Appendix 1

Curriculum Vitae

Name: Craig Bishop

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

Email: craig@bishopcom.co.uk

Current job title: Independent Consulting Engineer, CEO

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

Key Skills and Experience

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

Career History

Bishop Communications Ltd. 01/13 –

Independent Telecommuncations Standards and Intellectual Property Consultant

Company is a full ETSI member

Activities have included:

- Provision of 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 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 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 radio interface technologies (Phy, MAC, RLC, RRC), 3GPP access and core networks (GPRS/UMTS & EPC NAS), IMS. Organisations covered include 3GPP & ETSI.

Clients served during last 10 years include: Addy Hart LLP, Alston & Bird LLP, AT&T, 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 (working for third party clients as Consulting Engineer for Hillebrand-CE), Kilpatrick Townsend & Stockton, Kirkland & Ellis LLP, K&L Gates LLP, Morgan, Lewis & Bokius LLP, MckoolSmith LLP, PV Law LLP, Paul Hastings LLP, Perkins Coie LLP, Powell Gilbert LLP, Sidley Austin LLP, Samsung Electronics Research & Development Institute UK (SRUK), Taylor Wessing LLP, Williams & Connolly LLP, WilmerHale LLP.

Expert testimony through deposition:

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

Expert testimony in court:

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

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

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

Mission and Tasks as for previous role plus:

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

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

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

Key tasks:

- Developed standards and research strategy and coordinated activites with head office, acting as official Samsung contact for the European Telecommunications Standars Institute.
- Programme managed standardisation and regulation projects covering 3GPP (RAN2, CT1, SA2, SA1, SA, RAN, CT), OMA, and mobile Broadcast strategies and technologies (DVB Forum),

European Framework projects (FP7), Spectrum Management (CEPT, ETSI EM, TFES, BRAN, …) and European Regulatory affairs (Digital Europe, relations with European Commission, …). - Grew department from 3 to 12 persons to cater for these activities.

- Participated and actively contributed to 3GPP SA1 (11/08 – 11/11), SA2 (10/05 – 08/11) , SA and ETSI TC SCP groups on issues including IMS / CS Interworking (VCC / SRVCC, VoLTE, T-ADS, ICS), Local IP Access & Selected IP Traffic Offload (LIPA-SIPTO), MOSAP, M2M/MTC, Embedded / 4FF UICC.
- Drafted and filed communication technology related patents related to 3GPP SA2 and CT1 technologies – 18 filed, mainly IMS and 3GPP NAS related
- Supported Samsung IP team with analysis of Samsung and 3rd party communication technology related patents and claim charts including GSM/GPRS, UTRAN, NAS, and IMS patents
- Chaired SERI Patent Committee from 2007-2009 - SERI achieved patent targets for first time in 2007 and did so in every year following

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

(Whilst studying fulltime for MSC)

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

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

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

Key Tasks:

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

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

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

Key Tasks:

- Devised and implemented revised strategy to improve the focus of activities and provide improved support for software developers from a system perspective.
- Attended 3GPP TSG SA plenary and occasional SA WG1 meetings - acted as rapporteur for 3GPP Evolution technical report 3GPP TR 21.902.

- Analysed 3rd party GSM/GPRS technology related patents and claim charts on request by Samsung IP team and reported on their value and standards essentiality.
- Line managed 3 engineers, ensuring that the group provided expert support for SERI SW and HW developers in terms of standards interpretation and system requirements, particularly with respect to the Radio Access Network.

Project Manager 04/00 – 04/02

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

Key tasks:

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

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

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

Key Tasks:

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

Radiocommunications Agency 06/93 -11/96

HPTO Spectrum Engineer

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

BBC Radio 11/89 – 05/93

Radio Operations Engineer

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

Education

1. MSC in Computer Science from the University of Kent

   Awarded (with distinction): 07/2006

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

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

   Awarded: 07/1989

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

Appendix 2

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THIRD GENERATION PARTNERSHIP PROJECT (3GPP)

PARTNERSHIP PROJECT DESCRIPTION

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

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Preamble

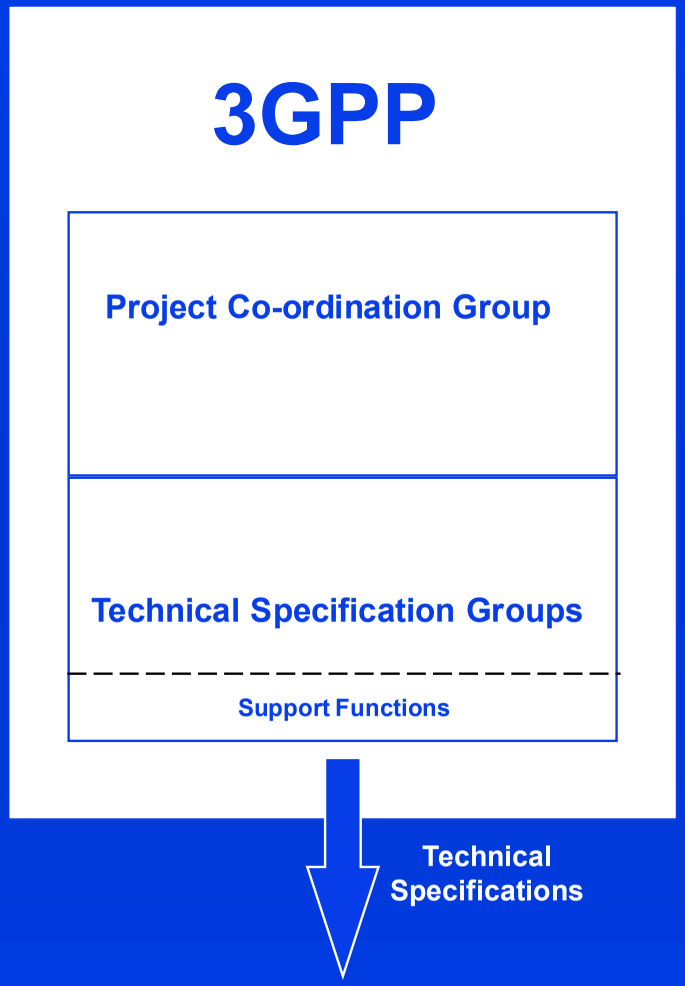
Standards organizations and other related bodies have agreed to co-operate for the production of a complete set of globally applicable Technical Specifications for a 3rd Generation Mobile System based on the evolved GSM core networks and the radio access technologies supported by 3GPP partners (i.e.,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

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

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

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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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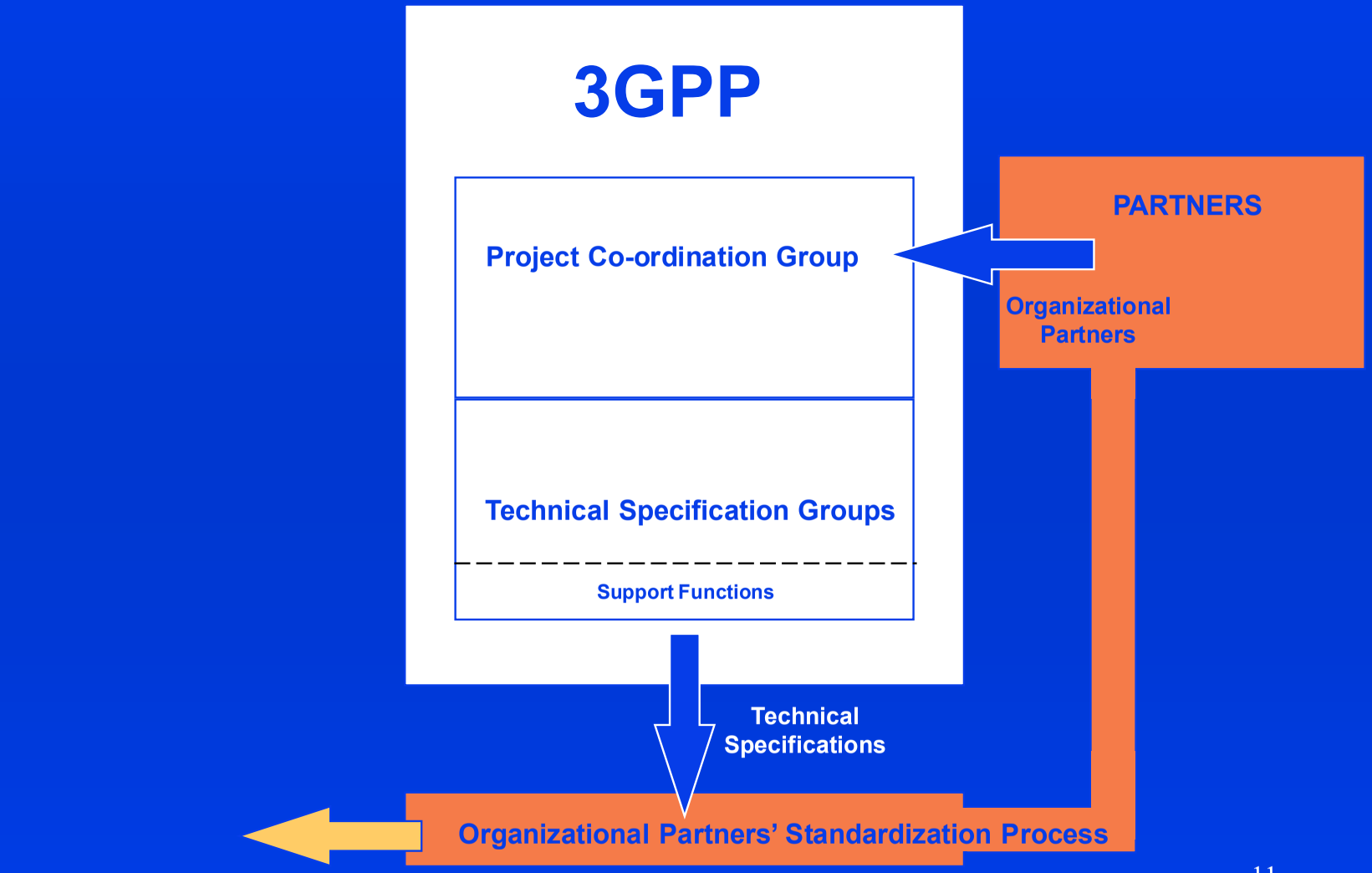
Partnership and Membership

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)

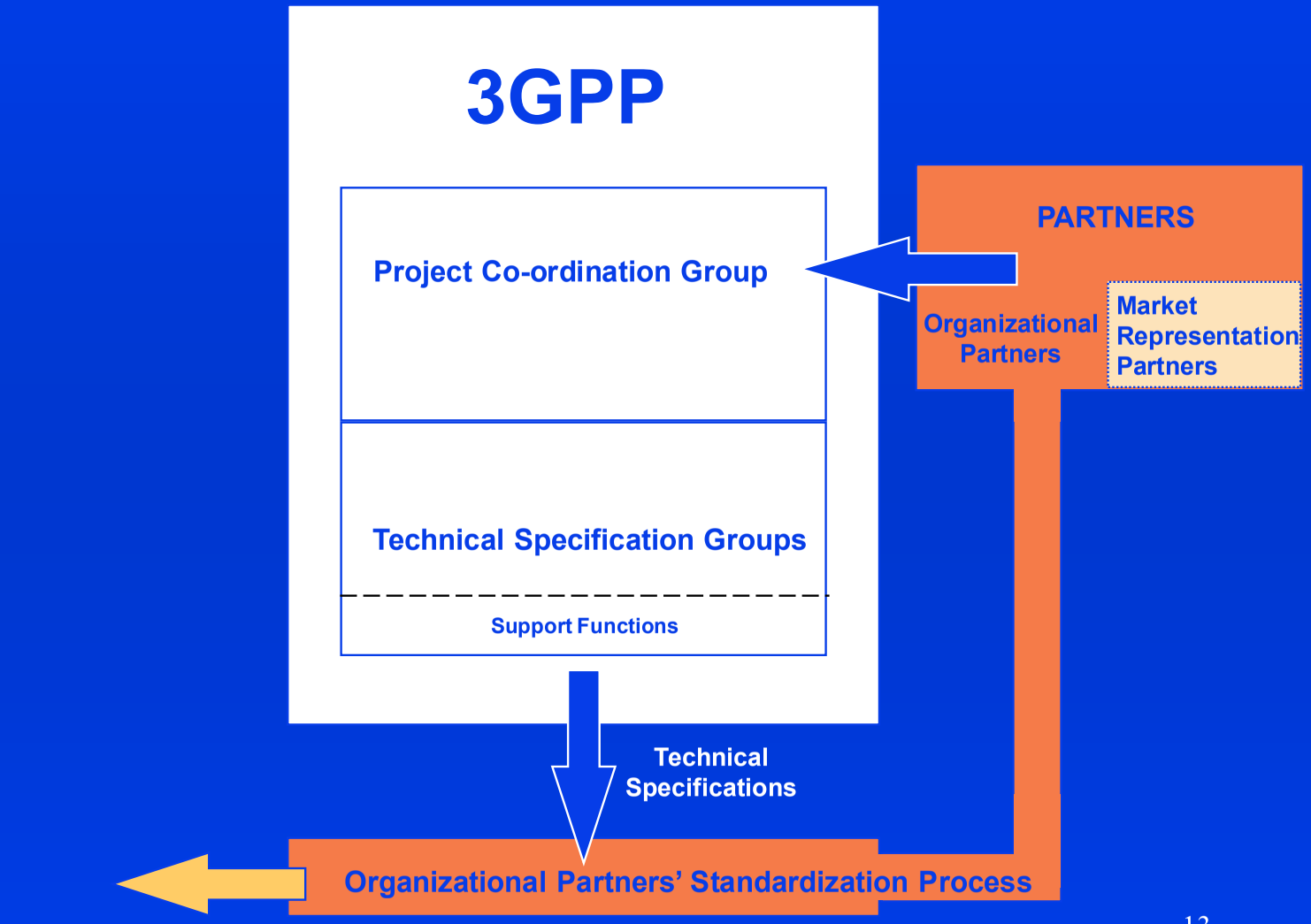
that:

- **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.

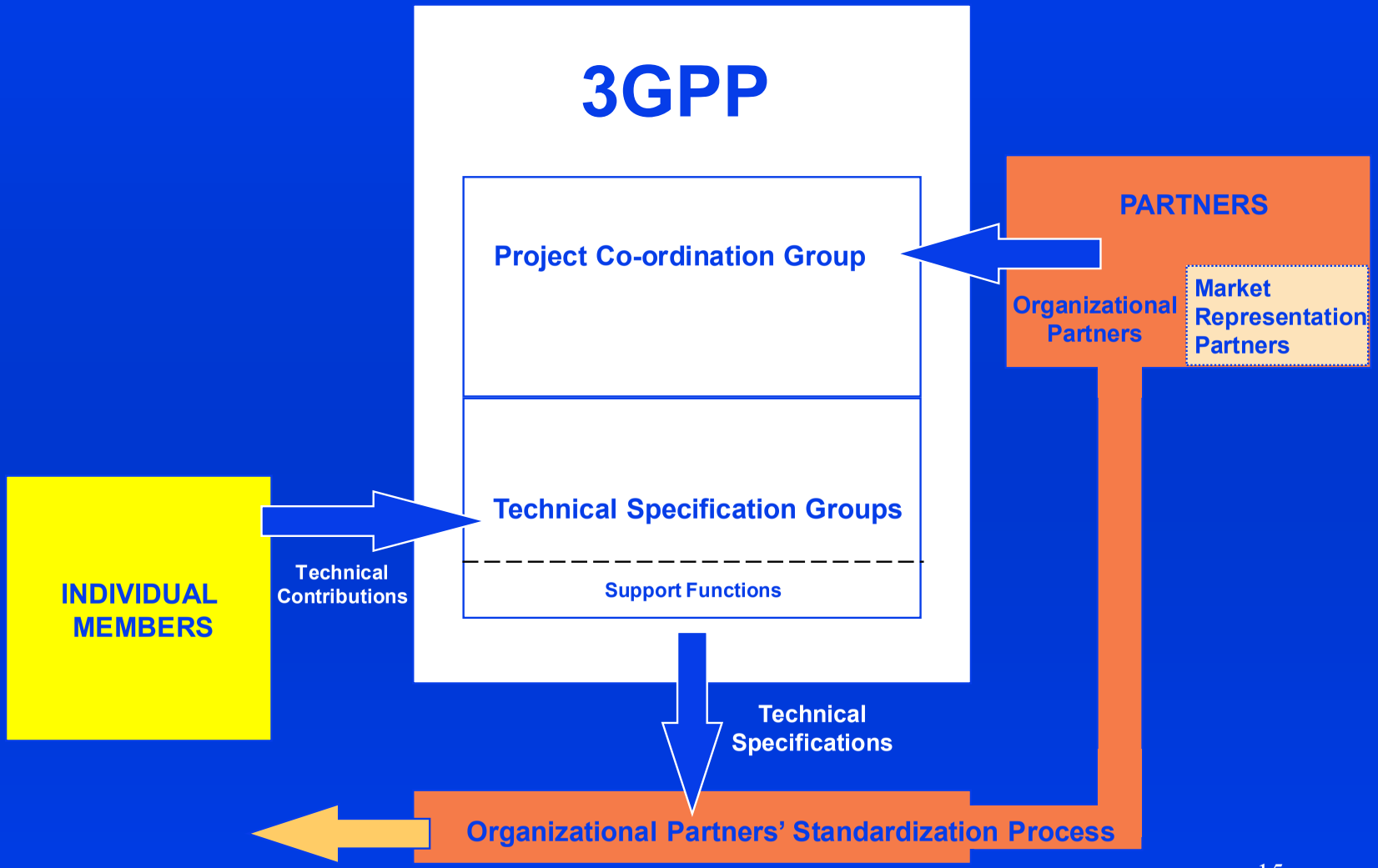
A Market Representation Partner is an organization invited to participate by the Organizational Partners to offer market advice to 3GPP and to bring into 3GPP a consensus view of market requirements (e.g. services, features and functionality) falling within the 3GPP scope.

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**

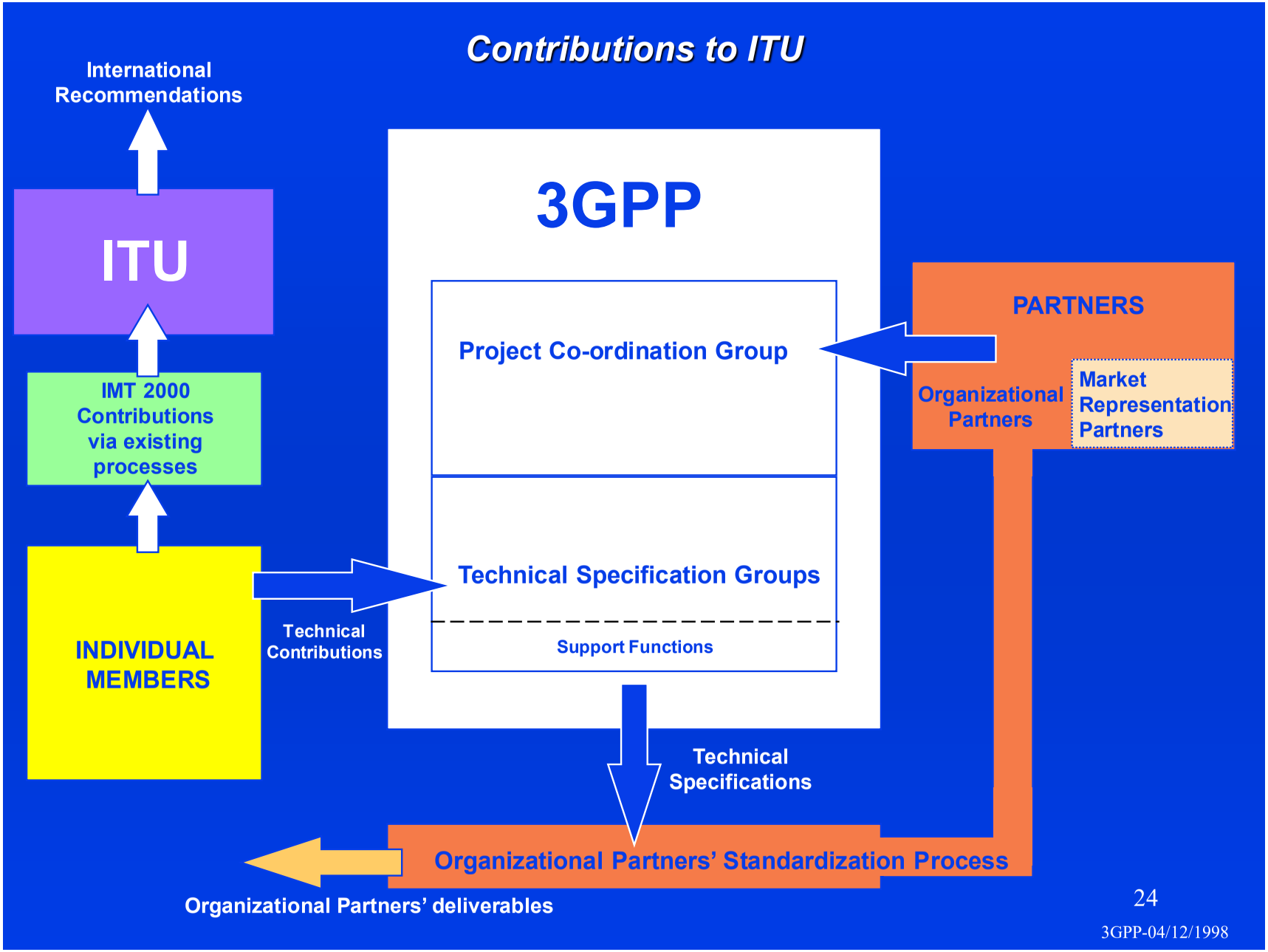
The Market Representation Partners should also encourage their members to contribute to the common objectives of 3GPP and to avoid duplication of work.

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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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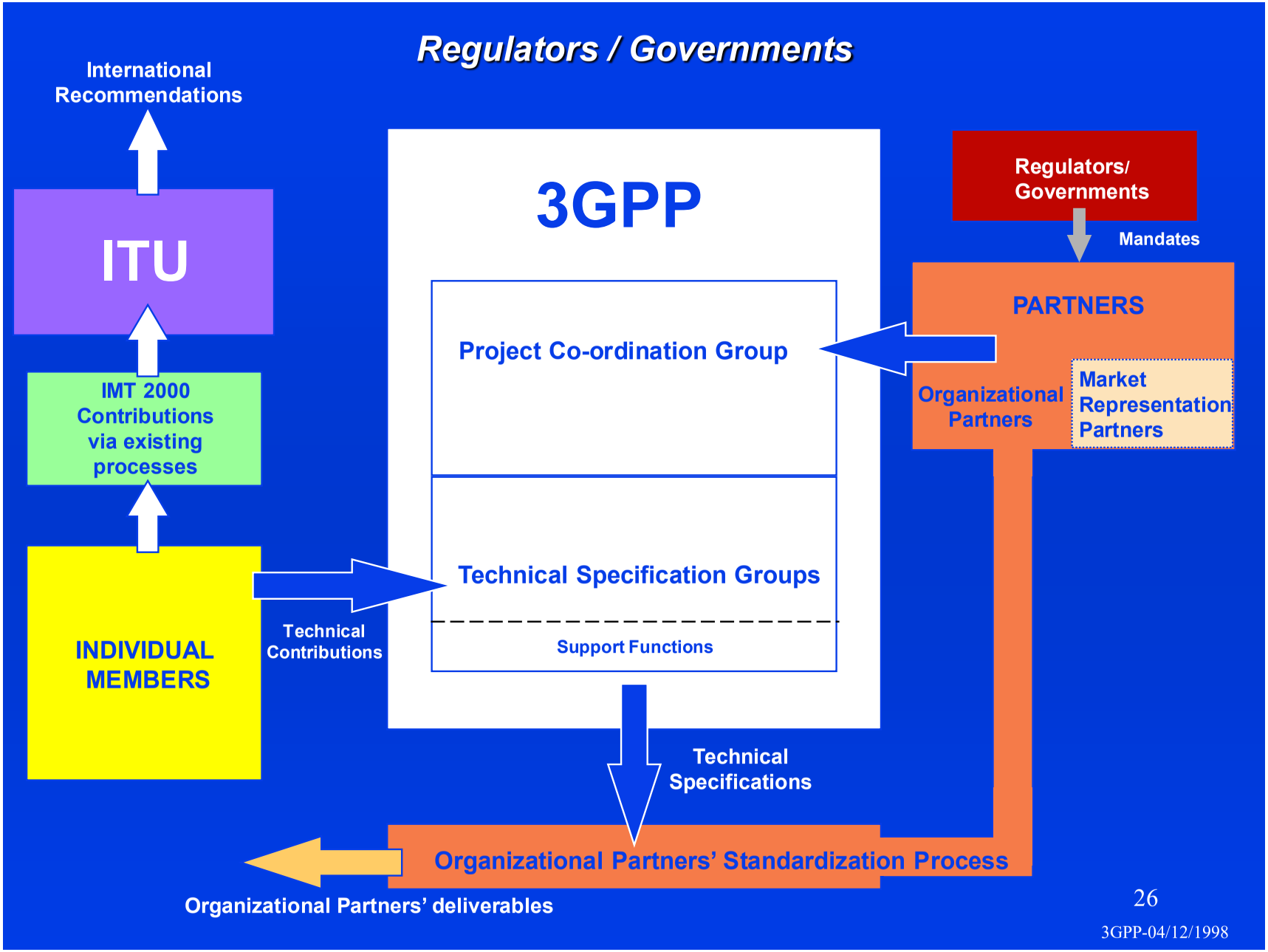
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Submission of 3GPP results to ITU

3GPP will not contribute directly to the ITU.

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

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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

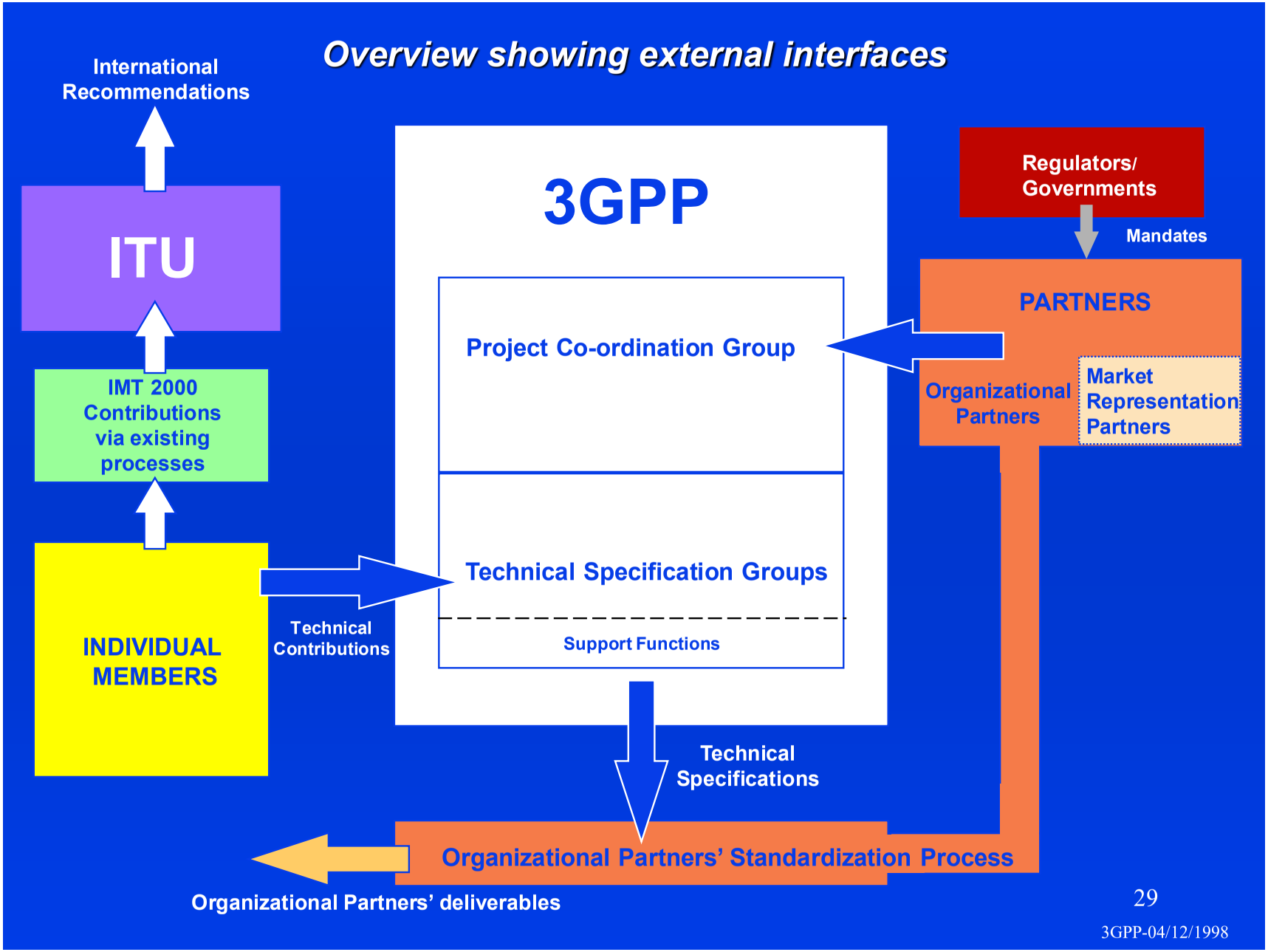
ETSI will absorb the initial cost of establishing the 3GPP, if required.

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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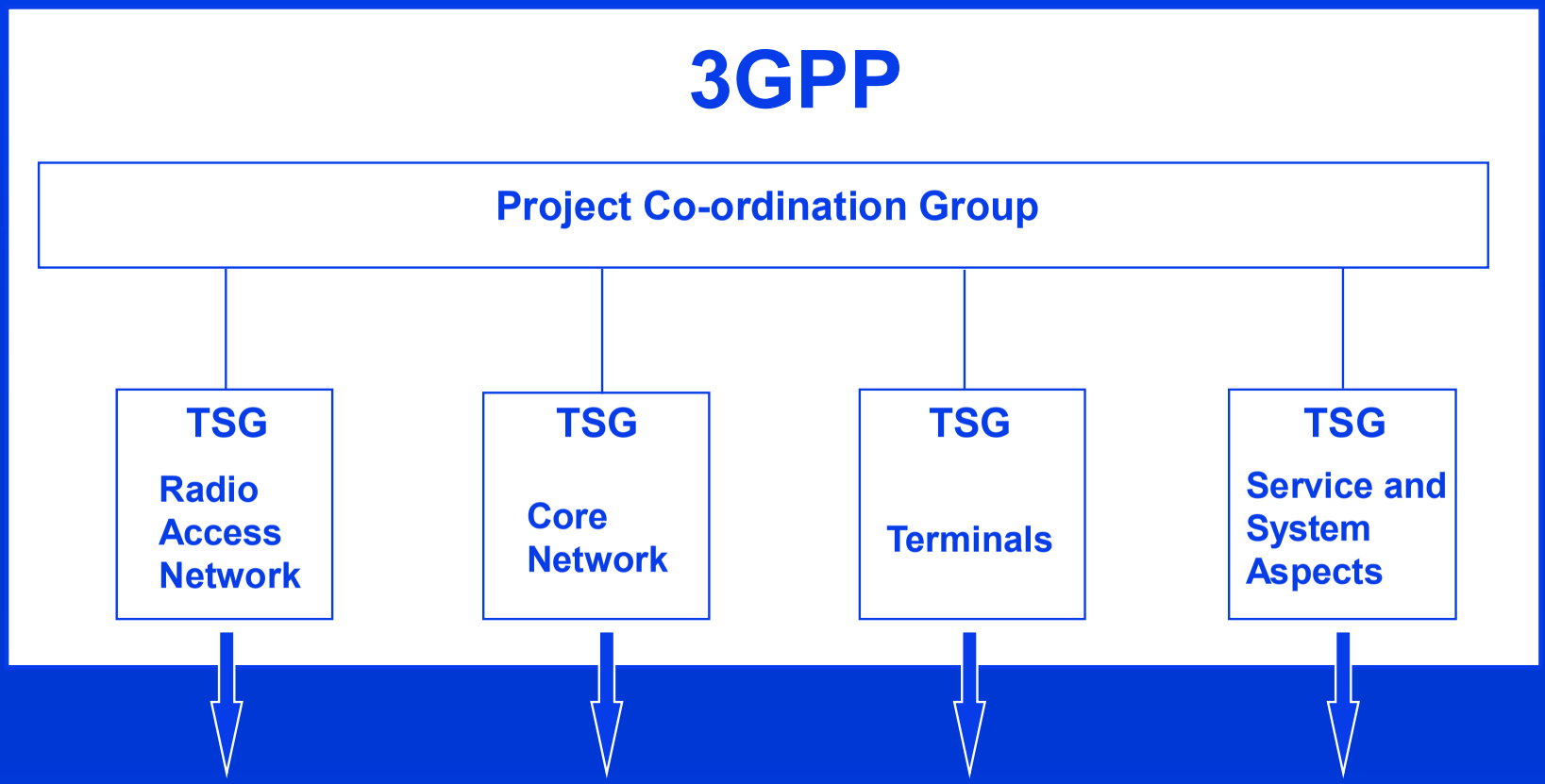
Internal structure of 3GPP (1)

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

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

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Internal structure of 3GPP (2)



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Work areas to be covered by the Radio Access Network TSG

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

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Work areas to be covered by the Core Network TSG

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

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Work areas to be covered by the Terminal TSG

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

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

- **Service capabilities**
  - **Definition of services and feature requirements**
  - **Development of service capabilities and a service architecture for cellular, fixed (and cordless) applications**
- **Stage one and two descriptions for:**
  - **Charging and accounting**
  - **Network Management**
  - **Security Aspects**
- **Architecture**
  - **Definition, evolution, and maintenance of overall architecture, including assignment of functions to particular sub-systems and identification of key information flows**
  - **In co-operation with other TSGs, define required services, service capabilities and bearer capabilities offered by the different sub-systems**
- **Codec aspects**
  - **Principles for definition of end-to-end transmission**
  - **Definition, evolution and maintenance of relevant specifications**
- **Project co-ordination**
  - **High level co-ordination of the work performed in other TSGs and monitoring of progress**

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Primary responsibilities of PCG and TSGs (1)

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

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

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Primary responsibilities of PCG and TSGs (2)

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

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Primary responsibilities of PCG and TSGs (3)

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

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Primary responsibilities of PCG and TSGs (4)

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

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Primary responsibilities of PCG and TSGs (5)

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

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Participation rights in PCG and TSGs

The following have a right to participate in the PCG:

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

The following have a right to participate in the TSGs :

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

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Principles for decision making within 3GPP

Decision making within PCGs

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

Decision making within TSGs

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

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

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

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Principles for voting within TSGs

The following principles will be applied for voting within the TSGs

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

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Working language for 3GPP

The working language for 3GPP shall be English

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

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Relationship with other groups

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

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Intellectual Property Rights (IPR) Principles (1)

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

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

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

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Intellectual Property Rights (IPR) Principles (2)

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

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

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

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

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Appendix 3

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 (see table below). With LTE and 5G work, 3GPP has become the focal point for the vast majority of mobile systems beyond 3G.

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

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

Backward Compatibility

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

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

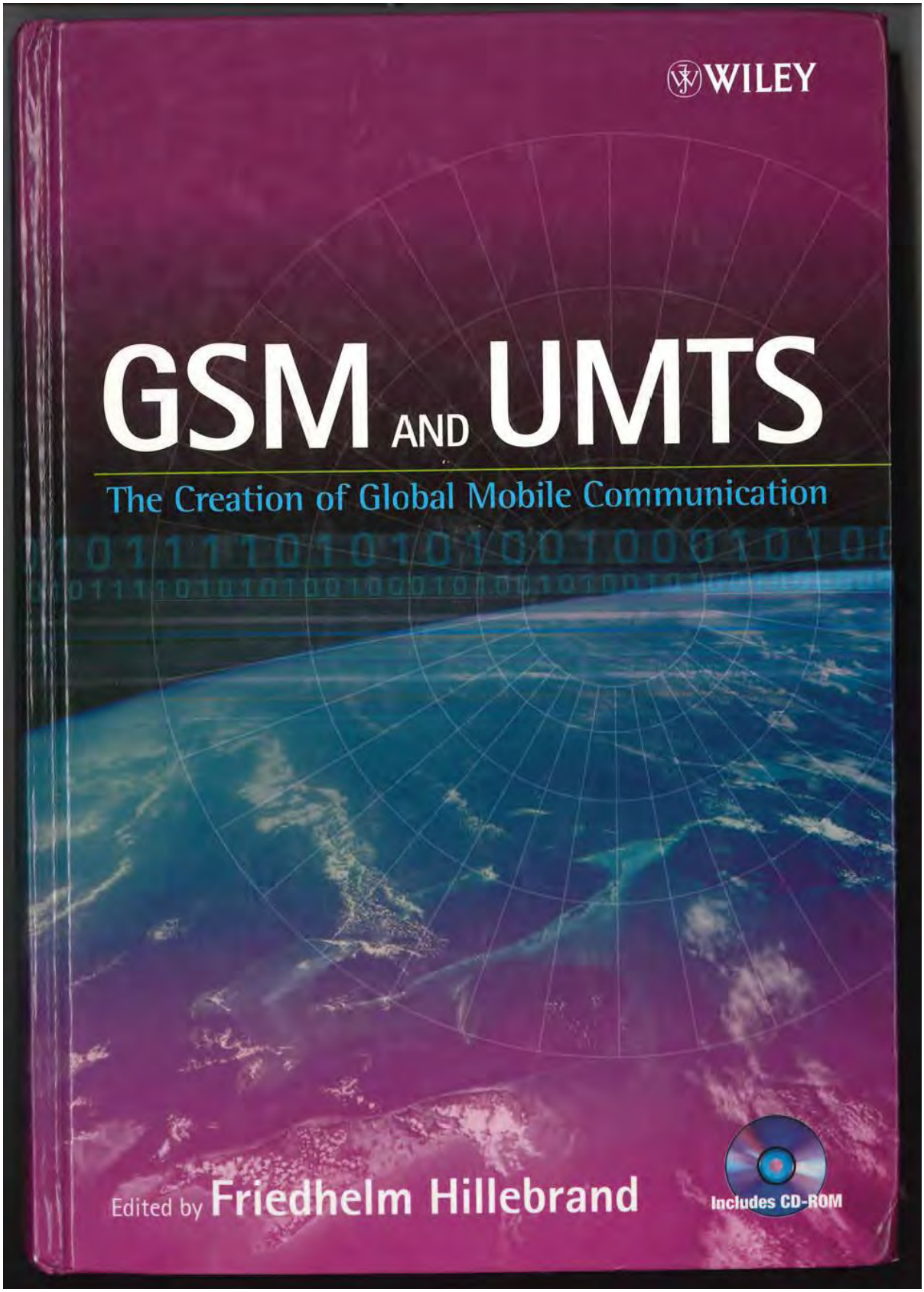
For details of the contents of each Release, see the appropriate 'Release Description' document or go to our dedicated Release page.

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

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GSM and UMTS

The Creation of Global Mobile Communication

Edited by

Friedhelm Hillebrand
Consulting Engineer, Germany

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



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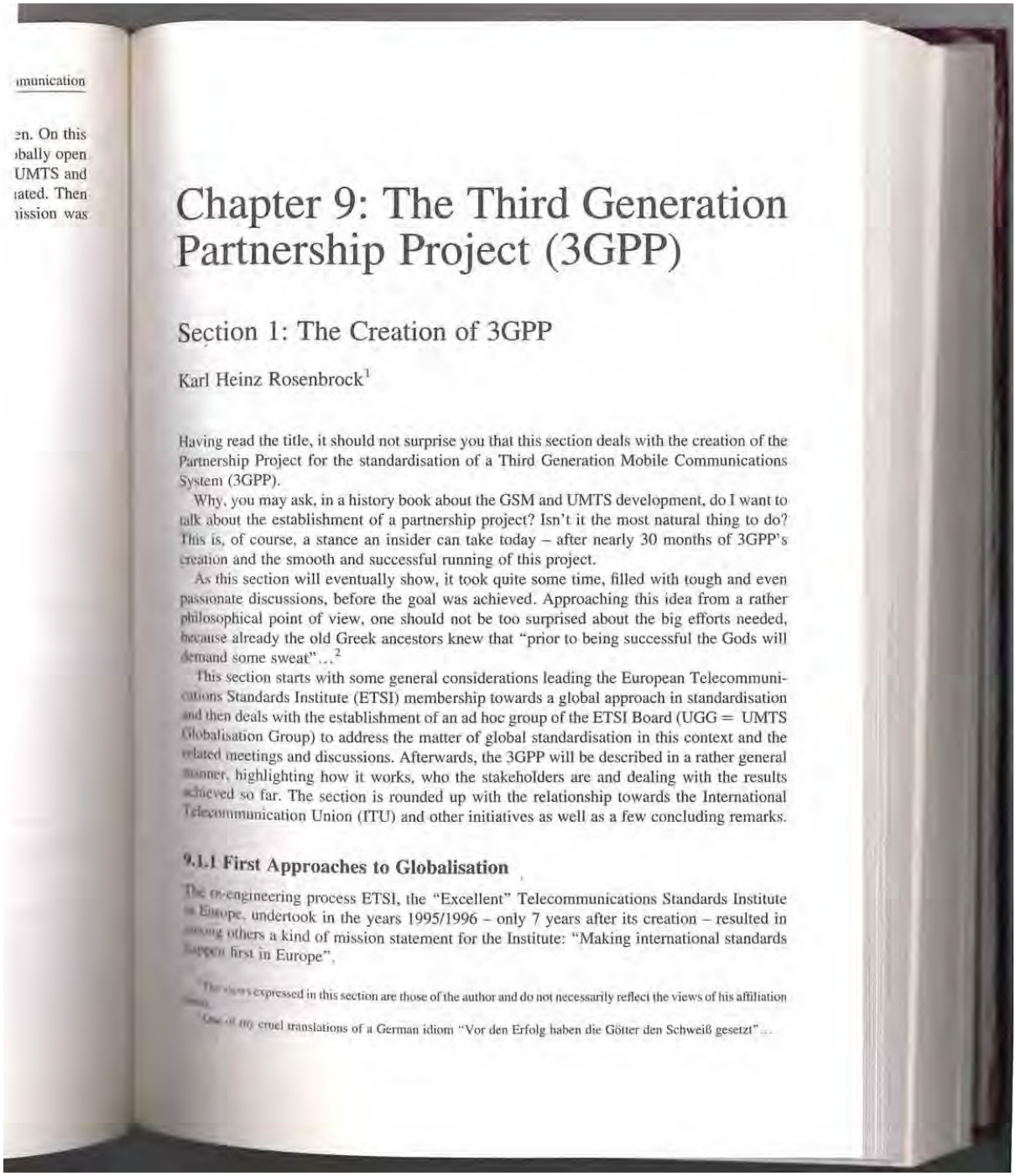
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Chapter 9: The Third Generation Partnership Project (3GPP)

Section 1: The Creation of 3GPP

Karl Heinz Rosenbrock[1]

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

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

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

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

9.1.1 First Approaches to Globalisation

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

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

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

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

9.1.2.4.14 Happy End in Copenhagen

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

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

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

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

9.1.3 What is 3GPP?

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

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

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

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

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

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

9.1.3.1 How Does 3GPP Work?

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

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

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

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

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

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

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

9.1.3.1.1 Electronic Working

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

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

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

9.1.3.1.2 Project Support

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

9.1.3.2 Who are the Stakeholders in 3GPP?

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

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

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

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

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

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

9.1.6 Conclusions

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Niels Peter Skov Andersen[1]

9.2.1 A Change of Environment

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

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

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

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

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

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

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

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

9.2.2 The First Two TSG Meetings

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

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

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Annex 2: Organisation Evolution of the Technical Groups

Section 3: 3GPP

Adrian Scrase[1]

A2.3.1 December 1998 to Mid-1999

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

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

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

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

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

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

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Appendix 5



Third Generation Partnership Project

3GPP

Working Procedures

31 December 2014

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Foreword

These Working Procedures of the Third Generation Partnership Project (3GPP) are effective from 31 December 2014.

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

http://www.3gpp.org

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SECTION A: GENERAL

Article 1: Description

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

ARIB (Japan)

CCSA (China)

ETSI (Europe)

ATIS (US)

TTA (Korea)

TTC (Japan)

TSDSI (India)

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

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Article 2: Purpose

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

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

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

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Article 3: Scope and objectives

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

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

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

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

3GPP shall consider the long term evolution.

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

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

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

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

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

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

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SECTION B: PARTICIPATION

Article 4: Categories

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

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

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Article 5: Partnership

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

- Organizational Partners;
- Market Representation Partners.

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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.

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Article 7: Market Representation Partnership

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

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

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

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

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Article 8: Individual Membership

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

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

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

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

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

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Article 9: Termination of Individual Membership

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

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Article 10: Observers and Guests

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

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

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

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

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

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SECTION C: STRUCTURE

Article 11: Structure of 3GPP

3GPP shall consist 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.

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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;
- conduct compliance training at least annually for elected leadership, relevant Support Team personnel and interested parties on best practices to follow to
  - avoid issues with respect to antitrust/competition laws and regulations;
  - fulfil his or her leadership or support role with impartiality and in the interests of 3GPP.

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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.

top

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.

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Article 15: PCG participation

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

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

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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.

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Article 17: PCG Chairman and Vice 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 their leadership role, the Chairman and Vice Chairmen shall maintain impartiality and act in the interests of 3GPP.

At the commencement of each meeting of the PCG, the group shall be reminded that:

(i) compliance with all applicable antitrust and competition laws is required; and

(ii) the leadership will conduct the meeting with impartiality and in the interests of 3GPP.

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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.

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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.

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SECTION F: TECHNICAL SPECIFICATION GROUPS

Article 20: TSG tasks

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

The TSGs shall also perform the following tasks:

- Propose to the PCG for appointment TSG Chairman and Vice Chairmen based on election results;
- Creation of TSG Working Groups and approval of their terms of reference;
- When a new Working Group is created, the appointment of TSG Working Group Convenor;

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

top

Article 21: TSG participation

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

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

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

22.1 TSG elections

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

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

A candidate for election to a TSG Chairman or Vice Chairman position shall provide a letter of support from the Individual Member that he/she represents. The support letter from the Individual Member shall indicate that the candidate will be trained to comply with all applicable antitrust/competition laws and regulations while acting in his or her capacity as TSG Chairman or Vice Chairman.

Nominations may be made up to the point when an election takes place.

The Chairman and the Vice Chairmen shall be elected for a two year term of office. The Chairman and Vice Chairmen may offer themselves for election for a second consecutive term. The term "consecutive" is taken to mean terms one after the other without another person being elected to the position in the interim. Exceptionally, they may offer themselves for further consecutive terms, subject to the following:

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

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

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

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

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

If a Chairman or Vice Chairman changes the Individual Member that he/she represents (e.g., job change, merger or acquisition) during his/her term of office, a new letter of support shall be provided. In order to provide a new letter of support, a Chairman or Vice Chairman may request a grace period allowing their term to be extended the lesser of 6 weeks or until the day before the next scheduled regular term (e.g., every 2 years) election. Although the term is extended, under the rules of article 22, the chair or vice-chair can only chair meetings when representing an Individual Member. This rule continues to apply during the grace period. If the change of company affiliation is due to a move to another company, then the decision for the Chairman or Vice Chairman to continue in office to the end of the present term shall be made by consensus of the TSG. If consensus cannot be achieved, a special election shall be held for the office. The incumbent Chairman or Vice Chairman is permitted to offer their candidacy in a special election even if they have held the position for 2 terms or more.

The term of office for a Chairman or Vice Chairman elected at a special election is a partial term lasting until the end of the current term. If a new Chairman or Vice Chairman is elected at a special election then the partial term of office does not count towards the two consecutive term limit. If the previous Chairman or Vice Chairman is re-elected at a special election then the entire term (of two parts) is considered as a single term and does count towards the two consecutive term limit.

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

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

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

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

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22.2 WG elections

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

Each WG shall elect a maximum of two Vice Chairmen.

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

WG Chairmen and Vice Chairmen are always elected for a period of two years (and not, as is the case with special elections in TSGs, for the unexpired period of the present term of office). An exception to this is where the previous Chairman or Vice Chairman is re-elected in the special election. In this case the Chairman or Vice Chairman continues for the unexpired period of the present term of office.

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

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

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

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Article 23: TSG and WG Chairman and Vice Chairman responsibilities

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

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

The Chairman may nominate officials to assist in the work.

The Chairman may delegate tasks to the Vice Chairmen.

The Chairman may be assisted by the Support Team.

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

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

In performing their leadership role, the Chairman and Vice Chairmen shall maintain impartiality and act in the interests of 3GPP.

At the commencement of each meeting of a TSG or WG, the group shall be reminded that:

(i) compliance with all applicable antitrust and competition laws is required;

(ii) timely submissions of work items in advance of TSG or WG meetings are important to allow for full and fair consideration of such matters; and

(iii) the leadership will conduct the meeting with impartiality and in the interests of 3GPP.

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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.

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Article 25: TSG and WG decision making

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

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

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

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

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

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Article 26: TSG and WG voting during a meeting

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

- before voting, a clear definition of the issues shall be provided by the Chairman;
- Voting Members shall only be entitled to one vote;

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

For the determination of the quorum, see annex H.

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Article 27: TSG or WG voting by correspondence

The following procedures apply for voting by correspondence:

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

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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.

top

Article 29: TSG or WG 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.

If an Individual Member in a TSG or WG believes that a Chairman or Vice Chairman of any such group is acting without impartiality and not in the interests of 3GPP, such Individual Member may object to such actions within the relevant group, and may request that such objection be recorded in the minutes of the applicable group meeting and it shall be so recorded. The objecting Individual Member may ultimately take its objection to the PCG for consideration. In such cases the Individual Member shall also inform the relevant TSG or WG Chairman.

top

Article 30: TSG and WG meetings

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

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

Further information on meetings is given in annex F.

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Article 31: TSG and WG meeting invitation

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

top

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).

top

Article 33: TSG and WG meeting registration

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

top

Article 34: TSG and WG meeting document and file naming

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

xminnzzzz

This numbering system has six logical elements:

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

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

   N (Core Network) [TSG closed March 2005]

   S (Service and System Aspects)

   T (Terminals) [TSG closed March 2005]

   G (GSM/EDGE Radio Access Network)

   C (Core network and Terminals)

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

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

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

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

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

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

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Article 35: TSG and WG Voting Membership List

35.1 Voting list

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

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

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

For the determination of the quorum, see annex H.

top

35.2 On creation of new TSG or WG

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

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

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

top

35.3 Established TSGs and WGs

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

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

top

35.4 Removal from and reinstatement to voting list

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

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

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

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

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

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

top

35.5 Meetings other than ordinary meetings

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

For the determination of the quorum, see annex H.

top

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.

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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.

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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.

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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.

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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.

top

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 six months, e.g. due to a lack of contribution. In such cases, the Work Item shall be flagged as "stopped" in the Work Programme. The proposal to stop a Work Item shall be fully justified.

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

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

top

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.

top

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.

top

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.

top

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.

top

Article 46: Copyright and ownership

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

top

Article 47: Conversion by Organizational Partners

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

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

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

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SECTION I: REPORTING

Article 48: Chairman’s reporting obligations

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

top

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.

top

Article 50: Calendar of meetings

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

top

SECTION J: EXTERNAL RELATIONS

Article 51: Relationship with the ITU

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

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

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

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

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

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

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

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

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

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

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

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

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

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

top

Article 52: Relations with other groups

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

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

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

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

Relations with the ITU are described in Article 51.

top

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.

top

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.

top

Article 55: Intellectual Property Rights (IPR) Policy

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

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

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

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

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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).

top

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.

top

Article 58: Review of activities

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

top

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.

top

Article 59A: Exhaustion of appeal procedures

In connection with any claim or dispute of an Individual Member arising from or relating to any activity of any 3GPP meeting or action, including in connection with a TSG or WG meeting, such Individual Member shall, prior to commencing any such legal proceeding against 3GPP, its leadership, support staff, or one or more Organizational Partners in a court, an arbitral panel or other adjudicatory body, exhaust all appeal procedures provided in the 3GPP Working Procedures. Exhaustion of appeal procedures shall be diligently expedited by both the appealing party and the appeal body.

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Article 60: Amendments to 3GPP Working Procedures

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

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Annex A: Definitions

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

Working Group: A subordinate body of a Technical Specification Group.

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Annex B: Abbreviations

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

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Annex C: Individual member application form

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

COMPANY NAME .....

Please indicate below which ORGANIZATIONAL PARTNER you are a member of

ARIB	
CCSA	
ETSI	
ATIS	
TSDSI	
TTA	
TTC	

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

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

Upon your approval as an Individual Member of the Third Generation Partnership Project you agree that you will be bound by the Working Procedures of the Third Generation Partnership Project then in effect and as they may be amended from time to time.

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

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

Email	

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

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

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Annex D: (Void)

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Annex E: Guidance for MRP applicants

E.1 Introduction

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

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E.2 Guidance

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

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

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

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

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

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

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

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Annex F: Guidance on meeting organization

F.1 Meeting classification

TSG and WG Meetings are classified either:

- ordinary; or
- ad hoc.

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F.2 Ordinary meetings

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

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

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

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F.3 Ad hoc meetings

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

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

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

No voting shall occur at ad hoc meetings.

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F.4 Attendance register

F.4.1 Face to face meetings

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

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

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F.4.2 Electronic meetings

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

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

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

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Annex G: Working agreements

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

The working agreement process has the following steps:

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

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Annex H: Calculation of quorum in TSGs and WGs

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

(B – P) / V >= Q

Where:

B is the number of ballot papers issued;

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

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

Q is the required quorum value given in article 26.

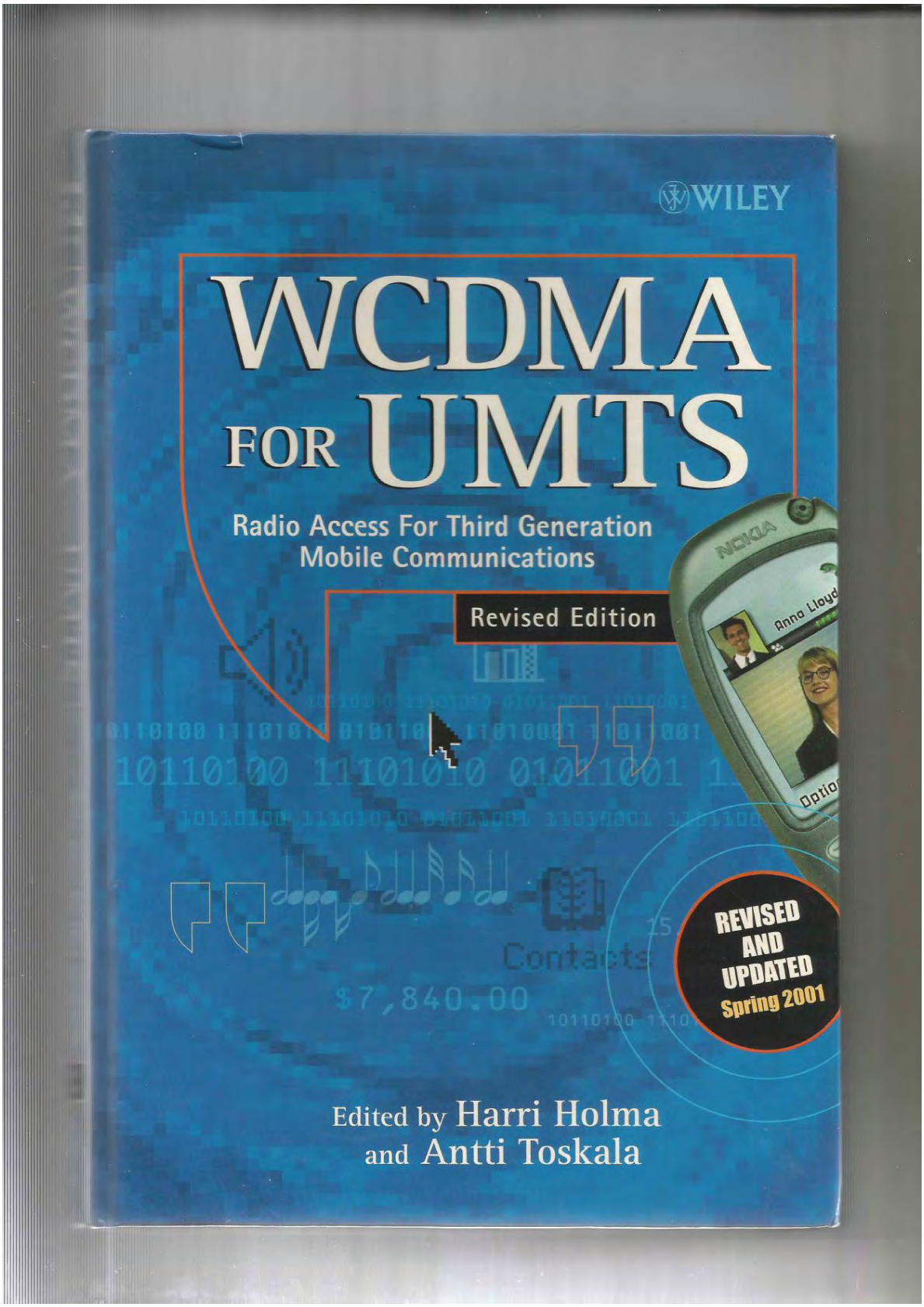
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Annex I: Change history

Date	PCG #	PCG Doc.	CR	Rev	Subject/Comment
2002-04-25	6				
2005-03-01	13				Changes agreed at PCG meeting incorporated. [No formal change control system yet in place]
2006-04-24	16	PCG16_07	2		ETSI proposal: Article 10 Clarify the rights of observers and guests
			3		ETSI proposal: Article 15 To allow leeway in the number of delegates representing each OP at PCG (To reflect the decision already taken by PCG#14 on PCG participation)
			9		ETSI proposal: Article 34 To cater for current TSG structure and to reflect common practice of Tdoc numbering
			1	1	Article 3 Reflect decision on regional options (To incorporate PCG#7 decision)
			4	1	Article 22 Clarification and codification of the rights to stand for elected positions in TSGs and WGs
			8		Article 30 & annex F Inclusion of an annex giving guidance on meeting organization
2006-10-27	17	PCG17_15 r1	10		Article 35 Clarification of voting rights
2009-05-18	22	PCG22_18	11	5	Changes resulting from the OP ad hoc group on improvements report and conclusions of OP#20. Articles affected: 22 23 31 35 41 52 Annex D plus sundry spelling corrections.
		PCG22_19	12	2	Rules on eligibility to cast votes at TSG and WG level.
		PCG22_20	13		Bring statement of purpose of 3GPP up to date
		PCG22_23	14		Adding Working Agreements to working procedures
		PCG22_30 r3	15	3	Change of ITU liaison process Note: PCG meeting #22 approved contribution PCG22_30r1 but this was subsequently revised to r3 after the meeting with the apparent approval of the PCG.
					Decision PCG22/11: clause 22.1 changed wording from "in the March time frame in" to "in the first semester of".
2009-08-12					Editorial correction to implementation of CR15r3. (article 52).
2010-04-23	24	PCG24_11	16		TSG vs WG election
		PCG24_12	17		Quorum
		PCG24_13	18		Communication with ITU
		PCG24_25	19		Attendance register for meetings
2012-10-24		PCG29_17	20		Update to 3GPP Working Procedures article 22
2014-07-22	33	PCG33_10	21		Anti-trust / competition law requirements articles 12, 17, 22.1, 23, 29, 59A, annex C
2014-12-31	34	PCG34_14	22		Anti-trust recommendations v1.1.
					Addition of TSDSI to list of OPs in annexes B and C. Minor formatting and spelling corrections, consistent capitalization.

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Appendix 6



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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

JOHN WILEY & SONS, LTD
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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 W-CDMA-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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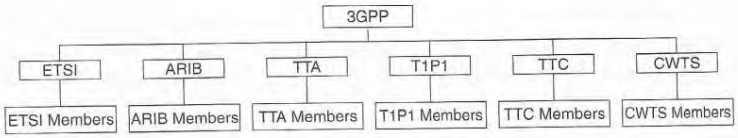


Figure 4.2. 3GPP organisational partners

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.

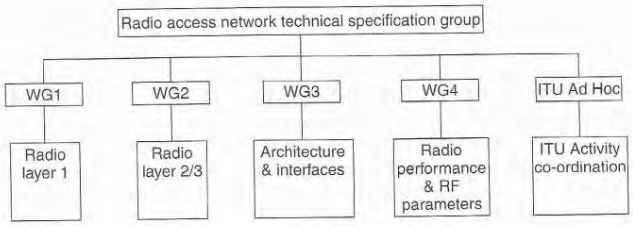


Figure 4.3. 3GPP RAN TSG working groups

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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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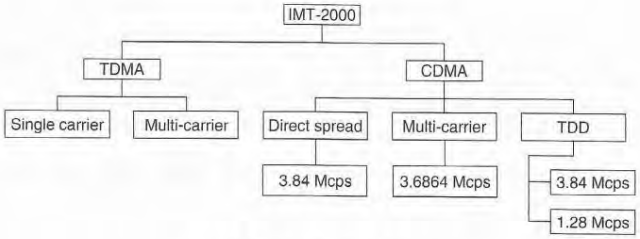


Figure 4.4. ITU-R IMT-2000 grouping

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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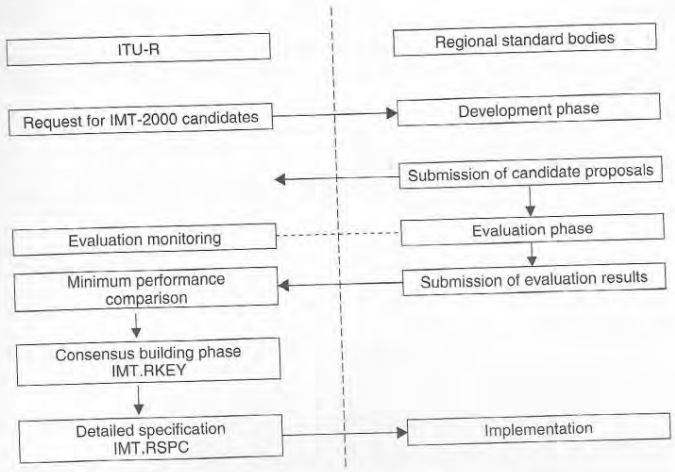


Figure 4.5. Relationship of ITU-R to the regional standards bodies

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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Appendix 7

3GPP PCG#34
Sophia Antipolis, France, 28 April 2015
PCG34_27

MCC Activity Report

Source

Adrian Scrase

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- Departures and Arrivals
- Resource Allocation
- Workload
- 3GPP Membership
- 3G Ultimate Project
- Summary and Outlook

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Departures and Arrivals

Adrian Zoicas retired from ETSI as of February 2015



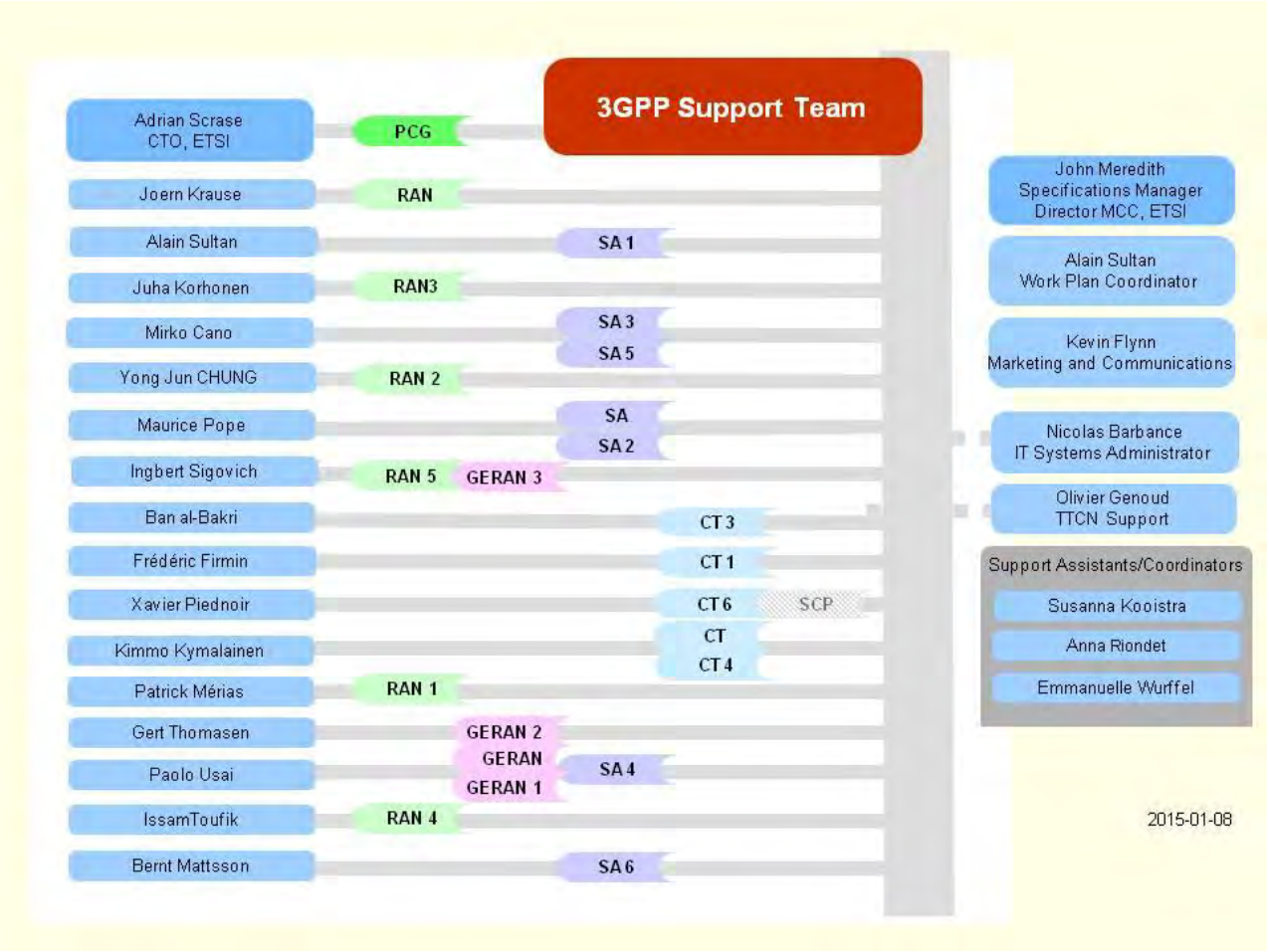
He has been temporarily replaced by Ban Al Bakri who will support CT3 until end April 2015



A more permanent solution for CT3 support is being pursued

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Current Resource Allocation



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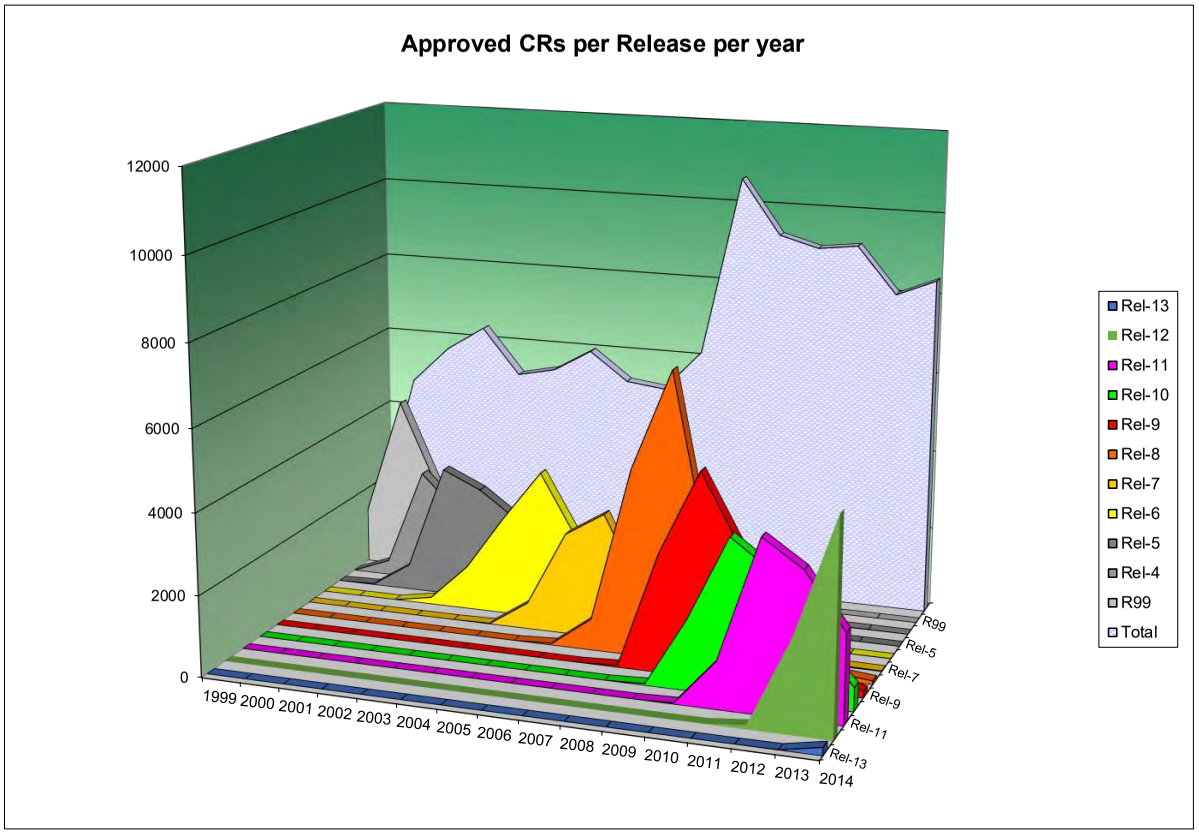
Workload

Approved CRs per Release per Year

Release	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
R99	1408	4398	2266	1004	581	512	111	42	23	5	5	1	0				**10356**
Rel-4		376	2828	1900	690	257	122	63	48	22	20	13	11	8	7	2	**6367**
Rel-5		27	644	3274	2842	2162	1357	509	94	25	22	7	7	5	3	2	**10980**
Rel-6				172	1088	2458	3721	2074	1078	212	74	19	17	10	4	4	**10931**
Rel-7					1	20	663	2529	3132	1262	492	176	91	43	25	15	**8449**
Rel-8								49	777	4609	7073	2347	706	347	184	91	**16183**
Rel-9										49	2918	4991	3252	1366	376	165	**13117**
Rel-10											47	1722	3800	3103	1636	584	**10892**
Rel-11												32	1152	4178	3525	2186	**11073**
Rel-12													6	102	2254	5181	**7543**
Rel-13															8	200	**208**
Total	**1408**	**4801**	**5738**	**6350**	**5202**	**5409**	**5974**	**5266**	**5152**	**6184**	**10651**	**9308**	**9042**	**9162**	**8022**	**8430**	**106099**

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Workload
Approved CRs per Release per Year



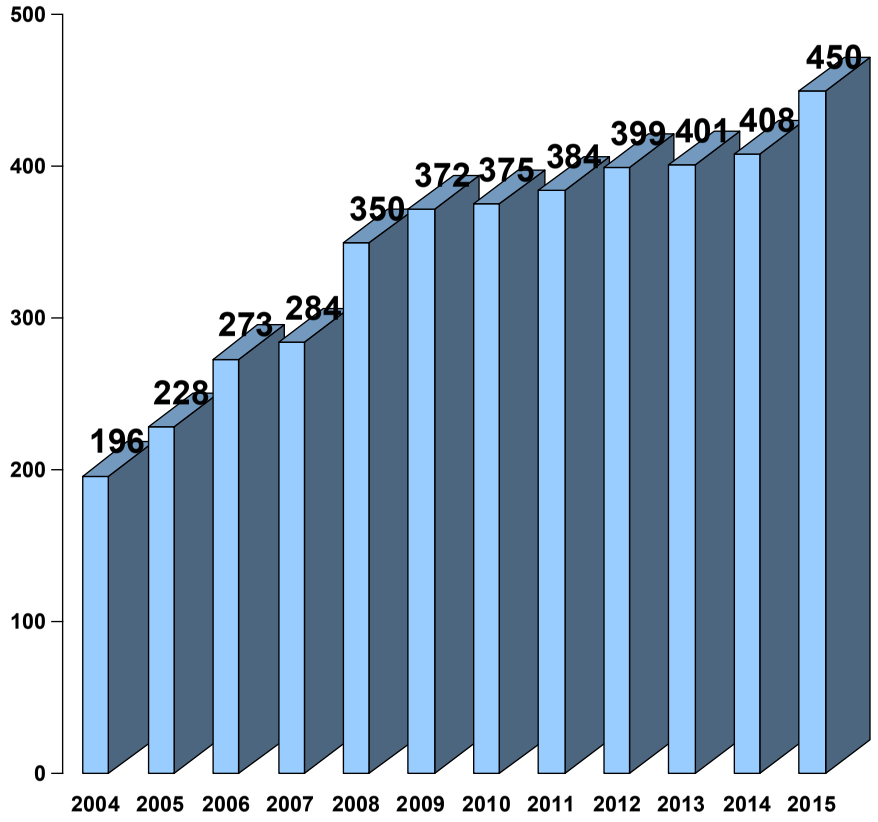
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3GPP Membership

3GPP Membership has peaked in 2015 with *450* Individual Members. In addition, there are 23 companies having Guest Status, which are potential IMs

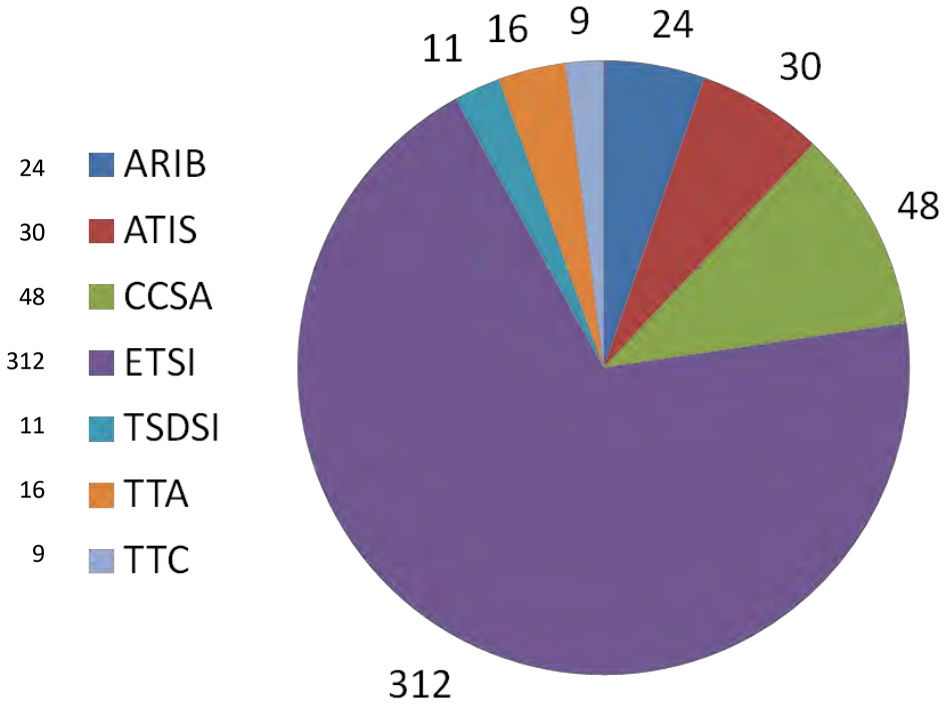
Number of Individual Members in 3GPP

3GPP Individual Members come from 41 Countries worldwide



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Individual Members in 3GPP

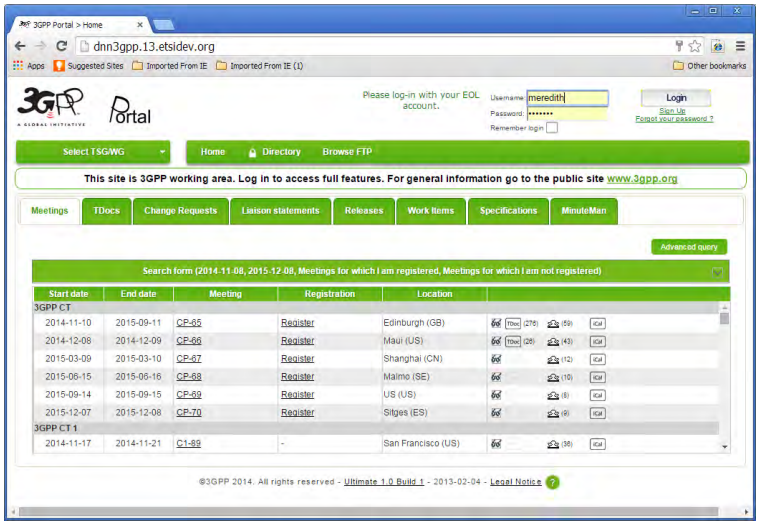


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3GPP Ultimate Project (3GU)

Data import from the old databases to the 3GPP Ultimate portal occurred in early January 2015. The 3GU database is now the master source for specs and releases. Over the coming months, 3GU will be the prime source of progressively more data. At present, the 3GPP web site http://www.3gpp.org and the 3GU portal http://portal.3gpp.org both offer information on meetings, specifications, tdocs, CRs, etc, and both should be aligned.

Several WGs (e.g., RAN1, SA1, SA6, CT3, CT4, CT6) plus CT plenary have used 3GU for TDoc number allocation, and though some bugs have been reported, the feedback from MCC secretaries and delegates alike has been generally very positive. We expect all groups to be using 3GU by 2015 Q3,



" Our experience of using 3GU tool for allocating and uploading the tdocs has been very impressive. Even dozens of tdocs were uploaded all together in just few seconds. This has saved many hours of our effort that in the past was needed for uploading tdocs via the old ADN! So this is really a big improvement in efficiency. "

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Summary and Outlook

The number of IMs within 3GPP continues to grow and the advent of 5G work is likely to add to that increase. This will change the dynamics within the project over time.

