE_TDD_2600_US spectrum band definition additions to TS 36.307 V800	8.0.0	8.1.0	R4	LTE_TDD_2600_US-Core
36.307	0002	-	Rel-9	B	RP-100927	R4-102952	approved	CR LTE_TDD_2600_US spectrum band definition additions to TS 36.307 V900	9.0.0	9.1.0	R4	LTE_TDD_2600_US-Core
36.322	0092	1	Rel-9	F	RP-100851	R2-104978	approved	Miscellaneous corrections to RLC	9.2.0	9.3.0	R2	LTE-L23, TEI9
36.331	0439	-	Rel-8	F	RP-100845	R2-104273	approved	Correction to 3GPP2 reference for interworking with cdma2000 1x	8.10.0	8.11.0	R2	LTE-L23
36.331	0440	-	Rel-9	F	RP-100845	R2-104274	approved	Correction to 3GPP2 reference for interworking with cdma2000 1x	9.3.0	9.4.0	R2	TEI9, LTE-L23
36.331	0441	-	Rel-9	F	RP-100851	R2-104275	approved	Clarification on UL handover preparation transfer	9.3.0	9.4.0	R2	TEI9
36.331	0442	1	Rel-9	F	RP-100851	R2-104979	approved	Clarifications regarding fullConfiguration	9.3.0	9.4.0	R2	TEI9, LTE-L23
36.331	0443	-	Rel-9	F	RP-100851	R2-104277	approved	Clarifications regarding handover to E-UTRAN	9.3.0	9.4.0	R2	TEI9, LTE-L23
36.331	0444	-	Rel-9	F	RP-100854	R2-104278	approved	Correction on the table of conditionally mandatory Release 9 features	9.3.0	9.4.0	R2	LTE-L23, TEI9, SSAC
36.331	0445	-	Rel-9	F	RP-100851	R2-104279	approved	Corrections to TS36.331 on MeasConfig IE	9.3.0	9.4.0	R2	TEI9, LTE-L23
36.331	0446	2	Rel-9	F	RP-100853	R2-104989	approved	CR to 36.331 on clarification for MBMS PTM RBs	9.3.0	9.4.0	R2	MBMS_LTE
36.331	0447	-	Rel-9	F	RP-100851	R2-104281	approved	Introduction of late corrections container for E-UTRA UE capabilities	9.3.0	9.4.0	R2	TEI9, LTE-L23
36.331	0448	-	Rel-9	F	RP-100851	R2-104282	approved	Renaming of containers for late non-critical extensions	9.3.0	9.4.0	R2	TEI9
36.331	0452	-	Rel-9	F	RP-100851	R2-104943	approved	Clarifications Regarding Redirection from LTE	9.3.0	9.4.0	R2	TEI9, LTE-L23
36.331	0453	-	Rel-8	F	RP-100845	R2-104965	approved	Description of multi-user MIMO functionality in feature group indicator table	8.10.0	8.11.0	R2	LTE-L23
36.331	0456	-	Rel-9	A	RP-100845	R2-104966	approved	Description of multi-user MIMO functionality in feature group indicator table	9.3.0	9.4.0	R2	LTE-L23
36.331	0457	-	Rel-8	F	RP-100845	R2-104969	approved	Correct the PEMAX_H to PEMAX	8.10.0	8.11.0	R2	TEI8, LTE-L23
36.331	0458	-	Rel-9	A	RP-100845	R2-104970	approved	Correct the PEMAX_H to PEMAX	9.3.0	9.4.0	R2	TEI8, LTE-L23
36.331	0460	-	Rel-9	F	RP-100851	R2-104980	approved	Clarification for feature group indicator bit 11	9.3.0	9.4.0	R2	TEI9, LTE-L23
36.331	0465	1	Rel-9	F	RP-100851	R2-105234	approved	Clarification on FGI setting for inter-RAT features not supported by the UE	9.3.0	9.4.0	R2	LTE-L23, TEI9
36.331	0473	-	Rel-9	F	RP-100929	-	revised	Clarification of the meaning of FGI bit 1 and bit 2 for Rel-9	9.3.0		R2	LTE-L23, TEI9
36.331	0473	1	Rel-9	F	RP-100949	-	withdrawn	Clarification of the meaning of FGI bit 1 and bit 2 for Rel-9	9.3.0		R2	LTE-L23, TEI9
36.331	0474	-	Rel-9	F	RP-100943	-	revised	FGI settings in Rel-9	9.3.0		R2	LTE-L23, TEI9
36.331	0474	1	Rel-9	F	RP-100948	-	withdrawn	FGI bits related to CDMA2000 in Rel-9	9.3.0		R2	LTE-L23, TEI9
36.331	0475	1	Rel-9	F	RP-101008	-	approved	FGI settings in Rel-9	9.3.0	9.4.0	R2	LTE-L23, TEI9

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36.331	0475	-	Rel-9	F	RP-100947	-	revised	FGI settings in Rel-9	9.3.0	9.4.0	R2	LTE-L23, TEI9
36.355	0024	-	Rel-9	F	RP-100852	R2-104283	approved	Addition of an EPDU to an LPP Error and LPP Abort	9.2.1	9.3.0	R2	LCS_LTE
36.355	0026	-	Rel-9	F	RP-100852	R2-104285	approved	Addition of a Global Identifier to LPP ASN.1 Definition	9.2.1	9.3.0	R2	LCS_LTE
36.355	0028	-	Rel-9	F	RP-100852	R2-104287	approved	Corrections to LPP Reliable Transport	9.2.1	9.3.0	R2	LCS_LTE
36.355	0029	-	Rel-9	F	RP-100852	R2-104288	approved	Corrections to the PeriodicalReportingCriteria	9.2.1	9.3.0	R2	LCS_LTE
36.355	0030	1	Rel-9	F	RP-100852	R2-104972	approved	Various corrections and clarifications to LPP	9.2.1	9.3.0	R2	LCS_LTE
36.355	0031	-	Rel-9	F	RP-100852	R2-104973	approved	Corrections to LPP Reliable Transport	9.2.1	9.3.0	R2	LCS_LTE
36.355	0032	1	Rel-9	F	RP-100852	R2-105269	approved	External PDU Identifier Allocations	9.2.1	9.3.0	R2	LCS_LTE
36.355	0035	1	Rel-9	F	RP-100852	R2-105219	approved	Several corrections in LPP	9.2.1	9.3.0	R2	LCS_LTE
36.355	0036	-	Rel-9	F	RP-100852	R2-104990	approved	Clarification to Assistance Data Transfer Procedure	9.2.0	9.3.0	R2	LCS_LTE
36.413	0726	1	Rel-9	F	RP-100908	R3-102499	Approved	Explicit PLMN coding in Trace IEs	9.3.0	9.4.0	R3	TEI9
36.413	0731	3	Rel-9	F	RP-100908	R3-102511	Approved	Cause value for UE context release during CSFB	9.3.0	9.4.0	R3	TEI9
36.413	0738	1	Rel-9	F	RP-100906	R3-102488	Approved	CS Fallback Indication and Handover Restriction List	9.3.0	9.4.0	R3	LTE-interfaces
36.413	0741	1	Rel-9	F	RP-100908	R3-102418	Approved	Correction of Repetition Period	9.3.0	9.4.0	R3	TEI9
36.413	0742	1	Rel-9	F	RP-100908	R3-102420	Approved	Notification of Location Reporting Failure	9.3.0	9.4.0	R3	TEI9
36.413	0743	1	Rel-9	F	RP-100908	R3-102429	Approved	Correction of UE AMBR	9.3.0	9.4.0	R3	TEI9
36.413	0745	-	Rel-9	F	RP-100908	R3-102326	Approved	Simultaneous Rekeying and CSFB	9.3.0	9.4.0	R3	TEI9
36.413	0751	-	Rel-9	F	RP-100908	R3-102446	Approved	Delete references to 23.041 in Tabular	9.3.0	9.4.0	R3	TEI9
36.423	0376	1	Rel-9	F	RP-100908	R3-102500	Approved	Explicit PLMN coding in Trace IEs	9.3.0	9.4.0	R3	TEI9
36.423	0380	2	Rel-9	F	RP-100906	R3-102505	Approved	The corrections for Last Visited Cell Information	9.3.0	9.4.0	R3	LTE-interfaces
36.423	0383	1	Rel-9	F	RP-100906	R3-102489	Approved	Handover Restriction List	9.3.0	9.4.0	R3	LTE-interfaces
36.423	0384	1	Rel-9	F	RP-100908	R3-102461	Approved	Complete list of served cells to be provided in X2 SETUP and eNB Configuration Update messages	9.3.0	9.4.0	R3	TEI9
36.443	0027	-	Rel-9	F	RP-100906	R3-102189	Approved	Alignment of tabulars to agreed notation for TS36.413 and TS36.423	9.1.0	9.2.0	R3	MBMS_LTE
36.444	0012	1	Rel-9	F	RP-100906	R3-102480	Approved	MBMS Session Update procedure	9.1.0	9.2.0	R3	MBMS_LTE
36.444	0013	-	Rel-9	F	RP-100906	R3-102190	Approved	Alignment of tabulars to agreed notation for TS36.413 and TS36.423	9.1.0	9.2.0	R3	MBMS_LTE
36.455	0016	-	Rel-9	F	RP-100906	R3-102191	Approved	Rapporteur's update	9.2.0	9.3.0	R3	LCS_LTE
36.508	0145	-	Rel-9	F	RP-100812	R5-104089	approved	Update of tested channel bandwidths for Bands 13, 14 and 17	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.508	0146	-	Rel-9	F	RP-100816	R5-104106	approved	Correction to remove special configurations for UM Bearer test cases	9.1.0	9.2.0	R5	LTE-UEConTest_SIG
36.508	0147	-	Rel-9	F	RP-100816	R5-104128	approved	Clarification to the procedure: UE triggered establishment of a default EPS bearer context associated with an additional PDN	9.1.0	9.2.0	R5	LTE-UEConTest_SIG
36.508	0148	-	Rel-9	F	RP-100816	R5-104169	approved	Correction to Inter-frequency carrier frequency list in SIB5 and E-UTRA carrier frequency list in SIB19	9.1.0	9.2.0	R5	LTE-UEConTest_SIG
36.508	0149	-	Rel-9	F	RP-100816	R5-104220	approved	Update of 6.2.3 of 36.508 - description of default frequency for the single cell signalling test	9.1.0	9.2.0	R5	LTE-UEConTest_SIG
36.508	0150	-	Rel-9	F	RP-100831	R5-104392	approved	Update of default message contents for DSMIPv6 testing	9.1.0	9.2.0	R5	DSMIPv6_UEConTest
36.508	0151	-	Rel-9	F	RP-100998	R5-104454	approved	Addition of UE test state model for HRPD	9.1.0	9.2.0	R5	LTE-UEConTest_SIG
36.508	0151	-	Rel-9	F	RP-100837	R5-104454	reissued	Addition of UE test state model for HRPD	9.1.0		R5	LTE_TDD_2600_US-UEConTest
36.508	0152	-	Rel-9	F	RP-100812	R5-104503	approved	Correction to Qrxlevmin in SIB 1 for RF and RRM	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.508	0153	-	Rel-9	F	RP-100816	R5-104547	approved	Specification of HRPD specific values in SIB8	9.1.0	9.2.0	R5	LTE-UEConTest_SIG
36.508	0154	-	Rel-9	F	RP-100816	R5-104685	approved	Update of default bandwidth configuration for signalling	9.1.0	9.2.0	R5	LTE-UEConTest_SIG
36.508	0155	-	Rel-9	F	RP-100816	R5-104702	approved	Clarification to packet filter identifier and precedence in TFT	9.1.0	9.2.0	R5	LTE-UEConTest_SIG

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Spec	CR	Rev	Phase	Cat	Plenary doc	WG doc	TSG status	Subject	CR to	Resulting vers	WG	Workitem
36.508	0156	-	Rel-9	F	RP-100816	R5-104703	approved	Add P-CSCF method II for IMS	9.1.0	9.2.0	R5	LTE-UEConTest_SIG
36.508	0157	-	Rel-9	F	RP-100816	R5-104704	approved	Update generic procedures for IMS	9.1.0	9.2.0	R5	LTE-UEConTest_SIG
36.508	0158	-	Rel-9	F	RP-100816	R5-104705	approved	Correction of clause 4.3.3.4	9.1.0	9.2.0	R5	LTE-UEConTest_SIG
36.508	0159	-	Rel-9	F	RP-100816	R5-104706	approved	Correction to Downlink Frequency for N_DL 4850	9.1.0	9.2.0	R5	LTE-UEConTest_SIG
36.508	0160	-	Rel-9	F	RP-100816	R5-104707	approved	Default message contents for UTRAN and GERAN	9.1.0	9.2.0	R5	LTE-UEConTest_SIG
36.508	0161	-	Rel-9	F	RP-100812	R5-104884	approved	Addition of the new connection diagram for the CSI test case	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.508	0162	-	Rel-9	F	RP-100816	R5-105003	approved	Correction to reference end states	9.1.0	9.2.0	R5	LTE-UEConTest_SIG
36.508	0163	-	Rel-9	F	RP-100998	R5-105050	approved	Correction for Timer Tolerances	9.1.0	9.2.0	R5	LTE-UEConTest_SIG
36.508	0163	-	Rel-9	F	RP-100837	R5-105050	reissued	Correction for Timer Tolerances	9.1.0		R5	LTE_TDD_2600_US-UEConTest
36.508	0165	-	Rel-9	F	RP-100885	-	approved	Introduction of default message contents for HRPD overhead messages	9.1.0	9.2.0	R5	LTE-UEConTest_SIG
36.509	0016	-	Rel-9	F	RP-100835	R5-104118	approved	Addition of RESET command for LCS	9.1.0	9.2.0	R5	LCS_LTE_UEConTest
36.521-1	0294	-	Rel-9	F	RP-100813	R5-104090	approved	Corrections to Spectrum emission mask test regarding UE category	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-1	0295	-	Rel-9	F	RP-100813	R5-104091	approved	Missing note in Additional spurious emission test with NS_07	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-1	0296	-	Rel-9	F	RP-100813	R5-104095	approved	PDCCH Aggregation level for CSI tests	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-1	0297	-	Rel-9	F	RP-100813	R5-104096	approved	Default initial and connection Uplink power for RF tests	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-1	0298	-	Rel-9	F	RP-100813	R5-104212	approved	Limits on Uplink power for Receiver tests	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-1	0299	-	Rel-9	F	RP-100813	R5-104244	approved	Correction to Demodulation Requirements	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-1	0300	-	Rel-9	F	RP-100813	R5-104461	approved	CR to 36.521-1: Editorial Corrections for Closed Loop Spatial Multiplexing Test Cases	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-1	0301	-	Rel-9	F	RP-100813	R5-104478	approved	Correction to Test requirements in 6.5.2.2	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-1	0302	-	Rel-9	F	RP-100813	R5-104482	approved	Correction to 8.2.1.1	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-1	0303	-	Rel-9	F	RP-100813	R5-104520	approved	36521-1 General update of sections 00 to 08: missing Introduction references formatting	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-1	0304	-	Rel-9	F	RP-100813	R5-104583	approved	No necessity to apply - consecutive time slots for EVM	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-1	0305	-	Rel-9	F	RP-100813	R5-104584	approved	Correction to E.4.4 EVM equalizer spectrum flatness	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-1	0306	-	Rel-9	F	RP-100813	R5-104630	approved	Correction of table reference in In-band emissions test	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-1	0307	-	Rel-9	F	RP-100813	R5-104808	approved	CR to 36.521-1: Update to Additional Spectrum Emission Mask test case	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-1	0308	-	Rel-9	F	RP-100813	R5-104809	approved	CR to 36.521-1: Update to Spurious emission band UE co-existence test case	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-1	0309	-	Rel-9	F	RP-100813	R5-104810	approved	LTE-RF: CR for Max Output Power	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-1	0310	-	Rel-9	F	RP-100813	R5-104811	approved	LTE-RF: CR for Freq Error	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-1	0311	-	Rel-9	F	RP-100813	R5-104812	approved	Introduction of exclusion period for PUCCH-EVM test in clause 6.5.3	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-1	0312	-	Rel-9	F	RP-100813	R5-104813	approved	Correction to Demodulation UE-Specific Reference Symbols	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-1	0313	-	Rel-9	F	RP-100813	R5-104814	approved	Uncertainties and Test Tolerances for CSI Test cases 9.2.1.1 and 9.2.1.2	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-1	0314	-	Rel-9	F	RP-100813	R5-104815	approved	Uncertainties and Test Tolerances for CSI Test cases 9.2.2.1 and 9.2.2.2	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-1	0315	-	Rel-9	F	RP-100813	R5-104816	approved	UE applicablity for CSI test cases	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-1	0316	-	Rel-9	F	RP-100813	R5-104817	approved	Update of CQI reporting TCs under fading conditions	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-1	0317	-	Rel-9	F	RP-100813	R5-104818	approved	Update of Reporting of Precoding Matrix Indicator TCs	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-1	0318	-	Rel-9	F	RP-100813	R5-104819	approved	Correction of the statistical part 9.3.1.1.1 (CQI Reporting under fading conditions)	9.1.0	9.2.0	R5	LTE-UEConTest_RF

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36.521-1	0319	-	Rel-9	F	RP-100813	R5-104820	approved	Correction of the statistical part 9.3.3.1.1 (CQI Reporting under fading conditions)	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-1	0320	-	Rel-9	F	RP-100813	R5-104821	approved	Correction of the statistical part 9.3.2.1.1 (CQI Reporting under fading conditions)	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-1	0321	-	Rel-9	F	RP-100813	R5-104822	approved	Update and new RMC-s for CQI tests	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-1	0322	-	Rel-9	F	RP-100813	R5-104823	approved	Correction of EVM calculation in annex	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-1	0323	-	Rel-9	F	RP-100813	R5-104824	approved	Introduction of exclusion period for PUCCH-EVM test in Annex E	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-1	0324	-	Rel-9	F	RP-100813	R5-104844	approved	Pcmax changes to Configured UE Transmitted Output Power	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-1	0325	-	Rel-9	F	RP-100813	R5-104845	approved	Clarification on the frequency range with net work signal in 6.6.3.2	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-1	0326	-	Rel-9	F	RP-100813	R5-104846	approved	Update of editor's notes	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-1	0327	-	Rel-9	F	RP-100813	R5-104847	approved	Removal of Extreme Conditions in 6.2.3	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-1	0328	-	Rel-9	F	RP-100813	R5-104850	approved	Corrections to Test procedure loop in CSI tests	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-1	0329	-	Rel-9	F	RP-100813	R5-104851	approved	Introduction of TDD CQI Reporting under fading conditions and frequency-selective interference test case	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-1	0330	-	Rel-9	F	RP-100813	R5-104852	approved	Introduction of TDD RI Reporting test case	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-1	0331	-	Rel-9	F	RP-100813	R5-104853	approved	Update of CQI reporting TCs under AWGN conditions	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-1	0332	-	Rel-9	F	RP-100813	R5-104854	approved	Update of FDD RI Reporting TC	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-1	0333	-	Rel-9	F	RP-100829	R5-104857	approved	CR to 36.521-1 LTE UE Tx_RX test cases band 20	9.1.0	9.2.0	R5	RInImp-UEConTest-UMTSLTE800EU
36.521-1	0334	-	Rel-9	F	RP-100813	R5-104861	approved	Corrections to Test requirements for MPR test	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-1	0335	-	Rel-9	F	RP-100813	R5-104863	approved	Clarification on notes in Max Power	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-1	0336	-	Rel-9	F	RP-100813	R5-104872	approved	Correction to 6.3.5.2	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-1	0337	-	Rel-9	F	RP-100813	R5-104873	approved	Numbering and alignment of TDD PHICH demod test cases	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-1	0338	-	Rel-9	F	RP-100813	R5-104874	approved	Correction to test numbering for exceptional messages in 8.2.x.x	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-1	0339	-	Rel-9	F	RP-100813	R5-104875	approved	Correction to 9.2.2	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-1	0340	-	Rel-9	F	RP-100813	R5-104876	approved	Correction to the test procedures of 9.3.x	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-1	0341	-	Rel-9	F	RP-100813	R5-104877	approved	Correction to 9.4.x	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-1	0342	-	Rel-9	F	RP-100813	R5-104878	approved	The new reference of connection diagram for 9.3.3	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-1	0343	-	Rel-9	F	RP-100813	R5-104879	approved	Correction to 6.3.4.1 and 6.3.5.1	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-1	0344	-	Rel-9	F	RP-100813	R5-104888	approved	Update of Annex C.2 for AG level	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-1	0345	-	Rel-9	F	RP-100813	R5-105055	approved	Introduction of a new RF test case (8.7) to verify downlink sustained data rate performance	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-1	0346	-	Rel-9	F	RP-100821	R5-105056	reissued	Applicability of a new Rel-9 downlink sustained data rate performance test cases	9.1.0		R5	TEI9_Test
36.521-1	0347	-	Rel-9	F	RP-100813	R5-105061	approved	CR to 36.521-1: Modification to Additional Maximum Power Reduction Test Case	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-1	0348	-	Rel-9	F	RP-100813	R5-105062	approved	Modification to Additional Spectrum Emission Mask	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-1	0349	-	Rel-9	F	RP-100813	R5-105063	approved	Modification to Additional Spurious Emisisons	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-1	0350	-	Rel-9	F	RP-100813	R5-105064	approved	Modification to Maximum Power Reduction	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-1	0351	-	Rel-9	F	RP-100813	R5-105065	approved	Modification to Adjacent Channel Leakage Power Ratio	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-1	0351	-	Rel-9	F	RP-100940	-	reissued	Correction of status for RF performance test case	9.1.0		R5	LTE-UEConTest_RF
36.521-1	0352	-	Rel-9	F	RP-100987	-	approved	Correction of status for RF performance test case	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-2	0017	-	Rel-9	F	RP-100812	R5-104246	approved	CR to 36.521-2 on Correction to cell search	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-2	0018	-	Rel-9	F	RP-100812	R5-104264	approved	Addition of applicability for new RRM test cases	9.1.0	9.2.0	R5	LTE-UEConTest_RF

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36.521-2	0019	-	Rel-9	F	RP-100812	R5-104372	approved	Update of Applicability for Demodulation test cases and UE implementation Types for UTRA TDD	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-2	0020	-	Rel-9	F	RP-100812	R5-104840	approved	36521-2 General update to add-remove TCs applicability correct, TC titles and numbers and editorials	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-2	0021	-	Rel-9	F	RP-100986	R5-105056	approved	Applicability of a new Rel-9 downlink sustained data rate performance test cases	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-3	0198	-	Rel-9	F	RP-100814	R5-104098	approved	PUSCH Scheduling for RRM tests	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-3	0199	-	Rel-9	F	RP-100814	R5-104103	approved	Delay exclusion for retransmissions in RRM test cases	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-3	0200	-	Rel-9	F	RP-100814	R5-104108	approved	Expiry of contention resolution timer in Contention based PRACH test	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-3	0201	-	Rel-9	F	RP-100814	R5-104160	approved	Uncertainties and Test Tolerances for FDD Intra Frequency Relative RSRP Accuracy section 9.1.1.2	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-3	0202	-	Rel-9	F	RP-100814	R5-104230	approved	Correction CR to 36.521-3: Update of E-UTRAN TDD-TDD cell re-selection intra frequency case 4.2.2	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-3	0203	-	Rel-9	F	RP-100814	R5-104231	approved	Correction CR to 36.521-3: Update of E-UTRAN TDD-TDD cell re-selection inter frequency case 4.2.6	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-3	0204	-	Rel-9	F	RP-100814	R5-104232	approved	Correction CR to 36.521-3: Update of E-UTRAN TDD-TDD Handover intra frequency case 5.1.2	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-3	0205	-	Rel-9	F	RP-100814	R5-104233	approved	Correction CR to 36.521-3: Update of E-UTRAN TDD-TDD Handover inter frequency case 5.1.4	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-3	0206	-	Rel-9	F	RP-100814	R5-104247	approved	Addition of Cell Configuration Mapping for Cell Search Test	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-3	0207	-	Rel-9	F	RP-100814	R5-104248	approved	CR to 36.521-3 on Correctionm to cell search	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-3	0208	-	Rel-9	F	RP-100814	R5-104249	approved	CR to 36.521-3 on Correction to UE Measurement Procedures	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-3	0209	-	Rel-9	F	RP-100814	R5-104250	approved	CR to 36.521-3 on Correction to RRM Cell Search	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-3	0210	-	Rel-9	F	RP-100814	R5-104251	approved	CR to 36.521-3 on Correction to RRM General	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-3	0211	-	Rel-9	F	RP-100814	R5-104260	approved	Addition of test tolerances and system uncertainties for E-UTRAN FDD random access tests	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-3	0212	-	Rel-9	F	RP-100814	R5-104261	approved	Addition of test tolerances and system uncertainties for E-UTRAN TDD random access tests	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-3	0213	-	Rel-9	F	RP-100814	R5-104262	approved	LTE-RRM: Addition of new TC E-UTRAN TDD -UTRAN FDD CPICH Ec/No absolute accuracy	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-3	0214	-	Rel-9	F	RP-100814	R5-104263	approved	LTE-RRM: Addition of new TC E-UTRAN TDD -UTRAN FDD CPICH RSCP absolute accuracy	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-3	0215	-	Rel-9	F	RP-100814	R5-104451	approved	Test Tolerances and alignement for RLM FDD TC 7.3.3, 7.3.4	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-3	0216	-	Rel-9	F	RP-100814	R5-104452	approved	Test Tolerances and alignement for RLM FDD TC 7.3.5, 7.3.6	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-3	0217	-	Rel-9	F	RP-100814	R5-104453	approved	Test Tolerances and alignement for RLM TDD TC 7.3.7, 7.3.8	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-3	0218	-	Rel-9	F	RP-100814	R5-104456	approved	Uncertainties and Test Tolerances for E-UTRAN FDD Intra-frequency RRC Re-establishment	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-3	0219	-	Rel-9	F	RP-100814	R5-104460	approved	Uncertainties and Test Tolerances for E-UTRAN FDD-FDD Inter-frequency event triggered reporting under fading propagation conditions	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-3	0220	-	Rel-9	F	RP-100814	R5-104497	approved	Clarification on the neighbor cell info	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-3	0221	-	Rel-9	F	RP-100814	R5-104498	approved	Addition of the exceptional message to UE Transmit Timing	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-3	0222	-	Rel-9	F	RP-100814	R5-104499	approved	Maintenance on exceptional messages for annneta info	9.1.0	9.2.0	R5	LTE-UEConTest_RF

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36.521-3	0223	-	Rel-9	F	RP-100814	R5-104500	approved	Correctio to 6.1.1 and 6.1.2 of RRC Re-establishment test case	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-3	0224	-	Rel-9	F	RP-100814	R5-104501	approved	Maintenance on exceptional messages for Mobility Control Info	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-3	0225	-	Rel-9	F	RP-100814	R5-104521	approved	36521-3 General update of sections 00 to 07: missing Introduction references formatting	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-3	0226	-	Rel-9	F	RP-100814	R5-104563	approved	Update on exclusion of extra delay due to RRC retransmission	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-3	0227	-	Rel-9	F	RP-100814	R5-104616	approved	36.521-3 Correction to test procedure in 8.11.5 and 8.11.6 test cases	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-3	0228	-	Rel-9	F	RP-100814	R5-104625	approved	E-UTRAN TDD inter-frequency reselection test	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-3	0229	-	Rel-9	F	RP-100814	R5-104650	approved	Clarifications of test requirements in measurement accuracy tests	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-3	0230	-	Rel-9	F	RP-100814	R5-104663	approved	36.521-3: Annex B and Annex C update	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-3	0231	-	Rel-9	F	RP-100814	R5-104825	approved	Missing cell Identity change step for test cases with unknown cell 2 timing	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-3	0232	-	Rel-9	F	RP-100814	R5-104826	approved	Addition of test tolerances and system uncertainties for FDD timing characteristics tests	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-3	0233	-	Rel-9	F	RP-100814	R5-104827	approved	Addition of test tolerances and system undertainties for TDD timing characteristics tests	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-3	0234	-	Rel-9	F	RP-100814	R5-104828	approved	Additions to measurement uncertainties and test tolerances for timing characteristics tests in annex F	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-3	0235	-	Rel-9	F	RP-100814	R5-104829	approved	Uncertainties and Test Tolerances for E-UTRAN FDD Inter-frequency RRC Re-establishment	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-3	0236	-	Rel-9	F	RP-100814	R5-104830	approved	Uncertainties and Test Tolerances for E-UTRAN TDD-TDD inter-frequency Handover with unkown target cell	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-3	0237	-	Rel-9	F	RP-100814	R5-104839	approved	36521-3: Editorial update of sections 08	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-3	0238	-	Rel-9	F	RP-100814	R5-104849	approved	Maintenance on the exceptional messages in Ch8 - Annex	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-3	0239	-	Rel-9	F	RP-100814	R5-104855	approved	Uncertainties, Test Tolerances and Test Requirements for UE Transmit Timing	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-3	0240	-	Rel-9	F	RP-100814	R5-104856	approved	GSM carrier RSSI measurement accuracy in E-UTRAN TDD	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-3	0241	-	Rel-9	F	RP-100814	R5-104859	approved	E-UTRAN_to_UTRAN_FDD_reselection	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-3	0242	-	Rel-9	F	RP-100814	R5-104864	approved	Applicability of RRM inter-frequency test cases to (narrow) frequency bands	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-3	0243	-	Rel-9	F	RP-100814	R5-104865	approved	Maintenance on the exceptional messages in Ch5 - Ch6	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-3	0244	-	Rel-9	F	RP-100814	R5-104866	approved	36.521-3: Annex E update	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-3	0245	-	Rel-9	F	RP-100814	R5-104880	approved	Correction to E-UTRAN to UTRAN Cell Re-Selection test case	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-3	0246	-	Rel-9	F	RP-100814	R5-104881	approved	Redundant information in RRM Random Access Test Requirements	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-3	0247	-	Rel-9	F	RP-100814	R5-104883	approved	E-UTRAN TDD to UTRAN FDD Handover	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-3	0248	-	Rel-9	F	RP-100814	R5-104885	approved	Cell ID change time and iteration procedure for RRM test cases 4.2.1, 4.2.2	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-3	0249	-	Rel-9	F	RP-100814	R5-104886	approved	Cell ID change time for RRM test cases 4.2.3, 4.2.6	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-3	0250	-	Rel-9	F	RP-100814	R5-104887	approved	Scrambling code change time for RRM test cases 4.3.1.1, 4.3.4.1, 8.5.2, 8.7.3, 8.11.4	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-3	0251	-	Rel-9	F	RP-100814	R5-104889	approved	Iteration procedure for handover and re-establishment test cases	9.1.0	9.2.0	R5	LTE-UEConTest_RF

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Spec	CR	Rev	Phase	Cat	Plenary doc	WG doc	TSG status	Subject	CR to	Resulting vers	WG	Workitem
36.521-3	0252	-	Rel-9	F	RP-100814	R5-104890	approved	Correction to cell re-selection inter frequency test case	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-3	0253	-	Rel-9	F	RP-100814	R5-105057	approved	Clarification of Radio link monitoring test cases	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.521-3	0254	-	Rel-9	F	RP-100941	-	approved	Correction of status for RRM test cases and missing information in Annex	9.1.0	9.2.0	R5	LTE-UEConTest_RF
36.523-1	0903	-	Rel-9	F	RP-100817	R5-104073	approved	GCF Priority 2 - Corrections to EUTRA idle mode test cases	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	0904	-	Rel-9	F	RP-100817	R5-104083	approved	GCF Priority 2 - Review of detach at switch/power off procedure in EMM test cases	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	0905	-	Rel-9	F	RP-100817	R5-104084	approved	GCF Priority 2 - Review of switch/power off procedure	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	0906	-	Rel-9	F	RP-100817	R5-104107	approved	GCF Priority 1 - Correction to remove special configurations for UM Bearer test cases	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	0907	-	Rel-9	F	RP-100817	R5-104130	approved	GCF Priority 2 - Correction to EUTRA RRC test case 8.1.2.7	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	0908	-	Rel-9	F	RP-100817	R5-104136	approved	GCF Priority 2 - Correction to Generic E-UTRA radio bearer test procedure 12.1.1 and 12.1.2	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	0909	-	Rel-9	F	RP-100817	R5-104142	approved	GCF Priority 2 - Correction to EMM test case 9.2.3.1.2	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	0910	-	Rel-9	F	RP-100817	R5-104144	approved	GCF Priority 1 - Correction to MAC test case 7.1.2.8	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	0911	-	Rel-9	F	RP-100817	R5-104145	approved	GCF Priority 2 - Correction to EUTRA RRC test case 8.1.2.5	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	0912	-	Rel-9	F	RP-100817	R5-104147	approved	GCF Priority 2 - Correction to EUTRA MAC test case 7.1.4.3	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	0913	-	Rel-9	F	RP-100817	R5-104148	approved	GCF Priority 1 - Correction to EUTRA RLC test case 7.2.3.1	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	0914	-	Rel-9	F	RP-100817	R5-104149	approved	GCF Priority 1 - Correction to EUTRA MAC test case 7.1.2.6	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	0915	-	Rel-9	F	RP-100817	R5-104150	approved	GCF Priority 1 - Correction to EUTRA MAC test case 7.1.3.1	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	0917	-	Rel-9	F	RP-100817	R5-104157	approved	GCF Priority 1 - Correction to EUTRA MAC test case 7.1.3.6	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	0918	-	Rel-9	F	RP-100817	R5-104162	approved	GCF Priority 1 - Correction to EUTRA MAC test case 7.1.4.11	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	0919	-	Rel-9	F	RP-100817	R5-104168	approved	GCF Priority 2 - Correction of ESM test case 10.8.1	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	0920	-	Rel-9	F	RP-100817	R5-104173	approved	GCF Priority 4 - Addition of new test case 6.1.2.14	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	0921	-	Rel-9	F	RP-100817	R5-104178	approved	GCF Priority 4 - Addition of new test case 9.2.3.2.5	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	0922	-	Rel-9	F	RP-100817	R5-104182	approved	GCF Priority 3 - Update to test case 13.1.5	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	0923	-	Rel-9	F	RP-100817	R5-104238	approved	GCF Priority 2 - Correction of EMM test case 9.2.1.1.17	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	0924	-	Rel-9	F	RP-100817	R5-104265	approved	GCF Priority 2 - Update of TC 8.1.2.5	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	0925	-	Rel-9	F	RP-100817	R5-104283	approved	GCF Priority 4 Update test case 8.3.2.5	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	0926	-	Rel-9	F	RP-100817	R5-104286	approved	GCF Priority 4 - Correction of test cases 14.1 & 14.2	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	0927	-	Rel-9	F	RP-100817	R5-104287	approved	GCF Priority 4 - Addition of new test case 14.3	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	0928	-	Rel-9	F	RP-100831	R5-104389	approved	Update of DSMIPv6 test cases	9.1.1	9.2.0	R5	DSMIPv6_UEConTest
36.523-1	0929	-	Rel-9	F	RP-100831	R5-104390	approved	Removal of DSMIPv6 test case 15.3	9.1.1	9.2.0	R5	DSMIPv6_UEConTest
36.523-1	0930	-	Rel-9	F	RP-100817	R5-104399	approved	GCF Priority 1 - update of test case 7.2.3.4	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	0931	-	Rel-9	F	RP-100817	R5-104512	approved	GCF Priority 2 - Update to EMM test case 9.2.2.1.1	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	0932	-	Rel-9	F	RP-100817	R5-104535	approved	GCF Priority 2 - Update of TC 7.1.4.16	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	0933	-	Rel-9	F	RP-100817	R5-104632	approved	GCF Priority 1 - Correction of RRC test case 8.5.4.1	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	0934	-	Rel-9	F	RP-100817	R5-104637	approved	GCF priority 4 - Addition of new test case 8.2.4.12	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	0935	-	Rel-9	F	RP-100817	R5-104708	approved	GCF Priority 1 - Correction to EUTRA MAC test cases 7.1.7.1.1, 7.1.7.1.2, 7.1.7.1.3, 7.1.7.1.4	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	0936	-	Rel-9	F	RP-100817	R5-104709	approved	GCF Priority 1 - Correction to EUTRA MAC test case 7.1.7.2.1	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	0937	-	Rel-9	F	RP-100817	R5-104710	approved	GCF Priority 1 - Correction to EUTRA MAC test case 7.1.3.4	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	0938	-	Rel-9	F	RP-100817	R5-104711	approved	GCF Priority 1 - Correction to EUTRA MAC test case 7.1.3.9	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	0939	-	Rel-9	F	RP-100817	R5-104712	approved	GCF Priority 1 - Correction to GCF WI-081 LTE Testcases 7.1.4.11, 7.1.4.14	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	0940	-	Rel-9	F	RP-100817	R5-104713	approved	GCF Priority 2 - Correction to ETURA RRC test case 8.2.4.1	9.1.1	9.2.0	R5	LTE-UEConTest_SIG

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36.523-1	0941	-	Rel-9	F	RP-100817	R5-104714	approved	Correction to GCF WI-082 EMM Testcase 9.1.2.1	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	0942	-	Rel-9	F	RP-100817	R5-104715	approved	GCF Priority 2 - Corrections to EUTRA GERAN idle mode test cases	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	0943	-	Rel-9	F	RP-100817	R5-104716	approved	GCF Priority 2 - Corrections to idle mode test case 6.2.2.1	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	0944	-	Rel-9	F	RP-100817	R5-104717	approved	GCF Priority 2 - Review of detach at switch/power off procedure in Idle Mode test cases	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	0945	-	Rel-9	F	RP-100817	R5-104718	approved	GCF Priority 2 - Correction to Inter RAT HRPD test case 6.2.2.3	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	0946	-	Rel-9	F	RP-100817	R5-104719	approved	GCF Priority 2 - Correction to Inter RAT HRPD test case 6.2.3.7	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	0947	-	Rel-9	F	RP-100817	R5-104720	approved	GCF Priority 2 - Correction to Inter RAT HRPD test case 6.2.3.8	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	0948	-	Rel-9	F	RP-100817	R5-104721	approved	GCF Priority 2 - Addition of new test case 6.2.3.4	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	0949	-	Rel-9	F	RP-100817	R5-104722	approved	Addition of modified value tag after System Information modification	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	0950	-	Rel-9	F	RP-100817	R5-104723	approved	GCF Priority 2 - Correction to EUTRA RLC test case 7.2.3.21	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	0951	-	Rel-9	F	RP-100817	R5-104724	approved	GCF Priority 2 - Correction to GCF Priority 2 Inter RAT HRPD test case 8.1.3.9	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	0952	-	Rel-9	F	RP-100817	R5-104725	approved	GCF Priority 2 - Correction to TC 8.1.3.5	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	0953	-	Rel-9	F	RP-100817	R5-104728	approved	GCF Priority 2 - Correction of EMM test case 9.2.1.1.9 and 9.2.1.1.10	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	0954	-	Rel-9	F	RP-100817	R5-104729	approved	GCF Priority 2 - Correction of EMM test case 9.2.1.1.20	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	0955	-	Rel-9	F	RP-100817	R5-104730	approved	GCF Priority 2 - update of test case 9.2.3.1.8	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	0956	-	Rel-9	F	RP-100817	R5-104731	approved	GCF Priority 2 - Correction of EMM test case 9.2.1.2.1	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	0957	-	Rel-9	F	RP-100817	R5-104732	approved	GCF priority 2 - Correction of test case 9.2.1.1.1a about reference cell information	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	0958	-	Rel-9	F	RP-100817	R5-104733	approved	GCF Priority 2 - Correction of ESM test case 10.6.1	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	0959	-	Rel-9	F	RP-100817	R5-104734	approved	GCF Priority 2 - Correction to ESM test case 10.5.1	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	0960	-	Rel-9	F	RP-100817	R5-104735	approved	GCF Priority 2 - Correction to ESM test case 10.4.1	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	0961	-	Rel-9	F	RP-100834	R5-104736	approved	Add test case for RRC connection establishment of emergency call	9.1.1	9.2.0	R5	IMS_EMER_LTE_UEConTest
36.523-1	0962	-	Rel-9	F	RP-100817	R5-104742	approved	GCF Priority 3: Correction to test case 7.1.5.2	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	0963	-	Rel-9	F	RP-100817	R5-104743	approved	GCF Priority 3 - Correction to test case 7.1.5.4	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	0964	-	Rel-9	F	RP-100817	R5-104744	approved	GCF priority 3: Correction to MAC TBS (MIMO configured) test case 7.1.7.1.5	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	0965	-	Rel-9	F	RP-100817	R5-104745	approved	GCF priority 3: Correction to MAC TBS (MIMO configured) test case 7.1.7.1.6	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	0966	-	Rel-9	F	RP-100817	R5-104746	approved	GCF Priority 3 - Addition of new EPS mobility management procedure test case 9.3.2.2a Paging for CS fallback / Connected mode	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	0967	-	Rel-9	F	RP-100817	R5-104747	approved	GCF Priority 3 - update of test case 9.2.1.1.12	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	0968	-	Rel-9	F	RP-100817	R5-104748	approved	GCF Priority 3 - update of test case 9.3.1.15	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	0969	-	Rel-9	F	RP-100817	R5-104749	approved	GCF Priority 3 - update of test case 9.2.3.1.23	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	0970	-	Rel-9	F	RP-100817	R5-104750	approved	GCF Priority 3 - Correction of ESM test case 10.5.3	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	0971	-	Rel-9	F	RP-100818	R5-104751	approved	GFC Prirotity 3 and 4: Correction of generic test procedure used in MIMO DRB test cases	9.1.1	9.2.0	R5	LTE-UEConTest_SIG

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Spec	CR	Rev	Phase	Cat	Plenary doc	WG doc	TSG status	Subject	CR to	Resulting vers	WG	Workitem
36.523-1	0972	-	Rel-9	F	RP-100818	R5-104752	approved	GCF Priority 3 - Addition of new Multilayer Procedures test case 13.1.4 Call setup from E-UTRAN RRC_IDLE / CS fallback to UTRAN with Handover / MT call	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	0973	-	Rel-9	F	RP-100818	R5-104753	approved	Addition of new LTE test case 13.1.2 CS fallback UTRAN with redirection / MO call	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	0974	-	Rel-9	F	RP-100818	R5-104754	approved	GCF Priority 3 - Addition of New TC for cell reselection when 1xRTT is higher priority	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	0975	-	Rel-9	F	RP-100818	R5-104755	approved	GCF Priority 3 - Addition of New TC for cell reselection when 1xRTT is lower priority	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	0976	-	Rel-9	F	RP-100818	R5-104756	approved	GCF Priority 4 - Addition of new test case 6.1.1.6	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	0977	-	Rel-9	F	RP-100818	R5-104757	approved	GCF Priority 4: Correction to test case 7.1.5.1	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	0978	-	Rel-9	F	RP-100818	R5-104758	approved	GCF Priority 4: Correction to test case 7.1.5.3	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	0979	-	Rel-9	F	RP-100818	R5-104759	approved	GCF Priority 4 - Correction to test case 7.1.5.5	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	0980	-	Rel-9	F	RP-100818	R5-104760	approved	GCF Priority 4 - Addition of new test case 8.1.2.6	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	0981	-	Rel-9	F	RP-100818	R5-104761	approved	GCF Priority 4 - Update of TC 8.2.1.5	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	0982	-	Rel-9	F	RP-100818	R5-104762	approved	GCF Priority 4 - Update of TC 8.2.1.6	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	0983	-	Rel-9	F	RP-100818	R5-104763	approved	GCF Priority 4 - Correction to TC 8.2.4.8	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	0984	-	Rel-9	F	RP-100818	R5-104764	approved	GCF Priority 4 - Update of TC 8.3.1.6	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	0985	-	Rel-9	F	RP-100818	R5-104765	approved	GCF Priority 2 - Correction to EUTRA RRC Test Case 8.2.4.7	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	0986	-	Rel-9	F	RP-100818	R5-104768	approved	GCF Priority 4 - Addition of new EMM test case 9.2.1.1.3	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	0987	-	Rel-9	F	RP-100818	R5-104769	approved	GCF Priority 4 - Addition of new test case 9.2.3.2.11	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	0988	-	Rel-9	F	RP-100818	R5-104770	approved	GCF Priority 4 - Update to test case 9.2.3.2.15	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	0989	-	Rel-9	F	RP-100818	R5-104771	approved	GCF Priority 4 - Addition of new test case 9.3.1.12a	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	0990	-	Rel-9	F	RP-100818	R5-104773	approved	GCF Priority X: Addition of New TC for Inter-RAT Cell reselection from E-UTRA idle non-CSG cell to a UTRA CSG cell	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	0991	-	Rel-9	F	RP-100818	R5-104774	approved	GCF Priority X: Addition of New TC for Inter-RAT CSG Cell Reselection from E-UTRA CSG cell to UTRA CSG cell	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	0992	-	Rel-9	F	RP-100818	R5-104776	approved	GCF Priority X: Introduction of new ESM test case 10.9.1 for UE routing of uplinks packets	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	0993	-	Rel-9	F	RP-100818	R5-104777	approved	GCF priority 2 - Cell detection timing related correction to test case 6.1.2.3	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	0994	-	Rel-9	F	RP-100818	R5-104778	approved	GCF priority 1 - Cell detection timing related correction to test case 6.1.2.4	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	0995	-	Rel-9	F	RP-100818	R5-104779	approved	GCF priority 2 - Cell detection timing related correction to test case 6.1.2.5	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	0996	-	Rel-9	F	RP-100818	R5-104780	approved	GCF priority 2 - Cell detection timing related correction to test case 6.1.2.11	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	0997	-	Rel-9	F	RP-100818	R5-104781	approved	GCF priority 1 - Cell detection timing related correction to test case 6.1.2.15	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	0998	-	Rel-9	F	RP-100818	R5-104782	approved	GCF priority 2 - Cell detection timing related correction to test case 6.2.2.1	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	0999	-	Rel-9	F	RP-100818	R5-104783	approved	GCF priority 2 - Cell detection timing related correction to test case 6.2.2.2	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	1000	-	Rel-9	F	RP-100818	R5-104784	approved	GCF priority 2 - Cell detection timing related correction to test case 6.2.3.1	9.1.1	9.2.0	R5	LTE-UEConTest_SIG

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Spec	CR	Rev	Phase	Cat	Plenary doc	WG doc	TSG status	Subject	CR to	Resulting vers	WG	Workitem
36.523-1	1001	-	Rel-9	F	RP-100818	R5-104785	approved	GCF priority 2 - Cell detection timing related correction to test case 6.2.3.2	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	1002	-	Rel-9	F	RP-100818	R5-104786	approved	GCF priority 2 - Cell detection timing related correction to test case 6.2.3.3	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	1003	-	Rel-9	F	RP-100818	R5-104787	approved	GCF priority 2 - Cell detection timing related correction to test case 6.2.3.5	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	1004	-	Rel-9	F	RP-100818	R5-104788	approved	GCF priority 2 - Cell detection timing related correction to test case 8.1.2.5	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	1005	-	Rel-9	F	RP-100818	R5-104789	approved	GCF priority 2 - Cell detection timing related correction to test case 8.4.2.2	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	1006	-	Rel-9	F	RP-100818	R5-104790	approved	GCF priority 2 - Cell detection timing related correction to test case 8.4.2.4	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	1007	-	Rel-9	F	RP-100818	R5-104791	approved	GCF Priority 1 - Correction to test case 6.1.2.2	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	1008	-	Rel-9	F	RP-100818	R5-104792	approved	GCF Priority 2 - Correction to EUTRA Idle mode test case 6.1.2.6	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	1009	-	Rel-9	F	RP-100818	R5-104793	approved	GCF Priority 3 - Correction to EUTRA RRC test case 8.1.2.2	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	1010	-	Rel-9	F	RP-100818	R5-104794	approved	GCF Priority 2 - Correction to EUTRA PDCP test cases 7.3.5.2, 7.3.5.3, 7.3.5.4, 7.3.5.5	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	1011	-	Rel-9	F	RP-100818	R5-104795	approved	Correction to Generic E-UTRA radio bearer test procedure	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	1012	-	Rel-9	F	RP-100818	R5-104797	approved	GCF Priority 2 - Update test cases in clause 8.5.1	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	1013	-	Rel-9	F	RP-100818	R5-104798	approved	GCF Priority 2 - Update of MAC test case 7.1.4.3	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	1014	-	Rel-9	F	RP-100818	R5-105000	approved	GCF Priority 3 - New TC 6.3.3 Inter-RAT cell reselection / From UTRA_Idle to E-UTRA RRC_IDLE CSG cell	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	1015	-	Rel-9	F	RP-100818	R5-105001	approved	GCF Priority 1 - Correction to GCF Priority 1 MAC test cases for AP#47.05	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	1017	-	Rel-9	F	RP-100818	R5-105002	approved	GCF Priority 1 - Correction of new test cases in 8.3.3	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	1018	-	Rel-9	F	RP-100818	R5-105004	approved	GCF Priority 4 - Update to test case 8.1.2.9	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	1019	-	Rel-9	F	RP-100818	R5-105005	approved	36523-1: Update of attach procedure specification	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	1020	-	Rel-9	F	RP-100818	R5-105006	approved	GCF Priority 4 - Update of TC 8.1.2.8	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	1021	-	Rel-9	F	RP-100818	R5-105007	approved	GCF Priority 1 - Correction of EUTRA MAC test case 7.1.4.5	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	1022	-	Rel-9	F	RP-100818	R5-105009	approved	GCF Priority 2 - Correction of EUTRA test case 8.5.1.3	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	1023	-	Rel-9	F	RP-100818	R5-105010	approved	GCF Priority 2 - Correction to ETURA RRC test case 8.5.1.1	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	1024	-	Rel-9	F	RP-100818	R5-105011	approved	GCF Priority 2 - Correction of EUTRA test case 8.3.1.3	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	1025	-	Rel-9	F	RP-100818	R5-105012	approved	GCF Priority 2 - Correction to ESM test case 10.7.2	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	1026	-	Rel-9	F	RP-100818	R5-105070	approved	Harmonising EMM test case pre-test conditions specification	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	1027	-	Rel-9	F	RP-100818	R5-105014	approved	GCF Priority 3 - update of test case 9.2.3.2.9	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	1028	-	Rel-9	F	RP-100818	R5-105015	approved	GCF Priority 2 - update of test case 9.2.3.1.2	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	1029	-	Rel-9	F	RP-100818	R5-105016	approved	GCF Priority 1+2: Correction to RLC test cases for AP#47.05	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	1030	-	Rel-9	F	RP-100818	R5-105071	approved	GCF Priority x - Correction to 36.523-1 Test Case 8.3.1.5	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-1	1031	-	Rel-9	F	RP-100818	R5-105054	approved	GCF Priority 1 - Correction to EUTRA RLC test case 7.2.3.18	9.1.1	9.2.0	R5	LTE-UEConTest_SIG
36.523-2	0099	-	Rel-9	F	RP-100819	R5-104068	approved	Correction to test case applicability C41	9.1.2	9.2.0	R5	LTE-UEConTest_SIG
36.523-2	0100	-	Rel-9	F	RP-100819	R5-104116	approved	Addition of applicability for new EMM test case	9.1.2	9.2.0	R5	LTE-UEConTest_SIG
36.523-2	0101	-	Rel-9	F	RP-100819	R5-104117	approved	Update of applicability for EMM test case 9.2.1.1.4	9.1.2	9.2.0	R5	LTE-UEConTest_SIG
36.523-2	0102	-	Rel-9	F	RP-100819	R5-104290	approved	GCF Priority 4 - Addition of applicability statement for E-UTRAN test case 14.3	9.1.2	9.2.0	R5	LTE-UEConTest_SIG
36.523-2	0103	-	Rel-9	F	RP-100819	R5-104315	approved	Add pics for IMS	9.1.2	9.2.0	R5	LTE-UEConTest_SIG
36.523-2	0104	-	Rel-9	F	RP-100819	R5-104337	approved	Applicability of new EMM TCs	9.1.2	9.2.0	R5	LTE-UEConTest_SIG

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36.523-2	0105	-	Rel-9	F	RP-100819	R5-104338	approved	Applicability of new IDLE mode TCs	9.1.2	9.2.0	R5	LTE-UEConTest_SIG
36.523-2	0106	-	Rel-9	F	RP-100819	R5-104339	approved	Applicability of new RRC part 1 TCs	9.1.2	9.2.0	R5	LTE-UEConTest_SIG
36.523-2	0107	-	Rel-9	F	RP-100831	R5-104391	approved	Removal of applicability for DSMIPv6 test case 15.3	9.1.2	9.2.0	R5	DSMIPv6_UEConTest
36.523-2	0108	-	Rel-9	F	RP-100819	R5-104540	approved	Clarification of UE behaviour when a UTRAN or GERAN capable UE is configured to initiate EPS attach	9.1.2	9.2.0	R5	LTE-UEConTest_SIG
36.523-2	0109	-	Rel-9	F	RP-100819	R5-104636	approved	Addition of applicability for new multi-layer test case 13.1.2	9.1.2	9.2.0	R5	LTE-UEConTest_SIG
36.523-2	0110	-	Rel-9	F	RP-100819	R5-104638	approved	Applicability for new test case 8.2.4.12	9.1.2	9.2.0	R5	LTE-UEConTest_SIG
36.523-2	0111	-	Rel-9	F	RP-100834	R5-104641	approved	Applicability for new emergency call TC	9.1.2	9.2.0	R5	IMS_EMER_LTE_UEConTest
36.523-2	0112	-	Rel-9	F	RP-100834	R5-104642	approved	Add capability for IMS emergency call	9.1.2	9.2.0	R5	IMS_EMER_LTE_UEConTest
36.523-2	0113	-	Rel-9	F	RP-100829	R5-105029	approved	Clarification to release column in tables A.4.3.1-1 and A.4.3.1-2	9.1.2	9.2.0	R5	RInImp-UEConTest-UMTSLTE800EU
36.523-2	0114	-	Rel-9	F	RP-100819	R5-105036	approved	Correction to test case applicability condition C59	9.1.2	9.2.0	R5	LTE-UEConTest_SIG
36.523-2	0115	-	Rel-9	F	RP-100819	R5-105037	approved	Correction to test case applicability condition for test case 9.3.1.16	9.1.2	9.2.0	R5	LTE-UEConTest_SIG
36.523-2	0116	-	Rel-9	F	RP-100819	R5-105038	approved	Correction to test case applicability for test cases 12.3.3 & 12.3.4	9.1.2	9.2.0	R5	LTE-UEConTest_SIG
36.523-2	0117	-	Rel-9	F	RP-100819	R5-105042	approved	Addition of some EMM TCs applicability to 36.523-2	9.1.2	9.2.0	R5	LTE-UEConTest_SIG
36.523-2	0118	-	Rel-9	F	RP-100819	R5-105043	approved	Corrections to applicability conditions C58 and C65	9.1.2	9.2.0	R5	LTE-UEConTest_SIG
36.523-2	0119	-	Rel-9	F	RP-100819	R5-105044	approved	GCF Priority X: Adding applicability of new ESM test case 10.9.1 for UE routing of uplinks packets	9.1.2	9.2.0	R5	LTE-UEConTest_SIG
36.523-2	0120	-	Rel-9	F	RP-100819	R5-105045	approved	Addition of applicability statement of new TC 6.3.3	9.1.2	9.2.0	R5	LTE-UEConTest_SIG
36.523-2	0121	-	Rel-9	F	RP-100819	R5-105048	approved	GCF Priority 2 - Addition of applicability statement for E-UTRAN test case 6.2.3.4	9.1.2	9.2.0	R5	LTE-UEConTest_SIG
36.523-2	0122	-	Rel-9	F	RP-100819	R5-105049	approved	GCF Priority 2 - Correction of applicability statement for E-UTRAN test case 8.1.3.7, 8.4.2.2 & 8.4.2.4	9.1.2	9.2.0	R5	LTE-UEConTest_SIG
36.523-2	0124	-	Rel-9	F	RP-100819	R5-104766	approved	GCF Priority 2 - Correction to EUTRA RRC Test Case 8.3.1.9	9.1.2	9.2.0	R5	LTE-UEConTest_SIG
36.523-2	0125	-	Rel-9	F	RP-100819	R5-104775	approved	Addition of applicabilities for new test cases	9.1.2	9.2.0	R5	LTE-UEConTest_SIG
36.523-2	0126	-	Rel-9	F	RP-100819	R5-105039	approved	GCF Priority 3 - Add Applicability for Multi-layer test case 13.1.4	9.1.2	9.2.0	R5	LTE-UEConTest_SIG
36.523-2	0127	-	Rel-9	F	RP-100819	R5-105040	approved	GCF Priority 3 - Add Applicability for EMM test case 9.2.2.1.3	9.1.2	9.2.0	R5	LTE-UEConTest_SIG
36.523-3	0144	-	Rel-8	F	RP-100819	R5-104197	approved	Addition of MMI command 'DISABLE EPS CAPABILITY'	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0145	-	Rel-8	F	RP-100819	R5-104796	approved	Routine maintenance of TS 36.523-3	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0146	-	Rel-8	F	RP-100826	-	approved	CR to 36.523-3: Add new verified and e-mail agreed TTCN test cases in the TC lists in 36.523-3 (prose), Annex A	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0147	-	Rel-8	B	RP-100827	R5s100242	approved	Addition of GCF WI 81 EUTRA RRC test case 8.2.4.5	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0148	-	Rel-8	B	RP-100827	R5s100240	approved	Addition of GCF WI 81 EUTRA RRC test case 8.2.4.2	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0149	-	Rel-8	B	RP-100827	R5s100187	approved	Addition of GCF WI 81 EUTRA RRC test case 8.3.1.5	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0150	-	Rel-8	F	RP-100827	R5s100189	approved	Regression CR for LTE wk17 ATS	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0151	-	Rel-8	F	RP-100827	R5s100184	approved	TTCN Correction to 36.523-3 LTE/SAE NAS definition of LAIList	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0152	-	Rel-8	B	RP-100827	R5s100266	approved	Addition of GCF WI 81 EUTRA RLC test case 7.2.3.7	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0153	-	Rel-8	B	RP-100827	R5s100264	approved	Addition of GCF WI 81 EUTRA RLC test case 7.2.3.6	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0154	-	Rel-8	B	RP-100827	R5s100256	approved	Addition of GCF WI 81 EUTRA RLC test case 7.2.3.21	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0155	-	Rel-8	F	RP-100827	R5s100274	approved	Regression CR for LTE wk17 ATS	8.3.0	8.4.0	R5	LTE-UEConTest_SIG

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Spec	CR	Rev	Phase	Cat	Plenary doc	WG doc	TSG status	Subject	CR to	Resulting vers	WG	Workitem
36.523-3	0156	-	Rel-8	F	RP-100827	R5s100273	approved	Corrections to EUTRA RLC test case 7.2.2.6 and 7.2.2.10	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0157	-	Rel-8	F	RP-100827	R5s100272	approved	Corrections to EUTRA MAC test case.	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0158	-	Rel-8	B	RP-100827	R5s100238	approved	LTE_TDD : Addition of GCF WI 91 EUTRA PDCP test case 7.3.4.2	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0159	-	Rel-8	B	RP-100827	R5s100236	approved	LTE_TDD : Addition of GCF WI 91 EUTRA PDCP test case 7.3.4.1	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0160	-	Rel-8	B	RP-100827	R5s100234	approved	LTE_TDD : Addition of GCF WI 91 EUTRA PDCP test case 7.3.3.3	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0161	-	Rel-8	B	RP-100827	R5s100232	approved	LTE_TDD : Addition of GCF WI 91 EUTRA PDCP test case 7.3.3.1	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0162	-	Rel-8	B	RP-100827	R5s100230	approved	LTE_TDD : Addition of GCF WI 91 EUTRA RLC test case 7.2.3.20	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0163	-	Rel-8	B	RP-100827	R5s100228	approved	LTE_TDD : Addition of GCF WI 91 EUTRA RLC test case 7.2.3.17	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0164	-	Rel-8	B	RP-100827	R5s100222	approved	LTE_TDD : Addition of GCF WI 91 EUTRA RLC test case 7.2.3.3	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0165	-	Rel-8	B	RP-100827	R5s100220	approved	LTE_TDD : Addition of GCF WI 91 EUTRA RLC test case 7.2.3.2	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0166	-	Rel-8	B	RP-100827	R5s100218	approved	LTE_TDD : Addition of GCF WI 91 EUTRA RLC test case 7.2.2.9	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0167	-	Rel-8	B	RP-100827	R5s100216	approved	LTE_TDD : Addition of GCF WI 91 EUTRA RLC test case 7.2.2.4	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0168	-	Rel-8	B	RP-100827	R5s100214	approved	LTE_TDD : Addition of GCF WI 91 EUTRA RLC test case 7.2.2.3	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0169	-	Rel-8	B	RP-100827	R5s100212	approved	LTE_TDD : Addition of GCF WI 91 EUTRA MAC test case 7.1.4.15	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0170	-	Rel-8	B	RP-100827	R5s100210	approved	LTE_TDD : Addition of GCF WI 91 EUTRA MAC test case 7.1.2.7	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0171	-	Rel-8	B	RP-100827	R5s100208	approved	LTE_TDD : Addition of GCF WI 91 EUTRA MAC test case 7.1.2.5	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0172	-	Rel-8	B	RP-100827	R5s100204	approved	LTE_TDD : Addition of GCF WI 91 EUTRA MAC test case 7.1.2.2	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0173	-	Rel-8	B	RP-100827	R5s100202	approved	LTE_TDD : Addition of GCF WI 91 EUTRA MAC test case 7.1.1.1	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0174	-	Rel-8	B	RP-100827	R5s100200	approved	LTE_TDD : Addition of GCF WI 81 EUTRA RRC test case 8.5.4.1	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0175	-	Rel-8	B	RP-100827	R5s100198	approved	LTE_TDD : Addition of GCF WI 91 EUTRA RRC test case 8.2.3.1	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0176	-	Rel-8	B	RP-100827	R5s100196	approved	LTE_TDD: Addition of GCF WI 91 EUTRA RRC test case 8.2.2.2	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0177	-	Rel-8	B	RP-100827	R5s100194	approved	LTE_TDD: Addition of GCF WI 91 EUTRA RRC test case 8.2.2.1	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0178	-	Rel-8	B	RP-100827	R5s100192	approved	LTE_TDD : Addition of GCF WI 91 EUTRA RRC test case 8.1.2.1	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0179	-	Rel-8	B	RP-100827	R5s100190	approved	LTE_TDD : Addition of GCF WI 91 EUTRA RRC test case 8.1.1.1	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0180	-	Rel-8	B	RP-100827	R5s100291	approved	Addition of GCF WI 81 EUTRA MAC test case 7.1.2.6	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0181	-	Rel-8	F	RP-100827	R5s100279	approved	Regression CR for LTE wk22 ATS	8.3.0	8.4.0	R5	LTE-UEConTest_SIG

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Spec	CR	Rev	Phase	Cat	Plenary doc	WG doc	TSG status	Subject	CR to	Resulting vers	WG	Workitem
36.523-3	0182	-	Rel-8	F	RP-100827	R5s100287	approved	Correction to TFT filter identifier and precedence values	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0183	-	Rel-8	B	RP-100827	R5s100288	approved	Addition of GCF WI 82 EPC Multi-layer test case 13.2.1	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0184	-	Rel-8	B	RP-100827	R5s100283	approved	Addition of GCF WI 81 EUTRA PDCP test case 7.3.1.3	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0185	-	Rel-8	B	RP-100827	R5s100281	approved	Addition of GCF WI 81 EUTRA Idle Mode test case 6.1.2.3	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0186	-	Rel-8	B	RP-100827	R5s100262	approved	LTE_TDD : Addition of GCF WI 91 EUTRA MAC test case 7.1.3.5	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0187	-	Rel-8	B	RP-100827	R5s100260	approved	LTE_TDD : Addition of GCF WI 91 EUTRA MAC test case 7.1.1.2	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0188	-	Rel-8	B	RP-100827	R5s100258	approved	LTE_TDD: Addition of GCF WI 91 EUTRA RLC test case 7.2.3.1	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0189	-	Rel-8	B	RP-100827	R5s100253	approved	LTE_TDD: Addition of GCF WI 91 EUTRA RRC test case 8.1.3.1	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0190	-	Rel-8	B	RP-100827	R5s100251	approved	LTE_TDD: Addition of GCF WI 91 EUTRA RLC test case 7.2.2.2	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0191	-	Rel-8	B	RP-100827	R5s100249	approved	LTE_TDD: Addition of GCF WI 91 EUTRA RLC test case 7.2.2.1	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0192	-	Rel-8	B	RP-100827	R5s100247	approved	LTE_TDD: Addition of GCF WI 81 EUTRA PDCP test case 7.3.3.4	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0193	-	Rel-8	B	RP-100827	R5s100245	approved	LTE_TDD: Addition of GCF WI 91 EUTRA PDCP test case 7.3.3.2	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0194	-	Rel-8	B	RP-100827	R5s100226	approved	LTE_TDD: Addition of GCF WI 91 EUTRA RLC test case 7.2.3.5	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0195	-	Rel-8	B	RP-100827	R5s100224	approved	LTE_TDD: Addition of GCF WI 81 EUTRA RLC test case 7.2.3.4	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0196	-	Rel-8	B	RP-100827	R5s100319	approved	Addition of GCF WI 81 EUTRA RRC test case 8.5.1.3	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0197	-	Rel-8	B	RP-100827	R5s100311	approved	Addition of GCF WI-081 EUTRA RRC test case 8.1.2.5	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0198	-	Rel-8	B	RP-100827	R5s100317	approved	Addition of GCF WI 81 EUTRA RRC test case 8.1.2.7	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0199	-	Rel-8	B	RP-100827	R5s100313	approved	Addition of GCF WI 82 ESM test case 10.5.1	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0200	-	Rel-8	F	RP-100827	R5s100302	approved	Regression CR for LTE/SAE iwd_10wk22 ATS	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0201	-	Rel-8	B	RP-100827	R5s100309	approved	Addition of GCF WI 81 EUTRA PDCP test case 7.3.5.5	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0202	-	Rel-8	B	RP-100827	R5s100307	approved	Addition of GCF WI 81 EUTRA PDCP test case 7.3.5.4	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0203	-	Rel-8	B	RP-100827	R5s100305	approved	Addition of GCF WI 81 EUTRA PDCP test case 7.3.5.2	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0204	-	Rel-8	F	RP-100827	R5s100301	approved	Correction to EUTRA test case 7.1.4.6	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0205	-	Rel-8	F	RP-100827	R5s100300	approved	Correction to EPC test case 9.3.1.1	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0206	-	Rel-8	B	RP-100827	R5s100298	approved	Addition of GCF WI 81 EUTRA PDCP test case 7.3.5.3	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0207	-	Rel-8	B	RP-100827	R5s100295	approved	Addition of GCF WI 82 ESM test case 10.2.1	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0208	-	Rel-8	B	RP-100827	R5s100339	approved	LTE_TDD: Addition of GCF WI 91 EUTRA RLC-UM test case 7.2.2.5.1	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0209	-	Rel-8	B	RP-100827	R5s100333	approved	LTE_TDD: Addition of GCF WI 91 EUTRA MAC test case 7.1.4.1	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0210	-	Rel-8	B	RP-100827	R5s100331	approved	LTE_TDD: Addition of GCF WI 91 EUTRA MAC test case 7.1.2.9	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0211	-	Rel-8	B	RP-100827	R5s100329	approved	LTE_TDD: Addition of GCF WI 91 EUTRA MAC test case 7.1.2.3	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0212	-	Rel-8	B	RP-100827	R5s100341	approved	LTE_TDD: Addition of GCF WI 91 EUTRA RLC-UM test case 7.2.2.6	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0213	-	Rel-8	B	RP-100827	R5s100343	approved	LTE_TDD: Addition of GCF WI 91 EUTRA RLC test case 7.2.2.7	8.3.0	8.4.0	R5	LTE-UEConTest_SIG

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Spec	CR	Rev	Phase	Cat	Plenary doc	WG doc	TSG status	Subject	CR to	Resulting vers	WG	Workitem
36.523-3	0214	-	Rel-8	F	RP-100827	R5s100347	approved	Correction of GCF WI-081 E-UTRA PDCP test case 7.3.6.1	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0215	-	Rel-8	B	RP-100827	R5s100326	approved	Addition of GCF WI 82 EPC test case 10.6.1	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0216	-	Rel-8	B	RP-100827	R5s100324	approved	Addition of GCF WI 81 EUTRA RRC test case 8.5.1.1	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0217	-	Rel-8	B	RP-100827	R5s100303	approved	Addition of GCF WI 81 EUTRA MAC test case 7.1.7.2.1	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0218	-	Rel-8	B	RP-100827	R5s100322	approved	Addition of GCF WI 82 EPC test case 9.2.1.1.20	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0219	-	Rel-8	F	RP-100827	R5s100321	approved	Correction to EUTRA MAC 7.1.7.1.x test cases	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0220	-	Rel-8	B	RP-100827	R5s100285	approved	LTE_TDD : Addition of GCF WI 92 EUTRA Multi layer test case 13.1.1	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0221	-	Rel-8	B	RP-100827	R5s100348	approved	Addition of GCF WI-081 E-UTRA RRC test case 8.1.3.4	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0222	-	Rel-8	B	RP-100827	R5s100394	approved	Addition of GCF WI 82 EPC test case 9.2.3.1.2	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0223	-	Rel-8	B	RP-100827	R5s100390	approved	LTE_TDD: Addition of GCF WI 91 EUTRA RRC test case 8.2.1.1	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0224	-	Rel-8	B	RP-100827	R5s100388	approved	LTE_TDD: Addition of GCF WI 91 EUTRA RLC test case 7.2.2.5.2	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0225	-	Rel-8	F	RP-100827	R5s100392	approved	Correction to the function fl_EUTRA_InitPhysicalCellId	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0226	-	Rel-8	B	RP-100827	R5s100383	approved	LTE_TDD: Addition of GCF WI 91 EUTRA RLC test case 7.2.3.18	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0227	-	Rel-8	B	RP-100827	R5s100381	approved	LTE_TDD: Addition of GCF WI 91 EUTRA MAC test case 7.1.2.6	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0228	-	Rel-8	F	RP-100827	R5s100387	approved	Correction to GCF WI-081 EUTRA RLC Testcase 7.2.3.16	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0229	-	Rel-8	F	RP-100827	R5s100386	approved	Correction to GCF WI-081 EUTRA RLC Testcase 7.2.3.10	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0230	-	Rel-8	F	RP-100827	R5s100385	approved	Correction to EUTRA DRB test cases 12.2.1, 12.2.2, 12.2.3, 12.2.4	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0231	-	Rel-8	F	RP-100827	R5s100380	approved	Corrections to EUTRA EMM Testcases 9.2.1.1.20	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0232	-	Rel-8	F	RP-100827	R5s100356	approved	Corrections to EUTRA Idle Mode Testcases 6.1.2.3	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0233	-	Rel-8	F	RP-100827	R5s100354	approved	Corrections to EUTRA MAC test case 7.1.3.1	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0234	-	Rel-8	B	RP-100827	R5s100378	approved	LTE_TDD: Addition of GCF WI 91 EUTRA MAC test case 7.1.4.13	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0235	-	Rel-8	B	RP-100827	R5s100376	approved	LTE_TDD: Addition of GCF WI 91 EUTRA MAC test case 7.1.4.4	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0236	-	Rel-8	B	RP-100827	R5s100374	approved	LTE_TDD: Addition of GCF WI 91 EUTRA MAC test case 7.1.3.7	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0237	-	Rel-8	B	RP-100827	R5s100372	approved	LTE_TDD: Addition of GCF WI 91 EUTRA MAC test case 7.1.3.6	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0238	-	Rel-8	B	RP-100827	R5s100370	approved	LTE_TDD: Addition of GCF WI 91 EUTRA MAC test case 7.1.3.4	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0239	-	Rel-8	B	RP-100827	R5s100368	approved	LTE_TDD: Addition of GCF WI 91 EUTRA MAC test case 7.1.3.3	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0240	-	Rel-8	B	RP-100827	R5s100366	approved	LTE_TDD: Addition of GCF WI 91 EUTRA MAC test case 7.1.3.1	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0241	-	Rel-8	B	RP-100827	R5s100358	approved	Addition of GCF WI 82 EPC test case 9.2.1.1.14	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0242	-	Rel-8	B	RP-100827	R5s100345	approved	LTE_TDD: Addition of GCF WI 91 EUTRA DRB test case 12.2.1	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0243	-	Rel-8	B	RP-100827	R5s100337	approved	LTE_TDD: Addition of GCF WI 91 EUTRA MAC test case 7.1.7.1.4	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0244	-	Rel-8	B	RP-100827	R5s100335	approved	LTE_TDD: Addition of GCF WI 91 EUTRA MAC test case 7.1.7.1.2	8.3.0	8.4.0	R5	LTE-UEConTest_SIG

