UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SAMSUNG ELECTRONICS CO., LTD. AND SAMSUNG ELECTRONICS AMERICA, INC.,

Petitioner,

v.

GENGHISCOMM HOLDINGS LLC,

Patent Owner

DECLARATION OF CRAIG BISHOP

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I. INTRODUCTION

I, Craig Bishop, declare as follows:

1. I have been retained as an independent expert witness on behalf of Samsung Electronics America, Inc. (to whom I will refer to as Petitioner) for this Petitioner.

2. I am being compensated for my work in this matter at my accustomed 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. In the preparation of this expert report I have reviewed the documents cited herein as well as all of the Appendices listed above.

4. In forming the opinions expressed within this expert report, I have considered:

- The Appendices listed above; and
- My own academic background, knowledge, and professional experiences in the field of wireless communications.

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

II. QUALIFICATIONS

6. My complete qualifications and professional experience are described in my *curriculum vitae*, a copy of which is attached as **Appendix 1 and is filed concurrently herewith as part of Exhibit 1012 along with the other Appendices listed herein**. 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 2006, 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.

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 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 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 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 an independent standardisation consultant.

18. For purposes of my analysis in this declaration, I have been informed that a person of ordinary skill in the art ("POSITA") would have had either a Master's degree in electrical engineering or a related field, or a Bachelor's degree in electrical engineering or a related field with three years of experience in wireless communication systems, signal processing, and related technologies. A person with a different degree but with additional relevant experience could still qualify if the additional experience compensates for the different educational background. A person with less than three years of experience working in a field involving wireless communications could still qualify if the person has additional education that compensates for their lesser experience.

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 regular business 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 business 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 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 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 7 (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 7 (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 367 participating Individual Members in December 2000. **Appendix 7**. There were 829 individual members as of January 2025. **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 standardize 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 including, but not limited to, Wi-Fi networks. **Appendix 2** at 32–40; **Appendix 3** at 2.

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 in mobile communications standards setting and refer colleagues involved in the development of such devices to the 3GPP website as a valuable reference.

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, or to the interpretation of specified requirements. 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. In short, the technical output of 3GPP was, and continues to be, well known at 3GPP member companies, even by 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

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 [or] http://www.3gpp.org/ftp/Specs/archive/"). Because the purpose of 3GPP is the 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 9, 11 (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

Groups (WGs). **Appendix 8** at 8, 9; **Appendix 4** at 6; *see also* **Appendix 5** at 11 (3GPP Working Procedures). Two of the TSGs from 1998 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 19 (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

server. **Appendix 10** at 6, 7; **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

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 some of which were adopted as the basis for parts of the Technical Specifications.

30. As I noted above, 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 22. 3GPP would (and still does) periodically freeze a complete set of standards (referred to as a "Release"), and each set would include 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

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 both the 2002 and 2009 timeframes, 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 1. 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 Aspects" (i.e. OFDMA / SC-FDMA). **Appendix 12** at 1. An interested POSITA could narrow down the relevant specifications based on whether the specification applied to only UMTS (*i.e.*, 3G), GSM, or to GSM and 3G

(GSM-only specifications were transferred from ETSI to 3GPP in July 2000). **Appendix 12** at 1. For a specification in the 21–35 series, this could be determined based on the third digit of the specification number, where a "0" indicates that the specification applies to both systems. Specifications outside the 21–35 series in 2002 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. **Appendix 12** at 1. "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 1.

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**. The major version field reflects the stage of the specification, with "0" representing an immature draft and a value of "3" or greater representing a

specification that has been approved by the relevant TSG and thus placed under change control. **Appendix 13**. 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). 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 typographical or formatting issue). **Appendix 13** (link to TR 21.900).

36. I understand that the alleged inventions addressed in the patents addressed by Petitioner relate to cellular telecommunications networks, and more particularly to an OFDMA / SC-FDMA radio access scheme. Any POSITA interested in OFDMA / SC-FDMA radio access 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 documents on the use of SC-0FDMA / OFDM had been under discussion and would be 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. Relevant to this case, the 3GPP process

involved the consideration of temporary documents or "TDocs," which are also 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 Gxmnnzzzz. **Appendix 5** at 16. This general naming convention has been in use since at least 1999 with only minor variations. Within that format, "Gx" referred to the relevant TSG. **Appendix 5** at 16. For example, "R" was used for TSG RAN. **Appendix 5** at 16. Likewise, "m" referred to the relevant Working Group. **Appendix 5** at 16. A document for RAN WG1 would therefore begin with "R1." **Appendix 5** at 16. The two digits "nn" represented the year (*e.g.*,

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

02) and were usually separated from the groups identifier by a hyphen. The digits "zzzz" represented the unique document number. **Appendix 5** at 16. This document number was used as the zipped TDoc's filename stored on the 3GPP file server.

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 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. **Appendix 10** at 10. The documents were uploaded to the public file repository in an area allocated to the particular Working Group, *e.g.*, **Appendix 14** (RAN WG1 homepage with link to WG1'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 members 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. **Appendix 10** at 9.

42. It is my recollection that in both the 2002 and 2009 time frames, 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, the specification numbering, and/or the TDoc's naming convention. The TDocs on the 3GPP website file server were (and remain) organized according to the relevant Working Groups within 3GPP (each of which focused on particular subject matter) and then further organized based on the meetings of those groups. The Technical Specifications and Reports were (and remain) organized according to their subject matter as indicated by their series number and version. 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 both the 2002 and 2009 timeframes, to locate documents from the 3GPP home page, a user could have clicked "Technical Bodies" from the 3GPP home page. The corresponding webpages contained links to the 3GPP's public file repository (*e.g.*, through the "Documents area" link of a Working Group page). **Appendix 15**, **Appendix 14**. To locate specifications, a user could have clicked "Specifications" and followed links as described in section III.D.1 above. 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, and from at least 2015 using the 3GPP search portal (https://portal.3gpp.org/#/), where an interested person could search for documents by title and source, among other things.

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 Specifications. Specifically, an individual could select the relevant TSG (or specification series) covering the subject matter of interest. **Appendix 16**.

45. For example, if the individual were interested in the specifications of 3GPP, they would click "specs." From there, the individual could click on, for example, a particular (dated) collection of the specifications, the latest versions for each release ("latest"), or an archive containing all versions of the specifications ("archive"). **Appendix 17**.

46. For example, 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 RAN Working Group covering the subject matter of interest. **Appendix 18**.

47. Then, if the individual were interested in the Radio Interface Radio

layer 1, the individual would know to choose the folder for WG1. **Appendix 19**. Once a user is in the relevant Working Group folder (RAN WG1 in this example), an individual would see a list of all meetings held by RAN WG1. **Appendix 19**.

48. As shown in **Appendix 19**, a folder existed for each meeting. For example, "TSGR1_28b" corresponded to the TSG RAN WG1 #28bis meeting.

49. 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 WG1 - **Appendix 14**), and from publicly available meeting agendas. See e.g., Agenda link in **Appendix 20**. Many POSITAs received notification of the meeting agenda directly via the 3GPP Working Group email reflector lists. **Appendix 21**. Further, an individual could ascertain what subject matter was addressed at each meeting by reviewing the report issued after each meeting. **Appendix 22**.

50. 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. **Appendix 10** at 10 (3GPP FAQs). This has been the practice regarding uploading documents to the 3GPP file repository since 3GPP was inaugurated, and my personal experience

confirms that the timestamps have always been a reliable way to determine when a file was uploaded to the 3GPP website and immediately available for public download.

51. In my experience, whilst the servers used for 3GPP file repository and many of its directories have been updated since 1999, and directories may as aresult 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.

52. Following each 3GPP meeting, the secretary would usually distribute a draft meeting report or the chairman's notes of the meeting via the corresponding email list,. *E.g.*, **Appendix 23**. Such emails would effectively inform subscribers that the meeting had taken place, would inform subscribers of the documents that had been treated (or not), and in the event that the meeting was a TSG plenary meeting, would serve as notice that new versions of specifications incorporating approved Change Requests, would shortly be made available on the 3GPP public server. Further, an interested member of the public following a certain topic would have known to check said report for related contributions.

IV. 3GPP EXHIBITS

A. EXHIBIT 1006: 3GPP R1-021246 "Proposed Baseline OFDM Systems for Study"

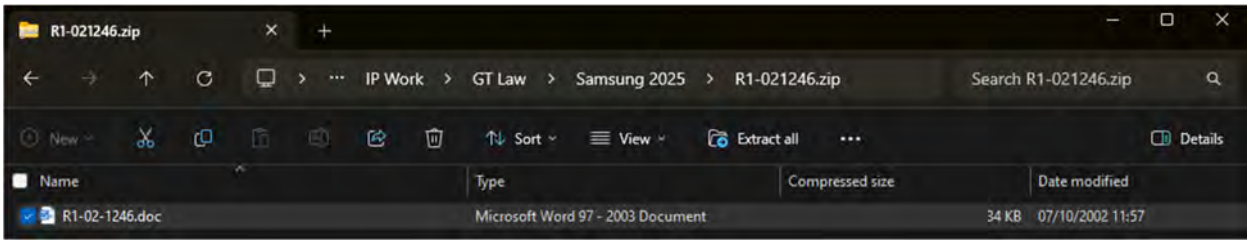
53. R1-021246 is a technical contribution submitted to 3GPP TSG RAN WG1 meeting TSGR1 #28bis, which was held October 8 – 9, 2002. It follows the general naming format ("Gxmnnzzzz") described in paragraph 39. Accordingly, "R1" indicates that the contribution was submitted to RAN WG1, "02" indicates the year (2002) that this technical contribution was submitted, and "1246" is the unique number that was assigned to this contribution document. It is titled " Proposed Baseline OFDM Systems for Study".

54. As I mention in paragraph 41 above, 3GPP meeting documents have always been and were in the 2002 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 R1-021246 on the 3GPP document server in 2002, I navigated to the 3GPP website at http://www.3gpp.org, selected "3GPP Groups" from the drop down menu, and then selected the "RAN1 – Radio Layer 1" from the 3GPP Groups page, and the "Documents area" link to access the public file server where documents for the TSG-RAN Working Group 1 are stored, and from where I navigated to the documents for RAN WG1 #28bis. 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 24 at 2.

R1-021245.zip	2002/10/08 9:34	27,1 KB
R1-021246.zip	2002/10/08 9:34	33,4 KB
R1-021247.zip	2002/10/07 10:32	12,7 KB

55. The Docs directory index stated that R1-021246 was uploaded on "2002/10/08". I selected the link for "R1-021246.zip" and downloaded a zip file of the same name. The zip file contained a Microsoft Word document, "R1-02-1246.doc", with a date stamp of "07/10/2002" (European date format).



56. A true and correct copy of the document within the zip file (R1-021246.zip) is provided as Ex. 1006. Based on my experience, I understand that these date stamps mean that R1-021246.zip was uploaded to 3GPP's publicly available website on October 8, 2002, during the RAN WG1 #28bis 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 8, 2002 and thereafter. The report from RAN WG1 #28bis confirms the availability of R1-021246 at the meeting. **Appendix 22** at 6. In addition, the same Microsoft Word document, R1-02-1246.doc, was distributed in R1-02-

1246.zip to subscribers to the RAN WG1 email list on October 8, 2002. **Appendix 25**. I have no reason to believe that either the date stamp, the report from RAN WG1 #76bis, or the archived email is inaccurate. I have therefore determined that R1-021246 was publicly available on the file server no later than October 8, 2002.

57. Based on the information above, it is my opinion that R1-021246 titled "Proposed Baseline OFDM Systems for Study" and provided as Ex. 1006 was publicly available to download from the 3GPP file server no later than October 8, 2002 and could have been distributed thereafter without restriction.

B. EXHBIT 1056: 3GPP TS 36.211 v8.7.0 "3rd Generation Partnership Project; Technical Specification Group Radio Access Network; Evolved Universal Terrestrial Radio Access (E-UTRA); Physical Channels and Modulation (Release 8)"

58. 3GPP TS 36.211 v8.7.0 is a Technical Specification titled "3rd Generation Partnership Project; Technical Specification Group Radio Access Network; Evolved Universal Terrestrial Radio Access (E-UTRA); Evolved Universal Terrestrial Radio Access (E-UTRA); Physical Channels and Modulation (Release 8)".

59. The date on the face of the specification ("2009-05") corresponds to the year (2009) and month (May) that this version of the specification was approved by 3GPP TSG RAN and subsequently made publicly available.

60. 3GPP TS 36.211 v8.7.0, being an approved version of the Release 8 specification of evolved UTRA physical channels and modulation, was approved by

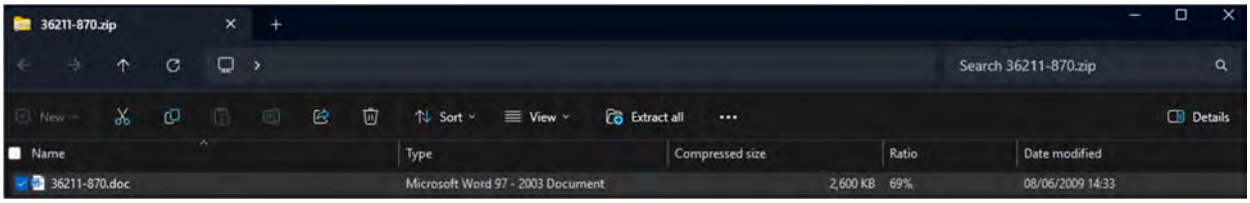
TSG RAN #44 held May 26 – 29, 2009. An interested member of the public would know that the latest version of an approved specification or report would be available following the plenary meeting responsible for that specification (in this case TSG RAN) in accordance with 3GPP standard practice as described in paragraphs 31. The approval of the TS 36.211 v8.7.0 is confirmed by the approval of the Change Requests to TS 36.211 version 8.6.0 documented in the meeting report from TSG RAN #44 (**Appendix 26** at 71).

61. 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 36.211 v8.7.0 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 "36.211" in the specification number search bar, and for the TS 36.211 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 36.211 found at the following URL: https://www.3gpp.org/ftp/Specs/archive/36_series/36.211. 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 27** at 1.

36211-860.zip	2009/03/13 20:51	2582,3 KB
36211-870.zip	2009/06/08 11:33	2599,6 KB
36211-880.zip	2009/09/19 21:49	2578,8 KB

62. The archive directory index stated that TS 36.211 v8.7.0 was uploaded on "2009/06/08". Selecting the link for "36211-870.zip", I downloaded a zip file of the same name. The zip file contained a Microsoft Word document titled "36211-870.doc" with a date stamp of "08/06/2009" (European date format), the day before the zip file was uploaded. An excerpt of the zip file directory is provided below.



63. I have confirmed that the document "36211-870.doc" is TS 36.211 v8.7.0. A true and correct copy of the Microsoft Word document titled "36211-870.doc" is the TS 36.211 v8.7.0 that is provided in Ex. 1056.

64. Based on my experience, I understand these date stamps to mean that 36211-870.zip was uploaded to 3GPP's publicly available website on June 8, 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 June 8, 2009 and

thereafter. I have no reason to believe that either the date stamp or the report from RAN #44 is inaccurate. I have therefore determined that 3GPP TS 36.211 v8.7.0 was publicly available on the file server no later than June 8, 2009.

65. Based on the information above, it is my opinion that 3GPP TS 36.211 v8.7.0 titled "Proposed Baseline OFDM Systems for Study" and provided as Ex. 1056 was publicly available to download from the 3GPP file server no later than June 8, 2009 and could have been distributed thereafter without restriction.

V. CONCLUSION

66. 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 willful 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.

March 31, 2025

Printed Name: Craig Bishop

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
- 28 years experience of 2G/3G/4G/5G 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.

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.
- *Cobblestone Wireless LLC., Plaintiff v. T-Mobile, Inc., et al, Defendants, Nokia of America Corp., Intervenor, Ericsson Inc., Intervenor.,* Case No. 2:22-cv-00477-JRG-RSP (Lead Case), *and Cobblestone Wireless LLC., Plaintiff v. AT&T Inc, et al Defendants, Nokia of America Corp., Intervenor, Ericsson Inc., Intervenor.,* Case No. 2:22-cv-00474-JRG-RSP (Member Case), *and Cobblestone Wireless LLC., Plaintiff v. Verizon Communications Inc, et al Defendants, Nokia of America Corp., Intervenor, Ericsson Inc., Intervenor.,* Case No. 2:22-cv-00478-JRG-RSP (Member Case).
- *Active Wireless Technologies LLC, plaintiff, vs. T-Mobile USA, Inc., T-Mobile US inc. defendants, Ericsson Inc., Nokia of America Corp., Intervenors.* Case No. 2:23-cv-00261-JRG (Lead)

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

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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.

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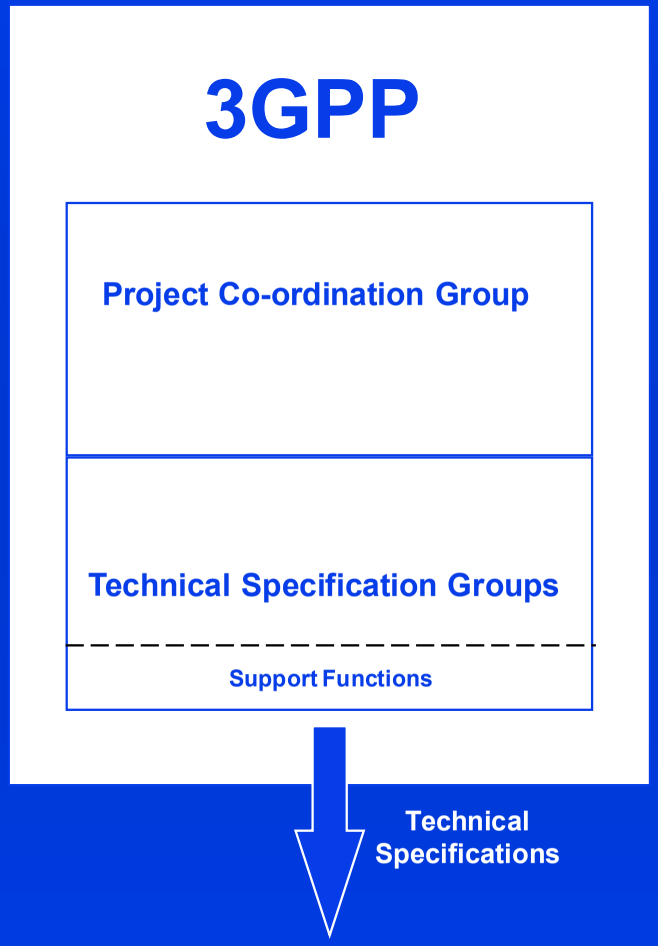
3GPP Overview



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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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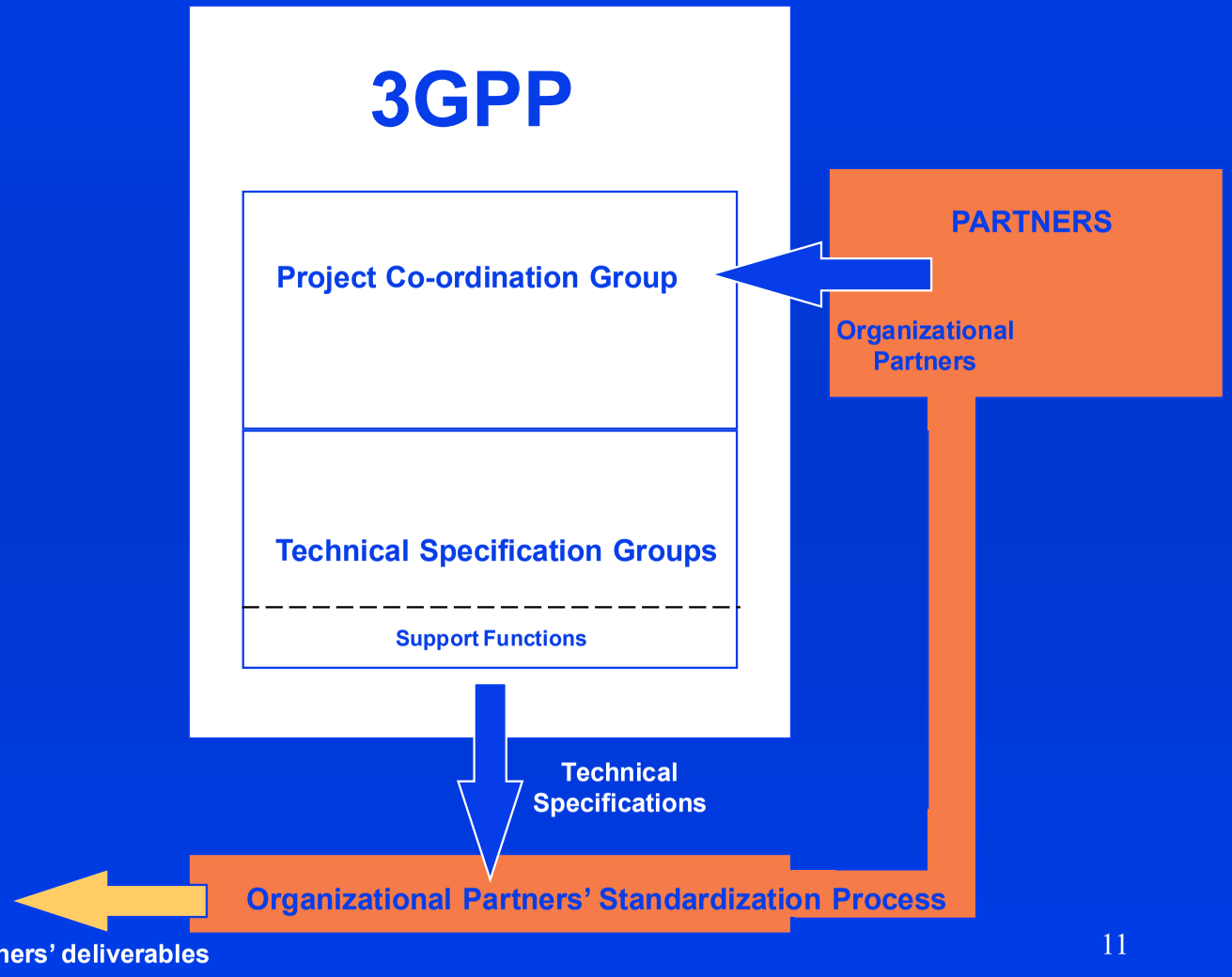
Organizational Partners (1)



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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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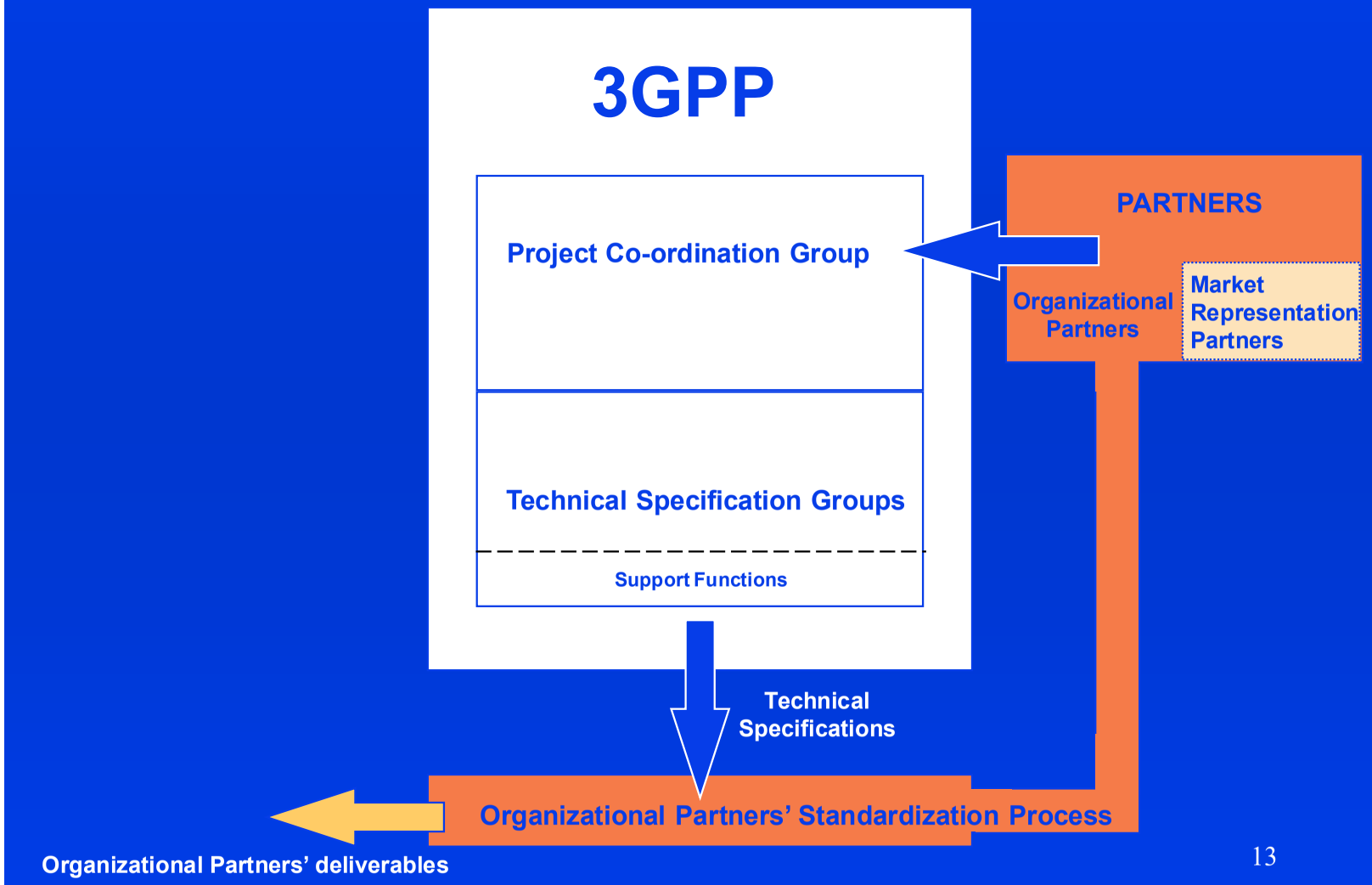
Market Representation Partners (1)



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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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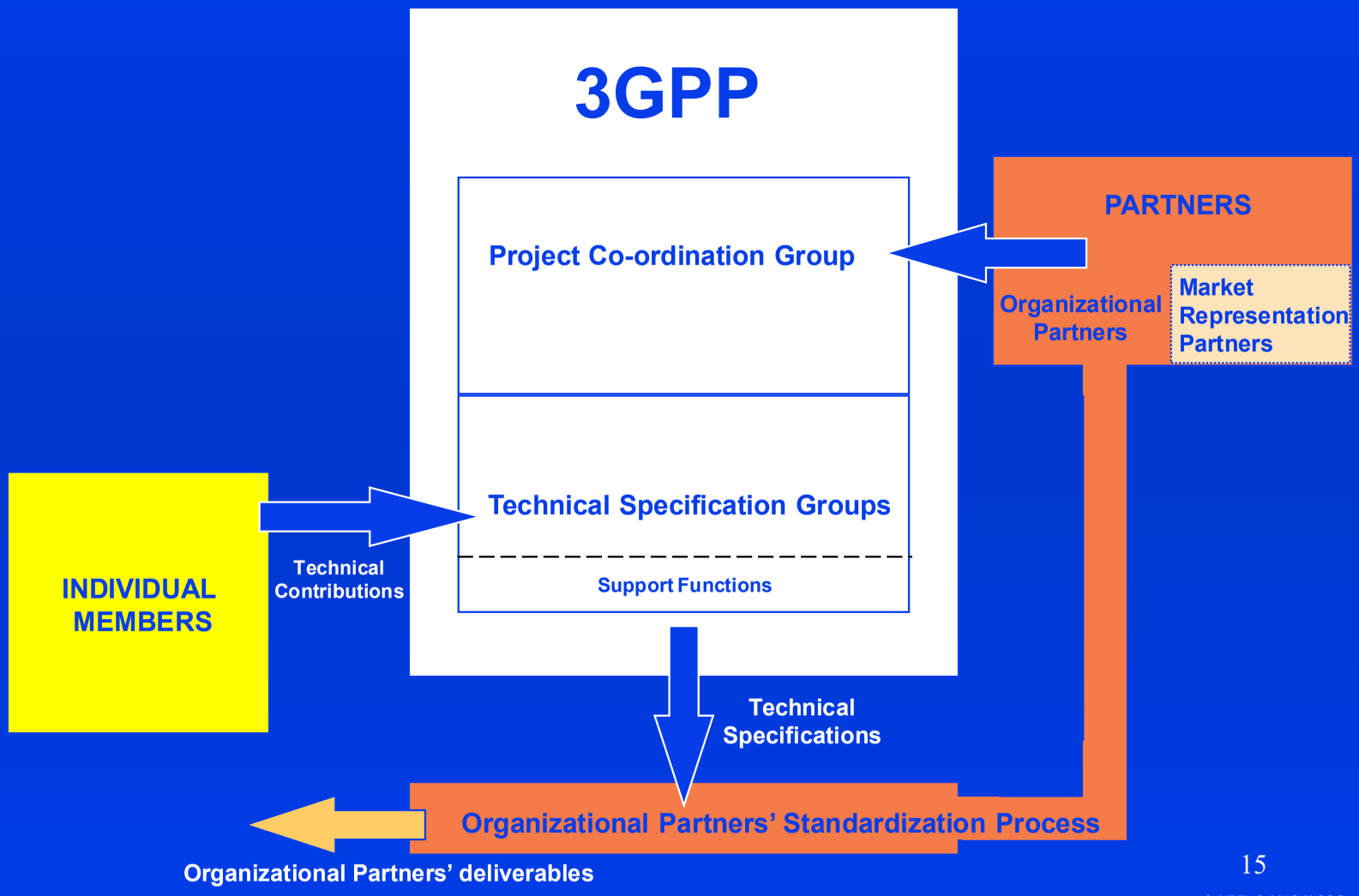
Individual Members (1)



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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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Documentation for 3GPP

The following 3 documents describe 3GPP:

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

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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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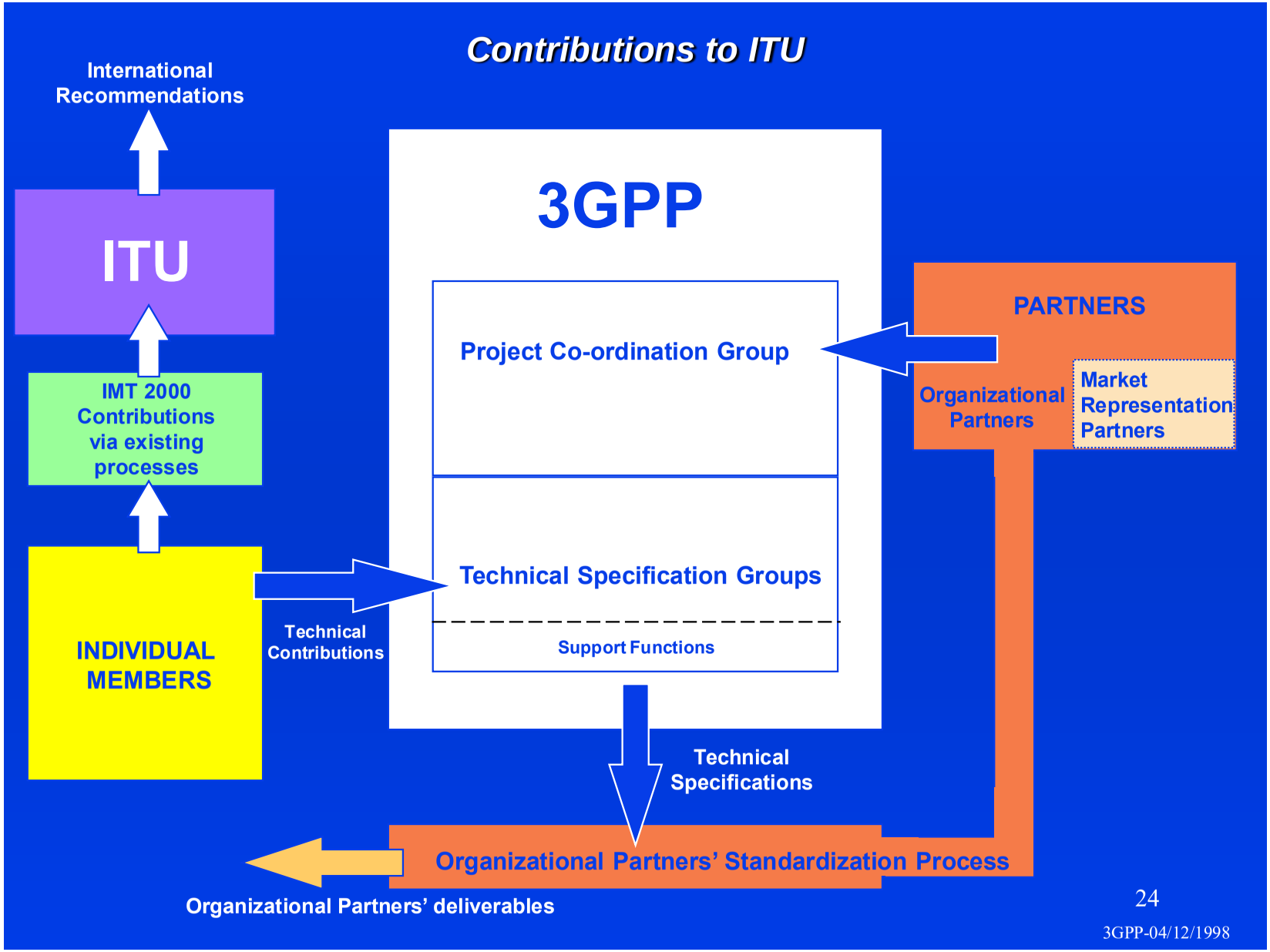
Contributions to ITU
International Recommendations
ITU
IMT 2000 Contributions via existing processes
INDIVIDUAL MEMBERS
Technical Contributions
3GPP
Project Co-ordination Group
Technical Specification Groups
Support Functions
PARTNERS
Organizational Partners
Market Representation Partners
Technical Specifications
Organizational Partners' Standardization Process
Organizational Partners' deliverables
24
3GPP-04/12/1998

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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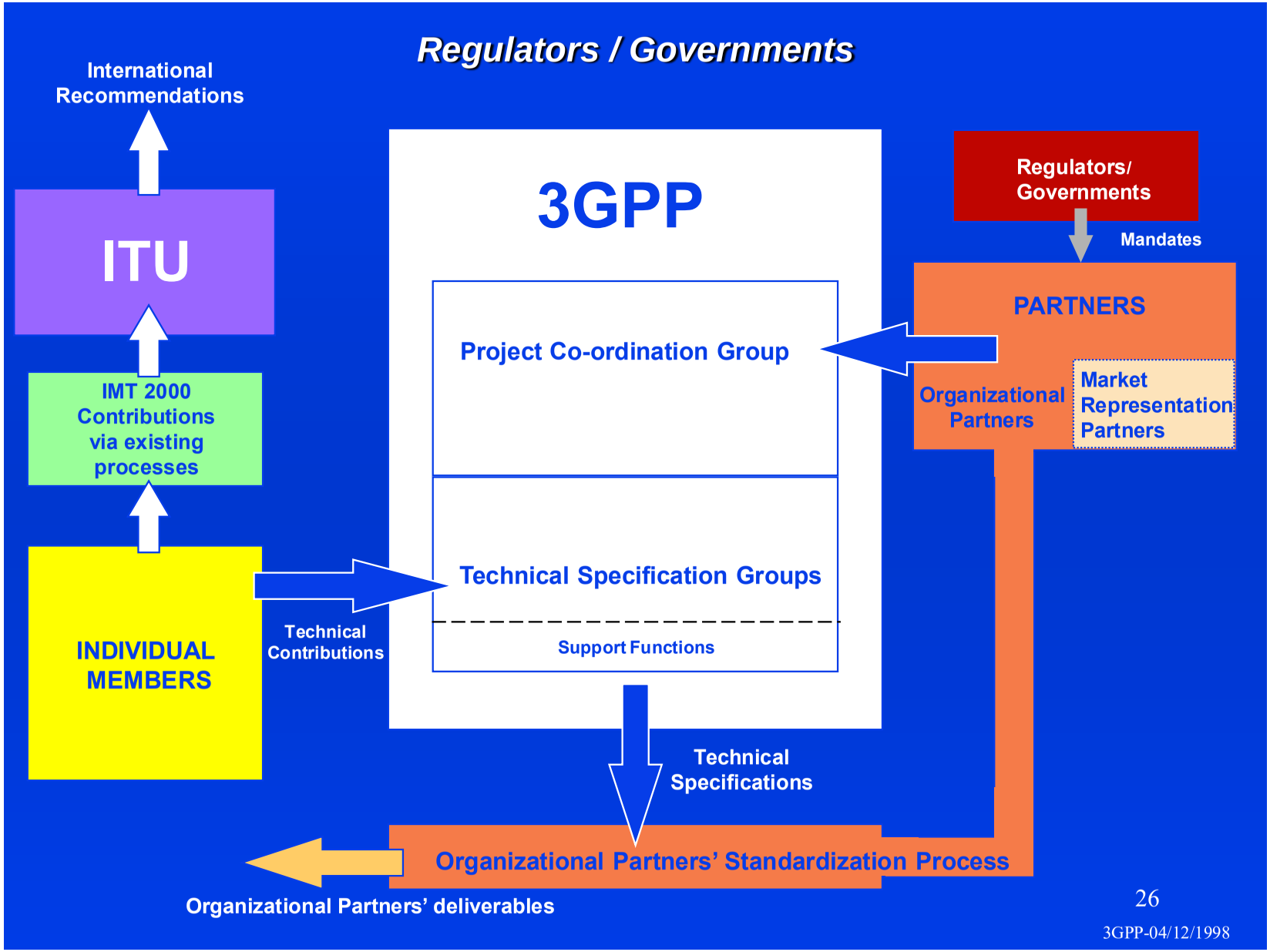
Regulators / Governments
International Recommendations
ITU
IMT 2000 Contributions via existing processes
INDIVIDUAL MEMBERS
Technical Contributions
3GPP
Project Co-ordination Group
Technical Specification Groups
Support Functions
Regulators/ Governments
Mandates
PARTNERS
Organizational Partners
Market Representation Partners
Technical Specifications
Organizational Partners' Standardization Process
Organizational Partners' deliverables
26
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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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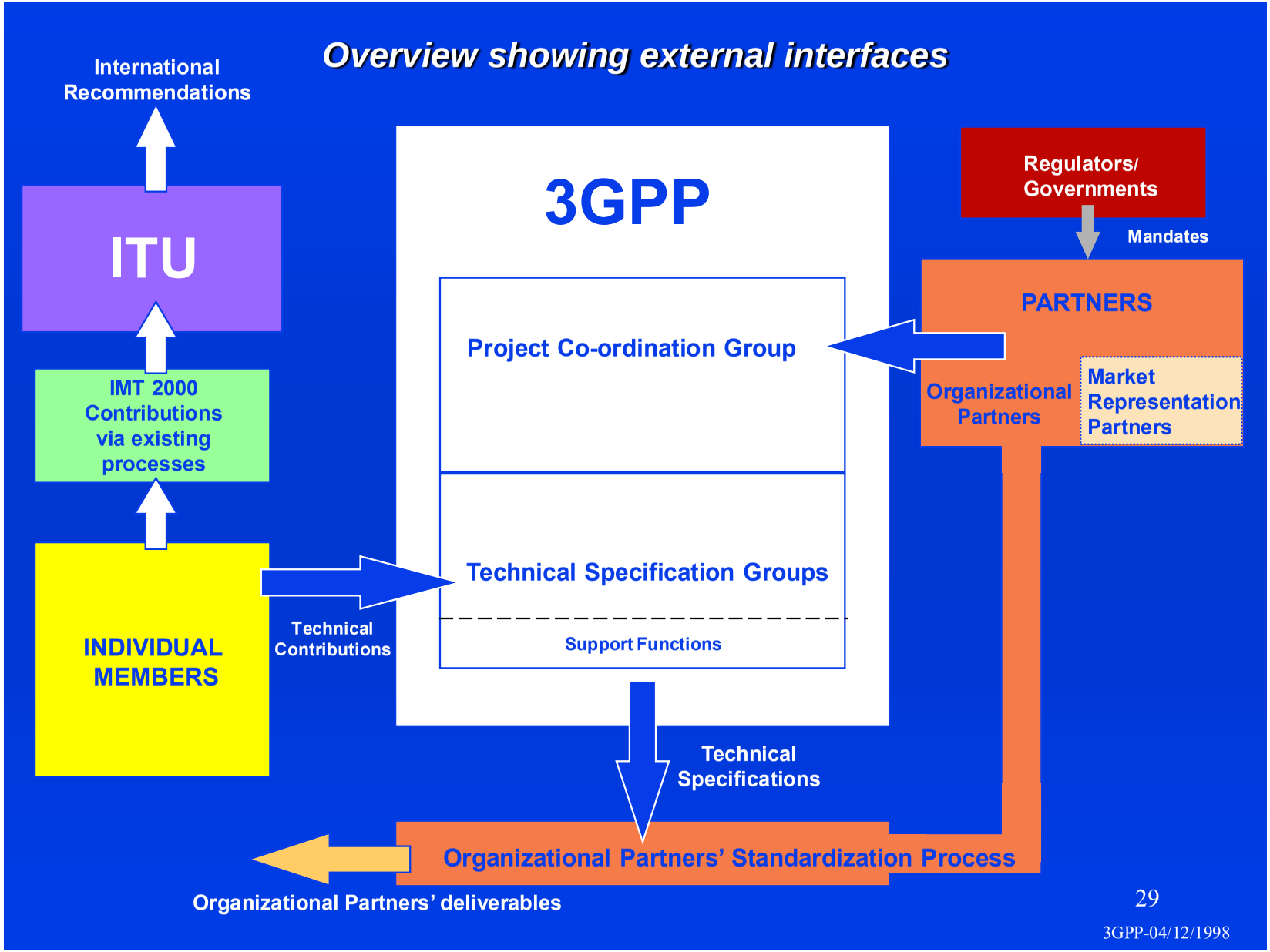
Overview showing external interfaces
International Recommendations
ITU
IMT 2000 Contributions via existing processes
INDIVIDUAL MEMBERS
Technical Contributions
3GPP
Project Co-ordination Group
Technical Specification Groups
Support Functions
Regulators/ Governments
Mandates
PARTNERS
Organizational Partners
Market Representation Partners
Technical Specifications
Organizational Partners' Standardization Process
Organizational Partners' deliverables
29
3GPP-04/12/1998

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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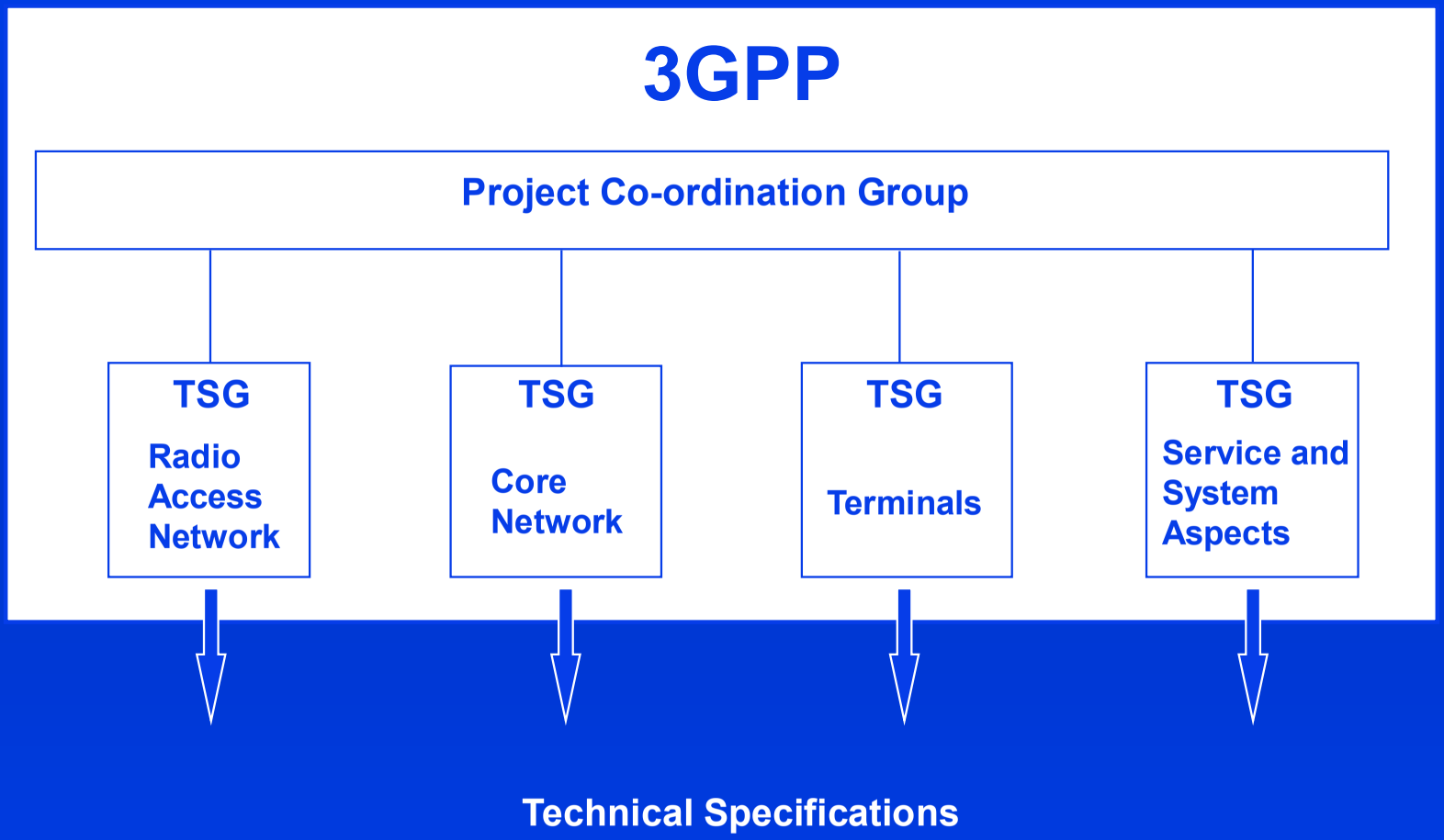
Internal structure of 3GPP (2)



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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	

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.**

About / Introducing 3GPP

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.

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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. 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

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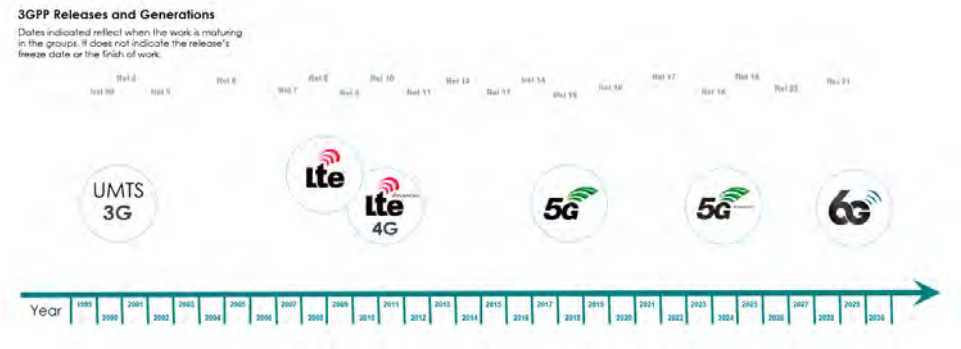
are 'functionality frozen' and are ready for implementation when a Release is completed (see Release dates at https://portal.3gpp.org/ & select 'Releases'). 3GPP works on a number of Releases in parallel, starting future work well in advance of the completion of the current Release. Although this adds 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'.

Quick-start presentation

The Chairs of the three Technical Specification Groups and the 3GPP Work Plan coordinator have prepared a slideset aimed at newcomers to the project

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and those in need of a refresher course on a variety of topics.

The presentation looks at the key areas of: What the 3rd Generation Partnership Project is; What the 3GPP 'Outputs' are; Details on the structure of the groups and How to contribute to the work.

Go to Presentation

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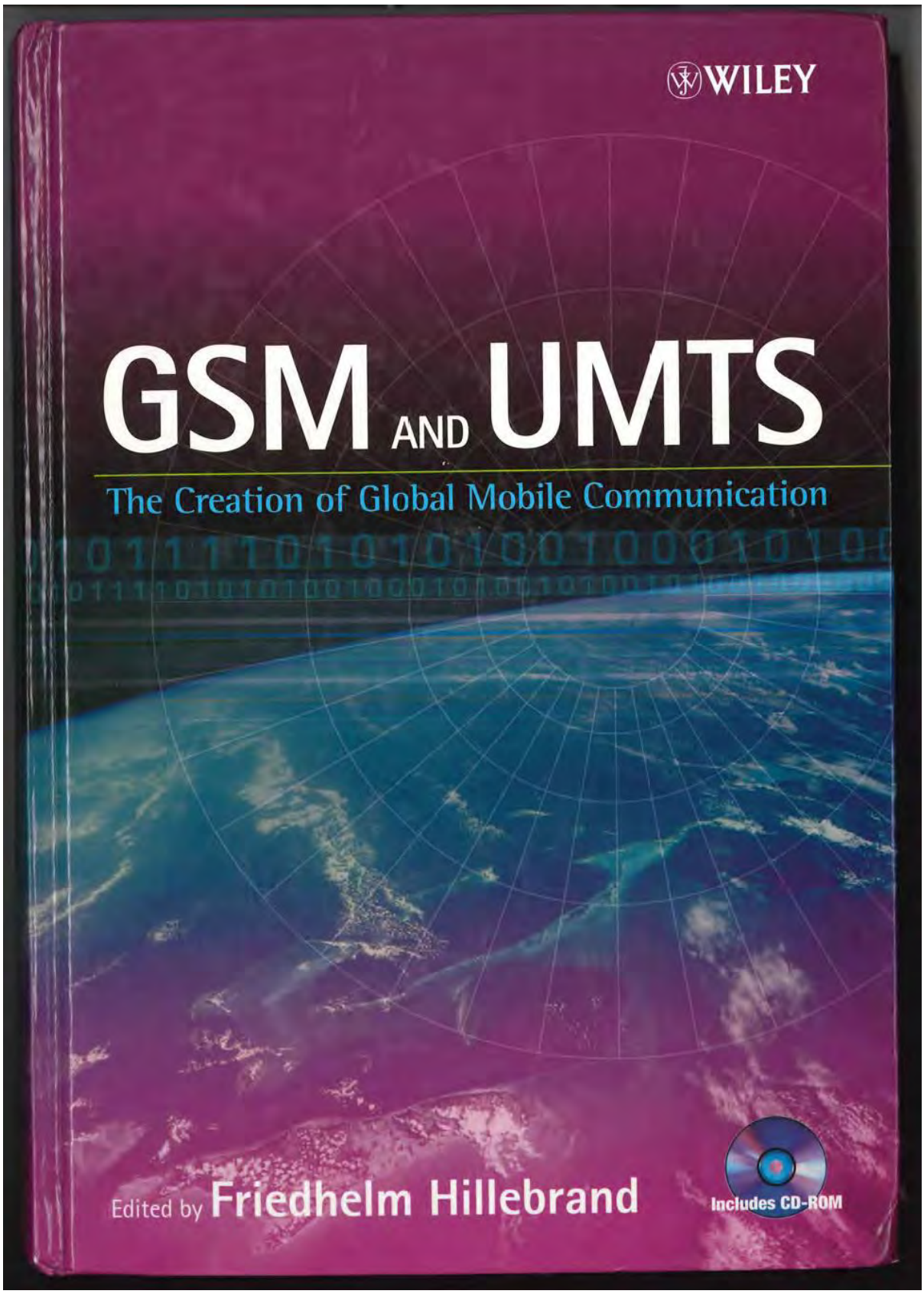

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GSM and UMTS

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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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 company.

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

- 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

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 company.

[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 co-ordinate 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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Third Generation Partnership Project

3GPP

Working Procedures

17 July 2000

Foreword

These Working Procedures of the Third Generation Partnership Project (3GPP) are effective from 17 July 2000.

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)

CWTS (China)

ETSI (Europe)

T1 (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), 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.

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.

?? Observers and 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.

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**.

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: Observership 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 participate in discussions, receive and contribute documents but may 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 participate in discussions, receive and contribute documents but may not take part in decision making 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:

?? Three representatives of each Organizational Partner;

?? Three representatives of each Market Representation Partner;

?? The Chairmen and Vice Chairmen of the TSGs as ex-officio members.

?? One representative of each Observer

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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.

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 and Guests

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

The TSG Chairman and Vice Chairmen, to be proposed to the PCG for appointment, shall be elected by the Technical Specification Group from amongst the Individual Member representatives. Each TSG shall elect a maximum of two Vice Chairmen.

The Working Group Chairman and Vice Chairmen shall be elected by the Working Group from amongst the Individual Member representatives. Each Working Group shall 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 no other candidates are available, the Chairman or Vice Chairmen may be appointed for a further term.Regular TSG elections shall be held every two years in the March time frame in odd numbered years.

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 regularly scheduled meeting of the TSG, and shall be announced in writing, at least 21 days in advance of the meeting.

When a special election is held to fill the office of Chairman, the announcement shall also indicate that there will be an election to fill the position of Vice Chairman in the case where the Vice Chairman may be elected to the office of Chairman. If at the special election the Vice Chairman is elected to the office of Chairman, that individual, to be proposed to the PCG for appointment, shall become Chairman immediately, the position of Vice Chairman shall be assumed vacant, and an election shall be held for the office of Vice Chairman.

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/regular successive elections.

When a new TSG is established, the Organizational Partners shall appoint a convenor for the first two TSG meetings. The initial special election for TSG Chairman and Vice Chairmen shall take place at the second TSG meeting. The elected Chairman and Vice Chairman shall serve until the next regular TSG election. A partial term of office does not count towards the two consecutive term limit. When a new TSG Working Group is established, the TSG shall appoint a Convenor for the first two Working Group meetings. The initial election for Working Group Chairman and Vice Chairmen shall take place at the second Working Group meeting.

If a TSG or Working Group Chairman or Vice Chairman have a change of company affiliation (job change) during their term of office, a new letter of support shall be provided. The decision for the Chair or Vice Chair to continue in office shall be made by consensus of the affected group. If consensus cannot be achieved, an election shall be held for the office.

At the Working Group level the election is for a two year term. At the TSG level the special election is for the unexpired term. A partial term of office does not count towards the two consecutive term limit. If the incumbent is elected, at the TSG or WG level, it is for the unexpired term and that term does count toward the term limit. If the change of affiliation is that of the Chair, he shall select a Vice Chair to determine consensus and if necessary to manage the election. If there is an election, the Vice Chair managing the election should not be a candidate.

Article 23: TSG 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 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.

Recognizing the need to balance the requirement of rapid specification development with the limited resources of participants, 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. 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.

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 an 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 membership list;

?? the result of the vote shall be recorded in the meeting report.

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 everybody on the TSG or WG active participants list.

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 participants.

Article 31: TSG and WG meeting invitation

The invitation to a TSG or WG meeting and the necessary logistical information shall be disseminated at least 21 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 attendee shall register on arrival at each TSG or WG meeting. Each attendee who represents an Individual Member shall declare the precise name of that Individual Member. An attendee may only register to represent one Individual Member. This information shall be used for the preparation of voting forms.

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:

3GPP/TSGx.m#y(nn)-zzz

This numbering system has four logical elements:

1) **3GPP**: to indicate that it is a 3GPP document;
2) **/TSGx**: the name of the TSG;

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

   N (Core Network)

   S (Service and System Aspects)

   T (Terminals)
3) **m** Working Group identity (if required)
4) **#y**: TSG or WG meeting number
5) **(nn)**: to indicate the year, e.g. (99);
6) **zzz**: unique number of the document or its status, etc.

Electronic document files shall follow an 8+3 naming convention as follows:

Gxmnnzzz.ext

This numbering system has four logical elements:

1) **/Gx**: the name of the *TSG* Group;

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

   N (Core Network)

   S (Service and System Aspects)

   T (Terminals)
2) **m** Working Group identity (if required)
3) **nn**: to indicate the year, e.g. (98);
4) **zzz**: unique number of the document or its status, etc.
5) **.ext**: file type extension e.g. pdf, rtf

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.

Article 35: TSG and WG Participant and Membership List

Each TSG and WG shall maintain a list of active participants and voting Individual Members (company or agency). To qualify for either list it is necessary to attend TSG or WG meetings. Participants who are absent from three consecutive meetings of a TSG or WG without justification shall be removed from the active participants list. An Individual Member which is absent from three consecutive meetings of the TSG or WG without justification shall be removed from the

voting membership list. In either case, those removed shall be re-instated after attending one meeting. The right to vote is reinstated at the next (second) meeting attended.

When a new TSG or WG is formed an Individual Member is added to the voting membership list at the first meeting that they are represented, and can vote at the second meeting where they are represented. Exceptionally, if inadequate notice (less than 21 days) is given for the first meeting of the new group, an Individual Member may be added to the voting membership list and vote at the groups second meeting (the election meeting) even if they were not represented at the groups first meeting. Only an Individual Member who was represented at the groups first meeting may provide a proxy for the second meeting.

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

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 and 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. Also, in this case for those only participating by speakerphone they would not be counted toward quorum, attendance or allowed to vote (TSG, WG).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, typically one year. 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 un-resolved 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.

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.

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.

The PCG shall maintain a list, based on proposals received from the TSGs, of external organizations with whom the TSGs and subtending WGs are authorised to liaise directly. External liaisons can not be approved by SWGs or Ad Hoc groups.

The external liaison approval process is described in Annex D.

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.

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

Attendee:	An individual taking part in a TSG/WG meeting physically or by electronic means, if not designated as a face-to-face meeting.
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.
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.
Market Representation Partner:	An 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 the 3GPPOrganizational 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.
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
CDMA	Code Division Multiple Access
CWTS	China Wireless Telecommunications Standards Group
ETSI	European Telecommunications Standards Institute
FDD	Frequency Division Duplex
GSM	Global System for Mobile Communication
IMT-2000	International Mobile Telecommunication
ITU	International Telecommunication Union
PCG	Project Co-ordination Group
SWG	Sub Working Group
T1	Standards Committee T1
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
W-CDMA	Wideband CDMA
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	
CWTS	
ETSI	
T1	
TTA	
TTC	

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

Radio Access Network	
Core Network	
Terminals	
Service and System Aspects	

Signed by (Authorized Representative)	
Print name	
Position	
Date	
Telephone	
Fax	
Email	
Company Web site URL	

Contact persons family name	
Contact persons given name	
Job title	
Mailing address	
Telephone	
Fax	
Email	

ANNEX D: EXTERNAL LIAISON APPROVAL PROCESS

The following process shall be used in order for a TSG to gain approval to liaise with an external organization;

?? TSG Chairman, or Vice Chairman at the Chairmans direction, shall send a request to the PCG Secretary containing the following information:

(a) Name of Organization

(b) Contact information (including URL)

(c) Purpose of the liaison request (brief description)

(d) Urgency of decision-minimum 3 days (e.g. 3 days, 5 days, 2 weeks)

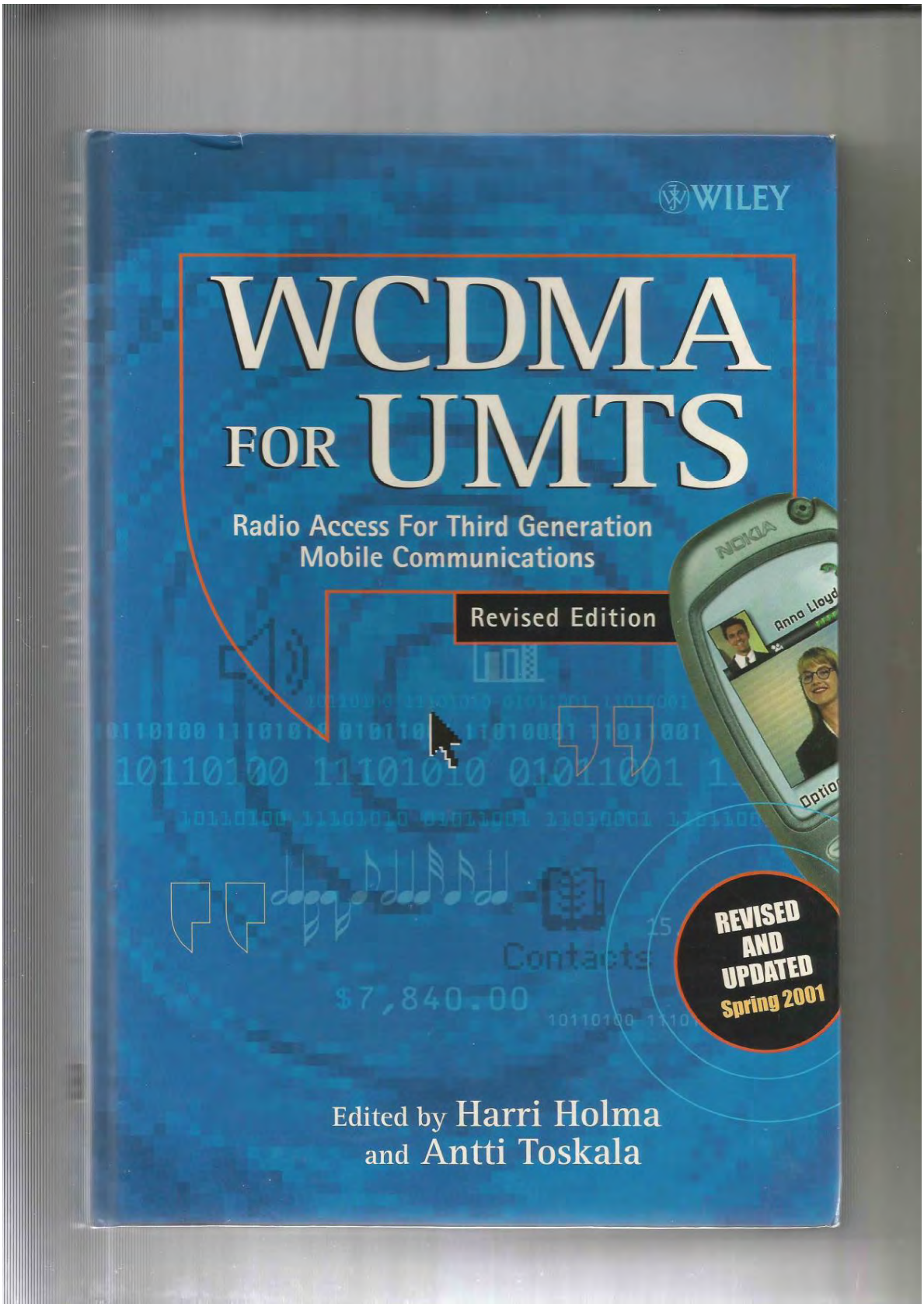
?? PCG Secretary shall send request to the PCG exploder list giving deadline for negative comments

?? Request shall be considered approved unless negative comments received

?? PCG Secretary will inform PCG members and update the web page accordingly

?? A TSG or any subtending Working Group may send individual liaisons to any external organization on that TSGs approved list without further 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, who 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".



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WCDMA FOR UMTS

Radio Access For Third Generation Mobile Communications

Revised edition

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

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in which at least two trees are planted for each one used for paper production.

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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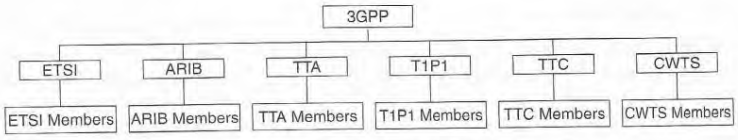

Figure 4.2. 3GPP organisational partners

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.