The workload within 3GPP is relatively constant although there is a slight increase in the number of physical meetings.

Discussions on the organizational structure within 3GPP continue (*cf* RAN/GERAN) and this will be monitored to ensure that support resources are always commensurate with the project structure.

Improvements in 3GPP tooling are well underway and the effectiveness of these tools will become more apparent towards the end of 2015.

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Appendix 8

The 3G IP Multimedia Subsystem (IMS)

Merging the Internet and the Cellular Worlds

Gonzalo Camarillo and Miguel A. García-Martín

Both of
Ericsson, Finland



John Wiley & Sons, Ltd

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Chapter 2

The History of the IMS Standardization

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

2.1 Relations between IMS-related Standardization Bodies

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

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

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

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

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

2.2 Internet Engineering Task Force (IETF)

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

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

2.2.1 Structure of IETF

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

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

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

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

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

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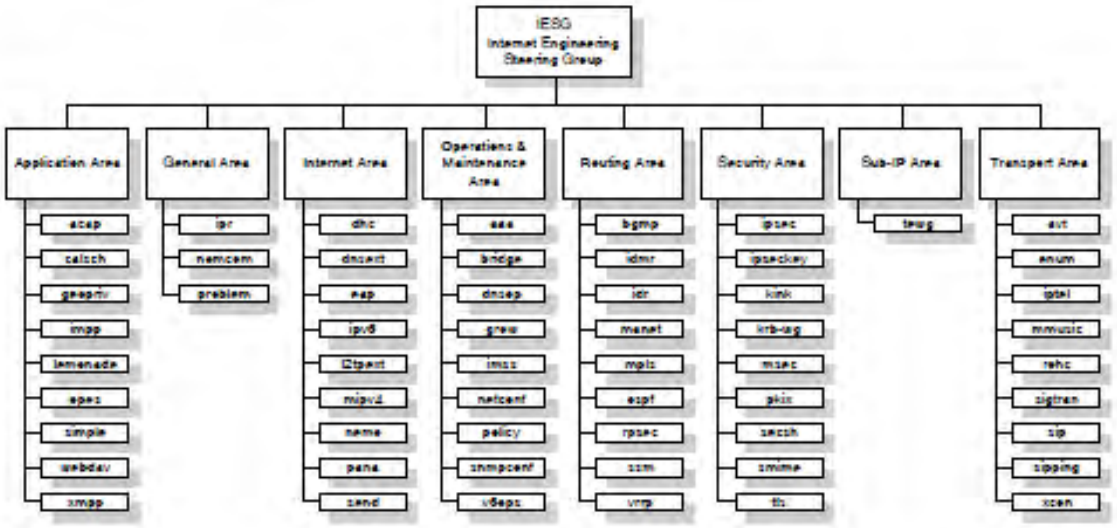


Figure 2.1: The structure of the IETF

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

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

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

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

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

2.2.2 Working Group Operations

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

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

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

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

```
draft-author's_name
```

while working group items start with:

```
draft-ietf-name_of_the_working_group
```

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

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

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

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

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

2.2.3 Types of RFCs

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

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

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

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

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

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

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

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

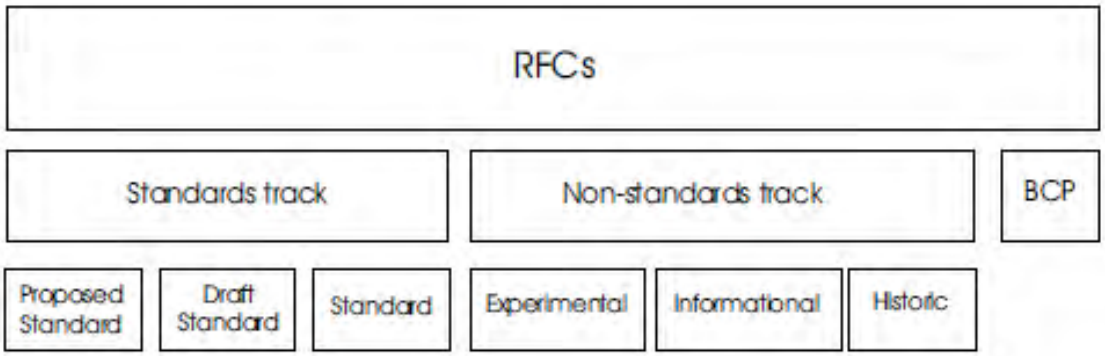


Figure 2.2: RFC types

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

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

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

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

2.3 Third Generation Partnership Project (3GPP)

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

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

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

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

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

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

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

4. Committee T1 in the United States of America,

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

5. TTA (Telecommunications Technology Association) of Korea

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

6. TTC (Telecommunication Technology Committee) in Japan,

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

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

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

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

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

2.3.1 3GPP Structure

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

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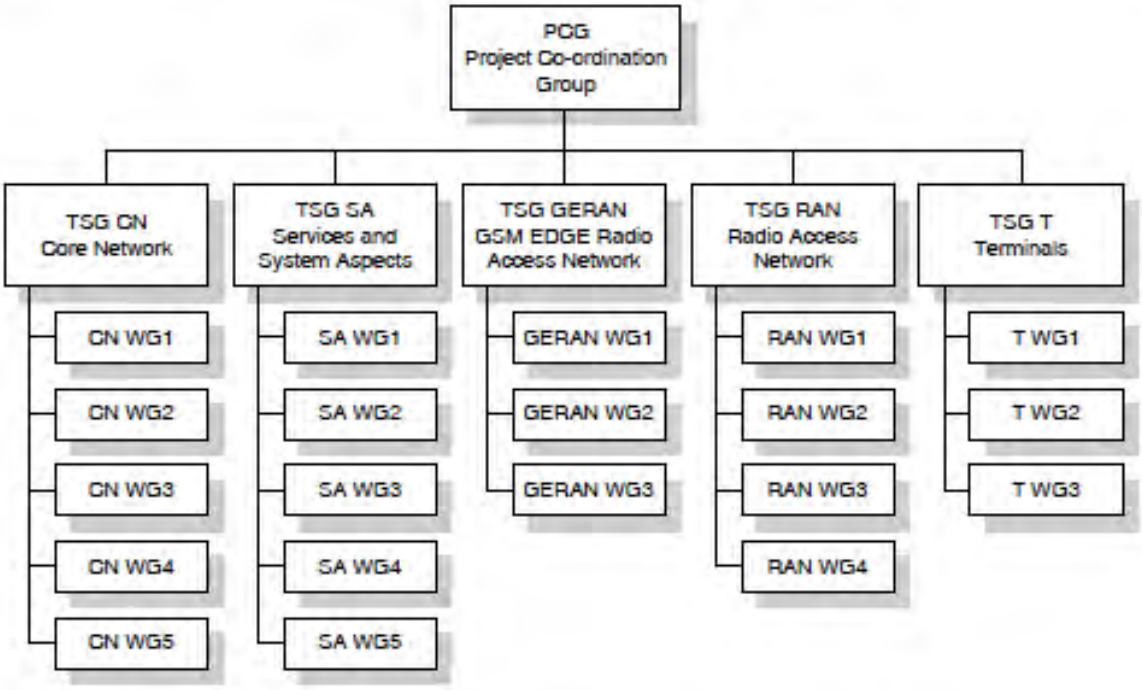


Figure 2.3: The structure of 3GPP

2.3.2 3GPP Deliverables

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

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

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

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

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

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

2.4 Third Generation Partnership Project 2 (3GPP2)

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

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

2.4.1 3GPP2 Structure

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

2.4.2 3GPP2 Deliverables

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

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

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Appendix 9

3GPP MEMBERSHIP

2024-07-15 Version 1.1

New Query

Selected categories:

- **Individual Members (all partners)**

Choose csv separator : , export to csv file

INDIVIDUAL MEMBERS

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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(SDI Squared LLC)		
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
Skyworks Solutions Inc. **(Skyworks Solutions Inc.)**	UNITED STATES	ETSI
Smart Internet Lab **(Smart Internet Lab, University of Bristol)**	UNITED KINGDOM	ETSI
SmarterMicro Inc. **(Smarter Microelectronics(Guangzhou) Co.,Ltd)**	CHINA	CCSA
SnT - University of Luxembourg **(Interdisciplinary Centre for Security, Reliability and Trust/University of Luxembourg)**	LUXEMBOURG	ETSI
SoftBank Corp. **(SoftBank Corp.)**	JAPAN	ARIB
Softel Systems	AUSTRALIA	ETSI

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

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

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(Tongji University)		
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
u-blox AG **(u-blox AG)**	SWITZERLAND	ETSI
UESTC **(University of Electronic Science and Technology of China)**	CHINA	CCSA
UL VS Ltd **(UL VS Ltd)**	UNITED KINGDOM	ETSI
UMA **(Universidad de Malaga)**	SPAIN	ETSI
umlaut **(umlaut communications GmbH)**	GERMANY	ETSI
UNIBO **(ALMA MATER STUDIORUM Università di Bologna)**	ITALY	ETSI
UniBw M **(University of the Bundeswehr Munich)**	GERMANY	ETSI
Unicom Broadband Online **(Unicom Broadband Online Co., Ltd.)**	CHINA	CCSA
Unicompay **(Unicompay Co., Ltd.)**	CHINA	CCSA
Union Inter. Chemins de Fer **(Union Internationale des Chemins de Fer)**	FRANCE	ETSI
Union Telephone Company **(Union Telephone Company)**	UNITED STATES	ATIS
Unisoc **(Unisoc (Shanghai) Technologies Co., Ltd.)**	CHINA	CCSA
Unisoc Beijing **(Beijing Unisoc Communications Technology Co., Ltd.)**	CHINA	CCSA
UPV/EHU	SPAIN	ETSI

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(Universidad del País Vasco/Euskal Herriko Unibertsitatea)		
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 Software Technology **(vivo Software Technology (Xi'an) Co., Ltd.)**	CHINA	CCSA
VIVO TECH GmbH **(VIVO TECH GmbH)**	GERMANY	ETSI
vivo Wisdom Technology **(vivo Wisdom Technology Co., Ltd.)**	CHINA	CCSA
Vodafone GmbH **(Vodafone GmbH)**	GERMANY	ETSI
VODAFONE Group Plc **(Vodafone Group Plc)**	UNITED KINGDOM	ETSI
Vodafone Ireland Plc **(Vodafone Ireland Plc)**	IRELAND	ETSI
Vodafone Italia SpA **(Vodafone Italia SpA)**	ITALY	ETSI
Vodafone Romania S.A. **(Vodafone Romania S.A.)**	ROMANIA	ETSI
Vodafone Telekomünikasyon A.S.	TÜRKIYE	ETSI

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(Vodafone Telekomünikasyon A.S.)		
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 **(Wipro Limited)**	INDIA	TSDSI
Wipro GE **(Wipro GE Healthcare Private Limited)**	INDIA	TSDSI
Wisig Networks Pvt Ltd **(Wisig Networks Pvt Ltd)**	INDIA	TSDSI
Wuhan Hongxin Technology **(Wuhan Hongxin Technology Development Co., Ltd.)**	CHINA	CCSA
XGN **(XGen Network LLC)**	UNITED STATES	ETSI
Xiamen Sanan Integr. Circuit **(Xiamen Sanan Integrated Circuit Co., Ltd.)**	CHINA	CCSA
Xiaomi Communications **(Xiaomi Communications)**	CHINA	CCSA
Xiaomi Digital Technology **(Beijing Xiaomi Digital Technology Co., Ltd.)**	CHINA	CCSA
Xiaomi Electronic Software **(Beijing Xiaomi Electronic Software Co., Ltd.)**	CHINA	CCSA
Xiaomi EV Technology **(Xiaomi EV Technology Co., Ltd.)**	CHINA	CCSA
Xiaomi Technology **(Xiaomi Technology)**	CHINA	CCSA
Xiaomi Technology (Polska) sp. **(XIAOMI TECHNOLOGY (POLSKA) SPOLKA Z OGRANICZONA ODPOWIEDZIALNOSCIA)**	POLAND	ETSI
Xiaomi Technology France **(Xiaomi Technology France)**	FRANCE	ETSI
Xiaomi Technology Germany GmbH **(Xiaomi Technology Germany GmbH)**	GERMANY	ETSI
Xiaomi Technology Italy srl **(Xiaomi Technology Italy srl)**	ITALY	ETSI
Xiaomi Technology Netherlands **(Xiaomi Technology Netherlands B.V.)**	NETHERLANDS	ETSI
Xiaomi Technology Spain S.L **(Xiaomi Technology Spain S.L)**	SPAIN	ETSI
Xiaomi Technology UK Limited **(Xiaomi Technology UK Limited)**	UNITED KINGDOM	ETSI
Xidian University **(Xidian University)**	CHINA	CCSA
Xilinx Ireland **(Xilinx Ireland)**	IRELAND	ETSI
XNET **(ZGC Institute of Ubiquitous-X Innovation and Applications)**	CHINA	ETSI
X-Net **(ZGC Institute of Ubiquitous-X Innovation and Applications)**	CHINA	CCSA
Yonsei University **(Yonsei University)**	KOREA (REPUBLIC OF)	TTA
Zhejiang Lab **(Zhejiang Lab)**	CHINA	CCSA
Zhejiang University **(Zhejiang University)**	CHINA	CCSA
ZITiS	GERMANY	ETSI

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(Central Office for Information Technology in the Security Sector)		
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 : 828 Individual Members

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

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Appendix 10

The Wayback Machine - https://web.archive.org/web/20140711055422/http://3gpp.org/about-3gpp/5-faq

FAQ

FAQ

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- Is permission needed to use the 3GPP logo in marketing collaterals or on a web (...)
- Can I use computer code included with a 3GPP TS to implement a product?
- Where can the rules, protocols or software needed to develop applications for UMTS be (...)
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- Is there any simple guide to the different CAMEL specifications?
- Where are the specifications which identify the Vcc voltages for the SIM interface?
- Are the 3GPP specifications produced only in word?
- Which group works with specifications covering the use of the GSM codec (either in C or Java (...)
- Does the ETSI GSM standard document collection also include GSM standard documents produced by (...)
- Where would I find a document (e.g. UMTS 30.03 version 3.1.0) which does not appear on the (...)
- Where are all the Change Requests (CRs) located?
- Where are all the current ETSI SMG specs located?
- Which group works on the W-CDMA and the Physical Layer of W-CDMA?
- Where can I find the list of Abstract syntax notation (ASN.1) object identifiers?
- Where can I find the 3GPP Confidentiality and Integrity algorithms?
- What is a Release - how does specification version numbering work?
- Where can I find information on the current status of 3GPP specifications?
- What is the system for numbering specifications? Which specifications contain information on (...)
- Who are the TSG/WG Officials and Support team and Where can I find their contact (...)
- Where can I find the Terms of Reference for my TSG/WG?
- When did the Officials begin their Term of Office?
- May I become an Official?
- Where are my TSG/WGs documents stored?
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- How do I register for a meeting?
- How do I submit a contribution for a meeting?
- How do I obtain a document number for my contribution?
- Where can I download documents for an upcoming meeting?
- Where can I find a temporary document template?
- What happens if I am unable to attend a meeting?
- What is my role when my TSG/WGs has to approve a deliverable?
- What are the different types of deliverables?
- Can I write an 3GPP Document myself?
- Do I and my company have to support my TSG/WGs Work Items?
- How do I resolve the problem with the corrupt file warning in MSWord. Note that this only (...)
- Do I need a password and user name to access the 3GPP Web site ?
- Can you give me information about which companies manufacture particular types of equipment. (...)

Search

3GPP Website: Search for...

Search and download specs, docs, CRs and more from the 3GPP FTP Server:

ADVANCED FTP SEARCH

Latest Video

3GPP Charity Run 2014

from 3GPPlive PLUS



News Feeds

3GPP News

3GPP tweets

Statistics

12194 average visitors per day

143 people currently on the site

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Where can I find a list of technical terms and abbreviations used in 3GPP documents?
What is the difference between a SIM and a USIM? What is a UICC?
What is an R-UIM?
I have transferred a movie file from my phone to my PC. Where can I find a player for 3gp (...)
What formalities do I have to go through to get type approval for terminal equipment in (...)
Where can I find the specification of the SIM Lock feature?
Is it possible to determine the date and time of publication of a particular version of a 3GPP (...)

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.

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

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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.)

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.

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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 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

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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)

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.

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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?

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.

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

The expandable list of object identifiers is available here >>>. To see the formal definition of the object identifiers, see the document cited on the right. The tree is not necessarily complete; further extensions may be included in the referenced document. For more information look here >>>

Where can I find the 3GPP Confidentiality and Integrity algorithms?

The 3GPP Confidentiality and Integrity algorithms F8 & F9 (KASUMI) have been developed through the collaborative efforts of the 3GPP Organizational Partners. For more information and in order to download the algorithms look here >>>

What is a Release - how does specification version numbering work?

To meet new market requirements, 3GPP specifications are continually being enhanced with new features. In order to provide developers with a stable platform for implementation while at the same time allowing the addition of new features, the 3GPP uses a system of parallel "releases". For more information look here >>>

Where can I find information on the current status of 3GPP specifications?

New versions of many 3GPP specifications are made available shortly after the 3GPP TSG plenary meetings which take place four times a year (March, June, September and December). In order to identify what the current version is or and how to find information about older versions of specifications look here >>>.

What is the system for numbering specifications? Which specifications contain information on specific topics?

All 3G and GSM specifications have a 3GPP specification number consisting of 4 or 5 digits. (e.g. 09.02 or 29.002). For a more complete description and examples look here >>>

Technical Specification Group/Working Group

Who are the TSG/WG Officials and Support team and Where can I find their contact details?

Each TSG/WG has a Chairman, up to two Vice-Chairmen (three Vice-Chairmen) in the case of TSGs), a secretary and a member of the support team. From the 3GPP structural organization page, click on the TSG or WG of interest to reach its home page. From there, click on the "List of elected officials" entry in the table.

Where can I find the Terms of Reference for my TSG/WG?

The current Terms of Reference for each TSG/WG appear on the web pages of each TSG/WG.

When did the Officials begin their Term of Office?

The four Technical Specification Groups (TSGs) have elected their 3GPP TSG officials at the Fort Lauderdale (FL) meeting in March.

The meeting reports for each TSG/WG will indicate the election/re-election/resignation of an official. A complete list of TSG/WG officials is available on the 3GPP web site.

May I become an Official?

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

The Working Group Chairman and Vice Chairmen are elected by the Working Group from amongst the Individual Member representatives. Each Working Group can elect a maximum of two Vice Chairmen.

A candidate for TSG or Working Group election shall provide a letter of support from his Organization and nominations may be made up to the point when an election takes place.

The TSG Chairman and Vice-Chairmen shall be appointed by the PCG on the proposal of the TSG.

The Chairman and the Vice-Chairmen shall be appointed for a two year term of office. The Chairman and Vice-Chairmen may be appointed for one further consecutive term. If, at the end of a Chairman or Vice Chairmans second term, no other candidates are available, the Chairman or Vice Chairmen may be appointed for a further term.

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

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

Where are my TSG/WGs documents stored?

Each TSG/WG has a specific area allocated on the 3GPP ftp server.

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Is the ETSI Secretariat responsible for the management of the Application Provider Codes for 3GPP ?

The ETSI secretariat does not actually allocate these number - unique number are obtained by the coding scheme that is defined in 31.110. Application identifiers for consist of two parts - a RID and a PIX.

The RID is simple: ISO/IEC have allocated the number 'A000000087' to the 3GPP. This was allocated to ETSI on behalf of the 3GPP.

The coding of the PIX is specified in annex B of 31.110. There are three different sorts of PIX:

- 3G UICC,
- 3G USIM, and
- 3G USIM toolkit

Each of these requires the use of the "Card issuer code" as defined in ITU-T recommendation E.118 [3]. This is a unique code given to each card issuer (for example, each GSM operator in the world has requested a card issuer code). So, any 3G operator that does not have a 2G system that uses SIMs will have to apply to the ITU-T in accordance with the procedures in E.118.

Documents and TSG/WG Meetings

How do I register for a meeting?

If you are a TSG/WG member you will receive information about forthcoming meetings via the e-mail exploder. This will indicate the path on the ftp server where the invitation and related documents may be found. You may also consult the Meetings area on the 3GPP Web where the latest invitations of each TSG/WG are stored together with the calendar of meetings.

How do I submit a contribution for a meeting?

Each meeting invitation will contain details of how to register contributions for that meeting and who to send your contributions to.

How do I obtain a document number for my contribution?

Each meeting invitation will contain details of how to register contributions for that meeting and who to send your contributions to.

Where can I download documents for an upcoming meeting?

Each meeting invitation will contain details of where the documents are stored for the meeting. It is advisable for delegates attending a meeting to download the documents available prior to the meeting from the ftp server and onto their personal computers.

Where can I find a temporary document template?

The document template is made available by each TSG/WG in the meeting respective folder on the ftp server.

What happens if I am unable to attend a meeting?

You should contact your chairman and the meeting host indicating when you will be absent.

Work Items and Deliverables

What is my role when my TSG/WGs has to approve a deliverable?

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

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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 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

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networks, and so on. The SIM also contains storage capacity for the subscriber's contacts' phone numbers. The term "SIM" is often misused for "UICC". The SIM concept was created during the early development of the GSM standards, and second-generation (based on GERAN) terminals up to and including Release 4 use SIM functionality.

For third generation systems (based on UTRAN), more complex functionality was called for, and the SIM evolved into the USIM or Universal Subscriber Identity Module. Release 99 3rd generations onwards use USIMs rather than SIMs. From Release 5 onwards, both second and third generation terminals use USIMs (though to maintain backwards compatibility with older networks and terminals, later Release 2nd generation USIMs are likely to implement Rel-4 SIM functionality in addition to Rel-5 or later USIM functionality).

For further information on the 3GPP Release system, see the Release page.

What is an R-UIM?

Short answer: nothing to do with us!

Longer answer: the R-UIM is to 3GPP2 systems what the USIM is to 3GPP systems. (3GPP2 is an independent organization responsible for the standardization of CDMA2000.)

I have transferred a movie file from my phone to my PC. Where can I find a player for 3gp files?

The 3gp file format is defined in 3GPP TS 26.244 and in TS 26.412. However, 3GPP has not defined a decoder. Your phone manufacturer may have supplied a player (check the CD-ROM which came with your phone) or look on its web site. Alternatively, search the Internet: a number of commercial players exist, and trial versions of some may be downloaded without charge.

What formalities do I have to go through to get type approval for terminal equipment in Europe? Is there a single point of contact? What standards does my equipment need to conform to in order that I can place it on the market?

The legal requirements for the marketing of electrical products in Europe are governed by various EU Directives, depending on the nature of the equipment. Conformity with any of these Directives can be demonstrated by the use of Harmonized Standards, whose title has been cited in the Official Journal of the European Union. The lists of relevant standards can be found on the Commission web site which can be accessed via http://www.newapproach.org.

General electrical equipment is covered by the EMC Directive & Low Voltage Directives, see http://ec.europa.eu/enterprise/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.

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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.

FULL MEETING CALENDAR

GERAN	**63**	**Ljubljana**	25-29 Aug 2014
RAN	**65**	**Edinburgh**	09-12 Sep 2014
CT	**65**	**Edinburgh**	10-11 Sep 2014
SA	**65**	**Edinburgh**	15-17 Sep 2014
GERAN	**64**	**San Francisco**	17-21 Nov 2014
CT	**66**	**Maui**	08-09 Dec 2014
RAN	**66**	**Maui**	08-11 Dec 2014
SA	**66**	**Maui**	10-12 Dec 2014
CT	**67**	**Shanghai**	09-10 Mar 2015
RAN	**67**	**Shanghai**	09-12 Mar 2015
GERAN	**65**	**Shanghai**	09-13 Mar 2015
SA	**67**	**Shanghai**	11-13 Mar 2015
GERAN	**66**	25-29 May 2015	
CT	**68**	**Malmo**	15-16 Jun 2015
RAN	**68**	**Malmo**	15-18 Jun 2015
SA	**68**	**Malmo**	17-19 Jun 2015

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- Release 10
- Release 9
- Release 8
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- Release 6
- Release 5
- Release 4
- Release 1999

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- LTE-Advanced
- LTE
- Carrier Aggregation Explained
- HetNet/Small Cells
- NAS
- The Evolved Packet Core
- HSPA
- UMTS
- W-CDMA
- GPRS & EDGE

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Appendix 11

The Mobile Broadband Standard



Specifications Home

3GPP specifications are published - free of charge - up to four times a year following the quarterly Technical Specification Group (TSG) plenary meetings. At each TSG round, specs can be

- Newly brought under change control (i.e. at least 80% complete)
- Unchanged from their previous versions
- Revised as a result of incorporating approved Change Requests (either in existing Releases or in the latest Release)
- At Release-freeze time, upgraded to that Release with no technical change

The 3GPP Mobile Competence Centre (MCC) aims to make all Specs available following a TSG round as soon as possible. The target dates are shown in the table below. Where very many CRs have to be implemented, or very many specifications are to be produced, a further week beyond the above deadlines may be required. These dates are agreed by the TSG Chairmen. Over the Christmas and New Year period, when the winter TSG round finishes shortly before the holiday period, an extra week or so is normally added to the final deadlines.

Quick link to the specifications file server area

The link above takes you straight to the specifications, but you need to know what you are looking for.

To find a particular specification by series, look at the Numbering page.

3GPP specifications

The term "3GPP specification" covers all GSM (including GPRS and EDGE), W-CDMA (including HSPA) and LTE (including LTE-Advanced) 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.

The table below leads to information about:

- Specifications arising from each plenary TSG meeting, including the latest versions of each specification that was not changed at that meeting. i.e. each directory holds a complete set of specifications.
- The month of the meeting and the meeting number
- The Status List (ZIPped RTF or Word format) summarizing the current version number for every release of every 3GPP specification following each TSG plenary meeting.
- Details of each specification (working group, rapporteur, the Project Manager in MCC (Mobile Competence Centre), the meeting at which it was, or is expected to be, "frozen" (i.e. the point after which only corrections are allowed) - all are in the Status lists.

Full details of the Specifications, their history and current status can be found in the 3GPP Specifications Status database.

See this link for specs awaited from the most recent Plenary meetings.

year-month	remark click here to see list of specs still awaited from current plenary round	latest status	specs directory	TSG CN #	TSG RAN* #	TSG T #	TSG SA #	TSG GERAN #	TSG CT #
2014-12		StatusList	2014-12		66		66	64	66
2014-09		StatusList	2014-09		65		65	63	65
2014-06		StatusList	2014-06		64		64	62	64
2014-03		StatusList	2014-03		63		63	61	63



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year-month	remark click here to see list of specs still awaited from current plenary round	latest status	specs directory	TSG CN #	TSG RAN* #	TSG T #	TSG SA #	TSG GERAN #	TSG CT #
2013-12		StatusList	2013-12		62		62	60	62
2013-09		StatusList	2013-09		61		61	59	61
2013-06		StatusList	2013-06		60		60	58	60
2013-03		StatusList	2013-03		59		59	57	59
2012-12		StatusList	2012-12		58		58	56	58
2012-09		StatusList	2012-09		57		57	55	57
2012-06		StatusList	2012-06		56		56	54	56
2012-03		StatusList	2012-03		55		55	53	55
2011-12		StatusList	2011-12		54		54	52	54
2011-09		StatusList	2011-09		53		53	51	53
2011-06		StatusList	2011-06		52		52	50	52
2011-03		StatusList	2011-03		51		51	49	51
2010-12		StatusList	2010-12		50		50	48	50
2010-09		StatusList	2010-09		49		49	47	49
2010-06		StatusList	2010-06		48		48	46	48
2010-03		StatusList	2010-03		47		47	45	47
2009-12		StatusList	2009-12		46		46	44	46
2009-09		StatusList	2009-09		45		45	43	45
2009-06		StatusList	2009-06		44		44	42	44
2009-03		StatusList	2009-03		43		43	41	43
2008-12		StatusList	2008-12		42		42	40	42
2008-09		StatusList	2008-09		41		41	39	41
2008-06		StatusList	2008-06		40		40	38	40
2008-03		StatusList	2008-03		39		39	37	39
2007-12		StatusList	2007-12		38		38	36	38
2007-09		StatusList	2007-09		37		37	35	37
2007-06		StatusList	2007-06		36		36	34	36
2007-03		StatusList	2007-03		35		35	33	35

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year-month	remark click here to see list of specs still awaited from current plenary round	latest status	specs directory	TSG CN #	TSG RAN* #	TSG T #	TSG SA #	TSG GERAN #	TSG CT #
2006-12		StatusList	2006-12		34		34	32	34
2006-09	GERAN henceforward meets synchronously with other TSGs, so no further "delta" directories necessary.	StatusList	2006-09		33		33	31	33
2006-06	New at GERAN only.		2006-06					30	
2006-06		StatusList	2006-06		32		32		32
2006-04	New at GERAN only.		2006-04					29	
2006-03		StatusList	2006-03		31		31		31
2006-01	New at GERAN only.		2006-01					28	
2005-12		StatusList	2005-12		30		30		30
2005-11	New at GERAN only.		2005-11					27	
2005-09		StatusList	2005-09		29		29		29
2005-08/09	New at GERAN only.		2005-09					26	
2005-06	New at GERAN only.		2005-06					25	
2005-06		StatusList	2005-06		28		28		28
2005-04	New at GERAN only.		2005-04					24	
2005-03	RAN closed and RANnew opened, CN and T closed, CT opened.	StatusList	2005-03	27	27bis, 27	27	27		27
2005-01	New at GERAN only.		2005-01					23	
2004-12		StatusList	2004-12	26	26	26	26		
2004-11	New at GERAN only.		2004-11					22	
2004-09		StatusList	2004-09	25	25	25	25		
2004-08	New at GERAN only.		2004-08					21	
2004-06	New at GERAN only.		2004-06					20	
2004-06		StatusList	2004-06	24	24	24	24		
2004-04	New at GERAN only.		2004-04					19	
2004-03		StatusList	2004-03	23	23	23	23		
2004-02	New at GERAN only.		2004-02					18	
2003-12		StatusList	2003-12	22	22	22	22		
2003-11	New at GERAN only.		2003-11					17	

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year-month	remark click here to see list of specs still awaited from current plenary round	latest status	specs directory	TSG CN #	TSG RAN* #	TSG T #	TSG SA #	TSG GERAN #	TSG CT #
2003-09		StatusList	2003-09	21	21	21	21		
2003-09	New at GERAN only.		2003-09					16	
2003-06	New at GERAN only.		2003-06					15	
2003-06		StatusList	2003-06	20	20	20	20		
2003-04	New at GERAN only.		2003-04					14	
2003-02		StatusList	2003-03	19	19	19	19		
2003-02	New at GERAN only.		2003-02					13	
2002-12, 2002-11		StatusList	2002-12	18	18	18	18	12	
2002-09		StatusList	2002-09	17	17	17	17	11	
2002-06	Rel-5 GERAN features content functionally frozen		2002-06					10	
2002-06	Rel-5 features content functionally frozen (remainder, non-GERAN)	StatusList	2002-06	16	16	16	16		
2002-04			2002-04					9	
2002-03	Rel-5 features content functionally frozen (part)	StatusList	2002-03	15	15	15	15		
2002-02								8	
2001-12		StatusList	2001-12	14	14	14	14		
2001-11								7	
2001-09		StatusList	2001-09	13	13	13	13		
2001-08								6	
2001-06		StatusList	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	2001-03	11	11	11	11		
2001-01								3	
2000-12, 2000-11		StatusList	2000-12	10	10	10	10	2	
2000-11									
2000-09		StatusList	2000-09	9	9	9	9	1	
2000-06		StatusList	2000-06	8	8	8	8		
2000-03				7	7	7	7		

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year-month	remark click here to see list of specs still awaited from current plenary round	latest status	specs directory	TSG CN #	TSG RAN* #	TSG T #	TSG SA #	TSG GERAN #	TSG CT #
1999-12	R99 features content functionally frozen			6	6	6	6		
1999-10				5	5	5	5		
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 we recommend using an FTP client software tool such as:

- Ipswitch WS_FTP Pro
- FTPSync
- Filezilla

For additional information relating to 3GPP Specifications, their creation and maintenance, etc. go here.

Confidential Algorithms

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. They may be used only for the development and operation of 3G Mobile Communications and services. Every Beneficiary must sign a Restricted Usage Undertaking with a Custodian and (...)
more »

ASN.1

ASN.1 Object Identifiers Abstract syntax notation (ASN.1) object identifiers maintained by ETSI. ETSI is a recognized organization under the ITU-T (formerly CCITT) arc. The formal rules governing assignment of object identifier values are given in ETSI EG 200 351. Since the 3GPP technical specifications are based on GSM specifications, which use object identifiers under the ETSI node, it (...)
more »

Drafting Rules

The Specification drafting rulesTR 21.801 are the rules for the structure and drafting of documents intended to become a 3GPP Technical Specification or Technical Report. These rules are intended to ensure that such documents are drafted in as uniform a manner as is practicable, irrespective of the technical content. 21.801 is based on the ISO/IEC Directives, Part 3, but is a self-contained (...)
more »

Official Publications

The 3GPP Technical Specifications and Technical Reports have, in themselves, no legal standing. They only become "official" when transposed into corresponding publications of the Partner Organizations (or the national / regional standards body acting as publisher for the Partner). At this point, the specifications are referred to as UMTS within ETSI and FOMA within ARIB/TTC. Some TRs (...)
more »

Page reviewed and updated 2014-03-27, John M Meredith

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SA	**67**	**Shanghai**	11-13 Mar 2015
GERAN	**66**	**Vilnius**	25-29 May 2015
CT	**68**	**Malmo**	15-16 Jun 2015

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- LTE
- Carrier Aggregation Explained
- HetNet/Small Cells
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RAN	**68**	**Malmo**	15-18 Jun 2015	Release 7	HSPA
SA	**68**	**Malmo**	17-19 Jun 2015	Release 6	UMTS
GERAN	**67**	**Yin Chuan**	10-14 Aug 2015	Release 5	W-CDMA
CT	**69**	**Phoenix**	14-15 Sep 2015	Release 4	GPRS & EDGE
RAN	**69**	**Phoenix**	14-17 Sep 2015	Release 1999	
SA	**69**	**Phoenix**	16-18 Sep 2015		
GERAN	**68**	**Anaheim (tbc)**	16-20 Nov 2015		
CT	**70**	**Sitges**	07-08 Dec 2015		
RAN	**70**	**Sitges**	07-10 Dec 2015		
SA	**70**	**Sitges**	09-11 Dec 2015		

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Appendix 12

The Wayback Machine - https://web.archive.org/web/20150223114239/http://www.3gpp.org:80/specifications/79-specification-numbering

Specification Numbering

All 3GPP specifications have a specification number consisting of 4 or 5 digits. (e.g. 09.02 or 29.002).

The first two digits define the series, followed by 2 further digits for the 01 to 13 series or 3 further digits for the 21 to 55 series.

The full title, specification number and latest version number for every specification can be found in the current status list (warning: large file!).

An automated list of Specification numbers - with the Title and details of the Specification Group responsible.

Subject of specification series	3G and beyond / 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) and OAM&P and Charging (overflow from 32.- range)	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)
LTE (Evolved UTRA) and LTE-Advanced radio technology	36 series	-	-
Multiple radio access technology aspects	37 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.

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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.9xx

The second category have numbers of the form:
xx.8xx (feasibility study reports, etc) or, more rarely,
30.xxx / 50.xxx (planning and scheduling)

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.

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Change Requests

The change request mechanism is used when a correction or new functionality is required for an existing specification.

Version numbering

More information on the version numbering page.

Issuing new TS/TR numbers. More information on this page.

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SA	**67**	**Shanghai**	11-13 Mar 2015
GERAN	**66**	**Vilnius**	25-29 May 2015
CT	**68**	**Malmo**	15-16 Jun 2015
RAN	**68**	**Malmo**	15-18 Jun 2015
SA	**68**	**Malmo**	17-19 Jun 2015
GERAN	**67**	**Yin Chuan**	10-14 Aug 2015
CT	**69**	**Phoenix**	14-15 Sep 2015
RAN	**69**	**Phoenix**	14-17 Sep 2015
SA	**69**	**Phoenix**	16-18 Sep 2015
GERAN	**68**	**Anaheim (tbc)**	16-20 Nov 2015
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RAN	**70**	**Sitges**	07-10 Dec 2015
SA	**70**	**Sitges**	09-11 Dec 2015

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Appendix 13

The Wayback Machine - https://web.archive.org/web/20140713050033/http://www.3gpp.org/specifications/specification-numbering/81-version-numbering-scheme

Version Numbering Scheme

Version Numbering Scheme

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 60% 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.

Search

3GPP Website: Search for...

Search and download specs, docs, CRs and more from the 3GPP FTP Server:

ADVANCED FTP SEARCH

Latest Video

3GPP Charity Run 2014

from 3GPPlive PLUS



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- 3GPP News
- 3GPP tweets

Statistics

12185 average visitors per day

94 people currently on the site

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See also: The 3GPP Specification Release version matrix - Showing the versions in each Release of the 3GPP specifications.

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
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

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SA	**65**	**Edinburgh**	15-17 Sep 2014
GERAN	**64**	**San Francisco**	17-21 Nov 2014
CT	**66**	**Maui**	08-09 Dec 2014
RAN	**66**	**Maui**	08-11 Dec 2014
SA	**66**	**Maui**	10-12 Dec 2014
CT	**67**	**Shanghai**	09-10 Mar 2015
RAN	**67**	**Shanghai**	09-12 Mar 2015
GERAN	**65**	**Shanghai**	09-13 Mar 2015
SA	**67**	**Shanghai**	11-13 Mar 2015
GERAN	**66**	25-29 May 2015	
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BROWSE TECHNOLOGIES

- LTE-Advanced
- LTE
- Carrier Aggregation Explained
- HetNet/Small Cells
- NAS
- The Evolved Packet Core
- HSPA
- UMTS
- W-CDMA
- GPRS & EDGE

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Appendix 14

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RAN1 - Radio layer 1

RAN WG1 (Radio layer 1)
is responsible for the specification of the physical layer of the radio Interface for UE, UTRAN, Evolved UTRAN, and beyond; covering both FDD and TDD modes of the radio interface.

Terms of reference

The latest terms of reference were approved at RAN#53
in document RP-110963.zip.

Within the scope of TSG RAN, RAN WG1 is responsible for the development of specifications dealing with UTRA, Evolved UTRA, and beyond.
RAN WG1 is responsible for:

Specification of the physical layer of the Uu radio Interface for UE, UTRAN, Evolved UTRAN, and beyond, covering both FDD and TDD modes, as well as the physical layer of the Un Interface for Relay Nodes. The work in RAN WG1 includes especially:

Specification of physical channel structures
Specification of the mapping of the transport channels onto physical channels
Specification of the physical layer multiplexing, and channel coding and error detection
Specification of the spreading and modulation
Specification of the physical layer procedures
Specification of definition of measurements and their provision by the physical layer to the upper layers RAN WG1 also carries out work related to handling of the physical layer related UE capabilities and to physical layer related parameters used in UE tests developed in TSG RAN.

Useful links and information

About RAN WG1	List of elected officials
Documents	Documents area
	Specifications
	Work items
Meetings	Next meeting information & previous meeting reports and documents
	Liaisons Statements
	Full RAN WG1 meeting calendar
General info	Email exploder lists

RAN Working groups and Ad Hoc groups	
TSG RAN Plenary	

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RAN Working groups and Ad Hoc groups	
TSG RAN WG1	Radio Layer 1 specification
TSG RAN WG2	Radio Layer 2 and Radio Layer 3 RR specification
TSG RAN WG3	Iub Iur and Iu specification - UTRAN O&M requirements
TSG RAN WG4	Radio performance and protocol aspects (system) - RF parameters and BS conformance
TSG RAN WG5	Mobile terminal conformance testing
TSG RAN AHG1	Ad-hoc group on ITU (internal) co-ordination

FULL MEETING CALENDAR

CT	**62**	**Busan**	04-06 Dec 2013
SA	**62**	**Busan**	09-11 Dec 2013
GERAN	**61**	**Sophia Antipolis**	24-28 Feb 2014
CT	**63**	**Fukuoka**	03-04 Mar 2014
RAN	**63**	**Fukuoka**	03-06 Mar 2014
SA	**63**	**Fukuoka**	05-07 Mar 2014
GERAN	**62**	**Valencia**	26-30 May 2014
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CT	**64**	**Sophia Antipolis**	11-13 Jun 2014
SA	**64**	**Sophia Antipolis**	16-18 Jun 2014
GERAN	**63**	**Ljubljana**	25-29 Aug 2014
RAN	**65**	**Edinburgh**	09-12 Sep 2014
CT	**65**	**Edinburgh**	10-12 Sep 2014
SA	**65**	**Edinburgh**	15-17 Sep 2014
GERAN	**64**	**San Francisco**	17-21 Nov 2014
CT	**66**	**US**	08-09 Dec 2014

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LTE
HSPA
The Evolved Packet Core
Carrier Aggregation Explained
GPRS & EDGE
UMTS
W-CDMA

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Appendix 15

The Mobile Broadband Standard



Cover Story



3GPP RAN Workshop on LAA

Beijing, August 29, 2015

3GPP work on Licensed-Assisted Access (LAA) continues to attract wide industry attention, especially with regard to the coexistence mechanisms being designed for LTE to operate in unlicensed spectrum. Because of this 3GPP RAN has decided to hold an open industry workshop on LAA. The workshop will take place in Beijing on August 29, 2015.

The LAA project was started to study the necessary modifications of LTE to operate in unlicensed spectrum. The project has recently reached an important milestone with the completion of the feasibility study and the approval of the corresponding Technical Report 36.889. Based on the conclusion of the study 3GPP RAN has decided to move the project to normative phase with the specification of LAA downlink operation in Rel-13 (uplink operation will be specified in a later release of LTE). The detailed objectives of the Rel-13 specification work can be found in RP-151045.

READ MORE...

Recent News

RAN at ATIS 5G Symposium

June 8, 2015

Dino Flore, the Chairman of the 3GPP RAN Group, has delivered a presentation to the ATIS 5G Symposium - providing an outline of the main features for the evolution of LTE in Release 13 and our initial plans for 5G.

3GPP Release 13 advances include the following highlights:

- Offload to unlicensed spectrum, considering both LTE/Wi-Fi interworking and LTE over unlicensed (LAA)
- Enhancements for Carrier Aggregation (up to 32 CCs)
- Elevation Beamforming / Full-Dimension MIMO
- Study of downlink multi-user transmissions using superposition coding
- M2M (in 3GPP this is MTC) enhancements
- New radio optimized for the low end of the IoT market
- D2D Enhancements

Speaking at the Symposium, co-located with the "Big Telecom Event" in Chicago on June 8, Dino Flore moved from the now towards the future giving delegates an idea of the timeline for the 3GPP standardization effort for next generation cellular technology, aka 5G.

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3GPP video with TCCA leaders

May 19, 2015

A new 3GPP video discusses how LTE is a vital part of the Critical Communications future, but carries a word of warning from Phil Kidner - the CEO of the TCCA - who believes that the 3GPP specifications are yet to meet all of the mission critical requirements, meaning that TETRA is set to be around for a number of years to come.

READ MORE...

FULL MEETING CALENDAR

GERAN	**67**	**Yin Chuan**	10-14 Aug 2015
CT	**99**	**Vancouver**	13-14 Aug 2015
RAN	**99**	**Beijing**	29-29 Aug 2015
CT	**69**	**Phoenix**	14-15 Sep 2015
RAN	**69**	**Phoenix**	14-16 Sep 2015
SA	**69**	**Phoenix**	15-17 Sep 2015
GERAN	**68**	**Anaheim**	16-20 Nov 2015
CT	**70**	**Sitges**	07-08 Dec 2015
RAN	**70**	**Sitges**	07-10 Dec 2015
SA	**70**	**Sitges**	09-11 Dec 2015
GERAN	**69**	**Malta**	15-19 Feb 2016
CT	**71**	**Goteborg**	07-08 Mar 2016
RAN	**71**	**Goteborg**	07-10 Mar 2016
SA	**71**	**Goteborg**	09-11 Mar 2016
GERAN	**70**	23-27 May 2016	
CT	**72**	**SOUTH KOREA**	13-14 Jun 2016

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Appendix 19

3GPP TSG RAN meeting #68
Malmö, Sweden, June 15 – 18, 2015

RP-150581

Agenda Item: 3

Source: ETSI MCC

Title: Report of 3GPP TSG RAN meeting #67,
Shanghai, China, March 9 – 12, 2015

Document for: Approval

Report of 3GPP TSG RAN meeting #67

held in Shanghai, China
March 9 – 12, 2015



colour code:
green: approved new TSs/TRs/WIs/SIs/Report/Exception
grey: outgoing LSs/LTIs
red: WI/SI closed/completed or moved to next REL
purple: pendingTdocs

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Keywords
RAN, UTRA, LTE

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Meeting Organisation

Meeting:	3GPP TSG RAN #67			
Meeting location:	Shanghai, China			
Duration:	Monday 09.03.2015 - Thursday 12.03.2015			
Host:	Huawei Technologies			
TSG RAN Chairman:	Dino Flore (Qualcomm)	email: oflore@qti.qualcomm.com		
TSG RAN Vice chairman:	Takaharu Nakamura (Fujitsu)	email: n.takaharu@jp.fujitsu.com		
TSG RAN Vice chairman:	Giovanni Romano (Telecom Italia)	email: giovanni.romano@telecomitalia.it		
TSG RAN Vice chairman:	Sharat Chander (AT&T)	email: sharat.chander@att.com		
TSG RAN MCC Support:	Joern Krause (ETSI MCC)	email: Joern.Krause@etsi.org		
Email reflector:	3GPP_TSG_RAN@LIST.ETSI.ORG			
Technical documents:	ftp://ftp.3gpp.org/tsg_ran/TSGR_67/Docs			
next meetings:	TSG RAN #68	15.06. - 18.06.2015	Malmö, Sweden	host: EF3
	TSG RAN #69	14.09. - 17.09.2015	Phoenix, USA	host: NAF3

Executive Summary

3GPP TSG RAN meeting #67 was held in Shanghai, China, March 9-12, 2015, hosted by Huawei Technologies.
The meeting had 229 participants (see Annex A) and 519 Technical Documents (see Annex B).

Main topics/decisions:

- **block approval**: RAN #67 continued to use "block approval process" for agreed CR packages from WGs and WI/SI status reports, i.e. these contributions were only discussed on request (flag) otherwise the CRs were considered approved and the % complete and target date of the status reports were considered approved.

- **time budget analysis (AI 13)**: RAN #67 assessed the modified time budget requests in WI/SI status reports for already approved WIs/SIs relative to the time budget status endorsed by RAN #66 in RP-142318; the RAN WG chairman's provided their estimates of remaining time budgets in their WGs (see WG status reports in AI 8); new WIs/SIs provided their time budget requests in the WI/SI descriptions (see AI 13); the resulting endorsed time budget allocations for all approved WIs/SIs after RAN #67 is provided in **RP-150518** (1 time unit ~ 2h). RAN5 WIs/SIs are excluded from this time budget handling.

- **RAN elections (AI 17)**: All chairman/vice-chairmen were reelected by acclamation for a 2nd term:

RAN chairman:	Mr. Dino Flore	Qualcomm Incorporated / ATIS
RAN vice-chairman:	Mr. Giovanni Romano	TELECOM ITALIA S.p.A. / ETSI
RAN vice-chairman:	Mr. Sharat Chander	AT&T / ATIS
RAN vice-chairman:	Mr. Takaharu Nakamura	Fujitsu Limited / ARIB

- **REL-12 (AI 10, AI 14)**: RAN #66 granted 3 REL-12 Core part WIs (LTE_D2D_Prox-Core, GCSE_LTE-MBMS_CM-Core, LTE_CA_B3_B42_B42-Core) a second 3 months exception to complete the WI in REL-12 by March 2015. These 3 Core part WIs were completed by RAN #67 in March 2015.
  For REL-12 there are still open after RAN #67: 7 RAN4 Perf. part WIs (which are supposed to be completed 3-6 months after their corresponding Core part WIs) and 13 RAN5 Testing WIs (which will be completed independently from the REL-12 schedule).
  Also the ASN.1 of REL-12 was frozen at RAN #67 in March 2015 (6 months after the REL-12 freeze that was declared in Sep.14 at RAN #65).
  REL-12 UE capabilities: no conclusions yet, discussion to be continued at RAN #68.

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2 new REL-12 UE categories: DL 750/800Mbps and DL 1Mbps (RAN1 will decide if 750Mbps or 800Mbps and the feature combination to get to the category)

- **5G (AI 18)**: The 5th generation of mobile communication was discussed in connection with incoming LSs from ITU-R WP5D and NGMN, a RAN chairnan's input on "Getting ready for 5G" and a number of company views on this subject.
  It was decided to have a 2-days "3GPP RAN workshop on 5G" on Sep. 17-18, 2015, i.e. on Thursday/Friday of the week of RAN #69, i.e. RAN #69 will be reduced to Monday/Tuesday/Wednesday.
  The RAN timeline for "5G" was endorsed in RP-150483 and will be also presented to SA #67.
  According to this timeline a RAN SI on 5G scope & requirements may be approved at RAN #70 in Dec.15.
  A SI on channel modelling for above 6GHz may already be approved at RAN #69 in Sep.15 but with no RAN1 impact before 2016.

- **Air to Ground Communication (AI 13.1)**: 3GPP TSG RAN completed its assessment (that had an email discussion between RAN #66 and RAN #67) and summarized its views regarding Mission Critical Air Ground Air Communications in RP-150506.

- **Study on possible additional configuration for LTE TDD (AI 12.4.4)**: Progress was made on this RAN level SI is separate ad hoc sessions summarized in Report RP-150405. The latest TR 36.825 v0.1.1 is available in RP-150519.

- **Study on regulatory aspects for flexible duplex for E-UTRAN (AI 13.1):** This new RAN level SI was approved by RAN #67 in RP-150470 to identify regulatory possibilities/constraints for flexible duplex operation. Also an LS on this subject was approved by email after RAN #67 in RP-150509 and it was sent to regulators for feedback.

- **ITU-R:**

  - current implementation of 700 MHz bandplan with 3GPP specification (LSin RP-150028): answer provided in RP-150477 that misalignment of REL-11 and REL-12 is solved (CR R4-151155 in RP-150384)

  - provision of transposition references and certification C for draft revision 2 of Recommendation ITU-R M.2012 (LSin RP-150029): RAN answer with 2 editorial comments provided in RP-150478 (CT had no comments);RAN answer will have to pass SA and PCG review before submission to ITU-R via ATIS

  - preliminary draft new Report ITU-R M.[IMT.ABOVE 6 GHz] (LSin RP-150040): no RAN answer as currently no activity on this topic

  - detailed work plan, timeline, process and deliverables for the future development of International Mobile Telecommunications (IMT) (LSin RP-150041), requesting an update on IMT activities (LSin RP-150031): IMT-2020 ("5G"): 3GPP should approve the final specs to be submitted to ITU-R in December 2019 (they have to be transposed); RAN answer in RP-150442 (to pass SA/PCG review and to be sent to ITU-R by ATIS)

- Incoming Liaison Statements/Letters to ITU: 27, see Annex C

- Outgoing Liaison Statements/Letters to ITU: 10 (incl. 2 approved by email), see Annex D

- 13 closed work items (WI) in March 2015 (3 Core, 6 Perf., 4 Testing):

  - 1 RAN1 REL-12 Core part:
    - LTE Device to Device Proximity Services (630130, LTE_D2D_Prox-Core)

  - 1 RAN3 REL-12 Core part:
    - Group Call eMBMS congestion management for LTE (640137, GCSE_LTE-MBMS_CM-Core)

  - RAN4 (1 Core, 6 Perf.):

    5 REL-12 Perf. parts for:
    - Further EUL enhancements (620249, EDCH_enh-Perf)
    - Perf. req. of interf. cancellation & suppression RX for SU-MIMO (630147, LTE_SUMIMO_RX-Perf)
    - LTE-A intra-band contiguous CA in Band 41 for 3DL (610222, LTE_CA_C_B41_3DL-Perf)
    - LTE-A intra-band non-contiguous CA in Band 41 for 3 DL (620238, LTE_CA_NC_B41_3DL-Perf)
    - E-UTRA UE demodulation/Channel State Information (CSI) perf. req. for multiple CA configurations (640127, LTE_CA_Mult-Perf)

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REL-12 Core & Performance parts for:
- LTE-A 3 Band CA (3DL/1UL) of Band 3, Band 42 and Band 42 (640x30, LTE_CA_B3_B42_B42)

- 4 RAN5 UE Conformance Test Aspects for:
  - REL-11, Further Enhancements to CELL-FACH (600004, Cell_FACH_enh-UEConTest)
  - REL-11, HSDPA Multiflow Data Transmission (620016, HSDPA_MFTX-UEConTest)
  - REL-11, Single radio voice call continuity from UTRAN/GERAN to E-UTRAN (640012, rSRVCC-UEConTest)
  - REL-12, Further REL-12 Configurations for LTE-A CA (610013, LTE_CA_Rel12-UEConTest)

- 2 closed REL-13 study items (SI) in March 2015:
  - RAN1: Study on Enhanced Multiuser Transmissions and Network Assisted Interference Cancellation for LTE (660065, FS_LTE_MUTX_NAIC)
    Note: This SI was stopped as scope changed completely; new SI see RP-150496.
  - RAN4: Study on LTE DL 4 Rx antenna ports (660070, FS_LTE_4Rx_AP_DL)

- 71 new approved work items (WI) in March 2015 (33 Core, 29 Perf., 9 Testing):

  - 6 RAN2 REL-13:
    - Core part: Multiflow Enhancements for UTRA RP-150288
    - Core part: Dual Connectivity enhancements for LTE RP-150490
    - Core part: Multicarrier Load Distribution of UEs in LTE RP-150491
    - Core part: RAN enhancements for extended DRX in LTE RP-150493
    - Core part: LTE-WLAN Radio Level Integration and Interworking Enhancement RP-150510
    - Core part: RAN aspects of Application specific Congestion control for Data Comm. RP-150512

  - 1 RAN3 REL-13:
    - Core part: RAN aspects for improvem. to CS/PS coordination in UTRAN Shared Network RP-150500

  - RAN4 (26 Core, 29 Perf.):
    REL-13 Performance parts:
    - Perf. part: Dual Connectivity enhancements for LTE RP-150490
    - Perf. part: Multicarrier Load Distribution of UEs in LTE RP-150491
    - Perf. part: LTE-WLAN Radio Level Integration and Interworking Enhancement RP-150510

    REL-13 Core & Performance parts:
    - LTE DL 4 Rx antenna ports RP-150427
    - AWS-Extension Band for LTE RP-150428
    - Add. BCS for LTE-A inter-band CA of Band 5 and Band 7 RP-150171
    - Add. BW combination set for LTE-A inter-band CA of Band 3 and Band 5 RP-150425
    - LTE-A 3 Band CA (3DL/1UL) of Band 1, Band 3 and Band 42 RP-150121
    - LTE-A 3 Band CA (3DL/1UL) of Band 1, Band 19 and Band 42 RP-150122
    - LTE-A 3 Band CA (3DL/1UL) of Band 1, Band 21 and Band 42 RP-150123
    - LTE-A 3 Band CA (3DL/1UL) of Band 3, Band 19 and Band 42 RP-150124
    - LTE-A 3 Band CA (3DL/1UL) of Band 19, Band 21 and Band 42 RP-150125
    - Add. BCS for LTE-A 3 Band CA (3DL/1UL) of Band 4, Band 4 and Band 7 RP-150429
    - Add. BCS for LTE-A 3 Band CA (3DL/1UL) of Band 4, Band 7 and Band 12 RP-150430
    - LTE-A 3 Band CA (3DL/1UL) of Band 2, Band 7 and Band 12 RP-150431
    - LTE-A 3 Band CA (3DL/1UL) of Band 2, Band 4 and Band 7 RP-150432
    - LTE-A 3 Band CA (3DL/1UL) of Band 7, Band 20 and Band 38 RP-150433
    - LTE-A 4 Band CA (4DL/1UL) of Band 2, Band 4, Band 4 and Band 12 RP-150073
    - LTE-A 4 Band CA (4DL/1UL) of Band 2, Band 2, Band 4 and Band 12 RP-150074
    - LTE-A 4 Band CA (4DL/1UL) of Band 2, Band 2, Band 4 and Band 4 RP-150075
    - LTE-A 4 Band CA (4DL/1UL) of Band 1, Band 3, Band 5 and Band 40 RP-150434
    - LTE-A 4 Band CA (4DL/1UL) of Band 1, Band 3, Band 7 and Band 8 RP-150435
    - LTE-A 4 Band CA (4DL/1UL) of Band 2, Band 4, Band 5 and Band 29 RP-150436
    - LTE-A dual uplink inter-band CA FDD-TDD RP-150064
    - LTE-A dual uplink inter-band CA Class A4 RP-150410
    - LTE-A 3DL/2UL inter-band CA RP-150479
    - LTE-A intra-band contiguous CA in Band 8 RP-150437
    - LTE-A intra-band non-contiguous CA in Band 42 for 3DL RP-150246
    - LTE-A intra-band contiguous CA in Band 42 for 4DL RP-150438

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- 9 RAN5 UE Conformance Test Aspects for:
  - REL-12, Further DL MIMO Enhancement for LTE-Advanced RP-150071
  - REL-12, LTE Device-to-Device Proximity Services RP-150131
  - REL-12, L-band for Supplemental Downlink in E-UTRA and UTRA RP-150134
  - REL-12, Low cost & enhanced coverage MTC UE for LTE RP-150135
  - REL-12, Further Rel-12 configurations for LTE Advanced Carrier Aggregation with 2UL RP-150136
  - REL-12, Codec for Enhanced Voice Services (EVS) RP-150137
  - REL-12, Smart Congestion Mitigation in E-UTRAN RP-150202
  - REL-12, Perf. Requirements of Interf. Cancellation and Suppression Receiver for SU-MIMO for E-UTRA RP-150245
  - REL-12, DCH Enhancements for UMTS RP-150412

- 5 new approved study items (SI) for REL-13 in March 2015:

  - RAN: Study on regulatory aspects for flexible duplex for E-UTRAN RP-150470
  - RAN1: Study on Downlink Multiuser Superposition Transmission for LTE RP-150496
  - RAN2: Study on Latency reduction techniques for LTE RP-150465
  - RAN2: Study on further Enhancements of Minimization of Drive Tests for E-UTRAN RP-150472
  - RAN4: Study on Measurement gap enhancement for LTE RP-150515

- 0 new approved Technical Specifications (TS), i.e. now under CR control

- 5 new approved Technical Reports (TR), i.e. now under CR control:

  - RAN4 REL-12 TR 36.833-5-41 LTE_CA_C_B41_3DL-Perf RP-150116
  - RAN4 REL-12 TR 36.833-6-41 LTE_CA_NC_B41_3DL-Perf RP-150117
  - RAN4 REL-12 TR 36.852-12 LTE_CA_B1_B8-Core RP-150498
  - RAN4 REL-12 TR 36.877 LTE_D2D_Prox-Core RP-150093
  - RAN4 REL-13 TR 36.867 FS_LTE_4Rx_AP_DL RP-150141

- 0 new Technical Specifications (TS) provided for information

- 5 new Technical Reports (TR) provided for information:

  - RAN1 REL-13 TR 25.705 FS_UTRA_SDATA RP-150197
  - RAN2 REL-13 TR 25.706 FS_UTRA_EDL RP-150225
  - RAN3 REL-13 TR 37.870 FS_MultiRAT_JC RP-150264
  - RAN3 REL-13 TR 36.875 FS_LTE_dualC_ext RP-150216
  - RAN4 REL-13 TR 36.833-5-42 LTE_CA_C_B42_3DL-Core RP-150118

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- Change requests statistics (see also Annex E): 919 CRs handled with 909 approved CRs.

Phase	Cat	all CRs	Approved CRs	approved RAN1	approved RAN2	approved RAN3	approved RAN4	approved RAN5
Rel-9	F	1	1	0	0	0	1	0
Rel-10	A	1	1	0	0	0	1	0
Rel-10	B	10	10	0	1	0	0	9
Rel-10	F	42	42	0	4	0	13	25
Rel-11	A	16	15	0	4	0	11	0
Rel-11	B	13	13	0	1	0	0	12
Rel-11	D	1	1	0	0	0	1	0
Rel-11	F	99	99	2	6	3	17	71
Rel-12	A	25	25	2	6	2	15	0
Rel-12	B	108	107	4	8	3	26	66
Rel-12	C	9	5	4	1	0	0	0
Rel-12	D	6	6	0	2	3	1	0
Rel-12	F	584	583	8	38	25	63	449
Rel-13	F	1	1	0	0	0	1	0
sum		916	909	20	71	36	150	632

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1 Opening of the Meeting

TSG RAN chairman Mr. Dino Flore (Qualcomm) opened the meeting 3GPP TSG RAN #67 on Monday March 9th, 2015 at 9am.
On behalf of the host, Huawei Technologies, David Mazzarese welcomed the delegates to Shanghai, China and explained organisational issues of the meeting.

NOTE: The TSG meetings #67 will be carried out in the 1 week TSG set up (see RP-131328, RAN/CT at the beginning and SA at the end of the week).

2 Reminders for usage of IT resources, IPR declaration and antitrust compliance

The TSG RAN chairman made the following three announcements to remind the delegates of this meeting:

RAN chair's reminder regarding responsible behaviour regarding IT resources of the meeting:

Delegates are reminded that they share the meeting IT resources with their fellow delegates. You should not abuse the service by using bandwidth-hogging applications such as movie downloads, streaming video, web-based gaming, etc during the meeting. Use the internet service in your hotel rooms for this!
Delegates must respect the law of the hosting country*, and should not visit prohibited internet sites.*
In cases of persistent abuse of the internet bandwidth, MCC may restrict individual's use of the service.
In particular, the PCG has laid down the following network usage conditions:
1. Users shall not use the network to engage in illegal activities. This includes activities such as copyright violation, hacking, espionage or any other activity that may be prohibited by local laws.
2. Users shall not engage in non-work related activities that are consume excessive bandwidth or cause significant degradation of the performance of the network.
Since the network is a shared resource, users should exercise some basic etiquette when using the 3GPP network at a meeting. It is understood that high bandwidth applications such as downloading large files or video streaming might be required for business purposes, but delegates should be strongly discouraged in performing these activities for personal use. Downloading a movie or doing something in an interactive environment for personal use essentially wastes bandwidth that others need to make the meeting effective. The meeting chairman should remind end users that the network is a shared resource; the more one user grabs, the less there is for another. Email and its attachments already take up significant bandwidth (certain email programs are not very bandwidth efficient). In case of need the chair can ask the delegates to restrict IT usage to things that are essential for the meeting itself.

1. ***DON'T place your WiFi device in ad-hoc mode***
2. ***DON'T set up a personal hotspot in the meeting room***
3. ***DO try 802.11a if your WiFi device supports it***
4. ***DON'T manually allocate an IP address***
5. ***DON'T be a bandwidth hog by streaming video, playing online games, or downloading huge files***
6. ***DON'T use packet probing software which clogs the local network (e.g., packet sniffers or port scanners)***

Based on the report of the PCG ad hoc group on IT improvements:
http://www.3gpp.org/ftp/PCG/PCG_27/DOCS/PCG27_13r1.zip
see also http://www.3gpp.org/Delegates-Corner#outil_sommaire_14

RAN chair's reminder regarding IPRs:

The attention of the delegates to the meeting of this Technical Specification Group was 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

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Essential IPRs they become aware of.
The delegates were asked to take note that they were 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 Information Statement and the Licensing declaration forms***

Based on http://www.3gpp.org/3gpp-calendar/89-call-for-ipr-meetings

RAN chair's reminder regarding antitrust and competition law:

The attention of the delegates to the meeting was drawn to the fact that 3GPP activities were subject to all applicable antitrust and competition laws and that compliance with said laws was therefore required by any participant of the meeting, including the Chairman and Vice-Chairmen and were invited to seek any clarification needed with their legal counsel. The leadership would conduct the present meeting with impartiality and in the interests of 3GPP. Delegates were reminded that timely submission of work items in advance of TSG/WG meetings was important to allow for full and fair consideration of such matters.

Based on http://www.3gpp.org/about-3gpp/legal-matters/21-3gpp-calendar/1616-statement-of-antitrust-compliance

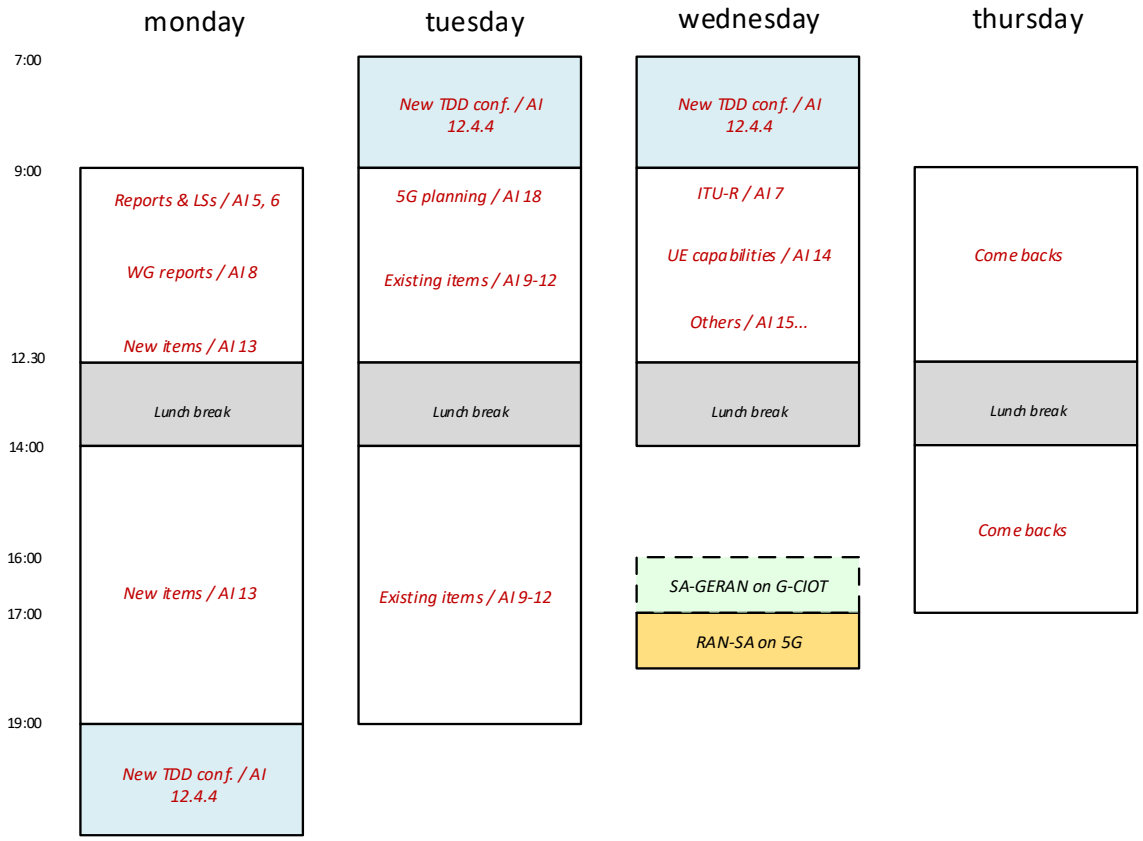
3 Approval of the Agenda

NOTE: Agreed CR packages of RAN WGs (if not flagged for discussion) will be approved without presentation. % complete and target dates of WI/SI status reports (if not flagged for discussion) will be approved without presentation.

RP-150001	Agenda for RAN #67 held in Shanghai, China, 09.03.-12.03.2015 Agenda conclusion: revised in RP-150049 (before the meeting) to correct a WI name & acronym	RAN chairman (Qualcomm)
RP-150049	Agenda for RAN #67 held in Shanghai, China, 09.03.-12.03.2015 Agenda conclusion: approved	RAN chairman (Qualcomm)

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tentative meeting schedule as distributed by the RAN chair on 06.03.2015 over the RAN reflector:



note: During the week:
- another session on TDD config. on Thu 7:00-9:00 was decided
- joint RAN-SA session will start at 17:30 on Wed

4 Approval of the meeting report of TSG-RAN #66

RP-150002 Draft report of RAN #66 held in Maui, USA, 08.12.-11.12.2014 ETSI MCC Report
conclusion: revised in RP-150003 before the meeting

RP-150003 Draft report of RAN #66 held in Maui, USA, 08.12.-11.12.2014 ETSI MCC Report
conclusion: revised in RP-150060

RP-150060 Report of RAN #66 held in Maui, USA, 08.12.-11.12.2014 ETSI MCC Report
conclusion: approved

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5 Reports from other meetings

5.1 Report from TSG SA

TSG SA #66 was held in Maui, USA, Dec. 10-12, 2014. Due to the one week TSG set up RAN and SA meetings are overlapping and the reporting from SA is reduced:

Reports:
RAN: SP-140851
CT: SP-140855
GERAN: SP-140715

SA1: SP-140746
SA2: SP-140666
SA3: SP-140812
SA4: SP-140718
SA5: SP-140783

SA6: ToR (terms of reference): SP-140884, meeting calendar: SP-140659

REL-12:
stage 1 freeze: March 2013 (#59)
stage 2 freeze: Dec. 2013 (#62)
stage 3 freeze: Sep. 2014 (#65)
ASN.1 freeze: March 2015 (#67)* (equivalent to CT formal interface specification freeze)

REL-13:
stage 1 freeze: Sep. 2014 (#65)
stage 2 freeze: June 2015 (#68)*
stage 3 freeze: Dec. 2015 (#70)*
ASN.1 freeze: March 2016 (#71)* (equivalent to CT formal interface specification freeze)

*: planned dates

discussion: No comments

5.2 Report from PCG

Nothing to report as last PCG meeting was PCG #33 held in Seoul, Korea, on 28.10.2014 (see RAN #66 report) and next PCG meeting will be PCG #34 on 28.04.2015 in Sophia Antipolis, France.

5.3 Report from other meetings

RP-150055 RAN chair's presentation on "3GPP & unlicensed spectrum" at IEEE 802 Interim Session, 11-16.01.2015, Atlanta, USA RAN chairman (Qualcomm) Info REL-13 FS_LTE_LAA
compare LSin RP-150024
conclusion: noted

RP-150054 RAN chair's presentation on "3GPP & unlicensed spectrum" at WFA Board of Directors, Feb. 23, 2015 RAN chairman (Qualcomm) Info REL-13 FS_LTE_LAA
WFA = WiFi Alliance
conclusion: noted

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6 Liaison activity of TSG RAN

6.1 Groups outside 3GPP

NGMN:

RP-150019 LS on NGMN's 5G Initiative (2nd LS)
(NGMN_LS_141223; to: SA, RAN, CT; cc: -; contact: NGMN Office) NGMN
LSin - -
RAN action requested
conclusion: LS will be treated under AI 18

ETSI TC RRS:

RP-150020 LS on Licensed Shared Access (LSA) related Activities in TC RRS
(ETSI TC RRS(14)028019r1; to: SA; cc: RAN, SA5; contact: Intel) ETSI TC RRS
LSin - -
RRS = Reconfigurable Radio Systems; no explicit RAN action requested
conclusion: noted, no LS answer

IEEE802 LMSC:

RP-150024 LS regarding coexistence of Licensed Assisted Access (LAA) and IEEE 802
(IEEE_802_LMSC_150202; to: RAN; cc: RAN1, IEEE 802, IEEE 802.19; contact: Chairman IEEE 802 LMSC) IEEE 802 LMSC
LSin REL-13 FS_LTE_LAA
conclusion: LS will be treated under AI 12.4.3
RAN chair: we will come to AI 12.4.3 on Tue in order to provide an answer to IEEE.

ATIS COAST SYNC:

RP-150025 LS on Request for information sharing between ATIS COAST SYNC and 3GPP RAN on timing requirements for wireless base stations in the United States
(ATIS_COAST_SYNC_150122_00007; to: RAN; cc: ATIS; contact: AT&T) ATIS COAST SYNC
LSin - -
COAST = Copper/Optical Access, Synchronization and Transport Committee; SYNC = Synchronization Subcommittee; RAN action requested
conclusion: noted, LS answer is prepared by RAN4 in RP-150038

RP-150038 Response LS to ATIS_COAST_SYNC_150122_00007 = RP-150025 on ATIS COAST SYNC and 3GPP RAN timing requirements for wireless base stations
(R4-151239; to: RAN; cc: -; contact: NSN) RAN4
LSin REL-12 -
RAN action requested; RP-150038 is a reply proposal from RAN4 to LSin RP-150025 (and therefore treated here);
discussion: XX: individual companies have individual requirements will not be enough
RAN chair: could we provide some more detailed answer
RAN4 chair: not sure that this will be possible as this depends on implementations and in 3GPP we have no specific requirements
RAN chair: a ballpark figure should be possible
Ericsson: difficult to speculate about future requirements
RAN chair: you are talking about positioning what about other features?
Ericsson: other features are captured by RAN4 answer
conclusion: noted, no reply to RAN4; LS answer to RP-150025 is provided (based on RP-150038) in RP-150421 by RAN4 chair

RP-150421 Response LS to ATIS_COAST_SYNC_150122_00007 = RP-150025 on ATIS COAST SYNC and 3GPP RAN timing requirements for wireless base stations (to: ATIS COAST SYNC; cc: -; contact: Nokia Networks) RAN LSout REL-12 -
reply to RP-150025 based on RP-150038
conclusion: approved (unseen)

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CTIA:

RP-150026 LS regarding CTIA MIMO OTA Test Plan Development
(CTIA_LS_150203; to: RAN4, RAN5; cc: RAN; contact: AT&T) CTIA MOSG
LSin REL-13 LTE_MIMO_OTA-Core
conclusion: LS will be treated under AI 11.2.4

RP-150027 Reply LS to RP-142316 on OTA Test Requirement Work Plan
(CTIA_LS_150202; to: RAN; cc: RAN4; contact: Spirent) CTIA OTA WG
LSin REL-13 LTE_UTRA_TRP_TRS-Core
conclusion: LS will be treated under AI 11.2.1

ITU-R WP5D:

RP-150028 LS on current implementation of 700 MHz bandplan with 3GPP specification
(ITU-R WP5D/TEMP/567; to: RAN4, RAN; cc: -; contact: ITU-R SG5 Counselor) ITU-R WP5D
LSin REL-11 LTE_DL_FDD700, LTE_APAC700
conclusion: LS will be treated under AI 7.2.2

RP-150029 LS to GCS proponents and transposing organizations on the provision of transposition references and certification C for draft revision 2 of Recommendation ITU-R M.2012
(ITU-R WP5D/TEMP/530; to: RAN, CT, SA, PCG, 3GPP2, ARIB, ATIS, CCSA, ETSI, IEEE, ITRI, TIA, TTA, TTC, WiMAX Forum; cc: -; contact: ITU-R SG5 Counsellor) ITU-R WP5D
LSin - -
conclusion: LS will be treated under AI 7.2.2

RP-150031 LS to ext. organizations and research entities engaged in "5G" development requesting an update on IMT activities
(ITU-R WP5D/TEMP/521(Rev.1); to: RAN, CT, SA, 3GPP2, 4G Americas, 5G Infrastructure Public Private Partnership (Europe), 5G Innovation Centre, APT Wireless Group, Fifth Generation Mobile Communications Promotion Forum (Japan), ARIB, ATIS, CCSA, CDG, ETSI, EU METIS Project, GSMA, IEEE, IMT-2020 Promotion Group (China), ITRI, NGMN, NYU Wireless, TSDSI, TIA, TTA, TTC, UMTS Forum, WiMax Forum, WWRF; cc: -; contact: ITU-R SG5 Counselor) ITU-R WP5D
LSin - -
conclusion: LS will be treated under AI 7.2.2

RP-150040 LS on preliminary draft new Report ITU-R M.[IMT.ABOVE 6 GHz]
(ITU-R WP5D/TEMP/534(Rev.1); to: RAN, CT, SA, 3GPP2, 4G Americas, 5G Infrastructure Public Private Partnership (Europe), 5G Innovation Centre, APT Wireless Group, Fifth Generation Mobile Communications Promotion Forum (Japan), ARIB, ATIS, CCSA, CDG, ETSI, EU METIS Project, GSMA, IEEE, IMT-2020 Promotion Group (China), ITRI, NGMN, NYU Wireless, TSDSI, TIA, TTA, TTC, UMTS Forum, WiMax Forum, WWRF; cc: -; contact: ITU-R SG5 Counselor) ITU-R WP5D
LSin - -
conclusion: LS will be treated under AI 7.2.2

RP-150041 LS on the detailed work plan, timeline, process and deliverables for the future development of International Mobile Telecommunications (IMT)
(ITU-R WP5D/TEMP/577; to: RAN, CT, SA, 3GPP2, 4G Americas, 5G Infrastructure Public Private Partnership (Europe), 5G Innovation Centre, APT Wireless Group, Fifth Generation Mobile Communications Promotion Forum (Japan), ARIB, ATIS, CCSA, CDG, ETSI, EU METIS Project, GSMA, IEEE, IMT-2020 Promotion Group (China), ITRI, NGMN, NYU Wireless, TSDSI, TIA, TTA, TTC, UMTS Forum, WiMax Forum, WWRF; cc: -; contact: ITU-R SG5 Counselor) ITU-R WP5D
LSin - -
RAN action requested;
conclusion: LS will be treated under AI 7.2.2

6.2 TSG SA, TSG CT, TSG GERAN

related to Proximity-based Services:

RP-150021 LS on public safety discovery
(S2-150691; to: RAN1, RAN2, SA3, RAN; cc: -; contact: Qualcomm) SA2
LSin REL-13 eProSe-Ext
conclusion: LS will be treated under AI 11.3.5

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related to Mission Critical Push to Talk (MCPTT):

RP-150022 LS on support for ProSe one-to-one communication in Release 13
(S6-150076; to: RAN2; cc: SA2, RAN; contact: General Dynamics) SA6
LSin REL-13 MCPTT
conclusion: LS will be treated under AI 11.3.5

RP-150023 LS on Establishment of new working group TSG SA WG6
(SP-140884; to: OMA, ETSI TC TCCE, 3GPP TSG CT, SA2, SA6, ATIS; cc: TCCA, PCG, RAN, CT1, CT3, CT4, CT6, SA1, SA3, SA4, SA5; contact: SA6 convener) SA
LSin REL-13 MCPTT
conclusion: LS will be treated under AI 11.3.5

ITU-R WP5D:

RP-150443 CT-input to LETTER TO ITU ON 3GPP COMMENTS ON DRAFT REVISION 2 OF RECOMMENDATION ITU-R M.2012
(CP-150207; to: RAN; cc: -; contact: CT chair (Ericsson)) CT
LSin - -
received on Tue of RAN #67
conclusion: LS will be treated under AI 7.2.2

6.3 TSG RAN WG1, WG2, WG3, WG4, WG5, RAN ITU-R ad hoc

Public Safety REL-12:

RP-150037 LS on impact of optional preconfigured parameters for D2D out of Network coverage mode
(R4-151170; to: RAN1, RAN2, RAN5, SA2, RAN; cc: -; contact: Sprint) RAN4
LSin REL-12 LTE_D2D_Prox-Core
no RAN action requested;
conclusion: LS will be treated under AI 10.6.5

Public Safety REL-13:

RP-150033 Response LS to S2-150691 = RP-150021 on public safety discovery
(R1-150948; to: SA2; cc: RAN2, SA3, RAN; contact: Qualcomm) RAN1
LSin REL-13 eProSe-Ext-SA2
conclusion: LS will be treated under AI 11.3.5

RP-150035 LS reply to S6-150076 = RP-150021 on support for ProSe one-to-one communication in Release 13
(R2-150710; to: SA6; cc: SA2, RAN; contact: Intel) RAN2
LSin REL-13 MCPTT
conclusion: LS will be treated under AI 11.3.5

LTE REL-12 UE capabilities:

RP-150032 LS on LTE Rel-12 UE feature list about RAN1 responsible features
(R1-150947; to: RAN; cc: RAN2, RAN4; contact: NTT DOCOMO) RAN1
LSin REL-12 -
conclusion: LS will be treated under AI 14.