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Spec	CR	Rev	Phase	Cat	Plenary doc	WG doc	TSG status	Subject	CR to	Resulting vers	WG	Workitem
36.523-3	0245	-	Rel-8	F	RP-100827	R5s100485	approved	Regression CR for LTE/SAE 10wk26 ATS [Revision of R5s100485]	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0246	-	Rel-8	F	RP-100827	R5s100479	approved	Corrections to GCF WI-082 EUTRA ESM Testcase 10.6.1	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0247	-	Rel-8	F	RP-100827	R5s100466	approved	Regression CR for LTE wk26 ATS	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0248	-	Rel-8	F	RP-100827	R5s100468	approved	Corrections to GCF WI-081EUTRA RLC Testcase 7.2.3.4	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0249	-	Rel-8	F	RP-100827	R5s100461	approved	Corrections to GCF WI-082 EUTRA ESM Testcase 10.6.1	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0250	-	Rel-8	F	RP-100827	R5s100459	approved	Corrections to GCF WI-081EUTRA RRC Testcase 8.5.1.1	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0251	-	Rel-8	F	RP-100827	R5s100463	approved	Correction of GCF WI-081 E-UTRA MAC test case 7.1.3.4	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0252	-	Rel-8	F	RP-100827	R5s100462	approved	Correction of GCF WI-081 E-UTRA MAC test case 7.1.3.1	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0253	-	Rel-8	F	RP-100827	R5s100405	approved	LTE_TDD:Corrections to EUTRA RLC test cases regarding subframe offset calculation for TDD	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0254	-	Rel-8	F	RP-100827	R5s100458	approved	Correction of GCF WI-081 E-UTRA MAC test case 7.1.2.7	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0255	-	Rel-8	F	RP-100827	R5s100457	approved	Correction of GCF WI-081 E-UTRA MAC test case 7.1.2.4	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0256	-	Rel-8	B	RP-100827	R5s100418	approved	LTE_TDD: Addition of GCF WI 91 EUTRA RLC AM test case 7.2.3.15	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0257	-	Rel-8	B	RP-100827	R5s100416	approved	LTE_TDD: Addition of GCF WI 91 EUTRA RLC AM test case 7.2.3.14	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0258	-	Rel-8	B	RP-100827	R5s100414	approved	LTE_TDD: Addition of GCF WI 91 EUTRA RLC AM test case 7.2.3.9	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0259	-	Rel-8	B	RP-100827	R5s100412	approved	LTE_TDD: Addition of GCF WI 91 EUTRA RLC AM test case 7.2.3.8	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0260	-	Rel-8	B	RP-100827	R5s100408	approved	LTE_TDD: Addition of GCF WI 91 EUTRA RLC AM test case 7.2.3.7	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0261	-	Rel-8	B	RP-100827	R5s100406	approved	LTE_TDD: Addition of GCF WI 91 EUTRA RLC AM test case 7.2.3.6	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0262	-	Rel-8	F	RP-100827	R5s100398	approved	Regression CR for LTE wk26 ATS	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0263	-	Rel-8	B	RP-100827	R5s100352	approved	Addition of GCF WI-082 EMM test case 9.2.1.1.10	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0264	-	Rel-8	B	RP-100827	R5s100350	approved	Addition of GCF WI-082 EMM test case 9.2.1.1.9	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0265	-	Rel-8	F	RP-100827	R5s100469	approved	Corrections to GCF WI-081EUTRA DRB Testcase 12.2.1 and 12.2.2	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0266	-	Rel-8	B	RP-100827	R5s100475	approved	Addition of GCF WI 81 EUTRA Idle Mode test case 6.1.2.6	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0267	-	Rel-8	B	RP-100827	R5s100444	approved	LTE_TDD: Addition of GCF WI 91 EUTRA DRB test case 12.2.2	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0268	-	Rel-8	B	RP-100827	R5s100442	approved	LTE_TDD: Addition of GCF WI 91 EUTRA RRC test case 8.5.1.5	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0269	-	Rel-8	B	RP-100827	R5s100440	approved	LTE_TDD: Addition of GCF WI 91 EUTRA RRC test case 8.3.1.2	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0270	-	Rel-8	B	RP-100827	R5s100438	approved	LTE_TDD: Addition of GCF WI 91 EUTRA RRC test case 8.3.1.1	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0271	-	Rel-8	B	RP-100827	R5s100436	approved	LTE_TDD: Addition of GCF WI 91 EUTRA RRC test case 8.2.1.3	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0272	-	Rel-8	B	RP-100827	R5s100434	approved	LTE_TDD: Addition of GCF WI 91 EUTRA PDCP test case 7.3.6.1	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0273	-	Rel-8	B	RP-100827	R5s100432	approved	LTE_TDD: Addition of GCF WI 91 EUTRA PDCP test case 7.3.1.2	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0274	-	Rel-8	B	RP-100827	R5s100426	approved	LTE_TDD: Addition of GCF WI 91 EUTRA RLC AM test case 7.2.3.13	8.3.0	8.4.0	R5	LTE-UEConTest_SIG

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Spec	CR	Rev	Phase	Cat	Plenary doc	WG doc	TSG status	Subject	CR to	Resulting vers	WG	Workitem
36.523-3	0275	-	Rel-8	B	RP-100827	R5s100424	approved	LTE_TDD: Addition of GCF WI 91 EUTRA RLC UM test case 7.2.2.8	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0276	-	Rel-8	B	RP-100827	R5s100446	approved	LTE_TDD: Addition of GCF WI 91 EUTRA MAC test case 7.1.7.2.1	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0277	-	Rel-8	B	RP-100827	R5s100422	approved	LTE_TDD: Addition of GCF WI 91 EUTRA MAC test case 7.1.7.1.1	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0278	-	Rel-8	B	RP-100827	R5s100420	approved	LTE_TDD: Addition of GCF WI 91 EUTRA MAC test case 7.1.4.8	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0279	-	Rel-8	B	RP-100827	R5s100293	approved	Addition of GCF WI 81 EUTRA DRB test case 12.2.2	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0280	-	Rel-8	B	RP-100827	R5s100270	approved	Addition of GCF WI 81 EUTRA MAC test case 7.1.6.2	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0281	-	Rel-8	B	RP-100827	R5s100268	approved	Addition of GCF WI 81 EUTRA MAC test case 7.1.6.1	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0282	-	Rel-8	B	RP-100827	R5s100491	approved	Addition of GCF WI-081 E-UTRA RRC test case 8.3.1.8	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0283	-	Rel-8	B	RP-100827	R5s100489	approved	LTE_TDD: Addition of GCF WI 91 EUTRA PDCP test case 7.3.1.3	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0284	-	Rel-8	B	RP-100827	R5s100487	approved	Addition of GCF WI 82 EMM test case 9.2.3.1.1	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0285	-	Rel-8	B	RP-100827	R5s100362	approved	Addition of GCF WI 82 ESM test case 10.7.1	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0286	-	Rel-8	B	RP-100827	R5s100360	approved	Addition of GCF WI 82 ESM test case 10.3.1	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0287	-	Rel-8	B	RP-100827	R5s100472	approved	LTE_TDD: Addition of GCF WI 91 EUTRA RLC test case 7.2.2.11	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0288	-	Rel-8	B	RP-100827	R5s100464	approved	Addition of GCF WI 82 ESM test case 10.4.1	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0289	-	Rel-8	B	RP-100827	R5s100430	approved	LTE_TDD: Addition of GCF WI 91 EUTRA RLC AM test case 7.2.3.21	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0290	-	Rel-8	B	RP-100827	R5s100495	approved	Addition of GCF WI-081 E-UTRA RRC test case 8.3.1.3	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0291	-	Rel-8	B	RP-100827	R5s100498	approved	Addition of GCF WI 81 EUTRA RRC test case 8.2.4.7	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0292	-	Rel-8	B	RP-100827	R5s100496	approved	Addition of GCF WI 81 EUTRA RRC test case 8.2.4.1	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0293	-	Rel-8	B	RP-100827	R5s100364	approved	Addition of GCF WI 82 ESM test case 10.7.2	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0294	-	Rel-8	B	RP-100827	R5s100505	approved	Addition of GCF WI-081 E-UTRA Idle Mode test case 6.1.2.15	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0295	-	Rel-8	B	RP-100827	R5s100503	approved	Addition of GCF WI-081 E-UTRA Idle Mode test case 6.1.2.11	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0296	-	Rel-8	B	RP-100827	R5s100507	approved	Addition of GCF WI 81 EUTRA IDLE MODE test case 6.1.2.9	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0297	-	Rel-8	B	RP-100827	R5s100500	approved	Addition of GCF WI 81 EUTRA IDLE MODE test case 6.1.2.8	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0298	-	Rel-8	B	RP-100827	R5s100477	approved	Addition of GCF WI-081 E-UTRA RRC test case 8.2.4.6	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0299	-	Rel-8	B	RP-100827	R5s100402	approved	LTE_TDD: Addition of GCF WI 91 EUTRA PDCP test case 7.3.1.1	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.523-3	0300	-	Rel-8	B	RP-100827	R5s100400	approved	LTE_TDD: Addition of GCF WI 91 EUTRA Idle Mode test case 6.1.2.2	8.3.0	8.4.0	R5	LTE-UEConTest_SIG
36.942	0005	1	Rel-8	F	RP-100914	R4-103337	approved	CR TR 36.942-820 Clause 5.1.1.4.1 Uplink Asymmetrical Bandwidths ACIR	8.2.0	8.3.0	R4	LTE-RF
36.942	0006	1	Rel-9	A	RP-100914	R4-103338	approved	CR TR 36.942-901 Clause 5.1.1.4.1 Uplink Asymmetrical Bandwidths ACIR	9.0.1	9.1.0	R4	LTE-RF
36.942	0007	1	Rel-10	A	RP-100914	R4-103385	approved	CR TR 36.942-10.0.0 Clause 5.1.1.4.1 Uplink Asymmetrical Bandwidths ACIR	10.0.0	10.1.0	R4	LTE-RF
37.104	0016	-	Rel-10	B	RP-100927	R4-102790	approved	CR LTE_TDD_2600_US spectrum band definition additions to TS 37.104	9.2.0	10.0.0	R4	LTE_TDD_2600_US-Core
37.104	0018	1	Rel-9	F	RP-100922	R4-103449	approved	TS 37.104 Subclause 7.7; Receiver intermodulation	9.2.0	9.3.0	R4	RInImp9-RFmulti

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Spec	CR	Rev	Phase	Cat	Plenary doc	WG doc	TSG status	Subject	CR to	Resulting vers	WG	Workitem
37.113	0001	-	Rel-10	B	RP-100927	R4-102792	approved	CR LTE_TDD_2600_US spectrum band definition additions for MSR BS to TS 37.113	9.0.0	10.0.0	R4	LTE_TDD_2600_US-Core
37.113	0002	1	Rel-9	F	RP-100923	R4-103397	approved	EMC updates for multi-RAT operation	9.0.0	9.1.0	R4	RInImp9-RFmulti
37.113	0003	-	Rel-9	F	RP-100923	R4-103158	approved	Clarification of radiated emissions requirement	9.0.0	9.1.0	R4	RInImp9-RFmulti
37.141	0002	1	Rel-9	F	RP-100923	R4-102734	approved	Clarifications on Base Station tranmsit and receive configurations	9.0.0	9.1.0	R4	RInImp9-RFmulti
37.141	0003	2	Rel-9	F	RP-100923	R4-103216	approved	Annex B: Environmental conditions	9.0.0	9.1.0	R4	RInImp9-RFmulti
37.141	0006	-	Rel-9	F	RP-100923	R4-102554	approved	Adding transmitter test tolerances	9.0.0	9.1.0	R4	RInImp9-RFmulti
37.141	0008	-	Rel-9	F	RP-100923	R4-102557	approved	Adding test System Uncertainty for transmitter spurious emission tests	9.0.0	9.1.0	R4	RInImp9-RFmulti
37.141	0009	1	Rel-9	F	RP-100923	R4-102738	approved	Correction of the Ancillary RF Amplifiers references and references to Annex A, B and D	9.0.0	9.1.0	R4	RInImp9-RFmulti
37.141	0010	-	Rel-9	F	RP-100923	R4-102559	approved	Update of the Transmitter characteristics General subclause	9.0.0	9.1.0	R4	RInImp9-RFmulti
37.141	0013	1	Rel-9	F	RP-100923	R4-102719	approved	Adding Modulation quality and Frequency error test cases	9.0.0	9.1.0	R4	RInImp9-RFmulti
37.141	0014	-	Rel-9	F	RP-100923	R4-102563	approved	Correction of the NOTEs in the transmitter intermodulation procedure	9.0.0	9.1.0	R4	RInImp9-RFmulti
37.141	0015	-	Rel-9	F	RP-100923	R4-102564	approved	Characteristics of interfering signals	9.0.0	9.1.0	R4	RInImp9-RFmulti
37.141	0021	1	Rel-9	F	RP-100923	R4-103275	approved	Test configuration and power allocation completion	9.0.0	9.1.0	R4	RInImp9-RFmulti
37.141	0022	-	Rel-10	B	RP-100928	R4-102791	approved	CR LTE_TDD_2600_US spectrum band definition additions to TS 37.141	9.0.0	10.0.0	R4	LTE_TDD_2600_US-Perf
37.141	0023	-	Rel-9	B	RP-100923	R4-103111	approved	TS 37.141 Clause 6.3; Output power dynamics	9.0.0	9.1.0	R4	RInImp9-RFmulti
37.141	0024	-	Rel-9	F	RP-100923	R4-103156	approved	General corrections for the MSR test specification	9.0.0	9.1.0	R4	RInImp9-RFmulti
37.141	0025	-	Rel-9	F	RP-100923	R4-103168	approved	Maximum Test system Uncertainty for Occupied bandwidth and Transmitter intermodulation	9.0.0	9.1.0	R4	RInImp9-RFmulti
37.141	0026	1	Rel-9	F	RP-100923	R4-103384	approved	Adding test tolerances and test system uncertainty for receiver spurious emissions tests	9.0.0	9.1.0	R4	RInImp9-RFmulti
37.141	0027	1	Rel-9	F	RP-100923	R4-103322	approved	Measurement set-ups for transmitter and receiver tests	9.0.0	9.1.0	R4	RInImp9-RFmulti
37.141	0028	-	Rel-9	F	RP-100923	R4-103284	approved	Modification on testing of time mask of BC3 base station	9.0.0	9.1.0	R4	RInImp9-RFmulti

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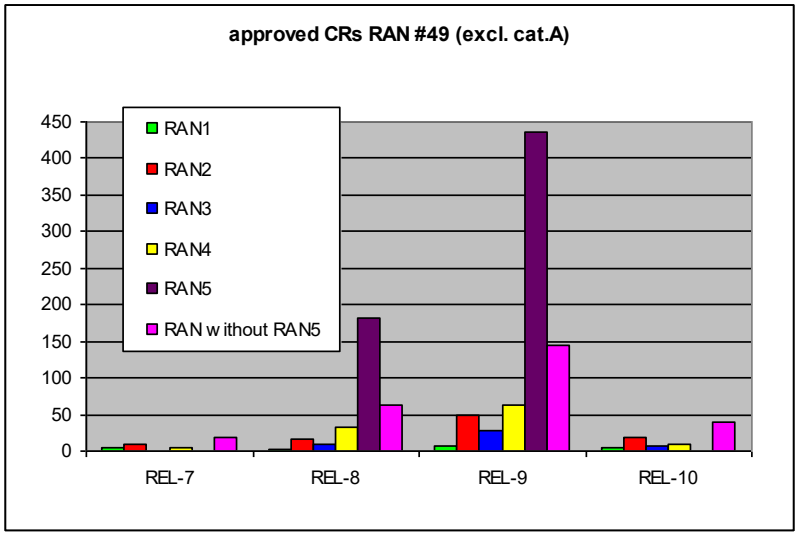


Fig. E-1: Approved CRs (excluding category A CRs) of RAN #49 per WG and release

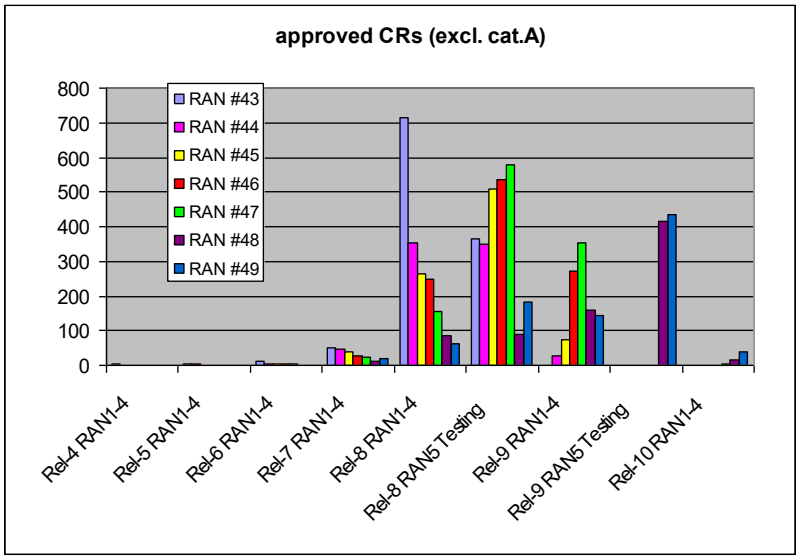


Fig. E-2: Approved CRs (excluding category A CRs) of previous RAN meetings per release

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Annex F:
Summary of RAN work items (WI) and study items (SI)

An overview of recent RAN work items and study items (including the new WIs & SIs approved at this meeting) is attached to this report.

This overview is used as input for the 3GPP workplan which lists all 3GPP work and study items.

Annex G:
Actions decided by RAN #49

Nothing to report.

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Annex H:
History

Document history		
Date	**TSG RAN Tdoc**	**Subject**
31.08.2010	-	Skeleton report for RAN #49 provided before the meeting.
14.09.2010	-	Updated skeleton report for RAN #49 provided before the meeting.
21.09.2010	-	Draft report of RAN #49 v1.0 (this version is also submitted as SP-100622 to SA #49 for information)
12.11.2010	RP-101031	Draft report of RAN #49 v2.0 as input to RAN #50, submitted for approval (revision marks compared to v1.0)
07.12.2010	RP-101373	Report of RAN #49 as approved by RAN #50

In case of comments/questions/corrections please contact:

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APPENDIX 25

www.3gpp.org / ftp / Specs / archive / 36_series / 36.331

sort by name/desc	sort by date/desc	sort by size/desc
36331-100.zip	2007/12/11 8:00	180,3 KB
36331-800.zip	2007/12/18 8:30	183,7 KB
36331-810.zip	2008/03/17 9:45	322,6 KB
36331-820.zip	2008/05/29 9:21	352,8 KB
36331-830.zip	2008/09/18 9:13	415,1 KB
36331-840.zip	2008/12/10 9:43	584,1 KB
36331-850.zip	2009/03/20 7:56	641,8 KB
36331-860.zip	2009/06/18 6:13	674,8 KB
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36331-880.zip	2010/01/02 21:17	646,7 KB
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36331-8h0.zip	2012/06/28 15:11	658,2 KB
36331-8i0.zip	2013/01/02 23:30	687,6 KB
36331-8j0.zip	2013/03/15 17:01	677,5 KB
36331-8k0.zip	2013/07/03 10:13	659 KB
36331-8l0.zip	2014/07/01 8:28	645,5 KB
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36331-910.zip	2010/01/06 23:38	710 KB
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36331-930.zip	2010/06/17 17:16	711,2 KB
36331-940.zip	2010/09/28 10:10	737,7 KB
36331-950.zip	2010/12/18 0:12	763,9 KB
36331-960.zip	2011/03/22 20:24	750,3 KB

sort by name/desc	sort by date/desc	sort by size/desc
36331-970.zip	2011/06/24 10:01	744,9 KB
36331-980.zip	2011/09/30 20:15	761 KB
36331-990.zip	2011/12/20 15:06	765 KB
36331-9a0.zip	2012/03/13 20:32	702,8 KB
36331-9b0.zip	2012/06/28 15:11	734,1 KB
36331-9c0.zip	2012/09/24 14:26	743,8 KB
36331-9d0.zip	2013/01/03 17:57	724 KB
36331-9e0.zip	2013/03/15 17:03	783,9 KB
36331-9e1.zip	2013/03/21 16:46	743,2 KB
36331-9f0.zip	2013/06/29 15:57	773,2 KB
36331-9g0.zip	2013/09/16 19:21	766,5 KB
36331-9h0.zip	2014/01/01 20:35	731,8 KB
36331-9i0.zip	2014/07/01 8:28	742,6 KB
36331-a00.zip	2010/12/19 22:24	806,6 KB
36331-a10.zip	2011/03/30 13:46	881,2 KB
36331-a20.zip	2011/06/24 16:58	872,3 KB
36331-a30.zip	2011/09/30 20:17	815,1 KB
36331-a40.zip	2011/12/20 15:06	898,5 KB
36331-a50.zip	2012/03/13 20:34	868,5 KB
36331-a60.zip	2012/07/02 8:05	889,6 KB
36331-a70.zip	2012/09/24 14:26	887 KB
36331-a80.zip	2013/01/03 17:58	858,3 KB
36331-a90.zip	2013/03/21 14:16	902,1 KB
36331-aa0.zip	2013/07/04 8:34	873,4 KB
36331-ab0.zip	2013/09/16 19:27	902,4 KB
36331-ac0.zip	2014/01/01 20:42	1121,5 KB
36331-ad0.zip	2014/07/02 10:43	1072,1 KB
36331-ae0.zip	2014/09/23 13:38	1072,2 KB
36331-af0.zip	2014/12/21 22:15	1067,8 KB
36331-ag0.zip	2015/03/18 15:43	1068,6 KB
36331-ah0.zip	2015/07/07 12:59	1073,6 KB
36331-ai0.zip	2015/09/24 8:09	1076,9 KB
36331-aj0.zip	2015/12/21 10:09	1079,9 KB
36331-ak0.zip	2016/12/30 1:34	1073,4 KB

sort by name/desc	sort by date/desc	sort by size/desc
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36331-am0.zip	2018/07/08 20:20	1085,3 KB
36331-b00.zip	2012/07/02 8:06	894,5 KB
36331-b10.zip	2012/09/24 16:19	975,3 KB
36331-b20.zip	2012/12/19 11:55	954,5 KB
36331-b30.zip	2013/03/15 17:04	925,9 KB
36331-b40.zip	2013/07/04 8:35	935,9 KB
36331-b50.zip	2013/09/16 19:28	943,4 KB
36331-b60.zip	2014/01/06 11:00	1199,8 KB
36331-b70.zip	2014/03/19 14:00	1155,5 KB
36331-b80.zip	2014/07/03 13:00	1127,6 KB
36331-b90.zip	2014/09/23 13:38	1128,7 KB
36331-ba0.zip	2014/12/21 22:15	1127,3 KB
36331-bb0.zip	2015/03/25 16:40	1127,2 KB
36331-bc0.zip	2015/06/30 22:43	1139,2 KB
36331-bd0.zip	2015/09/24 8:09	1150,3 KB
36331-be0.zip	2015/12/21 10:09	1149,7 KB
36331-bf0.zip	2016/03/30 16:40	1150,4 KB
36331-bg0.zip	2016/07/01 9:26	1174,1 KB
36331-bh0.zip	2016/12/30 1:35	1173,6 KB
36331-bi0.zip	2017/09/25 23:57	1163,8 KB
36331-bj0.zip	2018/07/08 20:20	1166,8 KB
36331-c00.zip	2014/01/07 18:09	1151,1 KB
36331-c10.zip	2014/03/19 14:00	1163,1 KB
36331-c20.zip	2014/07/04 13:08	1147,5 KB
36331-c30.zip	2014/09/23 13:38	1170,3 KB
36331-c40.zip	2015/01/05 16:30	1233,9 KB
36331-c41.zip	2015/01/07 8:40	1248,2 KB
36331-c50.zip	2015/03/27 9:37	1317,6 KB
36331-c60.zip	2015/06/30 22:43	1350 KB
36331-c70.zip	2015/09/24 8:34	1359,2 KB
36331-c80.zip	2015/12/28 14:24	1369,2 KB
36331-c90.zip	2016/03/30 16:48	1371,5 KB
36331-ca0.zip	2016/07/01 10:17	1368,7 KB

sort by name/desc	sort by date/desc	sort by size/desc
36331-cb0.zip	2016/09/29 8:06	1385,7 KB
36331-cc0.zip	2017/01/12 22:35	1392,2 KB
36331-cd0.zip	2017/03/21 17:30	1378,2 KB
36331-ce0.zip	2017/06/24 10:44	1342,4 KB
36331-cf0.zip	2017/09/25 23:58	1346,2 KB
36331-cf1.zip	2017/09/29 10:09	1349,3 KB
36331-cg0.zip	2018/01/07 13:44	1355 KB
36331-ch0.zip	2018/07/08 20:21	1348,8 KB
36331-ci0.zip	2019/04/11 2:06	1403,6 KB
36331-cj0.zip	2020/10/02 13:18	1595 KB
36331-ck0.zip	2021/01/06 22:29	1603,9 KB
36331-d00.zip	2016/01/06 10:43	1369,3 KB
36331-d10.zip	2016/04/01 16:22	1442,5 KB
36331-d20.zip	2016/07/11 8:39	1586,4 KB
36331-d30.zip	2016/10/03 11:58	1617,2 KB
36331-d40.zip	2017/01/12 22:37	1617 KB
36331-d50.zip	2017/03/21 17:30	1602,5 KB
36331-d60.zip	2017/06/24 11:57	1514,9 KB
36331-d61.zip	2017/07/03 14:28	1514,9 KB
36331-d70.zip	2017/09/25 23:59	1519,3 KB
36331-d71.zip	2017/09/29 9:58	1519,5 KB
36331-d80.zip	2018/01/08 1:16	1524,7 KB
36331-d81.zip	2018/01/09 13:32	1526,6 KB
36331-d90.zip	2018/04/03 1:11	1566,9 KB
36331-d91.zip	2018/04/03 22:39	1530,5 KB
36331-da0.zip	2018/07/10 13:41	1531,3 KB
36331-db0.zip	2018/09/27 21:44	1547,7 KB
36331-dc0.zip	2019/01/16 21:06	1533,6 KB
36331-dd0.zip	2019/04/11 2:07	1752,9 KB
36331-de0.zip	2019/06/29 22:24	1740,3 KB
36331-df0.zip	2020/01/08 1:28	1747,5 KB
36331-dg0.zip	2020/10/02 17:55	1953,2 KB
36331-dh0.zip	2021/01/06 22:29	1964,3 KB
36331-e00.zip	2016/10/04 15:40	1639,2 KB

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sort by name/desc	sort by date/desc	sort by size/desc
36331-e10.zip	2017/01/12 22:39	1675,6 KB
36331-e20.zip	2017/03/23 5:56	1667,8 KB
36331-e21.zip	2017/03/23 15:20	1667,9 KB
36331-e22.zip	2017/04/20 21:46	1664,8 KB
36331-e30.zip	2017/07/13 0:14	1625,1 KB
36331-e40.zip	2017/09/26 0:00	1628,4 KB
36331-e50.zip	2018/01/08 1:17	1671,5 KB
36331-e51.zip	2018/01/09 13:33	1662,7 KB
36331-e60.zip	2018/04/03 1:12	1707,8 KB
36331-e61.zip	2018/04/03 22:39	1662,9 KB
36331-e62.zip	2018/04/04 9:36	1663,1 KB
36331-e70.zip	2018/07/10 13:43	1673,7 KB
36331-e80.zip	2018/09/27 21:50	1681,8 KB
36331-e90.zip	2019/01/16 21:07	1674,1 KB
36331-ea0.zip	2019/04/11 2:08	1930,2 KB
36331-eb0.zip	2019/06/29 22:25	1914,8 KB
36331-ec0.zip	2019/09/27 14:02	1915 KB
36331-ed0.zip	2020/01/08 1:28	1928,8 KB
36331-ee0.zip	2020/03/31 11:49	1946,6 KB
36331-ef0.zip	2020/10/02 18:04	2148,6 KB
36331-eg0.zip	2021/01/06 22:30	2152,9 KB
36331-f00.zip	2018/01/08 1:18	1674 KB
36331-f01.zip	2018/01/09 13:35	1674,1 KB
36331-f10.zip	2018/04/03 22:35	1693,3 KB
36331-f20.zip	2018/06/20 2:14	1706,2 KB
36331-f21.zip	2018/06/21 0:22	1706,2 KB
36331-f22.zip	2018/07/10 13:45	1715,6 KB
36331-f30.zip	2018/09/27 22:07	1961,6 KB
36331-f40.zip	2019/02/19 16:12	1992,7 KB
36331-f50.zip	2019/04/04 13:15	2334,5 KB
36331-f51.zip	2019/04/22 19:27	2327,1 KB
36331-f60.zip	2019/06/29 22:25	2359,6 KB
36331-f70.zip	2019/09/27 14:03	2363,9 KB
36331-f80.zip	2020/01/08 1:41	2403,5 KB

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IPR2024-01144

sort by name/desc	sort by date/desc	sort by size/desc
36331-f90.zip	2020/03/31 10:42	2430,8 KB
36331-fa0.zip	2020/07/24 15:31	2461,5 KB
36331-fb0.zip	2020/10/05 17:42	2480,5 KB
36331-fc0.zip	2021/01/06 22:30	2490,5 KB
36331-fd0.zip	2021/03/30 9:00	3060,5 KB
36331-fe0.zip	2021/07/06 23:04	3062 KB
36331-ff0.zip	2021/09/29 20:17	3066 KB
36331-fg0.zip	2021/12/23 15:34	3066,8 KB
36331-fh0.zip	2022/04/13 21:40	3067,6 KB
36331-fi0.zip	2022/07/17 21:26	3068,3 KB
36331-fj0.zip	2022/09/30 17:52	3068,8 KB
36331-fk0.zip	2023/01/13 9:29	3065 KB
36331-fl0.zip	2023/09/27 21:13	3062,3 KB
36331-g00.zip	2020/04/06 14:19	2655,1 KB
36331-g10.zip	2020/07/24 15:32	2758,8 KB
36331-g11.zip	2020/07/26 22:34	2760,2 KB
36331-g20.zip	2020/10/06 17:47	4309,7 KB
36331-g21.zip	2020/10/07 22:04	2766,3 KB
36331-g30.zip	2021/01/06 22:31	2791 KB
36331-g40.zip	2021/03/30 10:27	3436,1 KB
36331-g50.zip	2021/07/06 23:04	3438,1 KB
36331-g60.zip	2021/09/29 20:17	3530,2 KB
36331-g70.zip	2021/12/23 15:34	3451,8 KB
36331-g80.zip	2022/04/14 9:28	3655,3 KB
36331-g90.zip	2022/07/17 21:27	3661,3 KB
36331-ga0.zip	2022/09/30 21:17	3663,3 KB
36331-gb0.zip	2023/01/13 9:29	3664,3 KB
36331-gc0.zip	2023/03/30 12:41	3665,5 KB
36331-gd0.zip	2023/09/28 12:30	3666,7 KB
36331-ge0.zip	2024/01/12 8:36	3670,1 KB
36331-gf0.zip	2024/04/05 6:25	3672,5 KB
36331-h00.zip	2022/04/13 23:20	3522,2 KB
36331-h10.zip	2022/07/20 9:02	3543,9 KB
36331-h20.zip	2022/10/04 6:46	3555,4 KB

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IPR2024-01144

sort by name/desc	sort by date/desc	sort by size/desc
36331-h30.zip	2023/01/13 19:01	3559,6 KB
36331-h40.zip	2023/03/30 23:05	3563,2 KB
36331-h50.zip	2023/07/04 15:29	3564,3 KB
36331-h60.zip	2023/09/28 18:43	3569,4 KB
36331-h70.zip	2024/01/15 8:57	3563,2 KB
36331-h80.zip	2024/04/04 21:07	3573 KB
36331-i00.zip	2024/01/14 23:18	3599 KB
36331-i10.zip	2024/04/01 23:21	3613,1 KB

208 items.

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APPENDIX 26

www.3gpp.org / ftp / Specs / archive / 36_series / 36.300

sort by name/desc	sort by date/desc	sort by size/desc
36300-002.zip	2006/07/05 12:42	564,3 KB
36300-004.zip	2006/09/27 19:24	651,1 KB
36300-010.zip	2006/10/27 13:34	1456 KB
36300-030.zip	2006/11/27 16:05	1346,2 KB
36300-031.zip	2006/11/27 15:04	1360,1 KB
36300-040.zip	2007/01/31 10:42	1236,7 KB
36300-050.zip	2007/02/07 7:55	1213,4 KB
36300-090.zip	2007/03/04 12:24	1470,4 KB
36300-100.zip	2007/03/19 15:46	1384,9 KB
36300-800.zip	2007/04/06 13:35	1373,7 KB
36300-810.zip	2007/07/03 8:30	1588,4 KB
36300-820.zip	2007/10/05 12:57	1296,9 KB
36300-830.zip	2008/01/03 13:26	1477,1 KB
36300-840.zip	2008/03/17 9:49	1513,3 KB
36300-850.zip	2008/06/25 14:03	1633,2 KB
36300-860.zip	2008/09/18 13:08	1660,3 KB
36300-870.zip	2009/01/05 8:52	2249,6 KB
36300-880.zip	2009/04/03 13:13	2466,6 KB
36300-890.zip	2009/06/18 6:13	2491,2 KB
36300-8a0.zip	2009/09/22 12:08	2363,7 KB
36300-8b0.zip	2010/01/05 23:04	2351 KB
36300-8c0.zip	2010/04/20 9:05	2377 KB
36300-900.zip	2009/06/18 6:13	2584,9 KB
36300-910.zip	2009/09/28 9:11	2586,1 KB
36300-920.zip	2010/01/06 23:36	2658 KB
36300-930.zip	2010/04/27 10:21	2673,7 KB
36300-940.zip	2010/06/17 14:50	2702,1 KB
36300-950.zip	2010/09/30 9:48	2714,4 KB
36300-960.zip	2010/12/17 22:57	2714,4 KB
36300-970.zip	2011/03/30 13:49	2700,8 KB

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sort by name/desc	sort by date/desc	sort by size/desc
36300-980.zip	2011/09/28 11:22	2706,7 KB
36300-990.zip	2011/12/20 12:11	2708,1 KB
36300-9a0.zip	2013/01/07 23:11	2719,4 KB
36300-a00.zip	2010/06/17 14:37	3564,5 KB
36300-a10.zip	2010/09/30 9:49	3732,7 KB
36300-a20.zip	2010/12/18 1:58	3964,8 KB
36300-a30.zip	2011/04/05 0:43	3847,6 KB
36300-a40.zip	2011/06/21 23:16	3881 KB
36300-a50.zip	2011/09/28 11:25	3883,2 KB
36300-a60.zip	2011/12/20 15:04	3884,4 KB
36300-a70.zip	2012/03/12 14:07	3877,9 KB
36300-a80.zip	2012/06/26 23:05	3877 KB
36300-a90.zip	2013/01/07 23:12	3895,3 KB
36300-aa0.zip	2013/06/29 15:55	3905,1 KB
36300-ab0.zip	2013/09/17 13:34	3883 KB
36300-ac0.zip	2014/12/19 11:16	3840,6 KB
36300-b00.zip	2011/12/20 15:05	3889,5 KB
36300-b10.zip	2012/03/12 14:08	3892,1 KB
36300-b20.zip	2012/06/27 12:56	3891,6 KB
36300-b30.zip	2012/09/24 8:50	3908,7 KB
36300-b40.zip	2012/12/21 22:18	3952,5 KB
36300-b50.zip	2013/03/15 16:56	3952,2 KB
36300-b60.zip	2013/07/07 11:44	3933,6 KB
36300-b70.zip	2013/09/19 17:39	3928,3 KB
36300-b80.zip	2014/01/06 10:53	3936 KB
36300-b90.zip	2014/03/19 13:14	3929,7 KB
36300-ba0.zip	2014/07/01 8:29	3884 KB
36300-bb0.zip	2014/09/18 12:23	3879,4 KB
36300-bc0.zip	2014/12/19 11:16	3881,4 KB
36300-bd0.zip	2015/03/18 15:43	3875,3 KB
36300-be0.zip	2015/12/17 7:13	3876,5 KB
36300-c00.zip	2014/01/10 0:23	4001,6 KB
36300-c10.zip	2014/03/19 13:14	4019,6 KB
36300-c20.zip	2014/07/04 8:30	4027,2 KB

sort by name/desc	sort by date/desc	sort by size/desc
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36300-c40.zip	2015/01/05 14:23	5234,4 KB
36300-c50.zip	2015/03/24 10:31	5271,9 KB
36300-c60.zip	2015/07/06 14:15	5250,6 KB
36300-c70.zip	2015/09/17 17:40	5250,7 KB
36300-c80.zip	2015/12/17 7:13	5248 KB
36300-c90.zip	2016/04/01 16:10	5245,6 KB
36300-ca0.zip	2016/07/01 9:08	5245,2 KB
36300-d00.zip	2015/07/06 14:15	5249,2 KB
36300-d10.zip	2015/09/23 8:21	5249,9 KB
36300-d20.zip	2016/01/11 15:16	6302,5 KB
36300-d30.zip	2016/04/01 16:12	6428,3 KB
36300-d40.zip	2016/07/07 9:30	6562 KB
36300-d50.zip	2016/09/29 7:48	6687,3 KB
36300-d60.zip	2016/12/30 0:54	6684,6 KB
36300-d70.zip	2017/03/21 10:29	6676,3 KB
36300-d80.zip	2017/06/23 22:34	6683,8 KB
36300-d90.zip	2017/09/25 23:45	6736,1 KB
36300-da0.zip	2018/01/07 13:33	6738,8 KB
36300-db0.zip	2018/04/01 23:59	6718,5 KB
36300-dc0.zip	2018/07/07 1:33	6723,1 KB
36300-dd0.zip	2019/04/11 15:53	6899,6 KB
36300-de0.zip	2020/04/10 21:51	6899,5 KB
36300-e00.zip	2016/09/29 7:50	6686,4 KB
36300-e10.zip	2016/12/30 0:56	6680,7 KB
36300-e20.zip	2017/04/19 7:35	6841,5 KB
36300-e30.zip	2017/06/23 23:19	6966,8 KB
36300-e40.zip	2017/09/25 23:46	6980,2 KB
36300-e50.zip	2018/01/07 13:34	6983,1 KB
36300-e60.zip	2018/04/01 23:59	6986,5 KB
36300-e70.zip	2018/07/07 1:59	6985,4 KB
36300-e80.zip	2018/10/02 11:24	6983,9 KB
36300-e90.zip	2019/04/11 15:54	7154,8 KB
36300-e91.zip	2019/04/17 10:44	7210 KB

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sort by name/desc	sort by date/desc	sort by size/desc
36300-ea0.zip	2019/06/29 8:53	7466,8 KB
36300-eb0.zip	2019/09/26 16:07	7455,8 KB
36300-ec0.zip	2020/04/10 21:58	7462,2 KB
36300-ed0.zip	2021/01/06 1:19	7473,8 KB
36300-f00.zip	2018/01/07 13:35	7125,2 KB
36300-f10.zip	2018/04/03 22:32	7175,9 KB
36300-f20.zip	2018/07/07 3:37	7569,9 KB
36300-f30.zip	2018/10/02 11:25	7572,4 KB
36300-f40.zip	2019/01/15 16:42	7649,2 KB
36300-f50.zip	2019/04/17 10:35	8408,8 KB
36300-f60.zip	2019/06/29 8:54	8434,2 KB
36300-f70.zip	2019/09/26 16:08	8452 KB
36300-f80.zip	2020/01/08 9:43	8429,7 KB
36300-f90.zip	2020/04/10 23:53	8445,3 KB
36300-fa0.zip	2020/07/24 16:11	8454,2 KB
36300-fb0.zip	2020/10/02 9:03	8461,7 KB
36300-fc0.zip	2021/01/06 1:20	8472,4 KB
36300-fd0.zip	2022/04/19 22:36	8654,9 KB
36300-fe0.zip	2023/01/13 9:26	8625,5 KB
36300-g00.zip	2020/01/08 9:45	8432,1 KB
36300-g10.zip	2020/04/14 13:32	9070,3 KB
36300-g20.zip	2020/07/24 15:05	9088,4 KB
36300-g30.zip	2020/10/02 9:04	9112,7 KB
36300-g40.zip	2021/01/07 15:43	9120,7 KB
36300-g50.zip	2021/03/29 16:33	9284,4 KB
36300-g60.zip	2021/07/06 23:02	9287,3 KB
36300-g70.zip	2021/12/23 15:27	9320,8 KB
36300-g80.zip	2022/04/19 22:37	9287,7 KB
36300-g90.zip	2023/01/13 9:26	9286 KB
36300-h00.zip	2022/04/19 22:42	9654,1 KB
36300-h10.zip	2022/07/19 14:19	9576 KB
36300-h20.zip	2022/09/30 17:33	9576,6 KB
36300-h30.zip	2023/01/16 19:21	9581,5 KB
36300-h40.zip	2023/03/29 22:17	9577,8 KB

sort by name/desc	sort by date/desc	sort by size/desc
36300-h50.zip	2023/07/06 19:42	9559,2 KB
36300-h60.zip	2024/01/15 22:56	9558,1 KB
36300-h70.zip	2024/04/04 14:50	9560,8 KB
36300-h80.zip	2024/07/12 19:37	9564 KB
36300-i00.zip	2024/01/15 22:57	9562,3 KB
36300-i10.zip	2024/04/02 13:26	9562,4 KB
36300-i20.zip	2024/07/12 19:36	9565,2 KB

139 items.

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APPENDIX 27

3GPP TSG RAN meeting #51 **RP-11-0361**
Kansas City, USA, 15 - 18 March 2011

Agenda Item:	xx
Source:	ETSI MCC
Title:	Report of 3GPP TSG RAN meeting #50,
	Istanbul, Turkey, December 7 – 12, 2010
Document for:	Approval

Draft Report of 3GPP TSG RAN meeting #50

held in Istanbul, Turkey
December 7 – 12, 2010



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Meeting Organisation

Meeting:	3GPP TSG RAN #50	
Meeting location:	Istanbul, Turkey	
Duration:	Tuesday 07.12.2010 - Friday 12.12.2010	
Host:	Europen Friends of 3GPP	
TSG RAN Chairman:	Takehiro Nakamura (NTT DOCOMO)	email: nakamurata@nttdocomo.co.jp
TSG RAN Vice chairman:	Marc Grant (AT&T)	email: MG6217@att.com
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Technical documents:	ftp://ftp.3gpp.org/tsg_ran/TSGR_50/Docs	
next meetings:	TSG RAN #51, 15 March – 18 March 2011	Kansas City , USA
	TSG RAN #52, 31 May - 3 June 2011	Bratislava, SK

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1 Opening of the Meeting (Tuesday 9 a.m.)

RAN Chairman Takehiro Nakamura (NTT DOCOMO) opened the meeting RAN #50 on Tuesday morning Dec. 07th, 2010 at 09:00.

On behalf of the host, the European Friends of 3GPP, Mr Irfan Ali, welcomed the delegates to Istanbul and explained organisational issues of the meeting.

2 Approval of the Agenda

RP-101030	Agenda for RAN #50 held in Istanbul, Turkey, 07.12.-10.12.2010	RAN chairman (NTT DOCOMO)	Agenda

Status: Revised in 1052

RP-101052	Agenda for RAN #50 held in Istanbul, Turkey, 07.12.-10.12.2010	RAN chairman (NTT DOCOMO)	Agenda

* Based on offline discussion we may or may not have a vote on HNB mobility proposals.

Status: approved

3 Approval of the meeting report of TSG-RAN #49

RP-101031	Draft report of RAN #49 held in San Antonio, USA, 14.09.-17.09.2010	MCC	Report

Status: Revised in RP-101373

RP-101373	Draft report of RAN #49 held in San Antonio, USA, 14.09.-17.09.2010	MCC	Report

Status: approved

4 Reminder for IPR declaration

The attention of the delegates to the meeting of this Technical Specification Group is drawn to the fact that 3GPP Individual Members have the obligation under the IPR Policies of their respective Organizational Partners to inform their respective Organizational Partners of Essential IPRs they become aware of.

The delegates are asked to take note that they are thereby invited:

- to investigate whether their organization or any other organization owns IPRs which were, or were likely to become Essential in respect of the work of 3GPP.
- to notify their respective Organizational Partners of all potential IPRs, e.g., for ETSI, by means of the IPR Statement and the Licensing declaration forms (http://webapp.etsi.org/Ipr/).

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5 RAN Chairman's Report of meetings

5.1 Report from TSG SA

- LS to ITU-R WP5A on MTC
Response LS to WP5A on MTC was updated at SA#49 and submitted to WP5D by individual members as usual.

- IMT-Advanced process toward M.[IMT.RSPEC]
TSG-RAN intention and requests was accepted well in TSG-SA and CT. It was agreed that description for overview in M.[IMT.RSPEC] will be developed in SA and CT reflector so that their draft description will be submitted to ITU-R AH by 1st November 2010. MCC provided tentative list of CT specs for overview section in M.[IMT.RSPEC] in SP-100624. These were already treated in ITU-R AdHoc for our work on M.[IMT.RSPEC].

- WI on MTC
Importance of inter-TSG WGs cooperation was well recognized and encouraged to complete related WIs in Release 10 time frame.
I asked SA1 and SA2 to check our WID on MTC approved in RAN#49 to avoid misalignment between SA1/SA2 thinking and RAN.

- Relay node security
At SA#48, possibility of Release misalignment between SA3 and RAN on Relay was discussed. At SA#49, it was identified that most of delegates prefer Relay node security in same Release as RAN specs, i.e. REL-10. SA agreed to submit an LS to SA3 in SP-100627 to suggest to prioritize this work to include this feature in Release 10. In this LS, it is suggested to communicate with RAN WGs at earliest opportunity to avoid serious problem with RAN REL-10 time frame. This LS was submitted to RAN, RAN2 and RAN3, also.

- SRB only PS HO
At RAN#49, we confirmed RAN2 decision, i.e. removal of SRB only PS HO. At SA#49, CRs to SA2 spec, 23.401, to remove this feature, was agreed. It was also noted that CT#49 rejected CRs, which allow SRB only PS HO, considering the RAN#49 decision. In summary, all TSG specs are aligned now and this issue was concluded.

- Release 11 time plan
Followings are agreed
Stage 1 freeze target: Sep. 2011
Stage 2 freeze target: Mar. 2012
Stage 3 freeze target: Sep. 2012
ASN.1 freeze: 3 month after the stage 3 freeze

Discussion:

LG: what is the issue regarding security in SA?

RAN2 chair: SA3 have different solutions on the table but not decided yet and RAN2 has PDCP based solution. Not sure we can approve these CRs so Alignment between TSGs is required.

NEC: regarding the time plan, the dates are flexible.

5.2 Report from PCG and OP

- IMT-Advanced process toward M.[IMT.RSPEC]
Our RAN agreements on ITU-R submission process for LTE-Advanced was accepted by OPs very well.

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- Funding request from MCC TF160 toward 2011

Funding request from MCC TF160 toward 2011 was also accepted without any comments.

5.3 Report from other meetings

Nothing to report

6 Liaison activity of TSG RAN

6.1 Groups outside 3GPP

RP-101032	LS on LTE Terminal Station mask at 2 GHz (E-UTRA bands 1, 33 and 34) (ECC PT1(10)170_Annex 11; to: RAN4, ETSI ERM/MSG TFES; cc: RAN; contact: ECC PT1 Chairman)	ECC PT1	LSin

Discussion:

Ran4 chairman presented the document.
RAN4 chairman: RAN4 treated the incoming LS and prepared a response to the ECC PT1.

Status: Noted

RP-101033	LS announcing second approved draft of MEF 22.1 Mobile Backhaul Implementation Agreement Phase 2 (L00115_000_LS_MEF; to: BBF IP/MPLS & Architecture, NGMN TWG P-OSB, ITU-T SG15 WP3, IEEE 802.16, WiMAX Forum Network WG, 3GPP TSG-RAN, 3GPP2 TSG-A; cc: -; contact: MEF TC Co-Chair, Verizon)	Metro Ethernet Forum (MEF)	LSin

Discussion:

RAN chairman presented the LS.

RAN chairman: RAN3 and RAN4 to review the document and if there is any feedback provide a response LS.

RAN4 chairman: MEF requests to include the performance requirements. We can send feedback once we completed the performance requirements for LTE.

Status: Noted

RP-101256	Liaison Statement from the DVB Project to 3GPP	DVB Project	LSin

The LS proposes the following actions:

1) 3GPP considers endorsing the need for the relevant working groups to allocate some meeting time to discuss input documents and presentations provided by the DVB Project in some future meeting(s).

2) 3GPP and the DVB Project jointly plan a first ad-hoc meeting or a workshop co-located with meetings of the relevant RAN WG's (for RAN related issues) and SA WG's (for architectural related issues) to be organized between the DVB Project's experts group TM-NGH and the 3GPP eMBMS experts. Such a joint meeting will facilitate the mutual understanding about eMBMS and DVB-NGH on the service requirements and the system architecture, interfaces and protocols.

3) Depending on the outcome of this meeting the DVB Project and 3GPP initiate a formal liaison in order to be able to continue co-operating with the target of a unified solution.

4) DVB will consider adopting "Higher Layer" solutions to be used for DVB-NGH from the 3GPP stack of documents.

Discussion:

Orange presented the LS.

RAN chair: we need to identify the scope and the requirements from this request from DVB. Actions from RAN will be discussed in SA.

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- have a joint workshop to clarify their requirements and the impact on 3gpp specs and then decide on the WIs.

Orange: can we first suggest a response LS this week and maybe have it approved in SA.
Samsung: Need to know how many support we have in the RAN. If we don't have enough support then there is no need to start the activity.

NSN: It is fine to have the LS proposed by orange.
Practical proposal: is to have the workshop with plenary (e.g. Monday before the RAN#51) in order to not overload the working group.

Huawei: : Welcomes this exchange, but also prefers to keep the discussion on this at the plenary level at this stage.

Orange: DVB is requesting technical discussion with MBMS aspects and the best place to have these discussions is RAN1.

Deutsch Telecom: we need to evaluate how close the converge standard is to 3gpp. If it is close to 3gpp then there is Benefit for 3GPP and it makes sense then to have this work with DVB done.

Vodafone: we need to first get details from DVB. Having such workshop cost times and money. Until we get more details from DVB, we have concerns about organising this workshop

E///: having the workshop with RAN1 is challenging and it is maybe more feasible to have in RAN. But we need first to get more information from DVB.

RAN3 chair (Qualcomm): we need to get information and more details from DVB and this can not be achieved by an LS. Organising an information workshop to have these details and information one day before RAN meeting makes sense.

Motorola: more details are required on what will be the impact: Physical layer, performance requirements, RF, …?

Orange: the intention is not to start a standard but just to allocate some time for discussion with 3GPP expert to evaluate what will the impact be and if these requirements can be satisfied by an evolution of MBMS.

Chairman: is it only a RAN aspect or is it general to some other 3gpp groups? Will the architecture be impacted (involve SA in the discussion) ?

Orange: it may have impact also on the architecture. We need to have SA involved and maybe also other groups.

SA chairman: we need to provide one response from 3GPP as a whole. Most of the impacts will be RAN related. System impact should be minor. → Guidance should be given by RAN.

AT&T: should we Invite other TV groups or not?

Deutsch Telecom: first allocate some presentation slot to the DVB group to present to RAN their expectation from 3GPP (e.g. one hour in the coming RAN meeting).

Orange: there is a requirement for a mutual understanding and have an exchange with them. Presentation is a one side. Workshop is more appropriate.

Chairman: arrange for a slot in the next plenary. Then identify the Scope and agenda.

RAN3 chairman (Qualcomm): we can have DVB giving a presentation on and we some one from our side gives a presentation on MBMS.

Huawei: Mutual understanding makes sense and it would be good that 3GPP presents to DVB forum what is already possible with current LTE MBMS.

Vodafone: the concern is the delegates' time. RAN groups are quite busy and better spend time on other pending issues. There are other means of communication than face to face and DVB can give the information via Email.

E///: a mutual exchange in a joint session is needed.

RAN3 chair: have a slot/session with Three presentations DVB, MBMS from 3GPP, and DVB plus ideas on how to proceed.

Deutsch telecom: we need to understand what the requirements are from our perspective before starting discussion.

RAN chairman: we need to understand what the requirements and impact on 3GPP are, and then discuss the necessity of the joint workshop. If we agree to have a workshop, we then identify the scope and agenda.
RAN view will be provided to SA next week.

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Orange: whom to draft the LS? RAN or SA?

Chairman: SA to take care as there might be some other aspects rather than RAN.

Status: Noted

RP-101181	Current status for LTE frequency plan in the 800~900 MHz band in Korea	TTA	Info

Discussion:

Chair: will there be a SI or WI to come in the next meeting?

LGuplus: yes.

Chair: it is an important aspect. Japan has similar discussion. Interested companies get in contact with LGuplus to start the discussion.

Telecom Italia: the same can occur in South America.

RAN4 chair: - RAN4 has one WI on 850MHz which is a related topic and there might be a Coexistence issue between band 5 and new band in Korea, thus RAN4 should look at this.

Interested companies: Samsung, NSN, Qualcomm, Panasonic, Motorola, telecom Italia, NTT Docomo, KDDI, LG Sktelecom, sprint, Ericsson, NEC

→ LGuplus to lead the discussion.

Status: Noted

RP-101374	NGMN Recommendation for the CSFB Implementation by NGMN Alliance	NGMN	LSin

Discussion:

Document to be presented also in SA.

NTT Docomo: This May influence FGI issue discussed in RAN.

AT&T: Procedural issue: there is no letter accompanying the LS and there is a mention of NGMM confidential.

Giovanni from Telecom Italia to mention this issue to NGMN for future LSs.

→ New LS resolving this issue was sent by NGMN (RP-101396)

Status: withdrawn

RP-101396	NGMN Recommendation for the CSFB Implementation by NGMN Alliance	NGMN	LSin

Status: noted

6.2 TSG SA, TSG CT, TSG GERAN

RP-101036	LS on Remaining work for LIPA completion (SP-100648; to: SA3, RAN3; cc: RAN, SA2; contact: LG)	SA	LSin

Status: noted

RP-101047	LS on CN node selection (S2-106007; to: RAN2, RAN3, CT1, CT4, GERAN2; cc: RAN, SA, CT; contact: NTT DOCOMO)	SA2	LSin

Status: noted

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*Two LSs from GERAN in RP-101177 and RP-101179 are handled in agenda item 6.3 along with the corresponding LSs from RAN4

6.3 TSG RAN WG1, WG2, WG3, WG4, WG5

RP-101039	LS on UE categories (R1-106523; to: RAN2, RAN4; cc: RAN; contact: Ericsson)	RAN1	LSin

Status: Noted

RP-101040	Reply LS to S2-105279 on Home (e)NodeB support in LCS (R3-103744; to: SA2; cc: RAN2, RAN, SA; contact: NTT DOCOMO)	RAN3	LSin

Discussion:

NSN: which release is this intended to?

Docomo: cover page says rel-10.

Qualcomm: this was discussed in rel-9 but nothing changed in rel-10.

Nokia: is this area has impact to other groups rather than SA2 and RAN3? like for example RAN2?

Docomo: there is no new functionality. It is only clarification of the current specifications.

RAN3 chairman: it is a reply to the LS from SA2 asking for the status of the positioning. Nothing is actionable for rel-9 or rel-10. It Cc the groups what were in the original LS from SA2.

NSN: then → understanding is that no CRs for rel-9 or rel-10 in RAN 2 or RAN3.
Ans: Yes

Status: Noted

RP-101042	LS on CRs for MSR specifications (R4-104788; to: GERAN1; cc: RAN; contact: Ericsson)	RAN4	LSin

Status: Noted

RP-101179	Reply to “LS on CRs for MSR specifications”	TSG GERAN WG1	LSin

Status: Noted

RP-101257	Response LS on Status of European Harmonised Standards for 3GPP technologies	RAN4	LSin

Status: noted

RP-101044	GSM OTA Requirements and Tests (R4-104952; to: GERAN, GERAN1, RAN5; cc: RAN; contact: CMCC)	RAN4	LSin

Status: noted

RP-101177	Reply LS on GSM OTA Requirements and Tests	TSG GERAN	LSin

Action to TSG RAN:

TSG GERAN kindly informs TSG RAN that it has endorsed the approval of TRP and TRS requirements for GSM 850, GSM 900, DCS 1800 and PCS 1900 in the attached CR in R4-104857 to 3GPP TS 25.144 during GERAN#48 meeting and asks TSG RAN to take the above decision to approve the CR at the December RAN Plenary meeting.

Status: noted

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RP-101038	LS on RAN4 decisions on Band 12 (R4-103901; to: RAN2, RAN3, RAN5, RAN; cc: -; contact: Huawei)	RAN4	LSin

Discussion:
To be handled in RAN2, RAN 3 and RAN 5

Status: noted

RP-101045	LS Spurious Emissions Requirements of 3GPP for Band 2 (PCS Band) (R4-105019; to: 3GPP2 TSG-C, TSG-S; cc: RAN, 3GPP2 TSG-A, TSG-X; contact: Alcatel-Lucent)	RAN4	LSin

Status: noted

7 ITU-R Ad hoc

7.1 Status report

RP-101053	Status Report ITU-R Ad hoc	ITU-R Ad Hoc Contact (Telecom Italia)	Report

Discussion:

Sharp: is there any thing to be provided by TSG RAN50 to WP5D#10 in April?

AT&T: Scheduling was provided in the last meeting in RP-100939.

Chairman: there are different proposals. Proposals will be handled one by one in each corresponding document.

Status: Noted

Chairman asked the approval of having a face to face meeting in January.

➔ It is confirmed that a Face to face meeting is to be held on the 13-14 January 2011 in Stockholm, Sweden.

7.2 Submission to ITU-R

Guidance on ITU-R submission:

- Relay to be included in the ITU-R specs to be submitted to ITU-R.

- WGs (Especially RAN1 and RAN4) are expected to progress well in this subject to allow this.

- June version of the specification will be transposed by OPs for submission to ITU-R. June version need thus to be as stable as possible.

7.2.1 ITU-R submission for IMT-Advanced

RP-101049	LS on IMT-Advanced development (ITU-R WP5D/TEMP/413rev1; to: IEEE, 3GPP; cc:-; contact: -)	ITU-R WP5D	LSin

Discussion:

AT&T: Subsequent to the dispatch of this liaison from ITU-R Working Party 5D (RP-101049) regarding the conclusions in WP 5D on the IMT-Advanced technologies, ITU-R Study Group 5, the parent body of WP 5D, in their meeting of 22-23 November 2010, approved the new Report M. [IMT.RADIO] thereby confirming the results of WP 5D that were indicated in the liaison. Report M. [IMT.RADIO] in its final published form will be freely available shortly on the ITU

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publication webpage as *Report ITU-R M.2198, – The outcome of the evaluation, consensus building and decision of the IMT-Advanced process (steps 4-7), including characteristics of IMT-Advanced radio interfaces* .

Status: Noted

RP-101174	"LTE-Advanced" material for Rec. ITU-R M.[IMT.RSPEC]	ITU-R Ad hoc	Disc

Discussion:
Chair: CT and SA also to review this document.

AT&T: we need experts (RAN WGs as well as SA and CT) input in order to finalize these documents in the best way.

Chairman: Delegates are invited to review the documents very carefully to avoid introducing of confusion to ITU-R.

Telecom Italia, AT&T: We need to decide for the sections noted as (to be confirmed) in these documents. We think they should be included but would like to make sure that RAN confirms that these specs are to be provided to ITU-R.

Suzuki: 36.304 was listed twice: the one to be confirmed should be 25.304

E///: 25 series should not be included.

RAN2 Chair: the proposal from E/// makes sense. We are not including the GSM specs.

Way Forward: specification 25.304, 25.331, 25.133 are to be removed.

Telecom Italia: what should we do about the square brackets around [Evolved UTRA]?

RAN4 chair: suggests to company CR to remove these [ ].
(these Company CRs are in RP-101386, RP-101387, and RP-101388)

Telecom Italia: we need a description text for RAN2 spec 36.302. At the moment there is no description for this spec.
→ RAN2 chairmen will provide some text to be included.

Telecom Italia: invites the delegates to cross check this document also based on the agreements in this RAN plenary.

Status: revised in 1382

RP-101382	"LTE-Advanced" material for Rec. ITU-R M.[IMT.RSPEC]	ITU-R Ad hoc	Disc

RAN3 Chair (Qualcomm): Means of providing input to ITU-R ?

Telecom Italia: Send email to say every thing is fine or there this and this to change.

Timeline to review these documents? do you mean before the meeting in January.

RAN chairman to provide this to SA meeting.

Way forward is agreed

Status: noted

RP-101382 needs to be reviewed as delineated in its cover page and appropriate information provided as input documents from the relevant Chairmen (see Action Points listed in the cover page) to the face-to-face meeting of ITU-R Ad Hoc, scheduled for 13-14 January 2011.

RP-101175	Supporting input for the OPs	ITU-R Ad Hoc	Disc

Discussion:

To be treated in the face to face meeting to be held in January.

Status: Noted

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7.2.2 Other ITU-R submission

RP-101048	LS on Revision of Recommendation ITU-R M.1224 (ITU-R WP5D/TEMP/423rev1; to: 3GPP; cc: -; contact: -)	ITU-R WP5D	LSin

Discussion:

MCC is kindly requested to review the vocabulary and propose a CR to capture any needed changes. CR will then be approved by SA in the next plenary meeting. The CR will then be implemented in time for the submission to ITU-R WP5D#10 (March, 30th, 16:00 hours UTC).

Status: Noted

RP-101050	LS on coexistence studies in relation to resolution 224 and question ITU-R 229/5 (ITU-R WP5D/TEMP/437; to: external organisations; cc: -; contact: -)	ITU-R WP5D	LSin

Discussion:
Request to RAN4 to review this and provide a response in next plenary so that it can be submitted to ITU-R WP5D#10 (deadline: March, 30th, 16:00 hours UTC).

Status: noted

RP-101051	LS on the schedule for updating Recommendation ITU-R M.1457-10 to Revision 11 (ITU-R WP5D/TEMP/406; to: external organisations; cc: -; contact: -)	ITU-R WP5D	LSin

Status: noted

RP-101164	Invitation To Review recommendation ITU-R M.1073-2 Digital Cellular Land Mobile Telecommunication Systems	ITU-R WP 5A	LSin

Discussion:
This should be treated by ETSI. No action for 3GPP.

ETSI MSG is missing from the list of destinations in the cover page.

LS will be convoyed to ETSI MSG

Status: noted

RP-101037	Response to ITU-R WP5A on “Mobile Wireless access systems providing telecommunications for a large number of ubiquitous sensors and/or actuators scattered over wide areas in the land mobile service” (SP-100649; to: ITU-R WP5A; cc: RAN, CT; contact: Telecom Italia)	SA	LSin

Status: noted

RP-101397	Wide area sensor and/or actuator network (WASN) systems	ITU-R WP5A	LSin

SA, GERAN, CT will be informed by RAN chairman.

RAN plenary tasks ITU-R adhoc to prepare a draft submitted to the next plenary.

Way forward: ITU-R to send LS to WGs, collect the feedback, draft document approved by RAN plenary in March.

Way forward Agreed

Status: noted (Way forward Agreed**)**

RP-101398	Quality of service requirements and objectives for wireless access systems	ITU-R WP5A	LSin

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Same approach as the previous one.

way forward Agreed
Status: noted (Agreed way forward)

RP-101409	RADIO INTERFACE STANDARDS THAT COULD BE USED FOR PUBLIC PROTECTION AND DISASTER RELIEF OPERATIONS IN UHF BANDS IN ACCORDANCE WITH RESOLUTION 646 (WRC-03)	ITU-R WP5A	Lsin

Way forward: RAN1 and RAN4 to review the documents and any feedback report to ITU-R ad-hoc.

Feedback to be sent just after the February meeting so that ITU-R adHoc has time to draft the documents.

Status: noted (Agreed way forward)

8 RAN WGs: WG Status Reports & CR Approvals Rel-99 to Rel-9

8.1 TSG RAN WG1

8.1.1 Report from RAN WG1 including report on actions required from the previous meeting

RP-101054	Status Report RAN WG1	RAN1 chairman (Alcatel-Lucent)	Report

Discussion:

LG: in slide 21 it is stated that it is for RLM and RRM and then in the following slide it is stated RLM and/or RRM

RAN1 chair: Details are relevant to RAN2. some flexibility is left by the wording of the LS.

Discussion on decision on what is optional and mandatory.
Decision on on what is optional and mandatory.
RAN4 needs to be included in the discussion.

Way forward: have the discussion in March and CRs provided by June

Status: Noted

***General Discussion on the work load followed Than RAN1 report*:**

E///: we are having very loaded meetings (speciality in RAN). We should think about the target load and Define WIs/SIs on a reasonable way within the limits of the practical.

NSN: Having very long working days results in Not a good quality work (“having meetings that go beyond 22h and expect people to review the specs, CRs documents results on not very good specification”).
NSN also pointed some issues with the authorities and limitations of working hours on some countries.
→ General guidance to have meetings for not more than 12h.

Telecom Italia: supports the proposal from NSN.
NEC: supports also the proposal.

RAN5: suggests put a limit on the F2F working time (meeting time excluding the breaks) and not on the limit at which we need to stop. Also suggest to have an overage view of the working hours over the week not on a day basis.

RAN2 chairman: we need to allow some freedom to the chairmen

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NTT Docomo: RAN should be careful and not approve e.g. 24 WIs but then leave some flexibility to WG regarding the working times.

RAN1 chairman: control the approved WI to control the work load ahead of us. We need indicative guidance set at a reasonable level to avoid the extreme excess.

Chairman: offline discussion to decide on a guidance for the WGs.

Guidance from the RAN Chairman:

- Excessive working hours at the WG meetings should be avoided.
- Feedback on the amount of work manageable in the WGs within reasonable working hours should be provided to TSG-RAN for the management of work load on TSG RAN level.

RP-101055	List of CRs from RAN WG1	RAN1	Info

Status: noted

8.1.2 Discussions on decisions from RAN WG1

8.1.3 Approval of CRs to Rel-99, Rel-4, Rel-5, Rel-6 and Rel-7 with linked CRs

RP-101310	CRs to 25.214 to clarify the Number of PCCH transmissions in CELL_PCH states	RAN WG1	CR	RANimp-EnhState

Status: approved

RP-101311	CRs to 25.214 to correct the single stream CQI reporting in MIMO mode	RAN WG1	CR	MIMO-Phys

Status: approved

RP-101312	CRs to 25.214 to clarify E-AGCH/E-RGCH monitoring and uplink DPCCH transmission	RAN WG1	CR	RANimp-CPC

Status: approved

RP-101313	CRs to 25.214 clarifying of E-DPCCH gain factor calculation in compressed mode	RAN WG1	CR	RANimp-16QamUplink

Status: approved

8.1.4 Approval of CRs to Rel-8

8.1.4.1 CRs for LTE [LTE-Phys]

8.1.4.2 Other Closed Work Items and Small Technical Enhancements and Improvements [TEI8]

RP-101314	CRs to 25.224 to correct MC-HSDPA DRX for LCRTDD	RAN WG1	CR	RANimp-LCRCPC

Status: approved

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8.1.5 Approval of CRs to Rel-9

8.1.5.1 CRs related to LTE

8.1.5.2 Other Closed Work Items and Small Technical Enhancements and Improvements [TEI9]

RP-101315	CRs to 25.212 & 25.214 to clarify DC-HSDPA with MIMO operation"	RAN WG1	CR	RANimp-DC_MIMO

Status: approved

RP-101316	CRs to 25.224 & 25.433 to clarify Special Burst Power for LCRTDD	RAN WG1	CR	TEI9

Status: approved

8.1.6 Approval of linked CRs where the leading one originated from RAN WG1

8.2 TSG RAN WG2

8.2.1 Report from RAN WG2 including report on actions required from the previous meeting

RP-101056	Status Report RAN WG2	RAN2 chairman (Samsung)	Report

Status: noted

RP-101057	List of CRs from RAN WG2	RAN2	Info

Status: Revised in RP-101364

RP-101364	List of CRs from RAN WG2	RAN2	Info

Status: noted

8.2.2 Discussions on decisions from RAN WG2

RP-101190	On splitting LTE Semi-Persistent Scheduling and TTI Bundling in different FGI bits	Qualcomm, NTT DoCoMo	Disc

Discussion:
E///: is supportive of splitting. This allows making the features available earlier.
NSN: separation is beneficial. The feature will arrive to the market at different time so support the flexibility and not do all in one go.

Alcatel Lucent: we should not make assumptions on which feature will arrive before the other.
It should not take from the importance of any of the feature.

NSN: no assumption is made on which one will arrive first or which one is more important than the other. Just mentioning that they may not be available in the same time

Telecom Italia: Prefers to keep as it is (no split).

Verizon: why it is not possible to have the two features together? We need further clarification.

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Qualcomm: if are coupled, if you are testing one feature with one operator and the other feature with an other operator, then having a problem in the GCF testing of feature with one operator will block the other feature.

Chairman: have Offline discussion

Status: noted

RP-101292	Mandating SPS for VoLTE capable UEs	NTT DOCOMO, INC.	Disc	LTE-L23, TEI9

Status: Noted

RP-101412	Splitting FGI 3	Qualcomm and al.	Approval

Telecom Italia: Concerns with this proposal: when this was created there was an agreement that FGI bit should be put in rel-9 as true to indicate that this future is mandatory now we are changing the meaning of the FGI bit.

- we are changing the meaning of a bit in the middle of a release it may create some compatibility issues for existing UEs.
- Telecom Italia has a counter proposal: Split the SPS from FGI 3 and include it in the FGI7. but in general the preference is to avoid the split.

NTT Docomo: we need to be careful with backward compatibility. If there is any such UE in the market to day then this proposal does not work.