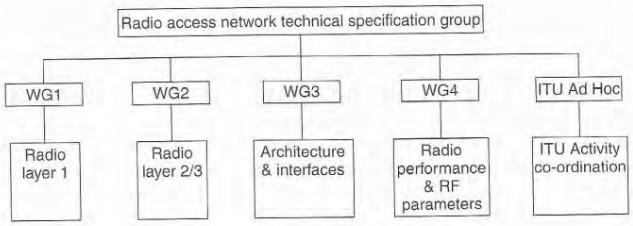

Figure 4.3. 3GPP RAN TSG working groups

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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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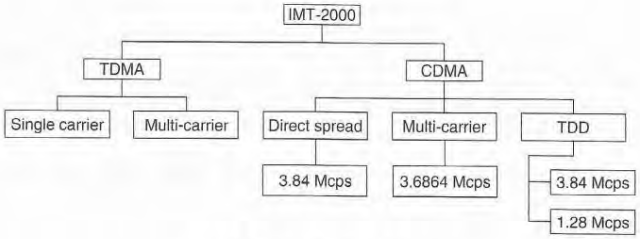

Figure 4.4. ITU-R IMT-2000 grouping

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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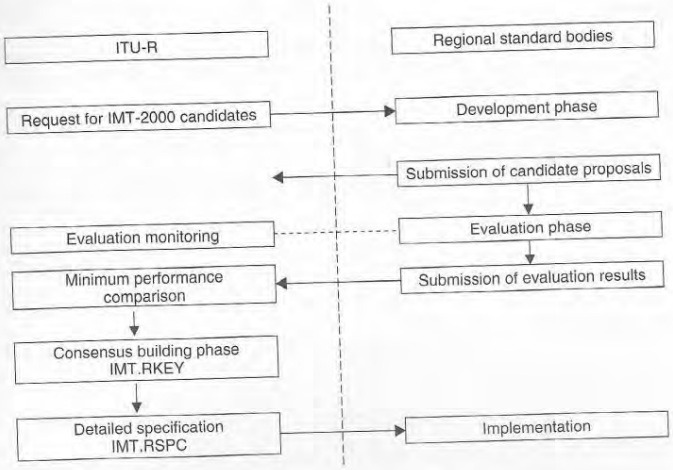

Figure 4.5. Relationship of ITU-R to the regional standards bodies

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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List of 3GPP Individual Members

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Project Coordination Group

Technical Specification Group

Meetings

Participation

List of Individual Members

Documents Area

3G Specifications

Mobile Competence Centre

Organizational Partners : ARIB CWTS ETSI T1 TTA TTC

ARIB

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Yokogawa Electric Corporation

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CWTS

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RITT
SHANG HAI BELL
XOCECO Mobile Communication Equipment Co, LTD
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CCL/ITRI
CCS
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Centre For Wireless Communications
CETECOM GmbH
Cisco Systems Inc.
C-DOT
CMG Telecommunications & Utilities B.V.
COMNEON GmbH & Co
Compagnie Financiere Alcatel
Compaq Computer SpA
Comverse Network Systems (CNS) Europe B.V.
Condat AG
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DEFENCE EVALUATION & RESEARCH AGENCY
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DTI - Department of Trade and Industry
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InterDigital Comm.
InterWAVE Communications International B.V.
Iridium LLC
ITALTEL S.p.A.
KENWOOD ELECTRONICS EUROPE B.V.
KEYCORP Ltd
KPN - Koninklijke PTT Nederland NV
LG Technology Center Europe
LIBERTEL B.V.
LSI Logic Europe plc
Logica Aldiscon
Lucent Technologies BCS & ME GmbH
Lucent Technologies EMEA B.V.
Lucent Technologies Network System GmbH
Lucent Technologies Network Systems UK
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MANNESMANN Mobilfunk GmbH
MARCONI COMMUNICATIONS
MATRA NORTEL COMMUNICATIONS
MATSUSHITA COMMUNICATION INDUSTRIAL UK LTD
MATAV, PKI Telecommunications Development Institute
MATERNA GmbH
Maxon Cellular Systems Denmark
MICROSOFT EUROPE SARL
MIKOM GmbH
MINISTERIO DELLE COMUNICAZIONI
MITEL Semiconductor Ltd
MITSUBISHI Electric France
Microelectronica Espanola SA
Mobile-Mind Inc.
MOBILINK TELECOM, INC.
MOBITEL d.d.
MODEM ART Ltd.
MOTOROLA A/S
MOTOROLA GmbH
MOTOROLA India Electronics Ltd.
MOTOROLA Israel
MOTOROLA Ltd
MOTOROLA SA (France)
MURATA Europe Management GmbH
M@gic4 Ltd
NEC Electronics (Europe) GmbH
National Semiconductor Corp.
NEC Technologies (UK) Ltd
NEC Europe Ltd
NETPLAN A/S
NIIR (Radio Research and Development Institute)
NETCOM GSM A/S
NOKIA UK Ltd
NOKIA Corporation
NOKIA Telecommunications GmbH
NORTEL NETWORKS (EUROPE)
Northstream AB
Norwegian P&T Authority
NTL
NTT DoCoMo Inc.
OFCOM

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Office of Telecommunications
OMNITEL Pronto Italia SpA
ÖFEG - Österreichische Fernmeldetechn. Entwicklungs- Förderungs Gesellschaft
ORANGE PCS LTD
ORGA Kartensysteme GmbH
One 2 One Personal Communications Limited
PA Consulting Services Ltd
PANAFON SA
PANASONIC Deutschland GmbH c/o Matsushita European Technology Center (E-TEC)
PANASONIC Europe
PANASONIC Mobile Communications Development Centre
Parthus Technologies Plc.
PHILIPS Communication Systems
PHILIPS CONSUMER COMMUNICATIONS
PHILIPS Semiconductors
PHILIPS Semiconductors Sophia
Phone.com
PMC-Sierra, Inc
Polkomtel S.A.
Portugal Telecom SA
PRAIRIECOMM Inc.
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QUALCOMM EUROPE S.A.R.L.
Radio Frequency Investigation Ltd
RACAL INSTRUMENTS LTD.
RadioScape Limited
ROBERT BOSCH GmbH
ROHM LSI Systems SAS
ROHDE & SCHWARZ GmbH & Co.KG
Ronin Wireless
RTS Wireless International Ltd.
SAMSUNG Electronics Research Institute
SAGEM Group
Sasken Communication Technologies Ltd.
SCANDEW PTY Ltd
Secretariat d'Etat Industrie
Sema Group Telecoms
Sierra Wireless Inc.
SiGe Microsystems (Europe) Ltd
SiRF Technology
SETEC OY
Sensei Ltd.
SIEMENS AG
SIEMENS ATEA N.V.
Siemens Information and Communication Networks SpA
Siemens Mobile Phones A/S
SOFIMATION OY
Solinet GmbH
SONERA Corporation
SONY Broadcast & Professional Europe
SONY INTERNATIONAL (EUROPE) GmbH
SSH Communication Security
STMicroelectronics S.A.

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Strix Systems
Sun Microsytems, Ltd
SWISSCOM
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Symmetry Communications Systems
SYMBIAN Ltd.
SYNOPSYS GmbH
TDF - Telediffusion De France
Tecnomen Oy
TEKMAR SISTEMI
TEKTRONIX GmbH & Co KG
TELE DANMARK A/S
Telecom Analysis Systems (TAS)
TELECOM ITALIA S.p.A.
TELECOM MODUS LTD
TELECOMMUNICATIONS ADMINISTRATION CENTRE
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TELEFONICA DE ESPAÑA SA
TELEKOM AUSTRIA AG
Telelogic AB
Telenor AS
TELIA AB
TELIT Mobile Terminals S.p.A.
TELIT NETWORKS S.p.A.
TELITAL R&D Denmark A/S
TELLABS Ltd
Telkom SA Ltd
Telrad Networks Ltd.
Texas Instruments France
Texas Instruments A/S
THOMSON-CSF
TNO Physics and Electronics Laboratory
TOSHIBA Electronics Europe
TTP Communications Limited
Unisys Deutschland GmbH
Usha Communications
Ubinetics
ULB-STC
VIAG INTERKOM GmbH & Co
VIP-NET GSM d.o.o.
Victory Telematics Ltd.
VoiceStream Wireless Corporation
VODAFONE AirTouch Plc
WAVECOM
WaterCove Networks Inc.
WIND TELECOMUNICAZIONI SPA
Wintegra Inc.
Wiscom Technologies
Xircom EUROPE N.V.

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T1

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

ADC

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AT&T Corp.
AT&T Wireless Services, Inc.
Alcatel USA Inc.
Bellsouth Cellular
BOPS, Inc.
Catapult Communications
Cisco Systems Inc.
Conexant Systems, Inc.
Ericsson Inc.
Golden Bridge Tech, Inc.
Hewlett-Packard
LayerOne Wireless Technology
Lucent Technologies
Luxxon Corporation
Metawave Communications Corporation
Motorola Inc.
Nokia Telecommunications Inc.
Nortel Networks
OKI America, Inc.
Pacific Bell Wireless
Rogers Wireless Inc.
SBC Communications Inc.
Siemens Information and Communication Networks Inc.
Telcordia Technologies Inc.
VoiceStream Wireless Corporation

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TTA

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

ACCTIMS Corp.
Conexant Systems Korea, Ltd
DACOM Corporation
DAEWOO TELECOM LTD
ERICSSON Korea
ETRI
Hanaro Telecom, Inc
HANSOL PCS
HYUNDAI Electronics Industries Co., Ltd
Jung Myung Telecom Co., Ltd.
KOREA TELECOM Corp.
Korea Telecom Freetel
LG TeleCom., Ltd.
LG Information & Communications, Ltd.
Motorola Electronics & Communications Inc.,
NOKIA KOREA
People & Technology Inc
RADIO RESEARCH LABORATORY
Samsung Electronics Co., Ltd

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Sejung Telecom Co.
Seoul Mobile Telecom
Shinsegi Telecom, Inc
SK Telecom
TELEMANN CO., LTD
Unicon Telecommunication Co., Ltd.

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TTC

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

ANRITSU CORPORATION
CANON, INC.
FUJITSU LIMITED
Hitachi, Ltd.
JAPAN TELECOM CO.,LTD.
Lucent Technologies Japan Ltd.
Matsushita Communication Industrial Co., Ltd.
MITSUBISHI ELECTRIC CORPORATION
NEC Corporation
Nippon Ericsson K.K.
Nippon Telecommunications Consulting Co., Ltd
Nippon Telegraph and Telephone Corporation (NTT)
NOKIA-Japan Co., Ltd
NTT Communication Ware Corporation
NTT Mobile Communications Network Inc. (DoCoMo)
NTT Software Corporation
OKI ELECTRIC IND., Co., LTD
Siemens K.K.

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Last review : 2000-12-14 by 3GPPContact@

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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).

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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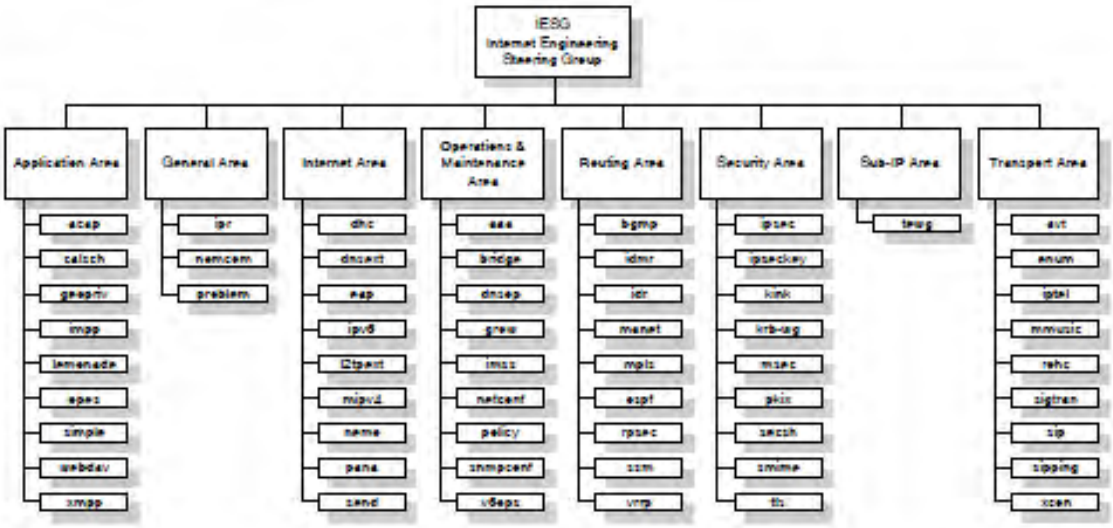

Figure 2.1: The structure of the IETF

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`

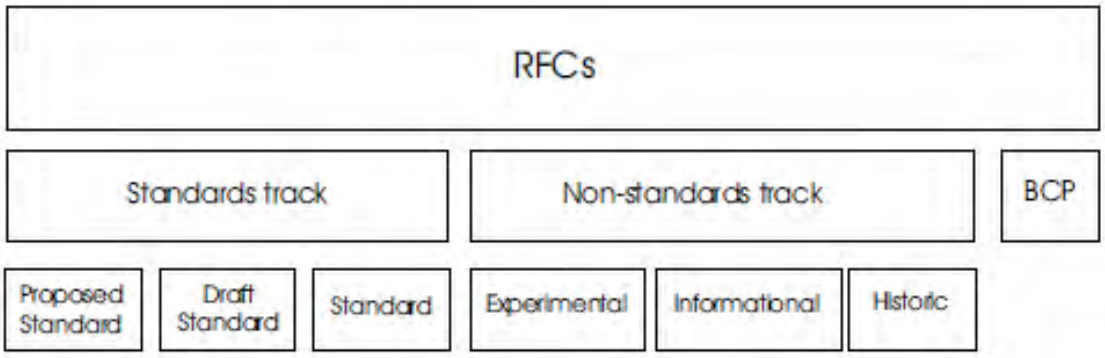

Figure 2.2: RFC types

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.

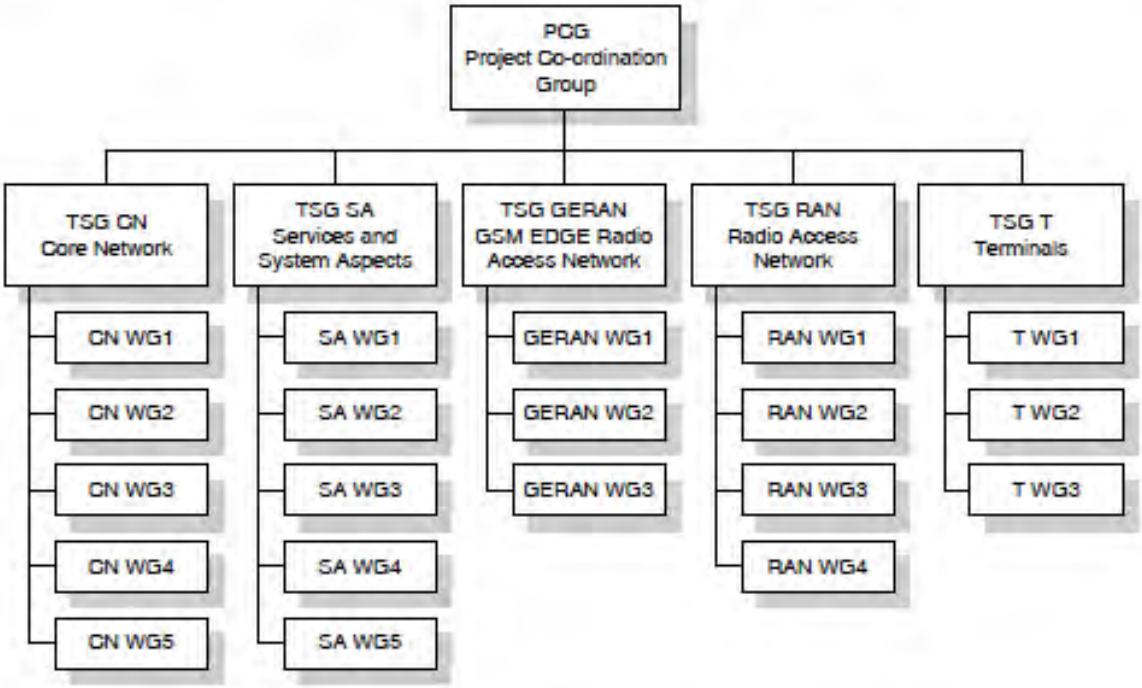

Figure 2.3: The structure of 3GPP

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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2025-01-13

3GPP MEMBERSHIP

Version 1.1

New Query

Selected categories:

- **Individual Members (all partners)**

Choose csv separator : , export to csv file

INDIVIDUAL MEMBERS

Organization	Country	Partner
450connect GmbH (450connect GmbH)	GERMANY	ETSI
A.S.T.R.I.D. SA/NV (A.S.T.R.I.D. SA)	BELGIUM	ETSI
Aalyria (Aalyria Technologies (UK) Limited)	UNITED KINGDOM	ETSI
ABP, NRTA (Academy of Broadcasting Planning, NRTA)	CHINA	CCSA
ABS (Academy of Broadcasting Science, NRTA)	CHINA	CCSA
AccelerComm Ltd (AccelerComm Ltd)	UNITED KINGDOM	ETSI
Accenture (umlaut communications GmbH)	GERMANY	ETSI
Acer Incorporated (Acer Incorporated)	TAIWAN, PROVINCE OF CHINA	ETSI
aconnic (aconnic system Germany GmbH)	GERMANY	ETSI
adare GmbH (adare GmbH)	GERMANY	ETSI
Airbus (Airbus DS SLC)	FRANCE	ETSI
Ajou University (Ajou University)	KOREA (REPUBLIC OF)	TTA
All Connected BV (Rail Connected)	NETHERLANDS	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 (Apple Purchase Operation management)	CHINA	CCSA

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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 **(AsiaInfo Technologies (China), Inc.)**	CHINA	CCSA
AsiaInfo Technologies Inc **(AsiaInfo 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
ASTRUM MOBILE PTE. LTD. **(ASTRUM MOBILE PTE. LTD.)**	SINGAPORE	ETSI
ASUSTEK COMPUTER (SHANGHAI) **(ASUSTEK COMPUTER (SHANGHAI) CO. LTD.)**	CHINA	CCSA
AT&T **(AT&T)**	UNITED STATES	ATIS
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
Australian Signals Directorate **(Australian Signals Directorate)**	AUSTRALIA	ETSI
Axyom.Core **(Axyom.Core Inc)**	UNITED STATES	ETSI
BAE Systems AI Ltd **(BAE Systems Applied Intelligence Limited)**	UNITED KINGDOM	ETSI

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Baicells Technologies Co. Ltd **(Baicells Technologies Co. Ltd)**	CHINA	CCSA
BARADINE **(BARADINE INVEST, S.L.)**	SPAIN	ETSI
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
BNE **(Broadcast Networks Europe)**	BELGIUM	ETSI
BOCRA **(Botswana Communications Regulatory Authority)**	BOTSWANA	ETSI
Boost Mobile Network **(Boost Mobile Network)**	UNITED STATES	ATIS
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

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BTPDI **(Beijing Telecom Planning & Designing Institute Co.,LTD.)**	CHINA	CCSA
BUPT **(Beijing University of Posts and Telecommunications)**	CHINA	CCSA
Bureau Veritas ADT **(Bureau Veritas Consumer Products Services (Hong Kong) Limited, Taoyuan Branch)**	TAIWAN, PROVINCE OF CHINA	ETSI
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
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
China Broadnet **(China Broadnet Mobile Communications Co., Ltd.)**	CHINA	CCSA
China Mobile (Hangzhou) Inf. **(China Mobile (Hangzhou) Information Technology Co., Ltd.)**	CHINA	CCSA

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China Mobile (Suzhou) Software **(China Mobile (Suzhou) Software Technology Co., Ltd.)**	CHINA	CCSA
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 Telecommunications Corp. **(China Telecommunications 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
Comba **(Comba Network Systems Company Limited)**	CHINA	CCSA
Comcast **(Comcast)**	UNITED STATES	ATIS

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Comprion GmbH (Comprion GmbH)	GERMANY	ETSI
Comtech Telecommunications Cor (Comtech Telecommunications Corp)	UNITED STATES	ATIS
Connected (SIMPLYCONNECTED, Lda.)	PORTUGAL	ETSI
Consort Digital (Consort Digital Private Limited)	INDIA	ETSI
Continental Automotive (Continental Automotive Technologies GmbH)	GERMANY	ETSI
Cosmian (Cosmian Tech SAS)	FRANCE	ETSI
CQUPT (Chongqing University of Posts and Telecommunications)	CHINA	CCSA
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
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
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
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 (Agency for Digital Government)	SWEDEN	ETSI
DISA (Defense Information Systems Agency)	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

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Dolby France SAS (Dolby France SAS)	FRANCE	ETSI
Dolby Germany GmbH (Dolby Germany GmbH)	GERMANY	ETSI
Dolby Sweden AB (Dolby Sweden AB)	SWEDEN	ETSI
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 Geo Tech (Elena Geo Tech Private Limited)	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 AB. (Ericsson AB.)	SWEDEN	ATIS
Ericsson Canada Inc. (Ericsson Canada Inc.)	CANADA	ATIS
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 (Ericsson India Private Limited)	INDIA	TSDSI
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 Telecom S.A. de C.V. (Ericsson Telecom S.A. de C.V.)	MEXICO	ATIS

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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-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
Ewha Womans University **(Ewha Womans University)**	KOREA (REPUBLIC OF)	TTA
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
FCC **(Federal Communications Commission)**	UNITED STATES	ATIS
FiberCop **(FiberCop S.p.A.)**	ITALY	ETSI
Fiberhome Technologies Group **(Fiberhome Technologies Group)**	CHINA	CCSA
FirstNet **(FirstNet)**	UNITED STATES	ATIS
FOGUS **(FOGUS INNOVATIONS & SERVICES P.C.)**	GREECE	ETSI
FORCE Technology **(FORCE Technology)**	DENMARK	ETSI
Fraunhofer FOKUS **(Fraunhofer Institute for Open Communication Systems FOKUS)**	GERMANY	ETSI
Fraunhofer HHI **(Fraunhofer Institute for Telecommunications, Heinrich Hertz Institute)**	GERMANY	ETSI

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Fraunhofer IIS **(Fraunhofer Institut für Integrierte Schaltungen IIS)**	GERMANY	ETSI
Frequentis AG **(Frequentis AG)**	AUSTRIA	ETSI
Fudan University **(Fudan University)**	CHINA	CCSA
Fujitsu Limited **(Fujitsu Limited..)**	JAPAN	ARIB
Fujitsu Limited **(Fujitsu Limited.)**	JAPAN	TTC
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
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
Google Korea LLC **(Google Korea LLC)**	KOREA (REPUBLIC OF)	TTA
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
Hanbat National University **(Hanbat National University)**	KOREA (REPUBLIC OF)	TTA
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 **(HiSilicon Technologies Co.Ltd)**	CHINA	CCSA
HISPASAT SA **(HISPASAT SA)**	SPAIN	ETSI
HNNOIX INDIA **(HNNOIX INDIA PRIVATE LIMITED)**	INDIA	TSDSI
HOME OFFICE **(HOME OFFICE)**	UNITED KINGDOM	ETSI
Honor **(Honor Device Co., Ltd)**	CHINA	ETSI

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Honor **(Honor Device Co., Ltd.)**	CHINA	CCSA
Honor Device Beijing **(Beijing Honor Device Co.,Ltd.)**	CHINA	CCSA
Honor Intelligent Tec.Shanghai **(Shanghai Honor Intelligent Technology Development Co.,Ltd.)**	CHINA	CCSA
Honor Machine Shenzhen **(Shenzhen Honor Smart Machine Co.,Ltd.)**	CHINA	CCSA
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
III **(Institute for Information Industry)**	TAIWAN, PROVINCE OF CHINA	ETSI
IIIT Bangalore **(International Institute of Information Technology - Bangalore)**	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 **(Indian Institute of Technology Gandhinagar)**	INDIA	TSDSI
IIT Kanpur **(Indidan Institute of Technology Kanpur)**	INDIA	TSDSI
IIT Ropar **(Indian Institute of Technology Ropar)**	INDIA	TSDSI
IIT, Kharagpur **(IIT, Kharagpur)**	INDIA	TSDSI

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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
Innogle (Innogle Technologies Pvt. Ltd.)	INDIA	TSDSI
Institut Mines-Telecom (Institut Mines-Telecom)	FRANCE	ETSI
Institute VEDECOM (Institute VEDECOM)	FRANCE	ETSI
Intel (Intel)	UNITED STATES	ATIS
Intel China Ltd. (Intel China Ltd.)	CHINA	CCSA
Intel Corporation (UK) Ltd (Intel Corporation (UK) Ltd)	UNITED KINGDOM	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
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 (InterDigital New York)	UNITED STATES	ATIS
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

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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
Khalifa University **(Khalifa University of Science and Technology)**	UNITED ARAB EMIRATES	ETSI
KIPO **(Korean Intellectual Property Office)**	KOREA (REPUBLIC OF)	TTA
Kontron Transportation France **(Kontron Transportation France S.A.S)**	FRANCE	ETSI
Kookmin University **(Kookmin University)**	KOREA (REPUBLIC OF)	TTA
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
Kratos Defense **(Kratos Defense)**	UNITED STATES	ATIS

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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
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
Magister Solutions Ltd **(Magister Solutions Ltd)**	FINLAND	ETSI
Maketh Secure Limited **(Maketh Secure Limited)**	UNITED KINGDOM	ETSI
Marvell Technology, Inc. **(Marvell Technology, Inc.)**	UNITED STATES	ATIS
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

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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 Technology USA Inc. (MediaTek Technology USA Inc.)	UNITED STATES	ATIS
MediaTek UK (MTK Wireless Ltd)	UNITED KINGDOM	ETSI
MediaTek USA (MediaTek USA)	UNITED STATES	ATIS
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 Platforms, Inc - FR (Meta Platforms, Inc - FR)	FRANCE	ETSI
Meta Platforms, Inc - UK (Meta Platforms, Inc - UK)	UNITED KINGDOM	ETSI
Meta USA (Meta USA)	UNITED STATES	ATIS
Microchip Technology, Inc. (Microchip Technology, Inc.)	UNITED STATES	ATIS
Microsoft Ireland (Microsoft Ireland Operations Limited)	IRELAND	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 (Ministry of Transport of the Slovak Republic)	SLOVAKIA	ETSI
MITRE Corporation (MITRE Corporation)	UNITED STATES	ETSI
MITRE-FFRDC (MITRE-FFRDC)	UNITED STATES	ATIS

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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
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 **(Shanghai National Engineering Research Center of Digital Television Co.,Ltd.)**	CHINA	CCSA
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

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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 Americas (Nokia Americas)	UNITED STATES	ATIS
Nokia Belgium (Nokia Bell N.V.)	BELGIUM	ETSI
Nokia Canada (Nokia Canada)	CANADA	ATIS
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 Mexico (Nokia Mexico)	MEXICO	ATIS
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
NPL (National Physical Laboratory Management Ltd)	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 (National Taiwan University)	TAIWAN, PROVINCE OF CHINA	ETSI

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Nubia Technology Co.,Ltd (Nubia 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 Technology (Shenzhen) Co.,Ltd)	CHINA	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
OptimusLogic (OptimusLogic Systems India Private Ltd.)	INDIA	TSDSI
OQTEC (OQ TECHNOLOGY)	LUXEMBOURG	ETSI
Oracle Corporation (Oracle Corporation)	UNITED STATES	ETSI
Orange (Orange)	FRANCE	ETSI
Orange Belgium (Orange Belgium SA)	BELGIUM	ETSI
Orange Romania (Orange Romania)	ROMANIA	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
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
Pantherun (Pantherun Technologies Private Limited)	INDIA	TSDSI
PCCW Global B.V. (PCCW Global B.V.)	FRANCE	ETSI
PCI (Philips (China) Investment Co., Ltd.)	CHINA	CCSA

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Peking University (Peking University)	CHINA	CCSA
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
PKUSZ (Peking university shenzhen graduate school)	CHINA	CCSA
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
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
Purplevine Innovation Co. Ltd (Purplevine Innovation Company Limited)	CHINA	CCSA
QAIG (Quantumstats AI Global Private Limited)	INDIA	TSDSI
Qorvo (Qorvo)	UNITED STATES	ETSI
Qualcomm Atheros, Inc. (Qualcomm Atheros, Inc.)	UNITED STATES	ATIS
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 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 Innovation Center Inc (Qualcomm Innovation Center, Inc.)	UNITED STATES	ATIS
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 (Qualcomm Technologies)	UNITED STATES	ATIS
Qualcomm Technologies Int (Qualcomm Technologies International, Ltd)	UNITED KINGDOM	ETSI

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Qualcomm Technologies Ireland **(QT Technologies Ireland Limited)**	IRELAND	ETSI
Quanray **(Shanghai Quanray Electronics Co., Ltd.)**	CHINA	CCSA
Quectel **(Quectel Wireless Solutions Co., Ltd.)**	CHINA	CCSA
QWCT **(QUALCOMM Wireless Communication Technologies (China) Limited)**	CHINA	CCSA
RadiSys **(RadiSys Inc.)**	CANADA	ETSI
Radix Security GmbH **(Radix Security GmbH)**	GERMANY	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
Realme Shenzhen **(Realme Mobile Telecommunications (Shenzhen) Co., Ltd)**	CHINA	ETSI
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

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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
Scytale Alpha **(Scytale Alpha Pvt Ltd)**	INDIA	TSDSI
SDI Squared **(SDI Squared LLC)**	UNITED STATES	ETSI
Sectra Communications AB **(Sectra Communications AB)**	SWEDEN	ETSI
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

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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
SMOAD **(SMOAD Networks Pvt. ltd.)**	INDIA	TSDSI
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 **(Softil Ltd)**	ISRAEL	ETSI
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
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 **(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
SSST **(Shanghai Spacecom Satellite Technology Ltd.)**	CHINA	CCSA
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
SWISSCOM **(SWISSCOM SA)**	SWITZERLAND	ETSI
SWR **(Südwestrundfunk)**	GERMANY	ETSI
SyncTechno Inc. **(SyncTechno Inc.)**	KOREA (REPUBLIC OF)	TTA

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Syniverse (M/s Syniverse Technologies Services India Pvt. Ltd.)	INDIA	TSDSI
sysmocom (sysmocom - systems for mobile communications GmbH)	GERMANY	ETSI
TA (Tantra Analyst)	UNITED STATES	ETSI
Tait Europe Limited (Tait Europe Limited)	AUSTRIA	ETSI
Tata Elxsi Limited. (Tata Elxsi Limited.)	INDIA	TSDSI
TCL (Shenzhen TCL New Technology Company Ltd.)	CHINA	CCSA
TCS (TATA Consultancy Services)	INDIA	TSDSI
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
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

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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 (Toshiba)	UNITED KINGDOM	ETSI
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
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
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

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UNISOC (UNISOC (Shanghai) Technologies Co., Ltd)	CHINA	CCSA
UNISOC Beijing (Beijing Unisoc Communications Technology Co., Ltd)	CHINA	CCSA
Unumplus (UNUMPLUS LIMITED)	UNITED KINGDOM	ETSI
UPV/EHU (Universidad del País Vasco/Euskal Herriko Unibertsitatea)	SPAIN	ETSI
US Cellular Corporation. (US Cellular Corporation/TDS.)	UNITED STATES	ATIS
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 MOBILE COMMUNICATION IBER (VIVO MOBILE COMMUNICATION IBERIA S.L.)	SPAIN	ETSI
vivo Software Technology (vivo Software Technology (Xi'an) Co., Ltd.)	CHINA	CCSA
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

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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 **(VoiceAge Corporation)**	CANADA	ETSI
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 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

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Zhejiang University **(Zhejiang University)**	CHINA	CCSA
ZITiS **(Central Office for Information Technology in the Security Sector)**	GERMANY	ETSI
Zollkriminalamt (ZKA) **(Zollkriminalamt (ZKA))**	GERMANY	ETSI
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 : 829 Individual Members

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

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The Wayback Machine - https://web.archive.org/web/20130527114611/http://www.3gpp.org/FAQ

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, ATIS, 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 3GPPMembership

Different membership categories?

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

Who may become an observer?

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

7178 unique visitors average per day

Takehiro Nakamura, talks about the Release 12 prioritization process in December 2012, prior to the end of his highly succesful term as RAN Chairman

Four new videos have been uploaded...

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

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 3GPP Working Procedures Article 10). If you like to apply for a Guest status, please complete the on-line 3GPP Application form.

IMPORTANT NOTICE: The online application form for 3GPP Individual membership and 3GPP guest status is under construction, therefore please send any request for membership to 3GPPmembership@etsi.org

No membership fees are requested for Guest applications.

Who can apply for market representative Partnership?

Organisation who have 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 (see also 3GPP Working Procedures, Article 7 and Annex E) .

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.

Can an ETSI Member apply for 3GPP Guest status?

Yes, any ETSI Member who pays 1 or 2 Units of Contribution are eligible for 3GPP Guest status.

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 also "What is the 3GPP IPR Policy", 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.

Are meeting contributions to ETSI TC SMG publically available?

The GSM standardization work was transferred from CEPT to ETSI in 1991. TC SMG was closed at meeting #32 and TC SMG created to continue the work. Like almost all ETSI Technical Committees, participation in TC SMG and its working groups was open to all ETSI member organizations. That is, any bona fide representative of an ETSI member was free to participate. Exceptionally, other individuals could participate **by express invitation of the chairman**. Each meeting report contains a list of participants with their corporate affiliations.

Until the late 1990s, all meeting documents were circulated in paper form. Electronic files started to take over from paper in around 1997. Meeting documents ("TDocs") were distributed by post (later, by fax) in batches prior to the meeting, to those persons registered as regular participants in SMG or the appropriate working group, and many more documents were produced during the course of the meeting itself. Although a provision existed (and still exists) in the context of the IPR Policy for contributors to place restrictions on the distribution of TDocs via a formal notification at the time the document was provided, this was seldom if ever invoked. In the absence of such a condition, all TDocs were free of any restriction on subsequent distribution. Thus no restriction has ever been placed on how meeting participants dispose of the documents subsequent to their distribution before, during, or after the meeting. There were no non-disclosure agreements.

ETSI maintains a paper archive of the SMG TDocs, and bona fide representatives of current ETSI members can, by appointment, make an accompanied search of the archives. This facility extends to members which may not have been members at the time the document was originally produced.

TC-approved versions of ETSI “deliverables” (see ETSI Directives for formal definition of this term) would have been transferred by the support officer of the committee to the secretariat team responsible for publishing ETSI deliverables. That team would have made cosmetic (non-technical) modifications to the draft deliverables before issuing them. Depending on the type of “deliverable”, those documents would have been issued via National Standards Organizations (NSOs) either for immediate publication, or first via either a one-step or two-step national public enquiry and vote process prior to final publication

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by ETSI. In ETSI parlance, “publication” of a deliverable is the final step in the development cycle of a technical standard, and has a precise meaning. That meaning is not “making publically available”, since draft deliverables released for public enquiry or for vote are "publically available" but not yet "published".

If the confidentiality conditions described above had been imposed on a TDoc by its authors, if the text of that TDoc was in due course incorporated into an ETSI "deliverable", then those conditions are regarded as anulled from the date on which the deliverable is published.

Collections of TDocs / meeting reports have from time to time been made available **to ETSI members** in CD or DVD form.

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 contact the ETSI Legal Team.

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 also **What is the 3GPP policy on licensing ?**
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.

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)

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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://pda.etsi.org/pda/queryform.asp . 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://pda.etsi.org/pda/queryform.asp .

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/zArchive/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://webapp.etsi.org/key/queryform.asp .

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

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Look at http://docbox.etsi.org/tech-org/smg/Document/smg/specs/UMTS/3003_320.zip 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/queryform.asp .

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

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-info/0818-CRs.htm

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?

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.

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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.

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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?

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/support/kb/articles/Q245/0/25.ASP
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

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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/support/kb/articles/q241/5/81.asp

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,

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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/electr_equipment/index_en.htm . The harmonized standards are listed at http://ec.europa.eu/enterprise/newapproach/standardization/harmstds/reflist/lvd.html and http://ec.europa.eu/enterprise/newapproach/standardization/harmstds/reflist/emc.html 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/index_en.htm , which also includes a link to the one-stop procedure for "placing on the market" (http://ec.europa.eu/enterprise/rtte/osn.htm). The standards are listed at http://ec.europa.eu/enterprise/newapproach/standardization/harmstds/reflist/radiotte.html .

Further information on EU harmonized standards relevant to telecommunications can be found on the ETSI site at http://www.etsi.eu/WebSite/Standards/Harmonization.aspx , 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 .

Is it possible to determine the date and time of publication of a particular version of a 3GPP document?

1) Meeting contributions (including Change Requests)

Meeting contributions ("TDocs") are uploaded to the public file server shortly before, or during, or shortly after the meeting at which they were discussed (or intended to be discussed). The timestamp of the file can be relied upon as a precise indication of the moment of upload. TDocs created very shortly before or during a meeting may not be uploaded until after the meeting, but will have been made available locally to the participants during the meeting. The timestamp of the Word (or whatever) file within the containing Zip file is a good indication of the earliest moment that the document could have been available. However, some authors will circulate draft or final copies of their TDocs on the relevant group's email exploder some days or even weeks prior to this time. This would be revealed by an examination of the exploder's archive.

2) Technical Specifications and Technical Reports

During the drafting phase (versions lower than 3.0.0), 3GPP TSs and TRs ("Specs") are under the control of their authors ("rapporteurs") and are handled like normal meeting contributions (see above). Revised versions incorporating text agreed by the responsible working group are often made available by the rapporteur via the group's email exploder shortly after the end of the meeting at which such text was discussed. Again, counsultation of the exploder archives can reveal this. Alternatively, a revised draft may be sent directly to the 3GPP Support Team, and it will be uploaded to the public file server (specs archive directory) shortly afterwards. Again, the time stamp of the Zip file can be relied upon to indicate when the upload occurred.

After formal approval by the TSG (versions 3.0.0 or greater), Specs are edited only by the Support Team. The first approved version is based upon the draft version formally approved by the TSG, and thereafter versions are generated whenever Change Requests are approved by the TSG. These versions are made available shortly after the TSG meeting at which such approval occurred. The date (year and month) shown at the top of the Spec's cover page indicates either the date of (the last day of) the meeting, or the month in which the new version was prepared. However a more precise indication of the date of availability can be obtained from the Spec's web page (via the table at http://www.3gpp.org/specification-numbering) where a precise date is shown in the "available" column.

More information on the procedures relating to Spec handing can be found in 3GPP TR 21.900 .

Note that, in accordance with the statement at the foot of the cover page of all 3GPP Specs, 3GPP does not "publish" its Specs per se. Formal publication is the responsibility of the individual Standards Development Organizations which comprise the Organizational Partners of 3GPP. For further information, see http://www.3gpp.org/Official-Publications .

3GPP Plenary Meetings

Full Meeting Calendar

CT, RAN and SA TSG #60 meetings - Oranjestad, Aruba - From 11 to 19 June
GERAN TSG #59 - Sofia, BG - From 26 to 30 August

CT, RAN and SA TSG #61 meetings - Porto, PT - From 3 to 11 September

Releases

About Releases

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Release 6
Release 5
Release 4
Release 1999

Keywords & Acronyms

Browse Technologies

NAS
LTE-Advanced
LTE
HSPA
The Evolved Packet Core
Carrier Aggregation explained
GPRS & EDGE
UMTS
HSPA
W-CDMA

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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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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/20020804154919/http://www.3gpp.org:80/TB/RAN/RAN1/RAN1.htm

TSG RAN WG1 (Radio layer 1)

Overview:

TSG RAN WG1 works on the physical layer of the radio Interface for UE and UTRAN. This includes the specification of the physical channel structures, the mapping of transport channels to physical channels, spreading, modulation, physical layer multiplexing, channel coding and error detection. The physical layer procedures and the measurements provided to upper layers are specified in WG1 as well.

Useful links and information			
Terms of Reference	Next meeting	Meeting calendar	Email exploder lists
Work items	Specifications	Documents area	Contact RAN1 @

List of officials			
Position	**Name / Telephone**	**Company / Partner**	**Elected on**
Chairman	Antti TOSKALA +358 (0) 718030746	Nokia / ETSI	2001-03-01
Vice-Chairman	Masafumi USUDA +81 468-40-3190	NTT DoCoMo / ARIB	2001-03-01
Vice-Chairman	Hyeon Woo LEE +82 31 779 6613	Samsung Electronics / TTA	2001-03-01
Secretary	Shinobu IKEDA +33 4 92 94 42 06 Tsukasa SASAKI +33 4 92 94 43 22	3GPP Support	n/a

Last update: 2nd August 2002 - Partner details added

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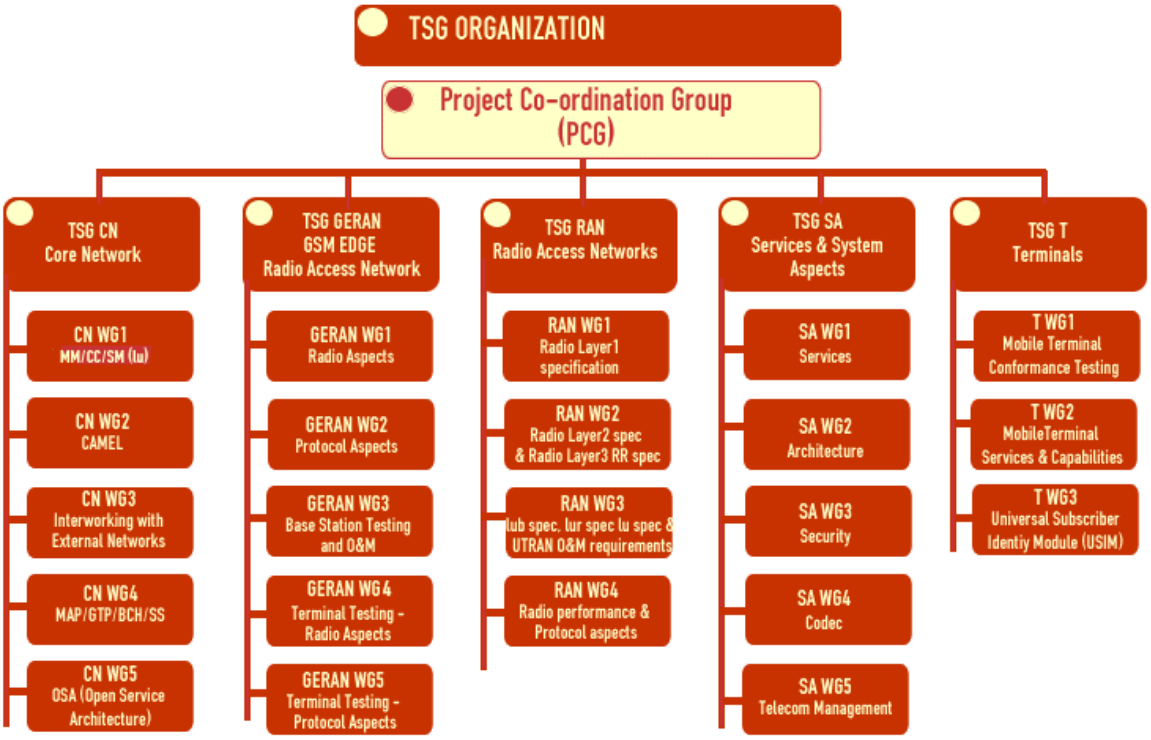

last updated 14th January 2002

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The Wayback Machine - https://web.archive.org/web/20021004065911/http://www.3gpp.org:80/ftp/

www.3gpp.org - /ftp/

[To Parent Directory]

02 October 2002	16:04	<dir>	Inbox
31 July 2002	10:03	<dir>	Information
31 July 2002	10:03	<dir>	Invitation
02 August 2002	13:14	<dir>	Op
02 August 2002	10:11	<dir>	PCG
06 September 2002	08:12	<dir>	Specs
14 March 2001	10:53	<dir>	tsg_cn
10 September 2001	16:02	<dir>	tsg_geran
14 March 2001	11:49	<dir>	tsg_ran
12 August 2002	12:54	<dir>	tsg_sa
14 March 2001	10:14	<dir>	tsg_t
31 July 2002	10:05	<dir>	workshop

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The Wayback Machine - https://web.archive.org/web/20081013132648/http://www.3gpp.org:80/ftp/Specs/…

www.3gpp.org - /ftp/Specs/archive/

[To Parent Directory]

27 May 2003	10:49	<dir>	00_series
02 September 2003	09:24	<dir>	01_series
02 September 2003	09:24	<dir>	02_series
27 January 2005	10:01	<dir>	03_series
19 August 2003	14:57	<dir>	04_series
30 November 2004	12:49	<dir>	05_series
24 August 2001	10:43	<dir>	06_series
23 August 2001	09:54	<dir>	07_series
19 August 2003	15:05	<dir>	08_series
19 August 2003	14:58	<dir>	09_series
23 August 2001	09:59	<dir>	10_series
19 August 2003	15:03	<dir>	11_series
28 August 2002	09:52	<dir>	12_series
06 May 2008	16:24	<dir>	21_series
25 September 2008	09:49	<dir>	22_series
10 October 2008	13:35	<dir>	23_series
25 July 2008	14:18	<dir>	24_series
14 September 2008	14:54	<dir>	25_series
25 August 2008	09:12	<dir>	26_series
02 September 2003	09:45	<dir>	27_series
05 November 2001	08:44	<dir>	28_series
23 September 2008	10:37	<dir>	29_series
05 June 2007	10:21	<dir>	30_series
06 June 2008	16:28	<dir>	31_series
24 July 2008	15:05	<dir>	32_series
14 September 2008	15:01	<dir>	33_series
24 September 2007	17:06	<dir>	34_series
20 March 2006	13:29	<dir>	35_series
18 September 2008	09:45	<dir>	36_series
25 June 2003	09:29	<dir>	41_series
12 September 2001	16:02	<dir>	42_series
22 November 2007	10:58	<dir>	43_series
03 February 2005	09:12	<dir>	44_series
15 September 2005	08:13	<dir>	45_series
10 October 2001	15:22	<dir>	46_series
14 August 2001	08:09	<dir>	47_series
29 August 2008	13:52	<dir>	48_series
22 April 2005	12:52	<dir>	49_series
23 August 2001	10:11	<dir>	50_series
06 October 2006	20:17	<dir>	51_series
15 July 2003	09:08	<dir>	52_series
09 February 2006	09:57	<dir>	55_series
03 September 2001	08:49	87	readme.txt

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The Wayback Machine - https://web.archive.org/web/20021002202823/http://www.3gpp.org:80/ftp/tsg_ran/

www.3gpp.org - /ftp/tsg_ran/

[To Parent Directory]