RP-150034 LS on LTE Rel-12 UE feature list about RAN2 responsible features
(R2-150703; to: RAN; cc: RAN1, RAN4; contact: NTT DOCOMO) RAN2
LSin REL-12 -
conclusion: LS will be treated under AI 14.

RP-150036 LS on LTE Rel-12 UE feature list about RAN4 responsible features
(R4-151044; to: RAN; cc: RAN1, RAN2; contact: NTT DOCOMO) RAN4
LSin REL-12 -
conclusion: LS will be treated under AI 14.

ITU related:

RP-150039 DRAFT Letter to ITU in reply to ITU-R WP5D/TEMP/567 = RP-150028 on CURRENT IMPLEMENTATION OF 700 MHz BANDPLAN WITHIN 3GPP SPECIFICATION

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(R4-151242; to: RAN; cc: -; contact: Ericsson) RAN4
LTIin REL-11 LTE_DL_FDD700, LTE_APAC700
conclusion: LS will be treated under AI 7.2.2

RP-150043 Draft letter to ITU in reply to ITU-R WP5D/TEMP/521(Rev.1) = RP-150031 and ITU-R WP5D/TEMP/577 = RP-150041 on the detailed work plan, timeline, process and deliverables for the future development of International Mobile Telecommunications (IMT)
(RT-150009; to: RAN; cc: -; contact: Telecom Italia) 3GPP ITU-R ad hoc
LTIin - -
conclusion: LS will be treated under AI 7.2.2

RP-150044 Draft letter to ITU in reply to ITU-R WP5D/TEMP/530 = RP-150029 on 3GPP comments on draft revision 2 of Recommendation ITU-R M.2012
(RT-150010; to: CT, RAN; cc: -; contact: Telecom Italia) 3GPP ITU-R ad hoc
LTIin - -
conclusion: LS will be treated under AI 7.2.2

UL 64QAM:

RP-150042 LS on the introduction of the signalling for UL 64 QAM
(R2-150733; to: RAN4; cc: RAN, RAN1; contact: Huawei) RAN2
LSin REL-12 LTE-L23, TEI12
note: 64QAM UL functionality for LTE exists in 3GPP specs since REL-8; however, signalling of a UE capability in now introduced for REL-12 (see R2-150713 in RP-150379 and R2-150715 in RP-150377) and RF requirements will be introduced via REL-13 WI LTE_UL64QAM-Core; no RAN action requested
discussion: AT&T: what was done for 256QAM?
Huawei: finally mandatory for all frequency bands
conclusion: noted, no LS answer to RAN2, RAN4 will inform RAN2 & RAN what to do with the ffs in 36.306 that is introduced with CR R2-150713 in RP-150379

Others:

RP-150030 Response LS to S2-150658 on Support of a mix of IPv4 and IPv6 eNBs and Backhauls in eMBMS
(R3-150489; to: SA2; cc: CT4, RAN, CT; contact: Alcatel-Lucent) RAN3
LSin REL-13 TEI13
LS S2-150658 was not sent to/cc RAN but just to RAN3, CT4; LS S2-150658 and included SA2 CR related to SA2 REL-13 WI MBMS_enh (started at SA #66 and target: SA #69); RP-150030 includes RAN3 endorsed CRs to 36.300, 36.444, 36.443; no RAN action requested
conclusion: noted, no LS answer
as it was not planned to introduce REL-13 specs already in March 15 (REL-12 ASN.1 freeze) RAN3 should resubmit these CRs to RAN #68 with the correct REL-13 WI code MBMS_enh (TEIx is not appropriate for inter-WG/TSG related CRs) so that they can be approved there; 36.300 CR has to be submitted via RAN2;
SA2 can continue with their work under this assumption

RP-150038 Response LS to ATIS_COAST_SYNC_150122_00007 = RP-150025 on ATIS COAST SYNC and 3GPP RAN timing requirements for wireless base stations
(R4-151239; to: RAN; cc: -; contact: NSN) RAN4
LSin REL-12 -
conclusion: LS will be treated under AI 6.1 together with LSin RP-150025

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7 ITU-R Ad hoc

7.1 Status report

RP-150004 Status Report ITU-R Ad hoc ITU-R Ad hoc Contact (Telecom Italia) Report
conclusion: noted

7.2 Submission to ITU-R

7.2.1 Submission to ITU-R WP5A

No contributions.

7.2.2 Submission to ITU-R WP5D

700 MHz band plan:

RP-150028 LS on current implementation of 700 MHz bandplan with 3GPP specification (ITU-R WP5D/TEMP/567; to: RAN4, RAN; cc: -; contact: ITU-R SG5 Counselor) ITU-R WP5D
WED
LSin REL-11 LTE_DL_FDD700, LTE_APAC700
bands in 700-800MHz range: FDD: 12, 13, 14, 17 (all 4 from REL-8 LTE-RF), 28 (REL-11 LTE_APAC700); FDD DL: 29 (REL-11 LTE_DL_FDD700); TDD: 44 (REL-11 LTE_APAC700); RAN action requested
conclusion: noted, an answer is prepared by RAN4 in RP-150039

RP-150039 DRAFT Letter to ITU in reply to ITU-R WP5D/TEMP/567 = RP-150028 on CURRENT IMPLEMENTATION OF 700 MHz BANDPLAN WITHIN 3GPP SPECIFICATION (R4-151242; to: RAN; cc: -; contact: Ericsson) RAN4
WED
LTIin REL-11 LTE_DL_FDD700, LTE_APAC700
RAN action requested; RP-150039 is a reply proposal from RAN4 to answer LSin RP-150028; corresponding REL-11 LTE_APAC700-Core CR is submitted to RAN #67 in R4-151155 (in RP-150384) to align REL-11 with REL-12;
conclusion: noted, no LS answer to RAN4;
LS answer to RP-150028 (based on RP-150039) is provided in RP-150477
Note: As this topic is only spectrum related, SA does not need to review the RAN answer and since the RAN answer will not be part of an ITU Recommendation there is no need to have a PCG review, i.e. the answer could be provided via 3GPP LS coordinator to ITU-R WP5D.

RP-150477 Reply LS to ITU-R WP5D/TEMP/567 = RP-150028 ON CURRENT IMPLEMENTATION OF 700 MHz BANDPLAN WITHIN 3GPP SPECIFICATION (to: ITU-R WP5D; cc: -; contact: Ericsson)
RAN LSout LS05 REL-11 LTE_DL_FDD700, LTE_APAC700
conclusion: approved (unseen), note: RP-150384 was approved;
LS will be sent out to ITU-R WP5D via 3GPP LS coordinator.

ITU-R M.2012:

RP-150029 LS to GCS proponents and transposing organizations on the provision of transposition references and certification C for draft revision 2 of Recommendation ITU-R M.2012 (ITU-R WP5D/TEMP/530; to: RAN, CT, SA, PCG, 3GPP2, ARIB, ATIS, CCSA, ETSI, IEEE, ITRI, TIA, TTA, TTC, WiMAX Forum; cc: -; contact: ITU-R SG5 Counsellor) ITU-R WP5D
WED
LSin - -
RAN action requested;
conclusion: noted, an answer is prepared by the 3GPP ITU-R ad hoc in RP-150044

RP-150044 Draft letter to ITU in reply to ITU-R WP5D/TEMP/530 = RP-150029 on 3GPP comments on draft revision 2 of Recommendation ITU-R M.2012 (RT-150010; to: CT, RAN; cc: -; contact: Telecom Italia) 3GPP ITU-R ad hoc
WED
LTIin - -

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3GPP ITU-R ad hoc prepared this draft answer to the LSin of ITU-R WP5D RP-150029; RAN action requested
conclusion: noted, no LS answer to 3GPP ITU-R ad hoc,
RP-150043 is used as basis for the reply to RP-150041 and RP-150031 in RP-150478 taking into account the review comments from CT
Note: The final output of RAN will pass SA and then PCG review.

RP-150443 CT-input to LETTER TO ITU ON 3GPP COMMENTS ON DRAFT REVISION 2 OF RECOMMENDATION ITU-R M.2012
(CP-150207; to: RAN; cc: -; contact: CT chair (Ericsson)) CT
LSin - -
received on Tue of RAN #67; related to ITU-R LSin RP-150029 and triggered by RP-150044; no RAN action required
conclusion: noted, no LS answer to CT

RP-150478 Draft letter to ITU in reply to ITU-R WP5D/TEMP/530 = RP-150029 on 3GPP comments on draft revision 2 of Recommendation ITU-R M.2012 (to: SA; cc: -; contact: Telecom Italia) RAN LTIout - -
conclusion: agreed (unseen); LS will be reviewed in SA and later in PCG before it will be approved in PCG and provided to ITU-R WP5D.

Above 6GHz:

RP-150040 LS on preliminary draft new Report ITU-R M.[IMT.ABOVE 6 GHz]
(ITU-R WP5D/TEMP/534(Rev.1); to: RAN, CT, SA, 3GPP2, 4G Americas, 5G Infrastructure Public Private Partnership (Europe), 5G Innovation Centre, APT Wireless Group, Fifth Generation Mobile Communications Promotion Forum (Japan), ARIB, ATIS, CCSA, CDG, ETSI, EU METIS Project, GSMA, IEEE, IMT-2020 Promotion Group (China), ITRI, NGMN, NYU Wireless, TSDSI, TIA, TTA, TTC, UMTS Forum, WiMax Forum, WWRF; cc: -; contact: ITU-R SG5 Counselor) ITU-R WP5D
WED
LSin - -
no explicit RAN action requested;
conclusion: noted, no LS answer as currently there is no 3GPP activity on this

5G/IMT-2020:

RP-150041 LS on the detailed work plan, timeline, process and deliverables for the future development of International Mobile Telecommunications (IMT)
(ITU-R WP5D/TEMP/577; to: RAN, CT, SA, 3GPP2, 4G Americas, 5G Infrastructure Public Private Partnership (Europe), 5G Innovation Centre, APT Wireless Group, Fifth Generation Mobile Communications Promotion Forum (Japan), ARIB, ATIS, CCSA, CDG, ETSI, EU METIS Project, GSMA, IEEE, IMT-2020 Promotion Group (China), ITRI, NGMN, NYU Wireless, TSDSI, TIA, TTA, TTC, UMTS Forum, WiMax Forum, WWRF; cc: -; contact: ITU-R SG5 Counselor) ITU-R WP5D
TUE
LSin - -
RAN action requested; provides the ITU-R WP5D workplan towards the finalization of IMT2020 technical specifications
discussion: Telecom Italia: acc. offline clarifications we need to freeze specs by Dec. 2019 for the IMT-2020 submission
Head of US delegation in ITU-R WP5D (Interdigital): TSG meetings in June 2015 and 2016 are overlapping with ITU-R WP5D meetings; asks to avoid this conflict in the future
ITU-R convener 3GPP (Telecom Italia): suggests to discuss this topic at next PCG meeting since liaison with ITU is usually going via PCG anyway
conclusion: noted, an answer is prepared by the 3GPP ITU-R ad hoc in RP-150043
finalization of 3GPP specs to be submitted to ITU must be done in December 2019

RP-150031 LS to ext. organizations and research entities engaged in "5G" development requesting an update on IMT activities
(ITU-R WP5D/TEMP/521(Rev.1); to: RAN, CT, SA, 3GPP2, 4G Americas, 5G Infrastructure Public Private Partnership (Europe), 5G Innovation Centre, APT Wireless Group, Fifth Generation Mobile Communications Promotion Forum (Japan), ARIB, ATIS, CCSA, CDG, ETSI, EU METIS Project, GSMA, IEEE, IMT-2020 Promotion Group (China), ITRI, NGMN, NYU Wireless, TSDSI, TIA, TTA, TTC, UMTS Forum, WiMax Forum, WWRF; cc: -; contact: ITU-R SG5 Counselor) ITU-R WP5D
TUE
LSin - -
RAN action requested; requests information on the current status of the work and conclusions that may have been reached on "5G" and on the respective planned work programs for 2015/2016

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conclusion: noted, an answer is prepared by the 3GPP ITU-R ad hoc in RP-150043

RP-150043 Draft letter to ITU in reply to ITU-R WP5D/TEMP/521(Rev.1) = RP-150031 and ITU-R WP5D/TEMP/577 = RP-150041 on the detailed work plan, timeline, process and deliverables for the future development of International Mobile Telecommunications (IMT) (RT-150009; to: RAN; cc: -; contact: Telecom Italia) 3GPP ITU-R ad hoc LTIin - -
3GPP ITU-R ad hoc prepared this draft answer to the LSin of ITU-R WP5D RP-150031 and RP-150041; RAN action requested
conclusion: noted, no LS answer to 3GPP ITU-R ad hoc,
RP-150043 is used as basis for the reply to RP-150041 and RP-150031 in RP-150442

RP-150442 Draft letter to ITU in reply to ITU-R WP5D/TEMP/521(Rev.1) = RP-150031 and ITU-R WP5D/TEMP/577 = RP-150041 on the detailed work plan, timeline, process and deliverables for the future development of International Mobile Telecommunications (IMT) (to: SA, cc: -; contact: Telecom Italia) RAN
conclusion: agreed, will be provided to SA for review and from there to PCG for approval

For 5G see also RP-150056 under AI 18.

ITU-R M.1457:
Note: After RAN #68, it was detected that an input to ITU-R WP5D on revision 13 of Rec. M.1457 (technical description of IMT-2000) was forgotten. An email discussion was started on 14.04.15 and LSout RP-150520 was approved on 28.04.15. See Annex D.

7.2.3 Other ITU-R submission

No contributions.

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8 RAN WGs: WG Status Reports & CR Approvals up to Rel-10

Note: REL-4, REL-5, REL-6 and REL-7 were closed after RAN #65, i.e. no CRs to these releases will be considered anymore.

8.1 TSG RAN WG1

8.1.1 Report from RAN WG1 including report on actions required from the previous meeting

RP-150005 Status Report RAN WG1 RAN1 chairman (NTT DOCOMO) Report
presented by RAN 1 vice-chair Wanshi Chen (Qualcomm)
discussion: RAN1 vice-chair (ALU): slide 21: "official online time" would be more correct as there were a lot of offline sessions which were very efficient
Huawei: on time units we could reduce time units for maintenance a bit
RAN chair: will be up to RAN1 chair to handle the 1TU deficit
conclusion: noted

RP-150006 List of CRs from RAN WG1 ETSI MCC Info
conclusion: noted

8.1.2 Discussions on decisions from RAN WG1

No contributions

8.1.3 Approval of CRs to REL-8 WIs and WIs of previous releases

RP-150358 CRs to 36.213 to clarify common search reception related to MBMS RAN1 CR set REL-8 LTE-Phys, TEI11
conclusion: approved

8.1.4 Approval of CRs to Rel-9 WIs

No contributions

8.1.5 Approval of CRs to Rel-10 WIs

No contributions

8.1.6 Approval of CRs to Rel-11 WIs

RP-150359 CRs to 36.213 on TM10 CSI-IM Interference Measurements RAN1 CR set REL-11 COMP_LTE_DL-Core
conclusion: approved

8.1.7 Approval of linked CR packages led by RAN WG1

No contributions

8.2 TSG RAN WG2

8.2.1 Report from RAN WG2 including report on actions required from the previous meeting

RP-150007 Status Report RAN WG2 RAN2 chairman (Ericsson) Report

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discussion: RAN1 vice-chair (ALU): no need for RAN1 time allocation for point to multipoint as we get an LS
conclusion: noted, ASN.1 REL-12 is frozen

RP-150155 Way forward on RAN2 capacity increase LG Electronics Inc. Disc REL-13 -
moved from AI 13.1.2 to AI 8.2.1
proposals:
- *Increased capacity is no more than 4 TUs.*
- *The eD2D WI runs in parallel with other items.*
- *Keep CP/UP split for legacy topics.*
- *RAN2 allocates TUs to each WI/SI strictly following the requested TU.*
- *Announce the RAN2 time schedule in advance and fix the announced time schedule.*
- *Align the actual time and TU.*

discussion: RAN2 chair: announce RAN2 time schedule in advance is not so easy as it depends on inputs
conclusion: noted

RP-150243 Proposal to increase the RAN2 capacity Huawei, HiSilicon Disc REL-13 -
moved from AI 18. to AI 8.2.1
proposals:
Increase the RAN2 capacity for serving the increasing demand from the industry (as reflected in the number of SI/WI proposals):
- *Transform the current User Plane parallel session into a "general" parallel session, i.e. not focusing only on stage 3 User Plane aspects, but also addressing stage-2 and stage-3 Control Plane aspects.*
- *A total of 5 TUs could be added, instead of the 4 TUs previously proposed and tentatively agreed*

discussion: Huawei: proposing here 5TUs but could also consider +6TUs as suggested by some other companies
RAN2 chair: last time we said 4TUs is reasonable, now 5 TUs and even 6TUs are discussed, so a bit like a bazar, we need to be careful as it is getting tighter close to the end of the REL; also additional TUs will impact more the parallel than the main session
Telecom Italia: any impact on RAN4 needs to checked as this will otherwise become the bottleneck
Nokia Networks: supports RAN2 chair to be rather more conservative and consider 4 more time units
RAN chair: please discuss offline with RAN2 chair and experts, we will come back to it on Tue evening
conclusion: noted, see RAN2 way forward in RP-150480 (AI 13.1.2), so +4 additional time units i.e. one day of meeting time which may be used for any kind of control-plane or stage-2 session compared to what RAN2 did so far

RP-150008 List of CRs from RAN WG2 ETSI MCC Info
conclusion: noted

8.2.2 Discussions on decisions from RAN WG2

No contributions

8.2.3 Approval of CRs to REL-8 WIs and WIs of previous releases

RP-150368 RAN2 agreed CRs on various REL-8 Work Items RAN2 CRset REL-8 LTE-L23, TEI10, TEI11, RANimp-ANSS, TEI12
conclusion: approved

8.2.4 Approval of CRs to Rel-9 WIs

RP-150369 RAN2 agreed CR on Correction of GLONASS system time RAN2 CR36.3550126 2 F REL-9 LCS_LTE, TEI12
conclusion: approved

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8.2.5 Approval of CRs to Rel-10 WIs

RP-150370 RAN2 agreed CRs on Various REL-10 Work Items RAN2 CR set REL-10 eICIC_LTE-Core, TEI10, TEI11, TEI12, LTE_SC_enh_dualC-Core
note: Merged REL-12 cat.A CR and REL-12 cat.F CR to LTE_SC_enh_dualC-Core included
conclusion: approved

8.2.6 Approval of CRs to Rel-11 WIs

RP-150371 RAN2 agreed CRs on Various REL-11 Work Items RAN2 CR set REL-11 LTE_CA_enh-Core, TEI11, TEI12
conclusion: approved

8.2.7 Approval of linked CR packages led by RAN WG2

No contributions

8.3 TSG RAN WG3

8.3.1 Report from RAN WG3 including report on actions required from the previous meeting

RP-150009 Status Report RAN WG3 RAN3 chairman (Huawei) Report
conclusion: noted

RP-150010 List of CRs from RAN WG3 ETSI MCC Info
conclusion: noted

8.3.2 Discussions on decisions from RAN WG3

No contributions

8.3.3 Approval of CRs to REL-8 WIs and WIs of previous releases

No contributions

8.3.4 Approval of CRs to Rel-9 WIs

No contributions

8.3.5 Approval of CRs to Rel-10 WIs

No contributions

8.3.6 Approval of CRs to Rel-11 WIs

RP-150347 Rel-11 CRs from RAN3 RAN3 CR set REL-11 TEI11
note: R3-150301 REL-11 CR was already submitted to RAN #66 in RP-142083 (R3-142978) with a cat.A CR, while the cat.A CR could be implemented the REL-11 CR could not be implemented as based on wrong spec version
conclusion: approved

8.3.7 Approval of linked CR packages led by RAN WG3

RP-150348 Correction of the usage of the MultibandInfoList IE RAN3 CR set REL-11 TEI11
conclusion: approved

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8.4 TSG RAN WG4

8.4.1 Report from RAN WG4 including report on actions required from the previous meeting

RP-150011 Status Report RAN WG4 RAN4 chairman (Nokia Networks) Report
discussion: Ericsson: slide 49: RAN4 time budget: Tue: 1TU for CA intra-band really needed?, Wed: no band-specific for Core RF can be reduced; Thu: no real work on band (just 1 WI ongoing); maintenance could be reduced a bit
RAN4 chair: 7 TUs are for spectrum & CA, the split can still be decided
RAN chair: can discuss RAN4 TU handling offline, we will come back on Tue evening
conclusion: noted

RP-150012 List of CRs from RAN WG4 ETSI MCC Info
conclusion: noted

8.4.2 Discussions on decisions from RAN WG4

RP-150145 Pcell support requirements for LTE CA combinations Vodafone, TeliaSonera, Orange, Telecom Italia, Deutsche Telekom, NTT DOCOMO, INC., CHTTL, Dish Network Disc REL-12 LTE_CA, TEI12
proposed:
1. *At RAN4#74bis, companies shall supply:*
   a. *"Request" for existing combinations where Pcell is required to be mandatorily supported by the UE for xDL/1UL on all aggregated carriers*
   b. *"Exception information" on specific existing combinations where Pcell cannot be mandatorily supported by the UE for xDL/1UL on all aggregated carriers*
2. *For existing combinations where a "request" but no "exception info" is provided, Pcell in all aggregated carriers will be agreed as mandatorily supported for UE for Rel-12 onwards.*
3. *For combinations where a "request" and "exception info" is provided, a decision on mandatory Pcell support in all aggregated carriers will be made in time for RAN#68.*
4. *For combinations where no "request" is provided, Pcell support in the UE shall be optional for Rel-12.*
5. *For new xDL/1UL WIDs (rel-13 and onwards) it shall be described in the WID for which aggregated carriers Pcell shall be defined in the spec. Also it shall be defined in the WID the aggregated carriers for which Pcell is required to be mandatorily supported by UEs, otherwise UE support is optional for the Release in which it is added to the spec.*

discussion: Telefonica: supports the Tdoc
Qualcomm: "*cannot*" in a. unclear; in subsequent REL everything is becoming mandatory or how does it work? with more DL in a CA combination supporting UL on all will increase the testing time significantly
Vodafone: technical feasibility is the reason for exception; we tried to solve this in RAN4 but we really need to have a solution for this by RAN #68
RAN chair: suggest that interested parties discuss this topic further offline and we will come back
conclusion: noted, see way forward in RP-150476

RP-150228 Way forward on RAN4 related WI/SI NTT DOCOMO, INC. Disc REL-13 -
proposal:
RAN4 should count at least 1.1 TU for RRM/Demod part as additionally available TU.
That means that totally available TU for new WI/SI for RRM/Demod part is at least 13.1(12+1.1) TU.
Thus, TU for handling TEI would be reduced by 1.1 instead.
conclusion: noted

RP-150476 Way forward on "Mandating Pcell support in UE for all bands of LTE-CA band combinations" Vodafone Disc REL-12 LTE_CA, TEI12
proposed:
1. *At RAN4#74bis, companies shall supply:*
   a. *"Request" for existing combinations where Pcell is required to be mandatorily supported by the UE for 2-3DL/xUL on all aggregated carriers*

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b. "Exception information" on specific existing combinations where Pcell cannot be mandatorily supported by the UE for 2-3DL/xUL on all aggregated carriers

2. *For existing 2-3DL/xUL combinations where a "request" but no "exception info" is provided, Pcell in all aggregated carriers will be agreed as mandatorily supported by the UE for Rel-12 onwards.*
3. *For existing 2-3DL/xUL combinations where a "request" and "exception info" is provided, a decision on mandatory Pcell support in all aggregated carriers will be made in time for RAN#68.*
4. *For existing 2-3DL/xUL combinations where no "request" is provided, Pcell support in the UE shall be optional for (at least) Rel-12.*
5. *For new 2-3DL/xUL WIDs (Rel-13 and onwards) it shall be described in the WID for which aggregated carriers Pcell shall be defined in the spec. Also it shall be defined in the WID the aggregated carriers for which Pcell is required to be mandatorily supported by UEs, otherwise UE support is optional for (at least) the release in which it is added to the spec. If during the corresponding work item, major issues are found with specifying Pcell in every band for a combination, then this can be revisited.*
6. *For 4-5DL/xUL WIDs, RAN4 should discuss further the approach during the work item for handling this, and a decision should be made by RAN#70 (December) plenary.*

discussion: Qualcomm: way forward is ok, but impact on product availability and testing need to be taken into account
Mediatek: would like to have more time to discuss this
Vodafone: we discussed this for 3 months already
Deutsche Telekom: supports Vodafone, we need predictable UE behaviour
Telecom Italia, CMCC: supports Vodafone as well
Qualcomm: in some exceptional cases we need to bypass some of these rules otherwise there will be no product
Deutsche Telekom: reasons for exceptions have to be technical and not commercial
Orange: supports Vodafone as well
Qualcomm: 256QAM of last meeting was a discussion that was not driven by technical reasons
Qualcomm: what if multiple operators cannot agree on which case is optional or mandatory?
Vodafone: is a hypothetical case but in this case of course RAN4 can discuss this further

conclusion: noted, way forward is approved

8.4.3 Approval of CRs to REL-8 WIs and WIs of previous releases

No contributions

8.4.4 Approval of CRs to Rel-9 WIs

RP-150381 RAN4 CRs to Rel-9 WIs RAN4 CR 36.101 set REL-9 TEI9
conclusion: approved

8.4.5 Approval of CRs to Rel-10 WIs

RP-150382 RAN4 CRs to Rel-10 WIs RAN4 CR set REL-10 eICIC_LTE-Perf, LTE_CA-Core, LTE_CA-Perf, RInImp8-UMTSLTE3500, TEI10, LTE_eDL_MIMO-Core
conclusion: approved

RP-150383 RAN4 CRs to Maximum allowed layers for multiple monitoring for CA RAN4 CR 36.133 set REL-10 LTE_CA-Core
discussion: MCC: company CR RP-140065 replaces R4-150040 of RP-150383 and company CR RP-150066 replaces R4-150041 of RP-150383
conclusion: R4-150040 is revised in RP-150065 and R4-150041 is revised in RP-150066

RP-150065 Maximum allowed layers for multiple monitoring for CA Alcatel-Lucent, Ericsson, Huawei, HiSilicon CR 36.133 2753 1 A REL-11 LTE_CA-Core
company contribution to replace cat.A CR R4-150040 submitted in RP-150383 which is a mirror of REL-10 CR R4-151105 submitted in RP-150383
conclusion: approved

RP-150066 Maximum allowed layers for multiple monitoring for CA Alcatel-Lucent, Ericsson, Huawei, HiSilicon CR 36.133 2754 1 A REL-12 LTE_CA-Core

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company contribution to replace cat.A CR R4-150041 submitted in RP-150383 which is a mirror of REL-10 CR R4-151105 submitted in RP-150383
conclusion: approved

8.4.6 Approval of CRs to Rel-11 WIs

RP-150059 CR to TR 36.850 v11.1.0 changing the TR into a pointer to the new TR 36.852-11 ETSI MCC CR 36.8500002 - F REL-11 TEI11
company CR: This CR is just turning TR 36.850 into a pointer to TR 36.852-11 as the TR numbering scheme was modified; TR 36.852-11 will take over the whole contents of TR 36.850 v11.1.0; future CRs have to be made to TR 36.852-11
conclusion: approved

RP-150384 RAN4 CRs to Rel-11 WIs RAN4 CR set REL-11 Cell_FACH_enh-Perf, eICIC_enh_LTE-Perf, LCS_LTE-NBPS-Perf, LTE_APAC700-Core, LTE_Interf_Rej-Perf, LTE_Relay2-Core, TEI11
conclusion: approved

8.4.7 Approval of linked CR packages led by RAN WG4

No contributions

8.5 TSG RAN WG5

8.5.1 Report from RAN WG5 including report on actions required from the previous meeting

RP-150014 Status Report RAN WG5 RAN5 Chairman (Sprint) Report
conclusion: noted

RP-150015 List of CRs from RAN WG5 ETSI MCC Info
conclusion: noted

RP-150016 Status Report MCC TF160 (for approval) ETSI MCC TF160 Leader Report
presented by RAN5 chairman
conclusion: approved

8.5.2 Discussions on decisions from RAN WG5

No contributions

8.5.3 Approval of CRs to closed WIs of REL-10 (incl. TEI10_Test) and previous releases

RP-150320 RAN5 agreed non TTCN CR(s) under WI Small Technical Enhancements and Improvements for Rel 99 Conformance Testing(TEI_Test) RAN5 CR set F REL-11 TEI_Test
conclusion: approved

RP-150321 RAN5 agreed non TTCN CR(s) under WI Small Technical Enhancements and Improvements for Rel-7 Conformance Testing(TEI7_Test) RAN5 CR set F REL-11 TEI7_Test
conclusion: approved

RP-150322 RAN5 agreed non TTCN CR(s) under WI Small Technical Enhancements and Improvements for Rel-8 Conformance Testing(TEI8_Test) (Batch 1) RAN5 CR set F REL-8 TEI8_Test
conclusion: approved

RP-150323 RAN5 agreed non TTCN CR(s) under WI Small Technical Enhancements and Improvements for Rel-8 Conformance Testing(TEI8_Test) (Batch 2) RAN5 CR set F REL-8 TEI8_Test
conclusion: approved

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RP-150324 RAN5 agreed non TTCN CR(s) under WI Small Technical Enhancements and Improvements for Rel-8 Conformance Testing(TEI8_Test) (Batch 3) RAN5 CR set F REL-8 TEI8_Test
conclusion: approved

RP-150325 RAN5 agreed non TTCN CR(s) under WI Small Technical Enhancements and Improvements for Rel-9 Conformance Testing(TEI9_Test) (Batch 1) RAN5 CR set F REL-9 TEI9_Test
conclusion: approved

RP-150326 RAN5 agreed non TTCN CR(s) under WI Small Technical Enhancements and Improvements for Rel-9 Conformance Testing(TEI9_Test) (Batch 2) RAN5 CR set F REL-9 TEI9_Test
conclusion: approved

RP-150327 RAN5 agreed non TTCN CR(s) under WI Small Technical Enhancements and Improvements for Rel-10 Conformance Testing (TEI10_Test) (Batch 1) RAN5 CR set F REL-10 TEI10_Test
conclusion: approved

RP-150328 RAN5 agreed non TTCN CR(s) under WI Small Technical Enhancements and Improvements for Rel-10 Conformance Testing (TEI10_Test) (Batch 2) RAN5 CR set F REL-10 TEI10_Test
conclusion: approved

RP-150329 RAN5 agreed non TTCN CR(s) under WI Small Technical Enhancements and Improvements for Rel-10 Conformance Testing (TEI10_Test) (Batch 3) RAN5 CR set F REL-10 TEI10_Test
conclusion: approved

RP-150330 CR to 34.123-3: Add new verified and e-mail agreed TTCN test cases in the TC lists in 34.123-3 (prose), Annex A RAN5 CR 34.123-3 3327 - F REL-11 TEI8_Test
conclusion: approved

RP-150332 CR to 34.229-3: Add new verified and e-mail agreed TTCN test cases in the TC lists in 34.229-3 (prose), Annex A RAN5 CR 34.229-3 0283 - F REL-10 TEI8_Test
conclusion: approved

RP-150333 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 RAN5 CR 34.229-3 set - F/B REL-10 TEI8_Test, TEI9_Test
TTCN batch; 29 Test Cases
conclusion: approved

RP-150334 CR to 36.523-3: Add new verified and e-mail agreed TTCN test cases in the TC lists in 36.523-3 (prose), Annex A RAN5 CR 36.523-3 2625 - F REL-12 TEI8_Test
conclusion: approved

RP-150336 CR to 37.751-4: Add new verified and e-mail agreed TTCN test cases in the TC lists in 37.571-4 (prose), Annex A RAN5 CR 37.571-4 0049 - F REL-10 TEI9_Test
conclusion: approved

RP-150337 CR to 37.571-4: Add new verified and e-mail agreed TTCN test cases in the TC lists in 37.571-4 (TTCN), Annex A RAN5 CR 37.571-4 set - F/B REL-10 TEI9_Test
TTCN batch; 2 Test Cases
conclusion: approved

8.5.4 Approval of CRs to closed WIs of REL-11 (incl. TEI11_Test)

RP-150331 CR to 34.123-3: Add new verified and e-mail agreed TTCN test cases in the TC lists in 34.123-3 (TTCN), Annex A RAN5 CR 34.123-3 set - F/B REL-11 TEI7_Test, TEI8_Test, TEI9_Test, TEI10_Test
TTCN batch; 28 Test Cases
conclusion: approved

RP-150335 CR to 36.523-3: Add new verified and e-mail agreed TTCN test cases in the TC lists in 36.523-3 (TTCN), Annex A RAN5 CR 36.523-3 set - F/B REL-11 TEI8_Test, TEI9_Test, TEI10_Test, TEI11_Test
TTCN batch; 121 Test Cases

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conclusion: approved

8.5.5 Approval of linked CR packages led by RAN WG5

No contributions

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9 Conformance Testing Work Items

9.1 Closed REL-12 work items

Note: For earlier releases see AI 8.5.

No contributions.

9.2 Open Rel-11 work items

9.2.1 UE Conformance Test Aspects for UE Over the Air (Antenna) conformance testing methodology – Laptop Mounted Equipment Free Space Test
[UEAnt_FSTest-UEConTest]

RP-150068 Status report for WI UE Conformance Test Aspects for UE Over the Air (Antenna) conformance testing methodology - Laptop Equipment Free Space Test, rapporteur: ZTE RAN5 Report REL-11 UEAnt_FSTest_UEConTest
MCC: target date changed
conclusion: noted, approved: 95%, June 16

9.2.2 UE Conformance Test Aspects – Further Enhancements to CELL-FACH
[Cell_FACH_enh-UEConTest]

RP-150132 Status report for WI on UE Conformance Test Aspects - Further Enhancements to CELL-FACH: rapporteur: Ericsson RAN5 Report REL-11 Cell_FACH_enh-UEConTest
conclusion: noted, approved: 100%, March 15; WI completed

RP-150338 RAN5 agreed non TTCN CR(s) WI UE Conformance Test Aspects – Further Enhancements to CELL-FACH (Cell_FACH_enh-UEConTest) RAN5 CRset F REL-11 Cell_FACH_enh-UEConTest
conclusion: approved

9.2.3 UE Conformance Test Aspects - HSDPA Multiflow Data Transmission
[HSDPA_MFTX-UEConTest]

RP-150126 Status report for WI UE Conformance Test Aspects - HSDPA Multiflow Data Transmission; rapporteur: Qualcomm RAN5 Report REL-11 HSDPA_MFTX-UEConTest
conclusion: noted, approved: 100%, March 15; WI completed

RP-150339 RAN5 agreed non TTCN CR(s) WI UE Conformance Test Aspects – HSDPA Multiflow Data Transmission (HSDPA_MFTX-UEConTest]) RAN5 CRset F REL-11 HSDPA_MFTX-UEConTest
conclusion: approved

9.2.4 UE Conformance Test Aspects - Single radio voice call continuity from UTRAN/GERAN to E-UTRAN
[rSRVCC-UEConTest]

RP-150133 Status report for WI on UE Conformance Test Aspects - Single radio voice call continuity from UTRAN/GERAN to E-UTRAN: rapporteur: Ericsson RAN5 Report REL-11 rSRVCC-UEConTest
conclusion: noted, approved: 100%, March 15; WI completed

RP-150340 RAN5 agreed non TTCN CR(s) WI UE Conformance Test Aspects – Single radio voice call continuity from UTRAN/GERAN to E-UTRAN (rSRVCC-UEConTest) RAN5 CRset F REL-11 rSRVCC-UEConTest
conclusion: approved

9.2.5 Conformance Test Aspects: Small Technical Enhancements and Improvements for Rel-11 [TEI11_Test]

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RP-150341 RAN5 agreed non TTCN CR(s) under WI Small Technical Enhancements and Improvements for Rel-11 Conformance Testing (TEI11_Test) RAN5 CR set F REL-11 TEI11_Test
conclusion: approved

9.3 Open Rel-12 work items

9.3.1 UE Conformance Test Aspects – Further REL-12 Configurations for LTE Advanced Carrier Aggregation [LTE_CA_Rel12-UEConTest]

RP-150076 Status report for WI UE Conformance Test Aspects for Further REL-12 Configurations for LTE Advanced Carrier Aggregation: Microsoft RAN5 Report REL-12 LTE_CA_Rel12-UEConTest
MCC: WI covers REL-12 inter-band 2DL, REL-12 intra-band contiguous 2DL and REL-12 intra-band non-contiguous 2DL WIs; are all these REL-12 CA covered?
It seems remaining combinations are intended to be moved to LTE_CA_Rel12_3DL-UEConTest, even if 2DL only? (LTE_CA_B2_B4_BWset2-Core, LTE_CA_B4_B12_BWset-Core, LTE_CA_B18_B28-Core, LTE_CA_B18_B28-Perf completed but not included);
discussion: RNA5 chair: we will discuss the handling of CA basket WIs in the next RAN5 meeting
conclusion: noted, approved: 100%, March 15; WI completed

RP-150077 Revised WID: UE Conformance Test Aspects - Further REL-12 Configurations for LTE Advanced Carrier Aggregation Microsoft Corporation WID rev RAN5 REL-12 LTE_CA_Rel12-UEConTest
last approved WID: RP-140621; removal of 2 CA configurations that are no longer in REL-12 in order to complete the WI; to be approved before the SR and completion of the WI
conclusion: approved

RP-150342 RAN5 agreed non TTCN CR(s) under WI UE Conformance Test Aspects – Further REL-12 Configurations for LTE Advanced Carrier Aggregation (LTE_CA_Rel12-UEConTest) RAN5 CR set F REL-12 LTE_CA_Rel12-UEConTest
conclusion: approved

9.3.2 UE Conformance Test Aspects – Further Rel-12 Configurations for LTE Advanced Carrier Aggregation with 3DL [LTE_CA_Rel12_3DL-UEConTest]

RP-150078 Status report for WI UE Conformance Test Aspects for Further REL-12 Configurations for LTE Advanced Carrier Aggregation with 3DL: Microsoft RAN5 Report REL-12 LTE_CA_Rel12_3DL-UEConTest
MCC: target date changed
conclusion: noted, approved: 12%, Dec.15

RP-150079 Revised WID: UE Conformance Test Aspects - Further Rel-12 Configurations for LTE Advanced Carrier Aggregation with 3DL Microsoft Corporation WID rev RAN5 REL-12 LTE_CA_Rel12_3DL-UEConTest
last approved WID: RP-142231; aligning the content of CA configurations within the REL-12 scope, decided at RAN#66; addition of 2 supporting companies.
conclusion: approved

RP-150343 RAN5 agreed non TTCN CR(s) under WI UE Conformance Test Aspects – Further Rel-12 Configurations for LTE Advanced Carrier Aggregation with 3DL (LTE_CA_Rel12_3DL-UEConTest) RAN5 CR set F REL-12 LTE_CA_Rel12_3DL-UEConTest
conclusion: approved

9.3.3 UE Conformance Test Aspects - BeiDou Navigation Satellite System (BDS) Positioning Support for LTE and UMTS [LCS_BDS-UEConTest]

RP-150357 Status report for SI UE Conformance Test Aspects - BeiDou Navigation Satellite System (BDS) Positioning Support for LTE and UMTS; rapporteur: CATT RAN5 Report REL-12 LCS_BDS-UEConTest
MCC: late Tdoc request/submission
conclusion: noted, approved: 90%, June 15

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RP-150344 RAN5 agreed non TTCN CR(s) under WI UE Conformance Test Aspects - BeiDou Navigation Satellite System (BDS) Positioning Support for LTE and UMTS (LCS_BDS-UEConTest) RAN5 CR set F REL-12 LCS_BDS-UEConTest
conclusion: approved

9.3.4 UE Conformance Test Aspects - LTE Coverage Enhancements
[Cov_Enh_LTE-UEConTest]

RP-150205 Status report for WI: UE Conformance Test Aspects - LTE Coverage Enhancements, rapporteur: China Telecom RAN5 Report REL-12 Cov_Enh_LTE-UEConTest
conclusion: noted, approved: 5%, Sep.15

9.3.5 UE Conformance Test Aspects – WLAN/3GPP Radio Interworking
[**New:** UTRA_LTE_WLAN_interw-UEConTest

RP-150092 Status report for UE Conformance Test Aspects - WLAN/3GPP Radio Interworking; rapporteur: Intel RAN5 Report REL-12 UTRA_LTE_WLAN_interw-UEConTest
conclusion: withdrawn

RP-150097 Status report for UE Conformance Test Aspects - WLAN/3GPP Radio Interworking, rapporteur: Intel RAN5 Report REL-12 UTRA_LTE_WLAN_interw-UEConTest
conclusion: withdrawn

RP-150098 Status report for UE Conformance Test Aspects - WLAN/3GPP Radio Interworking, rapporteur: Intel RAN5 Report REL-12 UTRA_LTE_WLAN_interw-UEConTest
conclusion: noted, approved: 5%, Dec.15

9.3.6 Conformance Test Aspects: Small Technical Enhancements and Improvements for Rel-12 [TEI12_Test]

RP-150345 RAN5 agreed non TTCN CR(s) under WI Small Technical Enhancements and Improvements for Rel-12 Conformance Testing (TEI12_Test) RAN5 CR set F REL-12 TEI12_Test
conclusion: approved

RP-150398 CR to 36.523-3: Add new verified and e-mail agreed TTCN test cases in the TC lists in 36.523-3 (TTCN), Annex A RAN5 CR 36.523-3 set - F/B REL-12 TEI12_Test TTCN batch; 3 Test Cases
conclusion: approved

9.4 Open Rel-13 work items

9.4.1 UE Conformance Test Aspects - LTE UE TRP and TRS and UTRA Hand Phantom
[LTE_UTRA_TRP_TRS-UEConTest]

RP-150069 Status report for WI UE Conformance Test Aspects - LTE UE TRP and TRS and UTRA Hand Phantom, rapporteur: ZTE RAN5 Report REL-13 LTE_UTRA_TRP_TRS-UEConTest
MCC: target date changed
conclusion: noted, approved: 20%, June 16

RP-150070 Revised WID: UE Conformance Test Aspects - LTE UE TRP and TRS and UTRA Hand Phantom ZTE WID rev RAN5 REL-13 LTE_UTRA_TRP_TRS-UEConTest
last approved WID: RP-140090; revised to align with RAN4 Core part WI in RP-141966
conclusion: approved

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10 Work Items with target Rel-12 (not related to conformance testing)

NOTE: RAN #66 granted 3 REL-12 Core part WIs a second 3 months exception to complete the WI in REL-12 by March 2015.

10.1 Closed UTRA only related WIs

RAN1:

RP-150360 CR to 25.214 to clarify UMTS Heterogeneous Network Enhancements RAN1 CR25.2140735 1 F REL-12 UTRA_HetNet_enh-Core
conclusion: approved

RAN2:

RP-150372 RAN2 agreed CRs on Core part: Further Enhanced Uplink (EUL) enhancements RAN2 CR set REL-12 EDCH_enh-Core
conclusion: approved

RAN3:

RP-150349 Further EUL enhancements RAN3 CR set REL-12 EDCH_enh-Core
conclusion: approved

RAN4:

RP-150385 RAN4 CRs to Closed UTRA only related Wis RAN4 CR set REL-12 EDCH_enh-Core, UTRA_hetnet_enh-Core, TEI12
conclusion: approved; Note: By mistake also TEI12 CRs were packed in RP-150387 although they should have been submitted to AI 10.8.

10.2 Closed UTRA & LTE related WIs

RAN3:

RP-150350 Add missing new SIB for IncMon RAN3 CR25.4231861 1 F REL-12 LTE_UTRA_IncMon-Core
conclusion: approved

RAN4:

RP-150386 RAN4 CRs to Closed UTRA & LTE related Wis RAN4 CR set REL-12 LTE_UTRA_Incmon-Core
conclusion: approved

10.3 Closed LTE only related WIs

RAN1:

RP-150363 CR to 36.213 on correction for TDD-FDD CA RAN1 CR36.2130494 1 F REL-12 LTE_CA_TDD_FDD-Core
conclusion: approved

RP-150364 CRs to 36.211 & 36.213 on corrections for Small Cell enhancements RAN1 CR set REL-12 LTE_SC_enh_L1-Core
conclusion: approved

RP-150365 CR to 36.213 on corrections for Dual Connectivity feature RAN1 CR36.2130504 1 F REL-12 LTE_SC_enh_dualC-Core
conclusion: approved

RAN2:

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RP-150373 RAN2 agreed CRs on Closed LTE REL-12 Work Items RAN2 CR set REL-12 UTRA_LTE_WLAN_interw-Core, LTE_SC_enh_dualC-Core, LTE_UTRA_IncMon-Core, LC_MTC_LTE-Core, LTE_NAICS-Core
Note: The CRs in R2-150722, R2-150723 and R2-150724 were originally from RAN3
conclusion: approved

RAN3:

RP-150351 Dual Connectivity for LTE CRs RAN3 CR set REL-12 LTE_SC_enh_dualC-Core
conclusion: approved

RP-150352 Correction of reloading PWS alerts RAN3 CR 36.413 1285 1 F REL-12 REP_WMD-RFR_PWS-Core
conclusion: approved

RAN4:

RP-150387 RAN4 CRs to Closed LTE only related Wis RAN4 CR set REL-12 LC_MTC_LTE-Core, LTE_CA_2UL-A1-Core, LTE_CA_2UL-A2-Core, LTE_CA_2UL-A3-Core, LTE_CA_2UL-A4-Core, LTE_CA_2UL-A5-Core, LTE_CA_NC_2UL-Core, LTE_CA_2UL-A1-Perf, LTE_CA_2UL-A2-Perf, LTE_CA_2UL-A3-Perf, LTE_CA_2UL-A4-Perf, LTE_CA_2UL-A5-Perf, LTE_D2D_Prox-Core, LTE_SC_enh_dualC-Core, MBMS_LTE_OS-Core, TEI12
conclusion: approved
Note 1: By mistake also TEI12 CRs were packed in RP-150387 although they should have been submitted to AI 10.8.
Note 2: R4-150502 and R4-150503 list "LTE_CA_2UL-intra-Perf" and R4-150504 lists "LTE_CA_2UL-intra-Core". Both WI codes do not exist.
R4-150504 lists "LTE_CA_2UL-intra-Core" which does not exist. All 3 CRs should list "LTE_CA_NC_2UL-Core" instead.

RP-150388 RAN4 CRs to Closed LTE carrier aggregation only related WIs RAN4 CR set REL-12 LTE_CA_B1_B19_B21-Core, LTE_CA_B1_B3_B20-Core, LTE_CA_B1_B3_B5-Core, LTE_CA_B1_B3_B8-Core, LTE_CA_B1_B42_B42-Core, LTE_CA_B1_B5_B7-Core, LTE_CA_B1_B7_B20-Core, LTE_CA_B19_B42_B42-Core, LTE_CA_B2_B12_B12-Core, LTE_CA_B2_B12_B30-Core, LTE_CA_B2_B2_B13-Core, LTE_CA_B2_B29_B30-Core, LTE_CA_B2_B4_B12-Core, LTE_CA_B2_B4_B13-Core, LTE_CA_B2_B4_B5-Core, LTE_CA_B2_B5_B12-Core, LTE_CA_B2_B5_B30-Core, LTE_CA_B3_B3_B7-Core, LTE_CA_B3_B42_B42-Core, LTE_CA_B3_B7_B20-Core, LTE_CA_B3_B7_B7-Core, LTE_CA_B4_B12_B12-Core, LTE_CA_B4_B12_B30-Core, LTE_CA_B4_B29_B30-Core, LTE_CA_B4_B4_B13-Core, LTE_CA_B4_B5_B12-Core, LTE_CA_B4_B5_B30-Core, LTE_CA_B7_B8_B20-Core, LTE_CA_C_B40_3DL_BW-Core, LTE_CA_C_B41_3DL-Core, LTE_CA_NC_B41_3DL-Core, LTE_CA_B2_B4_B4-Core, LTE_CA_B2_B2_B5-Core, LTE_CA_B2_B2_B29-Core, LTE_CA_B4_B4_B5-Core, LTE_CA_B4_B4_B12-Core, LTE_CA_B39_B39_B41-Core, LTE_CA_B18_B28-Core, LTE_CA_B25_B41_B41-Core, LTE_CA_B3_B42_B42-Core, LTE_CA_B3_B42_B42-Perf, LTE_CA_B4_B12_B30-Core, LTE_CA_C_B41_3DL-Core, LTE_CA_C_B42-Core, LTE_CA_TDD_FDD-Core
conclusion: approved

RP-150053 Correction to the implementation of CR 2471r3 (Clarification for ACK/NACK feedback of CGI measurement) ETSI MCC CR 36.133 2824 - F REL-12 LTE_TDD_eIMTA-Core
company CR: The modification to the note in Table 8.1.2.3.7.1-1 proposed by CR 2471r3 (RP-141700 or RAN #65) was missed in the implementation of the CR by MCC. This CR corrects this error.
conclusion: approved

RP-150072 Approval of TR 36.852-12 v2.0.0: E-UTRA inter-band Carrier Aggregation Ericsson TR 36.852-12 RAN4 REL-12 LTE_CA_B1_B8-Core
RAN4 TR 36.852-12 is provided for approval; note: TR 36.851 was provided to RAN #66 for information (RP-142015), then TR number was changed to TR 36.852-12; all TPs from Rel-12 WIs are implemented in this TR
conclusion: was at first intended to be approved but then revised in RP-150498 (covering a number of late editorial review comments coming from a check by ETSI Edithelp)

RP-150498 Approval of TR 36.852-12 v2.0.1: E-UTRA inter-band Carrier Aggregation Ericsson TR 36.852-12 RAN4 REL-12 LTE_CA_B1_B8-Core
conclusion: approved as TR 36.852-12 v12.0.0

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10.4 Open UTRA only related WIs

10.4.1 Perf. part: Further EUL enhancements [EDCH_enh-Perf]

RP-150062 Status report for WI Perf. part: Further EUL Enhancements, rapporteur: Ericsson RAN4 Report REL-12 EDCH_enh-Perf
conclusion: noted, approved: 100%, March 15; WI completed

RP-150389 RAN4 CRs to Open UTRA only related Wis - Perf part RAN4 CR 25.133 1398 - F REL-12 EDCH_enh-Perf
conclusion: approved

10.5 Open UTRA & LTE only related WIs

10.5.1 Perf. part: Increasing the minimum number of carriers for UE monitoring in UTRA and E-UTRA [LTE_UTRA_IncMon-Perf]

RP-150063 Status report for WI Perf. part: Increasing the minimum number of carriers for UE monitoring in UTRA and E-UTRA; rapporteur: Ericsson RAN4 Report REL-12 LTE_UTRA_IncMon-Perf
conclusion: noted, approved: 40%, June 15

10.6 Open LTE only related WIs (non-spectrum related)

10.6.1 Perf. part: Further Enhancements to LTE TDD for DL-UL Interference Management and Traffic Adaptation [LTE_TDD_eIMTA-Perf]

RP-150154 Status report for WI Perf Part: Further Enhancements to LTE TDD for DL-UL Interference Management and Traffic Adaptation; rapporteur: CATT RAN4 Report REL-12 LTE_TDD_eIMTA-Perf
conclusion: noted, approved: 55%, June 15

RP-150396 RAN4 CRs to Further Enhancements to LTE TDD for DL-UL Interference Management and Traffic Adaptation: Perf. Part RAN4 CR set REL-12 LTE_TDD_eIMTA-Perf
conclusion: approved

10.6.2 Perf. part: Low cost & enhanced coverage MTC UE for LTE [LC_MTC_LTE-Perf]

RP-150149 Status Report: Perf. part: Low cost & enhanced coverage MTC UE for LTE; rapporteur: Vodafone RAN4 Report REL-12 LC_MTC_LTE-Perf
Core part was completed at RAN #66
MCC: target date changed
conclusion: noted, approved: 90%, June 15

RP-150390 RAN4 CRs to Low cost & enhanced coverage MTC UE for LTE: Perf. Part RAN4 CR 36.101 set REL-12 LC_MTC_LTE-Perf
conclusion: approved

10.6.3 Perf. part: E-UTRA Small cell enhancements - Physical layer aspects [LTE_SC_enh_L1-Perf]

RP-150173 Status report for WI Perf. part: E-UTRA Small cell enhancements - Physical layer aspects, rapporteur: Huawei RAN4 Report REL-12 LTE_SC_enh_L1_Perf
MCC: target date changed
conclusion: noted, approved: 80%, June 15

RP-150394 RAN4 CRs to E-UTRA Small cell enhancements - Physical layer aspects: Perf. Part RAN4 CR set REL-12 LTE_SC_enh_L1-Perf
conclusion: approved

10.6.4 Perf. part: Dual Connectivity for LTE [LTE_SC_enh_dualC]

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RP-150160 Status Report for WI Perf Part.: Dual Connectivity for LTE; rapporteur: RAN4 Report REL-12 LTE_SC_enh_dualC
conclusion: noted, approved: 45%, June 15

RP-150393 RAN4 CRs to Dual Connectivity for LTE: Perf. Part RAN4 CR set REL-12 LTE_SC_enh_dualC-Perf
conclusion: approved

10.6.5 LTE Device to Device Proximity Services [LTE_D2D_Prox] 2nd exception: RP-141916

RP-150037 LS on impact of optional preconfigured parameters for D2D out of Network coverage mode (R4-151170; to: RAN1, RAN2, RAN5, SA2, RAN; cc: -; contact: Sprint) RAN4 LSin REL-12 LTE_D2D_Prox-Core
no RAN action requested;
discussion: ZTE: will RAN4 solve the ffs in REL-12?
Sprint: REL-12 ProSe work is closed
Orange: action is now for SA2 to limit the scenario
Qualcomm: there is no requested action
ZTE: RAN2 refers to CT1
RAN2 chair: CT1 would need to change their spec as they allow the use case that RAN4 discard in the LS; RAN4 overruled RAN2/CT1 scenario
US Dep.of C.: with preconfigured data in the UE it could still work
RAN chair: some more offline discussion is needed
conclusion: noted, no LS answer

RP-150488 Draft LS regarding D2D off network operation (to: CT1; cc: SA2; contact: Sprint) Sprint LSout REL-12 LTE_D2D_Prox-Core
related to LSin RP-150037
discussion: ZTE: RAN1/2/4/5 should be informed as well
conclusion: revised in RP-150516

RP-150516 LS regarding D2D off network operation (to: CT1; cc: SA2, RAN1, RAN2, RAN4, RAN5; contact: Sprint) RAN LSout REL-12 LTE_D2D_Prox-Core
conclusion: approved

RP-150094 Status report for WI: LTE Device to Device Proximity Services; rapporteur: Qualcomm RAN1 Report REL-12 LTE_D2D_Prox
conclusion: noted, approved: Core: 100%, March 15, Perf.: 25%, Sep.15; Core part WI completed

RP-150366 CRs to 36.201, 36.211, 36.212, 36.213 & 36.214 to introduce D2D feature RAN1 CR set REL-12 LTE_D2D_Prox-Core
conclusion: approved

RP-150374 RAN2 agreed CRs on LTE Device to Device Proximity Services RAN2 CR set REL-12 LTE_D2D_Prox-Core
conclusion: approved

RP-150353 ProSe CRs RAN3 CR set REL-12 LTE_D2D_Prox-Core
conclusion: approved

RP-150093 TR 36.877 v2.0.0 LTE Device to Device Proximity Services: User Equipment (UE) radio transmission and reception Qualcomm TR 36.877 RAN4 REL-12 LTE_D2D_Prox-Core
RAN4 TR 36.877 is submitted for approval; v1.0.0 was noted at RAN #66 in RP-141897
conclusion: approved as TR 36.877 v12.0.0

Note: By mistake the 36.101 RAN4 CR R4-151273 and 36.133 RAN4 CR R4-151126 to LTE_D2D_Prox-Core were packed in RP-150387 (see AI 10.3).

10.6.6 Perf. part: Network-Assisted Interference Cancellation and Suppression for LTE [LTE_NAICS-Perf]

RP-150179 Status Report for WI: Perf. part: Network Assisted Interference Cancellation and Suppression for LTE; rapporteur: MediaTek RAN4 Report REL-12 LTE_NAICS-Perf

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conclusion: noted, approved: 50%, June 15

10.6.7 Perf. part: Performance requirements of interference cancellation and suppression receiver for SU-MIMO [LTE_SUMIMO_RX-Perf]

RP-150229 Status report for WI Perf Part.: Performance requirements of interference cancellation and suppression receiver for SU-MIMO, rapporteur: Huawei RAN4 Report REL-12 LTE_SUMIMO_RX-Perf
conclusion: noted, approved: 100%, March 15; Perf. part WI completed

RP-150395 RAN4 CRs to Performance requirements of interference cancellation and suppression receiver for SU-MIMO: Perf. Part RAN4 CR 36.101 set REL-12 LTE_SUMIMO_RX-Perf
conclusion: approved

10.6.8 Core part: Group Call eMBMS congestion management for LTE [GCSE_LTE-MBMS_CM-Core] 2nd exception: RP-141864

RP-150081 Status report for WI Core part: Group Call eMBMS congestion management for LTE, rapporteur: Alcatel-Lucent RAN3 Report REL-12 GCSE_LTE-MBMS_CM-Core
MCC: 2 alternative CRs in RP-150354 and RP-150355
conclusion: noted, approved: 100%, March 15; Core part WI completed

RP-150082 Selection of M2AP solution for suspension notification Alcatel-Lucent Disc REL-12 GCSE_LTE-MBMS_CM-Core
discussion: RAN3 chair: there was an offline agreement to go the RP-150355 solution
conclusion: noted

RP-150354 Support for eMBMS congestion management, via new procdure RAN3 CR 36.443 0102 - B REL-12 GCSE_LTE-MBMS_CM-Core
MCC: Technically endorsed by RAN3. Alternative solution to CR0101r1 to complete the WI
conclusion: rejected

RP-150355 Support for eMBMS congestion management, via MBMS scheduling information procedure RAN3 CR 36.443 0101 1 B REL-12 GCSE_LTE-MBMS_CM-Core
MCC: Technically endorsed by RAN3. Alternative solution to CR0102 to complete the WI
conclusion: approved

RP-150375 RAN2 agreed CRs on Introduction of MBMS congestion management for Public Safety Group Call RAN2 CR set REL-12 GCSE_LTE-MBMS_CM-Core
conclusion: approved

10.7 Open LTE only related WIs (spectrum; CA related)

NOTE: For the WIs under agenda item 10.7 (except 10.7.4) and 11.4 no separate status reports per WI will be provided but a Tdoc will be submitted to agenda item 10.7 by RAN4 with a collection of all % complete and target dates for each WI.

RP-150013 Status Report of RAN4 CA WIs RAN4 chairman (Nokia Networks) Report
MCC: Instead of separate SRs for each CA WI, RAN4 provides a single spreadsheet for REL-12/REL-13 CA WIs tracking completion level, target date and any other essential information.
conclusion: noted, % complete and target dates are approved as in RP-150013 unless modified in the table below in red

RAN #67 agenda	UID	Acronym	REL	target after RAN #67	% complete	rapporteur	Open issues / Other notes
10.7.1.1	640130	LTE_CA_B3_B42_B42-Core	REL-12	March 15	100	NTT DOCOMO	No open issues/CRs for TS 36.101(R4-150441) and 36.104(R4-150438) agreed at RAN4 #74.
10.7.1.1	640230	LTE_CA_B3_B42_B42-Perf	REL-12	March 15	100	NTT DOCOMO	No open issues/CRs for TS 36.141(R4-150439) agreed at RAN4 #74.
10.7.2.1	610222	LTE_CA_C_B41_3DL-Perf	REL-12	March 15	100	Alcatel-Lucent	Newly agreed proposals in R4-151108 and R4-150450. CRs already agreed in RP-141560.

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10.7.3.1	620238	LTE_CA_NC_B41_3DL-Perf	REL-12	March 15	100	Alcatel-Lucent	Newly agreed proposals in R4-151108 and R4-150450. CRs already agreed in RP-141561.
11.4.1.01	650141	LTE_CA_B1_B40-Core	REL-13	June 15	80	KT	CR will be submitted to RAN #74Bis
11.4.1.01	650241	LTE_CA_B1_B40-Perf	REL-13	June 15	80	KT	CR will be submitted to RAN #74Bis
11.4.1.02	650138	LTE_CA_B2_B28-Core	REL-13	June 15	99	Huawei	The work for this WI is completed and related CRs were endorsed in RAN4-74. CRs will be provided for agreement in RAN4-75 and for approval in RAN-68.
11.4.1.02	650238	LTE_CA_B2_B28-Perf	REL-13	June 15	99	Huawei	The work for this WI is completed and related CRs were endorsed in RAN4-74. CRs will be provided for agreement in RAN4-75 and for approval in RAN-68.
11.4.1.03	650144	LTE_CA_B3_B31-Core	REL-13	June 15	75	Huawei	MSD due to harmonic issue
11.4.1.03	650244	LTE_CA_B3_B31-Perf	REL-13	June 15	0	Huawei	CRs to be agreed
11.4.1.04	650137	LTE_CA_B3_B38-Core	REL-13	June 15	90	Nokia Networks	Agreement on TIB and RIB
11.4.1.04	650237	LTE_CA_B3_B38-Perf	REL-13	June 15	90	Nokia Networks	Agreement on TIB and RIB
11.4.1.05	650142	LTE_CA_B3_B40-Core	REL-13	June 15	80	KT	CR will be submitted to RAN #74Bis
11.4.1.05	650242	LTE_CA_B3_B40-Perf	REL-13	June 15	80	KT	CR will be submitted to RAN #74Bis
11.4.1.06	660182	LTE_CA_B3_B41-Core	REL-13	Sep. 15	20	China Telecom	CR will be submitted to RAN #74Bis
11.4.1.06	660282	LTE_CA_B3_B41-Perf	REL-13	Sep. 15	20	China Telecom	CR will be submitted to RAN #74Bis
11.4.1.07	650139	LTE_CA_B4_B28-Core	REL-13	June 15	99	Huawei	The work for this WI is completed and related CRs were endorsed in RAN4-74. CRs will be provided for agreement in RAN4-75 and for approval in RAN-68.
11.4.1.07	650239	LTE_CA_B4_B28-Perf	REL-13	June 15	99	Huawei	The work for this WI is completed and related CRs were endorsed in RAN4-74. CRs will be provided for agreement in RAN4-75 and for approval in RAN-68.
11.4.1.08	650145	LTE_CA_B5_B40-Core	REL-13	June 15	80	SK Telecom	CRs will be submitted to RAN #75
11.4.1.08	650245	LTE_CA_B5_B40-Perf	REL-13	June 15	80	SK Telecom	CRs will be submitted to RAN #75
11.4.1.09	630133	LTE_CA_B7_B22-Core	REL-13	June 15	10	Ericsson	UE REFSENS, MOP relaxation. Chair: No activity for a long time
11.4.1.09	630233	LTE_CA_B7_B22-Perf	REL-13	June 15	0	Ericsson	Chair: No activity for a long time
11.4.1.10	620123	LTE_CA_B8_B27-Core	REL-13	June 15	15	KT	Quardplexer implementation and its performance
11.4.1.10	620223	LTE_CA_B8_B27-Perf	REL-13	June 15	15	KT	Quardplexer implementation and its performance
11.4.1.11	650143	LTE_CA_B20_B31-Core	REL-13	June 15	99	Huawei	The work for this WI is completed and related CRs were endorsed in RAN4-74. CRs will be provided for agreement in RAN4-75 and for approval in RAN-68.
11.4.1.11	650243	LTE_CA_B20_B31-Perf	REL-13	June 15	99	Huawei	The work for this WI is completed and related CRs were endorsed in RAN4-74. CRs will be provided for agreement in RAN4-75 and for approval in RAN-68.
11.4.1.12	650140	LTE_CA_B20_B40-Core	REL-13	June 15	70	Ericsson	MSD for low band has not been decided yet. This is one of the combinations with harmonic mixing problem. The plan is that, CRs will be submitted to RAN #68 provided that we can complete the work by RAN4#75.
11.4.1.12	650240	LTE_CA_B20_B40-Perf	REL-13	June 15	0	Ericsson	CRs will be submitted to RAN #68
11.4.1.13	660181	LTE_CA_B25_B26-Core	REL-13	June 15	95	Sprint	The work for this WI is completed and related CRs were endorsed in RAN4-74 however an updated WID with additional bandwidth combination sets was presented to RAN4-74 for information and will be submitted to RAN-67 for approval. The BW combination sets will require a Text Proposal to add the sets to the TR for RAN4-74b and incorporated into the CRs that will be provided for agreement in RAN4-75 and for approval in RAN-68.

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11.4.1.13	660281	LTE_CA_B25_B26-Perf	REL-13	June 15	95	Sprint	The work for this WI is completed and related CRs were endorsed in RAN4-74 however an updated WID with additional bandwidth combination sets was presented to RAN4-74 for information and will be submitted to RAN-67 for approval. The BW combination sets will require a Text Proposal to add the sets to the TR for RAN4-74b and incorporated into the CRs that will be provided for agreement in RAN4-75 and for approval in RAN-68.
11.4.2.01	660183	LTE_CA_B1_B3_B3-Core	REL-13	June 15	50	China Unicom	MSD issues
11.4.2.01	660283	LTE_CA_B1_B3_B3-Perf	REL-13	June 15	0	China Unicom	Performance issues
11.4.2.02	660190	LTE_CA_B1_B3_B40-Core	REL-13	Sep. 15	10	KT	Pentaplexer consideration and related UE architecture
11.4.2.02	660290	LTE_CA_B1_B3_B40-Perf	REL-13	Sep. 15	10	KT	Pentaplexer consideration and related UE architecture
11.4.2.03	660187	LTE_CA_B1_B8_B28-Core	REL-13	Sep. 15	20	Softbank Mobile	Sub CA (B1+B40) WI completetion
11.4.2.03	660287	LTE_CA_B1_B8_B28-Perf	REL-13	Sep. 15	20	Softbank Mobile	Sub CA (B1+B40) WI completetion
11.4.2.04	660191	LTE_CA_B1_B8_B40-Core	REL-13	Sep. 15	10	KT	Sub CA (B1+B40) WI completetion
11.4.2.04	660291	LTE_CA_B1_B8_B40-Perf	REL-13	Sep. 15	10	KT	Sub CA (B1+B40) WI completetion
11.4.2.05	660184	LTE_CA_B1_B19_B28-Core	REL-13	June 15	50	NTT DOCOMO	1. If relaxations due to harmonic filter are applied to B19 and B28 Tx/Rx or not. 2. MSD values on B28 due to the noise B19 Tx origin. 3. DTIB and DRIB for B19 and B28 associated with the above.
11.4.2.05	660284	LTE_CA_B1_B19_B28-Perf	REL-13	June 15	0	NTT DOCOMO	No technical issues. CRs for TS36.307/TS36.141 will be submitted at the same time as the completion of Core part.
11.4.2.06	660194	LTE_CA_B1_B3_B28-Core	REL-13	June 15	99	Nokia Networks	The work for this WI is completed and related CRs were endorsed in RAN4-74. CRs will be provided for agreement in RAN4-75 and for approval in RAN-68.
11.4.2.06	660294	LTE_CA_B1_B3_B28-Perf	REL-13	June 15	99	Nokia Networks	The work for this WI is completed and related CRs were endorsed in RAN4-74. CRs will be provided for agreement in RAN4-75 and for approval in RAN-68.
11.4.2.07	660199	LTE_CA_B1_B7_B28-Core	REL-13	June 15	50	Huawei	CRs to be agreed
11.4.2.07	660299	LTE_CA_B1_B7_B28-Perf	REL-13	June 15	0	Huawei	CRs to be agreed
11.4.2.08	661100	LTE_CA_B1_B3_B7-Core	REL-13	June 15	30	Huawei	Agreement on TIB and RIB
11.4.2.08	661200	LTE_CA_B1_B3_B7-Perf	REL-13	June 15	0	Huawei	CRs to be agreed
11.4.2.09	640122	LTE_CA_B2_B2_B12-Core	REL-13	June 15	99	U.S. Cellular	The work for this WI is completed and related CRs were endorsed in RAN4-74. CRs will be provided for agreement in RAN4-75 and for approval in RAN-68.
11.4.2.09	640222	LTE_CA_B2_B2_B12-Perf	REL-13	June 15	99	U.S. Cellular	The work for this WI is completed and related CRs were endorsed in RAN4-74. CRs will be provided for agreement in RAN4-75 and for approval in RAN-68.
11.4.2.10	650153	LTE_CA_B2_B5_B29-Core	REL-13	June 15	99	Huawei	The work for this WI is completed and related CRs were endorsed in RAN4-74. CRs will be provided for agreement in RAN4-75 and for approval in RAN-68.
11.4.2.10	650253	LTE_CA_B2_B5_B29-Perf	REL-13	June 15	99	Huawei	The work for this WI is completed and related CRs were endorsed in RAN4-74. CRs will be provided for agreement in RAN4-75 and for approval in RAN-68.
11.4.2.11	661101	LTE_CA_B3_B3_B5-Core	REL-13	Sep. 15	10	Intel	Harmonic and intermodulation study; Define dRIB and CRs; REFSENS relaxation for RAN4 spec
11.4.2.11	661201	LTE_CA_B3_B3_B5-Perf	REL-13	Sep. 15	0	Intel	CRs for RAN4 spec and Release indpendent CRs
11.4.2.12	640125	LTE_CA_B3_B3_B8-Core	REL-13	June 15	99	CHTTL	The work for this WI is completed and related CRs were endorsed in RAN4-74. CRs will be provided for agreement in RAN4-75 and for approval in RAN-68.

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11.4.2.12	640225	LTE_CA_B3_B3_B8-Perf	REL-13	June 15	99	CHTTL	The work for this WI is completed and related CRs were endorsed in RAN4-74. CRs will be provided for agreement in RAN4-75 and for approval in RAN-68.
11.4.2.13	660188	LTE_CA_B3_B7_B7_BWset-Core	REL-13	June 15	99	Ericsson	The work for this WI is completed and related CRs were endorsed in RAN4-74. CRs will be provided for agreement in RAN4-75 and for approval in RAN-68.
11.4.2.13	660288	LTE_CA_B3_B7_B7_BWset-Perf	REL-13	June 15	99	Ericsson	The work for this WI is completed and related CRs were endorsed in RAN4-74. CRs will be provided for agreement in RAN4-75 and for approval in RAN-68.
11.4.2.14	660193	LTE_CA_B3_B7_B8-Core	REL-13	June 15	95	Ericsson	The band combination is included in the related CR endorsed in RAN4-74 (CRs will be provided for agreement in RAN4-75 and for approval in RAN-68). However, the additional bandwidth combination set for CA_3A-8A, subset 'Set 3' in RP-142013, was not implemented in the CR. Therefore, the completion level is set to 95% (the performance part not affected).
11.4.2.14	660293	LTE_CA_B3_B7_B8-Perf	REL-13	June 15	99	Ericsson	The work for this WI is completed and related CRs were endorsed in RAN4-74. CRs will be provided for agreement in RAN4-75 and for approval in RAN-68.
11.4.2.15	661102	LTE_CA_B3_B7_B28-Core	REL-13	June 15	99	Ericsson	The work for this WI is completed and related CRs were endorsed in RAN4-74. CRs will be provided for agreement in RAN4-75 and for approval in RAN-68.
11.4.2.15	661202	LTE_CA_B3_B7_B28-Perf	REL-13	June 15	99	Ericsson	The work for this WI is completed and related CRs were endorsed in RAN4-74. CRs will be provided for agreement in RAN4-75 and for approval in RAN-68.
11.4.2.16	620132	LTE_CA_B3_B8_B27-Core	REL-13	June 15	30	KT	Sub CA (B8+B27) WI completetion
11.4.2.16	620232	LTE_CA_B3_B8_B27-Perf	REL-13	June 15	30	KT	Sub CA (B8+B27) WI completetion
11.4.2.17	660195	LTE_CA_B3_B8_B28-Core	REL-13	Sep. 15	20	Softbank Mobile	Sub CA (B3+B40) WI completetion
11.4.2.17	660295	LTE_CA_B3_B8_B28-Perf	REL-13	Sep. 15	20	Softbank Mobile	Sub CA (B3+B40) WI completetion
11.4.2.18	660192	LTE_CA_B3_B8_B40-Core	REL-13	Sep. 15	10	KT	Sub CA (B3+B40) WI completetion
11.4.2.18	660292	LTE_CA_B3_B8_B40-Perf	REL-13	Sep. 15	10	KT	Sub CA (B3+B40) WI completetion
11.4.2.19	660198	LTE_CA_B3_B40_B40-Core	REL-13	June 15	50	Huawei	MSD for 3+40+40
11.4.2.19	660298	LTE_CA_B3_B40_B40-Perf	REL-13	June 15	0	Huawei	
11.4.2.20	660189	LTE_CA_B7_B7_B28-Core	REL-13	June 15	99	Ericsson	The work for this WI is completed and related CRs were endorsed in RAN4-74. CRs will be provided for agreement in RAN4-75 and for approval in RAN-68.
11.4.2.20	660289	LTE_CA_B7_B7_B28-Perf	REL-13	June 15	99	Ericsson	The work for this WI is completed and related CRs were endorsed in RAN4-74. CRs will be provided for agreement in RAN4-75 and for approval in RAN-68.
11.4.2.21	660186	LTE_CA_B7_B40_B40-Core	REL-13	June 15	40	ZTE	Deffine dTib, dRiB and CR will be submitted
11.4.2.21	660286	LTE_CA_B7_B40_B40-Perf	REL-13	June 15	40	ZTE	CRs will be submitted
11.4.2.22	650149	LTE_CA_B8_B41_B41-Core	REL-13	June 15	99	CMCC	The work for this WI is completed and related CRs were endorsed in RAN4-74. CRs will be provided for agreement in RAN4-75 and for approval in RAN-68.
11.4.2.22	650249	LTE_CA_B8_B41_B41-Perf	REL-13	June 15	99	CMCC	The work for this WI is completed and related CRs were endorsed in RAN4-74. CRs will be provided for agreement in RAN4-75 and for approval in RAN-68.
11.4.2.23	660196	LTE_CA_B8_B42_B42-Core	REL-13	June 15	20	Softbank Mobile	BS Co-ex Study, Actual Relaxation Values and Relevant CRs
11.4.2.23	660296	LTE_CA_B8_B42_B42-Perf	REL-13	June 15	20	Softbank Mobile	Release indpendent CRs
11.4.2.24	660185	LTE_CA_B21_B42_B42-Core	REL-13	June 15	90	NTT DOCOMO	CR for TS36.101/TS36.104 (No technical issues)
11.4.2.24	660285	LTE_CA_B21_B42_B42-Perf	REL-13	June 15	0	NTT DOCOMO	CR for TS36.307/TS36.141 (No technical issues)
11.4.2.25	660197	LTE_CA_B28_B40_B40-Core	REL-13	June 15	30	Huawei	Tib/Rib and MSD for 28+40, Tib/Rib and MSD for 28+40+40
11.4.2.25	660297	LTE_CA_B28_B40_B40-Perf	REL-13	June 15	0	Huawei	
11.4.2.26	650151	LTE_CA_B38_B40_B40-Core	REL-13	June 15	70	Samsung	Define dRIB and CRs for RAN4 spec

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11.4.2.26	650251	LTE_CA_B38_B40_B40-Perf	REL-13	June 15	70	Samsung	CRs for RAN4 spec and Release indpendent CRs
11.4.2.27	640132	LTE_CA_B41_B42_B42-Core	REL-13	June 15	60	Huawei	Delta Tib and Rib values and/or MSD for the constituent bands. CRs for RAN4 spec.
11.4.2.27	640232	LTE_CA_B41_B42_B42-Perf	REL-13	June 15	60	Huawei	CRs for RAN4 spec including release indpendent CRs
11.4.3.1	661104	LTE_CA_B2_B2_B5_B30-Core	REL-13	Dec. 15 => Sep.15	50	AT&T	CRs submitted for information at RAN #74
11.4.3.1	661204	LTE_CA_B2_B2_B5_B30-Perf	REL-13	Dec. 15	50	AT&T	CRs submitted for information at RAN #74
11.4.3.2	661103	LTE_CA_B2_B2_B12_B30-Core	REL-13	Dec. 15	50	AT&T	CRs submitted for information at RAN #74
11.4.3.2	661203	LTE_CA_B2_B2_B12_B30-Perf	REL-13	Dec. 15	50	AT&T	CRs submitted for information at RAN #74
11.4.3.3	661105	LTE_CA_B2_B2_B29_B30-Core	REL-13	Dec. 15	50	AT&T	CRs submitted for information at RAN #74
11.4.3.3	661205	LTE_CA_B2_B2_B29_B30-Perf	REL-13	Dec. 15	50	AT&T	CRs submitted for information at RAN #74
11.4.3.4	661107	LTE_CA_B2_B4_B5_B30-Core	REL-13	Dec. 15	50	AT&T	CRs submitted for information at RAN #74
11.4.3.4	661207	LTE_CA_B2_B4_B5_B30-Perf	REL-13	Dec. 15	50	AT&T	CRs submitted for information at RAN #74
11.4.3.5	661106	LTE_CA_B2_B4_B12_B30-Core	REL-13	Dec. 15	50	AT&T	CRs submitted for information at RAN #74
11.4.3.5	661206	LTE_CA_B2_B4_B12_B30-Perf	REL-13	Dec. 15	50	AT&T	CRs submitted for information at RAN #74
11.4.3.6	661108	LTE_CA_B2_B4_B29_B30-Core	REL-13	Dec. 15	50	AT&T	CRs submitted for information at RAN #74
11.4.3.6	661208	LTE_CA_B2_B4_B29_B30-Perf	REL-13	Dec. 15	50	AT&T	CRs submitted for information at RAN #74
11.4.3.7	661109	LTE_CA_B25_B41_B41_B41-Core	REL-13	Sep. 15	50	Alcatel-Lucent	UE test configurations and RRM requirements to be finalized.
11.4.3.7	661209	LTE_CA_B25_B41_B41_B41-Perf	REL-13	Dec. 15	25	Alcatel-Lucent	UE release independent requirements and RRM tests to be specified.
11.4.4.1	661110	LTE_CA_2UL_R13-A1-Core	REL-13	Dec. 15	40	Huawei	Harmonic and intermodulation study; Delta Tib and Rib values; CRs for RAN4 spec
11.4.4.1	661210	LTE_CA_2UL_R13-A1-Perf	REL-13	Dec. 15	40	Huawei	CRs for RAN4 spec and Release indpendent CRs
11.4.4.2	661111	LTE_CA_2UL_R13-A2-Core	REL-13	Dec. 15	50	Qualcomm	Core specifications for CA_1A-28A combination were endorsed as part of the large CR in R4-151269. The work item is held open at 50% completion to allow for the addition of new 2UL A2 combinations in the Rel-13 timeframe.
11.4.4.2	661211	LTE_CA_2UL_R13-A2-Perf	REL-13	Dec. 15	50	Qualcomm	Release independent specifications for CA_1A-28A combination were endorsed in R4-150243, R4-150244, and R4-150245. The work item is held open at 50% completion level to allow for the addition of new 2UL A2 combinations in the Rel-13 timeframe.
11.4.4.3	661112	LTE_CA_2UL_R13-A3-Core	REL-13	Dec. 15	25	Ericsson	CA_18A-28A (only combination in WID after RAN#66) completed and included in endorsed Draft CR (R4-151269). Completion level still set at 25% anticipating that additional band combinations will be proposed for Rel-13. Open issue: GNSS protection.
11.4.4.3	661212	LTE_CA_2UL_R13-A3-Perf	REL-13	Dec. 15	25	Ericsson	CA_18A-28A (only combination in WID after RAN#66) completed and included in endorsed Draft CR (R4-150243). Completion level still set at 25% anticipating that additional band combinations will be proposed for Rel-13.
11.4.5.1	650147	LTE_CA_C_B42_3DL-Core	REL-13	June 15	99	CATT	The work for this WI is completed and related CRs were endorsed in RAN4-74. CRs will be provided for agreement in RAN4-75 and for approval in RAN-68.