Samsung: has concern about the compatibility.

Qualcomm: to which part do you have concerns?

Samsung: FGI 7.

QC: do you have a counter proposal?

Samsung: Create a new bit for the sequence number. Create FGI 29.

NSN: fine with this proposal. We need to be careful with this compatibility issue.

LG: ok with the proposal from Qualcomm but if Samsung have concerns on the short sequence number then they are also ok with the separation proposed.

Qualcomm: change second bullet “move to FGI 7” to “move to FGI 29” and remove the text between ( ).

Telecom Italia: should we have 29 also mandatory.

Telecom Italia : bit 7 was already mandatory. What will happen to bit 7?

NSN, NTT: nothing happens to bit 7. after this change, the contribution is not touching bit 7.

Status: revised in 1430

RP-101430	Splitting FGI 3	Qualcomm and al.	Approval

Telecom Italia objects to the approval of the document since when FGI bit were created it was also agreed that they were a temporary solution and it was agreed to set all of them true in Rel 9. Now the meaning of the bits is changed on the run, and this is not agreeable from our perspective.

Status: noted

RP-101431	Splitting FGI 3	Qualcomm and al.	CR	TEI9

Telecom Italia is against approving the CR.

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Telecom Italia objects to the approval of the document since when FGI bit were created it was also agreed that they were a temporary solution and it was agreed to set all of them true in Rel-9. Now the meaning of the bits is changed on the run, and this is not agreeable from our perspective.

Status: approved

8.2.3 Approval of CRs to Rel-99, Rel-4, Rel-5, Rel-6 and Rel-7 with linked CRs

RP-101194	RAN2 CRs on Continuous connectivity for packet data users	RAN2	CR	RANimp-CPC

Status: approved

RP-101195	RAN2 CRs on Enhanced CELL_FACH State in FDD	RAN2	CR	RANimp-EnhState

Status: approved

RP-101196	RAN2 CRs on 1.28 Mcps TDD Enhanced Uplink: Layer 2 and 3 Protocol Aspects	RAN2	CR	LCRTDD-EDCH-L23

Status: approved

8.2.4 Approval of CRs to Rel-8

8.2.4.1 CRs for LTE [LTE-L23]

RP-101197	RAN2 CRs on LTE – Radio Interface Layer 2 and 3 Protocol Aspect	RAN2	CR	LTE-L23

Status: approved

8.2.4.2 Other Closed Work Items and Small Technical Enhancements and Improvements [TEI8]

RP-101198	RAN2 CRs on HS-DSCH Serving Cell Change Enhancements	RAN2	CR	RANimp-HSDSCH

Status: approved

RP-101199	RAN2 CRs on Improved L2 for uplink	RAN2	CR	RANimp-UplinkL2dataRates

Status: approved

RP-101200	RAN2 CRs on Enhanced Uplink for CELL_FACH State in FDD	RAN2	CR	RANimp-UplinkEnhState

Status: approved

RP-101201	RAN2 CRs on 3.84 Mcps TDD MBSFN Integrated Mobile Broadcast	RAN2	CR	MBSFN-DOB

Status: approved

RP-101202	RAN2 CRs on CS Voice Service over HSPA	RAN2	CR	RInImp8-CsHspa

Status: approved

RP-101203	RAN2 CRs on Paging Permission with Access Control (PPACR)	RAN2	CR	PPACR

Status: approved

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RP-101204	RAN2 CRs on Earthquake and Tsunami Warning System	RAN2	CR	ETWS

Status: approved

RP-101205	RAN2 CRs on Small Technical Enhancements and Improvements for Rel-8	RAN2	CR	TEI8

Status: approved

8.2.5 Approval of CRs to Rel-9

8.2.5.1 CRs related to LTE

RP-101206	RAN2 CRs on Home NB and Home eNB enhancements - RAN2 aspects	RAN2	CR	EHNB-RAN2

Status: approved

RP-101207	RAN2 CRs on Positioning Support for LTE	RAN2	CR	LCS_LTE

Status: approved

RP-101208	RAN2 CRs on MBMS support in LTE	RAN2	CR	MBMS_LTE

Status: approved

RP-101209	RAN2 CR on Self-Organizing Networks (SON)	RAN2	CR	SON

Status: approved

RP-101210	RAN2 CRs on Small Technical Enhancements and Improvements for Rel-9 for LTE	RAN2	CR	TEI9, LTE-L23

Status: approved

RP-101259	FGI bits related to CDMA2000 in Rel-9	KDDI	CR	LTE-L23, LTE-L23

Discussion:
Verizon: what is the scope of this text?

KDDI: Rel-9 single receiver CSFB

Verizon: It is better to make the text specific to the UE capability.

Status: noted

8.2.5.2 Other Closed Work Items and Small Technical Enhancements and Improvements [TEI9]

RP-101211	RAN2 CRs on Combination of DC-HSDPA with MIMO	RAN2	CR	RANimp-DC_MIMO

Status: approved

RP-101212	RAN2 CRs on Small Technical Enhancements and Improvements for Rel-9	RAN2	CR	TEI9

Status: approved

RP-101263	Procedural text to support measurements in	Ericsson, ST-Ericsson,	CR	RANimp-

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	the Secondary UL Frequency	InterDigital, Alcatel-Lucent, Qualcomm Inc.		DC_HSUPA

Rel-9 Cat F CR

Discussion:
Huawei: Have concerns. Huawei prefers to have the issue discussed in RAN2.

E///: thinks it is sufficient to solve this for rel-10 only.

Renesas: supports the CR.

Qualcomm: This should be solved and there is a UE impact and the UE needs to know what to do. It is Simpler to discuss offline during the week and come back to it later.

→ After Offline discussion
E///: After offline discussion is seems that is fine.

Huawei indicated that they would not maintain their objection to approving the CR since other companies see an urgent need to correct the Rel-9 problem. Huawei remarks that the ASN.1 review should follow functional freezing and not the other way round. Currently we have no functional text covering measurements on the second UL carrier. Some procedure was therefore inappropriately assumed during the ASN.1 review. We should take care to avoid such issues in future.

Status: approved

RP-101264	Procedural text to support measurements in the Secondary UL Frequency	Ericsson, ST-Ericsson, InterDigital, Alcatel-Lucent, Qualcomm Inc.	CR	RANimp-DC_HSUPA

Rel-10 Cat A CR

Status: approved

8.2.6 Approval of linked CRs where the leading one originated from RAN WG2

8.3 TSG RAN WG3

8.3.1 Report from RAN WG3 including report on actions required from the previous meeting

RP-101058	Status Report RAN WG3	RAN3 chairman (Qualcomm)	Report

Discussion:
Chairman: regarding LIPA, do you see any concern regarding the time plan?

RAN3 Chairman: There is only one FFS to be solved in the next quarter. So there is no issue.

NSN: there is an issue with LIPA that was found out. There will be simulation from NSN for January meeting to show what the issues are.
We need to show some flexibility if we need to change some aspects to make it work.

???: What are the issues.

NSN: one of the issues is related to How the HO is performed.

Status: Noted

RP-101059	List of CRs from RAN WG3	RAN3	Info

Status: Revised in RP-101371

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RP-101371	List of CRs from RAN WG3	RAN3	Info

Status: revised in 1390

RP-101390	List of CRs from RAN WG3	RAN3	Info

Status: noted

8.3.2 Discussions on decisions from RAN WG3

8.3.3 Approval of CRs to Rel-99, Rel-4, Rel-5, Rel-6 and Rel-7 with linked CRs

8.3.4 Approval of CRs to Rel-8

8.3.4.1 CRs for LTE [LTE-interfaces]

8.3.4.2 Other Closed Work Items and Small Technical Enhancements and Improvements [TEI8]

RP-101269	RAN3 CRs for Rel-8	RAN3	CR	HNB-arch, RANimpEnhState1.28TDD, RANimpLCRCPC, TEI8

Status: approved

8.3.5 Approval of CRs to Rel-9

8.3.5.1 CRs related to LTE

RP-101270	CRs related to LTE	RAN3	CR	LCS_LTE, LTE-interfaces, MBMS_LTE

Status: approved

8.3.5.2 Other Closed Work Items and Small Technical Enhancements and Improvements [TEI9]

RP-101271	Other Rel-9 CRs	RAN3	CR	EHNB-RAN3, TEI9, RANimp-DC_MIMO, SON

Status: approved

8.3.6 Approval of linked CRs where the leading one originated from RAN WG3

8.4 TSG RAN WG4

8.4.1 Report from RAN WG4 including report on actions required from the previous meeting

RP-101060	Status Report RAN WG4	RAN4 chairman (Fujitsu)	Report

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Status: Revised in RP-101363

RP-101363	Status Report RAN WG4	RAN4 chairman (Fujitsu)	Report

Status: noted

RP-101061	List of CRs from RAN WG4	RAN4	Info

Status: noted

RP-101420	Meeting arrangement of RAN-WG4 meetings	RAN4 chair (Fujitsu)	Information

For information to RAN.

E///: regarding the prioritization in slide 1. This does not include HSDPA while it is one of the hot subjects with 4C and … opened WI.

RAN4: it is part of "enhancement in rel-10"

QC: consider creation of a sub-group?

KDDI: clarification regarding relay handling. Which priority category ?.

RAN4 chair: First bullet as a there is a TS for ITU-R. The TS needs to be submitted on time. Relay to be handled in first priority especially ITU-R aspects.

Telecom Italia: priority should be set at RAN level before looking at priority in the RAN4 level.

Motorola: RAN4 has about 20 ongoing WI/SIs, 24% time spent on rel-8/9 maintenance and there is about 20 new WI proposals most of them are for RAN4. Now we are looking at the intra band CA, and this requires about another year to complete. Do we need to prioritize this work or should we look at the other work (e.g. inter band) that some operators are also requesting? Do we pause the intra case to address these other issue that operators are requesting ?

Vodafone: work for ITU-R is almost complete. Do not see the need to spend much effort on doing some other aspect like demodulation requirements which not of strong interests to ITU-R.
- Some HSDPA aspects are missing here that are important to be prioritized as well.
- take into account the eminent deployment when defining the priority. Prioritize the features to be deployed first.

Nokia: the focus now should be in inter band to get the core requirements at the same level of completion as for the intra-band. This is more important than looking at the performance part.

NTT: consider deployment when setting the priorities.

Qualcomm: to set priority in fair manner we need to list all the work items making a poll and decide if all operators or all companies vote, and each company votes 2 or 3 WIs and those WIs that gets more votes get priority (this was done before in SA2 for rel-8). This automatically takes into account the market requests.

Chairman: such solution can be considered in the future.

Orange: supports the way forward proposed by Qualcomm. In order to prioritize we need to put on the table and decide on which benefits from more supports.

Tmobile: start the parallel session in the next meeting. This improves the situation a lot already also asking the rapporteur to help organising the meeting will help a lot.
- next meeting have a written document on how to proceed for inter-band.
- priorities should be left to RAN4 and RAN4 chairman to decide.

RAN4 chair: Isolated WIs will be treated in parallel session.

Status: noted

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8.4.2 Discussions on decisions from RAN WG4

RP-101260	UE Conformance Testing for inter-RAT redirection	Telecom Italia, Orange, Telefonica, Vodafone	Decision

Status: revised in RP-101375

RP-101375	UE Conformance Testing for inter-RAT redirection	Telecom Italia, Orange, Telefonica, Vodafone, TeliaSonera, ZTE, Qualcomm	Decision

Discussion:
???: is it for rel-10 or earlier release ?
Telecom Italia: feature is defined for rel-8 and 9 and it make sense to have the performance part in the same release.

Nokia: we need to consider the work load in RAN4. does the idea is that some we would deprioritize some other issues to handle this one?

Telecom Italia: We have a feature for rel-8 and rel-9 for which we don't have performance requirements. It is critical to have these requirements defined for this feature.

Nokia: every time we have a proposal we should analyze the time plan to check if it is feasible or not. Not trying to minimize the importance of the feature. Just would like to highlight that we need to carefully plan the work.

Motorola: work load is bottleneck and companies should be aware of that and de-prioritize the work. We don't have performance requirement for every feature.

Renesas: supports the comment from Nokia and Motorola

Orange: does understand the work load issue and we can have discussion on prioritizing the work and if we need to prioritize, then this should be in top priority subjects.

Nokia: would like to have hard priorities: decide either to do the work or not do it but not start soft priority with several priority levels.

Telecom Italia: Vendors request for input from operators and once this is proposed then vendors says: we have to much work we don't want this.
3GPP asks operators to provide priorities.

Vodafone: agrees with Nokia, however In the other hand, we are going to start the work on some of the rel-10 performance and these are prioritize over performance for this feature from rel-8: this is some thing strange.

Qualcomm: it is true that RAN4 is over loaded. In the other hand we should approve the work based on if they make sense or not and then prioritize the work among the approved ones. And this peace of work makes sense.

TeliaSonera: if we want to discuss the priority in the RAN4 we should put all the WIs in the table not consider only the new coming WIs.

KDDI: discussion on the added work load in RAN4 should include all other WIs that will be approved in this week. Suggests to come back to evaluate the overall added work load.

Chair: RAN4 should put priority on the ITU-R submission. For the time being RAN4 will be very busy with this.

→ there is a way forward in 1441.

Status: noted

RP-101441	Way forward on conformance testing for inter-RAT redirection	Telecom Italia	Approval

RAN5 chair: is this proposed in TEI10 ?

Telecom Italia: this a TEI and we need to which release the CR should be done. But think it is a rel-10 thus TEI10.

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→ Timing to RAN5 to be appropriately adapted (between RAN4 and RAN5).

Status: approved

8.4.3 Approval of CRs to Rel99, Rel-4, Rel-5, Rel-6 and Rel-7 with linked CRs

RP-101326	Rel-7 maintenance CRs for 25.102 Spec	RAN4	CR	TEI7

Status: approved

8.4.4 Approval of CRs to Rel-8

8.4.4.1 CRs for LTE [LTE-RF]

RP-101327	Rel-8 maintenance CR for LTE band 12 (UE and BS), (36.101, 36.104, 36.113, 36.124, 36.141)	RAN4	CR	TEI8

Status: approved

RP-101328	Rel-8 maintenance CR for PUCCH (BS), (36.104, 36.141)	RAN4	CR	LTE-RF/TEI8

Status: approved

RP-101329	Rel-8 maintenance CRs for LTE UE, CQI/PMI/RI (36.101)	RAN4	CR	LTE-RF

Status: approved

RP-101303	Correction of the PMI reporting in Multi-Layer Spatial Multiplexing performance test	Huawei	CR	LTE-RF

Rel-10 Cat-A CR: Corresponding rel-8 Cat F and rel-9 cat A are in the package RP-101329 (i.e. R4-104895, R4-104896)

Status: Revised in 1379

RP-101379	Correction of the PMI reporting in Multi-Layer Spatial Multiplexing performance test	Huawei	CR	LTE-RF

Status: approved

RP-101330	Rel-8 maintenance CRs for LTE UE, RF (36.101)	RAN4	CR	LTE-RF

Status: approved

RP-101324	Correction on the statement of TB size and subband selection in CSI tests	Huawei, NEC	CR	LTE-RF

Rel-8, Cat F CR: Corresponding rel-9 cat A is in the package RP-101330 (i.e. R4-104979)

Status: approved

RP-101325	Correction on the statement of TB size and subband selection in CSI tests	Huawei, NEC	CR	LTE-RF

Rel-10, Cat A CR: Corresponding rel-9 cat A is in the package RP-101330 (i.e. R4-104979)

Status: approved

RP-101331	Rel-8 maintenance CRs for LTE RRM corrections and Clarifications (36.133)	RAN4	CR	LTE-RF

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Status: approved

RP-101332	Rel-8 maintenance CRs for LTE RRM, 2nd set (36.133)	RAN4	CR	LTE-RF

Status: approved

RP-101333	Rel-8 maintenance CRs for E-UTRA FDD repeaters (36.106, 36.143)	RAN4	CR	TEI8

Status: approved

RP-101386	Removal of square brackets from scope of TS36.133	Fujitsu	CR	LTE-RF

Status: approved

RP-101387	Removal of square brackets from scope of TS36.133	Fujitsu	CR	LTE-RF

Status: approved

RP-101388	Removal of square brackets from scope of TS36.133	Fujitsu	CR	LTE-RF

Status: approved

8.4.4.2 Other Closed Work Items and Small Technical Enhancements and Improvements [TEI8]

RP-101334	Rel-8 maintenance CRs for band XII (UE and BS), (25.101, 25.104, 25.113, 25.141, 25.461)	RAN4	CR	TEI8

Status: approved

RP-101335	Rel-8 maintenance CRs for CSG cell reselection, (25.133, 36.133)	RAN4	CR	LTE-L23, HNB-supp, LTE-UEConTest, HNB-UEConTestFDD

Status: approved

RP-101336	Rel-8 maintenance CRs for CDMA and E-UTRA bands protection, (25.106, 25.143, 36.106, 36.143)	RAN4	CR	TEI8

Status: approved

RP-101337	Rel-8 CRs for removing Brackets at the minimum requirement for RCDE for 64QAM (25.106, 25.143, 36.106)	RAN4	CR	TEI8

Status: approved

RP-101338	Rel-8 CRs for Corrections due to the introduction of the definition of pass band	RAN4	CR	TEI8

Status: approved

RP-101339	Other rel-8 maintenance CRs for 25-serie specs (UE)	RAN4	CR	-

Status: approved

RP-101340	Other rel-8 maintenance CRs for 25-serie specs (BS)	RAN4	CR	

Status: approved

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8.4.5 Approval of CRs to Rel-9

8.4.5.1 CRs related to LTE

RP-101341	Rel-9 maintenance CRs for LTE UE, RF (36.101)	RAN4	CR	LTE-RF/TEI9

Status: approved

RP-101306	Adding antenna configuration in CQI fading test case	Huawei	CR	LTE-RF

Rel-10 Cat-A CR: Corresponding rel-9 cat A is in the package RP-101341 (i.e. R4-104897)

Status: revised in 1380

RP-101380	Adding antenna configuration in CQI fading test case	Huawei	CR	LTE-RF

Status: approved

RP-101309	Demodulation performance requirements for dual-layer beamforming	CMCC	CR	LTEimp-eDL

Rel-10 Cat-A CR: Corresponding rel-9 cat F is in the package RP-101341 (i.e. R4-104808)

Status: approved

RP-101342	Rel-9 maintenance CRs for LTE BS, RF (36.104, 36.141)	RAN4	CR	LTE-RF/TEI9

Status: approved

RP-101343	Rel-9 maintenance CRs for LTE RRM (36.133)	RAN4	CR	

Status: approved

RP-101344	Other rel-9 maintenance corrections for 36 series	RAN4	CR	

Status: approved

8.4.5.2 Other Closed Work Items and Small Technical Enhancements and Improvements [TEI9]

RP-101345	Rel-9 maintenance CRs for MSR band XII/12. (37.104, 37.113, 37.141)	RAN4	CR	TEI9

Status: approved

RP-101346	Rel-9 maintenance CRs for MSR specifications (37.113, 37.141)	RAN4	CR	

Status: approved

RP-101347	Rel-9 maintenance CRs for repeaters (25.106, 25.143, 36.106, 36.143)	RAN4	CR	TEI9

Status: approved

RP-101348	Other rel-9 maintenance corrections for 25 series	RAN4	CR	

Status: approved

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8.4.6 Approval of linked CRs where the leading one originated from RAN WG4

8.5 TSG RAN WG5

8.5.1 Report from RAN WG5 including report on actions required from the previous meeting

RP-101062	Status Report RAN WG5	RAN5 Chairman (NTT DOCOMO)	Report

Status: noted

RP-101064	Status Report MCC TF160 (for Approval)	MCC TF 160 Leader	Report

Status: approved

RP-101132	Updated MCC TF160 ToR for 2011	MCC TF 160 Leader	Approval

Status: approved

RP-101063	List of CRs from RAN WG5	RAN5	Info

Status: noted

8.5.2 Discussions on decisions from RAN WG5

RP-101046	LS reply to RP-101025 on Request to RAN5 to analyse proposals for performance testing (R5-106665; to: RAN; cc: GCF SG, PTCRB; contact: Samsung)	RAN5	LSin

Status: Noted

RP-101182	TR 36.903 v1.0.0 on Derivation of test tolerances for multi-cell RRM conformance tests (Approval)	Agilent Technologies	TR

Discussion:
MCC: Which release do we need to approve this TR for? Recommendation is to approve it for rel-8 and an identical rel-9 is created, then next plenary provide a CR to empty the content of the rel-8.

RAN5: is ok with the proposal.
Recommendation from MCC will be the way forward.

Status: Approved for rel-8

8.5.3 Approval of CRs to Rel99, Rel-4, Rel-5, Rel-6 and Rel-7 with linked CRs

RP-101133	RAN5 agreed non TTCN CR(s) under WI Small Technical Enhancements and Improvements for Rel 99 Conformance	RAN5	CR	TEI_Test

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	Testing(TEI_Test)			

Status: approved

RP-101134	RAN5 agreed non TTCN CR(s) under WI Small Technical Enhancements and Improvements for Rel-4 Conformance Testing(TEI4_Test)	RAN5	CR	TEI4_Test

Status: approved

RP-101135	RAN5 agreed non TTCN CR(s) under WI Small Technical Enhancements and Improvements for Rel-5 Conformance Testing(TEI5_Test)	RAN5	CR	TEI5_Test

Status: approved

RP-101136	RAN5 agreed non TTCN CR(s) under WI Small Technical Enhancements and Improvements for Rel 6 Conformance Testing(TEI6_Test)	RAN5	CR	TEI6_Test

Status: approved

RP-101137	RAN5 agreed non TTCN CR(s) under WI Small Technical Enhancements and Improvements for Rel-7 Conformance Testing(TEI7_Test)	RAN5	CR	TEI7_Test

Status: approved

8.5.4 Approval of CRs to closed Rel-8 & REL-9 WIs

8.5.4.1 CRs for LTE [LTE-UEConTest_RF, LTE-UEConTest_SIG]

RP-101138	RAN5 agreed non TTCN CR(s) under WI LTE Terminal Radio Transmission and Reception Conformance Test Specifications (LTE-UEConTest_RF) (Batch 1)	RAN5	CR	LTE-UEConTest_RF

Status: approved

RP-101139	RAN5 agreed non TTCN CR(s) under WI LTE Terminal Radio Transmission and Reception Conformance Test Specifications (LTE-UEConTest_RF) (Batch 2)	RAN5	CR	LTE-UEConTest_RF

Status: approved

RP-101140	RAN5 agreed non TTCN CR(s) under WI LTE Terminal Radio Transmission and Reception Conformance Test Specifications (LTE-UEConTest_RF) (Batch 3)	RAN5	CR	LTE-UEConTest_RF

Status: approved

RP-101142	RAN5 agreed non TTCN CR(s) under WI 3G LTE Terminal Protocol Conformance Test Specifications (LTE-UEConTest_SIG) (Batch 1)	RAN5	CR	LTE-UEConTest_SIG

Status: approved

RP-101143	RAN5 agreed non TTCN CR(s) under WI 3G LTE Terminal Protocol Conformance Test Specifications (LTE-UEConTest_SIG) (Batch 2)	RAN5	CR	LTE-UEConTest_SIG

Status: approved

RP-101144	RAN5 agreed non TTCN CR(s) under WI 3G LTE Terminal Protocol Conformance Test Specifications (LTE-UEConTest_SIG) (Batch 3)	RAN5	CR	LTE-UEConTest_SIG

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Status: approved

RP-101145	RAN5 agreed non TTCN CR(s) under WI 3G LTE Terminal Protocol Conformance Test Specifications (LTE-UEConTest_SIG) (Batch 4)	RAN5	CR	LTE-UEConTest_SIG

Status: approved

RP-101255	GCF Priority 2 - Correction to EUTRA RLC test case 7.2.3.21	Anite	CR	LTE-UEConTest_SIG

Status: approved

RP-101141	RAN5 agreed non TTCN CR(s) under WI LTE Terminal Radio Transmission and Reception Conformance Test Specifications (LTE-UEConTest_RF) (Batch 4)	RAN5	CR	LTE-UEConTest_RF

Status: Withdrawn

8.5.4.2 Other Closed Work Items and Small Technical Enhancements and Improvements [TEI8_Test, TEI9_Test]

RP-101146	RAN5 agreed non TTCN CR(s) under WI Small Technical Enhancements and Improvements for Rel-8 Conformance Testing(TEI8_Test)	RAN5	CR	TEI8_Test

Status: approved

RP-101147	RAN5 agreed non TTCN CR(s) under WI Small Technical Enhancements and Improvements for Rel-9 Conformance Testing(TEI9_Test)	RAN5	CR	TEI9_Test

Status: approved

8.5.5 Approval of linked CRs where the leading one originated from RAN WG5

RP-101148	CR to 34.123-3: Add new verified and e-mail agreed TTCN test cases in the TC lists in 34.123-3 (prose), Annex A	RAN5	CR	TEI8_Test

Status: approved

RP-101149	CR to 34.123-3: Add new verified and e-mail agreed TTCN test cases in the TC lists in 34.123-3 (TTCN), Annex A	RAN5	CR	-

Status: approved

RP-101150	CR to 34.229-3 (prose) update to v850	RAN5	CR	TEI8_Test

Status: approved

RP-101151	CR to 36.523-3: Add new verified and e-mail agreed TTCN test cases in the TC lists in 36.523-3 (prose), Annex A	RAN5	CR	LTE-UEConTest_SIG

Status: approved

RP-101152	CR to 36.523-3: Add new verified and e-mail agreed TTCN test cases in the TC lists in 36.523-3 (TTCN), Annex A	RAN5	CR	LTE-UEConTest_SIG, LTE-UEConTest_RF

Status: approved

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9 Open Conformance Testing Work Items (Rel-7 and beyond)

9.1 Conformance test aspects – UMTS-LTE 3500

9.1.1 Conformance test aspects – LTE 3500 [420013, LTE-UEConTest_LTE3500, 12/2010]

RP-101065	Status report for WI Conformance test aspects – LTE 3500, rapporteur: Ericsson	RAN5	Report

Completion level: 5%.

Completion date September 2011

Status: approved

9.1.2 Conformance test aspects – UMTS 3500 [420014, RInImp-UEConTest_UMTS3500, 12/2010]

RP-101066	Status report for WI Conformance test aspects – UMTS 3500, rapporteur: Nokia	RAN5	Report

Completion level: 5%.

Completion date September 2011

Status: approved

9.2 Conformance test part: Fixed Wireless Customer-Premises Equipment (CPE) RF Requirements [460210, FW_CPE_RF-UEConTest, 06/2011]

RP-101067	Status report for WI Test part: Fixed Wireless Customer-Premises Equipment (CPE) RF Requirements, rapporteur: Verizon	RAN5	Report

Completion level: 0%.

Completion date: June 2011

Status: approved

9.3 Conformance Test Aspects – Support for IMS Emergency Calls over LTE

[470017, IMS_EMER_LTE_UEConTest, 12/2010]

RP-101068	Status report for WI Conformance Test Aspects – Support for IMS Emergency Calls over LTE, rapporteur: Ericsson	RAN5	Report

Completion level: 100% completion

→ WI closed

Status: approved

RP-	RAN5 agreed non TTCN CR(s) under WI Conformance	RAN5	CR	IMS_EMER_LTE_UEConTest

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101153	test aspects – Support for IMS Emergency Calls over LTE (IMS_EMER_LTE_UEConTest)			

Status: approved

9.4 Conformance Test Aspects – LTE Positioning [470018, LCS_LTE_UEConTest, 03/2011]

RP-101069	Status report for WI Conformance Test Aspects – LTE Positioning, rapporteur: Alcatel-Lucent	RAN5	Report

Completion level 60%.

Completion level: September 2011

Discussion:
New Specs assigned.

Status: Revised in 1404

RP-101404	Status report for WI Conformance Test Aspects – LTE Positioning, rapporteur: Alcatel-Lucent	RAN5	Report

Status: approved

RP-101253	TS 36.571-1 V1.0.0 on User Equipment (UE) conformance specification; UE positioning in E-UTRA; Part 1: Minimum Performance conformance	Spirent Communications	TS

Status: Noted

RP-101305	Update to Conformance test aspects – LTE Positioning WID	Alcatel Lucent	WID

Adding the numbers of expected specs.

And one new 37 series number.

Status: noted

9.5 AGNSS test case development for UMTS [480018, AGNSSTest_UTRAN, 03/2011]

RP-101070	Status report for WI AGNSS test case development for UMTS, rapporteur: Thales	RAN5	Report

Completion level: 80%

Completion date: March 2011

Status: approved

RP-101154	RAN5 agreed non TTCN CR(s) under WI Conformance test aspects – AGNSS test case development for UMTS (AGNSSTest_UTRAN)	RAN5	CR	AGNSSTest_UTRAN

Status: approved

RP-101252	TS 34.172 V1.0.0 on Terminal conformance specification; Assisted Global Navigation Satellite Systems (A-GNSS); Frequency Division Duplex (FDD)	Spirent Communications	TS

Status: noted

RP-101254	TS 37.571-5 V1.0.0 on User Equipment (UE) conformance	Spirent Communications	TS

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	specification; UE positioning in E-UTRA; Part 5: UE positioning test scenarios and assistance data		

Discussion:

AT&T: is the values for the assistance data referred to are to be provided by RAN4?

Spirent: RAN4 gave the conditions to fulfil and RAN5 should provide the data and find the values.

Status: noted

9.6 UE conformance test part: LTE TDD in 2600MHz for US

[480019, LTE_TDD_2600_US-UEConTest, 03/2011]

RP-101071	Status report for WI UE conformance test part: LTE TDD in 2600MHz for US, rapporteur: Clearwire	RAN5	Report

Completion level: 100%

→ WI closed

Status: approved

RP-101155	RAN5 agreed non TTCN CR(s) under WI Conformance test aspects – LTE TDD in 2600MHz for US (LTE_TDD_2600_US-UEConTest)	RAN5	CR	LTE_TDD_2600_US-UEConTest

Status: approved

9.7 Conformance Test Aspects - CT1 aspects of IMS Emergency Calls over GPRS and EPS

[480029, IMS_EMER_GPRS_EPS_UEConTest, 03/2011]

RP-101072	Status report for WI Conformance Test Aspects - CT1 aspects of IMS Emergency Calls over GPRS and EPS, rapporteur: Samsung	RAN5	Report

Completion level: 30%

Completion date: March 2011

Status: approved

RP-101156	RAN5 agreed non TTCN CR(s) under WI Conformance Test Aspects – CT1 aspects of IMS Emergency Calls over GPRS and EPS (IMS_EMER_GPRS_EPS_UEConTest)	RAN5	CR	IMS_EMER_GPRS_EPS_UEConTest

Status: approved

9.8 Conformance Test Aspects –Multiple Band and Multiple Frequency operation for LCR TDD

[New WI: 490016, LCRTDD_MB_MF_UEConTest, 12/2011]

RP-101073	Status report for WI Conformance Test Aspects –Multiple Band and Multiple Frequency operation for LCR TDD, rapporteur: CATR	RAN5	Report

Completion level: 20%

Completion date: December 2011

Status: approved

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RP-101157	RAN5 agreed non TTCN CR(s) under WI Conformance test aspects – Multiple Band and Multiple Frequency operation for LCR TDD (LCRTDD_MB_MF_UEConTest)	RAN5	CR	LCRTDD_MB_MF_UEConTest

Status: approved

9.9 Conformance Test Aspects - Paging Permission with Access Control (PPAC)

[New WI: 490017, PPAC_UEConTest, 06/2011]

RP-101074	Status report for WI Conformance Test Aspects - Paging Permission with Access Control (PPAC), rapporteur: NTT DoCoMo	RAN5	Report

Completion level: 100%

→ WI closed

Status: approved

RP-101158	RAN5 agreed non TTCN CR(s) under WI Conformance test aspects – Paging Permission with Access Control (PPAC_UEConTest)	RAN5	CR	PPAC_UEConTest

Status: approved

9.10 Conformance Test Aspects – Enhanced Dual-layer transmission for LTE TDD

[New WI: 490018, LTEimp-eDL_UEConTest, 03/2011]

RP-101075	Status report for WI Conformance Test Aspects – Enhanced Dual-layer transmission for LTE TDD, rapporteur: CMCC	RAN5	Report

Completion level: 5%

Completion date: March 2011

Status: approved

RP-101159	RAN5 agreed non TTCN CR(s) under WI Conformance test aspects – Enhanced Dual-layer transmission for LTE TDD (LTEimp-eDL_UEConTest)	RAN5	CR	LTEimp-eDL_UEConTest

Status: approved

9.11 Conformance Test Aspects – Combination of DC-HSDPA with MIMO

[New WI: 490019, RANimp-DC_MIMO_UEConTest, 06/2011]

RP-101076	Status report for WI Conformance Test Aspects – Combination of DC-HSDPA with MIMO, rapporteur: Ericsson	RAN5	Report

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Completion level: 20%

Completion date: June 2011

Status: approved

RP-101160	RAN5 agreed non TTCN CR(s) under WI Conformance test aspects – Combination of DC-HSDPA with MIMO (RANimp-DC_MIMO_UEConTest)	RAN5	CR	RANimp-DC_MIMO_UEConTest

Status: approved

9.12 Conformance Test Aspects – Home NB enhancements for FDD

[New WI: 490020, EHNB-UTRA_FDD_UEConTest, 12/2011]

RP-101077	Status report for WI Conformance Test Aspects – Home NB enhancements for FDD, rapporteur: Huawei	RAN5	Report

Completion level: 30%

Completion date: Dec. 2011

Status: approved

RP-101161	RAN5 agreed non TTCN CR(s) under WI Conformance test aspects – Home NB enhancements for FDD (EHNB-UTRA_FDD_UEConTest)	RAN5	CR	EHNB-UTRA_FDD_UEConTest

Status: approved

9.13 Conformance Test Aspects: Small Technical Enhancements and Improvements for Rel-9 [TEI9_Test]

10 Work Items with target Rel-10 and beyond (not related to conformance testing)

10.1 Closed REL-10 work items and TEI10 CRs

10.1.1 1.28 Mcps TDD Repeater [380077, RANimp-Repeaters1.28TDD, 03/2010]

10.1.2 1.28Mcps TDD Home NodeB RF requirements

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10.1.2.1 Core part [460114, HNB_LCRTDD_RF-Core, 06/2010]

10.1.3 Performance Requirements for two-antenna 1.28Mcps TDD Type 1 & 2 UE receiver

10.1.3.1 Core part [470113, 2ant_UE_LCR_TDD-Core, 06/2010]

10.1.4 LTE TDD in 2600MHz for US (Region 2)

10.1.4.1 Core part [470108, LTE_TDD_2600_US-Core, 12/2010]

RP-101349	CRs for LTE TDD in 2600MHz for US (Region 2), core part	RAN4	CR	LTE_TDD_2600_US-Core

Status: approved

10.1.4.2 Performance part [470208, LTE_TDD_2600_US-Perf, 12/2010]

10.1.5 Small Technical Enhancements and Improvements for Rel-10 [TEI10]

RP-101213	RAN2 CRs on Small Technical Enhancements and Improvements for Rel-10	RAN2	CR	TEI10

Status: approved

RP-101214	RAN2 CRs on Small Technical Enhancements and Improvements for Rel-10 for LTE	RAN2	CR	TEI10, LTE-L23, LTE-Interfaces

Status: approved

RP-101215	RAN2 CR to 36.331 adding e1xCSFB support for dual Rx/Tx UE	RAN2	CR	TEI10, LTE-L23

CR is linked to CT CRs.

CR from CT was approved

Status: approved

RP-101216	RAN2 CR on Introduction of LIPA function	RAN2	CR	LIPA_SIPTO

Status: approved

RP-101272	TEI10 CRs	RAN3	CR	TEI10

Status: approved

RP-101273	LIPA_SIPTO CRs	RAN3	CR	LIPA_SIPTO

Status: Revised in RP-101370

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RP-101370	LIPA_SIPTO CRs	RAN3	CR	LIPA_SIPTO

Status: revised in RP-101389

RP-101389	LIPA_SIPTO CRs	RAN3	CR	LIPA_SIPTO

CR num 779 (last one in the list) needs to go back to RAN3.

Some issues are found in the CR, it was decided to send it back to RAN3

Status: Partially approved (all except from CR 779)

RP-101289	AC-Barring for Mobile Originating CSFB call	Renesas Technology Europe, Nokia Corporation, Nokia Siemens Networks	CR	LTE-L23, TEI10

Status: withdrawn

RP-101293	AC-Barring for Mobile Originating CSFB call	NTT DOCOMO, INC., Panasonic, NEC, Fujitsu, Samsung	CR	LTE-L23, TEI10

Discussion:
NTT Docomo: Rel-8 and rel-9 behaviour can be maintained for rel-10 UEs by this CR.
NSN: has some technical concerns that would like to have time to discuss. There is no rush to have this finished now, so prefer to push this back to RAN2.

NTT Docomo: there is a CT1 CR, that was first presented in September, and that is pending RAN decision. This is cat B CR, so we can have it approved now and if there is any issue then companies can come with a Cat-F CRs to correct these.

Nokia: The CR in 1289 is based on the agreement in Xian meeting and continued in Jacksonville. CT1 pending CR should not be a reason for approving this CR.

Samsung: No agreement was made in any of the two solutions. Samsung would prefer solution in 1293.

NTT: In Jacksonville we discovered that the solution we were working on (the one from NSN) has problems (handling when the time expires) and considered how to handle this issue and came up with this proposal.

After offline discussion:

Agreement reached that 1293 can be approved as it is.

NTT: “T306 handling for non-CSFB capable UE can still be discussed in RAN2.

Agreed way forward: 1293 is approved and T306 handling for non-CSFB capable UE can still be discussed in RAN2”.

Status: approved

10.2 Open UTRA related WIs

10.2.1 AGNSS Minimum Performance for UTRAN [450027, AGNSSPerf_UTRAN, 12/2010]

RP-101078	Status report for WI AGNSS Minimum Performance for UTRAN, rapporteur: Thales	RAN4	Report

Completion level: 100%

→ WI closed

Status: approved

RP-101350	CR for AGNSS Minimum Performance for UTRAN	RAN4	CR	AGNSSPerf_UTRAN

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Status: approved

RP-101176	Update of TS reference in “AGNSS Minimum Performance for UTRAN” WID	Thales	WID

Status: revised in 1405

RP-101405	Update of TS reference in “AGNSS Minimum Performance for UTRAN” WID	Thales	WID

Status: approved

10.2.2 1.28Mcps TDD Multi-carrier HSUPA [450019, TDD_MC_HSUPA, 12/2010]

RP-101079	Status report for WI 1.28Mcps TDD Multi-carrier HSUPA, rapporteur: CATR	RAN1	Report

Completion level: 100%

→ WI closed

Status: approved

RP-101317	Set of CRs for the introduction of MC-HSUPA for LCRTDD	RAN WG1	CR	TDD_MC_HSUPA

Status: approved

RP-101217	RAN2 CRs on 1.28 Mcps TDD Multi-carrier HSUPA	RAN2	CR	TDD_MC_HSUPA

Status: Revised in RP-101365

RP-101365	RAN2 CRs on 1.28 Mcps TDD Multi-carrier HSUPA	RAN2	CR	TDD_MC_HSUPA

Status: approved

RP-101274	1.28Mcps TDD Multi-carrier HSUPA CRs	RAN3	CR	TDD_MC_HSUPA

Status: approved

RP-101351	CRs for 1.28Mcps TDD Multi-carrier HSUPA	RAN4	CR	TDD_MC_HSUPA

Status: approved

10.2.3 UE Over the Air (Antenna) conformance testing methodology- Laptop Mounted Equipment Free Space test [450016, UEAnt_FSTest, 09/2011]

RP-101080	Status report for WI UE Over the Air (Antenna) conformance testing methodology- Laptop Mounted Equipment Free Space test, rapporteur: CATR	RAN4	Report

Completion level: 55%

Completion date: Sept. 2011

Status: approved

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10.2.4 1.28Mcps TDD Home NodeB RF requirements

Note: Core part already completed (see 10.1.2.1)

10.2.4.1 Performance part [460214, HNB_LCRTDD_RF-Perf, 12/2010]

RP-101081	Status report for WI Perf. part: 1.28Mcps TDD Home NodeB RF requirements, rapporteur: TD Tech	RAN4	Report

Completion level: 100%

→ WI closed

Status: approved

RP-101352	CRs for 1.28Mcps TDD Home NodeB RF requirements, performance part	RAN4	CR	HNB_LCRTDD_RF-Perf

Status: approved

RP-101166	TR 25.968, V1.0.0 on 1.28Mcps TDD Home NodeB Radio Frequency (RF) Requirements (Approval)	TD Tech	TR

Cover sheet is missing

Status: approved

10.2.5 Four carrier HSDPA

10.2.5.1 Core part [460115, 4C_HSDPA-Core, 12/2010]

RP-101082	Status report for WI Core part: Four carrier HSDPA, rapporteur: Qualcomm	RAN1	Report

Status: revised in RP-101392

RP-101392	Status report for WI Core part: Four carrier HSDPA, rapporteur: Qualcomm	RAN1	Report

Completion level: 98%

Completion date: March 2011

Status: Approved

RP-101318	Set of CRs for few corrections on 4C HSDPA feature	RAN WG1	CR	4C_HSDPA-Core

Status: approved

RP-101218	RAN2 CRs on Core part: Four carrier HSDPA	RAN2	CR	4C_HSDPA-Core

Status: Revised in RP-101366

RP-101366	RAN2 CRs on Core part: Four carrier HSDPA	RAN2	CR	4C_HSDPA-Core

Status: approved

RP-101275	Four carrier HSDPA CRs	RAN3	CR	4C_HSDPA-Core

Status: approved

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RP-101353	CRs for Four carrier HSDPA, Core part	RAN4	CR	4C_HSDPA-Core

Status: approved

10.2.5.2 Performance part [460215, 4C_HSDPA-Perf, 06/2011]

RP-101083	Status report for WI Perf. part: Four carrier HSDPA, rapporteur: Qualcomm	RAN4	Report

Completion level: 15%

Completion date: June 2011

Status: approved

10.2.6 Inclusion of “RF Pattern Matching Technologies” as positioning method in the UTRAN

10.2.6.1 Core part [460105, LCS_UMTS_RFPMT-Core, 12/2010]

RP-101084	Status report for WI Inclusion of "RF Pattern Matching Technologies" as positioning method in the UTRAN, rapporteur: Polaris Wireless	RAN2	Report

Completion level: 90%.

Completion date: March 2011

Status: approved

RP-101276	RF Pattern Matching Technologies CRs	RAN3	CR	LCS_UMTS_RFPMT-Core

Status: approved

10.2.7 MU-MIMO for 1.28Mcps TDD

10.2.7.1 Core part [470112, MUMIMO_LCR_TDD-Core, 12/2010]

RP-101085	Status report for WI Core part: MU-MIMO for 1.28Mcps TDD, rapporteur: CATT	RAN1	Report

Completion level: 100%

→ WI closed

Status: approved

RP-101319	Set of CRs fot the introduction of MU-MIMO feature	RAN WG1	CR	MUMIMO_LCR_TDD-Core

Status: approved

RP-101219	RAN2 CRs on Core part: MU-MIMO for 1.28Mcps TDD	RAN2	CR	MUMIMO_LCR_TDD-Core

Status: approved

RP-101277	MU-MIMO for 1.28Mcps TDD CRs	RAN3	CR	MUMIMO_LCR_TDD-Core

Status: approved

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10.2.7.2 Performance part [470212, MUMIMO_LCR_TDD-Perf, 03/2011]

RP-101086	Status report for WI Perf. part: MU-MIMO for 1.28Mcps TDD, rapporteur: CATT	RAN4	Report

Completion level: 0%

Extension to June 2010

Status: approved

10.2.8 Performance Requirements for two-antenna 1.28Mcps TDD Type 1 & 2 UE receiver

Note: Core part already completed (see 10.1.3.1)

10.2.8.1 Performance part [470213, 2ant_UE_LCR_TDD-Perf, 12/2010]

RP-101087	Status report for WI Perf. part: Performance Requirements for two-antenna 1.28Mcps TDD Type 1 and Type 2 UE receiver, rapporteur: TD Tech	RAN4	Report

Status: Revised in RP-101308

RP-101308	Status report for WI Perf. part: Performance Requirements for two-antenna 1.28Mcps TDD Type 1 and Type 2 UE receiver, rapporteur: TD Tech	RAN4	Report

Completion level: 60%

Completion date extended to March

Status: approved

RP-101354	CRs for Performance Requirements for two-antenna 1.28Mcps TDD Type 1 & 2 UE receiver	RAN4	CR	2ant_UE_LCR_TDD-Perf

Discussion:
RAN4: put off the approval to next RAN meeting as the WI is not completed in this plenary.
Approval is postponed

Status: postponed

10.2.9 Support of New Band Combinations for Dual-Band Dual Cell HSDPA

10.2.9.1 Core part [480121, DB_DC_HSDPA-Core, 03/2011]

Note: Performance part [480221, DB_DC_HSDPA-Perf] was terminated at RAN #49 as it was considered not necessary.

RP-101088	Status report for WI Core part: Support of New Band Combinations for Dual-Band Dual Cell HSDPA, rapporteur: AT&T	RAN4	Report

Status: revised in RP-101395

RP-101395	Status report for WI Core part: Support of New Band Combinations for Dual-Band Dual Cell HSDPA, rapporteur: AT&T	RAN4	Report

Status: approved

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10.2.10 MIMO operation with non-MIMO coexistence in HSDPA

10.2.10.1 Core part [New WI: 490023, MIMO_HSDPA-Core, 03/2011]

RP-101089	Status report for WI Core part: MIMO operation with non-MIMO coexistence in HSDPA, rapporteur: Qualcomm Inc	RAN4	Report

Status: approved

10.2.10.2 Performance part [480122, MIMO_HSDPA-Perf, 12/2010 (to be corrected to 06/2011)]

RP-101090	Status report for WI Perf. part: MIMO operation with non-MIMO coexistence in HSDPA, rapporteur: Qualcomm Inc	RAN4	Report

Status: revised in 1393

RP-101393	Status report for WI Perf. part: MIMO operation with non-MIMO coexistence in HSDPA, rapporteur: Qualcomm Inc	RAN4	Report

Completion level: 60%

Completion date: June 2011

Error In the document: Completion level should be June.

Status: Approved

10.2.11 Automatic Neighbour Relation (ANR) for UTRAN

10.2.11.1 Core part [480120, ANR_UTRAN-Core, 12/2010]

RP-101091	Status report for WI Core part: Automatic Neighbour Relation (ANR) for UTRAN, rapporteur: ZTE	RAN3	Report

Discussion:
Qualcomm: What happened in the RAN2 is hands up and not a vote and would like to have the mention to this removed.
Nokia: same understanding as Qualcomm.

Typo: Completion level for RAN#49 should be Dec 2010.

Revised to capture these

Status: revised in RP-101410

RP-101410	Status report for WI Core part: Automatic Neighbour Relation (ANR) for UTRAN, rapporteur: ZTE	RAN3	Report

Completion level: 55%

Completion date March 2011

Status: approved

10.2.12 Enhancements of Iur-g interface – RAN part

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10.2.12.1 Core part [New WI: 490021, EIurg-RAN, 03/2011]

RP-101092	Status report for WI Core part: Enhancements of Iur-g interface – RAN part, rapporteur: ZTE	RAN3	Report

Discussion:

Extension date needs to be June (GERAN2 is meeting after the next two RAN3 meetings)
(To be reported to SA)

Status: noted (completion date is set to June)

RP-101034	LS on Enhancements of Iur-g interface (G2-100386; to: RAN2, RAN3; cc: RAN, GERAN; contact: ZTE)	GERAN2	LSin

Status: noted

RP-101041	Reply LS to G2-100386 = RP-101034 on Enhancements of Iur-g interface (R3-103757; to: GERAN2; cc: RAN2, RAN, GERAN; contact: ZTE)	RAN3	LSin

Status: noted

RP-101178	LS on Enhancements of Iur-g interface	TSG GERAN WG2	LSin

Status: noted

RP-101232	Revised WID for Enhancements of Iur-g interface – RAN part	ZTE	WID

Discussion:
RAN3 chair: Reduction of the scope was decided by GERAN.

Status: approved

10.2.13 Interfrequency detected set measurements for UMTS

[New WI: 490022, Interf_dset_meas_UMTS, 12/2010]

RP-101093	Status report for WI Interfrequency detected set measurements for UMTS, rapporteur: Nokia	RAN2	Report

Completion level: 100%

→ WI closed
Status: approved

RP-101220	RAN2 CR on Introduction of detected set measurements and reporting for Inter-frequency	RAN2	CR	Interf_dset_meas_UMTS

Discussion:
Telecom Italia: has concerns to approve the CRs if the document in 1394 is not approved as some important pieces will be missing.

Nokia: this is another aspect and another enhancement thus this should be considered as a separate work item.

Motorola: we should not link the approval of the CRs to the approval of a new WI.

RIM: supports Motorola's as there is no one is challenging the content of the CRs.

NSN: also agrees.

RAN4 chairman: looking at the supporting companies listed in the updated WID in 1394, should we assume that these companies will be active and participate the this work?
Qualcomm: as this is a revision of the existing WID, if we remove the supporting companies we will have the some issue as this may mean that some companies are not supporting the initial scope any more.

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NSN: NSN is listed but was not contacted or included in the discussion and wondering if this the situation of other companies

NTT Docomo: does not support the extension.

Status: approved

RP-101355	CRs for Interfrequency detected set measurements for UMTS	RAN4	CR	Interf_dset_meas_UMTS

Status: approved

RP-101300	Revised WID for Interfrequency Detected Set Measurements for UMTS	Qualcomm Incorporated	WID

Status: revised in RP-101394

RP-101394	Revised WID for Interfrequency Detected Set Measurements for UMTS	Qualcomm Incorporated	WID

Status: Noted (Extension not approved)

10.3 Open UTRA & LTE related WIs

10.3.1 UMTS/LTE 3500 MHz [380073, RInImp8-UMTSLTE3500, 12/2010]

RP-101094	Status report for WI UMTS/LTE 3500MHz, rapporteur: Ericsson	RAN4	Report

Completion level: 75%

Completion date Extended to March

Status: approved

RP-101278	UMTS/LTE 3500 MHz CRs	RAN3	CR	RInImp8-UMTSLTE3500

Status: approved

RP-101356	CRs for UMTS/LTE 3500 MHz	RAN4	CR	RInImp8-UMTSLTE3500

Status: approved

10.3.2 Minimization of drive tests for E-UTRAN and UTRAN

10.3.2.1 Core Part [460103, MDT_UMTSLTE-Core, 12/2010]

RP-101095	Status report for WI Core part: Minimization of drive tests for E-UTRAN and UTRAN, rapporteur: Nokia Siemens Networks	RAN2	Report

Completion level: 85%

Extension date to march

Status: approved

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RP-101221	RAN2 CRs on Core part: Minimization of Drive Tests for E-UTRAN and UTRAN	RAN2	CR	MDT_UMTSLTE-Core

Company contribution to replace R2-106937 in RP-101183

Discussion:

CR 476r3 (R2-106937) is not approved

Status: Partially approved

RP-101183	36.331 CR on Introduction of Minimization of Drive Tests	Nokia Siemens Networks, Nokia Corporation	CR	MDT_UMTSLTE-Core

Revision of R2-106937

Status: approved

RP-101162	TS 37.320 v2.0.0 on Radio measurement collection for Minimization of Drive Tests (MDT); Overall description; Stage 2	Nokia Siemens Networks	TS

Status: approved

10.3.3 HNB and HeNB Mobility Enhancements

10.3.3.1 Core part [470105, HNB_HENB_mob_enh-Core, 12/2010]

RP-101096	Status report for WI Core part: HNB and HeNB Mobility Enhancements, rapporteur: Alcatel-Lucent	RAN3	Report

Status: revised in 1418

RP-101418	Status report for WI Core part: HNB and HeNB Mobility Enhancements, rapporteur: Alcatel-Lucent	RAN3	Report

Discussion:

Completion level: 90 %

Completion date: March 2011 (Typo in the report)

Status: approved

RP-101222	RAN2 CR on Core part: HNB and HeNB Mobility Enhancements	RAN2	CR	HNB_HENB_mob_enh-Core

Status: approved

RP-101279	HNB and HeNB Mobility Enhancements CRs	RAN3	CR	HNB_HENB_mob_enh-Core

Status: approved

RP-101295	Presentation of Iurh Interface RNSAP User Adaption signalling Specification	Alcatel-Lucent	TS

Status: Revised in RP-101367

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RP-101367	Presentation of Iurh Interface RNSAP User Adaption signalling Specification	Alcatel-Lucent	TS

Status: withdrawn

RP-101242	Update to WI HNB and HeNB Mobility Enhancements	Alcatel-Lucent	WID

Discussion:
New TS number allocated 25. 471

RAN chair: Correct the time line for the stage 3 for 3G should be changed to RAN#51

Status: revised in RP-101426

RP-101426	Update to WI HNB and HeNB Mobility Enhancements	Alcatel-Lucent	WID

Status: approved

Way forward after offline discussion:

RP-101411	Way forward on HNB-to-HNB optimized mobility	RAN3 Chairman	Approval

Status: approved

No vote is needed

10.3.3.1.1 Voting about HNB Mobility Enhancements

Note: In case RAN3 #70 can not agree on one alternative, a voting will take place at RAN #50.

RP-101249	The handling of Intra HNB-GW HNB-HNB mobility	NEC	Disc

Status: revised in RP-101383

RP-101383	The handling of Intra HNB-GW HNB-HNB mobility	NEC	Disc

Status: noted

RP-101250	The Intra HNB-GW HNB-HNB mobility	NEC	Disc

Status: revised in RP-101384

RP-101384	The Intra HNB-GW HNB-HNB mobility	NEC	Disc

Status: noted

RP-101251	The Intra HNB-GW HNB-HNB mobility option	NEC	Disc

Status: revised in RP-101385

RP-101385	The Intra HNB-GW HNB-HNB mobility option	NEC	Disc

Discussion:
ALU: We have a curiousity question about some of the supporting companies (i.e. GENBAND, ARGELA). Some of them we never heared about.

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NEC: These are members of 3GPP

Status: Noted

RP-101243	Summary of RANAP and RNSAP HNB mobility solutions	Alcatel-Lucent	Disc

Status: Noted

RP-101378	Response document to RP-101249, RP-101250, RP-101251	Alcatel-Lucent, Nokia Siemens Networks	Disc

Discussion:

NEC: if we go for this solution the aim of choosing one solution will not be fulfilled as this solution itself is a two options from which we need to choose. If the aim is one solution

NSN: for HBN there is only one implementation possible. And this gives flexibility based on the deployment.

Status: Noted

Way Forward: offline discussion trying to find a compromise.

RP-101187	Technically endorsed CR package for the RANAP option	RAN3	CR	HNB-HENB_mob_enh

R3-103517 is not approved. R3-103516 was revised to RP-1407 and approved

Status: noted

RP-101188	Technically endorsed CR package for the RNSAP option	RAN3	CR	HNB-HENB_mob_enh

Status: approved

RP-101368	Additional messages to support HNB-HNB HO in HNBAP	Alcatel-Lucent, Huawei, Nokia Siemens Networks, Alcatel-Lucent Shanghai Bell	CR	HNB-HENB_mob_enh

Status: withdrawn

RP-101369	Additional IEs needed to support optimized HNB-HNB mobility.	Alcatel-Lucent, Huawei, Nokia Siemens Networks, Alcatel-Lucent Shanghai Bell	CR	HNB-HENB_mob_enh

Status: withdrawn

RP-101407	RANAP Solution for HNB to HNB mobility	NEC	CR

Status: approved

10.3.4 Expanded 1900 MHz Band for UTRA and LTE

10.3.4.1 Core part [480124, E1900-Core, 12/2010]

RP-101097	Status report for WI Core part: Expanded 1900 MHz Band for UTRA and LTE, rapporteur: Sprint	RAN4	Report	E1900-Core

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Completion level: 20%

Completion date march 2011

Discussion:

RAN4 chair: looking at the remaining issues we need to keep on hold the CRs until next plenary meeting.

Status: approved

RP-101223	RAN2 CRs on Core part: Expanded 1900 MHz Band for UTRA and LTE	RAN2	CR	E1900-Core

Status: postponed

RP-101280	Expanded 1900 MHz Band for UTRA and LTE CRs	RAN3	CR	E1900-Core

Status: postponed

RP-101357	CRs for Expanded 1900 MHz Band for UTRA and LTE, Core part	RAN4	CR	E1900-Core

Status: postponed

10.3.4.2 Performance part [480224, E1900-Perf, 12/2010]

RP-101098	Status report for WI Perf. part: Expanded 1900 MHz Band for UTRA and LTE, rapporteur: Sprint	RAN4	Report

Completion level: 20%

Completion date March 2010

Status: approved

10.3.5 Multi-standard radio BS RF requirements for non-contiguous spectrum deployments

RP-101261	Revised WI sheet on Multi-standard radio BS RF requirements for non-contiguous spectrum deployments	Telecom Italia, Ericsson, Telefonica	WID

Status: revised in RP-101402

RP-101402	Revised WI sheet on Multi-standard radio BS RF requirements for non-contiguous spectrum deployments	AT&T, Detusch Teleko, Ericsson, Huawei, Nokia Seimens Networks, Orange, Telecom Italia, Telefonica, TeliaSonera	WID

Status: approved

10.3.5.1 Core part [480125, MSR_NC-Core, 03/2011]

RP-101099	Status report for WI Core part: Multi-standard radio Base Station RF requirements for non-contiguous spectrum deployments, rapporteur: Ericsson	RAN4	Report

Completion level: 30%

Completion date March 2010

Status: approved

RP-101043	LS on Status of the MSR-NC work item (R4-104789; to:	RAN4	LSin

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	GERAN1; cc: RAN; contact: Ericsson)		

Status: noted

RP-101180	Reply to “LS on Status of the MSR-NC work item”	TSG GERAN WG1	LSin

Status: noted

10.3.5.2 Performance part [480225, MSR_NC-Perf, 09/2011]

RP-101100	Status report for WI Perf. part: Multi-standard radio Base Station RF requirements for non-contiguous spectrum deployments, rapporteur: Ericsson	RAN4	Report

Completion level: 0%

Completion Date: Sept. 2011

Status: approved

10.3.6 RAN mechanisms to avoid CN overload due to Machine-Type Communications

[New WI: 490024, NIMTC-RAN_overload, 03/2011]

RP-101101	Status report for WI RAN mechanisms to avoid CN overload due to Machine-Type Communications, rapporteur: Huawei	RAN2	Report	NIMTC-RAN_overload

Completion level: 50%

Completion Date: March 2011

Discussion:

NTT Docomo: Docomo had concerns about approving this WI but Scope for rel-10 was limited (after joint session in Jacksonville) and now it is feasible for March.

RAN2 chair: we need to ask SA that the scope for rel-11 should be realistic.

Status: approved

RP-101224	RAN2 CR on RAN mechanisms to avoid CN overload due to Machine-Type Communications	RAN2	CR	NIMTC-RAN_overload

Status: approved

10.4 Open LTE related WIs

10.4.1 Network-Based Positioning Support for LTE [430011, LCS_LTE-NBPS, 03/2011]

RP-101102	Status report for WI Network-Based Positioning Support for LTE, rapporteur: TruePosition	RAN2	Report

Completion level: 50%

Completion date: March 2011

Status: approved

RP-101307	LS on Summary of UTDOA Evaluation in RAN1	RAN1	LSin

Status: noted

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RP-101239	Network-Based Positioning Support in LTE	TruePosition	Disc

Status: noted

RP-101298	Way Forward for Network-Based Positioning for LTE	Alcatel-Lucent, Alcatel-Lucent Shanghai Bell	Discussion

Discussion:
TruePosition: agree with the majority of the document.
- some of the Impacts listed in the document would depend on the architecture agreement so not all of them will be required, this some thing that need to be investigated.
- has concerns with the indication of the difference of impact between SRS and SPS based solutions. True position believes SRS and SPS are both beneficial.
Results in hybrid are very good and this is important for the carriers especially if FCC requirements changes in the future.
- SRS also has some impacts: capacity and some more necessary retransmissions.
- Does not mind seeing a prioritization of SRS over SPS but would like to see SPS not excluded.
→ so proposal is that SPS stays in and only mention that SRS is prioritize over SPS.
→ would like to have indicated that SRS support is prioritized in rel-11 over SPS.

Qualcomm: Generally ok with ALU's proposed way forward.
- Regarding Trueposition's proposal: Discussion in last ran2 meeting showed that there are technical issues associated with using SPS that would require further technical discussion before to decide whether to include it.
- Technical decision has not yet been taken in the WGs and for the plenary to decide on whether SPS is to be included should be evaluated on technical evidence.

Trueposition: it is true there ongoing discussion to take, however RAN2 indicated that they can support SPS and we have seen the benefits in RAN1 especially the hybrid SRS+SPS.
- normal flow as for other positioting methods is that RAN1 evaluates and that RAN2 and RAN3 show the support which has been done and RAN2 showed that this can be support so does not understand we are still discussing further before we go ahead and agree that we can support SPS.

Andrew Corp.: Supports the proposal from ALU.
- It has been show that SRS meets the requirements and there is no requirements for the demodulation which means that there is no impact on the relation measurement when the demodulation performance degrades.
- Think it can be done is rel-10 but then if very one is happy with it in rel-11 then ok.

Chairman: decide first on the release.

→ WI will be continued as release 11 work item.

ALU: issues are:
ALU: there are issues with SPS based method:
- Scheduler impact: we need to evaluate in the RAN2 to be sure of the impact in the scheduler depending on the architecture.
- Terminals don't have SPS even until now and it is not expected before some time. SRS method supports earlier releases.
- SRS has the support of wider range of companies.
- it is better to start with SRS based method now and if in the future we need more enhancements we can of course do so.

Chairman: SPS is a tricky feature now and we will discuss the mandatory/optional support of SPS in the March meeting.

Trueposition: - does not agree that there is an impact on the scheduler.
- it was decided to have the WI in rel-11, thus by the time this is specified SPS will be available and got wide spread.
- willing to compromise by the prioritization of SRS over SPS but would like to. So would like to have agreement that there will SRS and SPS supported at some point on time.

RAN2 chair: in RAN2 we saw a difference between best effort SPS and real (i.e. full) SPS and it is full SPS that may have impact on the scheduler. For best effort SPS there is not much complexity (this is the conclusion from RAN2). Best effort SPS does not get all the benefit as we don't know for how long the SPS configuration will be valid.

Qualcomm: - it is difficult to make a fair comparison based on the information we have. In the case where it is possible to compare there are differences but not to make obvious best effort will perform equally well.
- Plenary does not have the necessary information from the WG to decide on one.

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Ericsson: SRS based method can fulfil the requirements. It is good outcome of this work to have shown that and demonstrating how UTDOA will perform in different cases.
- on the choice, inline with ALU and Andrew that we can do pretty well with SRS based method.
- Regarding the future FCC requirements, we need to wait and see and then at that moment decide. No strong reason to do more than what the minimum requirements are now and this fulfilled by SRS based method.

TruePosition: SPS simulations were run by several companies. It generally shows fair accuracy, in some cases excellent accuracy. Do not understand how we could imply that adding together the benefits from SRS and SPS will fail to do better on accuracy than what we are showing.
- would like to have SPS best effort be considered for now and if in some point in the future we can show an improvement on accuracy that would justify the support of full SPS than this will be a good thing but for the time being would like just to have SPS best effort included.
- no objection to move forward with SRS, just want to have SPS included too.

ALU: study in RAN1 didn't consider the SPS best effort so far.

NSN: SRS based method is preferable as this is supported by all the devices as up to today and also the issue of the supposed impact on the scheduler.

Objection from TruePosition to not supporting SPS.

Status: noted

RP-101299	Network-Based Positioning Support for LTE	Alcatel-Lucent, Alcatel-Lucent Shanghai Bell	WID (update)

Discussion:

AT&T: would like to see phase 1 and phase 2 incorporated in the proposed WID modification for the release 11 as presented in the previous document.

The WI description only covers phase 1. Looking at the way forward we allow for enhancements in phase too and this is not specific so there are no objectives that we need to capture. Ao propose to approve the way forward and we need enhancement then we will come back and justify it.

Huawei: Is this an updated or a completely new WI proposal?
MCC: there is no change marks so it is difficult to see what was changed.
ALU: if this agreeable then can provide a version with the change marks and provide the performance part because it is not there.
E///: fine with the proposal as in the documents with the support of SRS. If we include phase 2 and others think that are not yet defined then will have some concerns approving the WI without knowing in which direction we are going.

Andrew: fine with the proposed WID.

TruePosition: fine with progressing with SRS but **have Objection on not including SPS.**

Huawei: Would like to see the update and also to see who is supporting this WI finally.

AT&T: agree on the document in RP-101298 proposing a way forward with phase 1 and phase 2 this will provide a space holder for phase 2 and RP-101299 will be the specific WI description for the phase 1 portion only.

RAN3 chairman: time plan: first RAN2 with stage 2 and then RAN3 with stage 3. if RAN2 provides stage 2 by RAN52, then RAN3 will have only one meeting to produce its part.
→ would like to see all RAN3 aspects completed by RAN54#.

ALU: reasonable request. Will update the schedule in the revised version.

RAN4 chairman: similar comment for the performance part, RAN4 will start the work after RAN2 and RAN3 finished the work for stage 2 and 3. Performance part WID to be provided later

Status: revised in RP-101414

RP-101414	Network-Based Positioning Support for LTE	Alcatel-Lucent, Alcatel-Lucent Shanghai Bell	WID (update)

E///: extra wording to be incorporated:

- 1st sentence, we would like to have the word only added after LTE based

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- 4th and 5th bullet: And signalling “support”

- 3rd:bullet: reporting “delay”

- in the core part, the new 36.xxx is a TS not a TR. Can that be confirmed?

E///: The new specification will impact also New core requirements not only the performance and this should be clarified.

RAN3 Chair: RAN3 will wait for RAN2 to finish the stage 2 by RAN#52 then RAN3 will start the specification of stage3.

Revised to capture these changes.

Status: revised in RP-101442

RP-101442	Network-Based Positioning Support for LTE	Alcatel-Lucent, Alcatel-Lucent Shanghai Bell	WID (update)

Status: revised in RP-101444

RP-101444	Network-Based Positioning Support for LTE	Alcatel-Lucent, Alcatel-Lucent Shanghai Bell	WID (update)

TruePosition: understanding right now is that Stage 2 done in RAN2 and stage 3 done RAN3. would like to confirm that.

RAN2 chair: yes can confirm this. But we can still discuss until March (as until march we won’t work on this) and then decide in march which groups is going to do the stage 2 work.

Status: Revised in 1446

RP-101446	Network-Based Positioning Support for LTE	Alcatel-Lucent, Alcatel-Lucent Shanghai Bell	WID (update)

Status: Approved

10.4.2 Fixed Wireless Customer-Premises Equipment (CPE) RF Requirements

10.4.2.1 Core part [460110, FW_CPE_RF-Core, 03/2011]

RP-101103	Status report for WI Core part: Fixed Wireless Customer-Premises Equipment (CPE) RF Requirements, rapporteur: Verizon	RAN4	Report

Completion level: 50%

Completion date: March 2011

Status: approved

10.4.2.2 UE conformance testing part [460210, FW_CPE_RF-UEConTest, 06/2011]

All Tdocs related to 10.4.2.2 will be treated under 9.2.

10.4.3 Enhanced Downlink Multiple Antenna Transmission for LTE

10.4.3.1 Core part [460108, LTE_eDL_MIMO-Core, 12/2010]

RP-101104	Status report for WI Core part: Enhanced Downlink Multiple Antenna Transmission for LTE, rapporteur: NTT DOCOMO	RAN1	Report	LTE_eDL_MIMO-Core

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Completion level: 95%

Completion date extended to March 2011.

Status: Approved

RP-101290	Introduction of Carrier aggregation and UL/DL MIMO	Renesas Technology Europe, Nokia Corporation, Nokia Siemens Networks	CR	LTE_CA-Core, LTE_UL_MIMO-Core, LTE_eDL_MIMO-Core

This is the counter proposal to 1267 and 1268.

Discussion:

RIM: comments in the reflector (supported also by two other companies) were not captured in this final version of the CR.

RIM: remove the entries in the table referred to in the reflector.

ALU: there are some more aspects to be covered as well.
First have a complete discussion on UE capabilities then have the CRs for this approved.
Proposal: approve the UE categories part this meeting and come back to the capabilities when discussion is concluded.

Samsung: CRs are not complete

Nokia: does not agree with only including UE categories.

NTT: would like to have at least UE categories agreed in this meeting. It is not critical to approve the capabilities in this meeting. But ok to approve the parts from Nokia also.

Mediatek: proposal from Nokia is a Good baseline.

1429 was approved

Status: withdrawn

RP-101291	UE capability signaling for CA and MIMO in REL10	Renesas Technology Europe, Nokia Corporation, Nokia Siemens Networks	CR	LTE_CA-Core, LTE_UL_MIMO-Core, LTE_eDL_MIMO-Core

Status: withdrawn

RP-101358	CRs for Enhanced Downlink Multiple Antenna Transmission for LTE, Core part	RAN4	CR	LTE_eDL_MIMO-Core

Status: approved

10.4.3.2 Performance part [460208, LTE_eDL_MIMO-Perf, 06/2011]

RP-101105	Status report for WI Perf. part: Enhanced Downlink Multiple Antenna Transmission for LTE, rapporteur: NTT DOCOMO	RAN4	Report

Completion level: 10%

Completion date: June 2011

Status: approved

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10.4.4 UL multiple antenna transmission for LTE

10.4.4.1 Core part [460109, LTE_UL_MIMO-Core, 12/2010]

RP-101106	Status report for WI Core part: UL multiple antenna transmission for LTE, rapporteur: Huawei	RAN1	Report	LTE_UL_MIMO-Core

Completion level: 85%

Completion date: March 2011

Status: approved

RP-101225	RAN2 CR on Core part: UL multiple antenna transmission for LTE	RAN2	CR	LTE_UL_MIMO-Core

Status: approved

10.4.4.2 Performance part [460209, LTE_UL_MIMO-Perf, 06/2011]

RP-101107	Status report for WI Perf. part: UL multiple antenna transmission for LTE, rapporteur: Huawei	RAN4	Report

Completion level: 25%

Completion date: June 2011.

Status: approved

10.4.5 Carrier Aggregation for LTE

10.4.5.1 Core part [460107, LTE_CA-Core, 12/2010]

RP-101108	Status report for WI Core part: Carrier Aggregation for LTE, rapporteur: Nokia	RAN1	Report	LTE_CA-Core

Completion level: 85%

Completion date:

Discussion:

Status: revised in RP-101406

RP-101406	Status report for WI Core part: Carrier Aggregation for LTE, rapporteur: Nokia	RAN1	Report	LTE_CA-Core

Completion level: 85%

Completion date: March 2011.

Discussion:

- The rapporteur has been changed

- completion date to be corrected in the document.

Revised to capture the new date and rapporteur.