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                02 June 2002    15:45        <dir> AHG1_ITU_Coord
                15 June 2002    14:29        <dir> TSG_RAN
              02 October 2002    18:05        <dir> WG1_RL1
            30 September 2002    19:51        <dir> WG2_RL2
            20 September 2002    00:34        <dir> WG3_Iu
            23 September 2002    13:01        <dir> WG4_Radio
```

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The Wayback Machine - https://web.archive.org/web/20021225085437/http://www.3gpp.org:80/ftp/tsg_ra…

www.3gpp.org - /ftp/tsg_ran/WG1_RL1/

[To Parent Directory]

21 December 2002	11:43	<dir>	3GPP_3GPP2_SCM
18 December 2002	19:51	171468	CRlist(Dec-18-02).zip
29 November 2002	19:57	<dir>	Input_for_RP_18
27 November 2002	13:37	<dir>	Invitation
28 January 2002	15:05	<dir>	R1_Ad_Hocs
09 January 2001	15:46	107873	R1_Index(1999).zip
30 October 2001	15:35	83160	R1_Index(2000).zip
06 July 2002	16:26	85559	R1_Index(2001).zip
18 December 2002	19:51	97105	R1_Index(2002_as_of_Dec-18-02).zip
24 December 2002	21:43	112872	R1_Index(Dec-24-02).zip
24 September 2002	10:05	<dir>	Temlates
18 April 2001	12:22	<dir>	TRs
14 March 2001	08:59	<dir>	TSGR1_01
14 March 2001	09:01	<dir>	TSGR1_02
14 March 2001	09:02	<dir>	TSGR1_03
14 March 2001	09:04	<dir>	TSGR1_04
14 March 2001	09:06	<dir>	TSGR1_05
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14 March 2001	09:15	<dir>	TSGR1_07
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14 March 2001	09:19	<dir>	TSGR1_08
14 March 2001	09:25	<dir>	TSGR1_09
14 March 2001	09:28	<dir>	TSGR1_10
14 March 2001	09:31	<dir>	TSGR1_11
14 March 2001	09:33	<dir>	TSGR1_12
14 March 2001	09:35	<dir>	TSGR1_13
14 March 2001	09:37	<dir>	TSGR1_14
14 March 2001	09:39	<dir>	TSGR1_15
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18 December 2002	19:54	<dir>	TSGR1_30

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[To Parent Directory]

11 September 2002	14:32	<dir>	Agenda
11 September 2002	14:29	<dir>	Docs
09 September 2002	16:33	<dir>	Invitation
01 October 2002	09:42	<dir>	LS
11 September 2002	14:29	<dir>	Report

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Subject: Draft agenda for TSG RAN WG1#28bis
From: Toskala Antti <[log in to unmask]>
Reply To: [log in to unmask]
Date: Wed, 11 Sep 2002 16:11:26 +0300
Content-Type: multipart/mixed
Parts/Attachments: text/plain (1908 bytes) , R1-021196.doc (31 kB)

Dear Colleagues,

Please find attached draft agenda for the meeting.

I have put topics on the agenda that are either TSG RAN WG1 leadership for Release 6 or that for which indication has been received in reports or in TSG RAN that some work from TSG RAN WG1 is expected. For example it is likely that WG2 provides us some specific questions on MBMS thus I did put that on the agenda. Also WG1 is expected to address the blanking IPDL according to the status report on that aspect in TSG RAN.

The intention is that each topic will have the fixed time slot available, so the times on the agenda are not only indicative, thus a given topic starts latest at the defined time.(It may start slightly earlier however as for some topics there is propably only a few papers) For this meeting this can be done, for TSG RAN WG1#29 this of course is not duable as Release'99/4/5 issues have naturally priority and need to be covered first.

Thus with e.g. 1.28 Mcps TDD inter-frequency stuff will be handled end of Day 1 if we progress faster, if not then it starts as scheduled.

I have not included specific report from TSG RAN, but I added on the agenda the references to the Tdoc for new study items which contain the scope of those. RAN guidance on Rel'99/Rel'4 and Release 5 will be reported to TSG RAN WG1#29. (Do note if preparing Rel-4 CRs for WG1#29 that isolated impact analysis is needed for Release 4 as well)

For new items some more time is reserved as I expect we will discuss first the TR scope/outline etc issue to get the work going.

As usually, please let me know if you have some suggestions or comments.

The meeting invitation was in: ftp://ftp.3gpp.org/TSG_RAN/WG1_RL1/TSGR1_28b/Invitation/
Please also remember to register for the meeting, otherwise there is not enough biscuits for everybody....

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BR: Antti

Antti Toskala
3GPP TSG RAN WG1 Chairman
Nokia Networks
Espoo, Finland

<<R1-021196.doc>>

ATOM RSS1 RSS2

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TSG-RAN WG1 meeting #29 TSGR1-02-1263
Shanghai, China, November 5-8, 2002

Agenda Item: -

Source: TSG-RAN WG1 Secretary

Title: Draft minutes of TSG RAN WG1 #28bis meeting

Document for: Approval

Draft Minutes for 3GPP TSG-RAN WG1 28th-bis Meeting

Meeting start: October 8, 2002 in Espoo, Finland.

Day 1, started at 09.03

1. Opening of the meeting

The chairman, Mr. Antti Toskala (Nokia), opened the meeting.
Mr. Toskala also welcomed the delegates to the meeting on behalf of the host.company, Nokia

2. Approval of agenda

Tdoc #	TITLE	SOURCE	Revised	Conclusion	Date&Time
R1-02-1196	Draft agenda for the TSG RAN WG1#28bis	WG1 chairman		Approved w/o change	2002/10/8 9:15

Chairman made a brief introduction of the agenda on the screen.
In the course of the agenda briefing, the chairman reminded the delegates to observe the IPR Policies of their respective Organisational Partners to inform their respective Organisational Partners of Essential IPRs.

All the contributions including some additional late contributions were assigned to each agenda item. The proponents were encouraged to submit their contributions at earlier time so that such documents become available to all participants at an appropriate time.

Agenda was approved without change..

3. Identification of the incoming liaison statements and actions in the answering

Tdoc #	TITLE	SOURCE	Revised	Conclusion	Date&Time
R1-02-1207	(Cc) LS on UEP/UED Gains for VoIP in GERAN (GP-022744)	TSG-GERAN		noted	2002/10/8 9:16
R1-02-1208	(To) LS on Conversational PS RABs (R2-022683)	TSG-RAN WG2		Postponed to RAN1 #29	2002/10/8 9:18
R1-02-1209	(Cc) Reply to LS on applicability of the RAB configuration used for RLC testing (R2-022685)	TSG-RAN WG2		noted	2002/10/8 9:21
R1-02-1226	(To) LS to RAN1 on Physical Layer aspects of MBMS (R2-022711)	TSG-RAN WG2		Postponed to the next meeting.	2002/10/8 13:45

R1-02-1208: This LS is regarding R99 feature. Considering the main focus of this meeting, which was the Rel-5 and Rel-6 related issues, the work is postponed to the RAN1#29, November 5 through 8, 2992, in Shanghai, China.
R1-02-1226: Agreed to discuss under the agenda item 6 MBMS. During the discussion of MBMS, it was decided to postpone until RAN1#29 in Shanhai.

It was reported that another incoming LS from RAN2 which is **R2-022373** seems to be missing. Later it was presented as **R1-021254** during the discussion of agenda item 10

4. Improvement of Inter-frequency and intersystem measurements

This agenda item was skipped because there were no input documents.

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5. Beamforming Enhancements

Tdoc #	TITLE	SOURCE	Revised	Conclusion	Date&Time
R1-02-1185	Update of SIR measurements in TR 25.887	Ericsson	R1-02-1253	To be included in the revision of TR25.887	2002/10/8 9:29
R1-02-1216	Draft liaison to RAN WG3 and WG4 on Beamforming Enhancement WI status	Nokia	R1-02-1252	Revised to correct some wording	2002/10/8 9:38

R1-02-1185: The discussion was agreed and later, as **R1-02-1253,** the TR25.887 was agreed under agenda item 15. The TR is updated as **R1-02-1260** after this meeting and distributed through the mail reflector.
R1-02-1216: later approved as **R1-02-1252,** It was further reformatted with the latest version of LS template and submitted as **R1-02-1261.**

6. MBMS

Tdoc #	TITLE	SOURCE	Revised	Conclusion	Date&Time
R1-02-1220	MBMS requirements relevant for physical layer	Nokia		Noted as requirements	2002/10/8 9:53
R1-02-1232	Requirement on Physical Layer Features for MBMS Deployment Scenario	NTT DoCoMo		Noted as requirements	2002/10/8 10:01
R1-02-1233	Consideration of Time Diversity Gain for MBMS	NTT DoCoMo		Noted	2002/10/8 10:49
R1-02-1234	MBMS: Evaluation of combining gains for MBMS (incl. STTD)	Qualcomm		Noted	2002/10/8 11:00
R1-02-1235	MBMS: Evaluation of outer code gains for MBMS (incl. SHO & STTD)	Qualcomm		Noted	2002/10/8 11:29
R1-02-1239	MBMS Power Usage	Lucent		Noted	2002/10/8 11:45
R1-02-1240	Power Usage for Mixed FACH and DCH for MBMS	Lucent		Noted	2002/10/8 11:54
R1-02-1224	Power allocation for MBMS	Ericsson		Noted	2002/10/8 12:34
R1-02-1236	MBMS: Buffering requirements associated with improved MBMS reception	Qualcomm		Noted	2002/10/8 13:10
R1-02-1226	(To) LS to RAN1 on Physical Layer aspects of MBMS (R2-022711)	TSG-RAN WG2		Postponed to the next meeting.	2002/10/8 13:45

R1-02-1220 and **R1-02-1232** were requirement discussion papers. and the rest were technical proposal. As a principle, at this meeting, all the proposals were equally reviewed to obtains the idea of “gains and pains” (chairman) and comparison of the proposal was not the objective. For the evaluation of simulation results, it was noted that the understanding simulation assumption is critical.

R1-02-1233: It was commented that RAN2 involvement would be needed for the impact analysis of this proposal.

R1-02-1236: Noted as the first contribution that addressed complexity issue. A comment was made by chairman that we need to pay attention to the UE complexity as well as the network side complexity.

7. TEI6

7.1 TDD power control

Tdoc #	TITLE	SOURCE	Revised	Conclusion	Date&Time
R1-02-1199	Signaling for Improved Downlink Power Control Scheme for 3.84 Mcps TDD	Nokia		Noted	2002/10/8 14:09
R1-02-1228	Further Results on Improved Downlink Power Control for 3.84 Mcps TDD	Nokia		Noted	2002/10/8 14:25
R1-02-1230	Performance of Nokia's downlink power control improvement proposal	IPWireless		Noted	2002/10/8 14:35
R1-02-1249	Clarification for improved down link power control for 3.84mcps	Nokia		Noted	2002/10/8 14:44

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R1-02-1230 and **R1-02-1249**: Chairman suggested off-line discussions to exchange the details of simulation conditions. As a principle, simulations are not required to be based on the same assumptions but to determine the comparability it is useful to clarify what are the different and what are same.

7.2 HSDPA related issues

Tdoc #	TITLE	SOURCE	Revised	Conclusion	Date&Time
R1-02-0906	HSDPA Performance with multiple HARQ transmissions to a UE within a subframe	Lucent		Noted	2002/10/8 14:58
R1-02-0905	Signalling support for multiple simultaneous transmissions to a UE within a subframe	Lucent		Noted	2002/10/8 15:08
R1-02-0904	UE procedures (HS-SCCH) to support HSDPA enhancements	Lucent		Noted	2002/10/8 15:16
R1-02-0908	Fast (MAC-hs) Signalling in HSDPA	Lucent		Noted	2002/10/8 15:19
R1-02-1241	HSDPA work item for R6	Lucent		Noted Chairman to consider How to address Rel'6 HSDPA issues	2002/10/8 15:32

R1-02-1241: Considering the fact that quite a few technical proposals have been submitted toward Rel-6 HSDPA, chairman stated that TEI6 would not be a proper place of progress management for this subject. Chairman will propose some idea of management scheme including creation of WI/SI individual item basis or some sort of umbrella WI, or

7.3 Other issues

Tdoc #	TITLE	SOURCE	Revised	Conclusion	Date&Time
R1-02-0626	Downlink channel information reporting for RRM optimisation	Nortel		Noted	2002/10/8 13:46

R1-02-0626: It was commented by the chairman that the proponent may consider what they want to do next by taking give comments and questions into account.

8. Radio Link Performance Enhancements

Tdoc #	TITLE	SOURCE	Revised	Conclusion	Date&Time
R1-02-1210	Descriptions and performances of eigen-STTD	LG Electronics		Noted	2002/10/8 16:08
R1-02-1160	The performance of R6 TxD in HSDPA (R5) environments	Samsung		Noted	2002/10/8 16:25
R1-02-1211	Eigen-STTD with 4 transmit antenna elements (Eigen-4STTD)	LG Electronics		Noted	2002/10/8 16:36
R1-02-1214	TxAA based closed loop space-time multiuser diversity	Samsung and Seoul National University		Noted without presentation (late distribution)	2002/10/8 16:43
R1-02-1212	Text proposal for Tx diversity channel models in TR 25.869 (Rev 3.0)	LG Electronics		The same model as the SCM ad-hoc will be used and the text proposal will be presented and verified at the next meeting.	2002/10/8 16:44
R1-02-1217	Recommendations on continuing the study on Tx diversity enhancements	Nokia		Noted	2002/10/8 16:53

Chairman commented that the discussion of Tx diversity will continue to the next meeting but further work of Technical Reports should take place. We will need to start generating visible outputcomes.

R1-02-1212: The same model as the SCM ad-hoc will be used and the text proposal will be presented and verified at the next meeting. But wee have to take it into account that UE will have only single RX antenna.

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9. FCS

Tdoc #	TITLE	SOURCE	Revised	Conclusion	Date&Time
R1-02-1247	Fast Cell Selection Alternatives	Lucent		Noted	2002/10/8 17:00
R1-02-1243	HSDPA System Performance with Node-B Controlled Cell Selection	Lucent		Noted	2002/10/8 17:13

Remark from chairman: We have seen several contradictory results from discussions about intra Node-B FCS and should not rush to a conclusion just to make up a Technical Report But we should have a clear indication of go or no go in terms of gain or loss with this feature in our point of view. We also should consider the complexity issue but we haven't seen very detailed discussions about it. We expect some input in these areas in the next meeting.

(Day 1 ended at 17:37)

(Day 2 started at 9:02)

10. Improvement of inter-frequency and inter-system measurement for 1.28 Mcps TDD

Tdoc #	TITLE	SOURCE	Revised	Conclusion	Date&Time
R1-02-1200	Comparison of asymmetric pattern and conventional scheme used for different measurement purpose (Revision of R1-02-1060)	Samsung		Revision will be presented at the next meeting in China.	2002/10/9 9:03
R1-02-1201	Comparison of pattern combination scheme and conventional scheme used for different measurement purpose (Revision of R1-02-1125)	Samsung		Revision will be presented at the next meeting in China.	2002/10/9 9:26
R1-02-1254	(To) LS on Monitoring GSM from 1.28 Mcps TDD	TSG-RAN WG2		The proponent is to consider to raise the switching time issue to RAN4 The response to be determined at the next meeting in China.	2002/10/9 9:36
R1-02-1202	Draft CR for 25.306 (Rel.4) : Correction for successful GSM measurement from 1.28 Mcps TDD	Samsung		Noted without presentation in conjunction with R1-02-1254	2002/10/9 9:52
R1-02-1203	Draft answer LS on monitoring GSM from 1.28 Mcps TDD	Samsung		The same as R1-02-1202	2002/10/9 9:52

R1-02-1200: Some explanation should be given in the section of the simulation assumptions as to the relationship with RAN4 requirements (if any) and the actual values used in the simulation and the reasons.

R1-02-1254: This LS was agreed in RAN2 before RAN1#28, but was not presented as an incoming LS before by unknown reason. After long discussion, RAN1 determined that it is not RAN1 to say what is realistic or whether or not it is appropriate for a UE parameter. The proponent is to consider raising the switching time issue or switching time assumptions to RAN4. And it is up to RAN4 to consider it is a problem and whether or not it is made as a part of RAN4 specs.

R1-02-1202 and **R1-02-1203**: are also noted without presentation because these are related to the LS above.

11. Enhancements to OTDOA positioning using advanced blanking methods

Tdoc #	TITLE	SOURCE	Revised	Conclusion	Date&Time
R1-02-1204	Enhanced OTDOA positioning using Software Blanking, presentation of draft TR25.894	Cambridge Positioning Systems		Noted	2002/10/9 9:54
R1-02-1205	Software Blanking Hearability	Cambridge Positioning Systems		Noted	2002/10/9 10:09

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Tdoc #	TITLE	SOURCE	Revised	Conclusion	Date&Time
R1-02-1206	OTDOA-SB Positioning Accuracy Analysis	Cambridge Positioning Systems		Noted The WG1 focus is identified as the network based method.	2002/10/9 10:34
R1-02-1227	UE Complexity discussion for Software Blanking	Cambridge Positioning Systems		Not presented but interested companies are encouraged to read this and discuss in the next meeting	2002/10/9 10:45

WG1 to address this as reported in Tdoc RP-020563

12. OFDM

Tdoc #	TITLE	SOURCE	Revised	Conclusion	Date&Time
R1-02-1024	Revised draft TR on Feasibility Study for analysis of OFDM for UTRAN enhancement	Nortel	R1-021257	Noted and will be revised taking comments into account	2002/10/9 11:15
R1-02-1223	PPT presentation of the previous paper (revision of R1-021184)	Nortel		Noted. Several discussion subjects are identified.	2002/10/9 11:48
R1-02-1222	Reference OFDM physical layer configuration (revision of R1-021028)	Nortel		Noted	2002/10/9 12:20
R1-02-1221	OFDM physical layer parameters compatible with WCDMA	Huawei			2002/10/9 12:30
R1-02-1029	Introduction and benefits of OFDM	Nortel		Considered to be covered by 1223	2002/10/9 12:41
R1-02-1256	Advantages of using OFDM for enhancing UTRAN (revision of R1-021229)	Wavecom, France Telecom		Noted	2002/10/9 12:42
R1-02-1229	Advantages of using OFDM for enhancing UTRAN	Wavecom, France Telecom	R1-02-1256	Not presented	
R1-02-1245	Frequency scheduling and joint power and rate optimization for HSDPA using OFDMA	Lucent		Skipped due to limited availability	

R1-02-1024: has been revised and distributed as **R1-021257** before the RAN1#29 meeting in Shanghai.

13. Uplink Enhancements for Dedicated Transport Channels

Tdoc #	TITLE	SOURCE	Revised	Conclusion	Date&Time
R1-02-1218	Enhanced Uplink for UTRA FDD (TR draft)	Nokia	R1-02-1259	Noted and will be revised taking comments into account	2002/10/9 13:45
R1-02-1219	Issues to be studied for Enhanced Uplink DCH	Nokia		Noted	2002/10/9 14:13
R1-02-1225	Some aspects of uplink enhancements for dedicated channels	Ericsson		Noted	2002/10/9 14:35
R1-02-1250	Uplink Enhancements for Dedicated Transport Channels	Motorola		Noted	2002/10/9 14:47
R1-02-1237	UL Enhancements: high level considerations	Qualcomm		Noted	2002/10/9 14:55
R1-02-1244	Uplink Enhancements for Dedicated Transport Channels - Concepts and Fundamentals	Lucent		Noted	2002/10/9 15:02
R1-02-1251	3GPP Uplink Reference model	Motorola		Noted. A wish was expressed to reduce the number of parameters.	2002/10/9 15:09

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14. Analysis of higher chip rates for UTRAN evolution (TDD)

Tdoc #	TITLE	SOURCE	Revised	Conclusion	Date&Time
R1-02-1231	Draft TR: Analysis of higher chip rates for UTRA TDD evolution	IPWireless	R1-02-1258	Noted and will be revised taking comments into account	2002/10/9 15:49

R1-02-1231: was already revised after the meeting and distributed as **R1-02-1258** before the next meeting in Shanghai.

15. Postponed issue from the meeting (revised TRs etc.)

Tdoc #	TITLE	SOURCE	Revised	Conclusion	Date&Time
R1-02-1253	TR 25.887 V1.2.0 Beamforming Enhancements (Release 6)	Nokia	R1-02-1260	Cpntents Approved: To be revised as 1260 to remove revision marks	2002/10/9 16:23
R1-02-1215	On Variable Rate CQI Feedback	Mitsubishi Electric, Lucent Technologies		Noted	2002/10/9 16:40
R1-02-1246	Proposed Baseline OFDM System for Study	Lucent		Noted. Further discussion would be needed about sampling rate etc.	2002/10/9 16:26
R1-02-1255	Code limitation and code reuse in HSDPA (revision of R1-021238)	Lucent		Presentation was substituted by 1238 and postponed to the next meeting	2002/10/9 16:49
R1-02-1238	Code limitation and code reuse in HSDPA	Lucent		Presented. Questions and comments at next meeting	2002/10/9 16:49

R1-02-1255: was already revised after the meeting and distributed as **R1-02-1260** before the next meeting in Shanghai.

16. Outgoing LSs approval

Tdoc #	TITLE	SOURCE	Revised	Conclusion	Date&Time
R1-02-1252	Draft LS on beamforming enhancement WI (Revision of R1-021216)	Nokia	R1-02-1261	Approved: to be sent out as 1261	2002/10/9 16:37

R1-02-1252: was already revised after the meeting and distributed as **R1-02-1261** before the next meeting in Shanghai.

17. TSG RAN WG1 meeting schedule in year 2000 -2003(Tentative)

Meeting	Year	Month	Date	Location	Hosts
RAN WG1 #18	2001	January	15-18	Boston, U.S.A.	North American Friends of 3GPP
RAN WG1 #19	2001	February	27 – March 2	Las Vegas, U.S.A.	Motorola
RAN #11	2001	March	13-16	Palm Springs, CA U.S.A.	North American Friends of 3GPP
HSDPA Ad Hoc	2001	April	5-6	Sophia Antipolis with R2	ETSI
RAN WG1 #20	2001	May	21-25 (**5days**)	Pusan, Korea withR2,3	Samsung
RAN #12	2001	June	12-15	Stockholm, Sweden	Ericsson
Rel-5 Ad Hoc	2001	June	26-28	Espoo, Finland	Nokia
RAN WG1 #21	2001	August	27-31(**5days**)	Turin, Italy	TiLab
RAN #13	2001	September	18-21	Beijing, China	Lucent, CWTS

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Meeting	Year	Month	Date	Location	Hosts
HSDPA Ad Hoc	2001	November	5-7	Sophia Antipolis, France	ETSI
RAN WG1 #22	2001	November	19-23(**5days**)	Jeju, Korea	Samsung
RAN #14	2001	December	11-14	Kyoto, Japan	ARIB, TTC
RAN WG1 #23	2002	January	8-11	Espoo, Finland	Nokia
WG/WG2 R99 AH	2002	February	5-6	Sophia Antipolis, France	ETSI
RAN WG1 #24	2002	February	18-22(**5days**)	Orlando, Florida, U.S.A.	Motorola
RAN #15	2002	March	5-8	Jeju, Korea	TTA
RAN WG1 #25	2002	April	9-12	Paris, France	Nortel Networks
RAN WG1 #26	2002	May	13-16	Gyeongju, Korea	Samsung
RAN #16	2002	June	4-7	Marco Island, FL, U.S.A	Motorola
RAN WG1 #27	2002	July	2-5	Oulu, Finland	Nokia, Sonera, TAC Finland, Elisa Communications, Finnet
RAN WG1 #28	2002	August	19-22	Seattle, WA, U.S.A.	North American Friends of 3GPP
RAN #17	2002	September	3-6	Biarritz, France	Alcatel
RAN WG1 #28bis	2002	October	8-9	Espoo, Finland	Nokia
RAN WG1 #29	2002	November	5-8	T.B.D., China	Samsung
RAN #18	2002	December	3-6	New Orleans, LA, USA	North American Friends of 3GPP
RAN WG1 #30	2003	January	7-10 (Tentative)	San Diego, CA, USA	Qualcomm
RAN WG1 #31	2003	February	**18-21 (Tentative)**	**Tokyo**, Japan	NTT DoCoMo
RAN WG1 #32	**2003**	**April**	**7-11**	**Seoul, Korea**	**Samsung**
RAN WG1 #33	**2003**	**May**	**19-23**	**Paris, France**	**EF3**

Ad Hoc References

AH31 = 1.28 Mcps TDD UE positioning & Node B synch
AH32 = HSDPA General
AH33 = HSDPA UE capability
AH34 = DSCH hard split mode
AH35 = Interfrequency and intersystem measurements (e.g. compressed mode)
AH36 = MIMO and TX diversity issues, including channel models
AH38 = Beamforming
AH40 = Release 4 issues
AH50 = Release 5 issues
AH99 = Release -99 issues

18. Any Other Business

Chairman encouraged the delegates to apply new tdoc numbers for documents that are carried over to the next meeting, even if the documents are not presented or viewed at all at the previous meetings. This is to make document tracking easier.

19. Closing of the meeting

The chairman announced the end of meeting at 17:12 October 9th,2002.

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Annex A. The Participants List

Name	Organization represented	Status, partner	Ctry	Phone	Email	Attend.
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Dr. Torgny Palenius	Nippon Ericsson K.K.	3GPPMEMBER (ARIB)	SE	+46 46 193837	torgny.palenius@emp.ericsson.se	YES
Mr. Masafumi Usuda	NTT DoCoMo Inc.	3GPPMEMBER (ARIB)	JP	+81 468-40-3190	usuda@wsp.yrp.nttdocomo.co.jp	YES
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3GPP_TSG_RAN_WG1 Archives
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Content-Type: multipart/mixed
Parts/Attachments: text/plain (456 bytes) , R1-021263.zip (82 kB)

Dear RAN1 colleagues,

Attached please find the first draft of RAN1 #28bis meeting minutes,

Very sorry for this late submission. Comments are welcome. Please note that this minutes are intended to be (very) brief.

Best regards,

SASAKI, Tsukasa
Mobile Competence Centre - ETSI
[log in to unmask]
([log in to unmask] *)
Voice: +33 4 92 94 42 06 <- **
Fax : +33 4 92 38 49 14
* old but still works until sometime in next year
** effective on 8 October, 2002

ATOM RSS1 RSS2

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69 items.

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Subject: More contributions from Lucent
From: "Hassan, Rizwan (Rizwan)" <[log in to unmask]>
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Dear Colleagues,

Please find some more contributions from Lucent:

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R1-02-1245 Frequency scheduling and joint power and rate optimization for HSDPA using OFDMA Lucent
R1-02-1246 Proposed Baseline OFDM System for Study Lucent

Regards,
Rizwan

ATOM RSS1 RSS2

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Title:	**Minutes (V5.0.0) of the 44th 3GPP TSG RAN meeting (Aruba, Netherlands, 26 - 29 May 2009)**
Document for:	**DRAFT VERSION**
TDoc No:	**RP-090670**
Source:	**Stefania Sesia**

LEGEND:

NEW TR/TS
REMINDER

June 1st 2009

Stefania Sesia
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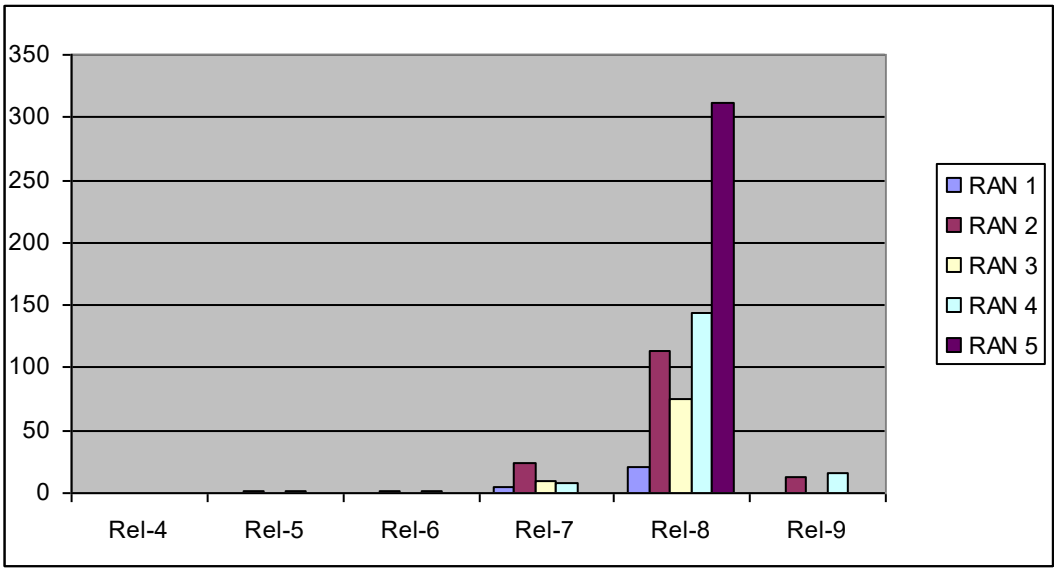
Executive summary

REMINDER FOR RAN 44 Meeting (from RAN#43 meeting Report):
Note that document RP-090356 has to be sent out after the next meeting.
RP-090356 Reply LS to ITU-R working party 5D on the revision 9 of recommendation ITU-R M.1457 for sections 5.1 and 5.3 (AT&T)

Change Requests

The following table and graphic list the approved **non-category A** CRs by Working Group and Release :

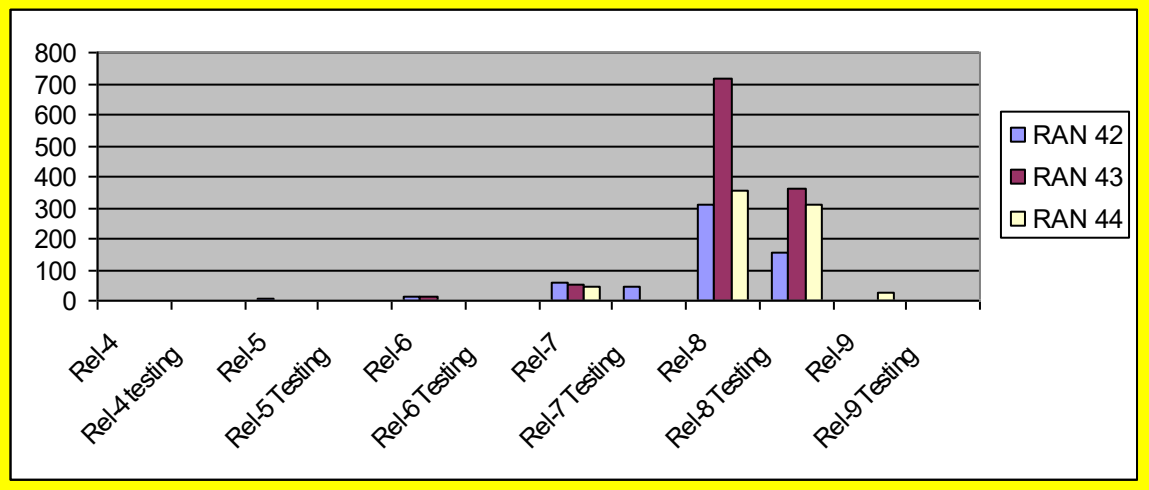
Non Cat A approved CR						
Release	**RAN1**	**RAN2**	**RAN3**	**RAN4**	**RAN5**	**Total**
Rel-4		0		0		0
Rel-5		1		2		3
Rel-6		1		2		3
Rel-7	4	24	10	8		46
Rel-8	21	114	75	144	311	665
Rel-9	0	12		16		28



The following graphic compares **all approved CRs** in TSG-RAN#42, 43 and 44

Non Cat A Approved CR			
Release	**RAN#42**	**RAN#43**	**RAN#44**
Rel-4	3	3	0
Rel-4 testing	0	0	0
Rel-5	4	3	3

Rel-5 Testing	0	0	0
Rel-6	11	10	3
Rel-6 Testing	1	0	0
Rel-7	57	51	46
Rel-7 Testing	43	0	0
Rel-8	311	714	354
Rel-8 Testing	154	364	311
Rel-9	0	1	28
Rel-9 Testing	0	0	0



Incoming Liaisons

From Groups outside 3GPP

Agenda	Tdoc	Type	'Title'	Source	'Decision'
6.1	RP-090614	LS in	Draft ITU-T Recommendation on Requirements for Land Mobile Alerting Broadcast Capabilities for Civic Purposes (COM2-LS8 Source: ITU-T Study Group 2, To: ALL, Cc:)	ITU-T Study Group 2	Noted
9.1.5	RP-090617	LS in	Frequency (channeling arrangements) at 700-862 MHz (R4-091999 Source: ECC PT1, To: RAN 4, Cc: TSG RAN)	ECC PT1	Noted
7.1.2	RP-090651	LS in	ITU-R Working Party 5D Request on information on femptocells (FF 3GPP Liaison Apr09 Source: FemptoForum, To: RAN, SA, Cc:)	FemptoForum	Noted

From SA, CT or GERAN

Agenda	Tdoc	Type	'Title'	Source	'Decision'
7.1.2	RP-090451	LS in	LS on Request for Information on Femtocells (CP-090262 Source: TSG CT, To: TSG SA, Cc: TSG RAN)	TSG CT	Noted

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12	RP-090462	LS in	LS on ATIS Issue Statement for CMAS via LTE Broadcast Capability Specification (SP-090228 Source: TSG SA, To: ATIS WTSC, Cc: TSG RAN,TSG CT)	TSG SA	Noted
7.4.2	RP-090463	LS in	LS on resolution of MBMS for HSPA evolution (SP-090232 Source: TSG SA, To: TSG SA WG4,TSG CT WG3,TSG CT WG4,TSG RAN WG3,TSG RAN,TSG CT, Cc:)	TSG SA	Noted
7.1.2	RP-090464	LS in	Response LS on Coordination of work for response to ITU-R WP 5D Request for Information on Femtocells (SP-090233 Source: TSG SA, To: TSG RAN, Cc: TSG CT)	TSG SA	Noted
9.7	RP-090465	LS in	Results of SA Prioritization and Coordination Discussions for HNB (SP-090237 Source: TSG SA, To: TSG RAN,TSG RAN WG2,TSG RAN WG3,TSG SA WG2,TSG CT,TSG CT WG1, Cc:)	TSG SA	Noted

From RAN WGs

Agenda	Tdoc	Type	'Title'	Source	'Decision'
7.1.2	RP-090451	LS in	LS on Request for Information on Femtocells (CP-090262 Source: TSG CT, To: TSG SA, Cc: TSG RAN)	TSG CT	Noted
11.3	RP-090452	LS in	LS on Conclusions for LTE Mobility Study Item (R1-092277 Source: TSG RAN WG1, To: TSG RAN, Cc:)	TSG RAN WG1	Noted
7.1.2	RP-090453	LS in	LS on RAN3 Response to ITU-R WP 5D Request for Information on Femtocells (R3-091412 Source: TSG RAN WG3, To: TSG RAN, Cc:)	TSG RAN WG3	Noted
7.4.2	RP-090454	LS in	LS on resolution of MBMS for HSPA evolution (R3-091451 Source: TSG RAN WG3, To: TSG SA, Cc: TSG SA WG4,TSG CT WG3,TSG CT WG4,TSG RAN,TSG CT)	TSG RAN WG3	Noted
9.1.4	RP-090455	LS in	LS on handling the work item Extended UMTS/LTE 800 (R4-091066 Source: TSG RAN WG4, To: TSG RAN WG5, Cc: TSG RAN)	TSG RAN WG4	Noted
6.3	RP-090456	LS in	Response to LS (R4-090764) to External Organizations - REQUEST FOR INPUT FOR A REVISION OF RECOMMENDATION ITU-R M.1801 (RP-081081 Source: ITU-R WP 5A, To: TSG RAN, Cc: TSG RAN 4) (R4-091449 Source: TSG RAN WG4, To: TSG RAN, Cc: ITUR ad hoc)	TSG RAN WG4	Noted
7.1.2	RP-090457	LS in	Response LS on Coordination of work for response to ITU-R WP 5D Request for Information on Femtocells (R4-091733 Source: TSG RAN WG4, To: TSG RAN, Cc: TSG SA,TSG RAN WG1,TSG RAN WG2,TSG RAN WG3)	TSG RAN WG4	Noted
9.2.4	RP-090458	LS in	LS on Band Combination Handling for Dual-Band Dual-Cell HSDPA (R4-092072 Source: TSG RAN WG4, To: TSG RAN WG2,TSG RAN WG3, Cc: TSG RAN)	TSG RAN WG4	Noted
7.6.2	RP-090459	LS in	Response LS to LS on conformance test coverage for PUSCH Frequency Hopping (R4-092089 Source: TSG RAN WG4, To: TSG RAN WG5, Cc: TSG RAN WG1,TSG RAN)	TSG RAN WG4	Noted
9.1.2	RP-090460	LS in	LS on Status of the MSR Work Item (R4-092092 Source: TSG RAN WG4, To: TSG GERAN WG1, Cc: TSG RAN,ETSI RRS)	TSG RAN WG4	Noted
7.6.2	RP-090461	LS in	LS on conformance test coverage for PUSCH Frequency Hopping (R5-092729 Source: TSG RAN WG5, To: TSG RAN WG4, Cc: TSG RAN WG1,TSG RAN)	TSG RAN WG5	Noted

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9.1.2	RP-090596	LS in	Reply LS to "LS on Status of the MSR Work Item" (GP-091069 Source: TSG GERAN WG1, To: TSG RAN WG4, Cc: TSG RAN)	TSG GERAN WG1	Noted
9.1.1	RP-090597	LS in	LS to WP5A: REVIEW PRELIMINARY BWA CHARACTERISTICS FOR USE IN COMPATIBILITY STUDIES WITH FIXED-SATELLITE SERVICE SYSTEMS IN THE 3,400-4,200 MHz BAND (R4-092120 Source: TSG RAN WG4, To: ITUR WP5A, Cc: TSG RAN)	TSG RAN WG4	Noted

Outgoing Liaison Statements

Tdoc	Type	'Title'	Source	'Decision'
RP-090624	LS out	Response to LS on Coordination of work for response to ITU-R WP 5D Request for Information on Femtocells	AT&T	Approved
RP-090657	LS out	Response to the FemtoForum concerning ITU-R Working Party 5D Request on information on femptocells	AT&T	Approved
RP-090664	LS out	LS to SA, SA2, SA4 on Vocoder Rate Adaptation for LTE	Alcatel-Lucent	Approved

ITU Issues

- ITU-R submission of proposal for IMT-Advanced
  - Description for the ITU template was developed by RAN WGs
  - Two separated tables for FDD and TDD are captured in the document according to decision in PCG#22
  - The document was approved in RAN and SA by correspondence before RAN#44 and endorsed in PCG
  - The document will be submitted to ITU-R by individual members before the ITU deadline, June 3.
- Schedule for the final ITU submission in October was agreed in RAN#44
  - Response to LS on Femto cell
  - Response LS to ITU-R capturing description provided by SA, CT and RAN WGs was approved and to be submitted to ITU-R by June the 3rd
  - Response LS from Femto Forum to ITU was submitted to contact person in TSG RAN for information and noted
- Version of 3GPP TS for ITU-R M.1457 rev.9 will be December 2008 considering synchronisation with ITU-T submission

Main Discussions

- All Release 8 WIs are completed.
- WGs are overloaded to complete existing Release 9 WIs. **It was decided that new WI proposals in RAN#44 are postponed to September 2009 or change to SI or TEI9 with limited scope.**

- **Early implementation of inter RAT mobility:** Should UMTS Rel-8 support be required before mobility to LTE can be supported
  - Current mainstream UMTS UE is Rel-6
  - After extensive discussion in RAN2 and RAN#44, one option was selected to solve not only mobility issues but also backward compatibility issues as the way forward:
    - UTRA AS release indicator is Release 8
    - UTRA Release 6, 7, 8 functions which are found to create backward compatibility issues need to be made optional
  - Necessary CRs will be provided in September after further study in RAN2 to identify related functions in Release 6,7 and 8 and necessary signaling
  - It is recommended that TSG-CT perform similar exercise for NAS functions **(see RP-090584, RP-090623, RP-090645)**

- **4-TX transmission (RP-090571).** Way forward: the WG should study the issue by minimizing the risk, RAN 5 does have conformance tests at high priority, although not yet finished and it could take up to 18 months before the tests are available. Even if ran 5 is able to finish its work more quickly the later introduction of the feature will still carry a risk, ran 1 has to study technical solutions to minimize the risks. Situation to be revisited in next meeting.

RAN 5 Chair's After note:
With respect to Support of 4 Tx Transmission, RAN5 is currently working on 3 related RF test cases, 2 of which have little or no progress as RAN5 is awaiting completion of the relevant RAN4 specification. Generally, for RF test cases RAN5 estimates 1 to 2 meeting cycles between the availability of core specs and the provisional completion of the related part in the RAN 5 spec. In this case, the typical, earliest estimation for the completion of these test cases is Dec 09. I say typical because like all WGs, RAN5 is contributions driven. Incidentally all the LTE RF test cases (and Sig) being worked on today are considered to be high priority although the natural order in which these are completed is influenced by external factors.

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It is important to note that the provisional completion of any test in the RAN5 spec DOES NOT equate to the immediate availability of a test implementation for commercial use. Indeed as the test industry builds the platforms based on the test specs, it also needs to verify/validate the tests using a suitable device that supports the relevant function that needs to be tested. At the start of any new technology such devices are not available in abundance – actually it is a huge challenge in the early stages as the various testing models/prototypes start to take shape. Naturally there is still the real possibility that any RAN5 test case has to be updated as a result of the 'real world' implementation work and that the test should not really be considered stable until there is evidence of working test cases.

- **Support for dedicated RS in LTE TDD (RP-090571)** → Way forward is to revisit the situation in september.
- **RF Requirements for Multicarrier and Multi RAT BS**
  - Necessity of simulation work and to define MSR single RAT requirements according to the current existing specifications for single RATs was proposed by operators and will be studies in RAN4
  - It is confirmed in the status report that tight cooperation with GERAN is needed for challenging time plan
- **Enhanced Home NodeB/eNodeB**
  - Relaxation of performance requirements for inbound mobility was discussed considering trade-off between performance and complexity. It was decided to study more in RAN2 and RAN3
- **Forward compatibility discussion on Rel-8 and Rel-9 MBMS architecture**
  - RAN3 investigated the forward compatibility issues between the Rel-8 and the planned Rel-9 MBMS architecture according to LS from SA#43
  - RAN3 concluded there is no serious problem with the forward compatibility and identified some points to be considered for better compatibilities.
  - Conclusion was submitted from RAN3 to SA in RP-090454/SP-090399
- **Minimisation of drive test(Study Item)**
  - It was confirmed that replicate work with SON WI should be avoided
  - It was proposed to include architecture aspects in the scope of the SI. It was decided to keep the scope as it is and necessity to include the architecture aspects should be discussed in WGs
- **LTE-Advanced**
  - SID was updated to include study for heterogeneous NW and completion date was extended to March 2010
  - However, time plan for ITU submission is maintained

Closed Work Items

- Continuous Connectivity for packet data users for 1.28Mcps TDD (Rel-8)
  - TR 25.929 v2.0.0 Continuous Connectivity for packet data users for 1.28Mcps TDD approved to TR 25.929 8.0.0
- Conformance test aspects- 64QAM for 1.28 Mcps TDD HSDPA
  - CRs are provided.

Closed Study Items

- E-UTRAN mobility evaluation and enhancement
  - LS on Conclusions for LTE Mobility Study Item is provided in RP-090452
- Enhanced interference management for HNBs
  - CRs are provided.

Status of Open Work Items

- UMTS/LTE 3500 MHz
  - Completion level: 40%
  - Completion date is moved to December 2009
- RF Requirements for Multicarrier and Multi RAT BS
  - Completion level: 30%
  - No change in the completion date (March 2010)
- LCR TDD UE OTA Performance Requirements
  - Completion level: 100%, however, WI is kept to check necessity of the TR approval in RAN#45.
  - No change in the completion date (September 2009)
- Extended UMTS/LTE 800
  - Completion level: 75%
  - Completion date is moved to September 2009 for RAN2 and RAN4. No change for RAN5 (September 2009)
- UMTS/LTE 800 MHz for Europe
  - Completion level: 5%
  - No change in the completion date (December 2009)
- Performance requirement for LCR TDD with UE speeds up to 350 kph
  - Completion level: 20%
  - No change in the completion date (December 2009)
- 1.28 Mcps TDD Repeater
  - Completion level: 40%
  - No change in the completion date (December 2009)
- Dual-Cell HSUPA
  - Completion level: 20 %(R3-R4), 60% (R2), 80% (R1)
  - No change in the completion date (December 2009)
- Support for different bands for Dual-Cell HSDPA

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    - Completion level: 20% (R2-R4), 30%(R3)
    - No change in the completion date (December 2009)
- Combination of DC-HSDPA with MIMO
    - Completion level: 30%(R3-R4), 50% (R2), 80%(R1)
    - No change in the completion date (December 2009)
- UTRAN 2 ms TTI uplink range improvement
    - Completion level: 0%(R3-R4), 10%(R1-R2)
    - No change in the completion date (December 2009)
- TxAA extension for non-MIMO UEs
    - Completion level: 0%(R3), 5%(R4), 40%(R2), 80%(R1)
    - No change in the completion date (December 2009)
- Support for IMS Emergency Call over LTE
    - Completion level: 60%
    - No change in the completion date (September 2009)
- Positioning Support for LTE
    - Completion level: 40%
    - No change in the completion date (December 2009)
    - TS 36.305 v1.0.0 Stage 2 functional specification of User Equipment (UE) positioning in E-UTRAN; Presented for information
- Network based Positioning support for LTE
    - Work has not started by May
    - No change in the completion date (December 2009)
- MBMS support in LTE
    - Completion level: 25%
    - No change in the completion date (December 2009)
    - Revision of the WID in RP-090619
- LTE Pico NodeB RF Requirements
    - Completion level: 5%
    - No change in the completion date
        - Core part: December 2009
        - Performance part: March 2010
- Enhanced Dual-Layer transmission for LTE
    - Completion level: 20%
    - No change in the completion date (December 2009)
    - Update of Work item description for enhanced downlink transmission for LTE in RP-090648
- LTE FDD Home eNodeB RF Requirements
    - Completion level: 10%
    - No change in the completion date (December 2009)
- LTE TDD Home eNodeB RF Requirements
    - Completion level: 10%
    - No change in the completion date (December 2009)
- Home NB and Home eNB enhancements – RAN2 aspects
    - Completion level: 20%
    - No change in the completion date (December 2009)
- Home NB and Home eNB enhancements – RAN3 aspects
    - Completion level: 20%
    - No change in the completion date (December 2009)
- Self-Organizing Network
    - Completion level: 35%
    - No change in the completion date (December 2009)
    - TR 36.902 " Self-configuring and self-optimizing network use cases and solutions" presented for information

Status of Open Conformance Test Aspects Work Items

- Enhanced CELL_FACH state in FDD
    - completion level is 85%
    - completion date is moved to September 2009
- Improved L2 for Uplink
    - completion level is 60%
    - completion date is September 2009
- MBSFN for FDD
    - completion level is 20%
    - completion date is September 2009
- Combination of 64QAM and MIMO for HSDPA (FDD)
    - completion level is 60%
    - completion date is September 2009
- MBMS LCR TDD Physical Layer Enhancement is
    - Completion level 80%
    - completion date is September 2009
- 3G LTE RF - Terminal Radio Transmission and Reception Conformance test Specifications (FDD/TDD)
    - Completion level 83% FDD, 81% TDD
    - Completion date is September 2009
    - Presentation of specification to TSG: TS 36.521-3 v2.0.0 approved → TS 36.521-3 v8.0.0
- Terminal Protocol Conformance Test Specifications
    - Completion level 70%
    - Completion date is September 2009

- Conformance test aspects – UMTS-LTE 3500
  - Conformance test aspects – LTE 3500
    - Completion level 1%
    - Completion date is December 2009
  - Conformance test aspects – UMTS 3500
    - Completion level 1%
    - Completion date is December 2009

- Conformance test aspects – Dual-Cell HSPDA operation on adjacent carriers
  - Completion level 10%
  - Completion date is December 2009
- UTRA HNB (FDD)
  - Completion level 5%
  - Completion date is December 2009
- Receiver Type3i
  - Completion level 20%
  - Completion date is December 2009

Status of Open Study Items

- LTE Advanced
  - Completion Level is 60%
  - completion date is moved to March 2010 (no implication to ITU-R submission)
- Evaluation of the inclusion of Path Loss Based Technology in the UTRAN
  - Completion level is 95%
  - completion date moved to September 2009.
- 1.28 Mcps TDD Home NodeB
  - completion level is 60%
  - completion date moved to September 2009
- Study on Measurement of Radiated Performance for MIMO and multi-antenna reception for HSPA and LTE terminals
  - completion level is 15%
  - completion date December 2009
- Study on Minimization of drive-tests in Next Generation Networks
  - completion level
    - RAN WG2: 30%
    - RAN WG4: 0% (It is FFS if RAN4 involvement is necessary)
  - completion date September 2009
  - TR 36.805 v1.0.0 Study on Minimization of drive-tests in next generation networks presented for information

Opened Work Items and Study Items at RAN #44

Work Items

- Extended UMTS/LTE 1500 MHz band in Japan
  - Responsibility: RAN4 having primary responsibility, RAN2 and RAN3 having secondary responsibility
  - Target completion date December 2009
- Cell Portion for 1.28Mcps TDD
  - Responsibility: RAN WG3
  - Target completion date December 2009
- Vocoder rate adaptation for LTE
  - LS to SA, SA2 and SA4 was approved to inform this WI approval and ask input and guidance on service aspects of this WI (RP-090664, SP-090xyz)
  - Responsibility: RAN WG2
  - Target completion date September 2009
- Public Warning System (PWS) –RAN aspects
  - Responsibility: RAN WG2-RAN WG3 (still to be decided)
  - Target completion date December 2009
- UMTS Per UE AMBR (RP-090564)
  - **This WI was not approved. This will be treated as TEI9 if it is confirmed that SA/SA2 has intention to have AMBR also for UMTS.**
  -

Conformance Test Work Items

- TDD UE over the Air (Antenna) conformance testing methodology
  - Target Completion date December 2009
- Conformance Test Aspects MBSFN IMB;
  - Target Completion date December 2009
- UMTS/LTE in 800 MHz for Europe UE conformance test
  - Target Completion date March 2010.
- Conformance test aspects UMTS ETWS (Earthquake and Tsunami Warning System) (FDD)
  - Target Completion date March 2010.
- Conformance test aspects 1.28Mcps TDD Improved L2 support for high data rates

  - Target Completion date September 2010.
- Conformance test aspects Enhanced CELL_FACH State in LCR TDD
  - Target Completion date September 2010.

Study Items

- Enhanced Interference Management Mechanism for HNBs
  - Responsibility: RAN WG3
  - Completion date September 2009
- Extended 850
  - Responsibility: RAN 4
  - Completion date December 2009

Approved TRs/TSs

Technical Specifications

RP-090450; LTE-UEConTest_RF; Presentation of specification to TSG: TS 36.521-3 v2.0.0 ; → v8.0.0

Technical Report:

RP-090582; RANimp-LCRCPC;TR 25.929 v2.0.0 Continuous Connectivity for packet data users for 1.28Mcps TDD; → v 8.0.0

TS or TR for Information

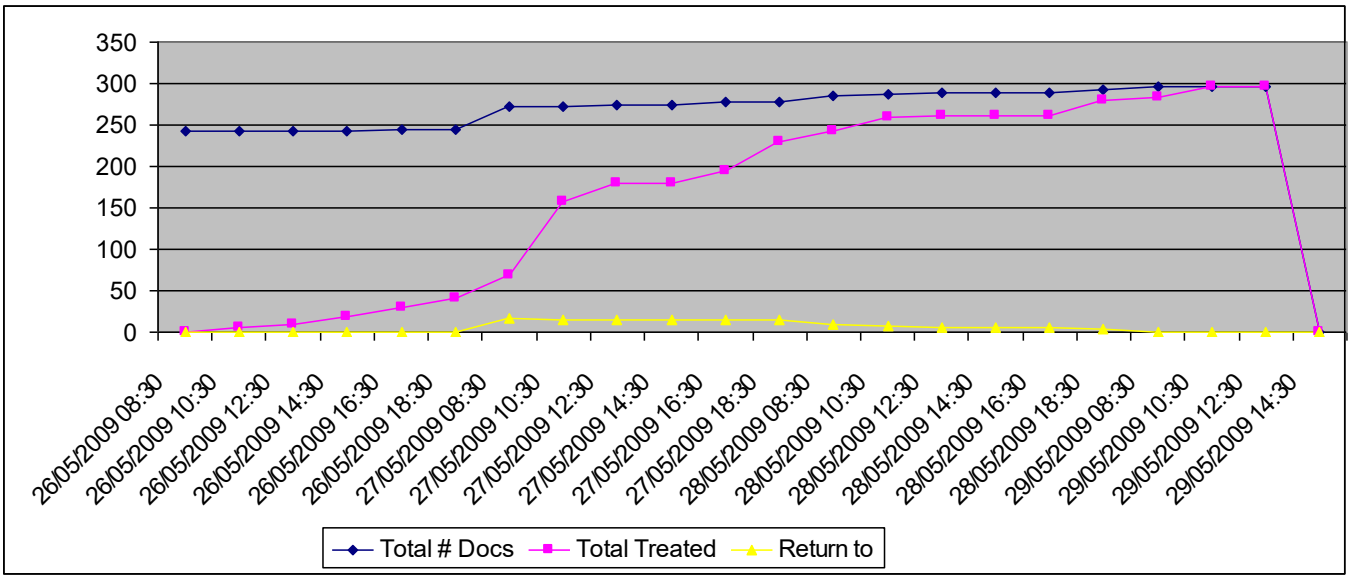
RP-090535; TS 36.305 v1.0.0 Stage 2 functional specification of User Equipment (UE) positioning in E-UTRAN;

RP-090468;Information; RInImp9-UMTSLTE800; TR 36.800 Extended UMTS / LTE 800 Work ItemTechnical Report v1.0.0;

RP-090487; TR 36.902 " Self-configuring and self-optimizing network use cases and solutions";

RP-090476; TR 36.805 v1.0.0 Study on Minimization of drive-tests in next generation networks;

Progress of the meeting



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1 Opening of the Meeting

The meeting started on Tuesday May the 26th at 9 o'clock.

2 Approval of the Agenda

RP-090372;Approval; ; ;Agenda Meeting RAN #44;RAN Chairman;Revised in 472

RP-090472;Approval; ; ;Agenda Meeting RAN #44;RAN Chairman;
The chairman commented that the agenda shows the Release for each work item, He mentions that this is not decided yet and that it has to be considered as a target Release.
Status: Approved

3 Approval of the meeting report of TSG-RAN #43

RP-090373;Approval; ; ;RAN #43 Meeting Report;MCC;Revised in 604
RP-090604;Approval; ; ;RAN #43 Meeting Report;MCC;
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/).

5 Chairman Report of meetings

RAN chairman report from SA:

The chiarman says that there are 2 topics:
Home Node B → RAN created a Inter TSG feature level WI, we sent a LS to SA in Tdoc 366 and SA approved the priority for the Rel-9 and approved the inetr TSG feature level work item.
MBSFN architecture, discussed the compatibility between UTRA and UTRAN and SA asked a study on the compatibility in RAN 3. RAN 3 has already discussed and provided answers which will be presented during the meeting.

RAN chairman report of the PCG/OP:

Chairman and vice-chairmen were formally appointed in the PCG.
IMT-Advanced submission. CATR proposed to separate the template into 2 tables, one for TDD and FDD (2 SRIT). This was already submitted in the RAN reflector. Currently it is under PCG approval. If the two tables are approved before the end of the week it will be submitted to IMT.
KDDI asked why it was separated into TDD and FDD.

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The chairman answers that CCSA expressed the wish to split it. It was agreed.
Cooperation with Broadband forum was not agreed due to concern on IPR handling. SA chair was tasked to contact to BBF to fix the concern.
MCC says that also SA5 is affected not only RAN 3.
Detailed information can be found in the minutes of the PCG.

6 Liaisons from other groups

The LSs are moved into the appropriate agenda item.

6.1 Groups outside 3GPP

RP-090614 Draft ITU-T Recommendation on Requirements for Land Mobile Alerting Broadcast Capabilities for Civic Purposes (ITU-T Study Group 2, COM2-LS8)
Status: Noted

6.2 TSG SA, TSG CT, TSG GERAN

6.3 TSG RAN WGs

7. TSG RAN WGsStatus Report and Approval of contributions on Release'99, Release 4, Release 5, Release 6 and Release 7

7.1 ITU-R Ad Hoc

7.1.1 Status report

RP-090574;Status Report; ; ;Status Report for RAN#44;ITU-R Ad Hoc Contact Person;
The time plan is endorsed.
Status: Noted

7.1.2 Submission to ITU-R

RP-090473;Approval; ; ;Final document for the June Submission of LTE-Advanced;ITU-R AH;
Revised in 587
RP-090587; Approval; Final document for the June Submission of LTE-Advanced;ITU-R AH;
Revised to 618
RP-090618; Approval;Final document for the June Submission of LTE-Advanced (ITU-R AH)
The document was already approved by correspondence.
Status: Revised to 668
RP-090668 Final document for the June Submission of LTE-Advanced (ITU-R AH)
Status: Approved

RP-090474;Information; ; ;Information on final template for the June submission (with track changes);ITU-R AH;
Telecom Italia explains that that this document shows the changes that were done during the conf call after endorsement of the working group.
Status: Noted

RP-090575;Approval; ; ;Proposed Update Reminder for the OPs on the compliance with ITU-R procedures as it relates to Revision 9 of Recommendation ITU-R M.1457;ITU-R Ad Hoc;

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The chaiman says the version of the 3GPP TS should be December 2008 considering synchronisation with ITU-T submission.
This document will be submitted to the OPs as a reminder.
Status: Approved

RP-090576;Approval; ; ;Proposed response to ITU-R WP5D on the Roadmap update;ITU-R Ad Hoc;
Status: Approved

RP-090371;LS out; ; ;Response LS on Coordination of work for response to ITU-R WP 5D Request for Information on Femtocells;AT&T
withdrawn

RP-090471;LS out; ; ;Response to LS on Coordination of work for response to ITU-R WP 5D Request for Information on Femtocells;AT&T
Samsung suggests to use Home eNodeB tomake clear that Home Node B is for UTRA and Home eNodeB for eUTRAN.
In this case "e" does not stand that ehnanced.
Revised to 624
RP-090624 Response to LS on Coordination of work for response to ITU-R WP 5D Request for Information on Femtocells (AT&T)
Status: Approved

RP-090457;LS in; ; ;Response LS on Coordination of work for response to ITU-R WP 5D Request for Information on Femtocells (R4-091733 Source: TSG RAN WG4, To: TSG RAN, Cc: TSG SA,TSG RAN WG1,TSG RAN WG2,TSG RAN WG3);TSG RAN WG4;
Status: Noted

RP-090464;LS in; ; ;Response LS on Coordination of work for response to ITU-R WP 5D Request for Information on Femtocells (SP-090233 Source: TSG SA, To: TSG RAN, Cc: TSG CT);TSG SA;
Status: Noted

RP-090451;LS in; ;HomeNB;LS on Request for Information on Femtocells (CP-090262 Source: TSG CT, To: TSG SA, Cc: TSG RAN);TSG CT;
Status: Noted

RP-090453;LS in; ;EHNB-RAN3;LS on RAN3 Response to ITU-R WP 5D Request for Information on Femtocells (R3-091412 Source: TSG RAN WG3, To: TSG RAN, Cc:);TSG RAN WG3;
Status: Noted

RP-090651 ITU-R Working Party 5D Request on information on Femtocells (FemtoForum, FF 3GPP Liaison Apr09)
AT&T says that the answer to ITU is next week, if we find any issue related to Femto there is not much that we can do about that.
Status: Noted

RP-090657 Response to the FemtoForum concerning ITU-R Working Party 5D Request on information on Femtocells (AT&T)
Attachment should be added.
Status: Approved

RP-090456;LS in; Response to LS (R4-090764) to External Organizations - REQUEST FOR INPUT FOR A REVISION OF RECOMMENDATION ITU-R M.1801 (RP-081081 Source: ITU-R WP 5A, To: TSG RAN, Cc: TSG RAN 4) (R4-091449 Source: TSG RAN WG4, To: TSG RAN, Cc: ITUR ad hoc);TSG RAN WG4;
This document was approved by correspondence and already sent to ITU.
Status: Noted

7.2 TSG RAN WG1

7.2.1 Report from WG1 including report on actions required from the previous meeting

RP-090374;Discussion; ; ;Status Report WG1;RAN WG1 Chairman

- Meetings
  - RAN1#56bis in Seoul, RAN1#57 in San Francisco
- UTRA Maintenance
  - UTRA FDD: 1+1 CR Rel7, 1 CR Rel8
  - UTRA TDD: 3 CRs Rel7, 9 CRs Rel8
- LTE Maintenance
  - Decisions captured in 11 CRs ➔ Specifications are stable.
- LTE Positioning
  - Agreements on RAN1 concept for DL OTDOA, AoA+TA
- LTE Mobility evaluation Study Item
  - Concluded, no actions needed for Rel9
- Enhanced DL transmission for LTE
  - Work started with first agreements
- LTE Advanced Study Item

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- RAN1 part completed for the ITU the submission in June (Geometry distribution for simulation calibration was confirmed by many companies, Simulation calibration for system throughput was agreed, RAN1 part of the ITU-R submission template was reviewed, and received comments were captured in the latest draft). Review of the template for the submission
- ITU evaluation (Common assumptions agreed. At next meeting, first evaluation results will be reviewed).
- Continued discussion and agreements on
  - Bandwidth extension, Reference signals, CoMP, Relays, MIMO
  - **RAN1 TR 36.814 and TR 36.912 updated with text proposals**

- HSPA FDD Evolution
  - DC HSUPA **Conclusions:**
    - Framework for DC-HSUPA was agreed
    - Transmit HS-DPCCH on a single uplink carrier
    - Reuse existing DPCCH slot formats for DC-HSUPA
    - On the anchor and secondary carriers, only UL DPCCH slot Formats 1 and 4 may apply
    - For each uplink carrier, configure F-DPCH, E-HICH, E-RGCH, and E-AGCH on the corresponding downlink carrier
    - The option to configure DPDCH in UL/DL is not supported
    - Only 2ms TTI configuration supported for DC-HSUPA
    - Discuss further on the definition of UL anchor carrier
    - Set of draft CRs was agreed as baseline
    - An LS was sent to RAN2 on L1 parameters
  - DC HSDPA with MIMO: **Conclusions:**
    - Basic concept agreed, based on Rel-7 MIMO and Rel-8 DC-HSDPA to a large extent
    - Single feedback channel in uplink (HS-DPCCH) with time multiplexed CQIs for the two downlink carriers
    - Power offset settings for the HARQ-ACK field on the HS-DPCCH were agreed
    - HARQ-ACK codebook will be a superset of the codebook used for Rel-7 MIMO
    - Set of draft CRs was agreed as baseline

  - 2ms coverage extension: No agreements yet.
  - TxAA extension for non-MIMO Ues: Formal approval when Rel9 specifications are created

Conclusions:
- UTRA work is going smooth
  - Low number of necessary corrections
  - HSPA evolution work progressing according to plan
- LTE Rel8 is stable
  - Number of necessary corrections 80% down vs RAN#43
- LTE Rel9 work items
  - On track, one study item concluded
- LTE-Advanced work ongoing
  - ITU submission in June completed by RAN1
  - Need to keep up the progress while focusing on the most critical questions
    - Email discussions
  - TR 36.814 and TR 36.912 for approval next plenary
  - Amount of Rel9 LTE study/work items limits the time available for LTE-Advanced

CATT clarified that for Enhanced DL transmission for LTE in slide 11, forward compatible desing may focus on DRS pattern design.
NTTDOCOMO says Rek-8 is stable, when will we treat rel-9 TEI in Rel-9.
RAN 1 Chairman says that it will be considered after september.
Status: Noted

RP-090375;Information; ; ;List of CRs from RAN WG1;RAN WG1
Status: Noted

7.2.2 Discussions on decisions from WG1

RP-090625 Dealing with UTRA single antenna UEs with transmit diversity (Nokia Corporation, Nokia Siemens Networks)
ALU: this problem can be addressed in ran 1 and ran 4. studying them in both groups may ends up in an overlap. They ask clarification on which group they prefer it should handle this.
NSN says that both ran 1 and ran4 need to work on this issue.
Vodafone says that they can task the group to find a solution, first need to be clarified if the correction has to be done in the network side or in the ue side.
NSN says that this is part of the discussion in the working group.
RAN 1 Chairman says that the conclusions say that the correction is needed. First it has to be identified if a correction is needed.
NSN says that it is better to fruther discuss to explain the nature of the problem.
NSN clarifies that the document indicates that not only in the case of mimo but also trasnmit diversity.
AT&T says that in general this has to be brought to WG under CRs. It is not clear here why the issue has to be discussed in the plenary level.
NSN says that this an issue that may impact different working groups.

Way forward: RAN 1 should study if this issue is really problematic, and in this case they have to study a solution, possibily it has to be provided for next ran plenary. RAN 4 may be tasked to work on simulation results in the future.
Status: Noted

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7.2.3 Approval of CRs to Rel-99, Rel-4, Rel-5, Rel-6 and Rel-7 with linked CRs

RP-090525;Approval; ;MIMO;CRs to 25.211 & 25.214 for MIMO clarifications;RAN WG1
Status: Approved