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11.4.5.1	650247	LTE_CA_C_B42_3DL-Perf	REL-13	June 15	99	CATT	The work for this WI is completed and related CRs were endorsed in RAN4-74. CRs will be provided for agreement in RAN4-75 and for approval in RAN-68.
11.4.6.1	661113	LTE_CA_NC_B41_4DL-Core	REL-13	Dec. 15	10	Alcatel-Lucent	UE RF and RRM requirements to be specified.
11.4.6.1	661213	LTE_CA_NC_B41_4DL-Perf	REL-13	Dec. 15	10	Alcatel-Lucent	UE release independent requirements and RRM test to be specified.

RP-150058 Way forward on LTE Carrier Aggregation WI handling ETSI MCC Disc - -

As corresponding email discussion on the RAN_DRAFTS reflector was not able to conclude, this is an attempt to summarize the situation and to propose a way forward

Questions:

a. *Is it intended to consider pure 3DL/2UL intra-band combinations in this WI?*
   If yes, then a 2nd intra-band TR must be considered in this WI (or a 2nd WI for intra-band).
b. *Do we allow CRs/TPs only when all pairings specified in the WID for a certain 3DL/2UL combination are completed? Or is one pairing enough?*
c. *Do we want to make the inclusion of all 10 fallback modes for 4DL/1UL WIs and all 25 fallback modes for 5DL/1UL WIs mandatory? Or do we just limit the WIDs to the 4DL/1UL and 5DL/1UL case(s) and for fallback modes separate WIs have to be considered?*
d. *Is it a correct understanding that for 6DL/1UL to 32DL/1UL we will not mandate to cover all fallback permutations in the same WI?*
e. *Is there consensus that even if a fallback mode can be optional for a UE, it must be covered in the fallback mode permutations of the corresponding WI (otherwise no UE will have this option)?*

Proposals:

A. *The CR cover sheets for this WI have to explicitly list in the summary for change all 3DL/2UL combinations with their pairings that are covered by this CR. Otherwise it will be intransparent what is covered and we should rather approve one complete CR set at the end of the WI instead of allowing to complete different 3DL/2UL combinations separately.*
B. *Define in TS 36.101 clause 3.1 what is a fallback mode and how its order is characterized otherwise remove corresponding terms from the spec.*
C. *A defintion of "bandwidth combination set (BCS)" is required in TS 36.101 clause 3.1 and BCS must be defined as a property of a CA combination and not as permutations of BCS of parts of the CA combination.*
D. *The recursive definition of CA combinations for intra-band and mixed intra-/inter-band cases has to be avoided, i.e. for each CA combination the bandwidths supported on each CC are listed but there is no pointering to parts of other CA combinations which may split in further BCSs.*
E. *The way bandwidth combinations are defined for intra-band CA will follow the same approach as for inter-band CA i.e. a YES/NO for each bandwidth that is possible for a CC, in addition it is possible to restrict the number of possible bandwidth combinations within a BCS via minimum and maximum aggregated bandwidth indications.*

discussion: Nokia: too detailed proposal and better to handle this in RAN4
Qualcomm: supports the table format and going back to RAN4 would mean moving in circles
Nokia: email discussion on RAN4 reflector is more appropriate
RAN4 chair: we need to make sure that table format change does not impact ongoing CRs
RAN vice-chair (Fujitsu): RAN needs to discuss this topic also from project management point of view
ALU: prefers another quarter for further RAN4 discussion before taking the decision
DISH: table need be future proof, also take into account that table format also has impact on BS specs
MCC: the proposed table is designed to be future-proof
RAN4 chair: impact on harmonized standards need to be taken into account

conclusion: noted, MCC will trigger an email discussion on the RAN4 reflector in order to come to a decision by RAN #68

10.7.1 3 Band Carrier Aggregation (3DL/1UL)

10.7.1.1 LTE Advanced 3 Band Carrier Aggregation (3DL/1UL) of Band 3, Band 42 and Band 42

[LTE_CA_B3_B42_B42] 2nd exception: RP-141779

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10.7.1.1	640130	LTE_CA_B3_B42_B42-Core	REL-12	March 15	100	NTT DOCOMO	No open issues/CRs for TS 36.101(R4-150441) and 36.104(R4-150438) agreed at RAN4 #74.
10.7.1.1	640230	LTE_CA_B3_B42_B42-Perf	REL-12	March 15	100	NTT DOCOMO	No open issues/CRs for TS 36.141(R4-150439) agreed at RAN4 #74.

RP-150391 RAN4 CRs to LTE Advanced 3 Band Carrier Aggregation (3DL/1UL) of Band 3, Band 42 and Band 42 RAN4 CR set REL-12 LTE_CA_B3_B42_B42-Core, LTE_CA_B3_B42_B42-Perf
conclusion: approved

Core and Perf. part WIs are completed.

10.7.2 Intra-band CA related WIs (contiguous 3DL)

10.7.2.1 Perf. part: LTE Advanced intra-band contiguous Carrier Aggregation in Band 41 for 3DL [LTE_CA_C_B41_3DL-Perf]

10.7.2.1	610222	LTE_CA_C_B41_3DL-Perf	REL-12	March 15	100	Alcatel-Lucent	Newly agreed proposals in R4-151108 and R4-150450. CRs already agreed in RP-141560.

RP-150116 TR 36.833-5-41 v2.0.0 on LTE-Advanced intra-band contiguous Carrier Aggregation (CA) in Band 41 for 3 downlinks (3DL) Alcatel-Lucent TR 36.833-5-41 RAN4 REL-12 LTE_CA_C_B41_3DL-Perf
RAN4 TR 36.833-5-41 is provided for approval; v1.0.0 was noted at RAN #65 in RP-141426; wrong Tdoc request by Sprint
conclusion: TR 36.833-5-41 is approved as v12.0.0

Perf. part WI completed

Note: RP-141560 of RAN #65 included 4 CRs to "LTE_CA_C_B40_3DL_BW-Core": 1 CR to 36.101 and 3 CRs to 36.307.
RAN4 agreed that no change is required in TS 36.104 and 36.141 as Band 41 C CA is already defined for 2 DL, and BS spec (unlike UE spec) are agnostic to the number of contiguous carriers in one band.
But CRs are required in 36.101 (Core) and 36.307 (Perf) which were included in RP-141561.
So in conclusion RP-141560 had errors in the WI codes on the CR covers of the 36.307 CRs (which should have indicated Perf. and not Core part) and it was forgotten to update WID RP-142017 to indicate this Perf. part impact.

10.7.3 Intra-band CA related WIs (non-contiguous 3DL)

10.7.3.1 Perf. part: LTE Advanced intra-band non-contiguous Carrier Aggregation in Band 41 for 3 DL [LTE_CA_NC_B41_3DL-Perf]

10.7.3.1	620238	LTE_CA_NC_B41_3DL-Perf	REL-12	March 15	100	Alcatel-Lucent	Newly agreed proposals in R4-151108 and R4-150450. CRs already agreed in RP-141561.

RP-150117 TR 36.833-6-41 v2.0.0 on LTE-Advanced intra-band non-contiguous Carrier Aggregation (CA) in Band 41 for 3 downlinks (3DL) Alcatel-Lucent TR 36.833-6-41 RAN4 REL-12 LTE_CA_NC_B41_3DL-Perf
RAN4 TR 36.833-6-41 is provided for approval; v1.0.0 was noted at RAN #65 in RP-141427; wrong Tdoc request by Sprint
conclusion: TR 36.833-6-41 is approved as v12.0.0

Perf. part WI completed

Note: RP-141561 of RAN #65 included 3 CRs: 2 CRs to "LTE_CA_NC_B41_3DL-Perf" for 36.307 and 1 CR to "LTE_CA_NC_B41_3DL-Core" for 36.101.
The WID RP-140101 indicates that 36.307 is impacted by the Core part (which is wrong, it is impacted by the Perf. part).
The WID RP-140101 indicates as well that 36.141 is impacted by the Perf. part. However, RAN4 agreed that no change is required in TS 36.141 as Band 41 C CA is already defined for 2 DL, and BS spec (unlike UE spec) are

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agnostic to the number of contiguous carriers in one band.
Both aspects were unfortunately not clarified in a revision of the WID RP-140101.

10.7.4 Other CA related WIs (for WIs of 10.7.4 a separate status report is required)

10.7.4.1 Perf. part: E-UTRA UE performance requirements for multiple Carrier Aggregation configurations [LTE_CA_Mult-Perf]

RP-150188 Status Report for WI Perf Part: E-UTRA UE demodulation/CSI performance requirements for multiple Carrier Aggregation configurations; rapporteur: CMCC RAN4 Report REL-12 LTE_CA_Mult-Perf
conclusion: noted, approved: 100%, March 15; WI is completed

RP-150392 RAN4 CRs to E-UTRA UE performance requirements for multiple Carrier Aggregation configurations: Perf. Part RAN4 CR set REL-12 LTE_CA_Mult-Perf
conclusion: approved

10.8 Small Technical Enhancements and Improvements for Rel-12 [TEI12]

RAN1:
RP-150361 CRs to 25.215, 25.225 & 36.214 on new E-UTRA RSRQ measurement definition RAN1 CR set REL-12 TEI12
conclusion: approved

RAN2:
RP-150376 RAN2 agreed CRs on Small Technical Enhancements and Improvements for Rel-12 RAN2 CR set REL-12 TEI12
conclusion: approved

RP-150377 RAN2 agreed CRs on ASN.1 corrections RAN2 CR set REL-12 TEI12
conclusion: approved

RAN3:
RP-150356 TEI12 CRs RAN3 CR set REL-12 TEI12
conclusion: approved

RAN4:
Note: By mistake the TEI12 RAN4 CRs were packed into RP-150385 (AI 10.1) and RP-150387 (AI 10.3).

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11 Work Items with target Rel-13 (not related to conformance testing)

11.1 Open UTRA related WIs (spectrum related)

11.1.1 HSPA Dual-Band UL carrier aggregation [**New WI:** HSUPA_DB_MC]

RP-150127 Status report for WI HSPA Dual-Band UL carrier aggregation; rapporteur: Qualcomm RAN4 Report REL-13 HSUPA_DB_MC
conclusion: noted, approved: Core: 10%, Dec.15; Perf.: 0%, March 16

RP-150129 Revised WID: HSPA Dual-Band UL carrier aggregation Qualcomm Incorporated WID rev RAN4 REL-13 HSUPA_DB_MC
last approved WID: RP-142237; revised to add RRM aspects/specs
discussion: Nokia: would like to have clarification why we need additional RRM requirements here
conclusion: approved

11.1.2 Core part: Support of EVS over UTRAN CS [**New WI:** EVSoCS_UTRAN-Core]

RP-150128 Status report for WI Support of EVS over UTRAN CS; rapporteur: Qualcomm RAN2 Report REL-13 EVSoCS_UTRAN-Core
conclusion: noted, approved: Core: 10%, Sep.15

11.2 Open UTRA & LTE related WIs (non-spectrum related)

11.2.1 Core part: LTE UE TRP & TRS and UTRA Hand Phantom related UE TRP and TRS Requirements [LTE_UTRA_TRP_TRS-Core] (WI was shifted from REL-12 to REL-13)

TRP = total radiated power, TRS = total radiated sensitivity

RP-150027 Reply LS to RP-142316 on OTA Test Requirement Work Plan (CTIA_LS_150202; to: RAN; cc: RAN4; contact: Spirent) CTIA OTA WG LSin REL-13 LTE_MIMO_OTA-Core
CTIA = Cellular Telecommunications & Internet Association; no RAN action requested
conclusion: noted, no LS answer

RP-150104 Status report for WI Core part: LTE UE TRP & TRS and UTRA Hand Phantom related UE TRP and TRS Requirements, rapporteur: Nokia Corporation RAN4 Report REL-13 LTE_UTRA_TRP_TRS-Core
conclusion: noted, approved: Core: 40%, Dec.15

11.2.2 Base Station (BS) RF requirements for Active Antenna System (AAS) [AAS_BS_LTE_UTRA] (WIs were shifted from REL-12 to REL-13)

RP-150231 Status report for WI: Base Station (BS) RF requirements for Active Antenna System (AAS), rapporteur: Huawei RAN4 Report REL-13 AAS_BS_LTE_UTRA
conclusion: noted, approved: Core: 75%, Dec.15; Perf.: 20%, June 16

11.2.3 Core part: SON for AAS-based deployments [UTRA_LTE_SON_AAS-Core]

RP-150110 Status report for WI Core part: SON for AAS-based deployments, rapporteur: Nokia Networks RAN3 Report REL-13 UTRA_LTE_SON_AAS-Core
conclusion: noted, approved: Core: 25%, June.15

11.2.4 Core part: Radiated requirements for the verification of multi-antenna reception performance of UEs [**New WI:** UTRA_LTE_MIMO_OTA-Core]

RP-150026 LS regarding CTIA MIMO OTA Test Plan Development (CTIA_LS_150203; to: RAN4, RAN5; cc: RAN; contact: AT&T) CTIA MOSG LSin REL-13 LTE_MIMO_OTA-Core

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CTIA = Cellular Telecommunications & Internet Association; no RAN action requested
Tdoc will be presented by CTIA OTA Working Group Vice-Chair (Spirent)
conclusion: noted, no LS answer

RP-150260 Status report for WI Core Part: Radiated requirements for the verification of multi-antenna reception performance of UEs; rapporteur: Intel RAN4 Report REL-13 UTRA_LTE_MIMO_OTA-Core
conclusion: noted, approved: Core: 5%, Dec.15

RP-150261 Revised WID: Radiated requirements for the verification of multi-antenna reception performance of UEs Intel Corporation WID rev RAN4 REL-13 UTRA_LTE_MIMO_OTA-Core
last approved WID: RP-142221; updated WI acronym.
conclusion: approved

11.3 Open LTE only related WIs (non-spectrum related)

11.3.1 Core part: Enhanced Signalling for Inter-eNB Coordinated Multi-Point (CoMP) for LTE [COMP_LTE_IeNB_sig-Core]

RP-150162 Status report for Core part: Enhanced signalling for inter-eNB CoMP for LTE; rapporteur: Samsung RAN3 Report REL-13 COMP_LTE_IeNB_sig-Core
conclusion: noted, Core: 30%, June 15

11.3.2 Further LTE Physical Layer Enhancements for MTC [LTE_MTCe2_L1]

RP-150100 Status report for WI Further LTE Physical Layer Enhancements for MTC: rapporteur: Ericsson RAN1 Report REL-13 LTE_MTCe2_L1
discussion: Huawei: The Q4 2015 RAN1 TU budget can be discussed in a later RAN meeting when we have a more complete picture of what is needed to complete all REL-13 items.
conclusion: revised in RP-150495

RP-150495 Status report for WI Further LTE Physical Layer Enhancements for MTC: rapporteur: Ericsson RAN1 Report REL-13 LTE_MTCe2_L1
conclusion: noted, approved: Core: 25%, Dec.15; Perf.: 0%, June 16

RP-150102 Motivation for Revised WID Further LTE Physical Layer Enhancements for MTC Ericsson Disc (motiv) REL-13 LTE_MTCe2_L1
conclusion: noted

RP-150101 Revised WID: Further LTE Physical Layer Enhancements for MTC Ericsson WID rev RAN1 REL-13 LTE_MTCe2_L1
last approved WID: RP-141865
discussion: Huawei: 1st change: is too early to describe this here; 2nd change: should br rephrased
Mediatek: discussion on RAN drafts reflector happened and there seems to be quite wide consensus there
NTT DOCOMO: is fine with the update
ALU, AT&T, Microsoft, NEC, Fujitsu: support the revised WID
CATT: if we accept the change, can RAN1 still discuss 1.4MHz?
Intel: proposals will save some discussion in RAN1, so supports revised WID
Huawei: does not accept the revised WID, discussion should be left to WG
AT&T: it says "should" and it is a reasonable goal
RAN chair: please discuss further offline
conclusion: revised in RP-150492

RP-150492 Revised WID: Further LTE Physical Layer Enhancements for MTC Ericsson WID rev RAN1 REL-13 LTE_MTCe2_L1
conclusion: approved

11.3.3 Core part: RAN Aspects of RAN Sharing Enhancements for LTE [RSE-RAN_LTE-Core]

RP-150289 Status report for WI Core Part: RAN Aspects of RAN Sharing Enhancements for LTE; rapporteur: NEC RAN3 Report REL-13 RSE-LTE_RAN-Core
conclusion: noted, approved: Core: 20%, Sep.15

11.3.4 LTE Carrier Aggregation Enhancement Beyond 5 Carriers [**New WI:** LTE_CA_enh_b5C]

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RP-150272 Status report for LTE Carrier Aggregation Enhancement Beyond 5 Carriers, rapporteur: Nokia Corporation RAN1 Report REL-13 LTE_CA_enh_b5C
conclusion: noted, Core: 10%, Dec.15; Perf.: 0%, June 16

RP-150203 Revised Work Plan for LTE Carrier Aggregation Enhancement Beyond 5 Carriers NTT DOCOMO, INC., Nokia Corporation, Nokia Networks Disc REL-13 LTE_CA_enh_b5C
revised work plan for WI: LTE_CA_enh_b5C; revision of RP-141997
conclusion: noted

RP-150275 Motivation for WID Revision: LTE Carrier Aggregation Enhancement Beyond 5 Carriers Nokia Corporation, NTT DoCoMo Inc., Nokia Networks Disc (motiv) REL-13 LTE_CA_enh_b5C
conclusion: noted

RP-150277 Revised WID: LTE Carrier Aggregation Enhancement Beyond 5 Carriers Nokia Corporation, NTT DoCoMo Inc., Nokia Networks WID rev RAN1 REL-13 LTE_CA_enh_b5C
last approved WID: RP-142286
discussion: Ericsson: what about time units for Perf. part?
RAN chair: time units should be discussed in status report
CATT: TUs were already changed with status report RP-150272
conclusion: approved

11.3.5 Enhanced LTE Device to Device Proximity Services [**New WI:** LTE_eD2D_Prox]

Proximity-based Services:

RP-150021 LS on public safety discovery
(S2-150691; to: RAN1, RAN2, SA3, RAN; cc: -; contact: Qualcomm) SA2
LSin REL-13 eProSe-Ext
no explicit RAN action requested
conclusion: noted, no LS answer

RP-150033 Response LS to S2-150691 = RP-150021 on public safety discovery
(R1-150948; to: SA2; cc: RAN2, SA3, RAN; contact: Qualcomm) RAN1
LSin REL-13 eProSe-Ext-SA2
no RAN action requested;
discussion: SA2 chair (Samsung): related MCPTT work needs to be taken into account
conclusion: noted, no LS answer

Mission Critical Push to Talk (MCPTT):

see also RP-150380 under AI 15.

RP-150022 LS on support for ProSe one-to-one communication in Release 13
(S6-150076; to: RAN2; cc: SA2, RAN; contact: General Dynamics) SA6
LSin REL-13 MCPTT
conclusion: LS will be treated under AI 11.3.5
no RAN action requested
conclusion: noted, no LS answer

RP-150023 LS on Establishment of new working group TSG SA WG6
(SP-140884; to: OMA, ETSI TC TCCE, 3GPP TSG CT, SA2, SA6, ATIS; cc: TCCA, PCG, RAN, CT1, CT3, CT4, CT6, SA1, SA3, SA4, SA5; contact: SA6 convener) SA
LSin REL-13 MCPTT
TCCE = TETRA and Critical Communications Evolution; TCCA = TETRA + Critical Communications Association; no RAN action requested
conclusion: noted, no LS answer

RP-150035 LS reply to S6-150076 = RP-150021 on support for ProSe one-to-one communication in Release 13
(R2-150710; to: SA6; cc: SA2, RAN; contact: Intel) RAN2
LSin REL-13 MCPTT
no RAN action requested;
conclusion: noted, no LS answe

Status:

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RP-150095 Status report for WI: Enhanced LTE Device to Device Proximity Services; rapporteur: Qualcomm RAN2 Report REL-13 LTE_eD2D_Prox
conclusion: noted, approve: Core: 0%, Dec.15; Perf.: 0%, June 16

Revised WID:

RP-150441 Revised WID: Enhanced LTE Device to Device Proximity Services Qualcomm WID rev RAN2 REL-13 LTE_eD2D_Prox
last approved WID: RP-142311
conclusion: approved

11.3.6 Core part: UE core requirements for uplink 64 QAM [**New WI:** LTE_UL64QAM-Core]

RP-150232 Status report for WI: Core part: UE core requirements for uplink 64 QAM, rapporteur: Huawei RAN4 Report REL-13 LTE_UL64QAM-Core
conclusion: noted, approve: Core: 10%, Sep.15

11.3.7 Perf. part: Performance requirements of MMSE-IRC receiver for LTE BS [**New WI:** LTE_MMSE_IRC_BS-Perf]

RP-150204 Status report for WI Perf. Part: Performance requirements of MMSE-IRC receiver for LTE BS; rapporteur: China Telecom RAN4 Report REL-13 LTE_MMSE_IRC_BS-Perf
conclusion: noted, approve: Perf: 10%, June 16

RP-150206 Revised WID: Performance requirements of MMSE-IRC receiver for LTE BS China Telecom WID rev RAN4 REL-13 LTE_MMSE_IRC_BS-Perf
last approved WID: RP-142223; a new TR is added
conclusion: approved

11.3.8 Perf. part: CRS Interference Mitigation for LTE Homogenous Deployments [**New WI:** LTE_CRSIM-Perf]

RP-150061 Status report for WI Perf. part: CRS Interference Mitigation for LTE Homogenous Deployments; rapporteur: Ericsson RAN4 Report REL-13 LTE_CRSIM-Perf
discussion: MCC: target date change (from June 15 to March 16), error in status report history
conclusion: noted, approved: Perf.: 10%, March 16

11.4 Open LTE only related WIs (spectrum; CA related)

NOTE: See RP-150013 under agenda item 10.7 for the status of WIs of agenda item 11.4.

11.4.1 Inter-band CA related WIs (2DL/1UL)

11.4.1.1 LTE Advanced inter-band Carrier Aggregation of Band 1 and Band 40 [LTE_CA_B1_B40]

No contributions

11.4.1.2 LTE Advanced inter-band Carrier Aggregation of Band 2 and Band 28 [LTE_CA_B2_B28]

No contributions

11.4.1.3 LTE Advanced inter-band Carrier Aggregation of Band 3 and Band 31 [LTE_CA_B3_B31]

RP-150318 Revised WID proposal: LTE Advanced Carrier Aggregation of Band 3 and Band 31 Orange; Huawei WID rev RAN4 s (2DL/1UL) REL-13 LTE_CA_B3_B31
last approved WID RP-141337
discussion: Orange: addition of a reference and extension of completion date
conclusion: approved
Note: It was detected after RAN #67 that the revised WID RP-150318 (target date for Core part is Dec.15) is in contradiction with the status report provided in RP-150013 (target date for Core part is June 15). The rapporteur clarified that June 15 is correct.

11.4.1.4 LTE Advanced inter-band Carrier Aggregation of Band 3 and Band 38 [LTE_CA_B3_B38]

No contributions

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11.4.1.5 LTE Advanced inter-band Carrier Aggregation of Band 3 and Band 40 [LTE_CA_B3_B40]

No contributions

11.4.1.6 LTE Advanced inter-band Carrier Aggregation of Band 3 and Band 41

[New WI: LTE_CA_B3_B41]

No contributions

11.4.1.7 LTE Advanced inter-band Carrier Aggregation of Band 4 and Band 28 [LTE_CA_B4_B28]

No contributions

11.4.1.8 LTE Advanced inter-band Carrier Aggregation of Band 5 and Band 40 [LTE_CA_B5_B40]

RP-150285 Revised WID: Additional bandwidth combination set for LTE Advanced inter-band Carrier Aggregation of Band 5 and Band 40 Samsung WID rev RAN4 s (2DL/1UL) REL-13 LTE_CA_B5_B40
last approved WID: RP-141888; revised to add new bandwidth combination set
conclusion: approved

11.4.1.9 LTE Advanced inter-band Carrier Aggregation of Band 7 and Band 22 [LTE_CA_B7_B22]

No contributions

11.4.1.10 LTE Advanced inter-band Carrier Aggregation of Band 8 and Band 27 [LTE_CA_B8_B27]

No contributions

11.4.1.11 LTE Advanced inter-band Carrier Aggregation of Band 20 and Band 31 [LTE_CA_B20_B31]

No contributions

11.4.1.12 LTE Advanced inter-band Carrier Aggregation of Band 20 and Band 40 [LTE_CA_B20_B40]

No contributions

11.4.1.13 LTE Advanced inter-band Carrier Aggregation of Band 25 and Band 26

[New WI: LTE_CA_B25_B26]

RP-150115 Revised WID: LTE Advanced inter-band Carrier Aggregation of Band 25 and Band 26 Sprint WID rev RAN4 s (2DL/1UL) REL-13 LTE_CA_B25_B26
last approved WID: RP-142020; revised to add 2 bandwidth combination sets; both of the added bandwidth combination sets are subsets of bandwidth combination set 0
conclusion: approved
Note: It was detected after RAN #67 that the revised WID RP-150115 (target date for Core and Perf. part is Dec.15) is in contradiction with the status report provided in RP-150013 (target date for Core and Perf. part is June 15). The rapporteur clarified that June 15 is correct.

11.4.2 3 Band Carrier Aggregation (3DL/1UL)

11.4.2.1 LTE Advanced 3 band Carrier Aggregation (3DL/1UL) of Band 1, Band 3 and Band 3

[New WI: LTE_CA_B1_B3_B3]

No contributions

11.4.2.2 LTE Advanced 3 band Carrier Aggregation (3DL/1UL) of Band 1, Band 3 and Band 40

[New WI: LTE_CA_B1_B3_B40]

No contributions

11.4.2.3 LTE Advanced 3 band Carrier Aggregation (3DL/1UL) of Band 1, Band 8 and Band 28

[New WI: LTE_CA_B1_B8_B28]

RP-150067 Revised Work Item Proposal: LTE Advanced 3 Band Carrier Aggregation (3DL/1UL) of Band 1, Band 8 and Band 28 SoftBank Mobile WID rev RAN4 s (3DL/1UL) REL-13 LTE_CA_B1_B8_B28
last approved WID: RP-141826; to change TRs from new specs to affected specs
conclusion: revised in RP-150447

RP-150447 Revised Work Item Proposal: LTE Advanced 3 Band Carrier Aggregation (3DL/1UL) of Band 1, Band 8 and Band 28 SoftBank Mobile WID rev RAN4 s (3DL/1UL) REL-13 LTE_CA_B1_B8_B28

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conclusion: approved

11.4.2.4 LTE Advanced 3 band Carrier Aggregation (3DL/1UL) of Band 1, Band 8 and Band 40
[**New WI:** LTE_CA_B1_B8_B40]

No contributions

11.4.2.5 LTE Advanced 3 Band Carrier Aggregation (3DL/1UL) of Band 1, Band 19 and Band 28
[**New WI:** LTE_CA_B1_B19_B28]

No contributions

11.4.2.6 LTE Advanced 3 Band Carrier Aggregation (3DL/1UL) of Band 1, Band 3 and Band 28
[**New WI:** LTE_CA_B1_B3_B28]

No contributions

11.4.2.7 LTE Advanced 3 Band Carrier Aggregation (3DL/1UL) of Band 1, Band 7 and Band 28
[**New WI:** LTE_CA_B1_B7_B28]

RP-150234 Revised WID: LTE Advanced 3 Band Carrier Aggregation (3DL/1UL) of Band 1, Band 7 and Band 28, rapporteur: Huawei Huawei WID rev RAN4 s (3DL/1UL) REL-13 LTE_CA_B1_B7_B28
last approved WID: RP-142208; correction of the Maximum aggregated bandwidth for LTE_CA_B1_B7_B28; revised WID was also submitted to RAN4 #74
conclusion: approved
Note: It was detected after RAN #67 that the revised WID RP-150234 (target date for Core part is Dec.15) is in contradiction with the status report provided in RP-150013 (target date for Core part is June 15). The rapporteur clarified that June 15 is correct.

11.4.2.8 LTE Advanced 3 Band Carrier Aggregation (3DL/1UL) of Band 1, Band 3 and Band 7
[**New WI:** LTE_CA_B1_B3_B7]

No contributions

11.4.2.9 LTE Advanced 3 Band Carrier Aggregation (3DL/1UL) of Band 2, Band 2 and Band 12
[LTE_CA_B2_B2_B12]

RP-150413 Clean-up of 3 Band Carrier Aggregation (3DL/1UL) of Band 2, Band 2 and Band 12 RAN4 CR 36.853-12 0003 - F REL-12 LTE_CA_B2_B2_B12-Core
LTE_CA_B2_B2_B13 is a REL-13 WI. By accident TP(s) with coexistence studies of harmonics and intermodulation products for TE_CA_B2_B2_B12 were included in the Rel-12 TR 36.853 (now called TR 36.853-12) before approving it at RAN #66; this CR removes this REL-13 material from the REL-12 TR
conclusion: approved

11.4.2.10 LTE Advanced 3 Band Carrier Aggregation (3DL/1UL) of Band 2, Band 5, and Band 29
[LTE_CA_B2_B5_B29]

No contributions

11.4.2.11 LTE Advanced 3 Band Carrier Aggregation (3DL/1UL) of Band 3, Band 3 and Band 5
[**New WI:** LTE_CA_B3_B3_B5]

No contributions

11.4.2.12 LTE Advanced 3 Band Carrier Aggregation (3DL/1UL) for Band 3, Band 3 and Band 8
[LTE_CA_B3_B3_B8]

No contributions

11.4.2.13 Additional bandwidth combination set for LTE Advanced 3 Band Carrier Aggregation (3DL/1UL) of Band 3, Band 7 and Band 7 [**New WI:** LTE_CA_B3_B7_B7_BWset]

No contributions

11.4.2.14 LTE Advanced 3 Band Carrier Aggregation (3DL/1UL) of Band 3, Band 7 and Band 8
[**New WI:** LTE_CA_B3_B7_B8]

No contributions

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11.4.2.15 LTE Advanced 3 Band Carrier Aggregation (3DL/1UL) of Band 3, Band 7 and Band 28 [**New WI:** LTE_CA_B3_B7_B28]

No contributions

11.4.2.16 LTE Advanced 3 Band Carrier Aggregation (3DL/1UL) for Band 3, Band 8 and Band 27 [LTE_CA_B3_B8_B27]

No contributions

11.4.2.17 LTE Advanced 3 band Carrier Aggregation (3DL/1UL) of Band 3, Band 8 and Band 2 [**New WI:** LTE_CA_B3_B8_B28]

No contributions

11.4.2.18 LTE Advanced 3 band Carrier Aggregation (3DL/1UL) of Band 3, Band 8 and Band 40 [**New WI:** LTE_CA_B3_B8_B40]

No contributions

11.4.2.19 LTE Advanced 3 Band Carrier Aggregation (3DL/1UL) of Band 3, Band 40 and Band 40 [**New WI:** LTE_CA_B3_B40_B40-Core]

No contributions

11.4.2.20 LTE Advanced 3 Band Carrier Aggregation (3DL/1UL) of Band 7, Band 7 and Band 28 [**New WI:** LTE_CA_B7_B7_B28]

No contributions

11.4.2.21 LTE Advanced 3 Band Carrier Aggregation (3DL/1UL) of Band 7, Band 40 and Band 40 [**New WI:** LTE_CA_B7_B40_B40]

No contributions

11.4.2.22 LTE Advanced 3 Band Carrier Aggregation (3DL/1UL) of Band 8, Band 41 and Band 41 [LTE_CA_B8_B41_B41]

RP-150269 TR 36.853-13 v0.3.0: Rel-13 Inter-band Carrier Aggregation (3DL/1UL) ZTE TR 36.853-13 RAN4 REL-13 LTE_CA_B8_B41_B41-Core

Tdoc was withdrawn as it is too early to submit this RAN4 TR and TR should be in v1.0.0.

conclusion: withdrawn

11.4.2.23 LTE Advanced 3 Band Carrier Aggregation (3DL/1UL) of Band 8, Band 42 and Band 42 [**New WI:** LTE_CA_B8_B42_B42]

No contributions

11.4.2.24 LTE Advanced 3 Band Carrier Aggregation (3DL/1UL) of Band 21, Band 42 and Band 42 [**New WI:** LTE_CA_B21_B42_B42]

No contributions

11.4.2.25 LTE Advanced 3 Band Carrier Aggregation (3DL/1UL) of Band 28, Band 40 and Band 40 [**New WI:** LTE_CA_B28_B40_B40]

RP-150233 Revised WID: LTE Advanced 3 Band Carrier Aggregation (3DL/1UL) of Band 28, Band 40 and Band 40, rapporteur: HuaweiHuawei WID rev RAN4 s (3DL/1UL) REL-13 LTE_CA_B28_B40_B40

last approved WID: RP-142206; correction of the Maximum aggregated bandwidth for LTE_CA_B28_B40_B40; revised WID was also submitted to RAN4 #74

conclusion: approved

Note: It was detected after RAN #67 that the revised WID RP-150233 (target date for Core part is Dec.15) is in contradiction with the status report provided in RP-150013 (target date for Core part is June 15). The rapporteur clarified that June 15 is correct.

11.4.2.26 LTE Advanced 3 Band Carrier Aggregation (3DL/1UL) of Band 38, Band 40 and Band 40 [LTE_CA_B38_B40_B40]

No contributions

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11.4.2.27 LTE Advanced 3 Band Carrier Aggregation (3DL/1UL) of Band 41, Band 42 and Band 42 [LTE_CA_B41_B42_B42]

No contributions

11.4.3 4 Band Carrier Aggregation (4DL/1UL)

11.4.3.1 LTE Advanced 4 Band Carrier Aggregation (4DL/1UL) of Band 2, Band 2, Band 5 and Band 30 [**New WI:** LTE_CA_B2_B2_B5_B30]

RP-150086 LTE Advanced 4 Band Carrier Aggregation (4DL/1UL) of Band 2, Band 2, Band 5 and Band 30 AT&T WID rev RAN4 s (4DL/1UL) REL-13 LTE_CA_B2_B2_B5_B30
last approved WID: RP-142199
discussion: MCC: WI code can not be modified after allocation
conclusion: revised in RP-150448 (use allocated WI code, correct UID, use TR 36.854-13 instead of TR 36.8xx in section 10; clarify which spec is impacted by Core/Perf. part; check whether TR 36.853-13 or TR 36.852-13 are affected as well)

RP-150448 LTE Advanced 4 Band Carrier Aggregation (4DL/1UL) of Band 2, Band 2, Band 5 and Band 30 AT&T WID rev RAN4 s (4DL/1UL) REL-13 LTE_CA_B2_B2_B5_B30
conclusion: approved (unseen)
Note: It was detected after RAN #67 that revised WID does not indicate that TR 36.854-13 is affected by Core part and that its target (Sep.15) is in contradiction with the status report RP-150013 to RAN #67 which indicates Core part target is Dec.15. The rapporteur clarified that the Core part target is Sep.15.

11.4.3.2 LTE Advanced 4 Band Carrier Aggregation (4DL/1UL) of Band 2, Band 2, Band 12 and Band 30 [**New WI:** LTE_CA_B2_B2_B12_B30]

RP-150087 LTE Advanced 4 Band Carrier Aggregation (4DL/1UL) of Band 2, Band 2, Band 12 and Band 30 AT&T WID rev RAN4 s (4DL/1UL) REL-13 LTE_CA_B2_B2_B12_B30
last approved WID: RP-142198
conclusion: revised in RP-150449 (use allocated WI code, correct UID, use TR 36.854-13 instead of TR 36.8xx in section 10 and move it to affected specs; clarify which spec is impacted by Core/Perf. part; check whether TR 36.853-13 or TR 36.852-13 are affected as well)

RP-150449 LTE Advanced 4 Band Carrier Aggregation (4DL/1UL) of Band 2, Band 2, Band 12 and Band 30 AT&T WID rev RAN4 s (4DL/1UL) REL-13 LTE_CA_B2_B2_B12_B30
conclusion: approved (unseen)

11.4.3.3 LTE Advanced 4 Band Carrier Aggregation (4DL/1UL) of Band 2, Band 2, Band 29 and Band 30 [**New WI:** LTE_CA_B2_B2_B29_B30]

RP-150088 LTE Advanced 4 Band Carrier Aggregation (4DL/1UL) of Band 2, Band 2, Band 29 and Band 30 AT&T WID rev RAN4 s (4DL/1UL) REL-13 LTE_CA_B2_B2_B29_B30
last approved WID: RP-142200
conclusion: revised in RP-150450 (use allocated WI code, correct UID, use TR 36.854-13 instead of TR 36.8xx in section 10 and move it to affected specs; clarify which spec is impacted by Core/Perf. part; check whether TR 36.853-13 or TR 36.852-13 are affected as well)

RP-150450 LTE Advanced 4 Band Carrier Aggregation (4DL/1UL) of Band 2, Band 2, Band 29 and Band 30 AT&T WID rev RAN4 s (4DL/1UL) REL-13 LTE_CA_B2_B2_B29_B30
conclusion: approved (unseen)

11.4.3.4 LTE Advanced 4 Band Carrier Aggregation (4DL/1UL) of Band 2, Band 4, Band 5 and Band 30 [**New WI:** LTE_CA_B2_B4_B5_B30]

RP-150089 LTE Advanced 4 Band Carrier Aggregation (4DL/1UL) of Band 2, Band 4, Band 5 and Band 30 AT&T WID rev RAN4 s (4DL/1UL) REL-13 LTE_CA_B2_B4_B5_B30
last approved WID: RP-142202
conclusion: revised in RP-150451 (use allocated WI code, correct UID, use TR 36.854-13 instead of TR 36.8xx in section 10 and move it to affected specs; clarify which spec is impacted by Core/Perf. part; check whether TR 36.853-13 or TR 36.852-13 are affected as well)

RP-150451 LTE Advanced 4 Band Carrier Aggregation (4DL/1UL) of Band 2, Band 4, Band 5 and Band 30 AT&T WID rev RAN4 s (4DL/1UL) REL-13 LTE_CA_B2_B4_B5_B30
conclusion: approved (unseen)

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11.4.3.5 LTE Advanced 4 Band Carrier Aggregation (4DL/1UL) of Band 2, Band 4, Band 12 and Band 30 [New WI: LTE_CA_B2_B4_B12_B30]

RP-150090 LTE Advanced 4 Band Carrier Aggregation (4DL/1UL) of Band 2, Band 4, Band 12 and Band 30
AT&T WID rev RAN4 s (4DL/1UL) REL-13 LTE_CA_B2_B4_B12_B30
last approved WID: RP-142201
conclusion: revised in RP-150452 (use allocated WI code, correct UID, use TR 36.854-13 instead of TR 36.8xx in section 10 and move it to affected specs; clarify which spec is impacted by Core/Perf. part; check whether TR 36.853-13 or TR 36.852-13 are affected as well)

RP-150452 LTE Advanced 4 Band Carrier Aggregation (4DL/1UL) of Band 2, Band 4, Band 12 and Band 30
AT&T WID rev RAN4 s (4DL/1UL) REL-13 LTE_CA_B2_B4_B12_B30
conclusion: approved (unseen)
Note: It turned out after RAN #67 that the target date was not updated in the revised WID RP-150452 (which indicates Dec.14). The Core and Perf. part have the target Dec.15 as in status report RP-150013.

11.4.3.6 LTE Advanced 4 Band Carrier Aggregation (4DL/1UL) of Band 2, Band 4, Band 29 and Band 30 [New WI: LTE_CA_B2_B4_B29_B30]

RP-150091 LTE Advanced 4 Band Carrier Aggregation (4DL/1UL) of Band 2, Band 4, Band 29 and Band 30
AT&T WID rev RAN4 s (4DL/1UL) REL-13 LTE_CA_B2_B4_B29_B30
last approved WID: RP-142203; note: CA_B2_B4_B29 is already specified in a REL-12 WI; CA_B2_B4_B30 already covered in RP-150090;
conclusion: revised in RP-150419

RP-150419 LTE Advanced 4 Band Carrier Aggregation (4DL/1UL) of Band 2, Band 4, Band 29 and Band 30
AT&T WID rev RAN4 s (4DL/1UL) REL-13 LTE_CA_B2_B4_B29_B30
last approved WID: RP-142203
conclusion: revised in RP-150453 (use allocated WI code, correct UID, use TR 36.854-13 instead of TR 36.8xx in section 10 and move it to affected specs; clarify which spec is impacted by Core/Perf. part; check whether TR 36.853-13 or TR 36.852-13 are affected as well)

RP-150453 LTE Advanced 4 Band Carrier Aggregation (4DL/1UL) of Band 2, Band 4, Band 29 and Band 30
AT&T WID rev RAN4 s (4DL/1UL) REL-13 LTE_CA_B2_B4_B29_B30
conclusion: approved (unseen)

11.4.3.7 LTE Advanced 4 Band Carrier Aggregation (4DL/1UL) of Band 25, Band 41, Band 41 and Band 41 [New WI: LTE_CA_B25_B41_B41_B41]

No contributions

11.4.4 Inter-band CA related WIs (2UL)

11.4.4.1 LTE Advanced dual uplink inter-band Carrier Aggregation Class A1 in REL-13 [New WI: LTE_CA_2UL_R13-A1]

RP-150235 Revised WID: LTE Advanced dual uplink inter-band Carrier Aggregation Class A1 in REL-13, rapporteur: Huawei Huawei WID rev RAN4 s (2UL) REL-13 LTE_CA_2UL_R13-A1
last approved WID: RP-141935; adding CA_2A-12A and deleting CA_1A-26A
conclusion: revised in RP-140407

RP-150407 Revised WID: LTE Advanced dual uplink inter-band Carrier Aggregation Class A1 in REL-13, rapporteur: Huawei Huawei WID rev RAN4 s (2UL) REL-13 LTE_CA_2UL_R13-A1
last approved WID: RP-141935; revision of RP-150235 adding also TDD-TDD;
conclusion: revised in RP-150411 as multiple versions of RP-150407 exist

RP-150411 Revised WID: LTE Advanced dual uplink inter-band Carrier Aggregation Class A1 in REL-13, rapporteur: Huawei Huawei WID rev RAN4 s (2UL) REL-13 LTE_CA_2UL_R13-A1
last approved WID: RP-141935; revision of RP-150407
discussion: RAN4 chair: includes also FDD-FDD and TDD-TDD limitation
conclusion: approved

11.4.4.2 LTE Advanced dual uplink inter-band Carrier Aggregation Class A2 in REL-13 [New WI: LTE_CA_2UL_R13-A2]

RP-150408 Revised WID: LTE Advanced dual uplink inter-band Carrier Aggregation Class A2 in REL-13
Qualcomm WID rev RAN4 s (2UL) REL-13 LTE_CA_2UL_R13-A2
last approved WID: RP-141975; adding TDD-TDD

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conclusion: approved

11.4.4.3 LTE Advanced dual uplink inter-band Carrier Aggregation Class A3 in REL-13
[New WI: LTE_CA_2UL_R13-A3]

RP-150409 Revised WID: LTE Advanced dual uplink inter-band Carrier Aggregation Class A3 in REL-13 Ericsson WID rev RAN4 s (2UL) REL-13 LTE_CA_2UL_R13-A3
last approved WID: RP-142010; adding TDD-TDD
conclusion: approved

11.4.5 Intra-band CA related WIs (contiguous 3DL)

11.4.5.1 LTE Advanced intra-band contiguous Carrier Aggregation in Band 42 for 3DL
[LTE_CA_C_B42_3DL]

RP-150118 TR 36.833-5-42 v1.0.0: LTE Advanced Carrier Aggregation in Band 42 for 3DL CATT TR 36.833-5-42 RAN4 REL-13 LTE_CA_C_B42_3DL-Core
RAN4 TR 36.833-5-42 is provided for information
conclusion: noted

RP-150319 Revised WID for LTE Advanced intra-band contiguous Carrier Aggregation in Band 42 for 3DL CATT WID rev RAN4 s (C 3DL) REL-13 LTE_CA_C_B42_3DL
last approved WID: RP-141677
conclusion: approved

11.4.6 Intra-band CA related WIs (non-contiguous 4DL)

11.4.6.1 LTE Advanced intra-band non-contiguous Carrier Aggregation in Band 41 for 4 DL
[New WI: LTE_CA_NC_B41_4DL]

No contributions

11.5 Open LTE only related WIs (spectrum; not CA related)

11.5.1 2GHz FDD LTE Band for Region 1 (1980-2010MHz and 2170-2200MHz Bands)
[LTE_1980_2170_REG1]

RP-150106 Status Report for WI 2GHz FDD LTE Band for Region 1; rapporteur: DISH Network RAN4 Report REL-13 LTE_1980_2170_REG1
conclusion: noted, approved: Core: 35%, June 15; Perf.: 0%, June 15

RP-150107 Revised WID: 2GHz FDD LTE Band for Region 1DISH Network WID rev RAN4 s REL-13 LTE_1980_2170_REG1
last approved WID: RP-141710; captures the recent RAN4 agreement on the band plan and updates rapporteurship (only co-rapporteur modified)
conclusion: revised in RP-150424 (adding some more affected specs)

RP-150424 Revised WID: 2GHz FDD LTE Band for Region 1DISH Network WID rev RAN4 s REL-13 LTE_1980_2170_REG1 revision of RP-150107; last approved WID: RP-141710;
conclusion: approved

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12 Study Items

12.1 Closed study items

RP-150362 CR to 36.873 to reduce O-to-I XPR Geometric Variance for the 3D Channel Model RAN1 CR 36.873 0003 - F REL-12 FS_LTE_3D_channel
conclusion: approved

RP-150420 CR for Corrections and Clarifications of UE specifications in TR 36.844 RAN4 CR 36.844 0010 - F Rel-13 FS_LTE_FDD_1670_US
discussion: MCC: late submission; note: FS_LTE_FDD_1670_US was a REL-13 SI
conclusion: approved

12.2 Open UTRA related SIs

12.2.1 REL-13 Study on Downlink Enhancements for UMTS [FS_UTRA_EDL]

RP-150223 Status report for SI: Downlink Enhancements for UMTS, rapporteur: Huawei RAN2 Report REL-13 FS_UTRA_EDL
conclusion: noted, approved: 80%, June 15

RP-150224 Revised SID: Downlink Enhancements for UMTS, rapporteur: Huawei Huawei SID rev RAN2 REL-13 FS_UTRA_EDL
last approved SID: RP-141901; target date corrected to June 2015 (RAN #68) and TR information added
conclusion: approved

RP-150225 TR 25.706 v1.0.0 on Downlink Enhancements for UMTS, for information Huawei TR 25.706 RAN2 REL-13 FS_UTRA_EDL
RAN2 TR 25.706 is submitted for information
conclusion: noted

12.2.2 REL-13 Study on small data transmission enhancement for UMTS [FS_UTRA_SDATA]

RP-150196 Status report for SI Study on Small Data Transmission Enhancements for UMTS, rapporteur: Ericsson RAN1 Report REL-13 FS_UTRA_SDATA
discussion: MCC: why does a SI have a Core part completion level?
conclusion: noted, approved: 55%, June 15

RP-150197 TR 25.705 v1.0.0 on Study on Small Data Transmission Enhancements for UMTS, for information Ericsson TR 25.705 RAN1 REL-13 FS_UTRA_SDATA
RAN1 TR 25.705 is submitted for information
conclusion: noted

12.2.3 REL-13 Study on Network-Assisted Interference Cancellation and Suppression for UMTS [**New SI:** FS_UTRA_NAICS]

Note: Tdoc numbers of status report and revised SID were swapped to be in line with Tdocs.

RP-150175 Status report for SI: Study on Network-Assisted Interference Cancellation and Suppression for UMTS, rapporteur: Huawei RAN1 Report REL-13 FS_UTRA_NAICS
conclusion: noted, approved: 20%, Sep. 15

RP-150174 Revised SID: Study on Network-Assisted Interference Cancellation and Suppression for UMTS, rapporteur: Huawei Huawei, HiSilicon SID rev RAN1 REL-13 FS_UTRA_NAICS
last approved SID: RP-142250; TR will be submitted for information at RAN #68 and for approval at RAN #69; TR number is added
conclusion: approved

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12.2.4 REL-13 Study on RAN sharing enhancements for UMTS [**New SI:** FS_RSE_UTRA_GUSH]

RP-150227 Status report for SI: Study on RAN sharing enhancements for UMTS, rapporteur: Huawei RAN3 Report REL-13 FS_RSE_UTRA_GUSH
conclusion: noted, approved: 10%, June 15

12.3 Open UTRA & LTE related SIs

12.3.1 REL-13 Study on Multi-RAT Joint coordination [FS_MultiRAT_JC]

RP-150187 Status Report for SI: Study on Multi-RAT Joint Coordination; rapporteur: CMCC RAN3 Report REL-13 FS_MultiRAT_JC
conclusion: noted, approved: 85%, June 15

RP-150189 Revised SID: Study on Multi-RAT Joint Coordination CMCC SID rev RAN3 REL-13 FS_MultiRAT_JC
last approved SID: RP-132086;
conclusion: revised in RP-150417

RP-150417 Revised SID: Study on Multi-RAT Joint Coordination CMCC SID rev RAN3 REL-13 FS_MultiRAT_JC
last approved SID: RP-132086
discussion: RAN3 chair: why do we need to specify when we start work?
AT&T: is the time budget enough to finish the SI?
RAN3 chair: SI is overlapping with the WI
SI is on control plane only while WI is on control and user plane
conclusion: rejected, can discuss at RAN #68 how to address user plane part in the WI

RP-150264 TR 37.870 v1.0.0 on Study on Multi-RAT Joint Coordination, for information CMCC TR 37.870 RAN3 REL-13 FS_MultiRAT_JC
RAN3 TR 37.870 is submitted for information
conclusion: noted

12.3.2 REL-13 Study on Indoor Positioning Enhancements for UTRA and LTE [FS_UTRA_LTE_iPos_enh]

RP-150080 Status report for SI on Study on Indoor Positioning Enhancements for UTRA and LTE; rapporteur: NextNavRAN1 Report REL-13 FS_UTRA_LTE_iPos_enh
conclusion: noted, approved: 30%, Sep.15

12.4 Open LTE only related SIs

12.4.1 REL-13 Study on LTE FDD in the bands 1980-2010 MHz and 2170-2200 MHz [FS_LTE_1980_2170_Korea]

RP-150120 Status Report of SI on Study on LTE FDD in the bands 1980-2010 MHz and 2170-2200 MHz; rapporteur: KT RAN4 Report 36.861 REL-13 FS_LTE_1980_2170_Korea
discussion: MCC: target date changed to RAN#68
conclusion: noted, approved: 90%, June 15

RP-150119 Revised SID: Study on LTE FDD in the bands 1980-2010MHz and 2170-2200MHz KT SID rev RAN4 REL-13 FS_LTE_1980_2170_Korea
last approved SID: RP-141154; target date is changed to RAN #68
conclusion: approved

12.4.2 REL-13 Study on Elevation Beamforming/Full-Dimension (FD) MIMO for LTE [FS_LTE_EBF_FDMIMO]

RP-150346 Status report for SI Study on Elevation Beamforming/Full-Dimension (FD) MIMO for LTE; rapporteur: Nokia Networks RAN1 Report REL-13 FS_LTE_EBF_FDMIMO
discussion: MCC: late Tdoc request
conclusion: noted, approved: 45%, June 15

12.4.3 REL-13 Study on Licensed-Assisted Access using LTE [**New SI:** FS_LTE_LAA]

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RP-150024 LS regarding coexistence of Licensed Assisted Access (LAA) and IEEE 802
(IEEE_802_LMSC_150202; to: RAN; cc: RAN1, IEEE 802, IEEE 802.19; contact: Chairman IEEE 802 LMSC) IEEE 802 LMSC
LSin REL-13 FS_LTE_LAA
LMSC = Local and Metropolitan Area Network Standards Committee; RAN #66 received LSin RP-141747; RAN chair presented RP-150055 (see AI 5.3) at IEEE 802 Interim Session on 13.01.2015 in Atlanta, USA; no explicit RAN action requested
presented by Alcatel-Lucent
conclusion: noted, LS answer drafted by Ericsson in RP-150444

Note: Tdoc numbers of RP-150444 and RP-150445 were swapped to be in line with Tdocs.

RP-150444 Draft Response LS to IEEE_802_LMSC_150202 = RP-150024 regarding Coexistence of Licensed Assisted Access (LAA) and IEEE 802
(to: IEEE 802 LMSC; cc: -; contact: Ericsson) Ericsson, Huawei
LSout REL-13 FS_LTE_LAA
discussion: Blackberry: should see RP-150317 first
conclusion: revised in RP-150454 to provide the final version

RP-150454 Response LS to IEEE_802_LMSC_150202 = RP-150024 regarding Coexistence of Licensed Assisted Access (LAA) and IEEE 802 (to: IEEE 802 LMSC; cc: -; contact: Ericsson) RAN LSout LS01 REL-13 FS_LTE_LAA
conclusion: approved (sent out on Wed of RAN #67)

RP-150317 LAA Use CasesBlackBerry UK Limited Disc REL-13 FS_LTE_LAA
proposed that RAN provide the following guidance to RAN1:
- *RAN1 are requested to verify that the parameters currently assumed for LAA coexistence evaluations are representative of at least one high-density real world use case*
- *If any adjustment to existing simulation assumptions is deemed necessary, these should aim at minimizing impact to study item timescales*

discussion: Ericsson: something missing for use cases?
Blackberry: co-existence aspects are essential for this feature
Ericsson: we are using full buffer scenario
Blackberry: details can be discussed in RAN1
Qualcomm: no objections were raised when this was discussed in RAN1; single channel case is not a realistic scenario
Blackberry: there was no discussion about density
RAN chair: suggests that companies contribute in RAN1
Blackberry: we are suggesting that RAN1 should look into the scenarios mentioned by IEEE
conclusion: noted

RP-150271 Status report for SI Study on Licensed-Assisted Access using LTE; rapporteur: Ericsson RAN1 Report REL-13 FS_LTE_LAA
conclusion: revised in RP-150414

RP-150414 Status report for SI Study on Licensed-Assisted Access using LTE; rapporteur: Ericsson RAN1 Report REL-13 FS_LTE_LAA
revision of RP-150271; MCC: late submission
conclusion: noted, approved: 40%, June 15

RP-150278 [DRAFT] LS on Licensed-Assisted Access (to: ETSI BRAN; cc: -; contact: Ericsson) Ericsson LSout REL-13 FS_LTE_LAA
conclusion: revised in RP-150444

RP-150445 [DRAFT] LS on Licensed-Assisted Access (to: ETSI BRAN; cc: -; contact: Ericsson) Ericsson, Huawei LSout REL-13 FS_LTE_LAA
Note: Tdoc numbers of RP-150444 and RP-150445 were swapped to be in line with Tdocs.
conclusion: revised in RP-150455

RP-150455 [DRAFT] LS on Licensed-Assisted Access (to: ETSI BRAN; cc: -; contact: Ericsson) Ericsson, Huawei LSout REL-13 FS_LTE_LAA
conclusion: revised in RP-150505

RP-150505 LS on Licensed-Assisted Access (to: ETSI BRAN; cc: -; contact: Ericsson) RAN LSout REL-13 FS_LTE_LAA
conclusion: approved

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12.4.4 REL-13 Study on possible additional configuration for LTE TDD

[**New SI:** FS_LTE_TDD_add_config]

12.4.4.1 Main session

RP-150151 Status report for SI on Study on possible additional configuration for LTE TDD, rapporteur: NTT DOCOMO, INC. RAN Report REL-13 FS_LTE_TDD_add_config
note: This is a RAN SI
conclusion: noted, approved: 5%, Sep.15

Revised SID:

RP-150153 Revised SID: Study on possible additional configuration for LTE TDD CATT, CATR, NTT DoCoMo SID revRAN REL-13 FS_LTE_TDD_add_config
last approved SID: RP-142248
conclusion: not treated (should be resubmitted to RAN #68)

Results of the ad hoc:

RP-150405 Report of ad hoc on REL-13 Study on possible additional configuration for LTE TDD Nokia Networks (ad hoc convener) Report REL-13 FS_LTE_TDD_add_config
for RAN approval
discussion: CATT: email discussion should be extended by 1 week (due to LAA discussion)
Orange: seems to become the biggest topic of REL-13 so we need to reduce the effort
Ericsson: suggests to avoid offline and email discussions and have just shared discussion
conclusion: approved, email discussion (topics see RP-150486) will be extended by 1 week

Note: TR RP-150152 was agreed during the ad hoc and then revised in RP-150487 (see below).
TP RP-150147 was actually revised/split into 2 TPs RP-150399 and RP-150401.
RP-150484 was not approved but revised in RP-150486 which was approved.

RP-150406 Void - - - -
conclusion: withdrawn

RP-150487 TR 36.825 v0.1.0 for Feasibility study on possible additional configuration for LTE TDD CATT TR 36.825 RAN REL-13 FS_LTE_TDD_add_config
summarizing the results of RAN #67 with revision marks compared to v0.0.1 in RP-150152
discussion: CATT: there is a minor typo
RAN chair: can be fixed in next version
conclusion: RP-150487 was agreed during RAN #67 but revised in RP-150519 to carry out some editorial corrections to align with the 3GPP drafting rules (differences between RP-150487 and RP-150519 are shown in a version with revision marks in RP-150519)

RP-150519 TR 36.825 v0.1.1 for Feasibility study on possible additional configuration for LTE TDD CATT, ETSI MCC TR 36.825 RAN REL-13 FS_LTE_TDD_add_config
conclusion: agreed; this TR version shall be used for TPs to TR 36.825 submitted to RAN #68

12.4.4.2 Ad hoc session

NOTE: The documents of this agenda item were handled in separate RAN ad hoc sessions.
The report of this ad hoc is provided in RP-150405 (see AI 12.4.4.1).

Technical Report:

RP-150152 TR skeleton 36.825 v0.0.1 for Study on possible additional configuration for LTE TDD CATT TR 36.825 RAN REL-13 FS_LTE_TDD_add_config
RAN TR is provided for agreement; includes TR skeleton

Scenarios and evaluation guidelines:

RP-150185 Consideration on possible additional configuration for LTE TDD CMCC Disc REL-13 FS_LTE_TDD_add_config
proposes to study possible scenarios when introducing additional TDD configuration, e.g., downlink only configuration. And further investigation of such configuration shall be considered by taking all possibilities into account. Additional impacts to these deployment scenarios and use cases shall also be further investigated from deployment perspective, e.g., impact on inter-operator coexistence

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in the same TDD band, limit of Non-standalone deployment in network operation, benefits of synchronized network not achievable and etc.

RP-150147 Scenarios, use cases and frequency bands for additional TD-LTE configuration Vodafone TP 36.825 REL-13 FS_LTE_TDD_add_config

RP-150208 Deployment scenarios on additional TDD configurations NTT DOCOMO, INC. TP 36.825 REL-13 FS_LTE_TDD_add_config

RP-150300 Considerations on TDD allocations in CEPT region and the need for a new TDD DL only configuration Orange TP 36.825 REL-13 FS_LTE_TDD_add_config

text proposals:

- *Add Band 33, 34, 38 and 40 to section 4.2 of the TR 36.8XX on "Feasibility study on possible additional configuration for LTE TDD". These bands are intended to be aggregated with FDD bands including 7, 20, 3, 1, 8, 28 and 22*
- *Add the text from paragraph 3 above to the section 4.3 (Use cases) of the same TR.*

RP-150255 Methods of utilizing unused TDD spectrum CATT Disc REL-13 FS_LTE_TDD_add_config

3 methods of utilizing unused TDD spectrum

initial discussion on the possible methods of utilizing the unused TDD spectrum, i.e. adopting new TDD configurations, converting the TDD spectrum to FDD SDL, and using existing TDD configurations;

unclear that the possible new TDD configuration or converting the TDD spectrum to FDD SDL is an efficient way to utilize the unused TDD spectrum

RP-150252 General discussion on possible new TDD configurations CATT Disc REL-13 FS_LTE_TDD_add_config

Proposal 1: Document the following in TR36.825

- *At least one standalone FDD or TDD carrier must be used together with the non-standalone TDD carrier.*
- *Inter-band carrier aggregation is a pre-requisite for a UE to receive data from a non-standalone TDD carrier.*

Proposal 2: Conclude in RAN#67 the intended deployments (i.e. scenarios, frequency bands, and use cases) for non-standalone TDD carriers.

Proposal 3: For inter-operator co-existence study, the standalone TDD carrier adjacent to the non-standalone TDD carrier shall at least include the macro deployment with seamless coverage, while all basestations for the standalone and non-standalone TDD carriers are outdoor.

Proposal 4: For inter-operator co-existence study, focus on the case in which victim is the standalone TDD carrier and aggressor is the non-standalone TDD carrier.

Proposal 5: The conventional RAN4 methodologies (i.e. the deterministic approach and the Monte Carlo simulation approach) for co-existence study shall be adopted in this study item.

Proposal 6: Initiate email discussion after RAN#67 to agree on the co-existence evaluation assumptions.

Proposal 7: Initiate email discussion after RAN#67 to agree on the performance evaluation assumptions.

Proposal 8: If new TDD configurations are to be introduced, as a minimum to maintain healthy TDD eco-system, the 3GPP core specification shall mandate that UEs supporting the new TDD configurations shall also support the existing TDD configuration, and corresponding testing in RAN5 and GCF shall be ensured.

Proposal 9: Consider further mechanisms to ensure healthy TDD eco-system.

Proposal 10: Methods other than the option of possible new TDD configurations and the option of converting the TDD spectrum into FDD SDL to utilize the unused TDD spectrum shall be discussed in the study item.

RP-150140 Considerations of introducing possible additional TDD configuration(s) NEC Disc REL-13 FS_LTE_TDD_add_config

Proposal 1: CA scenario# 4 should be the main deployment scenario for the 10:0:0/9:1:0 configuration. SCE scenario 2a specified in TS36.872 can be reused. The additional TDD UL-DL 10:0:0/9:1:0 configuration can be configured as a Secondary Cell which is used to improve the downlink throughput.

Proposal 2: Different operators in the same band without guard band should be highly prioritized for additional TDD configuration(s) study.

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Proposal 3: Baseline evaluation is that all operators uses TDD UL-DL configuration #5 (8:1:1) as the Secondary cell. Ideal synchronization is assumed.
Proposal 4: The impact of introduction of 10:0:0/9:1:0 configuration of small cell on both the macro cell and the small cell of other operators should be evaluated in the co-existence study.
Proposal 5: Small cell simulation assumption could be reused in the evaluation. The detailed parameters could be decided by email discussion.

RP-150292 TP for TR36.825: Use Case: FDD-TDD Carrier Aggregation KT TP 36.825 REL-13 FS_LTE_TDD_add_config
a use case is provided when LTE TDD carrier is used as secondary carrier in FDD-TDD Carrier Aggregation

RP-150218 Scenarios and evaluation assumption for DL-only TDD NTT DOCOMO, INC. Disc REL-13 FS_LTE_TDD_add_config
Proposal 1: Reuse scenario 2a defined in TR36.872 for performance evaluation.
Proposal 2: Use the aggregated DL throughput to access the potential benefits and drawbacks of new TDD configurations assuming carrier aggregation.
Proposal 3: If the channel reciprocity is not assumed to be available, compare new configurations of 10:0:0, 9:1:0 (DL:Sp:UL) and TDD UL/DL configuration 5.
Proposal 4: If the channel reciprocity is assumed to be available, compare a new configuration of 9:1:0 (DL:Sp:UL) and TDD UL/DL configuration 5.
Proposal 5: Assume 10 small cells per macro cell and higher resource utilization of 60~70% for the highest loaded cell when applying TDD UL/DL configuration as the baseline parameters.

Evaluation methodology details:

RP-150210 Evaluation methodology for possible additional TDD configuration(s) Huawei, HiSilicon Disc REL-13 FS_LTE_TDD_add_config
discussed the performance-related potential benefits and drawbacks of the additional TDD configuration. A proposed evaluation methodology for potential benefits is also provided

RP-150254 Evaluation on the benefits and drawbacks for possible additional LTE TDD configuration CATT Disc REL-13 FS_LTE_TDD_add_config
Proposal 1: At least the following performance metrics shall be studied
- *Cell average and cell edge downlink packet throughput*
- *PUCCH load on the accompanied standalone carrier*

Proposal 2: Performance of the following two systems shall be compared:
- *Target system: standalone carrier X + non-standalone TDD carrier Y with 10:0:0 (DL:Sp:UL)*
- *Reference system: standalone carrier X + standalone TDD carrier Y with 8:1:1 (DL:Sp:UL)) and special subframe configuration 4 with normal CP in downlink*

Proposal 3: The evaluation shall assume a certain percentage of non-CA capable UEs in the system.
Proposal 4: The evaluation shall focus on the high traffic load case.

Coexistence:

RP-150253 RAN4 methodologies for co-existence study CATT Disc REL-13 FS_LTE_TDD_add_config
provides some general introduction on the conventional RAN4 methodologies for co-existence study. These methodologies can be used for the study on the possible additional TDD configuration

RP-150251 Co-existence Considerations for Additional Configuration for LTE TDD Nokia Corporation, Nokia Networks Disc REL-13 FS_LTE_TDD_add_config
proposal: to encourage 3GPP RAN to investigate and develop technical solutions for avoiding any co-existence issues between LTE TDD DL/UL and DL only operations and configurations in any deployment situations, frequency bands, frequencies and geographical areas
propose to capture the example method for co-existence solution presented in section 2 in the TR

RP-150230 Consideration of unsynchronized operation for TD-LTE NTT DOCOMO, INC. Disc REL-13 FS_LTE_TDD_add_config
Impact of unsynchronization on spectrum efficiency is discussed
Conclusion 1:
Time synchronization and/or the same UL/DL configuration usage between operators are essential for TD-LTE operation. Otherwise, the spectrum efficiency is significantly lost.
Conclusion 2:

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When DL only carrier (SCell) is operated with 5 MHz offset from the adjacent operators whose configuration is not DL only configuration, the DL only configuration carrier would suffer from significant interference from the adjacent operators UEs. Note that at the same time, the adjacent operators' eNB would suffer from eNB using DL only configuration according to the distance.

Conclusion 3:

From conclusion 1 and 2, witout achieving time synchronization and/or the same UL/DL configuraions inlcuding DL only configuraion between operators, all operators become unhappier compared to the cases it is achieved.

RP-150247 Solutions to mitigate raised concerns on DL only configuration NTT DOCOMO, INC. Disc REL-13 FS_LTE_TDD_add_config

Proposal 1:

In the same way as any other TDD UL/DL configuration, 3GPP should ensure that the operation of the "Downlink only LTE TDD" (10:0:0 or 9:1:0) configuration is supported for all frequency bands specified for TDD mode of operation in RAN4 specifications, when paired with another frequency band used as an anchor carrier. Furthermore, 3GPP should ensure that ALL UEs that support the CA configuration for "Downlink only LTE TDD" also support other TDD UL/DL configurations for the Downlink only LTE TDD usage TD-LTE bands.

Proposal 2:

Guideline for usage of "Downlink only TDD configurationfor TD-LTE(10:0:0) is specified in the standard (as in the Annex section).

Simulations:

RP-150168 Coexistence and simulation methodology on additional configuration for LTE TDD ZTE Disc REL-13 FS_LTE_TDD_add_config

Proposal 1:

The cost for both SDL and TDD system should be carefully evaluated when deployed in adjacent carriers. The potential cost includes the additional Guard Band, BS complexity and throughput loses by site restriction.

For a new configuration, at least the system level simulation should be further performed. The exact band, number of carriers, carrier bandwidths etc. should be determined for the simulation study.

Proposal 2:

The simulation assumption can refer study from both eIMTA and Small cell. The performance impact of interference should be taken into account in the system level simulation. The simulation assumption can reuse parameters from eIMTA for interference modeling.

RP-150301 Simulation Assumptions for Evaluating Additional Configurations for LTE TDD Ericsson Disc REL-13 FS_LTE_TDD_add_config

proposals:

- *Adjacent channel evaluations are done where all cells on the same carrier use the same UL-DL TDD configuration but where the configuration maybe different between the carriers*
- *Use the following deployment scenarios: Femto-Femto, Femto-Macro, Pico-Pico, Pico-Macro, and Macro-Macro*
- *System level simulations are conducted using non-full buffer traffic models*
- *Detailed simulation assumptions for the scenarios are adopted from TR 36.828*

Ecosystem considerations:

RP-150287 Views on the eco-system impact of possible additional TDD configuration(s) CATR Disc REL-13 FS_LTE_TDD_add_config

- TD-LTE with legacy configurations has widely deployed and develops fast, with a large penetration ratio of the LTE FDD/TDD dual mode devices, which are already very mature due to the widely on-field test.

- The introduction of any new configuration(s) in TD-LTE will cause eco-system problem, esp. the downlink only configuration will bring the risk of different UE designs and fragment TD-LTE market.

- Any new configuration will cause the additional complexity, esp. in UE side. It needs to justify whether there is any potential benefit worth such an impact on the eco-system.

RP-150146 Benefits/drawbacks and ecosystem aspects for additional TD-LTE configuration Vodafone TP 36.825 REL-13 FS_LTE_TDD_add_config

RP-150099 Void NTT DOCOMO, INC. Report REL-13 FS_LTE_TDD_add_config

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conclusion: withdrawn

12.4.5 REL-13 Study on Enhanced Multiuser Transmissions and Network Assisted Interference Cancellation for LTE [**New SI:** FS_LTE_MUTX_NAIC]

RP-150213 Status report for SI Study on Enhanced Multiuser Transmissions and Network Assisted Interference Cancellation for LTE; rapporteur: MediaTek RAN1 Report REL-13 FS_LTE_MUTX_NAIC
conclusion: noted, approved: 0%, Dec.15; SI is stopped and instead a new SI with modified scope and title is considered in RP-150456;
TR 36.891 of SI FS_LTE_MUTX_NAIC will be withdrawn and the new SI will have a new TR

RP-150186 Scope of Study on Enhanced Multiuser Transmissions and Network Assisted Interference Cancellation for LTE Alcatel-Lucent SID rev RAN1 REL-13 FS_LTE_MUTX_NAIC
last approved SID: RP-142315, note: rapporteur of this SI is Mediatek, compare RP-140214
proposing title change to "Study on Downlink Multiuser Superposition Transmission for LTE"
discussion: MCC: we cannot modify the title & WI code so then we rather close the current SI and open a new SI (it shows that we need to be more careful before approving a WI/SI
AT&T: would like to be removed from supporting companies as scope changed
CMCC: would like to be removed as well
conclusion: rejected

RP-150214 Revised SID: Study on Enhanced Multiuser Transmissions and Network Assisted Interference Cancellation for LTE Mediatek SID rev RAN1 REL-13 FS_LTE_MUTX_NAIC
last approved SID: RP-142315; wrong title in Tdoc request (note: It is not possible to modify the title of approved SIs), compare RP-140186
discussion: Mediatek: changed the supporting companies and includes ALU version RP-150186 already; suggest to change second last version
Nokia: would like to remove the precoder aspect
Huawei, Ericsson: would like to keep the precoder aspect
conclusion: rejected, a new SID will be drafted in RP-150456 based on RP-150214 version

RP-150456 New SI proposal: Study on Downlink Multiuser Superposition Transmission for LTE Mediatek SID (new) REL-13 -
new SI for LTE only; leading WG: RAN1; WI code to be used: FS_LTE_MUST; note: The scope and title of SI FS_LTE_MUTX_NAIC has changed significantly, therefore it was decided to stop SI FS_LTE_MUTX_NAIC and to open instead this new SI with corresponding new scope and title;
discussion: CATT: is it allowed in the SI that 2 users are using different precoding vectors?
NTT DOCOMO: can be discussed in RAN1
Nokia: in offline discussion it was clarified that such a multiplexing can be discussed in RAN1
Ericsson: we understand that they have to use same precoding vector
CATT: discussion of last meeting and email discussion considered same precoding vector also unclear: "same" applies also to TX diversity schemes?
Mediatek: 2 UE using same precoding vector is covered
Huawei: either same precoding vector or same TX diversity scheme is considered, and same precoding vector must be possible
conclusion: revised in RP-150496

RP-150496 New SI proposal: Study on Downlink Multiuser Superposition Transmission for LTE Mediatek SID new REL-13 -
conclusion: approved
Note: The rapporteur clarified after RAN #67 that a new TR 36.8xx is intended.