Status: revised in 1415

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RP-101415	Status report for WI Core part: Carrier Aggregation for LTE, rapporteur: Nokia	RAN1	Report	LTE_CA-Core

Status: approved

RP-101320	Set of CRs for the introduction of Rel-10 features	RAN WG1	CR	LTE_CA-Core, LTE_eDL_MIMO-Core, LTE_UL_MIMO-Core

Status: approved

RP-101226	RAN2 CRs on Core part: Carrier Aggregation for LTE	RAN2	CR	LTE_CA-Core

Status: approved

RP-101227	RAN2 CR on multiple work items: Core part: Carrier Aggregation for LTE, Core part: UL multiple antenna transmission for LTE, Core part: Enhanced Downlink Multiple Antenna Transmission for LTE	RAN2	CR	LTE_CA-Core, LTE_UL_MIMO-Core, LTE_eDL_MIMO-Core

Status: approved

RP-101359	CRs for Carrier Aggregation for LTE, core part	RAN4	CR	LTE_CA-Core

Status: approved

RP-101267	Inclusion of new UE categories in Rel-10	Ericsson, ST-Ericsson	CR	LTE_CA-Core, LTE_UL_MIMO-Core, LTE_eDL_MIMO-Core

Discussion:

Renesas: Has a counter proposal in 1290 and 1291. (Discussion is capture in the agenda item corresponding to these two CRs)

Status: revised in 1429

RP-101429	Inclusion of new UE categories in Rel-10	Ericsson, ST-Ericsson, Renesas Technology Europe, Nokia Corporation, Nokia Siemens Networks	CR	LTE_CA-Core, LTE_UL_MIMO-Core, LTE_eDL_MIMO-Core

Status: approved

RP-101268	Inclusion of new UE categories in Rel-10	Ericsson,	CR	LTE_CA-Core, LTE_UL_MIMO-Core, LTE_eDL_MIMO-Core

Discussion:

Same situation as 1269

RIM: willing to approve the CR but would like to have some understanding the some Values might be revisited in RAN2.

Status: approved

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10.4.5.2 Performance part [460207, LTE_CA-Perf, 06/2011]

RP-101109	Status report for WI Perf. part: Carrier Aggregation for LTE, rapporteur: Nokia	RAN4	Report

Discussion:

Rapporteur changed

Status: revised in RP-101416

RP-101416	Status report for WI Perf. part: Carrier Aggregation for LTE, rapporteur: Nokia	RAN4	Report

Status: approved

RP-101163	TR 36.808, V1.0.0 on Carrier Aggregation Base Station (BS) radio transmission and reception	Nokia Siemens Networks	Information	LTE_CA-Core

Status: noted

10.4.6 Relays for LTE

RP-101262	Updated Relay WI Description	Ericsson	WID

Status: revised in RP-101417

RP-101417	Updated Relay WI Description	Ericsson	WID

Status: approved

10.4.6.1 Core part [460113, LTE_Relay-Core, 12/2010]

RP-101110	Status report for WI Core part: Relays for LTE, rapporteur: Ericsson	RAN1	Report

Completion level: 65%

Completion date Extension to June 2010

Discussion:

Telecom Italia: suggest to maintain the completion date to March and then verify in March if an extension is required. we should not give a contradictory message to SA, saying (in the expected LS to be sent to SA and SA3) that RAN is practically ready and then say that the WI can not be closed before June 2011.

E///: Rapporteur pointed that the work can not be finished before June.

MCC: WI in SA3 coming next week for this feature. This may delay the completion in RAN.

SA Chairman: we need to be realistic and keep the target that that reflects that.

E///: according to rapporteur: RAN1, 2 and 3 can finish the work by March (except from the security aspects).

RAN chairman: June as overall deadline and for RAN1, 2 and 3 the deadline is March → only RAN4 has a deadline set to June.

RAN4: ITU-R submission and the issue of having the RAN4 TS available.

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Marc (AT&T): it is acceptable for ITU-R to have the performance part not ready at the submission point.

Regarding the possible Conflicting CRs with SA3?

Ran2 chair: we can approve all the CRs except the one in R2-106970
NSN: would like to have all the integrity CRs approved as a package.

Telecom Italia: we should inform SA that RAN developed a solution and is agreeable by RAN and that RAN is awaiting feedback from SA3.

LS was already sent by RAN2 informing SA3 and SA that RAN2 is working on CRs for PDCP relay nodes and that SA3 needs to inform RAN2 on the outcome of the work in SA3.

→ The LS will be presented to SA by RAN chairman.

Status: noted

RP-101035	LS on Relay Node Security (SP-100627; to: SA3; cc: RAN, RAN2, RAN3, CT, CT1, CT4; contact: Vodafone)	SA	LSin

Status: noted

RP-101321	CR to 36.216 for Rel-10 Relay feature	RAN WG1	CR	LTE_Relay-Core

Status: approved

RP-101228	RAN2 CRs on Core part: Relays for LTE	RAN2	CR	LTE_Relay-Core

Discussion:

All CRs are approved except R2-106970

R2-106970 is technically endorsed and is postponed pending feedback from SA3

Status: partially approved **(**All except R2-106970)

RP-101281	Relays for LTE CRs	RAN3	CR	LTE_Relay-Core

Status: approved

10.4.6.2 Performance part [460213, LTE_Relay-Perf, 03/2011]

RP-101111	Status report for WI Perf. part: Relays for LTE, rapporteur: Ericsson	RAN4	Report

Completion level: 5%

Completion date extended to September 2011

Status: approved

10.4.7 Latency reductions for LTE

10.4.7.1 Core part [460112 LTE_LATRED-Core, 12/2010; WI on hold until 12/2010]

RP-101112	Status report for WI Core part: Latency reductions for LTE, rapporteur: Ericsson	RAN2	Report

Status: approved

RP-101266	Way forward with latency reductions for LTE	Ericsson, ST-Ericsson	Disc

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WI is stopped

Status: approved (Work Item is stopped)

10.4.8 Enhanced ICIC for non-CA based deployments of heterogeneous networks for LTE

RP-101234	Updated WID: Enhanced ICIC for non-CA based deployments of heterogeneous networks for LTE	CMCC	WID

Status: withdrawn

10.4.8.1 Core part [470107, eICIC_LTE-Core, 12/2010]

RP-101113	Status report for WI Core part: Enhanced ICIC for non-CA based deployments of heterogeneous networks for LTE, rapporteur: CMCC	RAN1	Report	eICIC_LTE-Core

Status: revised in RP-101400

RP-101400	Status report for WI Core part: Enhanced ICIC for non-CA based deployments of heterogeneous networks for LTE, rapporteur: CMCC	RAN1	Report	eICIC_LTE-Core

Discussion:

Texas Instrument: regarding the Open issues, there was email discussion in the reflector that there is different interpretation about the Collision handling. First issue is to clarify this between companies.

Status: Approved

RP-101229	RAN2 CRs on Core part: Enhanced ICIC for non-CA based deployments of heterogeneous networks for LTE	RAN2	CR	eICIC_LTE-Core

Discussion:

Status: approved

RP-101282	Enhanced ICIC CRs	RAN3	CR	eICIC_LTE-Core

Discussion:

Status: postponed

10.4.8.2 Performance part [470207, eICIC_LTE-Perf, 06/2011]

RP-101114	Status report for WI Perf. part: Enhanced ICIC for non-CA based deployments of heterogeneous networks for LTE, rapporteur: CMCC	RAN4	Report

Completion level: 20%

Completion date: June

Discussion:
E///: completion date of September is more realistic

Chairman: ITU-R submission schedule. June version will be transposed by POs and submitted to ITU-R.

Status: approved (Completion date: June)

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10.4.09 Adding 2 GHz band LTE for ATC of MSS in North America

RP-101192	Updated Work Item Description for S_Band_LTE_ATC_MSS	DBSD, Terrestar Networks	WID

Status: revised in RP-101401

RP-101401	Updated Work Item Description for S_Band_LTE_ATC_MSS	DBSD, Terrestar Networks	WID

Status: approved

10.4.09.1 Core part [470109, S_Band_LTE_ATC_MSS-Core, 12/2010]

RP-101115	Status report for WI Core part: Adding 2 GHz band LTE for ATC of MSS in North America, rapporteur: TerreStar Networks	RAN4	Report	S_Band_LTE_ATC_MSS-Core

Completion level: 80%

Completion date: March 2011

Discussion:

RAN4: looking to the open issue, proposes to postpone all the CRs for this WI.

Status: approved

RP-101283	2 GHz band LTE for ATC of MSS in North America CRs	RAN3	CR	S_Band_LTE_ATC_MSS-Core

Status: postponed

RP-101360	CRs for Adding 2 GHz band LTE for ATC of MSS in North America, Core part	RAN4	CR	S_Band_LTE_ATC_MSS-Core

Status: postponed

DBSD: Could we approve band 23 as the number for this band?

RAN4 chairman: RAN4 agreed the band numbering, but it is not formally approved as the CRs are postponed. The naming will be formal when CRs are approved.

10.4.09.2 Performance part [470209, S_Band_LTE_ATC_MSS-Perf, 06/2011]

RP-101116	Status report for WI Perf. part: Adding 2 GHz band LTE for ATC of MSS in North America, rapporteur: TerreStar Networks	RAN4	Report

Discussion:
Completion level: 10%
Completion date: June
Status: approved

10.4.10 Adding L-Band LTE for ATC of MSS in North America

RP-101193	Band 24(L-Band) impact on legacy devices using GPS	Sprint	Approval

Status: withdrawn.

RP-101284	Updated WID for the L_BAND_LTE_ATC_MSS WI	LightSquared	WID

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Status: approved

10.4.10.1 Core part [470110, L_Band_LTE_ATC_MSS-Core, 12/2010]

RP-101117	Status report for WI Core part: Adding L-Band LTE for ATC of MSS in North America, rapporteur: LightSquared	RAN4	Report	L_Band_LTE_ATC_MSS-Core

Discussion:
RAN4 chairman: Core part is completed so we can approve the CR, however as the stated report we should work for GPS issue. Ask rapporteur to represent a SR in the next plenary meeting.

RIM: is the impact will not be related to these CR but rather to the spec regarding GPS

RAN4 chair: Yes.

Completion level is 100% but WI is not closed.
Status: approved (WI is not closed)

RP-101184	Introduction of L-band in TS 25.466	LightSquared, Nokia Siemens Networks	CR	L_Band_LTE_ATC_MSS-Core

Status: approved

RP-101361	CRs for Adding L-Band LTE for ATC of MSS in North America, core part	RAN4	CR	L_Band_LTE_ATC_MSS-Core

Status: approved

RP-101285	TR 36.813 “Adding L-Band LTE for ATC of MSS in North America”, version 2.0.0	LightSquared	TR	L_BAND_LTE_ATC_MSS

Status: approved

10.4.10.2 Performance part [470210, L_Band_LTE_ATC_MSS-Perf, 06/2011]

RP-101118	Status report for WI Perf. part: Adding L-Band LTE for ATC of MSS in North America, rapporteur: LightSquared	RAN4	Report	L_Band_LTE_ATC_MSS-Perf

Discussion:
Completion level: 15 %
Completion date: June

Status: approved

RP-101362	CRs for Adding L-Band LTE for ATC of MSS in North America, performance part	RAN4	CR	L_Band_LTE_ATC_MSS-Perf

Discussion:
RAN4 chairman: even it the completion level is only 15% and this CR is for Conformance test, content is reflecting the agreement in the core.

Status: approved

10.4.11 LTE Self Optimizing Networks (SON) enhancements

10.4.11.1 Core part [470111, SONenh_LTE-Core, 12/2010]

RP-101119	Status report for WI Core part: LTE Self Optimizing Networks (SON) enhancements, rapporteur: Nokia Siemens Networks	RAN3	Report	SONenh_LTE-Core

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Completion level: 80%

Completion date: March 2011

Status: approved

RP-101230	RAN2 CRs on Core part: LTE Self Optimizing Networks (SON) enhancements	RAN2	CR	SONenh_LTE-Core

Status: approved

RP-101304	LTE SON enhancements CRs	RAN3	CR	SONenh_LTE-Core

Status: approved

10.4.12 LTE-Advanced Carrier Aggregation of Band 3 and Band 7

10.4.12.1 Core part [480123, LTE_CA_B3_B7-Core, 12/2011; WI on hold until 12/2010]

RP-101120	Status report for WI Core part: LTE-Advanced Carrier Aggregation of Band 3 and Band 7, rapporteur: TeliaSonera	RAN4	Report

Completion level: 0%

Completion date: Dec. 2011

Discussion:

Chair: When to start the work? Can the completion date be maintained?

RAN4 chair: reserved agenda in the January. Do our best to
Completion date maintained

Status: approved

10.4.12.2 Performance part [480223, LTE_CA_B3_B7-Perf, 12/2011]

RP-101121	Status report for WI Perf. part: LTE-Advanced Carrier Aggregation of Band 3 and Band 7, rapporteur: TeliaSonera	RAN4	Report

Completion date maintained

Discussion:

Status: approved

10.4.13 Further enhancements to MBMS for LTE

RP-101244	Revised WID: Further enhancements to MBMS for LTE	Huawei	WID

Status: approved

10.4.13.1 Core part [480127, MBMS_LTE_enh-Core, 12/2010]

RP-101122	Status report for WI Core part: Further enhancements to MBMS for LTE, rapporteur: Huawei	RAN2	Report	MBMS_LTE_enh-Core

Completion date: March.

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Discussion:

NSN: what is the scope of the work in the WI in hold is to be discussed in March.

Status: approved

RP-101231	RAN2 CRs on Core part: Further enhancements to MBMS for LTE	RAN2	CR	MBMS_LTE_enh-Core

Discussion:
Stage-3 CR should not be approved.

All approved except from R2-106882

Status: Partially approved (R2-106882 is postponed)

10.4.14 Service continuity in connected mode and location information for MBMS for LTE

10.4.14.1 Core part [480126, MBMS_LTE_SC-Core, 06/2011; WI on hold until 12/2010]

RP-101123	Status report for WI Core part: Service continuity in connected mode and location information for MBMS for LTE, rapporteur: Huawei	RAN2	Report

Discussion:

Chairman: which start date for this WI?

NSN: complete the existing one and then open this one in March.

→ Start time is March.

→ Next plenary discuss the scope of this Work Item (maybe a new WID in the next plenary meeting)

Status: approved

11 Study Items

11.1 Study on Measurement of Radiated Performance for MIMO and multi-antenna reception for HSPA and LTE terminals

[430020, FS_HSPA_LTE_measRP_MIMO_multi-antenna, 12/2010]

RP-101124	Status report for SI Study on Measurement of Radiated Performance for MIMO and multi-antenna reception for HSPA and LTE terminals, rapporteur: Vodafone	RAN4	Report

Significant discussion during RAN4 meeting and in the reflector, but there is still no consensus on the completion level, the completion date and the open issue

Discussion:

AT&T: - it is stated that the time required is the time needed for the LTE measurement campaign and a reference to the terminal issues. But the main reason why there is the actual ongoing discussion is because that a measurement technique is not agreed on in the the RAN4.
- There was a leaning toward a 60% completion level in RAN4.
- A lot of time will be need to complete the work item. At the minimum there is a need of a 6 months extension: not only because of the terminal availability as pointed out by Vodafone but more especially because the technique to be used is not agreed yet.

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Motorola: - report does not give enough details to explain what the issue are and why there is a delay. RAN needs to get more details on this issues.
- there are two aspects in this report: one HSDPA Rx Div testing and the other is the LTE MIMO. Round robin testing of HSPA terminals was performed and that's a good thing. We can see that different labs are given the same results but we didn't agree what the throughput numbers are, and the discussion on this can very complex. So until we now these valus we can not set the requirements. More time is required to complete this area.
- LTE MIMO is more complex.
- we need to separate the two aspects.
- if we don't get this right, we are committing to a test system scenario difficult to change in the future. So we need to Do it slowly and good rather than rush to complete the work.

Vodafone: to AT&T, is by technique you mean methodology? If this is the case, the methodology is supposed to be the outcome of the study item.

AT&T: as an operator, we are interested on cost effective accurate technique/methodoly. And yes it is the outcome of the SI. But there is No progress so far.

After Offline discussion:

Vodafone: more offline discussion is needed including the RAN4 experts.

RAN4 chair: we still need sometime to conclude some thing. We should concentrate on defining the time plan and open issue. The problem is that in the technical discussions of MIMO-OTA every company is proposing its own time plan and their own open issues and none of them was agreed. We need further discussion regarding this in RAN4. Regarding the Completion level, in general in the past the guideline was to set a tentative date and review the situation by this date.
- Set a tentative date of 9 months and review the situation in RAN4 and report back to RAN in March.

Motorola: ok with the statement from the chairman. We need to keep in mind there are two issues, one is HSDPA and one is LTE MIMO. Defining the metric and throughput for HSPA will take 3 to 6 months. Then we didn't even started the round robin test for UL-MIMO and we don't even a work plan for this work.
- proposes to use a conservative approach and set the extension to 12 months and 60% completion level. Rapporteur to provide more detail SR for the next plenary.

Chairman: next meeting we need to clarify the scope of the SI and clarify the completion date.
- is it clear what RAN4 can do in the coming quarter ?

RAN4 Chair: we have an agreed way forward and a table has been implemented into the TR that captures all the candidate methodologies and each proponent will provide its measurement results. In next RAN4 meeting we will allocate some time to discuss the way forward and how to organise the timeplan of the WI and report back to RAN in March.

Chairman: proposal is to keep as it is, report back to RAN in the next plenary and review the situation in March.

Motorola: the problem to keep as it is there is a tendency to say we need to make a decision and conclude the work because RAN set the time plan to be 6 months. So this should be made very clear to delegates in RAN4 we keep as it is and this will be revisited in next RAN meeting.
Motorola: two separate issue: HSDPA and MIMO. For the moment we have one SI for both.

Sharp: the history if this SI is when started have is set a very tight deadline and try to fill every thing in the deadline and did not recognise the complexity of the work ahead. → Supporting the comment from Motorola. Set the deadline at December and decide the scope very quickly.

Vodafone: we need to finish this a soon as possible. It should be clear to RAN4 that this is an important issue for the operators that need to be finish as soon as possible.
→ go with the proposal from RAN4 chairman.

AT&T: - supports the comment from Edgar regarding the completion date.
- we cannot have 60-80% completion level. It needs to be a single value.

NTT: supports the comment by Vodafone. We need to finish this as soon as possible. HSDPA is close to completion, so in some sense the primary objective of this SI is achieved. And thinks that the issues for LTE MIMO can be solved with 3~4 months.

KDDI: support the view from RAN4 chairman that the date should be determined by RAN4. However understands the concern from Motorola that people will rush for conclusion so need to have guidance to avoid such situation.

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Orange: agrees with the recommendation from the RAN4 chairman, however does not want that the extension of the work to be more than 6 months. GCF is waiting for results for this ok to be finish as we already an LS from GCF about that.

Telecom Italia: should we send an LS to GCF?
Chairman: not sure RAN can provide such LS now. If needed then RAN4 can send this LS.

Vodafone: Operators are strongly requesting that this SI should be finished quickly.

ST-Ericsson: indication from the group is to have 60% (average of proposed levels).

Chairman:
- way forward is no change to the completion date (keep as it is), but the date will be revisited in the coming RAN meeting.
- Tentative number of 60% and this also will be revised in the next meeting.
(These are from a project management point of view, the actual numbers will be decided in the next RAN meeting)
- scope to be also agreed in the next meeting.

Status: noted

11.2 Study on Extending 850MHz [440016, FS_e850, 12/2010]

RP-101125	Status report for SI Study on Extending 850MHz, rapporteur: Ericsson	RAN4	Report

Completion level: 55%

Completion date: June

Status: approved

11.3 Study on RAN improvements for Machine-Type Communications [450015, FS_NIMTC_RAN, 12/2010, SI on hold until closing WI UID_490023 NIMTC-RAN_overload]

RP-101126	Status report for SI Study on RAN improvements for Machine-Type Communications, rapporteur: Huawei	RAN2	Report

Status: approved

11.4 Study on Coordinated Multi-Point Operation for LTE

[470014, FS_COMP_LTE, 06/2011; SI on hold until 12/2010]

RP-101127	Status report for SI Study on Coordinated Multi-Point Operation for LTE, rapporteur: Samsung	RAN1	Report

Discussion:
0%
SI restart starting from now.

Completion date: RAN#53

Status: noted

RP-101186	Revised SID Proposal: Coordinated Multi-Point Operation for LTE	Samsung	SID

Status: Revised in RP-101421

RP-101421	Revised SID Proposal: Coordinated Multi-Point Operation for LTE	Samsung	SID

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Discussion:

Motorola: Is there a scenario where Coordination between small cells is also covered?

Samsung: No intention to exclude this case.

Motorola: The header states coordination across layers. This may be understood as Exclude coordination within a layer.

→ Small cells are also part of this scenario.

AT&T: also support this. → add AT&T's name.
Telecom Italia: also supporting.
Also Texas instrument
Revised to capture the comment from Motorola and to add the supporting companies.

Status: Revised in RP-101425

RP-101425	Revised SID Proposal: Coordinated Multi-Point Operation for LTE	Samsung	SID

Status: approved

Editorial error in agreed CoMP SID (RP-101425): In a subbullet point of section 4 (copied below), the last sentence (highlighted by red and incomplete) should have not been there.

- Coordination between a cell(s) and the distributed RRHs connected to the cell(s): negligible latency is assumed over the interface between a cell(s) and the RRHs connected to the cell(s). The RRHs may or may not form separate cells from the cell to which they are connected. The coordination between amongst different

11.5 Study on Network Energy Saving for E-UTRAN [470015, FS_Energy_LTE, 12/2010]

RP-101128	Status report for SI Study on Network Energy Saving for E-UTRAN, rapporteur: CMCC	RAN3	Report

Discussion:

Completion date: March

Status: approved

RP-101235	Network Energy Saving for E-UTRAN - TR36.927 v1.0.0 for information	CMCC	Info

Status: noted

RP-101236	Updated SID: Network Energy Saving for E-UTRAN	CMCC	SID

Status: Withdrawn.

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11.6 Study on Improvements of distributed antenna for 1.28Mcps TDD

[470016, FS_distr_ant_LCR_TDD, 12/2010]

RP-101129	Status report for SI Study on Improvements of distributed antenna for 1.28Mcps TDD, rapporteur: ZTE	RAN1	Report

Status: Revised in RP-101287

RP-101287	Status report for SI Study on Improvements of distributed antenna for 1.28Mcps TDD, rapporteur: ZTE	RAN1	Report

100% completion level.

SI is closed

Status: approved

RP-101233	TR25.865 v1.0.0 on on Improvements of distributed antenna for 1.28Mcps TDD (Approval)	ZTE	TR

Few modifications following offline discussion

Status: Revised in 1286

RP-101286	TR25.865 v1.0.1 on on Improvements of distributed antenna for 1.28Mcps TDD (Approval)	ZTE	TR

Discussion:

Status: approved

11.7 Study on signaling and procedure for interference avoidance for in-device coexistence

[480028, FS_SPIA_IDC, 12/2010]

RP-101130	Status report for SI Study on signaling and procedure for interference avoidance for in-device coexistence, rapporteur: CMCC	RAN2	Report

Completion date : March

Status: approved

RP-101248	Study on signalling and procedure for interference avoidance for in-device coexistence - TR 36.816v1.0.0 for information	CMCC	Info

Status: Noted

RP-101237	Updated SID for signaling and procedure for interference avoidance for in-device coexistence	CMCC	SID

Status: withdrawn

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11.8 Closed study items

12 New Work Items/Study Items

12.1 New Work Items

RP-101191	Work item proposal: Conformance Test Aspects – Home eNB enhancements	Qualcomm Incorporated	WID	Rel-9

Discussion:

Status: approved

RP-101167	Work item proposal for E850 (Extending 850MHz) – Upper 850 MHz Band	Sprint, KDDI,LG Uplus , Ericsson, ST Ericsson, SiSilicon and Huawei	WID	Rel-10

Status: revised in 1381

RP-101381	Work item proposal for E850 (Extending 850MHz) – Upper 850 MHz Band	Sprint, KDDI,LG Uplus , Ericsson, ST Ericsson, SiSilicon and Huawei	WID	Rel-10

Discussion:

→ mainly ran4

Interested companies: Nokia, Qualcomm, Fujitsu, Alcatel Lucent, SkTelecom, Ericsson, ZTE, NTT Docomo.

RAN chairman: Completion date is March ?

RAN4 chair, Sprint: Most of the work was done in the SI, it is a matter of confirming and agreeing the CRs.

Telecom Italia: is there any thing needed to be changed from a RAN2 point of view?

RAN chair: minor changes: Only adding those new band to the signalling table.

LG uplus: co-signed the paper but is not included in the supporting companies.

Status: Revised to RP-101433

RP-101433	Work item proposal for E850 (Extending 850MHz) – Upper 850 MHz Band	Sprint, KDDI,LG Uplus , Ericsson, ST Ericsson, SiSilicon and Huawei	WID	Rel-10

Status: approved

NII holding: would like to have confirmed that we keep SI open and continue work in lower band as NII holding is planning to have a WID in the next meeting for the lower band.

RAN chairman: Study item completion date is June.

RP-101185	LTE Advanced Carrier Aggregation of Band 4 and Band 13	Verizon	WID	REL-10

Discussion:
→ Mainly ran4
Interested companies: Samsung, Motorola, LG, Nokia, Qualcomm, Alcatel Lucent, Ericsson.

→ Two more Supporting companies (LG and Samsung) to be added.

Orange: more than 20 inter band scenarios were proposed and understanding is that agreement in RAN was that no WI on bands scenarios will be open before March.

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RAN chair: requirements for new spectrum can/should be accepted. But discuss the time plan and start time in RAN4.

RAN4 chair man: we should consider the outstanding WI which was put in hold for the last 6 months. Expect to see about 10 more combinations coming, we need to consider the priority.

Chair: in total we have know three proposal: from TeliaSonera (on hold) + 2 new (from Verizon and from AT&T).
A lot of others to come in the next plenary and we need to keep the fairness between these proposals.

TelioSonera: the decision one year ago was to start with generic and then have each band combination as a separate WI. we should not block WI because that we expect there will be more WIs coming. If so we can not start any WI at all. We need to start the work on all of three if all approved by this meeting

Orange: accepting all the WIs we will end up with unmanageable work load. We need to decide on how to handle the whole bench of proposed and coming WIs.

Motorola: hard to carry this and intra in the same time. If we start the work on these bands should we carry the work in the intra case? difficult to do both and address many combinations.

Nokia: agree with Motorola: high priority is rel-10 CA WI and the agreed combination that did not started yet. Do first the band combination independent work first.

Telecom Italia: consider doing the work by correspondence (email, conf calls) and avoid taken meeting time.

Motorola: it is not a meeting time. It is the fact that companies can not do all the work in the same time. It is not only time but also the resources to support the work.

ALU: it is to the market to decide which combinations first and the companies putting their name should understand that they are committing to make the work.

Motorola: RAN4 it is not it is not the BS the problem, but rather the UE as the complexity is higher. When talking limited resource, means in the terminal side

Nokia: agrees with the comment from Motorola.

Qualcomm: Agrees with ALU that people having interest in a commercial area will contribute to it.

E///: similar view as Qualcomm that the value is determined by the commercial aspects and thus the priority.

TeliaSonera: we just approved a guidance on how to organise the work in RAN4 so give at a chance and see how we can improve the efficiency there.
- if we discuss the priority we need to put all WIs in the table and not the CA ones only.

Chairman: we approve the WI and if we see any problem by the next plenary we will revisit.

RAN4 chairman: will start with the general CA, then the existing and new approved WI, then progress will be contribution driven.

Tmobile: limit the number of slots in which new combination can be proposed (e.g. only in the next March meeting skip one or two plenary then open an other slot) other ways it is going to be very difficult to address all the work.

Motorola: should also only look at high-low combination not high-high or low-low.

Chairman: Operators are Invited to consider the practical deployment when submitting proposals for new WIs.

Work will be started in the January ad-hoc (the same for the existing WI).

Status: Revised in RP-101435

RP-101435	LTE Advanced Carrier Aggregation of Band 4 and Band 13	Verizon	WID	REL-10

Status: approved

RP-101238	New WI proposal: UE demodulation performance requirements under multiple-cell scenario for 1.28Mcps TDD	CMCC	WID	REL-10

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Discussion:
→ Mainly ran4
- This WI was postponed in the last ran plenary.

RAN5 chair: is there RAN5 implications?

CMCC: Yes

RAN5 chair: then it should be Included in the WID.

Status: revised in RP-101436

RP-101436	New WI proposal: UE demodulation performance requirements under multiple-cell scenario for 1.28Mcps TDD	CMCC	WID	REL-10

Status: Approved

RP-101245	New work item proposal: UE Conformance Test Aspects – MBMS in LTE	Huawei	WID	Rel-10

Status: approved

RP-101240	New Work Item Proposal: Enhanced Carrier Aggregation for LTE	CATT	WID	REL-11

Discussion:
Chairman: consider a merge of this proposal and the one from NSN in RP-101288.

NSN: come back to this and the following one in March

Status: postponed

RP-101288	Consideration for LTE Carrier Aggregation WI in Release 11	Nokia Siemens Networks, Nokia	Disc.	Rel 11

Discussion:
Panasonic: why ran1 is highlighted?

Nokia: ran1 was highlighted as it is the only group that will start the work as the other groups can not anyway start the work on this as this for rel-11.

Chairman: consider a merge of this proposal and the one from CATT in RP-101240.
Status: postponed

General Comment from RAN1 chairman:

Regarding WIs and SIs proposed with RAN1 leadership: considering the proposals and the work load in RAN1 in general, the proposal for this meeting is to start the Comp, resolve some open issues in the rel-10 WIs. This will make RAN1 busy for the coming quarter. Proposal is to not approve any WI/SI for LTE in RAN1 at this meeting.

RP-101246	New work item proposal: Uplink Transmit Diversity for HSPA	Huawei	WID	Rel-11

Discussion:
Interested companies: Interested companies: Qualcomm, NSN, Renesas, Orange, Samsung, Alcatel Lucent, Telecom Italia, Ericsson, TeliaSonera, Deutsch Telecom, Magnolia, NEC.

Status: revised in RP-101428

RP-101428	New work item proposal: Uplink Transmit Diversity for HSPA	Huawei	WID	Rel-11

Discussion:
CSI feedback
Status: revised in RP-101438

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RP-101438	New work item proposal: Uplink Transmit Diversity for HSPA	Huawei	WID	Rel-11

Status: approved

Error in the approved WID in RP-101438:

The error concerns the following work task (OL-core) where the leading WG should be changed to RAN4.
R1 specifications are not affected by the open loop work task as correctly stated in the objectives and in the specification list of this task.
The other work tasks for closed loop and the performance parts are not affected by this mistake.

500322	HSPA_UL_TXdiv-OL-Core	WI	Core part: Uplink Transmit Diversity for HSPA – Open Loop	Rel-11	~~R1,~~ R4		March 12	0		New	RP-101438	

RP-101294	New work item proposal for eight carrier HSDPA	Ericsson	WID	Rel-11

Status: revised in 1419

RP-101419	New work item proposal for eight carrier HSDPA	Ericsson	WID	Rel-11

Status: approved

RP-101296	Enhancements for HNB and HeNB	Alcatel-Lucent	WID	Rel-11

Discussion:
Nokia: ran2 included ?
RAN3 chair: when working on the 3G HNB mobility enhancement it was found out that to honestly/completely solve the issue of cell_fach some rel-10 needs to be done involving RAN2.

RAN3 chair: we can split of thew WI into LTE and 3G, LTE only RAN3, 3G RAN2 and RAN3.

Interested companies: NSN, Samsung, Huawei, NEC, Ericsson, Hitachi, Mitsubishi.

Status: withdrawn

RP-101297	New Work Item Proposal: Further Enhanced ICIC for LTE	Alcatel-Lucent, Alcatel-Lucent Shanghai Bell	WID	REL-11

Discussion:

Status: withdrawn

RP-101301	WI proposal for Closed Loop Uplink Single and Dual Stream Transmission	Qualcomm Incorporated, Deutsche Telekom, Ericsson, Nokia Siemens Networks, ST-Ericsson, T-Mobile USA, eMobile, Interdigital, Telecom Italia	WID	REL-11

Discussion:

Status: revised in 1432

1432 is moved to 12.2 as this is became a SI.

RP-101302	WID: HSDPA multipoint transmission	Nokia Siemens Networks	WID	Rel-11

Discussion:

Interested companies: NEC, Deutsch, Huawie, Tmobile, Orange, Alcatel Lucent, TeliaSonera, Ericsson.

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Status: revised in 1413

1413 moved to agenda 12.1 as this became an SI.

RP-101323	New Work Item - LTE Advanced Carrier Aggregation of Band 4 and Band 17	AT&T	WID	-

Discussion:
Interested companies: Samsung, Renesas, Qualcomm, Alcatel Lucent, Ericsson, Motorola

Status: revised in RP-101391

RP-101391	New Work Item - LTE Advanced Carrier Aggregation of Band 4 and Band 17	AT&T	WID	-

Status: approved

RP-101189	New Work Item Proposal: Further Enhanced ICIC for LTE	Qualcomm	WID	Rel-11

Status: revised in RP-101434

RP-101434	New Work Item Proposal: Further Enhanced ICIC for LTE	Qualcomm	WID	Rel-11

LG Electronics: Restrictive objectives. It should be extended to cover in rel-11 some of the other issue that were not covered in rel-10. One of the issues is how to protect the control channel and the data channel (there Tx processing method and Rx processing method), one only is covered. → Extend the objective to include the other possibility.

QC: current version includes the comments received. You do have a particular solution in mind which is related to Tx processing. This more forward looking and the purpose is to have amore generic method and avoid having a one particular solution that any company can have in mind.

NSN: inline with comment from RAN1 chairman to not approve SI/WIs and would to see the work on this starting from March.

RAN1 Chairman: consider this as the baseline and postpone the decision to next plenary.

LG: depending on the progress in the next 2 meetings we can be able to identify what should be added or included to the specific objective of this new item. → decide the specific scope in the next plenary.

TI: agrees with LG and supports postponed to the next meeting.

→ This proposal is considered as the baseline for the March meeting.

Huawei: Would like to understand what “baseline” means? Does it mean we cannot make changes to the proposal ?

Chairman: we can study and if some thing is found out then we consider it, if nothing happens then this is the proposal for next plenary.

Huawei: We do not need to make a decision in this this meeting. eICIC work in RAN1 is not completed and the situation may evolve until March. It also seems somehow a new procedure in plenary to have “baselines” for WI proposals.

RAN1 chairman: Minuting in the report that this a baseline is to recognise the effort done both offline preparing the proposal, and this have good chances to be approved later, but of course this some thing to start from if there is changes that impact that then these will be taken into account.

LG: note this as start point instead of baseline.

MediaTek: agrees with ran1 chairman.

Huawei: Proponent should be quite comfortable looking at the number of supporting companies and even without noting this as “baseline” it is obvious that the document will be the basis for further discussions.

NSN: understanding is that if there is some thing to change then we would start from the proposal from Qualcomm.

Way forward: This document is considered as baseline (with possibility of to modify and add some thing in the future).

Status: postponed

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General comment on WI proposals from RAN5 chairman:

RAN5 chair: there several WIs expecting changes to the ME part, but there is no reference to associated RAN5 work item to fellow. Please check if there is a necessary WI for RAN5

NEC: most of the WIs (all except from one) presented impact either on RAN1 or RAN4 or both of them. If we consider the discussion on the work load we should not approve all of them. And is the Same comment for the coming SIs.

12.2 New Study Items

RP-101131	Inclusion of RF Pattern Matching as a positioning method in the E-UTRAN	Polaris Wireless	SID	REL-11

Discussion:
NSN: no changes to the physical layer is expected

Yes

Status: revised in RP-101424

RP-101424	Inclusion of RF Pattern Matching as a positioning method in the E-UTRAN	Polaris Wireless	SID	REL-11

Qualcomm: What is intended to be studied here?
Polaris:

Status: Revised in RP-101440

RP-101440	Inclusion of RF Pattern Matching as a positioning method in the E-UTRAN	Polaris Wireless	SID	REL-11

Discussion on the draft of this document:(with UE impact ticked)

Renesas: this includes changes on the UE which were not there in the original WID. We need to have some time to evaluate this change of scope.

Polaris: what was stated is that Layer1 will not be affected. Leave the possibility to add information to LPP protocol which will be in rel-12 time frame. The purpose is to evaluate if doing that provide sufficient improvement to justify updating the LPP protocol. If simulation show there will be performance improvement associated with adding information to LPP, it is up to the RAN to determine if this is the proper thing to do.

Ericsson: proposes to have the same handling as other WIs → to have this as baseline for March.

Polaris: this has been looked at for the last year and would prefer to have it approved in this plenary meeting.
Polaris: Changes are very minor, the scope didn't change.

AT&T: this is a Study item so we can go ahead.

Nokia: this will impact UE and would like to know how much UE RAN4 work is expected.

Qualcomm: this is the first time this proposal is seen with a tick of UE impact on it. Approving now or in March will not have impact in the time schedule as RAN4 is busy any way.

Chairman: clarify the scope and the work in the different groups and review the situation in March.

Polaris: - ticking the UE box does not mean the UE will be impact. The scope of the SI is to study if any of these changes to the UE will be beneficial. If there is benefit in potentially adding parameters of LPP.

Nokia: would like to have these objectives clearly stated in the document

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???: this a study item. Changes to the UE will not happen. We are talking about simulations.

Qualcomm: if we want introduction of measurement to LPP in the scope, then we consider there will be UE impact. If it is LPP-a only then it is access and network impact only. Here the objective is both LPP and LPP-a.
- the scope is not objectable, but we need to be clear about the scope of this SI.

Presentation of the document: (the formal document)

E///: with this modified scope of the SI, there is no impact in the UE.
- what are impact to the core network?

Polaris: Impact to the core network will be additional parameter to LPP-a.

Qualcomm: are there any measurements that are not in LPP today ?

Polaris: There are UE parameters that are not in LPP. But ok to leave it as open issue as a matter for investigation.

Hauwei: apply the same treatment as for all LTE-A WIs → treat this in March.

E///: suggests removing sentence on the impact in the LPP as this will imply removing the impact in the UE.

ALU: comment from E/// makes sense and this will satisfy every body.

Polaris: this change is acceptable.

Status: revised in RP-101445

RP-101445	Inclusion of RF Pattern Matching as a positioning method in the E-UTRAN	Polaris Wireless	SID	REL-11

Status: approved

RP-101165	MIMO enhancement for LTE-Advanced	Alcatel-Lucent, Alcatel-Lucent Shanghai Bell, AT&T	SID	REL-11

Status: revised in RP-101377

RP-101377	MIMO enhancement for LTE-Advanced	Aatel-Lucent, Alcatel-Lucent Shanghai Bell, AT&T, Andrew Corporation, CATT, DBSD, Ericsson, Intel, LGE, Nokia, NSN, Panasonic, Pantech, Polaris Wireless, Renesas, Qualcomm, Samsung, Sprint, ST-Ericsson, Terrestar, Texas, instruments, US Cellular, Verizon Wireless	SID	REL-11

Discussion:
Docomo: Definition of the small cell does it meant to low mobility area.

Yes

Docomo: then in that case, write down clearly the small cell scenario
Status: revised in RP-101437

RP-101437	MIMO enhancement for LTE-Advanced	Aatel-Lucent, Alcatel-Lucent Shanghai Bell, AT&T, Andrew Corporation, CATT, DBSD, Ericsson, Intel, LGE, Nokia, NSN, Panasonic, Pantech, Polaris Wireless, Renesas, Qualcomm, Samsung, Sprint, ST-Ericsson, Terrestar, Texas, instruments, US Cellular, Verizon Wireless	SID	REL-11

Alcatel Lucent: consider as the baseline and have decision in March.
Huawei: We had good offline discussions but need to work further until next meeting on this proposal.

This proposal is considered as Baseline.

Status: postponed

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RP-101173	Study Item: UE Application Layer Data Throughput	Spirent Communications	SID	

Status: Revised in RP-101372

RP-101372	Study Item: UE Application Layer Data Throughput	Spirent Communications	SID	

Discussion:

Motorola: Need to be careful on how to look at these results. A terminal showing peak throughput performance does not necessary offer good overall radio performance.

Motorola, Nokia: There are some aspects to be taking into account including some RAN4 aspects.
Nokia/Motorola: guidance from RAN4 is required. Add RAN4 as secondary group.

Samsung (convener of performance testing discussion in RAN5): Confirmed this was discussed in RAN5 and the possible need for RAN4 involvement was indeed acknowledged.

Telecom Italia: consider overload in RAN4 and should avoid the situation that RAN4 is blocking the progress in RAN5 because of this.

RAN4 chair: RAN5 will be the primary responsible of the work and RAN4 will be involved in reviewing the work (e.g. via LSs). If some thing is found then we will report back to RAN5.

KDDI: has concerns with the ToR. Is it ok to have a 900 series TR without changing the ToR?

MCC: it is up to RAN to decide on this.

AT&T: requests clarification on certification. It is test case to determine the throughput but there is no certification.
Has Concerns to have RAN4 as secondary group.

Spirent: this will not become part of the GCF certification. Performance schemes is not par of the certification scheme. Provides values for various performance measurements and it is not categorized good/bad.

Telecom Italia: would like to have latency included in this SI activity.

In response to comments from 2 operators that latency should be included in the scope of the study item, Samsung stated that the topic of latency had already been considered by RAN5 and that it may well be included in the future, subject to contributions. The RAN5 Chair stated that as the proposal had been prepared after much consultation and had been RAN5 endorsed, he recommended that it is approved without delay. If additional areas of interest, such as latency, are raised during the study phase, then these will be treated on their merits within the constraints of resources and the target completion date.

ALU: Why do we consider having this work done as a SI and not a WI?

RAN5 chair: first reason is that it wouldn't have been surely possible to reach consensus to have a WI.
Much of the work will not be based on core. Thus it was decided to have a TR not a TS as an outcome of the study.

Samsung (convener of performance testing discussion in RAN5): this is a new aspects in RAN5 - such testing was never specified before so it is better to start with a SI.

Way forward:

- SI (in 1399) approved

- Latency is not included in the SI.

- Telecom Italia object to having RAN4 as secondary responsible working group

- Chairman will report the issue on ToR to PCG.

- TR number allocated 37.901

Status: revised in RP-101399

RP-101399	Study Item: UE Application Layer Data Throughput	Spirent Communications	SID	

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Status: Revised in RP-101422

RP-101422	Study Item: UE Application Layer Data Throughput	Spirent Communications	SID	

Status: approved

RP-101241	New Study Item Proposal: DL-UL Interference Management for TDD EUTRA	CATT	SID	REL-11

Discussion:

Status: revised in RP-101427

RP-101427	New Study Item Proposal for further enhancements to LET TDD for DL-UL Interference Management and traffic adaptation	CATT	SID	REL-11

ALU: This Study Item overlaps with scope of proposed eICIC SI as well. Similar comments that some of the objectives are part of RAN4 scope

Qualcomm: is there a RAN4 impact ?

Nokia: most of the objectives are in the area of RAN4 and would not like to have the work in a group where does not have the necessary competence to treat the specific issues.

Status: noted

RP-101247	New Study Item Proposal: Enhanced Multiple Antenna Transmission for LTE	Huawei	SID	Rel-11

Status: revised in 1376

RP-101376	New Study Item Proposal: Enhanced Multiple Antenna Transmission for LTE	Huawei, HiSilicon, CATR, China Telecom, China, Unicom, CMCC, KDDI, Orange, RIM, Sprint, Telus, US Cellular, Vodafone Group, ZTE	SID	Rel-11

Huawei: We will have offline discussions with Alcatel-Lucent who have a similar proposal on downlink.
Samsung: premature to have so much details.

After coming back:
Huawei: There have been offline discussions and we will not pursue this further at this meeting, but the document should be considered in the discussions until next meeting.

RAN1 Chairman: It is indeed the case that we did not have time to complete the discussions on the uplink part during this week.

Status: Postponed

RP-101265	New study item proposal for Dynamic TDD UL/DL allocation	Ericsson, ST-Ericsson	SID	Rel-11

Status: noted

RP-101413	Proposed Study Item on HSDPA multipoint transmission	Nokia Siemens Netwrks	SID

Discussion:
ZTE is also a supporting company.

Status: Revised in 1439

RP-101439	Proposed Study Item on HSDPA multipoint transmission	Nokia Siemens Netwrks	SID

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Status: approved

RP-101432	SI proposal for Closed Loop Uplink Single and Dual Stream Transmission	Qualcomm Incorporated and al.	SID	REL-11

Discussion:

Changed from WI to SI.

Also ZTE is a supporting company

Status: approved

RP-101322	Study Item Proposal: CoMP and Advanced Multi-Antenna Techniques for HetNet	Motorola	SID	Rel-11

Discussion:

Status: withdrawn

13 Technical co-ordination among WGs

RP-101423	Guidance on discussion of UE capabilities for rel-10	RAN1 and RAN2 chairmen	Approval

Status: approved

14 Outputs to other groups

RP-101403	UE Application Layer Data Throughput Performance Testing in RAN5	RAN	LSout

Telefonica: decision was to not ask GCF to clarify anything to do with latency. GCF people think latency is important. latency should be included in the scope of the study item

Samsung: stated that the topic of latency had already been considered by RAN5 and that it may well be included in the future, subject to contributions.

RAN5 Chair stated that as the proposal had been prepared after much consultation and had been RAN5 endorsed, he recommended that it is approved without delay. If additional areas of interest, such as latency, are raised during the study phase, then these will be treated on their merits within the constraints of resources and the target completion date.

Status: approved

RP-101408	LS on Status of work on UMTS/LTE 3500 MHz	3GPP RAN WG4	Lsout

Discussion about behalf of which group should the LS be sent, i.e. RAN or RAN4.

Revised in 1443 to capture a change that LS is sent from RAN. RAN4 chairman to handle the LS. RAN4 chairman to be added as contact person.

Status: revised in RP-101443

RP-101443	LS on Status of work on UMTS/LTE 3500 MHz	3GPP RAN WG4	Lsout

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RAN4 to send the LS to PT1.

Status: noted

15 Project management

Discussion on Work load:

Guidance from the RAN Chairman:

- Excessive working hours at the WG meetings should be avoided.
- Feedback on the amount of work manageable in the WGs within reasonable working hours should be provided to TSG-RAN for the management of work load on TSG RAN level.

RP-101168	3GPP Work Plan review at Plenary #50	MCC	Workplan

Discussion:

Status: noted

RP-101169	Standardization of Machine-type Communications	MCC	Info

Discussion:

Status: noted

RP-101170	3GPP Green activities / Energy Saving	MCC	Info

Discussion:

Status: noted

RP-101171	3GPP work items on HN(e)B and SON	MCC	Info

Discussion:

Status: noted

RP-101172	3GPP Releases Descriptions – Rel-9 to Rel-11	MCC	Info

Discussion:

Status: noted

RP-101258	Support Team report	MCC	Report

Discussion:
ALU: Training material: who take responsibility to check the accuracy of technical content and is there a disclaimer

MCC: There is a disclaimer for it. 3GPP and MCC does not take any responsibility for any error in there.

Status: noted.

16 Future meeting schedule

MEETING	DATES	LOCATION	HOST
RAN #51	15 March – 18 March 2011	Kansas City , USA	

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MEETING	DATES	LOCATION	HOST
RAN #52	31 May – 3 June 2011	Bratislava, Slovakia	EF3
RAN #53	13 Sep. – 16 Sep. 2011	Fukuoka, Japan	
RAN #54	6 Dec. – 9 Dec. 2011	Berlin, Germany	EF3
RAN #55	28 Feb. – 2 March 2012		
RAN #56	12 June – 15 June 2012	?, Europe	EF3
RAN #57	4 Sep. – 7 Sep. 2012		
RAN #58	4 Dec. – 7 Dec. 2012	?, Europe	EF3

17 Any other business

- RAN was very pleased to welcome Francois Courau, the former RAN chairman.

- RAN#50 is the last meeting attended by Furuya-san (the first RAN chairman) as a delegate. RAN chairman, on behalf of 3GPP TSG RAN, thanked Furuya-san for the great effort in 3GPP.

Other remarks:

- exception sheets to be provided in the next meeting if needed.

- Decisions on the WIs and SIs need to be taken in the next meeting. Rapporteur need to clarify the open issues and the necessary time to complete the work in order to be able to accept the exception sheet or change to rel-11

- New bands: please consider the deployment and do not rush submission.

18 Closing of the meeting (No later than Friday 1 p.m.)

Meeting was closed by The chairman at 12h26.

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Annex A:
List of participants

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Annex B:
List of Tdocs

status	Agenda item	Tdoc	Title	Source	Type	Release	SI/WI	related Tdoc
revised in RP-101052	02.	RP-101030	Agenda for RAN #50 held in Istanbul, Turkey, 07.12.-10.12.2010	RAN chairman (NTT DOCOMO)	Agenda	-	-	RP-101052
revised in RP-101373	03.	RP-101031	Draft report of RAN #49 held in San Antonio, USA, 14.09.-17.09.2010	MCC	Report	-	-	
Noted	06.1	RP-101032	LS on LTE Terminal Station mask at 2 GHz (E-UTRA bands 1, 33 and 34) (ECC PT1(10)170_Annex 11; to: RAN4, ETSI ERM/MSG TFES; cc: RAN; contact: ECC PT1 Chairman)	ECC PT1	LSin	REL-8	LTE-RF	ECC PT1(10)170_Annex 11, RP-100416, R4-102295
Noted	06.1	RP-101033	LS announcing second approved draft of MEF 22.1 Mobile Backhaul Implementation Agreement Phase 2 (L00115_000_LS_MEF; to: BBF IP/MPLS & Architecture, NGMN TWG P-OSB, ITU-T SG15 WP3, IEEE 802.16, WiMAX Forum Network WG, 3GPP TSG-RAN, 3GPP2 TSG-A; cc: -; contact: MEF TC Co-Chair, Verizon)	Metro Ethernet Forum (MEF)	LSin	REL-8	-	L00115_000_LS_MEF
Noted	10.2.12.1	RP-101034	LS on Enhancements of Iur-g interface (G2-100386; to: RAN2, RAN3; cc: RAN, GERAN; contact: ZTE)	GERAN2	LSin	REL-10	Elurg-RAN	G2-10386
noted	10.4.06.1	RP-101035	LS on Relay Node Security (SP-100627; to: SA3; cc: RAN, RAN2, RAN3, CT, CT1, CT4; contact: Vodafone)	SA	LSin	REL-10	LTE_Relay-core	SP-100627
Noted	06.2	RP-101036	LS on Remaining work for LIPA completion (SP-100648; to: SA3, RAN3; cc: RAN, SA2; contact: LG)	SA	LSin	REL-10	LIPA_SIPTO	SP-100648
Noted	07.2.2	RP-101037	Response to ITU-R WP5A on “Mobile Wireless access systems providing telecommunications for a large number of ubiquitous sensors and/or actuators scattered over wide areas in the land mobile service” (SP-100649; to: ITU-R WP5A; cc: RAN, CT; contact: Telecom Italia)	SA	LSin	REL-10	NIMTC	SP-100649, RP-101020
Noted	06.3	RP-101038	LS on RAN4 decisions on Band 12 (R4-103901; to: RAN2, RAN3, RAN5, RAN; cc: -; contact: Huawei)	RAN4	LSin	REL-8	LTE-RF	R4-103901
noted	06.3	RP-101039	LS on UE categories (R1-106523; to: RAN2, RAN4; cc: RAN; contact: Ericsson)	RAN1	LSin	REL-10	-	R1-106523
noted	06.3	RP-101040	Reply LS to S2-105279 on Home (e)NodeB support in LCS (R3-103744; to: SA2; cc: RAN2, RAN, SA; contact: NTT DOCOMO)	RAN3	LSin	REL-9	LCS_LTE_EPS	R3-103744
Noted	10.2.12.1	RP-101041	Reply LS to G2-100386 = RP-101034 on Enhancements of Iur-g interface (R3-103757; to: GERAN2; cc: RAN2, RAN, GERAN; contact: ZTE)	RAN3	LSin	REL-10	Elurg-RAN	R3-103757, RP-101034
noted	06.3	RP-101042	LS on CRs for MSR specifications (R4-104788; to: GERAN1; cc: RAN; contact: Ericsson)	RAN4	LSin	REL-9	RInImp9-Rfmulti	R4-104788
noted	10.3.5.1	RP-101043	LS on Status of the MSR-NC work item (R4-104789; to: GERAN1; cc: RAN; contact: Ericsson)	RAN4	LSin	REL-10	MSR_NC	R4-104789
Noted	06.3	RP-101044	GSM OTA Requirements and Tests (R4-104952; to: GERAN, GERAN1, RAN5; cc: RAN; contact: CMCC)	RAN4	LSin	REL-9	RInImp-UEAnt	R4-104952
Noted	06.3	RP-101045	LS Spurious Emissions Requirements of 3GPP for Band 2	RAN4	LSin	REL-10	S_Band_LTE_AT	R4-105019

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			(PCS Band) (R4-105019; to: 3GPP2 TSG-C, TSG-S; cc: RAN, 3GPP2 TSG-A, TSG-X; contact: Alcatel-Lucent)				C_MSS-Core	
Noted	08.5.2	RP-101046	LS reply to RP-101025 on Request to RAN5 to analyse proposals for performance testing (R5-106665; to: RAN; cc: GCF SG, PTCRB; contact: Samsung)	RAN5	LSin	-	-	R5-106665
noted	06.2	RP-101047	LS on CN node selection (S2-106007; to: RAN2, RAN3, CT1, CT4, GERAN2; cc: RAN, SA, CT; contact: NTT DOCOMO)	SA2	LSin	REL-10	TEI10	S2-106007
Noted	07.2.2	RP-101048	LS on Revision of Recommendation ITU-R M.1224 (ITU-R WP5D/TEMP/423rev1; to: 3GPP; cc: -; contact: -)	ITU-R WP5D	LSin	-	-	ITU-R WP5D/TEMP/423rev1
noted	07.2.1	RP-101049	LS on IMT-Advanced development (ITU-R WP5D/TEMP/413rev1; to: IEEE, 3GPP; cc:-; contact: -)	ITU-R WP5D	LSin	-	-	ITU-R WP5D/TEMP/413rev1
Noted	07.2.2	RP-101050	LS on coexistence studies in relation to resolution 224 and question ITU-R 229/5 (ITU-R WP5D/TEMP/437; to: external organisations; cc: -; contact: -)	ITU-R WP5D	LSin	-	-	ITU-R WP5D/TEMP/437
Noted	07.2.2	RP-101051	LS on the schedule for updating Recommendation ITU-R M.1457-10 to Revision 11 (ITU-R WP5D/TEMP/406; to: external organisations; cc: -; contact: -)	ITU-R WP5D	LSin	-	-	ITU-R WP5D/TEMP/406
approved	02.	RP-101052	Agenda for RAN #50 held in Istanbul, Turkey, 07.12.-10.12.2010	RAN chairman (NTT DOCOMO)	Agenda	-	-	RP-101030
noted	07.1	RP-101053	Status Report ITU-R Ad hoc	ITU-R Ad Hoc Contact (Telecom Italia)	Report	-	-	
Noted	08.1.1	RP-101054	Status Report RAN WG1	RAN1 chairman (Alcatel-Lucent)	Report	-	-	
Noted	08.1.1	RP-101055	List of CRs from RAN WG1	RAN1	Info	-	-	
Noted	08.2.1	RP-101056	Status Report RAN WG2	RAN2 chairman (Samsung)	Report	-	-	
revised in RP-101364	08.2.1	RP-101057	List of CRs from RAN WG2	RAN2	Info	-	-	RP-101364
Noted	08.3.1	RP-101058	Status Report RAN WG3	RAN3 chairman (Qualcomm)	Report	-	-	
revised in RP-101371	08.3.1	RP-101059	List of CRs from RAN WG3	RAN3	Info	-	-	
revised in RP-101363	08.4.1	RP-101060	Status Report RAN WG4	RAN4 chairman (Fujitsu)	Report	-	-	
noted	08.4.1	RP-101061	List of CRs from RAN WG4	RAN4	Info	-	-	
Noted	08.5.1	RP-101062	Status Report RAN WG5	RAN5 Chairman (NTT DOCOMO)	Report	-	-	
noted	08.5.1	RP-101063	List of CRs from RAN WG5	RAN5	Info	-	-	
approved	08.5.1	RP-101064	Status Report MCC TF160 (for Approval)	MCC TF 160 Leader	Report	-	-	
approved	09.01.1	RP-101065	Status report for WI Conformance test aspects – LTE 3500, rapporteur: Ericsson	RAN5	Report	REL-10	LTE-UEConTest_LTE3500	RP-100733
approved	09.01.2	RP-101066	Status report for WI Conformance test aspects – UMTS 3500, rapporteur: Nokia	RAN5	Report	REL-10	RInImp-UEConTest_UMTS3500	RP-100734
approved	09.02	RP-101067	Status report for WI Test part: Fixed Wireless Customer-Premises Equipment (CPE) RF Requirements, rapporteur: Verizon	RAN5	Report	REL-10	FW_CPE_RF-UEConTest	RP-100741
approved	09.03	RP-101068	Status report for WI Conformance Test Aspects – Support for IMS Emergency Calls over LTE, rapporteur: Ericsson	RAN5	Report	REL-9	IMS_EMER_LTE_UEConTest	RP-100742

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revised in 1404	09.04	RP-101069	Status report for WI Conformance Test Aspects – LTE Positioning, rapporteur: Alcatel-Lucent	RAN5	Report	REL-9	LCS_LTE_UECon Test	RP-100743
approved	09.05	RP-101070	Status report for WI AGNSS test case development for UMTS, rapporteur: Thales	RAN5	Report	REL-10	AGNSSTest_UTR AN	RP-100744
approved	09.06	RP-101071	Status report for WI UE conformance test part: LTE TDD in 2600MHz for US, rapporteur: Clearwire	RAN5	Report	REL-10	LTE_TDD_2600_ US-UEConTest	RP-100745
approved	09.07	RP-101072	Status report for WI Conformance Test Aspects - CT1 aspects of IMS Emergency Calls over GPRS and EPS, rapporteur: Samsung	RAN5	Report	REL-9	IMS_EMER_GPR S_EPS_UEConTe st	RP-100746
approved	09.08	RP-101073	Status report for WI Conformance Test Aspects –Multiple Band and Multiple Frequency operation for LCR TDD, rapporteur: CATR	RAN5	Report	REL-7	LCRTDD_MB_MF _UEConTest	-
approved	09.09	RP-101074	Status report for WI Conformance Test Aspects - Paging Permission with Access Control (PPAC), rapporteur: NTT DoCoMo	RAN5	Report	REL-8	PPAC_UEConTes t	-
approved	09.10	RP-101075	Status report for WI Conformance Test Aspects – Enhanced Dual-layer transmission for LTE TDD, rapporteur: CMCC	RAN5	Report	REL-9	LTEimp-eDL_UEConTest	-
approved	09.11	RP-101076	Status report for WI Conformance Test Aspects – Combination of DC-HSDPA with MIMO, rapporteur: Ericsson	RAN5	Report	REL-9	RANimp-DC_MIMO_UECo nTest	-
approved	09.12	RP-101077	Status report for WI Conformance Test Aspects – Home NB enhancements for FDD, rapporteur: Huawei	RAN5	Report	REL-9	EHNB-UTRA_FDD_UEC onTest	-
approved	10.2.01	RP-101078	Status report for WI AGNSS Minimum Performance for UTRAN, rapporteur: Thales	RAN4	Report	REL-10	AGNSSPerf_UTR AN	RP-100747
approved	10.2.02	RP-101079	Status report for WI 1.28Mcps TDD Multi-carrier HSUPA, rapporteur: CATR	RAN1	Report	REL-10	TDD_MC_HSUPA	RP-100748
approved	10.2.03	RP-101080	Status report for WI UE Over the Air (Antenna) conformance testing methodology- Laptop Mounted Equipment Free Space test, rapporteur: CATR	RAN4	Report	REL-10	UEAnt_FSTest	RP-100749
approved	10.2.04.1	RP-101081	Status report for WI Perf. part: 1.28Mcps TDD Home NodeB RF requirements, rapporteur: TD Tech	RAN4	Report	REL-10	HNB_LCRTDD_R F-Perf	RP-100750
revised in RP-101392	10.2.05.1	RP-101082	Status report for WI Core part: Four carrier HSDPA, rapporteur: Qualcomm	RAN1	Report	REL-10	4C_HSDPA-Core	RP-100751
approved	10.2.05.2	RP-101083	Status report for WI Perf. part: Four carrier HSDPA, rapporteur: Qualcomm	RAN4	Report	REL-10	4C_HSDPA-Perf	RP-100752
approved	10.2.06.1	RP-101084	Status report for WI Inclusion of "RF Pattern Matching Technologies" as positioning method in the UTRAN, rapporteur: Polaris Wireless	RAN2	Report	REL-10	LCS_UMTS_RFP MT-Core	RP-100753
approved	10.2.07.1	RP-101085	Status report for WI Core part: MU-MIMO for 1.28Mcps TDD, rapporteur: CATT	RAN1	Report	REL-10	MUMIMO_LCR_T DD-Core	RP-100755
approved	10.2.07.2	RP-101086	Status report for WI Perf. part: MU-MIMO for 1.28Mcps TDD, rapporteur: CATT	RAN4	Report	REL-10	MUMIMO_LCR_T DD-Perf	RP-100756
Revised in RP-101308	10.2.08.1	RP-101087	Status report for WI Perf. part: Performance Requirements for two-antenna 1.28Mcps TDD Type 1 and Type 2 UE receiver, rapporteur: TD Tech	RAN4	Report	REL-10	2ant_UE_LCR_TD D-Perf	RP-100757
revised in 1395	10.2.09.1	RP-101088	Status report for WI Core part: Support of New Band Combinations for Dual-Band Dual Cell HSDPA, rapporteur: AT&T	RAN4	Report	REL-10	DB_DC_HSDPA-Core	RP-100758
approved	10.2.10.1	RP-101089	Status report for WI Core part: MIMO operation with non-	RAN4	Report	REL-10	MIMO_HSDPA-	-

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			MIMO coexistence in HSDPA, rapporteur: Qualcomm Inc				Core	
revised in 1393	10.2.10.2	RP-101090	Status report for WI Perf. part: MIMO operation with non-MIMO coexistence in HSDPA, rapporteur: Qualcomm Inc	RAN4	Report	REL-10	MIMO_HSDPA-Perf	RP-100760
revised in RP-101410	10.2.11.1	RP-101091	Status report for WI Core part: Automatic Neighbour Relation (ANR) for UTRAN, rapporteur: ZTE	RAN3	Report	REL-10	ANR_UTRAN-Core	RP-100761
Noted (completion date is set to June)	10.2.12.1	RP-101092	Status report for WI Core part: Enhancements of Iur-g interface – RAN part, rapporteur: ZTE	RAN3	Report	REL-10	EIurg-RAN	-
approved	10.2.13	RP-101093	Status report for WI Interfrequency detected set measurements for UMTS, rapporteur: Nokia	RAN2	Report	REL-10	Interf_dset_meas_UMTS	-
approved	10.3.1	RP-101094	Status report for WI UMTS/LTE 3500MHz, rapporteur: Ericsson	RAN4	Report	REL-10	RInImp8-UMTSLTE3500	RP-100762
approved	10.3.2.1	RP-101095	Status report for WI Core part: Minimization of drive tests for E-UTRAN and UTRAN, rapporteur: Nokia Siemens Networks	RAN2	Report	REL-10	MDT_UMTSLTE-Core	RP-100763
revised in 1418	10.3.3.1	RP-101096	Status report for WI Core part: HNB and HeNB Mobility Enhancements, rapporteur: Alcatel-Lucent	RAN3	Report	REL-10	HNB_HENB_mob_enh-Core	RP-100764
approved	10.3.4.1	RP-101097	Status report for WI Core part: Expanded 1900 MHz Band for UTRA and LTE, rapporteur: Sprint	RAN4	Report	REL-10	E1900-Core	RP-100765
approved	10.3.4.2	RP-101098	Status report for WI Perf. part: Expanded 1900 MHz Band for UTRA and LTE, rapporteur: Sprint	RAN4	Report	REL-10	E1900-Perf	RP-100766
approved	10.3.5.1	RP-101099	Status report for WI Core part: Multi-standard radio Base Station RF requirements for non-contiguous spectrum deployments, rapporteur: Ericsson	RAN4	Report	REL-10	MSR_NC-Core	RP-100767
approved	10.3.5.2	RP-101100	Status report for WI Perf. part: Multi-standard radio Base Station RF requirements for non-contiguous spectrum deployments, rapporteur: Ericsson	RAN4	Report	REL-10	MSR_NC-Perf	RP-100768
approved	10.3.6	RP-101101	Status report for WI RAN mechanisms to avoid CN overload due to Machine-Type Communications, rapporteur: Huawei	RAN2	Report	REL-10	NIMTC-RAN_overload	-
approved	10.4.01	RP-101102	Status report for WI Network-Based Positioning Support for LTE, rapporteur: TruePosition	RAN2	Report	REL-10	LCS_LTE-NBPS	RP-100769
approved	10.4.02.1	RP-101103	Status report for WI Core part: Fixed Wireless Customer-Premises Equipment (CPE) RF Requirements, rapporteur: Verizon	RAN4	Report	REL-10	FW_CPE_RF-Core	RP-100770
approved	10.4.03.1	RP-101104	Status report for WI Core part: Enhanced Downlink Multiple Antenna Transmission for LTE, rapporteur: NTT DOCOMO	RAN1	Report	REL-10	LTE_eDL_MIMO-Core	RP-100771
approved	10.4.03.2	RP-101105	Status report for WI Perf. part: Enhanced Downlink Multiple Antenna Transmission for LTE, rapporteur: NTT DOCOMO	RAN4	Report	REL-10	LTE_eDL_MIMO-Perf	RP-100772
approved	10.4.04.1	RP-101106	Status report for WI Core part: UL multiple antenna transmission for LTE, rapporteur: Huawei	RAN1	Report	REL-10	LTE_UL_MIMO-Core	RP-100773
approved	10.4.04.2	RP-101107	Status report for WI Perf. part: UL multiple antenna transmission for LTE, rapporteur: Huawei	RAN4	Report	REL-10	LTE_UL_MIMO-Perf	RP-100774
revised in RP-101406	10.4.05.1	RP-101108	Status report for WI Core part: Carrier Aggregation for LTE, rapporteur: Nokia	RAN1	Report	REL-10	LTE_CA-Core	RP-100775
revised in RP-101416	10.4.05.2	RP-101109	Status report for WI Perf. part: Carrier Aggregation for LTE, rapporteur: Nokia	RAN4	Report	REL-10	LTE_CA-Perf	RP-100776
noted	10.4.06.1	RP-101110	Status report for WI Core part: Relays for LTE, rapporteur:	RAN1	Report	REL-10	LTE_Relay-Core	RP-100952

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			Ericsson					
approved	10.4.06.2	RP-101111	Status report for WI Perf. part: Relays for LTE, rapporteur: Ericsson	RAN4	Report	REL-10	LTE_Relay-Perf	RP-100778
approved	10.4.07.1	RP-101112	Status report for WI Core part: Latency reductions for LTE, rapporteur: Ericsson	RAN2	Report	REL-10	LTE_LATRED-Core	RP-100779
revised in RP-101400	10.4.08.1	RP-101113	Status report for WI Core part: Enhanced ICIC for non-CA based deployments of heterogeneous networks for LTE, rapporteur: CMCC	RAN1	Report	REL-10	eICIC_LTE-Core	RP-100968
approved	10.4.08.2	RP-101114	Status report for WI Perf. part: Enhanced ICIC for non-CA based deployments of heterogeneous networks for LTE, rapporteur: CMCC	RAN4	Report	REL-10	eICIC_LTE-Perf	RP-100781
approved	10.4.09.1	RP-101115	Status report for WI Core part: Adding 2 GHz band LTE for ATC of MSS in North America, rapporteur: TerreStar Networks	RAN4	Report	REL-10	S_Band_LTE_ATC_MSS-Core	RP-100784
approved	10.4.09.2	RP-101116	Status report for WI Perf. part: Adding 2 GHz band LTE for ATC of MSS in North America, rapporteur: TerreStar Networks	RAN4	Report	REL-10	S_Band_LTE_ATC_MSS-Perf	RP-100785
approved	10.4.10.1	RP-101117	Status report for WI Core part: Adding L-Band LTE for ATC of MSS in North America, rapporteur: LightSquared	RAN4	Report	REL-10	L_Band_LTE_ATC_MSS-Core	RP-100786
approved	10.4.10.2	RP-101118	Status report for WI Perf. part: Adding L-Band LTE for ATC of MSS in North America, rapporteur: LightSquared	RAN4	Report	REL-10	L_Band_LTE_ATC_MSS-Perf	RP-100787
approved	10.4.11.1	RP-101119	Status report for WI Core part: LTE Self Optimizing Networks (SON) enhancements, rapporteur: Nokia Siemens Networks	RAN3	Report	REL-10	SONenh_LTE-Core	RP-100788
approved	10.4.12.1	RP-101120	Status report for WI Core part: LTE-Advanced Carrier Aggregation of Band 3 and Band 7, rapporteur: TeliaSonera	RAN4	Report	REL-10	LTE_CA_B3_B7-Core	RP-100789
approved	10.4.12.2	RP-101121	Status report for WI Perf. part: LTE-Advanced Carrier Aggregation of Band 3 and Band 7, rapporteur: TeliaSonera	RAN4	Report	REL-10	LTE_CA_B3_B7-Perf	RP-100790
approved	10.4.13.1	RP-101122	Status report for WI Core part: Further enhancements to MBMS for LTE, rapporteur: Huawei	RAN2	Report	REL-10	MBMS_LTE_enh-Core	RP-100791
approved	10.4.14.1	RP-101123	Status report for WI Core part: Service continuity in connected mode and location information for MBMS for LTE, rapporteur: Huawei	RAN2	Report	REL-10	MBMS_LTE_SC-Core	RP-100792
noted	11.1	RP-101124	Status report for SI Study on Measurement of Radiated Performance for MIMO and multi-antenna reception for HSPA and LTE terminals, rapporteur: Vodafone	RAN4	Report	REL-10	FS_HSPA_LTE_measRP_MIMO_multi-antenna	RP-100793
approved	11.2	RP-101125	Status report for SI Study on Extending 850MHz, rapporteur: Ericsson	RAN4	Report	REL-10	FS_e850	RP-100794
approved	11.3	RP-101126	Status report for SI Study on RAN improvements for Machine-Type Communications, rapporteur: Huawei	RAN2	Report	REL-10	FS_NIMTC_RAN	RP-100795
noted	11.4	RP-101127	Status report for SI Study on Coordinated Multi-Point Operation for LTE, rapporteur: Samsung	RAN1	Report	REL-10	FS_COMP_LTE	RP-100797
approved	11.5	RP-101128	Status report for SI Study on Network Energy Saving for E-UTRAN, rapporteur: CMCC	RAN3	Report	REL-10	FS_Energy_LTE	RP-101010
Revised in RP-101287	11.6	RP-101129	Status report for SI Study on Improvements of distributed antenna for 1.28Mcps TDD, rapporteur: ZTE	RAN1	Report	REL-10	FS_distr_ant_LCR_TDD	RP-100799
approved	11.7	RP-101130	Status report for SI Study on signaling and procedure for interference avoidance for in-device coexistence, rapporteur: CMCC	RAN2	Report	REL-10	FS_SPIA_IDC	RP-100800