RP-090526;Approval; ;LCRTDD-EDCH-Phys;CRs to 25.221, 25.222 & 25.224 for several clarifications on LCR TDD;RAN WG1
Status: Approved

7.2.4 Approval of linked CRs where the leading one originated from WG1

7.3 TSG RAN WG2

7.3.1 Report from WG2 including report on actions required from the previous meeting

RP-090376;Discussion; ; ;Status Report WG2;RAN WG2 Chairman
Maintenance, but main focus on next releases

> Rel-99,4,5,6
> Only 2 small clarifications
> Rel-7
> CPC corrections still coming. Enhanced Cell-FACH CR's started. TDD still stabilising.
> Rel-8
- UMTS: Small corrections and finalising missing parts e.g. ETWS
- LTE: Low CR number/impact
- RAN discussion required on:
- **Early UE support for UMTS → LTE mobility**
  > RAN2 discussed potential early support of UMTS->LTE mobility by UMTS UE's based on R2-093259:
    - Current mainstream UMTS UE is Rel-6
    - Should UMTS Rel-8 support be required before mobility to LTE can be supported ?
  > Three different options have been proposed in the discussion:

1. Allow support of reselection/redirection based mobility to LTE by UMTS pre-Rel-8 UE's
   > UE is Rel-6/7 UMTS & Rel-8 LTE
   > Require the UMTS UE to support the concerning parts of UMTS Rel-8 procedures and concerning parts of UMTS Rel-8 ASN.1 (technically endorsed CR in R2-093596)
   > No impact to NAS expected since only common IDLE mode behaviour is additionally supported

2. Allow support of all mobility mechanism to LTE by UMTS pre-Rel-8 UE's
   > UE is Rel-6/7 UMTS & Rel-8 LTE
   > Require the UMTS UE to support the required parts of UMTS Rel-8 procedures and full Rel-8 UMTS ASN.1 (technically endorsed CR in R2-093597)
   > Impact to NAS should be investigated by CT/CT1

3. Do not allow UMTS pre-Rel-8 mobility to LTE support
   > UE is Rel-8 UMTS & Rel-8 LTE
   > Require a UMTS UE to be of Rel-8 i.e. support at least all mandatory release features (including Rel-7 and Rel-8 features) and full Rel-8 ASN.1 (no CR needed)

> Rel-9:
- Progressing well for both UMTS and LTE

Telecom Italia asks if carrier aggregation for LTE-A is to be considered as release independent. They would prefer to add them in a rel independent manner
Samsung (Ran2 chairman) says that no detailed discussions are done.
The chairman clarifies that this is too early as LTE-A is in a study item phase.
Alcatel-Lucent asks clarification on option 3, they ask if an analysis has been done and if the number of features should be implemented.
RAN 2 Chairman says that for the moment it is not decided. Several documents are present in this meeting.
Status: Noted

RP-090377;Information; ; ;List of CRs from RAN WG2;RAN WG2
Status: Noted

7.3.2 Discussions on decisions from WG2

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RP-090496;Discussion; ; ;Comparison of two early implementation options of inter-RAT mobility;NTT DOCOMO;
ALU says that in RAN 2 report there are options 1, 2 and 3, they would like to know if option 3 will be analyzed as well.
The chairman clarifies that the 3rd option is the ideal option.

3. Do not allow UMTS pre-Rel-8 mobility to LTE support
   - > UE is Rel-8 UMTS & Rel-8 LTE
   - > Require a UMTS UE to be of Rel-8 i.e. support at least all mandatory release features (including Rel-7 and Rel-8 features) and full Rel-8 ASN.1 (no CR needed)

The chairman proposes the move out option 3, which is considered not feasible. This ia agreed by the group.

CMCC (RAN vice-chairman) asks the estimation of the CT work that has to be done for option 2.
NTTDOCOMO says that this will need to be discussed in CT and SA.
KDDI asks if there is an impact on the LTE side.
NTTDOCOMO says that there are no impacts.
Status: Noted

RP-090584;Discussion; ;-;Status of mandatory features in releases 6, 7, 8; Qualcomm Europe;
Status: Noted

RP-090616 Comparison of options 1, 2 and 3 for inter-RAT mobility with LTE (Qualcomm Europe)
Revised to 623
RP-090623 Comparison of options 1, 2 and 3 for inter-RAT mobility with LTE (Qualcomm Europe)
We would like to point out that in our view the main difference between options 1 or 2 and option 3 is the fact that with options 1 or 2, a UE indicating release 6 or 7 does not have to implement any correction CR (i.e. category F CRs) made on any feature. With option 3 however, a UE indicates release 8 support hence it shall implement all correction CR (i.e. category F CRs) for the features it supports.
Status: Noted

Discussion:
AT&T says that they support document 584, about document 623 it is not clear if option 3 may impact backward compatibility.
Qualcomm says that the goal of option 3 is to make sure that there are no backward compatibility issues. Today there are backward compatibility issues like Fractional DPCH. They are expecting more issues to come. That's why they suggest top remove the fact that the features are mandatory.
They clarify that option 2 will create a new cat of UEs which declare to be Rel-8 but which do not implement all the CRs for the rel-8. They ask proponent of option 2 wether this analysis has been done.
Nokia says that there are 2 topics
The analysis of the CRs.
Mandatory features
NEC says the scope of option 3 is not the same as option 1 and 2. Qualcomm agrees.
Panasonic asks to provide examples of "improvements initiated by the UE" in section 2.3 in RP-090584. They ask the capability or maturity bit in option 3 need to have a separate bit for each function. And they ask, if in the feature there are problems, how they can be handled.
Qualcomm says example is UE fast dormancy. They says that the amount if features that may create a problem is limited. If in the future more bits are needed, this will have to be discussed in the ran plenary level. They think that Cat F crs should be implemented by UEs.
Qualcomm says that starting from rel 7 and in rel 8 there are a large number of feature. If we make these features optionals or introducing dependencies we can remove some incertainty.
NEC says that now CRs are implemented in rel-7 and not in rel-6 to avoid impact in the market. This proposal means that all the CRs in rel-7 and rel-8 will be implemented in LTE ues as well.
Qualcomm says that if the CRs are corrections, if the ue supports Lte and utra, it may be the need to correct them in both, this depends on the particular correction.
Qualcomm suggest that for the future CRs companies have to keep in mind that the Cr may impact UEs which supports different RATs.

The chairman summarize that there are 3 options.
1 and 2 are the original version and the 3rd proposed by Qualcomm.
The chairman asks if Option 1 can be removed. This is agreed.
The chairman says that CRs for option 2 and for option 3 are available.
In qualcomm proposal option 2 is a basement.
The suggested way forward is to approve option 2 in this meeting and to keep discussion to decide whether otpion 3 should be agreed or not.
ALU says that option 2 is the baseline solution and CT group has to investigate the impact.
RAN 2 Chairman says that option 2 and 3 are different. In Q// solution the question is how to handle future reloeases.
Ericsson says that further discussion on the baseline solution for LTE interworking.
RAN 2 Chairman clarifies that there are 2 issues: what is the baseline, and how can we plan to evolve form there.
RAN 5 Chairman says that this may have impact in ran 5, if we combine a rel-8 LTE ue and a rel-6 utra ue, we do not have testing for this.
Sharp says that option 3 CRs can not be approved in RAN because there are too many implications at the working group level.
They suggest to discuss only option 2.
T-Mobile asks if there are any study on the fact that there may be interworking with GSM as well.

The chairman clarifies that there are 2 issues:
1. Which release should be based.
2. NAS aspects.
The way forwrad is to have ad hoc discussion.
Possible LS to CT will be needed. Detailed discussion will be needed at WG level.

RP-090645 Inter-RAT mobility ad hoc meeting report (Samsung)
Adhoc meeting conclusions:
- Go for option 3
- Ask RAN2 to work on the details in line with the proposal in RP-090584
  All functionality listed in RP-090584, and potentially more based on further analysis (not limited to category B CR's), can be made optional.
- No LS to CT; RAN chairman can report RAN decision to SA

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- RAN chairman will bring up in SA whether CT should perform similar exercise

Status: Approved

7.3.3 Approval of CRs to Rel-99, Rel-4, Rel-5, Rel-6 and Rel-7 with linked CRs

RP-090498;Approval;Rel-5;TEI5;REL-5 & cat. A CRs to TS 25.331 on Removal of description of CPCH feature;RAN2
Status: Approved

RP-090499;Approval;Rel-6;TEI6;REL-6 & cat. A CRs to TS 25.331 on Clarification to the support of 2 different layer 3 filters per measurement type;RAN2
Status: Approved

RP-090500;Approval;Rel-7;RANimp-CPC;REL-7 & cat.A CRs to TS 25.331 for Continuous connectivity for packet data users;RAN2
Approved a part from CR in 3655 and 3656.
CR 3655 and CR 3656 were replaced with company contributions in RP-090488 and RP-090489, which in turn were replaced with RP-090606 and RP-090607
Status: Approved

RP-090501;Approval;Rel-7;LCRTDD-EDCH-L23;REL-7 & cat.A CRs to TS 25.319, TS 25.321 and TS 25.331 for 1.28 Mcps TDD Enhanced Uplink on Correction to non-scheduled transmission for 1.28 Mcps TDD;RAN2
Note: Correction to RP-090501 cover: CR0035 to 25.319 REL-7 is rev 1 not rev -.
Status: Approved

RP-090502;Approval;Rel-7;MBMSE-RANPhysTDD, MBMSE-RANPhysFDD;REL-7 & cat. A CR to TS 25.331 for MBMS FDD & TDD Physical layer Enhancements on Correction on p-t-m bearer release in MBSFN;RAN2
Status: Approved

RP-090503;Approval;Rel-7;RANimp-L2DataRates;REL-7 & cat.A CRs to TS 25.308, TS 25.321 and TS 25.331 for Improved L2 support for high data rates;RAN2
Status: Approved

RP-090504;Approval;Rel-7;RANimp-EnhState;REL-7 & cat.A CRs to TS 25.321 and TS 25.331 for Enhanced CELL_FACH state in FDD;RAN2
Status: Approved

RP-090505;Approval;Rel-7;TEI7;REL-7 & cat.A CRs to TS 25.321, TS 25.322 and TS 25.331 for small technical enhancements and improvements;RAN2
Status: Approved

RP-090488;CR;Rel-7;RANimp-CPC;Specification of CPC restored state upon physical layer failure;Qualcomm Europe, Motorola
Revised to 606
RP-090606 Specification of CPC restored state upon physical layer failure (CR 3655r3 to 25.331 Rel-7) (Qualcomm Europe, Motorola)
Status: Approved

RP-090489;CR;Rel-8;RANimp-CPC;Specification of CPC restored state upon physical layer failure;Qualcomm Europe, Motorola
Revised to 607
RP-090607 Specification of CPC restored state upon physical layer failure (CR 3656r4 to 25.331 Rel-8) (Qualcomm Europe, Motorola)
Status: Approved

7.3.4 Approval of linked CRs where the leading one originated from WG2

7.4 TSG RAN WG3

7.4.1 Report from WG3 including report on actions required from the previous meeting

RP-090378;Discussion; ; ;Status Report WG3;RAN WG3 Chairman
Main achievements
- Rel-7/8 maintenenance required 5/4 days, 1 day for SON, 1 day for H(e)NB
- UTRAN Rel-7/8
  - decreasing numbers of CRs

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        - Rel-8 MBMS for HSPA: common view agreed on forwards compatibility, see LS to SA(RAN) in RP-090454
    - E-UTRAN Rel-8: stabilising, but still some effort to sort out corrections
    - SON: well progressing, although no stage 2 CR agreed so far
    - Rel-9 H(e)NB
        - progress on hybrid mode and HNB „muxing“,
          issue on target identification for active inbound mobility needs guidance:
            - studying network based target identification/disambiguation for active inbound mobility
            - no sufficiently performing solution available
              → UE assisted == reference scenario
            - *RAN guidance appreciated on way forward*
        -
    - FDD HSPA Rel-9 topics: rather limited impact to RAN3, well progressing
    - LTE LCS: email review of first RAN2-architecture-cast until mid June
    - LTE-MBMS: identification of main topics with initiating discussions
    - LTE IMS Emergency call support: good progress as well, topic solvable
    - LTE-A: mainly discussions on **Relay**
        - discussions now captured in a baseline paper
        - majority view on S1 termination in RN, but still door open for further considerations
          (partial or full termination in doner eNB for some scenarios)
        - seems to me that relay features focus on optimisations on top of basic functions possible with todays feature set already
        - RAN guidance on the aim of the SI:
          binding agreements or statement of feasibility?

Telecom Italia and CMCC ask why there was the need to have a prioritization of SON use-cases, and what is the intention.
RAN 3 Chairman says that if there are complains this work will need to started again.
Qualcomm says that the agreement was to softly deprioritaize this SON use case. If companies see some important issues, this can be discussed.
KDDI says that X2 interface is essential for LTE, and even more important for LTE-A (in particular for comp). they would like to know if they have had already discussion on this.
RAN 3 Chairman says that they expect some discussions when the COMP for example will be treated.
Sharp asks clarifications about RRM activities related on COMP.
NSN says that no conclusions have been reached so far.
ALU say that technical endorsment of an HNBAP CR on HNB Identity definition R3-090973→ should be 1010.
This CR is replaced by a company CR is 626.
Status: Noted

RP-090379;Information; ; ;List of CRs from RAN WG3;RAN WG3
Revised to 591
RP-090591;Information; ; ;List of CRs from RAN WG3;RAN WG3
Revised to 632
RP-090632 List of CRs from RAN WG3 (RAN WG3)
Status: Noted

7.4.2 Discussions on decisions from WG3

RP-090463;LS in;Rel-8;TEI8;LS on resolution of MBMS for HSPA evolution (SP-090232 Source: TSG SA, To: TSG SA WG4,TSG CT WG3,TSG CT WG4,TSG RAN WG3,TSG RAN,TSG CT, Cc:);TSG SA;
Status: Noted

RP-090454;LS in;Rel-8;RANimp-HSPAEvo;LS on resolution of MBMS for HSPA evolution (R3-091451 Source: TSG RAN WG3, To: TSG SA, Cc: TSG SA WG4,TSG CT WG3,TSG CT WG4,TSG RAN,TSG CT);TSG RAN WG3;
Status: Noted

7.4.3 Approval of CRs to Rel-99, Rel-4, Rel-5, Rel-6 and Rel-7 with linked CRs

RP-090477;Approval; ; ;R3 CR Pack of pre-Rel-8 CRs with linked CRs #1;MCC
Revised to 630
RP-090630 R3 CR Pack of pre-Rel-8 CRs with linked CRs #1 (RAN 3)
Status: Approved

RP-090478;Approval; ; ;R3 CR Pack of pre-Rel-8 CRs with linked CRs #2;MCC
Revised to 631
RP-090631 R3 CR Pack of pre-Rel-8 CRs with linked CRs #2 (RAN 3)
Status: Approved

RP-090577;CR;Rel-7;MIMO-Iurlub;Correction of MIMO Information Response IE;Ericsson
Status: Approved

RP-090578;CR;Rel-8;MIMO-Iurlub;Correction of MIMO Information Response IE;Ericsson
Status: Approved

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7.4.4 Approval of linked CRs where the leading one originated from WG3

7.5 TSG RAN WG4

7.5.1 Report from WG4 including report on actions required from the previous meeting

RP-090380;Discussion; ; ;Status Report WG4;RAN WG4 Chairman;

LTE

- LTE UE
  - Good progress on power control in general, emission requirements, EVM, CQI/PMI reporting requirements etc. UE maximum output power at the band edges needs further study.
- LTE BS
  - Almost stable: Only a few corrections/clarifications. **CR for TS25.461 is technically endorsed (R4-092060). Although the CR captures frequency bands for LTE, it still can be incorporated into the spec (one in 25 series). RAN3 to consider its handling and formal approval.**
- LTE RRM
  - Good progresses in RRM test cases area. Phase II has been almost completed. Phase III (by Sep.) is being planned based on the proposal in R4-092073.
- LTE FDD Repeater (Separate WI)
  - A set of CRs (on Frequency stabilities, ERAFCN allocations etc.) agreed which resolve of the remaining topics.

NEW BANDS

- New Frequency bands related activities
  - UMTS700:
    - Spectrum emission requirements for band 13 agreed (R4-092057).
  - UMTS1880 TDD [Closed WI]:
    - A set of CRs agreed and all the remaining items are completed.
  - Extended UMTS/LTE 800:
    - A set of CRs agreed. A-MPR requirement needs further discussion.
    - Some receiver aspects would be discussed further in the future meetings.
    - Technical report approved as V0.4.0(R4-091781).
  - UMTS/LTE in 3.5GHz:
    - TP of additional frequency arrangements in the 3.4-3.8MHz band agreed (R4-091216).
    - Technical report of V0.4.0 captures all the approved TPs (R4-092007).
  - UMTS/LTE 800 in Europe [New WI]:
    - Regulatory aspect, detailed work plan (as a way forward) discussed.
    - Skeleton TR agreed (R4-091832)

Rel-9 and beyond

- FDD/TDD Home eNode B (for LTE) RF requirements
  - LTE-FDD HeNB Interference Scenarios for future work agreed (R4-091976).
  - LTE-TDD HeNB Interference Scenarios for future work agreed (R4-091987).
- LTE pico BS
  - Interference scenarios, Base Station classes discussed. Fair progress.
- Different bands for Dual-Cell HSDPA
  - Mobility aspect, possible combination of the bands etc. studied.
- RF requirements for Multicarrier and Multi-RAT BS
  - Extensive discussions took place in the AH sessions.
- LCR TDD with UE speeds up to 350 kph [New WI]
  - Simulation assumptions for future work agreed. First simulation outcome studied (R4-092077)
- LCR-TDD Repeater
  - No particular progress in the meetings.
- UTRA TDD OTA performance requirements
  - CR for TDD OTA performance requirements agreed (R4-091968).
  - Completion level:100%
- Integrated Mobile Broadcast (IMB)
  - CRs on performance requirements of IMB MTCH and MCCH (TS25.102 (UE)) agreed.
- Enhanced DL transmission for LTE
  - The work is going to start from R4#51bis (June) as planned

Study Items:

- Path Loss Based Technology for Location Services in the UTRAN (SI)
  - Text proposal to capture simulations outcomes approved.
  - One more meeting cycle would be needed before conclude the study.
- Enhanced Interference Management for HNBs
  - All the necessary studies have been completed. (SI can be closed earlier than expected.)
- 1.28Mcps TDD Home NodeB
  - TR25.866 V0.1.0 was revised and agreed (R4-091110)
  - Simulation results reviewed. Simulation assumption to carry out future work agreed.

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> MIMO OTA
    - Subject discussed:
        - Work share between 3GPP RAN4 and COST2100
        - MIMO OTA Performance (Several outcomes from experiments or simulations) etc.

LTE-A

> ITU-R submission template as R4-092111.
> TR (V0.1.0) is approved (R4-09673) which involves the Prioritized Deployment Scenarios and operating bands.
> Further TPs for the TR approved.

T-mobile says that it is already clear that the work load in ran 4 will be high next year, so probably bis meetings will be needed and it would be better to schedule them already now.

Status: Noted

RP-090381;Information; List of CRs from RAN WG4;RAN WG4;
Status: Noted

7.5.2 Discussions on decisions from WG4

7.5.3 Approval of CRs to Rel99, Rel-4, Rel-5, Rel 6 and Rel 7 with linked CRs

RP-090539;Approval; ;TEI7;TEI7: Corrections for 25.123, 25.101 and 25.102;RAN 4
Status: Approved

7.5.4 Approval of linked CRs where the leading one originated from WG4

7.6 TSG RAN WG5

7.6.1 Report from WG5 including report on actions required from the previous meeting

RP-090382;Discussion; ; ;Status Report WG5;RAN WG5 Chairman;

- 309 CRs agreed at the meetings; this does not include 38 TTCN CRs that were RAN5 agreed using the email agreement process
- Of the 309 non TTCN CRs, 77 were UTRAN and 232 were LTE related; approximately 25% - 75% respectively
- 1 work item was completed at RAN5#43 and 6 more are being presented for approval – slide 7 refers
- Level of activity remains very intense as proved by the very high number of CRs being treated during WG meetings
- RAN5 has adopted GCF priority selection for signalling test cases as the basis of organising the TTCN development work **(now 4 priority groups of high priority test cases)**
- The target completion dates will be calculated based on initial device certification requirements to provide realism
- TF160 is rapidly developing priority 1 & 2 test cases, ahead of schedule to utilise the resources available although some re-work is expected once Mar 09 devices are used for verification
- TS 36.523-3 Evolved Universal Terrestrial Radio Access (E-UTRA) and Evolved Packet Core (EPC) will not be presented for approval at RP#44 as originally planned; new schedule is RP#45

Telecom Italia says that there are 4 days meeting. If you consider the cost saving it is more efficient to have 5 days meeting.
MCC mentions that there is a work item which is still open "Conformance test aspects of global telephony" since 2000.
It is clarified that his WI should be removed from the work plan since it has long ago been abandoned.
Status: Noted

RP-090384;Status Report; ; ;TF 160 REPORT;MCC TF160;
Revised in 585
RP-090585;Status Report; ; ;TF 160 REPORT;MCC TF160;

- FDD Rel-7 TTCN verification status since RAN#43
    - Improved L2 DL (GCF WI-068): 1 new TC verified,
        - completion 72% (8 / 11 TCs),
    - CPC (GCF WI-070): 4 new TCs verified,
        - Completion 63% (17 / 27 TCs)
    - 64 QAM (GCF WI-069): 1 TC verified, in the RAN5 email consultation period, but not yet agreed
        - Completion: 33%, if agreed by RAN 5 (1 / 3 TCs)
    - MIMO and UEA2 ciphering (GCF WI-067 and WI-101):
        - No progress 0%
    - MTSI (GCF WI-103) verification: no progress 0%

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- LCR TDD verification: no progress in this quarter

- All UTRA test cases now have been moved to the new baseline: March 09 in Rel-8
- Delivered FDD VoHSPA test cases for verification
- Current LTE/SAE TTCN development is according to the GCF priority list
- The baseline of the March-09 core specs is implemented in TTCN
- LTE TTCN verification is expected to start in Aug 2009
- Extant LTE TTCN test cases may require some rework in the 2nd half of this year according to the feedback from verification
- A preliminary estimation of funding requirements for 2010 indicates a 20% reduction compared to 2009 based on known interests
- The current pace of TTCN development to be kept, whilst resources are available to guard against possible funding cuts in 2010 (RAN5 endorsed the proposal)

Status: Approved

RP-090383;Information; ; ;List of CRs from RAN WG5;RAN WG5;
Status: Noted

7.6.2 Discussions on decisions from WG5

RP-090461;LS in;Rel-8;LTE-UEConTest_SIG / LTE-UEConTest_RF;LS on conformance test coverage for PUSCH Frequency Hopping (R5-092729 Source: TSG RAN WG5, To: TSG RAN WG4, Cc: TSG RAN WG1,TSG RAN);TSG RAN WG5;
Status: Noted

RP-090459;LS in; ;LTE-UEConTest_SIG / LTE-UEConTest_RF;Response LS to LS on conformance test coverage for PUSCH Frequency Hopping (R4-092089 Source: TSG RAN WG4, To: TSG RAN WG5, Cc: TSG RAN WG1,TSG RAN);TSG RAN WG4;
Status: Noted

7.6.3 Approval of CRs to Rel-99, Rel-4 and Rel-5 with linked CRs

RP-090430;Approval;R99;TEI_Test;RAN5 agreed non TTCN CR(s) under WI Small Technical Enhancements and Improvements for Rel 99 Conformance Testing(TEI_Test);TSG WG RAN5;
Status: Approved

RP-090431;Approval;Rel-5;TEI5_Test;RAN5 agreed non TTCN CR(s) under WI Small Technical Enhancements and Improvements for Rel-5 Conformance Testing(TEI5_Test);TSG WG RAN5;
Status: Approved

7.6.4 Approval of CRs for closed Rel-6 and closed Rel-7 WIs

RP-090432;Approval;Rel-6;TEI6_Test;RAN5 agreed non TTCN CR(s) under WI Small Technical Enhancements and Improvements for Rel 6 Conformance Testing(TEI6_Test);TSG WG RAN5;
Status: Approved

RP-090433;Approval;Rel-7;TEI7_Test;RAN5 agreed non TTCN CR(s) under WI Small Technical Enhancements and Improvements for Rel-7 Conformance Testing(TEI7_Test);TSG WG RAN5;
Status: Approved

RP-090435;Approval;Rel-7;-;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;TSG WG RAN5;
Status: Approved

RP-090436;Approval; ;-;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;TSG WG RAN5;
Status: Approved

RP-090437;Approval; ;-;CR to 34.229-3: Add new verified and e-mail agreed TTCN test cases in the TC lists in 34.229-3 (TTCN), Annex A;TSG WG RAN5;
Withdrawn
RP-090438;Approval; ;-;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;TSG WG RAN5;
Withdrawn
RP-090439;Approval;Rel-7; ;CR to 34.229-3: Add new verified and e-mail agreed TTCN test cases in the TC lists in 34.229-3 (TTCN), Annex A;TSG WG RAN5;
Withdrawn

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7.6.5 Approval of linked CRs where the leading one originated from WG5

8 Release 8 CRs on closed Work Items

8.1 3G Long Term Evolution

RP-090571;Discussion; ;LTE-L23;Proposed Modifications to LTE feature group indications;Nokia Corporation, Nokia Siemens Networks;

Based on the discussion on first LTE REL8 deployments we propose that feature group indications for the following features would be considered.

- Support of 4 Tx transmission (Additionally if desidered, it could be discussed within the REL9 timeframe whether decoupling the 4 Tx transmission modes of the common control channels and the data channel should be considered.)
- Support for TDD dedicated RS

Either new feature group indications could be defined for the above-mentioned features or alternatively existing feature groups could be considered for these features as well.

4 TX transmission:

The changes in Rel-9 specification (decoupling the 4 Tx transmission modes of the common control channels and the data channel) would not be backward compatible with Rel-8. Solutions should be studied.
Huawei says that the proposal introduces a new ue capabilty, 4 tx transmission is cell specific features, specifications have to change to make sure that it will be possible to have it later.
Nokia says that if there is the will to introduce the feature in early UEs (and test UEs which support the capability and UEs which are not in the same cell), than you have to do something more than simple mitigation. However there are other possible options.
Samsung says that rel-8 spec can not be changed. They ask clarifications on the other possibilities.
Ericsson says that this feature should be supported for rel-8 terminal 4TX is currently specified in Rel-8 spec. They say that the signalling part should be tested. There is still discussion on going to understand how the issue can be solved.
Samsung says there is not the possibility to decouple rel-8 and rel-9 → need to discuss further.
Nokia says that the intention is to raise the issue in the plenary. Nokia does not want to take a risk if there are features that do not work.
It is likely that this feature will be disabled in their phone and may be in other phones as well.
ALU and Ericsson say that test cases should be defined and the discussion should be continued.
AT&T welcome the possibility to have this feature available early in the cells.
RAN 5 chairman says that there are conf testing for the 4TX but they are not high priority and they won't be available next year. They will be available in 18months 2-years.
The chairman clarifies that the minimization of the risk should be taken into account when studying this in the WGs
RAN 1 chariman asks if it is possible to change the priority of this test.
Nokia says that there is a continuous discussion about the prioritarization and that there are also other features that may be raised to higher priority.
Verizon says that 4TX is a very important feature in rel-8 they would like to see it available as soon as possible. RAN 1 should have more discussion on this.
RAN 5 chairman says that if something is considered to be more important than others, the priority can be changed according. Small delta for changes is possible. It is not realistic to consider that conformance testing on this issue will be available in the next year.
AT&T says that 4 TX is needed and should be available as soon as possible, but this can be priority 2 or 3.
Huaweii says that when we discussed priority in ran 5 we considered distintion between features that may create a legacy problem later and those features that have to be added in early phase. They are wandering if this has been taken into account.
NEC says that ran 5 is doing a lot of tests, GCF will never replace IoTs. We are testing what appears to be the essential feature of the network.
Sharp says prioritarization of test cases is done by GCF. RAN 5 chairman reviews the market requirements from whenever they come from not only GCF.
Samsung says that the core specification was developed in a way that all the terminals in a cell are performing in a way to consider 4TX. Decoupling between rel-8 and rel-9 should be discussed further.
RAN 1 chairman clarifies that there may be issues which companies are not willing to disclose, discussion may be done offline and come up with a proposal. RAN 1 should try to look at the problem and to find for a solution without changin rel-8 specifications.

Way forward: the WG should study the issue by minimizing the risk, RAN 5 does have conformance tests at high priority, although not yet finished and it could take up to 18 months before the tests are available. Even if ran 5 is able to finish its work more quickly the later introduction of the feature will still carry a risk, ran 1 has to study technical solutions to minimize the risks. Situation to be revisited in next meeting.

RAN 5 Chair's After note:

With respect to Support of 4 Tx Transmission, RAN5 is currently working on 3 related RF test cases, 2 of which have little or no progress as RAN5 is awaiting completion of the relevant RAN4 specification. Generally, for RF test cases RAN5 estimates 1 to 2 meeting cycles between the availability of core specs and the provisional completion of the related part in the RAN 5 spec. In this case, the typical, earliest estimation for the completion of these test cases is Dec 09. I say typical because like all WGs, RAN5 is contributions driven. Incidentally all the LTE RF test cases (and Sig) being worked on today are considered to be high priority although the natural order in which these are completed is influenced by external factors.

It is important to note that the provisional completion of any test in the RAN5 spec DOES NOT equate to the immediate availability of a test implementation for commercial use. Indeed as the test industry builds the platforms based on the test specs, it also needs to verify/validate the tests using a suitable device that supports the relevant function that needs to be tested. At the start of any new technology such devices are not available in abundance – actually it is a huge challenge in the early stages as the various testing models/prototypes start to take shape.

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Naturally there is still the real possibility that any RAN5 test case has to be updated as a result of the 'real world' implementation work and that the test should not really be considered stable until there is evidence of working test cases.

Support for Dedicated RS in LTE TDD:
CMCC says the macro deplyment is also important not only micro, pico and indoor type. More active cooperation between operators network vendors and ue vendors can be considerd.
Nokia says that we have to treat all the rel-8 ues in a way as if it was not available.
CATT says that the priority of the this feature should be higher.
This is more a startegy of deployment depending on the operators. CMCC says that initially they were thinking about the deployment in macro deployment. it is better to keep working more than just prioritarize the feature in RAN 5.
Way forward: This is not technical matter but deployment priority matter. This should not be treated in WGs but RAN plenary. Interested companies are encouraged to have off-line discussion to solve this issue. This is to revisit the situation in september.
Status: Noted

8.1.1 CRs on LTE Physical Layer

RP-090527;Approval; ;LTE-Phys;CR to 36.211 (Rel-8, F) LTE physical layer updates;RAN WG1;
Status: Approved

RP-090528;Approval; ;LTE-Phys;CR to 36.212 (Rel-8, F) LTE physical layer updates;RAN WG1;
Status: Approved

RP-090529;Approval; ;LTE-Phys;CRs to 36.213 (Rel-8, F) LTE physical layer updates;RAN WG1;
Status: Approved

8.1.2 3G Long Term Evolution: Radio Interface Layer 2 and 3 Protocol Aspects

RP-090497;CR;Rel-8;LTE-L23;Alignment of pusch-HoppingOffset with 36.211;Alcatel-Lucent, Nokia, NSN, Panasonic;
Source companies:
Alcatel-Lucent, CATT, Ericsson, LG Electronics Inc., NEC, Nokia Corporation, Nokia Siemens Networks, NTT DoCoMo, Panasonic, Samsung
Status: Approved

RP-090506;Approval;Rel-8;LTE-L23;RAN2 LTE REL-8 CRs for UTRA specifications TS 25.304, TS 25.306 and TS 25.331;RAN2;
Approved except R2-093596 and R2-093597.
Option 3 has been agreed.
CRs **R2-093596 and R2-093597 are noted**
Status: **Approved except R2-093596 and R2-093597**

RP-090507;Approval;Rel-8;LTE-L23;REL-8 RAN2 CRs to TS 36.300 for LTE ;RAN2;
Status: Approved

RP-090508;Approval;Rel-8;LTE-Interfaces;REL-8 RAN3 CRs to TS 36.300 for LTE;RAN2;
Status: Approved

RP-090509;Approval;Rel-8;LTE-L23;REL-8 CRs to TS 36.302 for LTE;RAN2;
Status: Approved

RP-090510;Approval;Rel-8;LTE-L23;REL-8 CRs to TS 36.304 for LTE;RAN2;
Status: Approved

RP-090511;Approval;Rel-8;LTE-L23;REL-8 CRs to TS 36.306 for LTE;RAN2;
Status: Approved

RP-090512;Approval;Rel-8;LTE-L23;REL-8 CRs to TS 36.314 for LTE;RAN2;
Status: Approved

RP-090513;Approval;Rel-8;LTE-L23;REL-8 CRs to TS 36.321 for LTE;RAN2;
Status: Approved

RP-090514;Approval;Rel-8;LTE-L23;REL-8 CRs to TS 36.322 for LTE;RAN2;
Status: Approved

RP-090515;Approval;Rel-8;LTE-L23;REL-8 CRs to TS 36.323 for LTE;RAN2;
Status: Approved

RP-090516;Approval;Rel-8;LTE-L23;REL-8 CRs to TS 36.331 for LTE;RAN2;
Status: Approved

RP-090570;CR;Rel-8;LTE-L23;Explicit srb-identity values for SRB1 and SRB2;Nokia Corporation, Nokia Siemens Networks, Samsung;
Status: Approved

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RP-090568;CR;Rel-8;LTE-L23;Explicit srb-Identity values for SRB1 and SRB2;Nokia Corporation;
Withdrawn

8.1.3 3G Long Term Evolution: eUTRAN interfaces

Note by RAN 3 Chairman: the following CRs (633-638) should have been treated as being allocated for AI 8.6.
RP-090479;Approval; ; ;R3 CR Pack of LTE CRs #1;MCC;
Revised to 633
RP-090633: R3 CR Pack of LTE CRs #1 (RAN 3)
It was clarified that these CRs are actually no LTE related CRs
Status: Approved

RP-090480;Approval; ; ;R3 CR Pack of LTE CRs #2;MCC;
Revised to 634
RP-090634; R3 CR Pack of LTE CRs #2 (RAN 3)
It was clarified that these CRs are actually no LTE related CRs
Status: Approved

RP-090481;Approval; ; ;R3 CR Pack of LTE CRs #3;MCC;
Revised to 635
RP-090635; R3 CR Pack of LTE CRs #3 (RAN 3)
It was clarified that these CRs are actually no LTE related CRs
Status: Approved

RP-090589;Approval; ; ;R3 CR Pack of LTE CRs #4;MCC;
Revised to 638
RP-090638 R3 CR Pack of LTE CRs #4 (RAN 3)
It was clarified that these CRs are actually no LTE related CRs
Status: Approved

RP-090482;Approval; ; ;R3 CR Pack of LTE interfaces CRs #1;MCC;
Revised to 636
RP-090636 R3 CR Pack of LTE interfaces CRs #1 (RAN 3)
Status: Approved

RP-090483;Approval; ; ;R3 CR Pack of LTE interfaces CRs #2;MCC;
Revised to 637
RP-090637 R3 CR Pack of LTE interfaces CRs #2 (RAN 3)
Status: Approved

RP-090484;Approval; ; ;R3 CR Pack of LTE interfaces CRs #3;MCC;
Revised in 588
RP-090588;Approval; ; ;R3 CR Pack of LTE interfaces CRs #3;MCC;
Status:withdrawn

RP-090594;Approval; ; ;R3 CR Pack of LTE interfaces CRs #3;MCC;
Revised to 640
RP-090640 R3 CR Pack of LTE interfaces CRs #3 (RAN 3)
This package is approved with the exception of R3-091402.
Status: Approved

RP-090590;Approval; ; ;R3 CR Pack of LTE interfaces CRs #4;MCC;
Revised to 639
RP-090639 R3 CR Pack of LTE interfaces CRs #4 (RAN 3)
Revised to 644
RP-090644 R3 CR Pack of LTE interfaces CRs #4 (RAN 3)
Status: Approved

RP-090628 NAS PDU in E-RAB Release Command (CR 464r2 to 36.413 Rel-8) (NEC)
This company CR replaces CR 646 R3-091402 in package RP-090640
Status: Approved

RP-090538;CR;Rel-8;LTE-Interfaces;Configuration transfer;Motorola;
Status: Approved

RP-090595;CR;Rel-8;LTE-Interfaces;CR for Paging Procedure in 36.300;CMCC;
It is RAN 3 agreed but it was not set into the ran 2 reflector, it will be presented in the next meeting.

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Status: withdrawn

8.1.4 3G Long Term Evolution: RF Radio Transmission/ Reception, System Performance Requirements and Conformance Testing

RP-090540;Approval; ;LTE-RF;CRs for 36.101: UE Transmitter and Receiver Requirements;RAN 4
Status: Approved

RP-090541;Approval; ;LTE-RF;CRs for 36.101: Maximum Output Power Relaxation;RAN 4
Status: Approved

RP-090542;Approval; ;LTE-RF;CRs for 36.101: UE Performance Requirements;RAN 4
Status: Approved

RP-090543;Approval; ;LTE-RF;CRs for 36.101: LTE UE correction on miscellaneous requirements;RAN 4
Status: Approved

RP-090544;Approval; ;LTE-RF;CRs on Requirements for Multicarrier BS;RAN 4
Status: Approved

RP-090545;Approval; ;LTE-RF;CRs for LTE BS Transmitter and Receiver Requirements, Performance requirements;RAN 4
Status: Approved

RP-090546;Approval; ;LTE-RF;CRs for LTE RRM Test Cases Phase IIB;RAN 4
Status: Approved

RP-090547;Approval; ;LTE-RF;CRs for LTE RRM Measurement Performance Requirements;RAN 4
Status: Approved

RP-090548;Approval; ;LTE-RF;CRs for 36.133: LTE RRM RRC Connected;RAN 4
Status: Approved

RP-090549;Approval; ;LTE-RF;CRs for 36.133: LTE RRM IDLE State;RAN 4
Status: Approved

RP-090550;Approval; ;LTE-RF;CRs for 36.133: LTE RRM Timing and Signalling;RAN 4
Status: Approved

RP-090551;Approval; ;LTE-RF;CRs for 36.133 and 25.133 and 25.123: LTE RRM Miscellaneous Requirements;RAN 4
Status: Approved

8.1.5 LTE FDD Repeaters

RP-090552;Approval; ;LTE-Repeaters;LTE FDD Repeaters;RAN 4;
Status: Approved

8.2 UTRA HNB

RP-090641 R3 CR Pack of HNB-Arch related CRs #1 (RAN 3)
Status: Approved

8.2.1 Support of UTRA HNB

RP-090517;Approval;Rel-8;HNB-supp;REL-8 CRs to TS 25.304 and TS 25.331 for Support of UTRA HNB;RAN2;
Status: Approved

8.2.2 FDD Home NodeB RF Requirements

RP-090605 FDD Home NodeB RF Requirements (RAN 4)
Status: Approved

8.3 UMTS 1880 MHz TDD

RP-090553;Approval; ;RInImp9-UMTS1880TDD;UMTS 1880MHz TDD;RAN 4;
Status: Approved

8.4 HSPA VoIP to WCDMA/GSM CS continuity

RP-090518;Approval;Rel-8;RANimp-HSPAVoIP;REL-8 CR to TS 25.331 for HSPA VoIP to WCDMA/GSM CS continuity on Missing CS over HSPA operation in SR-VCC;RAN2;
Status: Approved

RP-090642 R3 CR Pack of HSPA - SRVCC related CRs #1 (RAN 3)
Status: Approved

RP-090629 Correction on Procedure Code Value for id-SRVCCPreparation (CR 1003 to 25.413 Rel-8) (Nokia Siemens Networks, Nokia)
Status: Approved

8.5 MIMO for 1.28 Mcps TDD (Rel-8)

This WI was completed in RAN 42, the only missing part is RAN 4 performance requirements.

RP-090530;Approval; ;RANimp-MIMOLCR;CR to 25.222 for clarification of MIMO in LCRTDD;RAN WG1;
Status: Approved

RP-090554;Approval; ;RANimp-MIMOLCR;MIMO 1.28Mcps TDD;RAN 4;
Status: Approved

8.6 Other closed WIs for Release 8

RP-090531;Approval; ;MBSFN-DOB;CRs to 25.221, 25.223 & 25.224 (Rel-8, F) for minor corrections on MBSFN IMB;RAN WG1;
Status: Approved

RP-090532;Approval; ;RANimp-HSDSH;CR to 25.214 for clarifiication on HS-DSCH serving cell change enhancements;RAN WG1;
Status: Approved

RP-090519;Approval;Rel-8;-;Collection of REL-8 CRs to RAN2 UTRA specifications for several closed REL-8 work items;RAN2;
Status: Approved

RP-090555;Approval; ;TEI8;CR on TEI8 batch 1: Corrections to 25.143 on repeaters, 25.133 on measurements, 25.101 on type 3i;RAN 4;
Status: Approved

RP-090556;Approval; ;TEI8;CR on TEI8 batch 2: Corrections to 25.102 reference measurement channel, 25.142 on E-DCH and 25.123 on cell reselection for UTRAN TDD;RAN 4;
Status: Approved

RP-090557;Approval; RANimp-UplinkEnhState, MBSFN-DOB;CRs on Closed Work Items for Rel-8;RAN 4;
Status: Approved

RP-090434;Approval;Rel-8;TEI8_Test;RAN5 agreed non TTCN CR(s) under WI Small Technical Enhancements and Improvements for Rel-8 Conformance Testing(TEI8_Test);TSG WG RAN5;
Status: Approved

RP-090626 Correction to HNB Identity definition (CR 22r2 to 25.469 Rel-8) (Alcatel-Lucent)
Status: Approved

RP-090586;CR;Rel-8;TEI8;Inter-RAT PS handover of signalling radio bearers only;Nokia Corporation, Nokia Siemens Networks
withdrawn

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9 Open Release 8 and beyond Work Items (Status update and approval of CRs, reports)

9.1 Radio Interface Improvement Feature

9.1.1 UMTS/LTE 3500 MHz (Rel-8)

RP-090387;WI/SI Status Report; ; ;Status Report for WI UMTS/LTE 3500 MHz;Ericsson
Work Item Name: UMTS/LTE 3500
SOURCE: Rapporteur (Ericsson) TSG: RAN WG: 4
E-mail address rapporteur: johan.skold@ericsson.com
Ref. to WI sheet: RAN_Work_Items.doc (RP-071012)
Estimates of the level of completion (when possible): 40%
WI completion date review resulting from the discussion at the working group:
December 2009, RAN#46 (RAN2, RAN3, RAN4)
Status: Noted

RP-090597;LS in; ;RInImp8-UMTSLTE3500, FS_RAN_LTEA;LS to WP5A: REVIEW PRELIMINARY BWA CHARACTERISTICS FOR USE IN COMPATIBILITY STUDIES WITH FIXED-SATELLITE SERVICE SYSTEMS IN THE 3,400-4,200 MHz BAND (R4-092120 Source: TSG RAN WG4, To: ITUR WP5A, Cc: TSG RAN);TSG RAN WG4;
This document was approved by correspondence and already sent to ITU.
Status: Noted

9.1.2 RF Requirements for Multicarrier and Multi RAT BS (Rel-9)

RP-090388;WI/SI Status Report; ; ;Status Report for WI RF Requirements for Multicarrier and Multi RAT BS;Ericsson
Work Item Name: RF requirements for Multicarrier and Multi-RAT BS
SOURCE: Rapporteur (Ericsson) TSG: RAN WG: 4
E-mail address rapporteur: johan.skold@ericsson.com
Ref. to WI sheet: RP-081098
Estimates of the level of completion (when possible): 30%
WI completion date review resulting from the discussion at the working group: March 2010

Telecom Italia mentions that they have a document related to this.
Status: Noted

RP-090615 On MSR RF requirements' potential impacts on legacy networks (Telecom Italia, Orange, China Mobile)
Conclusion of the paper:
The co-sourcing Companies propose the following way forward:
- **to define MSR single RAT requirements according to the current existing specifications for single RATs;**
- **to ask RAN WG4 to carry out performance evaluation in a limited number of scenarios, in terms of capacity, coverage and guard bands effects due to MSR BS in multi-RAT configuration with regards to single RAT BS;**
- **to specify a limited set of power classes for MSR BS, each one referring to a range for the "maximum total output power";**
- **to define a general template for the manufacturer output power declaration and move it in Annex.**

Ericsson says that these issues have to be brought in RAN 4.
Telecom Italia says that the intention of the paper is to rise the issue, they would like that RAN plenary suggests RAN 4 to consider the issue shown in the document.
Telecom italia says that there may be impact on legacy base stations hence simulations are needed before concluding the TR.
Telecom italia would prefer that RAN 4 should do simulations unless it is not necessary. They think that 3gpp is overlooking some important issues in deployments. In general when introducing new bands 3gpp is doing evaluations. In this case no evaluation has been done. They strongly feel that simulations are needed. Otherwise the impact on network may be dramatic.
The chairman suggests that In the next RAN 4 meeting, it is necessary that RAN 4 review the issue, RAN 4 should decide the necessity of simulation work.
T-mobile says that experts for this work item are not here in the plenary, source companies have to bring the issues to RAN 4 and discuss in the WG. RAN plenary does not take technical decisions. The outcome of the discussion in ran 4 has to be brought in RAN plenary.
Telecom Italia feels that the work item does not provide sufficient background to accept the conclusions of this work item. Telecom italia is opposing the conslusion of the work item.
Vodafone suggests to formulate what RAN plenary ask RAN 4 to do.
Ericsson says that ran 4 should study the proposal and the conclusions of this paper.

The way forward is that RAN 4 should study this proposal and the conclusion of this paper as mentioned above.
Status: Noted

RP-090460;LS in; ;RF requirements for Multicarrier and Multi-RAT BS;LS on Status of the MSR Work Item (R4-092092 Source: TSG RAN WG4, To: TSG GERAN WG1, Cc: TSG RAN,ETSI RRS);TSG RAN WG4;
Status: Noted

RP-090596;LS in;Rel-8;RF requirements for Multicarrier and Multi-RAT BS (GERAN part);Reply LS to "LS on Status of the MSR Work Item" (GP-091069 Source: TSG GERAN WG1, To: TSG RAN WG4, Cc: TSG RAN);TSG GERAN WG1;

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Status: Noted

9.1.3 LCR TDD UE OTA Performance Requirements (Rel-9)

RP-090389;WI/SI Status Report; ; ;Status Report for WI LCR TDD UE OTA Performance Requirements;CATR
Work Item Name: LCR TDD UE OTA Performance Requirements
SOURCE: Rapporteur TSG: RAN WG: 4
E-mail address rapporteurs: wuxiang@catr.cn
Estimates of the level of completion (when possible): 100%
The WI completion date: TSG RAN #44, June 2009
The target completion date was TSG RAN #45, Sep 2009
Status: Noted
MCC says that the WID says that the intention was to provide a TR in the series 25.8xx.
Fujitsu (as RAN 4 chairman) clarifies that 25.8xx is an internal TR.
Status: Noted

RP-090558;Approval; ;RInImp9-RFLCROTA;LCR TDD UE OTA Performance Requirements;RAN 4
Corresponding CR in for 34.114 should be provided as well. The work in RAN 4 is completed, but RAN 5 will need to do some work on the conformance testing aspects.
CATT says that the work item considers only aspects related to RAN 4. In this meeting there is the proposal for a new work item to finish the work in RAN 5.
Status: Approved
RAN 4 Chairman suggests to go back to RAN 4 and check the status of the TR in RAN 4.

The WI is kept open even if the completion is 100% because the internal RAN 4 TR is not provided. In the next meeting RAN 4 will provide the internal TR if RAN 4 thinks that this is necessary. RAN 4 may also report in the next plenary that the TR is not necessary. In the next plenary if the TR is available the TR as to be provided for approval (not for information)

9.1.4 Extended UMTS/LTE 800 (Rel-9)

RP-090390;WI/SI Status Report; ; ;Status Report for WI Extended UMTS/LTE 800;NTTDoCoMo;
Work Item Name: Extended UMTS/LTE 800
SOURCE: Rapporteur, Shingo Suwa (NTT DOCOMO) TSG: RAN WG: 4
E-mail address rapporteur: suwas@nttdocomo.co.jp
Estimates of the level of completion (when possible): 75%
WI completion date review resulting from the discussion at the working group: RAN#45(RAN4, RAN2, RAN3, RAN5)
Status: noted

RP-090559;Approval; ;RInImp9-UMTSLTE800;Extended UMTS/LTE 800;RAN 4;
Status: Approved

RP-090468;Information; ;RInImp9-UMTSLTE800;Extended UMTS / LTE 800 Work ItemTechnical Report v1.0.0;NTT DOCOMO;
Status: noted

RP-090455;LS in; ;RInImp9-UMTSLTE800 ;LS on handling the work item Extended UMTS/LTE 800 (R4-091066 Source: TSG RAN WG4, To: TSG RAN WG5, Cc: TSG RAN);TSG RAN WG4;
Status: noted

RP-090598;Approval;Rel-9;RInImp-UEConTest-UMTSLTE800EU;RAN5 agreed non TTCN CR(s) under WI UMTS/LTE in 800 MHz for Europe UE conformance test;TSG WG RAN5;
Staus: Revised to 647
RP-090647 RAN5 agreed non TTCN CR(s) under WI UMTS/LTE in 800 MHz -- UE conformance test (TSG WG RAN5)
Status: Approved

9.1.5 UMTS/LTE 800 MHz for Europe (Rel-9, new WI)

RP-090391;WI/SI Status Report; ; ;Status Report for WI UMTS/LTE 800MHz for Europe;Ericsson;
Work Item Name: Status Report for WI UMTS/LTE 800MHz for Europe
SOURCE: Rapporteur (Ericsson) TSG: RAN WG: 4
E-mail address rapporteur: olav.queseth@ericsson.com
Ref. to WI sheet: RP-090156
Estimates of the level of completion (when possible): 5% Complete
WI completion date review resulting from the discussion at the working group:
December 2009, RAN#46 (RAN2, RAN3, RAN4)
Status: Noted

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RP-090617 Frequency (channeling arrangements) at 700-862 MHz (ECC PT1, R4-091999)
RAN 4 has already treated this LS and reponse back.
Status: Noted

9.1.6 Performance requirement for LCR TDD with UE speeds up to 350 kph (Rel-9, new WI)

RP-090392;WI/SI Status Report; ; ;Status Report for WI Performance Requirements for LCR TDD with UE speeds up to 350Kph;CATT;
Work Item Name: Performance requirement for LCR TDD with UE speeds up to 350 kph
SOURCE: Rapporteur TSG: RAN WG: 4
E-mail address rapporteur: songyuexia@datangmobile.cn
Ref. to WI sheet: RAN_Work_Items_after_RP43.doc
Estimates of the level of completion (when possible): 20%
WI completion date review resulting from the discussion at the working group:
Dec 2009（RAN#46）.

Discussion: RAN 1 Chairman says that in RAN 4 there has been no discussion on the simulation results for high speed train.
Only the assumptions have been discussed.
CATT clarifies that this WI copes with only the performance requirements for the high speed.
RAN 4 Chairman says that ran 4 has agreed on the simulation scenarios, based on this simulation results will be provided. The current understanding is that the results so far are enough to set the requirements for high speed train for UE TDD. If delegates belives that some more more work is required he welcomes contrbution.
RAN 1 Chairman clarifies that there is a new work item which is proposing to make modifications for LCRTDD for RAN 1-2-3. With no impact in ran 4.
RAN 4 has agreed the assumptions and base the requirements on these assumptions but now with the new work item ran 1-2-3 will change the assumptions. There is an overlap iin the two work items which may have implication.
Status: Noted

9.2 RAN Improvement Feature

9.2.1 1.28 Mcps TDD Repeater (target Rel-xx)

RP-090393;WI/SI Status Report; ; ;Status Report for WI 1.28 Mcps TDD Repeater specification;CATR;
Work Item Name: 1.28 Mcps TDD Repeater specification
SOURCE: Rapporteur TSG: RAN WG: 4
E-mail address rapporteurs: qinyan@catr.cn
Estimates of the level of completion (when possible): 40%
WI completion date: TSG RAN #46, Dec 2009
Status: Noted

Discussion:
NEC says that in the work plan this work item is still considered as rel-8 and suggests to move this out of Rel-8 now. The completion level is only 40%.
Fujitsu (RAN 4 chiarman) suggets to come back to ran 4 and discuss with the proponent. The situation will be reviewed in the next plenary.
The target release should be changed.

9.2.2 Continuous Connectivity for packet data users for 1.28Mcps TDD (Rel-8)

RP-090394;WI/SI Status Report; ; ;Status Report for WI Continuous Connectivity for packet data users for 1.28Mcps TDD;TD TECH;
Work Item Name: Continuous Connectivity for packet data users for 1.28Mcps TDD
SOURCE: TD Tech TSG: RAN WG: 1
E-mail address rapporteur: chenying@td-tech.com
Ref. to WI sheet: RP-080085.doc, TSGRP#39 (2008)
Estimates of the level of completion (when possible): Overall: 100%
WI completion date review resulting from the discussion at the working group: RAN#44
Status: Noted

RP-090533;Approval; ;RANimp-LCRCPC;CRs to 25.221, 25.222 & 25.224 introducing clarifications of CPC in LCRTDD;RAN WG1;
Status: Approved
RP-090560;Approval; ;RANimp-LCRCPC;Continuous Connectivity for packet data users for 1.28Mcps TDD;RAN 4;
Becauase of this CR Ran 5 specification will need extra work for conformance test specifications.
Status: Approved

RP-090582;Approval; ;RANimp-LCRCPC;TR 25.929 v2.0.0 Continuous Connectivity for packet data users for 1.28Mcps TDD;RAN WG1;
Status: Approved

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The work item is closed.
TO be reported to SA: All Rel-8 Work Items are closed.

9.2.3 Dual-Cell HSUPA (Rel-9, new WI)

RP-090395;WI/SI Status Report; Status Report for WI Dual-cell HSUPA;Nokia Siemens Network
Work Item Name: Status Report for WI Dual-cell HSUPA
SOURCE: Rapporteur, Nokia Siemens Networks TSG: RAN WG: 1
E-mail address rapporteur: karri.ranta-aho@nsn.com
Estimates of the level of completion (when possible):
RAN WG1: 80%
RAN WG2: 60%
RAN WG3: 20%
RAN WG4: 20%
WI completion date review resulting from the discussion at the working group:
RAN1: June 2009 (RAN #44)
RAN2, RAN3 and RAN4: December 2009 (RAN #46)
The agreements are communicated to the other groups to progress the work. The CRs will be presented in the next meeting.
Status: Noted

RP-090520;Approval;REL-9;RANimp-DC_HSUPA;REL-9 CRs to TS 25.308 and TS 25.319 for Dual-Cell HSUPA;RAN2
RAN 2 Chairman clarifies that first we approve stage 2 Crs and then stage 3 Crs as packages.
Status: Approved

9.2.4 Support for different bands for Dual-Cell HSDPA (Rel-9, new WI)

RP-090396;WI/SI Status Report; ; ;Status Report for WI Support for different bands for Dual-Cell HSDPA;Nokia Siemens Network;
Work Item Name: Support for different bands for Dual-Cell HSDPA
SOURCE: Rapporteur, Nokia Siemens Networks TSG: RAN WG: 4
E-mail address rapporteur: tuomo.saynajakangas@nsn.com
Estimates of the level of completion (when possible):
RAN WG1: No functional physical layer spec changes expected
RAN WG2: 20%
RAN WG3: 30%
RAN WG4: 20%
WI completion date review resulting from the discussion at the working group:
September 2009 (RAN#45) for the RAN2 and RAN3 parts
December 2009 (RAN #46) for the RAN4 parts
Status: Noted

RP-090458;LS in; ;RANimp-MultiBand_DC_HSDPA;LS on Band Combination Handling for Dual-Band Dual-Cell HSDPA (R4-092072 Source: TSG RAN WG4, To: TSG RAN WG2,TSG RAN WG3, Cc: TSG RAN);TSG RAN WG4;
Status:Noted

Discussion:
Qualcomm comments on the release independency nature of this WI. they say that if we agree to have this combination as rel independent, RAN has to decide how many combinations are needed for RAN 2, whether we want to capture other requirements in the the specifications.
NSN says that these questions maybe addressed in the next plenary, after discussion have been done in the WG 4 after the analysis of the combination is done. For the moment it is not clear how many combinations are needed, and in the futture they are likely to increase.
The chairman tasks ran 4 to discuss which combination should be defined when considering the Rel-9 timing.
RAN 4 Chairman says the LS in 458 mentions that this band combinations should be considered as release independent starting from Rel-9 and beyond.
Panasonic asks the meaning of forward compatibility.
Qualcomm says that because of release independency we have to be sure that the signalling is considering possible future extension. It has to be forward compatible.
It is clarified that for the moment we have to consider only dual band.
Discussion in Ran 2 will take place to decide the need for a new TS/TR.
RAN 2 will provide the way forward in the next plenary.
Stage 2 CRs will come in the next plenary. Stage 3 Crs will come later.

9.2.5 Combination of DC-HSDPA with MIMO (Rel-9, new WI)

RP-090397;WI/SI Status Report; ; ;Status Report for WI Combination of DC-HSDPA with MIMO;Ericsson;
Work Item Name: Combination of DC-HSDPA with MIMO
Source: Rapporteur, Ericsson, Johan Bergman TSG: RAN WG: 1
E-mail address rapporteur: johan.bergman@ericsson.com
Ref. to WI description:
http://www.3gpp.org/ftp/tsg_ran/TSG_RAN/TSGR_43/Documents/RP-090332.zip
Estimates of the level of completion (when possible):
RAN WG1: 80%
RAN WG2: 50%
RAN WG3: 30%

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RAN WG4: 30%
WI completion date review resulting from the discussion at the working group:
December 2009 (RAN #46).
Status: Noted

RP-090521;Approval;REL-9;RANimp-DC_MIMO;REL-9 CR to TS 25.308 on Introduction of DC-HSDPA and MIMO;RAN2;
Status: Approved

9.2.6 UTRAN 2 ms TTI uplink range improvement (Rel-9, new WI)

RP-090398;WI/SI Status Report; ; ;Status Report for WI UTRAN 2ms TTI uplink range improvement;Nokia Siemens Network;
Work Item Name: Status Report for WI UTRAN 2ms TTI uplink range improvement
SOURCE: Rapporteur, Nokia Siemens Networks TSG: RAN WG: 1
E-mail address rapporteur: karri.ranta-aho@nsn.com
Estimates of the level of completion (when possible):
RAN WG1: 10%
RAN WG2: 10%
RAN WG3: 0%
RAN WG4: 0%
WI completion date review resulting from the discussion at the working group:
December 2009 (RAN #46)
Status : Noted

9.2.7 TxAA extension for non-MIMO UEs (Rel-9, new WI)

RP-090399;WI/SI Status Report; ; ;Status Report for WI TxAA extension for non-MIMO UEs;Nokia;