RP-150215 Proposed Work Plan for Enhanced Multiuser Transmissions and Network Assisted Interference CancellationMediatek Disc REL-13 FS_LTE_MUTX_NAIC
conclusion: noted

12.4.6 REL-13 Study on Support of single-cell point-to-multipoint transmission in LTE [**New SI:** FS_LTE_SC_PTM]

RP-150176 Status report for SI: Study on Support of single-cell point-to-multipoint transmission in LTE, rapporteur: Huawei RAN2 Report REL-13 FS_LTE_SC_PTM

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conclusion: noted, approved: 25%, June 15

RP-150177 Revised SID: Study on Support of single-cell point-to-multipoint transmission in LTE, rapporteur: Huawei Huawei, HiSilicon SID rev RAN2 REL-13 FS_LTE_SC_PTM
last approved SID: RP-142205; editorial corrections
conclusion: approved

12.4.7 REL-13 Study on Extension of Dual Connectivity in E-UTRAN [New SI: FS_LTE_dualC_ext]

RP-150163 Status report for SI Study on Extension of Dual Connectivity in E-UTRAN; rapporteur: Samsung RAN3 Report REL-13 FS_LTE_dualC_ext
discussion: MCC: target date change
conclusion: noted, approved: 85%, June 15

RP-150170 Revised SID: Study on Extension of Dual Connectivity in E-UTRAN Samsung SID rev RAN3 REL-13 FS_LTE_dualC_ext
last approved SID: RP-142257; revised to change the title and WI code, correct some format and typo
conclusion: approved

RP-150216 TR 36.875 v1.0.0 on Extension of Dual Connectivity in E-UTRAN Samsung TR 36.875 RAN3 REL-13 FS_LTE_dualC_ext
RAN3 TR 36.875 is provided for information
conclusion: noted

12.4.8 REL-13 Study on further enhancements of small cell higher layer aspects for LTE [New SI: FS_LTE_SC_enh2_hilayer]

RP-150226 Status report for SI: Study on further enhancements of small cell higher layer aspects for LTE, rapporteur: Huawei RAN3 Report REL-13 FS_LTE_SC_enh2_hilayer
discussion: Huawei: time unit change
conclusion: noted, approved: 10%, Sep.15

12.4.9 REL-13 Study on LTE DL 4 Rx antenna ports [New SI: FS_LTE_4Rx_AP_DL]

RP-150138 Status report for SI LTE DL 4 Rx antenna ports, rapporteur: Ericsson RAN4 Report REL-13 FS_LTE_4Rx_AP_DL
discussion: MCC: TR has to be approved before completing the SI
conclusion: noted, approved: 100%, March 15; SI is completed

RP-150139 Revised SID: Study on LTE DL 4 Rx antenna ports Ericsson SID rev RAN4 REL-13 FS_LTE_4Rx_AP_DL
last approved SID: RP-142299; revised to add TR name and completion date
conclusion: Specifications Manager: allocated TR number is TR 36.867
revised in RP-150457 to add TR number

RP-150457 Revised SID: Study on LTE DL 4 Rx antenna ports Ericsson SID rev RAN4 REL-13 FS_LTE_4Rx_AP_DL
conclusion: approved

RP-150141 TR 36.867 v1.0.0, Study on LTE DL 4 Rx antenna ports Ericsson TR 36.867 RAN4 REL-13 FS_LTE_4Rx_AP_DL
RAN4 TR is provided for 1-step approval; note: SI was started in Dec.14 (forgetting to indicate the TR in the SID), so TR number needs to be allocated during RAN #67
conclusion: TR 36.867 is approved as v13.0.0

12.4.10 REL-13 Study on performance enhancements for high speed scenario in LTE [New SI: FS_LTE_high_speed]

RP-150158 Status Report for SI: Study on performance enhancements for high speed scenario in LTE RAN4 Report REL-13 FS_LTE_high_speed
discussion: MCC: a SI has no Core part
conclusion: revised in RP-150517

RP-150517 Status Report for SI: Study on performance enhancements for high speed scenario in LTE RAN4 Report REL-13 FS_LTE_high_speed
conclusion: noted, approved: 5%, Sep.15

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RP-150159 Revised SID: Study on performance enhancements for high speed scenario in LTE NTT DOCOMO, INC., Huawei, HiSilicon SID rev RAN4 REL-13 FS_LTE_high_speed
last approved SID: RP-142307
conclusion: approved

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13 New Work Items/Study Items

NOTE: No further REL-12 WIs can be proposed as REL-12 was frozen in Sep.14.
As the REL-12 ASN.1 freeze is planned for March 2015, new REL-13 WIs/SIs have lower priority than the completion of REL-12 WIs.

Time budgets:
RAN #66 endorsed as outcome of the meeting: RP-142318.

RP-150048 Status of time budgets for RAN1/2/3/4 REL-12 & REL-13 WIs/SIs after RAN #67 RAN1/RAN2/RAN3/RAN4 chairmen Report REL-12 -
note: The status after RAN #66 was endorsed in RP-142318.
conclusion: revised in RP-150518

check on Tue evening regarding RAN2/RAN4 capacity discussion:
RAN2 chair: we will go for extra 4TUs
RAN4 chair: 4RX and measurement gap and something from RAN2 could be agreed

RP-150518 Status of time budgets for RAN1/2/3/4 REL-12 & REL-13 WIs/SIs after RAN #67 RAN1/RAN2/RAN3/RAN4 chairmen Report REL-12 -
conclusion: endorsed
Note: It was detected after RAN #67 that the new approved WI "Multiflow Enhancements for UTRA" (RP-150288, HSDPA_MFTX_enh) requested 0.5 TU for RAN3 #88 in May 2015 which was not reflected in RP-150518. However, the 0.5TU will be used.
Note: It was detected after RAN #67 that the new approved WI "Multicarrier Load Distribution of UEs in LTE" (RP-150491, LTE_MC_load) requested 0.5 TU for RAN4 #76 for R4RD Core in Aug. 2015 which was not reflected in RP-150518. However, the 0.5TU will be used.

13.1 New core functions

Air to Ground Communication:
RP-150315 Mission Critical Air Ground Air Communications: Summary of discussions Orange Report REL-13 -
report of email discussion on the RAN reflector between RAN #66 and RAN #67
Proposal :
Based on the above elements we propose to issue an open letter from 3GPP RAN in RAN#67 to officially answer to the questions asked by the French Ministry of Interior and the UK Home office on the feasibility of A2G communications.
discussion: Vodafone: range by public safety services is quite large so a problem for base station configuration
Ericsson: sending LS to Individual Members?
RAN chair: we can approve a Tdoc that summarizes the status (then we do not need an LS)
conclusion: noted;
Orange will draft RP-150423 to answer the questions in a summary document

RP-150423 3GPP TSG RAN views regarding Mission Critical Air Ground Air Communications Orange Disc REL-13 -
based on RP-150315
discussion: Vodafone: can accept this; is a bit over-simplifying and hopefully there will be no bigger issues
conclusion: revised in RP-150506 to have source: RAN
RP-150506 3GPP TSG RAN views regarding Mission Critical Air Ground Air Communications RAN Disc REL-13 -
conclusion: approved

Flexible Duplex:
RP-150199 Discussion on regulatory aspects in using LTE uplink spectrum in Korea TTA Disc REL-13 -

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In recent RAN meetings, there were some discussions on the regulatory aspects of using LTE UL spectrum for flexible duplex, i.e., network sends DL traffic to UEs via UL spectrum. This contribution provides some observations and discussions on Korean regulations related to the flexible duplex operations; shifted from AI 13.1.1 to AI 13.1
conclusion: noted

RP-150250 Further discussion on regulatory aspects related to flexible duplex operation for E-UTRAN LG Electronics, China Telecom, Huawei, HiSilicon, IAESI Disc REL-13 -
conclusion: noted

RP-150249 Motivation for new SID: Study on regulatory aspects for flexible duplex for E-UTRAN LG Electronics, China Telecom, Huawei, HiSilicon Disc motiv REL-13 -
discussion:
conclusion: noted

RP-150248 New SID: Study on regulatory aspects for flexible duplex for E-UTRAN LG Electronics SID new RAN REL-13 -
new SI for LTE only; leading WG: RAN; WI code to be used: FS_LTE_flex_duplex_reg; SI was postponed at RAN #66 in RP-142278
discussion: Ericsson: first part of SI description unclear: intention as on slide 4 of motivation paper?
Ericsson: last time we said we look at regulatory aspects and not on technologies
LG: will be difficult to leave out technologies completely
Huawei: at first scenarios need to be considered
RAN1 vice-chai (ALU): prefers to do it the other way around and look at what is possible first from regulatory aspect
RAN vice-chair (AT&T): D2D set a precedence case that should be taken into account
Ericsson: do we want to look at regulatory aspects? which group is having the experts?
TSG RAN? the group that is closest to regulatory aspects is RAN4
Orange:question to China Telecom: in which band do you see this sort operation?
China Telecom: if we solve co-existence issues we may see a band in the future
RAN chair: so use cases without touching technologies can be discussed in RAN; suggests to discuss regulatory aspects via email (so that regulatory experts can be involved)
conclusion: revised in RP-150470

RP-150470 New SID: Study on regulatory aspects for flexible duplex for E-UTRAN LG Electronics SID new RAN REL-13 -
discussion: Sprint: not possible in the US, concerned how this can be handled at RAN
RAN chair: we will study this and most of it will anyway done via email reflector
Telecom Italia: what if not possible in some regions?
RAN chair: we will see this when the SI is done
Telecom Italia: concerned that RAN is doing regulatory work and work is moved to RAN because of lack of resources in RAN4
RAN chair: treatment at RAN is not motivated by lack of resources in RAN4
Telecom Italia: suggests an LS to regional regulatory bodies
conclusion: approved, Telecom Italia will draft an LS in RP-150482

RP-150482 Draft LSout to regulatory bodies on flexible duplex Telecom Italia LSout REL-13 FS_LTE_flex_duplex_reg
Alt 1: 3GPP would appreciate any useful information related to objectives of the study in the attachment.
Alt 2: 3GPP would like to ask the regulator whether the utilization of UL allocations for network to UE transmissions is possible with the current regulation and under which tehnical conditions (Tx Power, Modulation, etc)
Alt 3: 3GPP TSG RAN would like to inform Regional Regulatory bodies 3GPP started this activity.
discussion: Microsoft: supports the LS
Huawei: Alt3 preferred option
RAN chair: what about going for Alt1?
Orange: Alt1 is not a clear question and subject to interpretation
Orange: we only ask regulators what is in the current regulation so no extra work is required for them
Microsoft: what is "useful information"?
ALU: we have a SI approved so work can go on there, Alt2 is not acceptable for us
RAN chair: ask regulators whether .... is possible?

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China Unicom: does not expect a quick reply from regulators
Huawei: why did we approve a SI if we send an LS now?
Lightsquared: we will certainly not get a simple yes/no answer when we ask whether it is possible
Ericsson: if we send SID to regulators and the SID is not clear then we need to work on the SID
Huawei: we do not want to preempt our own SI by an LS
RAN chair: if we get input from regulators is parallel this would just help
Orange: the sooner we send the LS the better
TeliaSonera: if scope of SI is not clear then we should not approve the SI, we should send as detailed questions to the regulators as possible
RAN chair: we could ask "3GPP would like to ask for regulators feedback on "utilizing UL spectrum for transmission from the network to UEs, including aspects such as Tx power levels, modulation schemes, type of transmitting nodes, etc."
Orange: we need to clarify what feedback we expect
Orange: we do not preempt the SI and the SI will continue until Sep.
Vodafone: we should mention "FDD"
Orange: do we indicate "current regulation"?
ALU: supports Orange
LG: would like to include also "otential regional/band-specific regulatory possibilities/constraints for the use cases of "
RAN chair: To whom do we send the LS? To: ECC PT1, RRA, ARIB, FCC, CCSA, TTA, TAICS, TSDSI; cc: ITU-R WP5D
Fujitsu: also to ITU?
AT&T: should not be sent to ITU-R WP5D
RAN chair: agrees that we rather seem to have OPs than regulators
RAN chair: so just to ECC PT1, FCC, other regulators of China, Japan, Korea, Taiwan, India
Ericsson: it seems the regions need to identify the regulators

conclusion: revised in RP-150507

RP-150507 Draft LSout to regulatory bodies on flexible duplex Telecom Italia LSout REL-13 FS_LTE_flex_duplex_reg

conclusion: Telecom Italia will identify the regulators
for 2 weeks email discussion to identify the regulators and corresponding contacts,
final LS will be in RP-150509,
so RP-150507 is revised in RP-150509

RP-150509 LS on 3GPP RAN Study on regulatory aspects for flexible duplex for E-UTRAN (to: ECC PT1, FCC, RRA, National Communications Commission (TW), ARIB, CCSA, Wireless Adviser to the Government of India; cc: -; contact: Telecom Italia) RAN LSout REL-13 FS_LTE_flex_duplex_reg

conclusion: RP-150509 was approved by (2 weeks) email discussion after RAN #67.
This email discussion was kicked off by Telecom Italia on 12.03.2015 and the approved RP-150509 was sent out on 27.03.2015.

13.1.1 WIs/SIs led by RAN1

RAN1 chair indicated that there is no room in RAN1 for new LTE items in the next quarter. So new RAN1-led proposals will be considered for information. As such we will not treat them on Monday. If time allows we may come back to them in the second part of the week.

RP-150502 Way forward on new RAN1-led WI proposal on LTE bandwidth flexibility enhancements Huawei, China Unicom, AT&T, CHTTL, DISH NETWORKS, LightSquared, Rogers, Telefonica, Telus, T-Mobile USA, Vodafone, CATR, HiSilicon, Potevio, ASUSTeK, Lenovo, III, CoolPad, TD-Tech Disc REL-13 -

discussion: RAN chair: does RAN1 have available capacity?
RAN1 chair: no extra capacity
NEC: supporting companies of the way forward and companies of the WI are alsmost matching
RAN chair: yes, way forward should have a bigger consensus
Nokia: was not aware that we will come back , should it study without RF requirements?
Microsoft: has a similar concern, we should study this
Ericsson: should rather be a RAN4 SI and not a RAN1 WI

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RAN4 chair: sees the proposal for the first time
Vodafone: has interest in this topic, can maybe discussed by email
TeliaSonera: should be a SI, not happy to see now request for RAN1 capacity although we said there is no RAN1 capacity
RAN chair: you are free to use the RAN DRAFTS reflector asking for feedback or discuss offline
Qualcomm: we would contribute but do not think that we could solve RAN4 issues by email
Samsung: is rather a RAN4 SI but not happy to have unofficial discussions over the reflector; so get approval first
NTT DOCOMO: suggests to discuss this topic at RAN #68
Huawei: we should recognise the large interest of operators in this proposal and the need by the industry to agree this work item for Rel13
RAN chair: if the proposal has high priority for the industry then it should have no problems to be approved against other items once there is some new capacity available in RAN1

conclusion: noted, way forward was not agreed, no official RAN email discussion on this
(but as for all proposals: proponents are free to initiate email discussions on the RAN_DRAFTS reflector and come back next meeting with a proposal)

But the following HSPA related proposal could be presented:

semi-static spectrum refarming (SSR):

RP-150266 Motivation for New SI Interference coordination for SSR between UMTS and LTE China Unicom Disc motiv REL-13 -
conclusion: not treated

RP-150263 New SID Proposal: study on interference coordination for semi-static spectrum refarming between UMTS and LTE China Unicom SID new RAN1 REL-13 -
new SI for UTRA & LTE; leading WG: RAN1; WI code to be used: FS_UTRA_LTE_ICSSR
conclusion: revised in RP-150468

RP-150468 New SID Proposal: study on interference coordination for semi-static spectrum refarming between UMTS and LTE China Unicom SID new RAN1 REL-13 -
conclusion: revised in RP-150503

RP-150503 New SID Proposal: study on interference coordination for semi-static spectrum refarming between UMTS and LTE China Unicom SID new RAN1 REL-13 -
discussion: RAN chair: can this be done in UMTS session of RAN1 alone?
RAN1 chair: UMTS session has time but LTE has no time; could be done in UMTS only
Ericsson: if overlap with LTE session can be avoided
ALU: not a very clean approach to have it just in UTRA although UTRA & LTE is affected
Nokia: refarming involves usually also RAN4
Ericsson: also TU allocation is not enough
Qualcomm: prefers to postpone the topic due to impact on LTE experts
Samsung: not clear whether it should be handled by RAN1 or RAN4
Huawei: LTE to UMTS interference will be considered in the SI so not big impact on LTE
conclusion: postponed

<u>will be treated only if time allows</u>:

V2X for LTE:

RP-150164 Motivation of Feasibility Study on LTE-based V2X Services LG Electronics Inc. Disc motiv REL-13 -
conclusion: not treated

RP-150165 New SI proposal: Feasibility Study on LTE-based V2X Services LG Electronics Inc. SID new RAN1 REL-13 -
new SI for LTE only; leading WG: RAN1; WI code to be used: FS_LTE_V2X
conclusion: revised in RP-150499

RP-150499 New SI proposal: Feasibility Study on LTE-based V2X Services LG Electronics Inc. SID new RAN1 REL-13 -
conclusion: not treated

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Enhanced UL for LTE:

RP-150190 Motivation for New SI: Uplink Enhancements for LTE CMCC Disc motiv REL-13 -
conclusion: not treated

RP-150293 Motivation for Uplink Enhancements for Heterogeneous and Small Cell Networks Huawei, HiSilicon Disc motiv REL-13 -
Further analysis of potential gains of LTE uplink enhancements for HetNet; revision of RP-142004; related to SI RP-150191
conclusion: not treated

RP-150191 New SID Proposal: Study on Uplink Enhancements for LTE CMCC SID new RAN1 REL-13 -
new SI for LTE only; leading WG: RAN1; WI code to be used: FS_LTE_EUL; SI was postponed at RAN #66 in RP-141843
conclusion: not treated

LTE bandwidth flexibility:

RP-150237 Motivation for new work item on LTE bandwidth flexibility enhancements Huawei, China Unicom, HiSilicon Disc motiv REL-13 -
conclusion: not treated

RP-150236 New Work Item proposal: LTE bandwidth flexibility enhancements Huawei, China Unicom, HiSilicon WID new RAN1 REL-13 -
new WI for LTE only; leading WG: RAN1; WI code to be used: LTE_flex_BW; WI was postponed at RAN #66 in RP-141911
conclusion: revised in RP-150513

RP-150513 New Work Item proposal: LTE bandwidth flexibility enhancements Huawei, China Unicom, HiSilicon WID new RAN1 REL-13 -
conclusion: postponed

Coordinated Scheduling for LTE:

RP-150279 Motivation for Study on Physical Layer Enhancements of Coordinated Scheduling for LTE large CoMP clusters Ericsson Disc motiv REL-13 -
conclusion: not treated

RP-150280 New SI: Study on Physical Layer Enhancements of Coordinated Scheduling for LTE large CoMP clusters Ericsson SID new RAN1 REL-13 -
new SI for LTE only; leading WG: RAN1; WI code to be used: FS_LTE_CSched_COMP; SI was not treated at RAN #66 in RP-141819
conclusion: not treated

eMBMS for LTE:

RP-150302 Future eMBMS enhancements for LTE Ericsson Disc REL-13 -
discusses the most urgent areas of future MTC enhancements
conclusion: not treated

RP-150303 New WI proposal: eMBMS enhancements for LTE Ericsson WID new RAN1 REL-13 -
new WI for LTE only; leading WG: RAN1; WI code not yet allocated as if related to MTC then why is this missing in the title?; note: MBMS_LTE_enh was a REL-10 WI
conclusion: withdrawn

Self-backhaul nodes:

RP-150169 Discussion on Self-backhaul Nodes for Dense Cell Deployment ZTE Disc REL-13 -
no related SI/WI proposal? for LTE only; LPN = low power node
conclusion: not treated

CSI-RS in DwPTS:

RP-150256 New work item proposal on support of CSI-RS in DwPTS CATT WID new RAN1 REL-13 -
new WI for LTE only; leading WG: RAN1; WI code to be used: LTE_CSIRS_DwPTS; no motivation paper; WI was postponed at RAN #66 in RP-141953
conclusion: not treated

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will be treated under AI 18:

Above 6GHz:
Note: These Tdocs will be handled in connection with 5G under AI 18.

RP-150219 New SID Proposal: Study on channel model for frequency spectrum above 6 GHz Samsung SID new RAN1 REL-13 -
new SI for LTE only; leading WG: RAN1 (?); WI code to be used: FS_LTE_b6GHz_channel_model; no motivation paper; compare WI proposal RP-150308
conclusion: not treated

RP-150221 Motivation for study on further evolution beyond LTE-Advanced using frequency spectrum above 6 GHz Samsung Disc motiv REL-13 -
conclusion: not treated

RP-150220 New SID Proposal: Study on further evolution beyond LTE-Advanced using frequency spectrum above 6 GHz Samsung SID new RAN1 REL-13 -
new SI for LTE only; leading WG: RAN1; WI code to be used: FS_LTE_b6GHz; SI was postponed at RAN #66 in RP-142196
conclusion: not treated

RP-150308 New WI: Channel modelling for frequency bands 6-100 GHz Nokia Networks WID new RAN1 REL-13 -
new WI for LTE only; leading WG: RAN1; WI code to be used: LTE_6_100GHz_channel_model; compare SI proposal RP-150219; no motivation paper; for information?
conclusion: not treated

13.1.2 WIs/SIs led by RAN2

LTE-WLAN:
RP-150180 Motivation for new SI proposal: LTE-WLAN Radio Level Integration Qualcomm Incorporated Disc motiv REL-13 -
conclusion: noted

RP-150262 New SI proposal: Study on LTE-WLAN Radio Level Integration and Interworking Enhancement Intel Corporation, China Telecom, Qualcomm Incorporated SID new RAN2 REL-13 -
new SI for LTE only; leading WG: RAN2; WI code to be used: FS_LTE_WLAN_radio; SI was rejected at RAN#66 in RP-142280
discussion: Huawei: good that we merged the 2 solutions in one; spreading the TU allocation in time and reducing the TU in first quarter would be our suggestion
RAN vice-chair: we can take the TU discussion at a later stage
Fujitsu: 3 rapporteurs? one would be better
Broadcom: what is to be done by RAN3 in the first meeting?
RAN3 chair: has the same question, we have an ongoing SI looking at control plane aspects; on user plane aspects we would need input from RAN2
Qualcomm: RAN3 would have to look at feasibility of the architecture and they did already similar work
Orange: thanks Intel & Qualcomm for focussing the objectives; spreading the topic over several meetings would not be useful
SA chair (Nokia Networks): good to involve SA early but also to understand the scope for SA would be useful
Ericsson: we need to talk more about the scope of the SI
LG: agrees with Ericsson that scope of the SI is important, supporting 1A
conclusion: revised in RP-150481

RP-150481 New WI proposal: LTE-WLAN Radio Level Integration and Interworking Enhancement Intel Corporation, China Telecom, Qualcomm Incorporated WID new RAN2 REL-13 -
revision of RP-150262 (but now a WI instead of a SI); new WI for LTE only; leading WG: RAN2; WI code to be used: LTE_WLAN_radio;
conclusion: revised in RP-150504

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RP-150504 New WI proposal: LTE-WLAN Radio Level Integration and Interworking Enhancement Intel Corporation, China Telecom, Qualcomm Incorporated WID new RAN2 REL-13 -
discussion: AT&T: would like to discuss considered scenarios for 1 of the 3 hours in RAN2
RAN2 chair: is ok
RAN3 chair: work should not start in next quarter in RAN3
RAN4 chair: Perf. spec to be added and RAN4 as sec. resp. group
conclusion: revised in RP-150510; RAN3 will not work on this topic in Q2/2015

RP-150510 New WI proposal: LTE-WLAN Radio Level Integration and Interworking Enhancement Intel Corporation, China Telecom, Qualcomm Incorporated WID new RAN2 REL-13 -
conclusion: approved

RP-150307 Architecture Options for LTE-WLAN Radio Level Integration Ericsson Disc REL-13 -
conclusion: noted

RP-150397 Consideration on LTE-WLAN interworking architecture Qualcomm Incorporated Disc REL-13 -
conclusion: noted

MDT:

RP-150192 Motivation for New SI: Consideration on MDT Further Enhancements CMCC Disc motiv REL-13 -
conclusion: noted

RP-150193 New SID Proposal: Study on further Enhancements of Minimization of Drive Tests for E-UTRAN CMCC SID new RAN2 REL-13 -
new SI for LTE only; leading WG: RAN2; WI code to be used: FS_LTE_eMDT2; SI was rejected at RAN #66 in RP-142242
discussion: CMCC: no change compared to proposal from RAN #66
conclusion: revised in RP-150472

RP-150472 New SID Proposal: Study on further Enhancements of Minimization of Drive Tests for E-UTRAN CMCC SID new RAN2 REL-13 -
conclusion: approved

Multicarrier Load Distribution of UEs in LTE:

RP-150201 Motivation paper for New WI: Multicarrier Load distribution of UEs in LTE Verizon, China Telecom, NTT DOCOMO, Inc, ZTE, Alcatel-Lucent Disc motiv REL-13 -
conclusion: noted

RP-150200 New WI Proposal: Multicarrier Load Distribution of UEs in LTE Verizon, China Telecom, NTT DOCOMO, Inc, ZTE, Alcatel-Lucent WID new RAN2 REL-13 -
new WI for LTE only; leading WG: RAN2; WI code to be used: LTE_MC_load; WI was rejected at RAN #66 in RP-142279
discussion: Verizon: no contents change, about 40 supporters now
Nokia: interesting area to look at, but since RAN2 has not really concluded a SI would be more appropriate than a WI
Verizon: prefers to have a study phase in the WI
Nokia: specs not listed, WG not as secondary resp., RAN1 should be involved
Verizon: topic was discussed online and offline in RAN2 for a while
Fujitsu: lack of clarity of the impact of this work as WID is not filled out properly (Core/Perf part not ticked, no impact whatsoever in section 9 & 10)
conclusion: revised in RP-150446

RP-150446 New WI Proposal: Multicarrier Load Distribution of UEs in LTE Verizon, China Telecom, NTT DOCOMO, Inc, ZTE, Alcatel-Lucent WID new RAN2 REL-13 -
conclusion: revised in RP-150491

RP-150491 New WI Proposal: Multicarrier Load Distribution of UEs in LTE Verizon, China Telecom, NTT DOCOMO, Inc, ZTE, Alcatel-Lucent WID new RAN2
conclusion: approved
Note: It was detected after RAN #67 that RP-150491 does not specify which spec is affected by the Core part WI and which spec is affected by the Perf. part WI. The rapporteur clarified 36.300, 36.214, 36.304, 36.331, 36.133 are affected by Core part and 36.133 is affected by Perf. part.

Dual connectivity:

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RP-150211 Motivation for New WI: Dual Connectivity enhancements for LTE NTT DOCOMO, INC. Disc motiv REL-13 -
related to new WI RP-150156; revision of RP-141780
Nokia Networks presenting on behalf of NTT DOCOMO
conclusion: noted

RP-150157 Work Plan for LTE Dual Connectivity enhancement NTT DOCOMO, INC. Disc REL-13 -
Nokia Networks presenting on behalf of NTT DOCOMO
discussion: LG: RAN2 TU is too small, UL bearer split was discussed a lot but we could not decide anything in the past; leading WG should rather be RAN4 (as most objectives are for RAN4)
Nokia Networks: thought RAN2 is more appropriate
CATT: some time also in other groups could be considered (measurement definition)
NTT DOCOMO: RAN2 leadership more reasonable as previous WI was also led by RAN2
RAN2 vice-chair (LG): still thinks 1 TU is too optimistic; most objectives related to RAN4
Qualcomm: even if the WI is not approved some work for it will be needed in RAN4
conclusion: noted

RP-150156 New WI proposal: Dual Connectivity enhancements for LTE NTT DOCOMO, INC. WID new RAN2 REL-13 -
new WI for LTE only; leading WG: RAN2; WI code to be used: LTE_dualC_enh; follow-up WI of REL-12 WI LTE_SC_enh_dualC; revised in RP-150415
conclusion: revised in RP-150415

RP-150415 New WI proposal: Dual Connectivity enhancements for LTE NTT DOCOMO, INC. WID new RAN2 REL-13 -
revision of RP-150156; new WI for LTE only; leading WG: RAN2; WI code to be used: LTE_dualC_enh; follow-up WI of REL-12 WI LTE_SC_enh_dualC
discussion: Nokia Networks: has a few more supporting companies now
conclusion: revised in RP-150490

RP-150490 New WI proposal: Dual Connectivity enhancements for LTE NTT DOCOMO, INC. WID new RAN2 REL-13 -
revision of RP-150415; new WI for LTE only; leading WG: RAN2; WI code to be used: LTE_dualC_enh; follow-up WI of REL-12 WI LTE_SC_enh_dualC
conclusion: approved

DRX for LTE:

RP-150181 Motivation for new WI proposal: RAN enhancements for extended DRX in LTE Qualcomm Incorporated Disc motiv REL-13 -
discussion: LG: ongoing RAN2 WI on MTC so having 2 WIs at the same time is not beneficial; SI more appropriate to estimate gain of extended DRX
Qualcomm: we do not want to limit this to MTC only
Mediatek: topic is not addressed in the low cost MTC WI
Orange: also thinks this has been studied in REL-12 and does not see an overlap with the low cost MTC
AT&T: supports Orange; would help MTC a lot and we should not delay it by further studies
conclusion: noted

RP-150281 Motivation for new WI: eDRX for LTE Mediatek Inc Disc motiv REL-13 -
discussion: Mediatek: on top of DRX in idle mode we also see benefits to enhance DRX in connected mode
MCC: is this motivation also covered in RP-150182?
Mediatek: yes
conclusion: noted

RP-150182 New WI proposal: RAN enhancements for extended DRX in LTE Qualcomm Incorporated WID new RAN2 REL-13 -
new WI for LTE only; leading WG: RAN2; WI code to be used: LTE_extDRX; WI was rejected at RAN #66 in RP-142277
discussion: Qualcomm: Samsung is also supporting this WI
Nokia Networks: will SA2 also have a WI on this? RAN4 Core requirements completed in 1 meeting is too optimistic
Qualcomm: thought changing of value for DRX cycle will not take long

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Ericsson: support Nokia Networks view that 1 meeting in RAN4 is not enough
conclusion: revised in RP-150493

RP-150493 New WI proposal: RAN enhancements for extended DRX in LTE Qualcomm Incorporated WID new RAN2 REL-13 -
conclusion: approved

Latency reduction for LTE:

RP-150310 Motivation for new SI: Study on Latency reduction techniques for LTE Ericsson Disc motiv REL-13 -
conclusion: noted

RP-150238 Motivation for a Rel-13 study on latency reduction in LTE Huawei, HiSilicon Disc motiv REL-13 -
discussion: Huawei: RP-150238 is also supporting RP-150309
conclusion: noted

RP-150309 New SI proposal: Study on Latency reduction techniques for LTE Ericsson SID new RAN2 REL-13 -
new SI for LTE only; leading WG: RAN2; WI code to be used: FS_LTE_LATRED; SI was postponed at RAN #66 in RP-142025; note: REL-10 WI LTE_LATRED-Core was terminated in RP-091449 at RAN #50
discussion: LG: how can backwards compatibility be kept with reduced subframe
Ericsson: will have to be studied in RAN1 (time multiplex)
LG: also processing times would need to be shortened to see real gains
Ericsson: can be studied in RAN1
CATT: TTI shortening will need quite some time in RAN1, should RAN1 not be the leading WG for this SI?
Ericsson: protocol enhancement and TTI shortening is both important; could consider a WI in REL-14
ALU: supports CATT view as majority of work is done in RAN1
Orange: we agree that latency reduction is important, but it is an end-to-end performance so we need to see where we lose performance (so tackling just the RAN part may not be sufficient); prefers to focus on items that could be standardized in REL-13
Nokia: RAN1 is the right group for this and should be the leading WG
Panasonic: supports to have a SI first
LG: we have several solutions for capacity enhancements so we also need to study solutions for latency reductions
Ericsson: the end-to-end latency consideration is speaking for having RAN2 as leading WG
conclusion: revised in RP-150465 (multiple versions of RP-150309 existed)

RP-150465 New SI proposal: Study on Latency reduction techniques for LTE Ericsson SID new RAN2 REL-13 -
discussion: NEC: suggests to check SI in RAN1 first
conclusion: approved

Application specific Congestion control for Data Communication (ACDC):

RP-150166 Motivation of RAN aspects of Application specific Congestion control for Data Communication LG Electronics Inc. Disc motiv REL-13 -
conclusion: noted

RP-150167 New WI Proposal: RAN aspects of Application specific Congestion control for Data Communication LG Electronics Inc. WID new RAN2 REL-13 -
new WI for; leading WG: RAN2; WI code to be used: ACDC-RAN; note: ACDC is a REL-13 WI in SA
conclusion: revised in RP-150422

RP-150422 New WI Proposal: RAN aspects of Application specific Congestion control for Data Communication LG Electronics Inc. WID new RAN2 REL-13 -
conclusion: revised in RP-150466

RP-150466 New WI Proposal: RAN aspects of Application specific Congestion control for Data Communication LG Electronics Inc. WID new RAN2 REL-13 -
conclusion: at first approved but then revised in RP-150512 as time budget for UMTS in RAN2 was not indicated

RP-150512 New WI Proposal: RAN aspects of Application specific Congestion control for Data Communication LG Electronics Inc. WID new RAN2 REL-13 -

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conclusion: approved
Note: This WI has only a Core and no Perf. part. It was detected after RAN #67 that the corresponding Core part box is not ticked in the WID.

Signalling reduction in LTE:

RP-150312 Motivation for new WI: Signalling Reduction for Idle-Active Transitions in LTE Ericsson Disc motiv REL-13 -
conclusion: noted

RP-150311 New WID proposal: Signalling Reduction for Idle-Active Transitions in LTE Ericsson, Intel Corporation WID new RAN2 REL-13 -
new WI for LTE only; leading WG: RAN2; WI code to be used: LTE_SigRed_Trans; WI was not treated at RAN #66 in RP-142030
discussion: Mediatek: UE has to come back from idle mode
Ericsson: one solution is to keep UE in connected mode but this comes with some cost; so keeping UEs in idle has some benefits if we optimize the signalling
conclusion: revised in RP-150426

RP-150426 New WID proposal: Signalling Reduction for Idle-Active Transitions in LTE Ericsson, Intel Corporation WID new RAN2 REL-13 -
conclusion: postponed

DL/UL PCell separation:

RP-150257 Motivation for DL/UL PCell separation CATT Disc motiv REL-13 -
conclusion: noted

RP-150258 New study item proposal: Study on DL/UL PCell separation in LTE CATT SID new RAN2 REL-13-
new SI for LTE only; leading WG: RAN2; WI code to be used: FS_LTE_PCell_sep; SI was not treated at RAN #66 in RP-141952
discussion: AT&T: this applies to FDD & TDD?
CATT: yes
conclusion: postponed

Synchronous LTE networks:

RP-150297 Motivation for new WI: Improved Mobility via Synchronous Handovers in LTE Networks Nokia Networks, Nokia Corporation Disc motiv REL-13 -
conclusion: noted

RP-150296 New WI: Improved Mobility for Synchronous LTE Networks (MobSync) Nokia Networks, Nokia Corporation WID new RAN2 REL-13 -
new WI for LTE only; leading WG: RAN2; WI code to be used: LTE_mob_sync_netw; WI was not treated at RAN #66 in RP-142215
conclusion: postponed

HSDPA multiflow enhancements:

RP-150288 New WI proposal: Multiflow Enhancements for UTRA Nokia Networks, Nokia Corporation, Huawei, HiSilicon, China Unicom WID new RAN2 REL-13 -
new WI for UTRA only; leading WG: RAN2; WI code to be used: HSDPA_MFTX_enh; WI was postponed at RAN #66 in RP-142219; no motivation paper
conclusion: approved

Way forward on RAN2 led WIs:

RP-150480 Way forward on new RAN2-led Rel-13 Work and Study Items Ericsson, Huawei, HiSilicon, Qualcomm, Softbank Mobile, Sony, TeliaSonera, US Cellular, Inter Digital, Sierra Wireless, Telefonica, Light Squared, KDDI, Panasonic, Sprint, Verizon, Mediatek, T Mobile US, ZTE, Asustek, Motorola, US Dept of Commerce, China Telecom, Dish Network, SouthernLink, Telus, Elektrobit, Deutsche Telekom, Orange, Nokia Networks, III, ITRI, CoolPad, Telecom Italia Disc REL-13 -
Proposal:
Approve the following items with corresponding modifications to content and time budget
- *WI: WLAN / LTE Integration (RP-15xxxx); Time: spread TUs in Rel-13: (1.5, 1.5, 1.5, 1.5, 1.5)*
- *WI: Multicarrier Load Distribution (RP-15xxxx); Time: (1, 1, 1, 1, 0)*
- *SI: Low Latency (RP-15xxxx); RAN2 time: (0, 1, 1, 1, 1)*

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RAN1 time: Start only in Q4, aim to complete in 2016. Budget 2015: (0, 0, 0, 0, 1), 2016 (2,2,2,0,0,0).
RAN2 content: Remove idle-to-connected mode latency study

- *SI: MDT (RP-150193)*
  RAN2 time (0.5, 0.5, 0.5, 0, 0)
  Content: Focus on MDT enhancements for VoLTE packet delay measurements. SNR measurements are to be discussed in RP-150200.
- *WI: Dual Connectivity enh. (RP-150156)*
  RAN2 Time: (0, 0, 0, 0.25, 0.25)
  Stage-3 UP aspects starting in April
- *WI: ACDC (RP-150182)*
  Approved for May but will be treated only if sufficient input is provided by CT1: (0, 0.25, 0.25, 0.25, 0)
  (and 0.25 additional time units in UMTS session for handling UMTS stage-3 aspects)
- *WI: RAN enhancements for extended DRX in LTE (RP-150182)*
  RAN2 time: (0, 1, 1, 1, 1)

discussion: RAN2 chair: 4,5 TU instead of original 4TUs is ok
Samsung: 1TU for low latency in RAN1 should be in [ ] as critical
AT&T: how can WLAN / LTE Integration be a WI? It should rather be a SI. Apart from this, we support the way forward
Broadcom: WLAN/LTE integration: should study the use cases first
RAN2 chair: agrees that with this there will not be time for more WIs/SIs
Orange: knows that a number of concerns were raised if we open it up again the consensus will break
Nokia Networks: 12 WIs/SIs in RAN2 with a short REL
NTT DOCOMO: why was latency increased to 2,2,2?
CMCC: low latency is going into REL-14?
Ericsson: starting in REL-13 and then going in REL-14
NEC: why is there urgency then to do low latency in REL-13?
CATT: would be useful to have the proposals available; clarify that low latency is for FDD/TDD
RAN chair: we are not discussing 5G here, so low latency for LTE is meant
NEC: has problem to endorse this way forward if WIDs are not yet available
MCC: Dual connectivity enh. 0TU in April and stage 3 UP starting in April is not a contradication?
RAN2 chair: UP aspects not included in the time budget

conclusion: noted, way forward is endorsed, WIDs/SIDs to be considered on Thu of RAN #67

less than 4 supporters, will be treated only if time allows:

Multi-profile UE capability in LTE:

RP-150183 Motivation for new WI proposal: Multi-Profile UE E-UTRA capability Qualcomm Incorporated Disc motiv REL-13 -
conclusion: not treated

RP-150184 New WI proposal: Multi-Profile UE E-UTRA capability Qualcomm Incorporated WID new RAN2 REL-13 -
new WI for LTE only; leading WG: RAN2; WI code to be used: LTE_multi_UEcap; WI was withdrawn at RAN #66 in RP-141996
conclusion: not treated

Partial control of Cell Management for UEs in LTE (PaCMan):

RP-150295 Motivation for New SI on Partial control of Cell Management for UEs in LTE (PaCMan)" Nokia Networks, Nokia Corporation Disc motiv REL-13 -
conclusion: not treated

RP-150294 New SI: Study on Partial control of Cell Management for UEs in LTE (PaCMan) Nokia Networks, Nokia Corporation SID new RAN2 REL-13 -
new SI for LTE only; leading WG: RAN2; WI code to be used: FS_LTE_PaCMan; SI was not treated at RAN #66 in RP-142005
conclusion: not treated

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Mobility enhancements LTE:

RP-150314 Motivation for new SI: Study on Mobility Enhancements for LTE Ericsson Disc motiv REL-13 -
conclusion: not treated

RP-150313 New SI proposal: Study on Mobility Enhancements for LTE Ericsson SID new RAN2 REL-13 -
new SI for LTE only; leading WG: RAN2; WI code to be used: FS_LTE_mob_enh; SI was postponed at RAN #66 in RP-142036; compare RP-150283
conclusion: not treated

RP-150284 Motivation for New WI: Mobility Enhancements for LTE Mediatek Inc Disc motiv REL-13 LTE_mob_enh
conclusion: not treated

RP-150283 New WI proposal: Mobility Enhancements for LTE Mediatek Inc WID new RAN2 REL-13 -
new WI for LTE only; leading WG: RAN2; WI code to be used: LTE_mob_enh; WI was not treated at RAN #66 in RP-142047; compare RP-150313
conclusion: not treated

13.1.3 WIs/SIs led by RAN3

HSPA and LTE Joint Operation:

RP-150273 Motivation for New SI: HSPA and LTE Joint Operation China Unicom Disc motiv REL-13 -
discussion: AT&T: no RAN1 impact?
China Unicom: no RAN1 impact
conclusion: noted

RP-150268 New SID Proposal: Study on HSPA and LTE Joint Operation China Unicom SID new RAN3 REL-13 -
new SI for UTRA & LTE; leading WG: RAN3; WI code to be used: FS_UTRA_LTE_JOP; SI was rejected at RAN #66 in RP-141889
discussion: ALU: bigger RAN2 impact needs to be taken into account
conclusion: revised in RP-150471

RP-150471 New SID Proposal: Study on HSPA and LTE Joint Operation China Unicom SID new RAN3 REL-13 -
discussion: Ericsson: some important work to be done in RAN2 so strange that we start work in RAN3 without knowing when RAN2 can be done
RAN chair: only discussion in RAN3 intended?
China Unicom: yes, RAN2 can be considered after RAN3 has considered the feasibility
RAN3 chair: same problem as UPCON, something cannot start in RAN3 because of bottleneck in RAN2
ALU: has similar concerns as Ericsson that we may start work in RAN3 but RAN2 has no possibility to look at this topic
RAN chair: we will not add later RAN2 objectives here but just consider the SI in RAN3, is this possible?
RAN3 chair: so we discuss the scenarios?
RAN chair: yes, because feasibility cannot be studied without RAN2
RAN3 chair: so we should then reduce the scope and the lenght of the SI to one quarter
Qualcomm: is not a clean approach to only consider RAN3 aspects
RAN chair: other alternative: RAN can give an action to RAN3 to identify scenarios for this and to capture this in a RAN3 internal TR
RAN3 chair: so we would have an agenda item in RAN3
NEC: also network architecture?
RAN chair: no, otherwise we enter into a feasibility study
AT&T: supports to give a task to RAN3
Fujitsu: so it will have low priority
Qualcomm, Ericsson: do not like this approach
Ericsson: it seems we bypass the process of time budget planning by SIs at RAN and now with an ACTION
ALU: not supporting to set a precendence case, so does not want to see a TR for this

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Vodafone: RAN3 only work, UE operating in both RATs, will RAN2 then have to work on this?
RAN chair: not intended
conclusion: postponed

User Plane Congestion management (UPCON) for UTRA & LTE:

RP-150290 Motivation for Proposed SI: RAN Aspects of Downlink Traffic Differentiation for UPCON NEC Disc motiv REL-13 -
conclusion: noted

RP-150291 Proposed SI: Study on RAN Aspects of Downlink Traffic Differentiation for UPCON NEC SID new RAN3 REL-13 -
new SI for UTRA & LTE; leading WG: RAN3; WI code to be used: FS_UTRA_LTE_UPCON; UPCON = User Plane Congestion management (is an SA REL-13 WI)
discussion: Nokia Networks: key objectives make more sense to start in RAN2 and not in RAN3
NEC: if not feasible is decided in RAN3 then we are done already, but agrees if feasible then RAN2 will have to work on it
Ericsson: 2TUs changed to 1TU but no change in objectives?
NEC: needs to check
AT&T: 1-2 TUs enough for RAN3?
RAN2 chair: will consume more than 1 meeting and more than 1 TU in RAN2
conclusion: postponed

RP-150497 Draft LS on Reporting to SA and SA2 on consequences for UPCON of RAN WI prioritisation NEC LSout REL-13 -
related to new SI proposal for UPCON in RP-150291
discussion: NEC: starting RAN3 only part would not be useful but we need to report back to SA2 that RAN cannot work on this
NEC: printing error: "when RAN can NOT" (NOT is missing)
ALU: why "before June 15"?
NEC: because this is the current deadline for stage 2 in REL-13
conclusion: revised in RP-150501

RP-150501 Draft LS on Reporting to SA and SA2 on consequences for UPCON of RAN WI prioritisation NEC LSout REL-13 -
conclusion: revised in RP-150514

RP-150514 LS on Consequence of RAN WI prioritisation for UPCON work in SA2 (to: SA2; cc: SA, RAN2, RAN3; contact: NEC) RAN LSout REL-13 UPCON
conclusion: approved

CS/PS coordination in UTRAN Shared Network:

RP-150306 Motivation for New WI: RAN aspects for improvements to CS/PS coordination in UTRAN Shared Network Ericsson Disc motiv REL-13 -
conclusion: noted

RP-150304 New WI: RAN aspects for improvements to CS/PS coordination in UTRAN Shared Network Ericsson WID new RAN3 REL-13 -
new WI for UTRA only; leading WG: RAN3; WI code to be used: CSPS_Coord-UTRA; note: CSPS_Coord is an SA2 REL-13 WI
discussion: RAN vice-chair: how many supporting companies?
Ericsson: so far only 3 but hopes for more
Huawei: agrees we need more supporting companies
RAN3 chair: GUSH work ongoing and relation to be checked
conclusion: revised in RP-150500

RP-150500 New WI: RAN aspects for improvements to CS/PS coordination in UTRAN Shared Network Ericsson WID new RAN3 REL-13 -
discussion: China Unicom: we have a SI so no WI needed
Ericsson: similar proposal in GERAN to finalize stage 3
TeliaSonera: this has nothing to do with a SI
RAN3 chair: GUSH SI is following SA1 WI and this one following an SA2 WI
conclusion: approved

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RAN vice-chair: RAN3 chair was confirming that we have time budget in RAN3 for new WIs/SIs, nevertheless we have to take into account the impact on all WGs.

less than 4 supporters, will be treated only if time allows:

Licensed Shared Access (LSA) in LTE:

Note: There is also an incoming LS on this topic in RP-150020 (see AI 6.1).

RP-150108 Motivation for New SI: E-UTRAN support for Licensed Shared Access (LSA) Nokia Networks Disc motiv REL-13 -
conclusion: not treated

RP-150109 New SI proposal for information: Study on E-UTRAN support for Licensed Shared Access (LSA) Nokia Networks SID new RAN3 REL-13 -
new SI for LTE only; leading WG: RAN3; WI code to be used: FS_LTE_LSA; SI RP-141857 was not treated at RAN #66; for information?
conclusion: not treated

13.1.4 WIs/SIs led by RAN4

Interference mitigation for downlink control channels of LTE:

RP-150265 Motivation for new WI: Interference mitigation for downlink control channels of LTE Intel Corporation, ZTE Disc motiv REL-13 -
conclusion: noted

RP-150267 New WI: Interference mitigation for downlink control channels of LTE Intel Corporation, ZTE WID new RAN4 REL-13 -
new WI for LTE only; leading WG: RAN4; WI code to be used: LTE_IM_DLCCH; SI was rejected at RAN #66 in RP-142314 where it was proposed to be a RAN1-led SI, now proposed to be a RAN4-led WI
discussion: NTT DOCOMO: would this feature work for unsynchronous network?
Intel: intention is to focus on synchronous network first
NTT DOCOMO: for asynchronous network also interference from other cells need to be taken into account and mentioned in the WID
Intel: we are ok to focus the WI on synchronous case
Intel: WID has been submitted for one year now and figures show enough gain
NEC: considered transmission mode unclear
conclusion: revised in RP-150474

RP-150474 New WI: Interference mitigation for downlink control channels of LTE Intel Corporation, ZTE WID new RAN4 REL-13 -
conclusion: revised in RP-150494

RP-150494 New WI: Interference mitigation for downlink control channels of LTE Intel Corporation, ZTE WID new RAN4 REL-13 -
conclusion: postponed

Measurement gap:

RP-150274 Motivation for new SI: Measurement gap enhancement for LTE Intel Corporation Disc motiv REL-13 FS_LTE_meas_gap
conclusion: noted

RP-150276 New SI proposal: Study on Measurement gap enhancement for LTE Intel Corporation SID new RAN4 REL-13 -
new SI for LTE only; leading WG: RAN4; WI code to be used: FS_LTE_meas_gap; SI was postponed at RAN#66 in RP-142261
discussion: Intel: also Orange and Telecom Italia are supporting now
MCC: please do not tick Core part in a SID
conclusion: revised in RP-150475

RP-150475 New SI proposal: Study on Measurement gap enhancement for LTE Intel Corporation SID new RAN4 REL-13 -
conclusion: revised in RP-150515 (as multiple versions of RP-150475 exist)

RP-150515 New SI proposal: Study on Measurement gap enhancement for LTE Intel Corporation SID new RAN4 REL-13 -

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conclusion: approved

4 Downlink Receive antenna ports in LTE:

RP-150143 Motivation paper for new WI on LTE DL 4 Rx antenna ports Ericsson Disc motiv REL-13 -
conclusion: noted

RP-150142 New Work Item: LTE DL 4 Rx antenna ports Ericsson WID new RAN4 REL-13 -
new WI for LTE only; leading WG: RAN4; WI code to be used: LTE_4Rx_AP_DL; follow-up WI of REL-13 SI FS_LTE_4Rx_AP_DL (see AI 12.4.9)
discussion: CATT: supports this WI and would like to be added as supporting company
conclusion: revised in RP-150427

RP-150427 New Work Item: LTE DL 4 Rx antenna ports Ericsson WID new RAN4 REL-13 -
conclusion: approved

RP-150212 Considerations on the 4Rx Work Item Scope Qualcomm Incorporated Disc REL-13 -
presentation on why it is important to allow opportunistic fallback to 2 Rx operation
proposals:
Proposal 1. Allow opportunistic fallback to 2Rx operation.
Proposal 2. Do not define any requirements for idle mode.
Concerning the scope of the RRM part, we propose the following:
Proposal 3. Limit the RRM scope to defining RLM requirements subject to feasibility study.
discussion: Ericsson: proposals 2 & 3 are already in line with WID; proposal 1 could be added in a revision of the WID, maybe with slightly different wording
Sprint: concerned about two autonomous fallbacks to 2 Rx
Qualcomm: UE will not fall back and forth so this will be a controlled behaviour
Huawei: sounding transmit antenna switching could be also considered
Ericsson: this is a DL enhancement feature, would not like to mix it with UL sounding
AT&T: for backward compatibility is it not normal that you will need 2Rx
Ericsson: could be also fallback to 2Rx to reduce power consumption
conclusion: noted

Positioning enhancements LTE:

RP-150240 Motivation of Rel-13 New Work Item proposal: Positioning enhancements for E-UTRA Huawei, HiSilicon Disc motiv REL-13 -
conclusion: noted

RP-150239 New Work Item proposal: Positioning enhancements for E-UTRA Huawei, HiSilicon WID new RAN4 REL-13 -
new WI for LTE only; leading WG: RAN4; WI code to be used: LCSenh_LTE; follow-up WI of Rel-13 SI FS_LCSenh_LTE completed in Dec.14
discussion: Qualcomm: not sure why PRS TX diversity should be specified as it does not bring advantages in some scenarios
Huawei: this WI has a different scope compared to the indoor positioning
ALU: supports to remove PRS TX diversity
Ericsson: RAN1 & RAN2 need to be involved somehow
conclusion: postponed

Way forward:

RP-150469 Way forward on RAN4-led WI proposals for RAN#67 NTT DOCOMO, INC. Disc REL-13 -
discussion: RAN chair: 2 ways forward?
NTT DOCOMO: these are 2 proposals
ALU: does not want to approve way forward 1
RAN chair: we need a multiple company way forward
Intel: any limitation that one company can only have one WI for a WG
TeliaSonera: a draft of RP-150469 was distributed offline and supports way forward 1
conclusion: noted

RP-150473 Way forward on RAN4-led SI/WI Intel Disc REL-13 -
conclusion: not treated

RP-150508 Way forward on RAN4 led WI/SI of RAN #67 NTT DOCOMO, INC. Disc REL-13 -
way forward proposal:

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The following WI/SI can be approved
- *Led by R4:*
  - *LTE DL 4 Rx antenna ports*
  - *Measurement gap enhancement for LTE*
- *Led by R2: (Follow final R2 decision)*
  - *Dual Connectivity enhancements for LTE*
  - *Multicarrier Load Distribution of UEs in LTE*
  - *RAN enhancements for extended DRX in LTE*
  - *Wireless LAN aggregation/inter working*
- *It is allowed for "interference mitigation for DL CCH of LTE" to be treated in the following manner: Even if the Study starts from R4#76bis, this can be preapproved if it is selected among the other proposed WI/SIs at R#68.*

conclusion: noted, way forward approved

less than 4 supporters, will be treated only if time allows:

common antenna MSR/LTE:

RP-150270 New WID: MSR BS configurations for LTE for common antenna case ZTE WID new RAN4 REL-13 -

new WI for LTE only?; leading WG: RAN4; WI code to be used: not allocated as affected system was unclear; original title: New MB-MSR BS configurations for common antenna case; no motivation paper; focus seems to be on RF requirements for LTE BS or MSR BS in case of common antenna with multi-band operation but WID in a bad shape (no Core/Perf part relation of specs & no system impact and just 1 supporting company)

conclusion: revised in RP-150464 as multiple versions of RP-150270 exist

RP-150464 New WID: RF requirements for LTE BS or MSR BS in case of common antenna with multi-band operation ZTE WID new RAN4 REL-13 -

new WI for LTE only; leading WG: RAN4; WI code to be used: LTE_BS_Common_Ant; revision of RP-150270

conclusion: withdrawn (as not provided)

13.2 Spectrum related WIs/SIs

AWS extension:

RP-150195 Canadian Considerations for AWS Extension Band Plan Rogers CommunicationsDisc REL-13 -

recently published Canadian Government band plans for AWS3 and AWS4; provided for information

Rogers recommends that 3GPP should develop an AWS band plan that is harmonized for Region 2. As a first step, 3GPP should develop an AWS band plan that is compatible with the band plans recently adopted by the United States and Canada.

Rogers recommends that the AWS-3 and AWS-4 band plans recently adopted by the United States and Canada be considered as part of the associated work item.

conclusion: noted

RP-150150 Motivation for WID on AWS-Extension Band for LTE Ericsson Disc motiv REL-13 -

conclusion: noted

RP-150148 New WID on AWS-Extension Band for LTE Ericsson WID new RAN4 s REL-13 -

new WI for LTE only; leading WG: RAN4; WI code to be used: LTE_AWS_EXT; AWS = Advanced Wireless Services; to specify a band plan as follow-up of REL-13 SI FS_LTE_AWS_EXT (see TR 36.849); this is a paired band 1710-1780MHz / 2110-2200MHz with fixed duplex spacing; interoperability by means of CA is also proposed

discussion: RAN3 chair: impact on RAN3 specs need to be checked
Rogers is supporting the WI
Dish Network: some clarification in the objective section needed
Huawei: scope needs to be aligned with SI conclusions

conclusion: revised in RP-150428 (also wrong WI code is used, unclear whether TR 36.xxx is a TR 36.8xx or 36.9xx)

RP-150428 New WID on AWS-Extension Band for LTE Ericsson WID new RAN4 s REL-13 -

conclusion: approved

2DL inter-band CA:

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RP-150171 New WID: Additional bandwidth combination set for LTE Advanced inter-band Carrier Aggregation of Band 5 and Band 7 Nokia Networks WID new RAN4 s (2DL/1UL) REL-13 -
new WI for LTE only; leading WG: RAN4; WI code to be used: LTE_CA_B5_B7_BWset; note: LTE_CA_B5_B7 was a REL-12 WI
conclusion: approved
Note: It was detected after RAN #67, that TR 36.852-13 is listed under new without indicating whether it is impacted by Core or Perf. part. As TR 36.852-13 is created by WI LTE_CA_B3_B38-Core it must be listed as affected. Rapporteur confirmed that the TR is affected by the Core part.

RP-150282 New WI proposal: Additional bandwidth combination set for LTE Advanced inter-band Carrier Aggregation of Band 3 and Band 5 Samsung WID new RAN4 s (2DL/1UL) REL-13 -
new WI for LTE only; leading WG: RAN4; WI code to be used: LTE_CA_B3_B5_BWset; note: LTE_CA_B3_B5 was a REL-11 WI
conclusion: revised in RP-150425

RP-150425 New WI proposal: Additional bandwidth combination set for LTE Advanced inter-band Carrier Aggregation of Band 3 and Band 5 Samsung WID new RAN4 s (2DL/1UL) REL-13 -
discussion: MCC: TR is for 2DL/1UL?
Samsung: yes
conclusion: approved

3DL/1UL inter-band CA:

RP-150083 New WID: LTE Advanced 3 Band Carrier Aggregation (3DL) of Band 1, Band 5 and Band 40 SK Telecom WID new RAN4 s (3DL/1UL) REL-13 -
new WI for LTE only; leading WG: RAN4; WI code to be used: LTE_CA_B1_B5_B40; merged with RP-150085 (see RP-150418)
conclusion: withdrawn, see RP-150418 (4DL/1UL) instead

RP-150084 New WID: LTE Advanced 3 Band Carrier Aggregation (3DL) of Band 3, Band 5 and Band 40 SK Telecom WID new RAN4 s (3DL/1UL) REL-13 -
new WI for LTE only; leading WG: RAN4; WI code to be used: LTE_CA_B3_B5_B40; merged with RP-150085 (see RP-150418)
conclusion: withdrawn, see RP-150418 (4DL/1UL) instead

RP-150111 New WI: Additional bandwidth combination set for LTE Advanced 3 Band Carrier Aggregation (3DL/1UL) of Band 4, Band 4 and Band 7 Rogers Communications WID new RAN4 s (3DL/1UL) REL-13 -
new WI for LTE only; leading WG: RAN4; WI code to be used: LTE_CA_B4_B4_B7_BWset
conclusion: revised in RP-150429 (correct WI code, change TR 36.853 into TR 36.853-13 and TR 36.851 into 36.852-13 and indicate whether they are affected by Core or Perf part)

RP-150429 New WI: Additional bandwidth combination set for LTE Advanced 3 Band Carrier Aggregation (3DL/1UL) of Band 4, Band 4 and Band 7 Rogers Communications WID new RAN4 s (3DL/1UL) REL-13 -
conclusion: approved (unseen)

RP-150112 New WI: Additional bandwidth combination set for LTE Advanced 3 Band Carrier Aggregation (3DL/1UL) of Band 4, Band 7 and Band 12 Rogers Communications WID new RAN4 s (3DL/1UL) REL-13 -
new WI for LTE only; leading WG: RAN4; WI code to be used: LTE_CA_B4_B7_B12_BWset
conclusion: revised in RP-150430 (correct WI code, change TR 36.853 into TR 36.853-13 and TR 36.851 into 36.852-13 and indicate whether they are affected by Core or Perf part)

RP-150430 New WI: Additional bandwidth combination set for LTE Advanced 3 Band Carrier Aggregation (3DL/1UL) of Band 4, Band 7 and Band 12 Rogers Communications WID new RAN4 s (3DL/1UL) REL-13 -
conclusion: approved (unseen)

RP-150113 New WI: LTE Advanced 3 Band Carrier Aggregation (3DL/1UL) of Band 2, Band 7 and Band 12 Rogers Communications WID new RAN4 s (3DL/1UL) REL-13 -
new WI for LTE only; leading WG: RAN4; WI code to be used: LTE_CA_B2_B7_B12
conclusion: revised in RP-150431 (change TR 36.853 into TR 36.853-13 and TR 36.851 into 36.852-13 and indicate whether they are affected by Core or Perf part)

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RP-150431 New WI: LTE Advanced 3 Band Carrier Aggregation (3DL/1UL) of Band 2, Band 7 and Band 12
Rogers CommunicationsWID new RAN4 s (3DL/1UL) REL-13 -
conclusion: approved (unseen)

RP-150114 New WI: LTE Advanced 3 Band Carrier Aggregation (3DL/1UL) of Band 2, Band 4 and Band 7
Rogers CommunicationsWID new RAN4 s (3DL/1UL) REL-13 -
new WI for LTE only; leading WG: RAN4; WI code to be used: LTE_CA_B2_B4_B7
conclusion: revised in RP-150432 (change TR 36.853 into TR 36.853-13 and TR 36.851 into 36.852-13 and indicate whether they are affected by Core or Perf part)

RP-150432 New WI: LTE Advanced 3 Band Carrier Aggregation (3DL/1UL) of Band 2, Band 4 and Band 7
Rogers CommunicationsWID new RAN4 s (3DL/1UL) REL-13 -
conclusion: approved (unseen)

RP-150121 New WID: LTE Advanced 3 Band Carrier Aggregation (3DL/1UL) of Band 1, Band 3 and Band 42
NTT DOCOMO, INC. WID new RAN4 s (3DL/1UL) REL-13 -
new WI for LTE only; leading WG: RAN4; WI code to be used: LTE_CA_B1_B3_B42
conclusion: approved

RP-150122 New WID: LTE Advanced 3 Band Carrier Aggregation (3DL/1UL) of Band 1, Band 19 and Band 42
NTT DOCOMO, INC. WID new RAN4 s (3DL/1UL) REL-13 -
new WI for LTE only; leading WG: RAN4; WI code to be used: LTE_CA_B1_B19_B42
conclusion: approved

RP-150123 New WID: LTE Advanced 3 Band Carrier Aggregation (3DL/1UL) of Band 1, Band 21 and Band 42
NTT DOCOMO, INC. WID new RAN4 s (3DL/1UL) REL-13 -
new WI for LTE only; leading WG: RAN4; WI code to be used: LTE_CA_B1_B21_B42
conclusion: approved

RP-150124 New WID: LTE Advanced 3 Band Carrier Aggregation (3DL/1UL) of Band 3, Band 19 and Band 42
NTT DOCOMO, INC. WID new RAN4 s (3DL/1UL) REL-13 -
new WI for LTE only; leading WG: RAN4; WI code to be used: LTE_CA_B3_B19_B42
conclusion: approved

RP-150125 New WID: LTE Advanced 3 Band Carrier Aggregation (3DL/1UL) of Band 19, Band 21 and Band 42
NTT DOCOMO, INC. WID new RAN4 s (3DL/1UL) REL-13 -
new WI for LTE only; leading WG: RAN4; WI code to be used: LTE_CA_B19_B21_B42
conclusion: approved

RP-150144 New Work Item Proposal: LTE Advanced 3 Band Carrier Aggregation (3DL/1UL) of Band 7, Band 20 and Band 38Vodafone WID new RAN4 s (3DL/1UL) REL-13 -
new WI for LTE only; leading WG: RAN4; WI code to be used: LTE_CA_B7_B20_B38
discussion: MCC: rapporteur, at least 2 supporting companies missing, tbd, TR is not new, 2DL TR missing
Qualcomm: makes some PCell assumptions, without it we could support it and take the PCell discussion separately
conclusion: revised in RP-150433 (remove TR 36.xxx from new specs and add TR 36.853-13 and TR 36.852-13 under affected specs indicating whether they are affected by Core or Perf. part; add a rapporteur, get at least 2 more supporting companies)

RP-150433 New Work Item Proposal: LTE Advanced 3 Band Carrier Aggregation (3DL/1UL) of Band 7, Band 20 and Band 38Vodafone WID new RAN4 s (3DL/1UL) REL-13 -
conclusion: approved

4DL/1UL inter-band CA:

RP-150073 New WID: LTE Advanced 4 Band Carrier Aggregation (4DL/1UL) of Band 2, Band 4, Band 4 and Band 12 T-Mobile USA WID new RAN4 s (4DL/1UL) REL-13 -
new WI for LTE only; leading WG: RAN4; WI code to be used: LTE_CA_B2_B4_B4_B12
conclusion: approved

RP-150074 New WID: LTE Advanced 4 Band Carrier Aggregation (4DL/1UL) of Band 2, Band 2, Band 4 and Band 12 T-Mobile USA WID new RAN4 s (4DL/1UL) REL-13 -
new WI for LTE only; leading WG: RAN4; WI code to be used: LTE_CA_B2_B2_B4_B12
conclusion: approved

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RP-150075 New WID: LTE Advanced 4 Band Carrier Aggregation (4DL/1UL) of Band 2, Band 2, Band 4 and Band 4 T-Mobile USA WID new RAN4 s (4DL/1UL) REL-13 -
new WI for LTE only; leading WG: RAN4; WI code to be used: LTE_CA_B2_B2_B4_B4
conclusion: approved

RP-150085 New WID: LTE Advanced 4 Band Carrier Aggregation (4DL/1UL) of Band 1, Band 3, Band 5 and Band 40 SK Telecom WID new RAN4 s (4DL/1UL) REL-13 -
new WI for LTE only; leading WG: RAN4; WI code to be used: LTE_CA_B1_B3_B5_B40; could include also RP-150083 and RP-150084;
conclusion: revised in RP-1500418 merging RP-150085 and RP-150083 and RP-150084

RP-150418 New WID: LTE Advanced 4 Band Carrier Aggregation (4DL/1UL) of Band 1, Band 3, Band 5 and Band 40 SK Telecom WID new RAN4 s (4DL/1UL) REL-13 -
revision of RP-150085 (also including RP-150083 and RP-150084 aspects); new WI for LTE only; leading WG: RAN4; WI code to be used: LTE_CA_B1_B3_B5_B40;
conclusion: revised in RP-150434 (change TR 36.8xx in section 10 into TR 36.854-13, add TR 36.853-13 as affected spec in section 10 and if also 2DL permutations need to be covered: also add TR 36.852-13 as affected spec in section 10)

RP-150434 New WID: LTE Advanced 4 Band Carrier Aggregation (4DL/1UL) of Band 1, Band 3, Band 5 and Band 40 SK Telecom WID new RAN4 s (4DL/1UL) REL-13 -
conclusion: approved (unseen)

RP-150172 New WID: LTE Advanced 4 Band Carrier Aggregation (4DL/1UL) of Band 1, Band 3, Band 7 and Band 8 Nokia Networks WID new RAN4 s (4DL/1UL) REL-13 -
new WI for LTE only; leading WG: RAN4; WI code to be used: LTE_CA_B1_B3_B7_B8
discussion: LG: supports the WI
MCC: 4DL, 3DL TR should be under affected
conclusion: revised in RP-150435 (TR 36.854-13 and TR 36.853-13 should be listed under affected specs)

RP-150435 New WID: LTE Advanced 4 Band Carrier Aggregation (4DL/1UL) of Band 1, Band 3, Band 7 and Band 8 Nokia Networks WID new RAN4 s (4DL/1UL) REL-13 -
conclusion: approved (unseen)

RP-150241 New work item proposal: LTE Advanced 4 Band Carrier Aggregation (4DL/1UL) of Band 2, Band 4, Band 5 and Band 29 Bell Mobility, TELUS, Huawei WID new RAN4 s (4DL/1UL) REL-13 -
new WI for LTE only; leading WG: RAN4; WI code to be used: LTE_CA_B2_B4_B5_B29
conclusion: revised in RP-150436 (Core/Perf part not ticked, Radio Access under section 1 not ticked, section 2.0 not filled out, section 9 not filled out, TR 36.8xx for 3DL should say TR 36.853-13, TR 36.8xx for 4DL should say TR 36.854-13)

RP-150436 New work item proposal: LTE Advanced 4 Band Carrier Aggregation (4DL/1UL) of Band 2, Band 4 Band 5 and Band 29 Bell Mobility, TELUS, Huawei WID new RAN4 s (4DL/1UL) REL-13 -
conclusion: approved (unseen)

2DL intra-band contiguous:

RP-150194 New WID Proposal: LTE Advanced intra-band contiguous Carrier Aggregation in Band 8 CMCC WID new RAN4 s (C) REL-13 -
new WI for LTE only; leading WG: RAN4; WI code to be used: LTE_CA_C_B8;
conclusion: revised in RP-150416

RP-150416 New WID Proposal: LTE Advanced intra-band contiguous Carrier Aggregation in Band 8 CMCC WID new RAN4 s (C) REL-13 -
new WI for LTE only; leading WG: RAN4; WI code to be used: LTE_CA_C_B8
discussion: Qualcomm: do we need 1.4MHz and 3MHz?
CMCC: RP-150416 has solved this already
Vodafone: concerned removing 3MHz (avoiding fragmentation)
conclusion: revised in RP-150437 (remove (2UL/2DL) from WI title, tick Radio Access in section 1, fill out section 2, section 9: no impact on AN?)

RP-150437 New WID Proposal: LTE Advanced intra-band contiguous Carrier Aggregation in Band 8 CMCC WID new RAN4 s (C) REL-13 -
conclusion: approved

3DL intra-band non-contigous:

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RP-150246 New WID: LTE Advanced intra-band non-contiguous Carrier Aggregation in Band 42 for 3DL
Huawei, Etisalat WID new RAN4 s (NC 3DL) REL-13 -
new WI for LTE only; leading WG: RAN4; WI code to be used: LTE_CA_NC_B42_3DL
discussion: MCC: in the future we should replace the x in the new TR.
conclusion: approved
Note: The WID does not clarify whether the new TR is created by the Core part or the Perf. part. The rapporteur clarified that the TR is created by the Core part.

4DL intra-band contiguous:

RP-150198 New WI proposal: LTE Advanced intra-band contiguous Carrier Aggregation in Band 42 for 4DL
CATT WID new RAN4 s (C 4DL) REL-13 -
new WI for LTE only; leading WG: RAN4; WI code to be used: LTE_CA_C_B42_4DL
discussion: MCC: TR for Core or Perf. part?
Orange: table format is difficult to interpret; also a not that additional BW combis can be added
conclusion: revised in RP-150438

RP-150438 New WI proposal: LTE Advanced intra-band contiguous Carrier Aggregation in Band 42 for 4DL
CATT WID new RAN4 s (C 4DL) REL-13 -
conclusion: approved

2UL:

Note: So far we had 5 2UL classes in REL-12: A1/A2/A3/A4/A5 which were covering FDD-FDD cases. For REL-13 we defined so far classes A1/A2/A3 which also covered so far just FDD-FDD cases. RP-150064 intends to cover new FDD-TDD cases and in the same connection it was clarified that in REL-13 A1/A2/A3, the new A4 (see RP-150103) and a potentially future A5 have to cover TDD-TDD as well. This requires updated REL-13 WIDs for A1/A2/A3 and a revision of RP-150103 in RP-150410:

RP-150064 New WID: LTE Advanced dual uplink inter-band Carrier Aggregation FDD-TDD KDDI WID new
RAN4 s (2UL) REL-13 -
new class
new WI for LTE only; leading WG: RAN4; WI code to be used: LTE_CA_2UL_FDD_TDD;
note: This will be another 2UL basket WI (covering e.g. B1_B42) for FDD-TDD cases while LTE_CA_2UL_R13-Ax covers FDD-FDD and TDD-TDD but TR 36.860-13 will also be used for combinations of LTE_CA_2UL_FDD_TDD
conclusion: approved

RP-150103 New WI proposal: LTE Advanced dual uplink inter-band Carrier Aggregation Class A4 Nokia Corporation WID (new) RAN4 s (2UL) REL-13 -
new WI for LTE only; leading WG: RAN4; WI code to be used: LTE_CA_2UL_R13-A4;
conclusion: revised in RP-150410 to clarify that TDD-TDD is part of this WI

RP-150410 New WI proposal: LTE Advanced dual uplink inter-band Carrier Aggregation Class A4 Nokia Corporation WID new RAN4 s (2UL) REL-13 -
revision of RP-150103 to add TDD-TDD; new WI for LTE only; leading WG: RAN4; WI code to be used: LTE_CA_2UL_R13-A4
conclusion: approved
Note: The TR 36.860-13 was created by WI LTE_CA_2UL_R13-A1-Core, therefore this new WI can only affect the TR 36.860-13. This WID does not clarify whether TR 36.860-13 is affected by the Core or the Perf. part. The rapporteur clarified after RAN #67 that TR 36.860-13 is affected by Core and Perf. part.

3DL/2UL inter-band:

Note: It was clarified that the WI RP-150105 includes only combinations of 3DL/1UL and 2UL which are already standardized.

RP-150105 New WI proposal: LTE Advanced 3DL/2UL inter-band Carrier Aggregation Nokia Corporation, LG Electronics WID new RAN4 s (3DL/2UL) REL-13 -
new class
new WI for LTE only; leading WG: RAN4; WI code to be used: LTE_CA_3DL_2UL
conclusion: revised in RP-150439

RP-150439 New WI proposal: LTE Advanced 3DL/2UL inter-band Carrier Aggregation Nokia Corporation, LG Electronics WID new RAN4 s (3DL/2UL) REL-13 -
discussion: Vodafone: concerned that combinations which are not yet completed could not be added later to the WID
conclusion: revised in RP-150479

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RP-150479 New WI proposal: LTE Advanced 3DL/2UL inter-band Carrier Aggregation Nokia Corporation, LG Electronics WID new RAN4 s (3DL/2UL) REL-13 -
conclusion: approved

13.3 UE conformance testing WIs/SIs led by RAN5

RP-150071 New WI proposal: UE Conformance Test Aspects - Further DL MIMO Enhancement for LTE-Advanced ZTE WID new RAN5 REL-12 -
new WI for LTE only; leading WG: RAN5; WI code to be used: LTE_eDL_MIMO_enh-UEConTest; tested core part: LTE_eDL_MIMO_enh-Core
conclusion: approved

RP-150130 New WI proposal: UE Conformance Test Aspects - DCH Enhancements for UMTS Qualcomm Incorporated WID new RAN5 REL-12 -
new WI for UTRA only; leading WG: RAN5; WI code to be used: UTRA_DCHenh-UEConTest; tested core part: UTRA_DCHenh-Core;
conclusion: revised in RP-150412

RP-150412 New WI proposal: UE Conformance Test Aspects - DCH Enhancements for UMTS Qualcomm Incorporated WID new RAN5 REL-12 -
new WI for UTRA only; leading WG: RAN5; WI code to be used: UTRA_DCHenh-UEConTest; tested core part: UTRA_DCHenh-Core;
conclusion: approved

RP-150131 New WI proposal: UE Conformance Test Aspects – LTE Device-to-Device Proximity Services Qualcomm Incorporated WID new RAN5 REL-12 -
new WI for LTE only; leading WG: RAN5 ; WI code to be used: LTE_D2D_Prox-UEConTest; tested core part: LTE_D2D_Prox-Core
conclusion: approved

RP-150134 New WI proposal: UE Conformance Test Aspects - L-band for Supplemental Downlink in E-UTRA and UTRA Ericsson WID new RAN5 REL-12 -
new WI for UTRA & LTE; leading WG: RAN5; WI code to be used: LTE_UTRA_SDL_BandL-UEConTest; tested core part: LTE_UTRA_SDL_BandL-Core
conclusion: approved

RP-150135 New WI proposal: UE Conformance Test Aspects - Low cost & enhanced coverage MTC UE for LTE Ericsson WID new RAN5 REL-12 -
new WI for LTE only; leading WG: RAN5; WI code to be used: LC_MTC_LTE-UEConTest; tested core part: LC_MTC_LTE-Core
conclusion: approved

RP-150136 New WI proposal: UE Conformance Test Aspects - Further Rel-12 configurations for LTE Advanced Carrier Aggregation with 2UL Ericsson WID new RAN5 REL-12 -
new WI for LTE only; leading WG: RAN5; WI code not yet allocated (maybe LTE_CA_Rel12_2UL-UEConTest) as scope of the WI unclear; tested core parts (?): LTE_CA_2UL-A1-Core, LTE_CA_2UL-A2-Core, LTE_CA_2UL-A3-Core, LTE_CA_2UL-A4-Core, LTE_CA_2UL-A5-Core;
discussion: MCC: This would be the 3rd basket WI for REL-12 CA testing WIs, the first basket is proposed to be completed at RAN #67 shifting parts into the 2nd ongoing basket of 3DL (reason for this unclear, danger that 2nd basket is handled in the same way and WI titles do no longer reflect what is in the basket);
conclusion: approved

new basket

RP-150137 New WI proposal: UE Conformance Test Aspects - Codec for Enhanced Voice Services (EVS) Ericsson WID new RAN5 REL-12 -
new WI for IMS (UTRA & LTE); leading WG: RAN5; WI code to be used: EVS_codec-UEConTest; tested core part: SA4 REL-12 WI EVS_codec
conclusion: approved

RP-150202 New WI proposal: UE Conformance Test Aspects - Smart Congestion Mitigation in E-UTRAN NTT DOCOMO, INC. WID new RAN5 REL-12 -

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new WI for LTE only; leading WG: RAN5; WI code to be used: SCM_LTE-UEConTest; tested core part: SCM_LTE-Core
conclusion: approved

RP-150245 New WID Proposal: UE Conformance Test Aspects - Performance Requirements of Interference Cancellation and Suppression Receiver for SU-MIMO for E-UTRA Huawei, HiSilicon WID new RAN5 REL-12 -
new WI for LTE only; leading WG: RAN5; WI code to be used: LTE_SUMIMO_RX-UEConTest; tested: LTE_SUMIMO_RX-Perf (note: There was no Core part for this)
conclusion: approved

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14 UE capabilities/FGIs

RAN2 CRs:

RP-150378 RAN agreed CRs on UE capability for modified MPR behavior RAN2 CR 36.306 set REL-8 LTE-L23, TEI10
conclusion: approved

RP-150379 RAN agreed CR on Introduction of UL64QAM based on split of DL and UL categories RAN2 CR 36.306 0261 1 F REL-8 LTE-L23, TEI12
Note: The corresponding signalling CR to TS 36.331 which was originally in R2-150714 CR1769r1 was merged into R2-150715 CR1768r1 on REL-12 ASN.1 review.
conclusion: approved

REL-12 UE capabilities:

RP-150032 LS on LTE Rel-12 UE feature list about RAN1 responsible features (R1-150947; to: RAN; cc: RAN2, RAN4; contact: NTT DOCOMO) RAN1 LSin REL-12 -
RAN action requested;
conclusion: noted, no LS answer

RP-150034 LS on LTE Rel-12 UE feature list about RAN2 responsible features (R2-150703; to: RAN; cc: RAN1, RAN4; contact: NTT DOCOMO) RAN2 LSin REL-12 -
RAN action requested;
conclusion: noted, no LS answer

RP-150036 LS on LTE Rel-12 UE feature list about RAN4 responsible features (R4-151044; to: RAN; cc: RAN1, RAN2; contact: NTT DOCOMO) RAN4 LSin REL-12 -
RAN action requested;
conclusion: noted, no LS answer

RP-150178 Handling of Rel-12 UE features (RAN4 part) NTT DOCOMO, INC., SoftBank Mobile, T-Mobile USA, CMCC, Orange, Deutsche Telekom, TeliaSonera, Lightsquared, Telecom Italia, Telefónica Disc REL-12 TEI12
Tdoc is moved from AI 8.4.2 to AI 14
provides views on which Rel-12 RAN4 UE features should be mandatory or optional; compare LSin RP-150036 = R4-151044
proposal about Rel-12 UE features.
Proposal 1: #19-10: RSRQ on all symbols for LTE is mandatory for Rel-12 UE and onwards.
More specifically, "rsrqOnAllSymbols-r12"
Proposal 2: IncMon (#17-1) is mandatory for Rel-12 UEs and onwards except for category 0 (Rel-12 Low cost MTC) capable UEs.
More specifically,
- *For LTE: incMonEUTRA-r12, incMonUTRA-r12,*
- *For UTRA: Increased UE carrier monitoring UTRA, Increased UE carrier monitoring E-UTRA*

Proposal 3: The others (#18-1: SU-MIMO, #19-9: RSRQ lower value range) are optional
conclusion: noted

RP-150259 On Rel-12 UE eIMTA UE capabilities CATT Disc REL-12 LTE_TDD_eIMTA
discussion on eIMTA feature 7-1 for Rel-12 UEs
Proposal: phy-TDD-ReConfig-TDDPCell is mandatory for Rel-12 UEs supporting TDD.
conclusion: noted

RP-150209 Merged LTE Rel-12 UE feature list and leftover issues NTT DOCOMO, INC. Disc REL-12 TEI12
Proposal 1: TSG-RAN approves the RAN WG recommendation on mandatory/optional features as in the feature list.
Proposal 2: TSG-RAN discusses and decides mandatory/optional features listed in Table 1:

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WI	#	Feature group	Responsible W	RAN WG recommendati	TSG-RAN decision
7. eIMTA	7-1	UL-DL re-configuration via L1 signaling for non-CA and CA (if supported) with TDD Pcell	RAN1	FFS	
17. Increasing the min. num. of freqs to monitor	17-1	Increased number of monitoring carriers for LTE and UTRA	RAN4	No consensus	
18. Interf. cancel and suppress	18-1	SU-MIMO Advanced receiver	RAN4	No consensus	
19. Group call eMBMS congestion management	19-1	MTCH suspension	RAN2/3	FFS	
20. TEI12	20-9	RSRQ lower value range extension	RAN4	No consensus	
	20-10	RSRQ on all symbols	RAN4	No consensus	

Proposal 3: The need of FDD/TDD differentiation for the small cell discovery features (3-3, 3-4 and 3-5 in the feature list) are decided later when their implementation becomes realistic.