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revised in RP-101424	12.2	RP-101131	Inclusion of RF Pattern Matching as a positioning method in the E-UTRAN	Polaris Wireless	SID	REL-11	-	
approved	08.5.1	RP-101132	Updated MCC TF160 ToR for 2011	MCC TF 160 Leader	Approval	-	-	
approved	08.5.3	RP-101133	RAN5 agreed non TTCN CR(s) under WI Small Technical Enhancements and Improvements for Rel 99 Conformance Testing(TEI_Test)	RAN5	CR	R99	TEI_Test	
approved	08.5.3	RP-101134	RAN5 agreed non TTCN CR(s) under WI Small Technical Enhancements and Improvements for Rel-4 Conformance Testing(TEI4_Test)	RAN5	CR	Rel-4	TEI4_Test	
approved	08.5.3	RP-101135	RAN5 agreed non TTCN CR(s) under WI Small Technical Enhancements and Improvements for Rel-5 Conformance Testing(TEI5_Test)	RAN5	CR	Rel-5	TEI5_Test	
approved	08.5.3	RP-101136	RAN5 agreed non TTCN CR(s) under WI Small Technical Enhancements and Improvements for Rel 6 Conformance Testing(TEI6_Test)	RAN5	CR	Rel-6	TEI6_Test	
approved	08.5.3	RP-101137	RAN5 agreed non TTCN CR(s) under WI Small Technical Enhancements and Improvements for Rel-7 Conformance Testing(TEI7_Test)	RAN5	CR	Rel-7	TEI7_Test	
approved	08.5.4.1	RP-101138	RAN5 agreed non TTCN CR(s) under WI LTE Terminal Radio Transmission and Reception Conformance Test Specifications (LTE-UEConTest_RF) (Batch 1)	RAN5	CR	Rel-8	LTE-UEConTest_RF	
approved	08.5.4.1	RP-101139	RAN5 agreed non TTCN CR(s) under WI LTE Terminal Radio Transmission and Reception Conformance Test Specifications (LTE-UEConTest_RF) (Batch 2)	RAN5	CR	Rel-8	LTE-UEConTest_RF	
approved	08.5.4.1	RP-101140	RAN5 agreed non TTCN CR(s) under WI LTE Terminal Radio Transmission and Reception Conformance Test Specifications (LTE-UEConTest_RF) (Batch 3)	RAN5	CR	Rel-8	LTE-UEConTest_RF	
withdrawn	08.5.4.1	RP-101141	RAN5 agreed non TTCN CR(s) under WI LTE Terminal Radio Transmission and Reception Conformance Test Specifications (LTE-UEConTest_RF) (Batch 4)	RAN5	CR	Rel-8	LTE-UEConTest_RF	
approved	08.5.4.1	RP-101142	RAN5 agreed non TTCN CR(s) under WI 3G LTE Terminal Protocol Conformance Test Specifications (LTE-UEConTest_SIG) (Batch 1)	RAN5	CR	Rel-8	LTE-UEConTest_SIG	
approved	08.5.4.1	RP-101143	RAN5 agreed non TTCN CR(s) under WI 3G LTE Terminal Protocol Conformance Test Specifications (LTE-UEConTest_SIG) (Batch 2)	RAN5	CR	Rel-8	LTE-UEConTest_SIG	
approved	08.5.4.1	RP-101144	RAN5 agreed non TTCN CR(s) under WI 3G LTE Terminal Protocol Conformance Test Specifications (LTE-UEConTest_SIG) (Batch 3)	RAN5	CR	Rel-8	LTE-UEConTest_SIG	
approved	08.5.4.1	RP-101145	RAN5 agreed non TTCN CR(s) under WI 3G LTE Terminal Protocol Conformance Test Specifications (LTE-UEConTest_SIG) (Batch 4)	RAN5	CR	Rel-8	LTE-UEConTest_SIG	
approved	08.5.4.2	RP-101146	RAN5 agreed non TTCN CR(s) under WI Small Technical Enhancements and Improvements for Rel-8 Conformance Testing(TEI8_Test)	RAN5	CR	Rel-8	TEI8_Test	
approved	08.5.4.2	RP-101147	RAN5 agreed non TTCN CR(s) under WI Small Technical Enhancements and Improvements for Rel-9 Conformance Testing(TEI9_Test)	RAN5	CR	Rel-9	TEI9_Test	
approved	08.5.5	RP-101148	CR to 34.123-3: Add new verified and e-mail agreed TTCN test cases in the TC lists in 34.123-3 (prose), Annex A	RAN5	CR	Rel-8	TEI8_Test	
approved	08.5.5	RP-101149	CR to 34.123-3: Add new verified and e-mail agreed TTCN	RAN5	CR	Rel-8	-	

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			test cases in the TC lists in 34.123-3 (TTCN), Annex A					
approved	08.5.5	RP-101150	CR to 34.229-3 (prose) update to v850	RAN5	CR	REL-8	TEI8_Test	
approved	08.5.5	RP-101151	CR to 36.523-3: Add new verified and e-mail agreed TTCN test cases in the TC lists in 36.523-3 (prose), Annex A	RAN5	CR	REL-8	LTE-UEConTest_SIG	
approved	08.5.5	RP-101152	CR to 36.523-3: Add new verified and e-mail agreed TTCN test cases in the TC lists in 36.523-3 (TTCN), Annex A	RAN5	CR	REL-8	LTE-UEConTest_SIG, LTE-UEConTest_RF	
approved	09.03	RP-101153	RAN5 agreed non TTCN CR(s) under WI Conformance test aspects – Support for IMS Emergency Calls over LTE (IMS_EMER_LTE_UEConTest)	RAN5	CR	Rel-9	IMS_EMER_LTE_UEConTest	
approved	09.05	RP-101154	RAN5 agreed non TTCN CR(s) under WI Conformance test aspects – AGNSS test case development for UMTS (AGNSSTest_UTRAN)	RAN5	CR	Rel-10	AGNSSTest_UTRAN	
approved	09.06	RP-101155	RAN5 agreed non TTCN CR(s) under WI Conformance test aspects – LTE TDD in 2600MHz for US (LTE_TDD_2600_US-UEConTest)	RAN5	CR	Rel-10	LTE_TDD_2600_US-UEConTest	
approved	09.07	RP-101156	RAN5 agreed non TTCN CR(s) under WI Conformance Test Aspects – CT1 aspects of IMS Emergency Calls over GPRS and EPS (IMS_EMER_GPRS_EPS_UEConTest)	RAN5	CR	Rel-9	IMS_EMER_GPRS_EPS_UEConTest	
approved	09.08	RP-101157	RAN5 agreed non TTCN CR(s) under WI Conformance test aspects – Multiple Band and Multiple Frequency operation for LCR TDD (LCRTDD_MB_MF_UEConTest)	RAN5	CR	Rel-7	LCRTDD_MB_MF_UEConTest	
approved	09.09	RP-101158	RAN5 agreed non TTCN CR(s) under WI Conformance test aspects – Paging Permission with Access Control (PPAC_UEConTest)	RAN5	CR	Rel-8	PPAC_UEConTest	
approved	09.10	RP-101159	RAN5 agreed non TTCN CR(s) under WI Conformance test aspects – Enhanced Dual-layer transmission for LTE TDD (LTEimp-eDL_UEConTest)	RAN5	CR	Rel-9	LTEimp-eDL_UEConTest	
approved	09.11	RP-101160	RAN5 agreed non TTCN CR(s) under WI Conformance test aspects – Combination of DC-HSDPA with MIMO (RANimp-DC_MIMO_UEConTest)	RAN5	CR	Rel-9	RANimp-DC_MIMO_UEConTest	
approved	09.12	RP-101161	RAN5 agreed non TTCN CR(s) under WI Conformance test aspects – Home NB enhancements for FDD (EHNB-UTRA_FDD_UEConTest)	RAN5	CR	Rel-9	EHNB-UTRA_FDD_UEConTest	
approved	10.3.2.1	RP-101162	TS 37.320 v2.0.0 on Radio measurement collection for Minimization of Drive Tests (MDT); Overall description; Stage 2	Nokia Siemens Networks	TS	REL-10	MDT_UMTSLTE-Core	
noted	10.4.05.2	RP-101163	TR 36.808, V1.0.0 on Carrier Aggregation Base Station (BS) radio transmission and reception	Nokia Siemens Networks	Information	Rel-10	LTE_CA-Core	
noted	07.2.2	RP-101164	Invitation To Review recommendation ITU-R M.1073-2 Digital Cellular Land Mobile Telecommunication Systems	ITU-R WP5A	LSin			
revised in RP-101377	12.2	RP-101165	MIMO enhancement for LTE-Advanced	Alcatel-Lucent, Alcatel-Lucent Shanghai Bell, AT&T	SID	REL-11		
approved	10.2.04.1	RP-101166	TR 25.968, V1.0.0 on 1.28Mcps TDD Home NodeB Radio Frequency (RF) Requirements (Approval)	TD Tech	TR	REL-10	HNB_LCRTDD_RF-perf	
revised in RP-101381	12.1	RP-101167	Work item proposal for E850 (Extending 850MHz) – Upper 850 MHz Band	Sprint, KDDI,LG Uplus, Ericsson, ST Ericsson, SiSilicon and Huawei	WID	Rel-10		

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noted	15.	RP-101168	3GPP Work Plan review at Plenary #50	MCC	Workplan			
noted	15.	RP-101169	Standardization of Machine-type Communications	MCC	Info			
noted	15.	RP-101170	3GPP Green activities / Energy Saving	MCC	Info			
noted	15.	RP-101171	3GPP work items on HN(e)B and SON	MCC	Info			
noted	15.	RP-101172	3GPP Releases Descriptions – Rel-9 to Rel-11	MCC	Info			
revised in RP-101372	12.2	RP-101173	Study Item: UE Application Layer Data Throughput	Spirent Communications	SID			
revised in RP-101382	07.2.1	RP-101174	"LTE-Advanced" material for Rec. ITU-R M.[IMT.RSPEC]	ITU-R Ad hoc	Disc			
noted	07.2.1	RP-101175	Supporting input for the OPs	ITU-R Ad Hoc	Disc			
revised in 1405	10.2.01	RP-101176	Update of TS reference in "AGNSS Minimum Performance for UTRAN" WID	Thales	WID	REL-10	AGNSSTest_UTRAN	
noted	06.3	RP-101177	Reply LS on GSM OTA Requirements and Tests	TSG GERAN	LSin	Rel-9	RInImp-UEAnt	
noted	10.2.12	RP-101178	LS on Enhancements of Iur-g interface	TSG GERAN WG2	LSin	REL-10	Enhancements of Iur-g interface	
noted	06.3	RP-101179	Reply to "LS on CRs for MSR specifications"	TSG GERAN WG1	LSin	Rel-9	RInImp9-RFmulti-GERAN	
noted	10.3.5.1	RP-101180	Reply to "LS on Status of the MSR-NC work item"	TSG GERAN WG1	LSin	Rel-10	MSR_NC-Core	
noted	06.1	RP-101181	Current status for LTE frequency plan in the 800~900 MHz band in Korea	TTA	Info			
approved (for rel-8)	08.5.2	RP-101182	TR 36.903 v1.0.0 on Derivation of test tolerances for multi-cell RRM conformance tests (Approval)	Agilent Technologies	TR	Rel-9	LTE-UEConTest_RF	
approved	10.3.2.1	RP-101183	36.331 CR on Introduction of Minimization of Drive Tests	Nokia Siemens Networks, Nokia Corporation	CR	REL-10	MDT_UMTSLTE-Core	
approved	10.4.10.1	RP-101184	Introduction of L-band in TS 25.466	LightSquared, Nokia Siemens Networks	CR	REL-10	L_Band_LTE_ATC_MSS-Core	
revised in 1435	12.1	RP-101185	LTE Advanced Carrier Aggregation of Band 4 and Band 13	Verizon	WID	REL-10		
revised in 1421	11.4	RP-101186	Revised SID Proposal: Coordinated Multi-Point Operation for LTE	Samsung	SID	REL-11		
noted	10.3.3.1.1	RP-101187	Technically endorsed CR package for the RANAP option	RAN3	CR	REL-10	HNB-HENB_mob_enh	
approved	10.3.3.1.1	RP-101188	Technically endorsed CR package for the RNSAP option	RAN3	CR	REL-10	HNB-HENB_mob_enh	
revised in 1434	12.1	RP-101189	New Work Item Proposal: Further Enhanced ICIC for LTE	Qualcomm	WID	Rel-11		
noted	08.2.2	RP-101190	On splitting LTE Semi-Persistent Scheduling and TTI Bundling in different FGI bits	Qualcomm, NTT DoCoMo	Disc	Rel-9		
approved	12.1	RP-101191	Work item proposal: Conformance Test Aspects – Home eNB enhancements	Qualcomm Incorporated	WID	Rel-9		
revised in RP-101401	10.4.09	RP-101192	Updated Work Item Description for S_Band_LTE_ATC_MSS	DBSD, Terrestar Networks	WID	REL-10	S_Band_LTE_ATC_MSS	
withdrawn	10.4.10	RP-101193	Band 24(L-Band) impact on legacy devices using GPS	Sprint	Approval	REL-10		
approved	08.2.3	RP-101194	RAN2 CRs on Continuous connectivity for packet data users	RAN2	CR	REL-7	RANimp-CPC	
approved	08.2.3	RP-101195	RAN2 CRs on Enhanced CELL_FACH State in FDD	RAN2	CR	REL-7	RANimp-EnhState	
approved	08.2.3	RP-101196	RAN2 CRs on 1.28 Mcps TDD Enhanced Uplink: Layer 2 and 3 Protocol Aspects	RAN2	CR	REL-7	LCRTDD-EDCH-L23	
approved	08.2.4.1	RP-101197	RAN2 CRs on LTE – Radio Interface Layer 2 and 3	RAN2	CR	REL-8	LTE-L23	

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			Protocol Aspect					
approved	08.2.4.2	RP-101198	RAN2 CRs on HS-DSCH Serving Cell Change Enhancements	RAN2	CR	REL-8	RANimp-HSDSCH	
approved	08.2.4.2	RP-101199	RAN2 CRs on Improved L2 for uplink	RAN2	CR	REL-8	RANimp-UplinkL2dataRates	
approved	08.2.4.2	RP-101200	RAN2 CRs on Enhanced Uplink for CELL_FACH State in FDD	RAN2	CR	REL-8	RANimp-UplinkEnhState	
approved	08.2.4.2	RP-101201	RAN2 CRs on 3.84 Mcps TDD MBSFN Integrated Mobile Broadcast	RAN2	CR	REL-8	MBSFN-DOB	
approved	08.2.4.2	RP-101202	RAN2 CRs on CS Voice Service over HSPA	RAN2	CR	REL-8	RInImp8-CsHspa	
approved	08.2.4.2	RP-101203	RAN2 CRs on Paging Permission with Access Control (PPACR)	RAN2	CR	REL-8	PPACR	
approved	08.2.4.2	RP-101204	RAN2 CRs on Earthquake and Tsunami Warning System	RAN2	CR	REL-8	ETWS	
approved	08.2.4.2	RP-101205	RAN2 CRs on Small Technical Enhancements and Improvements for Rel-8	RAN2	CR	REL-8	TEI8	
approved	08.2.5.1	RP-101206	RAN2 CRs on Home NB and Home eNB enhancements - RAN2 aspects	RAN2	CR	REL-9	EHNB-RAN2	
approved	08.2.5.1	RP-101207	RAN2 CRs on Positioning Support for LTE	RAN2	CR	REL-9	LCS_LTE	
approved	08.2.5.1	RP-101208	RAN2 CRs on MBMS support in LTE	RAN2	CR	REL-9	MBMS_LTE	
approved	08.2.5.1	RP-101209	RAN2 CR on Self-Organizing Networks (SON)	RAN2	CR	REL-9	SON	
approved	08.2.5.1	RP-101210	RAN2 CRs on Small Technical Enhancements and Improvements for Rel-9 for LTE	RAN2	CR	REL-9	TEI9, LTE-L23	
approved	08.2.5.2	RP-101211	RAN2 CRs on Combination of DC-HSDPA with MIMO	RAN2	CR	REL-9	RANimp-DC_MIMO	
approved	08.2.5.2	RP-101212	RAN2 CRs on Small Technical Enhancements and Improvements for Rel-9	RAN2	CR	REL-9	TEI9	
approved	10.1.5	RP-101213	RAN2 CRs on Small Technical Enhancements and Improvements for Rel-10	RAN2	CR	REL-10	TEI10	
approved	10.1.5	RP-101214	RAN2 CRs on Small Technical Enhancements and Improvements for Rel-10 for LTE	RAN2	CR	REL-10	TEI10, LTE-L23, LTE-Interfaces	
approved	10.1.5	RP-101215	RAN2 CR to 36.331 adding e1xCSFB support for dual Rx/Tx UE	RAN2	CR	REL-10	TEI10, LTE-L23	CP-100761
approved	10.1.5	RP-101216	RAN2 CR on Introduction of LIPA function	RAN2	CR	REL-10	LIPA_SIPTO	
revised in RP-101365	10.2.02	RP-101217	RAN2 CRs on 1.28 Mcps TDD Multi-carrier HSUPA	RAN2	CR	REL-10	TDD_MC_HSUPA	RP-101365
revised in RP-101366	10.2.05.1	RP-101218	RAN2 CRs on Core part: Four carrier HSDPA	RAN2	CR	REL-10	4C_HSDPA-Core	RP-101366
approved	10.2.07.1	RP-101219	RAN2 CRs on Core part: MU-MIMO for 1.28Mcps TDD	RAN2	CR	REL-10	MUMIMO_LCR_TDD-Core	
approved	10.2.13	RP-101220	RAN2 CR on Introduction of detected set measurements and reporting for Inter-frequency	RAN2	CR	REL-10	Interf_dset_meas_UMTS	
partially approved	10.3.2.1	RP-101221	RAN2 CRs on Core part: Minimization of Drive Tests for E-UTRAN and UTRAN	RAN2	CR	REL-10	MDT_UMTSLTE-Core	RP-101183
approved	10.3.3.1	RP-101222	RAN2 CR on Core part: HNB and HeNB Mobility Enhancements	RAN2	CR	REL-10	HNB_HENB_mob_enh-Core	
postponed	10.3.4.1	RP-101223	RAN2 CRs on Core part: Expanded 1900 MHz Band for UTRA and LTE	RAN2	CR	REL-10	E1900-Core	
approved	10.3.6	RP-101224	RAN2 CR on RAN mechanisms to avoid CN overload due to Machine-Type Communications	RAN2	CR	REL-10	NIMTC-RAN_overload	

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approved	10.4.04.1	RP-101225	RAN2 CR on Core part: UL multiple antenna transmission for LTE	RAN2	CR	REL-10	LTE_UL_MIMO-Core	
approved	10.4.05.1	RP-101226	RAN2 CRs on Core part: Carrier Aggregation for LTE	RAN2	CR	REL-10	LTE_CA-Core	
approved	10.4.05.1	RP-101227	RAN2 CR on multiple work items: Core part: Carrier Aggregation for LTE, Core part: UL multiple antenna transmission for LTE, Core part: Enhanced Downlink Multiple Antenna Transmission for LTE	RAN2	CR	REL-10	LTE_CA-Core, LTE_UL_MIMO-Core, LTE_eDL_MIMO-Core	
partially approved	10.4.06.1	RP-101228	RAN2 CRs on Core part: Relays for LTE	RAN2	CR	REL-10	LTE_Relay-Core	
approved	10.4.08.1	RP-101229	RAN2 CRs on Core part: Enhanced ICIC for non-CA based deployments of heterogeneous networks for LTE	RAN2	CR	REL-10	eICIC_LTE-Core	
approved	10.4.11.1	RP-101230	RAN2 CRs on Core part: LTE Self Optimizing Networks (SON) enhancements	RAN2	CR	REL-10	SONenh_LTE-Core	
partially approved	10.4.13.1	RP-101231	RAN2 CRs on Core part: Further enhancements to MBMS for LTE	RAN2	CR	REL-10	MBMS_LTE_enh-Core	
approved	10.2.12.1	RP-101232	Revised WID for Enhancements of Iur-g interface – RAN part	ZTE	WID	REL-10	Elurg-RAN	
Revised in RP-101286	11.6	RP-101233	TR25.865 v1.0.0 on on Improvements of distributed antenna for 1.28Mcps TDD (Approval)	ZTE	TR	REL-10	FS_distr_ant_LCR_TDD	
withdrawn	10.4.08	RP-101234	Updated WID: Enhanced ICIC for non-CA based deployments of heterogeneous networks for LTE	CMCC	WID	REL-10	eICIC_LTE-Core	
noted	11.5	RP-101235	Network Energy Saving for E-UTRAN - TR36.927 v1.0.0 for information	CMCC	Info	REL-10	FS_Energy_LTE	
withdrawn	11.5	RP-101236	Updated SID: Network Energy Saving for E-UTRAN	CMCC	SID	REL-10	FS_Energy_LTE	
withdrawn	11.7	RP-101237	Updated SID for signaling and procedure for interference avoidance for in-device coexistence	CMCC	SID	REL-10	FS_SPIA_IDC	
revised in 1436	12.1	RP-101238	New WI proposal: UE demodulation performance requirements under multiple-cell scenario for 1.28Mcps TDD	CMCC	WID	REL-10		
noted	10.4.01	RP-101239	Network-Based Positioning Support in LTE	TruePosition	Disc	REL-10	LCS_LTE-NBPS	
postponed	12.1	RP-101240	New Work Item Proposal: Enhanced Carrier Aggregation for LTE	CATT	WID	REL-11		
revised in 1427	12.2	RP-101241	New Study Item Proposal: DL-UL Interference Management for TDD EUTRA	CATT	SID	REL-11		
revised in 1426	10.3.3.1	RP-101242	Update to WI HNB and HeNB Mobility Enhancements	Alcatel-Lucent	WID	Rel-10	HNB-HENB_mob_enh	
noted	10.3.3.1	RP-101243	Summary of RANAP and RNSAP HNB mobility solutions	Alcatel-Lucent	Disc	Rel-10	HNB-HENB_mob_enh	
approved	10.4.13	RP-101244	Revised WID: Further enhancements to MBMS for LTE	Huawei	WID	Rel-10		
approved	12.1	RP-101245	New work item proposal: UE Conformance Test Aspects – MBMS in LTE	Huawei	WID	Rel-10		
revised in 1428	12.1	RP-101246	New work item proposal: Uplink Transmit Diversity for HSPA	Huawei	WID	Rel-11		
revised in RP-101376	12.2	RP-101247	New Study Item Proposal: Enhanced Multiple Antenna Transmission for LTE	Huawei	SID	Rel-11		
noted	11.7	RP-101248	Study on signalling and procedure for interference avoidance for in-device coexistence - TR 36.816v1.0.0 for information	CMCC	Info	REL-10	FS_SPIA_IDC	
revised in RP-101383	10.3.3.1.1	RP-101249	The handling of Intra HNB-GW HNB-HNB mobility	NEC	Disc		HNB_HENB_mob_enh-Core	

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revised in RP-101384	10.3.3.1.1	RP-101250	The Intra HNB-GW HNB-HNB mobility	NEC	Disc		HNB_HENB_mob_enh-Core	
revised in RP-101385	10.3.3.1.1	RP-101251	The Intra HNB-GW HNB-HNB mobility option	NEC	Disc		HNB_HENB_mob_enh-Core	
noted	09.05	RP-101252	TS 34.172 V1.0.0 on Terminal conformance specification; Assisted Global Navigation Satellite Systems (A-GNSS); Frequency Division Duplex (FDD)	Spirent Communications	TS	Rel 10	AGNSSTest_UTRAN	
noted	09.04	RP-101253	TS 36.571-1 V1.0.0 on User Equipment (UE) conformance specification; UE positioning in E-UTRA; Part 1: Minimum Performance conformance	Spirent Communications	TS	Rel 9	LCS_LTE_UEConTest	
noted	09.05	RP-101254	TS 37.571-5 V1.0.0 on User Equipment (UE) conformance specification; UE positioning in E-UTRA; Part 5: UE positioning test scenarios and assistance data	Spirent Communications	TS	Rel 9	AGNSSTest_UTRAN, LCS_LTE_UEConTest	
approved	08.5.4.1	RP-101255	GCF Priority 2 - Correction to EUTRA RLC test case 7.2.3.21	Anite	CR	Rel-8	LTE-UEConTest_SIG	
noted	06.1	RP-101256	Liaison Statement from the DVB Project to 3GPP	DVB Project	LSin			
noted	06.3	RP-101257	Response LS on Status of European Harmonised Standards for 3GPP technologies	RAN4	LSin			
noted	15.	RP-101258	Support Team report	MCC	Report			
noted	08.2.5.1	RP-101259	FGI bits related to CDMA2000 in Rel-9	KDDI	CR	REL-9	LTE-L23, LTE-L23	
revised in RP-101375	08.4.2	RP-101260	UE Conformance Testing for inter-RAT redirection	Telecom Italia, Orange, Telefonica, Vodafone	Decision	Rel-8 and Rel-9		
revised in 1402	10.3.5	RP-101261	Revised WI sheet on Multi-standard radio BS RF requirements for non-contiguous spectrum deployments	Telecom Italia, Ericsson, Telefonica	WID	Rel-10	MSR_NC	
revised in RP-101417	10.4.06	RP-101262	Updated Relay WI Description	Ericsson	WID	Rel-10	LTE_Relay	
approved	08.2.5.2	RP-101263	Procedural text to support measurements in the Secondary UL Frequency	Ericsson, ST-Ericsson	CR	Rel-9	RANimp-DC_HSUPA	
approved	08.2.5.2	RP-101264	Procedural text to support measurements in the Secondary UL Frequency	Ericsson, ST-Ericsson	CR	Rel-10	RANimp-DC_HSUPA	
noted	12.2	RP-101265	New study item proposal for Dynamic TDD UL/DL allocation	Ericsson, ST-Ericsson	SID	Rel-11	-	
approved	10.4.07	RP-101266	Way forward with latency reductions for LTE	Ericsson, ST-Ericsson	Disc	Rel-10	LTE_LATRED	
revised in RP-101429	10.4.05.1	RP-101267	Inclusion of new UE categories in Rel-10	Ericsson, ST-Ericsson	CR	REL-10	LTE_CA-Core, LTE_UL_MIMO-Core, LTE_eDL_MIMO-Core	
approved	10.4.05.1	RP-101268	Inclusion of new UE categories in Rel-10	Ericsson,	CR	REL-10	LTE_CA-Core, LTE_UL_MIMO-Core, LTE_eDL_MIMO-Core	
approved	08.3.4.2	RP-101269	RAN3 CRs for Rel-8	RAN3	CR	Rel-8	HNB-arch, RANimpEnhState1.28TDD, RANimpLCRCPC, TEI8	
approved	08.3.5.1	RP-101270	CRs related to LTE	RAN3	CR	Rel-9	LCS_LTE, LTE-	

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							interfaces, MBMS_LTE	
approved	08.3.5.2	RP-101271	Other Rel-9 CRs	RAN3	CR	Rel-9	EHNB-RAN3, TEI9, RANimp-DC_MIMO, SON	
approved	10.1.5	RP-101272	TEI10 CRs	RAN3	CR	Rel-10	TEI10	
revised in RP-101370	10.1.5	RP-101273	LIPA_SIPTO CRs	RAN3	CR	Rel-10	LIPA_SIPTO	
approved	10.2.02	RP-101274	1.28Mcps TDD Multi-carrier HSUPA CRs	RAN3	CR	Rel-10	TDD_MC_HSUPA	
approved	10.2.05.1	RP-101275	Four carrier HSDPA CRs	RAN3	CR	Rel-10	4C_HSDPA-Core	
approved	10.2.06.1	RP-101276	RF Pattern Matching Technologies CRs	RAN3	CR	Rel-10	LCS_UMTS_RFPMT-Core	
approved	10.2.07.1	RP-101277	MU-MIMO for 1.28Mcps TDD CRs	RAN3	CR	Rel-10	MUMIMO_LCR_TDD-Core	
approved	10.3.1	RP-101278	UMTS/LTE 3500 MHz CRs	RAN3	CR	Rel-10	RInImp8-UMTSLTE3500	
approved	10.3.3.1	RP-101279	HNB and HeNB Mobility Enhancements CRs	RAN3	CR	Rel-10	HNB_HENB_mob_enh-Core	
postponed	10.3.4.1	RP-101280	Expanded 1900 MHz Band for UTRA and LTE CRs	RAN3	CR	Rel-10	E1900-Core	
approved	10.4.06.1	RP-101281	Relays for LTE CRs	RAN3	CR	Rel-10	LTE_Relay-Core	
postponed	10.4.08.1	RP-101282	Enhanced ICIC CRs	RAN3	CR	Rel-10	eICIC_LTE-Core	
postponed	10.4.09.1	RP-101283	2 GHz band LTE for ATC of MSS in North America CRs	RAN3	CR	Rel-10	S_Band_LTE_ATC_MSS-Core	
approved	10.4.10	RP-101284	Updated WID for the L_BAND_LTE_ATC_MSS WI	LightSquared	WID	Rel-10	L_BAND_LTE_ATC_MSS	
approved	10.4.10.1	RP-101285	TR 36.813 “Adding L-Band LTE for ATC of MSS in North America”, version 2.0.0	LightSquared	TR	Rel-10	L_BAND_LTE_ATC_MSS	
approved	11.6	RP-101286	TR25.865 v1.0.1 on on Improvements of distributed antenna for 1.28Mcps TDD (Approval)	ZTE	TR	REL-10	FS_distr_ant_LCR_TDD	
approved	11.6	RP-101287	Status report for SI Study on Improvements of distributed antenna for 1.28Mcps TDD, rapporteur: ZTE	RAN1	Report	REL-10	FS_distr_ant_LCR_TDD	RP-100799
postponed	12.1	RP-101288	Consideration for LTE Carrier Aggregation WI in Release 11	Nokia Siemens Networks, Nokia	Disc.	Rel 11		
withdrawn	10.1.5	RP-101289	AC-Barring for Mobile Originating CSFB call	Renesas Technology Europe, Nokia Corporation, Nokia Siemens Networks	CR	10	LTE-L23, TEI10	
withdrawn	10.4.03.1	RP-101290	Introduction of Carrier aggregation and UL/DL MIMO	Renesas Technology Europe, Nokia Corporation, Nokia Siemens Networks	CR	10	LTE_CA-Core, LTE_UL_MIMO-Core, LTE_eDL_MIMO-Core	
withdrawn	10.4.03.1	RP-101291	UE capability signaling for CA and MIMO in REL10	Renesas Technology Europe, Nokia Corporation, Nokia Siemens Networks	CR	10	LTE_CA-Core, LTE_UL_MIMO-Core, LTE_eDL_MIMO-Core	
noted	08.2.5.2	RP-101292	Mandating SPS for VoLTE capable UEs	NTT DOCOMO, INC.	Disc	REL-9	LTE-L23, TEI9	
approved	10.1.5	RP-101293	AC-Barring for Mobile Originating CSFB call	NTT DOCOMO, INC., Panasonic, NEC, Fujitsu, Samsung	CR	REL-10	LTE-L23, TEI10	

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revised in 1419	12.1	RP-101294	New work item proposal for eight carrier HSDPA	Ericsson	WID	Rel-11		
Revised in RP-101367	10.3.3.1	RP-101295	Presentation of Iurh Interface RNSAP User Adaption signalling Specification	Alcatel-Lucent	TS	Rel-10		
withdrawn	12.1	RP-101296	Enhancements for HNB and HeNB	Alcatel-Lucent	WID	Rel-11		
withdrawn	12.1	RP-101297	New Work Item Proposal: Further Enhanced ICIC for LTE	Alcatel-Lucent, Alcatel-Lucent Shanghai Bell	WID	REL-11	LTE-A_eCIC_Enh2	
noted	10.4.01	RP-101298	Way Forward for Network-Based Positioning for LTE	Alcatel-Lucent, Alcatel-Lucent Shanghai Bell	Discussion			
revised in RP-101414	10.4.01	RP-101299	Network-Based Positioning Support for LTE	Alcatel-Lucent, Alcatel-Lucent Shanghai Bell	WID (update)	Rel-11	LCS_LTE-NBPS	
revised in RP-101394	10.2.13	RP-101300	Revised WID for Interfrequency Detected Set Measurements for UMTS	Qualcomm Incorporated	WID	REL-10	Interf_dset_meas_UMTS	
revised in 1432	12.1	RP-101301	WI proposal for Closed Loop Uplink Single and Dual Stream Transmission	Qualcomm Incorporated, Deutsche Telekom, Ericsson, Nokia Siemens Networks, ST-Ericsson, T-Mobile USA, eMobile, Interdigital, Telecom Italia	WID	REL-11	RANimp-UL-CLTD-MIMO	
revised in 1413	12.1	RP-101302	WID: HSDPA multipoint transmission	Nokia Siemens Networks	WID	Rel-11		
revised in RP-101379	08.4.4.1	RP-101303	Correction of the PMI reporting in Multi-Laye Spatial Multiplexing performance test	Huawei	CR	REL-10	LTE-RF	
approved	10.4.11.1	RP-101304	LTE SON enhancements CRs	RAN3	CR	Rel-10	SONenh_LTE-Core	
noted	09.04	RP-101305	Update to Conformance test aspects – LTE Positioning WID	Alcatel Lucent	WID		LCS_LTE_UECon Test	
revised in RP-101380	08.4.5.1	RP-101306	Adding antenna configuration in CQI fading test case	Huawei	CR	Rel-10	LTE-RF	
noted	10.4.01	RP-101307	LS on Summary of UTDOA Evaluation in RAN1	RAN1	LSin	Rel-10	LCS_LTE-NBPS	
approved	10.2.08.1	RP-101308	Status report for WI Perf. part: Performance Requirements for two-antenna 1.28Mcps TDD Type 1 and Type 2 UE receiver, rapporteur: TD Tech	RAN4	Report	REL-10	2ant_UE_LCR_TDD-Perf	RP-100757
approved	08.4.5.1	RP-101309	Demodulation performance requirements for dual-layer beamforming	CMCC	CR	Rel-10	LTEimp-eDL	
approved	08.1.3	RP-101310	CRs to 25.214 to clarify the Number of PCCH transmissions in CELL_PCH states	RAN WG1	CR	REL-7	RANimp-EnhState	
approved	08.1.3	RP-101311	CRs to 25.214 to correct the single stream CQI reporting in MIMO mode	RAN WG1	CR	REL-7	MIMO-Phys	
approved	08.1.3	RP-101312	CRs to 25.214 to clarify E-AGCH/E-RGCH monitoring and uplink DPCCH transmission	RAN WG1	CR	REL-7	RANimp-CPC	
approved	08.1.3	RP-101313	CRs to 25.214 clarifying of E-DPCCH gain factor calculation in compressed mode	RAN WG1	CR	REL-7	RANimp-16QamUplink	
approved	08.1.4.2	RP-101314	CRs to 25.224 to correct MC-HSDPA DRX for LCRTDD	RAN WG1	CR	REL-8	RANimp-LCRCPC	
approved	08.1.5.2	RP-101315	CRs to 25.212 & 25.214 to clarify DC-HSDPA with MIMO	RAN WG1	CR	REL-9	RANimp-	

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			operation"				DC_MIMO	
approved	08.1.5.2	RP-101316	CRs to 25.224 & 25.433 to clarify Special Burst Power for LCRTDD	RAN WG1	CR	REL-9	TEI9	
approved	10.2.02	RP-101317	Set of CRs for the introduction of MC-HSUPA for LCRTDD	RAN WG1	CR	REL-10	TDD_MC_HSUPA	
approved	10.2.05.1	RP-101318	Set of CRs for few corrections on 4C HSDPA feature	RAN WG1	CR	REL-10	4C_HSDPA-Core	
approved	10.2.07.1	RP-101319	Set of CRs fot the introduction of MU-MIMO feature	RAN WG1	CR	REL-10	MUMIMO_LCR_TDD-Core	
approved	10.4.05.1	RP-101320	Set of CRs for the introduction of Rel-10 features	RAN WG1	CR	REL-10	LTE_CA-Core, LTE_eDL_MIMO-Core, LTE_UL_MIMO-Core	
approved	10.4.06.1	RP-101321	CR to 36.216 for Rel-10 Relay feature	RAN WG1	CR	REL-10	LTE_Relay-Core	
withdrawn	12.2	RP-101322	Study Item Proposal: CoMP and Advanced Multi-Antenna Techniques for HetNet	Motorola	SID	Rel-11		
revised in RP-101391	12.1	RP-101323	New Work Item - LTE Advanced Carrier Aggregation of Band 4 and Band 17	AT&T	WID	-		
approved	08.4.4.1	RP-101324	Correction on the statement of TB size and subband selection in CSI tests	Huawei, NEC	CR	Rel-8	LTE-RF	
approved	08.4.4.1	RP-101325	Correction on the statement of TB size and subband selection in CSI tests	Huawei, NEC	CR	Rel-10	LTE-RF	
approved	08.4.3	RP-101326	Rel-7 maintenance CRs for 25.102 Spec	RAN4	CR		TEI7	
approved	08.4.4.1	RP-101327	Rel-8 maintenance CR for LTE band 12 (UE and BS), (36.101, 36.104, 36.113, 36.124, 36.141)	RAN4	CR		TEI8	
approved	08.4.4.1	RP-101328	Rel-8 maintenance CR for PUCCH (BS), (36.104, 36.141)	RAN4	CR		LTE-RF/TEI8	
approved	08.4.4.1	RP-101329	Rel-8 maintenance CRs for LTE UE, CQI/PMI/RI (36.101)	RAN4	CR		LTE-RF	
approved	08.4.4.1	RP-101330	Rel-8 maintenance CRs for LTE UE, RF (36.101)	RAN4	CR		LTE-RF	
approved	08.4.4.1	RP-101331	Rel-8 maintenance CRs for LTE RRM corrections and Clarifications (36.133)	RAN4	CR		LTE-RF	
approved	08.4.4.1	RP-101332	Rel-8 maintenance CRs for LTE RRM, 2nd set (36.133)	RAN4	CR		LTE-RF	
approved	08.4.4.1	RP-101333	Rel-8 maintenance CRs for E-UTRA FDD repeaters (36.106, 36.143)	RAN4	CR		TEI8	
approved	08.4.4.2	RP-101334	Rel-8 maintenance CRs for band XII (UE and BS), (25.101, 25.104, 25.113, 25.141, 25.461)	RAN4	CR		TEI8	
approved	08.4.4.2	RP-101335	Rel-8 maintenance CRs for CSG cell reselection, (25.133, 36.133)	RAN4	CR		LTE-L23, HNB-supp, LTE-UEConTest, HNB-UEConTestFDD	
approved	08.4.4.2	RP-101336	Rel-8 maintenance CRs for CDMA and E-UTRA bands protection, (25.106, 25.143, 36.106, 36.143)	RAN4	CR		TEI8	
approved	08.4.4.2	RP-101337	Rel-8 CRs for removing Brackets at the minimum requirement for RCDE for 64QAM (25.106, 25.143, 36.106)	RAN4	CR		TEI8	
approved	08.4.4.2	RP-101338	Rel-8 CRs for Corrections due to the introduction of the definition of pass band	RAN4	CR		TEI8	
approved	08.4.4.2	RP-101339	Other rel-8 maintenance CRs for 25-serie specs (UE)	RAN4	CR		-	
approved	08.4.4.2	RP-101340	Other rel-8 maintenance CRs for 25-serie specs (BS)	RAN4	CR			
approved	08.4.5.1	RP-101341	Rel-9 maintenance CRs for LTE UE, RF (36.101)	RAN4	CR		LTE-RF/TEI9	
approved	08.4.5.1	RP-101342	Rel-9 maintenance CRs for LTE BS, RF (36.104, 36.141)	RAN4	CR		LTE-RF/TEI9	
approved	08.4.5.1	RP-101343	Rel-9 maintenance CRs for LTE RRM (36.133)	RAN4	CR			

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approved	08.4.5.1	RP-101344	Other rel-9 maintenance corrections for 36 series	RAN4	CR			
approved	08.4.5.2	RP-101345	Rel-9 maintenance CRs for MSR band XII/12. (37.104, 37.113, 37.141)	RAN4	CR		TEI9	
approved	08.4.5.2	RP-101346	Rel-9 maintenance CRs for MSR specifications (37.113, 37.141)	RAN4	CR			
approved	08.4.5.2	RP-101347	Rel-9 maintenance CRs for repeaters (25.106, 25.143, 36.106, 36.143)	RAN4	CR		TEI9	
approved	08.4.5.2	RP-101348	Other rel-9 maintenance corrections for 25 series	RAN4	CR			
approved	10.1.4.1	RP-101349	CRs for LTE TDD in 2600MHz for US (Region 2), core part	RAN4	CR		LTE_TDD_2600_US-Core	
approved	10.2.01	RP-101350	CR for AGNSS Minimum Performance for UTRAN	RAN4	CR	Rel-10	AGNSSPerf_UTRAN	
approved	10.2.02	RP-101351	CRs for 1.28Mcps TDD Multi-carrier HSUPA	RAN4	CR	Rel-10	TDD_MC_HSUPA	
approved	10.2.04.1	RP-101352	CRs for 1.28Mcps TDD Home NodeB RF requirements, performance part	RAN4	CR	Rel-10	HNB_LCRTDD_RF-Perf	
approved	10.2.05.1	RP-101353	CRs for Four carrier HSDPA, Core part	RAN4	CR	Rel-10	4C_HSDPA-Core	
postponed	10.2.08.1	RP-101354	CRs for Performance Requirements for two-antenna 1.28Mcps TDD Type 1 & 2 UE receiver	RAN4	CR	Rel-10	2ant_UE_LCR_TDD-Perf	
approved	10.2.13	RP-101355	CRs for Interfrequency detected set measurements for UMTS	RAN4	CR	Rel-10	Interf_dset_meas_UMTS	
approved	10.3.1	RP-101356	CRs for UMTS/LTE 3500 MHz	RAN4	CR		RInImp8-UMTSLTE3500	
postponed	10.3.4.1	RP-101357	CRs for Expanded 1900 MHz Band for UTRA and LTE, Core part	RAN4	CR		E1900-Core	
approved	10.4.03.1	RP-101358	CRs for Enhanced Downlink Multiple Antenna Transmission for LTE, Core part	RAN4	CR	Rel-10	LTE_eDL_MIMO-Core	
approved	10.4.05.1	RP-101359	CRs for Carrier Aggregation for LTE, core part	RAN4	CR	Rel-10	LTE_CA-Core	
postponed	10.4.09.1	RP-101360	CRs for Adding 2 GHz band LTE for ATC of MSS in North America, Core part	RAN4	CR		S_Band_LTE_ATC_MSS-Core	
approved	10.4.10.1	RP-101361	CRs for Adding L-Band LTE for ATC of MSS in North America, core part	RAN4	CR		L_Band_LTE_ATC_MSS-Core	
approved	10.4.10.2	RP-101362	CRs for Adding L-Band LTE for ATC of MSS in North America, performance part	RAN4	CR	Rel-10	L_Band_LTE_ATC_MSS-Perf	
noted	08.4.1	RP-101363	Status Report RAN WG4	RAN4 chairman (Fujitsu)	Report	-	-	
noted	08.2.1	RP-101364	List of CRs from RAN WG2	RAN2	Info	-	-	RP-101057
approved	10.2.02	RP-101365	RAN2 CRs on 1.28 Mcps TDD Multi-carrier HSUPA	RAN2	CR	REL-10	TDD_MC_HSUPA	RP-101217
approved	10.2.05.1	RP-101366	RAN2 CRs on Core part: Four carrier HSDPA	RAN2	CR	REL-10	4C_HSDPA-Core	RP-101218
withdrawn	10.3.3.1	RP-101367	Presentation of Iurh Interface RNSAP User Adaption signalling Specification	Alcatel-Lucent	TS	Rel-10		
withdrawn	10.3.3.1.1	RP-101368	Additional messages to support HNB-HNB HO in HNBAP	Alcatel-Lucent, Huawei, Nokia Siemens Networks, Alcatel-Lucent Shanghai Bell	CR	Rel-10	HNB-HENB_mob_enh	
withdrawn	10.3.3.1.1	RP-101369	Additional IEs needed to support optimized HNB-HNB mobility.	Alcatel-Lucent, Huawei, Nokia Siemens Networks, Alcatel-Lucent Shanghai Bell	CR	Rel-10	HNB-HENB_mob_enh	

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revised in RP-101389	10.1.5	RP-101370	LIPA_SIPTO CRs	RAN3	CR	Rel-10	LIPA_SIPTO	
revised in 1390	08.3.1	RP-101371	List of CRs from RAN WG3	RAN3	Info	-	-	
revised in 1399	12.2	RP-101372	Study Item: UE Application Layer Data Throughput	Spirent Communications	SID			
approved	03.	RP-101373	Draft report of RAN #49 held in San Antonio, USA, 14.09.-17.09.2010	MCC	Report	-	-	
withdrawn	06.1	RP-101374	NGMN Recommendation for the CSFB Implementation by NGMN Alliance	NGMN	LSin			
noted	08.4.2	RP-101375	UE Conformance Testing for inter-RAT redirection	Telecom Italia, Orange, Telefonica, Vodafone, TeliaSonera, ZTE, Qualcomm	Decision	Rel-8 and Rel-9		
Posponed	12.2	RP-101376	New Study Item Proposal: Enhanced Multiple Antenna Transmission for LTE	Huawei	SID	Rel-11		
revised in 1437	12.2	RP-101377	MIMO enhancement for LTE-Advanced	Alcatel-Lucent, Alcatel-Lucent Shanghai Bell, AT&T	SID	REL-11		
noted	10.3.3.1.1	RP-101378	Response document to RP-101249, RP-101250, RP-101251	Alcatel-Lucent, Nokia Siemens Networks	Disc			
approved	08.4.4.1	RP-101379	Correction of the PMI reporting in Multi-Laye Spatial Multiplexing performance test	Huawei	CR	REL-10	LTE-RF	
approved	08.4.5.1	RP-101380	Adding antenna configuration in CQI fading test case	Huawei	CR	Rel-10	LTE-RF	
revised on 1433	12.1	RP-101381	Work item proposal for E850 (Extending 850MHz) – Upper 850 MHz Band	Sprint, KDDI,LG Uplus , Ericsson, ST Ericsson, SiSilicon and Huawei	WID	Rel-10		
noted	07.2.1	RP-101382	“LTE-Advanced” material for Rec. ITU-R M.[IMT.RSPEC]	ITU-R Ad hoc	Disc			
noted	10.3.3.1.1	RP-101383	The handling of Intra HNB-GW HNB-HNB mobility	NEC	Disc		HNB_HENB_mob_enh-Core	
noted	10.3.3.1.1	RP-101384	The Intra HNB-GW HNB-HNB mobility	NEC	Disc		HNB_HENB_mob_enh-Core	
noted	10.3.3.1.1	RP-101385	The Intra HNB-GW HNB-HNB mobility option	NEC	Disc		HNB_HENB_mob_enh-Core	
approved	08.4.4.1	RP-101386	Removal of square brackets from scope of TS36.133	Fujitsu	CR	REL-8	LTE-RF	
approved	08.4.4.1	RP-101387	Removal of square brackets from scope of TS36.133	Fujitsu	CR	REL-9	LTE-RF	
approved	08.4.4.1	RP-101388	Removal of square brackets from scope of TS36.133	Fujitsu	CR	REL-10	LTE-RF	
partially approved	10.1.5	RP-101389	LIPA_SIPTO CRs	RAN3	CR	Rel-10	LIPA_SIPTO	
noted	08.3.1	RP-101390	List of CRs from RAN WG3	RAN3	Info	-	-	
approved	12.1	RP-101391	New Work Item - LTE Advanced Carrier Aggregation of Band 4 and Band 17	AT&T	WID	-		
approved	10.2.05.1	RP-101392	Status report for WI Core part: Four carrier HSDPA, rapporteur: Qualcomm	RAN1	Report	REL-10	4C_HSDPA-Core	RP-100751
approved	10.2.10.2	RP-101393	Status report for WI Perf. part: MIMO operation with non-MIMO coexistence in HSDPA, rapporteur: Qualcomm Inc	RAN4	Report	REL-10	MIMO_HSDPA-Perf	RP-100760
Noted	10.2.13	RP-101394	Revised WID for Interfrequency Detected Set	Qualcomm	WID	REL-10	Interf_dset_meas_	

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(Extension not approved)			Measurements for UMTS	Incorporated + Telecom Italia			UMTS	
approved	10.2.09.1	RP-101395	Status report for WI Core part: Support of New Band Combinations for Dual-Band Dual Cell HSDPA, rapporteur: AT&T	RAN4	Report	REL-10	DB_DC_HSDPA-Core	RP-100758
noted	06.1	RP-101396	NGMN Recommendation for the CSFB Implementation by NGMN Alliance	NGMN	LSin			
noted (Agreed way forward)	07.2.2	RP-101397	Wide area sensor and/or actuator network (WASN) systems	ITU-R WP5A	LSin			
noted (Agreed way forward)	07.2.2	RP-101398	Quality of service requirements and objectives for wireless access systems	ITU-R WP5A	LSin			
revised in 1422	12.2	RP-101399	Study Item: UE Application Layer Data Throughput	Spirent Communications	SID			
approved	10.4.08.1	RP-101400	Status report for WI Core part: Enhanced ICIC for non-CA based deployments of heterogeneous networks for LTE, rapporteur: CMCC	RAN1	Report	REL-10	eICIC_LTE-Core	RP-100968
approved	10.4.09	RP-101192	Updated Work Item Description for S_Band_LTE_ATC_MSS	DBSD, Terrestar Networks	WID	REL-10	S_Band_LTE_ATC_MSS	
approved	10.3.5	RP-101402	Revised WI sheet on Multi-standard radio BS RF requirements for non-contiguous spectrum deployments	AT&T, Detusch Teleko, Ericsson, Huawei, Nokia Seimens Networks, Orange, Telecom Italia, Telefonica, TeliaSonera	WID	Rel-10	MSR_NC	
approved	14.	RP-101403	UE Application Layer Data Throughput Performance Testing in RAN5	RAN	LSout			
approved	09.04	RP-101404	Status report for WI Conformance Test Aspects – LTE Positioning, rapporteur: Alcatel-Lucent	RAN5	Report	REL-9	LCS_LTE_UEConTest	RP-100743
approved	10.2.01	RP-101405	Update of TS reference in “AGNSS Minimum Performance for UTRAN” WID	Thales	WID	REL-10	AGNSSTest_UTRAN	
revised in RP-101415	10.4.05.1	RP-101406	Status report for WI Core part: Carrier Aggregation for LTE, rapporteur: Nokia	RAN1	Report	REL-10	LTE_CA-Core	RP-100775
approved	10.3.3.1.1	RP-101407	RANAP Solution for HNB to HNB mobility	NEC	CR	Rel-10	HNB_HENB_mob_enh-Core	
revised in 1443	14.	RP-101408	LS on Status of work on UMTS/LTE 3500 MHz	3GPP RAN WG4	Lsout			
noted (Agreed way forward)	07.2.2	RP-101409	RADIO INTERFACE STANDARDS THAT COULD BE USED FOR PUBLIC PROTECTION AND DISASTER RELIEF OPERATIONS IN UHF BANDS IN ACCORDANCE WITH RESOLUTION 646 (WRC-03)	ITU-R WP5A	Lsin			
approved	10.2.11.1	RP-101410	Status report for WI Core part: Automatic Neighbour Relation (ANR) for UTRAN, rapporteur: ZTE	RAN3	Report	REL-10	ANR_UTRAN-Core	RP-100761
approved	10.3.3.1	RP-101411	Way forward on HNB-to-HNB optimized mobility	RAN3 Chairman	Approval			
revised in 1430	08.2.2	RP-101412	Splitting FGI 3	Qualcomm and al.	Approval			
revised in 1439	12.2	RP-101413	Proposed Study Item on HSDPA multipoint transmission	Nokia Siemens Netwrks	SID			
revised in RP-101442	10.4.01	RP-101414	Network-Based Positioning Support for LTE	Alcatel-Lucent, Alcatel-Lucent Shanghai Bell	WID (update)	Rel-11	LCS_LTE-NBPS	

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approved	10.4.05.1	RP-101415	Status report for WI Core part: Carrier Aggregation for LTE, rapporteur: Nokia	RAN1	Report	REL-10	LTE_CA-Core	RP-100775
approved	10.4.05.2	RP-101416	Status report for WI Perf. part: Carrier Aggregation for LTE, rapporteur: Nokia	RAN4	Report	REL-10	LTE_CA-Perf	RP-100776
approved	10.4.06	RP-101417	Updated Relay WI Description	Ericsson	WID	Rel-10	LTE_Relay	
approved	10.3.3.1	RP-101418	Status report for WI Core part: HNB and HeNB Mobility Enhancements, rapporteur: Alcatel-Lucent	RAN3	Report	REL-10	HNB_HENB_mob_enh-Core	RP-100764
approved	12.1	RP-101419	New work item proposal for eight carrier HSDPA	Ericsson	WID	Rel-11		
noted	08.4.1	RP-101420	Meeting arrangement of RAN-WG4 meetings	RAN4 chair (Fujitsu)	Disc (for discussion & decision)			
revised in 1425	11.4	RP-101421	Revised SID Proposal: Coordinated Multi-Point Operation for LTE	Samsung	SID	REL-11		
approved	12.2	RP-101422	Study Item: UE Application Layer Data Throughput	Spirent Communications	SID			
approved	13.	RP-101423	Guidance on discussion of UE capabilities for rel-10	RAN1 and RAN2 chairmen	Approval			
revised in 1440	12.2	RP-101424	Inclusion of RF Pattern Matching as a positioning method in the E-UTRAN	Polaris Wireless	SID	REL-11	-	
approved	11.4	RP-101425	Revised SID Proposal: Coordinated Multi-Point Operation for LTE	Samsung	SID	REL-11		
approved	10.3.3.1	RP-101426	Update to WI HNB and HeNB Mobility Enhancements	Alcatel-Lucent	WID	Rel-10	HNB-HENB_mob_enh	
noted	12.2	RP-101427	New Study Item Proposal for further enhancements to LET TDD for DL-UL Interference Management and traffic adaptation	CATT, Ericsson, ST-Ericsson	SID	REL-11		
revised in 1438	12.1	RP-101428	New work item proposal: Uplink Transmit Diversity for HSPA	Huawei	WID	Rel-11		
approved	10.4.05.1	RP-101429	Inclusion of new UE categories in Rel-10	Ericsson, ST-Ericsson	CR	REL-10	LTE_CA-Core, LTE_UL_MIMO-Core, LTE_eDL_MIMO-Core	
noted	08.2.2	RP-101430	Splitting FGI 3	Qualcomm and al.	Approval			
approved	08.2.2	RP-101431	Splitting FGI 3	Qualcomm and al.	CR	Rel-9	TEI9	
approved	12.2	RP-101432	WI proposal for Closed Loop Uplink Single and Dual Stream Transmission	Qualcomm Incorporated, Deutsche Telekom, Ericsson, Nokia Siemens Networks, ST-Ericsson, T-Mobile USA, eMobile, Interdigital, Telecom Italia	SID	REL-11	RANimp-UL-CLTD-MIMO	
approved	12.1	RP-101433	Work item proposal for E850 (Extending 850MHz) – Upper 850 MHz Band	Sprint, KDDI,LG Uplus , Ericsson, ST Ericsson, SiSilicon and Huawei	WID	Rel-10		
postponed	12.1	RP-101434	New Work Item Proposal: Further Enhanced ICIC for LTE	Qualcomm	WID	Rel-11		
approved	12.1	RP-101435	LTE Advanced Carrier Aggregation of Band 4 and Band 13	Verizon	WID	REL-10		

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approved	12.1	RP-101436	New WI proposal: UE demodulation performance requirements under multiple-cell scenario for 1.28Mcps TDD	CMCC	WID	REL-10		
postponed	12.2	RP-101437	MIMO enhancement for LTE-Advanced	Alcatel-Lucent, Alcatel-Lucent Shanghai Bell, AT&T	SID	REL-11		
approved	12.1	RP-101438	New work item proposal: Uplink Transmit Diversity for HSPA	Huawei	WID	Rel-11		
approved	12.2	RP-101439	Proposed Study Item on HSDPA multipoint transmission	Nokia Siemens Netwrks	SID			
revised in 1445	12.2	RP-101440	Inclusion of RF Pattern Matching as a positioning method in the E-UTRAN	Polaris Wireless	SID	REL-11	-	
approved	08.4.2	RP-101441	Way forward on conformance testing for inter-RAT redirection	Telecom Italia				
revised in RP-101444	10.4.01	RP-101442	Network-Based Positioning Support for LTE	Alcatel-Lucent, Alcatel-Lucent Shanghai Bell	WID (update)	Rel-11	LCS_LTE-NBPS	
noted	14.	RP-101443	LS on Status of work on UMTS/LTE 3500 MHz	3GPP RAN WG4	Lsout			
revised in RP-101446	10.4.01	RP-101444	Network-Based Positioning Support for LTE	Alcatel-Lucent, Alcatel-Lucent Shanghai Bell	WID (update)	Rel-11	LCS_LTE-NBPS	
approved	12.2	RP-101445	Inclusion of RF Pattern Matching as a positioning method in the E-UTRAN	Polaris Wireless	SID	REL-11	-	
approved	10.4.01	RP-101446	Network-Based Positioning Support for LTE	Alcatel-Lucent, Alcatel-Lucent Shanghai Bell	WID (update)	Rel-11	LCS_LTE-NBPS	

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Annex C:
Incoming liaison statements (LSin)

Tdoc	Agenda item	status	Title	Source
RP-101032	06.1	**status**	LS on LTE Terminal Station mask at 2 GHz (E-UTRA bands 1, 33 and 34) (ECC PT1(10)170_Annex 11; to: RAN4, ETSI ERM/MSG TFES; cc: RAN; contact: ECC PT1 Chairman)	ECC PT1
RP-101033	06.1	Noted	LS announcing second approved draft of MEF 22.1 Mobile Backhaul Implementation Agreement Phase 2 (L00115_000_LS_MEF; to: BBF IP/MPLS & Architecture, NGMN TWG P-OSB, ITU-T SG15 WP3, IEEE 802.16, WiMAX Forum Network WG, 3GPP TSG-RAN, 3GPP2 TSG-A; cc: -; contact: MEF TC Co-Chair, Verizon)	Metro Ethernet Forum (MEF)
RP-101034	10.2.12.1	Noted	LS on Enhancements of Iur-g interface (G2-100386; to: RAN2, RAN3; cc: RAN, GERAN; contact: ZTE)	GERAN2
RP-101035	10.4.06.1	Noted	LS on Relay Node Security (SP-100627; to: SA3; cc: RAN, RAN2, RAN3, CT, CT1, CT4; contact: Vodafone)	SA
RP-101036	06.2	noted	LS on Remaining work for LIPA completion (SP-100648; to: SA3, RAN3; cc: RAN, SA2; contact: LG)	SA
RP-101037	07.2.2	Noted	Response to ITU-R WP5A on “Mobile Wireless access systems providing telecommunications for a large number of ubiquitous sensors and/or actuators scattered over wide areas in the land mobile service” (SP-100649; to: ITU-R WP5A; cc: RAN, CT; contact: Telecom Italia)	SA
RP-101038	06.3	Noted	LS on RAN4 decisions on Band 12 (R4-103901; to: RAN2, RAN3, RAN5, RAN; cc: -; contact: Huawei)	RAN4
RP-101039	06.3	Noted	LS on UE categories (R1-106523; to: RAN2, RAN4; cc: RAN; contact: Ericsson)	RAN1
RP-101040	06.3	noted	Reply LS to S2-105279 on Home (e)NodeB support in LCS (R3-103744; to: SA2; cc: RAN2, RAN, SA; contact: NTT DOCOMO)	RAN3
RP-101041	10.2.12.1	noted	Reply LS to G2-100386 = RP-101034 on Enhancements of Iur-g interface (R3-103757; to: GERAN2; cc: RAN2, RAN, GERAN; contact: ZTE)	RAN3
RP-101042	06.3	Noted	LS on CRs for MSR specifications (R4-104788; to: GERAN1;	RAN4

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			cc: RAN; contact: Ericsson)	
RP-101043	10.3.5.1	noted	LS on Status of the MSR-NC work item (R4-104789; to: GERAN1; cc: RAN; contact: Ericsson)	RAN4
RP-101044	06.3	noted	GSM OTA Requirements and Tests (R4-104952; to: GERAN, GERAN1, RAN5; cc: RAN; contact: CMCC)	RAN4
RP-101045	06.3	Noted	LS Spurious Emissions Requirements of 3GPP for Band 2 (PCS Band) (R4-105019; to: 3GPP2 TSG-C, TSG-S; cc: RAN, 3GPP2 TSG-A, TSG-X; contact: Alcatel-Lucent)	RAN4
RP-101046	08.5.2	Noted	LS reply to RP-101025 on Request to RAN5 to analyse proposals for performance testing (R5-106665; to: RAN; cc: GCF SG, PTCRB; contact: Samsung)	RAN5
RP-101047	06.2	Noted	LS on CN node selection (S2-106007; to: RAN2, RAN3, CT1, CT4, GERAN2; cc: RAN, SA, CT; contact: NTT DOCOMO)	SA2
RP-101048	07.2.2	noted	LS on Revision of Recommendation ITU-R M.1224 (ITU-R WP5D/TEMP/423rev1; to: 3GPP; cc: -; contact: -)	ITU-R WP5D
RP-101049	07.2.1	Noted	LS on IMT-Advanced development (ITU-R WP5D/TEMP/413rev1; to: IEEE, 3GPP; cc:-; contact: -)	ITU-R WP5D
RP-101050	07.2.2	noted	LS on coexistence studies in relation to resolution 224 and question ITU-R 229/5 (ITU-R WP5D/TEMP/437; to: external organisations; cc: -; contact: -)	ITU-R WP5D
RP-101051	07.2.2	Noted	LS on the schedule for updating Recommendation ITU-R M.1457-10 to Revision 11 (ITU-R WP5D/TEMP/406; to: external organisations; cc: -; contact: -)	ITU-R WP5D
RP-101164	07.2.2	Noted	Invitation To Review recommendation ITU-R M.1073-2 Digital Cellular Land Mobile Telecommunication Systems	ITU-R WP5A
RP-101177	06.3	noted	Reply LS on GSM OTA Requirements and Tests	TSG GERAN
RP-101178	10.2.12	noted	LS on Enhancements of Iur-g interface	TSG GERAN WG2
RP-101179	06.3	noted	Reply to “LS on CRs for MSR specifications”	TSG GERAN WG1
RP-101180	10.3.5.1	noted	Reply to “LS on Status of the MSR-NC work item”	TSG GERAN WG1
RP-101256	06.1	noted	Liaison Statement from the DVB Project to 3GPP	DVB Project
RP-101257	06.3	noted	Response LS on Status of European Harmonised Standards for 3GPP technologies	RAN4
RP-101307	10.4.01	noted	LS on Summary of UTDOA Evaluation in RAN1	RAN1
RP-101374	06.1	noted	NGMN Recommendation for the CSFB Implementation by NGMN Alliance	NGMN
RP-101396	06.1	withdrawn	NGMN Recommendation for the CSFB Implementation by NGMN Alliance	NGMN
RP-101397	07.2.2	noted	Wide area sensor and/or actuator network (WASN) systems	ITU-R WP5A
RP-101398	07.2.2	noted (Agree	Quality of service requirements and objectives for wireless access systems	ITU-R WP5A

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RP-101409	07.2.2	noted (Agree d way forwar d)	RADIO INTERFACE STANDARDS THAT COULD BE USED FOR PUBLIC PROTECTION AND DISASTER RELIEF OPERATIONS IN UHF BANDS IN ACCORDANCE WITH RESOLUTION 646 (WRC-03)	ITU-R WP5A

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Annex D:
Outgoing liaison statements (LSout)

Tdoc	Title	Destination
RP-101403	UE Application Layer Data Throughput Performance Testing in RAN5	To: GCF SG CC: PTCRB

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Annex E:
List of Change Requests (CRs)

Spec	CR	Rev	Phase	Cat	Plenary doc	WG doc	TSG status	Subject	CR written to	Resulting vers	WG	Workitem
25.212	0290	3	Rel-10	F	RP-101318	R1-106435	approved	Clarification of 4C-HSDPA	10.0.0	10.1.0	R1	4C_HSDPA-Core
25.212	0291	1	Rel-9	F	RP-101315	R1-105736	approved	Clarification of the channel coding for DC-HSDPA with MIMO	9.3.0	9.4.0	R1	RANimp-DC_MIMO
25.212	0294	-	Rel-9	F	RP-101315	R1-106436	approved	Clarification of HARQ-ACK encoding for DC-HSDPA with MIMO	9.3.0	9.4.0	R1	RANimp-DC_MIMO
25.212	0295	-	Rel-10	F	RP-101318	R1-106437	approved	4C-HSDPA summary of CQI reporting configurations	10.0.0	10.1.0	R1	4C_HSDPA-Core
25.214	0621	1	Rel-10	F	RP-101318	R1-105738	approved	Correction of number of received HS-DSCH and HS-SCCH in DC-HSDPA-MIMO and 4C-HSDPA	10.0.0	10.1.0	R1	RANimp-DC_MIMO, 4C_HSDPA-Core
25.214	0622	1	Rel-10	F	RP-101318	R1-105739	approved	Clarification on the interruption time for 4C-HSDPA due to HS-SCCH orderred (de)activation	10.0.0	10.1.0	R1	4C_HSDPA-Core
25.214	0623	1	Rel-7	F	RP-101312	R1-105732	approved	Further clarification of E-AGCH/E-RGCH monitoring in CM gap when DL_DRX_Active is TRUE	7.16.0	7.17.0	R1	RANimp-CPC
25.214	0624	1	Rel-8	A	RP-101312	R1-105733	approved	Further clarification of E-AGCH/E-RGCH monitoring in CM gap when DL_DRX_Active is TRUE	8.10.0	8.11.0	R1	RANimp-CPC
25.214	0625	1	Rel-9	A	RP-101312	R1-105734	approved	Further clarification of E-AGCH/E-RGCH monitoring in CM gap when DL_DRX_Active is TRUE	9.3.0	9.4.0	R1	RANimp-CPC
25.214	0626	-	Rel-9	F	RP-101315	R1-105737	approved	Correction of number of received HS-DSCH in DC-HSDPA-MIMO	9.3.0	9.4.0	R1	RANimp-DC_MIMO
25.214	0627	-	Rel-10	A	RP-101312	R1-105735	approved	Further clarification of E-AGCH/E-RGCH monitoring in CM gap when DL_DRX_Active is TRUE	10.0.0	10.1.0	R1	RANimp-CPC
25.214	0628	2	Rel-7	F	RP-101313	R1-106416	approved	Clarification of E-DPCCH gain factor calculation in compressed mode	7.16.0	7.17.0	R1	RANimp-16QamUplink
25.214	0629	2	Rel-8	A	RP-101313	R1-106417	approved	Clarification of E-DPCCH gain factor calculation in compressed mode	8.10.0	8.11.0	R1	RANimp-16QamUplink
25.214	0630	2	Rel-9	A	RP-101313	R1-106418	approved	Clarification of E-DPCCH gain factor calculation in compressed mode	9.3.0	9.4.0	R1	RANimp-16QamUplink
25.214	0631	2	Rel-10	A	RP-101313	R1-106419	approved	Clarification of E-DPCCH gain factor calculation in compressed mode	10.0.0	10.1.0	R1	RANimp-16QamUplink
25.214	0634	1	Rel-7	F	RP-101312	R1-106424	approved	Clarification of discontinuous uplink DPCCH transmission and compressed mode	7.16.0	7.17.0	R1	RANimp-CPC
25.214	0635	1	Rel-8	A	RP-101312	R1-106425	approved	Clarification of discontinuous uplink DPCCH transmission and compressed mode	8.10.0	8.11.0	R1	RANimp-CPC
25.214	0636	1	Rel-9	A	RP-101312	R1-106426	approved	Clarification of discontinuous uplink DPCCH transmission and compressed mode	9.3.0	9.4.0	R1	RANimp-CPC
25.214	0637	1	Rel-10	A	RP-101312	R1-106427	approved	Clarification of discontinuous uplink DPCCH transmission and compressed mode	10.0.0	10.1.0	R1	RANimp-CPC
25.214	0638	2	Rel-7	F	RP-101311	R1-106545	approved	Correction to the single stream CQI reporting in MIMO mode	7.16.0	7.17.0	R1	MIMO-Phys
25.214	0639	2	Rel-8	A	RP-101311	R1-106546	approved	Correction to the single stream CQI reporting in MIMO mode	8.10.0	8.11.0	R1	MIMO-Phys
25.214	0640	2	Rel-9	A	RP-101311	R1-106547	approved	Correction to the single stream CQI reporting in MIMO mode	9.3.0	9.4.0	R1	MIMO-Phys
25.214	0641	2	Rel-10	A	RP-101311	R1-106548	approved	Correction to the single stream CQI reporting in MIMO mode	10.0.0	10.1.0	R1	MIMO-Phys
25.214	0647	-	Rel-7	F	RP-101310	R1-106420	approved	Clarification of the applicability of the IE Number of PCCH	7.16.0	7.17.0	R1	RANimp-EnhState