Work Item Name: TxAA extension for non-MIMO UEs
SOURCE: Rapporteur, Nokia TSG: RAN WG: 1
E-mail address rapporteur: arto.lehti@nokia.com
Estimates of the level of completion (when possible):
RAN WG1: 80%
RAN WG2: 40%
RAN WG3: 0%
RAN WG4: 5%
WI completion date review resulting from the discussion at the working group:
September 2009 (RAN#45) for the RAN1, RAN2 and RAN3 parts
December 2009 (RAN #46) for the RAN4 parts
Status: Noted

RP-090522;Approval;REL-9;RANimp-TxAA_nonMIMO;REL-9 CR to TS 25.308 on Introduction of TxAA extension for non-MIMO UEs;RAN2;
Status: Approved

9.3 Support for IMS Emergency Call over GPRS and EPS

9.3.1 Support for IMS Emergency Calls over LTE (Rel-9)

RP-090400;WI/SI Status Report; ; ;Status Report for WI Support for IMS Emergency Call over LTE;Alcatel-Lucent;
Work Item Name: Support for IMS Emergency Calls over LTE
SOURCE: Rapporteur (Sudeep Palat, Alcatel-Lucent) TSG: RAN WG: 2
E-mail address rapporteur: spalat@alcatel-lucent.com
Estimates of the level of completion (when possible): 60%
WI completion date review resulting from the discussion at the working group: RP#45 (September 2009)
Status: Noted

9.4 LCS for LTE and EPS

9.4.1 Positioning Support for LTE (Rel-9)

RP-090401;WI/SI Status Report; ; ;Status Report for WI Positioning support for LTE ;Qualcomm;
Work Item Name: Positioning Support for LTE
SOURCE: Rapporteur (Nathan Tenny, Qualcomm Europe) TSG: RAN WG: 2
E-mail address rapporteur: ntenny@qualcomm.com
Estimates of the level of completion (when possible): 40%

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WI completion date review resulting from the discussion at the working group:
RP#46 (December 2009)
Status: Noted

RP-090535;For Information; ;-;TS 36.305 v1.0.0 Stage 2 functional specification of User Equipment (UE) positioning in E-UTRAN;Qualcomm Europe;
Status: Noted

9.4.2 Network-Based Positioning Support for LTE (Rel-9, new WI)

RP-090402;WI/SI Status Report; ; ;Status Report for WI Network based Positioning support for LTE ;TruePosition;
Work Item Name: Network-Based Positioning Support in LTE
SOURCE: Rapporteur, Terri L. Brooks, TruePosition, Inc. TSG: RAN WG: 2
E-mail address rapporteur: terri.brooks@trueposition.com
Estimates of the level of completion (when possible): 5% → **This has to be corrected to 0%**
WI completion date review resulting from the discussion at the working group:
RAN Plenary #46, December 2009.
RAN 2 Chairman clarifies that Ran 2 should wait for RAN 1 studies. This is agreed by the group.
RAN 1 Chairman asks clarification about the offline submission of document R1-092212.
This document has been allocated bit it has not been treated.
Since there has not been activities, the completion level should be corrected to 0%
Status: Noted

9.5 MBMS support in EPS

9.5.1 MBMS support in LTE (Rel-9, new WI)

RP-090403;WI/SI Status Report; ; ;Status Report for WI MBMS support in LTE;Huawei;
Work Item Name: MBMS support in LTE
SOURCE: Huawei, Arnaud Meylan TSG: RAN WG:2
E-mail address rapporteur: arnaud.meylan@huawei.com
Ref. to WI sheet: RAN_Work_Items.doc
Estimates of the level of completion (when possible):
The overall level of completion is 25%.
WI completion date review resulting from the discussion at the working group:
No update to completion dates.
Status: Noted

RP-090523;Approval;REL-9;MBMS_LTE;REL-9 RAN2 & RAN3 CRs to TS 36.300 for MBMS support in LTE;RAN2;
Status: Approved

RP-090566;Decision; ; ;Revision of the eMBMS WID;Huawei;
Revised to 619
RP-090619 Revision of the eMBMS WID (Huawei)
Status: Approved

9.6 LTE Improvements

9.6.1 LTE Pico NodeB RF Requirements (Rel-9, new Wi)

RP-090404;WI/SI Status Report; ; ;Status Report for WI LTE Pico NodeB RF Requirements;Huawei;
Work Item Name: RF requirements for LTE Pico NodeB
SOURCE: Rapporteur, Huawei TSG: RAN WG: 4
E-mail address rapporteur: yinliyan@huawei.com
Estimates of the level of completion (when possible):
RAN WG4: 5%
WI completion date review resulting from the discussion at the working group:
March 2010 (RAN#47) (this completion date takes into account conformance testing part as well, the core part can be concluded in rel-9 timeframe).
Performance enhancement schemes are not in the scope of the work item.
Status: Noted

9.6.2 Enhanced Dual-Layer transmission for LTE (Rel-9, new WI)

RP-090405;WI/SI Status Report; ; ;Status Report for WI Enhanced Dual-Layer transmission for LTE;China Mobile;
Work Item Name: Enhanced DL transmission for LTE
SOURCE: Rapporteur – Xu Xiaodong (CMCC) TSG: RAN Plenary
E-mail address Rapporteur: xuxiaodong@chinamobile.com

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Ref. to WI sheet: RP- 090359
Estimates of the level of completion (when possible):20%
WI completion date review resulting from the discussion at the working group:
RAN#46 (December, 2009)
Status: Noted

RP-090643 Update of Work item description for enhanced downlink transmission for LTE (CMCC)
The text proposed for the ojective is as follows:
The objective of this work item is to include support for the following radio link enhancement techniques for LTE:
Support single user dual-layer beamforming using UE specific RS for both LTE-TDD and FDD
The design of the UE specific demodulation reference signals and the mapping of physical data channel to resource elements should aim for forward compatibility with LTE-A Demodulation RS
Principles exploiting channel reciprocity shall be considered in the feedback design where applicable. The need for additional feedback shall be assessed.
All new enhanced features and capabilities shall be backward compatible with networks and UEs compliant with LTE Release 8, and also should aim to be as an extension of the beamforming in Release 8.

The possible additions to the scope to include enhancements for MU-MIMO with beamforming are to be discussed and decided in the TSG RAN#45. The work in RAN1 should be progressed early enough in order not to affect the work in other WGs. Following the stable concept from TSG RAN WG1, the TSG RAN WG2, WG3 and WG4 should start their work, earliest after TSG RAN#44.

RAN 1 Chairman asks what are the implications.
CMCC says that the proposal is to keep discussing and if agreements are reached to inform other groups.
NSN says the second phrase is unclear. RAN 1 should inform the other working group about the agreements, but if the scope of this work item is extended will be decided in the next plenary.
Ericsson says that in the objective second sentence is not needed, and the last sentence has to be revised.
Ericsson propose to revise it as
"The possible additions to the scope to include enhancements for MU-MIMO with beamforming are to be discussed and decided in the TSG RAN#45. Following the stable concept from TSG RAN WG1, the TSG RAN WG2, WG3 and WG4 should start their work."
The intention is to
Status: revised to 648.
RP-090648 Update of Work item description for enhanced downlink transmission for LTE (CMCC)
Status: Approved

9.7 Enhanced Home NodeB / eNodeB

RP-090569;Discussion; ;EHNB-RAN2;Requirements for the active mode mobility for home NodeB & eNodeB;Nokia Corporation, Nokia Siemens Networks
The chairman suggests to have a drafting session to provide clear guidance.
RAN 2 Chairman asks why there is the need to have more interruption time.
RAN 3 Chairman says that if they think that the ue has sufficient time to read the SIP, then there is no extra work.
RAN 2 Chairman says that there has to be a tradeoff between ue complexity and number of interruption time.
Qualcomm says that this is a ran 3 discussion not plenary discussion, so they suggest to have discussion in ran 2.
Nokia says that there are interconnection between WGs and tradeoffs need to be done in order to limit the ue and the network complexity. Not only for early releases but also for later rel as rel-9.
RAN 2 Chairman says that the guidance Nokia expects from the plenary is that Ran 2 has to prioritarize the limitation of the complexity.
Nokia says that in RAN 2 it was difficult to reach a compromise and tradoff in the right sense.
Qualcomm says that as soon as RAN 2 as a working assumption they should communicate it to the other working groups for evaluations.
Nokia agrees on the way forward proposed by Qualcomm but would like to add that the tradeoff has to considered by taking into account the complexity (limit the complexity) also in rel-9.
Vodafone says that the tradoff is between what the operators want and the complexity. They do not think that this is a plenary discussion.
Nokia says that it is important to involve ran 4 in the early phase.
Qualcomm says that as soon as RAN 2 as a working assumption they should communicate it to the other working groups for evaluations.
Nokia agrees on the way forward proposed by Qualcomm but would like to add that the tradeoff has to considered by taking into account the complexity (limit the complexity) also in rel-9.
Possible Way forward to be reviewed during the meeting.

Way forward 1: the assumption agreed in RAN 2 has to be communicated to the other working groups. The tradeoff between complexity and performance has to be considered.

Way forward 2: Requirements will be agreed together with the WGs so that the tradeoffs are properly considered.

Way forward 3: RAN 4 should consider these aspects carefully and liaise to ran 2 if issues are identified.

Way Forward 4: Joint meeting in LA between R2 and R4

After offline discussion
Proposal 1:
From RAN point of view it is acceptable that the performance of inbound handover to CSG cell does not have to match macro to macro handover performance.

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Proposal 2:
From RAN point of view it is acceptable
that the performance of inbound handover
to CSG cell are worse than
macro to macro handover performance.

AT&T, NSN anf CMCC suggests to limit how much "less good" can be.
Telecom Italia suggests to check with SA1 if this is acceptable. Telecom Italia does not agree with the relaxation of the performance.
NSN says it has to be accepted that the performance can not be the same.
AT&T asks what this statement implies in the RAN2 and RAN3 work. The statement does not close the door to other possible solutions that may close the gap with the performance of macro to macro.
Nokia says that possible solutions are available at the expense of increased complexity.
RAN 2 will quantify the scenarios and Ran 4 will evaluate the performance.
Qualcomm would like to have a statement that clearly show that RAN accepts that there is a relaxation of the performance.
Vodafone says that it is better to concentrate on the particular scenarios and evaluate the tradoff between performance and complexity.
After offline discussion it was decided that ran 4 has to be involved in early phase and it is agreed to continue the discussion in the WG.
Status: Noted

RP-090465;LS in; ; ;Results of SA Prioritization and Coordination Discussions for HNB (SP-090237 Source: TSG SA, To: TSG RAN,TSG RAN WG2,TSG RAN WG3,TSG SA WG2,TSG CT,TSG CT WG1, Cc:);TSG SA;
This LS mentions that this is an inter-TSG level feature work item.
NEC suggests to use this as an umbrella which considers all the Home (e)NB WIs. The title of the SP document may be used as the title of the agenda item this will allow an easy tracking of the features within the different TSG. (the title is: 400035 Enhanced Home NodeB / eNodeB Rel-9 S1,S2,S3,S5,R2,R3,R4**).**
This may be considered for the next meeting.
KDDI says that in SA they do not have rapporteur for such cases.
The chairman clarifies that in the WID, we have 3 rapporteurs one for each TSGs. 3rapporteurs should coordinate the work between TSGs.
Status: Noted

9.7.1 LTE FDD Home eNodeB RF Requirements (Rel-9)

RP-090406;WI/SI Status Report; ; ;Status Report for WI LTE FDD Home eNodeB RF Requirement;Motorola;
Status: revised to 627
RP-090627 Status Report for WI LTE FDD Home eNodeB RF Requirement (Motorola)
Work Item Name: LTE FDD Home eNodeB RF Requirements
SOURCE: Rapporteur, Motorola TSG: RAN WG: 4
E-mail address rapporteur: yingcai@motorola.com
Ref. to WI sheet: RP-081080, TSG-RAN #42
Estimates of the level of completion (when possible):
RAN WG4: 10%
WI completion date review resulting from the discussion at the working group:
Dec 2009 (RAN#46)
Status: Noted

9.7.2 LTE TDD Home eNodeB RF Requirements (Rel-9, new WI)

RP-090407;WI/SI Status Report; ; ;Status Report for WI LTE TDD Home eNodeB RF Requirement;China Mobile;
Work Item Name: LTE TDD Home eNodeB RF Requirements
SOURCE: Rapporteur, CMCC TSG: RAN WG: 4
E-mail address rapporteur: linan@chinamobile.com
Estimates of the level of completion (when possible):
RAN WG4: 10%
WI completion date review resulting from the discussion at the working group:
Dec 2009 (RAN#46)
Status: Noted

9.7.3 Home NB and Home eNB enhancements – RAN2 aspects (Rel-9, new WI)

RP-090408;WI/SI Status Report; ; ;Status Report for WI Home NB and Home eNB enhancements RAN 2 aspects;Huawei;
Revised in 592
RP-090592;WI/SI Status Report; ; ;Status Report for WI Home NB and Home eNB enhancements RAN 2 aspects;Huawei;
Work Item Name: Home NB and Home eNB enhancements RAN2 aspects
SOURCE: Rapporteur Huawei, Yang Xudong TSG: RAN WG: 2
E-mail address rapporteur: yangxudong@huawei.com
Estimates of the level of completion (when possible):
20%

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WI completion date review resulting from the discussion at the working group:
Dec 2009.
Status: noted

RP-090524;Approval;REL-9;EHNB-RAN2;REL-9 CRs to TS 36.300 and TS 25.367 for Support of Home NB and Home eNB enhancements RAN2 aspects on Idle mode requirements to support Hybrid Cells;RAN2;
Status: Approved

9.7.4 Home NB and Home eNB enhancements – RAN3 aspects (Rel-9, new WI)

RP-090409;WI/SI Status Report; ; ;Status Report for WI Home NB and Home eNB enhancements RAN 3 aspects;Alcatel-Lucent; ;
Work Item Name: Support of Home NB and Home eNB enhancements RAN3 aspects
SOURCE: Rapporteur TSG: RAN WG: RAN3
E-mail address rapporteur: mw15@alcatel-lucent.com
Estimates of the level of completion (when possible): 20%
WI completion date review resulting from the discussion at the working group:
Not discussed → completion date is kept as it was agreed already (December 2009).
Status: Noted

RP-090534;CR;Rel-9;EHNB-RAN3;QoS support for Hybrid CSG cells;Qualcomm Europe; ;
This is a company CR to replace R2-093608 CR #101.
Status: Approved
RP-090537;CR;Rel-9;EHNB-RAN3;TAI based handover routing for HeNBs;NSN, Nokia, Alcatel Lucent, Motorola, Orange, Huaw; ;
Status: Approved

9.8 Self-Organizing Network (Rel-9, new WI)

RP-090410;WI/SI Status Report; ; ;Status Report for WI Self-Organizing Network;Nokia Siemens Network;
Work Item Name: SON
SOURCE: Rapporteur (Nokia Siemens Networks) TSG: RAN WG: 3
E-mail address rapporteur: krzysztof.kordybach@nsn.com
Estimates of the level of completion (when possible):
About 35%
WI completion date review resulting from the discussion at the working group:
RAN #46 expected
Status: Noted

RP-090487; Information; ; ;TR 36.902 " Self-configuring and self-optimizing network use cases and solutions" for information;T-Mobile;
The correct template for the cover sheet will be used in the next meeting.
CRs will be provided in the next meeting.
Status: Noted

9.9 Technical Small Enhancements and Improvements

10 Conformance Testing WIs

10.1 Conformance Test Aspects - Enhanced CELL_FACH state in FDD

RP-090411;WI/SI Status Report; ; ;Status Report for WI Conformance test aspects Enhanced CELL_FACH State in FDD;Nokia;
Work Item Name: RANimp-UEConTest_EnhancedCellFACHState (Enhanced CELL_FACH state in FDD)
SOURCE: Rapporteur, Jarkko Hellsten, Nokia TSG: RAN WG: 5
E-mail address rapporteur: jarkko.hellsten@nokia.com
Estimates of the level of completion (when possible):85%
WI completion date review resulting from the discussion at the working group:
RAN WG5 target date for completion has been moved to September-09 (RP#45) during RAN5#43.
Status: Noted

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10.2 Conformance test aspects – 64 QAM for 1.28 Mcps TDD HSDPA

RP-090415;WI/SI Status Report; ; ;Status Report for WI Conformance test aspects _ 64 QAM for 1.28 Mcps TDD HSDPA;ZTE;
Work Item Name: RANimp-UEConTest_64Qam1.28TDD
SOURCE: Rapporteur TSG: RAN WG: 5
E-mail address rapporteurs: ma.zijiang@zte.com.cn
Estimates of the level of completion (when possible): 100%
WI completion date review resulting from the discussion at the working group:
TSG RAN #44, May 2009.
Status: Noted

RP-090443;Approval;Rel-8;RANimp-UEConTest_64Qam1.28TDD;RAN5 agreed non TTCN CR(s) under WI Conformance Test Aspects _ 64QAM for 1.28 Mcps TDD HSDPA (RANimp-UEConTest_64Qam1.28TDD);TSG WG RAN5;
Status: Approved

The work item is closed

10.3 Conformance test aspects – Improved L2 for Uplink

RP-090412;WI/SI Status Report; ; ;Status Report for WI Conformance test aspects _ Improved L2 for Uplink;Ericsson;
Work Item Name: RANimp-UEConTest_UplinkL2dataRates
SOURCE: Rapporteur TSG: RAN WG: 5
E-mail address rapporteurs: leif.mattisson@ericsson.com
Estimates of the level of completion (when possible): 60%
WI completion date review resulting from the discussion at the working group:
TSG RAN #45, September 2009
Status: Noted

RP-090446;Approval;Rel-8;RANimp-UEConTest_UplinkL2dataRates;RAN5 agreed non TTCN CR(s) under WI Improved L2 for Uplink (RANimp-UEConTest_UplinkL2dataRates);TSG WG RAN5;
Status: Approved

10.4 Conformance test aspects – MBSFN for FDD

RP-090413;WI/SI Status Report; ; ;Status Report for WI Conformance test aspects _ MBSFN for FDD;Huawei;
Work Item Name: MBMSE-UEConTest_RANPhysFDD (Conformance Test Aspects –MBSFN for FDD)
SOURCE: Rapporteur (Huawei)TSG: RAN WG: 5
E-mail address rapporteur: trica_li@huawei.com
Estimates of the level of completion (when possible): 25%
WI completion date review resulting from the discussion at the working group:
TSG RP#45, September 09
Status: Noted

RP-090441;Approval;Rel-8;MBMSE-UEConTest_RANPhysFDD;RAN5 agreed non TTCN CR(s) under WI Conformance Test Aspects _ MBSFN for FDD (MBMSE-UEConTest_RANPhysFDD);TSG WG RAN5;
Status: Approved

10.5 Conformance test aspects – Combination of 64QAM and MIMO for HSDPA (FDD)

RP-090414;WI/SI Status Report; ; ;Status Report for WI Conformance test aspects _ Combination of 64QAM and MIMO for HSDPA (FDD);Ericsson;
Work Item Name: RANimp-UEConTest 64QamMimoHsdpa
SOURCE: Rapporteur TSG: RAN WG: 5
E-mail address rapporteurs: leif.mattisson@ericsson.com
Estimates of the level of completion (when possible): 60%
WI completion date review resulting from the discussion at the working group:
TSG RAN #45, September 2009
Status: Noted

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RP-090444;Approval;Rel-8;RANimp-UEConTest 64QamMimoHsdpa;RAN5 agreed non TTCN CR(s) under WI Conformance Test Aspects Combination of 64QAM and MIMO for HSDPA (FDD) (RANimp-UEConTest 64QamMimoHsdpa);TSG WG RAN5;
Status: Approved

10.6 3G Long-Term Evolution Testing

10.6.1 3G LTE RF - Terminal Radio Transmission and Reception Conformance test Specifications (FDD/TDD)

RP-090386;WI/SI Status Report; ; ;Status Report for WI 3G LTE Terminal Radio Transmission and Reception Conformance Test Specifications;Agilent;
Work Item Name: LTE-UEConTest_RF (3G Long Term Evolution – Terminal Radio Transmission and Reception Conformance Test Specifications)
SOURCE: Rapporteur, Andrea Leonardi, Agilent Technologies TSG: RAN WG: 5
E-mail address rapporteur: andrea_leonardi@agilent.com
Estimates of the level of completion (when possible):
83% Overall FDD completion
81% Overall TDD completion
Detail levels of completion:
85% TS 36.521-1 (TX/RX/Performance Requirements) test cases
80% TS 36.521-3 (RRM test cases)
80% TS 36.521-2 (Applicability)
WI completion date review resulting from the discussion at the working group: TSG RAN #45, September 2009
Status: Noted

RP-090448;Approval;Rel-8;LTE-UEConTest_RF_FDD;RAN5 agreed non TTCN CR(s) under WI LTE Terminal Radio Transmission and Reception Conformance Test Specifications (FDD) (LTE-UEConTest_RF);TSG WG RAN5;
Status: Approved

RP-090450;Approval; ;LTE-UEConTest_RF;Presentation of specification to TSG: TS 36.521-3 v2.0.0 ;Agilent Technologies;
Status: Approved

10.6.2 3G LTE SIG - Terminal Protocol Conformance Test Specifications.

RP-090385;WI/SI Status Report; ; ;Status Report for WI 3G LTE - Terminal Protocol Conformance Test Specifications;NEC, Motorola;
Work Item Name: LTE-UEConTest_SIG (3G Long-Term Evolution – Terminal Protocol Conformance Test Specifications)
SOURCE: Rapporteurs NEC, Motorola TSG: RAN WG: 5
E-mail address rapporteurs: david.lecompte@nectech.fr, Jacob.John@motorola.com
Estimates of the level of completion (when possible): 70%
WI completion date review resulting from the discussion at the working group:
TSG RAN #45, September 2009.
Status: Noted

RP-090447;Approval;Rel-8;LTE-UEConTest_SIG;RAN5 agreed non TTCN CR(s) under WI 3G LTE Terminal Protocol Conformance Test Specifications (LTE-UEConTest_SIG);TSG WG RAN5;
Status: Approved

10.7 Conformance test aspects – MBMS LCR TDD Pysical Layer Enhancement

RP-090416;WI/SI Status Report; ; ;Status Report for WI Conformance test aspects MBMS LCR TDD Physical Layer Enhancement;CATT;
Work Item Name: MBMSE-RANPhysLCRTDD_UEConTest
SOURCE: Rapporteur CATT TSG: RAN WG: 5
E-mail address rapporteur: chenxiaozhong@datangmobile.cn
Estimates of the level of completion (when possible): 80%
WI completion date review resulting from the discussion at the working group:
Current target date for completion is September 09 (RP#45).
Status: Noted

RP-090440;Approval;Rel-8;MBMSE-RANPhysLCRTDD_UEConTest;RAN5 agreed non TTCN CR(s) under WI Conformance Test Aspects MBMS LCR TDD Physical Layer Enhancement (MBMSE-RANPhysLCRTDD_UEConTest);TSG WG RAN5;
Status: Approved

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10.8 Conformance test aspects – Dual-Cell HSPDA operation on adjacent carriers.

RP-090417;WI/SI Status Report; ; ;Status Report for WI Conformance test aspects Dual-Cell HSDPA operation on adjacent carriers;Qualcomm;
Work Item Name: RANimp-UEConTest DCHSDPA
SOURCE: Rapporteur, Shubhang Vora, Qualcomm TSG: RAN WG: 5
E-mail address rapporteur: svora@qualcomm.com
Estimates of the level of completion (when possible): 10%
WI completion date review resulting from the discussion at the working group:
TSG RAN #46, Dec 2009
The .zip includes the revised Wi Proposal.
Status: Noted

10.9 Conformance test aspects – UMTS-LTE 3500

10.9.1 Conformance test aspects – LTE 3500

RP-090418;WI/SI Status Report; ; ;Status Report for WI Conformance test aspects LTE 3500;Ericsson;
Work Item Name: RANimp_UEConTest LTE3500 (Conformance Test Aspects – LTE 3500)
SOURCE: Rapporteur, Fredrik Sundström, EricssonTSG: RAN WG: 5
E-mail address rapporteur: Fredrik.Sundstrom@ericsson.com
Estimates of the level of completion (when possible): 1%
WI completion date review resulting from the discussion at the working group:
The target date for completing the LTE3500 WI is December 2009 (RAN#46).
Status: noted

10.9.2 Conformance test aspects – UMTS 3500

RP-090419;WI/SI Status Report; ; ;Status Report for WI Conformance test aspects UMTS 3500;Nokia;
Work Item Name: RANimp_UEConTest UMTS3500 (Conformance Test Aspects – UMTS 3500)
SOURCE: Rapporteur, Jukka Vikstedt, Nokia TSG: RAN WG: 5
E-mail address rapporteur: jukka.vikstedt@nokia.com
Estimates of the level of completion (when possible): 1%
WI completion date review resulting from the discussion at the working group:
The target date for completing the UMTS3500 WI is December 2009 (RAN#46).
RAN 4 Chairman says that RAN 4 has modified the Completion date of the corresponding Ran 4 WI. Rapporteur of this WI may want to modify the completion date accordingly.
Status: Noted

10.10 UTRA HNB – UE Conformance Testing

10.10.1 Conformance Test Aspects – UTRA HNB (FDD) (Rel-8, new WI)

RP-090420;WI/SI Status Report; ; ;Status Report for WI Conformance test aspects UTRA HNB (FDD);Huawei;
Work Item Name: HNB-UEConTestFDD (UE Conformance Test Aspects – UTRA HNB (FDD))
SOURCE: Rapporteur (Huawei)TSG: RAN WG: 5
E-mail address rapporteur: trica_li@huawei.com
Estimates of the level of completion (when possible): 5%
WI completion date review resulting from the discussion at the working group:
TSG RP#46, December 09
Status: Noted

10.11 Conformance Test Aspects – Receiver Type3i (Rel-8, new WI)

RP-090421;WI/SI Status Report; ; ;Status Report for WI Conformance test aspects Receiver Type 3i;Qualcomm;
Work Item Name: RANimp_UEConTest ReceiverType3i
SOURCE: Rapporteur, Ashok kumar Narayanaswamy, Qualcomm TSG: RAN WG: 5
E-mail address rapporteurs: anarayan@qualcomm.com
Estimates of the level of completion (when possible): 20%
WI completion date review resulting from the discussion at the working group:
TSG RAN #46, December 2009
Status: Noted

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RP-090442;Approval;Rel-8;RANimp_UEConTest_ReceiverType3i;RAN5 agreed non TTCN CR(s) under WI Conformance Test Aspects (RANimp_UEConTest_ReceiverType3i);TSG WG RAN5;
Status: Approved

10.12 Conformance Test Aspects – Enhanced Uplink for CELL_FACH State in FDD

RP-090422;WI/SI Status Report; ; ;Status Report for WI Conformance test aspects Enhanced uplink CELL_FACH State in FDD;Nokia;
Work Item Name: RANimp-UEConTest_EnhancedRACHCellFACHState (Enhanced UL for CELL_FACH state (FDD))
SOURCE: Rapporteur, Jarkko Hellsten, Nokia TSG: RAN WG: 5
E-mail address rapporteur: jarkko.hellsten@nokia.com
Estimates of the level of completion (when possible): 5%
WI completion date review resulting from the discussion at the working group:
RAN WG5 target date for completion is March-10 (RP#47).
Status: Noted

RP-090445;Approval;Rel-7;RANimpUEConTest_EnhancedCellFACHState;RAN5 agreed non TTCN CR(s) under WI Conformance Test Aspects Enhanced CELL_FACH state in FDD (RANimpUEConTest_EnhancedCellFACHState);TSG WG RAN5;
Status: Approved

11 Study Items

11.1 Evaluation of the inclusion of path loss based technology in the UTRAN

RP-090423;WI/SI Status Report; ; ;Status Report for SI Evaluation of the inclusion of Path Loss Based Technology in the UTRAN;Polaris Wireless;
Work Item Name: Evaluation of the inclusion of Path Loss Based Technology in the UTRAN
SOURCE: Rapporteur TSG: RAN WG: 4
E-mail address rapporteur: nshaw@polariswireless.com
Estimates of the level of completion (when possible): 95%
WI completion date review resulting from the discussion at the working group:
Sept 2009（RAN#45）
Status: Noted

11.2 1.28 Mcps TDD Home NodeB

RP-090425;WI/SI Status Report; ; ;Status Report for SI 1.28 Mcps TDD Home NodeB;TD Tech;
Work Item Name: Study on 1.28Mcps TDD Home NodeB
SOURCE: Rapporteur (TD Tech) TSG: RAN WG: 4
E-mail address rapporteur: lirong@td-tech.com
Estimates of the level of completion (when possible): 60%
WI completion date review resulting from the discussion at the working group:
RAN#45 (Sep. 2009)
Status: Noted

11.3 E-UTRAN Mobility Evaluation and Enhancement

RP-090426;WI/SI Status Report; ; ;Status Report for SI E-UTRAN Mobility Evaluation and Enhancement;Qualcomm;
Work Item Name: E-UTRAN Mobility Evaluation and Enhancement (Study Item)
SOURCE: Rapporteur (Rajat Prakash, Qualcomm Europe) TSG: RAN WG: 1
E-mail address rapporteur: rprakash@qualcomm.com
The current level of completion is 100%.
WI completion date review resulting from the discussion at the working group:
The completion date assigned by RAN is June 2009, and has been met by RAN WG1.
Status: Noted

RP-090452;LS in; ;SI on Evaluation and enhancements for LTE Mobility;LS on Conclusions for LTE Mobility Study Item (R1-092277 Source: TSG RAN WG1, To: TSG RAN, Cc:);TSG RAN WG1;
Status: Noted

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The study item is closed.

11.4 LTE-Advanced

11.4.1 Status report, others

RP-090424;WI/SI Status Report; ; ;Status Report for SI LTE-Advanced;NTT DOCOMO;
Work Item Name: Further advancements for E-UTRA (LTE-Advanced)
SOURCE: Rapporteur – Takehiro Nakamura (NTT DOCOMO, INC.) TSG: RAN Plenary
E-mail address Rapporteur: nakamurata@nttdocomo.co.jp
Estimates of the level of completion (when possible): 60%
WI completion date review resulting from the discussion at the working group:
RAN#45 (September, 2009)
The completion date is extended to **March 2010 (see the revised SID on LTE-A in RP-090665).** Basic protocol architecture should be decided (single solution should be agreed in the study item phase). The work item proposal should be discussed in the next meeting. A work item should be created topic by topic. The details should be discussed in the future.
Shifting the completion date does not imply any delay in the ITU-R submission.
The creation of the work item will be done according to the progress of this single topic.
A status report for each work item will be needed.
Status: Noted

RP-090662 Revised SID on LTE-A (Qualcomm)
(SI in 536 will be covered by the new description of the LTE-A study item)
The Objectives are modified as follows:
- Support of heteroneous network deployments i.e. mix deployments consisting of macro, pico, femto and relay nodes.

Qualcomm says that ran 1 has developed some initial scenarios, it will depend on the ran 1 schedule to keep working on the scenarios. Initially there were some heterogeneous network setting discussed, but then this was stopped. The supporting companies would like to modify the SID in order to have clearly stated in the objective.
RAN1 chairman says that it was agreed that the completion date for the LTE-A study item was december. The expected output and time plan should be modified.
RAN 1 and RAN 2 chairmen suggest that the completion date should de March 2010 to allow some time to treat it in RAN 1. Qualcomm agrees.
Telecom italia suggests that we can open new spin off work item in september.
Status: Revised to 665
RP-090665 Revised SID on LTE-A (Qualcomm)
In the case it is felt necessary, starting from september, it will be possible to create a work item.
The target date for TR 36.912 is still September 2009 to target ITU-R submission.
Work item: FS_RAN_LTEA
Status: Approved

11.4.2 CRs to LTE-Advanced TRs,

11.4.3 ITU-R submission

11.4.4 Others

11.5 Study on Measurement of Radiated Performance for MIMO and multi-antenna reception for HSPA and LTE terminals (new SI)

RP-090427;WI/SI Status Report; ; ;Status Report for SI on Measurement of Radiated Performance for MIMO and multi-antenna reception for HSPA and LTE terminals;Vodafone;
Work Item Name: Measurement of Radiated Performance for MIMO and multi-antenna reception for HSPA and LTE terminals (Study Item)
SOURCE: Rapporteur TSG: RAN WG: 4
E-mail address rapporteur: soonleh.ling@vodafone.com
Estimates of the level of completion (when possible):
The current level of completion is 15%.
SI completion date review resulting from the discussion at the working group:
Still on track for completion in December 2009.
Status: Noted

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11.6 Study on Minimization of drive-tests in Next Generation Networks (new SI)

RP-090428;WI/SI Status Report; ; ;Status Report for SI on Minimization of drive-tests in next generation networks;Qualcomm;
Study Item Name: Study on Minimization of drive-tests in Next Generation Networks
SOURCE: Rapporteur, Qualcomm Europe, Masato Kitazoe TSG: RAN WG: 2
E-mail address rapporteur: mkitazoe [at] qualcomm.com
Estimates of the level of completion (when possible):
Overall: 30%
RAN WG2: 30%
RAN WG4: 0% (It is FFS if RAN4 involvement is necessary)
WI completion date review resulting from the discussion at the working group:
September 2009 (RAN #45)
Status: Noted

RP-090476;Information; TR 36.805 v1.0.0 Study on Minimization of drive-tests in next generation networks;Qualcomm Europe;
Status: Noted

RP-090567;Decision;;Minimization of drive-tests;Huawei;
Revised to 646
RP-090646 Minimization of drive-tests (Huawei)
3 proposals:
- or the SI moves in the scope of the current WI for SON in Rel-9, to allows RAN2 and RAN3 to provided recommendation on the policy control and transport mechanisms but this impacts the current RAN2 SI
- or in the scope of a new SI established now during the RAN#44 to focus on architecture aspects of the minimisation of drive-tests, to allows RAN2 and RAN3 to discuss it
- or RAN may kindly ask to RAN2 and RAN3 (LS) to provide guidance by RAN#45 on the policy control and transport mechanisms associated to the drive test minimization This way does not impact the current work and clarify the policy control and transport mechanisms in the timeline of the Minimization of drive-tests SI.

Status: Noted

RP-090580;Discussion; ;FS_NGN_min_drive-tests; Use of SON features in Minimization of drive-tests in Next Generation Networks studies;Nokia Corporation, Nokia Siemens Networks;
Proposal is to check the status of SON test and to identify the delta between the two WIs.
Status: Noted

Nokia and NSN would like to know what is needed currently for drive tests and the delta between today's drive-test UEs and commercial UEs, bearing in mind functions discussed for the SON WI.
Huawei supports the study item. The measurement provided may be used by the two WIs.
RAN 2 agreed already (Study item report) that there is an interrelation between these two Work items and this has to be studied. This mean that RAN 3 has to be involved.
Ran 2 Chairman says that in the TR there is also a part saying the the interrlation between these two WIs will be analyzed.
NSN says that the focus of this study item was understood to investigate the delta of the requirements on UEs used in today's drive test and capabilities of commercial UEs, considering functions as discussed under the SON WI between what it has been done in SON already and what it is missing. The focus of this study item should be kept.
Huawei says that the architecture is out of the study item, however they think that it is better to start discussing architectural aspects already now and involving ran 3.
Agreed way forward:
1) **The SI should not duplicate functionality currently under discussion within the SON WI.**
2) **The focus of the SI remains the identification of potential measurements that are considered sufficiently useful. Discussions on transport of the information (e.g. control plane or user plane) are not in the scope of the SI.**

11.7 Study on Enhanced Interference Management for HNBs (new SI)

RP-090429;WI/SI Status Report; ; ;Status Report for SI on Enhanced interference Management for HNBs;Qualcomm;
Work Item Name: Enhanced Interference Management for HNBs (Study Item)
Source : Rapporteur, Qualcomm, Farhad Meshkati TSG: RAN WG: 4
E-mail address rapporteur: fmeshkat@qualcomm.com
Estimates of the level of completion (when possible): 100%
WI completion date review resulting from the discussion at the working group: N/A
Status: Noted

RP-090561;Approval; ;FS_eInterfMgmt_HNB;Study on Enhanced Interference Management for HNBs;RAN 4;
Status: Approved

The study item is closed

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12 New Work Items/Study Items

RP-090652 Handling of new RAN work/study items (RAN 1-2-3-4 Chairman)
AT&T asks clarifications about core WI.
RAN 1 chairman says that there are areas where new work items are required (New bands performance requirements). The proposal is to avoid unecessary WIs to avoid delaying the existing work item.
Telefonica says that this can be considered as a proposal that needs to be kept in mind when reviewing the new work item and study item proposal.
Status: Noted

WORK ITEM Proposals
RP-090469;Information; 1.5 GHz band plan for UMTS and LTE in Japan;ARIB;
Status: Noted

RP-090470;Approval; ; ;Work Item proposal for Extended UMTS/LTE 1500 MHz band in Japan;NTT DOCOMO et al.;
Source companies are: NTT DOCOMO, SOFTBANK MOBILE, EMOBILE, KDDI, Fujitsu, Panasonic, NEC, Sharp, Anritsu, Nokia Siemens Networks, Huawei, ZTE Corporation, Hitachi, Kyocera, Alcatel-Lucent, Couei, RENESAS, Qualcomm Europe
Title: Extended UMTS/LTE 1500
Responsibility: RAN4 having primary responsibility, RAN2 and RAN3 having secondary responsibility
WICode: UMTSLTE1500
Status: Approved

RP-090579;New WI Proposal; ;N/A;Home NodeB Enhanced Interference Management;Qualcomm;
Revised to 622
RP-090622 Home NodeB Enhanced Interference Management (Qualcomm)
Title: Enhanced Interference Management for HNBs
Responisibility: RAN WG3 and RAN WG2
WICode: FS_eInterfMgmtMchsm_HNB
RAN 3 Chairman asks RAN to be honest when expecting something to be done for Rel-9.
Status: Revised to 656
RP-090656 Home NodeB Enhanced Interference Management (Qualcomm)
NSN asks to have a study item instead of the work item. The difference is that the priority would be on the maintenance of the earlier releases.
RAN 3 chairman proposes to keep it as a study item and to spend some time in the next meeting. The work will be started in a study item phase and in september the work can be reviewed. Qualcomm agrees with the way forward.
Way forward: this is a study item, the situation will be reviewed in september.
Status: revised to 658
RP-090658 SI: Home NodeB Enhanced Interference Management (Qualcomm)
Status: Revised to 663
RP-090663; Home NodeB Enhanced Interference Management (Qualcomm)
This has been transformed into a study item.
Editorial modifications needed.
The intention is that it will be network based only. There should be no impact on the UE therefore it should be applicable to legacy UEs.
Vodafone and RAN 2 chairman ask why there are RRC and NAS level indicated in the objective.
RAN 3 chairman says that if changes need to be done it has to be reviewd
Vodafone ask if the solution has to work for rel-8 UE. They ask if it will be possible to consider also solutions that are not applicable to rel-8 ues.
Qualcomm says that the intention is to have a mechanism which does not impact the UE.
RAN 2 chairman asks if the intention is to evaluate new RRC mechanism.
Vodafone asks if the intention is to have a solution that works with legacy UEs or if the door is open to mechanisms that are not applicable to rel-8 UEs.
RAN 3 chairman says that proponents will provide papers and in the next plenary the impact of the proposed mechanism will be discussed and reported in the plenary. After this decisions on whether we need to further study, or involve other WG etc.. will be considered.
Status: Revised to 667
RP-090667 Study on Home NodeB Enhanced Interference Management Mechanisms (Qualcomm)
Title: Enhanced Interference Management Mechanism for HNBs
Responisibility: RAN WG3
WICode: FS_eInterfMgmtMchsm_HNB
Status: Approved

RP-090562; New WI proposal; 1.28Mcps TDD Multi-carrier HSUPA;CATR, CATT, TD-TECH, ZTE;
Title: 1.28Mcps TDD Multi-carrier HSUPA
Responsibility: RAN WG1
WI Code:
Status: Revised to 654
RP-090654 1.28Mcps TDD Multi-carrier HSUPA (CATR, CATT, TD-TECH, ZTE)
Multi-carrier HSUPA is not in the specification, the work is needed
Qualcomm says that a study item should be needed to evaluate the complexity, the feasibility.
Nokia says in the past we did a study item before, in this case the proposal suggests to finalize directly a work item in 6 months. This is not realistic.
The time line is unfeasible, this should be reviewd with the chairman of the WG responsible of this work item.
The work item will be reviewed again in meetin RAN 45.
Status: Postponed

General Discussion for the WI/SI approval.
Qualcomm (as a RAN 2 vice-chairman) would like to know a clear guidance from plenary. If the companies think that there is time for this work item, as an official he will allocate the time to treat this.

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Qualcomm says that they would like to be sure that they have enough time to finalize the work item that are already currently on going. They do not think that there is sufficient time.
CATT says that are similarities between multi-carrier HSDPA and HSUPA and offline discussions can be done to carry on the work.
NSN thinks that it is more important to finalize the on-going work items related to UTRA. They do not think that the same requirements as defined in the past can be copy and paste.
T-Mobile suggests to consider as a group the WIs which impact UTRA and the impact in the work groups.
RAN 1 chairman says that in the last meeting there was a long discussion on the prioritarization. He mentions that offline discussions can not be the only way to progress one work item because this leads to less transparency in the discussions.
CATT says that because of the multiucarrier HSDPA, it can be easily checked what have to be analized. They mention that all the interested parties can participate in the discussions.
The chairman clarifies says that the work load due to this work item is unclear and the work load of each WG is high.
Proposals of way forward:
Way forward 1: Work item and study items which introduce new feature should not be approved.
Way forward 2: prioritarize the work items.
Way forward 3: investigate the work load of the WI in the WG before accpeting the WI.
RAN 4 chairman says that the WIs which are currntly under consideration have to be prioritarized. The new Work items will be treated depending on time, relying on the chairman allocation of time.
There are some work items for which RAN 1 and RAN 2 have to conclude something in RAN 45 to allow proper work in RAN 4.
RAN 5 chairman suggests that if we think that the wi is doable, the WG x chairman has a predetermined slot of time. However the suggestion is to make clear that there is no guarantee that the work will be finished by the target completion date.
The group agrees that the existing WI should be prioritarized.
Way forward 4: Completion date of the new WI/SI depends on the work load of each work item. IN principle the WI/SI is approved but the completion date should be open, and it depends on the working group load and analysis of the work that has to be done.
Ericsson proposes to postpone the review of WI/SI in RAN 45. Samsung agrees with the fact that there is no time. Even if a WI is approved now, there will be no time to treat it in the next 3 months.
A target completion date should be provided. It has to be carefully reviewed by the WG chairman.
RAN 1 chairman clarifies that keeping the door opened to new WIs does not help.
KDDI agrees that a target comletion date should be provided and that the completion date should be reviewed by the chairman. If some companies thinks that a particualr new work item has to be prioritarized the chairman of each work group should report it in the plenary.
NEC says that it seems that the chairmen agrees that we should not approve core WIs. However they belive that this can not a general treatement, each WI should be carefully reviewed by considering this proposal by chairmen.
When we approve a work item it does not mean that it is approved for a particular release but it is approved to be completed for a target date.
They suggest to look at each proposal and the completion date and relaize that very little can be done before rel-9.
AT&T suggests to approve the WI and leave it to the WG to decide whether they can treat it or not.
NSN says that RAN should give guidance on what to treat and when.
RAN 1 chairman agrees that RAN has to do the coordination of the groups. If we leave it to the WG chair it may happen that some WGs are working on one topic and the other not, this may create interworking group activities.
RAN 4 chiarman suggests to use the same handling as provided in the last plenary for a particualr work item: the work item can be approved but the actual work is started after a certain date.
CATT says that if there is no time to review the work item proposals in the WG, the situation in september the situation won't change.
The chairman clarifies that some WIs will be closed in sepember.
RAN 5 chiarman suggests to come back in the next meeting and ask proponent to provide a better indication if the work item is still needed and what are the implications in the different WGs.

Way forward: each WI/SI looked independently but the common agreement is to postpone WI which have impacts on the core part to the next meeting and in the meantime the proponents should investigate/propose detailed work load and propose a resonable completion date.

RP-090581;New WI; ; ;1.28Mcps TDD multi-carrier HSUPA;CATT, Newpostcom, Potevio, CATR, Spreadtrum, TD Tech, ZTE;
Status: Withdrawn

RP-090593; New WI proposal; ;CellPortionLCR;Cell Portion for 1.28Mcps TDD;CATT;
Title:Cell Portion for 1.28Mcps TDD
Responsibility: RAN WG3
WI Code: CP_LCRTDD
Status: revised to 655
RP-090655 Cell Portion for 1.28Mcps TDD (CATT)
Completion date: RAN 46.
RAN 1 says that if the objective is just a measurement than this can be probably done in the proposed time frame, if there are impacts in the power control this may require more time.
The proponent clarifies that the intention of the work item is to do a similar work as in FDD case.
NSN says that in this case that objectives have to be revised.
Status: Revised to 659
RP-090659 Cell Portion for 1.28Mcps TDD (CATT)
The work load of this WI is very small and it can be treated within rel-9.
Title:Cell Portion for 1.28Mcps TDD
Responsibility: RAN WG3
WI Code: CP_LCRTDD
Status: Approved

RP-090449;New Work Items ;New Work Item: Enhancements for 1.28Mcps TDD in high speed environment;ZTE Corporation;
Title: Enhancements for 1.28Mcps TDD in high speed environment
Responsibility: RAN WG2
WI Code:
Status: Revised to 650

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RP-090650 New Work Item: Enhancements for 1.28Mcps TDD in high speed environment (ZTE Corporation)
RAN 1 chairman questions the need for this work item, he asks if analysis has been done in ran 4 that shows that LCDTDD has loss in perf due to high doppler.
NSN says that in LTE there was the study item which conclusion was that there was no need to change anything. Here the proponent is proposing directly a work item.
CMCC asks if we should start a study item
NSN says that this would be consistent to the LTE case.
Ericsson says that when reviewing the proposal in september it would be good to decide to have an initial study to check the need for the work.
Status: Postponed.

RP-090462;LS in; LS on ATIS Issue Statement for CMAS via LTE Broadcast Capability Specification (SP-090228 Source: TSG SA, To: ATIS WTSC, Cc: TSG RAN,TSG CT);TSG SA;
Status: Noted

RP-090475;New WI; ; ;Proposed WID on "Public Warning System (PWS) RAN aspects";Alcatel/Lucent, at&t, Qualcomm Europe, Verizon;
Revised to 599
RP-090599;New WI; ; ;Proposed WID on "Public Warning System (PWS) RAN aspects";Alcatel/Lucent, at&t, Qualcomm Europe, Verizon;
Title: Proposed WID on "Public Warning System (PWS) –RAN aspects
Responsibility: RAN WG2-RAN WG3 (still to be decided)
WI Code: PWS-RAN
Status:Revised to 649
RP-090649 Proposed WID on "Public Warning System (PWS) RAN aspects" (Alcatel/Lucent, AT&T, Qualcomm Europe, Verizon)
Title: Proposed WID on Public Warning System (PWS) –RAN aspects
Responsibility: RAN WG2-RAN WG3 (still to be decided)
WI Code: PWS-RAN
Status: Approved

RP-090564;New Work Item ; ;New WID: UMTS Per UE AMBR;Huawei;
Title: UMTS UE AMBR
Responsibility: RAN WG3
WI Code: UMTS AMBR
In UMTS there is no support for Aggregate Max Bit Rate. In Ran 3 there are some discussions. Some companies feel that we need to have a work item for this, but this may be treated also as TEI9.
RAN 3 chairman thinks that this can be considered under TEI9.
Huawei says that SA2 had a discussion, and they support AMBR, GERAN has started the work. This should be clarified next week whether the intention of SA was to do this work for UMTS as well.
Way forward: The chairman will report to SA and ask whether the intention of SA/SA2 was to have AMBR also for UMTS. No need to send a LS.
Depending on the answer from SA/SA2 it will be decided whether this can be treated as TEI9.
Status: Noted

RP-090565;New Work Item; ; ;New WID: Energy Saving;Huawei;
Revised to 620
RP-090620 New WID: Energy Saving (Huawei)
Title: Energy Saving
Responsibility: RAN WG3
WI Code: Eng Sav
RAN 3 chairman says that the mechanism to have a work item is to be sure that some time will be spent on this work.
Huawei says that in ran 3 nobody objects to have the work item on this issue.
RAN 3 chairman says ran3 did not have a discussion on this whether to have it for utran.
Huawei says that SON cover a part of this.
ALU says that it was already decided to deprioritise some features in RAN3, one of which was energy saving, so now it does not make sense to start a WI for a feature which has already been deprioritised when there is no spare time anyway in RAN3.
RAN 3 chairman says that it would be useful to have discussion on SON for UTRAN and use cases.
Orange says that the SON for LTE is already part of the LTE-A, so only the UTRA part is postponed.
The chairman clarifies that this need to be discussed.
RAN 2 chairman says that this was already agreed in advance because it is part of the LTE-A requirements.
Vodafone says that if there is a proposal on the table they would like to consider this.
Huawei says that there were some CRs and not discussed for rel-8 now they would like to clarify if these CRs can be considered in rel-9.
Qualcomm asks which part of the LTE-A covers these aspects.
RAN 1 chairman clarifies that this can be found in the Requirement TR.
Appropriate way forward should be provided in the next meeting.
Status: Postponed

RP-090612 WI Proposal: Vocoder rate adaptation for LTE (Huawei, AT&T)
Title: Vocoder rate adaptation for LTE
Responsibility: RAN WG2
WI Code: LTEimp-Vocoder
Status: Revised to 653
RP-090653 WI Proposal: Vocoder rate adaptation for LTE (Alcatel-Lucent, AT&T)
NEC asks if there are solutions from the core network to inform about the coder to use.
ALU says that the solutions are specified in the working groups, the WI specifies only the objectives.
NEC if there a solution which consider

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ALU says that probably some other specifications maybe impacted. They did not put all the specifications here because for the moment they do not know what is the solution chosen, depeding on this certain specifications will be affected.
36.331 will be affected anyway independently of the solution. They do not want to discuss solutions here.
NSN says that they are open, CT would be connceted.
RAN 3 chairman says that this seems to be a fesibility study, during which the different solutions may be studied.
This discussion should be reported in SA..
NSN suggests that if the WID is solution-agnostic then it is better not to mention aspects which are potentialy solution-specific in the service aspects section. So the corresponding sentence can be deleted, just keeping the mention that there will be liaison with SA2 and SA4 as appropriate.
The chairman clarifies that the work item can be only ran, or RAN will have to communicate with other groups, the work load is unclear.
Ericsson says that this item may not require too mcuih work, there are some aspects which need to be coordinated with SA 2 and SA 4. If we wait until september we loose the possibility to coordinate with other WGs.
SA chairman says that RAN has to mention this to SA so that they are aware of the activity in RAN. It is better to take a decision and liaise with SA.
Vodafone asks if we should have the same discussion in SA 2 and SA 4 and see if there is the need to modify also UTRAN specifications.
NSN prefers to limit the issue for the sake of time.
Way forward: revise the Serv ice aspects, and send an LS to SA to report the RAN discussion
Status: Revised to 660.
RP-090660 WI Proposal: Vocoder rate adaptation for LTE (Alcdatel-Lucent, AT&T)
The Service aspects have been modified to take into account the comment about the solution-agnostic goal of the WID.
CMCC supports the work item.
RAN 4 chairman asks clarification about the specifications impacted, and the estimated completion date.
ALU says that the estimation is that the work is estimated by december 09.
CATT asks if this WI affects stage 2 specifications.
It is noted that the target completion date is RAN 46 and there will be stage 3 specifications impacted.
Title: Vocoder rate adaptation for LTE
Responsibility: RAN WG2
WI Code: LTEimp-Vocoder
Status: Approved
RP-090661 LS to SA, SA2, SA4 on Vocoder Rate Adaptation for LTE (Alcatel-Lucent)
RAN 3 chairman says that some feedbacks/guidance from SA should be welcomed
NEC asks to use the company name as a source of a LS out before approval.
Status: Revised to 664.
RP-090664 LS to SA, SA2, SA4 on Vocoder Rate Adaptation for LTE (Alcatel-Lucent)
Status: Approved

RP-090613 WI Proposal: Control incoming handover for Barred / Reserved cells (Huawei, AT&T)
Status: withdrawn

RP-090608 Problem Description - VoIP codec adaptation (AT&T)
AT&T says that there is an associated WID (RP-090612). RAN chairman says to treat the WID under Agenda Item 12.
Status: Noted

RP-090609 Problem Description - Inter-carrier load balancing (AT&T)
RAN chairman suggests to treat contributions for this subject under TEI9 in the relevant RAN-WGs.
Status: Noted

RP-090610 Problem Description - Per-QCI radio link failure timers (AT&T)
RAN2 chairman says that this was discussed in RAN2 and the conclusion at that time was that the solution was not needed. AT&T says that now the solution is needed. RAN chairman suggests to treat contributions for this subject under TEI9 in the relevant RAN-WGs.
Status: Noted

RP-090611 Problem Description - Control handovers into Barred / Reserved cells (AT&T)
RAN chairman suggests to treat contributions for this subject under TEI9 in the relevant RAN-WGs.
Status: Noted

CONFORMANCE TEST ASPECTS

RP-090466;New WI proposal:;EU800-UECONF;New Work Item Proposal: UMTS/LTE in 800 MHz for Europe UE conformance test;Ericsson;
Revised in 485
RP-090485;WI/SI propsoal; ;RInImp-UEConTest-UMTSLTE800EU;New Work Item Proposal: UMTS/LTE in 800 MHz for Europe UE conformance test;Ericsson;
Title: UMTS/LTE in 800 MHz for Europe – UE conformance test
Work Item Code: UMTSLTE800EU_UEConTest
Responsibility: RAN 5
Status: Approved

RP-090486;Approval; ; ;New WI Proposal: Conformance Test Aspects MBSFN IMB;IPWireless, Orange, SoftBank Mobile, Ericsson;
Revised in 583
RP-090583;Approval; ; ;New WI Proposal: Conformance Test Aspects MBSFN IMB;IPWireless, Orange, SoftBank Mobile, Ericsson, Alcatel Lucent;
Title: Conformance Test Aspects – 3.84 Mcps TDD MBSFN Integrated Mobile Broadcast
Work Item Code: MBSFN_IMB_UEConTest
Status: Approved

RP-090490;New WI; ; ;New Rel-8 work item Proposal: Conformance test aspects Enhanced CELL_FACH State in LCR TDD;CATT;

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Title: UE conformance test aspects - Enhanced CELL_FACH State in LCR TDD
Work item code: EnhancedCellFACHStateLCRTDD_UEConTest
Status: Approved

RP-090491;New WI; ; ;New work item Proposal: Conformance test aspects 1.28Mcps TDD Improved L2 support for high data rates;CATT;
Title: Conformance test aspects 1.28Mcps TDD Improved L2 support for high data rates;
Work item code: **ImprovedL2LCRTDD_UEConTest**
Status: Approved

RP-090492;New WI; ; ;New work item Proposal: TDD UE over the Air (Antenna) conformance testing methodology;CATR;
Revised in 621
RP-090621 New work item Proposal: TDD UE over the Air (Antenna) conformance testing methodology (CATR)
Title: TDD UE over the Air (Antenna) conformance testing methodology
Work Item: UEAnt_TDDTest
Status: Approved

RP-090467;Approval; ;RANimp-UEConTest_UMTS_ETWS;New Rel-8 work item Proposal: Conformance test aspects _ UMTS ETWS (Earthquake and Tsunami Warning System) (FDD);NTT DOCOMO;
Title: Conformance Test Aspects – UMTS Earthquake and Tsunami Warning System (ETWS) FDD
Work item: ETWS_UMTS_UEConTestFDD
Status: Approved

STUDY ITEM PROPOSALS
Revised study Item proposal for LTE-A approved in RP-090665 under agenda item 11.4.1

RP-090536;;-;New SI proposal: LTE heterogeneous network deployments;Qualcomm Europe, Nokia, Nokia Siemens, Networks;
Source companies: Qualcomm Europe, Nokia, Nokia Siemens Networks, T-Mobile, Telecom Italia, Orange, Alcatel Lucent, Softbank Mobile, KDDI.
Title: LTE heterogeneous network deployments
Responsibility: WG 1 (ran 4, ran 3, ran2)
WI Code: Het-Net
RAN 1 Chairman reminds that WG 1 is already overloaded.