WI	#	Feature group	Need of FDD/TDD differentiation
3. SCE Physical Layer	3-3	UE procedure related to Small cell on/off by CA SCell activation/deactivation	Same as 3-4
	3-4	CRS-based discovery signal/procedure	TBD
	3-5	CSI-RS-based discovery signal/procedure	Same as 3-4

discussion: proposal 2:
RAN chair: SU-MIMO Advanced and RSRQ lower value range extension could be made optional and others to be discussed?
Qualcomm, Intel, Samsung, Blackberry, LG: would like to see all features of proposal 2 optional
Orange, Telecom Italia: all features of proposal 2 should be mandatory (except SU-MIMO Advanced which can be optional)
AT&T: is there a signalling indication for 17-1 in RAN2? if yes, this can be optional
NTT DOCOMO: 17-1 is important feature for operators and vendors and should be mandatory
RAN chair: further offline discussion please
Telecom Italia: operators on one side and manufacturers on the other side will be difficult to converge

conclusion: noted

RP-150511 Way forward in handling of RAN4 features NTT DOCOMO, INC., Orange, TeliaSonera, AT&T, Telecom Italia, Softbank Mobile, Deutsche Telekom Disc REL-12 -

proposal:

- *The following two of the four capabilities for IncMon shall be mandatory for Rel-12 UEs and onwards except for category 0 (Rel-12 Low cost MTC) capable UEs to monitor more E-UTRA carriers.*
  - *incMonEUTRA-r12*
  - *Increased UE carrier monitoring E-UTRA*
- *The remaining following capabilities are FFS.*
  - *incMonUTRA-r12*
  - *Increased UE carrier monitoring UTRA*
- *The followings are handled as optional*
  - *SU-MIMO*
  - *RSRQ on all symbols*

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- *RSRQ lower value range extension*

discussion: Deutsche Telekom: having it optional for cat. 0 is the only compromise that is possible
Qualcomm: is ok with the proposal but would suggest to have it optional for UTRA instead of ffs
Orange: prefers to keep it ffs
Microsoft: supports Qualcomm
RAN chair: it seems we cannot decide
Orange, Deutsche Telekom: think that we can decide on LTE and leave UMTS part ffs
Intel: that's not a compromise

conclusion: noted, way forward is not approved, discussion to continue until RAN #68

New UE categories:

RP-150096 Introduction of new UE categories Qualcomm Disc REL-12 TEI12

proposals:

- *The DL peak data rates of new UE categories should be a multiple of 200Mbps*
- *The following two new UE categories should be added:*
  - *Cat x: 1000Mbps DL*
  - *Cat y: 1600Mbps DL*
- *The 1000Mbps category should be defined for Rel-12, while the release for the 1600Mbps could be Rel-13+.*
- *The introduction of other UE Categories around 1000Mbps - in addition to 1000Mbps - can be also considered.*
- *The UL peak data rate(s) for the new categories is TBD.*

conclusion: noted

RP-150161 Introduction of new UE category KDDI Disc REL-12 ?

proposal:

- *Introduce a UE category of 1G DL peak data rate in Rel-12 with the following condition: Introducing 1G UE category should not restrict introducing other UE categories between 600M and 1G, or around 1Gbps*

discussion: KDDI: also Samsung supports this Tdoc
Qualcomm: is in line with our proposal RP-150096 so we support RP-150161
Ericsson: also supports KDDI Tdoc

conclusion: noted

RP-150207 Way forward on new UE categories in Rel-12 and 13 NTT DOCOMO, INC. Disc REL-12 TEI12

proposal:

- *Introduce a new UE category for DL 750 Mbps from Rel-12. The corresponding CR is prepared for RAN#68.*
- *Introduce new UE categories for 1 Gbps or beyond from Rel-13. The target rate will be continued to discuss and decided until RAN#69 (so that the corresponding CR can be prepared for RAN#70).*

conclusion: revised in RP-150367

RP-150367 Way forward on new UE categories in Rel-12 and 13 NTT DOCOMO, INC., AT&T, MediaTek, ACER, ASUS, CHT, HTC, ITRI, LGE, Panasonic, Sharp, Hitachi Disc REL-12 TEI12

proposal:

- *Introduce a new UE category for DL 750 Mbps from Rel-12.*

The corresponding CR is prepared for RAN#68.

- *Introduce new UE categories for 1 Gbps or beyond from Rel-13*

The target rate will be continued to discuss and decided until RAN#69 (so that the corresponding CR can be prepared for RAN#70).

discussion: KDDI: does not support NTT proposal, no need to postpone to REL-13

conclusion: noted

RP-150242 Way forward on new DL UE categories Huawei, HiSilicon Disc REL-12 LTE_CA-Core, LTE_SC_enh_L1, TEI12

proposal:

Introduce in Rel-12:

- *a UE DL category around 800 Mbps*
- *a UE DL category around 1 Gbs*
- *a UE DL category around 1.2 Gbps*

discussion: Deutsche Telekom: concerned that we are introducing too many categories if we go now in steps of 200Mbytes

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Microsoft: supports Deutsche Telekom, normal user does not care about the categories
Sprint: supports the Huawei proposal
RAN chair: offline discussion needed, we will come back on Thu
Deutsche Telekom: we had the principle to minimize the number of categories in the past
conclusion: noted

RP-150298 CR to 36.306 on new DL UE categories Huawei, HiSilicon CR36.306 0268 - C REL-12 LTE_CA-Core, LTE_SC_enh_L1, TEI12
company contribution not related to RAN2 Tdocs
conclusion: revised in RP-150458 (as no CR number on CR cover of RP-150298)
RP-150458 CR to 36.306 on new DL UE categories Huawei, HiSilicon CR36.306 0268 1 C REL-12 LTE_CA-Core, LTE_SC_enh_L1, TEI12
conclusion: not treated

RP-150299 CR to 36.331 on new DL UE categories Huawei, HiSilicon CR36.331 1799 - C REL-12 LTE_CA-Core, LTE_SC_enh_L1, TEI12
company contribution not related to RAN2 Tdocs
conclusion: revised in RP-150459 (as no CR number on CR cover of RP-150299)
RP-150459 CR to 36.331 on new DL UE categories Huawei, HiSilicon CR36.331 1799 1 C REL-12 LTE_CA-Core, LTE_SC_enh_L1, TEI12
conclusion: not treated

On Thursday:
RP-150489 Way forward on new UE categories in Rel-12 KDDI, Sprint, CMCC, Huawei, HiSilicon, Qualcomm, Ericsson, Nokia Corporation, Nokia Networks, Samsung Disc REL-12 TEI12
proposal:
Introduce three new DL UE categories for 800 Mbps and 1Gbps, 1.2Gbps from Rel-12
- *256QAM should not be mandatory for any of these new categories*
- *RAN WGs work in 2015/2Q*
- *The corresponding CR is prepared for RAN#68*

discussion: NTT DOCOMO: any feasibility study for 4x4 plus 256QAM?
KDDI: we agreed to reduce the number of categories
Ericsson: does not agree with concerns from NTT DOCOMO
Deutsche Telekom: by far too many categories which would fragment the market
Microsoft: same view as Deutsche Telecom, 1Gbit/s is enough for REL-12
Huawei: what about agreeing the first 2 800 Mbps and 1Gbps for REL-12?
NTT DOCOMO: concerned about uncertain features
Nokia Networks: for HSPA we have 28 categories, it was never a problem but in fact just a few came to the market
Sprint: supports 1Gbps, 1.2Gbps from Rel-12
NTT DOCOMO: proposes 700Mbps for REL-12 and 1Gbps for REL-13
KDDI: cannot agree to 1Gbps just for REL-13
RAN chair: 800Mbps for REL-12 or 800Mbps + 1Gbps for REL-12

Show of hands:
1. 750/800Mbps only: 9 companies (DCM, LGE, Sierra, Sharp, MediaTek, NTT, MStar, CHTTL, ITRI)
2. 750/800Mbps and 1 Gbps: 19 companies (Softbank, Samsung, CMCC, Intel, MS, ALU, ASB, HUA-Dev, HUA, E///, QC, Sprint, KDDI, Nokia, Nokia Net, DT, HiSi, TD Tech, IDCC)

conclusion: noted; will go for option 2; RAN1 will decide if 750Mbps or 800Mbps and the feature combination to get to the category

15 Inter WG/TSG-related discussions & decisions

See also AI 11.3.5 for related MCPTT LSs.

RP-150380 MCPTT Project Plan Proposal SA WG2 Chairman, US Department of Commerce (Rapporteur), UK Home Office (Rapporteur), CESG Disc REL-13 MCPTT
A project plan to propose at SA, CT and RAN plenaries in March.

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presented by SA2 chairman (Samsung)
RAN impact: RAN WG SI in Q2/Q3 2015, WI in Q4 2015
proposal: It is proposed that RAN, CT and SA discuss the coordination aspects of this plan.
The plan assumes that work is initiated and progresses at a certain rate. It is proposed to reassess the plan with respect to achieved progress at each plenary to identify how best to complete work on the MCPTT and dependent features within the release time frame.
discussion: RAN chair: any comments? none
RAN chair: anyway corresponding containers are in place (e.g. eD2D and PtM)
conclusion: noted

16 Outputs to other groups

No contributions

17 TSG RAN elections

NOTE: Elections for RAN chair and 3 RAN vice-chair positions will be carried out during RAN #67 and will start on Monday morning.

voting list: http://www.3gpp.org/ftp/webExtensions/elections/RAN/Elections2015/votingList_RAN_mtg-67r1.htm
179 Individual Members have the right to vote
candidatures received so far: http://www.3gpp.org/news-events/elections/1652
3GPP working procedures: ftp://ftp.3gpp.org/Information/Working_Procedures/3GPP_WP.zip
see esp. Article 22, 28, 35

17.1 Election of RAN chairman

Election took place on 09.03.2015:

Candidates:
Mr. Dino Flore Qualcomm Incorporated / ATIS

RAN vice-chairman Giovanni Romano asked TSG RAN participants whether there are any further candidates with a letter of support from the Individual Member that he/she represents (acc. to Article 22 of 3GPP working procedures).

No other candidate, Mr. Dino Flore is elected as RAN chairman for a 2nd term by acclamation.

17.2 Election of RAN vice-chairmen

Election took place on 09.03.2015:

Candidates:
Mr. Giovanni Romano TELECOM ITALIA S.p.A. / ETSI
Mr. Sharat Chander AT&T / ATIS
Mr. Takaharu Nakamura Fujitsu Limited / ARIB

RAN chair Dino Flore asked TSG RAN participants whether there are any further candidates with a letter of support from the Individual Member that he/she represents (acc. to Article 22 of 3GPP working procedures).

No other candidate.
Mr. Giovanni Romano is elected as RAN vice-chairman for a 2nd term by acclamation.
Mr. Sharat Chander is elected as RAN vice-chairman for a 2nd term by acclamation.
Mr. Takaharu Nakamura is elected as RAN vice-chairman for a 2nd term by acclamation.

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18 Project management

5G:

LSs:

ITU-R related LSs RP-150041, RP-150031 and RP-150043 of AI 7.2.2 will be treated first.

RP-150019 LS on NGMN's 5G Initiative (2nd LS)
(NGMN_LS_141223; to: SA, RAN, CT; cc: -; contact: NGMN Office) NGMN
LSin - -
presented by Alcatel-Lucent
RAN action requested
discussion: RAN chair: NGMN suggests "standards ready end of 2018"
Huawei: reference is shifted compared to ITU
RAN chair: we will discuss our timeline here in 3GPP as we have to take into account also industry factors
Telecom Italia: do we plan to answer the LS?
RAN chair: can be decided later this week
conclusion: noted, no LS answer

5G Workplan:

RP-150056 Getting ready for "5G" RAN chairman (Qualcomm) Disc
discussion: Nokia Networks: supports a workshop in Sep. (could even go for Sat/Sun after RAN)
Telecom Italia: workshop open to non-3GPP members?
RAN chair: we do not be flooded by inputs but we could consider inputs from outside 3GPP as well
Microsoft: workshop should not impact REL-13, prefers workshop in Dec.
Mediatek: channel model ad hoc will have impact on WGs so we need to be careful
ALU: new radio below and above 6GHz have to be taken into account and they may have different time lines
ALU: for which band we consider the channel model needs to be decided as well
RAN chair: channel modelling group could look at this at the beginning
ALU: prefers to keep channel modelling in RAN1 but also sees impact on RAN1 then that has to be taken into account
Ericsson: supports the slides; slide 12: start of work in WGs: stage 3 freeze is in Dec. and WGs can work when they have finished REL-13
RAN chair: we can consider a disclaimer here regarding the freeze of REL-13
AT&T: agrees with the slides, workshop should happen in Sep.; having it before the RAN meeting would be more appropriate; does not support to have the workshop in the week-end
Samsung: supports chairman's slides; supports that WGs can start March 2016
Orange: "new radio": we do not yet know whether there is one or multiple; we need to be careful to not impact REL-13 as it is a big REL in a short time interval; time difference between NGMN and ITU-R: unclear what is contents of first REL
CMCC: 2 or 3 days workshop between RAN #69 and RAN #70 preferred; channel modelling should not impact REL-13 RAN1 work
Vodafone: if in Sep. then better after RAN #69
NTT DOCOMO: prefers workshop in Sep.15, would want to start channel model work in Sep.
Sprint: is for having workshop in Sep. and not on the week-end; Internet of things and tight integration will be key aspects of 5G so interworking will be essential
RAN chair: SA1 has already a 5G SI called SMARTER and a coordination with them will be useful in the future
Deutsche Telekom: RAN-SA coordination useful, workshop after RAN #69 is preferred (not necessarily on the week-end)
Fujitsu: we have to distinguish below and above 6GHz
RAN chair: the workshop will not be limited to one of them
Huawei: supports RAN workshop in Dec., before Nov.2015 (WRC) we will not know which bands are available; worshop on requirements or also technologies?
RAN chair: both possible, no restriction

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LG: REL-14 could start in June 2016, 2 days not enough for enough, channel model part will involve RAN1 people busy with MIMO and LAA, would propose to use whole REL-14 for channel modelling
TeliaSonera: would like to see the workshop after RAN #69 in Sep. bit shift the RAN meeting to start earlier; starting work in WGs in March 16 is too early
SA2 chair (Samsung): also inputs from SA2 expected (not only SA1)
NEC: supports that RAN and SA are involved in the workshop; Sep.15 is good; having it before RAN #69 would be too early
Intel: RAN SI in Dec. is ok; workshop after Sep. is ok; RAN1 REL-13 and channel modelling should not collide
Telecom Italia: we can submit our requirements to ITU-R, LTE could be also part of the submission

conclusion: revised in RP-150467

RP-150217 5G Standardization Work Plan NTT DOCOMO, INC. Disc
conclusion: revised in RP-150440

RP-150440 5G Standardization Work Plan NTT DOCOMO, Fujitsu, Hitachi, Kyocera, Mitsubishi, NEC, NTC, NTT, Panasonic, Sharp, Sony, KDDI, Sumitomo Elec. Industries Disc
conclusion: noted

RP-150222 Timeline of RAN work for 5G Samsung Disc
conclusion: noted

RP-150244 Views on the timeline of 5G standardization and channel modeling activities in RAN Huawei, HiSilicon Disc
conclusion: noted

RP-150286 Discussion on 5G timeline in RAN CATR Disc
conclusion: noted

RP-150305 5G timing in RAN Ericsson Disc
conclusion: noted

RP-150316 Considerations on 5G Standardization CMCC Disc
note: Includes a draft SID for information.
conclusion: noted

after offline discussion during Tue lunch break:

- show of hands for workshop in 2 steps:
- Sep.15 or Q4 option
  - if Sep.15:
  a. in TSG week (RAN: Mon-Wed and workshop Thu/Fri, only SIs that move to WIs, spectrum/testing WIs will be considered) or
  b. after (Mon/Tue)
  - if Q4:
  a. in the middle of Q4 (place tbd) or
  b. immediately before Nov. WG meetings
  c. immediately before RAN #70 in Dec. (Thu/Fri)
- channel modelling: a SI in Sep.15 RAN #69 planned, RAN will identify the bands in RAN #70 and WGs will not start before 2016
- REL-13 schedule is kept
- scope of joint RAN-SA discussion on Wed during RAN #67: reporting from RAN about 5G plan and comments from SA, will not reopening the discussion (also schedule for TSG #69 will be shown)
- no limitation on the scope of the "RAN workshop on 5G" for Sep.15, workshop will be open for non-3GPP members but details tbd

Sep.15 option: 43
Q4 option: 22
=> Sep.15 option decided

in same week: 36
on Mon/Tue: 16

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=> workshop will be in same week as RAN #69 (Mon-Wed RAN, Thu/Fri workshop)

RP-150467 Getting ready for "5G" RAN chairman (Qualcomm) Disc - -
planned to be presented to SA #67 in joint session on Wed evening
discussion: RAN4 chair: spectrum aspects excluded on slide 15
RAN chair: yes
RAN chair: there may be a problem for the host to get the room for Fri for the workshop; in case of problems the workshop will be moved to Mon/Tue in the week later; will be decided as soon as possible
Telecom Italia: concerns were raised that workshop is going on in parallel to SA and inviting SA1 chair will then not work
SA chair: we could swap CT and SA or condense CT/SA to 3 days
Telecom Italia: IMT2020 is still subject to some modifications
Fujitsu: it would also good to indicate a REL on slide 11
Telecom Italia: June 2019 on slide 11 is ITU-R deadline i.e. 3GPP has to do their part well in advance
Huawei: make sure that there is no 5G discussion in WGs in Q4
ALU: maybe it would be better to split usual aspects that are still for further discussions from RAN decisions (like the workshop)
NTT DOCOMO: scope/objectives of the workshop should be clarified in a separate Tdoc
Huawei: do we see an updated version?
RAN chair: no, only minor modifications will be done before SA submission
Orange: slide 18: concerned about "channel modelling will start"
conclusion: revised in RP-150483
RP-150483 Getting ready for "5G" RAN chairman (Qualcomm) Disc - -
conclusion: noted, will be presented to SA with minor modifications

beyond 6GHz:
Tdocs related to new SIs/WIs RP-150219, RP-150221, RP-150220 and RP-150308 of AI 13.1.1 will be handled here.

Work plan:
RP-150017 3GPP Work Plan review at Plenary #67 (pre-TSG version)ETSI MCC Workplan - -
conclusion: revised in RP-150057
RP-150057 3GPP Work Plan review at Plenary #67 (past-TSG version) ETSI MCC Workplan - -
discussion: General Dynamics: status of MBMS enhancement should be a SI not a WI
Workplan manager: will be checked with SA secretary and then updated
conclusion: noted

Others:
RP-150018 3GPP Support Team Report ETSI MCC Report - -
conclusion: noted

RP-150050 Hanging paragraphs ETSI MCC CR21.801 0040 - F REL-12 TEI12
Toughens up the drafting rules relating to hanging paragraphs; CR is for approval in SA
discussion: No comments from RAN
conclusion: endorsed

RP-150051 Tdoc and CR status values ETSI MCC Disc - -
Discusses and seeks approval for philosophy of status value allocation
discussion: NEC: "withdrawn" preferred to avoid "rejected" and "partially approved" is not appropriate
NEC: will status be announced by the chair?
Specs manager: yes, apart from "withdrawn" which is up to the Tdoc author
NextNav: what about "not treated"?
Specs manager: "available" will be in the meeting report as "not addressed"
conclusion: noted

RP-150052 Use of multiple WI codes on CRs ETSI MCC Disc - -
Outlines the working practices and (undocumented) rules
discussion: NEC: changes relevant for a whole group of CA were often abbreviated
MCC: as these abbreviations can not tracked anywhere, this has to be avoided and the WI codes have to be listed
Huawei: in RAN1 we often merge multiple WIs in the same CR

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MCC: If the CRs can not be split, that's ok. Often a common CR is considered because of time pressure but the draw back is that implementers or RAN5 will have difficulties to separate which changes are coming from which feature. So separate CRs is preferrable.

conclusion: noted

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19 Future meeting schedule

Meeting schedule 2010/2011/2012/2013/2014/2015/2016:

MEETING	DATES	LOCATION	HOST
RAN #47	16 March – 19 March 2010	Vienna, Austria	EF3
RAN #48	1 June – 4 June 2010	Seoul, Korea	TTA
RAN #49	14 Sep. – 17 Sep. 2010	San Antonio, USA	NAF3
RAN #50	7 Dec. – 10 Dec. 2010	Istanbul, Turkey	EF3
RAN #51	15 March – 18 March 2011	Kansas City, USA	Sprint Nextel
RAN #52	31 May – 3 June 2011	Bratislava, Slovakia	EF3
RAN #53	13 Sep. – 16 Sep. 2011	Fukuoka, Japan	ARIB & TTC
RAN #54	6 Dec. – 9 Dec. 2011	Berlin, Germany	EF3
RAN #55	28 Feb. – 2 March 2012	Xiamen, China	ZTE, CMCC
workshop ***	11 June - 12 June 2012	Ljubljana, Slovenia	EF3
RAN #56	13 June – 15 June 2012	Ljubljana, Slovenia	EF3
RAN #57	4 Sep. – 7 Sep. 2012	Chicago, USA	NAF3
RAN #58	4 Dec. – 7 Dec. 2012	Barcelona, Spain	EF3
RAN #59	26 Feb. – 1 March 2013	Vienna, Austria	EF3
RAN #60	11 June – 14 June 2013	Oranjestad, Aruba	NAF3
RAN #61	3 Sep. – 6 Sep. 2013	Porto, Portugal	EF3
RAN #62	3 Dec. – 6 Dec. 2013	Busan, Korea	TTA
RAN #63 **	3 March – 6 March 2014	Fukuoka, Japan	ARIB & TTC
RAN #64	10 June – 13 June 2014	Sophia Antipolis, France	ETSI
workshop LTE-U	13 June 2014	Sophia Antipolis, France	ETSI
RAN #65	9 Sep. – 12 Sep. 2014	Edinburgh, Scotland	EF3
RAN #66 **	8 Dec. – 11 Dec. 2014	Maui, USA	NAF3
**RAN #67 ** **	**9 March – 12 March 2015**	**Shanghai, China**	**Huawei**
RAN #68 **	15 June – 18 June 2015	Malmö, Sweden	EF3
RAN #69 **	14 Sep. – 17 Sep. 2015	Phoenix, USA	NAF3
RAN #70 **	7 Dec. – 10 Dec. 2015	Sitges, Spain	EF3
RAN #71 **	7 March – 10 March 2016	Göteborg, Sweden (tbc)	EF3
RAN #72 **	13 June – 16 June 2016	tbd, Korea	TTA
RAN #73 **	19 Sep. – 22 Sep. 2016		
RAN #74 **	5 Dec. – 8 Dec. 2016	Vienna, Austria (tbc)	EF3

***: RAN Workshop on REL-12 and onwards

**: 1 week TSG i.e. in same week with CT and SA, therefore starting on Monday

20 Any other business

Nothing to report.

21 Closing of the meeting

The TSG RAN chairman Dino Flore (Qualcomm) thanked the delegates for participating and contributing to RAN meeting #67, he thanked the host for organizing the meeting and he closed the meeting on Thursday March.12th, 2015 at about 4:45pm.

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Annex A:
List of participants

The list of participants of this RAN meeting #67 is attached to this report.

Total number of participants: 229 (registered before the meeting: 310)

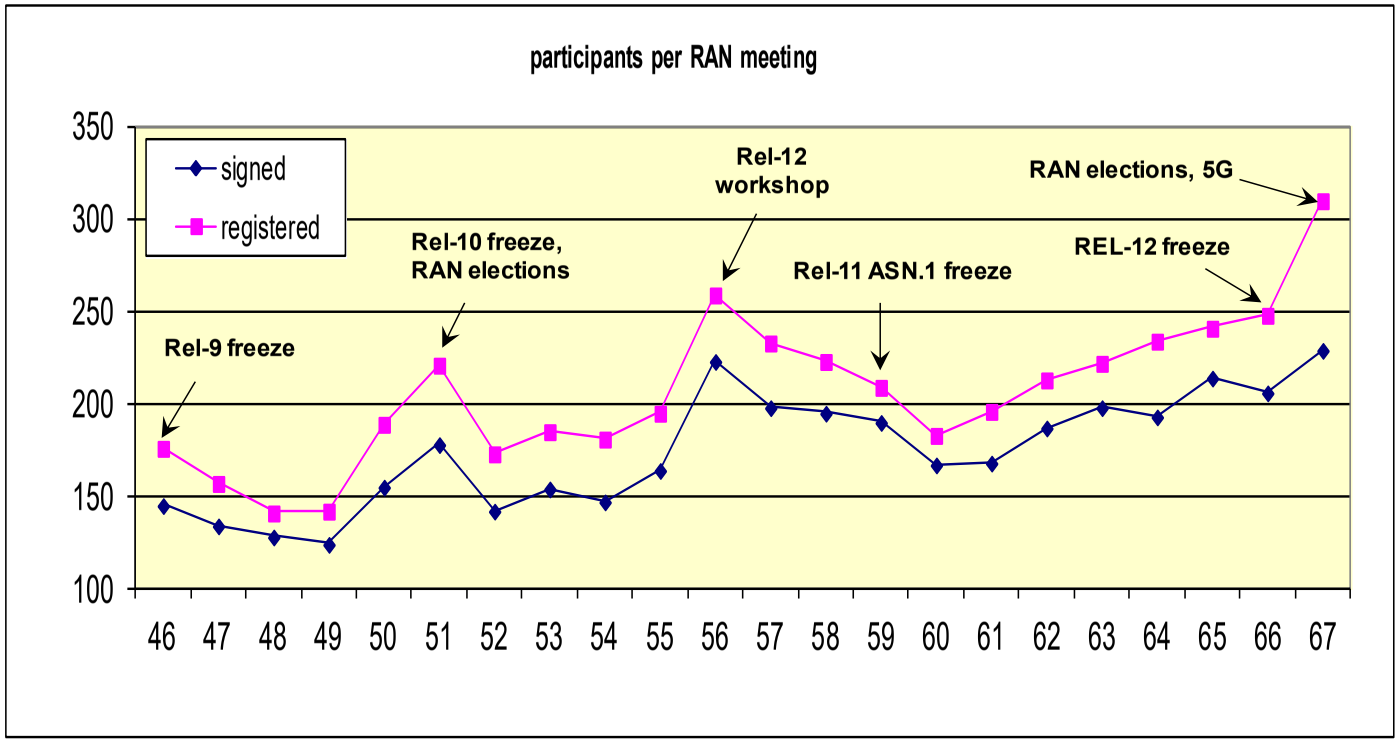


Fig. A-1: Participants per RAN meeting (registered beforehand and actual participants who signed)
(1 week TSG: #63, #66 and further meetings)

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Annex B:
List of Tdocs

The list of Tdocs of this RAN meeting #67 is attached to this report.

Total number of Tdocs: 519 (RP-150001 - RP-1500519) of which 509 Tdocs are available, i.e. 10 are not available and they are withdrawn.

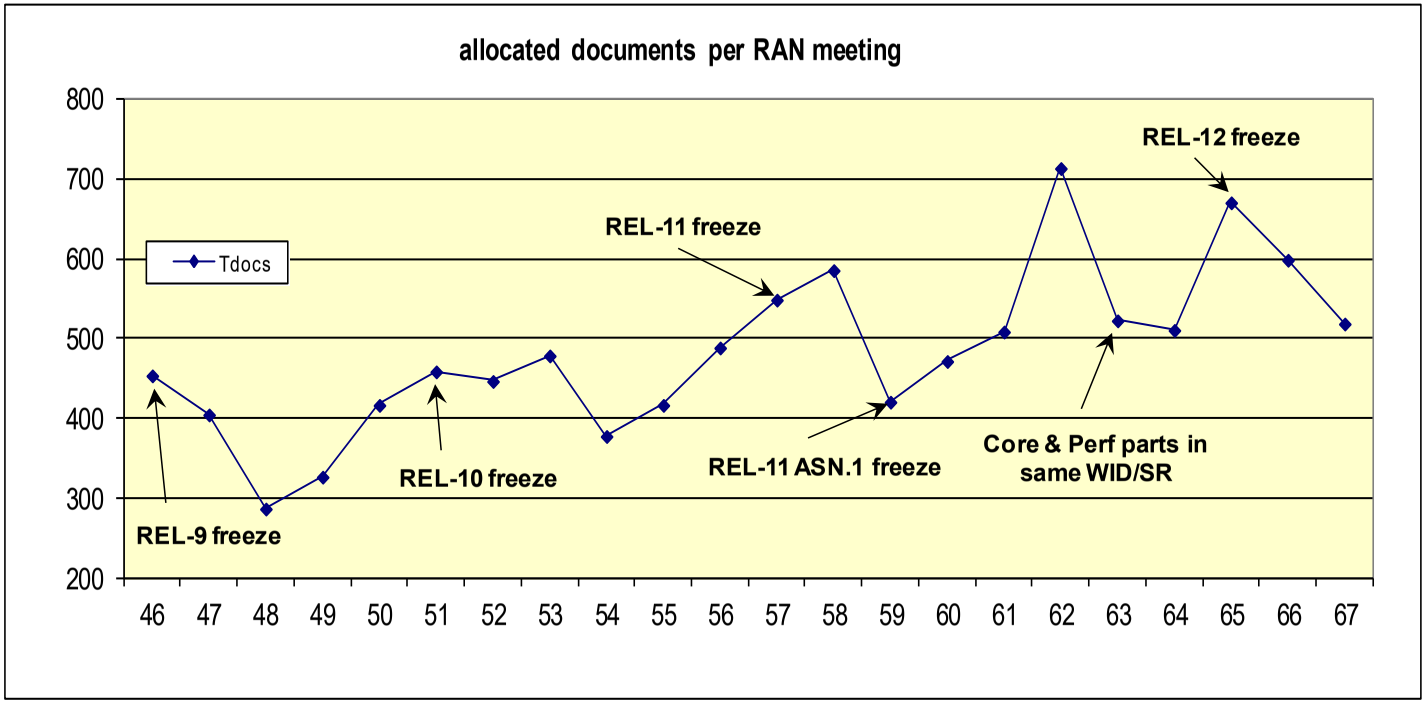


Fig. B-1: Number of allocated Tdocs per RAN meeting

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Annex C:
Incoming liaison statements (LSin)

In total 27 LSs/LTIs were received for RAN #67 (1 of them received during the meeting; 0 of them received after the meeting). 27 LSs/LTIs were treated.

RAN Tdoc	title (incoming LS, to, cc, contact)	source	REL	WI	RAN action requested	status	LS answer to source	additional comments
RP-150019	LS on NGMN's 5G Initiative (2nd LS) (NGMN_LS_141223; to: SA, RAN, CT; cc: -; contact: NGMN Office)	NGMN	-	-	yes	noted	none	LS treated under AI 18
RP-150020	LS on Licensed Shared Access (LSA) related Activities in TC RRS (ETSI TC RRS(14)028019r1; to: SA; cc: RAN, SA5; contact: Intel)	ETSI TC RRS	-	-	not explicitly	noted	none	RRS = Reconfigurable Radio Systems
RP-150021	LS on public safety discovery (S2-150691; to: RAN1, RAN2, SA3, RAN; cc: -; contact: Qualcomm)	SA2	REL-13	eProSe-Ext	not explicitly	noted	none	RAN1 answer see RP-150033; LS treated under AI 11.3.5
RP-150022	LS on support for ProSe one-to-one communication in Release 13 (S6-150076; to: RAN2; cc: SA2, RAN; contact: General Dynamics)	SA6	REL-13	MCPTT	no	noted	none	LS treated under AI 11.3.5
RP-150023	LS on Establishment of new working group TSG SA WG6 (SP-140884; to: OMA, ETSI TC TCCE, 3GPP TSG CT, SA2, SA6, ATIS; cc: TCCA, PCG, RAN, CT1, CT3, CT4, CT6, SA1, SA3, SA4, SA5; contact: SA6 convener)	SA	REL-13	MCPTT	no	noted	none	TCCE = TETRA and Critical Communications Evolution; TCCA = TETRA + Critical Communications Association; LS treated under AI 11.3.5
RP-150024	LS regarding coexistence of Licensed Assisted Access (LAA) and IEEE 802 (IEEE_802_LMSC_150202; to: RAN; cc: RAN1, IEEE 802, IEEE 802.19; contact: Chairman IEEE 802 LMSC)	IEEE 802 LMSC	REL-13	FS_LTE_LAA	not explicitly	noted	RP-150454	LMSC = Local and Metropolitan Area Network Standards Committee; RAN #66 received LSin RP-141747; RAN chair presented RP-150055 at IEEE 802 Interim Session on 13.01.2015 in Atlanta, USA; LS treated under AI 12.4.3
RP-150025	LS on Request for information sharing between ATIS COAST SYNC and 3GPP RAN on timing requirements for wireless base stations in the United States (ATIS_COAST_SYNC_150122_00007; to: RAN; cc: ATIS; contact: AT&T)	ATIS COAST SYNC	-	-	yes	noted	RP-150421	COAST = Copper/Optical Access, Synchronization and Transport Committee; SYNC = Synchronization Subcommittee
RP-150026	LS regarding CTIA MIMO OTA Test Plan Development (CTIA_LS_150203; to: RAN4, RAN5; cc: RAN; contact: AT&T)	CTIA MOSG	REL-13	LTE_MIMO_OTA-Core	no	noted	none	CTIA = Cellular Telecommunications & Internet Association; LS treated under AI 11.2.4

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RAN Tdoc	title (incoming LS, to, cc, contact)	source	REL	WI	RAN action requested	status	LS answer to source	additional comments
RP-150027	Reply LS to RP-142316 on OTA Test Requirement Work Plan (CTIA_LS_150202; to: RAN; cc: RAN4; contact: Spirent)	CTIA OTA WG	REL-13	LTE_UTRA_TRP_TRS-Core	no	noted	none	CTIA = Cellular Telecommunications & Internet Association; LS treated under AI 11.2.1
RP-150028	LS on current implementation of 700 MHz bandplan with 3GPP specification (ITU-R WP5D/TEMP/567; to: RAN4, RAN; cc: -; contact: ITU-R SG5 Counselor)	ITU-R WP5D	REL-11	LTE_DL_FDD700, LTE_APAC700	yes	noted	RP-150477	bands in 700-800MHz range: FDD: 12, 13, 14, 17 (all 4 from REL-8 LTE-RF), 28 (REL-11 LTE_APAC700); FDD DL: 29 (REL-11 LTE_DL_FDD700); TDD: 44 (REL-11 LTE_APAC700); LS treated under AI 7.2.2
RP-150029	LS to GCS proponents and transposing organizations on the provision of transposition references and certification C for draft revision 2 of Recommendation ITU-R M.2012 (ITU-R WP5D/TEMP/530; to: RAN, CT, SA, PCG, 3GPP2, ARIB, ATIS, CCSA, ETSI, IEEE, ITRI, TIA, TTA, TTC, WiMAX Forum; cc: -; contact: ITU-R SG5 Counsellor)	ITU-R WP5D	-	-	yes	noted	RP-150478	LS treated under AI 7.2.2; 3GPP ITU-R ad hoc prepared an answer in RP-150044
RP-150030	Response LS to S2-150658 on Support of a mix of IPv4 and IPv6 eNBs and Backhauls in eMBMS (R3-150489; to: SA2; cc: CT4, RAN, CT; contact: Alcatel-Lucent)	RAN3	REL-13	TEI13	no	noted	none	LS S2-150658 was not sent to/cc RAN but just to RAN3, CT4; LS S2-150658 and included SA2 CR related to SA2 REL-13 WI MBMS_enh (started at SA #66 and target: SA #69); RP-150030 includes RAN3 endorsed CRs to 36.300, 36.444, 36.443
RP-150031	LS to ext. organizations and research entities engaged in "5G" development requesting an update on IMT activities (ITU-R WP5D/TEMP/521(Rev.1); to: RAN, CT, SA, 3GPP2, 4G Americas, 5G Infrastructure Public Private Partnership (Europe), 5G Innovation Centre, APT Wireless Group, Fifth Generation Mobile Communications Promotion Forum (Japan), ARIB, ATIS, CCSA, CDG, ETSI, EU METIS Project, GSMA, IEEE, IMT-2020 Promotion Group (China), ITRI, NGMN, NYU Wireless, TSDSI, TIA, TTA, TTC, UMTS Forum, WiMax Forum, WWRF; cc: -; contact: ITU-R SG5 Counselor)	ITU-R WP5D	-	-	yes	noted	RP-150442	LS treated under AI 7.2.2
RP-150032	LS on LTE Rel-12 UE feature list about RAN1 responsible features (R1-150947; to: RAN; cc: RAN2, RAN4; contact: NTT DOCOMO)	RAN1	REL-12	-	yes	noted	none	LS treated under AI 14.

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RAN Tdoc	title (incoming LS, to, cc, contact)	source	REL	WI	RAN action requested	status	LS answer to source	additional comments
RP-150033	Response LS to S2-150691 = RP-150021 on public safety discovery (R1-150948; to: SA2; cc: RAN2, SA3, RAN; contact: Qualcomm)	RAN1	REL-13	eProSe-Ext-SA2	no	noted	none	LS treated under AI 11.3.5
RP-150034	LS on LTE Rel-12 UE feature list about RAN2 responsible features (R2-150703; to: RAN; cc: RAN1, RAN4; contact: NTT DOCOMO)	RAN2	REL-12	-	yes	noted	none	LS treated under AI 14.
RP-150035	LS reply to S6-150076 = RP-150021 on support for ProSe one-to-one communication in Release 13 (R2-150710; to: SA6; cc: SA2, RAN; contact: Intel)	RAN2	REL-13	MCPTT	no	noted	none	LS treated under AI 11.3.5
RP-150036	LS on LTE Rel-12 UE feature list about RAN4 responsible features (R4-151044; to: RAN; cc: RAN1, RAN2; contact: NTT DOCOMO)	RAN4	REL-12	-	yes	noted	none	LS treated under AI 14.
RP-150037	LS on impact of optional preconfigured parameters for D2D out of Network coverage mode (R4-151170; to: RAN1, RAN2, RAN5, SA2, RAN; cc: -; contact: Sprint)	RAN4	REL-12	LTE_D2D_Prox-Core	no	noted	none	LS treated under AI 10.6.5
RP-150038	Response LS to ATIS_COAST_SYNC_150122_00007 = RP-150025 on ATIS COAST SYNC and 3GPP RAN timing requirements for wireless base stations (R4-151239; to: RAN; cc: -; contact: NSN)	RAN4	REL-12	-	yes	noted	none	RP-150038 is a reply proposal from RAN4 to LSin RP-150025; LS treated under AI 6.1 together with LSin RP-150025
RP-150039 ***	DRAFT Letter to ITU in reply to ITU-R WP5D/TEMP/567 = RP-150028 on CURRENT IMPLEMENTATION OF 700 MHz BANDPLAN WITHIN 3GPP SPECIFICATION (R4-151242; to: RAN; cc: -; contact: Ericsson)	RAN4	REL-11	LTE_DL_FDD700, LTE_APAC700	yes	noted	none	RAN action requested; RP-150039 is a reply proposal from RAN4 to answer LSin RP-150028; corresponding REL-11 LTE_APAC700-Core CR is submitted to RAN #67 in R4-151155 (in RP-150384) to align REL-11 with REL-12; LS treated under AI 7.2.2
RP-150040	LS on preliminary draft new Report ITU-R M.[IMT.ABOVE 6 GHz] (ITU-R WP5D/TEMP/534(Rev.1); to: RAN, CT, SA, 3GPP2, 4G Americas, 5G Infrastructure Public Private Partnership (Europe), 5G Innovation Centre, APT Wireless Group, Fifth Generation Mobile Communications Promotion Forum (Japan), ARIB, ATIS, CCSA, CDG, ETSI, EU METIS Project, GSMA, IEEE, IMT-2020 Promotion Group (China), ITRI, NGMN, NYU Wireless, TSDSI, TIA, TTA, TTC, UMTS Forum, WiMax Forum, WWRF; cc: -; contact: ITU-R SG5 Counselor)	ITU-R WP5D	-	-	not explicitly	noted	none	LS treated under AI 7.2.2

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RAN Tdoc	title (incoming LS, to, cc, contact)	source	REL	WI	RAN action requested	status	LS answer to source	additional comments
RP-150041	LS on the detailed work plan, timeline, process and deliverables for the future development of International Mobile Telecommunications (IMT) (ITU-R WP5D/TEMP/577; to: RAN, CT, SA, 3GPP2, 4G Americas, 5G Infrastructure Public Private Partnership (Europe), 5G Innovation Centre, APT Wireless Group, Fifth Generation Mobile Communications Promotion Forum (Japan), ARIB, ATIS, CCSA, CDG, ETSI, EU METIS Project, GSMA, IEEE, IMT-2020 Promotion Group (China), ITRI, NGMN, NYU Wireless, TSDSI, TIA, TTA, TTC, UMTS Forum, WiMax Forum, WWRF; cc: -; contact: ITU-R SG5 Counselor)	ITU-R WP5D	-	-	yes	noted	RP-150442	LS treated under AI 7.2.2; 3GPP ITU-R ad hoc prepared an answer in RP-150043
RP-150042	LS on the introduction of the signalling for UL 64 QAM (R2-150733; to: RAN4; cc: RAN, RAN1; contact: Huawei)	RAN2	REL-12	LTE-L23, TEI12	no	noted	none	note: 64QAM UL functionality for LTE exists in 3GPP specs since REL-8; however, signalling of a UE capability in now introduced for REL-12 (see R2-150713 in RP-150378 and R2-150715 in RP-150377) and RF requirements will be introduced via REL-13 WI LTE_UL64QAM-Core
RP-150043	Draft letter to ITU in reply to ITU-R WP5D/TEMP/521(Rev.1) = RP-150031 and ITU-R WP5D/TEMP/577 = RP-150041 on the detailed work plan, timeline, process and deliverables for the future development of International Mobile Telecommunications (IMT) (RT-150009; to: RAN; cc: -; contact: Telecom Italia)	3GPP ITU-R ad hoc	-	-	yes	noted	none	3GPP ITU-R ad hoc prepared this draft answer to the LSin of ITU-R WP5D RP-150031 and RP-150041; LS treated under AI 7.2.2
RP-150044	Draft letter to ITU in reply to ITU-R WP5D/TEMP/530 = RP-150029 on 3GPP comments on draft revision 2 of Recommendation ITU-R M.2012 (RT-150010; to: CT, RAN; cc: -; contact: Telecom Italia)	3GPP ITU-R ad hoc	-	-	yes	noted	none	3GPP ITU-R ad hoc prepared this draft answer to the LSin of ITU-R WP5D RP-150029, LS treated under AI 7.2.2
RP-150443	CT-input to LETTER TO ITU ON 3GPP COMMENTS ON DRAFT REVISION 2 OF RECOMMENDATION ITU-R M.2012 (CP-150207; to: RAN; cc: -; contact: CT chair (Ericsson))	CT	-	-	no	noted	none	received on Tue of RAN #67; related to ITU-R LSin RP-150029 and triggered by RP-150044; LS treated under AI 7.2.2

***: uses Letter to ITU template (LTI)

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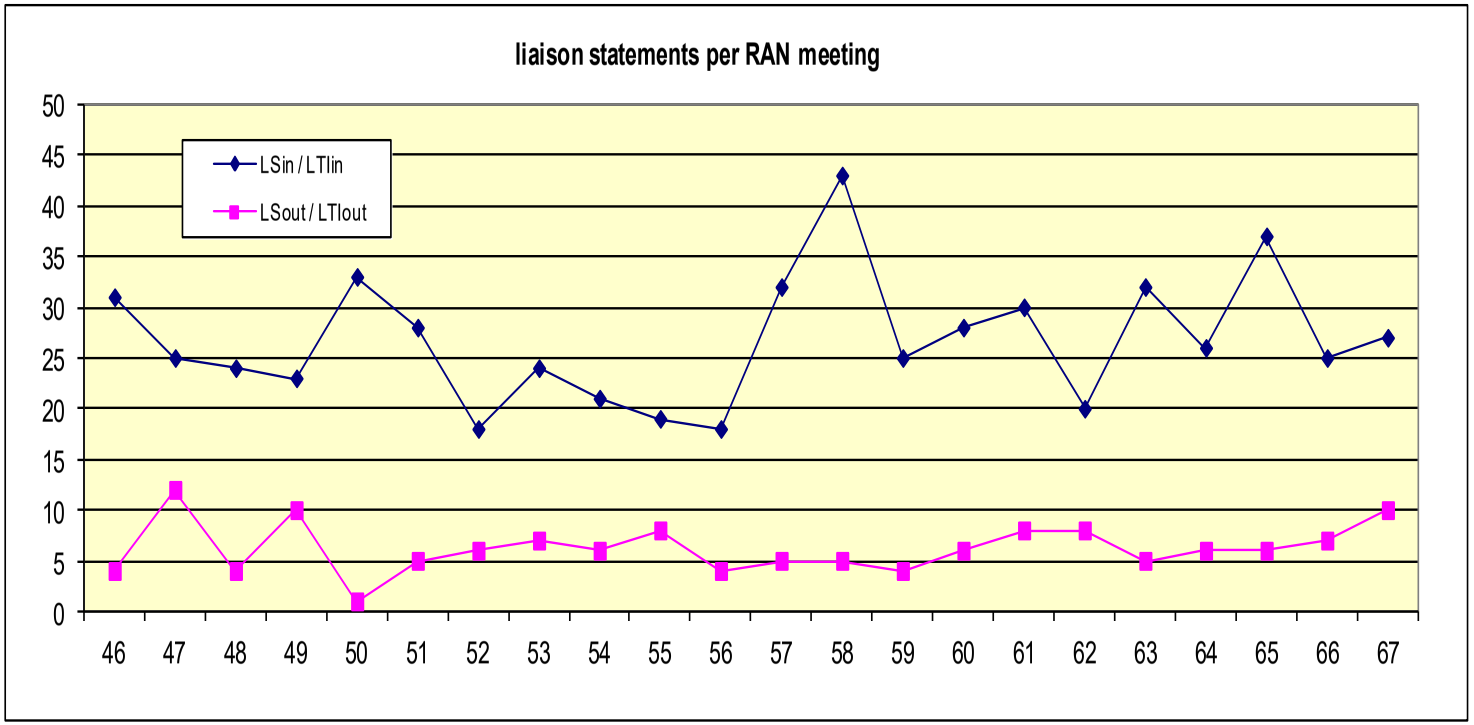


Fig. C-1: Number of incoming/outgoing Liason Statements (LS) and Letter to ITU (LTI) per RAN meeting

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Annex D:
Outgoing liaison statements (LSout)

Only final outgoing LSs are listed here.
10 outgoing LSs/LTIs of RAN #67 (2 of them approved by email after the meeting):

final LS Tdoc	title	to	cc	contact	reply to	release	WI	comments
RP-150421	ATIS COAST SYNC and 3GPP RAN timing requirements for wireless base stations	ATIS COAST SYNC	-	Nokia Networks	ATIS_COAST_SYNC_150122_00007 = RP-150025	REL-12	-	based on RP-150038
RP-150442 ***	Draft letter to ITU on the detailed work plan, timeline, process and deliverables for the future development of International Mobile Telecommunications (IMT)	SA	-	Telecom Italia	ITU-R WP5D/TEMP/521(Rev.1) = RP-150031; ITU-R WP5D/TEMP/577 = RP-150041	-	-	will be provided to SA for review and from there to PCG for approval
RP-150454	Coexistence of Licensed Assisted Access (LAA) and IEEE 802	IEEE 802 LMSC	-	Ericsson	IEEE_802_LMSC_150202 = RP-150024	REL-13	FS_LTE_LAA	sent out on Wed of RAN #67
RP-150477	CURRENT IMPLEMENTATION OF 700 MHz BANDPLAN WITHIN 3GPP SPECIFICATION	ITU-R WP5D	-	Ericsson	ITU-R WP5D/TEMP/567 = RP-150028	REL-11	LTE_DL_FDD700, LTE_APAC700	will be sent out via 3GPP LS coordinator
RP-150478 ***	3GPP comments on draft revision 2 of Recommendation ITU-R M.2012	SA	-	Telecom Italia	ITU-R WP5D/TEMP/530 = RP-150029	-	-	will be provided to SA for review and from there to PCG for approval
RP-150505	Licensed-Assisted Access	ETSI BRAN	-	Ericsson	-	REL-13	FS_LTE_LAA	
RP-150509	3GPP RAN Study on regulatory aspects for flexible duplex for E-UTRAN	ECC PT1, FCC, RRA, National Communications Commission (TW), ARIB, CCSA, Wireless Adviser to the Government of India	-	Telecom Italia	-	REL-13	FS_LTE_flex_duplex_reg	approved via email discussion after RAN #67 and sent out on 27.03.2015

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final LS Tdoc	title	to	cc	contact	reply to	release	WI	comments
RP-150514	Consequence of RAN WI prioritisation for UPCON work in SA2	SA2	SA, RAN2, RAN3	NEC	-	REL-13	UPCON	related to new SI proposal for UPCON in RP-150291
RP-150516	D2D off network operation	CT1	SA2, RAN1, RAN2, RAN4, RAN5	Sprint	-	REL-12	LTE_D2D_Prox-Core	related to LSin RP-150037
RP-150520	DRAFT Letter to ITU on the schedule for updating Recommendation ITU-R M.1457 to Revision 13	CT	-	Telecom Italia	ITU-R WP5D/TEMP/473 = RP-141756	REL-12	-	agreed by email after RAN #67; email discussion started on 14.04.15 by ITU-R ad hoc convener via RAN reflector; LTI will be provided to CT for review and from there afterwards to SA for review, finally it has to be approved by PCG on 28.04.15; note: This is a 2nd reply to RP-141756 (first reply was in RP-142247) and a final reply will be sent from RAN #70 in Dec.15

***: uses Letter to ITU template (LTI)

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Annex E:
List of Change Requests (CRs)

This list of 916 CRs includes all CRs submitted to RAN #67 with 909 approved CRs.

Spec	CR	Rev	Phase	Cat	Plenary doc	WG doc	TSG status	Subject	CR written to	Resulting vers	WG	Workitem
25.101	1060	-	Rel-12	F	RP-150385	R4-150790	approved	TX UE spurious emissions alignment with 36.101	12.6.0	12.7.0	R4	TEI12
25.101	1061	-	Rel-12	F	RP-150385	R4-150791	approved	RX UE spurious emissions simplification	12.6.0	12.7.0	R4	TEI12
25.101	1062	-	Rel-12	F	RP-150385	R4-150876	approved	Removal of square brackets of cubic metric (MPR) for UMTS HetNet Enhancements	12.6.0	12.7.0	R4	UTRA_hetnet_enh-Core
25.133	1393	1	Rel-12	F	RP-150386	R4-151133	approved	Clarification of IncMon requirements for UTRA idle/CELL_PCH/URA_PCH states	12.6.0	12.7.0	R4	LTE_UTRA_Incmon-Core
25.133	1394	1	Rel-12	F	RP-150386	R4-151134	approved	Clarification of IncMon requirements for UTRA CELL_FACH/CELL_DCH states	12.6.0	12.7.0	R4	LTE_UTRA_Incmon-Core
25.133	1395	1	Rel-11	F	RP-150384	R4-151099	approved	Corrections to FE-FACH DRX tests and core requirement	11.9.0	11.10.0	R4	Cell_FACH_enh-Perf
25.133	1396	-	Rel-12	A	RP-150384	R4-150847	approved	Corrections to FE-FACH DRX tests and core requirement	12.6.0	12.7.0	R4	Cell_FACH_enh-Perf
25.133	1397	-	Rel-12	F	RP-150385	R4-150865	approved	Corrections of table 8.0b	12.6.0	12.7.0	R4	EDCH_enh-Core
25.133	1398	-	Rel-12	F	RP-150389	R4-150919	approved	25.133 CR to correct DL_DCH_FET_Config reference number to point to 25.212	12.6.0	12.7.0	R4	TEI12
25.214	0735	1	Rel-12	F	RP-150360	R1-150714	approved	Clarifications to UMTS Heterogeneous Network Enhancements	12.1.0	12.2.0	R1	UTRA_HetNet_enh-Core
25.215	0200	2	Rel-12	C	RP-150361	R1-150250	approved	New E-UTRA RSRQ measurement definition	12.0.0	12.1.0	R1	TEI12
25.225	0103	3	Rel-12	C	RP-150361	R1-150251	approved	New E-UTRA RSRQ measurement definition	12.0.0	12.1.0	R1	TEI12
25.304	0385	1	Rel-12	F	RP-150373	R2-150685	approved	Cleanup on RAN-assisted WLAN interworking	12.4.0	12.5.0	R2	UTRA_LTE_WLAN_interw-Core
25.304	0386	-	Rel-12	F	RP-150373	R2-150599	approved	Correction on provision of WLAN identifiers	12.4.0	12.5.0	R2	UTRA_LTE_WLAN_interw-Core
25.306	0485	-	Rel-12	D	RP-150376	R2-150587	approved	Editorial corrections	12.4.0	12.5.0	R2	TEI12
25.306	0486	-	Rel-12	F	RP-150372	R2-150583	approved	Clarification for DRX enhancements	12.4.0	12.5.0	R2	EDCH_enh-Core
25.331	5735	-	Rel-12	D	RP-150376	R2-150586	approved	Rapporteur corrections for 25.331 RRC specification	12.4.0	12.5.0	R2	TEI12
25.331	5736	-	Rel-12	F	RP-150372	R2-150581	approved	Clarifications for Further EUL enhancements sub-feature Enhanced TTI switching	12.4.0	12.5.0	R2	EDCH_enh-Core
25.331	5737	-	Rel-12	F	RP-150372	R2-150582	approved	Pre-configuration for Enhanced TTI switching at upswitch to CELL_DCH	12.4.0	12.5.0	R2	EDCH_enh-Core
25.331	5739	-	Rel-12	F	RP-150373	R2-150585	approved	Cleanup corrections for increased UE carrier monitoring	12.4.0	12.5.0	R2	LTE_UTRA_IncMon-Core
25.331	5741	-	Rel-12	F	RP-150373	R2-150584	approved	Clarification for SIB23 reading	12.4.0	12.5.0	R2	UTRA_LTE_WLAN_interw-Core
25.331	5753	-	Rel-12	F	RP-150376	R2-150615	approved	Clarification on RSRQ Type	12.4.0	12.5.0	R2	TEI12
25.331	5754	1	Rel-10	B	RP-150370	R2-150595	approved	Introduction of network-requested LTE CA band combination capability reporting	10.18.0	10.19.0	R2	TEI10
25.331	5755	1	Rel-11	B	RP-150370	R2-150596	approved	Introduction of network-requested LTE CA band combination capability reporting	11.12.0	11.13.0	R2	TEI11
25.331	5756	1	Rel-12	F	RP-150370	R2-150597	approved	Correction to network-requested LTE CA band combination capability reporting	12.4.0	12.5.0	R2	TEI12

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25.331	5757	2	Rel-12	F	RP-150377	R2-150732	approved	ASN.1 corrections	12.4.0	12.5.0	R2	TEI12
25.331	5758	1	Rel-12	F	RP-150373	R2-150683	approved	Correction on provision of WLAN identifiers	12.4.0	12.5.0	R2	UTRA_LTE_WLAN_interw-Core
25.331	5763	2	Rel-12	F	RP-150368	R2-150705	approved	Correction of GLONASS system time	12.4.0	12.5.0	R2	RANimp-ANSS, TEI12
25.413	1290	-	Rel-12	F	RP-150356	R3-150048	approved	Correction of RSRQ type values	12.3.0	12.4.0	R3	TEI12
25.413	1291	1	Rel-12	F	RP-150356	R3-150390	approved	Rapporteur Review-ASN.1 consistency check	12.3.0	12.4.0	R3	TEI12
25.423	1861	1	Rel-12	F	RP-150350	R3-150373	approved	Add missing new SIB for IncMon	12.3.0	12.4.0	R3	LTE_UTRA_IncMon-Core
25.423	1862	1	Rel-12	F	RP-150349	R3-150371	approved	Correction on the value of Activation Delay	12.3.0	12.4.0	R3	EDCH_enh-core
25.423	1863	-	Rel-12	F	RP-150356	R3-150336	approved	Corrections following Rel12 ASN.1 review	12.3.0	12.4.0	R3	TEI12
25.425	0185	2	Rel-11	F	RP-150347	R3-150301	approved	Correction: add Extended S-RNTI in the Iur user plane	11.3.0	11.4.0	R3	TEI11
25.433	2060	-	Rel-12	F	RP-150349	R3-150117	approved	Correction on the value of Activation Delay	12.3.0	12.4.0	R3	EDCH_enh-core
25.433	2062	-	Rel-12	F	RP-150349	R3-150340	approved	Correction of ASN.1 for Fast TTI switching Mode Supported	12.3.0	12.4.0	R3	EDCH_enh-core
25.466	0055	1	Rel-12	F	RP-150356	R3-150372	approved	Correction of the reference	12.1.0	12.2.0	R3	TEI12
25.469	0106	2	Rel-12	F	RP-150356	R3-150389	approved	Rapporteur Review-ASN.1 consistency check	12.3.0	12.4.0	R3	TEI12
34.108	0971	-	Rel-11	F	RP-150322	R5-150096	approved	Correction to Contents of System Information Block Type 5 for condition B2 & B3	11.12.0	11.13.0	R5	TEI8_Test
34.108	0972	-	Rel-11	F	RP-150322	R5-150153	approved	Correction to default value of System Information Block type 5 for FDD	11.12.0	11.13.0	R5	TEI8_Test
34.108	0973	-	Rel-11	F	RP-150325	R5-150541	approved	Corrections in the default RADIO BEARER SETUP message for DC-HSDPA with MIMO	11.12.0	11.13.0	R5	TEI9_Test
34.108	0974	-	Rel-11	F	RP-150327	R5-150542	approved	Corrections in the default RADIO BEARER SETUP message for 4C-HSDPA	11.12.0	11.13.0	R5	TEI10_Test
34.108	0975	-	Rel-11	F	RP-150339	R5-150544	approved	Corrections in the default RADIO BEARER SETUP message for Multiflow	11.12.0	11.13.0	R5	HSDPA_MFTX-UEConTest
34.108	0976	-	Rel-11	F	RP-150322	R5-150605	approved	Correction to UTRAN Radio Bearer Setup Message for condition A30	11.12.0	11.13.0	R5	TEI8_Test
34.108	0977	-	Rel-11	F	RP-150321	R5-150619	approved	Correction to the default RADIO BEARER SETUP message for A28a MIMO/nonMIMO	11.12.0	11.13.0	R5	TEI7_Test
34.121-1	1597	-	Rel-12	F	RP-150338	R5-150893	approved	Update Test Tolerance analyses for enhCELL_FACH Test cases 8.3.5.2B and 8.3.5.2D	11.6.0	12.0.0	R5	Cell_FACH_enh-UEConTest
34.122	0435	-	Rel-11	F	RP-150325	R5-150473	approved	Correction to test procedure of TC 8.7.15 and 8.7.17	11.9.0	11.10.0	R5	TEI9_Test
34.123-1	3705	-	Rel-11	F	RP-150320	R5-150172	approved	Correction to 8.1.5.7: addition of new capabilities	11.5.0	11.6.0	R5	TEI_Test
34.123-1	3706	-	Rel-11	F	RP-150321	R5-150173	approved	Correction to Rel-7 MIMO/nonMIMO test cases 8.2.271 and 8.2.2.72	11.5.0	11.6.0	R5	TEI7_Test
34.123-1	3707	-	Rel-11	F	RP-150322	R5-150487	approved	Correction to MAC-i/is test case 7.1.7.3	11.5.0	11.6.0	R5	TEI8_Test
34.123-1	3708	-	Rel-11	F	RP-150322	R5-150491	approved	Correction to Rel-8 CSG testcase 12.3.1.10	11.5.0	11.6.0	R5	TEI8_Test
34.123-1	3709	-	Rel-11	F	RP-150322	R5-150492	approved	Correction to Rel-8 Supplementary Services testcase 15.8.9	11.5.0	11.6.0	R5	TEI8_Test
34.123-1	3710	-	Rel-11	F	RP-150339	R5-150545	approved	Addition of a new Multiflow test case 7.1.11	11.5.0	11.6.0	R5	HSDPA_MFTX-UEConTest
34.123-1	3711	-	Rel-11	F	RP-150321	R5-150556	approved	Correction to Rel-7 MIMO/nonMIMO test cases 8.3.11.17 and 8.3.11.18	11.5.0	11.6.0	R5	TEI7_Test
34.123-1	3712	-	Rel-11	F	RP-150321	R5-150614	approved	Correction to NISPCA test case 11.3.2a	11.5.0	11.6.0	R5	TEI7_Test
34.123-1	3713	-	Rel-11	F	RP-150322	R5-150620	approved	Correction to UTRAN test case 7.1.8.7	11.5.0	11.6.0	R5	TEI8_Test
34.123-1	3714	-	Rel-11	F	RP-150322	R5-150621	approved	Correction to idle mode test case 6.3.2.1	11.5.0	11.6.0	R5	TEI8_Test
34.123-1	3715	-	Rel-11	F	RP-150322	R5-150622	approved	Correction to ETWS test case 8.1.1.13	11.5.0	11.6.0	R5	TEI8_Test
34.123-1	3716	-	Rel-11	F	RP-150322	R5-150623	approved	Correction to SS test case 15.7.11 and 15.7.12	11.5.0	11.6.0	R5	TEI8_Test
34.123-1	3717	-	Rel-11	F	RP-150322	R5-150624	approved	Correction to SS test case 15.8.8	11.5.0	11.6.0	R5	TEI8_Test
34.123-1	3718	-	Rel-11	F	RP-150320	R5-150625	approved	Correction to SMS test case 16.1.1 and 16.1.2	11.5.0	11.6.0	R5	TEI_Test

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34.123-1	3719	-	Rel-11	F	RP-150320	R5-150626	approved	Correction to SMS test case 16.2.1 and 16.2.2	11.5.0	11.6.0	R5	TEI_Test
34.123-1	3720	-	Rel-11	F	RP-150321	R5-150627	approved	Correction to test case 11.1.5.2	11.5.0	11.6.0	R5	TEI7_Test
34.123-1	3721	-	Rel-11	F	RP-150325	R5-150628	approved	Correction to DC-HSUPA test case 8.3.4.20	11.5.0	11.6.0	R5	TEI9_Test
34.123-1	3722	-	Rel-11	F	RP-150322	R5-150629	approved	Correction to Rel-8 Absolute Priority Cell reselection testcase 8.3.1.52	11.5.0	11.6.0	R5	TEI8_Test
34.123-1	3723	-	Rel-11	F	RP-150322	R5-150630	approved	Correction to Rel-8 Absolute Priority Cell reselection testcase 8.3.1.53	11.5.0	11.6.0	R5	TEI8_Test
34.123-1	3724	-	Rel-11	F	RP-150322	R5-150631	approved	Correction to Rel-8 Absolute Priority Cell reselection testcase 8.3.1.54	11.5.0	11.6.0	R5	TEI8_Test
34.123-1	3725	-	Rel-11	F	RP-150327	R5-150634	approved	Correction to Rel-10 testcase 9.4.3.3a	11.5.0	11.6.0	R5	TEI10_Test
34.123-1	3726	-	Rel-11	F	RP-150327	R5-150635	approved	Correction to Rel-10 testcase 12.4.1.4f	11.5.0	11.6.0	R5	TEI10_Test
34.123-1	3727	-	Rel-11	F	RP-150325	R5-150636	approved	Correction of test case 8.2.2.77	11.5.0	11.6.0	R5	TEI9_Test
34.123-1	3728	-	Rel-11	F	RP-150325	R5-150637	approved	Correction of test case 8.2.2.78	11.5.0	11.6.0	R5	TEI9_Test
34.123-1	3729	-	Rel-11	F	RP-150322	R5-150638	approved	Correction of Improved L2 UL MAC test case 7.2.2.15	11.5.0	11.6.0	R5	TEI8_Test
34.123-1	3730	-	Rel-11	F	RP-150338	R5-150716	approved	Correction to Further Enhancement to CELL_FACH test cases 8.3.1.49b	11.5.0	11.6.0	R5	Cell_FACH_enh-UEConTest
34.123-1	3731	-	Rel-11	F	RP-150338	R5-150717	approved	Correction to Further Enhancement to CELL_FACH test cases 8.3.1.49c	11.5.0	11.6.0	R5	Cell_FACH_enh-UEConTest
34.123-1	3732	-	Rel-11	F	RP-150339	R5-150723	approved	Correction to Multiflow RLC test cases 7.2.5.4 and 7.2.5.5	11.5.0	11.6.0	R5	HSDPA_MFTX-UEConTest
34.123-1	3733	-	Rel-11	F	RP-150339	R5-150724	approved	Addition of new Multiflow HSDPA test case 8.2.2.85.2 test	11.5.0	11.6.0	R5	HSDPA_MFTX-UEConTest
34.123-1	3734	-	Rel-11	F	RP-150339	R5-150725	approved	Addition of new Multiflow test cases 7.2.5.1 and 7.2.5.2	11.5.0	11.6.0	R5	HSDPA_MFTX-UEConTest
34.123-1	3735	-	Rel-11	F	RP-150321	R5-150727	approved	Correction to CPC test case 7.1.6.2.11	11.5.0	11.6.0	R5	TEI7_Test
34.123-1	3736	-	Rel-11	F	RP-150339	R5-150738	approved	Correction to Multiflow HSDPA clause 8.2.2.85 and test case 8.2.2.85.1	11.5.0	11.6.0	R5	HSDPA_MFTX-UEConTest
34.123-2	0725	-	Rel-11	F	RP-150321	R5-150148	approved	Corrections to title in applicability table for test case 8.2.2.63a	11.5.0	11.6.0	R5	TEI7_Test
34.123-2	0726	-	Rel-11	F	RP-150339	R5-150494	approved	Adding applicability for new test cases 8.2.2.85.2	11.5.0	11.6.0	R5	HSDPA_MFTX-UEConTest
34.123-2	0727	-	Rel-11	F	RP-150321	R5-150502	approved	Correction of test case 8.1.7.3	11.5.0	11.6.0	R5	TEI7_Test
34.123-2	0728	-	Rel-11	F	RP-150339	R5-150549	approved	Addition of new MAC-ehs and RLC test cases for Multiflow	11.5.0	11.6.0	R5	HSDPA_MFTX-UEConTest
34.123-2	0729	-	Rel-12	F	RP-150320	R5-150639	approved	Correction to the applicability condition for the Test cases 11.1.1.1 and 12.2.1.5a	11.5.0	12.0.0	R5	TEI_Test
34.123-2	0730	-	Rel-11	F	RP-150320	R5-150640	approved	Correction to the applicability condition for the Test case 12.2.1.11	11.5.0	11.6.0	R5	TEI_Test
34.123-2	0731	-	Rel-11	F	RP-150325	R5-150641	approved	Correction of applicability condition for IMS Emergency test cases 13.4.1 to 13.4.5	11.5.0	11.6.0	R5	TEI9_Test
34.123-2	0732	-	Rel-11	F	RP-150322	R5-150642	approved	Update to GMM Test case 12.3.1.10 applicability condition	11.5.0	11.6.0	R5	TEI8_Test
34.123-2	0733	-	Rel-11	F	RP-150339	R5-150726	approved	Remove Multiflow RLC test case 7.2.5.5	11.5.0	11.6.0	R5	HSDPA_MFTX-UEConTest
34.123-3	3295	-	Rel-11	F	RP-150322	R5-150098	approved	Addition of TC 12.4.2.5e to the list of cases which requires more than two radio frequencies	11.5.0	11.6.0	R5	TEI8_Test
34.123-3	3296	-	Rel-11	F	RP-150339	R5-150124	approved	HSDPA Multiflow Test Model for RLC test cases	11.5.0	11.6.0	R5	HSDPA_MFTX-UEConTest
34.123-3	3297	-	Rel-11	F	RP-150338	R5-150125	approved	Addition of Further Enhanced CELL_FACH Test Model	11.5.0	11.6.0	R5	Cell_FACH_enh-UEConTest
34.123-3	3298	-	Rel-11	F	RP-150320	R5-150728	approved	Routine maintenance for TS 34.123-3	11.5.0	11.6.0	R5	TEI_Test
34.123-3	3299	-	Rel-11	F	RP-150331	R5s141119	approved	Corrections for WI-010 UTRA SMS test cases 16.1.2, 16.1.9.1, 16.1.9.2, 16.1.10, 16.2.2, 16.2.10	11.5.0	11.6.0	R5	TEI_Test
34.123-3	3300	-	Rel-11	F	RP-150331	R5s141242	approved	Correction to TTCN implementation for test case 9.5.2	11.5.0	11.6.0	R5	TEI_Test
34.123-3	3301	-	Rel-11	F	RP-150331	R5s141290	approved	Correction to GCF WI-140 NISPC test case 11.3.2a	11.5.0	11.6.0	R5	TEI7_Test
34.123-3	3302	-	Rel-11	F	RP-150331	R5s141328	approved	Correction in Rel-7 Uplink 16 QAM test cases	11.5.0	11.6.0	R5	TEI7_Test
34.123-3	3303	-	Rel-11	F	RP-150331	R5s141348	approved	Correction to UTRA SS Test Cases on IWD wk49	11.5.0	11.6.0	R5	TEI8_Test

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34.123-3	3304	-	Rel-11	B	RP-150331	R5s141355	approved	Addidtion of Rel-10 NAS testcase 12.4.1.4f to UTRAN testsuite	11.5.0	11.6.0	R5	TEI10_Test
34.123-3	3305	-	Rel-11	F	RP-150331	R5s141357	approved	Correction to Rel-8 CSG TCs 12.2.1.5e, 12.2.2.7e and 12.4.2.5e	11.5.0	11.6.0	R5	TEI8_Test
34.123-3	3306	-	Rel-11	B	RP-150331	R5s141382	approved	Addition of WI-131 Rel-8 Enh. Cell FACH UL Test Case 7.1.8.7 to HSPA8_ENH ATS	11.5.0	11.6.0	R5	TEI8_Test
34.123-3	3307	-	Rel-11	B	RP-150331	R5s141390	approved	Addidtion of Rel-10 NAS testcase 9.4.3.3a to UTRAN testsuite	11.5.0	11.6.0	R5	TEI10_Test
34.123-3	3308	-	Rel-11	F	RP-150331	R5s150002	approved	Correction to UTRAN Rel-7 test case 11.3.2a	11.5.0	11.6.0	R5	TEI7_Test
34.123-3	3309	-	Rel-11	B	RP-150331	R5s150015	approved	Addidtion of Rel-7 NISPC testcase 11.1.5.2 to UTRAN testsuite	11.5.0	11.6.0	R5	TEI7_Test
34.123-3	3310	-	Rel-11	F	RP-150331	R5s150018	approved	Correction to MAC-I/Is test case 7.1.7.3	11.5.0	11.6.0	R5	TEI8_Test
34.123-3	3311	-	Rel-11	B	RP-150331	R5s150020	approved	Addidtion of Rel-8 RRC testcase 8.3.1.52 to HSPA8_ENH testsuite	11.5.0	11.6.0	R5	TEI8_Test
34.123-3	3312	-	Rel-11	B	RP-150331	R5s150022	approved	Addidtion of Rel-8 RRC testcase 8.3.1.53 to HSPA8_ENH testsuite	11.5.0	11.6.0	R5	TEI8_Test
34.123-3	3313	-	Rel-11	B	RP-150331	R5s150024	approved	Addidtion of Rel-8 RRC testcase 8.3.1.54 to HSPA8_ENH testsuite	11.5.0	11.6.0	R5	TEI8_Test
34.123-3	3314	-	Rel-11	B	RP-150331	R5s150032	approved	Addition of WI-131 Rel-8 Enh. Cell FACH UL Test Case 8.2.1.42 to HSPA8_ENH ATS	11.5.0	11.6.0	R5	TEI8_Test
34.123-3	3315	-	Rel-11	F	RP-150331	R5s150040	approved	Correction to GCF WI-070 UTRA CPC Testcase 7.1.6.2.11	11.5.0	11.6.0	R5	TEI7_Test
34.123-3	3316	-	Rel-11	F	RP-150331	R5s150043	approved	General Corrections to all test suites for support of A5/4 and GEA4	11.5.0	11.6.0	R5	TEI_Test
34.123-3	3317	-	Rel-11	B	RP-150331	R5s150044	approved	Addition of WI-187 Rel-9 A5/4 and UEA1/UIA1 test case 8.3.7.1c to HSPA9_ENH ATS	11.5.0	11.6.0	R5	TEI9_Test
34.123-3	3318	-	Rel-11	B	RP-150331	R5s150046	approved	Addition of WI-187 Rel-9 A5/4 and UEA2/UIA2 test case 8.3.7.1d to HSPA9_ENH ATS	11.5.0	11.6.0	R5	TEI9_Test
34.123-3	3319	-	Rel-11	B	RP-150331	R5s150050	approved	Addition of WI-188 Rel-9 GEA4 and UEA2/UIA2 test case 8.3.11.1c to HSPA9_ENH ATS	11.5.0	11.6.0	R5	TEI9_Test
34.123-3	3320	-	Rel-11	F	RP-150331	R5s150052	approved	Corrections to UTRA CSG test case 6.3.1.4	11.5.0	11.6.0	R5	TEI9_Test
34.123-3	3321	-	Rel-11	B	RP-150331	R5s150058	approved	Addition of WI-130 MAC-IS/I 7.1.7.5 to HSPA8_ENH ATS	11.5.0	11.6.0	R5	TEI8_Test
34.123-3	3322	-	Rel-11	F	RP-150331	R5s150083	approved	Correction to Attach Accept procedures for UTRAN34 testcases	11.5.0	11.6.0	R5	TEI8_Test
34.123-3	3323	-	Rel-11	F	RP-150331	R5s150084	approved	Correction to Rel-8 Supplementary service test cases based on 14wk49 ATS	11.5.0	11.6.0	R5	TEI8_Test
34.123-3	3324	-	Rel-11	F	RP-150331	R5s150111	approved	Corrections to GCF WI-158 UTRA CSG test case 12.3.1.10	11.5.0	11.6.0	R5	TEI8_Test
34.123-3	3325	-	Rel-11	F	RP-150331	R5s150112	approved	Corrections to the UTRA CSG test case 6.3.1.1	11.5.0	11.6.0	R5	TEI8_Test
34.123-3	3326	-	Rel-11	F	RP-150331	R5s150117	approved	Corrections to UTRA CSG test case 6.3.2.2	11.5.0	11.6.0	R5	TEI8_Test
34.123-3	3327	-	Rel-11	F	RP-150330	-	approved	CR to 34.123-3: Add new verified and e-mail agreed TTCN test cases in the TC lists in 34.123-3 (prose), Annex A	11.5.0	11.6.0	R5	TEI8_Test
34.229-1	0620	-	Rel-12	F	RP-150325	R5-150128	approved	Correction to IMS test case 8.16	12.4.1	12.5.0	R5	TEI9_Test
34.229-1	0621	-	Rel-12	F	RP-150325	R5-150247	approved	Correction to Test case 19.5.8	12.4.1	12.5.0	R5	TEI9_Test
34.229-1	0622	-	Rel-12	F	RP-150322	R5-150248	approved	Correction to Test case 15.10a	12.4.1	12.5.0	R5	TEI8_Test
34.229-1	0623	-	Rel-12	F	RP-150325	R5-150250	approved	Correction to Test case 19.5.7	12.4.1	12.5.0	R5	TEI9_Test
34.229-1	0624	-	Rel-12	F	RP-150325	R5-150251	approved	Add reference document of RFC4488	12.4.1	12.5.0	R5	TEI9_Test
34.229-1	0625	-	Rel-12	F	RP-150322	R5-150267	approved	Correction to GCF WI-154 IMS Emergency call Testcase 19.5.7	12.4.1	12.5.0	R5	TEI8_Test
34.229-1	0626	-	Rel-12	F	RP-150322	R5-150268	approved	Correction to GCF WI-154 IMS Emergency call Testcases	12.4.1	12.5.0	R5	TEI8_Test