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								transmissions in CELL_PCH states				
25.214	0648	-	Rel-8	A	RP-101310	R1-106421	approved	Clarification of the applicability of the IE Number of PCCH transmissions in CELL_PCH state	8.10.0	8.11.0	R1	RANimp-EnhState
25.214	0649	-	Rel-9	A	RP-101310	R1-106422	approved	Clarification of the applicability of the IE Number of PCCH transmissions in CELL_PCH state	9.3.0	9.4.0	R1	RANimp-EnhState
25.214	0650	-	Rel-10	A	RP-101310	R1-106423	approved	Clarification of the applicability of the IE Number of PCCH transmissions in CELL_PCH state	10.0.0	10.1.0	R1	RANimp-EnhState
25.221	0211	2	Rel-10	B	RP-101317	R1-106243	approved	Introduction of MC-HSUPA for 1.28Mcps TDD	9.3.0	10.0.0	R1	TDD_MC_HSUPA
25.221	0212	1	Rel-10	B	RP-101319	R1-106273	approved	Introduction of MU-MIMO for 1.28Mcps TDD	9.3.0	10.0.0	R1	MUMIMO_LCR_TDD-Core
25.222	0208	-	Rel-10	B	RP-101319	R1-106414	approved	Introduction of MU-MIMO for 1.28Mcps TDD	9.2.0	10.0.0	R1	MUMIMO_LCR_TDD-Core
25.223	0062	2	Rel-10	B	RP-101317	R1-106244	approved	Introduction of MC-HSUPA for 1.28Mcps TDD	9.0.0	10.0.0	R1	TDD_MC_HSUPA
25.223	0063	1	Rel-10	B	RP-101319	R1-106274	approved	Introduction of MU-MIMO for 1.28Mcps TDD	9.0.0	10.0.0	R1	MUMIMO_LCR_TDD-Core
25.224	0257	3	Rel-10	B	RP-101317	R1-106272	approved	Introduction of MC-HSUPA for LCR TDD	9.2.0	10.0.0	R1	TDD_MC_HSUPA
25.224	0259	1	Rel-10	B	RP-101319	R1-106246	approved	Introduction of MU-MIMO for LCR TDD	9.2.0	10.0.0	R1	MUMIMO_LCR_TDD-Core
25.224	0260	-	Rel-8	F	RP-101314	R1-105730	approved	Correction of MC-HSDPA DRX for 1.28Mcps TDD	8.8.0	8.9.0	R1	RANimp-LCRCPC
25.224	0261	-	Rel-9	A	RP-101314	R1-105731	approved	Correction of MC-HSDPA DRX for 1.28Mcps TDD	9.2.0	9.3.0	R1	RANimp-LCRCPC
25.224	0263	2	Rel-9	F	RP-101316	R1-106457	approved	Clarification for special burst power calculation for 1.28Mcps TDD	9.2.0	9.3.0	R1	TEI9
25.225	0099	2	Rel-10	B	RP-101317	R1-106245	approved	Introduction of MC-HSUPA for 1.28Mcps TDD	9.2.0	10.0.0	R1	TDD_MC_HSUPA
36.211	0148	-	Rel-10	B	RP-101320	R1-106555	approved	Introduction of Rel-10 features	9.1.0	10.0.0	R1	LTE_CA, LTE_eDL_MIMO, LTE_UL_MIMO
36.212	0100	-	Rel-10	B	RP-101320	R1-106556	approved	Introduction of Rel-10 features	9.3.0	10.0.0	R1	LTE_CA, LTE_eDL_MIMO, LTE_UL_MIMO
36.213	0270	-	Rel-10	B	RP-101320	R1-106557	approved	Introduction of Rel-10 features	9.3.0	10.0.0	R1	LTE_CA, LTE_eDL_MIMO, LTE_UL_MIMO
36.216	0001	-	Rel-10	B	RP-101321	R1-106478	approved	Capturing of further agreements on relaying	10.0.0	10.1.0	R1	LTE_Relay-Core
25.302	0203	2	Rel-10	B	RP-101365	R2-106983	approved	Introduction of MC-HSUPA for 1.28Mcps TDD	10.0.0	10.1.0	R2	TDD_MC_HSUPA
25.302	0204	2	Rel-10	F	RP-101366	R2-106984	approved	Introduction of 4C-HSDPA definitions.	10.0.0	10.1.0	R2	4C_HSDPA-Core
25.306	0277	-	Rel-9	F	RP-101211	R2-106068	approved	Correction for value range of total RLC AM, MAC-hs and MAC-ehs buffer size	9.4.0	9.5.0	R2	RANimp-DC_MIMO
25.306	0278	1	Rel-10	F	RP-101366	R2-106981	approved	Correction for value range of total RLC AM, MAC-hs and MAC-ehs buffer size	10.0.0	10.1.0	R2	4C_HSDPA-Core
25.306	0279	-	Rel-10	A	RP-101211	R2-106070	approved	Correction for value range of total RLC AM, MAC-hs and MAC-ehs buffer size	10.0.0	10.1.0	R2	RANimp-DC_MIMO
25.306	0280	1	Rel-10	F	RP-101213	R2-106755	approved	Introduction of REL-10 access stratum release indicator	10.0.0	10.1.0	R2	TEI10
25.306	0281	-	Rel-9	F	RP-101212	R2-106072	approved	Introduction of REL-9 access stratum release indicator	9.4.0	9.5.0	R2	TEI9
25.306	0282	1	Rel-10	A	RP-101212	R2-106734	approved	Introduction of REL-9 access stratum release indicator	10.0.0	10.1.0	R2	TEI9
25.306	0283	-	Rel-10	F	RP-101366	R2-106750	approved	Additional of ôSupported Carrier Combinationö for dual band operation	10.0.0	10.1.0	R2	4C_HSDPA-Core
25.306	0284	-	Rel-10	B	RP-101365	R2-106744	approved	Introduction of MC-HSUPA categories	10.0.0	10.1.0	R2	TDD_MC_HSUPA
25.308	0104	-	Rel-10	B	RP-101219	R2-106074	approved	Introduction of MU-MIMO for LCR TDD in 25.308	10.2.0	10.3.0	R2	MUMIMO_LCR_TDD-Core
25.319	0073	1	Rel-10	B	RP-101219	R2-106982	approved	Introduction of MU-MIMO for LCR TDD in 25.319	10.2.0	10.3.0	R2	MUMIMO_LCR_TDD-Core

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25.319	0074	-	Rel-10	F	RP-101365	R2-106743	approved	Correction on Multi-Carrier E-DCH operation for 1.28Mcps TDD	10.2.0	10.3.0	R2	TDD_MC_HSUPA
25.321	0704	-	Rel-7	F	RP-101194	R2-106076	approved	Clarification to the default SG in DTX Cycle 2	7.18.0	7.19.0	R2	RANimp-CPC
25.321	0705	-	Rel-8	A	RP-101194	R2-106077	approved	Clarification to the default SG in DTX Cycle 2	8.11.0	8.12.0	R2	RANimp-CPC
25.321	0706	-	Rel-9	A	RP-101194	R2-106078	approved	Clarification to the default SG in DTX Cycle 2	9.4.0	9.5.0	R2	RANimp-CPC
25.321	0707	-	Rel-10	A	RP-101194	R2-106079	approved	Clarification to the default SG in DTX Cycle 2	10.0.0	10.1.0	R2	RANimp-CPC
25.321	0708	-	Rel-8	F	RP-101200	R2-106080	approved	Correction in release of common E-DCH resources	8.11.0	8.12.0	R2	RANimp-UplinkEnhState
25.321	0709	-	Rel-9	A	RP-101200	R2-106081	approved	Correction in release of common E-DCH resources	9.4.0	9.5.0	R2	RANimp-UplinkEnhState
25.321	0710	-	Rel-10	A	RP-101200	R2-106082	approved	Correction in release of common E-DCH resources	10.0.0	10.1.0	R2	RANimp-UplinkEnhState
25.321	0711	1	Rel-7	F	RP-101195	R2-106702	approved	Correction to the IE name for determination of HS-DSCH retransmission number in Enhance CELL-FACH	7.18.0	7.19.0	R2	RANimp-EnhState
25.321	0712	2	Rel-8	A	RP-101195	R2-106766	approved	Correction to the IE name for determination of HS-DSCH retransmission number in Enhance CELL-FACH	8.11.0	8.12.0	R2	RANimp-EnhState
25.321	0713	2	Rel-9	A	RP-101195	R2-106767	approved	Correction to the IE name for determination of HS-DSCH retransmission number in Enhance CELL-FACH	9.4.0	9.5.0	R2	RANimp-EnhState
25.321	0714	2	Rel-10	A	RP-101195	R2-106768	approved	Correction to the IE name for determination of HS-DSCH retransmission number in Enhance CELL-FACH	10.0.0	10.1.0	R2	RANimp-EnhState
25.321	0715	-	Rel-7	F	RP-101195	R2-106087	approved	HARQ buffer upon H-RNTI switch in Enhanced CELL_FACH	7.18.0	7.19.0	R2	RANimp-EnhState
25.321	0716	-	Rel-8	A	RP-101195	R2-106088	approved	HARQ buffer upon H-RNTI switch in Enhanced CELL_FACH	8.11.0	8.12.0	R2	RANimp-EnhState
25.321	0717	-	Rel-9	A	RP-101195	R2-106089	approved	HARQ buffer upon H-RNTI switch in Enhanced CELL_FACH	9.4.0	9.5.0	R2	RANimp-EnhState
25.321	0718	-	Rel-10	A	RP-101195	R2-106090	approved	HARQ buffer upon H-RNTI switch in Enhanced CELL_FACH	10.0.0	10.1.0	R2	RANimp-EnhState
25.321	0719	-	Rel-10	B	RP-101365	R2-106746	approved	Introduction of MC-HSUPA for 1.28Mcps TDD	10.0.0	10.1.0	R2	TDD_MC_HSUPA
25.321	0721	-	Rel-8	F	RP-101196	R2-106739	approved	correction on equal priority in E-TFC selection for 1.28Mcps TDD	8.11.0	8.12.0	R2	LCRTDD-EDCH-L23
25.321	0722	-	Rel-9	A	RP-101196	R2-106740	approved	correction on equal priority in E-TFC selection for 1.28Mcps TDD	9.4.0	9.5.0	R2	LCRTDD-EDCH-L23
25.321	0723	-	Rel-10	A	RP-101196	R2-106741	approved	correction on equal priority in E-TFC selection for 1.28Mcps TDD	10.0.0	10.1.0	R2	LCRTDD-EDCH-L23
25.322	0388	-	Rel-10	B	RP-101365	R2-106091	approved	Introduction of LCR TDD MC-HSUPA in 25.322	9.2.0	10.0.0	R2	TDD_MC_HSUPA
25.331	4329	-	Rel-8	F	RP-101205	R2-106093	approved	Addition of ROHC target mode in SRNS relocation message	8.12.0	8.13.0	R2	TEI8
25.331	4330	-	Rel-9	A	RP-101205	R2-106094	approved	Addition of ROHC target mode in SRNS relocation message	9.4.0	9.5.0	R2	TEI8
25.331	4331	-	Rel-10	A	RP-101205	R2-106095	approved	Addition of ROHC target mode in SRNS relocation message	10.1.0	10.2.0	R2	TEI8
25.331	4332	-	Rel-8	F	RP-101201	R2-106096	approved	Clarification of the operation of RRC for 3.84 Mcps TDD IMB MBSFN	8.12.0	8.13.0	R2	MBSFN-DOB
25.331	4333	-	Rel-9	A	RP-101201	R2-106097	approved	Clarification of the operation of RRC for 3.84 Mcps TDD IMB MBSFN	9.4.0	9.5.0	R2	MBSFN-DOB
25.331	4334	-	Rel-10	A	RP-101201	R2-106098	approved	Clarification of the operation of RRC for 3.84 Mcps TDD IMB MBSFN	10.1.0	10.2.0	R2	MBSFN-DOB
25.331	4335	-	Rel-8	F	RP-101200	R2-106099	approved	Correction on actions related to HSPA_RNTI_STORED_CELL_PCH	8.12.0	8.13.0	R2	RANimp-UplinkEnhState
25.331	4336	-	Rel-9	A	RP-101200	R2-106100	approved	Correction on actions related to HSPA_RNTI_STORED_CELL_PCH	9.4.0	9.5.0	R2	RANimp-UplinkEnhState
25.331	4337	-	Rel-10	A	RP-101200	R2-106101	approved	Correction on actions related to HSPA_RNTI_STORED_CELL_PCH	10.1.0	10.2.0	R2	RANimp-UplinkEnhState
25.331	4338	1	Rel-9	F	RP-101202	R2-106706	approved	Correction on CS voice over HSPA SDU discard timer configuration	9.4.0	9.5.0	R2	RInImp8-CsHspa
25.331	4339	-	Rel-10	A	RP-101202	R2-106103	approved	Correction on CS voice over HSPA SDU discard timer configuration	10.1.0	10.2.0	R2	RInImp8-CsHspa
25.331	4340	-	Rel-8	F	RP-101200	R2-106104	approved	Correction on READY_FOR_COMMON_EDCH definition	8.12.0	8.13.0	R2	RANimp-UplinkEnhState
25.331	4341	-	Rel-9	A	RP-101200	R2-106105	approved	Correction on READY_FOR_COMMON_EDCH definition	9.4.0	9.5.0	R2	RANimp-UplinkEnhState
25.331	4342	-	Rel-10	A	RP-101200	R2-106106	approved	Correction on READY_FOR_COMMON_EDCH definition	10.1.0	10.2.0	R2	RANimp-UplinkEnhState
25.331	4343	-	Rel-10	F	RP-101366	R2-106107	approved	Correction to the absence of IE Additional Secondary Cells in 4C-HSDPA	10.1.0	10.2.0	R2	4C_HSDPA-Core
25.331	4344	1	Rel-9	F	RP-101206	R2-106666	approved	Correction to the limitation of SI acquisition	9.4.0	9.5.0	R2	EHNB-RAN2

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25.331	4345	1	Rel-10	A	RP-101206	R2-106667	approved	Correction to the limitation of SI acquisition	10.1.0	10.2.0	R2	EHNB-RAN2
25.331	4346	-	Rel-8	F	RP-101198	R2-106110	approved	CR on T324 timer usage	8.12.0	8.13.0	R2	RANimp-HSDSCH
25.331	4347	-	Rel-9	A	RP-101198	R2-106111	approved	CR on T324 timer usage	9.4.0	9.5.0	R2	RANimp-HSDSCH
25.331	4348	-	Rel-10	A	RP-101198	R2-106112	approved	CR on T324 timer usage	10.1.0	10.2.0	R2	RANimp-HSDSCH
25.331	4349	-	Rel-8	F	RP-101199	R2-106113	approved	Power offset for Scheduling Info in MAC-i	8.12.0	8.13.0	R2	RANimp-UplinkL2dataRates
25.331	4350	-	Rel-9	A	RP-101199	R2-106114	approved	Power offset for Scheduling Info in MAC-i	9.4.0	9.5.0	R2	RANimp-UplinkL2dataRates
25.331	4351	-	Rel-10	A	RP-101199	R2-106115	approved	Power offset for Scheduling Info in MAC-i	10.1.0	10.2.0	R2	RANimp-UplinkL2dataRates
25.331	4352	2	Rel-10	F	RP-101366	R2-106769	approved	Some clarifications of 4C-HSDPA behavior	10.1.0	10.2.0	R2	4C_HSDPA-Core
25.331	4353	1	Rel-10	F	RP-101213	R2-106756	approved	Some legacy editorial corrections for TEI10	10.1.0	10.2.0	R2	TEI10
25.331	4354	-	Rel-10	F	RP-101213	R2-106118	approved	Speed dependent scaling rules in HCS environment	10.1.0	10.2.0	R2	TEI10
25.331	4355	-	Rel-8	F	RP-101203	R2-106119	approved	UE behaviour when PPAC and DSAC parameters not present in SIB3	8.12.0	8.13.0	R2	PPACR
25.331	4356	-	Rel-9	A	RP-101203	R2-106120	approved	UE behaviour when PPAC and DSAC parameters not present in SIB3	9.4.0	9.5.0	R2	PPACR
25.331	4357	-	Rel-10	A	RP-101203	R2-106121	approved	UE behaviour when PPAC and DSAC parameters not present in SIB3	10.1.0	10.2.0	R2	PPACR
25.331	4358	-	Rel-8	F	RP-101204	R2-106718	approved	Corrections to ETWS primary notification with security procedure	8.12.0	8.13.0	R2	ETWS
25.331	4359	-	Rel-9	A	RP-101204	R2-106719	approved	Corrections to ETWS primary notification with security procedure	9.4.0	9.5.0	R2	ETWS
25.331	4360	-	Rel-10	A	RP-101204	R2-106720	approved	Corrections to ETWS primary notification with security procedure	10.1.0	10.2.0	R2	ETWS
25.331	4367	1	Rel-8	F	RP-101205	R2-106771	approved	Correction related to inter-RAT and inter-frequency measurements on a frequency other than the used frequency	8.12.0	8.13.0	R2	TEI8
25.331	4368	1	Rel-9	A	RP-101205	R2-106772	approved	Correction related to inter-RAT and inter-frequency measurements on a frequency other than the used frequency	9.4.0	9.5.0	R2	TEI8
25.331	4369	1	Rel-10	A	RP-101205	R2-106773	approved	Correction related to inter-RAT and inter-frequency measurements on a frequency other than the used frequency	10.1.0	10.2.0	R2	TEI8
25.331	4375	-	Rel-10	F	RP-101213	R2-106758	approved	RLC reset on a Signalling Radio Bearer	10.1.0	10.2.0	R2	TEI10
25.331	4382	-	Rel-10	F	RP-101366	R2-106749	approved	Miscellaneous corrections to 25.331 for 4C-HSDPA	10.1.0	10.2.0	R2	4C_HSDPA-Core
25.331	4383	-	Rel-10	B	RP-101219	R2-106790	approved	Introduction of MU-MIMO for LCR TDD in 25.331	10.1.0	10.2.0	R2	MUMIMO_LCR_TDD-Core
25.331	4384	3	Rel-8	F	RP-101200	R2-106978	approved	SIB5 changes for E-DCH in CELL_FACH and Idle Mode	8.12.0	8.13.0	R2	RANimp-UplinkEnhState
25.331	4385	3	Rel-9	A	RP-101200	R2-106979	approved	SIB5 changes for E-DCH in CELL_FACH and Idle Mode	9.4.0	9.5.0	R2	RANimp-UplinkEnhState
25.331	4386	3	Rel-10	A	RP-101200	R2-106980	approved	SIB5 changes for E-DCH in CELL_FACH and Idle Mode	10.1.0	10.2.0	R2	RANimp-UplinkEnhState
25.331	4387	3	Rel-9	F	RP-101211	R2-106974	approved	Precoding weight set restriction setting for secondary cell	9.4.0	9.5.0	R2	RANimp-DC_MIMO
25.331	4392	1	Rel-9	F	RP-101263	-	approved	Procedural text to support measurements in the Secondary UL Frequency	9.4.0	9.5.0	R2	RANimp-DC_HSUPA
25.331	4393	1	Rel-10	A	RP-101264	-	approved	Procedural text to support measurements in the Secondary UL Frequency	10.1.0	10.2.0	R2	RANimp-DC_HSUPA
25.331	4394	3	Rel-10	F	RP-101211	R2-106973	approved	Precoding weight set restriction setting for secondary cells	10.1.0	10.2.0	R2	4C_HSDPA-Core, RANimp-DC_MIMO
25.331	4395	-	Rel-8	F	RP-101200	R2-106778	approved	RRC procedure performance requirements for Enhanced Uplink in CELL_FACH	8.12.0	8.13.0	R2	RANimp-UplinkEnhState
25.331	4396	-	Rel-9	A	RP-101200	R2-106779	approved	RRC procedure performance requirements for Enhanced Uplink in CELL_FACH	9.4.0	9.5.0	R2	RANimp-UplinkEnhState
25.331	4397	-	Rel-10	A	RP-101200	R2-106780	approved	RRC procedure performance requirements for Enhanced Uplink in CELL_FACH	10.1.0	10.2.0	R2	RANimp-UplinkEnhState
25.331	4398	-	Rel-10	F	RP-101213	R2-106775	approved	Addition of Rel-10 critical extension in SRNS relocation message adding ROHC target mode	10.1.0	10.2.0	R2	TEI10, RANimp-RABSE

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25.331	4399	-	Rel-9	F	RP-101212	R2-106735	approved	Addition of UE ROHC capability in IRAT handover	9.4.0	9.5.0	R2	RANimp-RABSE, TEI9
25.331	4400	-	Rel-10	A	RP-101212	R2-106736	approved	Addition of UE ROHC capability in IRAT handover	10.1.0	10.2.0	R2	RANimp-RABSE, TEI9
25.331	4403	2	Rel-10	B	RP-101365	R2-106765	approved	Introduction of MC-HSUPA for 1.28Mcps TDD	10.1.0	10.2.0	R2	TDD_MC_HSUPA
25.331	4404	-	Rel-8	F	RP-101200	R2-106708	approved	Correction of HSPA_RNTI_STORED_CELL_PCH handling	8.12.0	8.13.0	R2	RANimp-UplinkEnhState
25.331	4405	-	Rel-9	A	RP-101200	R2-106709	approved	Correction of HSPA_RNTI_STORED_CELL_PCH handling	9.4.0	9.5.0	R2	RANimp-UplinkEnhState
25.331	4406	-	Rel-10	A	RP-101200	R2-106710	approved	Correction of HSPA_RNTI_STORED_CELL_PCH handling	10.1.0	10.2.0	R2	RANimp-UplinkEnhState
25.331	4407	1	Rel-10	B	RP-101220	R2-106806	approved	Introduction of detected set measurements and reporting for Inter-frequency	10.1.0	10.2.0	R2	Interf_dset_meas_UMTS
25.331	4409	1	Rel-8	F	RP-101198	R2-106762	approved	Clarifications for deletion of target cell preconfiguration for existing RL by ASU	8.12.0	8.13.0	R2	RANimp-HSDSCH
25.331	4410	1	Rel-9	A	RP-101198	R2-106763	approved	Clarifications for deletion of target cell preconfiguration for existing RL by ASU	9.4.0	9.5.0	R2	RANimp-HSDSCH
25.331	4411	1	Rel-10	A	RP-101198	R2-106764	approved	Clarifications for deletion of target cell preconfiguration for existing RL by ASU	10.1.0	10.2.0	R2	RANimp-HSDSCH
25.331	4419	1	Rel-10	F	RP-101366	R2-106802	approved	Corrections to 4C-HSDPA	10.1.0	10.2.0	R2	4C_HSDPA-Core
25.331	4427	-	Rel-10	C	RP-101213	R2-106774	approved	Enhanced Security Mode procedure handling in case of delayed L2 ACK	10.1.0	10.2.0	R2	TEI10
25.331	4432	2	Rel-8	F	RP-101200	R2-106794	approved	Further corrections on actions related to HSPA_RNTI_STORED_CELL_PCH	8.12.0	8.13.0	R2	RANimp-UplinkEnhState
25.331	4433	2	Rel-9	A	RP-101200	R2-106795	approved	Further corrections on actions related to HSPA_RNTI_STORED_CELL_PCH	9.4.0	9.5.0	R2	RANimp-UplinkEnhState
25.331	4434	2	Rel-10	A	RP-101200	R2-106796	approved	Further corrections on actions related to HSPA_RNTI_STORED_CELL_PCH	10.1.0	10.2.0	R2	RANimp-UplinkEnhState
25.367	0019	-	Rel-9	F	RP-101206	R2-106122	approved	Correction to the limitation of SI acquisition	9.4.0	9.5.0	R2	EHNB-RAN2
25.993	0118	-	Rel-10	B	RP-101213	R2-106757	approved	Adding the 12.2/7.4/5.9/4.75 kbps speech without SRB#5	9.1.0	10.0.0	R2	TEI10
36.300	0269	2	Rel-10	B	RP-101226	R2-106854	approved	Corrections and new agreements on Carrier Aggregation	10.1.0	10.2.0	R2	LTE_CA-Core
36.300	0270	-	Rel-9	F	RP-101206	R2-106124	approved	36300_CRxxx_Handover for Hybrid Cells	9.5.0	9.6.0	R2	EHNB-RAN2
36.300	0271	-	Rel-10	A	RP-101206	R2-106125	approved	36300_CRxxx_Handover for Hybrid Cells	10.1.0	10.2.0	R2	EHNB-RAN2
36.300	0272	-	Rel-9	F	RP-101208	R2-106126	approved	Correction on MAC padding on MCH	9.5.0	9.6.0	R2	MBMS_LTE
36.300	0273	-	Rel-10	A	RP-101208	R2-106127	approved	Correction on MAC padding on MCH	10.1.0	10.2.0	R2	MBMS_LTE
36.300	0274	3	Rel-10	B	RP-101228	R2-106930	approved	Additions and corrections to relaying description	10.1.0	10.2.0	R2	LTE_Relay-Core
36.300	0275	1	Rel-10	B	RP-101231	R2-106880	approved	LTE - Stage 2 agreements on MBMS enhancement	10.1.0	10.2.0	R2	MBMS_LTE_enh-Core
36.300	0276	1	Rel-10	B	RP-101214	R2-106887	approved	CR to 36.300 adding e1xCSFB support for dual Rx/Tx UE	10.1.0	10.2.0	R2	TEI10, LTE-L23
36.300	0277	-	Rel-10	F	RP-101214	R2-106907	approved	Editorial Clean-Up	10.1.0	10.2.0	R2	TEI10, LTE-L23
36.300	0278	1	Rel-10	B	RP-101229	R2-106943	approved	Introduction of enhanced ICIC	10.1.0	10.2.0	R2	eICIC_LTE-Core
36.300	0285	2	Rel-10	C	RP-101214	R2-106924	approved	Setting of Maximum Bit Rate (MBR) to be greater than the Guaranteed Bit Rate (GBR) over E-UTRA: MBR enforcement at eNB side.	10.1.0	10.2.0	R2	TEI10, LTE-L23
36.300	0286	-	Rel-10	F	RP-101214	R2-106947	approved	CR for Description of Energy Saving	10.1.0	10.2.0	R2	TEI10, LTE-interfaces
36.300	0287	-	Rel-10	B	RP-101228	R2-106948	approved	S1 non UE associated message handling	10.1.0	10.2.0	R2	LTE_Relay-Core
36.300	0288	-	Rel-10	F	RP-101214	R2-106949	approved	Clarification to ANR Operation	10.1.0	10.2.0	R2	LTE-interfaces, TEI10
36.300	0289	-	Rel-10	F	RP-101228	R2-106950	approved	P-GW function embedded in DeNB and addressing requirements	10.1.0	10.2.0	R2	LTE_Relay-Core
36.300	0290	-	Rel-10	B	RP-101228	R2-106951	approved	eNB Configuration Update procedure in RN startup and detach procedure	10.1.0	10.2.0	R2	LTE_Relay-Core
36.300	0291	-	Rel-10	B	RP-101231	R2-106952	approved	Introduction of MCE initiated MBMS Session Start Request	10.1.0	10.2.0	R2	MBMS_LTE_enh-Core
36.300	0292	-	Rel-10	F	RP-101228	R2-106953	approved	No NNSF function in RN	10.1.0	10.2.0	R2	LTE_Relay-Core
36.300	0293	-	Rel-10	B	RP-101228	R2-106954	approved	S1 handover routing toward RN	10.1.0	10.2.0	R2	LTE_Relay-Core
36.300	0294	-	Rel-10	F	RP-101228	R2-106955	approved	TNL address Handling	10.1.0	10.2.0	R2	LTE_Relay-Core
36.300	0295	-	Rel-10	F	RP-101214	R2-106956	approved	Correction on SPID Transfer	10.1.0	10.2.0	R2	LTE-Interfaces, TEI10
36.300	0296	-	Rel-10	B	RP-101231	R2-106957	approved	Support of ARP Pre-emption	10.1.0	10.2.0	R2	MBMS_LTE_enh-Core

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36.300	0297	-	Rel-10	B	RP-101231	R2-106958	approved	Support of MBMS Service Counting Report procedure	10.1.0	10.2.0	R2	MBMS_LTE_enh-Core
36.300	0298	-	Rel-10	B	RP-101222	R2-106959	approved	Stage 2 for the X2 based mobility enhancement between HeNBs	10.1.0	10.2.0	R2	HNB_HENB_mob_enh-Core
36.300	0299	-	Rel-10	B	RP-101230	R2-106960	approved	Introduction of event-triggered inter-RAT cell load reporting	10.1.0	10.2.0	R2	SONenh_LTE-Core
36.300	0300	-	Rel-10	B	RP-101216	R2-106961	approved	Introduction of LIPA function	10.1.0	10.2.0	R2	LIPA_SIPTO
36.300	0301	-	Rel-10	B	RP-101228	R2-106962	approved	OAM requirements for QCI to DSCP mapping config for relays	10.1.0	10.2.0	R2	LTE_Relay-Core
36.300	0302	-	Rel-10	B	RP-101228	R2-106963	approved	Non UE associated message handling	10.1.0	10.2.0	R2	LTE_Relay-Core
36.300	0303	-	Rel-10	B	RP-101224	R2-106964	approved	Introduction of MTC Overload Support	10.1.0	10.2.0	R2	NIMTC-RAN_overload
36.300	0304	-	Rel-10	B	RP-101228	R2-106965	approved	Relay Node Un Signalling Transport Support	10.1.0	10.2.0	R2	LTE_Relay-Core
36.300	0305	-	Rel-10	F	RP-101214	R2-106966	approved	Complete S1 Interface Signalling Procedures	10.1.0	10.2.0	R2	LTE-Interfaces, TEI10
36.300	0306	1	Rel-10	B	RP-101229	R2-106972	approved	X2 procedure and OAM requirements to support eICIC	10.1.0	10.2.0	R2	eICIC_LTE-Core
36.300	0307	-	Rel-10	B	RP-101228	R2-106968	approved	Stage-2 updates to RN initial attachment	10.1.0	10.2.0	R2	LTE_Relay-Core
36.300	0308	-	Rel-10	B	RP-101230	R2-106969	approved	Functionality of SON MRO defined for Rel.10	10.1.0	10.2.0	R2	SONenh_LTE-Core
36.302	0021	3	Rel-10	B	RP-101226	R2-106898	approved	Introduction of CA to TS36.302	9.2.0	10.0.0	R2	LTE_CA-Core
36.304	0140	2	Rel-10	B	RP-101221	R2-106900	approved	36.304 CR on MDT	9.4.0	10.0.0	R2	MDT_UMTSLTE-Core
36.304	0142	-	Rel-9	F	RP-101210	R2-106919	approved	Cell selection in case of redirection based CSFB procedure	9.4.0	9.5.0	R2	TEI9, LTE-L23
36.305	0022	-	Rel-9	F	RP-101207	R2-106946	approved	Alignment of LPPa descriptions to stage 3	9.4.0	9.5.0	R2	LCS_LTE
36.306	0037	-	Rel-10	B	RP-101268	-	approved	Inclusion of new UE categories in Rel-10	9.3.0	10.0.0	R2	LTE_CA-Core, LTE_UL_MIMO-Core, LTE_eDL_MIMO-Core
36.321	0436	2	Rel-10	B	RP-101226	R2-106917	approved	Introduction of Carrier Aggregation	9.3.0	10.0.0	R2	LTE_CA-Core
36.321	0437	1	Rel-10	B	RP-101228	R2-106890	approved	Introduction of relays in MAC	9.3.0	10.0.0	R2	LTE_Relay-Core
36.321	0447	-	Rel-10	B	RP-101225	R2-106863	approved	HARQ operation for UL multiple antenna transmission	9.3.0	10.0.0	R2	LTE_UL_MIMO-Core
36.331	0476	4	Rel-10	B	RP-101183	-	approved	36.331 CR on Introduction of Minimization of Drive Tests	9.4.0	10.0.0	R2	MDT_UMTSLTE-Core
36.331	0477	4	Rel-10	B	RP-101293	-	approved	AC-Barring for Mobile Originating CSFB call	9.4.0	10.0.0	R2	LTE-L23, TEI10
36.331	0478	-	Rel-10	F	RP-101214	R2-106137	approved	Addition of UE-EUTRA-Capability descriptions	9.4.0	10.0.0	R2	TEI10, LTE-L23
36.331	0481	-	Rel-10	F	RP-101214	R2-106140	approved	Clarification on Default Configuration for CQI-ReportConfig	9.4.0	10.0.0	R2	TEI10, LTE-L23
36.331	0482	-	Rel-8	F	RP-101197	R2-106141	approved	Clarification on Meaning of FGI Bits	8.11.0	8.12.0	R2	LTE-L23
36.331	0483	-	Rel-9	A	RP-101197	R2-106142	approved	Clarification on Meaning of FGI Bits	9.4.0	9.5.0	R2	LTE-L23
36.331	0484	-	Rel-8	F	RP-101197	R2-106143	approved	Clarification regarding reconfiguration of the quantityConfig	8.11.0	8.12.0	R2	LTE-L23
36.331	0485	-	Rel-9	A	RP-101197	R2-106144	approved	Clarification regarding reconfiguration of the quantityConfig	9.4.0	9.5.0	R2	LTE-L23
36.331	0486	1	Rel-9	F	RP-101210	R2-106851	approved	Corrections to the presence of IE regarding DRX and CQI	9.4.0	9.5.0	R2	TEI9, LTE-L23
36.331	0487	-	Rel-10	B	RP-101215	R2-106146	approved	CR to 36.331 adding e1xCSFB support for dual Rx/Tx UE	9.4.0	10.0.0	R2	TEI10, LTE-L23
36.331	0488	1	Rel-10	B	RP-101227	R2-106856	approved	Introduction of Carrier Aggregation and UL/ DL MIMO	9.4.0	10.0.0	R2	LTE_CA-Core, LTE_UL_MIMO-Core, LTE_eDL_MIMO-Core
36.331	0489	1	Rel-10	B	RP-101228	R2-106886	approved	Introduction of relays in RRC	9.4.0	10.0.0	R2	LTE_Relay-Core
36.331	0490	1	Rel-10	B	RP-101214	R2-106906	approved	Priority indication for CSFB with re-direction	9.4.0	10.0.0	R2	TEI10, LTE-L23, eMPS
36.331	0491	-	Rel-10	F	RP-101214	R2-106150	approved	SIB Size Limitations	9.4.0	10.0.0	R2	TEI10, LTE-L23
36.331	0493	-	Rel-9	F	RP-101210	R2-106152	approved	The field descriptions of MeasObjectEUTRA	9.4.0	9.5.0	R2	TEI9, LTE-L23
36.331	0497	2	Rel-8	F	RP-101197	R2-106945	approved	Clarification of FGI settings non ANR periodical measurement reporting (contact: NSN)	8.11.0	8.12.0	R2	LTE-L23
36.331	0498	1	Rel-9	A	RP-101197	R2-106690	approved	Clarification of FGI settings non ANR periodical measurement reporting	9.4.0	9.5.0	R2	LTE-L23
36.331	0500	-	Rel-9	F	RP-101209	R2-106853	approved	Corrections to RLF Report	9.4.0	9.5.0	R2	SON
36.331	0506	-	Rel-8	F	RP-101197	R2-106691	approved	Clarification regarding default configuration value N/A	8.11.0	8.12.0	R2	LTE-L23
36.331	0513	-	Rel-10	C	RP-101214	R2-106912	approved	Combined Quantity Report for IRAT measurement of UTRAN	9.4.0	10.0.0	R2	TEI10, LTE-L23
36.331	0519	1	Rel-9	F	RP-101206	R2-106923	approved	T321 timer fix	9.4.0	9.5.0	R2	EHNB-RAN2
36.331	0523	-	Rel-8	F	RP-101197	R2-106693	approved	Restriction of AC barring parameter setting	8.11.0	8.12.0	R2	LTE-L23
36.331	0524	-	Rel-9	A	RP-101197	R2-106694	approved	Restriction of AC barring parameter setting	9.4.0	9.5.0	R2	LTE-L23, SSAC

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36.331	0525	-	Rel-9	F	RP-101210	R2-106852	approved	Removal of SEQUENCE OF SEQUENCE in UEInformationResponse	9.4.0	9.5.0	R2	TEI9, LTE-L23
36.331	0526	1	Rel-9	A	RP-101197	R2-106901	approved	Clarification regarding default configuration value N/A	9.4.0	9.5.0	R2	LTE-L23
36.331	0527	1	Rel-10	F	RP-101214	R2-106941	approved	UE power saving and Local release	9.4.0	10.0.0	R2	TEI10, LTE-L23
36.331	0530	1	Rel-10	B	RP-101429	-	approved	Inclusion of new UE categories in Rel-10	9.4.0	10.0.0	R2	LTE_CA-Core, LTE_UL_MIMO-Core, LTE_eDL_M
36.331	0532	-	Rel-9	F	RP-101431	-	approved	Splitting FGI bit 3	9.4.0	9.5.0	R2	TEI9
36.355	0037	-	Rel-9	F	RP-101207	R2-106153	approved	Correction of reliable transport terminology in description of LPP-Message	9.3.0	9.4.0	R2	LCS_LTE
36.355	0038	-	Rel-9	F	RP-101207	R2-106154	approved	One cell with known SFN in OTDOA assistance data	9.3.0	9.4.0	R2	LCS_LTE
36.355	0039	1	Rel-9	F	RP-101207	R2-106695	approved	UE frequency capability for LPP	9.3.0	9.4.0	R2	LCS_LTE
36.355	0040	-	Rel-10	F	RP-101226	R2-106156	approved	Update of 'serving cell' terminology in 36.355	9.3.0	10.0.0	R2	LTE_CA-Core
36.355	0041	-	Rel-9	F	RP-101207	R2-106696	approved	Correction to LPP reliable transport	9.3.0	9.4.0	R2	LCS_LTE
36.355	0042	-	Rel-9	F	RP-101207	R2-106697	approved	Correction to LPP Error procedure	9.3.0	9.4.0	R2	LCS_LTE
36.355	0043	-	Rel-9	F	RP-101207	R2-106698	approved	Addition of missing reference to LPPe	9.3.0	9.4.0	R2	LCS_LTE
36.355	0044	2	Rel-9	F	RP-101207	R2-106920	approved	Correction to the ODTOA assistance data	9.3.0	9.4.0	R2	LCS_LTE
25.302	0082	1	Rel-10	B	RP-101217	R2-106742	reissued	Introduction of MC-HSUPA for 1.28Mcps TDD	10.0.0		R2	TDD_MC_HSUPA
25.302	0083	1	Rel-10	F	RP-101218	R2-106770	reissued	Introduction of 4C-HSDPA definitions	10.0.0		R2	4C_HSDPA-Core
25.306	0278	1	Rel-10	F	RP-101218	R2-106981	reissued	Correction for value range of total RLC AM, MAC-hs and MAC-ehs buffer size	10.0.0		R2	4C_HSDPA-Core
25.306	0283	-	Rel-10	F	RP-101218	R2-106750	reissued	Corrections on 25.306 for 4C-HSDPA	10.0.0		R2	4C_HSDPA-Core
25.306	0284	-	Rel-10	B	RP-101217	R2-106744	reissued	introduction of MC-HSUPA for 1.28Mcps TDD	10.0.0		R2	TDD_MC_HSUPA
25.307	0107	-	Rel-9	A	RP-101223	R2-106784	postponed	Add Expanded 1900 MHz Band for UTRA and LTE to TS25.307	9.2.0		R2	E1900-Core
25.307	0108	-	Rel-10	A	RP-101223	R2-106785	postponed	Add Expanded 1900 MHz Band for UTRA and LTE to TS25.307	9.2.0		R2	E1900-Core
25.307	0109	1	Rel-8	A	RP-101223	R2-106777	postponed	Add Expanded 1900 MHz Band for UTRA and LTE to TS25.307	8.6.0		R2	E1900-Core
25.307	0110	-	Rel-4	B	RP-101223	R2-106786	postponed	Add Expanded 1900 MHz Band for UTRA and LTE to TS25.307	4.16.0		R2	E1900-Core
25.307	0111	-	Rel-5	A	RP-101223	R2-106787	postponed	Add Expanded 1900 MHz Band for UTRA and LTE to TS25.307	5.15.0		R2	E1900-Core
25.307	0112	-	Rel-6	A	RP-101223	R2-106788	postponed	Add Expanded 1900 MHz Band for UTRA and LTE to TS25.307	6.12.0		R2	E1900-Core
25.307	0113	-	Rel-7	A	RP-101223	R2-106789	postponed	Add Expanded 1900 MHz Band for UTRA and LTE to TS25.307	7.8.0		R2	E1900-Core
25.319	0074	-	Rel-10	F	RP-101217	R2-106743	reissued	Modification for MC-HSUPA for 1.28Mcp TDD	10.2.0		R2	TDD_MC_HSUPA
25.321	0719	-	Rel-10	B	RP-101217	R2-106746	reissued	introduction of MC-HSUPA for 1.28Mcps TDD	10.0.0		R2	TDD_MC_HSUPA
25.322	0388	-	Rel-10	B	RP-101217	R2-106091	reissued	Introduction of LCR TDD MC-HSUPA in 25.322	9.2.0		R2	TDD_MC_HSUPA
25.331	4343	-	Rel-10	F	RP-101218	R2-106107	reissued	Correction to the absence of IE additional Cells in 4C-HSDPA	10.1.0		R2	4C_HSDPA-Core
25.331	4352	2	Rel-10	F	RP-101218	R2-106769	reissued	Some clarifications of 4C-HSDPA behavior	10.1.0		R2	4C_HSDPA-Core
25.331	4382	-	Rel-10	F	RP-101218	R2-106749	reissued	Corrections on 25.331 for 4C-HSDPA	10.1.0		R2	4C_HSDPA-Core
25.331	4403	2	Rel-10	B	RP-101217	R2-106765	reissued	Introduction of MCHSUPA for 1.28Mcsp TDD	10.1.0		R2	TDD_MC_HSUPA
25.331	4419	1	Rel-10	F	RP-101218	R2-106802	reissued	Corrections to 4C-HSDPA	10.1.0		R2	4C_HSDPA-Core
36.306	0036	1	Rel-10	B	RP-101290	-	withdrawn	Introduction of Carrier aggregation and UL/DL MIMO	9.3.0		R2	LTE_CA-Core, LTE_UL_MIMO-Core, LTE_eDL_MIMO-Core
36.323	0084	-	Rel-10	B	RP-101228	R2-106970	postponed	Addition of integrity protection of DRBs in PDCP for RNs	9.0.0		R2	LTE_Relay-Core
36.331	0476	3	Rel-10	B	RP-101221	R2-106937	revised	Introduction of Minimization of Drive Tests	9.4.0		R2	MDT_UMTSLTE-Core
36.331	0492	1	Rel-10	B	RP-101231	R2-106882	postponed	Stage-3 CR for MBMS enhancement	9.4.0		R2	MBMS_LTE_enh-Core
36.331	0528	-	Rel-10	B	RP-101291	-	withdrawn	UE capability signaling for CA and MIMO in REL10	9.4.0		R2	LTE_CA-Core, LTE_UL_MIMO-Core, LTE_eDL_MIMO-Core
36.331	0529	-	Rel-9	F	RP-101259	-	postponed	FGI bits related to CDMA2000 in Rel-9	9.4.0		R2	TEI9, LTE-L23
36.331	0530	-	Rel-10	B	RP-101267	-	revised	Inclusion of new UE categories in Rel-10	9.4.0		R2	LTE_CA-Core, LTE_UL_MIMO-Core,

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												LTE_eDL_MIMO-Core
36.331	0531	-	Rel-10	B	RP-101289	-	withdrawn	AC-Barring for Mobile Originating CSFB call	9.4.0		R2	LTE-L23, TEI10
25.401	0131	-	Rel-10	B	RP-101389	R3-103248	approved	Introduction of the SIPTO at Iu-PS Function	9.1.0	10.0.0	R3	LIPA_SIPTO
25.401	0133	1	Rel-10	B	RP-101272	R3-103701	approved	Adding support for ECN in UTRA	9.1.0	10.0.0	R3	TEI10, ECSRA_LAA
25.410	0070	-	Rel-10	B	RP-101389	R3-103249	approved	Introduction of the SIPTO at Iu-PS Function	9.0.0	10.0.0	R3	LIPA_SIPTO
25.413	1080	-	Rel-8	F	RP-101269	R3-103146	approved	Correction of Inter-system SRVCC	8.6.0	8.7.0	R3	TEI8
25.413	1081	-	Rel-9	A	RP-101269	R3-103147	approved	Correction of Inter-system SRVCC	9.4.0	9.5.0	R3	TEI8
25.413	1084	1	Rel-10	B	RP-101389	R3-103669	approved	Introduction of the SIPTO at Iu-PS Function	9.4.0	10.0.0	R3	LIPA_SIPTO
25.413	1086	2	Rel-10	B	RP-101389	R3-103797	approved	LIPA Impact In RAN3	9.4.0	10.0.0	R3	LIPA_SIPTO
25.413	1087	2	Rel-10	B	RP-101304	R3-103771	approved	Inter-RAT MRO for Detection of too early inter-RAT handover with no RLF	9.4.0	10.0.0	R3	SONenh_LTE-Core
25.423	1642	-	Rel-10	F	RP-101275	R3-103155	approved	Correction of 4C-HSDPA secondary serving HS-DSCH RL change	10.0.0	10.1.0	R3	4C_HSDPA-Core
25.423	1643	2	Rel-10	B	RP-101274	R3-103643	approved	Introduction of MC-HSUPA to RNSAP	10.0.0	10.1.0	R3	TDD_MC_HSUPA
25.423	1644	2	Rel-10	B	RP-101277	R3-103689	approved	Introduction of MU-MIMO to RNSAP	10.0.0	10.1.0	R3	MUMIMO_LCR_TDD-Core
25.423	1645	-	Rel-8	F	RP-101269	R3-103340	approved	Corrections to E-DCH MAC-d Flow Multiplexing for 1.28Mcps TDD	8.10.0	8.11.0	R3	RANimp-EnhState1.28TDD
25.423	1646	-	Rel-9	A	RP-101269	R3-103341	approved	Corrections to E-DCH MAC-d Flow Multiplexing for 1.28Mcps TDD	9.4.0	9.5.0	R3	RANimp-EnhState1.28TDD
25.423	1647	-	Rel-10	A	RP-101269	R3-103342	approved	Corrections to E-DCH MAC-d Flow Multiplexing for 1.28Mcps TDD	10.0.0	10.1.0	R3	RANimp-EnhState1.28TDD
25.423	1648	1	Rel-8	F	RP-101269	R3-103604	approved	Correction of Inactivity Threshold for UE DRX Cycle for 1.28Mcps TDD	8.10.0	8.11.0	R3	RANimp-LCRCPC
25.423	1649	1	Rel-9	A	RP-101269	R3-103605	approved	Correction of Inactivity Threshold for UE DRX Cycle for 1.28Mcps TDD	9.4.0	9.5.0	R3	RANimp-LCRCPC
25.423	1650	2	Rel-10	A	RP-101269	R3-103802	approved	Correction of Inactivity Threshold for UE DRX Cycle for 1.28Mcps TDD	10.0.0	10.1.0	R3	RANimp-LCRCPC
25.423	1651	1	Rel-9	F	RP-101271	R3-103683	approved	Power Offset For S-CPICH for MIMO of secondary cell	9.4.0	9.5.0	R3	RANimp-DC_MIMO
25.423	1652	1	Rel-10	A	RP-101271	R3-103684	approved	Power Offset For S-CPICH for MIMO of secondary cell	10.0.0	10.1.0	R3	RANimp-DC_MIMO
25.423	1657	1	Rel-10	F	RP-101275	R3-103629	approved	Addition of simultaneous cell capability for Multi-Carrier HSDPA and Single Stream MIMO	10.0.0	10.1.0	R3	4C_HSDPA-Core
25.423	1658	3	Rel-10	B	RP-101275	R3-103811	approved	Throughput/Energy Savings tradeoff for Dual Band UEs	10.0.0	10.1.0	R3	4C_HSDPA-Core
25.425	0150	-	Rel-10	B	RP-101277	R3-103229	approved	Introduction of MU-MIMO to CTCH of Iur user plane	9.1.0	10.0.0	R3	MUMIMO_LCR_TDD-Core
25.427	0150	1	Rel-10	B	RP-101274	R3-103814	approved	Introduction of MC-HSUPA for 1.28Mcps TDD	9.0.0	10.0.0	R3	TDD_MC_HSUPA
25.433	1843	-	Rel-10	F	RP-101275	R3-103156	approved	Correction of 4C-HSDPA secondary serving HS-DSCH RL change	10.0.0	10.1.0	R3	4C_HSDPA-Core
25.433	1844	2	Rel-10	B	RP-101274	R3-103644	approved	Introduction of MC-HSUPA to NBAP	10.0.0	10.1.0	R3	TDD_MC_HSUPA
25.433	1845	2	Rel-10	B	RP-101277	R3-103690	approved	Introduction of MU-MIMO to NBAP	10.0.0	10.1.0	R3	MUMIMO_LCR_TDD-Core
25.433	1847	1	Rel-9	F	RP-101271	R3-103638	approved	Adding abnormal conditions to Enhanced Cell/URA_PCH	9.4.0	9.5.0	R3	TEI9
25.433	1848	1	Rel-10	A	RP-101271	R3-103639	approved	Adding abnormal conditions to Enhanced Cell/URA_PCH	10.0.0	10.1.0	R3	TEI9
25.433	1849	-	Rel-8	F	RP-101269	R3-103343	approved	Corrections to E-DCH MAC-d Flow Multiplexing for 1.28Mcps TDD	8.10.0	8.11.0	R3	RANimp-EnhState1.28TDD
25.433	1850	-	Rel-9	A	RP-101269	R3-103344	approved	Corrections to E-DCH MAC-d Flow Multiplexing for 1.28Mcps TDD	9.4.0	9.5.0	R3	RANimp-EnhState1.28TDD
25.433	1851	-	Rel-10	A	RP-101269	R3-103345	approved	Corrections to E-DCH MAC-d Flow Multiplexing for 1.28Mcps TDD	10.0.0	10.1.0	R3	RANimp-EnhState1.28TDD
25.433	1852	1	Rel-8	F	RP-101269	R3-103607	approved	Correction of Inactivity Threshold for UE DRX Cycle for 1.28Mcps	8.10.0	8.11.0	R3	RANimp-LCRCPC

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25.433	1853	1	Rel-9	A	RP-101269	R3-103608	approved	Correction of Inactivity Threshold for UE DRX Cycle for 1.28Mcps TDD	9.4.0	9.5.0	R3	RANimp-LCRCPC
25.433	1854	1	Rel-10	A	RP-101269	R3-103609	approved	Correction of Inactivity Threshold for UE DRX Cycle for 1.28Mcps TDD	10.0.0	10.1.0	R3	RANimp-LCRCPC
25.433	1855	1	Rel-9	F	RP-101316	R3-103736	approved	Adaptive Special Burst Power for 1.28Mcps TDD	9.4.0	9.5.0	R3	TEI9
25.433	1856	1	Rel-10	A	RP-101316	R3-103737	approved	Adaptive Special Burst Power for 1.28Mcps TDD	10.0.0	10.1.0	R3	TEI9
25.433	1857	1	Rel-10	F	RP-101275	R3-103640	approved	Addition of simultaneous cell capability for Multi-Carrier HSDPA and Single Stream MIMO	10.0.0	10.1.0	R3	4C_HSDPA-Core
25.433	1859	3	Rel-10	B	RP-101275	R3-103810	approved	Throughput/Energy Savings tradeoff for Dual Band UEs	10.0.0	10.1.0	R3	4C_HSDPA-Core
25.435	0245	-	Rel-10	B	RP-101277	R3-103230	approved	Introduction of MU-MIMO to CTCH of Iub user plane	9.3.0	10.0.0	R3	MUMIMO_LCR_TDD-Core
25.453	0127	6	Rel-10	C	RP-101276	R3-103798	approved	IRAT measurement for enhanced positioning capability	10.0.0	10.1.0	R3	LCS_UMTS_RFPMT-Core
25.453	0128	1	Rel-10	C	RP-101276	R3-103688	approved	Clarification of reporting of CellID measurements	10.0.0	10.1.0	R3	LCS_UMTS_RFPMT-Core
25.461	0061	2	Rel-10	B	RP-101278	R3-103318	approved	CR UMTS/LTE-3500 spectrum band definition additions for TDD Iuant interface to TS 25.461	10.0.0	10.1.0	R3	RInImp8-UMTSLTE3500
25.466	0026	1	Rel-10	B	RP-101184	RP-101184	approved	Introduction of L-band in TS 25.466	10.0.0	10.1.0	R3	L_Band_LTE_ATC_MSS-Core
25.466	0028	1	Rel-10	B	RP-101278	R3-103319	approved	CR UMTS/LTE-3500 spectrum band definition additions for TDD Iuant interface to TS 25.466	10.0.0	10.1.0	R3	RInImp8-UMTSLTE3500
25.467	0101	5	Rel-10	B	RP-101407	RP-101407	approved	Introduction of the Implementation Variant where CN functions for the enhancement of inter-HNB intra-HNB-GW SRNS Relocation are implemented within the HNB-GW.	9.3.0	10.0.0	R3	TEI10
25.467	0110	-	Rel-8	F	RP-101269	R3-103148	approved	Correction on the Functional Split Table of MOCN	8.5.0	8.6.0	R3	HNB-arch
25.467	0111	-	Rel-9	F	RP-101271	R3-103154	approved	PPI value for SABP in Iuh	9.3.0	9.4.0	R3	EHNB-RAN3
25.467	0112	2	Rel-10	F	RP-101272	R3-103800	approved	Clarification of use of RNC-ID	9.3.0	10.0.0	R3	HNB, TEI10
25.467	0113	-	Rel-9	F	RP-101271	R3-103161	approved	Clarification on Inbound Mobility to HNB	9.3.0	9.4.0	R3	EHNB-RAN3
25.467	0114	4	Rel-10	B	RP-101188	R3-103807	approved	Introduction of HNB to HNB mobility procedure using direct interface.	9.3.0	10.0.0	R3	HNB-HENB_mob_enh
25.467	0117	2	Rel-10	B	RP-101389	R3-103781	approved	Introduction of LIPA Functions for UMTS	9.3.0	10.0.0	R3	LIPA_SIPTO
36.413	0752	2	Rel-10	B	RP-101272	R3-103168	approved	Prioritised handling of MPS session in S1-AP PAGING message	9.4.0	10.0.0	R3	TEI10
36.413	0753	-	Rel-9	F	RP-101271	R3-103150	approved	Handling of CDMA2000 HO Required Indication	9.4.0	9.5.0	R3	TEI9
36.413	0754	2	Rel-10	F	RP-101272	R3-103799	approved	Alignment of tabular with ASN.1 for S1 Setup message	9.4.0	10.0.0	R3	LTE, TEI10
36.413	0755	-	Rel-9	F	RP-101270	R3-103153	approved	Correction of E-RAB Data Forwarding in HANDOVER COMMAND and DOWNLINK S1 CDMA2000 TUNNELING	9.4.0	9.5.0	R3	LTE-interfaces
36.413	0756	-	Rel-9	F	RP-101271	R3-103159	approved	Clarification on Handover Restriction List	9.4.0	9.5.0	R3	LTE-interfaces, TEI9
36.413	0761	4	Rel-9	F	RP-101271	R3-103794	approved	Multiple PLMNs Selection in eNodeB for CS fallback	9.4.0	9.5.0	R3	LTE-Interfaces, TEI9
36.413	0764	2	Rel-10	C	RP-101272	R3-103804	approved	Enhancement of the IP address exchange mechanism for ANR purposes	9.4.0	10.0.0	R3	TEI10
36.413	0768	1	Rel-10	B	RP-101304	R3-103657	approved	Inter-RAT cell load reporting for multiple cells	9.4.0	10.0.0	R3	SONenh_LTE-Core
36.413	0769	2	Rel-10	B	RP-101304	R3-103769	approved	Event-triggered inter-RAT cell load reporting	9.4.0	10.0.0	R3	SONenh_LTE-Core
36.413	0776	3	Rel-10	B	RP-101272	R3-103766	approved	Introduction of an new overload action IE to permit high priority access	9.4.0	10.0.0	R3	TEI10
36.413	0780	2	Rel-9	F	RP-101271	R3-103738	approved	Clarification on SRVCC procedure in case of PS handover failure	9.4.0	9.5.0	R3	TEI9
36.413	0783	1	Rel-9	F	RP-101271	R3-103617	approved	Correction of GBR and MBR	9.4.0	9.5.0	R3	TEI9
36.413	0791	2	Rel-10	B	RP-101304	R3-103770	approved	Inter-RAT MRO for Detection of too early inter-RAT handover with no RLF	9.4.0	10.0.0	R3	SONenh_LTE-Core
36.413	0794	2	Rel-10	B	RP-101281	R3-103755	approved	Adding List of GUMMEIs to Overload related messages	9.4.0	10.0.0	R3	LTE_Relay-Core

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36.413	0797	1	Rel-10	F	RP-101272	R3-103721	approved	Incorrect causes in the Error Indication msg	9.4.0	10.0.0	R3	TEI10
36.413	0798	4	Rel-10	B	RP-101279	R3-103812	approved	X2 handover support	9.4.0	10.0.0	R3	HNB_HENB_mob_enh-Core
36.413	0799	-	Rel-9	F	RP-101271	R3-103708	approved	Clarification on the overload action only accepting emergency and MT sessions	9.4.0	9.5.0	R3	TEI9
36.413	0800	1	Rel-10	A	RP-101272	R3-103803	approved	Clarification on the overload action only accepting emergency and MT sessions	9.4.0	10.0.0	R3	TEI10
36.423	0385	-	Rel-9	F	RP-101271	R3-103160	approved	Clarification on Handover Restriction List	9.4.0	9.5.0	R3	LTE-interfaces, TEI9
36.423	0393	2	Rel-10	B	RP-101304	R3-103783	approved	Introduction of partial failure in Resource Status Reporting Initiation procedure including detailed reporting of failure cause	9.4.0	10.0.0	R3	SONenh_LTE-Core
36.423	0403	3	Rel-9	F	RP-101270	R3-103795	approved	Correction of semantics description	9.4.0	9.5.0	R3	LTE-Interfaces
36.423	0407	4	Rel-10	B	RP-101279	R3-103813	approved	X2 handover support	9.4.0	10.0.0	R3	HNB_HENB_mob_enh-Core
36.444	0015	1	Rel-9	F	RP-101270	R3-103801	approved	Correction of ASN1 in M3AP	9.2.0	9.3.0	R3	MBMS_LTE
36.455	0017	-	Rel-9	F	RP-101270	R3-103475	approved	Object ID for LPPa modules	9.3.0	9.4.0	R3	LCS_LTE
36.902	0016	-	Rel-9	F	RP-101270	R3-103149	approved	Addtion of missing acronym definition	9.2.0	9.3.0	R3	SON
25.401	0131	-	Rel-10	B	RP-101273	R3-103248	reissued	Introduction of the SIPTO at Iu-PS Function	9.1.0		R3	LIPA_SIPTO
25.401	0131	-	Rel-10	B	RP-101370	R3-103248	reissued	Introduction of the SIPTO at Iu-PS Function	9.1.0		R3	LIPA_SIPTO
25.410	0070	-	Rel-10	B	RP-101370	R3-103249	reissued	Introduction of the SIPTO at Iu-PS Function	9.0.0		R3	LIPA_SIPTO
25.410	0070	-	Rel-10	B	RP-101273	R3-103249	reissued	Introduction of the SIPTO at Iu-PS Function	9.0.0		R3	LIPA_SIPTO
25.413	1079	3	Rel-10	F	RP-101187	R3-103517	rejected	RANAP procedure clarification in the Optimized HNB to HNB mobility in Cell-DCH	9.4.0		R3	TEI10
25.413	1084	1	Rel-10	B	RP-101370	R3-103669	reissued	Introduction of the SIPTO at Iu-PS Function	9.4.0		R3	LIPA_SIPTO
25.413	1084	1	Rel-10	B	RP-101273	R3-103669	reissued	Introduction of the SIPTO at Iu-PS Function	9.4.0		R3	LIPA_SIPTO
25.413	1086	2	Rel-10	B	RP-101273	R3-103797	reissued	LIPA Impact In RAN3	9.4.0		R3	LIPA_SIPTO
25.413	1086	2	Rel-10	B	RP-101370	R3-103797	reissued	LIPA Impact In RAN3	9.4.0		R3	LIPA_SIPTO
25.413	1089	3	Rel-10	B	RP-101369	RP-101369	withdrawn	Additional IEs needed to support optimized HNB-HNB mobility.	9.4.0		R3	HNB_HENB_mob_enh
25.461	0060	2	Rel-10	B	RP-101283	R3-103310	postponed	Add 2 GHz band LTE for ATC of MSS in North America to TS25.461	10.0.0		R3	S_Band_LTE_ATC_MSS-Core
25.461	0063	-	Rel-10	B	RP-101280	R3-103312	postponed	Add Expanded 1900 MHz Band for UTRA and LTE to TS25.461	10.0.0		R3	E1900-Core
25.466	0027	1	Rel-10	B	RP-101283	R3-103311	postponed	Add 2 GHz band LTE for ATC of MSS in North America to TS25.466	10.0.0		R3	S_Band_LTE_ATC_MSS-Core
25.466	0030	-	Rel-10	B	RP-101280	R3-103313	postponed	Add Expanded 1900 MHz Band for UTRA and LTE to TS25.466	10.0.0		R3	E1900-Core
25.467	0101	4	Rel-10	B	RP-101187	R3-103516	revised	Optimized HNB to HNB mobility in Cell-DCH - HNB-GW based solution	9.3.0		R3	TEI10
25.467	0117	2	Rel-10	B	RP-101370	R3-103781	reissued	Introduction of LIPA Functions for UMTS	9.3.0		R3	LIPA_SIPTO
25.467	0117	2	Rel-10	B	RP-101273	R3-103781	reissued	Introduction of LIPA Functions for UMTS	9.3.0		R3	LIPA_SIPTO
25.469	0059	4	Rel-10	B	RP-101368	RP-101368	withdrawn	Additional messages to support direct HNB-HNB HO in HNBAP	9.3.0		R3	HNB_HENB_mob_enh
36.413	0779	4	Rel-10	B	RP-101273	R3-103809	revised	LIPA Impact In RAN3	9.4.0		R3	LIPA_SIPTO
36.413	0779	5	Rel-10	B	RP-101389	R3-103815	postponed	LIPA Impact In RAN3	9.4.0		R3	LIPA_SIPTO
36.413	0779	5	Rel-10	B	RP-101370	R3-103815	reissued	LIPA Impact In RAN3	9.4.0		R3	LIPA_SIPTO
36.423	0404	2	Rel-10	B	RP-101282	R3-103667	postponed	Introduction of X2 signalling support for eICIC	9.4.0		R3	eICIC_LTE-Core
36.423	0406	3	Rel-10	C	RP-101282	R3-103776	postponed	Enabling reporting of ABS usage for eICIC purposes	9.4.0		R3	eICIC_LTE-Core
25.101	0733	2	Rel-10	B	RP-101353	R4-103938	approved	Introduction of frequency bands for 4C-HSDPA	9.5.0	10.0.0	R4	4C_HSDPA-Core
25.101	0737	1	Rel-10	B	RP-101353	R4-105007	approved	25.101 CR introduction of Rx core requirements for 4C-HSDPA	9.5.0	10.0.0	R4	4C_HSDPA-Core
25.101	0741	1	Rel-8	F	RP-101339	R4-104840	approved	Correction to Downlink Physical Channels in DC-HSDPA Tests	8.12.0	8.13.0	R4	RANimp-DCHSDPA
25.101	0742	1	Rel-9	A	RP-101339	R4-104841	approved	Correction to Downlink Physical Channels in DC-HSDPA Tests	9.5.0	9.6.0	R4	RANimp-DCHSDPA
25.101	0744	-	Rel-8	F	RP-101334	R4-104454	approved	Correction to Band XII frequency range	8.12.0	8.13.0	R4	TEI8
25.101	0745	-	Rel-9	A	RP-101334	R4-104455	approved	Correction to Band XII frequency range	9.5.0	9.6.0	R4	TEI8
25.101	0747	2	Rel-9	F	RP-101348	R4-104918	approved	Clarification on carrier spacing for DC-HSDPA with MIMO	9.5.0	9.6.0	R4	RANimp-DC_MIMO

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25.101	0748	-	Rel-10	B	RP-101361	R4-104674	approved	Protection of E-UTRA Band 24	9.5.0	10.0.0	R4	L_Band_LTE_ATC_MS S-Core
25.101	0750	1	Rel-10	B	RP-101353	R4-104831	approved	25.101 CR Introduction of Tx Core Requirements for DB-DC-HSDPA and dual band 4C-HSDPA with bands II/IV combination	9.5.0	10.0.0	R4	4C_HSDPA-Core
25.101	0751	1	Rel-9	F	RP-101348	R4-104832	approved	Correction to core requirements for DB-DC-HSDPA with bands II/IV combination	9.5.0	9.6.0	R4	RANimp-MultiBand_DC_HSDPA
25.102	0335	1	Rel-8	F	RP-101339	R4-104944	approved	Modification of transport block size to DL reference measurement channel for IMB MBSFN only UEs	8.8.0	8.9.0	R4	MBSFN-DOB
25.102	0336	1	Rel-9	A	RP-101339	R4-104945	approved	Modification of transport block size to DL reference measurement channel for IMB MBSFN only UEs	9.2.0	9.3.0	R4	MBSFN-DOB
25.102	0337	1	Rel-8	F	RP-101339	R4-104946	approved	Modification of transport block size to performance requirements for demodulation of IMB MBSFN MTCH	8.8.0	8.9.0	R4	MBSFN-DOB
25.102	0338	1	Rel-9	A	RP-101339	R4-104947	approved	Modification of transport block size to performance requirements for demodulation of IMB MBSFN MTCH	9.2.0	9.3.0	R4	MBSFN-DOB
25.102	0339	1	Rel-8	F	RP-101339	R4-104948	approved	Correcting the data rate naming of performance requirements for demodulation of IMB MBSFN MCCH	8.8.0	8.9.0	R4	MBSFN-DOB
25.102	0340	1	Rel-9	A	RP-101339	R4-104949	approved	Correcting the data rate naming of performance requirements for demodulation of IMB MBSFN MCCH	9.2.0	9.3.0	R4	MBSFN-DOB
25.102	0341	2	Rel-10	B	RP-101351	R4-104800	approved	Introduction of UE requirements for 1.28Mcps TDD MC-HSUPA	9.2.0	10.0.0	R4	TDD_MC_HSUPA
25.102	0342	-	Rel-7	F	RP-101326	R4-104374	approved	Introduction of new constant BLER test cases	7.18.0	7.19.0	R4	TEI7
25.102	0343	-	Rel-8	A	RP-101326	R4-104375	approved	Introduction of new constant BLER test cases	8.8.0	8.9.0	R4	TEI7
25.102	0344	-	Rel-9	A	RP-101326	R4-104376	approved	Introduction of new constant BLER test cases	9.2.0	9.3.0	R4	TEI7
25.104	0378	2	Rel-10	B	RP-101353	R4-103975	approved	Introduction of frequency bands for 4C-HSDPA	9.5.0	10.0.0	R4	4C_HSDPA-Core
25.104	0379	-	Rel-10	B	RP-101361	R4-104052	approved	Protection of E-UTRA Band 24	9.5.0	10.0.0	R4	L_Band_LTE_ATC_MS S-Core
25.104	0382	1	Rel-10	B	RP-101353	R4-104782	approved	Revision of Time Alignment Error requirement	9.5.0	10.0.0	R4	4C_HSDPA-Core
25.104	0384	1	Rel-8	F	RP-101334	R4-104740	approved	Band XII channel arrangement correction on 25.104	8.11.0	8.12.0	R4	TEI8
25.104	0385	1	Rel-9	A	RP-101334	R4-104741	approved	Band XII channel arrangement correction on 25.104	9.5.0	9.6.0	R4	TEI8
25.104	0386	-	Rel-8	F	RP-101340	R4-104593	approved	Time Alignment Error requirement	8.11.0	8.12.0	R4	TEI8
25.105	0277	1	Rel-10	B	RP-101351	R4-104355	approved	Introduction of the BS requirements for 1.28Mcps TDD MC-HSUPA	10.0.0	10.1.0	R4	TDD_MC_HSUPA
25.106	0068	-	Rel-9	F	RP-101347	R4-103986	approved	Remove test settings for unwanted emissions from core spec	9.1.0	9.2.0	R4	TEI9
25.106	0069	-	Rel-9	F	RP-101347	R4-103988	approved	Corrections to the symbols and abbreviations clause related to DTT requirement	9.1.0	9.2.0	R4	TEI9
25.106	0070	-	Rel-9	F	RP-101347	R4-103992	approved	Co-existence with services in adjacent frequency bands	9.1.0	9.2.0	R4	TEI9
25.106	0071	-	Rel-8	F	RP-101336	R4-103996	approved	Protection of cdma and E-UTRA bands	8.4.0	8.5.0	R4	TEI8
25.106	0072	-	Rel-9	A	RP-101336	R4-103997	approved	Protection of cdma and E-UTRA bands	9.1.0	9.2.0	R4	TEI8
25.106	0073	-	Rel-8	F	RP-101337	R4-104008	approved	Removal of brackets	8.4.0	8.5.0	R4	TEI8
25.106	0074	-	Rel-9	A	RP-101337	R4-104009	approved	Removal of brackets	9.1.0	9.2.0	R4	TEI8
25.113	0049	-	Rel-8	F	RP-101338	R4-104016	approved	Correction due to the introduction of the definition of pass band	8.5.0	8.6.0	R4	TEI8
25.113	0050	-	Rel-9	A	RP-101338	R4-104017	approved	Correction due to the introduction of the definition of pass band	9.3.0	9.4.0	R4	TEI8
25.113	0051	-	Rel-8	F	RP-101334	R4-104486	approved	Band XII channel arrangement correction on 25.113	8.5.0	8.6.0	R4	TEI8
25.113	0052	-	Rel-9	A	RP-101334	R4-104487	approved	Band XII channel arrangement correction on 25.113	9.3.0	9.4.0	R4	TEI8
25.123	0484	-	Rel-10	B	RP-101351	R4-104353	approved	Introduction of RRM requirements for 1.28Mcps TDD MC-HSUPA	9.3.0	10.0.0	R4	TDD_MC_HSUPA
25.133	1070	1	Rel-10	B	RP-101353	R4-105008	approved	25.133 CR introduction of UE RRM requirements for 4C-HSDPA	9.5.0	10.0.0	R4	4C_HSDPA-Core
25.133	1071	2	Rel-10	B	RP-101355	R4-105028	approved	Interfrequency detected set for UMTS introduction in 25.133	9.5.0	10.0.0	R4	Interf_dset_meas_UMTS
25.133	1075	1	Rel-8	B	RP-101335	R4-104850	approved	Introduction of CSG cell reselection requirements	8.11.0	8.12.0	R4	LTE-L23, HNB-supp, LTE-UEConTest, HNB-