An alternative way to treat this study item is to modify the objectives of the LTE-A study items (Qualcomm has a proposal in 622)
Panasonic says that this is discussed in ran 1 as well. If it is already studied in ran 1, without any modifications we can keep the discussions in ran 1.
Status: Noted

RP-090563;Discussion; Proposed SI: Extended 850;Ericsson;
Title: Study on Extending 850 MHz
Responsibility: RAN 4, RAN 2
WI Code: FS_e850
ALU says they support the idea to have a study in ran 4 on this subject. Most of the study work is related to ran 4, there can be some impact in ran 2, because of the importance of the fesibility study, assessing the possible impact of the perf requirements should be a decision point in ran 4. They do not expect to have any work from the ran 2 perspective before the outcome of the RAN 4 is clear.
A possibility is to limit the study to ran 4.
Ericsson says that thiRP-090666 Proposed SI: Extended 850 (Ericsson)s is indeed the case, the study is done by ran 4. the result of the study will be captured in the report, i.e the outcome of the study report. There is no need to add ran 2 as a second responsibility.
CMCC says that 890 is allocated to other systems and also to gsm systems, we need to decide if the study item is done in a regulation free style.
NSN says that regulatory issues will be taken into account in the studies.
Status: Revised in 666
RP-090666 Proposed SI: Extended 850 (Ericsson)
R2 responsibility is removed.
Title: Study on Extending 850 MHz
Responsibility: RAN 4
WI Code: FS_e850
Status: Approved

RP-090572;SI; ; ;Forward compatibility of LTE;Vodafone;
Status: withdrawn

RP-090573;SI; ; ;Way forward on UL Tx diversity;Vodafone;
Status: withdrawn

13 Technical co-ordination among WGs

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14 Outputs to other groups

15 Project management

RP-090493;WORK PLAN; ; ;DRAFT 3GPP Work Plan update pre-TSG#44 & post-GERAN#42;MCC
Status: withdrawn

RP-090494;Discussion; ; ;3GPP Work Plan review at Plenary #44;MCC
Status: Noted

RP-090495;WORK PLAN; ; ;DRAFT 3GPP Work Plan update end-of-CT/RAN#44 & post-GERAN#42;MCC
NEC comments that the 3500MHz is release independent. It can be misleading to say that it is a Rel-8 specification.
The modifications of the presentation will be done for the SA meeting.
Status: Noted

RP-090600;CR; ;TEIx;CRs to 21.101 family;MCC
Status: Noted

RP-090601;CR; ;TEI8;CR to 21.201;MCC
Status: Noted

RP-090602;Other; Removal of date field from CR cover sheet;MCC
Wait for the decision in SA.
Status: Noted and and RAN accepts the SA decision

RP-090603;Other; Support Team report;MCC
Status: Noted

16 Any other business

17 Closing of the meeting (No later than Friday 13 p.m.)

The meeting was closed on Friday May the 29th at 10h30.

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Annex A:
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Annex B:
List of documents TSG RAN#44

Agenda	Tdoc	Type	'Title'	Source	'Decision'
7.1.2	RP-090371	LS out	Response LS on Coordination of work for response to ITU-R WP 5D Request for Information on Femtocells	AT&T	Withdrawn
2	RP-090372	Approval	Agenda Meeting RAN #44	RAN Chairman	Revised in 472
3	RP-090373	Approval	RAN #43 Meeting Report	MCC	Revised in 604
7.2.1	RP-090374	Discussion	Status Report WG1	RAN WG1 Chairman	Noted
7.2.1	RP-090375	Information	List of CRs from RAN WG1	RAN WG1	Noted
7.3.1	RP-090376	Discussion	Status Report WG2	RAN WG2 Chairman	Noted
7.3.1	RP-090377	Information	List of CRs from RAN WG2	RAN WG2	Noted
7.4.1	RP-090378	Discussion	Status Report WG3	RAN WG3 Chairman	Noted
7.4.1	RP-090379	Information	List of CRs from RAN WG3	RAN WG3	Revised in 591
7.5.1	RP-090380	Discussion	Status Report WG4	RAN WG4 Chairman	Noted
7.5.1	RP-090381	Information	List of CRs from RAN WG4	RAN WG4	Noted
7.6.1	RP-090382	Discussion	Status Report WG5	RAN WG5 Chairman	Noted
7.6.1	RP-090383	Information	List of CRs from RAN WG5	RAN WG5	Noted
7.6.1	RP-090384	Status Report	TF 160 REPORT	MCC TF160	Revised in 585
10.6.2	RP-090385	WI/SI Status Report	Status Report for WI 3G LTE - Terminal Protocol Conformance Test Specifications	NEC, Motorola	Noted
10.6.1	RP-090386	WI/SI Status Report	Status Report for WI 3G LTE Terminal Radio Transmission and Reception Conformance Test Specifications	Agilent	Noted
9.1.1	RP-090387	WI/SI Status Report	Status Report for WI UMTS/LTE 3500 MHz	Ericsson	Noted
9.1.2	RP-090388	WI/SI Status Report	Status Report for WI RF Requirements for Multicarrier and Multi RAT BS	Ericsson	Noted
9.1.3	RP-090389	WI/SI Status Report	Status Report for WI LCR TDD UE OTA Performance Requirements	CATR	Noted
9.1.4	RP-090390	WI/SI Status Report	Status Report for WI Extended UMTS/LTE 800	NTTDoCoMo	Noted
9.1.5	RP-090391	WI/SI Status Report	Status Report for WI UMTS/LTE 800MHz for Europe	Ericsson	Noted
9.1.6	RP-090392	WI/SI Status Report	Status Report for WI Performance Requirements for LCR TDD with UE speeds up to 350Kph	CATT	Noted
9.2.1	RP-090393	WI/SI Status Report	Status Report for WI 1.28 Mcps TDD Repeater specification	CATR	Noted

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9.2.2	RP-090394	WI/SI Status Report	Status Report for WI Continuous Connectivity for packet data users for 1.28Mcps TDD	TD TECH	Noted
9.2.3	RP-090395	WI/SI Status Report	Status Report for WI Dual-cell HSUPA	Nokia Siemens Network	Noted
9.2.4	RP-090396	WI/SI Status Report	Status Report for WI Support for different bands for Dual-Cell HSDPA	Nokia Siemens Network	Noted
9.2.5	RP-090397	WI/SI Status Report	Status Report for WI Combination of DC-HSDPA with MIMO	Ericsson	Noted
9.2.6	RP-090398	WI/SI Status Report	Status Report for WI UTRAN 2ms TTI uplink range improvement	Nokia Siemens Network	Noted
9.2.7	RP-090399	WI/SI Status Report	Status Report for WI TxAA extension for non-MIMO UEs	Nokia	Noted
9.3.1	RP-090400	WI/SI Status Report	Status Report for WI Support for IMS Emergency Call over LTE	Alcatel-Lucent	Noted
9.4.1	RP-090401	WI/SI Status Report	Status Report for WI Positioning support for LTE	Qualcomm	Noted
9.4.2	RP-090402	WI/SI Status Report	Status Report for WI Network based Positioning support for LTE	TruePosition	Noted
9.5.1	RP-090403	WI/SI Status Report	Status Report for WI MBMS support in LTE	Huawei	Noted
9.6.1	RP-090404	WI/SI Status Report	Status Report for WI LTE Pico NodeB RF Requirements	Huawei	Noted
9.6.2	RP-090405	WI/SI Status Report	Status Report for WI Enhanced Dual-Layer transmission for LTE	China Mobile	Noted
9.7.1	RP-090406	WI/SI Status Report	Status Report for WI LTE FDD Home eNodeB RF Requirement	Motorola	Revised in 627
9.7.2	RP-090407	WI/SI Status Report	Status Report for WI LTE TDD Home eNodeB RF Requirement	China Mobile	Noted
9.7.3	RP-090408	WI/SI Status Report	Status Report for WI Home NB and Home eNB enhancements RAN 2 aspects	Huawei	Revised in 592
9.7.4	RP-090409	WI/SI Status Report	Status Report for WI Home NB and Home eNB enhancements RAN 3 aspects	Alcatel-Lucent	Noted
9.8	RP-090410	WI/SI Status Report	Status Report for WI Self-Organizing Network	Nokia Siemens Network	Noted
10.1	RP-090411	WI/SI Status Report	Status Report for WI Conformance test aspects Enhanced CELL_FACH State in FDD	Nokia	Noted
10.3	RP-090412	WI/SI Status Report	Status Report for WI Conformance test aspects Improved L2 for Uplink	Ericsson	Noted

10.4	RP-090413	WI/SI Status Report	Status Report for WI Conformance test aspects MBSFN for FDD	Huawei	Noted
10.5	RP-090414	WI/SI Status Report	Status Report for WI Conformance test aspects Combination of 64QAM and MIMO for HSDPA (FDD)	Ericsson	Noted
10.2	RP-090415	WI/SI Status Report	Status Report for WI Conformance test aspects 64 QAM for 1.28 Mcps TDD HSDPA	ZTE	Noted
10.7	RP-090416	WI/SI Status Report	Status Report for WI Conformance test aspects MBMS LCR TDD Physical Layer Enhancement	CATT	Noted
10.8	RP-090417	WI/SI Status Report	Status Report for WI Conformance test aspects Dual-Cell HSDPA operation on adjacent carriers	Qualcomm	Noted
10.9.1	RP-090418	WI/SI Status Report	Status Report for WI Conformance test aspects LTE 3500	Ericsson	Noted
10.9.2	RP-090419	WI/SI Status Report	Status Report for WI Conformance test aspects UMTS 3500	Nokia	Noted
10.10.1	RP-090420	WI/SI Status Report	Status Report for WI Conformance test aspects UTRA HNB (FDD)	Huawei	Noted
10.11	RP-090421	WI/SI Status Report	Status Report for WI Conformance test aspects Receiver Type 3i	Qualcomm	Noted
10.12	RP-090422	WI/SI Status Report	Status Report for WI Conformance test aspects Enhanced uplink CELL_FACH State in FDD	Nokia	Noted
11.1	RP-090423	WI/SI Status Report	Status Report for SI Evaluation of the inclusion of Path Loss Based Technology in the UTRAN	Polaris Wireless	Noted
11.4.1	RP-090424	WI/SI Status Report	Status Report for SI LTE-Advanced	NTT DOCOMO	Noted
11.2	RP-090425	WI/SI Status Report	Status Report for SI 1.28 Mcps TDD Home NodeB	TD Tech	Noted
11.3	RP-090426	WI/SI Status Report	Status Report for SI E-UTRAN Mobility Evaluation and Enhancement	Qualcomm	Noted
11.5	RP-090427	WI/SI Status Report	Status Report for SI on Measurement of Radiated Performance for MIMO and multi-antenna reception for HSPA and LTE terminals	Vodafone	Noted
11.6	RP-090428	WI/SI Status Report	Status Report for SI on Minimization of drive-tests in next generation networks	Qualcomm	Noted
11.7	RP-090429	WI/SI Status Report	Status Report for SI on Enhanced interference Management for HNBs	Qualcomm	Noted
7.6.3	RP-090430	Approval	RAN5 agreed non TTCN CR(s) under WI Small Technical Enhancements and Improvements for Rel 99 Conformance Testing(TEI_Test)	TSG WG RAN5	Approved
7.6.3	RP-090431	Approval	RAN5 agreed non TTCN CR(s) under WI Small Technical Enhancements and Improvements for Rel-5 Conformance Testing(TEI5_Test)	TSG WG RAN5	Approved

7.6.4	RP-090432	Approval	RAN5 agreed non TTCN CR(s) under WI Small Technical Enhancements and Improvements for Rel 6 Conformance Testing(TEI6_Test)	TSG WG RAN5	Approved
7.6.4	RP-090433	Approval	RAN5 agreed non TTCN CR(s) under WI Small Technical Enhancements and Improvements for Rel-7 Conformance Testing(TEI7_Test)	TSG WG RAN5	Approved
8.6	RP-090434	Approval	RAN5 agreed non TTCN CR(s) under WI Small Technical Enhancements and Improvements for Rel-8 Conformance Testing(TEI8_Test)	TSG WG RAN5	Approved
7.6.4	RP-090435	Approval	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	TSG WG RAN5	Approved
7.6.4	RP-090436	Approval	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	TSG WG RAN5	Approved
7.6.4	RP-090437	Approval	CR to 34.229-3: Add new verified and e-mail agreed TTCN test cases in the TC lists in 34.229-3 (TTCN), Annex A	TSG WG RAN5	Withdrawn
7.6.4	RP-090438	Approval	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	TSG WG RAN5	Withdrawn
7.6.4	RP-090439	Approval	CR to 34.229-3: Add new verified and e-mail agreed TTCN test cases in the TC lists in 34.229-3 (TTCN), Annex A	TSG WG RAN5	Withdrawn
10.7	RP-090440	Approval	RAN5 agreed non TTCN CR(s) under WI Conformance Test Aspects MBMS LCR TDD Physical Layer Enhancement (MBMSE-RANPhysLCRTDD_UEConTest)	TSG WG RAN5	Approved
10.4	RP-090441	Approval	RAN5 agreed non TTCN CR(s) under WI Conformance Test Aspects MBSFN for FDD (MBMSE-UEConTest_RANPhysFDD)	TSG WG RAN5	Approved
10.11	RP-090442	Approval	RAN5 agreed non TTCN CR(s) under WI Conformance Test Aspects (RANimp_UEConTest_ReceiverType3i)	TSG WG RAN5	Approved
10.2	RP-090443	Approval	RAN5 agreed non TTCN CR(s) under WI Conformance Test Aspects 64QAM for 1.28 Mcps TDD HSDPA (RANimp-UEConTest_64Qam1.28TDD)	TSG WG RAN5	Approved
10.5	RP-090444	Approval	RAN5 agreed non TTCN CR(s) under WI Conformance Test Aspects Combination of 64QAM and MIMO for HSDPA (FDD) (RANimp-UEConTest 64QamMimoHsdpa)	TSG WG RAN5	Approved
10.12	RP-090445	Approval	RAN5 agreed non TTCN CR(s) under WI Conformance Test Aspects Enhanced CELL_FACH state in FDD (RANimpUEConTest_EnhancedCellFACHState)	TSG WG RAN5	Approved
10.3	RP-090446	Approval	RAN5 agreed non TTCN CR(s) under WI Improved L2 for Uplink (RANimp-UEConTest_ UplinkL2dataRates)	TSG WG RAN5	Approved

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10.6.2	RP-090447	Approval	RAN5 agreed non TTCN CR(s) under WI 3G LTE Terminal Protocol Conformance Test Specifications (LTE-UEConTest_SIG)	TSG WG RAN5	Approved
10.6.1	RP-090448	Approval	RAN5 agreed non TTCN CR(s) under WI LTE Terminal Radio Transmission and Reception Conformance Test Specifications (FDD) (LTE-UEConTest_RF)	TSG WG RAN5	Approved
12	RP-090449	New Work Items/Study Items	New Work Item: Enhancements for 1.28Mcps TDD in high speed environment	ZTE Corporation	Revised in 650
10.6.1	RP-090450	Approval	Presentation of specification to TSG: TS 36.521-3 v2.0.0	Agilent Technologies	Approved
7.1.2	RP-090451	LS in	LS on Request for Information on Femtocells (CP-090262 Source: TSG CT, To: TSG SA, Cc: TSG RAN)	TSG CT	Noted
11.3	RP-090452	LS in	LS on Conclusions for LTE Mobility Study Item (R1-092277 Source: TSG RAN WG1, To: TSG RAN, Cc:)	TSG RAN WG1	Noted
7.1.2	RP-090453	LS in	LS on RAN3 Response to ITU-R WP 5D Request for Information on Femtocells (R3-091412 Source: TSG RAN WG3, To: TSG RAN, Cc:)	TSG RAN WG3	Noted
7.4.2	RP-090454	LS in	LS on resolution of MBMS for HSPA evolution (R3-091451 Source: TSG RAN WG3, To: TSG SA, Cc: TSG SA WG4,TSG CT WG3,TSG CT WG4,TSG RAN,TSG CT)	TSG RAN WG3	Noted
9.1.4	RP-090455	LS in	LS on handling the work item Extended UMTS/LTE 800 (R4-091066 Source: TSG RAN WG4, To: TSG RAN WG5, Cc: TSG RAN)	TSG RAN WG4	Noted
6.3	RP-090456	LS in	Response to LS (R4-090764) to External Organizations - REQUEST FOR INPUT FOR A REVISION OF RECOMMENDATION ITU-R M.1801 (RP-081081 Source: ITU-R WP 5A, To: TSG RAN, Cc: TSG RAN 4) (R4-091449 Source: TSG RAN WG4, To: TSG RAN, Cc: ITUR ad hoc)	TSG RAN WG4	Noted
7.1.2	RP-090457	LS in	Response LS on Coordination of work for response to ITU-R WP 5D Request for Information on Femtocells (R4-091733 Source: TSG RAN WG4, To: TSG RAN, Cc: TSG SA,TSG RAN WG1,TSG RAN WG2,TSG RAN WG3)	TSG RAN WG4	Noted
9.2.4	RP-090458	LS in	LS on Band Combination Handling for Dual-Band Dual-Cell HSDPA (R4-092072 Source: TSG RAN WG4, To: TSG RAN WG2,TSG RAN WG3, Cc: TSG RAN)	TSG RAN WG4	Noted
7.6.2	RP-090459	LS in	Response LS to LS on conformance test coverage for PUSCH Frequency Hopping (R4-092089 Source: TSG RAN WG4, To: TSG RAN WG5, Cc: TSG RAN WG1,TSG RAN)	TSG RAN WG4	Noted

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9.1.2	RP-090460	LS in	LS on Status of the MSR Work Item (R4-092092 Source: TSG RAN WG4, To: TSG GERAN WG1, Cc: TSG RAN,ETSI RRS)	TSG RAN WG4	Noted
7.6.2	RP-090461	LS in	LS on conformance test coverage for PUSCH Frequency Hopping (R5-092729 Source: TSG RAN WG5, To: TSG RAN WG4, Cc: TSG RAN WG1,TSG RAN)	TSG RAN WG5	Noted
12	RP-090462	LS in	LS on ATIS Issue Statement for CMAS via LTE Broadcast Capability Specification (SP-090228 Source: TSG SA, To: ATIS WTSC, Cc: TSG RAN,TSG CT)	TSG SA	Noted
7.4.2	RP-090463	LS in	LS on resolution of MBMS for HSPA evolution (SP-090232 Source: TSG SA, To: TSG SA WG4,TSG CT WG3,TSG CT WG4,TSG RAN WG3,TSG RAN,TSG CT, Cc:)	TSG SA	Noted
7.1.2	RP-090464	LS in	Response LS on Coordination of work for response to ITU-R WP 5D Request for Information on Femtocells (SP-090233 Source: TSG SA, To: TSG RAN, Cc: TSG CT)	TSG SA	Noted
9.7	RP-090465	LS in	Results of SA Prioritization and Coordination Discussions for HNB (SP-090237 Source: TSG SA, To: TSG RAN,TSG RAN WG2,TSG RAN WG3,TSG SA WG2,TSG CT,TSG CT WG1, Cc:)	TSG SA	Noted
12	RP-090466	WI/SI propsoal	New Work Item Proposal: UMTS/LTE in 800 MHz for Europe UE conformance test	Ericsson	Revised in 485
12	RP-090467	Approval	New Rel-8 work item Proposal: Conformance test aspects UMTS ETWS (Earthquake and Tsunami Warning System) (FDD)	NTT DOCOMO	Approved
9.1.4	RP-090468	Information	Extended UMTS / LTE 800 Work ItemTechnical Report v1.0.0	NTT DOCOMO	Noted
12	RP-090469	Information	1.5 GHz band plan for UMTS and LTE in Japan	ARIB	Noted
12	RP-090470	Approval	Work Item proposal for Extended UMTS/LTE 1500 MHz band in Japan	NTT DOCOMO et al.	Approved
7.1.2	RP-090471	LS out	Response to LS on Coordination of work for response to ITU-R WP 5D Request for Information on Femtocells	AT&T	Revised in 624
2	RP-090472	Approval	Agenda Meeting RAN #44	RAN Chairman	Approved
7.1.2	RP-090473	Approval	Final document for the June Submission of LTE-Advanced	ITU-R AH	Revised in 587

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7.1.2	RP-090474	Information	Information on final template for the June submission (with track changes)	ITU-R AH	Noted
12	RP-090475	New WI	Proposed WID on "Public Warning System (PWS) RAN aspects"	Alcatel/Lucent, at&t, Qualcomm Europe, Verizon	Revised in 599
11.6	RP-090476	Information	TR 36.805 v1.0.0 Study on Minimization of drive-tests in next generation networks	Qualcomm Europe	Noted
7.4.3	RP-090477	Approval	R3 CR Pack of pre-Rel-8 CRs with linked CRs #1	RAN 3	Revised in 630
7.4.3	RP-090478	Approval	R3 CR Pack of pre-Rel-8 CRs with linked CRs #2	RAN 3	Revised in 631
8.1.3	RP-090479	Approval	R3 CR Pack of LTE CRs #1	RAN 3	Revised in 633
8.1.3	RP-090480	Approval	R3 CR Pack of LTE CRs #2	RAN 3	Revised in 634
8.1.3	RP-090481	Approval	R3 CR Pack of LTE CRs #3	RAN 3	Revised in 635
8.1.3	RP-090482	Approval	R3 CR Pack of LTE interfaces CRs #1	RAN 3	Revised in 636
8.1.3	RP-090483	Approval	R3 CR Pack of LTE interfaces CRs #2	RAN 3	Revised in 637
8.1.3	RP-090484	Approval	R3 CR Pack of LTE interfaces CRs #3	RAN 3	Revised in 588
12	RP-090485	WI/SI propsoal	New Work Item Proposal: UMTS/LTE in 800 MHz for Europe UE conformance test	Ericsson	Approved
12	RP-090486	Approval	New WI Proposal: Conformance Test Aspects MBSFN IMB	IPWireless, Orange, SoftBank Mobile, Ericsson	Revised in 583
9.8	RP-090487	Information	TR 36.902 " Self-configuring and self-optimizing network use cases and solutions" for information	T-Mobile	Noted
7.3.3	RP-090488	CR	Specification of CPC restored state upon physical layer failure	Qualcomm Europe, Motorola	Revised in 606
7.3.3	RP-090489	CR	Specification of CPC restored state upon physical layer failure	Qualcomm Europe, Motorola	Revised in 607
12	RP-090490	New WI	New Rel-8 work item Proposal: Conformance test aspects Enhanced CELL_FACH State in LCR TDD	CATT	Approved
12	RP-090491	New WI	New work item Proposal: Conformance test aspects 1.28Mcps TDD Improved L2 support for high data rates	CATT	Approved
12	RP-090492	New WI	New work item Proposal: TDD UE over the Air (Antenna) conformance testing methodology	CATR	Revised in 621
15	RP-090493	WORK PLAN	DRAFT 3GPP Work Plan update pre-TSG#44 & post-GERAN#42	MCC	Withdrawn
15	RP-090494	Discussion	3GPP Work Plan review at Plenary #44	MCC	Noted
15	RP-090495	WORK PLAN	DRAFT 3GPP Work Plan update end-of-CT/RAN#44 & post-GERAN#42	MCC	Noted
7.3.2	RP-090496	Discussion	Comparison of two early implementation options of inter-RAT mobility	NTT DOCOMO	Noted

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8.1.2	RP-090497	CR	Alignment of pusch-HoppingOffset with 36.211	Alcatel-Lucent, Nokia, NSN, Panasonic	Approved
7.3.3	RP-090498	Approval	REL-5 & cat. A CRs to TS 25.331 on Removal of description of CPCH feature	RAN2	Approved
7.3.3	RP-090499	Approval	REL-6 & cat. A CRs to TS 25.331 on Clarification to the support of 2 different layer 3 filters per measurement type	RAN2	Approved
7.3.3	RP-090500	Approval	REL-7 & cat.A CRs to TS 25.331 for Continuous connectivity for packet data users	RAN2	Approved
7.3.3	RP-090501	Approval	REL-7 & cat.A CRs to TS 25.319, TS 25.321 and TS 25.331 for 1.28 Mcps TDD Enhanced Uplink on Correction to non-scheduled transmission for 1.28 Mcps TDD	RAN2	Approved
7.3.3	RP-090502	Approval	REL-7 & cat. A CR to TS 25.331 for MBMS FDD & TDD Physical layer Enhancements on Correction on p-t-m bearer release in MBSFN	RAN2	Approved
7.3.3	RP-090503	Approval	REL-7 & cat.A CRs to TS 25.308, TS 25.321 and TS 25.331 for Improved L2 support for high data rates	RAN2	Approved
7.3.3	RP-090504	Approval	REL-7 & cat.A CRs to TS 25.321 and TS 25.331 for Enhanced CELL_FACH state in FDD	RAN2	Approved
7.3.3	RP-090505	Approval	REL-7 & cat.A CRs to TS 25.321, TS 25.322 and TS 25.331 for small technical enhancements and improvements	RAN2	Approved
8.1.2	RP-090506	Approval	RAN2 LTE REL-8 CRs for UTRA specifications TS 25.304, TS 25.306 and TS 25.331	RAN2	Approved
8.1.2	RP-090507	Approval	REL-8 RAN2 CRs to TS 36.300 for LTE	RAN2	Approved
8.1.2	RP-090508	Approval	REL-8 RAN3 CRs to TS 36.300 for LTE	RAN2	Approved
8.1.2	RP-090509	Approval	REL-8 CRs to TS 36.302 for LTE	RAN2	Approved
8.1.2	RP-090510	Approval	REL-8 CRs to TS 36.304 for LTE	RAN2	Approved
8.1.2	RP-090511	Approval	REL-8 CRs to TS 36.306 for LTE	RAN2	Approved
8.1.2	RP-090512	Approval	REL-8 CRs to TS 36.314 for LTE	RAN2	Approved
8.1.2	RP-090513	Approval	REL-8 CRs to TS 36.321 for LTE	RAN2	Approved
8.1.2	RP-090514	Approval	REL-8 CRs to TS 36.322 for LTE	RAN2	Approved
8.1.2	RP-090515	Approval	REL-8 CRs to TS 36.323 for LTE	RAN2	Approved
8.1.2	RP-090516	Approval	REL-8 CRs to TS 36.331 for LTE	RAN2	Approved
8.2.1	RP-090517	Approval	REL-8 CRs to TS 25.304 and TS 25.331 for Support of UTRA HNB	RAN2	Approved
8.4	RP-090518	Approval	REL-8 CR to TS 25.331 for HSPA VoIP to WCDMA/GSM CS continuity on Missing CS over HSPA operation in SR-VCC	RAN2	Approved
8.6	RP-090519	Approval	Collection of REL-8 CRs to RAN2 UTRA specifications for several closed REL-8 work items	RAN2	Approved

9.2.3	RP-090520	Approval	REL-9 CRs to TS 25.308 and TS 25.319 for Dual-Cell HSUPA	RAN2	Approved
9.2.5	RP-090521	Approval	REL-9 CR to TS 25.308 on Introduction of DC-HSDPA and MIMO	RAN2	Approved
9.2.7	RP-090522	Approval	REL-9 CR to TS 25.308 on Introduction of TxAA extension for non-MIMO UEs	RAN2	Approved
9.5.1	RP-090523	Approval	REL-9 RAN2 & RAN3 CRs to TS 36.300 for MBMS support in LTE	RAN2	Approved
9.7.3	RP-090524	Approval	REL-9 CRs to TS 36.300 and TS 25.367 for Support of Home NB and Home eNB enhancements RAN2 aspects on Idle mode requirements to support Hybrid Cells	RAN2	Approved
7.2.3	RP-090525	Approval	CRs to 25.211 & 25.214 for MIMO clarifications	RAN WG1	Approved
7.2.3	RP-090526	Approval	CRs to 25.221, 25.222 & 25.224 for several clarifications on LCR TDD	RAN WG1	Approved
8.1.1	RP-090527	Approval	CR to 36.211 (Rel-8, F) LTE physical layer updates	RAN WG1	Approved
8.1.1	RP-090528	Approval	CR to 36.212 (Rel-8, F) LTE physical layer updates	RAN WG1	Approved
8.1.1	RP-090529	Approval	CRs to 36.213 (Rel-8, F) LTE physical layer updates	RAN WG1	Approved
8.5	RP-090530	Approval	CR to 25.222 for clarification of MIMO in LCRTDD	RAN WG1	Approved
8.6	RP-090531	Approval	CRs to 25.221, 25.223 & 25.224 (Rel-8, F) for minor corrections on MBSFN IMB	RAN WG1	Approved
8.6	RP-090532	Approval	CR to 25.214 for clarifiication on HS-DSCH serving cell change enhancements	RAN WG1	Approved
9.2.2	RP-090533	Approval	CRs to 25.221, 25.222 & 25.224 introducing clarifications of CPC in LCRTDD	RAN WG1	Approved
9.7.4	RP-090534	CR	QoS support for Hybrid CSG cells	Qualcomm Europe	Approved
9.4.1	RP-090535	For Information	TS 36.305 v1.0.0 Stage 2 functional specification of User Equipment (UE) positioning in E-UTRAN	Qualcomm Europe	Noted
12	RP-090536	Discussion	New SI proposal: LTE heterogeneous network deployments	Qualcomm Europe, Nokia, Nokia Siemens, Networks	Noted
9.7.4	RP-090537	CR	TAI based handover routing for HeNBs	NSN, Nokia, Alcatel Lucent, Motorola, Orange, Huaw	Approved
8.1.3	RP-090538	CR	Configuration transfer	Motorola	Approved
7.5.3	RP-090539	Approval	TEI7: Corrections for 25.123, 25.101 and 25.102	RAN 4	Approved
8.1.4	RP-090540	Approval	CRs for 36.101: UE Transmitter and Receiver Requirements	RAN 4	Approved
8.1.4	RP-090541	Approval	CRs for 36.101: Maximum Output Power Relaxation	RAN 4	Approved
8.1.4	RP-090542	Approval	CRs for 36.101: UE Performance Requirements	RAN 4	Approved
8.1.4	RP-090543	Approval	CRs for 36.101: LTE UE correction on miscellaneous requirements	RAN 4	Approved

8.1.4	RP-090544	Approval	CRs on Requirements for Multicarrier BS	RAN 4	Approved
8.1.4	RP-090545	Approval	CRs for LTE BS Transmitter and Receiver Requirements, Performance requirements	RAN 4	Approved
8.1.4	RP-090546	Approval	CRs for LTE RRM Test Cases Phase IIB	RAN 4	Approved
8.1.4	RP-090547	Approval	CRs for LTE RRM Measurement Performance Requirements	RAN 4	Approved
8.1.4	RP-090548	Approval	CRs for 36.133: LTE RRM RRC Connected	RAN 4	Approved
8.1.4	RP-090549	Approval	CRs for 36.133: LTE RRM IDLE State	RAN 4	Approved
8.1.4	RP-090550	Approval	CRs for 36.133: LTE RRM Timing and Signalling	RAN 4	Approved
8.1.4	RP-090551	Approval	CRs for 36.133 and 25.133 and 25.123: LTE RRM Miscellaneous Requirements	RAN 4	Approved
8.1.5	RP-090552	Approval	LTE FDD Repeaters	RAN 4	Approved
8.3	RP-090553	Approval	UMTS 1880MHz TDD	RAN 4	Approved
8.5	RP-090554	Approval	MIMO 1.28Mcps TDD	RAN 4	Approved
8.6	RP-090555	Approval	CR on TEI8 batch 1: Corrections to 25.143 on repeaters, 25.133 on measurements, 25.101 on type 3i	RAN 4	Approved
8.6	RP-090556	Approval	CR on TEI8 batch 2: Corrections to 25.102 reference measurement channel, 25.142 on E-DCH and 25.123 on cell reselection for UTRAN TDD	RAN 4	Approved
8.6	RP-090557	Approval	CRs on Closed Work Items for Rel-8: CR on E-TFC for 25.133 and corrections on IMB for 25.102	RAN 4	Approved
9.1.3	RP-090558	Approval	LCR TDD UE OTA Performance Requirements	RAN 4	Approved
9.1.4	RP-090559	Approval	Extended UMTS/LTE 800	RAN 4	Approved
9.2.2	RP-090560	Approval	Continuous Connectivity for packet data users for 1.28Mcps TDD	RAN 4	Approved
11.7	RP-090561	Approval	Study on Enhanced Interference Management for HNBs	RAN 4	Approved
12	RP-090562	New WI proposal	1.28Mcps TDD Multi-carrier HSUPA	CATR, CATT, TD-TECH, ZTE	Revised in 654
12	RP-090563	Discussion	Proposed SI: Extended 850	Ericsson	Revised in 666
12	RP-090564	Decision	New WID: UMTS Per UE AMBR	Huawei	Noted
12	RP-090565	Decision	New WID: Energy Saving	Huawei	Revised in 620
9.5.1	RP-090566	Decision	Revision of the eMBMS WID	Huawei	Revised in 619
11.6	RP-090567	Decision	Minimization of drive-tests	Huawei	Revised in 646
8.1.2	RP-090568	CR	Explicit srb-Identity values for SRB1 and SRB2	Nokia Corporation	Withdrawn

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9.7.0	RP-090569	Discussion	Requirements for the active mode mobility for home NodeB & eNodeB	Nokia Corporation, Nokia Siemens Networks	Noted
8.1.2	RP-090570	CR	Explicit srb-identity values for SRB1 and SRB2	Nokia Corporation, Nokia Siemens Networks, Samsung	Approved
8.1.0	RP-090571	Discussion	Proposed Modifications to LTE feature group indications	Nokia Corporation, Nokia Siemens Networks	Noted
12	RP-090572	SI	Forward compatibility of LTE	Vodafone	Withdrawn
12	RP-090573	SI	Way forward on UL Tx diversity	Vodafone	Withdrawn
7.1.1	RP-090574	Status Report	Status Report for RAN#44	ITU-R Ad Hoc Contact Person	Noted
7.1.2	RP-090575	Approval	Proposed Update Reminder for the OPs on the compliance with ITU-R procedures as it relates to Revision 9 of Recommendation ITU-R M.1457	ITU-R Ad Hoc	Approved
7.1.2	RP-090576	Approval	Proposed response to ITU-R WP5D on the Roadmap update	ITU-R Ad Hoc	Approved
7.4.3	RP-090577	CR	Correction of MIMO Information Response IE	Ericsson	Approved
7.4.3	RP-090578	CR	Correction of MIMO Information Response IE	Ericsson	Approved
12	RP-090579	New WI Proposal	Home NodeB Enhanced Interference Management	Qualcomm	Revised in 622
11.6	RP-090580	Discussion	Use of SON features in Minimization of drive-tests in Next Generation Networks studies	Nokia Corporation, Nokia Siemens Networks	Noted
12	RP-090581	New WI	1.28Mcps TDD multi-carrier HSUPA	CATT, Newpostcom, Potevio, CATR, Spreadtrum, TD Tech, ZTE	Withdrawn
9.2.2	RP-090582	Approval	TR 25.929 v2.0.0 Continuous Connectivity for packet data users for 1.28Mcps TDD	RAN WG1	Approved
12	RP-090583	Approval	New WI Proposal: Conformance Test Aspects MBSFN IMB	IPWireless, Orange, SoftBank Mobile, Ericsson, Alcatel Lucent	Approved
7.3.2	RP-090584	Discussion	Status of mandatory features in releases 6, 7, 8	Qualcomm Europe	Noted
7.6.1	RP-090585	Status Report	TF 160 REPORT	MCC TF160	Approved
8.6	RP-090586	CR	Inter-RAT PS handover of signalling radio bearers only	Nokia Corporation, Nokia Siemens Networks	Withdrawn
7.1.2	RP-090587	Information	Final document for the June Submission of LTE-Advanced	ITU-R AH	Revised in 618

8.1.3	RP-090588	Approval	R3 CR Pack of LTE interfaces CRs #3	MCC	Withdrawn
8.1.3	RP-090589	Approval	R3 CR Pack of LTE CRs #4	MCC	Revised in 638
8.1.3	RP-090590	Approval	R3 CR Pack of LTE interfaces CRs #4	MCC	Revised in 639
7.4.1	RP-090591	Information	List of CRs from RAN WG3	RAN WG3	Revised in 632
9.7.3	RP-090592	WI/SI Status Report	Status Report for WI Home NB and Home eNB enhancements RAN 2 aspects	Huawei	Noted
12	RP-090593	New WI proposal	Cell Portion for 1.28Mcps TDD	CATT	Revised in 655
8.1.3	RP-090594	Approval	R3 CR Pack of LTE interfaces CRs #3	MCC	Revised in 640
8.1.3	RP-090595	CR	CR for Paging Procedure in 36.300	CMCC	Withdrawn
9.1.2	RP-090596	LS in	Reply LS to “LS on Status of the MSR Work Item” (GP-091069 Source: TSG GERAN WG1, To: TSG RAN WG4, Cc: TSG RAN)	TSG GERAN WG1	Noted
9.1.1	RP-090597	LS in	LS to WP5A: REVIEW PRELIMINARY BWA CHARACTERISTICS FOR USE IN COMPATIBILITY STUDIES WITH FIXED-SATELLITE SERVICE SYSTEMS IN THE 3,400-4,200 MHz BAND (R4-092120 Source: TSG RAN WG4, To: ITUR WP5A, Cc: TSG RAN)	TSG RAN WG4	Noted
12	RP-090598	Approval	RAN5 agreed non TTCN CR(s) under WI UMTS/LTE in 800 MHz for Europe UE conformance test	TSG WG RAN5	Revised in 647
12	RP-090599	New WI	Proposed WID on "Public Warning System (PWS) RAN aspects"	Alcatel/Lucent, at&t, Qualcomm Europe, Verizon	Revised in 649
15	RP-090600	CR	CRs to 21.101 family	MCC	Noted
15	RP-090601	CR	CR to 21.201	MCC	Noted
15	RP-090602	Other	Removal of date field from CR cover sheet	MCC	Noted
15	RP-090603	Other	Support Team report	MCC	Noted
3	RP-090604	Approval	RAN #43 Meeting Report	MCC	Approved
8.2.2	RP-090605	Approval	FDD Home NodeB RF Requirements	RAN 4	Approved
7.3.3	RP-090606	CR	Specification of CPC restored state upon physical layer failure	Qualcomm Europe, Motorola	Approved
7.3.3	RP-090607	CR	Specification of CPC restored state upon physical layer failure	Qualcomm Europe, Motorola	Approved
12	RP-090608	Discussion	Problem Description - VoIP codec adaptation	AT&T	Noted
12	RP-090609	Discussion	Problem Description - Inter-carrier load balancing	AT&T	Noted
12	RP-090610	Discussion	Problem Description - Per-QCI radio link failure timers	AT&T	Noted

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12	RP-090611	Discussion	Problem Description - Control handovers into Barred / Reserved cells	AT&T	Noted
12	RP-090612	Approval	WI Proposal: Vocoder rate adaptation for LTE	Huawei, AT&T	Revised in 653
12	RP-090613	Approval	WI Proposal: Control incoming handover for Barred / Reserved cells	Huawei, AT&T	Withdrawn
	RP-090614	LS in	Draft ITU-T Recommendation on Requirements for Land Mobile Alerting Broadcast Capabilities for Civic Purposes (COM2-LS8 Source: ITU-T Study Group 2, To: ALL, Cc:)	ITU-T Study Group 2	Noted
9.1.2	RP-090615	Approval	On MSR RF requirements' potential impacts on legacy networks	Telecom Italia, Orange, China Mobile	Noted
7.3.2	RP-090616	Discussion	Comparison of options 1, 2 and 3 for inter-RAT mobility with LTE	Qualcomm Europe	Revised in 623
	RP-090617	LS in	Frequency (channeling arrangements) at 700-862 MHz (R4-091999 Source: ECC PT1, To: RAN 4, Cc: TSG RAN)	ECC PT1	Noted
7.1.2	RP-090618	Approval	Final document for the June Submission of LTE-Advanced	ITU-R AH	Approved
9.5.1	RP-090619	Decision	Revision of the eMBMS WID	Huawei	Approved
12	RP-090620	Decision	New WID: Energy Saving	Huawei	Postponed
12	RP-090621	New WI	New work item Proposal: TDD UE over the Air (Antenna) conformance testing methodology	CATR	Approved
11.4.4	RP-090622	New WI Proposal	Home NodeB Enhanced Interference Management	Qualcomm	Revised in 656
7.3.2	RP-090623	Discussion	Comparison of options 1, 2 and 3 for inter-RAT mobility with LTE	Qualcomm Europe	Noted
7.1.2	RP-090624	LS out	Response to LS on Coordination of work for response to ITU-R WP 5D Request for Information on Femtocells	AT&T	Approved
7.2.2	RP-090625	Discussion	Dealing with UTRA single antenna UEs with transmit diversity	Nokia Corporation, Nokia Siemens Networks	Noted
8.6	RP-090626	CR	Correction to HNB Identity definition	Alcatel-Lucent	Approved
9.7.1	RP-090627	WI/SI Status Report	Status Report for WI LTE FDD Home eNodeB RF Requirement	Motorola	Noted
8.1.3	RP-090628	CR	NAS PDU in E-RAB Release Command	NEC	Approved
8.4	RP-090629	CR	Correction on Procedure Code Value for id-SRVCCPreparation	Nokia Siemens Networks, Nokia	Approved
7.4.3	RP-090630	Approval	R3 CR Pack of pre-Rel-8 CRs with linked CRs #1	RAN 3	Approved
7.4.3	RP-090631	Approval	R3 CR Pack of pre-Rel-8 CRs with linked CRs #2	RAN 3	Approved

7.4.1	RP-090632	Information	List of CRs from RAN WG3	RAN WG3	Approved
8.1.3	RP-090633	Approval	R3 CR Pack of LTE CRs #1	RAN 3	Approved
8.1.3	RP-090634	Approval	R3 CR Pack of LTE CRs #2	RAN 3	Approved
8.1.3	RP-090635	Approval	R3 CR Pack of LTE CRs #3	RAN 3	Approved
8.1.3	RP-090636	Approval	R3 CR Pack of LTE interfaces CRs #1	RAN 3	Approved
8.1.3	RP-090637	Approval	R3 CR Pack of LTE interfaces CRs #2	RAN 3	Approved
8.1.3	RP-090638	Approval	R3 CR Pack of LTE CRs #4	RAN 3	Approved
8.1.3	RP-090639	Approval	R3 CR Pack of LTE interfaces CRs #4	RAN 3	Revised in 644
8.1.3	RP-090640	Approval	R3 CR Pack of LTE interfaces CRs #3	RAN 3	Approved
8.2	RP-090641	Approval	R3 CR Pack of HNB-Arch related CRs #1	RAN 3	Approved
8.4	RP-090642	Approval	R3 CR Pack of HSPA - SRVCC related CRs #1	RAN 3	Approved
9.6.2	RP-090643	Approval	Update of Work item description for enhanced downlink transmission for LTE	CMCC	Revised in 648
8.1.3	RP-090644	Approval	R3 CR Pack of LTE interfaces CRs #4	RAN 3	Approved
7.3.2	RP-090645	Approval	Inter-RAT mobility ad hoc meeting report	Samsung	Approved
11.6	RP-090646	Decision	Minimization of drive-tests	Huawei	Noted
9.1.4	RP-090647	Approval	RAN5 agreed non TTCN CR(s) under WI UMTS/LTE in 800 MHz -- UE conformance test	TSG WG RAN5	Approved
9.6.2	RP-090648	Approval	Update of Work item description for enhanced downlink transmission for LTE	CMCC	Approved
12	RP-090649	New WI	Proposed WID on "Public Warning System (PWS) RAN aspects"	Alcatel/Lucent, at&t, Qualcomm Europe, Verizon	Approved
12	RP-090650	New Work Items/Study Items	New Work Item: Enhancements for 1.28Mcps TDD in high speed environment	ZTE Corporation	Postponed
	RP-090651	LS in	ITU-R Working Party 5D Request on information on femptocells (FF 3GPP Liaison Apr09 Source: FemptoForum, To: RAN, SA, Cc:)	FemtoForum	Noted
12	RP-090652	Decision	Handling of new RAN work/study items	RAN 1-2-3-4 Chairman	Noted
12	RP-090653	Approval	WI Proposal: Vocoder rate adaptation for LTE	Alcdatel-Lucent, AT&T	Revised in 660
12	RP-090654	New WI proposal	1.28Mcps TDD Multi-carrier HSUPA	CATR, CATT, TD-TECH, ZTE	Postponed
12	RP-090655	New WI proposal	Cell Portion for 1.28Mcps TDD	CATT	Revised in 659
12	RP-090656	New WI Proposal	Home NodeB Enhanced Interference Management	Qualcomm	Revised in 658

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7.1.2	RP-090657	LS out	Response to the FemtoForum concerning ITU-R Working Party 5D Request on information on femptocells	AT&T	Approved
12	RP-090658	New WI Proposal	Home NodeB Enhanced Interference Management	Qualcomm	Revised in 663
12	RP-090659	New WI proposal	Cell Portion for 1.28Mcps TDD	CATT	Approved
12	RP-090660	Approval	WI Proposal: Vocoder rate adaptation for LTE	Alcdatel-Lucent, AT&T	Approved
12	RP-090661	LS out	LS to SA, SA2, SA4 on Vocoder Rate Adaptation for LTE	Alcatel-Lucent	Revised in 664
12	RP-090662	SID	Revised SID on LTE-A	Qualcomm	Revised in 665
12	RP-090663	New WI Proposal	Home NodeB Enhanced Interference Management	Qualcomm	Revised in 667
12	RP-090664	LS out	LS to SA, SA2, SA4 on Vocoder Rate Adaptation for LTE	Alcatel-Lucent	Approved
12	RP-090665	SID	Revised SID on LTE-A	Qualcomm	Approved
12	RP-090666	Discussion	Proposed SI: Extended 850	Ericsson	Approved
12	RP-090667	New WI Proposal	Home NodeB Enhanced Interference Management	Qualcomm	Approved

Annex C:
List of CRs Approved at TSG RAN#44

Spec	CR	Rev	Phase	Cat	Plenary doc	WG doc	Subject	CR wCATRen to	Resulting vers	WG	Workitem
25.214	0544	1	Rel-7	F	RP-090525	R1-091606	Clarification to the transmission of a combination of ACK and NACK	7.11.0	7.12.0	R1	MIMO
25.214	0545	1	Rel-8	A	RP-090525	R1-091607	Clarification to the transmission of a combination of ACK and NACK	8.5.0	8.6.0	R1	MIMO
25.214	0546	-	Rel-8	F	RP-090532	R1-091586	HS-DSCH serving cell change enhancements with preconfigured secondary cell	8.5.0	8.6.0	R1	RANimp-HSDSCH
25.221	0179	-	Rel-8	F	RP-090531	R1-091569	Minor corrections for MBSFN IMB	8.4.0	8.5.0	R1	MBSFN-DOB
25.221	0180	-	Rel-8	F	RP-090533	R1-092003	Corrections of HS-PDSCH timeslot formats for 1.28Mcps TDD	8.4.0	8.5.0	R1	RANimp-LCRCPC
25.221	0181	-	Rel-7	F	RP-090526	R1-092074	E-PUCH timeslot format parameter corrections for 1.28Mcps TDD	7.10.0	7.11.0	R1	LCRTDD-EDCH-Phys
25.221	0182	-	Rel-8	A	RP-090526	R1-092075	E-PUCH timeslot format parameter corrections for 1.28Mcps TDD	8.4.0	8.5.0	R1	LCRTDD-EDCH-Phys
25.222	0174	-	Rel-8	F	RP-090533	R1-091174	Modification of CCS information mapping tables for LCR TDD	8.4.0	8.5.0	R1	RANimp-LCRCPC
25.222	0175	1	Rel-8	A	RP-090526	R1-091609	Corrections to the coding of E-RUCCH for 1.28 Mcps TDD	8.4.0	8.5.0	R1	LCRTDD-EDCH-Phys
25.222	0176	1	Rel-7	F	RP-090526	R1-091608	Corrections to the coding of E-RUCCH for 1.28 Mcps TDD	7.10.0	7.11.0	R1	LCRTDD-EDCH-Phys
25.222	0177	-	Rel-8	F	RP-090530	R1-091859	Clarification of HS-DSCH coding for MIMO dual stream transmission for 1.28Mcps TDD	8.4.0	8.5.0	R1	RANimp-MIMOLCR
25.223	0059	-	Rel-8	F	RP-090531	R1-091570	Minor corrections for MBSFN IMB	8.3.0	8.4.0	R1	MBSFN-DOB
25.224	0210	1	Rel-8	F	RP-090533	R1-091600	Clarification of HS-SICH and E-PUCH power control in semi-persistent transmission for LCR TDD	8.3.0	8.4.0	R1	RANimp-LCRCPC
25.224	0211	1	Rel-8	F	RP-090533	R1-091601	Clarification of E-PUCH synchronization in semi-persistent transmission for LCR TDD	8.3.0	8.4.0	R1	RANimp-LCRCPC
25.224	0212	2	Rel-8	F	RP-090533	R1-091610	Clarification of DRX operation in CPC for LCR TDD	8.3.0	8.4.0	R1	RANimp-LCRCPC
25.224	0215	-	Rel-7	F	RP-090526	R1-091860	Clarification of the transmit power for E-RUCCH for 1.28Mcps TDD	7.10.0	7.11.0	R1	LCRTDD-EDCH-Phys

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25.224	0216	-	Rel-8	A	RP-090526	R1-091861	Clarification of the transmit power for E-RUCCH for 1.28Mcps TDD	8.3.0	8.4.0	R1	LCRTDD-EDCH-Phys
25.224	0218	2	Rel-8	F	RP-090531	R1-092262	Pilot power behaviour for MBSFN IMB	8.3.0	8.4.0	R1	MBSFN-DOB
36.211	0135	-	Rel-8	F	RP-090527	R1-091620	Correction on UE behavior for PRACH 20ms periodicity	8.6.0	8.7.0	R1	LTE-Phys
36.212	0087	-	Rel-8	F	RP-090528	R1-092036	Clarify some parameters for determining control resources on PUSCH	8.6.0	8.7.0	R1	LTE-Phys
36.213	0235	1	Rel-8	F	RP-090529	R1-091630	Correction to the condition of resetting accumulated uplink power correction	8.6.0	8.7.0	R1	LTE-Phys
36.213	0236	-	Rel-8	F	RP-090529	R1-091613	Correction to the random access channel parameters received from higher layer	8.6.0	8.7.0	R1	LTE-Phys
36.213	0237	-	Rel-8	F	RP-090529	R1-091621	Correction on TDD ACKNACK	8.6.0	8.7.0	R1	LTE-Phys
36.213	0238	1	Rel-8	F	RP-090529	R1-091658	Correction on CQI reporting	8.6.0	8.7.0	R1	LTE-Phys
36.213	0239	-	Rel-8	F	RP-090529	R1-091653	Correction on the HARQ process number	8.6.0	8.7.0	R1	LTE-Phys
36.213	0241	1	Rel-8	F	RP-090529	R1-092250	CR correction of the description on TTI-bundling	8.6.0	8.7.0	R1	LTE-Phys
36.213	0242	1	Rel-8	F	RP-090529	R1-092266	Clarify latest and initial PDCCH for PDSCH and PUSCH transmisisons, and NDI for SPS activation	8.6.0	8.7.0	R1	LTE-Phys
36.213	0243	-	Rel-8	F	RP-090529	R1-092222	Clarify DRS EPRE	8.6.0	8.7.0	R1	LTE-Phys
36.213	0244	1	Rel-8	F	RP-090529	R1-092288	Clarification on TPC commands for SPS	8.6.0	8.7.0	R1	LTE-Phys
25.302	0186	-	REL-8	B	RP-090519	R2-093377	Support for 3.84 Mcps MBSFN IMB operation	8.2.0	8.3.0	R2	MBSFN-DOB
25.304	0201	-	REL-8	F	RP-090519	R2-092732	Correction to UE behaviour while 300s frequency barring timer is running	8.5.0	8.6.0	R2	TEI8
25.304	0202	1	REL-8	F	RP-090517	R2-093619	Correction of Manual CSG ID selection	8.5.0	8.6.0	R2	HNB-supp
25.304	0203	-	REL-8	F	RP-090506	R2-092734	Removal of FFS in 25.304 reference to GERAN timer T3230	8.5.0	8.6.0	R2	LTE-L23
25.304	0207	2	REL-8	F	RP-090506	R2-093513	Clarification of the Priority Handling in CSG Cell	8.5.0	8.6.0	R2	LTE-L23
25.304	0208	-	REL-8	F	RP-090517	R2-093370	CR on Adding “cause#25” to 25.304	8.5.0	8.6.0	R2	HNB-supp
25.304	0209	-	REL-8	F	RP-090506	R2-093385	Priorities of non Selected PLMN	8.5.0	8.6.0	R2	LTE-L23
25.304	0210	1	REL-8	C	RP-090517	R2-093518	Addition of CSG cell reservation behaviour	8.5.0	8.6.0	R2	HNB-supp
25.304	0211	-	REL-8	F	RP-090519	R2-093374	Correction of mobility states	8.5.0	8.6.0	R2	TEI8
25.304	0212	1	REL-8	F	RP-090517	R2-093519	CR for Clarification on outbound mobility for UTRAN	8.5.0	8.6.0	R2	HNB-supp

25.306	0220	1	REL-8	F	RP-090506	R2-093355	Add description about the parameter of Need for Idle Interval	8.6.0	8.7.0	R2	LTE-L23
25.306	0223	-	REL-8	F	RP-090519	R2-093516	Clarification for the code rate restriction for Cat19	8.6.0	8.7.0	R2	RANimp-64QamMimoHsdpa
25.308	0057	1	REL-9	B	RP-090521	R2-093567	25.308 Stage 2 CR Introduction of DC-HSDPA and MIMO	8.5.0	9.0.0	R2	RANimp-DC_MIMO
25.308	0059	-	REL-9	B	RP-090520	R2-093610	25.308 Stage 2 CR Introduction of DC-HSUPA	8.5.0	9.0.0	R2	RANimp-DC_HSUPA
25.308	0060	-	REL-7	F	RP-090503	R2-093399	Correction to Improved L2 for 1.28Mcps TDD	7.9.0	7.10.0	R2	RANimp-L2DataRates
25.308	0061	-	REL-8	A	RP-090503	R2-093487	Correction to Improved L2 for 1.28Mcps TDD	8.5.0	8.6.0	R2	RANimp-L2DataRates
25.308	0062	-	REL-8	F	RP-090519	R2-093371	Clarification of HS-DSCH semi-persistent scheduling transmission in 1.28Mcps TDD	8.5.0	8.6.0	R2	RANimp-LCRCPC
25.308	0063	-	REL-9	B	RP-090522	R2-093510	Introduction of TxAA extension for non-MIMO UEs	8.5.0	9.0.0	R2	RANimp-TxAA_nonMIMO
25.308	0065	-	REL-7	F	RP-090503	R2-093349	Corrections to MAC_ehs description	7.9.0	7.10.0	R2	RANimp-L2DataRates
25.308	0066	-	REL-8	A	RP-090503	R2-093350	Corrections to MAC_ehs description	8.5.0	8.6.0	R2	RANimp-L2DataRates
25.319	0033	-	REL-8	F	RP-090519	R2-092737	Correction to Improved L2 for 1.28Mcps TDD	8.5.0	8.6.0	R2	RANimp-UplinkL2dataRates
25.319	0034	-	REL-9	B	RP-090520	R2-093568	25.319 Stage2 CR Introduction of DC-HSUPA	8.5.0	9.0.0	R2	RANimp-DC_HSUPA
25.319	0035	1	REL-7	F	RP-090501	R2-093335	Correction to non-scheduled transmission for 1.28 Mcps TDD	7.6.0	7.7.0	R2	LCRTDD-EDCH-L23
25.319	0036	-	REL-8	A	RP-090501	R2-093415	Correction to non-scheduled transmission for 1.28 Mcps TDD	8.5.0	8.6.0	R2	LCRTDD-EDCH-L23
25.319	0037	1	REL-8	F	RP-090519	R2-093375	Clarification of E-DCH semi-persistent scheduling transmission in 1.28Mcps TDD	8.5.0	8.6.0	R2	RANimp-LCRCPC
25.319	0038	-	REL-9	B	RP-090520	R2-093606	TP: Iub/Iur aspects of DC-HSUPA	8.5.0	9.0.0	R2	RANimp-DC_HSUPA
25.321	0509	1	REL-8	F	RP-090519	R2-093501	Correction on adding CMAC_STATUS in figure 11.2.2A-3	8.5.0	8.6.0	R2	RANimp-UplinkEnhState

25.321	0510	-	REL-8	F	RP-090519	R2-092739	Correction on the Scheduling Information Indication	8.5.0	8.6.0	R2	RANimp-UplinkL2dataRates
25.321	0511	1	REL-8	F	RP-090519	R2-093353	HARQ delivery correction	8.5.0	8.6.0	R2	RANImp-UplinkEnhState
25.321	0512	2	REL-8	F	RP-090519	R2-093357	Correction to HS-DSCH SPS operation for 1.28Mcps TDD	8.5.0	8.6.0	R2	RANimp-LCRCPC
25.321	0513	1	REL-7	F	RP-090504	R2-093388	Reordering configuration for BCCH and paging	7.12.0	7.13.0	R2	RANimp-EnhState
25.321	0514	1	REL-8	A	RP-090504	R2-093389	Reordering configuration for BCCH and paging	8.5.0	8.6.0	R2	RANimp-EnhState
25.321	0517	-	REL-8	F	RP-090519	R2-093363	MAC-STATUS-Ind for CCCH transmissions	8.5.0	8.6.0	R2	RANImp-UplinkEnhState
25.321	0518	1	REL-7	F	RP-090501	R2-093336	Correction to non-scheduled transmission for 1.28 Mcps TDD	7.12.0	7.13.0	R2	LCRTDD-EDCH-L23
25.321	0519	-	REL-8	A	RP-090501	R2-093417	Correction to non-scheduled transmission for 1.28 Mcps TDD	8.5.0	8.6.0	R2	LCRTDD-EDCH-L23
25.321	0520	-	REL-7	F	RP-090503	R2-093488	Correction to Improved L2 for 1.28Mcps TDD	7.12.0	7.13.0	R2	RANimp-L2DataRates
25.321	0521	-	REL-8	A	RP-090503	R2-093489	Correction to Improved L2 for 1.28Mcps TDD	8.5.0	8.6.0	R2	RANimp-L2DataRates
25.321	0522	1	REL-7	F	RP-090503	R2-093345	Correction to TBS tables for Improved L2 for 1.28Mcps TDD	7.12.0	7.13.0	R2	RANimp-L2DataRates
25.321	0523	1	REL-8	A	RP-090503	R2-093346	Correction to TBS tables for Improved L2 for 1.28Mcps TDD	8.5.0	8.6.0	R2	RANimp-L2DataRates
25.321	0524	1	REL-7	F	RP-090505	R2-093562	Clarification to grant monitoring	7.12.0	7.13.0	R2	TEI7
25.321	0525	1	REL-8	A	RP-090505	R2-093563	Clarification to grant monitoring	8.5.0	8.6.0	R2	TEI7
25.322	0359	-	REL-8	F	RP-090519	R2-092742	Submission of UMD PDU when SN_Delivery is configured	8.4.0	8.5.0	R2	RInImp8-CsHspa
25.322	0363	-	REL-7	F	RP-090505	R2-093343	Removal of references to MAC-hs reset	7.9.0	7.10.0	R2	TEI7
25.322	0364	-	REL-8	A	RP-090505	R2-093344	Removal of references to MAC-hs reset	8.4.0	8.5.0	R2	TEI7
25.331	3626	1	REL-5	F	RP-090498	R2-093381	Removal of description of CPCH feature	5.23.0	5.24.0	R2	TEI5

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25.331	3627	1	REL-6	A	RP-090498	R2-093382	Removal of description of CPCH feature	6.21.0	6.22.0	R2	TEI5
25.331	3628	1	REL-7	A	RP-090498	R2-093383	Removal of description of CPCH feature	7.12.1	7.13.0	R2	TEI5
25.331	3629	1	REL-8	A	RP-090498	R2-093384	Removal of description of CPCH feature	8.6.0	8.7.0	R2	TEI5
25.331	3630	1	REL-7	F	RP-090505	R2-093313	Error in UE capability update procedure	7.12.1	7.13.0	R2	TEI7
25.331	3631	1	REL-8	A	RP-090505	R2-093314	Error in UE capability update procedure	8.6.0	8.7.0	R2	TEI7
25.331	3632	1	REL-7	F	RP-090505	R2-093315	Correction on deferredMeasurementControlReading	7.12.1	7.13.0	R2	TEI7
25.331	3633	1	REL-8	A	RP-090505	R2-093316	Correction on deferredMeasurementControlReading	8.6.0	8.7.0	R2	TEI7
25.331	3634	-	REL-7	F	RP-090500	R2-092751	Clarification for setting the HS_SCCH_LESS_STATUS variable	7.12.1	7.13.0	R2	RANimp-CPC
25.331	3635	-	REL-8	A	RP-090500	R2-092752	Clarification for setting the HS_SCCH_LESS_STATUS variable	8.6.0	8.7.0	R2	RANimp-CPC
25.331	3636	-	REL-8	F	RP-090506	R2-092753	Removal of FFS in reference to GERAN timer T3230	8.6.0	8.7.0	R2	LTE-L23
25.331	3637	1	REL-8	F	RP-090517	R2-093356	Addition of semantics description for support of CSG	8.6.0	8.7.0	R2	HNB-supp
25.331	3638	1	REL-8	F	RP-090506	R2-093354	Clarification of setting meaurement capability TDD in INTER RAT HANDOVER INFOR message	8.6.0	8.7.0	R2	LTE-L23
25.331	3639	-	REL-8	F	RP-090519	R2-092756	Correction to enhanced Serving Cell Change procedure	8.6.0	8.7.0	R2	RANimp-HSDSCH
25.331	3640	-	REL-8	F	RP-090519	R2-092757	Correction of the “else” clause in Target cell HS-SCCH reception	8.6.0	8.7.0	R2	RANimp-HSDSCH
25.331	3641	-	REL-8	F	RP-090519	R2-092758	SIB7 and enhanced UE DRX operation	8.6.0	8.7.0	R2	RANimp-DRX
25.331	3642	2	REL-8	F	RP-090519	R2-093358	Correction to statement of SPS operation for 1.28Mcps TDD	8.6.0	8.7.0	R2	RANimp-LCRCPC
25.331	3643	1	REL-8	F	RP-090506	R2-093616	Preserving dedicated priorities in camped on any cell state	8.6.0	8.7.0	R2	LTE-L23
25.331	3644	-	REL-7	F	RP-090505	R2-093393	Correction on UE Mobility State Indicator	7.12.1	7.13.0	R2	TEI7
25.331	3645	-	REL-8	A	RP-090505	R2-093394	Correction on UE Mobility State Indicator	8.6.0	8.7.0	R2	TEI7
25.331	3646	-	REL-7	F	RP-090500	R2-093320	Correction to CPC activation/deactivation	7.12.1	7.13.0	R2	RANimp-CPC
25.331	3647	-	REL-8	A	RP-090500	R2-093321	Correction to CPC activation/deactivation	8.6.0	8.7.0	R2	RANimp-CPC
25.331	3648	-	REL-8	F	RP-090519	R2-093495	Procedure requirements for ETWS primary notification with security	8.6.0	8.7.0	R2	ETWS

25.331	3649	-	REL-8	F	RP-090519	R2-093376	Handling of dual cell HS-SCCH orders at serving cell change	8.6.0	8.7.0	R2	RANimp-DCHSDPA
25.331	3650	-	REL-8	F	RP-090519	R2-093362	Corrections to common E-DCH operation	8.6.0	8.7.0	R2	RANimp-UplinkEnhState
25.331	3655	3	Rel-7	F	RP-090606	RP-090606	Specification of CPC restored state upon physical layer failure	7.12.1	7.13.0	R2	RANimp-CPC
25.331	3656	4	Rel-8	A	RP-090607	RP-090607	Specification of CPC restored state upon physical layer failure and of HS-SCCH less operation upon serving cell change	8.6.0	8.7.0	R2	RANimp-CPC
25.331	3657	2	REL-7	F	RP-090501	R2-093560	Correction to non-scheduled transmission for 1.28 Mcps TDD	7.12.1	7.13.0	R2	LCRTDD-EDCH-L23
25.331	3658	2	REL-8	A	RP-090501	R2-093561	Correction to non-scheduled transmission for 1.28 Mcps TDD	8.6.0	8.7.0	R2	LCRTDD-EDCH-L23
25.331	3659	-	REL-7	F	RP-090503	R2-093422	Clarification of CQI reporting for 1.28Mcps TDD	7.12.1	7.13.0	R2	RANimp-L2DataRates
25.331	3660	-	REL-8	A	RP-090503	R2-093423	Clarification of CQI reporting for 1.28Mcps TDD	8.6.0	8.7.0	R2	RANimp-L2DataRates
25.331	3661	-	REL-7	F	RP-090503	R2-093347	Correction to Improved L2 support for high data rates for TDD	7.12.1	7.13.0	R2	RANimp-L2DataRates
25.331	3662	-	REL-8	A	RP-090503	R2-093348	Correction to Improved L2 support for high data rates for TDD	8.6.0	8.7.0	R2	RANimp-L2DataRates
25.331	3663	-	REL-8	F	RP-090518	R2-093390	Missing CS over HSPA operation in SR-VCC	8.6.0	8.7.0	R2	RANimp-HSPAVoIP
25.331	3664	-	REL-8	F	RP-090519	R2-093378	Correction on CPICH Secondary CCPCH power offset in 3.84 Mcps TDD MBSFN IMB	8.6.0	8.7.0	R2	MBSFN-DOB
25.331	3665	1	REL-8	A	RP-090502	R2-093493	Correction on p-t-m bearer release in 3.84 Mcps TDD MBSFN IMB	8.6.0	8.7.0	R2	MBMSE-RANPhysTDD, MBMSE-RANPhysFDD
25.331	3667	1	REL-8	C	RP-090517	R2-093517	Addition of CSG cell reservation signalling	8.6.0	8.7.0	R2	HNB-supp
25.331	3669	-	REL-6	F	RP-090499	R2-093317	Clarification to the support of 2 different layer 3 filters per measurement type	6.21.0	6.22.0	R2	TEI6
25.331	3670	-	REL-7	A	RP-090499	R2-093318	Clarification to the support of 2 different layer 3 filters per measurement type	7.12.1	7.13.0	R2	TEI6

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25.331	3671	-	REL-8	A	RP-090499	R2-093319	Clarification to the support of 2 different layer 3 filters per measurement type	8.6.0	8.7.0	R2	TEI6
25.331	3672	1	REL-7	F	RP-090505	R2-093514	Clarification to handling of IE “Use special value of HE field”	7.12.1	7.13.0	R2	TEI7
25.331	3673	1	REL-8	A	RP-090505	R2-093515	Clarification to handling of IE “Use special value of HE field”	8.6.0	8.7.0	R2	TEI7
25.331	3674	-	REL-7	F	RP-090500	R2-093323	Removal of slot format 3 from IE “Uplink DPCCH slot format information”in “DTX-DRX information”	7.12.1	7.13.0	R2	RANimp-CPC
25.331	3675	-	REL-8	A	RP-090500	R2-093324	Removal of slot format 3 from IE “Uplink DPCCH slot format information”in “DTX-DRX information”	8.6.0	8.7.0	R2	RANimp-CPC
25.331	3676	1	REL-8	F	RP-090519	R2-093391	Correction to TargetCellPreconfigInfo asn1	8.6.0	8.7.0	R2	RANimp-HSDSCH
25.331	3680	-	REL-8	F	RP-090506	R2-093366	Correction for E-UTRA measurement and reporting quantity CR for 25.331	8.6.0	8.7.0	R2	LTE-L23
25.331	3681	-	REL-8	F	RP-090506	R2-093367	Corrections to absolute priority reselection	8.6.0	8.7.0	R2	LTE-L23
25.331	3682	-	REL-7	F	RP-090504	R2-093490	Correction to Enhanced CELL_FACH Capability	7.12.1	7.13.0	R2	RANimp-EnhState
25.331	3683	-	REL-8	A	RP-090504	R2-093491	Correction to Enhanced CELL_FACH Capability	8.6.0	8.7.0	R2	RANimp-EnhState
25.331	3684	-	REL-8	F	RP-090519	R2-093364	Configuration of EAI power offset	8.6.0	8.7.0	R2	RANimp-UplinkEnhState
25.331	3688	-	REL-8	F	RP-090519	R2-093368	Correction to RRC transaction identifier handling	8.6.0	8.7.0	R2	RANimp-HSDSCH
25.331	3689	1	REL-7	F	RP-090500	R2-093397	Corrections to CPC when E-DCH TTI is reconfigured	7.12.1	7.13.0	R2	RANimp-CPC
25.331	3690	1	REL-8	A	RP-090500	R2-093398	Corrections to CPC when E-DCH TTI is reconfigured (Rel8)	8.6.0	8.7.0	R2	RANimp-CPC
25.331	3691	2	REL-7	F	RP-090505	R2-093392	Call Type Inclusion condition	7.12.1	7.13.0	R2	TEI7
25.331	3692	-	REL-8	A	RP-090505	R2-093342	Call Type Inclusion condition	8.6.0	8.7.0	R2	TEI7
25.331	3694	2	REL-8	F	RP-090506	R2-093614	Transfer of INTER RAT HANDOVER INFO upon handover from UTRAN	8.6.0	8.7.0	R2	LTE-L23
25.331	3695	-	REL-8	F	RP-090519	R2-093365	Clarification of SIB7 reading for enhanced uplink in CELL_FACH state	8.6.0	8.7.0	R2	RANimp-UplinkEnhState
25.331	3696	-	REL-7	F	RP-090502	R2-093387	Correction on p-t-m bearer release in MBSFN	7.12.1	7.13.0	R2	MBMSE-RANPhysTDD, MBMSE-RANPhysFDD

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25.367	0003	-	REL-9	B	RP-090524	R2-092800	Idle mode requirements to support hybrid cells for HNB	8.1.0	9.0.0	R2	EHNB-RAN2
36.300	0085	-	REL-8	F	RP-090507	R2-092761	Proposed CR to 36.300 on RLC status report triggers	8.8.0	8.9.0	R2	LTE-L23
36.300	0086	2	REL-8	F	RP-090507	R2-093613	Updates on UE capability transfer and container handling for E-UTRA	8.8.0	8.9.0	R2	LTE-L23
36.300	0087	1	REL-9	B	RP-090523	R2-093533	MBMS baseline for Rel-9 LTE	8.8.0	9.0.0	R2	MBMS_LTE
36.300	0088	-	REL-9	B	RP-090524	R2-092799	Idle mode requirements to support Hybrid Cells	8.8.0	9.0.0	R2	EHNB-RAN2
36.300	0089	-	REL-8	F	RP-090507	R2-093400	Proposed CR to 36.300 Rel-8 on FFS and outdated statements	8.8.0	8.9.0	R2	LTE-L23
36.300	0096	-	REL-8	F	RP-090508	R2-093602	Removal of no longer necessary notes	8.8.0	8.9.0	R2	LTE-interfaces
36.300	0097	-	REL-8	F	RP-090508	R2-093603	Introduction of support for Cell traffic trace	8.8.0	8.9.0	R2	LTE-interfaces
36.300	0098	-	REL-8	F	RP-090508	R2-093604	Correction the text about the UE History Information	8.8.0	8.9.0	R2	LTE-interfaces
36.300	0099	-	REL-9	C	RP-090523	R2-093605	eMBMS Stage 2 description	8.8.0	9.0.0	R2	MBMS_LTE
36.300	0100	-	REL-9	B	RP-090523	R2-093607	CR for eMBMS Deployment Alternatives in 36.300	8.8.0	9.0.0	R2	MBMS_LTE
36.300	0101	1	REL-9	B	RP-090534	-	QoS support for Hybrid CSG cells	8.8.0	9.0.0	R2	EHNB-RAN3
36.300	0102	-	REL-8	F	RP-090538	-	Configuration transfer	8.8.0	8.9.0	R2	LTE-interfaces
36.300	0103	-	REL-9	B	RP-090537	-	TAI based handover routing for HeNBs	8.8.0	9.0.0	R2	EHNB-RAN3
36.302	0005	1	REL-8	F	RP-090509	R2-093300	Correction of MBMS	8.1.0	8.2.0	R2	LTE-L23
36.302	0006	-	REL-8	F	RP-090509	R2-092764	Downlink reception types	8.1.0	8.2.0	R2	LTE-L23
36.302	0009	-	REL-8	F	RP-090509	R2-093578	Simultaneous reception of transport channels in the LTE	8.1.0	8.2.0	R2	LTE-L23
36.302	0010	-	REL-8	F	RP-090509	R2-093579	Clarification on the parallel receptions for PDSCHs	8.1.0	8.2.0	R2	LTE-L23
36.304	0072	2	REL-8	F	RP-090510	R2-093570	CR on correction of sign in SnonServingCell,x for CDMA2000 RATs	8.5.0	8.6.0	R2	LTE-L23
36.304	0073	-	REL-8	F	RP-090510	R2-092766	Correction to UE behaviour while 300s frequency barring timer is running	8.5.0	8.6.0	R2	LTE-L23
36.304	0074	1	REL-8	F	RP-090510	R2-093478	Correction to any cell selection procedure	8.5.0	8.6.0	R2	LTE-L23
36.304	0075	1	REL-8	F	RP-090510	R2-093534	Correction to reselection in case IFRI is not allowed	8.5.0	8.6.0	R2	LTE-L23

36.304	0076	1	REL-8	F	RP-090510	R2-093479	Clarification when no candidate cells on serving frequency	8.5.0	8.6.0	R2	LTE-L23
36.304	0077	1	REL-8	F	RP-090510	R2-093480	Clarification of the Priority Handling in CSG Cell	8.5.0	8.6.0	R2	LTE-L23
36.304	0079	-	REL-8	F	RP-090510	R2-093481	Correction to cell selection when leaving RRC connected mode	8.5.0	8.6.0	R2	LTE-L23
36.304	0080	-	REL-8	F	RP-090510	R2-093482	CR for Removing FFS for T3230	8.5.0	8.6.0	R2	LTE-L23
36.304	0082	-	REL-8	F	RP-090510	R2-093483	Correction on the Lower Priority Cell Reselection Rule	8.5.0	8.6.0	R2	LTE-L23
36.304	0084	-	REL-8	F	RP-090510	R2-093409	Clarification on disabling E-UTRA capabilities with a USIM	8.5.0	8.6.0	R2	LTE-L23
36.306	0016	2	REL-8	F	RP-090511	R2-093620	Support of inter-RAT PS handover to GERAN Editor Note Removal	8.3.0	8.4.0	R2	LTE-L23
36.306	0017	1	REL-8	F	RP-090511	R2-093406	Clarification of Half Duplex in TDD	8.3.0	8.4.0	R2	LTE-L23
36.306	0018	-	REL-8	F	RP-090511	R2-093524	Correcting the maximum number of bits received during one TTI	8.3.0	8.4.0	R2	LTE-L23
36.306	0019	-	REL-8	F	RP-090511	R2-093408	Clarification of field names used in TS 36.331	8.3.0	8.4.0	R2	LTE-L23
36.306	0021	-	REL-8	F	RP-090511	R2-093411	Clarification on disabling E-UTRA capabilities with a USIM	8.3.0	8.4.0	R2	LTE-L23
36.314	0009	-	REL-8	F	RP-090512	R2-092773	Removal of measurements not reflected in interface specifications	8.1.0	8.2.0	R2	LTE-L23
36.314	0010	-	REL-8	F	RP-090512	R2-093403	Correction to the minimum measurement time for data loss measurements	8.1.0	8.2.0	R2	LTE-L23