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34.229-1	0627	-	Rel-12	F	RP-150325	R5-150338	approved	Correction to IMS Emergency Call test case 19.1.5	12.4.1	12.5.0	R5	TEI9_Test
34.229-1	0628	-	Rel-12	F	RP-150325	R5-150345	approved	Correction to IMS Emergency Call test case 19.5.7	12.4.1	12.5.0	R5	TEI9_Test
34.229-1	0629	-	Rel-12	F	RP-150322	R5-150384	approved	Three way session creation	12.4.1	12.5.0	R5	TEI8_Test
34.229-1	0630	-	Rel-12	F	RP-150322	R5-150385	approved	Updating RFC 4244 to RFC 7044	12.4.1	12.5.0	R5	TEI8_Test
34.229-1	0631	-	Rel-12	F	RP-150322	R5-150386	approved	s-lines in SDP	12.4.1	12.5.0	R5	TEI8_Test
34.229-1	0632	-	Rel-12	F	RP-150340	R5-150584	approved	Updates to A.1 default REGISTER messages	12.4.1	12.5.0	R5	rSRVCC-UEConTest
34.229-1	0633	-	Rel-12	F	RP-150340	R5-150585	approved	Updates to A.8 default messages for CS to PS SRVCC	12.4.1	12.5.0	R5	rSRVCC-UEConTest
34.229-1	0634	-	Rel-12	F	RP-150340	R5-150586	approved	Updates to annex C.39	12.4.1	12.5.0	R5	rSRVCC-UEConTest
34.229-1	0635	-	Rel-12	F	RP-150322	R5-150692	approved	Contact header in UPDATE requests	12.4.1	12.5.0	R5	TEI8_Test
34.229-1	0636	-	Rel-12	F	RP-150322	R5-150694	approved	Correction for generic test procedure for IMS MO call	12.4.1	12.5.0	R5	TEI8_Test
34.229-1	0637	-	Rel-12	F	RP-150340	R5-150696	approved	Correction to the procedure of C.40	12.4.1	12.5.0	R5	rSRVCC-UEConTest
34.229-1	0638	-	Rel-12	F	RP-150325	R5-150698	approved	Correction to the inconsistency in 19.1.3a	12.4.1	12.5.0	R5	TEI9_Test
34.229-1	0639	-	Rel-12	F	RP-150325	R5-150699	approved	Correction to the missing part on TC19.3.2	12.4.1	12.5.0	R5	TEI9_Test
34.229-1	0640	-	Rel-12	F	RP-150325	R5-150700	approved	Correction to IMS Emergency Call test case 19.1.3	12.4.1	12.5.0	R5	TEI9_Test
34.229-1	0641	-	Rel-12	F	RP-150322	R5-150701	approved	Updating draft-montemurro-gsma-imei-urn to RFC	12.4.1	12.5.0	R5	TEI8_Test
34.229-1	0642	-	Rel-12	F	RP-150322	R5-150702	approved	Addressing Action Point AP#65.02 on o-lines in SDP	12.4.1	12.5.0	R5	TEI8_Test
34.229-1	0643	-	Rel-12	F	RP-150322	R5-150703	approved	Correction to GCF WI-198 IMS Video call Testcase 12.22	12.4.1	12.5.0	R5	TEI8_Test
34.229-1	0644	-	Rel-12	F	RP-150325	R5-150704	approved	Correction to test case 19.3.2b	12.4.1	12.5.0	R5	TEI9_Test
34.229-1	0645	-	Rel-12	F	RP-150322	R5-150705	approved	Corrections to IMS test case 15.15	12.4.1	12.5.0	R5	TEI8_Test
34.229-1	0646	-	Rel-12	F	RP-150322	R5-150706	approved	ACK request in C.31	12.4.1	12.5.0	R5	TEI8_Test
34.229-1	0647	-	Rel-12	F	RP-150322	R5-150707	approved	183 Session Progress in TC 15.8	12.4.1	12.5.0	R5	TEI8_Test
34.229-1	0648	-	Rel-12	F	RP-150322	R5-150708	approved	Add test case for GBA	12.4.1	12.5.0	R5	TEI8_Test
34.229-1	0649	-	Rel-12	F	RP-150322	R5-150709	approved	Directionality attribute in MO and MT calls	12.4.1	12.5.0	R5	TEI8_Test
34.229-1	0650	-	Rel-12	F	RP-150322	R5-150711	approved	Update annex C.29.2	12.4.1	12.5.0	R5	TEI8_Test
34.229-1	0651	-	Rel-12	F	RP-150340	R5-150713	approved	Updates to annex C.40	12.4.1	12.5.0	R5	rSRVCC-UEConTest
34.229-1	0652	-	Rel-12	F	RP-150340	R5-150714	approved	Updates to annex C.42	12.4.1	12.5.0	R5	rSRVCC-UEConTest
34.229-1	0653	-	Rel-12	F	RP-150322	R5-150734	approved	Correction to C.25 - Generic test procedure for setting up MTSI MO video call for EPS	12.4.1	12.5.0	R5	TEI8_Test
34.229-1	0654	-	Rel-12	F	RP-150322	R5-150736	approved	Update of SDP message content for test case 17.1	12.4.1	12.5.0	R5	TEI8_Test
34.229-1	0655	-	Rel-12	F	RP-150322	R5-150745	approved	Correction to WI-103 Conference Call TC	12.4.1	12.5.0	R5	TEI8_Test
34.229-1	0656	-	Rel-12	F	RP-150340	R5-150931	approved	Addition of new generic procedure for UE receiving SIP REFER request for transfer of additional CS to PS Call	12.4.1	12.5.0	R5	rSRVCC-UEConTest
34.229-2	0136	-	Rel-12	F	RP-150322	R5-150537	approved	Add applicability for new GBA test case	12.3.0	12.4.0	R5	TEI8_Test
34.229-2	0137	-	Rel-12	F	RP-150322	R5-150712	approved	Add capability for GBA	12.3.0	12.4.0	R5	TEI8_Test
34.229-2	0138	-	Rel-12	F	RP-150322	R5-150737	approved	Clarification on A.12/23 vs A.12/35	12.3.0	12.4.0	R5	TEI8_Test
34.229-3	0253	-	Rel-10	F	RP-150322	R5-150355	approved	Routine maintenance for TS 34.229-3	10.5.0	10.6.0	R5	TEI8_Test
34.229-3	0254	-	Rel-10	B	RP-150333	R5s141155	approved	Addition of GCF WI-154 IMS emergency call testcase 19.3.1 over 36.523-3 Test Model	10.5.0	10.6.0	R5	TEI9_Test
34.229-3	0255	-	Rel-10	F	RP-150333	R5s141212	approved	Correction of IMS test case 8.1: sip-instance	10.5.0	10.6.0	R5	TEI8_Test
34.229-3	0256	-	Rel-10	B	RP-150333	R5s141221	approved	Addition of GCF WI-198 MO MTSI Video Call test case 12.21 ^^(using 36.523-3 test model)	10.5.0	10.6.0	R5	TEI8_Test
34.229-3	0257	-	Rel-10	F	RP-150333	R5s141232	approved	Correction to IMS Emergency call test case 19.4.1	10.5.0	10.6.0	R5	TEI9_Test
34.229-3	0258	-	Rel-10	B	RP-150333	R5s141237	approved	Addition of GCF WI-154 Emergency Call Testcase 19.3.4 over 36.523-3 Test Model	10.5.0	10.6.0	R5	TEI9_Test
34.229-3	0259	-	Rel-10	F	RP-150333	R5s141244	approved	Correction of o-lines in SDP bodies sent by SS	10.5.0	10.6.0	R5	TEI8_Test
34.229-3	0260	-	Rel-10	F	RP-150333	R5s141273	approved	Correction to GCF WI-171 IMS SSAC test case 12.18	10.5.0	10.6.0	R5	TEI9_Test

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34.229-3	0261	-	Rel-10	B	RP-150333	R5s141286	approved	Addition of GCF WI-154 IMS Emergency Call test case 19.1.5	10.5.0	10.6.0	R5	TEI9_Test
34.229-3	0262	-	Rel-10	F	RP-150333	R5s141322	approved	Correction to IMS Registration Procedure	10.5.0	10.6.0	R5	TEI8_Test
34.229-3	0263	-	Rel-10	F	RP-150333	R5s141326	approved	Correction to GCF WI-103 IMS test case 11.2	10.5.0	10.6.0	R5	TEI8_Test
34.229-3	0264	-	Rel-10	B	RP-150333	R5s141329	approved	Addition of GCF WI-198 MO MTSI Video Call test case 12.22 over 36.523-3 Test Model	10.5.0	10.6.0	R5	TEI8_Test
34.229-3	0265	-	Rel-10	F	RP-150333	R5s141335	approved	Correction to GCF WI-154 IMS emergency test case 19.5.6 and 19 5.7	10.5.0	10.6.0	R5	TEI9_Test
34.229-3	0266	-	Rel-10	F	RP-150333	R5s141336	approved	Correction to GCF WI-198 IMS MO Video Call Testcase 12.21	10.5.0	10.6.0	R5	TEI8_Test
34.229-3	0267	-	Rel-10	F	RP-150333	R5s141337	approved	Correction to GCF WI-154 IMS emergency test case 19.3.4	10.5.0	10.6.0	R5	TEI9_Test
34.229-3	0268	-	Rel-10	B	RP-150333	R5s141341	approved	Addition of GCF WI-103 IMS Conference Call Testcase 15.17 over 36.523-3 Test Model	10.5.0	10.6.0	R5	TEI8_Test
34.229-3	0269	-	Rel-10	B	RP-150333	R5s141343	approved	Addition of GCF WI-103 IMS Conference Call Testcase 15.19 over 36.523-3 Test Model	10.5.0	10.6.0	R5	TEI8_Test
34.229-3	0270	-	Rel-10	F	RP-150333	R5s141350	approved	Correction of IMS TC 15.10a: not-registered condition	10.5.0	10.6.0	R5	TEI8_Test
34.229-3	0271	-	Rel-10	F	RP-150333	R5s141351	approved	Correction to GCF WI-103 IMS 15.x XCAP Testcases	10.5.0	10.6.0	R5	TEI9_Test
34.229-3	0272	-	Rel-10	F	RP-150333	R5s141353	approved	Correction of XCAP TCs on usage of str2oct	10.5.0	10.6.0	R5	TEI8_Test
34.229-3	0273	-	Rel-10	F	RP-150333	R5s141370	approved	Correction of IMS Emergency Call testcase 19.4.5	10.5.0	10.6.0	R5	TEI9_Test
34.229-3	0274	-	Rel-10	F	RP-150333	R5s141381	approved	Correction of IMS SSAC Testcases 12.18, 12.19, 12.20, 12.18a, 12.19a and 12.20a	10.5.0	10.6.0	R5	TEI9_Test
34.229-3	0275	-	Rel-10	F	RP-150333	R5s150030	approved	Correction of prefix to XCAP Root Uri	10.5.0	10.6.0	R5	TEI8_Test
34.229-3	0276	-	Rel-10	F	RP-150333	R5s150035	approved	Correction to UPDATE message for IMS MT Call Testcases	10.5.0	10.6.0	R5	TEI8_Test
34.229-3	0277	-	Rel-10	F	RP-150333	R5s150039	approved	Correction for record-route header in IMS MT call scenarios	10.5.0	10.6.0	R5	TEI8_Test
34.229-3	0278	-	Rel-10	F	RP-150333	R5s150054	approved	Correction to cr_UE_RadioAccessCapability template for IMS UTRA test cases	10.5.0	10.6.0	R5	TEI8_Test
34.229-3	0279	-	Rel-10	F	RP-150333	R5s150055	approved	Correction to IMS Multiple PDN	10.5.0	10.6.0	R5	TEI8_Test
34.229-3	0280	-	Rel-10	F	RP-150333	R5s150085	approved	Correction to DNS Query procedure for IMS Testcases	10.5.0	10.6.0	R5	TEI8_Test
34.229-3	0281	-	Rel-10	F	RP-150333	R5s150086	approved	Correction to SessionID in IMS signalling procedures	10.5.0	10.6.0	R5	TEI8_Test
34.229-3	0282	-	Rel-10	B	RP-150333	R5s150115	approved	Addition of GCF WI-171 MO MTSI Video Call test case 12.19 ^^(using 36.523-3 test model)	10.5.0	10.6.0	R5	TEI9_Test
34.229-3	0283	-	Rel-10	F	RP-150332	-	approved	CR to 34.229-3: Add new verified and e-mail agreed TTCN test cases in the TC lists in 34.229-3 (prose), Annex A	10.5.0	10.6.0	R5	TEI8_Test
34.902	0022	-	Rel-11	F	RP-150338	R5-150894	approved	Add Test Tolerance analysis for 34.121-1 RRM Test cases 8.3.5.2b and 8.3.5.2d	9.5.0	11.0.0	R5	Cell_FACH_enh-UEConTest
36.101	2760	2	Rel-12	B	RP-150387	R4-151196	approved	Introduce additional bands of LC MTC	12.6.0	12.7.0	R4	LC_MTC_LTE-Core
36.101	2761	-	Rel-12	F	RP-150387	R4-150027	approved	CR on corrections to Dual-Layer Spatial Multiplexing with multiple CSI-RS config Rel-12	12.6.0	12.7.0	R4	TEI12
36.101	2763	-	Rel-11	D	RP-150384	R4-150059	approved	Correction for timing offset test for intraband non-contiguous CA	11.11.0	11.12.0	R4	TEI11
36.101	2765	1	Rel-12	B	RP-150392	R4-151138	approved	CR for applicability and test rules for TDD-FDD CA performance requirements	12.6.0	12.7.0	R4	LTE_CA_Mult-Perf
36.101	2766	-	Rel-12	B	RP-150392	R4-150062	approved	Introduction of CQI tests for TDD-FDD CA	12.6.0	12.7.0	R4	LTE_CA_Mult-Perf
36.101	2767	1	Rel-12	B	RP-150395	R4-151081	approved	CR to introduce the SU-MIMO whitening verification test	12.6.0	12.7.0	R4	LTE_SUMIMO_RX-Perf
36.101	2768	1	Rel-12	B	RP-150392	R4-151086	approved	CR on power imbalance test for 3DL CA	12.6.0	12.7.0	R4	LTE_CA_Mult-Perf
36.101	2769	-	Rel-12	B	RP-150392	R4-150109	approved	CR on sustained data rate test for TDD FDD CA	12.6.0	12.7.0	R4	LTE_CA_Mult-Perf
36.101	2770	1	Rel-12	B	RP-150394	R4-151077	approved	CR for introduction of 256QAM demodulation performance requirements	12.6.0	12.7.0	R4	LTE_SC_enh_L1-Perf
36.101	2772	1	Rel-12	B	RP-150393	R4-151084	approved	CR: DC UE performance requirements	12.6.0	12.7.0	R4	LTE_SC_enh_dualC-Perf

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36.101	2773	1	Rel-12	B	RP-150390	R4-151053	approved	CR: MTC demodulation performance requirements	12.6.0	12.7.0	R4	LC_MTC_LTE-Perf
36.101	2774	1	Rel-12	B	RP-150390	R4-151054	approved	CR: MTC CSI requirements	12.6.0	12.7.0	R4	LC_MTC_LTE-Perf
36.101	2775	1	Rel-12	B	RP-150396	R4-151058	approved	Introduction of the eIMTA functional PDSCH demodulation test	12.6.0	12.7.0	R4	LTE_TDD_eIMTA-Perf
36.101	2776	3	Rel-12	B	RP-150387	R4-151273	approved	CR on RF core requirements for D2D	12.6.0	12.7.0	R4	LTE_D2D_Prox-Core
36.101	2777	-	Rel-12	F	RP-150387	R4-150239	approved	Modification of CSI reference measurement channel Rel-12	12.6.0	12.7.0	R4	TEI12
36.101	2778	-	Rel-11	F	RP-150384	R4-150240	approved	Modification of CSI reference measurement channel Rel-11	11.11.0	11.12.0	R4	TEI11
36.101	2779	-	Rel-12	D	RP-150388	R4-150241	approved	Editorial correction for CA_18A-28A	12.6.0	12.7.0	R4	LTE_CA_B18_B28-Core
36.101	2781	-	Rel-12	F	RP-150388	R4-150246	approved	Removing brackets for CA_1A-28A MSD requirements	12.6.0	12.7.0	R4	LTE_CA_B1_B28-Core
36.101	2782	-	Rel-11	F	RP-150384	R4-150259	approved	Editorial correction on symbols for enhanced performance requirements type A	11.11.0	11.12.0	R4	LTE_Interf_Rej-Perf
36.101	2783	-	Rel-12	A	RP-150384	R4-150260	approved	Editorial correction on symbols for enhanced performance requirements type A	12.6.0	12.7.0	R4	LTE_Interf_Rej-Perf
36.101	2784	-	Rel-12	F	RP-150387	R4-150310	approved	Corrections on reference measurement channel	12.6.0	12.7.0	R4	TEI12
36.101	2792	-	Rel-12	F	RP-150388	R4-150361	approved	Correction of TS 36.101 for the Pcell support of 25+41	12.6.0	12.7.0	R4	LTE_CA_B25_B41_B41-Core
36.101	2793	1	Rel-12	B	RP-150395	R4-151082	approved	CR for single cell demodulation test for SU-MIMO	12.6.0	12.7.0	R4	LTE_SUMIMO_RX-Perf
36.101	2794	-	Rel-12	B	RP-150391	R4-150441	approved	Introduction of CA_3A-42A and CA_3A-42C into 36.101	12.6.0	12.7.0	R4	LTE_CA_B3_B42_B42-Core
36.101	2795	-	Rel-10	F	RP-150382	R4-150451	approved	UL HARQ in PDSCH and PDCCH/PCFICH demod test cases for eICIC with MBSFN ABS	10.17.0	10.18.0	R4	eICIC_LTE-Perf
36.101	2796	-	Rel-11	F	RP-150384	R4-150452	approved	UL HARQ in PDSCH and PDCCH/PCFICH demod test cases for eICIC/feICIC with MBSFN ABS	11.11.0	11.12.0	R4	eICIC_LTE-Perf, eICIC_enh_LTE-Perf
36.101	2797	-	Rel-12	A	RP-150384	R4-150453	approved	UL HARQ in PDSCH and PDCCH/PCFICH demod test cases for eICIC/feICIC with MBSFN ABS	12.6.0	12.7.0	R4	eICIC_LTE-Perf
36.101	2798	-	Rel-10	F	RP-150382	R4-150454	approved	Correction to eICIC aggressor cell configurations	10.17.0	10.18.0	R4	eICIC_LTE-Perf
36.101	2799	-	Rel-11	A	RP-150382	R4-150455	approved	Correction to eICIC aggressor cell configurations	11.11.0	11.12.0	R4	eICIC_LTE-Perf
36.101	2800	-	Rel-12	A	RP-150382	R4-150456	approved	Correction to eICIC aggressor cell configurations	12.6.0	12.7.0	R4	eICIC_LTE-Perf
36.101	2801	-	Rel-12	F	RP-150387	R4-150504	approved	R4-73AH-0040: Correction for uplik CA configuration in TS 36.101 Rel-12	12.6.0	12.7.0	R4	LTE_CA_2UL-A1-Core, LTE_CA_2UL-A2-Core, LTE_CA_2UL-A3-Core, LTE_CA_2UL-A4-Core, LTE_CA_2UL-A5-Core, LTE_CA_NC_2UL-Core
36.101	2802	1	Rel-12	F	RP-150387	R4-151160	approved	Correction of MSD levels for CA_1A-8A in TS 36.101 rel-12	12.6.0	12.7.0	R4	LTE_CA_2UL-A4-Core
36.101	2803	-	Rel-10	F	RP-150382	R4-150526	approved	Removal of eDL-MIMO term from specification	10.17.0	10.18.0	R4	LTE_eDL_MIMO-Core
36.101	2804	-	Rel-11	A	RP-150382	R4-150527	approved	Removal of eDL-MIMO term from specification	11.11.0	11.12.0	R4	LTE_eDL_MIMO-Core
36.101	2805	-	Rel-12	F	RP-150387	R4-150528	approved	Removal of eDL-MIMO term from specification	12.6.0	12.7.0	R4	LTE_eDL_MIMO-Core, LC_MTC_LTE-Core
36.101	2809	-	Rel-12	F	RP-150388	R4-150533	approved	Clarification of 2UL/3DL contiguous intraband CA REFSENS test	12.6.0	12.7.0	R4	LTE_CA_C_B41_3DL-Core
36.101	2811	1	Rel-12	B	RP-150392	R4-151085	approved	CR on TM4 normal demodulation test for 3DL CA	12.6.0	12.7.0	R4	LTE_CA_Mult-Perf
36.101	2812	-	Rel-12	F	RP-150392	R4-150552	approved	CR on introducing new DL referece measurement channels	12.6.0	12.7.0	R4	LTE_CA_Mult-Perf
36.101	2813	1	Rel-12	B	RP-150392	R4-151087	approved	CR on normal demodulation test for TDD-FDD CA	12.6.0	12.7.0	R4	LTE_CA_Mult-Perf

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36.101	2815	-	Rel-12	F	RP-150388	R4-150568	approved	Additions of bandwidth combination set reference	12.6.0	12.7.0	R4	LTE_CA_B1_B42_B42-Core, LTE_CA_B2_B4_B4-Core, LTE_CA_B2_B2_B5-Core, LTE_CA_B2_B12_B12-Core, LTE_CA_B2_B2_B13-Core, LTE_CA_B2_B2_B29-Core, LTE_CA_B3_B3_B7-Core, LTE_CA_B4_B4_B5-Core, LTE_CA_B4_B4_B12-Core, LTE_CA_B4_B12_B12-Core, LTE_CA_B4_B4_B13-Core
36.101	2816	-	Rel-12	F	RP-150388	R4-150569	approved	Correction of band number in Table 5.6A.1-2a for LTE_CA_B4_B12_B30	12.6.0	12.7.0	R4	LTE_CA_B4_B12_B30-Core
36.101	2817	-	Rel-10	F	RP-150382	R4-150610	approved	UE to UE co-existence between B42/B43	10.17.0	10.18.0	R4	RInImp8-UMTSLTE3500, LTE-RF
36.101	2818	-	Rel-11	A	RP-150382	R4-150611	approved	UE to UE co-existence between B42/B43	11.11.0	11.12.0	R4	RInImp8-UMTSLTE3500, LTE-RF
36.101	2819	-	Rel-12	F	RP-150382	R4-150612	approved	UE to UE co-existence between B42/B43	12.6.0	12.7.0	R4	RInImp8-UMTSLTE3500, LTE-RF
36.101	2820	-	Rel-10	F	RP-150382	R4-150613	approved	Corrections to CA in-band emissions requirement	10.17.0	10.18.0	R4	TEI10
36.101	2821	-	Rel-11	A	RP-150382	R4-150614	approved	Corrections to CA in-band emissions requirement	11.11.0	11.12.0	R4	TEI10
36.101	2822	-	Rel-12	A	RP-150382	R4-150615	approved	Corrections to CA in-band emissions requirement	12.6.0	12.7.0	R4	TEI10
36.101	2827	-	Rel-9	F	RP-150381	R4-150623	approved	Uplink RMCs for sustained data rate test	9.21.0	9.22.0	R4	TEI9
36.101	2828	-	Rel-10	A	RP-150381	R4-150624	approved	Uplink RMCs for sustained data rate test	10.17.0	10.18.0	R4	TEI9
36.101	2829	-	Rel-11	A	RP-150381	R4-150625	approved	Uplink RMCs for sustained data rate test	11.11.0	11.12.0	R4	TEI9
36.101	2830	-	Rel-12	A	RP-150381	R4-150626	approved	Uplink RMCs for sustained data rate test	12.6.0	12.7.0	R4	TEI9
36.101	2831	-	Rel-10	F	RP-150382	R4-150628	approved	Corrections to the CA power imbalance test	10.17.0	10.18.0	R4	TEI10
36.101	2832	-	Rel-11	A	RP-150382	R4-150629	approved	Corrections to the CA power imbalance test	11.11.0	11.12.0	R4	TEI10
36.101	2833	-	Rel-12	A	RP-150382	R4-150630	approved	Corrections to the CA power imbalance test	12.6.0	12.7.0	R4	TEI10
36.101	2839	1	Rel-12	B	RP-150392	R4-151088	approved	CR for soft buffer tests for TDD-FDD CA in 36.101 in Rel-12	12.6.0	12.7.0	R4	LTE_CA_Mult-Perf
36.101	2840	-	Rel-10	F	RP-150392	R4-150705	approved	Editorial CR for CA UE performance tests in 36.101 in Rel-10	10.17.0	10.18.0	R4	LTE_CA_Mult-Perf
36.101	2841	-	Rel-11	A	RP-150392	R4-150706	approved	Editorial CR for CA UE performance tests in 36.101 in Rel-11	11.11.0	11.12.0	R4	LTE_CA_Mult-Perf
36.101	2842	-	Rel-12	F	RP-150392	R4-150707	approved	Editorial CR for CA UE performance tests in 36.101 in Rel-12	12.6.0	12.7.0	R4	LTE_CA_Mult-Perf
36.101	2845	-	Rel-10	F	RP-150382	R4-150787	approved	UE spurious emissions structure correction for CA	10.17.0	10.18.0	R4	TEI10
36.101	2846	-	Rel-11	F	RP-150384	R4-150788	approved	UE spurious emissions structure correction for CA	11.11.0	11.12.0	R4	TEI11
36.101	2847	-	Rel-12	F	RP-150387	R4-150789	approved	UE spurious emissions structure correction for CA	12.6.0	12.7.0	R4	TEI12
36.101	2848	1	Rel-10	F	RP-150382	R4-151204	approved	Removal of Pcmax requirements for UL inter-band CA in early release	10.17.0	10.18.0	R4	LTE_CA-Core
36.101	2849	-	Rel-11	A	RP-150382	R4-150802	approved	Removal of Pcmax requirements for UL inter-band CA in early release	11.11.0	11.12.0	R4	LTE_CA-Core
36.101	2850	-	Rel-12	F	RP-150387	R4-150803	approved	Correction of PCMAX for uplink inter-band and intra-band carrier aggregation	12.6.0	12.7.0	R4	LTE_CA_2UL-A1-Core, LTE_CA_2UL-A2-Core, LTE_CA_2UL-A3-Core, LTE_CA_2UL-A4-Core, LTE_CA_2UL-A5-Core

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36.101	2851	-	Rel-12	F	RP-150387	R4-150805	approved	Exceptions for spurious response for UL CA	12.6.0	12.7.0	R4	LTE_CA_2UL-A1-Core, LTE_CA_2UL-A2-Core, LTE_CA_2UL-A3-Core, LTE_CA_2UL-A4-Core, LTE_CA_2UL-A5-Core
36.101	2852	1	Rel-12	F	RP-150388	R4-151162	approved	Correction of REFSENS, OOBB and uplink configuration for 3DL/1UL CA	12.6.0	12.7.0	R4	LTE_CA-Core
36.101	2853	-	Rel-12	B	RP-150390	R4-150868	approved	SNR definition for category 0 UE	12.6.0	12.7.0	R4	LC_MTC_LTE-Perf
36.101	2854	1	Rel-12	B	RP-150390	R4-151051	approved	FRC for category 0 UE PDSCH performance requirements	12.6.0	12.7.0	R4	LC_MTC_LTE-Perf
36.101	2855	1	Rel-12	B	RP-150390	R4-151052	approved	Introduction of new PHICH and PBCH performance requirements for category 0 UE	12.6.0	12.7.0	R4	LC_MTC_LTE-Perf
36.101	2861	-	Rel-12	F	RP-150387	R4-150989	approved	Correction to FOOB reference in definition of MPR for contiguous CA with non-contiguous resource allocation	12.6.0	12.7.0	R4	TEI12
36.101	2862	-	Rel-12	F	RP-150387	R4-150996	approved	Band 31 update	12.6.0	12.7.0	R4	TEI12
36.101	2865	-	Rel-11	F	RP-150384	R4-151155	approved	Band 28 UE emissions correction	11.11.0	11.12.0	R4	LTE_APAC700-Core
36.101	2866	-	Rel-11	F	RP-150384	R4-151211	approved	Implementation of CA configurations specified in later releases	11.11.0	11.12.0	R4	LTE_CA-Core
36.101	2867	-	Rel-12	A	RP-150384	R4-151212	approved	Implementation of CA configurations specified in later releases	12.6.0	12.7.0	R4	LTE_CA-Core
36.104	0627	-	Rel-12	F	RP-150382	R4-150362	approved	Co-location between Band 42 and Band 43 in TS 36.104	12.6.0	12.7.0	R4	RInImp8-UMTSLTE3500
36.104	0629	-	Rel-12	B	RP-150391	R4-150438	approved	Introduction of CA_3A-42A and CA_3A-42C into 36.104	12.6.0	12.7.0	R4	LTE_CA_B3_B42_B42-Core
36.104	0636	-	Rel-12	F	RP-150388	R4-150817	approved	MB and TDD+FDD	12.6.0	12.7.0	R4	LTE_CA_TDD_FDD-Core
36.112	0004	1	Rel-12	F	RP-150384	R4-151165	approved	Update annex C.2 to match Release 11.	12.1.0	12.2.0	R4	LCS_LTE-NBPS-Core
36.116	0010	-	Rel-11	F	RP-150384	R4-150359	approved	Corrections for TS 36.116 cluase 7.6: Blocking characteristics	11.3.0	11.4.0	R4	LTE_Relay2-Core
36.116	0011	-	Rel-12	A	RP-150384	R4-150360	approved	Corrections for TS 36.116 cluase 7.6: Blocking characteristics	12.0.0	12.1.0	R4	LTE_Relay2-Core
36.133	2746	-	Rel-11	F	RP-150384	R4-150008	approved	CR to Correct Implementation Errors in Intra-Frequency RSTD Measurement Reporting Delay Test Cases	11.11.0	11.12.0	R4	TEI11
36.133	2747	-	Rel-12	F	RP-150387	R4-150009	approved	CR to Correct Implementation Error in FDD RSTD Measurement Reporting Delay Test Case and to Update Io Levels for Certain RSTD Test Cases	12.6.0	12.7.0	R4	TEI12
36.133	2748	-	Rel-10	F	RP-150382	R4-150014	approved	Remove incorrect note from CA RSTD Accuracy tests	10.17.0	10.18.0	R4	TEI10
36.133	2749	-	Rel-11	A	RP-150382	R4-150015	approved	Remove incorrect note from CA RSTD Accuracy tests	11.11.0	11.12.0	R4	TEI10
36.133	2750	-	Rel-12	A	RP-150382	R4-150016	approved	Remove incorrect note from CA RSTD Accuracy tests	12.6.0	12.7.0	R4	TEI10
36.133	2751	-	Rel-12	F	RP-150387	R4-150017	approved	Change Nprs value for 5MHz CA RSTD Accuracy tests	12.6.0	12.7.0	R4	TEI12
36.133	2752	1	Rel-10	F	RP-150382	R4-151105	approved	Maximum allowed layers for multiple monitoring for CA	10.17.0	10.18.0	R4	LTE_CA-Perf
36.133	2753	1	Rel-11	A	RP-150065	-	approved	Maximum allowed layers for multiple monitoring for CA	11.11.0	11.12.0	R4	LTE_CA-Core
36.133	2753	-	Rel-11	A	RP-150383	R4-150040	revised	Maximum allowed layers for multiple monitoring for CA	11.11.0		R4	LTE_CA-Perf
36.133	2754	1	Rel-12	A	RP-150066	-	approved	Maximum allowed layers for multiple monitoring for CA	12.6.0	12.7.0	R4	LTE_CA-Core
36.133	2754	-	Rel-12	F	RP-150383	R4-150041	revised	Maximum allowed layers for multiple monitoring for CA	12.6.0		R4	LTE_CA-Perf
36.133	2756	-	Rel-12	F	RP-150387	R4-150044	approved	DRX correction for interruption with dual connectivity	12.6.0	12.7.0	R4	LTE_SC_enh_dualC-Perf
36.133	2757	-	Rel-12	F	RP-150388	R4-150045	approved	Correction of Interruptions with RSTD Measurements for 3DL CA	12.6.0	12.7.0	R4	LTE_CA_B1_B19_B21-Core, LTE_CA_B1_B3_B20-Core, LT
36.133	2761	1	Rel-12	B	RP-150387	R4-151126	approved	RRM requirements for ProSe	12.6.0	12.7.0	R4	LTE_D2D_Prox-Core
36.133	2763	1	Rel-12	F	RP-150396	R4-151055	approved	Updating the requirements applicability for TDD config 0	12.6.0	12.7.0	R4	LTE_TDD_eIMTA-Perf
36.133	2764	1	Rel-12	F	RP-150394	R4-151059	approved	Cleanup for RSRQ measurement requirement for SCE	12.6.0	12.7.0	R4	LTE_SC_enh_L1-Perf
36.133	2774	1	Rel-12	F	RP-150394	R4-151074	approved	Clean up the correction on discovery signal measurements	12.6.0	12.7.0	R4	LTE_SC_enh_L1-Perf
36.133	2775	1	Rel-12	F	RP-150387	R4-151114	approved	Correction on MBSFN measurements	12.6.0	12.7.0	R4	MBMS_LTE_OS-Core
36.133	2776	-	Rel-12	F	RP-150394	R4-150305	approved	Introduce CA measurement accuracy requirements for SCE	12.6.0	12.7.0	R4	LTE_SC_enh_L1-Perf

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36.133	2777	-	Rel-12	F	RP-150382	R4-150306	approved	Correction on Io in carrier aggregation test cases	12.6.0	12.7.0	R4	LTE_CA-Perf
36.133	2783	-	Rel-12	B	RP-150387	R4-150345	approved	Introducing accuracy requirement for new RSRQ	12.6.0	12.7.0	R4	TEI12
36.133	2784	-	Rel-11	F	RP-150384	R4-150457	approved	Time-domain measurement resource restriction pattern for serving cell in feICIC RSRP and RSRQ test cases	11.11.0	11.12.0	R4	eICIC_enh_LTE-Perf
36.133	2785	-	Rel-12	A	RP-150384	R4-150458	approved	Time-domain measurement resource restriction pattern for serving cell in feICIC RSRP and RSRQ test cases	12.6.0	12.7.0	R4	eICIC_enh_LTE-Perf
36.133	2790	-	Rel-11	F	RP-150384	R4-150491	approved	CR on typo of referencing section name in CA measurements	11.11.0	11.12.0	R4	TEI11
36.133	2791	-	Rel-12	A	RP-150384	R4-150492	approved	CR on typo of referencing section name in CA measurements	12.6.0	12.7.0	R4	TEI11
36.133	2797	1	Rel-12	F	RP-150393	R4-151063	approved	Clarification including PSCell in Note 1 for Ecat	12.6.0	12.7.0	R4	LTE_SC_enh_dualC-Perf
36.133	2798	1	Rel-12	F	RP-150386	R4-151135	approved	Clarification of IncMon requirements for E-UTRA idle state	12.6.0	12.7.0	R4	LTE_UTRA_Incmon-Core
36.133	2799	1	Rel-12	F	RP-150386	R4-151136	approved	Clarification of IncMon requirements for E-UTRA connected state	12.6.0	12.7.0	R4	LTE_UTRA_Incmon-Core
36.133	2800	1	Rel-12	F	RP-150386	R4-151112	approved	Clarification concerning IncMon scaling for non-gap-assisted measurements	12.6.0	12.7.0	R4	LTE_UTRA_Incmon-Core
36.133	2801	-	Rel-10	F	RP-150382	R4-150616	approved	Correction of RMC and OCNG pattern in event triggered tests without measurement gap	10.17.0	10.18.0	R4	TEI10
36.133	2802	-	Rel-11	A	RP-150382	R4-150617	approved	Correction of RMC and OCNG pattern in event triggered tests without measurement gap	11.11.0	11.12.0	R4	TEI10
36.133	2803	-	Rel-12	A	RP-150382	R4-150618	approved	Correction of RMC and OCNG pattern in event triggered tests without measurement gap	12.6.0	12.7.0	R4	TEI10
36.133	2804	-	Rel-12	B	RP-150394	R4-150645	approved	CR on RSRQ requirements for CRS based discovery signal	12.6.0	12.7.0	R4	LTE_SC_enh_L1-Perf
36.133	2807	-	Rel-11	F	RP-150384	R4-150652	approved	UE Behaviour after Measurement Gap	11.11.0	11.12.0	R4	TEI11
36.133	2808	-	Rel-12	F	RP-150387	R4-150653	approved	Correction to RRM test cases	12.6.0	12.7.0	R4	TEI12
36.133	2809	-	Rel-12	F	RP-150388	R4-150655	approved	Correction to CA Testing with Different CA Configurations	12.6.0	12.7.0	R4	LTE_CA_TDD_FDD-Core
36.133	2811	-	Rel-12	B	RP-150393	R4-150660	approved	Principle to test synchronous and asynchronous DC requirements	12.6.0	12.7.0	R4	LTE_SC_enh_dualC-Perf
36.133	2814	-	Rel-12	F	RP-150387	R4-150855	approved	Further revision of RSRP requirement for 36.133 release 12	12.6.0	12.7.0	R4	TEI12
36.133	2815	-	Rel-12	F	RP-150387	R4-150857	approved	Additional bandwidths for EUTRAN activation and deactivation of known and unknown SCell in non-DRX	12.6.0	12.7.0	R4	TEI12
36.133	2816	1	Rel-12	F	RP-150387	R4-151125	approved	High Doppler measurement accuracy requirements	12.6.0	12.7.0	R4	TEI12
36.133	2817	1	Rel-12	A	RP-150384	R4-151100	approved	36.133 CR to change CPICH Ec/No to CPICH Ec/Io in EUTRA FDD to UTRA FDD HO test cases	12.6.0	12.7.0	R4	TEI11
36.133	2818	-	Rel-11	F	RP-150384	R4-150921	approved	36.133 CR to change CPICH Ec/No to CPICH Ec/Io in EUTRA FDD to UTRA FDD HO test cases	11.11.0	11.12.0	R4	TEI11
36.133	2822	-	Rel-12	F	RP-150388	R4-150046	approved	Maximum Transmission Timing Difference in 3DL CA	12.6.0	12.7.0	R4	LTE_CA_B1_B19_B21-Core, LTE_CA_B1_B3_B20-Core, LT
36.133	2824	-	Rel-12	F	RP-150053	-	approved	Correction to the implementation of CR 2471r3 (Clarification for ACK/NACK feedback of CGI measurement)	12.6.0	12.7.0	R4	LTE_TDD_eIMTA-Core
36.141	0696	-	Rel-12	F	RP-150382	R4-150363	approved	Co-location between Band 42 and Band 43 in TS 36.141	12.6.0	12.7.0	R4	RInImp8-UMTSLTE3500
36.141	0698	-	Rel-12	B	RP-150391	R4-150439	approved	Introduction of CA_3A-42A and CA_3A-42C into 36.141	12.6.0	12.7.0	R4	LTE_CA_B3_B42_B42-Perf
36.141	0707	-	Rel-12	F	RP-150388	R4-150818	approved	MB and TDD+FDD	12.6.0	12.7.0	R4	LTE_CA_TDD_FDD-Core
36.201	0009	2	Rel-12	B	RP-150366	R1-150899	approved	Introduction of D2D feature into 36.201	12.1.0	12.2.0	R1	LTE_D2D_Prox-Core
36.211	0196	7	Rel-12	B	RP-150366	R1-150961	approved	Inclusion of ProSe	12.4.0	12.5.0	R1	LTE_D2D_Prox-Core
36.211	0198	-	Rel-12	F	RP-150364	R1-150895	approved	Correction on 256QAM applicability to PMCH	12.4.0	12.5.0	R1	LTE_SC_enh_L1-Core
36.211	0199	-	Rel-12	F	RP-150364	R1-150954	approved	Correction of discovery signal transmission	12.4.0	12.5.0	R1	LTE_SC_enh_L1-Core
36.212	0162	3	Rel-12	B	RP-150366	R1-150959	approved	Introduction of D2D feature into 36.212	12.3.0	12.4.0	R1	LTE_D2D_Prox-Core

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36.213	0492	2	Rel-12	B	RP-150366	R1-150962	approved	Introduction of D2D feature into 36.213	12.4.0	12.5.0	R1	LTE_D2D_Prox-Core
36.213	0494	1	Rel-12	F	RP-150363	R1-150770	approved	Correction to PUCCH procedures in case of FDD Pcell and TDD Scell in TDD-FDD CA	12.4.0	12.5.0	R1	LTE_CA_TDD_FDD-Core
36.213	0498	-	Rel-12	F	RP-150364	R1-150586	approved	Correction on higher layer parameter names for 256QAM	12.4.0	12.5.0	R1	LTE_SC_enh_L1-Core
36.213	0499	-	Rel-11	F	RP-150359	R1-150831	approved	TM10 CSI-IM Interference Measurements	11.9.0	11.10.0	R1	COMP_LTE_DL-Core
36.213	0500	-	Rel-12	A	RP-150359	R1-150832	approved	TM10 CSI-IM Interference Measurements	12.4.0	12.5.0	R1	COMP_LTE_DL-Core
36.213	0501	-	Rel-11	F	RP-150358	R1-150922	approved	Clarification on common search reception related to MBMS	11.9.0	11.10.0	R1	LTE-Phys, TEI11
36.213	0502	-	Rel-12	A	RP-150358	R1-150923	approved	Clarification on common search reception related to MBMS	12.4.0	12.5.0	R1	LTE-Phys, TEI11
36.213	0503	-	Rel-12	F	RP-150364	R1-150957	approved	Correction to Discovery in Small Cell Enhancement feature	12.4.0	12.5.0	R1	LTE_SC_enh_L1-Core
36.213	0504	1	Rel-12	F	RP-150365	R1-150963	approved	Corrections to Dual Connectivity feature	12.4.0	12.5.0	R1	LTE_SC_enh_dualC-Core
36.214	0021	2	Rel-12	C	RP-150361	R1-150249	approved	New E-UTRA RSRQ measurement definition	12.1.0	12.2.0	R1	TEI12
36.214	0026	2	Rel-12	C	RP-150366	R1-150252	approved	Inclusion of measurement for ProSe	12.1.0	12.2.0	R1	LTE_D2D_Prox-Core
36.300	0691	-	Rel-12	F	RP-150373	R2-150656	approved	Clarification on DC	12.4.0	12.5.0	R2	LTE_SC_enh_dualC-Core
36.300	0692	-	Rel-12	F	RP-150373	R2-150655	approved	Addition of PDCP-PDU retransmission to PDCP functions	12.4.0	12.5.0	R2	LTE_SC_enh_dualC-Core
36.300	0693	-	Rel-12	F	RP-150374	R2-150645	approved	Corrections to stage 2 description of ProSe	12.4.0	12.5.0	R2	LTE_D2D_Prox-Core
36.300	0698	1	Rel-12	F	RP-150373	R2-150725	approved	Minor corrections on DC 36.300	12.4.0	12.5.0	R2	LTE_SC_enh_dualC-Core
36.300	0700	-	Rel-12	B	RP-150375	R2-150697	approved	Introduction of MBMS congestion management for Public Safety Group Call	12.4.0	12.5.0	R2	GCSE_LTE-MBMS_CM-Core
36.300	0705	-	Rel-12	F	RP-150373	R2-150661	approved	Clarification on SCG change definition	12.4.0	12.5.0	R2	LTE_SC_enh_dualC-Core
36.300	0706	-	Rel-11	F	RP-150348	R2-150720	approved	Correction of the Usage of the MultibandInfoList IE	11.12.0	11.13.0	R2	TEI11
36.300	0707	-	Rel-12	A	RP-150348	R2-150721	approved	Correction of the Usage of the MultibandInfoList IE	12.4.0	12.5.0	R2	TEI11
36.300	0708	-	Rel-12	F	RP-150373	R2-150722	approved	Clarification of the description of the NAICS procedure	12.4.0	12.5.0	R2	LTE_NAICS-Core
36.300	0709	-	Rel-12	F	RP-150373	R2-150723	approved	Correction on SeNB behaviour for distinguishing uplink PDCP PDUs	12.4.0	12.5.0	R2	LTE_SC_enh_dualC-Core
36.300	0710	-	Rel-12	F	RP-150373	R2-150724	approved	Correction on DL Data Forwarding for Split Bearer	12.4.0	12.5.0	R2	LTE_SC_enh_dualC-Core
36.302	0059	-	Rel-12	F	RP-150376	R2-150672	approved	Removal of unnecessary requirement to receive MIB on SCell	12.2.0	12.3.0	R2	TEI12
36.304	0260	-	Rel-12	F	RP-150373	R2-150559	approved	UE capability signaling for WLAN/3GPP radio interworking	12.3.0	12.4.0	R2	UTRA_LTE_WLAN_interw-Core
36.304	0264	1	Rel-12	B	RP-150374	R2-150699	approved	Introduction of ProSe	12.3.0	12.4.0	R2	LTE_D2D_Prox-Core
36.304	0265	1	Rel-12	F	RP-150373	R2-150572	approved	Cleanup on RAN-assisted WLAN interworking	12.3.0	12.4.0	R2	UTRA_LTE_WLAN_interw-Core
36.304	0266	-	Rel-12	F	RP-150373	R2-150579	approved	Correction on WLAN identifiers	12.3.0	12.4.0	R2	UTRA_LTE_WLAN_interw-Core
36.306	0253	-	Rel-12	F	RP-150373	R2-150675	approved	Introduction of total L2 buffer sizes for UEs supporting split bearers	12.3.0	12.4.0	R2	LTE_SC_enh_dualC-Core
36.306	0257	-	Rel-12	F	RP-150373	R2-150654	approved	Correction to UE capabilities for Low Complexity UEs	12.3.0	12.4.0	R2	LC_MTC_LTE-Core
36.306	0258	-	Rel-12	F	RP-150373	R2-150663	approved	Extended number of measurement identities capability	12.3.0	12.4.0	R2	LTE_UTRA_IncMon-Core, LTE_SC_enh_dualC-Core
36.306	0259	-	Rel-12	F	RP-150373	R2-150659	approved	Clarificatoin of TDD DC capability	12.3.0	12.4.0	R2	LTE_SC_enh_dualC-Core
36.306	0261	1	Rel-12	F	RP-150379	R2-150713	approved	Introduction of UL64QAM based on split of DL and UL categories	12.3.0	12.4.0	R2	LTE-L23, TEI12
36.306	0263	-	Rel-10	F	RP-150378	R2-150628	approved	UE capability for modified MPR behavior	10.11.0	10.12.0	R2	LTE-L23, TEI10
36.306	0264	-	Rel-11	A	RP-150378	R2-150629	approved	UE capability for modified MPR behavior	11.9.0	11.10.0	R2	LTE-L23, TEI10
36.306	0265	-	Rel-12	A	RP-150378	R2-150630	approved	UE capability for modified MPR behavior	12.3.0	12.4.0	R2	LTE-L23, TEI10
36.306	0266	1	Rel-12	C	RP-150376	R2-150702	approved	Change related to configuration of the priority for frequency bands in mFBI	12.3.0	12.4.0	R2	TEI12
36.306	0267	-	Rel-12	B	RP-150374	R2-150700	approved	Introduction of ProSe	12.3.0	12.4.0	R2	LTE_D2D_Prox-Core

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36.306	0268	1	Rel-12	C	RP-150458	-	-	new DL UE categories	12.3.0		R2	LTE_CA-Core, LTE_SC_enh_L1, TEI12
36.306	0268	-	Rel-12	C	RP-150298	-	revised	new DL UE categories	12.3.0		R2	LTE_CA-Core, LTE_SC_enh_L1, TEI12
36.307	0462	-	Rel-11	F	RP-150387	R4-150502	approved	R4-73AH-0112: Correction of UE RF requirements for dual uplik to TS 36.307 Rel-11	11.10.0	11.11.0	R4	LTE_CA_2UL-A1-Perf, LTE_CA_2UL-A2- Perf, LTE_CA_2UL-A3- Perf, LTE_CA_2UL-A4- Perf, LTE_CA_2UL-A5- Perf, LTE_CA_NC_2UL-Core
36.307	0463	-	Rel-12	F	RP-150387	R4-150503	approved	R4-73AH-0113: Correction of UE RF requirements for dual uplik to TS 36.307 Rel-12	12.6.0	12.7.0	R4	LTE_CA_2UL-A1-Perf, LTE_CA_2UL-A2- Perf, LTE_CA_2UL-A3- Perf, LTE_CA_2UL-A4- Perf, LTE_CA_2UL-A5- Perf, LTE_CA_NC_2UL-Core
36.307	0466	-	Rel-10	F	RP-150392	R4-150708	approved	CR for 36.307 on CA UE performance requirement in Rel-10	10.13.0	10.14.0	R4	LTE_CA_Mult-Perf
36.307	0467	-	Rel-11	F	RP-150392	R4-150709	approved	CR for 36.307 on CA UE performance requirement in Rel-11	11.10.0	11.11.0	R4	LTE_CA_Mult-Perf
36.307	0468	-	Rel-12	F	RP-150392	R4-150710	approved	CR for 36.307 on CA UE performance requirement in Rel-12	12.6.0	12.7.0	R4	LTE_CA_Mult-Perf
36.307	0469	-	Rel-12	F	RP-150387	R4-150854	approved	Further revision of RSRP requirement for 36.307 release 12	12.6.0	12.7.0	R4	TEI12
36.307	0476	1	Rel-11	F	RP-150388	R4-151147	approved	Release independent requirements for CA_42C	11.10.0	11.11.0	R4	LTE_CA_C_B42-Core
36.321	0751	-	Rel-12	F	RP-150373	R2-150562	approved	Clarification on the Logical channel prioritization in DC	12.4.0	12.5.0	R2	LTE_SC_enh_dualC-Core
36.321	0755	1	Rel-12	B	RP-150374	R2-150717	approved	Introduction of ProSe in MAC	12.4.0	12.5.0	R2	LTE_D2D_Prox-Core
36.321	0756	-	Rel-11	F	RP-150371	R2-150621	approved	Uplink transmission time difference	11.5.0	11.6.0	R2	LTE_CA_enh-Core
36.321	0762	1	Rel-12	B	RP-150375	R2-150698	approved	Introduction of MBMS congestion management for Public Safety Group Call	12.4.0	12.5.0	R2	GCSE_LTE-MBMS_CM-Core
36.321	0763	2	Rel-12	F	RP-150371	R2-150719	approved	Uplink transmission time difference	12.4.0	12.5.0	R2	LTE_CA_enh-Core, TEI12
36.322	0105	1	Rel-12	F	RP-150376	R2-150564	approved	RLC concatenation for extended LI field	12.1.1	12.2.0	R2	TEI12
36.322	0107	-	Rel-12	B	RP-150374	R2-150570	approved	Introduction of ProSe Direct Communication	12.1.1	12.2.0	R2	LTE_D2D_Prox-Core
36.323	0133	-	Rel-12	F	RP-150373	R2-150563	approved	Reconfiguration of PDCP reordering timer	12.2.0	12.3.0	R2	LTE_SC_enh_dualC-Core
36.323	0135	-	Rel-12	B	RP-150374	R2-150571	approved	Introduction of ProSe Direct Communication	12.2.0	12.3.0	R2	LTE_D2D_Prox-Core
36.331	1726	-	Rel-10	F	RP-150370	R2-150634	approved	Presence of codebookSubsetRestriction	10.15.0	10.16.0	R2	TEI10
36.331	1737	-	Rel-12	F	RP-150373	R2-150614	approved	Clarification on the setting of measScaleFactor without reducedMeasPerformance	12.4.1	12.5.0	R2	LTE_UTRA_IncMon-Core
36.331	1746	-	Rel-11	F	RP-150371	R2-150617	approved	Clarification on Measurement Configuration handling	11.10.0	11.11.0	R2	TEI11
36.331	1747	-	Rel-12	A	RP-150371	R2-150618	approved	Clarification on Measurement Configuration handling	12.4.1	12.5.0	R2	TEI11
36.331	1748	-	Rel-10	F	RP-150370	R2-150631	approved	Clarification on CSI measurement subframe set	10.15.0	10.16.0	R2	eICIC_LTE-Core
36.331	1749	-	Rel-11	A	RP-150370	R2-150632	approved	Clarification on CSI measurement subframe set	11.10.0	11.11.0	R2	eICIC_LTE-Core
36.331	1751	-	Rel-12	F	RP-150370	R2-150633	approved	Clarification on CSI measurement subframe set	12.4.1	12.5.0	R2	eICIC_LTE-Core, LTE_SC_enh_dualC-Core
36.331	1764	-	Rel-11	F	RP-150371	R2-150626	approved	Clarification to usage of field deltaTxD-OffsetPUCCH-Format1bCS-r11 in dedicated uplink power control parameter signalling	11.10.0	11.11.0	R2	LTE_CA_enh-Core
36.331	1765	-	Rel-12	A	RP-150371	R2-150627	approved	Clarification to usage of field deltaTxD-OffsetPUCCH-Format1bCS-r11 in dedicated uplink power control parameter signalling	12.4.1	12.5.0	R2	LTE_CA_enh-Core

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36.331	1768	2	Rel-12	F	RP-150377	R2-150735	approved	Miscellaneous changes resulting from review for REL-12 ASN.1 freeze	12.4.1	12.5.0	R2	TEI12
36.331	1770	2	Rel-12	B	RP-150374	R2-150734	approved	Introduction of ProSe	12.4.1	12.5.0	R2	LTE_D2D_Prox-Core
36.331	1772	-	Rel-11	F	RP-150371	R2-150635	approved	Correction of DRB establishment in case of fullConfig	11.10.0	11.11.0	R2	TEI11
36.331	1780	-	Rel-10	F	RP-150368	R2-150624	approved	The absence of supportedMIMO-CapabilityUL-r10	10.15.0	10.16.0	R2	LTE-L23, TEI10
36.331	1782	-	Rel-11	F	RP-150368	R2-150619	approved	Handling of WB RSRQ parameters	11.10.0	11.11.0	R2	LTE-L23, TEI11
36.331	1794	-	Rel-11	A	RP-150368	R2-150676	approved	The absence of supportedMIMO-CapabilityUL-r10	11.10.0	11.11.0	R2	LTE-L23, TEI10
36.331	1795	-	Rel-12	A	RP-150368	R2-150677	approved	The absence of supportedMIMO-CapabilityUL-r10	12.4.1	12.5.0	R2	LTE-L23, TEI10
36.331	1797	-	Rel-11	A	RP-150370	R2-150692	approved	Presence of codebookSubsetRestriction	11.10.0	11.11.0	R2	TEI10
36.331	1798	-	Rel-12	A	RP-150370	R2-150693	approved	Presence of codebookSubsetRestriction	12.4.1	12.5.0	R2	TEI10
36.331	1799	1	Rel-12	C	RP-150459	-	-	new DL UE categories	12.4.1		R2	LTE_CA-Core, LTE_SC_enh_L1, TEI12
36.331	1799	-	Rel-12	C	RP-150299	-	revised	new DL UE categories	12.4.1		R2	LTE_CA-Core, LTE_SC_enh_L1, TEI12
36.355	0125	1	Rel-12	F	RP-150376	R2-150726	approved	LPP clean-up	12.3.0	12.4.0	R2	TEI12
36.355	0126	2	Rel-12	F	RP-150369	R2-150704	approved	Correction of GLONASS system time	12.3.0	12.4.0	R2	LCS_LTE, TEI12
36.401	0069	1	Rel-12	F	RP-150351	R3-150401	approved	Correction on AP IDs for Dual Connectivity	12.1.0	12.2.0	R3	LTE_SC_enh_dualC-Core
36.413	1230	6	Rel-12	B	RP-150353	R3-150319	approved	ProSe UE Authorization in S1AP	12.4.0	12.5.0	R3	LTE_D2D_Prox-Core
36.413	1276	1	Rel-12	F	RP-150356	R3-150450	approved	Corrections of SON configuration transfer	12.4.0	12.5.0	R3	TEI12
36.413	1281	2	Rel-12	F	RP-150356	R3-150388	approved	Rapporteur Review-ASN.1 consistency check	12.4.0	12.5.0	R3	TEI12
36.413	1285	2	Rel-12	F	RP-150352	R3-150377	approved	Correction of reloading PWS Alerts	12.4.0	12.5.0	R3	REP_WMD-RFR_PWS
36.423	0693	5	Rel-12	B	RP-150353	R3-150039	approved	ProSe authorized indication	12.4.2	12.5.0	R3	LTE_D2D_Prox-Core
36.423	0782	1	Rel-12	F	RP-150351	R3-150402	approved	Corrections on the usage of SeNB UE AMBR in dual connectivity	12.4.2	12.5.0	R3	LTE_SC_enh_dualC-Core
36.423	0790	1	Rel-12	F	RP-150351	R3-150404	approved	Corrections of Dual Connectivity in general	12.4.2	12.5.0	R3	LTE_SC_enh_dualC-Core
36.423	0797	1	Rel-12	F	RP-150356	R3-150405	approved	Correction on DC stage3	12.4.2	12.5.0	R3	TEI12
36.423	0800	1	Rel-11	F	RP-150348	R3-150380	approved	Correction of the Usage of the MultibandInfoList IE	11.8.0	11.9.0	R3	TEI11
36.423	0801	1	Rel-12	A	RP-150348	R3-150381	approved	Correction of the Usage of the MultibandInfoList IE	12.4.2	12.5.0	R3	TEI11
36.423	0802	1	Rel-12	F	RP-150351	R3-150426	approved	Introduction of Cause values for Dual Connectivity	12.4.2	12.5.0	R3	LTE_SC_enh_dualC-Core
36.423	0803	1	Rel-12	F	RP-150356	R3-150386	approved	ASN.1 Corrections for X2AP	12.4.2	12.5.0	R3	TEI12
36.423	0804	2	Rel-12	F	RP-150351	R3-150406	approved	Corrections for Dual Connectivity	12.4.2	12.5.0	R3	LTE_SC_enh_dualC-Core
36.423	0805	-	Rel-12	D	RP-150356	R3-150391	approved	Miscellaneous Editorials for X2AP	12.4.2	12.5.0	R3	TEI12
36.423	0806	1	Rel-12	F	RP-150351	R3-150471	approved	Correction on SeNB behaviour for distinguishing uplink PDCP PDUs	12.4.2	12.5.0	R3	LTE_SC_enh_dualC-Core
36.424	0021	1	Rel-12	F	RP-150351	R3-150407	approved	Correction on Data Transmission over X2	12.1.0	12.2.0	R3	LTE_SC_enh_dualC-Core
36.425	0001	1	Rel-12	F	RP-150351	R3-150408	approved	Correction on DL USER DATA (PDU Type 0) Format for multiple PDCP PDUs	12.0.0	12.1.0	R3	LTE_SC_enh_dualC-Core
36.443	0092	1	Rel-12	F	RP-150356	R3-150376	approved	Add missing behavior for MBMS Service Counting procedure	12.1.0	12.2.0	R3	TEI12
36.443	0098	-	Rel-11	F	RP-150347	R3-150367	approved	Correction of M2AP Scheduling Information	11.3.0	11.4.0	R3	TEI11
36.443	0099	-	Rel-12	A	RP-150347	R3-150368	approved	Correction of M2AP Scheduling Information	12.1.0	12.2.0	R3	TEI11
36.443	0101	1	Rel-12	B	RP-150355	R3-150495	approved	Support for eMBMS congestion management, via MBMS Scheduling Information procedure	12.1.0	12.2.0	R3	GCSE_LTE-MBMS_CM-Core
36.443	0102	-	Rel-12	B	RP-150354	R3-150494	rejected	Support for eMBMS congestion management, via new procedure	12.1.0		R3	GCSE_LTE-MBMS_CM-Core
36.444	0070	1	Rel-12	D	RP-150356	R3-150385	approved	Rapporteur Review on 36444	12.1.0	12.2.0	R3	TEI12
36.455	0050	1	Rel-12	D	RP-150356	R3-150387	approved	ASN.1 Corrections for LPPa	12.1.0	12.2.0	R3	TEI12
36.459	0009	-	Rel-12	F	RP-150356	R3-150210	approved	Correction of Error Indication	12.1.0	12.2.0	R3	TEI12

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36.508	0567	-	Rel-12	F	RP-150342	R5-150103	approved	Correction to CA_19A-21A, CA_39A-41A	12.4.1	12.5.0	R5	LTE_CA_Rel12-UEConTest
36.508	0568	-	Rel-12	F	RP-150323	R5-150127	approved	Support of 2nd PDN connectivity at UE registration - Corrections for C2K	12.4.1	12.5.0	R5	TEI8_Test
36.508	0569	-	Rel-12	F	RP-150345	R5-150933	approved	Addition of UE Positioning testing to State 3A	12.4.1	12.5.0	R5	TEI12_Test
36.508	0570	-	Rel-12	F	RP-150326	R5-150273	approved	Correction of MFBI Test Frequencies for Band 38->41	12.4.1	12.5.0	R5	TEI9_Test
36.508	0571	-	Rel-12	F	RP-150341	R5-150367	approved	Addition of CA_8A-20A to Clause 6.2.3.2 of TS 36.508	12.4.1	12.5.0	R5	TEI11_Test
36.508	0572	-	Rel-12	F	RP-150343	R5-150480	approved	Addition of CA_1A-20A to Clause 6.2.3.2 of TS 36.508	12.4.1	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.508	0573	-	Rel-12	F	RP-150342	R5-150936	approved	Addition of Signalling test frequecies to 36.508 for CA_23B	12.4.1	12.5.0	R5	LTE_CA_Rel12-UEConTest
36.508	0574	-	Rel-12	F	RP-150342	R5-150937	approved	Addition of Signalling test frequecies to 36.508 for CA_23A-29A	12.4.1	12.5.0	R5	LTE_CA_Rel12-UEConTest
36.508	0575	-	Rel-12	F	RP-150342	R5-150679	approved	Correction to TDD CA contiguous Intra-band setting for signalling test	12.4.1	12.5.0	R5	LTE_CA_Rel12-UEConTest
36.508	0576	-	Rel-12	F	RP-150342	R5-150680	approved	Addition of Signalling test frequecies to 36.508 for CA_1A-7A	12.4.1	12.5.0	R5	LTE_CA_Rel12-UEConTest
36.508	0577	-	Rel-12	F	RP-150343	R5-150682	approved	Addition of CA_2A-30A to Clause 6.2.3.2 of TS 36.508.	12.4.1	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.508	0578	-	Rel-12	F	RP-150343	R5-150683	approved	Addition of CA_4A-30A to Clause 6.2.3.2 of TS 36.508.	12.4.1	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.508	0579	-	Rel-12	F	RP-150343	R5-150684	approved	Addition of CA_5A-30A to Clause 6.2.3.2 of TS 36.508.	12.4.1	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.508	0580	-	Rel-12	F	RP-150342	R5-150722	approved	Addition of Signalling test frequencies to 36.508 for CA_5A-25A and CA_12A-25A	12.4.1	12.5.0	R5	LTE_CA_Rel12-UEConTest
36.508	0581	-	Rel-12	F	RP-150343	R5-150743	approved	Correction to CA_18A-28A SIG test frequency in 36.508	12.4.1	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.508	0582	-	Rel-12	F	RP-150342	R5-150859	approved	Addition of test frequency table for Band 23B to 36.508	12.4.1	12.5.0	R5	LTE_CA_Rel12-UEConTest
36.508	0583	-	Rel-12	F	RP-150343	R5-150864	approved	Addition of test frequencies for CA_18A-28A in 36.508	12.4.1	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.508	0584	-	Rel-12	F	RP-150343	R5-150895	approved	Addition of 3DL Intra-band Contiguous and Non-contiguous Test Frequencies	12.4.1	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.508	0585	-	Rel-12	F	RP-150342	R5-150896	approved	Addition of further test frequencies for Intra-band Non-contiguous 2DL CA	12.4.1	12.5.0	R5	LTE_CA_Rel12-UEConTest
36.508	0586	-	Rel-12	F	RP-150343	R5-150912	approved	Update of SCC configuration for 3DL CA RF/RRM tests	12.4.1	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.521-1	1744	-	Rel-12	F	RP-150343	R5-150112	approved	Addition of CA_2-30 to Clause 5.2A of TS 36.521-1.	12.4.0	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.521-1	1745	-	Rel-12	F	RP-150343	R5-150135	approved	Addition of CA_5-30 to Clause 5.2A of TS 36.521-1.	12.4.0	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.521-1	1746	-	Rel-12	F	RP-150343	R5-150136	approved	Addition of CA_5A-30A to Clause 5.4.2A of TS 36.521-1.	12.4.0	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.521-1	1747	-	Rel-12	F	RP-150343	R5-150169	approved	Addition of CA_4A-5A-30A to Clause 5.4.2A of TS 36.521-1.	12.4.0	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.521-1	1748	-	Rel-12	F	RP-150341	R5-150181	approved	Addition of new TC 9.3.6.1_F.2 FDD CQI Reporting under fading conditions with Three CSI processes for CoMP	12.4.0	12.5.0	R5	TEI11_Test
36.521-1	1749	-	Rel-12	F	RP-150341	R5-150184	approved	Addition of new TC 9.3.6.2_F.2 TDD CQI Reporting under fading conditions with Three CSI processes for CoMP	12.4.0	12.5.0	R5	TEI11_Test
36.521-1	1750	-	Rel-12	F	RP-150323	R5-150209	approved	Corrections to 1 PRB allocation performance in presence of MBSF	12.4.0	12.5.0	R5	TEI8_Test

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36.521-1	1751	-	Rel-12	F	RP-150327	R5-150210	approved	Corrections to the Common Test Parameters for User-specific Reference Symbols	12.4.0	12.5.0	R5	TEI10_Test
36.521-1	1752	-	Rel-12	F	RP-150341	R5-150214	approved	Test Tolerances for 8.3.1.2.1_D_1 FDD PDSCH Dual-layer Spatial Multiplexing for eDL-MIMO Rel-11	12.4.0	12.5.0	R5	TEI11_Test
36.521-1	1753	-	Rel-12	F	RP-150341	R5-150215	approved	Test Tolerances for 8.3.2.2.1_D_1 TDD PDSCH Dual-layer Spatial Multiplexing for eDL-MIMO Rel-11	12.4.0	12.5.0	R5	TEI11_Test
36.521-1	1754	-	Rel-12	F	RP-150341	R5-150216	approved	Uncertainties and Test Tolerances to Annex F for PDSCH for eDL-MIMO Rel-11	12.4.0	12.5.0	R5	TEI11_Test
36.521-1	1755	-	Rel-12	F	RP-150327	R5-150234	approved	CA RF: Corrections to power imbalance test	12.4.0	12.5.0	R5	TEI10_Test
36.521-1	1756	-	Rel-12	F	RP-150341	R5-150252	approved	Update of non-contiguous CA Rx Test Cases	12.4.0	12.5.0	R5	TEI11_Test
36.521-1	1757	-	Rel-12	F	RP-150341	R5-150364	approved	ePDCCH RF: Corrections to sustained data rate test	12.4.0	12.5.0	R5	TEI11_Test
36.521-1	1758	-	Rel-12	F	RP-150342	R5-150373	approved	Introduction of new CA band combinations 5+25 and 12+25 for Transmitter Characteristics	12.4.0	12.5.0	R5	LTE_CA_Rel12-UEConTest
36.521-1	1759	-	Rel-12	F	RP-150323	R5-150409	approved	Correction in cl.3 of 36.521-1	12.4.0	12.5.0	R5	TEI8_Test
36.521-1	1760	-	Rel-12	F	RP-150327	R5-150415	approved	Correction to message exceptions for eICIC performance test cases	12.4.0	12.5.0	R5	TEI10_Test
36.521-1	1761	-	Rel-12	F	RP-150327	R5-150416	approved	Clean up on Performance and CSI test cases for eICIC and feICIC	12.4.0	12.5.0	R5	TEI10_Test
36.521-1	1762	-	Rel-12	F	RP-150341	R5-150417	approved	Correction to test procedure in CQI Reporting under AWGN for feICIC	12.4.0	12.5.0	R5	TEI11_Test
36.521-1	1763	-	Rel-12	F	RP-150341	R5-150420	approved	Correction to minimum test time for feICIC performance tests in G.3A.5	12.4.0	12.5.0	R5	TEI11_Test
36.521-1	1764	-	Rel-12	F	RP-150342	R5-150437	approved	New CA band combination CA_1A-28A - Updates of 5.2A Operating bands	12.4.0	12.5.0	R5	LTE_CA_Rel12-UEConTest
36.521-1	1765	-	Rel-12	F	RP-150342	R5-150438	approved	New CA band combination CA_1A-28A - Updates of 5.4.2A Channel bandwidth	12.4.0	12.5.0	R5	LTE_CA_Rel12-UEConTest
36.521-1	1766	-	Rel-12	F	RP-150342	R5-150440	approved	New CA band combination CA_1A-28A - Updates of 6.2.5.3 Delta TIB	12.4.0	12.5.0	R5	LTE_CA_Rel12-UEConTest
36.521-1	1767	-	Rel-12	F	RP-150342	R5-150441	approved	New CA band combination CA_1A-28A - Updates of 7.3.3 Delta RIB	12.4.0	12.5.0	R5	LTE_CA_Rel12-UEConTest
36.521-1	1768	-	Rel-12	F	RP-150343	R5-150452	approved	New CA band combination CA_1A-18A-28A - Updates of 5.4.2A Channel bandwidth	12.4.0	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.521-1	1769	-	Rel-12	F	RP-150343	R5-150453	approved	New CA band combinations (CA_1A-41A, CA_1A-41C) - Updates of 5.2A Operating bands	12.4.0	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.521-1	1770	-	Rel-12	F	RP-150343	R5-150455	approved	New CA band combinations (CA_26A-41A, CA_26A-41C) - Updates of 5.2A Operating bands	12.4.0	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.521-1	1771	-	Rel-12	F	RP-150343	R5-150456	approved	New CA band combination CA_1A-18A-28A - Updates of 5.2A Operating bands	12.4.0	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.521-1	1772	-	Rel-12	F	RP-150343	R5-150460	approved	Correction to the description of duplex mode related to CA_18A-28A	12.4.0	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.521-1	1773	-	Rel-12	F	RP-150343	R5-150461	approved	Correction to the test frequencies and test CC combinations for CA_18A-28A	12.4.0	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.521-1	1774	-	Rel-12	F	RP-150342	R5-150472	approved	Correction to requirements for test case 7.6.2A.1 and 7.6.2A.2	12.4.0	12.5.0	R5	LTE_CA_Rel12-UEConTest
36.521-1	1775	-	Rel-12	F	RP-150327	R5-150476	approved	Removal of Note 1 in requirements of TC 6.2.2A	12.4.0	12.5.0	R5	TEI10_Test
36.521-1	1776	-	Rel-12	F	RP-150327	R5-150478	approved	Addition of &#916:RIB,c to requirements of blocking and spurios response test cases	12.4.0	12.5.0	R5	TEI10_Test

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36.521-1	1777	-	Rel-12	F	RP-150327	R5-150479	approved	Correction to PUSCH configuration details for 36.521-1 4x2 CA test cases	12.4.0	12.5.0	R5	TEI10_Test
36.521-1	1778	-	Rel-12	F	RP-150342	R5-150505	approved	Added TT in annex for TDD inter band CA performance tests	12.4.0	12.5.0	R5	LTE_CA_Rel12-UEConTest
36.521-1	1779	-	Rel-12	F	RP-150342	R5-150506	approved	Updated TT in TDD inter band CA performance tests	12.4.0	12.5.0	R5	LTE_CA_Rel12-UEConTest
36.521-1	1780	-	Rel-12	F	RP-150343	R5-150522	approved	Addition of CA_1A-20A to TS 36.521-1	12.4.0	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.521-1	1781	-	Rel-12	F	RP-150342	R5-150543	approved	Addition of 2A-12A and 5A-13A 2DL Interband CA to 36.521-1	12.4.0	12.5.0	R5	LTE_CA_Rel12-UEConTest
36.521-1	1782	-	Rel-12	F	RP-150323	R5-150606	approved	Clarification on bandwidth to be tested	12.4.0	12.5.0	R5	TEI8_Test
36.521-1	1783	-	Rel-12	F	RP-150323	R5-150800	approved	Correction to 6.6.3.2 of Tx Spurious	12.4.0	12.5.0	R5	TEI8_Test
36.521-1	1784	-	Rel-12	F	RP-150327	R5-150801	approved	Correction in 6.2.5A and 6.5.1A of 36.521-1	12.4.0	12.5.0	R5	TEI10_Test
36.521-1	1785	-	Rel-12	F	RP-150327	R5-150802	approved	Fixing numbering in Table 6.6.2.3A.1.4.1-1	12.4.0	12.5.0	R5	TEI10_Test
36.521-1	1786	-	Rel-12	F	RP-150323	R5-150803	approved	Change of test points for A-MPR in band 26	12.4.0	12.5.0	R5	TEI8_Test
36.521-1	1787	-	Rel-12	F	RP-150342	R5-150809	approved	Addition of BCS1 to 25A-25A CA	12.4.0	12.5.0	R5	LTE_CA_Rel12-UEConTest
36.521-1	1788	-	Rel-12	F	RP-150342	R5-150810	approved	Introduction of CA_1A-7A to TS 36.521-1	12.4.0	12.5.0	R5	LTE_CA_Rel12-UEConTest
36.521-1	1789	-	Rel-12	F	RP-150342	R5-150811	approved	Correction to test points for intra-band contiguous receiver test cases	12.4.0	12.5.0	R5	LTE_CA_Rel12-UEConTest
36.521-1	1790	-	Rel-12	F	RP-150343	R5-150816	approved	Addition of CA_2A-30A to Clause 7.3.3 of TS 36.521-1.	12.4.0	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.521-1	1791	-	Rel-12	F	RP-150343	R5-150817	approved	Addition of CA_2A-30A to Clause 6.2.5 of TS 36.521-1.	12.4.0	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.521-1	1792	-	Rel-12	F	RP-150343	R5-150818	approved	Addition of CA_2A-30A to Clause 5.4.2A of TS 36.521-1.	12.4.0	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.521-1	1793	-	Rel-12	F	RP-150343	R5-150819	approved	Addition of CA_4A-30A to Clause 7.3.3 of TS 36.521-1.	12.4.0	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.521-1	1794	-	Rel-12	F	RP-150343	R5-150820	approved	Addition of CA_4A-30A to Clause 6.2.5 of TS 36.521-1.	12.4.0	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.521-1	1795	-	Rel-12	F	RP-150343	R5-150821	approved	Addition of CA_4-30 to Clause 5.2A of TS 36.521-1.	12.4.0	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.521-1	1796	-	Rel-12	F	RP-150343	R5-150822	approved	Addition of CA_4A-30A to Clause 5.4.2A of TS 36.521-1.	12.4.0	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.521-1	1797	-	Rel-12	F	RP-150343	R5-150823	approved	Addition of CA_5A-30A to Clause 7.3.3 of TS 36.521-1.	12.4.0	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.521-1	1798	-	Rel-12	F	RP-150343	R5-150824	approved	Addition of CA_5A-30A to Clause 6.2.5 of TS 36.521-1.	12.4.0	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.521-1	1799	-	Rel-12	F	RP-150343	R5-150825	approved	Addition of CA_4-5-30 to Clause 5.2A of TS 36.521-1.	12.4.0	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.521-1	1800	-	Rel-12	F	RP-150343	R5-150826	approved	Addition of new TC FDD PDSCH Single Antenna Port Performance for CA (3DL CA)	12.4.0	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.521-1	1801	-	Rel-12	F	RP-150343	R5-150827	approved	Addition of CA_2A-2A-13A to TS 36.521-1	12.4.0	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.521-1	1802	-	Rel-12	F	RP-150343	R5-150828	approved	Addition of 40D,41D,41C-41A and 25A-25A BCS1 to Channel BW for CA tables	12.4.0	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.521-1	1803	-	Rel-12	F	RP-150343	R5-150829	approved	Addition of multiple interband 3DL CA Combinations to Channel BW for CA tables	12.4.0	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.521-1	1804	-	Rel-12	F	RP-150341	R5-150848	approved	Addition of new TC 9.3.6.1_F.1 FDD CQI Reporting under fading conditions with Single CSI process for CoMP	12.4.0	12.5.0	R5	TEI11_Test