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												UEConTestFDD
25.133	1076	1	Rel-9	A	RP-101335	R4-104861	approved	Introduction of CSG cell reselection requirements	9.5.0	9.6.0	R4	LTE-L23, HNB-supp, LTE-UEConTest, HNB-UEConTestFDD
25.141	0558	-	Rel-10	B	RP-101361	R4-104053	approved	Protection of E-UTRA Band 24	9.5.0	10.0.0	R4	L_Band_LTE_ATC_MSS-Core
25.141	0560	1	Rel-8	F	RP-101340	R4-104757	approved	Revision of Time Alignment Error requirement testing	8.11.0	8.12.0	R4	TEI8
25.141	0561	1	Rel-9	F	RP-101340	R4-104780	approved	Revision of Time Alignment Error requirement testing	9.5.0	9.6.0	R4	TEI9
25.141	0562	1	Rel-10	B	RP-101353	R4-104781	approved	Revision of Time Alignment Error requirement testing	9.5.0	10.0.0	R4	4C_HSDPA-Core
25.141	0563	-	Rel-10	B	RP-101353	R4-104425	approved	Introduction of frequency bands for 4C-HSDPA	9.5.0	10.0.0	R4	4c_HSDPA-Core
25.141	0565	1	Rel-8	F	RP-101334	R4-104742	approved	Band XII channel arrangement correction on 25.141	8.11.0	8.12.0	R4	TEI8
25.141	0566	1	Rel-9	A	RP-101334	R4-104743	approved	Band XII channel arrangement correction on 25.141	9.5.0	9.6.0	R4	TEI8
25.142	0267	1	Rel-10	B	RP-101351	R4-104356	approved	Introduction of the BS requirements for 1.28Mcps TDD MC-HSUPA	9.3.0	10.0.0	R4	TDD_MC_HSUPA
25.142	0269	-	Rel-10	B	RP-101352	R4-104022	approved	1.28Mcps TDD Home NodeB class into Base Station class in 25.142	9.3.0	10.0.0	R4	HNB_LCRTDD_RF-Perf
25.142	0270	-	Rel-10	B	RP-101352	R4-104023	approved	1.28Mcps TDD Home NodeB Transmitter	9.3.0	10.0.0	R4	HNB_LCRTDD_RF-Perf
25.142	0271	-	Rel-10	B	RP-101352	R4-104024	approved	1.28Mcps TDD Home NodeB Receiver	9.3.0	10.0.0	R4	HNB_LCRTDD_RF-Perf
25.142	0272	-	Rel-10	B	RP-101352	R4-104025	approved	1.28Mcps TDD Home NodeB Demodulation Requirement	9.3.0	10.0.0	R4	HNB_LCRTDD_RF-Perf
25.142	0274	-	Rel-8	F	RP-101340	R4-104367	approved	Addition of test case for HS-SICH type2 performance	8.6.0	8.7.0	R4	TEI8
25.142	0275	-	Rel-9	A	RP-101340	R4-104368	approved	Addition of test case for HS-SICH type2 performance	9.3.0	9.4.0	R4	TEI8
25.142	0276	-	Rel-8	F	RP-101340	R4-104401	approved	Clarifications of Base Station transmit and receive configurations	8.6.0	8.7.0	R4	TEI8
25.142	0277	-	Rel-9	A	RP-101340	R4-104402	approved	Clarifications of Base Station transmit and receive configurations	9.3.0	9.4.0	R4	TEI8
25.143	0084	-	Rel-9	F	RP-101347	R4-103987	approved	Remove test settings for unwanted emissions from the minimum requirement	9.1.0	9.2.0	R4	TEI9
25.143	0085	-	Rel-9	F	RP-101347	R4-103989	approved	Corrections to the symbols and abbreviations clause related to DTT requirement	9.1.0	9.2.0	R4	TEI9
25.143	0086	-	Rel-9	F	RP-101347	R4-103993	approved	Co-existence with services in adjacent frequency bands	9.1.0	9.2.0	R4	TEI9
25.143	0087	-	Rel-8	F	RP-101336	R4-103998	approved	Protection of cdma and E-UTRA bands	8.5.0	8.6.0	R4	TEI8
25.143	0088	-	Rel-9	A	RP-101336	R4-103999	approved	Protection of cdma and E-UTRA bands	9.1.0	9.2.0	R4	TEI8
25.143	0089	-	Rel-8	F	RP-101337	R4-104010	approved	Removal of brackets	8.5.0	8.6.0	R4	TEI8
25.143	0090	-	Rel-9	A	RP-101337	R4-104011	approved	Removal of brackets	9.1.0	9.2.0	R4	TEI8
25.143	0091	-	Rel-9	F	RP-101347	R4-104656	approved	Editorial correction to TS 25.143	9.1.0	9.2.0	R4	TEI9
25.144	0010	3	Rel-9	F	RP-101348	R4-104857	approved	TRP and TRS requirements for GSM 850, GSM 900, DCS 1800 and PCS 1900	9.2.0	9.3.0	R4	RInImp-UEAnt
25.172	0001	1	Rel-10	F	RP-101350	R4-104712	approved	Addition of Galileo sensitivity numbers in the A-GANSS minimum performance requirements in UMTS	10.0.0	10.1.0	R4	AGNSSPerf_UTRAN
25.461	0059a	1	Rel-10	B	RP-101361	R4-103878	approved	Introduction of L-band in TS 25.461	10.0.0	10.1.0	R4	L_Band_LTE_ATC_MSS-Core
25.461	0064	-	Rel-8	F	RP-101334	R4-104488	approved	Band XII channel arrangement correction on 25.461	8.3.0	8.4.0	R4	TEI8
25.461	0065	-	Rel-9	A	RP-101334	R4-104489	approved	Band XII channel arrangement correction on 25.461	9.2.0	9.3.0	R4	TEI8
25.461	0066	-	Rel-10	A	RP-101334	R4-104490	approved	Band XII channel arrangement correction on 25.461	10.0.0	10.1.0	R4	TEI8
36.101	0620	1	Rel-10	B	RP-101361	R4-104675	approved	Introduction of L-band in TS 36.101	10.0.0	10.1.0	R4	L_Band_LTE_ATC_MSS-Core
36.101	0626	-	Rel-9	F	RP-101341	R4-104079	approved	Add 20 RB UL Ref Meas channel	9.5.0	9.6.0	R4	LTE-RF
36.101	0627	-	Rel-10	A	RP-101341	R4-104080	approved	Add 20 RB UL Ref Meas channel	10.0.0	10.1.0	R4	LTE-RF
36.101	0628	-	Rel-8	F	RP-101329	R4-104093	approved	Removal of [ ] from TDD Rank Indicator requirements	8.11.0	8.12.0	R4	LTE-RF
36.101	0629	-	Rel-9	A	RP-101329	R4-104094	approved	Removal of [ ] from TDD Rank Indicator requirements	9.5.0	9.6.0	R4	LTE-RF
36.101	0630	-	Rel-10	A	RP-101329	R4-104095	approved	Removal of [ ] from TDD Rank Indicator requirements	10.0.0	10.1.0	R4	LTE-RF
36.101	0633	1	Rel-8	F	RP-101329	R4-104790	approved	Test configuration corrections to CQI TDD reporting in AWGN	8.11.0	8.12.0	R4	LTE-RF

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								(Rel-8)				
36.101	0634	1	Rel-9	A	RP-101329	R4-104791	approved	Test configuration corrections to CQI TDD reporting in AWGN (Rel-9)	9.5.0	9.6.0	R4	LTE-RF
36.101	0635	1	Rel-10	A	RP-101329	R4-104792	approved	Test configuration corrections to CQI TDD reporting in AWGN (Rel-10)	10.0.0	10.1.0	R4	LTE-RF
36.101	0640	1	Rel-8	F	RP-101330	R4-104965	approved	Correction of Note 4 In Table 7.3.1-1: Reference sensitivity QPSK PREFSENS	8.11.0	8.12.0	R4	LTE-RF
36.101	0641	1	Rel-9	A	RP-101330	R4-104966	approved	Correction of Note 4 In Table 7.3.1-1: Reference sensitivity QPSK PREFSENS	9.5.0	9.6.0	R4	LTE-RF
36.101	0642	1	Rel-10	A	RP-101330	R4-104967	approved	Correction of Note 4 In Table 7.3.1-1: Reference sensitivity QPSK PREFSENS	10.0.0	10.1.0	R4	LTE-RF
36.101	0643	-	Rel-8	F	RP-101330	R4-104277	approved	EVM window length for PRACH	8.11.0	8.12.0	R4	LTE-RF
36.101	0644	-	Rel-9	A	RP-101330	R4-104278	approved	EVM window length for PRACH	9.5.0	9.6.0	R4	LTE-RF
36.101	0645	-	Rel-10	A	RP-101330	R4-104279	approved	EVM window length for PRACH	10.0.0	10.1.0	R4	LTE-RF
36.101	0646	1	Rel-10	B	RP-101359	R4-104767	approved	CR for CA, UL-MIMO, eDL-MIMO, CPE	10.0.0	10.1.0	R4	LTE_CA-core
36.101	0647	-	Rel-8	F	RP-101330	R4-104338	approved	Removal of NS signalling from TDD REFSENS tests	8.11.0	8.12.0	R4	LTE-RF
36.101	0648	-	Rel-9	A	RP-101330	R4-104339	approved	Removal of NS signalling from TDD REFSENS tests	9.5.0	9.6.0	R4	LTE-RF
36.101	0649	-	Rel-10	A	RP-101330	R4-104340	approved	Removal of NS signalling from TDD REFSENS tests	10.0.0	10.1.0	R4	LTE-RF
36.101	0650	-	Rel-8	F	RP-101327	R4-104456	approved	Correction to Band 12 frequency range	8.11.0	8.12.0	R4	TEI8
36.101	0651	-	Rel-9	A	RP-101327	R4-104457	approved	Correction to Band 12 frequency range	9.5.0	9.6.0	R4	TEI8
36.101	0652	-	Rel-10	A	RP-101327	R4-104458	approved	Correction to Band 12 frequency range	10.0.0	10.1.0	R4	TEI8
36.101	0653	1	Rel-9	F	RP-101341	R4-104916	approved	Additional in-band blocking requirement for Band 12	9.5.0	9.6.0	R4	TEI9
36.101	0654	1	Rel-10	A	RP-101341	R4-104917	approved	Additional in-band blocking requirement for Band 12	10.0.0	10.1.0	R4	TEI9
36.101	0658	2	Rel-9	F	RP-101341	R4-105024	approved	Correction on MBMS performance requirements	9.5.0	9.6.0	R4	LTE-RF
36.101	0659	1	Rel-9	F	RP-101341	R4-104897	approved	Adding antenna configuration in CQI fading test case	9.5.0	9.6.0	R4	LTE-RF
36.101	0660	1	Rel-9	A	RP-101330	R4-104979	approved	Correction on the statement of TB size and subband selection in CSI tests	9.5.0	9.6.0	R4	LTE-RF
36.101	0661	2	Rel-8	F	RP-101329	R4-104895	approved	Correction of the PMI reporting in Multi-Layer Spatial Multiplexing performance test	8.11.0	8.12.0	R4	LTE-RF
36.101	0662	2	Rel-9	A	RP-101329	R4-104896	approved	Correction of the PMI reporting in Multi-Layer Spatial Multiplexing performance test	9.5.0	9.6.0	R4	LTE-RF
36.101	0664	1	Rel-9	F	RP-101341	R4-104808	approved	Demodulation performance requirements for dual-layer beamforming	9.5.0	9.6.0	R4	LTEimp-eDL
36.101	0666	2	Rel-10	B	RP-101356	R4-104845	approved	Band 42 and 43 parameters for UMTS/LTE 3500 (TDD) for TS 36.101	10.0.0	10.1.0	R4	RInImp8-UMTSLTE3500
36.101	0667	3	Rel-10	F	RP-101349	R4-105001	approved	CR Removing brackets of Band 41 reference sensitivity to TS 36.101	10.0.0	10.1.0	R4	LTE_TDD_2600_US-Core
36.101	0670	1	Rel-10	A	RP-101379	RP-101379	approved	Correction of the PMI reporting in Multi-Laye Spatial Multiplexing performance test	10.0.0	10.1.0	R4	LTE-RF
36.101	0671	-	Rel-8	F	RP-101324	R4-104975	approved	Correction on the statement of TB size and subband selection in CSI tests	8.11.0	8.12.0	R4	LTE-RF
36.101	0672	-	Rel-10	A	RP-101325	R4-104976	approved	Correction on the statement of TB size and subband selection in CSI tests	10.0.0	10.1.0	R4	LTE-RF
36.101	0673	1	Rel-10	A	RP-101341	R4-105025	approved	Correction on MBMS performance requirements	10.0.0	10.1.0	R4	LTE-RF
36.101	0677	-	Rel-9	F	RP-101341	R4-105022	approved	Further clarifications for the Sustained Downlink Data Rate Test	9.5.0	9.6.0	R4	TEI9
36.101	0678	-	Rel-10	A	RP-101341	R4-105023	approved	Further clarifications for the Sustained Downlink Data Rate Test	10.0.0	10.1.0	R4	TEI9
36.101	0679	1	Rel-10	A	RP-101380	-	approved	Adding antenna configuration in CQI fading test case	10.0.0	10.1.0	R4	LTE-RF
36.101	0680	-	Rel-10	A	RP-101309	R4-105031	approved	Demodulation performance requirements for dual-layer beamforming	10.0.0	10.1.0	R4	LTEimp-eDL
36.101	0680	-	Rel-10	A	RP-101309	RP-101309	approved	Demodulation performance requirements for dual-layer	10.0.0	10.1.0	R4	LTEimp-eDL

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								beamforming				
36.104	0181	3	Rel-10	B	RP-101356	R4-104936	approved	CR UMTS/LTE-3500 TDD spectrum band definition additions for BS to TS 36.104	10.0.0	10.1.0	R4	RInImp8-UMTSLTE3500
36.104	0182	-	Rel-9	F	RP-101342	R4-104074	approved	Equaliser coefficient derivation for EVM	9.5.0	9.6.0	R4	LTE-RF
36.104	0183	-	Rel-10	A	RP-101342	R4-104075	approved	Equaliser coefficient derivation for EVM	10.0.0	10.1.0	R4	LTE-RF
36.104	0185	-	Rel-9	F	RP-101342	R4-104254	approved	Corrections on table reference for Local Area BS co-located with another BS	9.5.0	9.6.0	R4	LTEimp-Pico_eNB-RF
36.104	0186	-	Rel-10	A	RP-101342	R4-104255	approved	Corrections on table reference for Local Area BS co-located with another BS	10.0.0	10.1.0	R4	LTEimp-Pico_eNB-RF
36.104	0188	-	Rel-8	F	RP-101328	R4-104287	approved	PUCCH format 2 performance requirements definition clarification	8.10.0	8.11.0	R4	TEI8
36.104	0189	-	Rel-9	A	RP-101328	R4-104288	approved	PUCCH format 2 performance requirements definition clarification	9.5.0	9.6.0	R4	TEI8
36.104	0190	-	Rel-10	A	RP-101328	R4-104289	approved	PUCCH format 2 performance requirements definition clarification	10.0.0	10.1.0	R4	TEI8
36.104	0191	-	Rel-10	B	RP-101358	R4-104420	approved	Base Station Rated Output Power with up to 8 Transmit Antennas	10.0.0	10.1.0	R4	LTE_eDL_MIMO-Core
36.104	0192	-	Rel-8	F	RP-101327	R4-104491	approved	Band 12 channel arrangement correction on 36.104	8.10.0	8.11.0	R4	TEI8
36.104	0193	-	Rel-9	A	RP-101327	R4-104492	approved	Band 12 channel arrangement correction on 36.104	9.5.0	9.6.0	R4	TEI8
36.104	0194	-	Rel-10	A	RP-101327	R4-104493	approved	Band 12 channel arrangement correction on 36.104	10.0.0	10.1.0	R4	TEI8
36.104	0199	-	Rel-9	F	RP-101342	R4-104700	approved	Correction of applicability of requirements	9.5.0	9.6.0	R4	TEI9
36.104	0200	-	Rel-10	A	RP-101342	R4-104701	approved	Correction of applicability of requirements	10.0.0	10.1.0	R4	TEI9
36.104	0201	-	Rel-8	F	RP-101328	R4-104870	approved	Correction on multi user PUCCH test	8.10.0	8.11.0	R4	LTE-RF
36.104	0202	-	Rel-9	A	RP-101328	R4-104871	approved	Correction on multi user PUCCH test	9.5.0	9.6.0	R4	LTE-RF
36.104	0203	-	Rel-10	A	RP-101328	R4-104872	approved	Correction on multi user PUCCH test	10.0.0	10.1.0	R4	LTE-RF
36.104	0204	-	Rel-10	B	RP-101359	R4-104924	approved	Introduction of Carrier Aggregation for LTE in TS 36.104	10.0.0	10.1.0	R4	LTE_CA-Core
36.106	0016	-	Rel-9	F	RP-101347	R4-103990	approved	Corrections to the symbols and abbreviations clause related to DTT requirement	9.2.0	9.3.0	R4	TEI9
36.106	0017	-	Rel-9	F	RP-101347	R4-103994	approved	Co-existence with services in adjacent frequency bands	9.2.0	9.3.0	R4	TEI9
36.106	0018	-	Rel-8	F	RP-101336	R4-104000	approved	Protection of CDMA	8.5.0	8.6.0	R4	TEI8
36.106	0019	-	Rel-9	A	RP-101336	R4-104001	approved	Protection of CDMA	9.2.0	9.3.0	R4	TEI8
36.106	0020	1	Rel-8	F	RP-101333	R4-104759	approved	Clarification on emission requirements	8.5.0	8.6.0	R4	TEI8
36.106	0021	-	Rel-9	A	RP-101333	R4-104005	approved	Clarification on emission requirements	9.2.0	9.3.0	R4	TEI8
36.106	0022	-	Rel-8	F	RP-101337	R4-104012	approved	Removal of brackets	8.5.0	8.6.0	R4	TEI8
36.106	0023	-	Rel-9	A	RP-101337	R4-104013	approved	Removal of brackets	9.2.0	9.3.0	R4	TEI8
36.113	0011	-	Rel-10	B	RP-101361	R4-103617	approved	Introduction of L-band in TS36.113	10.0.0	10.1.0	R4	L_Band_LTE_ATC_MSS-Core
36.113	0013	1	Rel-10	B	RP-101356	R4-104526	approved	Band 42 and 43 parameters for UMTS/LTE 3500 (TDD) for TS 36.113	10.0.0	10.1.0	R4	RInImp8-UMTSLTE3500
36.113	0015	-	Rel-8	F	RP-101338	R4-104018	approved	Correction due to the introduction of the definition of pass band	8.2.0	8.3.0	R4	TEI8
36.113	0016	-	Rel-9	A	RP-101338	R4-104019	approved	Correction due to the introduction of the definition of pass band	9.2.0	9.3.0	R4	TEI8
36.113	0018	-	Rel-8	F	RP-101327	R4-104497	approved	Band 12 channel arrangement correction on 36.113	8.2.0	8.3.0	R4	TEI8
36.113	0019	-	Rel-9	A	RP-101327	R4-104498	approved	Band 12 channel arrangement correction on 36.113	9.2.0	9.3.0	R4	TEI8
36.113	0020	-	Rel-10	A	RP-101327	R4-104499	approved	Band 12 channel arrangement correction on 36.113	10.0.0	10.1.0	R4	TEI8
36.124	0007	-	Rel-10	B	RP-101361	R4-103618	approved	Introduction of L-band in TS36.124	10.0.0	10.1.0	R4	L_Band_LTE_ATC_MSS-Core
36.124	0009	1	Rel-10	B	RP-101356	R4-104527	approved	Band 42 and 43 parameters for UMTS/LTE 3500 (TDD) for TS 36.124	10.0.0	10.1.0	R4	RInImp8-UMTSLTE3500
36.124	0011	-	Rel-8	F	RP-101327	R4-104500	approved	Band 12 channel arrangement correction on 36.124	8.1.0	8.2.0	R4	TEI8
36.124	0012	-	Rel-9	A	RP-101327	R4-104501	approved	Band 12 channel arrangement correction on 36.124	9.1.0	9.2.0	R4	TEI8

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36.124	0013	-	Rel-10	A	RP-101327	R4-104502	approved	Band 12 channel arrangement correction on 36.124	10.0.0	10.1.0	R4	TEI8
36.133	0551	3	Rel-9	B	RP-101343	R4-104644	approved	E-UTRAN TDD Intra Frequency RSTD Measurement Accuracy test case	9.5.0	9.6.0	R4	LCS_LTE
36.133	0552	-	Rel-10	B	RP-101361	R4-103619	approved	Introduction of L-band in TS36.133	10.0.0	10.1.0	R4	L_Band_LTE_ATC_MSS-Core
36.133	0561	-	Rel-8	F	RP-101332	R4-104032	approved	PDCCH Aggregation Level for RRM Tests	8.11.0	8.12.0	R4	LTE-RF
36.133	0562	-	Rel-9	A	RP-101332	R4-104033	approved	PDCCH Aggregation Level for RRM Tests	9.5.0	9.6.0	R4	LTE-RF
36.133	0563	-	Rel-10	A	RP-101332	R4-104034	approved	PDCCH Aggregation Level for RRM Tests	10.0.0	10.1.0	R4	LTE-RF
36.133	0564	1	Rel-8	F	RP-101331	R4-104955	approved	Corrections and Clarifications to TS36.133	8.11.0	8.12.0	R4	LTE-RF
36.133	0565	1	Rel-9	A	RP-101331	R4-104956	approved	Corrections and Clarifications to TS36.133	9.5.0	9.6.0	R4	LTE-RF
36.133	0566	1	Rel-10	A	RP-101331	R4-104957	approved	Corrections and Clarifications to TS36.133	10.0.0	10.1.0	R4	LTE-RF
36.133	0567	-	Rel-9	F	RP-101343	R4-104060	approved	Clarification of measurements requirements for HRPD and cdma2000 1x	9.5.0	9.6.0	R4	LTE-RF
36.133	0568	-	Rel-10	A	RP-101343	R4-104061	approved	Clarification of measurements requirements for HRPD and cdma2000 1x	10.0.0	10.1.0	R4	LTE-RF
36.133	0569	-	Rel-8	F	RP-101332	R4-104081	approved	MIMO correlation scenario for RLM test cases	8.11.0	8.12.0	R4	LTE-RF
36.133	0570	-	Rel-9	A	RP-101332	R4-104082	approved	MIMO correlation scenario for RLM test cases	9.5.0	9.6.0	R4	LTE-RF
36.133	0571	-	Rel-10	A	RP-101332	R4-104083	approved	MIMO correlation scenario for RLM test cases	10.0.0	10.1.0	R4	LTE-RF
36.133	0578	-	Rel-8	F	RP-101332	R4-104090	approved	Removal of [ ] from PDSCH and PCFICH/PDCCH/PHICH Measurement Channel references in Annex A.	8.11.0	8.12.0	R4	LTE-RF
36.133	0579	-	Rel-9	A	RP-101332	R4-104091	approved	Removal of [ ] from PDSCH and PCFICH/PDCCH/PHICH Measurement Channel references in Annex A.	9.5.0	9.6.0	R4	LTE-RF
36.133	0580	-	Rel-10	A	RP-101332	R4-104092	approved	Removal of [ ] from PDSCH and PCFICH/PDCCH/PHICH Measurement Channel references in Annex A.	10.0.0	10.1.0	R4	LTE-RF
36.133	0583	-	Rel-8	F	RP-101332	R4-104145	approved	Enabling HARQ for RRM Tests	8.11.0	8.12.0	R4	LTE-RF
36.133	0584	-	Rel-9	A	RP-101332	R4-104146	approved	Enabling HARQ for RRM Tests	9.5.0	9.6.0	R4	LTE-RF
36.133	0585	-	Rel-10	A	RP-101332	R4-104147	approved	Enabling HARQ for RRM Tests	10.0.0	10.1.0	R4	LTE-RF
36.133	0588	-	Rel-9	F	RP-101343	R4-104234	approved	Addition of Band 18, 19 and 21 into UE Rx - Tx time difference requirements	9.5.0	9.6.0	R4	LTE-RF
36.133	0589	-	Rel-10	A	RP-101343	R4-104235	approved	Addition of Band 18, 19 and 21 into UE Rx - Tx time difference requirements	10.0.0	10.1.0	R4	LTE-RF
36.133	0590	1	Rel-8	F	RP-101331	R4-104754	approved	Correction to Radio link monitoring test cases	8.11.0	8.12.0	R4	LTE-RF
36.133	0591	1	Rel-9	A	RP-101331	R4-104755	approved	Correction to Radio link monitoring test cases	9.5.0	9.6.0	R4	LTE-RF
36.133	0592	2	Rel-10	A	RP-101331	R4-105009	approved	Correction to Radio link monitoring test cases	10.0.0	10.1.0	R4	LTE-RF
36.133	0597	1	Rel-9	F	RP-101343	R4-105015	approved	E-UTRAN FDD intra-frequency RSTD measurement reporting delay test case	9.5.0	9.6.0	R4	LCS_LTE
36.133	0598	2	Rel-10	A	RP-101343	R4-105017	approved	E-UTRAN FDD intra-frequency RSTD measurement reporting delay test case	10.0.0	10.1.0	R4	LCS_LTE
36.133	0599	1	Rel-9	F	RP-101343	R4-105016	approved	E-UTRAN TDD intra-frequency RSTD measurement reporting delay test case	9.5.0	9.6.0	R4	LCS_LTE
36.133	0600	2	Rel-10	A	RP-101343	R4-105018	approved	E-UTRAN TDD intra-frequency RSTD measurement reporting delay test case	10.0.0	10.1.0	R4	LCS_LTE
36.133	0603	-	Rel-9	F	RP-101343	R4-104514	approved	Correction to Enhanced GSM Cell Identification Requirements	9.5.0	9.6.0	R4	TEI9
36.133	0604	-	Rel-10	A	RP-101343	R4-104515	approved	Correction to Enhanced GSM Cell Identification Requirement	10.0.0	10.1.0	R4	TEI9
36.133	0620	2	Rel-9	F	RP-101343	R4-104958	approved	Correction for Measurements of inter-RAT cells	9.5.0	9.6.0	R4	LTE-RF
36.133	0621	1	Rel-10	A	RP-101343	R4-104959	approved	Correction for Measurements of inter-RAT cells	10.0.0	10.1.0	R4	LTE-RF
36.133	0631	1	Rel-9	F	RP-101343	R4-104729	approved	Correction of reselection requirement for UTRAN FDD cells	9.5.0	9.6.0	R4	LTE-RF
36.133	0632	-	Rel-10	A	RP-101343	R4-104575	approved	Correction of reselection requirement for UTRAN FDD cells	10.0.0	10.1.0	R4	LTE-RF
36.133	0633	-	Rel-8	F	RP-101331	R4-104576	approved	Corrections to 36.133 performance requirements	8.11.0	8.12.0	R4	LTE-RF
36.133	0634	-	Rel-9	A	RP-101331	R4-104577	approved	Corrections to 36.133 performance requirements	9.5.0	9.6.0	R4	LTE-RF

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36.133	0635	-	Rel-10	A	RP-101331	R4-104578	approved	Corrections to 36.133 performance requirements	10.0.0	10.1.0	R4	LTE-RF
36.133	0636	-	Rel-8	F	RP-101331	R4-104680	approved	Correction to intra frequency cell identification time	8.11.0	8.12.0	R4	LTE-RF
36.133	0637	-	Rel-9	A	RP-101331	R4-104681	approved	Correction to intra frequency cell identification time	9.5.0	9.6.0	R4	LTE-RF
36.133	0638	-	Rel-10	A	RP-101331	R4-104682	approved	Correction to intra frequency cell identification time for FDD and TDD	10.0.0	10.1.0	R4	LTE-RF
36.133	0639	-	Rel-9	F	RP-101343	R4-104689	approved	Correction to Enhanced UTRA FDD Cell Identification Requirements	9.5.0	9.6.0	R4	TEI9
36.133	0640	-	Rel-10	A	RP-101343	R4-104690	approved	Correction to Enhanced UTRA FDD Cell Identification Requirements	10.0.0	10.1.0	R4	TEI9
36.133	0641	1	Rel-8	B	RP-101335	R4-104847	approved	Completion of CSG cell reselection requirements	8.11.0	8.12.0	R4	LTE-L23, HNB-supp, LTE-UEConTest, HNB-UEConTestFDD
36.133	0642	1	Rel-9	A	RP-101335	R4-104848	approved	Completion of CSG cell reselection requirements	9.5.0	9.6.0	R4	LTE-L23, HNB-supp, LTE-UEConTest, HNB-UEConTestFDD
36.133	0643	1	Rel-10	A	RP-101335	R4-104849	approved	Completion of CSG cell reselection requirements	10.0.0	10.1.0	R4	LTE-L23, HNB-supp, LTE-UEConTest, HNB-UEConTestFDD
36.133	0644	-	Rel-10	B	RP-101356	R4-104703	approved	Band 42 and 43 parameters for UMTS/LTE 3500 (TDD) for TS 36.133	10.0.0	10.1.0	R4	RInImp8-UMTSLTE3500
36.133	0645	-	Rel-10	A	RP-101343	R4-104876	approved	E-UTRAN TDD Intra Frequency RSTD Measurement Accuracy test case	10.0.0	10.1.0	R4	LCS_LTE
36.133	0646	-	Rel-8	F	RP-101386	-	approved	Removal of square brackets from scope of TS36.133	8.11.0	8.12.0	R4	LTE-RF
36.133	0647	-	Rel-9	A	RP-101387	-	approved	Removal of square brackets from scope of TS36.133	9.5.0	9.6.0	R4	LTE-RF
36.133	0648	-	Rel-10	A	RP-101388	-	approved	Removal of square brackets from scope of TS36.133	10.0.0	10.1.0	R4	LTE-RF
36.141	0209	3	Rel-10	B	RP-101362	R4-103957	approved	Introduction of L-band in TS36.141	10.0.0	10.1.0	R4	L_Band_LTE_ATC_MSS-Perf
36.141	0211	3	Rel-10	B	RP-101356	R4-104937	approved	CR UMTS/LTE-3500 TDD spectrum band definition additions for BS to TS 36.141	10.0.0	10.1.0	R4	RInImp8-UMTSLTE3500
36.141	0212	-	Rel-9	F	RP-101342	R4-104076	approved	Equaliser coefficient derivation for Global In-Channel TX-Test	9.5.0	9.6.0	R4	LTE-RF
36.141	0213	-	Rel-10	A	RP-101342	R4-104077	approved	Equaliser coefficient derivation for Global In-Channel TX-Test	10.0.0	10.1.0	R4	LTE-RF
36.141	0215	-	Rel-8	F	RP-101328	R4-104290	approved	PUCCH format 2 performance requirements definition clarification	8.8.0	8.9.0	R4	TEI8
36.141	0216	-	Rel-9	A	RP-101328	R4-104291	approved	PUCCH format 2 performance requirements definition clarification	9.5.0	9.6.0	R4	TEI8
36.141	0217	-	Rel-10	A	RP-101328	R4-104292	approved	PUCCH format 2 performance requirements definition clarification	10.0.0	10.1.0	R4	TEI8
36.141	0220	-	Rel-9	F	RP-101342	R4-104405	approved	Correction of applicability of requirements	9.5.0	9.6.0	R4	TEI9
36.141	0221	-	Rel-10	A	RP-101342	R4-104406	approved	Correction of applicability of requirements	10.0.0	10.1.0	R4	TEI9
36.141	0222	-	Rel-8	F	RP-101327	R4-104494	approved	Band 12 channel arrangement correction on 36.141	8.8.0	8.9.0	R4	TEI8
36.141	0223	-	Rel-9	A	RP-101327	R4-104495	approved	Band 12 channel arrangement correction on 36.141	9.5.0	9.6.0	R4	TEI8
36.141	0224	-	Rel-10	A	RP-101327	R4-104496	approved	Band 12 channel arrangement correction on 36.141	10.0.0	10.1.0	R4	TEI8
36.141	0234	-	Rel-8	F	RP-101328	R4-104873	approved	Correction on multi user PUCCH test	8.8.0	8.9.0	R4	LTE-RF
36.141	0235	-	Rel-9	A	RP-101328	R4-104874	approved	Correction on multi user PUCCH test	9.5.0	9.6.0	R4	LTE-RF
36.141	0236	-	Rel-10	A	RP-101328	R4-104875	approved	Correction on multi user PUCCH test	10.0.0	10.1.0	R4	LTE-RF
36.143	0016	-	Rel-9	F	RP-101347	R4-103991	approved	Corrections to the symbols and abbreviations clause related to DTT requirement	9.1.0	9.2.0	R4	TEI9
36.143	0017	-	Rel-9	F	RP-101347	R4-103995	approved	Co-existence with services in adjacent frequency bands	9.1.0	9.2.0	R4	TEI9
36.143	0018	-	Rel-8	F	RP-101336	R4-104002	approved	Protection of CDMA	8.3.0	8.4.0	R4	TEI8
36.143	0019	-	Rel-9	A	RP-101336	R4-104003	approved	Protection of CDMA	9.1.0	9.2.0	R4	TEI8

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36.143	0020	-	Rel-8	F	RP-101333	R4-104006	approved	Clarification on emission requirements	8.3.0	8.4.0	R4	TEI8
36.143	0021	-	Rel-9	A	RP-101333	R4-104007	approved	Clarification on emission requirements	9.1.0	9.2.0	R4	TEI8
36.143	0022	-	Rel-8	F	RP-101333	R4-104014	approved	Correction fo derivation of test requirement for frequency error and removal of brackets	8.3.0	8.4.0	R4	TEI8
36.143	0023	-	Rel-9	A	RP-101333	R4-104015	approved	Correction fo derivation of test requirement for frequency error and removal of brackets	9.1.0	9.2.0	R4	TEI8
36.143	0024	-	Rel-9	F	RP-101344	R4-104657	approved	CR implementation correction for TS36.143	9.1.0	9.2.0	R4	TEI9
36.307	0004	3	Rel-8	B	RP-101361	R4-104969	approved	Introduction of L-band in TS 36.307	8.1.0	8.2.0	R4	L_Band_LTE_ATC_MSS-Core
36.307	0005	-	Rel-9	B	RP-101361	R4-103662	approved	Introduction of L-band in TS 36.307	9.1.1	9.2.0	R4	L_Band_LTE_ATC_MSS-Core
36.307	0007	1	Rel-8	B	RP-101356	R4-104524	approved	Band 42 and 43 parameters for UMTS/LTE 3500 (TDD) for TS 36.307	8.1.0	8.2.0	R4	RInImp8-UMTSLTE3500
36.307	0008	1	Rel-9	B	RP-101356	R4-104525	approved	Band 42 and 43 parameters for UMTS/LTE 3500 (TDD) for TS 36.307	9.1.1	9.2.0	R4	RInImp8-UMTSLTE3500
36.307	0012	-	Rel-10	B	RP-101356	R4-104400	approved	Band 42 and 43 parameters for UMTS/LTE 3500 (TDD) for TS 36.307	9.1.1	10.0.0	R4	RInImp8-UMTSLTE3500
36.307	0016	-	Rel-10	F	RP-101344	R4-105027	approved	CR creating the rel-10 of the 36.307 specification	9.1.1	10.0.0	R4	LTE_TDD_2600_US-Core
36.812	0001	2	Rel-10	D	RP-101349	R4-105014	approved	CR Removing brackets of Band 41 reference sensitivity to TR 36.812	10.0.0	10.1.0	R4	LTE_TDD_2600_US-Core
36.942	0008	1	Rel-9	F	RP-101344	R4-104763	approved	CR TR 36.942 v8.2.0 annex A.4 Link Level Performance for E-UTRA TDD	9.1.0	9.2.0	R4	TEI9
36.942	0009	-	Rel-10	B	RP-101359	R4-104370	approved	Additional of LTE-Advanced co-existence simulation results (scenario #4)	10.1.0	10.2.0	R4	LTE_CA-Core
36.942	0010	-	Rel-10	A	RP-101344	R4-104960	approved	CR TR 36.942 v10.1.0 annex A.4 Link Level Performance for E-UTRA TDD	10.1.0	10.2.0	R4	TEI9
37.104	0019	4	Rel-10	B	RP-101356	R4-104934	approved	Band 42 and 43 parameters for UMTS/LTE 3500 (TDD) for TS 37.104	10.0.0	10.1.0	R4	RInImp8-UMTSLTE3500
37.104	0020	-	Rel-10	B	RP-101361	R4-104054	approved	Protection of E-UTRA Band 24	10.0.0	10.1.0	R4	L_Band_LTE_ATC_MSS-Core
37.104	0022	-	Rel-9	F	RP-101345	R4-104638	approved	Band XII/12 frequency range	9.3.0	9.4.0	R4	TEI9
37.104	0023	-	Rel-10	A	RP-101345	R4-104639	approved	Band XII/12 frequency range	10.0.0	10.1.0	R4	TEI9
37.104	0024	-	Rel-10	B	RP-101359	R4-104925	approved	Introduction of Carrier Aggregation for LTE in TS 37.104	10.0.0	10.1.0	R4	LTE_CA-Core
37.113	0004	1	Rel-10	B	RP-101356	R4-104522	approved	Band 42 and 43 parameters for UMTS/LTE 3500 (TDD) for TS 37.113	10.0.0	10.1.0	R4	RInImp8-UMTSLTE3500
37.113	0005	-	Rel-9	F	RP-101346	R4-104388	approved	MSR test configuration for EMC	9.1.0	9.2.0	R4	TEI9
37.113	0006	-	Rel-10	A	RP-101346	R4-104389	approved	MSR test configuration for EMC	10.0.0	10.1.0	R4	TEI9
37.113	0007	-	Rel-9	F	RP-101346	R4-104390	approved	Correction of CR implementation in clause 6.2 of TS 37.113	9.1.0	9.2.0	R4	TEI9
37.113	0008	-	Rel-10	A	RP-101346	R4-104391	approved	Correction of CR implementation in clause 6.2 of TS 37.113	10.0.0	10.1.0	R4	TEI9
37.113	0009	-	Rel-9	F	RP-101345	R4-104642	approved	Band XII/12 frequency range	9.1.0	9.2.0	R4	TEI9
37.113	0010	-	Rel-10	A	RP-101345	R4-104643	approved	Band XII/12 frequency range	10.0.0	10.1.0	R4	TEI9
37.141	0029	4	Rel-10	B	RP-101356	R4-104935	approved	Band 42 and 43 parameters for UMTS/LTE 3500 (TDD) for TS 37.141	10.0.0	10.1.0	R4	RInImp8-UMTSLTE3500
37.141	0030	-	Rel-10	B	RP-101361	R4-104055	approved	Protection of E-UTRA Band 24	10.0.0	10.1.0	R4	L_Band_LTE_ATC_MSS-Core
37.141	0031	-	Rel-9	F	RP-101346	R4-104411	approved	Adding missing Test System Uncertainty for the receiver tests	9.1.0	9.2.0	R4	TEI9
37.141	0032	-	Rel-10	A	RP-101346	R4-104412	approved	Adding missing Test System Uncertainty for the receiver tests	10.0.0	10.1.0	R4	TEI9
37.141	0033	-	Rel-9	F	RP-101346	R4-104590	approved	TS 37.141 Subclause 7.7; Receiver intermodulation	9.1.0	9.2.0	R4	RInImp9-Rfmulti
37.141	0034	-	Rel-10	A	RP-101346	R4-104591	approved	TS 37.141 Subclause 7.7; Receiver intermodulation	10.0.0	10.1.0	R4	RInImp9-Rfmulti

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37.141	0035	-	Rel-9	F	RP-101345	R4-104640	approved	Band XII/12 frequency range	9.1.0	9.2.0	R4	TEI9
37.141	0036	-	Rel-10	A	RP-101345	R4-104641	approved	Band XII/12 frequency range	10.0.0	10.1.0	R4	TEI9
25.102	0333	-	Rel-10	B	RP-101354	R4-104027	postponed	Add the type 1 receiver definition for 1.28Mcps TDD UE with 2 antennas	9.2.0		R4	2ant_UE_LCR_TDD-Perf
25.102	0334	-	Rel-10	B	RP-101354	R4-104028	postponed	Add the Performace requirement for type 1 UE with receiver diversity	9.2.0		R4	2ant_UE_LCR_TDD-Perf
25.113	0053	-	Rel-10	B	RP-101357	R4-104628	postponed	Add Expanded 1900MHz band in 25.113	9.3.0		R4	E1900-Core
34.124	0037	1	Rel-10	B	RP-101357	R4-104762	postponed	Add Expanded 1900 MHz Band for UTRA and LTE to TS34.124	9.2.0		R4	E1900-Core
36.101	0670	-	Rel-10	A	RP-101303	R4-104954	revised	Correction on the PMI reporting in Multi-Laye Spatial Multiplexing performance test	10.0.0		R4	LTE-RF
36.101	0679	-	Rel-10	A	RP-101306	R4-105030	revised	Adding antenna configuration in CQI fading test case	10.0.0		R4	LTE-RF
36.113	0012	-	Rel-10	B	RP-101360	R4-103682	postponed	Add 2 GHz band LTE for ATC of MSS in North America to TS36.113	10.0.0		R4	S_Band_LTE_ATC_MSS-Core
36.113	0017	-	Rel-10	B	RP-101357	R4-104477	postponed	Add Expanded 1900 MHz Band (Band 25) in 36.113	10.0.0		R4	E1900-Core
36.124	0008	-	Rel-10	B	RP-101360	R4-103639	postponed	Add 2 GHz band LTE for ATC of MSS in North America to TS36.124	10.0.0		R4	S_Band_LTE_ATC_MSS-Core
36.124	0010	-	Rel-10	B	RP-101357	R4-104478	postponed	Add Expanded 1900 MHz Band (Band 25) in 36.124	10.0.0		R4	E1900-Core
36.133	0593	-	Rel-10	B	RP-101360	R4-104320	postponed	Add 2 GHz band LTE for ATC of MSS in North America to TS36.133	10.0.0		R4	S_Band_LTE_ATC_MSS-Core
36.307	0003	1	Rel-8	B	RP-101360	R4-104321	postponed	Add 2 GHz band LTE for ATC of MSS in North America to TS36.307	8.1.0		R4	S_Band_LTE_ATC_MSS-Core
36.307	0006	1	Rel-9	A	RP-101360	R4-104322	postponed	Add 2 GHz band LTE for ATC of MSS in North America to TS36.307	9.1.1		R4	S_Band_LTE_ATC_MSS-Core
36.307	0009	-	Rel-10	B	RP-101360	R4-103840	postponed	Add 2 GHz band LTE for ATC of MSS in North America to TS36.307	9.1.1		R4	S_Band_LTE_ATC_MSS-Core
36.307	0013	-	Rel-8	B	RP-101357	R4-104479	postponed	Add Expanded 1900 MHz Band (Band 25) in 36.307	8.1.0		R4	E1900-Core
36.307	0014	1	Rel-9	B	RP-101357	R4-104735	postponed	Add Expanded 1900 MHz Band (Band 25) in 36.307	9.1.1		R4	E1900-Core
36.307	0015	-	Rel-10	B	RP-101357	R4-104481	postponed	Add Expanded 1900 MHz Band (Band 25) in 36.307	9.1.1		R4	E1900-Core
34.108	0844	-	Rel-9	F	RP-101137	R5-106218	approved	Corrections to SIB5 contents for Enhanced Cell FACH DL testcases	9.2.0	9.3.0	R5	TEI7_Test
34.108	0845	-	Rel-9	F	RP-101137	R5-106219	approved	Corrections to RRC Connection setup contents for Enhanced Cell FACH DL testcases	9.2.0	9.3.0	R5	TEI7_Test
34.108	0846	-	Rel-9	F	RP-101158	R5-106260	approved	Adding new IEs related to PPAC to the default system information block type 3	9.2.0	9.3.0	R5	PPAC_UEConTest
34.108	0847	-	Rel-9	F	RP-101134	R5-106343	approved	Addition SIB schedule for LCR TDD two S-CCPCH or two PRACH	9.2.0	9.3.0	R5	TEI4_Test
34.108	0848	-	Rel-9	F	RP-101134	R5-106344	approved	Correction the TTI for LCR TDD 3.4kbps SRBs (multiframe)	9.2.0	9.3.0	R5	TEI4_Test
34.108	0849	-	Rel-9	F	RP-101134	R5-106382	approved	Update for Band IX testing	9.2.0	9.3.0	R5	TEI_Test
34.108	0849	-	Rel-9	F	RP-101133	R5-106382	approved	Update for Band IX testing	9.2.0	9.3.0	R5	TEI_Test
34.108	0850	-	Rel-9	F	RP-101160	R5-106435	approved	Addition of radio bearer parameters for UE HS-DSCH Physical Layer category 25 to 28	9.2.0	9.3.0	R5	RANimp-DC_MIMO_UEConTest
34.108	0851	-	Rel-9	F	RP-101134	R5-106499	approved	Update of the default RADIO BEARER SETUP message (FDD) for support of SRBs mapped on E-DCH/DCH	9.2.0	9.3.0	R5	TEI_Test
34.108	0851	-	Rel-9	F	RP-101133	R5-106499	approved	Update of the default RADIO BEARER SETUP message (FDD) for support of SRBs mapped on E-DCH/DCH	9.2.0	9.3.0	R5	TEI8_Test
34.108	0852	-	Rel-9	F	RP-101133	R5-106669	approved	Correction to DL DPCH transmit power for 64 KBPS CS + 64 KBPS PS call	9.2.0	9.3.0	R5	TEI_Test
34.108	0852	-	Rel-9	F	RP-101134	R5-106669	approved	Correction to DL DPCH transmit power for 64 KBPS CS + 64 KBPS PS call	9.2.0	9.3.0	R5	TEI_Test
34.108	0853	-	Rel-9	F	RP-101134	R5-106701	approved	Corrections to default settings of Elementary Files (EFs) on Test	9.2.0	9.3.0	R5	TEI_Test

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34.108	0853	-	Rel-9	F	RP-101133	R5-106701	approved	Corrections to default Test USIM contents and extension of test algorithm for authentication in case of GERAN-only tests.	9.2.0	9.3.0	R5	TEI_Test
34.108	0854	-	Rel-9	F	RP-101138	R5-106814	approved	GPS Assistance Data corrections	9.2.0	9.3.0	R5	LTE-UEConTest_RF
34.121-1	1276	-	Rel-9	F	RP-101137	R5-106159	approved	Correction in Procedure Settings for test case 9.2.1G and corresponding Annex F.6.3	9.2.0	9.3.0	R5	TEI7_Test
34.121-1	1277	-	Rel-9	F	RP-101136	R5-106199	approved	Correction to RCDP E-DCH 16QAM	9.2.0	9.3.0	R5	TEI6_Test
34.121-1	1278	-	Rel-9	F	RP-101138	R5-106251	approved	CR to 34.121-1: Correction to UTRA FDD - E-UTRA FDD cell re-selection (UTRA higher priority) test case	9.2.0	9.3.0	R5	LTE-UEConTest_RF
34.121-1	1279	-	Rel-9	F	RP-101137	R5-106409	approved	Correction to UE Relative Code Domain Power Accuracy requirements	9.2.0	9.3.0	R5	TEI7_Test
34.121-1	1280	-	Rel-9	F	RP-101133	R5-106411	approved	Correction to references in out-of-sync tests 5.4.4 and 5.4.4A	9.2.0	9.3.0	R5	TEI_Test
34.121-1	1280	-	Rel-9	F	RP-101134	R5-106411	approved	Correction to references in out-of-sync tests 5.4.4 and 5.4.4A	9.2.0	9.3.0	R5	TEI_Test
34.121-1	1281	-	Rel-9	F	RP-101133	R5-106412	approved	Adding Band XII, XIII and XIV operation info into out-of-band blocking test case	9.2.0	9.3.0	R5	TEI_Test
34.121-1	1281	-	Rel-9	F	RP-101134	R5-106412	approved	Adding Band XII, XIII and XIV operation info into out-of-band blocking test case	9.2.0	9.3.0	R5	TEI_Test
34.121-1	1282	-	Rel-9	F	RP-101146	R5-106413	approved	Addition of cell mapping table to Type 3i tests	9.2.0	9.3.0	R5	TEI8_Test
34.121-1	1283	-	Rel-9	F	RP-101146	R5-106414	approved	Applicability change to TC 9.3.7A and 9.3.7B in TS 34.121-1	9.2.0	9.3.0	R5	TEI8_Test
34.121-1	1284	-	Rel-9	F	RP-101137	R5-106416	approved	Correction to MIMO propagation conditions	9.2.0	9.3.0	R5	TEI7_Test
34.121-1	1285	-	Rel-9	F	RP-101133	R5-106417	approved	Removal of lower limit for humidity in normal conditions	9.2.0	9.3.0	R5	TEI_Test
34.121-1	1285	-	Rel-9	F	RP-101134	R5-106417	approved	Removal of lower limit for humidity in normal conditions	9.2.0	9.3.0	R5	TEI_Test
34.121-1	1286	-	Rel-9	F	RP-101147	R5-106436	approved	Maintenance of Band 20 for UTRAN RRM test cases	9.2.0	9.3.0	R5	TEI9_Test
34.121-1	1287	-	Rel-9	F	RP-101138	R5-106485	approved	Annex K update	9.2.0	9.3.0	R5	LTE-UEConTest_RF
34.121-1	1288	-	Rel-9	F	RP-101138	R5-106813	approved	CR to 34.121-1: Correction to UTRA FDD - E-UTRA FDD cell re-selection (UTRA lower priority) test case	9.2.0	9.3.0	R5	LTE-UEConTest_RF
34.121-1	1289	-	Rel-9	F	RP-101160	R5-106837	approved	Update of legacy HSDPA performance test cases for UE HS-DSCH Physical Layer category 25 to 28	9.2.0	9.3.0	R5	RANimp-DC_MIMO_UEConTest
34.121-1	1290	-	Rel-9	F	RP-101146	R5-106839	approved	Introduction of Test tolerances for 9.3.1C (Periodically Varying Radio Conditions)	9.2.0	9.3.0	R5	TEI8_Test
34.121-1	1291	-	Rel-9	F	RP-101147	R5-106861	approved	Correction to Downlink Physical Channels in DC-HSDPA Tests	9.2.0	9.3.0	R5	TEI9_Test
34.121-2	0087	-	Rel-9	F	RP-101146	R5-106415	approved	Applicability change to TC 9.3.7A and 9.3.7B in TS 34.121-2	9.2.0	9.3.0	R5	TEI8_Test
34.121-2	0088	-	Rel-9	F	RP-101160	R5-106838	approved	Update of applicability of legacy HSDPA performance test cases for UE HS-DSCH Physical Layer category 25 to 28	9.2.0	9.3.0	R5	RANimp-DC_MIMO_UEConTest
34.122	0362	-	Rel-9	F	RP-101137	R5-106161	approved	Correction in test procedure to remove redundant frequency range of measurement	9.2.0	9.3.0	R5	TEI7_Test
34.122	0363	-	Rel-9	F	RP-101146	R5-106173	approved	Correction in Procedure Settings for test case 9.3.1A till 9.3.1E and corresponding Annex F.6.3.5	9.2.0	9.3.0	R5	TEI8_Test

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34.122	0364	-	Rel-9	F	RP-101137	R5-106860	approved	Introduction of new Power Control TC in the Downlink for 1.28Mcps TDD	9.2.0	9.3.0	R5	TEI7_Test
34.123-1	2848	-	Rel-9	F	RP-101136	R5-106060	approved	Correction to GCF WI-025 HSUPA test case 7.1.6.3.2	9.2.0	9.3.0	R5	TEI6_Test
34.123-1	2849	-	Rel-9	F	RP-101133	R5-106061	approved	Correction to GCF WI-010 GMM test case 12.2.1.11	9.2.0	9.3.0	R5	TEI_Test
34.123-1	2849	-	Rel-9	F	RP-101134	R5-106061	approved	Correction to GCF WI-010 GMM test case 12.2.1.11	9.2.0	9.3.0	R5	TEI_Test
34.123-1	2850	-	Rel-9	F	RP-101136	R5-106115	approved	Correction to GCF WI-024 testcase 6.2.1.11	9.2.0	9.3.0	R5	TEI6_Test
34.123-1	2851	-	Rel-9	F	RP-101137	R5-106220	approved	Corrections to Enhanced Cell FACH RRC testcases 8.2.2.59 & 8.2.2.60	9.2.0	9.3.0	R5	TEI7_Test
34.123-1	2852	-	Rel-9	F	RP-101137	R5-106223	approved	Correction to generic test procedure for Mimo and Dual cell testcases.	9.2.0	9.3.0	R5	TEI7_Test
34.123-1	2853	-	Rel-9	F	RP-101137	R5-106225	approved	Correction to test points for Mimo test cases.	9.2.0	9.3.0	R5	TEI7_Test
34.123-1	2854	-	Rel-9	F	RP-101147	R5-106230	approved	Correction of test case 8.1.5.7 audit of UE capability	9.2.0	9.3.0	R5	TEI9_Test
34.123-1	2855	-	Rel-9	F	RP-101158	R5-106261	approved	Addition of new test case 8.1.2.X	9.2.0	9.3.0	R5	PPAC_UEConTest
34.123-1	2856	-	Rel-9	F	RP-101158	R5-106264	approved	Addition of new test case 12.2.2.X	9.2.0	9.3.0	R5	PPAC_UEConTest
34.123-1	2857	-	Rel-9	F	RP-101146	R5-106285	approved	Correction of ETWS test cases	9.2.0	9.3.0	R5	TEI8_Test
34.123-1	2858	-	Rel-9	F	RP-101134	R5-106307	approved	Correction to clause 8.1.2	9.2.0	9.3.0	R5	TEI_Test
34.123-1	2858	-	Rel-9	F	RP-101133	R5-106307	approved	Correction to clause 8.1.2	9.2.0	9.3.0	R5	TEI_Test
34.123-1	2859	-	Rel-9	F	RP-101134	R5-106308	approved	Adding missing clauses 7.1.2.1 and 8.3.10	9.2.0	9.3.0	R5	TEI_Test
34.123-1	2859	-	Rel-9	F	RP-101133	R5-106308	approved	Adding missing clauses 7.1.2.1 and 8.3.10	9.2.0	9.3.0	R5	TEI_Test
34.123-1	2860	-	Rel-9	F	RP-101154	R5-106309	approved	Adding missing clause 17.2.7	9.2.0	9.3.0	R5	AGNSSTest_UTRAN
34.123-1	2861	-	Rel-9	F	RP-101146	R5-106339	approved	Corrections to eCall Test Cases	9.2.0	9.3.0	R5	TEI8_Test
34.123-1	2862	-	Rel-9	F	RP-101134	R5-106345	approved	Correction the parameters for LCR TDD two PRACH in 34.123-1 8.1.2.2	9.2.0	9.3.0	R5	TEI4_Test
34.123-1	2863	-	Rel-9	F	RP-101134	R5-106346	approved	Correction the uplink data rate and TFS for RACH in 34.123-1 18.1.3.3	9.2.0	9.3.0	R5	TEI4_Test
34.123-1	2864	-	Rel-9	F	RP-101137	R5-106347	approved	Correction the TFS for LCR TDD 128Kbps RAB in 34.123-1 18.1.6.7	9.2.0	9.3.0	R5	TEI7_Test
34.123-1	2865	-	Rel-9	F	RP-101146	R5-106360	approved	Corrections to HNB Idle test cases	9.2.0	9.3.0	R5	TEI8_Test
34.123-1	2866	-	Rel-9	F	RP-101146	R5-106361	approved	Correction to HNB Clause 12 GMM test cases	9.2.0	9.3.0	R5	TEI8_Test
34.123-1	2867	-	Rel-9	F	RP-101146	R5-106362	approved	Addition of New TC for Inter-RAT Cell Reselection from GSM to a UTRA CSG cell	9.2.0	9.3.0	R5	TEI8_Test
34.123-1	2868	-	Rel-9	F	RP-101161	R5-106363	approved	Manual CSG ID Selection across PLMNs	9.2.0	9.3.0	R5	EHNB-UTRA_FDD_UEConTest

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34.123-1	2869	-	Rel-9	F	RP-101161	R5-106364	approved	Inter-frequency Cell Reselection with Hybrid Cells	9.2.0	9.3.0	R5	EHNB-UTRA_FDD_UEConTest
34.123-1	2870	-	Rel-9	F	RP-101161	R5-106365	approved	Cell Reselection with Hybrid Cells for non-member UEs	9.2.0	9.3.0	R5	EHNB-UTRA_FDD_UEConTest
34.123-1	2871	-	Rel-9	F	RP-101146	R5-106430	approved	Removal of Test Case 13.3.1.9 for eCall	9.2.0	9.3.0	R5	TEI8_Test
34.123-1	2872	-	Rel-9	F	RP-101146	R5-106460	approved	Corrections to the test cases 8.3.4.16a	9.2.0	9.3.0	R5	TEI8_Test
34.123-1	2873	-	Rel-9	F	RP-101146	R5-106462	approved	Corrections to the test cases 7.1.8.3, 7.1.8.4, 7.1.8.6 and 7.1.8.8	9.2.0	9.3.0	R5	TEI8_Test
34.123-1	2874	-	Rel-9	F	RP-101146	R5-106872	approved	Removal of EFECC usage from eCall test cases	9.2.0	9.3.0	R5	TEI8_Test
34.123-1	2875	-	Rel-9	F	RP-101137	R5-106538	approved	Correction to Enhanced Cell FACH RRC testcase 8.1.10.2	9.2.0	9.3.0	R5	TEI7_Test
34.123-1	2876	-	Rel-9	F	RP-101146	R5-106539	approved	Addition of a New Test Case for Support of HNB - Inter-frequency cell reselection from a non-CSG cell to an allowed CSG cell	9.2.0	9.3.0	R5	TEI8_Test
34.123-1	2877	-	Rel-9	F	RP-101146	R5-106541	approved	Active Set Update in Soft Handover: Radio Link addition/removal and serving HS-DSCH/E-DCH cell change with activation/deactivation of MIMO with SRBs mapped on E-DCH/DCH	9.2.0	9.3.0	R5	TEI8_Test
34.123-1	2878	-	Rel-9	F	RP-101146	R5-106542	approved	Active set update in soft handover: Radio Link addition/removal and serving HS-DSCH/E-DCH cell change, with activation/deactivation of 64QAM with SRBs mapped on E-DCH/DCH	9.2.0	9.3.0	R5	TEI8_Test
34.123-1	2879	-	Rel-9	F	RP-101146	R5-106543	approved	New Test Case 8.2.6.62a - Physical Channel Reconfiguration from CELL_DCH to CELL_DCH: Success (activation and de-activation of 64QAM) with SRBs mapped on E-DCH/DCH	9.2.0	9.3.0	R5	TEI8_Test
34.123-1	2880	-	Rel-9	F	RP-101146	R5-106544	approved	New Test Case 8.2.2.63a - Radio Bearer Reconfiguration from CELL_DCH to CELL_DCH with SRBs on E-DCH/DCH : Success (activation and de-activation of 64QAM)	9.2.0	9.3.0	R5	TEI8_Test
34.123-1	2881	-	Rel-9	F	RP-101135	R5-106546	approved	Correction to test case 8.3.7.14 for LCR TDD	9.2.0	9.3.0	R5	TEI5_Test
34.123-1	2882	-	Rel-9	F	RP-101157	R5-106650	approved	Addition of inter-band operation test method for the LCR TDD UE that supoorts both band A and band F in TC 8.3.1.1c	9.2.0	9.3.0	R5	LCRTDD_MB_MF_UEConTest
34.123-1	2883	-	Rel-9	F	RP-101157	R5-106651	approved	Addition of inter-band operation test method for the LCR TDD UE that supoorts both band A and band F in TC 8.3.2.1b	9.2.0	9.3.0	R5	LCRTDD_MB_MF_UEConTest
34.123-1	2884	-	Rel-9	F	RP-101157	R5-106652	approved	Addition of inter-band operation test method for the LCR TDD UE that supoorts both band A and band F in TC 8.4.1.2c	9.2.0	9.3.0	R5	LCRTDD_MB_MF_UEConTest
34.123-1	2885	-	Rel-9	F	RP-101135	R5-106654	approved	Correction to test case 6.2.2.5a - Cell reselection using SIB18: UTRAN(1.28Mcps TDD) to GSM	9.2.0	9.3.0	R5	TEI5_Test
34.123-1	2886	-	Rel-9	F	RP-101135	R5-106874	approved	Correction to GCF WI-024 DSAC test case 12.2.1.12	9.2.0	9.3.0	R5	TEI5_Test
34.123-1	2887	-	Rel-9	F	RP-101134	R5-106671	approved	Correction to GCF WI-010 NAS test case 12.2.1.4 Proc 2	9.2.0	9.3.0	R5	TEI_Test
34.123-1	2887	-	Rel-9	F	RP-101133	R5-106671	approved	Correction to GCF WI-010 NAS test case 12.2.1.4 Proc 2	9.2.0	9.3.0	R5	TEI_Test
34.123-1	2888	-	Rel-9	F	RP-101146	R5-106672	approved	Correction to Test case 8.2.2.61	9.2.0	9.3.0	R5	TEI8_Test

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34.123-1	2889	-	Rel-9	F	RP-101146	R5-106673	approved	Clarifications to 7.1.8.2 procedure: Activation of HS-DPCCH based on the received SIB5/SIB5bis information	9.2.0	9.3.0	R5	TEI8_Test
34.123-1	2890	-	Rel-9	F	RP-101137	R5-106674	approved	Corrections to testcase 14.6.1d & 14.6.6c.	9.2.0	9.3.0	R5	TEI7_Test
34.123-1	2891	-	Rel-9	F	RP-101161	R5-106687	approved	Inter-frequency inbound handover to UMTS CSG cell without reporting proximity indication	9.2.0	9.3.0	R5	EHNB-UTRA_FDD_UEConTest
34.123-1	2892	-	Rel-9	F	RP-101161	R5-106688	approved	Inter-frequency inbound handover to UMTS CSG cell	9.2.0	9.3.0	R5	EHNB-UTRA_FDD_UEConTest
34.123-1	2893	-	Rel-9	F	RP-101161	R5-106689	approved	Inter-frequency inbound handover to UMTS CSG cell with non-member UE	9.2.0	9.3.0	R5	EHNB-UTRA_FDD_UEConTest
34.123-2	0502	-	Rel-9	F	RP-101133	R5-106093	approved	Correction to condition C36d for test case 16.1.9.2	9.2.0	9.3.0	R5	TEI_Test
34.123-2	0502	-	Rel-9	F	RP-101134	R5-106093	approved	Correction to condition C36d for test case 16.1.9.2	9.2.0	9.3.0	R5	TEI_Test
34.123-2	0503	-	Rel-9	F	RP-101147	R5-106231	approved	Add mnemonics for PICS required in 8.1.5.7	9.2.0	9.3.0	R5	TEI9_Test
34.123-2	0504	-	Rel-9	F	RP-101158	R5-106265	approved	Applicability of new PPAC TCs	9.2.0	9.3.0	R5	PPAC_UEConTest
34.123-2	0505	-	Rel-9	F	RP-101146	R5-106341	approved	Applicability for Test Case 6.3.2.2 - Inter-frequency cell reselection from a non-CSG cell to an allowed CSG cell	9.2.0	9.3.0	R5	TEI8_Test
34.123-2	0506	-	Rel-9	F	RP-101146	R5-106369	approved	Applicability for Rel-8 HNB Test Case 6.3.2.3	9.2.0	9.3.0	R5	TEI8_Test
34.123-2	0507	-	Rel-9	F	RP-101161	R5-106370	approved	Applicability for Rel-9 HNB Test Cases	9.2.0	9.3.0	R5	EHNB-UTRA_FDD_UEConTest
34.123-2	0508	-	Rel-9	F	RP-101146	R5-106432	approved	Removal of Test Case 13.3.1.9 for eCall (Applicability)	9.2.0	9.3.0	R5	TEI8_Test
34.123-2	0509	-	Rel-9	F	RP-101146	R5-106511	approved	Applicability of the newly added test cases 8.2.2.63a, 8.2.6.62a, 8.3.4.13a and 8.3.4.14a	9.2.0	9.3.0	R5	TEI8_Test
34.123-2	0510	-	Rel-9	F	RP-101160	R5-106550	approved	Introduction of ICS for FDD HS-DSCH physical layer categories 25-28	9.2.0	9.3.0	R5	RANimp-DC_MIMO_UEConTest
34.123-2	0511	-	Rel-9	F	RP-101157	R5-106653	approved	Testcase names and numbering correction to 34.123-2 for LCR TDD	9.2.0	9.3.0	R5	LCRTDD_MB_MF_UEConTest
34.123-3	2817	-	Rel-8	F	RP-101146	R5-106065	approved	New channel configurations for LCR TDD RB tests	8.7.0	8.8.0	R5	TEI8_Test
34.123-3	2818	-	Rel-8	F	RP-101146	R5-106547	approved	Routine maintenance	8.7.0	8.8.0	R5	TEI8_Test
34.123-3	2819	-	Rel-8	F	RP-101148	-	approved	CR to 34.123-3: Add new verified and e-mail agreed TTCN test cases in the TC lists in 34.123-3 (prose), Annex A	8.7.0	8.8.0	R5	TEI8_Test
34.123-3	2820	-	Rel-8	F	RP-101149	R5s100514	approved	Correction to GCF WI 10 SMS test case 16.1.1	8.7.0	8.8.0	R5	TEI_Test
34.123-3	2821	-	Rel-8	B	RP-101149	R5s100511	approved	Addition of GCF WI-110 Enhanced Cell FACH DL RRC test case 8.1.2.20 to HSPA7_ENH ATS	8.7.0	8.8.0	R5	TEI7_Test
34.123-3	2822	-	Rel-8	B	RP-101149	R5s100509	approved	Addition of GCF WI-110 Enhanced Cell FACH DL MAC test case 7.1.5a.6 to HSPA7_ENH ATS	8.7.0	8.8.0	R5	TEI7_Test
34.123-3	2823	-	Rel-8	F	RP-101149	R5s100519	approved	Correction for GCF WI-010 NAS test case 12.2.1.11	8.7.0	8.8.0	R5	TEI_Test
34.123-	2824	-	Rel-8	F	RP-101149	R5s100518	approved	Correction to GCF WI-024 network sharing test case 6.2.1.11	8.7.0	8.8.0	R5	TEI6_Test

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34.123-3	2825	-	Rel-8	F	RP-101149	R5s100547	approved	Corrections to Rel-7 CPC test case 8.2.6.58 and Rel-7 L2 Enh test case 8.2.2.57	8.7.0	8.8.0	R5	TEI7_Test
34.123-3	2826	-	Rel-8	F	RP-101149	R5s100540	approved	Regression CR on wk36 UMTS ATS	8.7.0	8.8.0	R5	TEI_Test
34.123-3	2827	-	Rel-8	F	RP-101149	R5s100544	approved	Corrections to Rel-7 L2-Enhancement test case 8.2.2.57	8.7.0	8.8.0	R5	TEI7_Test
34.123-3	2828	-	Rel-8	F	RP-101149	R5s100543	approved	Corrections to Rel-7 Enhanced Cell-FACH DL test cases	8.7.0	8.8.0	R5	TEI7_Test
34.123-3	2829	-	Rel-8	B	RP-101149	R5s100569	approved	Addition of GCF WI-067 MiMo RAB test case 14.6.6c to HSPA7_ENH ATS	8.7.0	8.8.0	R5	TEI7_Test
34.123-3	2830	-	Rel-8	B	RP-101149	R5s100567	approved	Addition of GCF WI-067 MiMo RAB test case 14.6.1d to HSPA7_ENH ATS	8.7.0	8.8.0	R5	TEI7_Test
34.123-3	2831	-	Rel-8	F	RP-101149	R5s100554	approved	Correction to GCF WI-025 testcase 7.1.6.2.10	8.7.0	8.8.0	R5	TEI6_Test
34.123-3	2832	-	Rel-8	F	RP-101149	R5s100553	approved	Corrections to Rel-6 test cases 8.2.1.36 and 8.2.1.36a	8.7.0	8.8.0	R5	TEI6_Test
34.123-3	2833	-	Rel-8	F	RP-101149	R5s100552	approved	Corrections to Rel-8 CSVoice over HSPA test cases	8.7.0	8.8.0	R5	TEI8_Test
34.123-3	2834	-	Rel-8	F	RP-101149	R5s100551	approved	Correction to GCF WI-025 testcase 7.1.6.3.2	8.7.0	8.8.0	R5	TEI6_Test
34.123-3	2835	-	Rel-8	F	RP-101149	R5s100574	approved	Correction to UE Network Capability in UMTS	8.7.0	8.8.0	R5	TEI_Test
34.123-3	2836	-	Rel-8	F	RP-101149	R5s100578	approved	Correction to UMTS Security Capabilities.	8.7.0	8.8.0	R5	TEI_Test
34.123-3	2837	-	Rel-8	B	RP-101149	R5s100601	approved	Addition of GCF WI-110 Enhanced Cell FACH DL RRC test case 8.1.10.2 to HSPA7_ENH ATS	8.7.0	8.8.0	R5	TEI7_Test
34.123-3	2838	-	Rel-8	B	RP-101149	R5s100599	approved	Addition of GCF WI-110 Enhanced Cell FACH DL RAB test case 14.5.3 to HSPA7_ENH ATS	8.7.0	8.8.0	R5	TEI7_Test
34.123-3	2839	-	Rel-8	F	RP-101149	R5s100613	approved	Corrections to Rel-99 testcases	8.7.0	8.8.0	R5	TEI7_Test
34.123-3	2840	-	Rel-8	F	RP-101149	R5s100677	approved	Correction to the common test step ts_RegistrationReject_Idle	8.7.0	8.8.0	R5	TEI_Test
34.123-3	2841	-	Rel-8	B	RP-101149	R5s100718	approved	Addition of GCF WI-110 Enhanced Cell FACH DL RRC test case 8.2.2.60 to HSPA7_ENH ATS	8.7.0	8.8.0	R5	TEI7_Test
34.123-3	2842	-	Rel-8	B	RP-101149	R5s100716	approved	Addition of GCF WI-110 Enhanced Cell FACH DL RRC test case 8.2.2.59 to HSPA7_ENH ATS	8.7.0	8.8.0	R5	TEI7_Test
34.123-3	2843	-	Rel-8	F	RP-101149	R5s100771	approved	Correction for GCF WI-012 NAS test case 9.4.3.3	8.7.0	8.8.0	R5	TEI_Test
34.123-3	2844	-	Rel-8	F	RP-101149	R5s100770	approved	Correction for GCF WI-010 SMS test case 16.2.2	8.7.0	8.8.0	R5	TEI_Test
34.123-3	2845	-	Rel-8	F	RP-101149	R5s100763	approved	Correction to Rel-7 CPC testcase 8.3.4.11	8.7.0	8.8.0	R5	TEI7_Test
34.123-3	2846	-	Rel-8	F	RP-101149	R5s100762	approved	Correction to MAC testcase 7.1.5a.6	8.7.0	8.8.0	R5	TEI7_Test
34.229-1	0257	-	Rel-9	F	RP-101156	R5-106147	approved	Fixes to IMS common emergency messages	9.2.0	9.3.0	R5	IMS_EMER_GPRS_EPS_UEConTest
34.229-1	0258	-	Rel-9	F	RP-101146	R5-106150	approved	Corrections to the conditions for using USIM or ISIM	9.2.0	9.3.0	R5	TEI8_Test
34.229-	0259	-	Rel-9	F	RP-101146	R5-106151	approved	Add new test case 15.14a Communication Barring while roaming	9.2.0	9.3.0	R5	TEI8_Test