36.314	0011	-	REL-8	F	RP-090512	R2-093404	Correction to the definition of PDCP SDU Delay measurement	8.1.0	8.2.0	R2	LTE-L23
36.321	0342	-	REL-8	F	RP-090513	R2-092774	Correction on HARQ feedback transmission	8.5.0	8.6.0	R2	LTE-L23
36.321	0343	1	REL-8	F	RP-090513	R2-093430	Clarification on the DL assignment/UL grant reception in SPS	8.5.0	8.6.0	R2	LTE-L23
36.321	0344	1	REL-8	F	RP-090513	R2-093431	PHR timer handling after handover	8.5.0	8.6.0	R2	LTE-L23
36.321	0346	2	REL-8	F	RP-090513	R2-093553	MAC PDU for Msg2	8.5.0	8.6.0	R2	LTE-L23
36.321	0347	2	REL-8	F	RP-090513	R2-093448	MAC Error handling	8.5.0	8.6.0	R2	LTE-L23
36.321	0348	-	REL-8	F	RP-090513	R2-092780	Correction on SR cancellation	8.5.0	8.6.0	R2	LTE-L23
36.321	0349	1	REL-8	F	RP-090513	R2-093435	Correction to RETX_BSR_TIMER	8.5.0	8.6.0	R2	LTE-L23
36.321	0350	1	REL-8	F	RP-090513	R2-093436	CR to 36.321 on UL SPS Implicit Release	8.5.0	8.6.0	R2	LTE-L23
36.321	0351	2	REL-8	F	RP-090513	R2-093528	Various correction to MAC	8.5.0	8.6.0	R2	LTE-L23

36.321	0369	-	REL-8	F	RP-090513	R2-093612	Correction to Uplink grant by temporary C-RNTI	8.5.0	8.6.0	R2	LTE-L23
36.321	0370	-	REL-8	F	RP-090513	R2-093438	Clarification on simultaneous reception of RA-RNTI and C-RNTI	8.5.0	8.6.0	R2	LTE-L23
36.321	0374	-	REL-8	F	RP-090513	R2-093441	Correction on timeAlignmentTimer validity in MAC	8.5.0	8.6.0	R2	LTE-L23
36.321	0376	-	REL-8	F	RP-090513	R2-093439	CR for MAC padding	8.5.0	8.6.0	R2	LTE-L23
36.321	0377	-	REL-8	F	RP-090513	R2-093542	Correction to duplicate reception of TA command (2nd method)	8.5.0	8.6.0	R2	LTE-L23
36.322	0080	-	REL-8	F	RP-090514	R2-092783	Reset of T_poll_retransmission	8.5.0	8.6.0	R2	LTE-L23
36.322	0081	-	REL-8	F	RP-090514	R2-092784	RLC functions	8.5.0	8.6.0	R2	LTE-L23
36.322	0082	1	REL-8	F	RP-090514	R2-093442	Correction to handling of reserved field	8.5.0	8.6.0	R2	LTE-L23
36.322	0083	-	REL-8	F	RP-090514	R2-093443	Correction to condition for stopping t-Reordering in AM mode	8.5.0	8.6.0	R2	LTE-L23
36.323	0078	1	REL-8	F	RP-090515	R2-093444	PDCP Status Report	8.5.0	8.6.0	R2	LTE-L23
36.323	0079	1	REL-8	F	RP-090515	R2-093445	Correction to PDCP PDU submission condition in lower layer re-establishment	8.5.0	8.6.0	R2	LTE-L23
36.323	0080	2	REL-8	F	RP-090515	R2-093577	Minor correction and clarification to 36.323	8.5.0	8.6.0	R2	LTE-L23
36.331	0159	-	REL-8	F	RP-090516	R2-092788	Octet alignment of VarShortMAC-Input	8.5.0	8.6.0	R2	LTE-L23
36.331	0160	3	REL-8	F	RP-090516	R2-093601	Minor corrections to the feature grouping	8.5.0	8.6.0	R2	LTE-L23
36.331	0161	-	REL-8	F	RP-090516	R2-092790	Security clarification	8.5.0	8.6.0	R2	LTE-L23
36.331	0162	1	REL-8	F	RP-090516	R2-093463	Sending of GERAN SI/PSI information at Inter-RAT Handover	8.5.0	8.6.0	R2	LTE-L23
36.331	0163	1	REL-8	F	RP-090516	R2-093543	Correction of UE measurement model	8.5.0	8.6.0	R2	LTE-L23
36.331	0164	-	REL-8	F	RP-090516	R2-092793	Restricting the reconfiguration of UM RLC SN field size	8.5.0	8.6.0	R2	LTE-L23
36.331	0165	1	REL-8	F	RP-090516	R2-093464	36.331 CR on Clarification on cell change order from GERAN to E-UTRAN	8.5.0	8.6.0	R2	LTE-L23
36.331	0166	-	REL-8	F	RP-090516	R2-092795	36.331 CR - Handling of expired TAT and failed D-SR	8.5.0	8.6.0	R2	LTE-L23
36.331	0167	1	REL-8	F	RP-090516	R2-093465	Proposed CR to 36.331 Clarification on mandatory information in AS-Config	8.5.0	8.6.0	R2	LTE-L23
36.331	0168	2	REL-8	F	RP-090516	R2-093556	Miscellaneous small corrections	8.5.0	8.6.0	R2	LTE-L23
36.331	0173	-	REL-8	F	RP-090516	R2-093467	Clarification on the basis of delta signalling	8.5.0	8.6.0	R2	LTE-L23

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36.331	0177	-	REL-8	F	RP-090516	R2-093477	CR on Alignment of CCCH and DCCH handling of missing mandatory field	8.5.0	8.6.0	R2	LTE-L23
36.331	0180	2	REL-8	F	RP-090516	R2-093550	Handling of Measurement Context During HO Preparation	8.5.0	8.6.0	R2	LTE-L23
36.331	0181	-	REL-8	F	RP-090516	R2-093473	Clarification of key-eNodeB-Star in AdditionalReestabInfo	8.5.0	8.6.0	R2	LTE-L23
36.331	0182	1	REL-8	F	RP-090516	R2-093615	UE Capability Transfer	8.5.0	8.6.0	R2	LTE-L23
36.331	0186	1	REL-8	F	RP-090516	R2-093525	Clarification regarding mobility from E-UTRA in-between SMC and SRB2/DRB setup	8.5.0	8.6.0	R2	LTE-L23
36.331	0188	1	REL-8	F	RP-090516	R2-093617	Correction and completion of specification conventions	8.5.0	8.6.0	R2	LTE-L23
36.331	0195	2	REL-8	F	RP-090516	R2-093537	RB combination in feature group indicator	8.5.0	8.6.0	R2	LTE-L23
36.331	0196	1	REL-8	F	RP-090516	R2-093526	CR for need code for fields in mobilityControlInfo	8.5.0	8.6.0	R2	LTE-L23
36.331	0197	-	REL-8	F	RP-090497	-	Alignment of pusch-HoppingOffset with 36.211	8.5.0	8.6.0	R2	LTE-L23
36.331	0198	-	REL-8	F	RP-090570	-	Explicit srb-Identity values for SRB1 and SRB2	8.5.0	8.6.0	R2	LTE-L23
36.331	0199	-	REL-8	F	RP-090516	R2-093621	Removing use of defaultValue for mac-MainConfig	8.5.0	8.6.0	R2	LTE-L23
25.402	0077	-	Rel-8	F	RP-090633	R3-091147	Correction of Transport Channel Synchronisation contradiction	8.0.0	8.1.0	R3	TEI8
25.413	0988	-	Rel-8	F	RP-090638	R3-090777	Addition of Integrity Protection Information IE and Encryption Information IE into Enhanced SRNS Relocation	8.2.1	8.3.0	R3	RANimp-SrnsReloc
25.413	0989	2	Rel-8	F	RP-090641	R3-091012	RANAP changes to support paging optimisation	8.2.1	8.3.0	R3	HNB-arch
25.413	0994	-	Rel-8	F	RP-090633	R3-091134	Correction of extended alternative bit rate	8.2.1	8.3.0	R3	TEI8
25.413	0996	-	Rel-8	F	RP-090633	R3-091151	Structure of prodeure text for Relocation Preparation	8.2.1	8.3.0	R3	TEI8
25.413	0998	1	Rel-8	F	RP-090635	R3-091389	Interaction between Enhanced Relocation and RAB Assignment Procedure	8.2.1	8.3.0	R3	RANimp-SrnsReloc
25.413	0999	1	Rel-8	F	RP-090642	R3-091437	Correction of introduction of HSPA SRVCC	8.2.1	8.3.0	R3	RANimp-HSPAVoIP
25.413	1000	-	Rel-8	F	RP-090642	R3-091349	Correction of the Global CN-ID for the PS domain	8.2.1	8.3.0	R3	RANimp-HSPAVoIP
25.413	1002	-	Rel-8	F	RP-090636	R3-091490	Introduction of E-UTRAN Service Handover IE	8.2.1	8.3.0	R3	TEI8
25.413	1003	-	Rel-8	F	RP-090629	-	Correction on Procedure Code Value for id-SRVCCPreparation	8.2.1	8.3.0	R3	RANimp-HSPAVoIP
25.423	1481	2	Rel-8	F	RP-090638	R3-090975	Addition of Causes for Enhanced Relocation Failure	8.4.1	8.5.0	R3	RANimp-SrnsReloc

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25.423	1484	1	Rel-8	F	RP-090638	R3-090938	Further abnormal conditions for IP Transport Option	8.4.1	8.5.0	R3	TEI8
25.423	1485	-	Rel-8	F	RP-090638	R3-090881	Partial Failure for DC-HSDPA	8.4.1	8.5.0	R3	RANimp-DCHSDPA
25.423	1486	3	Rel-8	F	RP-090638	R3-091006	Corrections of CPC DRX configuration for 1.28Mcps TDD	8.4.1	8.5.0	R3	RANimp-LCRCPC
25.423	1489	1	Rel-7	F	RP-090631	R3-091462	Clarification of E-AGCH Table Choice	7.12.0	7.13.0	R3	TEI7
25.423	1490	1	Rel-8	A	RP-090631	R3-091463	Clarification of E-AGCH Table Choice	8.4.1	8.5.0	R3	TEI7
25.423	1491	1	Rel-7	F	RP-090631	R3-091383	Addition of Max UE DTX Cycle into UPLINK SIGNALLING TRANSFER INDICATION message	7.12.0	7.13.0	R3	TEI7
25.423	1492	1	Rel-8	A	RP-090631	R3-091384	Addition of Max UE DTX Cycle into UPLINK SIGNALLING TRANSFER INDICATION message	8.4.1	8.5.0	R3	TEI7
25.423	1493	-	Rel-8	F	RP-090635	R3-091076	Clarification on Uplink L2 improvement	8.4.1	8.5.0	R3	RANimp-UplinkL2dataRates
25.423	1495	1	Rel-8	F	RP-090634	R3-091387	Removal of HS-PDSCH Code Change indicator IE from RADIO LINK PARAMETER UPDATE INDICATION message	8.4.1	8.5.0	R3	RANimp-DCHSDPA
25.423	1498	-	Rel-8	F	RP-090633	R3-091135	Correction of indentation	8.4.1	8.5.0	R3	TEI8
25.423	1499	1	Rel-8	F	RP-090633	R3-091385	Include a general HS-SCCH support indicator	8.4.1	8.5.0	R3	TEI8
25.423	1500	-	Rel-8	F	RP-090634	R3-091139	Correction of tabular for INFORMATION REPORT message	8.4.1	8.5.0	R3	RANimp-HSPAEvo
25.423	1504	1	Rel-7	F	RP-090630	R3-091439	Correction of the value range of MAC PDU Size Extended IE in RNSAP	7.12.0	7.13.0	R3	RANimp-L2DataRates
25.423	1505	1	Rel-8	A	RP-090630	R3-091440	Correction of the value range of MAC PDU Size Extended IE in RNSAP	8.4.1	8.5.0	R3	RANimp-L2DataRates
25.423	1506	-	Rel-8	F	RP-090635	R3-091237	Addition of description for Fixed and Flexible RLC PDU operation for TDD	8.4.1	8.5.0	R3	RANimp-L2DataRates
25.423	1507	1	Rel-8	F	RP-090635	R3-091390	Early Enhanced Relocation Cancel	8.4.1	8.5.0	R3	RANimp-SrnsReloc
25.423	1508	-	Rel-7	F	RP-090577	-	Correction of MIMO Information Response IE	7.12.0	7.13.0	R3	MIMO-IurIub
25.423	1509	-	Rel-8	A	RP-090578	-	Correction of MIMO Information Response IE	8.4.1	8.5.0	R3	MIMO-IurIub
25.425	0140	-	Rel-7	F	RP-090630	R3-091443	Correction of the value range of MAC PDU Size Extended IE in CCH FP Iur	7.10.0	7.11.0	R3	RANimp-L2DataRates

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25.425	0141	-	Rel-8	A	RP-090630	R3-091444	Correction of the value range of MAC PDU Size Extended IE in CCH FP Iur	8.2.0	8.3.0	R3	RANimp-L2DataRates
25.433	1605	1	Rel-8	F	RP-090638	R3-090940	Corrections to the modification of MIMO reference signal for 1.28 Mcps TDD	8.4.0	8.5.0	R3	RANimp-MIMOLCR
25.433	1608	-	Rel-8	F	RP-090638	R3-090879	Further abnormal conditions for IP Transport Option	8.4.0	8.5.0	R3	TEI8
25.433	1609	1	Rel-8	F	RP-090638	R3-090939	Partial Failure for DC-HSDPA	8.4.0	8.5.0	R3	RANimp-DCHSDPA
25.433	1610	3	Rel-8	F	RP-090638	R3-091007	Corrections of CPC DRX configuration for 1.28Mcps TDD	8.4.0	8.5.0	R3	RANimp-LCRCPC
25.433	1613	-	Rel-8	F	RP-090633	R3-091038	Correction of formatting in NBAP	8.4.0	8.5.0	R3	TEI8
25.433	1614	-	Rel-7	F	RP-090631	R3-091041	Improved CM checks for F-DPCH	7.12.0	7.13.0	R3	TEI7
25.433	1615	-	Rel-8	A	RP-090631	R3-091042	Improved CM checks for F-DPCH	8.4.0	8.5.0	R3	TEI8
25.433	1618	1	Rel-7	F	RP-090631	R3-091464	Clarification of E-AGCH Table Choice	7.12.0	7.13.0	R3	TEI7
25.433	1619	1	Rel-8	A	RP-090631	R3-091465	Clarification of E-AGCH Table Choice	8.4.0	8.5.0	R3	TEI7
25.433	1620	1	Rel-7	F	RP-090631	R3-091466	Addition of UL 16QAM credit consumption in E-DCH Capacity Consumption Law	7.12.0	7.13.0	R3	TEI7
25.433	1621	1	Rel-8	A	RP-090631	R3-091467	Addition of UL 16QAM credit consumption in E-DCH Capacity Consumption Law	8.4.0	8.5.0	R3	TEI7
25.433	1622	-	Rel-8	F	RP-090635	R3-091077	Clarification on Uplink L2 improvement	8.4.0	8.5.0	R3	RANimp-UplinkL2dataRates
25.433	1623	1	Rel-8	F	RP-090634	R3-091388	Removal of HS-PDSCH Code Change indicator IE from RADIO LINK PARAMETER UPDATE INDICATION message	8.4.0	8.5.0	R3	RANimp-DCHSDPA
25.433	1624	-	Rel-8	F	RP-090633	R3-091083	ASN.1 correction for MAC-hs Reset Indicator	8.4.0	8.5.0	R3	TEI8
25.433	1625	-	Rel-8	F	RP-090634	R3-091136	Correction of abnormal condition for RL Addition Request	8.4.0	8.5.0	R3	RANimp-DCHSDPA
25.433	1626	-	Rel-8	F	RP-090633	R3-091138	Include a general HS-SCCH support indicator	8.4.0	8.5.0	R3	TEI8
25.433	1628	-	Rel-8	F	RP-090634	R3-091220	Removal of DC-HSDPA limitation from NBAP	8.4.0	8.5.0	R3	RANimp-DCHSDPA
25.433	1629	1	Rel-7	F	RP-090630	R3-091441	Correction of the value range of MAC PDU Size Extended IE in NBAP	7.12.0	7.13.0	R3	RANimp-L2DataRates

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25.433	1630	1	Rel-8	A	RP-090630	R3-091442	Correction of the value range of MAC PDU Size Extended IE NBAP	8.4.0	8.5.0	R3	RANimp-L2DataRates
25.433	1631	1	Rel-8	F	RP-090634	R3-091391	Addition of SPI IE in Common E-DCH System Information LCR IE	8.4.0	8.5.0	R3	RANimp-EnhState1.28TDD
25.433	1632	-	Rel-8	F	RP-090635	R3-091238	Addition of description for Fixed and Flexible RLC PDU operation for TDD	8.4.0	8.5.0	R3	RANimp-L2DataRates
25.435	0200	1	Rel-8	F	RP-090638	R3-090943	Clarification of HS-DSCH FP frame structure for enhanced CELL_FACH for 1.28Mcps TDD	8.2.0	8.3.0	R3	RANimp-EnhState1.28TDD
25.435	0203	-	Rel-7	F	RP-090630	R3-091445	Correction of the value range of MAC PDU Size Extended IE in CCH FP Iub	7.11.0	7.12.0	R3	RANimp-L2DataRates
25.435	0204	-	Rel-8	A	RP-090630	R3-091446	Correction of the value range of MAC PDU Size Extended IE in CCH FP Iub	8.2.0	8.3.0	R3	RANimp-L2DataRates
25.467	0024	3	Rel-8	F	RP-090641	R3-090993	Clarification on Non-CSG HNB	8.1.0	8.2.0	R3	HNB-arch
25.467	0027	1	Rel-8	F	RP-090641	R3-090961	Support of Paging Optimisation for HNB	8.1.0	8.2.0	R3	TEI8
25.469	0022	2	Rel-8	F	RP-090626	-	Correction to HNB Identity definition	8.1.0	8.2.0	R3	HNB-Arch
36.401	0035	1	Rel-8	F	RP-090636	R3-091473	Clarification on the Paging Function in E-UTRAN	8.5.0	8.6.0	R3	LTE-Interfaces
36.413	0438	2	Rel-8	F	RP-090638	R3-090948	Correction on Path Switch Request procedure	8.5.1	8.6.0	R3	TEI8
36.413	0443	2	Rel-8	F	RP-090644	R3-090994	Removing æoutcomeÆ element from the Triggering Message IE	8.5.0	8.6.0	R3	LTE-interfaces
36.413	0448	1	Rel-8	F	RP-090644	R3-090952	Missing S1AP functions	8.5.1	8.6.0	R3	LTE Interfaces
36.413	0451	1	Rel-8	F	RP-090644	R3-090954	Correction of abnormal conditions in UE Context Release	8.5.1	8.6.0	R3	LTE-Interfaces
36.413	0452	1	Rel-8	F	RP-090644	R3-090955	Clarification of E-UTRAN Trace ID in Cell Traffice Trace message	8.5.1	8.6.0	R3	LTE-Interfaces
36.413	0453	-	Rel-8	F	RP-090644	R3-090913	Removal of duplication description of MME UE S1AP ID and eNB UE S1AP ID	8.5.1	8.6.0	R3	LTE-Interfaces
36.413	0455	1	Rel-8	F	RP-090644	R3-090987	Abnormal condition for Handover Cancellation	8.5.1	8.6.0	R3	LTE-interfaces
36.413	0458	3	Rel-8	F	RP-090640	R3-091495	NNSF for HeNB GW deployment scenario	8.5.1	8.6.0	R3	LTE-interfaces

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36.413	0459	-	Rel-8	F	RP-090636	R3-091095	Correction the text about the Handover Resource Allocation procedure	8.5.1	8.6.0	R3	LTE-Interfaces
36.413	0461	1	Rel-8	F	RP-090636	R3-091449	Clarification of Security Context to be used in HANDOVER REQUEST message	8.5.1	8.6.0	R3	LTE-Interfaces
36.413	0463	1	Rel-8	F	RP-090637	R3-091456	Emergency call Indicator during CS Fallback	8.5.1	8.6.0	R3	LTE-interfaces
36.413	0464	2	Rel-8	F	RP-090628	-	NAS PDU in E-RAB Release Command	8.5.1	8.6.0	R3	LTE-interfaces
36.413	0468	-	Rel-8	F	RP-090637	R3-091144	Correction of security parameters	8.5.1	8.6.0	R3	LTE-Interfaces
36.413	0471	2	Rel-8	F	RP-090640	R3-091397	Some Editorial Corrections on ASN.1	8.5.1	8.6.0	R3	LTE-interfaces
36.413	0476	2	Rel-8	F	RP-090636	R3-091487	Add that a non-GBR must be received and admitted on S1-HO	8.5.1	8.6.0	R3	LTE-Interfaces
36.413	0480	1	Rel-8	F	RP-090637	R3-091403	Clarify reporting of duplicate E-RABs in E-RAB RESPONSE	8.5.1	8.6.0	R3	LTE-Interfaces
36.413	0482	1	Rel-8	F	RP-090637	R3-091405	Clarify eNB may send Release msg rather than RRC Reject msg on receiving OVERLOAD Start msg	8.5.1	8.6.0	R3	LTE-Interfaces
36.413	0484	-	Rel-8	F	RP-090640	R3-091266	Rephrasing of abnormal conditions for S1 setup	8.5.1	8.6.0	R3	LTE-Interfaces
36.413	0491	-	Rel-8	F	RP-090636	R3-091283	Alignment of eNB configuration update procedure	8.5.1	8.6.0	R3	LTE-interfaces
36.413	0492	-	Rel-8	F	RP-090640	R3-091285	Operational use of updated configuration data	8.5.1	8.6.0	R3	LTE-interfaces
36.413	0494	-	Rel-8	F	RP-090640	R3-091289	Redirection to 1xRTT system	8.5.1	8.6.0	R3	LTE-interfaces
36.413	0500	1	Rel-8	F	RP-090637	R3-091498	Mandatory UE History Information IE in HANDOVER REQUIRED For Inter-RAT HO from E-UTRAN to UMTS	8.5.1	8.6.0	R3	LTE-interfaces
36.413	0501	1	Rel-8	F	RP-090636	R3-091404	Clarification of range bound for maximal number of PLMNs per MME and GUMMEIs	8.5.1	8.6.0	R3	LTE-interfaces
36.413	0502	-	Rel-8	F	RP-090636	R3-091343	Clarification for RAT list in S1 Setup Response and MME configuration Update	8.5.1	8.6.0	R3	LTE-interfaces
36.413	0503	1	Rel-8	F	RP-090640	R3-091401	Transparent Container Coding	8.5.1	8.6.0	R3	LTE-interfaces
36.413	0504	2	Rel-8	F	RP-090637	R3-091435	Editorial Updates	8.5.1	8.6.0	R3	LTE-interfaces
36.413	0507	1	Rel-8	F	RP-090637	R3-091409	Clarification of UE Capability Info Indication	8.5.1	8.6.0	R3	LTE-Interfaces
36.413	0510	-	Rel-8	F	RP-090637	R3-091419	Explicitly allow TRACE START to be the first VE-associated message received at the eNB	8.5.1	8.6.0	R3	LTE-Interfaces

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36.413	0512	-	Rel-8	F	RP-090637	R3-091436	Correction of RAN#43 CR implementation	8.5.1	8.6.0	R3	LTE-Interfaces
36.423	0250	2	Rel-8	F	RP-090644	R3-090998	Issue related to served GUMMEI over X2	8.5.0	8.6.0	R3	LTE-Interfaces
36.423	0254	2	Rel-8	F	RP-090644	R3-090997	Indication of candidate neighbours	8.5.0	8.6.0	R3	LTE-Interfaces
36.423	0263	3	Rel-8	F	RP-090640	R3-091410	Crossing of X2 Setup Request message	8.5.0	8.6.0	R3	LTE-interfaces
36.423	0267	-	Rel-8	F	RP-090644	R3-090966	Correction of abnormal conditions in UE Context Release	8.5.0	8.6.0	R3	LTE-Interfaces
36.423	0270	2	Rel-8	F	RP-090640	R3-091499	Addition of antenna information	8.5.0	8.6.0	R3	LTE-Interfaces
36.423	0274	2	Rel-8	F	RP-090636	R3-091488	Add that eNB must receive and accept a non-GBR on X2 HO	8.5.0	8.6.0	R3	LTE-Interfaces
36.423	0276	1	Rel-8	F	RP-090640	R3-091410	Clarify the first messages allowed on X2-AP	8.5.0	8.6.0	R3	LTE-Interfaces
25.101	0659	-	Rel-7	F	RP-090539	R4-091578	Clarifications for CQI Reporting Requirements of HSDPA. (Technically Endorsed CR in R4-50bis - R4-091234)	7.15.0	7.16.0	R4	TEI7
25.101	0660	-	Rel-8	A	RP-090539	R4-091579	Clarifications for CQI Reporting Requirements of HSDPA. (Technically Endorsed CR in R4-50bis - R4-091235)	8.6.0	8.7.0	R4	TEI7
25.101	0661	-	Rel-9	B	RP-090559	R4-091612	Introduction of Extended UMTS800 requirements. (Technically Endorsed CR in R4-50bis - R4-091429)	8.6.0	9.0.0	R4	RInImp9-UMTSLTE800
25.101	0662	-	Rel-8	F	RP-090539	R4-091616	Correction to MIMO Propagation Conditions. (Technically Endorsed CR in R4-50bis - R4-091433)	8.6.0	8.7.0	R4	MIMO-RF
25.101	0665	1	Rel-7	F	RP-090539	R4-092039	Correction to FRC H-Set 8 definition	7.15.0	7.16.0	R4	TEI7
25.101	0666	1	Rel-8	A	RP-090539	R4-092040	Correction to FRC H-Set 8 definition	8.6.0	8.7.0	R4	TEI7
25.101	0667	-	Rel-8	F	RP-090546	R4-091753	Introduction of a new Compressed Mode pattern for E-UTRAN measurements	8.6.0	8.7.0	R4	LTE-RF
25.101	0669	-	Rel-8	F	RP-090555	R4-091810	Removal of square brackets for DC-HSDPA Type 3i demodulation tests	8.6.0	8.7.0	R4	RANimp-DCHSDPA
25.102	0290	-	Rel-8	F	RP-090554	R4-091533	HS-DSCH performance requirements for 1.28Mcps TDD MIMO	8.3.0	8.4.0	R4	RANimp-MIMOLCR
25.102	0291	-	Rel-8	F	RP-090554	R4-091535	HS-SCCH performance requirements for 1.28Mcps TDD MIMO	8.3.0	8.4.0	R4	RANimp-MIMOLCR
25.102	0292	-	Rel-8	F	RP-090554	R4-091537	CQI reporting performance requirements for 1.28Mcps TDD MIMO	8.3.0	8.4.0	R4	RANimp-MIMOLCR

25.102	0294	-	Rel-8	F	RP-090556	R4-091571	Correction on 64QAM Reference measurement channel for 1.28Mcps TDD. (Technically Endorsed CR in R4-50bis - R4-091184)	8.3.0	8.4.0	R4	TEI8
25.102	0295	1	Rel-8	F	RP-090557	R4-092079	Accommodation of the IMB reference bearer in the receiver characteristics of clause 7	8.3.0	8.4.0	R4	MBSFN-DOB
25.102	0296	-	Rel-8	F	RP-090557	R4-091739	Definition of DL reference measurement channel for IMB	8.3.0	8.4.0	R4	MBSFN-DOB
25.102	0299	-	Rel-7	F	RP-090539	R4-091986	Correction concerning scope of applicability for Extended Delay Spread propagation conditions	7.14.0	7.15.0	R4	MBMSE-RANPhysTDD
25.102	0300	-	Rel-8	A	RP-090539	R4-091987	Correction concerning scope of applicability for Extended Delay Spread propagation conditions	8.3.0	8.4.0	R4	MBMSE-RANPhysTDD
25.102	0301	-	Rel-8	F	RP-090557	R4-092080	Addition of Performance Requirements for IMB MCCH	8.3.0	8.4.0	R4	MBSFN-DOB
25.102	0302	-	Rel-8	F	RP-090557	R4-092081	Addition of Performance Requirements for IMB MTCH	8.3.0	8.4.0	R4	MBSFN-DOB
25.102	0303	-	Rel-8	B	RP-090560	R4-092116	Addition of new requirement of new E-AGCH type 2	8.3.0	8.4.0	R4	RANimp-LCRCPC
25.104	0326	-	Rel-8	F	RP-090605	R4-091560	Correction on Home BS Output Power Requirements for Adjacent Channel Protection. (Technically Endorsed CR in R4-50bis - R4-091072)	8.6.0	8.7.0	R4	HNB-RF
25.104	0327	-	Rel-9	B	RP-090559	R4-091613	Introduction of Extended UMTS800 requirements. (Technically Endorsed CR in R4-50bis - R4-091430)	8.6.0	9.0.0	R4	RInImp9-UMTSLTE800
25.104	0328	-	Rel-8	F	RP-090553	R4-091631	Correction of local area base station coexistence spurious emission requirements. (Technically Endorsed CR in R4-50bis - R4-091495)	8.6.0	8.7.0	R4	RInImp9-UMTS1880TDD
25.104	0329	-	Rel-7	F	RP-090553	R4-091632	Correction of local area base station coexistence spurious emission requirements. (Technically Endorsed CR in R4-50bis - R4-091496)	7.11.0	7.12.0	R4	RInImp9-UMTS1880TDD
25.104	0330	-	Rel-6	F	RP-090553	R4-091633	Correction of local area base station coexistence spurious emission requirements. (Technically Endorsed CR in R4-50bis - R4-091497)	6.17.0	6.18.0	R4	RInImp9-UMTS1880TDD
25.105	0241	-	Rel-8	F	RP-090554	R4-091539	HS-SICH Type2 performance for 1.28Mcps TDD MIMO	8.3.1	8.4.0	R4	RANimp-MIMOLCR
25.105	0242	-	Rel-8	F	RP-090553	R4-091623	Correction of local area base station coexistence requirements. (Technically Endorsed CR in R4-50bis - R4-091487)	8.3.1	8.4.0	R4	RInImp9-UMTS1880TDD
25.105	0243	-	Rel-7	F	RP-090553	R4-091624	Correction of local area base station coexistence requirements. (Technically Endorsed CR in R4-50bis - R4-091488)	7.11.1	7.12.0	R4	RInImp9-UMTS1880TDD

25.105	0244	-	Rel-6	A	RP-090553	R4-091625	Correction of local area base station coexistence requirements. (Technically Endorsed CR in R4-50bis - R4-091489)	6.7.0	6.8.0	R4	RInImp9-UMTS1880TDD
25.105	0245	-	Rel-5	F	RP-090553	R4-091626	Correction of local area base station coexistence requirements. (Technically Endorsed CR in R4-50bis - R4-091490)	5.10.0	5.11.0	R4	RInImp9-UMTS1880TDD
25.113	0042	-	Rel-9	B	RP-090559	R4-091551	Introduction of Extended UMTS800 requirements (R4-091055). (Technically Endorsed CR in R4-50bis - R4-091055)	8.4.0	9.0.0	R4	RInImp9-UMTSLTE800
25.123	0412	-	Rel-7	F	RP-090539	R4-091567	Revision of UE transmission power headroom reporting range and mapping for 1.28Mcps TDD. (Technically Endorsed CR in R4-50bis - R4-091167)	7.8.0	7.9.0	R4	TEI7
25.123	0413	-	Rel-8	F	RP-090539	R4-091568	Revision of UE transmission power headroom reporting range and mapping for 1.28Mcps TDD. (Technically Endorsed CR in R4-50bis - R4-091168)	8.2.0	8.3.0	R4	TEI7
25.123	0414	-	Rel-8	F	RP-090551	R4-091569	Correction on cell reselection requirements for UTRAN TDD to E-UTRAN. (Technically Endorsed CR in R4-50bis - R4-091176)	8.2.0	8.3.0	R4	LTE-RF
25.123	0415	-	Rel-8	F	RP-090556	R4-091573	Adding cell reselection requirements based on priority information for UTRAN TDD. (Technically Endorsed CR in R4-50bis - R4-091186)	8.2.0	8.3.0	R4	TEI8
25.123	0416	-	Rel-8	F	RP-090556	R4-091574	Adding cell reselection requirements based on priority information for UTRAN TDD to GSM. (Technically Endorsed CR in R4-50bis - R4-091187)	8.2.0	8.3.0	R4	TEI8
25.123	0417	-	Rel-8	F	RP-090547	R4-091600	UTRA TDD-E-UTRA FDD cell search(fading). (Technically Endorsed CR in R4-50bis - R4-091397)	8.2.0	8.3.0	R4	LTE-RF
25.123	0418	-	Rel-8	F	RP-090547	R4-091601	UTRA TDD-E-UTRA TDD cell search(fading). (Technically Endorsed CR in R4-50bis - R4-091398)	8.2.0	8.3.0	R4	LTE-RF
25.123	0419	-	Rel-8	F	RP-090547	R4-091602	UTRA TDD-E-UTRA FDD HO delay. (Technically Endorsed CR in R4-50bis - R4-091399)	8.2.0	8.3.0	R4	LTE-RF
25.123	0420	-	Rel-8	F	RP-090547	R4-091603	UTRA TDD-E-UTRA TDD HO delay. (Technically Endorsed CR in R4-50bis - R4-091400)	8.2.0	8.3.0	R4	LTE-RF
25.133	0980	-	Rel-9	B	RP-090559	R4-091552	Introduction of Extended UMTS800 requirements. (Technically Endorsed CR in R4-50bis - R4-091056)	8.6.0	9.0.0	R4	RInImp9-UMTSLTE800
25.133	0981	-	Rel-8	F	RP-090551	R4-091562	Alignment of E-UTRA RRM reselection testcases with core requirements. (Technically Endorsed CR in R4-50bis - R4-091091)	8.6.0	8.7.0	R4	LTE-RF
25.133	0982	-	Rel-8	F	RP-090557	R4-091644	Correction of initial E-TFC restriction for E-DCH in CELL_FACH state and Idle mode (Technically Endorsed CR in R4-50bis: R4-091052)	8.6.0	8.7.0	R4	RANimp-UplinkEnhState

25.133	0983	1	Rel-8	F	RP-090555	R4-092090	Test case for UE measurement capability on a frequency adjacent to intra-frequency	8.6.0	8.7.0	R4	TEI8
25.133	0984	-	Rel-8	F	RP-090546	R4-091752	UTRA FDD-E-UTRA FDD/ TDD handover test cases	8.6.0	8.7.0	R4	LTE-RF
25.133	0985	-	Rel-8	F	RP-090551	R4-091782	E-UTRA Changes for 25.133	8.6.0	8.7.0	R4	LTE-RF
25.133	0986	-	Rel-9	F	RP-090551	R4-091919	E-UTRA Changes for 25.133	8.6.0	8.7.0	R4	LTE-RF
25.133	0987	-	Rel-8	F	RP-090555	R4-091929	Correction to UE measurement requirements on a frequency adjacent to intra-frequency	8.6.0	8.7.0	R4	TEI8
25.133	0988	-	Rel-8	F	RP-090546	R4-092115	UTRAN FDD - E-UTRAN Cell Search Test Cases	8.6.0	8.7.0	R4	LTE-RF
25.141	0497	-	Rel-8	F	RP-090605	R4-091561	Correction on Home BS Output Power Requirements for Adjacent Channel Protection. (Technically Endorsed CR in R4-50bis - R4-091073)	8.6.0	8.7.0	R4	HNB-RF
25.141	0498	-	Rel-9	B	RP-090559	R4-091614	Introduction of Extended UMTS800 requirements. (Technically Endorsed CR in R4-50bis - R4-091431)	8.6.0	9.0.0	R4	RInImp9-UMTSLTE800
25.141	0499	-	Rel-8	F	RP-090553	R4-091634	Correction of local area base station coexistence spurious emission requirements. (Technically Endorsed CR in R4-50bis - R4-091498)	8.6.0	8.7.0	R4	RInImp9-UMTS1880TDD
25.141	0500	-	Rel-7	F	RP-090553	R4-091635	Correction of local area base station coexistence spurious emission requirements. (Technically Endorsed CR in R4-50bis - R4-091499)	7.12.0	7.13.0	R4	RInImp9-UMTS1880TDD
25.141	0501	-	Rel-6	F	RP-090553	R4-091636	Correction of local area base station coexistence spurious emission requirements. (Technically Endorsed CR in R4-50bis - R4-091500)	6.19.0	6.20.0	R4	RInImp9-UMTS1880TDD
25.141	0502	-	Rel-8	F	RP-090605	R4-091730	Correction on test system uncertainty for Home BS absolute ACLR limit	8.6.0	8.7.0	R4	HNB-RF
25.142	0245	1	Rel-8	F	RP-090554	R4-091998	Addition of Time alignment error test for BS supporting 1.28Mcps TDD MIMO	8.2.0	8.3.0	R4	RANimp-MIMOLCR
25.142	0246	-	Rel-8	F	RP-090556	R4-091572	Correction on the test parameter table of E-DCH for 1.28Mcps TDD. (Technically Endorsed CR in R4-50bis - R4-091185)	8.2.0	8.3.0	R4	TEI8
25.142	0247	-	Rel-8	F	RP-090553	R4-091627	Correction of local area base station coexistence requirements. (Technically Endorsed CR in R4-50bis - R4-091491)	8.2.0	8.3.0	R4	RInImp9-UMTS1880TDD
25.142	0248	-	Rel-7	F	RP-090553	R4-091628	Correction of local area base station coexistence requirements. (Technically Endorsed CR in R4-50bis - R4-091492)	7.11.0	7.12.0	R4	RInImp9-UMTS1880TDD
25.142	0249	-	Rel-6	A	RP-090553	R4-091629	Correction of local area base station coexistence requirements. (Technically Endorsed CR in R4-50bis - R4-091493)	6.9.0	6.10.0	R4	RInImp9-UMTS1880TDD

25.142	0250	-	Rel-5	F	RP-090553	R4-091630	Correction of local area base station coexistence requirements. (Technically Endorsed CR in R4-50bis - R4-091494)	5.11.0	5.12.0	R4	RInImp9-UMTS1880TDD
25.143	0072	-	Rel-8	F	RP-090555	R4-091703	Spurious emission testing for repeater capable of UTRA and E-EUTRA	8.1.0	8.2.0	R4	TEI8
25.143	0073	-	Rel-8	F	RP-090555	R4-091704	Clean up	8.1.0	8.2.0	R4	TEI8
25.143	0074	-	Rel-8	F	RP-090555	R4-091705	Test procedure amendment	8.1.0	8.2.0	R4	TEI8
25.144	0007	1	Rel-9	F	RP-090558	R4-091968	UTRA LCR TDD OTA performance requirements	9.0.0	9.1.0	R4	RInImp9-RFLCROTA
25.461	0051	-	Rel-9	F	RP-090545	R4-092060	Introduction of E-UTRA operating bands in TS 25.461.. (Technically Endorsed CR in R4-50bis - R4-091269)	8.1.0	9.0.0	R4	LTE-RF
25.967	0002	-	Rel-9	B	RP-090561	R4-092062	Enhanced interference management methods for controlling HNB transmit power	8.0.1	9.0.0	R4	FS_eInterfMgmt_HNB
25.967	0003	-	Rel-9	B	RP-090561	R4-092118	Enhanced HNB interference coordination based on network control	8.0.1	9.0.0	R4	FS_eInterfMgmt_HNB
34.124	0033	-	Rel-9	B	RP-090559	R4-091553	Introduction of Extended UMTS800 requirements. (Technically Endorsed CR in R4-50bis - R4-091058)	8.3.0	9.0.0	R4	RInImp9-UMTSLTE800
36.101	0166	-	Rel-8	F	RP-090542	R4-091570	Update of performance requirement for TDD PDSCH with MBSFN configuration. (Technically Endorsed CR in R4-50bis - R4-091180)	8.5.1	8.6.0	R4	LTE-RF
36.101	0167	-	Rel-8	F	RP-090540	R4-091576	Boundary between E-UTRA fOOB and spurious emission domain for 1.4 MHz and 3 MHz bandwiths. (Technically Endorsed CR in R4-50bis - R4-091205)	8.5.1	8.6.0	R4	LTE-RF
36.101	0168	-	Rel-8	F	RP-090540	R4-091577	EARFCN correction for TDD DL bands. (Technically Endorsed CR in R4-50bis - R4-091206)	8.5.1	8.6.0	R4	LTE-RF
36.101	0169	-	Rel-8	F	RP-090540	R4-091580	Editorial correction to in-band blocking table. (Technically Endorsed CR in R4-50bis - R4-091238)	8.5.1	8.6.0	R4	LTE-RF
36.101	0170	1	Rel-8	F	RP-090542	R4-092038	Update of Clause 8: PHICH and PMI delay. (Technically Endorsed CR in R4-50bis - R4-091275)	8.5.1	8.6.0	R4	LTE-RF
36.101	0171	-	Rel-8	F	RP-090540	R4-091585	CR PRACH EVM. (Technically Endorsed CR in R4-50bis - R4-091308)	8.5.1	8.6.0	R4	LTE-RF
36.101	0172	-	Rel-8	F	RP-090540	R4-091587	CR EVM correction. (Technically Endorsed CR in R4-50bis - R4-091309)	8.5.1	8.6.0	R4	LTE-RF
36.101	0175	-	Rel-8	F	RP-090542	R4-091604	Adding AWGN levels for some TDD DL performance requirements. (Technically Endorsed CR in R4-50bis - R4-091406)	8.5.1	8.6.0	R4	LTE-RF
36.101	0177	-	Rel-8	F	RP-090540	R4-091609	CR power control accuracy. (Technically Endorsed CR in R4-50bis - R4-091418)	8.5.1	8.6.0	R4	LTE-RF

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36.101	0178	2	Rel-8	F	RP-090540	R4-092052	No additional emission mask indication. (Technically Endorsed CR in R4-50bis - R4-091421)	8.5.1	8.6.0	R4	LTE-RF
36.101	0179	-	Rel-8	F	RP-090540	R4-091611	Correction of SRS requirements. (Technically Endorsed CR in R4-50bis - R4-091426)	8.5.1	8.6.0	R4	LTE-RF
36.101	0180	-	Rel-9	B	RP-090559	R4-091615	Introduction of Extended LTE800 requirements. (Technically Endorsed CR in R4-50bis - R4-091432)	8.5.1	9.0.0	R4	RInImp9-UMTSLTE800
36.101	0182	-	Rel-8	F	RP-090542	R4-091637	OCNG Patterns for Single Resource Block FRC Requirements. (Technically Endorsed CR in R4-50bis - R4-091504)	8.5.1	8.6.0	R4	LTE-RF
36.101	0183	-	Rel-8	F	RP-090543	R4-091638	Requirements for frequency-selective fading test. (Technically Endorsed CR in R4-50bis - R4-091505)	8.5.1	8.6.0	R4	LTE-RF
36.101	0184	1	Rel-8	F	RP-090543	R4-092103	Requirements for frequency non-selective fading tests. (Technically Endorsed CR in R4-50bis - R4-091506)	8.5.1	8.6.0	R4	LTE-RF
36.101	0185	1	Rel-8	F	RP-090543	R4-092104	Requirements for PMI reporting. (Technically Endorsed CR in R4-50bis - R4-091510)	8.5.1	8.6.0	R4	LTE-RF
36.101	0186	-	Rel-8	F	RP-090540	R4-091642	Clarification for EVM. (Technically Endorsed CR in R4-50bis - R4-091512)	8.5.1	8.6.0	R4	LTE-RF
36.101	0187	-	Rel-8	F	RP-090540	R4-091691	Removal of [ ] from band 17 Refsens values and ACS offset frequencies	8.5.1	8.6.0	R4	LTE-RF
36.101	0188	1	Rel-8	F	RP-090543	R4-091961	Adaptation of UL-RMC-s for supporting more UE categories	8.5.1	8.6.0	R4	LTE-RF
36.101	0191	-	Rel-8	F	RP-090540	R4-091744	Completion of band17 requirements	8.5.1	8.6.0	R4	LTE-RF
36.101	0192	-	Rel-8	F	RP-090540	R4-091746	Removal of 1.4 MHz and 3 MHz bandwidths from bands 13, 14 and 17.	8.5.1	8.6.0	R4	LTE-RF
36.101	0193	1	Rel-8	F	RP-090543	R4-092041	Correction of the LTE UE downlink reference measurement channels	8.5.1	8.6.0	R4	LTE-RF
36.101	0196	2	Rel-8	F	RP-090540	R4-092112	CR: Rx IP2 performance	8.5.1	8.6.0	R4	LTE-RF
36.101	0197	2	Rel-8	F	RP-090540	R4-092108	CR on aggregate power tolerance	8.5.1	8.6.0	R4	LTE-RF
36.101	0198	1	Rel-8	F	RP-090541	R4-092051	Maximum output power relaxation	8.5.1	8.6.0	R4	LTE-RF
36.101	0199	-	Rel-8	F	RP-090543	R4-091861	CQI requirements under AWGN conditions	8.5.1	8.6.0	R4	LTE-RF
36.101	0200	1	Rel-8	F	RP-090540	R4-092032	CR PUCCH EVM	8.5.1	8.6.0	R4	LTE-RF
36.101	0201	-	Rel-8	F	RP-090540	R4-091872	CR In-band emissions	8.5.1	8.6.0	R4	LTE-RF
36.101	0203	-	Rel-8	F	RP-090540	R4-091874	CR EVM exclusion period	8.5.1	8.6.0	R4	LTE-RF
36.101	0204	-	Rel-8	F	RP-090540	R4-091875	CR In-band emissions timing	8.5.1	8.6.0	R4	LTE-RF

36.101	0205	1	Rel-8	F	RP-090540	R4-092031	CR In-band emissions in shortened subframes	8.5.1	8.6.0	R4	LTE-RF
36.101	0206	-	Rel-8	F	RP-090540	R4-091877	CR Minimum Rx exceptions	8.5.1	8.6.0	R4	LTE-RF
36.101	0207	-	Rel-8	F	RP-090540	R4-091878	CR UL DM-RS EVM	8.5.1	8.6.0	R4	LTE-RF
36.101	0216	-	Rel-8	F	RP-090543	R4-091918	Addition of 15 MHz and 20 MHz bandwidths into band 38	8.5.1	8.6.0	R4	LTE-RF
36.101	0218	1	Rel-8	F	RP-090540	R4-092018	A-MPR table for NS_07	8.5.1	8.6.0	R4	LTE-RF
36.101	0220	1	Rel-8	F	RP-090540	R4-092057	Spectrum emission requirements for band 13	8.5.1	8.6.0	R4	LTE-RF
36.101	0221	1	Rel-8	F	RP-090543	R4-092107	Correction to DL RMC-s for Maximum input level for supporting more UE-Categories	8.5.1	8.6.0	R4	LTE-RF
36.101	0223	-	Rel-8	F	RP-090540	R4-092117	CR: 64 QAM EVM	8.5.1	8.6.0	R4	LTE-RF
36.104	0061	-	Rel-9	B	RP-090559	R4-091554	Introduction of Extended LTE800 requirements. (Technically Endorsed CR in R4-50bis - R4-091060)	8.5.0	9.0.0	R4	RInImp9-UMTSLTE800
36.104	0062	-	Rel-8	F	RP-090545	R4-091590	CR ACS frequency offset. (Technically Endorsed CR in R4-50bis - R4-091329)	8.5.0	8.6.0	R4	LTE-RF
36.104	0063	-	Rel-8	F	RP-090544	R4-091596	Clarification of requirements for multicarrier BS. (Technically Endorsed CR in R4-50bis - R4-091375)	8.5.0	8.6.0	R4	LTE-RF
36.104	0064	-	Rel-8	F	RP-090545	R4-091617	UL timing adjustment performance requirement clarifications. (Technically Endorsed CR in R4-50bis - R4-091437)	8.5.0	8.6.0	R4	LTE-RF
36.104	0067	-	Rel-8	F	RP-090545	R4-091921	Correction to DL RS power	8.5.0	8.6.0	R4	LTE-RF
36.104	0069	-	Rel-8	F	RP-090545	R4-092119	Correction to Receiver Dynamic Range minimum requirements	8.5.0	8.6.0	R4	LTE-RF
36.106	0006	-	Rel-8	F	RP-090552	R4-091694	Alignement with test spec and clean-up	8.1.0	8.2.0	R4	LTE-Repeaters
36.106	0007	-	Rel-8	F	RP-090552	R4-091700	Frequency stability	8.1.0	8.2.0	R4	LTE-Repeaters
36.113	0002	-	Rel-9	B	RP-090559	R4-091555	Introduction of Extended LTE800 requirements. (Technically Endorsed CR in R4-50bis - R4-091061)	8.1.0	9.0.0	R4	RInImp9-UMTSLTE800
36.124	0001	-	Rel-9	B	RP-090559	R4-091556	Introduction of Extended LTE800 requirements. (Technically Endorsed CR in R4-50bis - R4-091062)	8.0.0	9.0.0	R4	RInImp9-UMTSLTE800
36.133	0151	-	Rel-8	F	RP-090546	R4-091528	E-UTRA FDD UTRA TDD HO delay test case	8.5.0	8.6.0	R4	LTE-RF
36.133	0152	1	Rel-8	F	RP-090546	R4-092012	E-UTRA TDD GSM handover test case	8.5.0	8.6.0	R4	LTE-RF

36.133	0153	-	Rel-8	F	RP-090546	R4-091530	Correction of CQI reporting periodicity for TDD RLM test cases	8.5.0	8.6.0	R4	LTE-RF
36.133	0154	-	Rel-8	F	RP-090548	R4-091531	Correction of TGRP in clause 8.1.2.1.1	8.5.0	8.6.0	R4	LTE-RF
36.133	0155	-	Rel-9	B	RP-090559	R4-091557	Introduction of Extended LTE800 requirements. (Technically Endorsed CR in R4-50bis - R4-091063)	8.5.0	9.0.0	R4	RInImp9-UMTSLTE800
36.133	0156	-	Rel-8	F	RP-090550	R4-091559	Correction on the TDD-TDD inter frequency measurements. (Technically Endorsed CR in R4-50bis - R4-091071)	8.5.0	8.6.0	R4	LTE-RF
36.133	0157	-	Rel-8	F	RP-090546	R4-091563	Correction to inter RAT reselection requirements to exclude equal priority. (Technically Endorsed CR in R4-50bis - R4-091092)	8.5.0	8.6.0	R4	LTE-RF
36.133	0158	-	Rel-8	F	RP-090547	R4-091564	Alignment of inter frequency and inter RAT RRM reselection testcases with core requirements. (Technically Endorsed CR in R4-50bis - R4-091094)	8.5.0	8.6.0	R4	LTE-RF
36.133	0159	-	Rel-8	F	RP-090550	R4-091566	Correction to the Referenced Section Number for Tinter1. (Technically Endorsed CR in R4-50bis - R4-091153)	8.5.0	8.6.0	R4	LTE-RF
36.133	0160	-	Rel-8	F	RP-090547	R4-091575	Correction relating E-UTRAN TDD - UE Transmit Timing Accuracy Tests. (Technically Endorsed CR in R4-50bis - R4-091198)	8.5.0	8.6.0	R4	LTE-RF
36.133	0161	-	Rel-8	F	RP-090549	R4-091584	E-UTRAN UTRAN HO Command Processing Delay. (Technically Endorsed CR in R4-50bis - R4-091291)	8.5.0	8.6.0	R4	LTE-RF
36.133	0162	-	Rel-8	F	RP-090548	R4-091592	Clarifications to UE UL timing requirements. (Technically Endorsed CR in R4-50bis - R4-091357)	8.5.0	8.6.0	R4	LTE-RF
36.133	0165	-	Rel-8	F	RP-090547	R4-091597	Modifications of T3 and the verification point for in-sync test cases. (Technically Endorsed CR in R4-50bis - R4-091386)	8.5.0	8.6.0	R4	LTE-RF
36.133	0166	-	Rel-8	F	RP-090551	R4-091598	Further clarification of DRX/Non-DRX state. (Technically Endorsed CR in R4-50bis - R4-091389)	8.5.0	8.6.0	R4	LTE-RF
36.133	0167	-	Rel-8	F	RP-090546	R4-091599	Clarification of the number of monitoring carriers in idle mode. (Technically Endorsed CR in R4-50bis - R4-091394)	8.5.0	8.6.0	R4	LTE-RF
36.133	0168	-	Rel-8	F	RP-090548	R4-091605	Clarifications for the Relative RSRP and RSRQ measurement requirements. (Technically Endorsed CR in R4-50bis - R4-091407)	8.5.0	8.6.0	R4	LTE-RF
36.133	0169	-	Rel-8	F	RP-090551	R4-091606	OCNG simplification. (Technically Endorsed CR in R4-50bis - R4-091410)	8.5.0	8.6.0	R4	LTE-RF
36.133	0170	-	Rel-8	F	RP-090548	R4-091621	Misalignment between TS36.133 and TS36.321. (Technically Endorsed CR in R4-50bis - R4-091457)	8.5.0	8.6.0	R4	LTE-RF

36.133	0171	1	Rel-8	F	RP-090547	R4-092017	Reference measurement Channels for Radio Link Monitoring Tests with 2 Antennas. (Technically Endorsed CR in R4-50bis - R4-091508)	8.5.0	8.6.0	R4	LTE-RF
36.133	0172	-	Rel-8	F	RP-090547	R4-091643	E-UTRAN UE Timing Accuracy Related Test Cases. (Technically Endorsed CR in R4-50bis - R4-091517)	8.5.0	8.6.0	R4	LTE-RF
36.133	0173	1	Rel-8	F	RP-090546	R4-091955	Correction of cell reselection test cases	8.5.0	8.6.0	R4	LTE-RF
36.133	0175	-	Rel-8	F	RP-090549	R4-091651	Corrections of Cell Reselection Requirements in Idle Mode	8.5.0	8.6.0	R4	LTE-RF
36.133	0176	-	Rel-8	F	RP-090548	R4-091652	Corrections of Random Access Requirements	8.5.0	8.6.0	R4	LTE-RF
36.133	0177	1	Rel-8	F	RP-090546	R4-092084	Introduction of New Reference Channels and OCNG Patterns for 1.4MHz Bandwidth	8.5.0	8.6.0	R4	LTE-RF
36.133	0178	1	Rel-8	F	RP-090546	R4-092013	Test cases of E-UTRA FDD intra-frequency cell search in fading environment when DRX is used	8.5.0	8.6.0	R4	LTE-RF
36.133	0179	1	Rel-8	F	RP-090546	R4-092010	Test cases of E-UTRA TDD intra-frequency cell search in fading environment when DRX is used	8.5.0	8.6.0	R4	LTE-RF
36.133	0180	-	Rel-8	F	RP-090546	R4-091689	Correction of Core spec references in A.9 Measurements performance test cases	8.5.0	8.6.0	R4	LTE-RF
36.133	0181	2	Rel-8	F	RP-090549	R4-092093	Removal of [ ] from ranking criteria in Idle mode cell reselection	8.5.0	8.6.0	R4	LTE-RF
36.133	0184	-	Rel-8	F	RP-090546	R4-091784	SON ANR UTRAN FDD Cell Search Test Case	8.5.0	8.6.0	R4	LTE-RF
36.133	0185	1	Rel-8	F	RP-090546	R4-092015	Correction to Radio Link Monitoring Tests	8.5.0	8.6.0	R4	LTE-RF
36.133	0187	-	Rel-8	F	RP-090546	R4-091819	E-UTRAN FDD cdma2000 1x RTT Cell Reselection Test Case; Cdma2000 1X of Low Priority	8.5.0	8.6.0	R4	LTE-RF
36.133	0188	-	Rel-8	F	RP-090546	R4-091820	E-UTRAN FDD cdma2000 HO Test cases	8.5.0	8.6.0	R4	LTE-RF
36.133	0190	-	Rel-8	F	RP-090546	R4-091822	E-UTRAN Random Access Test Cases	8.5.0	8.6.0	R4	LTE-RF
36.133	0191	-	Rel-8	F	RP-090546	R4-091823	E-UTRAN RRC Re-establishment Test Cases	8.5.0	8.6.0	R4	LTE-RF
36.133	0192	-	Rel-8	F	RP-090546	R4-091824	E-UTRAN TDD - GSM Cell Search Test Case in AWGN	8.5.0	8.6.0	R4	LTE-RF
36.133	0193	-	Rel-8	F	RP-090548	R4-091825	Correction to Inter-RAT HO Interruption Time Definition	8.5.0	8.6.0	R4	LTE-RF
36.133	0195	-	Rel-8	F	RP-090548	R4-091899	CR c2k RRC delay	8.5.0	8.6.0	R4	LTE-RF
36.133	0196	-	Rel-8	F	RP-090548	R4-091900	CR c2k interruption time	8.5.0	8.6.0	R4	LTE-RF
36.133	0197	-	Rel-8	F	RP-090546	R4-091915	Correction to E-UTRAN FDD - GSM Handover Test case	8.5.0	8.6.0	R4	LTE-RF

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36.133	0200	2	Rel-8	F	RP-090546	R4-092106	Test case for E-UTRA TDD E-UTRA TDD inter frequency cell search when DRX is used in fading conditions	8.5.0	8.6.0	R4	LTE-RF
36.133	0201	1	Rel-8	F	RP-090546	R4-092014	Test case for E-UTRA FDD E-UTRA FDD inter frequency cell search when DRX is used in fading conditions	8.5.0	8.6.0	R4	LTE-RF
36.133	0202	-	Rel-8	F	RP-090551	R4-091989	Correction on reference to 3GPP2 specification	8.5.0	8.6.0	R4	LTE-RF
36.133	0203	-	Rel-8	F	RP-090546	R4-092020	Correction to E-UTRAN FDD to HRPD Cell Reselection Test Case	8.5.0	8.6.0	R4	LTE-RF
36.141	0057	-	Rel-9	B	RP-090559	R4-091558	Introduction of Extended LTE800 requirements. (Technically Endorsed CR in R4-50bis - R4-091064)	8.2.0	9.0.0	R4	RInImp9-UMTSLTE800
36.141	0058	-	Rel-8	F	RP-090545	R4-091591	CR 36.141 ACS frequency offset. (Technically Endorsed CR in R4-50bis - R4-091330)	8.2.0	8.3.0	R4	LTE-RF
36.141	0059	-	Rel-8	F	RP-090545	R4-091608	UL timing adjustment measurement system set-up. (Technically Endorsed CR in R4-50bis - R4-091414)	8.2.0	8.3.0	R4	LTE-RF
36.141	0060	-	Rel-8	F	RP-090545	R4-091618	UL timing adjustment performance requirement clarifications. (Technically Endorsed CR in R4-50bis - R4-091438)	8.2.0	8.3.0	R4	LTE-RF
36.141	0061	-	Rel-8	F	RP-090544	R4-091619	Clarification of requirements for multicarrier BS. (Technically Endorsed CR in R4-50bis - R4-091445)	8.2.0	8.3.0	R4	LTE-RF
36.141	0062	-	Rel-8	F	RP-090545	R4-091622	Correction of test models for E-UTRAN. (Technically Endorsed CR in R4-50bis - R4-091461)	8.2.0	8.3.0	R4	LTE-RF
36.141	0063	2	Rel-8	F	RP-090545	R4-092094	Test Tolerances for Performance test cases	8.2.0	8.3.0	R4	LTE-RF
36.141	0064	1	Rel-8	F	RP-090545	R4-092028	Addition of missing Test Tolerances for transmitter tests	8.2.0	8.3.0	R4	LTE-RF
36.141	0066	-	Rel-8	F	RP-090545	R4-091726	Test system uncertainty for Transmitter intermodulation	8.2.0	8.3.0	R4	LTE-RF
36.141	0067	-	Rel-8	F	RP-090545	R4-091735	Adding test model for transmit ON/OFF test	8.2.0	8.3.0	R4	LTE-RF
36.141	0068	-	Rel-8	F	RP-090545	R4-091922	Correction to DL RS power	8.2.0	8.3.0	R4	LTE-RF
36.141	0070	-	Rel-8	F	RP-090545	R4-092037	Test system uncertainty for Receiver dynamic range	8.2.0	8.3.0	R4	LTE-RF
36.143	0001	-	Rel-8	F	RP-090552	R4-091581	Clarification of EARFCN for 36.143. (Technically Endorsed CR in R4-50bis - R4-091268)	8.0.0	8.1.0	R4	LTE-Repeaters
36.143	0002	-	Rel-8	F	RP-090552	R4-091695	Alignement with core spec and clean-up	8.0.0	8.1.0	R4	LTE-Repeaters
36.143	0003	-	Rel-8	F	RP-090552	R4-091696	Output intermodulation: Introduction of test models	8.0.0	8.1.0	R4	LTE-Repeaters

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36.143	0005	-	Rel-8	F	RP-090552	R4-091698	Repeater stimulus signal: time difference	8.0.0	8.1.0	R4	LTE-Repeaters
36.143	0006	-	Rel-8	F	RP-090552	R4-091701	Frequency stability	8.0.0	8.1.0	R4	LTE-Repeaters
36.942	0003	-	Rel-8	F	RP-090544	R4-091595	Clarification of requirements for multicarrier BS. (Technically Endorsed CR in R4-50bis - R4-091374)	8.1.0	8.2.0	R4	LTE-RF
34.108	0741	-	Rel-8	F	RP-090443	R5-092119	Addition of MBSFN IDLE and MCCH configurations for LCR TDD MBSFN in 34.108	8.6.0	8.7.0	R5	RANimp-UEConTest_64Qam1.28TDD
34.108	0742	-	Rel-8	F	RP-090443	R5-092120	Addition of default SIB for LCR TDD MBSFN in 34.108	8.6.0	8.7.0	R5	RANimp-UEConTest_64Qam1.28TDD
34.108	0743	-	Rel-8	F	RP-090445	R5-092222	6.4.1.1 - Correction to SIB5 Default Message for HS-DSCH Reception in CELL_FACH	8.6.0	8.7.0	R5	RANimp-UEConTest_EnhancedCellFACHState
34.108	0744	-	Rel-8	F	RP-090443	R5-092318	New Radio Bearer Configurations for 1.28TDD 64QAM	8.6.0	8.7.0	R5	RANimp-UEConTest_64Qam1.28TDD
34.108	0745	-	Rel-8	F	RP-090433	R5-092537	Correction to Radio Bearer Setup message contents (A17a)	8.6.0	8.7.0	R5	TEI7_Test
34.108	0746	-	Rel-8	F	RP-090445	R5-092544	Correction to RRC Connection Setup Default Message for HS-DSCH Reception in CELL_FACH state	8.6.0	8.7.0	R5	RANimp-UEConTest_EnhancedCellFACHState
34.108	0747	-	Rel-8	F	RP-090445	R5-092545	Correction to Radio Bearer Setup Condition for Enhanced CELL FACH state	8.6.0	8.7.0	R5	RANimp-UEConTest_EnhancedCellFACHState
34.108	0748	-	Rel-8	F	RP-090433	R5-092728	Update to Channelisation code allocation for 64QAM	8.6.0	8.7.0	R5	TEI7_Test
34.108	0749	-	Rel-8	F	RP-090647	R5-092792	Addition of Test frequencies in FDD Mode Operating Band XIX(Extended UMTS 800)	8.6.0	8.7.0	R5	RInImp9-UMTSLTE800

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34.121-1	1151	-	Rel-8	F	RP-090445	R5-092134	Statistical annex: HSDPA in CELL_FACH	8.6.0	8.7.0	R5	RANimp-UEConTest_EnhancedCellFACHState
34.121-1	1152	-	Rel-8	F	RP-090432	R5-092145	Correction to TRANSPORT CHANNEL RECONFIGURATION message in Annex I	8.6.0	8.7.0	R5	TEI6_Test
34.121-1	1153	-	Rel-8	F	RP-090444	R5-092175	Addition of 64QAM + MIMO test case in annex of 34.121-1	8.6.0	8.7.0	R5	RANimp-UEConTest 64QamMimoHsdpa
34.121-1	1154	-	Rel-8	F	RP-090433	R5-092368	Correction to 64QAM TCs of 6.3B, 9.2.1H, and 9.2.1I	8.6.0	8.7.0	R5	TEI7_Test
34.121-1	1155	-	Rel-8	F	RP-090444	R5-092631	New HSDPA demodulation test for MIMO + 64QAM into 34.121-1	8.6.0	8.7.0	R5	RANimp-UEConTest 64QamMimoHsdpa
34.121-1	1156	-	Rel-8	F	RP-090442	R5-092634	Update of Annexure A and Annexure E.	8.6.0	8.7.0	R5	RANimp_UEConTest_ReceiverType3i
34.121-1	1157	-	Rel-8	F	RP-090432	R5-092650	Clarification about Rx Diversity in RRM tests	8.6.0	8.7.0	R5	TEI6_Test
34.121-1	1158	-	Rel-8	F	RP-090442	R5-092654	New TC9.2.1L -- Single Link Performance - Enhanced Performance Requirements Type 3i - QPSK, Fixed Reference Channel (FRC) H-Set 6	8.6.0	8.7.0	R5	RANimp_UEConTest_ReceiverType3i
34.121-1	1159	-	Rel-8	F	RP-090432	R5-092659	Correction to HSUPA TC 5.2D and 5.13.2B	8.6.0	8.7.0	R5	TEI6_Test
34.121-1	1160	-	Rel-8	F	RP-090432	R5-092662	Corrections to Annex C.11.3 for E-DCH test cases	8.6.0	8.7.0	R5	TEI6_Test
34.121-1	1161	-	Rel-8	F	RP-090444	R5-092267	Test frequencies for Additional Spurious Emission test case	8.6.0	8.7.0	R5	RANimp-UEConTest 64QamMimoHsdpa
34.121-1	1162	-	Rel-8	F	RP-090647	R5-092438	CR to 34.121-1: Addition of band XIX to RRM test cases	8.6.0	8.7.0	R5	RInImp9-UMTSLTE800
34.121-1	1163	-	Rel-8	F	RP-090647	R5-092462	Introduction of Extended UMTS800 for TRx requirements	8.6.0	8.7.0	R5	RInImp9-UMTSLTE800

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34.121-1	1164	-	Rel-8	F	RP-090647	R5-092463	Update of Annex for Extended UMTS 800	8.6.0	8.7.0	R5	RInImp9-UMTSLTE800
34.121-2	0059	-	Rel-8	F	RP-090433	R5-092173	Adding test 9.2.3E applicability	8.6.0	8.7.0	R5	TEI7_Test
34.121-2	0060	-	Rel-8	F	RP-090444	R5-092632	New HSDPA demodulation test for MIMO + 64QAM into 34.121-2	8.6.0	8.7.0	R5	RANimp-UEConTest 64QamMimoHsdpa
34.121-2	0061	-	Rel-8	F	RP-090442	R5-092655	Applicability of New TC9.2.1L -- Single Link Performance - Enhanced Performance Requirements Type 3i - QPSK, Fixed Reference Channel (FRC) H-Set 6	8.6.0	8.7.0	R5	RANimp_UEConTest_ReceiverType3i
34.122	0297	-	Rel-8	F	RP-090448	R5-092314	UTRA TDD to E-UTRA TDD cell reselection: E-UTRA is of higher priority scenario	8.1.0	8.2.0	R5	LTE-UEConTest_RF
34.122	0298	-	Rel-8	F	RP-090448	R5-092313	UTRA TDD to E-UTRA TDD cell reselection: E-UTRA is of lower priority scenario	8.1.0	8.2.0	R5	LTE-UEConTest_RF
34.122	0299	-	Rel-8	F	RP-090434	R5-092447	Correction on UPH reporting accuracy and UE transmitted power absolute accuracy requirements for 1.28Mcps TDD	8.1.0	8.2.0	R5	TEI8_Test
34.122	0300	-	Rel-8	F	RP-090434	R5-092446	Correction on 64QAM Reference measurement channel for 1.28Mcps TDD	8.1.0	8.2.0	R5	TEI8_Test
34.123-1	2470	-	Rel-8	F	RP-090445	R5-092039	Correction to test case 14.5.3	8.6.0	8.7.0	R5	RANimp-UEConTest_EnhancedCellFACHState
34.123-1	2471	-	Rel-8	F	RP-090430	R5-092082	Correction to GCF WI-10 RLC test case 7.2.3.24	8.6.0	8.7.0	R5	TEI_Test
34.123-1	2472	-	Rel-8	F	RP-090433	R5-092083	Correction to GCF WI-070 CPC RRC Testcase 8.2.2.54	8.6.0	8.7.0	R5	TEI7_Test
34.123-1	2473	-	Rel-8	F	RP-090432	R5-092084	Correction to GCF WI-025 RRC Testcase 8.2.6.52	8.6.0	8.7.0	R5	TEI6_Test
34.123-1	2474	-	Rel-8	F	RP-090433	R5-092085	Correction to GCF WI-070 CPC RRC Testcase 8.2.6.59	8.6.0	8.7.0	R5	TEI7_Test
34.123-1	2475	-	Rel-8	F	RP-090443	R5-092121	Addition of MBSFN IDLE test cases for LCR TDD MBSFN in 34.123-1	8.6.0	8.7.0	R5	RANimp-UEConTest_64Qam1.28TDD

34.123-1	2476	-	Rel-8	F	RP-090443	R5-092122	Addition of MBSFN RRC test cases for LCR TDD MBSFN in 34.123-1	8.6.0	8.7.0	R5	RANimp-UEConTest_64Qam1.28TDD
34.123-1	2477	-	Rel-8	F	RP-090430	R5-092125	Correction of naming errors for several LCR TDD test cases	8.6.0	8.7.0	R5	TEI_Test
34.123-1	2478	-	Rel-8	F	RP-090433	R5-092157	Correction to RAB test cases 14.6.1c and 14.6.6b	8.6.0	8.7.0	R5	TEI7_Test
34.123-1	2479	-	Rel-8	F	RP-090430	R5-092212	Correction to GCF WI 10 RRC test case 8.3.2.12	8.6.0	8.7.0	R5	TEI_Test
34.123-1	2480	-	Rel-8	F	RP-090431	R5-092226	Correction to No. of HARQ Processes for HSDPA RAB test cases 14.6.4 and 14.6.4a	8.6.0	8.7.0	R5	TEI5_Test
34.123-1	2481	-	Rel-8	F	RP-090441	R5-092334	Update TC 8.5.1.14 for MBSFN FDD	8.6.0	8.7.0	R5	MBMSE-UEConTest_RANPhysFDD
34.123-1	2482	-	Rel-8	F	RP-090441	R5-092335	Update TC 8.5.1.15 for MBSFN FDD	8.6.0	8.7.0	R5	MBMSE-UEConTest_RANPhysFDD
34.123-1	2483	-	Rel-8	F	RP-090441	R5-092336	Update 8.5.2.5 for MBSFN FDD	8.6.0	8.7.0	R5	MBMSE-UEConTest_RANPhysFDD
34.123-1	2484	-	Rel-8	F	RP-090441	R5-092338	Update 8.5.7.1 for MBSFN FDD	8.6.0	8.7.0	R5	MBMSE-UEConTest_RANPhysFDD
34.123-1	2485	-	Rel-8	F	RP-090441	R5-092339	Update 8.5.7.2 for MBSFN FDD	8.6.0	8.7.0	R5	MBMSE-UEConTest_RANPhysFDD
34.123-1	2486	-	Rel-8	F	RP-090441	R5-092340	Update 8.5.7.3 for MBSFN FDD	8.6.0	8.7.0	R5	MBMSE-UEConTest_RANPhysFDD
34.123-1	2487	-	Rel-8	F	RP-090441	R5-092341	Update 8.5.7.4 for MBSFN FDD	8.6.0	8.7.0	R5	MBMSE-UEConTest_RANPhysFDD

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34.123-1	2488	-	Rel-8	F	RP-090446	R5-092546	Correction to Improved L2 UL RLC test case 7.2.2.15	8.6.0	8.7.0	R5	RANimp-UEConTest_UplinkL2dataRates
34.123-1	2489	-	Rel-8	F	RP-090446	R5-092547	Correction to Improved L2 UL RLC test case 7.2.3.38	8.6.0	8.7.0	R5	RANimp-UEConTest_UplinkL2dataRates
34.123-1	2490	-	Rel-8	F	RP-090433	R5-092562	Improved test case coverage for WI-070 CPC test case 8.3.4.11	8.6.0	8.7.0	R5	TEI7_Test
34.123-1	2491	-	Rel-8	F	RP-090433	R5-092563	Correction to test case 8.2.2.58	8.6.0	8.7.0	R5	TEI7_Test
34.123-1	2492	-	Rel-8	F	RP-090430	R5-092564	Correction to test case 12.4.1.4d	8.6.0	8.7.0	R5	TEI_Test
34.123-1	2493	-	Rel-8	F	RP-090446	R5-092705	Addition of a New Test Case for Improved L2 UL - RLC PDU Size Adaptation in Uplink	8.6.0	8.7.0	R5	RANimp-UEConTest_UplinkL2dataRates
34.123-1	2494	-	Rel-8	F	RP-090445	R5-092733	Correction to Enhanced CELL_FACH test case 7.1.5a.6	8.6.0	8.7.0	R5	RANimp-UEConTest_EnhancedCellFACHState
34.123-1	2495	-	Rel-8	F	RP-090432	R5-092778	Correction to GCF WI-25 HSUPA test case 7.1.6.3.2	8.6.0	8.7.0	R5	TEI6_Test
34.123-1	2496	-	Rel-8	F	RP-090647	R5-092744	Addition of Test frequencies for Cells in FDD Mode Operating Band XIX(Extended UMTS 800)	8.6.0	8.7.0	R5	RInImp9-UMTSLTE800
34.123-1	2497	-	Rel-8	F	RP-090434	R5-092771	Addition of new test case "Selection of RAT for HPLMN between frequency bands of different ITU regions in case of normal service: Manual mode"	8.6.0	8.7.0	R5	TEI8_Test
34.123-1	2498	4	Rel-8	F	RP-090434	R5-092774	Addition of new test case "Selection of RAT for OPLMN between frequency bands of different ITU regions in case of normal service: Automatic mode"	8.6.0	8.7.0	R5	TEI8_Test
34.123-1	2499	1	Rel-8	F	RP-090434	R5-092775	Addition of new test case "Selection of RAT for OPLMN between frequency bands of different ITU regions in case of limited service: Automatic mode"	8.6.0	8.7.0	R5	TEI8_Test
34.123-1	2500	1	Rel-8	F	RP-090434	R5-092776	Addition of new test case "Selection of RAT for OPLMN between frequency bands of different ITU regions in case of no service: Automatic mode"	8.6.0	8.7.0	R5	TEI8_Test
34.123-1	2501	-	Rel-8	F	RP-090434	R5-092777	Addition of frequencies to be used for Multi-Band Multi-RAT test cases	8.6.0	8.7.0	R5	TEI8_Test

34.123-1	2502	1	Rel-8	F	RP-090433	R5-092779	Corrections to MAC-es/e transport block size selection test cases (E-TFCI restrictions)	8.6.0	8.7.0	R5	TEI7_Test
34.123-2	0415	-	Rel-8	F	RP-090446	R5-092080	Adding applicability of the test case for Improved L2 UL RLC PDU Size Adaptation in Uplink	8.6.0	8.7.0	R5	RANimp-UEConTest_UplinkL2dataRates
34.123-2	0416	-	Rel-8	F	RP-090430	R5-092123	Correction of Applicability of tests for LCR TDD in 34.123-2	8.6.0	8.7.0	R5	TEI_Test
34.123-2	0417	-	Rel-8	F	RP-090440	R5-092319	Updating Recommended Test Case Applicability for 1.28TDD 64QAM	8.6.0	8.7.0	R5	MBMSE-RANPhysLCRTDD_UEConTest
34.123-2	0418	-	Rel-8	F	RP-090433	R5-092401	Part 2 applicability title change for 8.3.4.11	8.6.0	8.7.0	R5	TEI7_Test
34.123-2	0419	-	Rel-8	F	RP-090433	R5-092521	Part 2 applicability title change for 7.1.5a.6	8.6.0	8.7.0	R5	TEI7_Test
34.123-2	0420	1	Rel-8	F	RP-090434	R5-092740	Addition of applicabilities for new idle mode test cases verifying Selection of RAT for OPLMN and HPLMN between frequency bands of different ITU regions	8.6.0	8.7.0	R5	TEI8_Test
34.123-2	0421	-	Rel-8	F	RP-090647	R5-092742	Addition of Baseline Capability for FDD Mode Operating Band XIX(Extended UMTS 800)	8.6.0	8.7.0	R5	RInImp9-UMTSLTE800
34.123-3	2609	-	Rel-8	F	RP-090434	R5-092565	UTRA ASP enhancement for Rel-8	8.1.0	8.2.0	R5	TEI8_Test
34.123-3	2610	-	Rel-8	F	RP-090436	R5s090062	TTCN correction to the test cases 8.1.7.1d.	8.1.0	8.2.0	R5	TEI_Test
34.123-3	2611	-	Rel-8	B	RP-090436	R5s090058	Addition of GCF WI 70 CPC RRC test case 8.3.1.45	8.1.0	8.2.0	R5	TEI7_Test
34.123-3	2612	-	Rel-8	F	RP-090436	R5s090064	Correction to HSDPA RAB testcases (CAT 1 to 5 & 11)	8.1.0	8.2.0	R5	TEI5_Test
34.123-3	2613	-	Rel-8	F	RP-090436	R5s090063	Corrections to GCF WI-025 HSUPA TC 7.1.6.2.2	8.1.0	8.2.0	R5	TEI6_Test
34.123-3	2614	-	Rel-8	F	RP-090436	R5s090065	TTCN Correction to test steps in UE capability testcases which use the constraints cr_UE_CapabilityInfoAM_BandList2_r6 and cr_RRC_RrcConnSetupCmplRadioCap_BandList2_r6.	8.1.0	8.2.0	R5	TEI6_Test
34.123-3	2615	-	Rel-8	F	RP-090436	R5s090073	Summary of regression errors in wk16 ATS	8.1.0	8.2.0	R5	TEI_Test
34.123-3	2616	-	Rel-8	F	RP-090436	R5s090027	Correction to HSUPA test case 6.1.2.11	8.1.0	8.2.0	R5	TEI6_Test

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34.123-3	2617	-	Rel-8	F	RP-090436	R5s090025	Correction to RRC test cases 8.1.3.4 and 8.3.1.15	8.1.0	8.2.0	R5	TEI_Test
34.123-3	2618	-	Rel-8	F	RP-090436	R5s090026	Corrections to GCF WI-070 CPC Test Cases 8.2.6.69	8.1.0	8.2.0	R5	TEI7_Test
34.123-3	2619	-	Rel-8	F	RP-090436	R5s090024	Correction to HSD MAC test case 7.1.5.6	8.1.0	8.2.0	R5	TEI5_Test
34.123-3	2620	-	Rel-8	F	RP-090436	R5s090034	Corrections to GCF WI-010 RLC Test Case 7.2.3.24	8.1.0	8.2.0	R5	TEI_Test
34.123-3	2621	-	Rel-8	B	RP-090436	R5s090035	Addition of GCF WI-070 CPC RRC testcase 8.2.6.55 to HS_ENH_r7 ATS v8.0.0	8.1.0	8.2.0	R5	TEI7_Test
34.123-3	2622	-	Rel-8	F	RP-090436	R5s090032	Correction to GCF WI-010 Test Case 14.2.57	8.1.0	8.2.0	R5	TEI_Test
34.123-3	2623	-	Rel-8	F	RP-090436	R5s090029	Correction to RRC test cases 8.2.6.37 and 8.2.6.37b	8.1.0	8.2.0	R5	TEI_Test
34.123-3	2624	-	Rel-8	F	RP-090436	R5s090031	Corrections to GCF WI-024 Network Sharing Test Cases 6.1.1.8 and 6.1.1.9	8.1.0	8.2.0	R5	TEI6_Test
34.123-3	2625	-	Rel-8	F	RP-090436	R5s090030	Corrections to MAC_eHS_PDU & ReorderingPDU definitions	8.1.0	8.2.0	R5	TEI7_Test
34.123-3	2626	-	Rel-8	F	RP-090436	R5s090022	Correction of GCF WI-068 Improved L2 Flexible RLC UM test case 7.2.2.14	8.1.0	8.2.0	R5	TEI7_Test
34.123-3	2627	-	Rel-8	F	RP-090436	R5s090028	TTCN Correction in TCs 8.2.6.39, 8.2.6.44	8.1.0	8.2.0	R5	TEI_Test
34.123-3	2628	-	Rel-8	F	RP-090436	R5s090038	Correction to the Network Sharing test cases	8.1.0	8.2.0	R5	TEI6_Test
34.123-3	2629	-	Rel-8	F	RP-090436	R5s090037	Correction to Rel-7 CPC testcase 8.2.6.61	8.1.0	8.2.0	R5	TEI7_Test
34.123-3	2630	-	Rel-8	F	RP-090436	R5s090041	TTCN Correction to testcase 8.3.1.30	8.1.0	8.2.0	R5	TEI_Test
34.123-3	2631	-	Rel-8	B	RP-090436	R5s090039	Addition of GCF WI-070 CPC RRC testcase 8.2.1.40 to HS_ENH_r7 ATS v8.0.0	8.1.0	8.2.0	R5	TEI7_Test
34.123-3	2632	-	Rel-8	B	RP-090436	R5s090043	Addition of GCF WI-068 MAC test case 7.1.5a.5.2 to HSPA7_ENH ATS	8.1.0	8.2.0	R5	TEI7_Test
34.123-3	2633	-	Rel-8	F	RP-090436	R5s090046	TTCN Correction to constraint c_DynamicAllocationPRR used to send PACKET UPLINK ASSIGNMENT, in test step ts_LLC_XID.	8.1.0	8.2.0	R5	TEI_Test
34.123-3	2634	-	Rel-8	F	RP-090436	R5s090055	TTCN Correction to RLC test cases (7.2.2.3, 7.2.2.4, 7.2.2.5 , 7.2.2.6) for Rel-7 and later UEs.	8.1.0	8.2.0	R5	TEI_Test
34.123-3	2635	-	Rel-8	B	RP-090436	R5s090056	Addition of GCF WI-070 CPC RRC testcase 8.2.2.53 to HS_ENH_r7 ATS v8.1.0	8.1.0	8.2.0	R5	TEI7_Test
34.123-3	2636	-	Rel-8	F	RP-090436	R5s090053	TTCN Correction in test case 12.9.7b	8.1.0	8.2.0	R5	TEI_Test

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34.123-3	2637	-	Rel-8	F	RP-090436	R5s090045	Baseline upgrade to March-09 Rel-8	8.1.0	8.2.0	R5	TEI8_Test
34.123-3	2638	-	Rel-8	F	RP-090436	R5s090052	Correction to HSU Network Sharing test cases and some generic changes	8.1.0	8.2.0	R5	TEI6_Test
34.123-3	2639	-	Rel-8	F	RP-090436	R5s090048	Corrections to GCF WI-070 CPC Test Cases 8.2.6.61	8.1.0	8.2.0	R5	TEI7_Test
34.123-3	2640	-	Rel-8	F	RP-090436	R5s090054	TTCN correction to the test cases 8.3.7.1a (Support of A5/3 algorithm) for Rel-99 UE	8.1.0	8.2.0	R5	TEI_Test
34.123-3	2641	-	Rel-8	F	RP-090436	R5s090047	Correction to the Network Sharing test cases	8.1.0	8.2.0	R5	TEI6_Test
34.123-3	2642	-	Rel-8	F	RP-090436	R5s090051	Correction to RAB test case variables, “tcv_Background” and “tcv_Streaming”	8.1.0	8.2.0	R5	TEI_Test
34.123-3	2643	-	Rel-8	F	RP-090436	R5s090050	Correction to GCF WI 25 HSU test case 8.1.2.18	8.1.0	8.2.0	R5	TEI6_Test
34.123-3	2644	-	Rel-8	F	RP-090436	R5s090049	Correction to RRC test case 8.3.2.12	8.1.0	8.2.0	R5	TEI_Test
34.123-3	2645	-	Rel-8	F	RP-090436	R5s090061	Corrections to handle v7b0NonCriticalExtensions in RRC Connection Req message (Rel-7).	8.1.0	8.2.0	R5	TEI7_Test
34.123-3	2646	-	Rel-8	F	RP-090436	R5s090060	Corrections to GCF WI-024 Network Sharing Test Cases 6.1.1.8, 6.1.1.9, 6.1.2.11, 6.2.2.4	8.1.0	8.2.0	R5	TEI6_Test
34.123-3	2647	-	Rel-8	F	RP-090435	-	Add new verified and e-mail agreed TTCN test cases in the TC lists in 34.123-3 (prose), Annex A	8.1.0	8.2.0	R5	TEI8_Test
34.229-1	0202	-	Rel-8	F	RP-090433	R5-092062	Update IMS test case 8.1, 8.2 and 8.6 with registration expire requirements	8.1.0	8.2.0	R5	TEI7_Test
34.229-1	0203	-	Rel-8	F	RP-090433	R5-092063	Update IMS test case 8.3 and 8.9 with registration expire requirements	8.1.0	8.2.0	R5	TEI7_Test
34.229-1	0204	-	Rel-8	F	RP-090433	R5-092064	Update IMS test case 8.5, 8.7 and 8.8 with registration expire requirements	8.1.0	8.2.0	R5	TEI7_Test
34.229-1	0205	-	Rel-8	F	RP-090433	R5-092065	Correction of registration expire requirements in annex A	8.1.0	8.2.0	R5	TEI7_Test
34.229-1	0206	-	Rel-8	F	RP-090433	R5-092217	Update of MTSI test case 15.15	8.1.0	8.2.0	R5	TEI7_Test
34.229-1	0207	-	Rel-8	F	RP-090433	R5-092566	Correction of MTSI icsi requirements	8.1.0	8.2.0	R5	TEI7_Test
34.229-2	0053	-	Rel-8	F	RP-090433	R5-092218	Addition of PICS for support of UI Message Waiting Indication	8.1.0	8.2.0	R5	TEI7_Test
36.508	0025	-	Rel-8	F	RP-090447	R5-092086	Correction to Cell off power	8.1.0	8.2.0	R5	LTE-UEConTest_SIG

36.508	0026	-	Rel-8	F	RP-090447	R5-092087	LTE Signalling Tests: UE Rx antenna connection	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.508	0027	-	Rel-8	D	RP-090448	R5-092124	CR to 36.508 for subclause 4.3.1 channel bandwidth clarification for RF tests (re-submit no changes)	8.1.0	8.2.0	R5	LTE-UEConTest_RF
36.508	0028	-	Rel-8	F	RP-090448	R5-092128	Text for 4.2.2: Minimum functional requirements	8.1.0	8.2.0	R5	LTE-UEConTest_RF
36.508	0029	-	Rel-8	F	RP-090448	R5-092132	Annex A: transition from 1 to 2 RX antenna	8.1.0	8.2.0	R5	LTE-UEConTest_RF
36.508	0030	-	Rel-8	F	RP-090447	R5-092202	Update of SN length in UM RLC default configuration	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.508	0031	-	Rel-8	F	RP-090448	R5-092275	TP for simulated UTRA TDD cell parameter	8.1.0	8.2.0	R5	LTE-UEConTest_RF
36.508	0032	-	Rel-8	F	RP-090447	R5-092349	Correction to specific message contents in setup procedure in TS 36.508	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.508	0033	-	Rel-8	F	RP-090447	R5-092352	Correction to the definition of simulated NAS cells in TS 36.508	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.508	0034	-	Rel-8	F	RP-090447	R5-092363	CR on 6.7 TDD Timer Tolerance in 36.508	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.508	0035	-	Rel-8	F	RP-090448	R5-092458	Default value of q-RxLevMin for RF TCs	8.1.0	8.2.0	R5	LTE-UEConTest_RF
36.508	0036	-	Rel-8	F	RP-090447	R5-092708	Update of the default NAS message contents in TS 36.508	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.508	0037	-	Rel-8	F	RP-090447	R5-092721	Correction to reference radio bearer configurations	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.508	0038	-	Rel-8	F	RP-090447	R5-092734	Definition of default Test Control (TC) messages	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.508	0039	-	Rel-8	F	RP-090448	R5-092735	Modification of procedures in section 4.5.2.3 /4.5.2A	8.1.0	8.2.0	R5	LTE-UEConTest_RF

36.508	0040	-	Rel-8	F	RP-090447	R5-092736	Addition of default physical layer parameters	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.508	0041	-	Rel-8	F	RP-090447	R5-092738	Correction to default RRC message contents	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.508	0042	-	Rel-8	F	RP-090447	R5-092765	Introduction in 36.508 of a common tracking/routing area update procedure for Idle mode and RRC connection release test cases	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.508	0043	-	Rel-8	F	RP-090447	R5-092773	Corrections to default system configurations in TS 36.508	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.508	0044	-	Rel-8	F	RP-090448	R5-092457	Update of 4.5.2A in 36.508 (Re-submit not change)	8.1.0	8.2.0	R5	LTE-UEConTest_RF
36.508	0045	-	Rel-8	F	RP-090647	R5-092535	CR to 36.508 Addition of test frequencies for band 18 and band 19	8.1.0	8.2.0	R5	RInImp9-UMTSLTE800
36.508	0046	-	Rel-8	F	RP-090447	R5-092723	Max. resources for signalling test cases	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.509	0005	-	Rel-8	F	RP-090447	R5-092315	Corrections to section 6 of 36.509.	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.509	0006	-	Rel-8	F	RP-090447	R5-092361	Clarification to TS 36.509	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.509	0007	-	Rel-8	F	RP-090448	R5-092511	Corrections and clarifications to TS 36.509	8.1.0	8.2.0	R5	LTE-UEConTest_RF
36.509	0008	-	Rel-8	F	RP-090447	R5-092766	Support of mandatory AT commands via EMMI	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.521-1	0051	-	Rel-8	F	RP-090448	R5-092144	LTE-RF: Resubmission of R5-086424 UE output power dynamics 36.521-1 v8.1.0 (re-submit no changes)	8.1.0	8.2.0	R5	LTE-UEConTest_RF
36.521-1	0052	-	Rel-8	F	RP-090448	R5-092146	LTE-RF: CR for UE configured UE transmitted output power test case (re-submit no changes)	8.1.0	8.2.0	R5	LTE-UEConTest_RF
36.521-1	0053	-	Rel-8	F	RP-090448	R5-092147	LTE-RF: CR for UE minimum output power test case (re-submit no change)	8.1.0	8.2.0	R5	LTE-UEConTest_RF

36.521-1	0054	-	Rel-8	F	RP-090448	R5-092149	LTE-RF: CR for Power Control Absolute power tolerance test case (re-submit no changes)	8.1.0	8.2.0	R5	LTE-UEConTest_RF
36.521-1	0055	-	Rel-8	F	RP-090448	R5-092150	LTE-RF: CR for Power Control Relative power tolerance test case (re-submit no changes)	8.1.0	8.2.0	R5	LTE-UEConTest_RF
36.521-1	0056	-	Rel-8	F	RP-090448	R5-092151	LTE-RF: New test case for Aggregate power control tolerance (re-submit no changes)	8.1.0	8.2.0	R5	LTE-UEConTest_RF
36.521-1	0057	-	Rel-8	F	RP-090448	R5-092263	Text proposal for Reporting of Channel State Information	8.1.0	8.2.0	R5	LTE-UEConTest_RF
36.521-1	0058	-	Rel-8	F	RP-090448	R5-092264	Propagation conditions for CQI tests	8.1.0	8.2.0	R5	LTE-UEConTest_RF
36.521-1	0059	-	Rel-8	F	RP-090448	R5-092265	Correction to Demodulation of PDCCH/PCFICH test cases	8.1.0	8.2.0	R5	LTE-UEConTest_RF
36.521-1	0060	-	Rel-8	F	RP-090448	R5-092273	Mapping of downlink physical channels for TDD	8.1.0	8.2.0	R5	LTE-UEConTest_RF
36.521-1	0061	-	Rel-8	F	RP-090448	R5-092277	Annex A RMC updates	8.1.0	8.2.0	R5	LTE-UEConTest_RF
36.521-1	0062	-	Rel-8	F	RP-090448	R5-092369	Update of A.3.4.3 for RMC with UE-specific RS	8.1.0	8.2.0	R5	LTE-UEConTest_RF
36.521-1	0063	-	Rel-8	F	RP-090448	R5-092372	Maintenance on Initial configurations for Perf TCs	8.1.0	8.2.0	R5	LTE-UEConTest_RF
36.521-1	0064	-	Rel-8	F	RP-090448	R5-092436	CR to 36.521-1: Update of ACLR test case	8.1.0	8.2.0	R5	LTE-UEConTest_RF
36.521-1	0065	-	Rel-8	F	RP-090448	R5-092442	CR to 36.521-1: Update of Spurious Emissions test case	8.1.0	8.2.0	R5	LTE-UEConTest_RF
36.521-1	0066	-	Rel-8	F	RP-090448	R5-092467	LTE-RF: Transmit OFF Power update	8.1.0	8.2.0	R5	LTE-UEConTest_RF
36.521-1	0067	-	Rel-8	F	RP-090448	R5-092473	LTE_RF - Update on TC 7.7 Spurious Response (re-submit with no changes)	8.1.0	8.2.0	R5	LTE-UEConTest_RF

36.521-1	0068	-	Rel-8	F	RP-090448	R5-092474	LTE_RF - Update on TC 7.9 Spurious Emissions (re-submit with no changes)	8.1.0	8.2.0	R5	LTE-UEConTest_RF
36.521-1	0069	-	Rel-8	F	RP-090448	R5-092527	Update of TDD PDSCH test cases	8.1.0	8.2.0	R5	LTE-UEConTest_RF
36.521-1	0070	-	Rel-8	F	RP-090448	R5-092602	LTE-RF: CR for Maximum Power Reduction test case (re-submit no changes)	8.1.0	8.2.0	R5	LTE-UEConTest_RF
36.521-1	0071	-	Rel-8	F	RP-090448	R5-092603	TP for Demodulation of TDD PDCCH/PCFICH	8.1.0	8.2.0	R5	LTE-UEConTest_RF
36.521-1	0072	-	Rel-8	F	RP-090448	R5-092605	Mapping of uplink physical channels for FDD	8.1.0	8.2.0	R5	LTE-UEConTest_RF
36.521-1	0073	-	Rel-8	F	RP-090448	R5-092606	Update of Annex C	8.1.0	8.2.0	R5	LTE-UEConTest_RF
36.521-1	0074	-	Rel-8	F	RP-090448	R5-092607	CR to 36.521-1: Update of test parameters for Demodulation of PDSCH (FDD) tests	8.1.0	8.2.0	R5	LTE-UEConTest_RF
36.521-1	0075	-	Rel-8	F	RP-090448	R5-092614	Update of SEM test case	8.1.0	8.2.0	R5	LTE-UEConTest_RF
36.521-1	0076	-	Rel-8	F	RP-090448	R5-092642	Update of transmit quality test cases	8.1.0	8.2.0	R5	LTE-UEConTest_RF
36.521-1	0077	-	Rel-8	F	RP-090448	R5-092643	Text proposal for TDD part of CQI Reporting under Fading conditions	8.1.0	8.2.0	R5	LTE-UEConTest_RF
36.521-1	0078	-	Rel-8	F	RP-090448	R5-092644	Text proposal for TDD part of CQI Reporting under AWGN conditions	8.1.0	8.2.0	R5	LTE-UEConTest_RF
36.521-1	0079	-	Rel-8	F	RP-090448	R5-092645	LTE-RF: Update of Additional Spectrum Emission mask Test case with TDD Uplink Test configuration	8.1.0	8.2.0	R5	LTE-UEConTest_RF
36.521-1	0080	-	Rel-8	F	RP-090448	R5-092649	LTE-RF: CR for TDD DL RMC to be used in TX test cases	8.1.0	8.2.0	R5	LTE-UEConTest_RF
36.521-1	0081	-	Rel-8	F	RP-090448	R5-092653	LTE-RF: CR for Additional Maximum Power Reduction test case	8.1.0	8.2.0	R5	LTE-UEConTest_RF

36.521-1	0082	-	Rel-8	F	RP-090448	R5-092661	RMC update for PDCCH/PCFICH peformance requirement	8.1.0	8.2.0	R5	LTE-UEConTest_RF
36.521-1	0083	-	Rel-8	F	RP-090448	R5-092600	LTE TX: 1 to 2 RX antenna	8.1.0	8.2.0	R5	LTE-UEConTest_RF
36.521-1	0084	-	Rel-8	F	RP-090647	R5-092366	Update of 7.3.1	8.1.0	8.2.0	R5	RInImp9-UMTSLTE800
36.521-1	0085	-	Rel-8	F	RP-090448	R5-092440	LTE-RF: CR for UE max output power test case	8.1.0	8.2.0	R5	LTE-UEConTest_RF
36.521-1	0086	-	Rel-8	F	RP-090448	R5-092472	LTE_RF - Update on TC 7.6 Blocking Characteristics (re-submit with changes)	8.1.0	8.2.0	R5	LTE-UEConTest_RF
36.521-1	0087	-	Rel-8	F	RP-090647	R5-092636	CR to 36.521-1: Addition of frequencies for band 18 and band 19	8.1.0	8.2.0	R5	RInImp9-UMTSLTE800
36.521-1	0088	2	Rel-8	F	RP-090432	R5-092652	Improved stability of TC 7.8.5 Power Control in the DL fro F-DPCH to HSUPA TC 5.2D and 5.13.2B	8.1.0	8.2.0	R5	TEI6_Test
36.521-2	0001	-	Rel-8	F	RP-090448	R5-092615	CR to 36.521-2: Applicability changes and additions for RRM test cases	8.0.1	8.1.0	R5	LTE-UEConTest_RF
36.521-2	0002	-	Rel-8	F	RP-090448	R5-092616	LTE-RF: Applicability for Output Power Dynamics test cases	8.0.1	8.1.0	R5	LTE-UEConTest_RF
36.523-1	0150	-	Rel-8	F	RP-090447	R5-092052	GCF Priority 1 - Update of 9.1.2.1 test procedure sequence and editorials	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0151	-	Rel-8	F	RP-090447	R5-092053	GCF Priority 2 - Update of TC 9.1.2.3 Authentication not accepted by the network, GUTI used, authentication reject and re-authentication	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0152	-	Rel-8	F	RP-090447	R5-092054	GCF Priority 2 - Update TC 9.1.2.4 Authentication not accepted by the UE MAC code failure	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0153	-	Rel-8	F	RP-090447	R5-092055	GCF Priority 2 - New TC 9.1.2.5 Authentication not accepted by the UE, SQN failure	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0154	-	Rel-8	F	RP-090447	R5-092061	GCF Priority 1 - Update of RRC test case 9.3.1.1	8.1.0	8.2.0	R5	LTE-UEConTest_SIG

36.523-1	0155	-	Rel-8	F	RP-090447	R5-092076	GCF Priority 2: First Iu mode to S1 mode intersystem change after attach: go to E-UTRAN RRC idle: RAU to UTRAN (9.2.3.3.1)	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0156	-	Rel-8	F	RP-090447	R5-092077	Batch 2: Addition of 8.1.3.9 RRC Redirection from E-UTRAN to HRPD	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0157	-	Rel-8	F	RP-090447	R5-092078	Batch 2: Addition of 8.1.3.10 RRC Redirection from E-UTRAN to CDMA2000-1XRTT	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0158	-	Rel-8	F	RP-090447	R5-092107	GCF Priority 1 - Update of E-UTRA MAC test case 7.1.3.1	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0159	-	Rel-8	F	RP-090447	R5-092108	GCF Priority 1 - Update of E-UTRA MAC test case 7.1.4.1	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0160	-	Rel-8	F	RP-090447	R5-092109	GCF Priority 1 - Update of E-UTRA MAC test case 7.1.4.4	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0161	-	Rel-8	F	RP-090447	R5-092110	GCF Priority 1 - Update of E-UTRA MAC test case 7.1.4.5	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0162	-	Rel-8	F	RP-090447	R5-092112	GCF Priority 1 - Update of E-UTRA MAC test case 7.1.4.8	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0163	-	Rel-8	F	RP-090447	R5-092113	GCF Priority 1 - Update of E-UTRA MAC test case 7.1.4.10	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0164	-	Rel-8	F	RP-090447	R5-092114	GCF Priority 1 - Update of E-UTRA MAC test case 7.1.4.13	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0165	-	Rel-8	F	RP-090447	R5-092115	GCF Priority 1 - Proposal to remove E-UTRA RLC test case 7.2.3.19	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0166	-	Rel-8	F	RP-090447	R5-092181	GCF Priority 2 - Update of test case 8.5.1.5	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0167	-	Rel-8	F	RP-090447	R5-092185	GCF Priority 1 - Update of test case 8.2.3.1	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0168	-	Rel-8	F	RP-090447	R5-092190	GCF Priority 1 - Update of E-UTRA RLC (AM) test case 7.2.3.1	8.1.0	8.2.0	R5	LTE-UEConTest_SIG

36.523-1	0169	-	Rel-8	F	RP-090447	R5-092191	GCF Priority 1 - Update of E-UTRA RLC (AM) test case 7.2.3.2	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0170	-	Rel-8	F	RP-090447	R5-092192	GCF Priority 1 - Update of E-UTRA RLC (AM) test case 7.2.3.18	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0171	-	Rel-8	F	RP-090447	R5-092200	GCF Priority 1 - Update of E-UTRA RLC (AM) test case 7.2.3.18	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0172	-	Rel-8	F	RP-090447	R5-092213	Addition of new RRC test case 8.3.2.9	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0173	-	Rel-8	F	RP-090447	R5-092228	GCF Priority 2 - Update to test case 6.1.2.15	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0174	-	Rel-8	F	RP-090447	R5-092229	GCF Priority 1 - Update to test case 6.1.2.4	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0175	-	Rel-8	F	RP-090447	R5-092230	GCF Priority 2 - Update to test case 6.1.2.5	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0176	-	Rel-8	F	RP-090447	R5-092234	GCF Priority 1 - Update to test case 8.1.1.1	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0177	-	Rel-8	F	RP-090447	R5-092242	GCF Priority 2 - Update to test case 8.1.3.5	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0178	-	Rel-8	F	RP-090447	R5-092245	GCF Priority-2: A new EMM test case, 9.2.3.1.8 UE receives an indication that the RRC connection was released with cause 'load balancing TAU required"	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0179	-	Rel-8	F	RP-090447	R5-092247	Introduction of new EMM test cases, 9.2.3.1.10 and 9.2.3.1.11 Normal tracking area update / Rejected	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0180	-	Rel-8	F	RP-090447	R5-092248	Introduction of 9.2.3.1.12 ' Normal tracking area update / rejected / EPS service not allowed'	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0181	-	Rel-8	F	RP-090447	R5-092249	Introduction of 9.2.3.1.13 'Normal tracking area update / rejected / UE identity cannot be derived by the network'	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0182	-	Rel-8	F	RP-090447	R5-092250	GCF Priority 2 - Addition of a new test case 6.1.2.11 Inter-frequency cell reselection	8.1.0	8.2.0	R5	LTE-UEConTest_SIG

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36.523-1	0183	-	Rel-8	F	RP-090447	R5-092251	Introduction of 9.2.3.1.14 ' Normal tracking area update / rejected / UE implicitly detached'	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0184	-	Rel-8	F	RP-090447	R5-092252	Introduction of 9.2.3.1.15 ' Normal tracking area update / rejected / PLMN not allowed'	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0185	-	Rel-8	F	RP-090447	R5-092253	Introduction of 9.2.3.1.16 ' Normal tracking area update / rejected / Tracking area not allowed'	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0186	-	Rel-8	F	RP-090447	R5-092258	GCF Priority 2 - Update of RRC part1 TC 8.1.3.4 RRC Connection Release: redirection to another E-UTRAN frequency	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0187	-	Rel-8	F	RP-090447	R5-092260	GCF Priority 2 - Update of RRC part1 TC 8.1.3.6 RRC Connection Release: redirection from E-UTRAN to UTRAN	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0188	-	Rel-8	F	RP-090447	R5-092262	GCF Priority 2 - Correction to idle mode test cases 6.1.2.3 and 6.1.2.6	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0189	-	Rel-8	F	RP-090447	R5-092272	LTE-SIG:TDD related updates in RRC sections	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0190	-	Rel-8	F	RP-090447	R5-092276	"GCF priority 1 - Update of the LTE test caseö 7.3.3.1^^Correct functionality of EPS AS encription algorithms (SNOW 3G)ö"	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0191	-	Rel-8	F	RP-090447	R5-092278	GCF priority 1 - Update of test caseö 7.3.3.2 Correct functionality of EPS UP encription algorithms (SNOW 3G)ö	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0192	-	Rel-8	F	RP-090447	R5-092280	GCF Priority 2 - Update to test case 8.2.4.2	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0193	-	Rel-8	F	RP-090447	R5-092281	GCF Priority 2 - Update to test case 8.2.4.3	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0194	-	Rel-8	F	RP-090447	R5-092283	GCF Priority 2 - Update to test case 8.2.4.5	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0195	-	Rel-8	F	RP-090447	R5-092284	GCF Priority 2 - Update to test case 8.2.4.6	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0196	-	Rel-8	F	RP-090447	R5-092285	GCF Priority 2 - Update to test case 8.2.4.7	8.1.0	8.2.0	R5	LTE-UEConTest_SIG

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36.523-1	0197	-	Rel-8	F	RP-090447	R5-092288	GCF Priority 2 - Update to test case 8.3.1.8	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0198	-	Rel-8	F	RP-090447	R5-092295	Addition of new test case 9.2.1.2.8	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0199	-	Rel-8	F	RP-090447	R5-092296	Addition of new test case 9.2.1.2.9	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0200	-	Rel-8	F	RP-090447	R5-092297	Addition of new test case 9.2.1.2.10	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0201	-	Rel-8	F	RP-090447	R5-092299	Addition of new test case 9.2.3.2.12	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0202	-	Rel-8	F	RP-090447	R5-092300	Addition of new test case 9.3.1.4	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0203	-	Rel-8	F	RP-090447	R5-092301	Addition of new test case to test case 10.X.X	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0204	-	Rel-8	F	RP-090447	R5-092327	GCF Priority 1: Update E-UTRA PDCP TC 7.3.4.1	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0205	-	Rel-8	F	RP-090447	R5-092328	GCF Priority 1: Update E-UTRA PDCP TC 7.3.4.2	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0206	-	Rel-8	F	RP-090447	R5-092329	GCF Priority 2: Update E-UTRA PDCP TC 7.3.5.2	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0207	-	Rel-8	F	RP-090447	R5-092330	GCF Priority 2: Update E-UTRA PDCP TC 7.3.5.3	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0208	-	Rel-8	F	RP-090447	R5-092331	GCF Priority 2: Update E-UTRA PDCP TC 7.3.5.5	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0209	-	Rel-8	F	RP-090447	R5-092367	GCF Priority 1 - Update of E-UTRA MAC test case 7.1.4.6	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0210	-	Rel-8	F	RP-090447	R5-092396	GCF Priority 2 - Addition of new test case 6.2.2.3	8.1.0	8.2.0	R5	LTE-UEConTest_SIG

36.523-1	0211	-	Rel-8	F	RP-090447	R5-092397	GCF Priority 2 - Addition of new test case 6.2.3.7	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0212	-	Rel-8	F	RP-090447	R5-092398	GCF Priority 2 - Addition of new test case 6.2.3.8	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0213	-	Rel-8	F	RP-090447	R5-092406	"GCF Priority 2 - Addition of new LTE test case 7.2.2.11 UM RLC / RLC re-establishment procedure"	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0214	-	Rel-8	F	RP-090447	R5-092417	GCF Priority 2:Corrections to EMM test case 9.1.3.2	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0215	-	Rel-8	F	RP-090447	R5-092418	GCF Priority 1:Corrections to MAC test case 7.1.3.4	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0216	-	Rel-8	F	RP-090447	R5-092419	GCF Priority 1:Corrections to MAC test case 7.1.3.5	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0217	-	Rel-8	F	RP-090447	R5-092420	GCF Priority 1:Corrections to MAC test case 7.1.4.1	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0218	-	Rel-8	F	RP-090447	R5-092421	GCF Priority 2: Attach / Abnormal case / Access barred because of access class barring or NAS signalling connection establishment rejected by the network	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0219	-	Rel-8	F	RP-090447	R5-092422	GCF Priority 2: Corrections to EMM test case 9.4.1	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0220	-	Rel-8	F	RP-090447	R5-092423	GCF Priority 2:Corrections to EMM test case 9.4.3	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0221	-	Rel-8	F	RP-090447	R5-092430	GCF Priority 1:Corrections to MAC test case 7.1.1.2	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0222	-	Rel-8	F	RP-090447	R5-092451	Update of RSRP / RSRQ measurement result checking to the RRC part 3 test cases	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0223	-	Rel-8	F	RP-090447	R5-092471	GCF Priority 2-Correction of the EMM test case 9.2.3.1.4	8.1.0	8.2.0	R5	LTE-UEConTest_SIG

36.523-1	0224	-	Rel-8	F	RP-090447	R5-092480	GCF Priority 1:Corrections to MAC test case 7.1.2.1	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0225	-	Rel-8	F	RP-090447	R5-092481	GCF Priority 1:Corrections to MAC test case 7.1.2.2	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0226	-	Rel-8	F	RP-090447	R5-092484	GCF Priority 1:Corrections to MAC test case 7.1.2.5	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0227	-	Rel-8	F	RP-090447	R5-092485	GCF Priority 1:Corrections to MAC test case 7.1.2.7	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0228	-	Rel-8	F	RP-090447	R5-092486	GCF Priority 1:Corrections to MAC test case 7.1.2.8	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0229	-	Rel-8	B	RP-090447	R5-092500	GCF priority 2: Update of 10.2.1 for Dedicated EPS bearer context activation / Success	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0230	-	Rel-8	F	RP-090447	R5-092501	GCF priority 2: Addition of TC 10.4.1 for EPS bearer context deactivation / Success	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0231	-	Rel-8	B	RP-090447	R5-092502	GCF priority 2: Addition of TC 10.5.1 for UE requested PDN connectivity accepted by the network	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0232	-	Rel-8	B	RP-090447	R5-092504	GCF priority TBC: Addition of TC 10.5.2 for UE requested PDN connectivity accepted by the network / no PDN address allocated	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0233	-	Rel-8	B	RP-090447	R5-092505	GCF priority 3: Addition of TC 10.5.3 for UE requested PDN connectivity not accepted	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0234	-	Rel-8	B	RP-090447	R5-092506	GCF priority 2: Addition of ESM TC 10.6.1 for UE requested PDN disconnect procedure accepted by the network	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0235	-	Rel-8	B	RP-090447	R5-092507	GCF Priority 3: Addition of ESM TC 10.6.2 for UE requested PDN disconnect procedure not accepted by the network	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0236	-	Rel-8	F	RP-090447	R5-092510	GCF priority 2 - Update of 9.2.1.1.17 Attach / rejected / no suitable cells in tracking area	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0237	-	Rel-8	F	RP-090447	R5-092512	GCF priority 1: Update of EMM TC 9.3.1.2 Service Request initiated by UE for uplink signalling	8.1.0	8.2.0	R5	LTE-UEConTest_SIG

36.523-1	0238	-	Rel-8	F	RP-090447	R5-092513	GCF priority 2: Update of 9.2.1.1.17 Attach / rejected / no suitable cells in tracking area	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0239	-	Rel-8	F	RP-090447	R5-092514	GCF priority 1: Update of 9.2.1.1.1 Attach Procedure / Success (valid GUTI)	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0240	-	Rel-8	F	RP-090447	R5-092515	GCF priority 2: Update of 9.2.1.1.5 Attach Procedure/ Success / ATTACH ACCEPT includes the PDN address assigned to the UE	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0241	-	Rel-8	F	RP-090447	R5-092516	GCF priority 2: Update of 9.2.1.1.9 Attach / rejected / IMSI invalid	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0242	-	Rel-8	F	RP-090447	R5-092517	GCF priority 2: Update of 9.2.1.1.10 Attach / rejected / illegal ME	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0243	-	Rel-8	F	RP-090447	R5-092518	GCF priority TBC: Update of 9.2.1.1.12 Attach / rejected / GPRS services not allowed	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0244	-	Rel-8	F	RP-090447	R5-092539	GCF Priority 1 - Update of RLC section	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0245	-	Rel-8	B	RP-090447	R5-092567	GCF Priority 2 - Addition of a new test case 6.2.3.5 Inter-RAT Cell Reselection / from E-UTRA RRC_IDLE to UTRA_Idle	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0246	-	Rel-8	F	RP-090447	R5-092569	GCF Priority 2: Inter-RAT cell Selection / from E-UTRA RRC_IDLE to UTRA_Idle, serving cell becomes non-suitable (SServingCell<0,barred)	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0247	-	Rel-8	F	RP-090447	R5-092570	GCF Priority 2: Inter-RAT cell Selection / from E-UTRA RRC_IDLE to GSM_Idle/GPRS Packet_idle, serving cell becomes non-suitable (SServingCell<0,barred)	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0248	-	Rel-8	F	RP-090447	R5-092571	GCF Priority 1 - New E-UTRA MAC test case - 7.1.7.1.1 DL-SCH Transport Block Size support / DCI format 1 / RA type 0	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0249	-	Rel-8	F	RP-090447	R5-092575	GCF Priority 1 - New E-UTRA MAC test case 7.1.7.1.2 - DL-SCH Transport Block Size selection / DCI format 1 / RA type 1	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0250	-	Rel-8	F	RP-090447	R5-092577	GCF Priority 1 - New E-UTRA MAC test case 7.1.7.2.1 - UL-SCH Transport Block Size selection / DCI format 0	8.1.0	8.2.0	R5	LTE-UEConTest_SIG

36.523-1	0251	-	Rel-8	F	RP-090447	R5-092578	GCF priority 2: New MAC test case: 7.1.6.1 DRX Operation / (short cycle not configured) /Parameters configured by RRC (radio resource configuration)	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0252	-	Rel-8	F	RP-090447	R5-092579	GCF Priority 2 - New RRC part1 TC 8.1.3.8 RRC Connection Release: redirection from E-UTRAN to GERAN	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0253	-	Rel-8	F	RP-090447	R5-092580	GCF Priority 2 - Update of test case 8.2.1.3	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0254	-	Rel-8	F	RP-090447	R5-092583	GCF Priority 2: Attach Procedure / Success (last visited TAI, TAI list and equivalent PLMN list handling) 9.2.1.1.1a	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0255	-	Rel-8	F	RP-090447	R5-092584	GCF Priority 1 - Update of test case 8.2.1.1	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0256	-	Rel-8	F	RP-090447	R5-092589	GCF Priority 2 - Addition of new EMM test case 9.3.1.7a	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0257	-	Rel-8	F	RP-090447	R5-092593	GCF priority 2 - Update of 9.2.1.1.15 Attach / rejected / roaming not allowed in this tracking area	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0258	-	Rel-8	F	RP-090447	R5-092595	GCF Priority 1:Corrections to MAC test case 7.1.1.1	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0259	-	Rel-8	F	RP-090447	R5-092596	GCF Priority 1:Corrections to MAC test case 7.1.4.12	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0260	-	Rel-8	F	RP-090447	R5-092597	GCF Priority 1 - Update to test case 8.2.4.1	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0261	-	Rel-8	B	RP-090447	R5-092700	GCF Priority 2 - Addition of new test case 8.3.2.1	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0262	-	Rel-8	F	RP-090447	R5-092701	GCF Priority-1: Correction to 9.2.3.1.1 'Normal tracking area update / accepted'	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0263	-	Rel-8	F	RP-090447	R5-092702	GCF Priority-1: Correction to 9.2.3.1.5'Periodic tracking area update / accepted'	8.1.0	8.2.0	R5	LTE-UEConTest_SIG

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36.523-1	0264	-	Rel-8	F	RP-090447	R5-092703	GCF Priority 2 - Addition of E-UTRAN test case 6.1.2.7 for Cell reselection: Equivalent PLMN	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0265	-	Rel-8	F	RP-090447	R5-092706	GCF Priority 1 - Update to RRC test cases	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0266	-	Rel-8	F	RP-090447	R5-092712	GCF Priority 2: New MAC test case 7.1.4.14	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0267	-	Rel-8	F	RP-090447	R5-092713	GCF Priority 2 - Update to test case 8.1.2.5	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0268	-	Rel-8	F	RP-090447	R5-092714	GCF Priority 2 - Update to test case 8.1.2.7	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0269	-	Rel-8	F	RP-090447	R5-092715	GCF Priority 2 - Addition of RRC test case 8.3.2.6	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0270	-	Rel-8	F	RP-090447	R5-092716	GCF Priority 1 - Update of E-UTRA MAC test case 7.1.4.7	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0271	-	Rel-8	F	RP-090447	R5-092717	GCF Priority 1 - New E-UTRA MAC test case 7.1.7.1.4 - DL-SCH Transport Block Size selection / DCI format 1A / RA type 2 / Distributed VRB	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0272	-	Rel-8	F	RP-090447	R5-092718	GCF Priority 1 - New E-UTRA MAC test case 7.1.7.1.3 - DL-SCH Transport Block Size selection / DCI format 1A / RA type 2 / Localised VRB	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0273	-	Rel-8	F	RP-090447	R5-092730	GCF priority 2: New MAC test case: 7.1.6.2 DRX Operation / Parameters (short cycle not configured) / DRX command MAC control element reception	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0274	-	Rel-8	F	RP-090447	R5-092731	GCF Priority 2 - Updates to E-UTRAN Idle Mode test case 6.1.2.9	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0275	-	Rel-8	F	RP-090447	R5-092732	GCF Priority 2 - Updates to E-UTRAN Idle Mode test case 6.1.2.8	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0276	-	Rel-8	F	RP-090447	R5-092741	GCF Priority 1 - Update to idle mode test cases	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0277	-	Rel-8	F	RP-090447	R5-092751	Addition of new idle mode test case for ignoring CSG cells in cell selection when Allowed CSG list is empty or not supported	8.1.0	8.2.0	R5	LTE-UEConTest_SIG

36.523-1	0278	-	Rel-8	F	RP-090447	R5-092752	GCF Priority 2: New idle mode test case 6.2.3.1	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0279	-	Rel-8	F	RP-090447	R5-092755	GCF Priority 2 - Update to test case 8.3.1.10	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0280	-	Rel-8	F	RP-090447	R5-092756	GCF Priority 2 - Update to test case 8.3.2.3	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0281	-	Rel-8	F	RP-090447	R5-092758	GCF Priority 2 - Updates to E-UTRAN test case 6.1.1.1	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0282	-	Rel-8	F	RP-090447	R5-092760	GCF Priority 2: New idle mode test case 6.2.3.2	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0283	-	Rel-8	F	RP-090447	R5-092761	Move common test procedure from sections 6.0.1, 6.0.2, 6.0.3 to TS 36.508	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0284	-	Rel-8	F	RP-090447	R5-092762	Batch 2 - Addition of new RRC test case 8.3.2.7	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0285	-	Rel-8	F	RP-090447	R5-092763	Batch 2 - Addition of new RRC test case 8.3.2.8	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0286	-	Rel-8	F	RP-090447	R5-092764	LTE-SIG:TDD related updates in MAC sections	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0287	-	Rel-8	F	RP-090447	R5-092768	GCF Priority-1: Correction to 9.2.2.2.1 'NW initiated detach / re-attach required'	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0288	-	Rel-8	F	RP-090447	R5-092784	GCF Priority 2 - Update to test case 8.3.1.9	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0289	-	Rel-8	F	RP-090448	R5-092483	GCF Priority 1:Corrections to MAC test case 7.1.2.4	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0290	4	Rel-8	F	RP-090448	R5-092528	GCF Priority 1 - Update of E-UTRA MAC test case 7.1.2.3	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-1	0291	-	Rel-8	F	RP-090448	R5-092785	GCF priority 2: A/Gb mode READY state to S1 mode cell reselection and E-UTRAN - GERAN RAU (9.2.3.4.1, 9.2.3.4.2)	8.1.0	8.2.0	R5	LTE-UEConTest_SIG

36.523-1	0292	-	Rel-8	F	RP-090448	R5-092786	GCF Priority 2 - Update of TC 9.2.1.1.14 Attach / rejected / tracking area not allowed	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-2	0008	-	Rel-8	F	RP-090447	R5-092056	GCF Priority 2 - Adding TC 9.1.2.5 to applicability	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-2	0009	-	Rel-8	F	RP-090447	R5-092091	GCF Priority 2 - Addition of applicability statement for E-UTRAN test case 6.1.2.7 for Cell reselection: Equivalent PLMN	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-2	0010	-	Rel-8	F	RP-090447	R5-092116	GCF Priority 1 - Applicability of new E-UTRA MAC test cases	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-2	0011	-	Rel-8	F	RP-090447	R5-092117	GCF Priority 1 - Proposal to remove E-UTRA RLC test case 7.2.3.19 (Part 2)	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-2	0012	-	Rel-8	F	RP-090447	R5-092207	GCF Priority 2 - Addition of applicability for new EMM test case	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-2	0013	-	Rel-8	F	RP-090447	R5-092215	GCF Priority 2 - Addition of applicability for new idle mode and RRC test cases	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-2	0014	-	Rel-8	F	RP-090447	R5-092254	Update of Applicability table for agreed EMM test cases in RAN5#42bis	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-2	0015	-	Rel-8	F	RP-090447	R5-092255	GCF Priority 2 - Applicability for new idle mode test cases	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-2	0016	-	Rel-8	F	RP-090447	R5-092279	Addition of Applicability New LTE Test cases	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-2	0017	-	Rel-8	F	RP-090447	R5-092404	GCF priority 2: Applicability statements for the new MAC DRX test cases	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-2	0018	-	Rel-8	F	RP-090447	R5-092407	GCF Priority 2 - Addition of applicability for UM RLC test case 7.2.2.11	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-2	0019	-	Rel-8	F	RP-090447	R5-092415	GCF Priority 2: Applicability of new EMM test cases	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-2	0020	-	Rel-8	F	RP-090447	R5-092416	GCF Priority 2: Applicability of new Cell Selection test cases	8.1.0	8.2.0	R5	LTE-UEConTest_SIG

36.523-2	0021	-	Rel-8	F	RP-090447	R5-092424	Addition of LTE Operating Band Capabilities for FDD Mode Test frequencies	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-2	0022	-	Rel-8	F	RP-090447	R5-092432	GCF Priority 2 - Addition of Applicability statement for MAC test case 7.1.4.14	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-2	0023	-	Rel-8	F	RP-090447	R5-092433	GCF Priority 2: Applicability of new Cell Reselection test cases	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-2	0024	-	Rel-8	F	RP-090447	R5-092448	Update of Applicability for Feature Group Indicators	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-2	0025	-	Rel-8	F	RP-090447	R5-092450	GCF Priority 1 - Update of applicability for RRC part 3 test cases based on Feature Group Indicators	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-2	0026	-	Rel-8	F	RP-090447	R5-092508	Missing applicability of EMM/ESM test cases	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-2	0027	-	Rel-8	F	RP-090447	R5-092509	Applicability of new EMM & ESM test cases	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-2	0028	-	Rel-8	F	RP-090447	R5-092586	GCF Priority 1 - Update of applicability for RLC test cases	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-2	0029	-	Rel-8	F	RP-090447	R5-092769	GCF Priority 2 - Applicability of new RRC test case 8.3.2.6	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-2	0030	-	Rel-8	F	RP-090447	R5-092770	GCF Priority 2 - Update of applicability for MAC test cases based on Feature Group Indicators	8.1.0	8.2.0	R5	LTE-UEConTest_SIG
36.523-2	0031	-	Rel-8	F	RP-090447	R5-092783	Addition of applicability for new idle mode CSG test cases	8.1.0	8.2.0	R5	LTE-UEConTest_SIG

Annex D:
Summary of TSG RAN Work Items

This is a summary of the work plan, with information about the completed, updated, opened and stopped work items/study items at RAN #43.
Complete information can be found in the work plan.

Colour code used

Completed at RAN 44 100%	Updated at TSG#44	New Work Item/Suty Item	Stopped WI

Name	Acronym	Outline Level	Release	Resource Names	Start Date	Finish Date	Percent Complete	Hyperlink	Status Report	WI rapporteur name	Notes
Version 2009 Mar 16		1									
Release 10 Features		1	Rel-10	CP,GP,RP, SP							
Release 10 Feasibility Studies		1	Rel-10	CP,GP,RP, SP							
Release 9 Features		1	Rel-9	CP,GP,RP, SP							
Enhanced Home NodeB / eNodeB	EHNB	1	Rel-9	SP,RP	05/06/2008	15/12/2009	18%	SP-090214		T-Mobile	SA#43 WID updated SP-080791=>SP-090197 to include RAN items/BBs
LTE FDD Home eNodeB RF Requirements	HeNB-RF_FDD	2	Rel-9	R4	05/12/2008	10/12/2009	10%	RP-081080	RP-090054	Motorola	
LTE TDD Home eNodeB RF Requirements	HeNB-RF_TDD	2	Rel-9	R4	06/03/2009	10/12/2009	10%	RP-090160	RP-090407	China Mobile	
Home NB and Home eNB enhancements - RAN3 aspects	EHNB-RAN3	2	Rel-9	R3	06/03/2009	10/12/2009	20%	RP-090349	RP-090409	Alcatel-Lucent	
Home NB and Home eNB enhancements - RAN2 aspects	EHNB-RAN2	2	Rel-9	R2	06/03/2009	10/12/2009	20%	RP-090351	RP-090592	Huawei	
Support for IMS Emergency Calls over GPRS and EPS	IMS_EMER_GPRS_EPS	1	Rel-9	S2,S1,RP	14/01/2008	10/12/2009	40%	SP-080844		Alcatel-Lucent	SA#42 Stage 1 completed. WID updated SP-070820=>SP-080352=>SP-080844 (Add SA3 task).

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Support for IMS Emergency Calls over LTE	IMS_EMER_LTE	2	Rel-9	R2	05/12/2008	15/09/2009	60%	RP-081140	RP-090400	Alcatel-Lucent	
LCS for LTE and EPS	LCS_LTE_EPS	1	Rel-9	S2,RP	05/06/2008	10/12/2009	32%	not applicable			
Positioning Support for LTE	LCS_LTE	2	Rel-9	R2,R4	05/12/2008	10/12/2009	40%	RP-080995	RP-090401	Qualcomm	UID_400038 (LCS Control Plane Solution for EPS) depends on this WI
Network-Based Positioning Support for LTE	LCS_LTE-NBPS	2	Rel-9	R2	06/03/2009	10/12/2009	0%	RP-090354	RP-090402	TruePosition	
MBMS support in EPS	MBMS_EPS	1	Rel-9	S2, S3, S5	05/06/2008	10/12/2009	23%	SP-080737		China Mobile	SA#42 WID updated SP-080442=>SP-080737 (add SA3 task)
MBMS support in LTE	MBMS_LTE	2	Rel-9	R2	06/03/2009	10/12/2009	25%	RP-090619	RP-090403	Huawei	Stage 2/3
Public Warning System	PWS	1	Rel-9	S1,C1,C4,R2	06/12/2007	04/12/2009	50%	SP-070876		T-Mobile	SA#42 Stage 1 completed. Larger scope than Rel-8 Feature UID_370051 (ETWS). Triggered by TR 22.968 Study UID_320025 (FS_PWS).
Public Warning System (PWS) –RAN aspects	PWS-RAN	2	Rel-9	R2	29/05/2009	04/12/2009	0%	RP-090649		AT&T	Extend Warning System support of E-UTRA/E-UTRAN beyond Rel-8 ETWS by providing support for multiple parallel Warning Notifications, etc.
Rel-9 Improvements of the Radio Interface	RInImp9	1	Rel-9	RP,GP	07/05/2008	12/03/2010	36%	not applicable			RP#41 umbrella Feature created to host Rel-9 WIs
LCR TDD UE OTA Performance Requirements	RInImp9-RFLCROTA	2	Rel-9	R4	12/09/2008	11/09/2009	100%	RP-080744	RP-090389	CATR	RP#43 Completion target 03/09=>09/09. Produced no TR 25.8xy (LCR TDD UE OTA performance requirements). Kept open until se[ptember.
RF requirements for Multicarrier and Multi-RAT BS	RInImp9-RFmulti	2	Rel-9	R4,G1	12/09/2008	12/03/2010	28%	RP-081098	RP-090388	Ericsson	RP#42 WID updated RP-080758=>RP-081098
RAN4 part of RF requirements for Multicarrier and Multi RAT BS	RInImp9-RFmulti	3	Rel-9	R4	12/09/2008	12/03/2010	30%	RP-081098	RP-090388	Ericsson	RP#42 WID updated RP-080758=>RP-081098
Extended UMTS/LTE 800 MHz	RInImp9-UMTSLTE800	2	Rel-9	R4	07/05/2008	09/2009	75%	RP-080884	RP-090390	NTT DoCoMo	RP#43 completion target 05/09 (R5 target 09/09)

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UMS/LTE 800 MHz for Europe	RInImp9-UMTSLTE800EU	2	Rel-9	R4	06/03/2009	10/12/2009	5%	RP-090156	RP-090391	Ericsson	
Performance requirement for LCR TDD with UE speeds up to 350 kph	RInImp9-LCRTDD350	2	Rel-9	R4	06/03/2009	10/12/2009	20%	RP-090258	RP-090392	CATT	
Extended UMTS/LTE 1500 MHz	RInImp-UMTSLTE1500	2	Rel-9	R4	29/05/2009	04/12/2009	0%	RP-090470		NTT DoCoMo	
Rel-9 Improvements of the Radio Interface - UE Conformance Testing	RInImp-UEConTest	1	Rel-9	R5	18/05/2009	12/03/2010	0%	not applicable			
Conformance Test Aspects – UMTS/LTE in 800 MHz for Europe	RInImp-UEConTest-UMTSLTE800EU	2	Rel-9	R5	18/05/2009	12/03/2010	0%	RP-090485		Ericsson	
Rel-9 RAN improvements	RANimp	1	Rel-9	RP	06/03/2009	10/12/2009	31%	Not applicable			
1.28 Mcps TDD Repeater	RANimp-Repeaters1.28TDD	2		R4	04/12/2007	04/12/2009	40%	RP-071003	RP-090393	CATR	RP#44 decided it should be Rel-9. RP#43 Completion target 09/09=>12/09
Dual-Cell HSUPA	RANimp-DC_HSUPA	2	Rel-9	R1	06/03/2009	10/12/2009	45%	RP-090014	RP-090395	Nokia Siemens Networks	
Support for different bands for Dual-Cell HSDPA	RANimp-MultiBand_DC_HSDPA	2	Rel-9	R4	06/03/2009	10/12/2009	25%	RP-090015	RP-090396	Nokia Siemens Networks	
Combination of DC-HSDPA with MIMO	RANimp-DC_MIMO	2	Rel-9	R1	06/03/2009	10/12/2009	50%	RP-090332	RP-090397	Ericsson	
UTRAN 2 ms TTI uplink range improvement	RANimp-2mTTI_ULimp	2	Rel-9	R1	06/03/2009	10/12/2009	5%	RP-090333	RP-090398	Nokia Siemens Networks	
TxAA extension for non-MIMO UEs	RANimp-TxAA_nonMIMO	2	Rel-9	R1	06/03/2009	10/12/2009	30%	RP-090013	RP-090399	Nokia	
Cell Portion for 1.28 Mcps TDD	CP_LCRTDD	2	Rel-9	R3	29/05/2009	04/12/2009	0%	RP-090659		CATT	
LTE improvements	LTEimp	1	Rel-9	RP	06/03/2009	05/03/2010	9%	not applicable			
LTE Pico NodeB RF Requirements	LTEimp-Pico_eNB-RF	2	Rel-9	R4	06/03/2009	05/03/2010	5%	RP-090096	RP-090404	Huawei	

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Enhanced Dual-Layer transmission for LTE	LTEimp-eDL	2	Rel-9	R1	06/03/2009	10/12/2009	20%	RP-090359	RP-090648	China Mobile	
Vocoder rate adaptation for LTE	LTEimp-Vocoder	2	Rel-9	R2	29/05/2009	04/12/2009	0%	RP-090660		Alcatel-Lucent	only Stage 3 impacted
Self-Organizing Networks (SON)	SON	1	Rel-9	R3	06/03/2009	10/12/2009	35%	RP-090162	RP-090410	Nokia Siemens Networks	
SON	SON	2	Rel-9	R3	06/03/2009	10/12/2009	35%	RP-090162	RP-090410	Nokia Siemens Networks	
Release 9 Feasibility Studies		1	Rel-9	CP,GP,RP, SP							
Study on Evaluation of the inclusion of Path Loss Based Technology in the UTRAN	FS_RAN-Pathloss	1	Rel-9	R4	17/12/2007	11/09/2009	95%	RP-071050	RP-090423	Polaris Wireless	RP#43 completion target 03/09=>05/09
Study on LTE-Advanced	FS_RAN_LTEA	1	Rel-9	R1	13/06/2008	03/2010	60%	RP-090665	RP-090424	NTT DoCoMo	RP#43 TR 36.814 for Information. RP#40 TR 36.913 completed
Study on 1.28 Mcps TDD Home NodeB	FS_RAN-HNBLCRTDD	1	Rel-9	R4	20/02/2008	11/09/2009	60%	RP-080767	RP-090425	TD Tech	
Study on E-UTRAN Mobility Evaluation and Enhancement	FS_EUTRAN_mob	1	Rel-9	R1	05/12/2008	29/05/2009	100%	RP-081137	RP-090426	Qualcomm	
Study on Measurement of Radiated Performance for MIMO and multi-antenna reception for HSPA and LTE terminals	FS_HSPA_LTE_measRP_MIMO_multi-antenna	1	Rel-9	R4	06/03/2009	10/12/2009	15%	RP-090352	RP-090427	Vodafone	
Study on Minimization of drive-tests in Next Generation Networks	FS_NGN_min_drive-tests	1	Rel-9	R2	06/03/2009	11/09/2009	30%	RP-090341	RP-090428	Qualcomm	RP#44 TR 36.805-100 for Information
Study on Enhanced Interference Management for HNBs	FS_eInterfMgmt_HNB	1	Rel-9	R4	06/03/2009	10/12/2009	100%	RP-090361	RP-090429	Qualcomm	25.967
Study on Enhanced Interference Management Mechanisms for HNBs	FS_eInterfMgmtMchsm_HNB	1	Rel-9	R3,R2	29/05/2009	09/2009	0%	RP-090667		Qualcomm	
Study on Extending 850 MHz	FS_e850	1	Rel-9	R4	29/05/2009	04/12/2009	0%	RP-090666		Ericsson	
Release 8 Features		1	Rel-8	CP,GP,RP, SP							
Conformance Test Aspects – UMTS Earthquake and	ETWS_UMTS_UEConTestFD	1	Rel-8	R5	29/05/2009	29/03/2010	0%	RP-090467		NTT DoCoMo	

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Tsunami Warning System (ETWS) FDD	D										
UTRA HNB – UE Conformance Testing	HNB-UEConTest	1	Rel-8	R5	06/03/2009	04/12/2009	5%	RP-090023			testing for Feature UID_390033 UTRA HNB
Conformance Test Aspects – UTRA HNB (FDD)	HNB-UEConTestFDD	2	Rel-8	R5	06/03/2009	11/12/2009	5%	RP-090023	RP-090420	Huawei	testing for Feature UID_390033 UTRA HNB
Rel-8 LTE – Terminal Conformance Test Specification	LTE-UEConTest	1	Rel-8	R5	01/06/2007	10/12/2009	69%	not applicable			Testing for Feature UID_20068 (LTE)
3G LTE – Terminal Protocol Conformance Test Specifications	LTE-UEConTest_SIG	2	Rel-8	R5	01/06/2007	18/09/2009	70%	RP-080647	RP-090385	NEC, Motorola	RP#43 Completion target 03/09=>09/09
LTE – Terminal Radio Transmission and Reception Conformance Test Specifications (FDD)	LTE-UEConTest_RF_FDD	2	Rel-8	R5	01/06/2007	18/09/2009	85%	RP-080601	RP-090386	Agilent	RP#44 36.521-3 v200 for Approval. RP#43 Completion target 03/09=>09/09
LTE – Terminal Radio Transmission and Reception Conformance Test Specifications (TDD)	LTE-UEConTest_RF_TDD	2	Rel-8	R5	01/06/2007	18/09/2009	80%	RP-080601	RP-090386	Agilent	RP#44 36.521-3 v200 for Approval. RP#43 Completion target 03/09=>09/09
LTE 3500 – Conformance Test Aspects	LTE-UEConTest_LTE3500	2		R5	05/12/2008	04/12/2009	1%	RP-080859	RP-090418	Ericsson	RP#42 WID approved. Testing for UID_380073
Rel-8 Improvements of the Radio Interface	RInImp8	1	Rel-8	RP	05/03/2007	29/05/2009	88%	not applicable			
UMTS/LTE 3500 MHz (Rel-Independent)	RInImp8-UMTSLTE3500	2		R4	17/12/2007	04/12/2009	40%	RP-081096	RP-090387	Ericsson	RP#44 completion target 05/09=>12/09. Testing in UID_420013 & UID_420014
Rel-8 Improvements of the Radio Interface - UE Conformance Testing	RInImp-UEConTest	1	Rel-8	R5	01/06/2007	10/12/2009	67%	not applicable			05/08: Linked to Feature UID_20028 (RInImp)
UMTS 3500 – Conformance Test Aspects	RInImp-UEConTest_UMTS3500	2		R5	05/12/2008	04/12/2009	1%	RP-080870	RP-090419	Nokia	Testing for UID_380073
TDD UE over the Air (Antenna) conformance testing methodology	RInImp-UEAnt_TDDTest	2	Rel-8	R5	29/05/2009	04/12/2009	0%	RP-090621		CATR	Finalize TDD UE test methodology based on R4 TR 25.914 (UE and MS antenna performance evaluation method) and TS 25.144 Over the Air (Antenna) minimum performance requirements for the speech mode (terminal close to head)
Rel-8 RAN improvements	RANimp	1	Rel-8	RP	04/06/2007	11/12/2009	91%	not applicable			

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Continuous Connectivity for packet data users for 1.28 Mcps TDD	RANimp-LCRCPC	2	Rel-8	R1	07/03/2008	29/05/2009	100%	RP-080085	RP-090262	TD Tech	RP#43 completed except R4 Rel-8 extension sheet in RP-090336. RP#42 Rel-8 extension to 03/09 (condition: ASN.1 available Jan 09 to RAN2/3. If not, shifted to Rel-9)
MIMO for 1.28Mcps TDD	RANimp-MIMOLCR	2	Rel-8	R1,R4	01/11/2007	29/05/2009	100%	RP-080485	RP-090313	CATT	RP#44 completed. RP#43 completed (R1 part). RP#42 Rel-8 extension to 05/09 (the only part missing is R4 performance part)
Rel-8 RAN improvements - UE Conformance Testing	RANimp-UEConTest	1	Rel-8	R5	30/05/2008	12/03/2010	32%	not applicable			05/08: Linked to Feature UID_20029 (RANimp)
Conformance Test Aspects – Combination of 64QAM and MIMO for HSDPA (FDD)	RANimp-UEConTest_64QamMimoHsdpa	2	Rel-8	R5	12/09/2008	18/09/2009	60%	RP-080759	RP-090414	Ericsson	RP#43 Completion target 03/09=>09/09
Conformance Test Aspects – Improved L2 for uplink	RANimp-UEConTest_UplinkL2dataRates	2	Rel-8	R5	30/05/2008	18/09/2009	60%	RP-080606	RP-090412	Ericsson	RP#43 Completion target 03/09=>09/09. Linked UID_370036
Conformance Test Aspects – 64QAM for 1.28 Mcps TDD HSDPA	RANimp-UEConTest_64Qam1.28TDD	2	Rel-8	R5	30/05/2008	29/05/2009	100%	RP-080334	RP-090415	ZTE	RP#44 completed. Linked UID_380075 RANimp-64Qam1.28TDD
Conformance Test Aspects – Dual-Cell HSDPA operation on adjacent carriers	RANimp-UEConTest_DCHSDPA	2	Rel-8	R5	05/12/2008	04/12/2009	10%	RP-080996	RP-090417	Qualcomm	RP#44 completion target 09/09=>12/09. Testing for UID_400052
Conformance Test Aspects – Enhanced Uplink for CELL_FACH State in FDD	RANimp-UEConTest_EnhancedRACHCellFACHState	2	Rel-8	R5	06/03/2009	12/03/2010	5%	RP-090152	RP-090422	Nokia	Testing for UID_370037
Conformance Test Aspects – Receiver Type3i	RANimp_UEConTest_ReceiverType3i	2	Rel-8	R5	06/03/2009	04/12/2009	20%	RP-090010	RP-090421	Qualcomm	
Conformance Test Aspects – Enhanced CELL_FACH State in LCR TDD	RANimp-UEConTest_EnhancedCellFACHStateLCRTDD	2	Rel-8	R5	29/05/2009	11/09/2009	0%	RP-090490		CATT	Linked to UID_380076 Enhanced CELL_FACH state in 1.28 Mcps TDD (RANimp-EnhState1.28TDD)
Conformance Test Aspects – 1.28Mcps TDD Improved L2	RANimp-UEConTest_Improv	2	Rel-8	R5	29/05/2009	29/09/20010	0%	RP-090491		CATT	Linked to Rel-7 UID_340039 Improved L2 support for high data rates (RANimp-L2DataRates) and

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support for high data rates	edL2LCRTDD										Rel-8 UID_370036 Improved L2 for uplink (RANimp-UplinkL2dataRates)
Conformance Test Aspects – 3.84 Mcps TDD MBSFN Integrated Mobile Broadcast	MBSFN_IMB_UEConTest	1	Rel-8	R5	29/05/2009	04/12/2009	0%	RP-090583		IPwireless	
MBMS - UE Conformance Testing	MBMSE_UEConTest	1	Rel-8	R5	01/06/2007	11/09/2009	57%	not applicable			Linked to Feature UID_31084 (MBMSE)
Conformance Test Aspects – MBMS LCR TDD Physical Layer Enhancement	MBMSE-RANPhysLCRTDD_UEConTest	2	Rel-8	R5	30/05/2008	18/09/2009	80%	RP-080318	RP-090416	CATT	1 Apr 2009 Flagged as Rel-7 i/o Rel-8 to match the Core specs release
Conformance Test Aspects – MBSFN for FDD	MBMSE-UEConTest_RANPhysFDD	2	Rel-8	R5	30/05/2008	18/09/2009	25%	RP-080336	RP-090413	Huawei	RP#43 Completion target 03/09=>09/09. 1 Apr 2009 Flagged as Rel-7 i/o Rel-8 to match the Core specs release
Test - (Small) Technical Enhancements and Improvements for Rel-8	TEI8_Test	1	Rel-8	R5	30/05/2008	26/06/2009	80%	not applicable		ALL	
Release 7 Features		1	Rel-7	CP,GP, RP,SP							
Rel-7 RAN improvements - UE Conformance Testing	RANimp-UEConTest	1	Rel-7	R5	20/09/2006	29/05/2009	96%	not applicable			05/08: Linked to Feature UID_20029 (RANimp)
Conformance Test Aspects – Enhanced CELL_FACH state in FDD	RANimp–UEConTest_EnhancedCellFACHState	2	Rel-7	R5	09/03/2007	11/09/2009	85%	RP-080730	RP-090411	Nokia	RP#44 Completion target 03/09=>05/09=>09/09

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Annex E:
Meeting schedule

Jun 2009				
TITLE	TYPE	DATES	LOCATION	CTRY
3GPPRAN5#43-BIS	OR	23 - 26 Jun 2009	Beijing	CN
3GPPRAN4#51-BIS	OR	29 Jun - 2 Jul 2009	Los Angeles	US
3GPPRAN1#57-BIS	OR	29 Jun - 3 Jul 2009	Los Angeles	US
3GPPRAN2#66-BIS	OR	29 Jun - 3 Jul 2009	Los Angeles	US
Aug 2009				
TITLE	TYPE	DATES	LOCATION	CTRY
3GPPRAN3#65	OR	24 - 28 Aug 2009	Shenzhen	CN
3GPPRAN4#52	OR	24 - 28 Aug 2009	Shenzhen	CN
3GPPRAN1#58	OR	24 - 28 Aug 2009	Shenzhen	CN
3GPPRAN2#67	OR	24 - 28 Aug 2009	Shenzhen	CN
3GPPRAN5#44	OR	24 - 28 Aug 2009	Shenzhen	CN
Sep 2009				
TITLE	TYPE	DATES	LOCATION	CTRY
3GPPRAN#45	OR	15 - 18 Sep 2009	Seville	ES
Oct 2009				
TITLE	TYPE	DATES	LOCATION	CTRY
3GPPRAN2#67-BIS	OR	12 - 16 Oct 2009	Miyazaki	JP
3GPPRAN1#58-BIS	OR	12 - 16 Oct 2009	Miyazaki	JP
3GPPRAN4#52-BIS	OR	12 - 16 Oct 2009	Japan	JP
3GPPRAN3#65-BIS	OR	12 - 15 Oct 2009	Miyazaki	JP

3GPPRAN5#45	OR	26 - 30 Oct 2009	US	
Nov 2009				
TITLE	**TYPE**	**DATES**	**LOCATION**	**CTRY**
3GPPRAN4#53	OR	9 - 13 Nov 2009	South Korea	KR
3GPPRAN3#66	OR	9 - 13 Nov 2009	South Korea	KR
3GPPRAN2#68	OR	9 - 13 Nov 2009	South Korea	KR
3GPPRAN1#59	OR	9 - 13 Nov 2009	South Korea	KR
Dec 2009				
TITLE	**TYPE**	**DATES**	**LOCATION**	**CTRY**
3GPPRAN#46	OR	1 - 4 Dec 2009	CN	CN

www.3gpp.org / ftp / Specs / archive / 36_series / 36.211

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	36211-012.zip	2006/11/24 8:03	499,2 KB
	36211-020.zip	2006/11/14 13:04	398,3 KB
	36211-021.zip	2006/12/05 9:35	1324,3 KB
	36211-022.zip	2007/01/11 8:04	2576,9 KB
	36211-031.zip	2007/02/06 13:53	1706,1 KB
	36211-100.zip	2007/03/19 15:44	1221,5 KB
	36211-110.zip	2007/06/13 17:50	1313,9 KB
	36211-120.zip	2007/07/30 10:14	2739,4 KB
	36211-200.zip	2007/09/24 7:55	1566,7 KB
	36211-800.zip	2007/09/27 9:45	1565,5 KB
	36211-810.zip	2007/12/18 15:25	2128,9 KB
	36211-820.zip	2008/03/20 9:40	2407,5 KB
	36211-830.zip	2008/06/18 10:08	2413,2 KB
	36211-840.zip	2008/09/16 12:25	2431,2 KB
	36211-850.zip	2008/12/18 11:04	2572,8 KB
	36211-860.zip	2009/03/13 20:51	2582,3 KB
	36211-870.zip	2009/06/08 11:33	2599,6 KB
	36211-880.zip	2009/09/19 21:49	2578,8 KB
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	36211-900.zip	2009/12/10 15:36	3597,2 KB
	36211-910.zip	2010/03/21 9:33	3618,7 KB
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	36211-a10.zip	2011/03/30 13:03	5614,7 KB
	36211-a20.zip	2011/06/22 6:52	5619,1 KB
	36211-a30.zip	2011/09/25 20:38	5579 KB

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	36211-b50.zip	2013/12/14 9:47	5475,6 KB
	36211-b60.zip	2014/09/23 14:11	5397,9 KB
	36211-b70.zip	2017/03/23 11:06	5398,8 KB
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	36211-c10.zip	2014/03/18 16:48	5402 KB
	36211-c20.zip	2014/06/16 12:39	5404,1 KB
	36211-c30.zip	2014/09/22 15:16	5407,7 KB
	36211-c40.zip	2015/01/03 18:40	5409,8 KB
	36211-c50.zip	2015/03/16 14:01	5546,2 KB
	36211-c60.zip	2015/06/24 12:37	5547,1 KB
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	36211-c90.zip	2017/03/23 11:07	5546,1 KB
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	36211-d40.zip	2017/01/02 16:28	6313,1 KB
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	36211-d60.zip	2017/06/23 20:11	6322,3 KB
	36211-d70.zip	2017/09/26 15:30	6325 KB
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	36211-d80.zip	2018/01/08 17:25	6329,3 KB
	36211-d90.zip	2018/04/02 19:57	6042,3 KB

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	36211-ea0.zip	2019/03/28 10:38	6533,3 KB
	36211-eb0.zip	2019/06/24 9:44	6532,3 KB
	36211-ec0.zip	2019/09/28 19:51	6507,7 KB
	36211-ed0.zip	2020/01/06 15:11	6511 KB
	36211-ed1.zip	2020/01/15 9:08	6506 KB
	36211-ee0.zip	2020/04/03 9:52	6509,7 KB
	36211-ef0.zip	2020/07/14 9:33	6510 KB
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	36211-f10.zip	2018/04/02 20:27	7629,6 KB
	36211-f20.zip	2018/07/05 19:07	13715,3 KB
	36211-f30.zip	2018/09/27 8:02	13370,1 KB
	36211-f40.zip	2019/01/11 13:59	12936,3 KB
	36211-f50.zip	2019/03/28 10:44	7405,9 KB
	36211-f60.zip	2019/06/24 9:41	7401,1 KB
	36211-f70.zip	2019/09/28 19:49	7364,1 KB
	36211-f80.zip	2020/01/06 15:15	7364,2 KB
	36211-f81.zip	2020/01/15 8:42	7365,9 KB
	36211-f90.zip	2020/04/03 10:04	7362,6 KB
	36211-fa0.zip	2020/07/14 9:35	7370,9 KB

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115 items.

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