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34.229-1	0260	-	Rel-9	F	RP-101146	R5-106152	approved	Updates to conformance requirements related to IMS registration	9.2.0	9.3.0	R5	TEI8_Test
34.229-1	0261	-	Rel-9	F	RP-101146	R5-106300	approved	Update of MTSI test cases 15.1, 15.2, 15.3 and 15.4	9.2.0	9.3.0	R5	TEI8_Test
34.229-1	0262	-	Rel-9	F	RP-101146	R5-106301	approved	Update of MTSI test cases 15.25 and 15.26	9.2.0	9.3.0	R5	TEI8_Test
34.229-1	0263	-	Rel-9	F	RP-101146	R5-106452	approved	Update conformance requirements for 8.10 and 8.11	9.2.0	9.3.0	R5	TEI8_Test
34.229-1	0264	-	Rel-9	F	RP-101146	R5-106470	approved	Update to conformance requirement of PDP Context Activation test cases	9.2.0	9.3.0	R5	TEI8_Test
34.229-1	0265	-	Rel-9	F	RP-101146	R5-106472	approved	Update to conformance requirement of P-CSCF discovery test cases	9.2.0	9.3.0	R5	TEI8_Test
34.229-1	0266	-	Rel-9	F	RP-101146	R5-106486	approved	Remove test case 14.1 and 14.2	9.2.0	9.3.0	R5	TEI8_Test
34.229-1	0267	-	Rel-9	F	RP-101146	R5-106516	approved	Update test cases 9.1 and 9.2 to Rel-8	9.2.0	9.3.0	R5	TEI8_Test
34.229-1	0268	-	Rel-9	F	RP-101156	R5-106586	approved	Introducing TC 19.1.1 Basic IMS emergency call over EPS with emergency registration	9.2.0	9.3.0	R5	IMS_EMER_GPRS_EPS_UEConTest
34.229-1	0269	-	Rel-9	F	RP-101156	R5-106590	approved	New Emergency test case 19.3.1 Non-UE detectable emergency call / IM CN sends a 1xx response / UE geographical location information available	9.2.0	9.3.0	R5	IMS_EMER_GPRS_EPS_UEConTest
34.229-1	0270	-	Rel-9	F	RP-101146	R5-106684	approved	New IMS test case 12.2A MO Call - 504 Server Time-out	9.2.0	9.3.0	R5	TEI8_Test
34.229-2	0069	-	Rel-9	F	RP-101146	R5-106153	approved	Add new test case 15.14a CB while roaming	9.2.0	9.3.0	R5	TEI8_Test
34.229-2	0070	-	Rel-9	F	RP-101146	R5-106239	approved	Remove PSS tables	9.2.0	9.3.0	R5	TEI8_Test
34.229-2	0071	-	Rel-9	F	RP-101146	R5-106302	approved	Update of applicability for MTSI test cases	9.2.0	9.3.0	R5	TEI8_Test
34.229-2	0072	-	Rel-9	F	RP-101146	R5-106488	approved	Remove applicability for test case 14.1 and 14.2	9.2.0	9.3.0	R5	TEI8_Test
34.229-2	0073	-	Rel-9	F	RP-101146	R5-106579	approved	Update security, adressing and SIP compression tables	9.2.0	9.3.0	R5	TEI8_Test
34.229-2	0074	-	Rel-9	F	RP-101146	R5-106582	approved	Update additional information for IPv4	9.2.0	9.3.0	R5	TEI8_Test
34.229-2	0075	-	Rel-9	F	RP-101146	R5-106584	approved	Update MTSI information	9.2.0	9.3.0	R5	TEI8_Test
34.229-2	0076	-	Rel-9	F	RP-101156	R5-106591	approved	Introducing TC 19.1.1 Basic IMS emergency call over EPS	9.2.0	9.3.0	R5	IMS_EMER_GPRS_EPS_UEConTest
34.229-2	0077	-	Rel-9	F	RP-101146	R5-106685	approved	Rel-8 IMS test case applicabilities	9.2.0	9.3.0	R5	TEI8_Test
34.229-2	0078	-	Rel-9	F	RP-101146	R5-106686	approved	Update abbreviations and conventions	9.2.0	9.3.0	R5	TEI8_Test
34.229-3	0055	-	Rel-8	F	RP-101146	R5-106088	approved	Routine maintenance of TS 34.229-3	8.4.0	8.5.0	R5	TEI8_Test
34.229-3	0056	-	Rel-8	F	RP-101150	-	approved	CR to 34.229-3 update to v850	8.4.0	8.5.0	R5	TEI8_Test
36.508	0167	-	Rel-9	F	RP-101138	R5-106070	approved	MBSFN configuration for RRM tests using E-UTRA FDD cells	9.2.0	9.3.0	R5	LTE-UEConTest_RF
36.508	0168	-	Rel-9	F	RP-101142	R5-106105	approved	CR to 36.508: Correction to HRPD Overhead messages	9.2.0	9.3.0	R5	LTE-UEConTest_SIG

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								(subclause 4.4.7.1)				
36.508	0169	-	Rel-9	F	RP-101155	R5-106116	approved	CR to 36.508: Update test frequencies for EUTRA TDD LTE band 41.	9.2.0	9.3.0	R5	LTE_TDD_2600_US-UEConTest
36.508	0170	-	Rel-9	F	RP-101142	R5-106298	approved	Addition of test frequencies for LTE-C2k interworking test cases	9.2.0	9.3.0	R5	LTE-UEConTest_SIG
36.508	0171	-	Rel-9	F	RP-101142	R5-106383	approved	Correction to the IDENTITY RESPONSE (with IMSI) message	9.2.0	9.3.0	R5	LTE-UEConTest_SIG
36.508	0172	-	Rel-9	F	RP-101142	R5-106421	approved	Addition of UTRA reference radio parameters and combination for PS RB and Speech	9.2.0	9.3.0	R5	LTE-UEConTest_SIG
36.508	0173	-	Rel-9	F	RP-101142	R5-106551	approved	Addion of new system information combinations	9.2.0	9.3.0	R5	LTE-UEConTest_SIG
36.508	0174	-	Rel-9	F	RP-101142	R5-106552	approved	Remove SS requirement for IMS in UTRA	9.2.0	9.3.0	R5	LTE-UEConTest_SIG
36.508	0175	-	Rel-9	F	RP-101142	R5-106596	approved	Correction to EUTRA carrier frequency list in SIB19	9.2.0	9.3.0	R5	LTE-UEConTest_SIG
36.508	0176	-	Rel-9	F	RP-101142	R5-106597	approved	Correction to security protection header for Identity Request message	9.2.0	9.3.0	R5	LTE-UEConTest_SIG
36.508	0177	-	Rel-9	F	RP-101142	R5-106611	approved	Correction of specific message content for generic procedures (state 2 and state 2A)	9.2.0	9.3.0	R5	LTE-UEConTest_SIG
36.508	0178	-	Rel-9	F	RP-101142	R5-106616	approved	Correction for DRX offset start time	9.2.0	9.3.0	R5	LTE-UEConTest_SIG
36.508	0179	-	Rel-9	F	RP-101159	R5-106690	approved	Corrections to default settings for Elementary Files (EFs) on Test USIM	9.2.0	9.3.0	R5	LTEimp-eDL_UEConTest
36.508	0180	-	Rel-9	F	RP-101138	R5-106819	approved	LTE-RF state 3A	9.2.0	9.3.0	R5	LTE-UEConTest_RF
36.508	0181	-	Rel-9	F	RP-101138	R5-106820	approved	Update of the RF exceptional RRC message	9.2.0	9.3.0	R5	LTE-UEConTest_RF
36.509	0017	-	Rel-9	F	RP-101142	R5-106154	approved	Correction to the section 5.4.2.3 of TS36.509	9.2.0	9.3.0	R5	LTE-UEConTest_SIG
36.521-1	0353	-	Rel-9	F	RP-101139	R5-106073	approved	Corrections to receiver spurious emissions test	9.2.0	9.3.0	R5	LTE-UEConTest_RF
36.521-1	0354	-	Rel-9	F	RP-101139	R5-106074	approved	Update of downlink power for receiver tests	9.2.0	9.3.0	R5	LTE-UEConTest_RF
36.521-1	0355	-	Rel-9	F	RP-101139	R5-106076	approved	CQI: Side condition when CQI median equals min or max CQI-values	9.2.0	9.3.0	R5	LTE-UEConTest_RF
36.521-1	0356	-	Rel-9	F	RP-101139	R5-106077	approved	Update of the throughput-definition for multi-datastream transmission	9.2.0	9.3.0	R5	LTE-UEConTest_RF
36.521-1	0357	-	Rel-9	F	RP-101139	R5-106078	approved	Update of RF OCNG patterns	9.2.0	9.3.0	R5	LTE-UEConTest_RF
36.521-1	0358	-	Rel-9	F	RP-101139	R5-106092	approved	Correction of DCI format used in PDSCH performance test 8.2.1.4.2	9.2.0	9.3.0	R5	LTE-UEConTest_RF
36.521-1	0359	-	Rel-9	F	RP-101139	R5-106249	approved	CR to 36.521-1: Correction to Spurious emission band UE co-existence test case	9.2.0	9.3.0	R5	LTE-UEConTest_RF
36.521-1	0360	-	Rel-9	F	RP-101139	R5-106250	approved	CR to 36.521-1: Correction to Additional Tx spurious emissions test case	9.2.0	9.3.0	R5	LTE-UEConTest_RF
36.521-1	0361	-	Rel-9	F	RP-101139	R5-106374	approved	Correction of FDD CQI reporting test under AWGN - PUCCH 1-1	9.2.0	9.3.0	R5	LTE-UEConTest_RF
36.521-1	0362	-	Rel-9	F	RP-101139	R5-106394	approved	Correction of clause 9.3.1 and 9.3.3	9.2.0	9.3.0	R5	LTE-UEConTest_RF
36.521-1	0363	-	Rel-9	F	RP-101139	R5-106399	approved	"Correction of G.2.5^^Pass fail decision rules"	9.2.0	9.3.0	R5	LTE-UEConTest_RF
36.521-1	0364	-	Rel-9	F	RP-101139	R5-106420	approved	Introduction of test uncertainties and tolerances for TDD PDSCH DRS test cases	9.2.0	9.3.0	R5	LTE-UEConTest_RF
36.521-1	0365	-	Rel-9	F	RP-101139	R5-106440	approved	Correction to unsigned numbers in Annex F.1.2	9.2.0	9.3.0	R5	LTE-UEConTest_RF
36.521-1	0366	-	Rel-9	F	RP-101139	R5-106443	approved	Correction to the exceptional messages in 9.4 Reporting of PMI TCs	9.2.0	9.3.0	R5	LTE-UEConTest_RF
36.521-1	0367	-	Rel-9	F	RP-101139	R5-106491	approved	CR to 36.521-1: Correction to Table Numbering Error in TDD PDSCH Closed Loop Single/Multi Layer Spatial Multiplexing 2x2	9.2.0	9.3.0	R5	LTE-UEConTest_RF

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36.521-1	0368	-	Rel-9	F	RP-101139	R5-106512	approved	Transport format table clarification in CSI test cases	9.2.0	9.3.0	R5	LTE-UEConTest_RF
36.521-1	0369	-	Rel-9	F	RP-101139	R5-106801	approved	HARQ scheduling in TDD performance tests using special subframes	9.2.0	9.3.0	R5	LTE-UEConTest_RF
36.521-1	0370	-	Rel-9	F	RP-101139	R5-106803	approved	Correction to Fading Profiles in TCs 8.4 and 8.5	9.2.0	9.3.0	R5	LTE-UEConTest_RF
36.521-1	0372	-	Rel-9	F	RP-101139	R5-106816	approved	CR to 36.521-1: Modification to Spectrum Emissions Mask	9.2.0	9.3.0	R5	LTE-UEConTest_RF
36.521-1	0373	-	Rel-9	F	RP-101139	R5-106817	approved	Introduction of test uncertainties and tolerances for TDD PCFICH/PDCCH and PHICH test cases	9.2.0	9.3.0	R5	LTE-UEConTest_RF
36.521-1	0374	-	Rel-9	F	RP-101139	R5-106818	approved	Update of TDD PDSCH CRS Demodulation test cases	9.2.0	9.3.0	R5	LTE-UEConTest_RF
36.521-1	0375	-	Rel-9	F	RP-101139	R5-106821	approved	PUSCH-EVM with exclusion period	9.2.0	9.3.0	R5	LTE-UEConTest_RF
36.521-1	0376	-	Rel-9	F	RP-101139	R5-106822	approved	Maintenance of Band 20 for receiver tests	9.2.0	9.3.0	R5	LTE-UEConTest_RF
36.521-1	0377	-	Rel-9	F	RP-101139	R5-106823	approved	Completion of clause 9.3.1 and 9.3.2	9.2.0	9.3.0	R5	LTE-UEConTest_RF
36.521-1	0378	-	Rel-9	F	RP-101139	R5-106824	approved	Update of FDD RI Reporting TC	9.2.0	9.3.0	R5	LTE-UEConTest_RF
36.521-1	0379	-	Rel-9	F	RP-101139	R5-106825	approved	Correction to 9.2.2 CQI TCs	9.2.0	9.3.0	R5	LTE-UEConTest_RF
36.521-1	0380	-	Rel-9	F	RP-101139	R5-106826	approved	G.3.5 on PDCCH&PHICH Minimum Test Times	9.2.0	9.3.0	R5	LTE-UEConTest_RF
36.521-1	0381	-	Rel-9	F	RP-101139	R5-106827	approved	Completion of test time and ╬│-TT for clauses 9.3 to 9.5	9.2.0	9.3.0	R5	LTE-UEConTest_RF
36.521-1	0382	-	Rel-9	F	RP-101139	R5-106828	approved	EVM window length for PRACH	9.2.0	9.3.0	R5	LTE-UEConTest_RF
36.521-1	0383	-	Rel-9	F	RP-101159	R5-106842	approved	Modification of TC 8.3.2.1 - TDD PDSCH Single-layer SM Performance (UE-Specific Reference Symbols)	9.2.0	9.3.0	R5	LTEimp-eDL_UEConTest
36.521-1	0384	-	Rel-9	F	RP-101139	R5-106843	approved	Power control relative power tolerance: Missing band edge relaxation	9.2.0	9.3.0	R5	LTE-UEConTest_RF
36.521-1	0385	-	Rel-9	F	RP-101139	R5-106844	approved	SRS time mask test procedure update	9.2.0	9.3.0	R5	LTE-UEConTest_RF
36.521-1	0386	-	Rel-9	F	RP-101139	R5-106845	approved	Correction of TC General ON/OFF time mask	9.2.0	9.3.0	R5	LTE-UEConTest_RF
36.521-1	0387	-	Rel-9	F	RP-101139	R5-106846	approved	Update of TDD CQI reporting test under frequency selective interference conditions	9.2.0	9.3.0	R5	LTE-UEConTest_RF
36.521-1	0388	-	Rel-9	F	RP-101139	R5-106847	approved	Update of TDD RI reporting test	9.2.0	9.3.0	R5	LTE-UEConTest_RF
36.521-1	0389	-	Rel-9	F	RP-101139	R5-106848	approved	Iot setting in CQI test clarification	9.2.0	9.3.0	R5	LTE-UEConTest_RF
36.521-1	0390	-	Rel-9	F	RP-101139	R5-106850	approved	Correction of Test Uncertainties and Test Tolerances for Reference Sensitivity-Band 4	9.2.0	9.3.0	R5	LTE-UEConTest_RF
36.521-1	0391	-	Rel-9	F	RP-101139	R5-106855	approved	Correction to DL and UL RMC configurations in 6.5.1 Frequecy Error	9.2.0	9.3.0	R5	LTE-UEConTest_RF
36.521-1	0392	-	Rel-9	F	RP-101155	R5-106858	approved	CR to 36.521-1: Update LTE RF test cases with test requirements for EUTRA TDD LTE band 41.	9.2.0	9.3.0	R5	LTE_TDD_2600_US-UEConTest
36.521-2	0022	-	Rel-9	F	RP-101155	R5-106118	approved	CR to 36.521-2: Update baseline implementation capabilities for EUTRA TDD LTE band 41	9.2.0	9.3.0	R5	LTE_TDD_2600_US-UEConTest

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36.521-3	0255	-	Rel-9	F	RP-101140	R5-106079	approved	HARQ delay exclusion for HO test: Clarification for UE-DTX-case	9.2.1	9.3.0	R5	LTE-UEConTest_RF
36.521-3	0256	-	Rel-9	F	RP-101140	R5-106080	approved	Iteration procedure for inter RAT handover test cases	9.2.1	9.3.0	R5	LTE-UEConTest_RF
36.521-3	0257	-	Rel-9	F	RP-101140	R5-106082	approved	Corrections to event triggered measurement tests using DRX (Clause 8)	9.2.1	9.3.0	R5	LTE-UEConTest_RF
36.521-3	0258	-	Rel-9	F	RP-101140	R5-106083	approved	Missing titles in the RRM specification	9.2.1	9.3.0	R5	LTE-UEConTest_RF
36.521-3	0259	-	Rel-9	F	RP-101140	R5-106085	approved	Scheduling of System information for RRM tests	9.2.1	9.3.0	R5	LTE-UEConTest_RF
36.521-3	0260	-	Rel-9	F	RP-101140	R5-106086	approved	Update of PDCCH aggregation level for channel BW 1,4 MHz	9.2.1	9.3.0	R5	LTE-UEConTest_RF
36.521-3	0261	-	Rel-9	F	RP-101155	R5-106119	approved	CR to 36.521-3: Update LTE RRM test requirements for EUTRA TDD LTE band 41.	9.2.1	9.3.0	R5	LTE_TDD_2600_US-UEConTest
36.521-3	0262	-	Rel-9	F	RP-101140	R5-106313	approved	Uncertainties and Test Tolerances for Connected State Mobility test	9.2.1	9.3.0	R5	LTE-UEConTest_RF
36.521-3	0263	-	Rel-9	F	RP-101140	R5-106314	approved	Addition to Measurement Uncertainties and Test Tolerances for Connected State Mobility Test in Annex	9.2.1	9.3.0	R5	LTE-UEConTest_RF
36.521-3	0264	-	Rel-9	F	RP-101140	R5-106318	approved	Correction to inter-RAT Connected State Mobility test setup	9.2.1	9.3.0	R5	LTE-UEConTest_RF
36.521-3	0265	-	Rel-9	F	RP-101140	R5-106320	approved	Correction to Inter-RAT Connected State Mobility test requirements	9.2.1	9.3.0	R5	LTE-UEConTest_RF
36.521-3	0266	-	Rel-9	F	RP-101140	R5-106321	approved	Correction to Inter-RAT Connected State Mobility for Alignment	9.2.1	9.3.0	R5	LTE-UEConTest_RF
36.521-3	0267	-	Rel-9	F	RP-101140	R5-106322	approved	Correction to Inter-RAT Connected State Mobility test requirements	9.2.1	9.3.0	R5	LTE-UEConTest_RF
36.521-3	0268	-	Rel-9	F	RP-101140	R5-106448	approved	Addition of SIB7 exceptional messages	9.2.1	9.3.0	R5	LTE-UEConTest_RF
36.521-3	0269	-	Rel-9	F	RP-101140	R5-106451	approved	Correction to UE transmit timing TC	9.2.1	9.3.0	R5	LTE-UEConTest_RF
36.521-3	0270	-	Rel-9	F	RP-101140	R5-106455	approved	Correction to the exceptional messages in RSRQ tests	9.2.1	9.3.0	R5	LTE-UEConTest_RF
36.521-3	0271	-	Rel-9	F	RP-101140	R5-106456	approved	Correction to Min Test time for RRM fading tests	9.2.1	9.3.0	R5	LTE-UEConTest_RF
36.521-3	0272	-	Rel-9	F	RP-101140	R5-106483	approved	Annex E update	9.2.1	9.3.0	R5	LTE-UEConTest_RF
36.521-3	0273	-	Rel-9	F	RP-101140	R5-106493	approved	CR to 36.521-3: Update to G.2.6 Test Conditions for Delay Tests and UE Measurement Performance	9.2.1	9.3.0	R5	LTE-UEConTest_RF
36.521-3	0274	-	Rel-9	F	RP-101140	R5-106805	approved	Correction to test case 5.1.2 - Update of E-UTRAN TDD-TDD Handover intra frequency case	9.2.1	9.3.0	R5	LTE-UEConTest_RF
36.521-3	0275	-	Rel-9	F	RP-101140	R5-106806	approved	Correction to test case 5.1.4 - Update of E-UTRAN TDD-TDD Handover inter frequency case	9.2.1	9.3.0	R5	LTE-UEConTest_RF
36.521-3	0276	-	Rel-9	F	RP-101140	R5-106807	approved	Correction to Inter-RAT UE Measurements Procedures	9.2.1	9.3.0	R5	LTE-UEConTest_RF
36.521-3	0277	-	Rel-9	F	RP-101140	R5-106808	approved	Correction to Inter-RAT UE Measurements Procedures under fading	9.2.1	9.3.0	R5	LTE-UEConTest_RF
36.521-3	0278	-	Rel-9	F	RP-101140	R5-106810	approved	Correction to test case 8.2.1	9.2.1	9.3.0	R5	LTE-UEConTest_RF
36.521-3	0279	-	Rel-9	F	RP-101140	R5-106811	approved	Correction to test case 8.2.2	9.2.1	9.3.0	R5	LTE-UEConTest_RF

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36.521-3	0280	-	Rel-9	F	RP-101140	R5-106829	approved	General Corrections to RRC_IDLE State Mobility	9.2.1	9.3.0	R5	LTE-UEConTest_RF
36.521-3	0281	-	Rel-9	F	RP-101140	R5-106830	approved	Correction to test case 6.2.3	9.2.1	9.3.0	R5	LTE-UEConTest_RF
36.521-3	0282	-	Rel-9	F	RP-101140	R5-106831	approved	Correction to test case 6.2.4	9.2.1	9.3.0	R5	LTE-UEConTest_RF
36.521-3	0283	-	Rel-9	F	RP-101140	R5-106832	approved	Correction to MeasConfig-DEFAULT in RRM TCs	9.2.1	9.3.0	R5	LTE-UEConTest_RF
36.521-3	0284	-	Rel-9	F	RP-101140	R5-106833	approved	Adding support of inter-band test configuration for RRM inter-frequency/inter-RAT test cases	9.2.1	9.3.0	R5	LTE-UEConTest_RF
36.521-3	0285	-	Rel-9	F	RP-101140	R5-106834	approved	CR on UEs RRM Band applicability	9.2.1	9.3.0	R5	LTE-UEConTest_RF
36.521-3	0286	-	Rel-9	F	RP-101140	R5-106835	approved	Correction to test case 7.1.2	9.2.1	9.3.0	R5	LTE-UEConTest_RF
36.521-3	0287	-	Rel-9	F	RP-101140	R5-106836	approved	Correction to test case 9.1.2.1, 9.1.2.2 and 9.2.2.1	9.2.1	9.3.0	R5	LTE-UEConTest_RF
36.521-3	0288	-	Rel-9	F	RP-101140	R5-106840	approved	Update to Radio Link Monitoring Test Cases	9.2.1	9.3.0	R5	LTE-UEConTest_RF
36.521-3	0289	-	Rel-9	F	RP-101140	R5-106870	approved	Uncertainties and Test Tolerances for UE measurements procedures test	9.2.1	9.3.0	R5	LTE-UEConTest_RF
36.521-3	0290	-	Rel-9	F	RP-101140	R5-106871	approved	Addition to Measurement Uncertainties and Test Tolerances for UE Measurement Procedures test in Annex	9.2.1	9.3.0	R5	LTE-UEConTest_RF
36.521-3	0291	-	Rel-9	F	RP-101140	R5-106857	approved	Correction to DL configuration on Non-Contention Based Random Access Test	9.2.1	9.3.0	R5	LTE-UEConTest_RF
36.521-3	0292	-	Rel-9	F	RP-101140	R5-106859	approved	Corrections to UE transmit timing tests (Subclause 7.3)	9.2.1	9.3.0	R5	LTE-UEConTest_RF
36.521-3	0293	-	Rel-9	F	RP-101140	R5-106862	approved	Correction to DL configuration on Contention Based Random Access Test	9.2.1	9.3.0	R5	LTE-UEConTest_RF
36.521-3	0294	-	Rel-9	F	RP-101140	R5-106864	approved	Update of Annex G for RLM test in DRX	9.2.1	9.3.0	R5	LTE-UEConTest_RF
36.521-3	0295	-	Rel-9	F	RP-101140	R5-106812	approved	Update of RRM OCNG patterns	9.2.1	9.3.0	R5	LTE-UEConTest_RF
36.523-1	1032	-	Rel-9	F	RP-101143	R5-106114	approved	GCF Priority 3 - Correction to EMM test case 9.2.3.1.13	9.2.1	9.3.0	R5	LTE-UEConTest_SIG
36.523-1	1033	-	Rel-9	F	RP-101143	R5-106156	approved	GCF Priority 1 - Correction to TC 7.2.3.2	9.2.1	9.3.0	R5	LTE-UEConTest_SIG
36.523-1	1034	-	Rel-9	F	RP-101143	R5-106160	approved	GCF Priority 1 - Correction to TC 9.2.3.1.5	9.2.1	9.3.0	R5	LTE-UEConTest_SIG
36.523-1	1035	-	Rel-9	F	RP-101143	R5-106164	approved	GCF Priority 2 - Correction to TC 7.3.5.4	9.2.1	9.3.0	R5	LTE-UEConTest_SIG
36.523-1	1036	-	Rel-9	F	RP-101143	R5-106177	approved	GCF Priority 2 - Correction of test cases in 6.2.3.4	9.2.1	9.3.0	R5	LTE-UEConTest_SIG
36.523-1	1037	-	Rel-9	F	RP-101143	R5-106182	approved	GCF Priority 2 - Correction of test cases in 8.3.2.1, 8.3.2.3, 8.3.2.5 and 8.3.2.6	9.2.1	9.3.0	R5	LTE-UEConTest_SIG
36.523-1	1038	-	Rel-9	F	RP-101143	R5-106183	approved	GCF Priority 3 - Correction of test cases in 8.3.3	9.2.1	9.3.0	R5	LTE-UEConTest_SIG
36.523-1	1039	-	Rel-9	F	RP-101143	R5-106186	approved	GCF Priority 3 - Corrections to test case 9.2.1.2.2	9.2.1	9.3.0	R5	LTE-UEConTest_SIG
36.523-1	1040	-	Rel-9	F	RP-101143	R5-106187	approved	GCF Priority 3 - Corrections to test case 9.2.2.1.7	9.2.1	9.3.0	R5	LTE-UEConTest_SIG

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36.523-1	1041	-	Rel-9	F	RP-101143	R5-106188	approved	GCF Priority 1 - Corrections to test case 9.2.2.2.1	9.2.1	9.3.0	R5	LTE-UEConTest_SIG
36.523-1	1042	-	Rel-9	F	RP-101143	R5-106189	approved	GCF Priority 4 - Corrections to test case 9.2.3.2.2.	9.2.1	9.3.0	R5	LTE-UEConTest_SIG
36.523-1	1043	-	Rel-9	F	RP-101143	R5-106190	approved	GCF Priority 4 - Corrections to test case 9.3.1.17	9.2.1	9.3.0	R5	LTE-UEConTest_SIG
36.523-1	1044	-	Rel-9	F	RP-101143	R5-106204	approved	GCF Priority 1 - Corrections to test case 7.1.4.1	9.2.1	9.3.0	R5	LTE-UEConTest_SIG
36.523-1	1045	-	Rel-9	F	RP-101143	R5-106214	approved	GCF Priority 2 - Correction to EMM test cases 9.2.1.1.13, 9.2.1.1.15 and 9.2.1.1.17	9.2.1	9.3.0	R5	LTE-UEConTest_SIG
36.523-1	1046	-	Rel-9	F	RP-101143	R5-106216	approved	GCF Priority 2 - Correction to EMM test case 9.2.1.1.7	9.2.1	9.3.0	R5	LTE-UEConTest_SIG
36.523-1	1047	-	Rel-9	F	RP-101143	R5-106226	approved	GCF Priority 2 - Correction to EMM test case 9.2.1.2.1	9.2.1	9.3.0	R5	LTE-UEConTest_SIG
36.523-1	1048	-	Rel-9	F	RP-101143	R5-106227	approved	GCF Priority 2 - Correction to EMM test case 9.2.1.2.4	9.2.1	9.3.0	R5	LTE-UEConTest_SIG
36.523-1	1049	-	Rel-9	F	RP-101143	R5-106229	approved	GCF Priority 2 - Correction to EMM test case 9.2.3.1.4	9.2.1	9.3.0	R5	LTE-UEConTest_SIG
36.523-1	1050	-	Rel-9	F	RP-101143	R5-106268	approved	GCF Priority 4 - Editorial correction to test case 6.1.1.6	9.2.1	9.3.0	R5	LTE-UEConTest_SIG
36.523-1	1051	-	Rel-9	F	RP-101143	R5-106269	approved	GCF Priority 3 - Update to test case 6.2.2.5	9.2.1	9.3.0	R5	LTE-UEConTest_SIG
36.523-1	1052	-	Rel-9	F	RP-101143	R5-106274	approved	GCF Priority 4 - Update to test case 8.1.2.6	9.2.1	9.3.0	R5	LTE-UEConTest_SIG
36.523-1	1053	-	Rel-9	F	RP-101143	R5-106275	approved	GCF Priority 4 - Update to test case 8.1.2.8	9.2.1	9.3.0	R5	LTE-UEConTest_SIG
36.523-1	1054	-	Rel-9	F	RP-101143	R5-106276	approved	GCF Priority 4 - Update to test case 8.1.2.9	9.2.1	9.3.0	R5	LTE-UEConTest_SIG
36.523-1	1055	-	Rel-9	F	RP-101143	R5-106277	approved	GCF Priority 2 - Update to test case 8.1.3.5	9.2.1	9.3.0	R5	LTE-UEConTest_SIG
36.523-1	1056	-	Rel-9	F	RP-101143	R5-106280	approved	GCF Priority 3 - Update to test case 9.2.1.2.15 and 9.3.1.12a	9.2.1	9.3.0	R5	LTE-UEConTest_SIG
36.523-1	1057	-	Rel-9	F	RP-101143	R5-106284	approved	GCF Priority 3 - Update to test cases 10.8.2, 10.8.4 and 10.8.6	9.2.1	9.3.0	R5	LTE-UEConTest_SIG
36.523-1	1058	-	Rel-9	F	RP-101143	R5-106294	approved	CR to 36.523-1: Correction to UTRA cell minimum power level	9.2.1	9.3.0	R5	LTE-UEConTest_SIG
36.523-1	1059	-	Rel-9	F	RP-101143	R5-106326	approved	GCF Priority 3 - Corrections to ESM test case 10.6.2	9.2.1	9.3.0	R5	LTE-UEConTest_SIG
36.523-1	1060	-	Rel-9	F	RP-101143	R5-106333	approved	GCF Priority 2 - Corrections to RRC test case 8.2.4.6	9.2.1	9.3.0	R5	LTE-UEConTest_SIG
36.523-1	1061	-	Rel-9	F	RP-101143	R5-106335	approved	GCF Priority 1-4 - Editorial corrections to EUTRA RRC test cases	9.2.1	9.3.0	R5	LTE-UEConTest_SIG
36.523-1	1062	-	Rel-9	F	RP-101143	R5-106336	approved	GCF Priority 1-4 - Editorial corrections to EMM test cases	9.2.1	9.3.0	R5	LTE-UEConTest_SIG
36.523-1	1063	-	Rel-9	F	RP-101153	R5-106524	approved	Update test case 8.1.2.11 with IMS emergency session setup	9.2.1	9.3.0	R5	IMS_EMER_LTE_UEConTest
36.523-1	1064	-	Rel-9	F	RP-101153	R5-106525	approved	Update references with IMS	9.2.1	9.3.0	R5	IMS_EMER_LTE_UEConTest
36.523-1	1065	-	Rel-9	F	RP-101143	R5-106555	approved	GCF Priority 1 - Correction of test cases in 6.1.2	9.2.1	9.3.0	R5	LTE-UEConTest_SIG

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36.523-1	1066	-	Rel-9	F	RP-101143	R5-106556	approved	GCF Priority 1 - Correction to EUTRA MAC test case 7.1.2.8	9.2.1	9.3.0	R5	LTE-UEConTest_SIG
36.523-1	1067	-	Rel-9	F	RP-101143	R5-106557	approved	GCF Priority 1 - Correction to EUTRA MAC test case 7.1.4.12	9.2.1	9.3.0	R5	LTE-UEConTest_SIG
36.523-1	1068	-	Rel-9	F	RP-101143	R5-106558	approved	GCF Priority 1 - Correction to EUTRA MAC test case 7.1.4.13	9.2.1	9.3.0	R5	LTE-UEConTest_SIG
36.523-1	1069	-	Rel-9	F	RP-101143	R5-106559	approved	GCF Priority 2 - Making compressed mode configuration optional for FDD and removal of compressed mode requirement for TDD for InterRAT HO test cases 8.4.2.2	9.2.1	9.3.0	R5	LTE-UEConTest_SIG
36.523-1	1070	-	Rel-9	F	RP-101143	R5-106560	approved	GCF Priority 2 - Making compressed mode configuration optional for FDD and removal of compressed mode requirement for TDD for InterRAT HO test cases 8.4.2.4	9.2.1	9.3.0	R5	LTE-UEConTest_SIG
36.523-1	1071	-	Rel-9	F	RP-101143	R5-106563	approved	GCF Priority 1 - Update of MAC test case 7.1.4.13	9.2.1	9.3.0	R5	LTE-UEConTest_SIG
36.523-1	1072	-	Rel-9	F	RP-101143	R5-106564	approved	Resolve timing issue in P1 RLC TCs	9.2.1	9.3.0	R5	LTE-UEConTest_SIG
36.523-1	1073	-	Rel-9	F	RP-101143	R5-106565	approved	GCF Priority 1 - Correction to TC 7.2.3.9	9.2.1	9.3.0	R5	LTE-UEConTest_SIG
36.523-1	1074	-	Rel-9	F	RP-101143	R5-106566	approved	GCF Priority 1 - Update of Radio Bearer test procedure used by TC 12.2.1	9.2.1	9.3.0	R5	LTE-UEConTest_SIG
36.523-1	1075	-	Rel-9	F	RP-101143	R5-106567	approved	GCF Priority 2 - Correction to Idle mode test case 6.1.2.7	9.2.1	9.3.0	R5	LTE-UEConTest_SIG
36.523-1	1076	-	Rel-9	F	RP-101143	R5-106568	approved	GCF Priority 2 - Correction of test cases in 6.1.2.8 and 6.1.2.9	9.2.1	9.3.0	R5	LTE-UEConTest_SIG
36.523-1	1077	-	Rel-9	F	RP-101144	R5-106569	approved	GCF Priority 2 - Correction of test cases in 6.2.2.1 and 6.2.2.2	9.2.1	9.3.0	R5	LTE-UEConTest_SIG
36.523-1	1078	-	Rel-9	F	RP-101144	R5-106570	approved	GCF Priority 2 - Correction to EUTRA RRC test case 8.1.3.5	9.2.1	9.3.0	R5	LTE-UEConTest_SIG
36.523-1	1079	-	Rel-9	F	RP-101144	R5-106572	approved	GCF Priority 2 - Correction of test cases in 8.3.1.8 ~ 8.3.1.11	9.2.1	9.3.0	R5	LTE-UEConTest_SIG
36.523-1	1080	-	Rel-9	F	RP-101144	R5-106573	approved	GCF Priority 2 - Update to test case 8.4.2.2 and 8.4.2.4	9.2.1	9.3.0	R5	LTE-UEConTest_SIG
36.523-1	1081	-	Rel-9	F	RP-101144	R5-106574	approved	GCF Priority 2 - Correction to contents for message Extended Service Request	9.2.1	9.3.0	R5	LTE-UEConTest_SIG
36.523-1	1082	-	Rel-9	F	RP-101144	R5-106575	approved	GCF Priority 2 - Correction to EMM test case 9.1.2.3	9.2.1	9.3.0	R5	LTE-UEConTest_SIG
36.523-1	1083	-	Rel-9	F	RP-101153	R5-106595	approved	Add test case for RRC connection establishment of emergency call / Limited Service	9.2.1	9.3.0	R5	IMS_EMER_LTE_UEConTest
36.523-1	1084	-	Rel-9	F	RP-101144	R5-106598	approved	GCF Priority 1 - Correction to EUTRA RRC test case 8.2.4.1	9.2.1	9.3.0	R5	LTE-UEConTest_SIG
36.523-1	1085	-	Rel-9	F	RP-101144	R5-106600	approved	GCF Priority 2 - Correction to EMM test case 9.2.2.2.2	9.2.1	9.3.0	R5	LTE-UEConTest_SIG
36.523-1	1086	-	Rel-9	F	RP-101144	R5-106601	approved	GCF Priority 2 - Correction to EMM test case 9.2.3.2.1	9.2.1	9.3.0	R5	LTE-UEConTest_SIG
36.523-1	1087	-	Rel-9	F	RP-101144	R5-106602	approved	GCF Priority 3 - Corrections to test case 7.1.5.1 and 7.1.5.2	9.2.1	9.3.0	R5	LTE-UEConTest_SIG
36.523-1	1088	-	Rel-9	F	RP-101144	R5-106603	approved	GCF Priority 3 - Addition new test case 6.1.2.13	9.2.1	9.3.0	R5	LTE-UEConTest_SIG
36.523-1	1089	-	Rel-9	F	RP-101144	R5-106604	approved	GCF Priority 2 - Correction to EMM test case 9.2.1.1.1a	9.2.1	9.3.0	R5	LTE-UEConTest_SIG
36.523-	1090	-	Rel-9	F	RP-101144	R5-106605	approved	GCF Priority 3 - Various corrections to EMM section 9 of 36.523-	9.2.1	9.3.0	R5	LTE-UEConTest_SIG

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36.523-1	1092	-	Rel-9	F	RP-101144	R5-106607	approved	GCF Priority 3: Correction to multi-layer test cases 13.1.4 and 13.1.5	9.2.1	9.3.0	R5	LTE-UEConTest_SIG
36.523-1	1093	-	Rel-9	F	RP-101144	R5-106608	approved	GCF Priority 4 - Update to test case 8.1.1.3	9.2.1	9.3.0	R5	LTE-UEConTest_SIG
36.523-1	1094	-	Rel-9	F	RP-101144	R5-106619	approved	GCF Priority 1 - Correction to TC 7.3.3.1, 7.3.3.2, 7.3.3.3 and 7.3.3.4	9.2.1	9.3.0	R5	LTE-UEConTest_SIG
36.523-1	1095	-	Rel-9	F	RP-101144	R5-106621	approved	GCF Priority 4 - Update to test case 8.1.1.4	9.2.1	9.3.0	R5	LTE-UEConTest_SIG
36.523-1	1096	-	Rel-9	F	RP-101144	R5-106622	approved	GCF Priority 4 - Correction of test cases in 8.3.1.6	9.2.1	9.3.0	R5	LTE-UEConTest_SIG
36.523-1	1097	-	Rel-9	F	RP-101144	R5-106623	approved	GCF Priority 4 - Update to test case 9.2.3.2.5, 9.2.3.2.11, and 9.3.1.12a	9.2.1	9.3.0	R5	LTE-UEConTest_SIG
36.523-1	1098	-	Rel-9	F	RP-101144	R5-106624	approved	9.2.1.3.3 Attach GCF Priority 4 - Addition of new test case 9.2.3.2.13	9.2.1	9.3.0	R5	LTE-UEConTest_SIG
36.523-1	1099	-	Rel-9	F	RP-101144	R5-106625	approved	GCF Priority 4: Addition of a new test case 9.2.3.2.1b	9.2.1	9.3.0	R5	LTE-UEConTest_SIG
36.523-1	1100	-	Rel-9	F	RP-101144	R5-106626	approved	Addition of system information combination in Idle Mode test cases	9.2.1	9.3.0	R5	LTE-UEConTest_SIG
36.523-1	1101	-	Rel-9	F	RP-101144	R5-106627	approved	Addition of system information combination in EMM test cases	9.2.1	9.3.0	R5	LTE-UEConTest_SIG
36.523-1	1102	-	Rel-9	F	RP-101144	R5-106628	approved	Addition of system information combination in RRC test cases	9.2.1	9.3.0	R5	LTE-UEConTest_SIG
36.523-1	1103	-	Rel-9	F	RP-101144	R5-106629	approved	Addition of system information combination in Multilayer test cases	9.2.1	9.3.0	R5	LTE-UEConTest_SIG
36.523-1	1104	-	Rel-9	F	RP-101159	R5-106630	approved	Clarification of measurements requirements for Inter-RAT	9.2.0	9.3.0	R5	LTEimp-eDL_UEConTest
36.523-1	1105	-	Rel-9	F	RP-101144	R5-106631	approved	GCF Priority X - Addition new test case 6.2.3.31	9.2.1	9.3.0	R5	LTE-UEConTest_SIG
36.523-1	1106	-	Rel-9	F	RP-101144	R5-106632	approved	GCF Priority 1 – Correction to EUTRA MAC test case 7.1.4.8	9.2.1	9.3.0	R5	LTE-UEConTest_SIG
36.523-1	1107	-	Rel-9	F	RP-101144	R5-106635	approved	GCF Priority TBD - Addition of new idle mode test case for inter-freq cell reselection based on CSG autonomous search	9.2.1	9.3.0	R5	LTE-UEConTest_SIG
36.523-1	1108	-	Rel-9	F	RP-101144	R5-106636	approved	GCF Priority TBD - Correction to TC 16.1.1.1 Inter-RAT Cell reselection from E-UTRA idle non-CSG cell to a UTRA CSG cell	9.2.1	9.3.0	R5	LTE-UEConTest_SIG
36.523-1	1109	-	Rel-9	F	RP-101144	R5-106637	approved	GCF Priority TBD - Movement of TC 16.1.1.2 to section 6.3.8	9.2.1	9.3.0	R5	LTE-UEConTest_SIG
36.523-1	1110	-	Rel-9	F	RP-101144	R5-106638	approved	GCF Priority 4 - Addition of new TC 6.3.4 Inter-RAT cell reselection / From UTRA CELL_PCH state to E-UTRA RRC_IDLE CSG cell	9.2.1	9.3.0	R5	LTE-UEConTest_SIG
36.523-1	1112	-	Rel-9	F	RP-101144	R5-106641	approved	GCF Pririty 4 -Making measurement and reporting optional for FDD and removal compressed mode requirement for TDD for Redirection test cases 8.1.3.7	9.2.1	9.3.0	R5	LTE-UEConTest_SIG
36.523-1	1113	-	Rel-9	F	RP-101144	R5-106642	approved	Periodic RI Reporting using PUCCH / Category 1 UE / Transmission mode 3/4	9.2.1	9.3.0	R5	LTE-UEConTest_SIG
36.523-1	1114	-	Rel-9	F	RP-101144	R5-106875	approved	GCF Priority X - Addition of new test case 8.1.2.10	9.2.1	9.3.0	R5	LTE-UEConTest_SIG
36.523-1	1115	-	Rel-9	F	RP-101144	R5-106877	approved	GCF priority X: New test case 9.2.1.2.1c Combined attach procedure / Success / EPS and CS Fallback not preferred	9.2.1	9.3.0	R5	LTE-UEConTest_SIG
36.523-1	1116	-	Rel-9	F	RP-101144	R5-106647	approved	GCF Priority X - Addition of new test case 13.1.X	9.2.1	9.3.0	R5	LTE-UEConTest_SIG

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36.523-1	1117	-	Rel-9	F	RP-101144	R5-106655	approved	GCF Priority 4 - New test case 6.1.1.2 PLMN selection of 'Other PLMN/access technology combinations' / Automatic mode	9.2.1	9.3.0	R5	LTE-UEConTest_SIG
36.523-1	1118	-	Rel-9	F	RP-101144	R5-106876	approved	Cell detection timing related correction to test case 6.2.2.3, 6.2.2.4, 6.2.3.7 and 6.2.3.8	9.2.1	9.3.0	R5	LTE-UEConTest_SIG
36.523-1	1119	-	Rel-9	F	RP-101144	R5-106657	approved	GCF Priority 1 - Correction to TC 7.2.3.10	9.2.1	9.3.0	R5	LTE-UEConTest_SIG
36.523-1	1120	-	Rel-9	F	RP-101144	R5-106659	approved	GCF Priority 1 - Corrections and enhancements to EUTRA PDCP test cases 7.3.3.1, 7.3.3.3, 7.3.4.1 and 7.3.4.2	9.2.1	9.3.0	R5	LTE-UEConTest_SIG
36.523-1	1121	-	Rel-9	F	RP-101144	R5-106660	approved	GCF Priority 3 - Correction to test case 8.1.2.2	9.2.1	9.3.0	R5	LTE-UEConTest_SIG
36.523-1	1122	-	Rel-9	F	RP-101144	R5-106661	approved	GCF Priority 2 - Corrections to E-UTRA RRC test case 8.1.2.7	9.2.1	9.3.0	R5	LTE-UEConTest_SIG
36.523-1	1123	-	Rel-9	F	RP-101144	R5-106662	approved	GCF Priority 4: Addition of a new test case 9.2.1.2.1b	9.2.1	9.3.0	R5	LTE-UEConTest_SIG
36.523-1	1124	-	Rel-9	F	RP-101144	R5-106666	approved	GCF Priority 2 - Correction to EUTRA MAC test case 7.1.4.16	9.2.1	9.3.0	R5	LTE-UEConTest_SIG
36.523-1	1125	-	Rel-9	F	RP-101144	R5-106676	approved	GCF Priority 1-4 - Editorial corrections to various ESM test cases	9.2.1	9.3.0	R5	LTE-UEConTest_SIG
36.523-1	1126	-	Rel-9	F	RP-101144	R5-106678	approved	GCF Priority 1-4 - Editorial corrections to EUTRA Idle Mode test cases	9.2.1	9.3.0	R5	LTE-UEConTest_SIG
36.523-1	1127	-	Rel-9	F	RP-101144	R5-106679	approved	GCF Priority 2 - Corrections to E-UTRA PDCP test case 7.3.5.5	9.2.1	9.3.0	R5	LTE-UEConTest_SIG
36.523-1	1128	-	Rel-9	F	RP-101144	R5-106680	approved	GCF Priority 2 – Correction to EUTRA RLC test case 7.2.3.16	9.2.1	9.3.0	R5	LTE-UEConTest_SIG
36.523-1	1129	-	Rel-9	F	RP-101144	R5-106681	approved	GCF Priority 2 - Update to test case 9.2.3.3.1 and 9.2.3.3.4	9.2.1	9.3.0	R5	LTE-UEConTest_SIG
36.523-1	1131	-	Rel-9	F	RP-101144	R5-106707	approved	GCF priority X: New test case 9.2.3.2.1c Combined tracking area update / Success / CS Fallback not preferred	9.2.1	9.3.0	R5	LTE-UEConTest_SIG
36.523-1	1132	-	Rel-9	F	RP-101255	-	approved	GCF Priority 2 - Correction to EUTRA RLC test case 7.2.3.21	9.2.1	9.3.0	R5	LTE-UEConTest_SIG
36.523-1	1133	-	Rel-9	F	RP-101143	R5-106062	approved	GCF Priority 2 - Correction of ESM test case 10.3.1	9.2.1	9.3.0	R5	LTE-UEConTest_SIG
36.523-1	1134	-	Rel-9	F	RP-101143	R5-106094	approved	GCF Priority 1 - Update of RRC test case 8.2.2.2	9.2.1	9.3.0	R5	LTE-UEConTest_SIG
36.523-1	1135	-	Rel-9	F	RP-101143	R5-106107	approved	GCF Priority 1 - Correction to EMM test case 9.2.3.1.1	9.2.1	9.3.0	R5	LTE-UEConTest_SIG
36.523-1	1136	-	Rel-9	F	RP-101143	R5-106108	approved	GCF Priority 2 - Correction to ESM test case 10.4.1	9.2.1	9.3.0	R5	LTE-UEConTest_SIG
36.523-1	1137	-	Rel-9	F	RP-101143	R5-106109	approved	GCF Priority 2 - Correction to EMM test case 9.2.3.1.2	9.2.1	9.3.0	R5	LTE-UEConTest_SIG
36.523-1	1138	-	Rel-9	F	RP-101143	R5-106111	approved	GCF Priority 2 - Correction to ESM test case 10.7.2	9.2.1	9.3.0	R5	LTE-UEConTest_SIG
36.523-2	0132	-	Rel-9	F	RP-101153	R5-106141	approved	Applicability for RRC connection establishment of emergency call / Limited Service	9.2.0	9.3.0	R5	IMS_EMER_LTE_UEConTest
36.523-2	0133	-	Rel-9	F	RP-101153	R5-106142	approved	Correct TC number emergency call	9.2.0	9.3.0	R5	IMS_EMER_LTE_UEConTest
36.523-2	0134	-	Rel-9	F	RP-101145	R5-106184	approved	GCF Priority 3 - Correction of applicability statement for E-UTRAN test case 6.1.2.13	9.2.0	9.3.0	R5	LTE-UEConTest_SIG
36.523-2	0135	-	Rel-9	F	RP-101145	R5-106185	approved	Addition of applicability statement for E-UTRAN test case 6.2.3.31	9.2.0	9.3.0	R5	LTE-UEConTest_SIG

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36.523-2	0136	-	Rel-9	F	RP-101145	R5-106191	approved	GCF Priority 1, P3 and P4 : Addition of new PICS to table A.4.4-1	9.2.0	9.3.0	R5	LTE-UEConTest_SIG
36.523-2	0137	-	Rel-9	F	RP-101145	R5-106258	approved	Applicability of new RRC part 1 TC	9.2.0	9.3.0	R5	LTE-UEConTest_SIG
36.523-2	0138	-	Rel-9	F	RP-101145	R5-106259	approved	Applicability of new Multilayer Procedures TC	9.2.0	9.3.0	R5	LTE-UEConTest_SIG
36.523-2	0139	-	Rel-9	F	RP-101145	R5-106299	approved	Addition of applicability for new idle mode test case on inter-freq cell reselection based on CSG autonomous search	9.2.0	9.3.0	R5	LTE-UEConTest_SIG
36.523-2	0140	-	Rel-9	F	RP-101145	R5-106359	approved	Applicability for New TCs of cell reselection when 1xRTT is higher/lower priority	9.2.0	9.3.0	R5	LTE-UEConTest_SIG
36.523-2	0141	-	Rel-9	F	RP-101145	R5-106389	approved	GCF Priority 4 - Add Applicability for PLMN selection test case 6.1.1.2	9.2.0	9.3.0	R5	LTE-UEConTest_SIG
36.523-2	0142	-	Rel-9	F	RP-101145	R5-106467	approved	Correction to applicability condition for test case 13.1.5	9.2.0	9.3.0	R5	LTE-UEConTest_SIG
36.523-2	0143	-	Rel-9	F	RP-101155	R5-106554	approved	CR to 36.523-2: Update Table A.4.3.1-2 for band 41 TDD LTE 2600MHz to RF baseline implementation capabilities.	9.2.0	9.3.0	R5	LTE_TDD_2600_US-UEConTest
36.523-2	0144	-	Rel-9	F	RP-101145	R5-106562	approved	GCF Priority 2 – Addition of PICS statement related with UTRA compressed mode	9.2.0	9.3.0	R5	LTE-UEConTest_SIG
36.523-2	0145	-	Rel-9	F	RP-101145	R5-106646	approved	GCF priority x: Applicability for new test cases 9.2.1.2.1c and 9.2.3.2.1c	9.2.0	9.3.0	R5	LTE-UEConTest_SIG
36.523-2	0146	-	Rel-9	F	RP-101145	R5-106663	approved	Update of Applicability table for EMM test cases	9.2.0	9.3.0	R5	LTE-UEConTest_SIG
36.523-2	0147	-	Rel-9	F	RP-101145	R5-106664	approved	GCF Priority 3 - Correction to applicability condition C48	9.2.0	9.3.0	R5	LTE-UEConTest_SIG
36.523-2	0148	-	Rel-9	F	RP-101145	R5-106668	approved	GCF Priority 4 - Correction to the applicability for test case 8.1.7.3	9.2.0	9.3.0	R5	LTE-UEConTest_SIG
36.523-2	0149	-	Rel-9	F	RP-101145	R5-106677	approved	GCF Priority 3 - Add Applicability for EMM test case 9.2.3.2.13	9.2.0	9.3.0	R5	LTE-UEConTest_SIG
36.523-2	0150	-	Rel-9	F	RP-101145	R5-106683	approved	GCF Priority 3 - Addition of test case selection expression for test case 9.2.3.3.4	9.2.0	9.3.0	R5	LTE-UEConTest_SIG
36.523-2	0151	-	Rel-9	F	RP-101145	R5-106639	approved	GCF Priority 4 - Apllicability of Section 6.3 TCs	9.2.0	9.3.0	R5	LTE-UEConTest_SIG
36.523-3	0301	-	Rel-8	F	RP-101145	R5-106578	approved	Clarification on cell power change time	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0302	-	Rel-8	F	RP-101145	R5-106675	approved	LTE test model updates	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0303	-	Rel-8	F	RP-101151	-	approved	CR to 36.523-3: Add new verified and e-mail agreed TTCN test cases in the TC lists in 36.523-3 (prose), Annex A	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0304	-	Rel-8	F	RP-101152	R5s100513	approved	LTE_TDD: Correction to f_EUTRA_SS_ConfigureActiveCell to configure Tcell and sfn offset	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0305	-	Rel-8	B	RP-101152	R5s100470	approved	Addition of GCF WI 82 ESM test case 10.8.1	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0306	-	Rel-8	B	RP-101152	R5s100493	approved	Addition of GCF WI-081 E-UTRA RRC test case 8.3.1.9	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0307	-	Rel-8	F	RP-101152	R5s100399	approved	Corrections to EUTRA RLC test case 7.2.3.2, 7.2.3.5, 7.2.3.18, 7.2.3.10	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0308	-	Rel-8	B	RP-101152	R5s100522	approved	Addition of GCF WI 81 EUTRA MAC test case 7.1.4.11	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0309	-	Rel-8	B	RP-101152	R5s100473	approved	Addition of GCF WI 81 EUTRA MAC test case 7.1.4.3	8.4.0	8.5.0	R5	LTE-UEConTest_SIG

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36.523-3	0310	-	Rel-8	F	RP-101152	R5s100531	approved	Correction of GCF WI-081 E-UTRA RLC test case 7.2.3.9	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0311	-	Rel-8	F	RP-101152	R5s100536	approved	Correction to GCF WI-082 E_UTRA EMM test case 9.2.3.1.5	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0312	-	Rel-8	F	RP-101152	R5s100535	approved	Corrections to Usage of Float Values in LTE TTCN ATS	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0313	-	Rel-8	F	RP-101152	R5s100533	approved	Corrections to GCF WI-081 EUTRA MAC Testcase 7.1.4.10	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0314	-	Rel-8	B	RP-101152	R5s100529	approved	Addition of GCF WI 81 EUTRA MAC test case 7.1.4.12	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0315	-	Rel-8	B	RP-101152	R5s100527	approved	Addition of GCF WI 81 EUTRA Idle Mode test case 6.1.2.7	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0316	-	Rel-8	F	RP-101152	R5s100524	approved	Correction to GCF WI-081 E-UTRA RRC test cases 8.2.4.x	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0317	-	Rel-8	B	RP-101152	R5s100525	approved	Addition of GCF WI 81 EUTRA MAC test case 7.1.2.8	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0318	-	Rel-8	F	RP-101152	R5s100520	approved	Regression CR for LTE wk33 ATS	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0319	-	Rel-8	B	RP-101152	R5s100516	approved	Addition of GCF WI 81 EUTRA RRC test case 8.3.1.10	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0320	-	Rel-8	F	RP-101152	R5s100515	approved	Correction to GCF WI-081 E-UTRA RRC test case 8.2.4.5	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0321	-	Rel-8	F	RP-101152	R5s100538	approved	Regression CR for LTE wk37 ATS	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0322	-	Rel-8	B	RP-101152	R5s100545	approved	Addition of GCF WI 82 EMM test case 9.2.1.1.1a	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0323	-	Rel-8	B	RP-101152	R5s100541	approved	Addition of GCF WI 81 EUTRA RRC test case 8.1.3.5	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0324	-	Rel-8	F	RP-101152	R5s100539	approved	Correction to GCF WI-081 E-UTRA RRC test cases 8.1.2.7	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0325	-	Rel-8	F	RP-101152	R5s100532	approved	Corrections to GCF WI-081EUTRA MAC Testcase 7.1.1.1	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0326	-	Rel-8	F	RP-101152	R5s100550	approved	Correction of GCF WI-082 EPC test case 10.3.1	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0327	-	Rel-8	F	RP-101152	R5s100549	approved	Correction of GCF WI-082 EPC test case 10.7.2	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0328	-	Rel-8	F	RP-101152	R5s100548	approved	Correction of GCF WI-081 EUTRA RRC test case 8.2.4.6	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0329	-	Rel-8	F	RP-101152	R5s100556	approved	Regression TTCN CR for IWD D10_wk37 ATS	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0330	-	Rel-8	F	RP-101152	R5s100563	approved	Correction to GCF WI-081 EUTRA MAC test case 7.1.3.7	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0331	-	Rel-8	F	RP-101152	R5s100564	approved	Correction to GCF WI-081 EUTRA RRC test case 8.5.1.1	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0332	-	Rel-8	F	RP-101152	R5s100562	approved	Correction to GCF WI-081 EUTRA PDCP test case 7.3.5.4	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0333	-	Rel-8	F	RP-101152	R5s100561	approved	Correction to GCF WI-081 EUTRA RRC test case 8.2.4.5	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0334	-	Rel-8	F	RP-101152	R5s100560	approved	Correction to GCF WI-081 EUTRA PDCP test cases 7.3.5.x	8.4.0	8.5.0	R5	LTE-UEConTest_SIG

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36.523-3	0335	-	Rel-8	F	RP-101152	R5s100559	approved	Correction to L2 test cases to allow HARQ retransmissions	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0336	-	Rel-8	F	RP-101152	R5s100558	approved	Correction of GCF WI-081 EUTRA MAC test case 7.1.4.16	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0337	-	Rel-8	F	RP-101152	R5s100557	approved	Correction to AT commands used in LTE ATS	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0338	-	Rel-8	F	RP-101152	R5s100555	approved	Correction to GCF WI-082 EMM test case 9.2.3.1.8	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0339	-	Rel-8	F	RP-101152	R5s100576	approved	Correction to GCF WI-081 EUTRA RRC Testcase 8.2.4.1	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0340	-	Rel-8	F	RP-101152	R5s100572	approved	Correction of GCF WI-081 E-UTRA MAC test case 7.1.2.3	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0341	-	Rel-8	F	RP-101152	R5s100566	approved	Correction to GCF WI-081 EUTRA RLC test case 7.2.3.14	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0342	-	Rel-8	F	RP-101152	R5s100580	approved	Correction to GCF WI-081 EUTRA RRC Testcase 8.3.1.10	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0343	-	Rel-8	F	RP-101152	R5s100579	approved	Correction to GCF WI-081 EUTRA PDCP test case 7.3.5.5	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0344	-	Rel-8	F	RP-101152	R5s100608	approved	Correction of GCF WI-081 E-UTRA TAU	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0345	-	Rel-8	B	RP-101152	R5s100597	approved	Addition of GCF WI 81 EUTRA RRC test case 9.2.1.1.13	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0346	-	Rel-8	F	RP-101152	R5s100595	approved	Correction to GCF WI-081 EUTRA RLC Testcase 7.2.2.11	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0347	-	Rel-8	F	RP-101152	R5s100573	approved	Correction to GCF WI-081 EUTRA RRC Testcase 8.2.4.3	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0348	-	Rel-8	F	RP-101152	R5s100593	approved	Correction to GCF WI-081 EUTRA MAC Testcase 7.1.4.13	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0349	-	Rel-8	F	RP-101152	R5s100592	approved	Correction to GCF WI-081 EUTRA MAC Testcase 7.1.3.6	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0350	-	Rel-8	B	RP-101152	R5s100590	approved	Addition of GCF WI 81 EUTRA test case 6.1.2.5	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0351	-	Rel-8	B	RP-101152	R5s100584	approved	Addition of GCF WI 82 EMM test case 9.2.1.1.17	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0352	-	Rel-8	B	RP-101152	R5s100582	approved	Addition of GCF WI 82 EMM test case 9.2.1.1.15	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0353	-	Rel-8	B	RP-101152	R5s100642	approved	LTE_TDD: Addition of GCF WI 91 EUTRA MAC test case 7.1.7.1.3	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0354	-	Rel-8	B	RP-101152	R5s100638	approved	LTE_TDD: Addition of GCF WI 91 EUTRA RRC test case 8.5.1.1	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0355	-	Rel-8	B	RP-101152	R5s100636	approved	LTE_TDD: Addition of GCF WI 91 EUTRA RRC test case 8.2.4.3	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0356	-	Rel-8	B	RP-101152	R5s100634	approved	LTE_TDD: Addition of GCF WI 91 EUTRA RLC test case 7.2.3.16	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0357	-	Rel-8	B	RP-101152	R5s100632	approved	LTE_TDD: Addition of GCF WI 91 EUTRA RLC test case 7.2.3.10	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0358	-	Rel-8	B	RP-101152	R5s100628	approved	LTE_TDD: Addition of GCF WI 91 EUTRA MAC test case 7.1.4.16	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0359	-	Rel-8	B	RP-101152	R5s100626	approved	LTE_TDD: Addition of GCF WI 91 EUTRA MAC test case 7.1.4.10	8.4.0	8.5.0	R5	LTE-UEConTest_SIG

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36.523-3	0360	-	Rel-8	B	RP-101152	R5s100622	approved	LTE_TDD: Addition of GCF WI 91 EUTRA MAC test case 7.1.4.7	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0361	-	Rel-8	B	RP-101152	R5s100620	approved	LTE_TDD: Addition of GCF WI 91 EUTRA MAC test case 7.1.4.6	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0362	-	Rel-8	B	RP-101152	R5s100618	approved	LTE_TDD: Addition of GCF WI 91 EUTRA MAC test case 7.1.4.5	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0363	-	Rel-8	B	RP-101152	R5s100616	approved	LTE_TDD: Addition of GCF WI 91 EUTRA MAC test case 7.1.2.8	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0364	-	Rel-8	B	RP-101152	R5s100614	approved	LTE_TDD: Addition of GCF WI 91 EUTRA Idle Mode test case 6.1.2.3	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0365	-	Rel-8	B	RP-101152	R5s100640	approved	Addition of GCF WI 82 EMM test case 9.2.1.2.4	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0366	-	Rel-8	B	RP-101152	R5s100624	approved	Addition of GCF WI 82 EMM test case 9.2.3.1.4	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0367	-	Rel-8	B	RP-101152	R5s100610	approved	Addition of GCF WI 82 EMM test case 9.2.1.1.7	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0368	-	Rel-8	B	RP-101152	R5s100658	approved	LTE_TDD: Addition of GCF WI 91 EUTRA MAC test case 7.1.4.11	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0369	-	Rel-8	B	RP-101152	R5s100664	approved	Addition of GCF WI 82 EMM test case 9.2.3.2.1	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0370	-	Rel-8	B	RP-101152	R5s100662	approved	Addition of GCF WI 82 EMM test case 9.2.1.2.1	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0371	-	Rel-8	B	RP-101152	R5s100660	approved	Addition of GCF WI 82 EMM test case 9.2.2.2.2	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0372	-	Rel-8	B	RP-101152	R5s100656	approved	LTE_TDD: Addition of GCF WI 91 EUTRA RRC test case 8.5.1.3	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0373	-	Rel-8	B	RP-101152	R5s100654	approved	LTE_TDD: Addition of GCF WI 91 EUTRA RRC test case 8.3.1.8	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0374	-	Rel-8	B	RP-101152	R5s100652	approved	LTE_TDD: Addition of GCF WI 91 EUTRA RRC test case 8.3.1.5	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0375	-	Rel-8	B	RP-101152	R5s100650	approved	LTE_TDD: Addition of GCF WI 91 EUTRA RRC test case 8.2.4.5	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0376	-	Rel-8	B	RP-101152	R5s100648	approved	LTE_TDD: Addition of GCF WI 91 EUTRA RRC test case 8.2.4.2	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0377	-	Rel-8	B	RP-101152	R5s100646	approved	LTE_TDD: Addition of GCF WI 91 EUTRA RRC test case 8.1.2.5	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0378	-	Rel-8	B	RP-101152	R5s100644	approved	LTE_TDD: Addition of GCF WI 91 EUTRA Idle Mode test case 6.1.2.6	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0379	-	Rel-8	B	RP-101152	R5s100454	approved	LTE_TDD: Addition of GCF WI 92 EUTRA Multi-layer test case 13.2.1	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0380	-	Rel-8	B	RP-101152	R5s100450	approved	LTE_TDD: Addition of GCF WI 91 EUTRA MAC test case 7.1.2.1	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0381	-	Rel-8	B	RP-101152	R5s100448	approved	LTE_TDD: Addition of GCF WI 91 EUTRA Idle Mode test case 6.1.2.4	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0382	-	Rel-8	B	RP-101152	R5s100606	approved	Addition of GCF WI 82 EMM SMS test case 11.1.4	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0383	-	Rel-8	B	RP-101152	R5s100604	approved	Addition of GCF WI 82 EMM SMS test case 11.1.3	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0384	-	Rel-8	B	RP-101152	R5s100588	approved	Addition of GCF WI 82 EMM SMS test case 11.1.2	8.4.0	8.5.0	R5	LTE-UEConTest_SIG

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36.523-3	0385	-	Rel-8	B	RP-101152	R5s100586	approved	Addition of GCF WI 82 EMM SMS test case 11.1.1	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0386	-	Rel-8	F	RP-101152	R5s100571	approved	Correction of GCF WI-081 E-UTRA MAC test case 7.1.4.5	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0387	-	Rel-8	B	RP-101152	R5s100703	approved	Addition of GCF WI 81 EUTRA RRC test case 8.1.1.6	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0388	-	Rel-8	B	RP-101152	R5s100673	approved	LTE_TDD: Addition of GCF WI 91 EUTRA RRC test case 8.3.1.9	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0389	-	Rel-8	B	RP-101152	R5s100671	approved	LTE_TDD: Addition of GCF WI 91 EUTRA RRC test case 8.2.4.1	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0390	-	Rel-8	B	RP-101152	R5s100669	approved	LTE_TDD: Addition of GCF WI 91 EUTRA PDCP test case 7.3.5.4	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0391	-	Rel-8	B	RP-101152	R5s100697	approved	Addition of GCF WI 82 EMM test case 9.3.1.17	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0392	-	Rel-8	B	RP-101152	R5s100695	approved	Addition of GCF WI 82 ESM test case 10.8.3	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0393	-	Rel-8	B	RP-101152	R5s100693	approved	Addition of GCF WI 82 ESM test case 10.8.2	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0394	-	Rel-8	B	RP-101152	R5s100701	approved	Addition of GCF WI 82 EMM test case 9.2.1.1.19	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0395	-	Rel-8	B	RP-101152	R5s100699	approved	Addition of GCF WI 82 EUTRA DRB test case 12.2.3	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0396	-	Rel-8	B	RP-101152	R5s100690	approved	Addition of GCF WI 84 EMM test case 9.2.1.1.22	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0397	-	Rel-8	B	RP-101152	R5s100688	approved	Addition of GCF WI 82 EMM test case 9.2.1.1.21	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0398	-	Rel-8	B	RP-101152	R5s100675	approved	Addition of GCF WI 81 EUTRA IDLE MODE test case 6.1.1.1	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0399	-	Rel-8	B	RP-101152	R5s100682	approved	Addition of GCF WI 81 EUTRA RRC test case 8.1.1.2	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0400	-	Rel-8	B	RP-101152	R5s100680	approved	Addition of GCF WI 81 EUTRA RRC test case 8.1.2.3	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0401	-	Rel-8	B	RP-101152	R5s100678	approved	Addition of GCF WI 81 RRC test case 8.3.1.7	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0402	-	Rel-8	F	RP-101152	R5s100692	approved	Regression CR for LTE wk42 ATS	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0403	-	Rel-8	B	RP-101152	R5s100720	approved	Addition of GCF WI 82 Multilayer test case 13.3.1.1	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0404	-	Rel-8	B	RP-101152	R5s100714	approved	Addition of GCF WI 81 EUTRA RRC test case 8.2.4.4	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0405	-	Rel-8	B	RP-101152	R5s100712	approved	Addition of GCF WI 82 ESM test case 10.7.3	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0406	-	Rel-8	F	RP-101152	R5s100709	approved	Correction of GCF WI-081 Test Case 7.1.4.5	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0407	-	Rel-8	B	RP-101152	R5s100707	approved	Addition of GCF Priority 3 E-UTRA RRC test case 8.5.1.2	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0408	-	Rel-8	B	RP-101152	R5s100705	approved	Addition of GCF Priority 3 E-UTRA RRC test case 8.2.1.7	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0409	-	Rel-8	B	RP-101152	R5s100722	approved	Addition of GCF WI 82 EMM test case 9.2.1.1.23	8.4.0	8.5.0	R5	LTE-UEConTest_SIG

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36.523-3	0410	-	Rel-8	B	RP-101152	R5s100730	approved	Addition of GCF WI 82 EMM test case 9.2.2.1.2	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0411	-	Rel-8	B	RP-101152	R5s100726	approved	LTE_TDD: Resubmission of GCF WI 91 EUTRA RLC test case 7.2.2.10	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0412	-	Rel-8	B	RP-101152	R5s100728	approved	Addition of GCF WI 82 EMM test case 9.3.1.16	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0413	-	Rel-8	F	RP-101152	R5s100725	approved	Correction of the q-RxLevMin value in the sib5 interFreqCarrierFreqList	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0414	-	Rel-8	F	RP-101152	R5s100724	approved	Correction to IP address allocation and ESM cause for condition IPv4viaNAS_TestMode	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0415	-	Rel-8	B	RP-101152	R5s100746	approved	Addition of GCF WI 82 ESM test case 10.7.4	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0416	-	Rel-8	B	RP-101152	R5s100744	approved	Addition of GCF WI 82 Multilayer test case 13.3.1.2	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0417	-	Rel-8	B	RP-101152	R5s100742	approved	LTE_TDD: Addition of GCF WI 91 EUTRA PDCP test case 7.3.5.5	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0418	-	Rel-8	B	RP-101152	R5s100740	approved	LTE_TDD: Addition of GCF WI 93 EUTRA RRC test case 8.3.1.7	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0419	-	Rel-8	B	RP-101152	R5s100738	approved	LTE_TDD: Addition of GCF WI 91 EUTRA RRC test case 8.3.1.3	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0420	-	Rel-8	B	RP-101152	R5s100787	approved	LTE_TDD: Addition of GCF WI 91 EUTRA RRC test case 8.1.1.6	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0421	-	Rel-8	B	RP-101152	R5s100734	approved	LTE_TDD: Addition of GCF WI 91 EUTRA Idle mode test case 6.1.2.8	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0422	-	Rel-8	B	RP-101152	R5s100732	approved	LTE_TDD: Addition of GCF WI 91 EUTRA Idle mode test case 6.1.2.11	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0423	-	Rel-8	B	RP-101152	R5s100748	approved	Addition of GCF P3 E-UTRA ESM test case 10.5.3	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0424	-	Rel-8	B	RP-101152	R5s100750	approved	Addition of GCF P3 E-UTRA EMM test case 9.2.3.1.13	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0425	-	Rel-8	F	RP-101152	R5s100754	approved	Correction of GCF WI-081 EPC test case 9.1.2.5	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0426	-	Rel-8	F	RP-101152	R5s100755	approved	Correction of GCF WI-081 EMM test case 9.2.3.1.5 and 9.2.3.1.8	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0427	-	Rel-8	B	RP-101152	R5s100784	approved	Addition of GCF WI 82 EMM test case 9.2.1.1.16	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0428	-	Rel-8	F	RP-101152	R5s100769	approved	Correction to GCF WI 81 EUTRA MAC test case 7.1.2.8	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0429	-	Rel-8	F	RP-101152	R5s100768	approved	Correction to GCF WI 82 EPC SMS test cases 11.1.3 and 11.1.4	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0430	-	Rel-8	F	RP-101152	R5s100767	approved	Correction to GCF WI 81 EUTRA MAC test case 7.1.4.1	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0431	-	Rel-8	F	RP-101152	R5s100766	approved	Correction to GCF WI 81 EUTRA IDLE MODE test case 6.1.2.9	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0432	-	Rel-8	F	RP-101152	R5s100760	approved	Correction of GCF WI-081 EPC test case 12.2.1 and 12.2.2	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0433	-	Rel-8	F	RP-101152	R5s100761	approved	Correction of GCF WI-081 ESM test case 10.6.1, 10.4.1, 10.5.1, 10.5.3	8.4.0	8.5.0	R5	LTE-UEConTest_SIG
36.523-3	0434	-	Rel-8	B	RP-101152	R5s100758	approved	Addition of GCF WI-82 P3 E-UTRA EMM test case 9.2.3.1.14	8.4.0	8.5.0	R5	LTE-UEConTest_SIG

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Annex F:
Summary of RAN work items (WI) and study items (SI)

An overview of recent RAN work items and study items (including the new WIs & SIs approved at this meeting) is attached to this report.

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Annex G:
Actions decided by RAN #50

- RAN WG chairmen and SA/CT chairmen are asked to review RP-101382 as described in cover page of RP-101382 by the ITU-R face-to-face meeting

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