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36.521-1	1805	-	Rel-12	F	RP-150341	R5-150849	approved	Addition of new TC 9.3.6.1_F.3 FDD CQI Reporting under fading conditions with Four CSI processes for CoMP	12.4.0	12.5.0	R5	TEI11_Test
36.521-1	1806	-	Rel-12	F	RP-150341	R5-150850	approved	Addition of new TC 9.3.6.2_F.1 TDD CQI Reporting under fading conditions with Single CSI process for CoMP	12.4.0	12.5.0	R5	TEI11_Test
36.521-1	1807	-	Rel-12	F	RP-150341	R5-150851	approved	Addition of new TC 9.3.6.2_F.3 TDD CQI Reporting under fading conditions with Four CSI processes for CoMP	12.4.0	12.5.0	R5	TEI11_Test
36.521-1	1808	-	Rel-12	F	RP-150342	R5-150860	approved	Introduction of new CA band combinations 5+25 and 12+25 for Receiver Characteristics	12.4.0	12.5.0	R5	LTE_CA_Rel12-UEConTest
36.521-1	1809	-	Rel-12	F	RP-150343	R5-150861	approved	Addition of CA_1A-7A-20A to TS 36.521-1	12.4.0	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.521-1	1810	-	Rel-12	F	RP-150343	R5-150862	approved	Update of minimum requirements for TC 6.2.5 Configured UE transmitted Output Power	12.4.0	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.521-1	1811	-	Rel-12	F	RP-150343	R5-150863	approved	Updates of minimum requirement to reference sensitivity for CA	12.4.0	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.521-1	1812	-	Rel-12	F	RP-150343	R5-150865	approved	Addition of new TC TDD PDSCH Single Antenna Port Performance for CA (3DL CA)	12.4.0	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.521-1	1813	-	Rel-12	F	RP-150343	R5-150866	approved	Addition of new TC FDD Sustained data rate performance for CA (3DL CA)	12.4.0	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.521-1	1814	-	Rel-12	F	RP-150343	R5-150867	approved	Addition of new TC TDD Sustained data rate performance for CA (3DL CA)	12.4.0	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.521-1	1815	-	Rel-12	F	RP-150343	R5-150870	approved	New CA band combinations (CA_1A-41A, CA_1A-41C) - Updates of 5.4.2A Channel bandwidth	12.4.0	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.521-1	1816	-	Rel-12	F	RP-150343	R5-150871	approved	New CA band combinations (CA_26A-41A, CA_26A-41C) - Updates of 5.4.2A Channel bandwidth	12.4.0	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.521-1	1817	-	Rel-12	F	RP-150327	R5-150935	approved	Change in UE co-existence 6.6.3.2 harmonic emissions exceptions	12.4.0	12.5.0	R5	TEI10_Test
36.521-1	1818	-	Rel-12	F	RP-150327	R5-150874	approved	CA RF: Updates to in-band emissions requirements	12.4.0	12.5.0	R5	TEI10_Test
36.521-1	1819	-	Rel-12	F	RP-150345	R5-150875	approved	Correction to test procedure of TC 7.6.1A.4	12.4.0	12.5.0	R5	TEI12_Test
36.521-1	1820	-	Rel-12	F	RP-150327	R5-150880	approved	Update of CA sustained data rate tests	12.4.0	12.5.0	R5	TEI10_Test
36.521-1	1821	-	Rel-12	F	RP-150327	R5-150881	approved	Aligning Bandwidth Combination Sets with latest core specification	12.4.0	12.5.0	R5	TEI10_Test
36.521-1	1822	-	Rel-12	F	RP-150341	R5-150892	approved	Update to TC 7.5A.4 Adjacent Channel Selectivity (ACS) for CA (intra-band non-contiguous DL CA without UL CA)	12.4.0	12.5.0	R5	TEI11_Test
36.521-1	1823	-	Rel-12	F	RP-150342	R5-150897	approved	New CA band combination CA_1A-28A - Updates of 7.3A Refsens	12.4.0	12.5.0	R5	LTE_CA_Rel12-UEConTest
36.521-1	1824	-	Rel-12	F	RP-150323	R5-150928	approved	Updates to Spurious emission band UE co-existence test case 6.6.3.2	12.4.0	12.5.0	R5	TEI8_Test
36.521-1	1825	-	Rel-12	F	RP-150327	R5-150906	approved	Updates to FDD and TDD RI Reporting test cases for CoMP	12.4.0	12.5.0	R5	TEI10_Test
36.521-1	1827	-	Rel-12	F	RP-150327	R5-150929	approved	Addition of CA capability in Rx tests	12.4.0	12.5.0	R5	TEI10_Test
36.521-1	1828	-	Rel-12	F	RP-150327	R5-150927	approved	Addition of Multi-Cluster PUSCH with One Uplink Carrier test cases to 36.521-1	12.4.0	12.5.0	R5	TEI10_Test
36.521-1	1829	-	Rel-12	F	RP-150327	R5-150915	approved	Addition of CA capability and applicability changes to Section 8 36.521-1 FDD TM3 CA test cases	12.4.0	12.5.0	R5	TEI10_Test
36.521-1	1830	-	Rel-12	F	RP-150327	R5-150916	approved	Changes to Annex F of 36.521-1 related to CA capability and applicability changes to FDD CA test cases	12.4.0	12.5.0	R5	TEI10_Test
36.521-1	1831	-	Rel-12	F	RP-150327	R5-150917	approved	Correction to CA applicability and test rules	12.4.0	12.5.0	R5	TEI10_Test

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36.521-1	1832	-	Rel-12	F	RP-150327	R5-150918	approved	Addition of CA capability and applicability changes to 36.521-1 FDD TM1 CA test cases	12.4.0	12.5.0	R5	TEI10_Test
36.521-1	1833	-	Rel-12	F	RP-150327	R5-150919	approved	Update to LTE CA Sustained Data rate test cases	12.4.0	12.5.0	R5	TEI10_Test
36.521-1	1834	-	Rel-12	F	RP-150327	R5-150920	approved	CA demod Soft Buffer test case variants merge	12.4.0	12.5.0	R5	TEI10_Test
36.521-1	1835	-	Rel-12	F	RP-150327	R5-150921	approved	Addition of CA capability and applicability changes to Section 8 36.521-1 FDD TM4 CA test cases	12.4.0	12.5.0	R5	TEI10_Test
36.521-1	1836	-	Rel-12	F	RP-150327	R5-150922	approved	Addition of CA capability and applicability changes to FDD chap9 CA test cases	12.4.0	12.5.0	R5	TEI10_Test
36.521-1	1837	-	Rel-12	F	RP-150343	R5-150925	approved	Introduction of Test Case for Maximum input level for 3DL CA	12.4.0	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.521-1	1838	-	Rel-12	F	RP-150343	R5-150926	approved	Addition of new TC of reference sensitivity for 3DL CA	12.4.0	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.521-1	1839	-	Rel-12	F	RP-150343	R5-150869	approved	Addition of Cell IDs for 3DL CA Rx tests	12.4.0	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.521-1	1840	-	Rel-12	F	RP-150341	R5-150186	approved	Addition of TT for new TCs 9.3.6.1_F.1, 9.3.6.1_F.2, 9.3.6.1_F.3, 9.3.6.2_F.1, 9.3.6.2_F.2 and 9.3.6.2_F.3	12.4.0	12.5.0	R5	TEI11_Test
36.521-2	0221	-	Rel-12	F	RP-150342	R5-150298	approved	Introduction of CA_1A-7A to TS 36.521-2	12.4.0	12.5.0	R5	LTE_CA_Rel12-UEConTest
36.521-2	0222	-	Rel-12	F	RP-150323	R5-150304	approved	Corrections to title of RRM test case 8.7.1 in applicability table	12.4.0	12.5.0	R5	TEI8_Test
36.521-2	0223	-	Rel-12	F	RP-150328	R5-150365	approved	CA: Corrections to CA capability tables	12.4.0	12.5.0	R5	TEI10_Test
36.521-2	0224	-	Rel-12	F	RP-150342	R5-150374	approved	Introduction of RF applicability for CA band combinations 5+25 and 12+25	12.4.0	12.5.0	R5	LTE_CA_Rel12-UEConTest
36.521-2	0225	-	Rel-12	F	RP-150342	R5-150444	approved	New CA band combination CA_1A-28A - Updates of Table A.4.6.3-3	12.4.0	12.5.0	R5	LTE_CA_Rel12-UEConTest
36.521-2	0226	-	Rel-12	F	RP-150343	R5-150524	approved	Addition of CA_1A-20A to TS 36.521-2	12.4.0	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.521-2	0227	-	Rel-12	F	RP-150342	R5-150546	approved	Addition of 2A-12A and 5A-13A 2DL Interband CA to 36.521-2	12.4.0	12.5.0	R5	LTE_CA_Rel12-UEConTest
36.521-2	0228	-	Rel-12	F	RP-150328	R5-150558	approved	Applicability conditions added to TCs 9.1.12.x and 9.2.11.x	12.4.0	12.5.0	R5	TEI10_Test
36.521-2	0229	-	Rel-12	F	RP-150343	R5-150564	approved	Addition of CA_2A-2A-13A to TS 36.521-2	12.4.0	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.521-2	0230	-	Rel-12	F	RP-150323	R5-150805	approved	Update of FGI definitions in TS 36.521-2	12.4.0	12.5.0	R5	TEI8_Test
36.521-2	0231	-	Rel-12	F	RP-150343	R5-150830	approved	Addition of CA_2-30 to Annex A.4.6 of TS 36.521-2.	12.4.0	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.521-2	0232	-	Rel-12	F	RP-150343	R5-150831	approved	Addition of CA_4-30 to Annex A.4.6 of TS 36.521-2.	12.4.0	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.521-2	0233	-	Rel-12	F	RP-150343	R5-150832	approved	Addition of CA_5-30 to Annex A.4.6 of TS 36.521-2.	12.4.0	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.521-2	0234	-	Rel-12	F	RP-150341	R5-150858	approved	Update of applicability statements for CoMP - TCs being split	12.4.0	12.5.0	R5	TEI11_Test
36.521-2	0235	-	Rel-12	F	RP-150343	R5-150872	approved	Addition of applicability for 3DL CA test cases	12.4.0	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.521-2	0236	-	Rel-12	F	RP-150342	R5-150876	approved	Addition of applicability for CA_39C in TS36.521-2	12.4.0	12.5.0	R5	LTE_CA_Rel12-UEConTest
36.521-2	0238	-	Rel-12	F	RP-150345	R5-150882	approved	Addition of applicability for newly added 20MHz+10MHz RRM test cases	12.4.0	12.5.0	R5	TEI12_Test
36.521-2	0239	-	Rel-12	F	RP-150345	R5-150883	approved	Addition of applicability for newly added RSRP accuracy RRM test cases	12.4.0	12.5.0	R5	TEI12_Test
36.521-2	0240	-	Rel-12	F	RP-150343	R5-150904	approved	Addition of a new table for Supported CA configurations for Inter-band CA (three bands)	12.4.0	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest

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36.521-2	0241	-	Rel-12	F	RP-150328	R5-150914	approved	Addition of applicability for Multi-Cluster PUSCH with One Uplink Carrier test cases	12.4.0	12.5.0	R5	TEI10_Test
36.521-2	0242	-	Rel-12	F	RP-150328	R5-150923	approved	CA demod test case variants merge in 36.521-2	12.4.0	12.5.0	R5	TEI10_Test
36.521-3	1043	-	Rel-12	F	RP-150341	R5-150213	approved	Corrections to multicarrier handover from E-UTRA to UTRA requirements	12.4.1	12.5.0	R5	TEI11_Test
36.521-3	1044	-	Rel-12	F	RP-150323	R5-150218	approved	Test Tolerances for 4.3.1.3 E-UTRAN FDD - UTRAN FDD cell re-selection	12.4.1	12.5.0	R5	TEI8_Test
36.521-3	1045	-	Rel-12	F	RP-150323	R5-150220	approved	Test Tolerance for 4.3.4.3 EUTRA TDD-UTRA TDD cell reselection	12.4.1	12.5.0	R5	TEI8_Test
36.521-3	1046	-	Rel-12	F	RP-150323	R5-150222	approved	Test Tolerances for 8.5.2 E-UTRAN FDD - UTRAN FDD SON ANR cell search reporting	12.4.1	12.5.0	R5	TEI8_Test
36.521-3	1047	-	Rel-12	F	RP-150323	R5-150224	approved	Test Tolerances for 8.7.3 E-UTRAN TDD - UTRAN TDD SON ANR cell search reporting	12.4.1	12.5.0	R5	TEI8_Test
36.521-3	1048	-	Rel-12	F	RP-150323	R5-150226	approved	Test Tolerances for 8.9.1 E-UTRAN FDD - UTRAN TDD event triggered reporting	12.4.1	12.5.0	R5	TEI8_Test
36.521-3	1049	-	Rel-12	F	RP-150323	R5-150228	approved	Test Tolernaces for 8.8.1+8.10.1 E-UTRAN - GSM event triggered reporting	12.4.1	12.5.0	R5	TEI8_Test
36.521-3	1050	-	Rel-12	F	RP-150323	R5-150230	approved	Test Tolerances for 8.8.2+8.10.2 E-UTRAN - GSM event triggered reporting when DRX is used	12.4.1	12.5.0	R5	TEI8_Test
36.521-3	1051	-	Rel-12	F	RP-150323	R5-150232	approved	Uncertainties to Annex F for RRM test cases	12.4.1	12.5.0	R5	TEI8_Test
36.521-3	1052	-	Rel-12	F	RP-150323	R5-150242	approved	Update Uncertainties for Test case 5.1.5	12.4.1	12.5.0	R5	TEI8_Test
36.521-3	1053	-	Rel-12	F	RP-150323	R5-150244	approved	Update Uncertainties for Test case 5.1.6	12.4.1	12.5.0	R5	TEI8_Test
36.521-3	1054	-	Rel-12	F	RP-150323	R5-150246	approved	Update Uncertainties for Test case 5.2.3, 5.2.6	12.4.1	12.5.0	R5	TEI8_Test
36.521-3	1055	-	Rel-12	F	RP-150343	R5-150256	approved	Introduction of Test Cases for RSRQ Accuracy for TDD-FDD CA	12.4.0	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.521-3	1056	-	Rel-12	F	RP-150345	R5-150306	approved	Uncerts and Test Tols for TCs 8.16.11+8.16.12 36.521-3 CR	12.4.1	12.5.0	R5	TEI12_Test
36.521-3	1057	-	Rel-12	F	RP-150345	R5-150310	approved	Uncerts and Test Tols for TCs 8.16.15+8.16.16 36.521-3 CR	12.4.1	12.5.0	R5	TEI12_Test
36.521-3	1058	-	Rel-12	F	RP-150345	R5-150314	approved	Uncerts and Test Tols for TCs 9.1.18.2+9.1.19.2 36.521-3 CR	12.4.1	12.5.0	R5	TEI12_Test
36.521-3	1059	-	Rel-12	F	RP-150345	R5-150316	approved	Uncerts and Test Tols for TCs 9.1.20.1+9.1.21.1 36.521-3 CR	12.4.1	12.5.0	R5	TEI12_Test
36.521-3	1060	-	Rel-12	F	RP-150345	R5-150318	approved	Uncerts and Test Tols for TCs 9.1.20.2+9.1.21.2 36.521-3 CR	12.4.1	12.5.0	R5	TEI12_Test
36.521-3	1061	-	Rel-12	F	RP-150328	R5-150320	approved	RRM: Corrections to event triggered tests without measurement gap	12.4.1	12.5.0	R5	TEI10_Test
36.521-3	1062	-	Rel-12	F	RP-150345	R5-150324	approved	Uncerts and Test Tols for TCs 9.2.23.1+9.2.24.1 36.521-3 CR	12.4.1	12.5.0	R5	TEI12_Test
36.521-3	1063	-	Rel-12	F	RP-150345	R5-150327	approved	Uncerts and Test Tols for TCs 9.2.23.2+9.2.24.2 36.521-3 CR	12.4.1	12.5.0	R5	TEI12_Test
36.521-3	1064	-	Rel-12	F	RP-150345	R5-150328	approved	Correction to RRM TCs 9.1.6.2 and 9.1.7.2	12.4.1	12.5.0	R5	TEI12_Test
36.521-3	1065	-	Rel-12	F	RP-150345	R5-150361	approved	Addition of cell mapping for some test cases	12.4.1	12.5.0	R5	TEI12_Test
36.521-3	1066	-	Rel-12	F	RP-150328	R5-150381	approved	Update of Annex E and F for TCs 9.1.12 and 9.2.11	12.4.1	12.5.0	R5	TEI10_Test
36.521-3	1067	-	Rel-12	F	RP-150328	R5-150390	approved	Correction to test procedure for LTE CA event reporting test case	12.4.1	12.5.0	R5	TEI10_Test
36.521-3	1068	-	Rel-12	F	RP-150328	R5-150421	approved	Correction to message exceptions in eICIC MBSFN ABS	12.4.1	12.5.0	R5	TEI10_Test
36.521-3	1069	-	Rel-12	F	RP-150341	R5-150423	approved	Correction to feICIC common exceptions in AnnexH	12.4.1	12.5.0	R5	TEI11_Test
36.521-3	1070	-	Rel-12	F	RP-150341	R5-150424	approved	Clean up on cl.7 and cl.8 feICIC RRM test cases	12.4.1	12.5.0	R5	TEI11_Test
36.521-3	1071	-	Rel-12	F	RP-150341	R5-150425	approved	Clean up on cl.9 feICIC RRM test cases	12.4.1	12.5.0	R5	TEI11_Test
36.521-3	1072	-	Rel-12	F	RP-150328	R5-150517	approved	Error correction to TDD Absolute RSRQ Accuracy for E-UTRA Carrier Aggregation	12.4.1	12.5.0	R5	TEI10_Test
36.521-3	1073	-	Rel-12	F	RP-150345	R5-150523	approved	Cell configuration mapping for Rel 12 and forward absolute RSRP accuracy RRM cases	12.4.1	12.5.0	R5	TEI12_Test

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36.521-3	1074	-	Rel-12	F	RP-150323	R5-150526	approved	Update R8 intra frequency absolute RSRP accuracy requirements	12.4.1	12.5.0	R5	TEI8_Test
36.521-3	1075	-	Rel-12	F	RP-150323	R5-150527	approved	Update R8 inter frequency absolute RSRP accuracy requirements	12.4.1	12.5.0	R5	TEI8_Test
36.521-3	1076	-	Rel-12	F	RP-150326	R5-150529	approved	Update R9 inter frequency absolute RSRP accuracy requirements	12.4.1	12.5.0	R5	TEI9_Test
36.521-3	1077	-	Rel-12	F	RP-150328	R5-150530	approved	Update R10 intra frequency absolute RSRP accuracy requirements	12.4.1	12.5.0	R5	TEI10_Test
36.521-3	1078	-	Rel-12	F	RP-150328	R5-150531	approved	Update TDD RSRP Accuracy requirements for Carrier Aggregation	12.4.1	12.5.0	R5	TEI10_Test
36.521-3	1079	-	Rel-12	F	RP-150345	R5-150806	approved	New TCs: intra frequency absolute RSRP accuracy requirements	12.4.1	12.5.0	R5	TEI12_Test
36.521-3	1080	-	Rel-12	F	RP-150345	R5-150807	approved	New TCs: inter frequency absolute RSRP accuracy requirements	12.4.1	12.5.0	R5	TEI12_Test
36.521-3	1081	-	Rel-12	F	RP-150345	R5-150808	approved	New TCs: RSRP absolute accuracy for E-UTRA CA	12.4.1	12.5.0	R5	TEI12_Test
36.521-3	1082	-	Rel-12	F	RP-150345	R5-150812	approved	New TC: E-UTRAN TDD event triggered reporting under deactivated SCell in non-DRX for 20MHz+10MHz	12.4.1	12.5.0	R5	TEI12_Test
36.521-3	1083	-	Rel-12	F	RP-150345	R5-150813	approved	New TC: E-UTRAN TDD event triggered reporting on deactivated SCell with PCell interruption in non-DRX for 20MHz+10MHz bandwidth	12.4.1	12.5.0	R5	TEI12_Test
36.521-3	1084	-	Rel-12	F	RP-150345	R5-150814	approved	New TC: TDD RSRP Accuracy for E-UTRAN Carrier Aggregation for 20MHz + 10MHz	12.4.1	12.5.0	R5	TEI12_Test
36.521-3	1085	-	Rel-12	F	RP-150345	R5-150815	approved	New TC: TDD RSRQ Accuracy for E-UTRAN Carrier Aggregation for 20MHz + 10MHz	12.4.1	12.5.0	R5	TEI12_Test
36.521-3	1086	-	Rel-12	F	RP-150328	R5-150841	approved	Corrections to on time to identify the target UTRA TDD cell for blind redirection	12.4.1	12.5.0	R5	TEI10_Test
36.521-3	1087	-	Rel-12	F	RP-150328	R5-150842	approved	Update of TCs 9.1.12 for FDD RSRP Accuracy for CA 20MHz	12.4.1	12.5.0	R5	TEI10_Test
36.521-3	1088	-	Rel-12	F	RP-150328	R5-150843	approved	Update TCs 9.2.11 for FDD RSRQ Accuracy for CA 20MHz	12.4.1	12.5.0	R5	TEI10_Test
36.521-3	1089	-	Rel-12	F	RP-150328	R5-150844	approved	Correction to eICIC Radio link monitoring test cases	12.4.1	12.5.0	R5	TEI10_Test
36.521-3	1090	-	Rel-12	F	RP-150328	R5-150845	approved	Clean up on cl.7 and cl.9 eICIC RRM test cases	12.4.1	12.5.0	R5	TEI10_Test
36.521-3	1092	-	Rel-12	F	RP-150345	R5-150847	approved	Update R11 RSRP Accuracy for E-UTRA Carrier Aggregation for 10MHz+5MHz	12.4.1	12.5.0	R5	TEI12_Test
36.521-3	1093	-	Rel-12	F	RP-150345	R5-150852	approved	Uncerts and Test Tols for TCs 8.16.13+8.16.14 36.521-3 CR	12.4.1	12.5.0	R5	TEI12_Test
36.521-3	1094	-	Rel-12	F	RP-150345	R5-150856	approved	Uncerts and Test Tols for TCs 8.16.9+8.16.10 36.521-3 CR	12.4.1	12.5.0	R5	TEI12_Test
36.521-3	1095	-	Rel-12	F	RP-150345	R5-150884	approved	Cell configuration mapping for 20MHz +10MHz CA RRM new cases	12.4.1	12.5.0	R5	TEI12_Test
36.521-3	1096	-	Rel-12	F	RP-150328	R5-150885	approved	Editorial correction to 8.14.2 and 8.15.2	12.4.1	12.5.0	R5	TEI10_Test
36.521-3	1097	-	Rel-12	F	RP-150323	R5-150886	approved	Corrections to RRM test cases in clauses 5 and 8	12.4.1	12.5.0	R5	TEI8_Test
36.521-3	1098	-	Rel-12	F	RP-150345	R5-150887	approved	Uncerts and Test Tols for TCs 9.1.18.1+9.1.19.1 36.521-3 CR	12.4.1	12.5.0	R5	TEI12_Test
36.521-3	1099	-	Rel-12	F	RP-150328	R5-150901	approved	CA RRM: Correction to test frequencies and Cell-IDs	12.4.1	12.5.0	R5	TEI10_Test
36.521-3	1100	-	Rel-12	F	RP-150328	R5-150902	approved	Addition of CA capability in RRM tests	12.4.1	12.5.0	R5	TEI10_Test
36.521-3	1101	-	Rel-12	F	RP-150341	R5-150903	approved	feICIC RRM: Corrections to Cell-IDs	12.4.1	12.5.0	R5	TEI11_Test
36.521-3	1102	-	Rel-12	F	RP-150323	R5-150930	approved	RRM: Consideration of unsent measurement reports	12.4.1	12.5.0	R5	TEI8_Test
36.521-3	1103	-	Rel-12	F	RP-150328	R5-150908	approved	Updates of test procedures in activation and deactivation test cases	12.4.1	12.5.0	R5	TEI10_test
36.521-3	1104	-	Rel-12	F	RP-150323	R5-150857	approved	RRM: Inter-frequency testing for Band 30	12.4.1	12.5.0	R5	TEI8_Test
36.523-1	2839	-	Rel-12	F	RP-150324	R5-150062	approved	Correction of Idle mode test case 6.1.1.2	12.4.0	12.5.0	R5	TEI8_Test

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36.523-1	2840	-	Rel-12	F	RP-150324	R5-150063	approved	Correction of Idle mode test case 6.1.1.9	12.4.0	12.5.0	R5	TEI8_Test
36.523-1	2841	-	Rel-12	F	RP-150329	R5-150068	approved	Forgotten removal of TC 6.3.12 from TS 36.523-1	12.4.0	12.5.0	R5	TEI10_Test
36.523-1	2842	-	Rel-12	F	RP-150341	R5-150089	approved	Correction to eMDT test case 8.6.4.5	12.4.0	12.5.0	R5	TEI11_Test
36.523-1	2843	-	Rel-12	F	RP-150341	R5-150090	approved	Correction to eMDT test case 8.6.6.6	12.4.0	12.5.0	R5	TEI11_Test
36.523-1	2844	-	Rel-12	F	RP-150326	R5-150100	approved	Correction to MFBI test case 6.1.2.20	12.4.0	12.5.0	R5	TEI9_Test
36.523-1	2845	-	Rel-12	F	RP-150341	R5-150101	approved	Correction to test case 6.2.4.3	12.4.0	12.5.0	R5	TEI11_Test
36.523-1	2846	-	Rel-12	F	RP-150329	R5-150151	approved	Update of Idle mode test case 6.2.3.35	12.4.0	12.5.0	R5	TEI10_Test
36.523-1	2847	-	Rel-12	F	RP-150345	R5-150270	approved	Correction of EUTRA<>UTRA bSRVCC Testcase 13.4.3.20	12.4.0	12.5.0	R5	TEI12_Test
36.523-1	2848	-	Rel-12	F	RP-150324	R5-150271	approved	Correction to GCF WI-082 EUTRA ESM test case 10.4.1	12.4.0	12.5.0	R5	TEI8_Test
36.523-1	2849	-	Rel-12	F	RP-150329	R5-150277	approved	Correction the parameter in TC 13.4.3.28	12.4.0	12.5.0	R5	TEI10_Test
36.523-1	2850	-	Rel-12	F	RP-150341	R5-150321	approved	Correction to CA intra band non-contiguous clause 7.1 rel-11 test cases	12.4.0	12.5.0	R5	TEI11_Test
36.523-1	2851	-	Rel-12	F	RP-150345	R5-150322	approved	Correction to CA intra band non-contiguous clause 7.1 rel-12 test cases	12.4.0	12.5.0	R5	TEI12_Test
36.523-1	2852	-	Rel-12	F	RP-150341	R5-150323	approved	Correction to CA intra band non-contiguous clause 8.2 rel-11 test cases	12.4.0	12.5.0	R5	TEI11_Test
36.523-1	2853	-	Rel-12	F	RP-150345	R5-150329	approved	Correction to CA intra band non-contiguous clause 8.2 rel-12 test cases	12.4.0	12.5.0	R5	TEI12_Test
36.523-1	2854	-	Rel-12	F	RP-150341	R5-150330	approved	Correction to CA intra band non-contiguous clause 8.3 rel-11 test cases	12.4.0	12.5.0	R5	TEI11_Test
36.523-1	2855	-	Rel-12	F	RP-150341	R5-150331	approved	Correction to CA intra band non-contiguous clause 8.4 rel-11 test cases	12.4.0	12.5.0	R5	TEI11_Test
36.523-1	2856	-	Rel-12	F	RP-150341	R5-150332	approved	Correction to CA intra band non-contiguous clause 8.5 rel-11 test cases	12.4.0	12.5.0	R5	TEI11_Test
36.523-1	2857	-	Rel-12	F	RP-150324	R5-150339	approved	Correction to ESM test case 10.4.2 test case	12.4.0	12.5.0	R5	TEI8_Test
36.523-1	2858	-	Rel-12	F	RP-150326	R5-150340	approved	Correction to IMS Emergency Call test case 11.2.4	12.4.0	12.5.0	R5	TEI9_Test
36.523-1	2859	-	Rel-12	F	RP-150326	R5-150341	approved	Correction to IMS Emergency Call test case 11.2.5	12.4.0	12.5.0	R5	TEI9_Test
36.523-1	2860	-	Rel-12	F	RP-150326	R5-150342	approved	Correction to IMS Emergency Call test case 11.2.8 and 11.2.8a	12.4.0	12.5.0	R5	TEI9_Test
36.523-1	2861	-	Rel-12	F	RP-150329	R5-150348	approved	Correction to LTE-A Carrier Aggregation test cases 8.2.4.23.x	12.4.0	12.5.0	R5	TEI10_Test
36.523-1	2862	-	Rel-12	F	RP-150329	R5-150362	approved	Updates to MDT test case 8.6.5.1	12.4.0	12.5.0	R5	TEI10_Test
36.523-1	2863	-	Rel-12	F	RP-150324	R5-150397	approved	Update of SRVCC test case 13.4.3.2	12.4.0	12.5.0	R5	TEI8_Test
36.523-1	2864	-	Rel-12	F	RP-150329	R5-150398	approved	Update of aSRVCC test case 13.4.3.14 and 13.4.3.16	12.4.0	12.5.0	R5	TEI10_Test
36.523-1	2865	-	Rel-12	F	RP-150345	R5-150399	approved	Update of bSRVCC test case 13.4.3.18	12.4.0	12.5.0	R5	TEI12_Test
36.523-1	2866	-	Rel-12	F	RP-150324	R5-150401	approved	Update of EMM test case 9.1.5.1	12.4.0	12.5.0	R5	TEI8_Test
36.523-1	2867	-	Rel-12	F	RP-150340	R5-150426	approved	New TC 13.4.3.31 Inter-system mobility / GERAN CS voice to E-UTRA voice / rSRVCC	12.4.0	12.5.0	R5	rSRVCC-UEConTest
36.523-1	2868	-	Rel-12	F	RP-150340	R5-150427	approved	New TC 13.4.3.33 Inter-system mobility / GERAN CS voice to E-UTRA voice / alerting / rSRVCC / MO call	12.4.0	12.5.0	R5	rSRVCC-UEConTest
36.523-1	2869	-	Rel-12	F	RP-150340	R5-150428	approved	New TC 13.4.3.35 Inter-system mobility / GERAN CS voice to E-UTRA voice / alerting / rSRVCC / MT call	12.4.0	12.5.0	R5	rSRVCC-UEConTest
36.523-1	2870	-	Rel-12	F	RP-150340	R5-150429	approved	New TC 13.4.3.37 Inter-system mobility / GERAN CS voice to E-UTRA voice / rSRVCC / HO cancelled	12.4.0	12.5.0	R5	rSRVCC-UEConTest
36.523-1	2871	-	Rel-12	F	RP-150326	R5-150934	approved	Correction to IMS Emergency Call test case 11.2.7	12.4.0	12.5.0	R5	TEI9_Test
36.523-1	2872	-	Rel-12	F	RP-150340	R5-150589	approved	Updates to TC 13.4.3.32	12.4.0	12.5.0	R5	rSRVCC-UEConTest
36.523-1	2873	-	Rel-12	F	RP-150340	R5-150590	approved	Updates to TC 13.4.3.34	12.4.0	12.5.0	R5	rSRVCC-UEConTest
36.523-1	2874	-	Rel-12	F	RP-150340	R5-150591	approved	Updates to TC 13.4.3.36	12.4.0	12.5.0	R5	rSRVCC-UEConTest

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36.523-1	2875	-	Rel-12	F	RP-150340	R5-150592	approved	Updates to TC 13.4.3.38	12.4.0	12.5.0	R5	rSRVCC-UEConTest
36.523-1	2876	-	Rel-12	F	RP-150326	R5-150599	approved	Remove of test case 8.2.4.22	12.4.0	12.5.0	R5	TEI9_Test
36.523-1	2877	-	Rel-12	F	RP-150341	R5-150600	approved	Correction to eMBMS-SC test case 17.4.2	12.4.0	12.5.0	R5	TEI11_Test
36.523-1	2878	-	Rel-12	F	RP-150329	R5-150607	approved	Correction to RFT-117 EUTRA MFBI Testcase 6.2.3.35	12.4.0	12.5.0	R5	TEI10_Test
36.523-1	2879	-	Rel-12	F	RP-150324	R5-150648	approved	Correction to EUTRA Idle Mode test cases 6.1.1.8 and 6.1.1.9	12.4.0	12.5.0	R5	TEI8_Test
36.523-1	2880	-	Rel-12	F	RP-150324	R5-150649	approved	Correction to short DRX cycle test case 7.1.6.3	12.4.0	12.5.0	R5	TEI8_Test
36.523-1	2881	-	Rel-12	F	RP-150341	R5-150650	approved	Correction to UL-Comp test case 7.1.10.1	12.4.0	12.5.0	R5	TEI11_Test
36.523-1	2882	-	Rel-12	F	RP-150341	R5-150651	approved	Correction to UL-Comp test case 7.1.10.2	12.4.0	12.5.0	R5	TEI11_Test
36.523-1	2883	-	Rel-12	F	RP-150341	R5-150652	approved	Correction to ePDCCH test case 7.1.3.14	12.4.0	12.5.0	R5	TEI11_Test
36.523-1	2884	-	Rel-12	F	RP-150341	R5-150653	approved	Correction to ePDCCH test case 7.1.3.15	12.4.0	12.5.0	R5	TEI11_Test
36.523-1	2885	-	Rel-12	F	RP-150341	R5-150654	approved	New test case 8.5.4.2 for Network-requested CA Band Combination Capability Signalling	12.4.0	12.5.0	R5	TEI11_Test
36.523-1	2886	-	Rel-12	F	RP-150341	R5-150655	approved	New test case 8.5.4.3 for Network-requested CA Band Combination Capability Signalling	12.4.0	12.5.0	R5	TEI11_Test
36.523-1	2887	-	Rel-12	F	RP-150324	R5-150656	approved	Correction to EUTRA RRC test case 8.5.4.1	12.4.0	12.5.0	R5	TEI8_Test
36.523-1	2888	-	Rel-12	F	RP-150341	R5-150657	approved	Correction to CA test case 8.2.4.16.x	12.4.0	12.5.0	R5	TEI11_Test
36.523-1	2889	-	Rel-12	F	RP-150329	R5-150658	approved	Correction to CA test case 8.2.4.20.x	12.4.0	12.5.0	R5	TEI10_Test
36.523-1	2890	-	Rel-12	F	RP-150329	R5-150659	approved	Update of eICIC test case 8.3.1.20	12.4.0	12.5.0	R5	TEI10_Test
36.523-1	2891	-	Rel-12	F	RP-150341	R5-150660	approved	Correction to eMDT test case 8.6.2.3a	12.4.0	12.5.0	R5	TEI11_Test
36.523-1	2892	-	Rel-12	F	RP-150341	R5-150661	approved	Correction to eMDT test case 8.6.2.10	12.4.0	12.5.0	R5	TEI11_Test
36.523-1	2893	-	Rel-12	F	RP-150341	R5-150662	approved	Correction to eMDT test case 8.6.2.11	12.4.0	12.5.0	R5	TEI11_Test
36.523-1	2894	-	Rel-12	F	RP-150341	R5-150663	approved	Correction to test cases 8.6.4.9 and 8.6.8.2	12.4.0	12.5.0	R5	TEI11_Test
36.523-1	2895	-	Rel-12	F	RP-150329	R5-150664	approved	Correction to test cases 8.6.5.2, 8.6.5.3 and 8.6.6.2	12.4.0	12.5.0	R5	TEI10_Test
36.523-1	2896	-	Rel-12	F	RP-150324	R5-150666	approved	Correction to GCF WI-086 EUTRA EMM test case 9.2.1.2.1b	12.4.0	12.5.0	R5	TEI8_Test
36.523-1	2897	-	Rel-12	F	RP-150329	R5-150668	approved	Correction to aSRVCC test case 13.4.3.28	12.4.0	12.5.0	R5	TEI10_Test
36.523-1	2898	-	Rel-12	F	RP-150345	R5-150669	approved	Correction of Multilayer bSRVCC TC 13.4.3.19	12.4.0	12.5.0	R5	TEI12_Test
36.523-1	2899	-	Rel-12	F	RP-150326	R5-150670	approved	New test case "Inter-system mobility / E-UTRA PS voice to GSM CS voice / HO cancelled / Notification procedure / SRVCC"	12.4.0	12.5.0	R5	TEI9_Test
36.523-1	2900	-	Rel-12	F	RP-150329	R5-150671	approved	Correction to eMBMS test case 17.3.2	12.4.0	12.5.0	R5	TEI10_Test
36.523-1	2901	-	Rel-12	F	RP-150341	R5-150673	approved	Correction to eMBMS-SC test case 17.4.2	12.4.0	12.5.0	R5	TEI11_Test
36.523-1	2902	-	Rel-12	F	RP-150324	R5-150932	approved	up of IE 'cs-FallbackIndicator' value in clause 13 xSRVCC handover test cases	12.4.0	12.5.0	R5	TEI8_Test
36.523-1	2903	-	Rel-12	F	RP-150340	R5-150715	approved	Addition of Test case - "Inter-system mobility / UTRA CS voice + PS data to E-UTRA voice + PS data / rSRVCC" to rSRVCC Work Plan	12.4.0	12.5.0	R5	rSRVCC-UEConTest
36.523-1	2904	-	Rel-12	F	RP-150324	R5-150718	approved	Update of IDLE mode test case 6.2.2.5	12.4.0	12.5.0	R5	TEI8_Test
36.523-1	2905	-	Rel-12	F	RP-150329	R5-150730	approved	Correction to test Case 8.3.1.19	12.4.0	12.5.0	R5	TEI10_Test
36.523-1	2906	-	Rel-12	F	RP-150326	R5-150732	approved	Correction to IMS Emergency Call test case 11.2.3	12.4.0	12.5.0	R5	TEI9_Test
36.523-1	2907	-	Rel-12	F	RP-150326	R5-150733	approved	Correction to IMS Emergency Call test case 11.2.6	12.4.0	12.5.0	R5	TEI9_Test
36.523-1	2908	-	Rel-12	F	RP-150340	R5-150740	approved	Addition of Test Case - Intersystem mobility / UTRA CS voice to E-UTRA voice / rSRVCC / Multiple voice calls with mid-call feature	12.4.0	12.5.0	R5	rSRVCC-UEConTest
36.523-1	2910	-	Rel-12	F	RP-150324	R5-150746	approved	Correction to EMM test case 9.2.1.1.28a	12.4.0	12.5.0	R5	TEI8_Test
36.523-1	2911	-	Rel-12	F	RP-150324	R5-150731	approved	Update of Test Case 9.1.5.1	12.4.0	12.5.0	R5	TEI8_Test
36.523-2	0692	-	Rel-12	F	RP-150341	R5-150094	approved	Correction to applicability for CA test cases 8.2.4.16.3, 8.2.4.18.3 and 8.2.4.20.3	12.4.0	12.5.0	R5	TEI11_Test

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36.523-2	0693	-	Rel-12	F	RP-150341	R5-150368	approved	Addition of CA_8A-20A to Annex A.4.3.3 of TS 36.523-2	12.4.0	12.5.0	R5	TEI11_Test
36.523-2	0694	-	Rel-12	F	RP-150342	R5-150375	approved	Introduction of SIG applicability for CA band combinations 5+25 and 12+25	12.4.0	12.5.0	R5	LTE_CA_Rel12-UEConTest
36.523-2	0695	-	Rel-12	F	RP-150324	R5-150403	approved	Applicability update of IDLE mode test case 6.2.2.5	12.4.0	12.5.0	R5	TEI8_Test
36.523-2	0696	-	Rel-12	F	RP-150340	R5-150430	approved	Addition of applicability statements for new rSRVCC to GERAN test cases	12.4.0	12.5.0	R5	rSRVCC-UEConTest
36.523-2	0697	-	Rel-12	F	RP-150343	R5-150432	approved	Addition of CA_1-41 and CA_26-41 in 36.523-2	12.4.0	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.523-2	0698	-	Rel-12	F	RP-150343	R5-150481	approved	Addition of CA_1A-20A to Annex A.4.3.3 of TS 36.523-2	12.4.0	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.523-2	0699	-	Rel-12	F	RP-150324	R5-150490	approved	Correction to the applicability of EUTRA to UTRA HSUPA test case 8.4.1.5	12.4.0	12.5.0	R5	TEI8_Test
36.523-2	0700	-	Rel-12	F	RP-150326	R5-150539	approved	Update of applicability for TC 8.3.4.4 'Inter-RAT SI acquisition / RRC_CONNECTED / UMTS member CSG cell'	12.4.0	12.5.0	R5	TEI9_Test
36.523-2	0701	-	Rel-12	F	RP-150342	R5-150548	approved	Addition of Multiple 2DL Interband CA combinations to 36.523-2 Table A.4.3.3.3-3	12.4.0	12.5.0	R5	LTE_CA_Rel12-UEConTest
36.523-2	0702	-	Rel-12	F	RP-150324	R5-150557	approved	Update of FGI definitions in TS 36.523-2	12.4.0	12.5.0	R5	TEI8_Test
36.523-2	0703	-	Rel-12	F	RP-150342	R5-150581	approved	Addition of CA_1-7, CA_23 and CA_23-29 to TS 36.523-2	12.4.0	12.5.0	R5	LTE_CA_Rel12-UEConTest
36.523-2	0704	-	Rel-12	F	RP-150326	R5-150601	approved	Remove applicability for test case 8.2.4.22	12.4.0	12.5.0	R5	TEI9_Test
36.523-2	0705	-	Rel-12	F	RP-150341	R5-150674	approved	Correction to Applicability for eMDT test cases	12.4.0	12.5.0	R5	TEI11_Test
36.523-2	0706	-	Rel-12	F	RP-150324	R5-150675	approved	Corrections in applicability conditions of Table 4-1a for 1x CS Fallback test cases	12.4.0	12.5.0	R5	TEI8_Test
36.523-2	0707	-	Rel-12	F	RP-150324	R5-150676	approved	Corrections to applicability statements for MIMO test cases 8.2.4.12 and 12.3.1	12.4.0	12.5.0	R5	TEI8_Test
36.523-2	0708	-	Rel-12	F	RP-150341	R5-150677	approved	Applicability of new test cases 8.5.4.2 and 8.5.4.3 (Network-requested CA Band Combination Capability Signalling)	12.4.0	12.5.0	R5	TEI11_Test
36.523-2	0709	-	Rel-12	F	RP-150326	R5-150678	approved	Addition of applicability statements for new test case "Inter-system mobility / E-UTRA PS voice to GSM CS voice / HO cancelled / Notification procedure / SRVCC"	12.4.0	12.5.0	R5	TEI9_Test
36.523-2	0710	-	Rel-12	F	RP-150343	R5-150685	approved	Addition of CA_2-30 to Annex A.4.3 of TS 36.523-2.	12.4.0	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.523-2	0711	-	Rel-12	F	RP-150343	R5-150686	approved	Addition of CA_4-30 to Annex A.4.3 of TS 36.523-2.	12.4.0	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.523-2	0712	-	Rel-12	F	RP-150343	R5-150687	approved	Addition of CA_5-30 to Annex A.4.3 of TS 36.523-2.	12.4.0	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.523-2	0713	-	Rel-12	F	RP-150340	R5-150721	approved	Applicability of new test cases 13.4.3.39 and 13.4.3.40	12.4.0	12.5.0	R5	rSRVCC-UEConTest
36.523-2	0714	-	Rel-12	F	RP-150342	R5-150744	approved	Addition of CA_41-42 to TS 36.523-2	12.4.0	12.5.0	R5	LTE_CA_Rel12-UEConTest
36.523-3	2499	-	Rel-12	F	RP-150324	R5-150123	approved	Routine maintenance for TS 36.523-3	12.0.0	12.1.0	R5	TEI8_Test
36.523-3	2500	-	Rel-12	F	RP-150340	R5-150356	approved	rSRVCC Test Model	12.0.0	12.1.0	R5	rSRVCC-UEConTest
36.523-3	2501	-	Rel-12	F	RP-150335	R5s140966	approved	Correction to GCF WI-177 EUTRA MDT Test cases 8.6.4.5	12.0.0	12.1.0	R5	TEI10_Test
36.523-3	2502	-	Rel-12	F	RP-150335	R5s141159	approved	Correction to test case 9.1.5.1, function fl_TC_9_1_5_1_Body() in NAS_EMMInformation.ttcn	12.0.0	12.1.0	R5	TEI8_Test
36.523-3	2503	-	Rel-12	B	RP-150335	R5s141198	approved	Addition of Rel-11 LTE-A eMDT test case 8.6.4.8	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2504	-	Rel-12	B	RP-150335	R5s141200	approved	LTE_TDD: Addition of Rel-11 LTE-A eMDT test case 8.6.4.8	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2505	-	Rel-12	F	RP-150335	R5s141219	approved	Corrrection to function f_GERAN_CreatePhyCombinedCellControlCh	12.0.0	12.1.0	R5	TEI8_Test
36.523-3	2506	-	Rel-12	B	RP-150335	R5s141228	approved	Addition of Rel-11 EUTRA RRC eMDT test case 8.6.2.10	12.0.0	12.1.0	R5	TEI11_Test

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36.523-3	2507	-	Rel-12	B	RP-150335	R5s141230	approved	LTE_TDD: Addition of Rel-11 EUTRA RRC eMDT test case 8.6.2.10	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2508	-	Rel-12	B	RP-150335	R5s141233	approved	Addition of GCF WI-162 EUTRA RRC Carrier Aggregation test case 8.2.4.16.1	12.0.0	12.1.0	R5	TEI10_Test
36.523-3	2509	-	Rel-12	B	RP-150335	R5s141235	approved	Addition of GCF WI-162 LTE-A Carrier Aggregation RRC test case 8.2.4.16.2	12.0.0	12.1.0	R5	TEI10_Test
36.523-3	2510	-	Rel-12	B	RP-150335	R5s141239	approved	LTE_TDD: Addition of GCF WI-191 LTE-A additional special subframe configuration test case 7.1.3.13	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2511	-	Rel-12	F	RP-150335	R5s141241	approved	Correction to common function f_GetTestcaseAttrib_DlCcchMsgInSeparateMacPdu() for eMDT test cases	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2512	-	Rel-12	B	RP-150335	R5s141245	approved	Addition of LTE-A Carrier Aggregation test case 8.2.4.23.2	12.0.0	12.1.0	R5	TEI10_Test
36.523-3	2513	-	Rel-12	B	RP-150335	R5s141247	approved	Addition of LTE-A (Rel-11) Carrier Aggregation test case 8.2.2.5.3	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2514	-	Rel-12	B	RP-150335	R5s141249	approved	Addition of LTE-A (Rel-11) Carrier Aggregation test case 8.2.4.17.3	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2515	-	Rel-12	B	RP-150335	R5s141251	approved	Addition of LTE-A (Rel-11) Carrier Aggregation test case 8.2.4.21.3	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2516	-	Rel-12	B	RP-150335	R5s141253	approved	Addition of LTE-A (Rel-11) Carrier Aggregation test case 8.3.1.17.3	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2517	-	Rel-12	B	RP-150335	R5s141255	approved	Addition of LTE-A (Rel-11) Carrier Aggregation test case 8.3.1.18.3	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2518	-	Rel-12	B	RP-150335	R5s141257	approved	Addition of LTE-A (Rel-11) Carrier Aggregation test case 8.3.1.22.3	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2519	-	Rel-12	B	RP-150335	R5s141259	approved	Addition of LTE-A (Rel-11) Carrier Aggregation test case 8.5.1.7.3	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2520	-	Rel-12	B	RP-150335	R5s141261	approved	Addition of LTE-A (Rel-11) Carrier Aggregation test case 8.2.2.3.3	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2521	-	Rel-12	B	RP-150335	R5s141263	approved	Addition of LTE-A (Rel-11) Carrier Aggregation test case 8.2.2.4.3	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2522	-	Rel-12	B	RP-150335	R5s141265	approved	Addition of LTE-A (Rel-11) Carrier Aggregation test case 8.2.4.23.3	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2523	-	Rel-12	B	RP-150335	R5s141267	approved	LTE_TDD: Addition of GCF WI-156 MFBI Idle Mode test case 6.1.2.21	12.0.0	12.1.0	R5	TEI9_Test
36.523-3	2524	-	Rel-12	B	RP-150335	R5s141269	approved	LTE_TDD: Addition of LTE-A Enhanced Minimization of Drive Tests (eMDT) Testcase 8.6.11.1	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2525	-	Rel-12	B	RP-150335	R5s141271	approved	LTE_TDD: Addition of GCF WI-177 EUTRA RRC test Case 8.6.7.1	12.0.0	12.1.0	R5	TEI10_Test
36.523-3	2526	-	Rel-12	B	RP-150335	R5s141275	approved	Addition of LTE-A Carrier Aggregation test case 8.2.4.23.1	12.0.0	12.1.0	R5	TEI10_Test
36.523-3	2527	-	Rel-12	F	RP-150335	R5s141277	approved	LTE_TDD : Correction to GCF WI-086 EUTRA RRC test case 8.1.3.7	12.0.0	12.1.0	R5	TEI8_Test
36.523-3	2528	-	Rel-12	B	RP-150335	R5s141278	approved	Addition of Rel-11 LTE-A Carrier Aggregation MAC test case 7.1.9.1.3	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2529	-	Rel-12	B	RP-150335	R5s141280	approved	Addition of Rel-11 LTE-A Carrier Aggregation RRC test case 8.2.4.16.3	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2530	-	Rel-12	B	RP-150335	R5s141282	approved	Addition of Rel-11 LTE-A Carrier Aggregation test case 8.2.4.18.3	12.0.0	12.1.0	R5	TEI11_Test

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36.523-3	2531	-	Rel-12	B	RP-150335	R5s141284	approved	Addition of Rel-11 LTE-A Carrier Aggregation test case 8.2.4.20.3	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2532	-	Rel-12	B	RP-150335	R5s141288	approved	Addition of LTE-A (Rel-11) CA Handover from UTRAN test case 8.4.2.7.3	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2533	-	Rel-12	B	RP-150335	R5s141292	approved	Addition of Rel-11 LTE-A eMDT test case 8.6.2.12	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2534	-	Rel-12	B	RP-150335	R5s141294	approved	LTE_TDD: Addition of Rel-11 LTE-A eMDT test case 8.6.2.12	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2535	-	Rel-12	B	RP-150335	R5s141297	approved	Addition of Rel-11 LTE-A eMDT test case 8.6.4.9	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2536	-	Rel-12	B	RP-150335	R5s141299	approved	LTE_TDD: Addition of Rel-11 LTE-A eMDT test case 8.6.4.9	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2537	-	Rel-12	B	RP-150335	R5s141301	approved	Addition of Rel-11 LTE-A eMDT test case 8.6.6.6	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2538	-	Rel-12	B	RP-150335	R5s141303	approved	LTE_TDD: Addition of Rel-11 LTE-A eMDT test case 8.6.6.6	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2539	-	Rel-12	B	RP-150335	R5s141305	approved	Addition of Rel-11 LTE-A eMDT test case 8.6.8.5	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2540	-	Rel-12	B	RP-150335	R5s141307	approved	Addition of Rel-11 LTE-A eMDT test case 8.6.8.6	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2541	-	Rel-12	B	RP-150335	R5s141309	approved	LTE_TDD: Addition of Rel-11 LTE-A eMDT test case 8.6.8.6	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2542	-	Rel-12	B	RP-150335	R5s141311	approved	Addition of Rel-11 LTE-A eMDT test case 8.6.2.11	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2543	-	Rel-12	B	RP-150335	R5s141313	approved	LTE_TDD: Addition of Rel-11 LTE-A eMDT test case 8.6.2.11	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2544	-	Rel-12	F	RP-150335	R5s141317	approved	Correction to GCF WI-081 EUTRA RRC test case 8.5.1.4 and WI-082 EMM test case 9.2.3.1.9a	12.0.0	12.1.0	R5	TEI8_Test
36.523-3	2545	-	Rel-12	B	RP-150335	R5s141319	approved	Addition of LTE-A Carrier Aggregation test case 8.2.4.23.1	12.0.0	12.1.0	R5	TEI10_Test
36.523-3	2546	-	Rel-12	F	RP-150335	R5s141324	approved	Correction to function fl_IP_AddrServers_Stop	12.0.0	12.1.0	R5	TEI8_Test
36.523-3	2547	-	Rel-12	F	RP-150335	R5s141325	approved	Correction to Importing of Parameters in UTRAN_RAB_Functions for LTE, POS and IMS test suites	12.0.0	12.1.0	R5	TEI8_Test
36.523-3	2548	-	Rel-12	F	RP-150335	R5s141327	approved	Correction to GCF WI-082 EUTRA ESM Test cases 10.4.1	12.0.0	12.1.0	R5	TEI8_Test
36.523-3	2549	-	Rel-12	F	RP-150335	R5s141331	approved	LTE_TDD : Correction to EUTRA MAC TDD-SSC test cases 7.1.3.12, 7,1,3,12a, 7.1.3.13, 7.1.3.13a	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2550	-	Rel-12	F	RP-150335	R5s141332	approved	Correction to common function f_GERAN_SwitchPowerOff()	12.0.0	12.1.0	R5	TEI8_Test
36.523-3	2551	-	Rel-12	F	RP-150335	R5s141334	approved	Correction to WI-086 EUTRA Multi-layer test cases 13.1.2, 13.1.2a, 13.1.3, 13.1.15	12.0.0	12.1.0	R5	TEI8_Test
36.523-3	2552	-	Rel-12	F	RP-150335	R5s141338	approved	Correction of LTE-A Carrier Aggregation test cases 8.3.1.18.x	12.0.0	12.1.0	R5	TEI10_Test
36.523-3	2553	-	Rel-12	B	RP-150335	R5s141339	approved	Addition of GCF WI-154 IMS Emergency Call test case 11.2.3	12.0.0	12.1.0	R5	TEI9_Test
36.523-3	2554	-	Rel-12	F	RP-150335	R5s141345	approved	Correction of GCF WI-154 IMS Emergency Call over EPS test case 11.2.1	12.0.0	12.1.0	R5	TEI9_Test
36.523-3	2555	-	Rel-12	F	RP-150335	R5s141349	approved	Correction to f_EUTRA_CA_InitFrequenciesInterBand() function for CA_3A-7A_Rev band combination	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2556	-	Rel-12	F	RP-150335	R5s141352	approved	Correction of GCF WI-178 LTE-A eMBMS-SC test case 17.4.3	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2557	-	Rel-12	F	RP-150335	R5s141354	approved	Correction of GCF WI-178 LTE-A eMBMS-SC test case 17.4.7	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2558	-	Rel-12	F	RP-150335	R5s141358	approved	Correction of GCF WI-178 LTE-A eMBMS-SC test case 17.4.1	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2559	-	Rel-12	F	RP-150335	R5s141361	approved	Correction to EUTRA multilayer aSRVCC test case 13.4.3.28	12.0.0	12.1.0	R5	TEI10_Test
36.523-3	2560	-	Rel-12	F	RP-150398	R5s141362	approved	Correction to EUTRA bSRVCC testcases 13.4.3.19	12.0.0	12.1.0	R5	TEI12_Test
36.523-3	2561	-	Rel-12	F	RP-150335	R5s141363	approved	Correction to function f_SS_HS_DSCH_PDSCH_Cfg_DPCH_Modify_TDD	12.0.0	12.1.0	R5	TEI8_Test
36.523-3	2562	-	Rel-12	F	RP-150335	R5s141364	approved	Correction of GCF WI-178 LTE-A eMBMS-SC test case 17.4.2	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2563	-	Rel-12	F	RP-150335	R5s141365	approved	LTE_TDD : Correction to Multilayer test case 13.4.2.4	12.0.0	12.1.0	R5	TEI8_Test
36.523-3	2564	-	Rel-12	F	RP-150335	R5s141366	approved	Correction of GCF WI-150 MFBI Testcase 6.1.2.20	12.0.0	12.1.0	R5	TEI9_Test
36.523-3	2565	-	Rel-12	F	RP-150335	R5s141367	approved	Correction of QCI value in EPS bearer context no.2	12.0.0	12.1.0	R5	TEI8_Test
36.523-3	2566	-	Rel-12	B	RP-150335	R5s141368	approved	Addition of Rel-8 EUTRA Idle Mode LTE<>GERAN test case 6.2.3.29	12.0.0	12.1.0	R5	TEI8_Test

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36.523-3	2567	-	Rel-12	F	RP-150335	R5s141371	approved	Correction to LTE-A CA test cases 8.2.4.16.x, 8.2.4.18.3 and 8.2.4.20.3	12.0.0	12.1.0	R5	TEI10_Test
36.523-3	2568	-	Rel-12	F	RP-150398	R5s141372	approved	Correction to EUTRA<>UTRA bSRVCC testcase 13.4.3.20	12.0.0	12.1.0	R5	TEI12_Test
36.523-3	2569	-	Rel-12	F	RP-150335	R5s141373	approved	Correction to LTE-A CA test case 7.1.9.1.3	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2570	-	Rel-12	F	RP-150335	R5s141374	approved	Correction to GCF WI-164 eMBMS test case 17.1.3	12.0.0	12.1.0	R5	TEI9_Test
36.523-3	2571	-	Rel-12	B	RP-150335	R5s141375	approved	Addition of GCF WI-103 ESM test case 10.4.2	12.0.0	12.1.0	R5	TEI8_Test
36.523-3	2572	-	Rel-12	F	RP-150335	R5s141384	approved	Correction to LTE-GERAN aSRVCC test cases 13.4.3.26 & 13.4.3.28	12.0.0	12.1.0	R5	TEI10_Test
36.523-3	2573	-	Rel-12	B	RP-150335	R5s141385	approved	LTE_TDD : Addition of GCF WI-172 LTE-GERAN aSRVCC test case 13.4.3.26	12.0.0	12.1.0	R5	TEI10_Test
36.523-3	2574	-	Rel-12	B	RP-150335	R5s141387	approved	LTE_TDD : Addition of GCF WI-172 LTE-GERAN aSRVCC test case 13.4.3.28	12.0.0	12.1.0	R5	TEI10_Test
36.523-3	2575	-	Rel-12	F	RP-150335	R5s141389	approved	Corrections to coordinate XID and IPv6 procedures	12.0.0	12.1.0	R5	TEI8_Test
36.523-3	2576	-	Rel-12	F	RP-150398	R5s141393	approved	Correction to multilayer bSRVCC test case 13.4.3.21	12.0.0	12.1.0	R5	TEI12_Test
36.523-3	2577	-	Rel-12	F	RP-150335	R5s141394	approved	Correction to EUTRA RRC Inter-mode test case 8.2.4.15a	12.0.0	12.1.0	R5	TEI9_Test
36.523-3	2578	-	Rel-12	B	RP-150335	R5s141395	approved	Addition of Rel-11 LTE-A CA MAC test case 7.1.3.11.3	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2579	-	Rel-12	B	RP-150335	R5s141397	approved	LTE_TDD: Addition of Rel-11 LTE-A eMDT test case 8.6.8.5	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2580	-	Rel-12	F	RP-150335	R5s141399	approved	Corrections to IMS emergency call test case 11.2.5	12.0.0	12.1.0	R5	TEI9_Test
36.523-3	2581	-	Rel-12	F	RP-150335	R5s141400	approved	Correction to GCF WI-082 SMS over SGs test cases 11.1.3, 11.1.4, 11.1.5, 11.1.6	12.0.0	12.1.0	R5	TEI8_Test
36.523-3	2582	-	Rel-12	F	RP-150335	R5s150001	approved	Updates to multi-PDNs implementation for CDMA2000-related procedures	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2583	-	Rel-12	B	RP-150335	R5s150003	approved	Addition of Rel-8 EUTRA Idle Mode LTE<>GERAN test case 6.2.3.26	12.0.0	12.1.0	R5	TEI8_Test
36.523-3	2584	-	Rel-12	B	RP-150335	R5s150005	approved	Addition of EMM test case 9.2.1.1.29	12.0.0	12.1.0	R5	TEI9_Test
36.523-3	2585	-	Rel-12	B	RP-150335	R5s150007	approved	LTE_TDD: Addition of LTE-A Carrier Aggregation MAC test case 7.1.9.1.2	12.0.0	12.1.0	R5	TEI10_Test
36.523-3	2586	-	Rel-12	F	RP-150335	R5s150009	approved	Correction to GCF WI-086 EMM test case 9.2.3.3.1	12.0.0	12.1.0	R5	TEI8_Test
36.523-3	2587	-	Rel-12	F	RP-150335	R5s150010	approved	Correction to GCF WI-081 Idle mode test cases 6.1.1.4, 6.1.1.6 and 6.1.1.6a.	12.0.0	12.1.0	R5	TEI8_Test
36.523-3	2588	-	Rel-12	F	RP-150335	R5s150019	approved	Correction to LTE-GERAN test case 6.2.3.1a	12.0.0	12.1.0	R5	TEI9_Test
36.523-3	2589	-	Rel-12	F	RP-150335	R5s150026	approved	Correction of GCF WI-178 LTE-A eMBMS-SC test case 17.4.1, 17.4.1a, 17.4.3, 17.4.3a 17.4.4	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2590	-	Rel-12	F	RP-150335	R5s150031	approved	Corrections for LTE test case execution with IMS-enabled device	12.0.0	12.1.0	R5	TEI8_Test
36.523-3	2591	-	Rel-12	F	RP-150335	R5s150034	approved	Correction to EUTRA test cases 8.2.4.14a and 8.2.4.15	12.0.0	12.1.0	R5	TEI9_Test
36.523-3	2592	-	Rel-12	F	RP-150335	R5s150036	approved	Corrections for eMDT test case 8.6.2.3a and 8.6.2.10	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2593	-	Rel-12	F	RP-150335	R5s150037	approved	Correction to LTE-A Carrier Aggregation Enhancement test cases	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2594	-	Rel-12	F	RP-150335	R5s150038	approved	Implementation of Prose CR R5-145793	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2595	-	Rel-12	F	RP-150335	R5s150053	approved	Corrections to IMS emergency call test case 11.2.3	12.0.0	12.1.0	R5	TEI9_Test
36.523-3	2596	-	Rel-12	F	RP-150335	R5s150057	approved	Corrections to EUTRA Testcases with IMS enabled UE	12.0.0	12.1.0	R5	TEI8_Test
36.523-3	2597	-	Rel-12	B	RP-150335	R5s150062	approved	Addition of EUTRA DRX Testcase 7.1.6.3	12.0.0	12.1.0	R5	TEI8_Test
36.523-3	2598	-	Rel-12	B	RP-150335	R5s150066	approved	LTE_TDD:Addition of EUTRA DRX Testcase 7.1.6.3	12.0.0	12.1.0	R5	TEI8_Test
36.523-3	2599	-	Rel-12	F	RP-150335	R5s150070	approved	Correction to GCF WI-162 LTE-A CA test cases 7.1.9.1.x	12.0.0	12.1.0	R5	TEI10_Test
36.523-3	2600	-	Rel-12	F	RP-150335	R5s150071	approved	Correction to GCF WI-087 EUTRA EMM test case 9.2.1.2.1b	12.0.0	12.1.0	R5	TEI8_Test
36.523-3	2601	-	Rel-12	F	RP-150335	R5s150074	approved	Correction for IP_PTC for IMS-enabled UEs	12.0.0	12.1.0	R5	TEI8_Test

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36.523-3	2602	-	Rel-12	B	RP-150335	R5s150076	approved	Addition of Rel-11 LTE-A eMDT test case 8.6.4.10	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2603	-	Rel-12	B	RP-150335	R5s150078	approved	LTE_TDD: Addition of Rel-11 LTE-A eMDT test case 8.6.4.10	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2604	-	Rel-12	F	RP-150335	R5s150081	approved	Correction to GCF WI-159 LTE<> 1xRTT testcase 13.4.4.1	12.0.0	12.1.0	R5	TEI9_Test
36.523-3	2605	-	Rel-12	F	RP-150335	R5s150082	approved	Multi-PDN related correction to EUTRA RRC test case 8.1.2.8	12.0.0	12.1.0	R5	TEI8_Test
36.523-3	2606	-	Rel-12	F	RP-150335	R5s150089	approved	Correction of GCF WI-178 LTE Advanced eMBMS-SC test case 17.4.2 & 17.4.2a	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2607	-	Rel-12	F	RP-150335	R5s150090	approved	Correction of GCF WI-178 LTE Advanced eMBMS-SC test case 17.4.7	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2608	-	Rel-12	B	RP-150335	R5s150092	approved	Addition of RFT-117 EUTRA MFBI Testcase 6.2.3.35	12.0.0	12.1.0	R5	TEI10_Test
36.523-3	2609	-	Rel-12	B	RP-150335	R5s150096	approved	LTE_TDD: Addition of LTE-A Carrier Aggregation test case 8.2.2.4.3	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2610	-	Rel-12	B	RP-150335	R5s150098	approved	LTE_TDD: Addition of LTE-A Carrier Aggregation test case 8.2.2.5.3	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2611	-	Rel-12	B	RP-150335	R5s150100	approved	LTE_TDD:Addition of LTE-A Carrier Aggregation test case 8.2.4.18.3	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2612	-	Rel-12	B	RP-150335	R5s150102	approved	LTE_TDD: Addition of LTE-A Carrier Aggregation test case 8.3.1.17.3	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2613	-	Rel-12	B	RP-150335	R5s150104	approved	LTE_TDD: Addition of LTE-A Carrier Aggregation test case 8.3.1.18.3	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2614	-	Rel-12	B	RP-150335	R5s150106	approved	LTE_TDD: Addition of LTE-A Carrier Aggregation test case 8.3.1.22.3	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2615	-	Rel-12	B	RP-150335	R5s150108	approved	LTE_TDD:Addition of LTE-A Carrier Aggregation test case 8.5.1.7.3	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2616	-	Rel-12	B	RP-150335	R5s150113	approved	LTE_TDD: Addition of LTE-A Carrier Aggregation MAC test case 7.1.9.1.3	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2617	-	Rel-12	F	RP-150335	R5s150118	approved	Further correction for LTE TC execution with IMS-enabled devices	12.0.0	12.1.0	R5	TEI8_Test
36.523-3	2618	-	Rel-12	B	RP-150335	R5s150119	approved	LTE_TDD: Addition of Rel-11 LTE_CA_enh test case 8.4.2.7.3	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2619	-	Rel-12	F	RP-150335	R5s150121	approved	Addition of GEA4 and A5/4 ciphering algorithms	12.0.0	12.1.0	R5	TEI9_Test
36.523-3	2620	-	Rel-12	F	RP-150335	R5s150122	approved	Correction of GCF WI-87 EUTRA<>GERAN Testcase 6.2.3.28	12.0.0	12.1.0	R5	TEI8_Test
36.523-3	2621	-	Rel-12	F	RP-150335	R5s150123	approved	Correction of GCF WI-87 EUTRA<>GERAN Testcase 6.2.3.29	12.0.0	12.1.0	R5	TEI8_Test
36.523-3	2622	-	Rel-12	B	RP-150335	R5s150133	approved	LTE_TDD:Addition of GCF WI-172 TD_LTE<>TDSCDMA Testcase 13.4.3.9	12.0.0	12.1.0	R5	TEI10_Test
36.523-3	2623	-	Rel-12	B	RP-150335	R5s150135	approved	LTE_TDD:Addition of GCF WI-172 TD_LTE<>TDSCDMA Testcase 13.4.3.11	12.0.0	12.1.0	R5	TEI10_Test
36.523-3	2624	-	Rel-12	B	RP-150335	R5s150137	approved	LTE_TDD:Addition of GCF WI-172 TD_LTE<>TDSCDMA Testcase 13.4.3.13	12.0.0	12.1.0	R5	TEI10_Test
36.523-3	2625	-	Rel-12	F	RP-150334	-	approved	CR to 36.523-3: Add new verified and e-mail agreed TTCN test cases in the TC lists in 36.523-3 (prose), Annex A	12.0.0	12.1.0	R5	TEI12_Test
36.844	0010	-	Rel-13	F	RP-150420	R4-150028	approved	Corrections and Clarifications of UE specifications in TR 36.844 [FS_LTE_FDD_1670_US]	13.1.0	13.2.0	R4	FS_LTE_FDD_1670_US
36.850	0002	-	Rel-11	F	RP-150059	-	approved	CR to TR 36.850 v11.1.0 changing the TR into a pointer to the new TR 36.852-11	11.1.0	11.2.0	R4	TEI11
36.853-12	0001	-	Rel-12	F	RP-150388	R4-150468	approved	Addition of 3 Band Carrier Aggregation (3DL/1UL) of Band 25, Band 41 and Band 41	12.0.0	12.1.0	R4	LTE_CA_B25_B41_B41-Core
36.853-12	0002	-	Rel-12	F	RP-150388	R4-150470	approved	Addition of Coexistence Studies for 3 Band Carrier Aggregation (3DL/1UL) of Band 25, Band 41 and Band 41	12.0.0	12.1.0	R4	LTE_CA_B25_B41_B41-Core

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36.853-12	0003	-	Rel-12	F	RP-150413	R4-150476	approved	Clean-up of 3 Band Carrier Aggregation (3DL/1UL) of Band 2, Band 2 and Band 12	12.0.0	12.1.0	R4	LTE_CA_B2_B2_B12-Core
36.873	0003	-	Rel-12	F	RP-150362	R1-150929	approved	Change of XPR model standard deviation value and correction of sorting function for normalized delay	12.0.0	12.1.0	R1	FS_LTE_3D_channel
36.903	0152	-	Rel-12	F	RP-150329	R5-150078	approved	Add Test Tolerance Analyses for TS 37.571-1 Test Cases 10.1 and 10.2	12.4.0	12.5.0	R5	TEI10_Test
36.903	0153	-	Rel-12	F	RP-150329	R5-150079	approved	Add Test Tolerance Analyses for TS 37.571-1 Test Cases 10.1A and 10.2A	12.4.0	12.5.0	R5	TEI10_Test
36.903	0154	-	Rel-12	F	RP-150329	R5-150080	approved	Add Test Tolerance Analyses for TS 37.571-1 Test Cases 10.1B and 10.2B	12.4.0	12.5.0	R5	TEI10_Test
36.903	0155	-	Rel-12	F	RP-150329	R5-150081	approved	Add Test Tolerance Analyses for TS 37.571-1 Test Cases 10.1C and 10.2C	12.4.0	12.5.0	R5	TEI10_Test
36.903	0156	-	Rel-12	F	RP-150329	R5-150083	approved	Add Test Tolerance Analyses for TS 37.571-1 Test Cases 10.3B and 10.4B	12.4.0	12.5.0	R5	TEI10_Test
36.903	0157	-	Rel-12	F	RP-150329	R5-150084	approved	Add Test Tolerance Analyses for TS 37.571-1 Test Cases 10.3C and 10.4C	12.4.0	12.5.0	R5	TEI10_Test
36.903	0158	-	Rel-12	F	RP-150324	R5-150219	approved	Update Test Tolerance Analysis for TS 36.521-3 TC 4.3.1.3	12.4.0	12.5.0	R5	TEI8_Test
36.903	0159	-	Rel-12	F	RP-150324	R5-150221	approved	Update Test Tolerance Analysis for TS 36.521-3 TC 4.3.4.3	12.4.0	12.5.0	R5	TEI8_Test
36.903	0160	-	Rel-12	F	RP-150324	R5-150223	approved	Update Test Tolerance Analysis for TS 36.521-3 TC 8.5.2	12.4.0	12.5.0	R5	TEI8_Test
36.903	0161	-	Rel-12	F	RP-150341	R5-150225	approved	Update Test Tolerance Analysis for TS 36.521-3 TC 8.7.3	12.4.0	12.5.0	R5	TEI11_Test
36.903	0162	-	Rel-12	F	RP-150324	R5-150227	approved	Update Test Tolerance Analysis for TS 36.521-3 TC 8.9.1	12.4.0	12.5.0	R5	TEI8_Test
36.903	0163	-	Rel-12	F	RP-150324	R5-150229	approved	Update Test Tolerance Analysis for TS 36.521-3 TC 8.8.1+8.10.1	12.4.0	12.5.0	R5	TEI8_Test
36.903	0164	-	Rel-12	F	RP-150324	R5-150231	approved	Update Test Tolerance Analysis for TS 36.521-3 TC 8.8.2+8.10.2	12.4.0	12.5.0	R5	TEI8_Test
36.903	0165	-	Rel-12	F	RP-150345	R5-150293	approved	Add Test Tolerance analysis for TCs 8.16.9+8.16.10 36.903 CR	12.4.0	12.5.0	R5	TEI12_Test
36.903	0166	-	Rel-12	F	RP-150345	R5-150305	approved	Add Test Tolerance analysis for TCs 8.16.11+8.16.12 36.903 CR	12.4.0	12.5.0	R5	TEI12_Test
36.903	0167	-	Rel-12	F	RP-150345	R5-150307	approved	Add Test Tolerance analysis for TCs 8.16.13+8.16.14 36.903 CR	12.4.0	12.5.0	R5	TEI12_Test
36.903	0168	-	Rel-12	F	RP-150345	R5-150309	approved	Add Test Tolerance analysis for TCs 8.16.15+8.16.16 36.903 CR	12.4.0	12.5.0	R5	TEI12_Test
36.903	0169	-	Rel-12	F	RP-150345	R5-150311	approved	Add Test Tolerance analysis for TCs 9.1.18.1+9.1.19.1 36.903 CR	12.4.0	12.5.0	R5	TEI12_Test
36.903	0170	-	Rel-12	F	RP-150345	R5-150313	approved	Add Test Tolerance analysis for TCs 9.1.18.2+9.1.19.2 36.903 CR	12.4.0	12.5.0	R5	TEI12_Test
36.903	0171	-	Rel-12	F	RP-150345	R5-150315	approved	Add Test Tolerance analysis for TCs 9.1.20.1+9.1.21.1 36.903 CR	12.4.0	12.5.0	R5	TEI12_Test
36.903	0172	-	Rel-12	F	RP-150345	R5-150317	approved	Add Test Tolerance analysis for TCs 9.1.20.2+9.1.21.2 36.903 CR	12.4.0	12.5.0	R5	TEI12_Test
36.903	0173	-	Rel-12	F	RP-150345	R5-150319	approved	Add Test Tolerance analysis for TCs 9.2.23.1+9.2.24.1 36.903 CR	12.4.0	12.5.0	R5	TEI12_Test
36.903	0174	-	Rel-12	F	RP-150345	R5-150325	approved	Add Test Tolerance analysis for TCs 9.2.23.2+9.2.24.2 36.903 CR	12.4.0	12.5.0	R5	TEI12_Test
36.903	0175	-	Rel-12	F	RP-150324	R5-150853	approved	Update Test Tolerance analyses for TS 36.521-3 Test case 5.1.5	12.4.0	12.5.0	R5	TEI8_Test

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36.903	0176	-	Rel-12	F	RP-150324	R5-150854	approved	Update Test Tolerance analyses for TS 36.521-3 Test case 5.1.6	12.4.0	12.5.0	R5	TEI8_Test
36.903	0177	-	Rel-12	F	RP-150324	R5-150855	approved	Update Test Tolerance analyses for TS 36.521-3 Test case 5.2.3, 5.2.6	12.4.0	12.5.0	R5	TEI8_Test
36.904	0019	-	Rel-11	F	RP-150341	R5-150217	approved	Test Tolerance Analysis for TS 36.521-1 TC 8.3.1.2.1_D_1+8.3.2.2.1_D_1	11.2.0	11.3.0	R5	TEI11_Test
37.104	0250	-	Rel-12	F	RP-150382	R4-150364	approved	Co-location between Band 42 and Band 43 in TS 37.104	12.6.0	12.7.0	R4	RInImp8-UMTSLTE3500
37.104	0251	-	Rel-12	F	RP-150388	R4-150819	approved	MB and TDD+FDD	12.6.0	12.7.0	R4	LTE_CA_TDD_FDD-Core
37.141	0375	-	Rel-12	F	RP-150382	R4-150365	approved	Co-location between Band 42 and Band 43 in TS 37.141	12.6.0	12.7.0	R4	RInImp8-UMTSLTE3500
37.141	0382	-	Rel-12	F	RP-150388	R4-150820	approved	MB and TDD+FDD	12.6.0	12.7.0	R4	LTE_CA_TDD_FDD-Core
37.571-1	0113	-	Rel-12	F	RP-150326	R5-150051	approved	Updates to RSTD values and terminology following changes in RAN 4	12.1.0	12.2.0	R5	TEI9_Test
37.571-1	0114	-	Rel-12	F	RP-150329	R5-150074	approved	Remove incorrect note from CA RSTD accuracy tests	12.1.0	12.2.0	R5	TEI10_Test
37.571-1	0115	-	Rel-12	F	RP-150329	R5-150082	approved	Uncertainties and Test Tolerances for RSTD test cases 10.1, 10.1A, 10.1B, 10.1C, 10.2, 10.2A, 10.2B, and 10.2C	12.1.0	12.2.0	R5	TEI10_Test
37.571-1	0116	-	Rel-12	F	RP-150329	R5-150085	approved	Uncertainties and Test Tolerances for RSTD test cases 10.3B, 10.3C, 10.4B, and 10.4C	12.1.0	12.2.0	R5	TEI10_Test
37.571-1	0117	-	Rel-12	F	RP-150326	R5-150107	approved	Corrections to table headings in CA RSTD tests	12.1.0	12.2.0	R5	TEI9_Test
37.571-1	0118	-	Rel-12	F	RP-150341	R5-150378	approved	Very minor corrections to references for feICIC test cases, 8.1.5 and 8.1.6	12.1.0	12.2.0	R5	TEI11_Test
37.571-1	0119	-	Rel-12	F	RP-150344	R5-150609	approved	Abbrevation Corrections for BDS in 37.571-1	12.1.0	12.2.0	R5	LCS_BDS-UEConTest
37.571-1	0120	-	Rel-12	F	RP-150344	R5-150833	approved	Addition of BDS ICD reference	12.1.0	12.2.0	R5	LCS_BDS-UEConTest
37.571-1	0121	-	Rel-12	F	RP-150344	R5-150834	approved	Corrections to BDS Test Requirements for Minimum Performance tests	12.1.0	12.2.0	R5	LCS_BDS-UEConTest
37.571-1	0122	-	Rel-12	F	RP-150329	R5-150835	approved	The Io Unit Parameter is Incorrect	12.1.0	12.2.0	R5	TEI10_Test
37.571-1	0123	-	Rel-12	F	RP-150326	R5-150836	approved	Inconsistent Text Referenced	12.1.0	12.2.0	R5	TEI9_Test
37.571-1	0124	-	Rel-12	F	RP-150326	R5-150837	approved	Missing Abbreviations in Specification	12.1.0	12.2.0	R5	TEI9_Test
37.571-1	0125	-	Rel-12	F	RP-150345	R5-150888	approved	New TC: TDD RSTD Measurement Accuracy for Carrier Aggregation for 20MHz+10MHz bandwidth	12.1.0	12.2.0	R5	TEI12_Test
37.571-1	0126	-	Rel-12	F	RP-150329	R5-150911	approved	New TC: TDD RSTD Measurement Reporting Delay for Carrier Aggregation for 20MHz +10MHz Bandwidth	12.1.0	12.2.0	R5	TEI10_Test
37.571-2	0051	-	Rel-12	F	RP-150344	R5-150741	approved	Abbrevation Corrections for BDS in 37.571-2	12.0.0	12.1.0	R5	LCS_BDS-UEConTest
37.571-3	0025	-	Rel-12	F	RP-150329	R5-150075	approved	Remove incorrect note from CA RSTD accuracy tests	12.1.0	12.2.0	R5	TEI10_Test
37.571-3	0026	-	Rel-12	F	RP-150344	R5-150608	approved	Typo in name of parameter pc_BDS_B1I	12.1.0	12.2.0	R5	LCS_BDS-UEConTest
37.571-3	0027	-	Rel-12	F	RP-150326	R5-150838	approved	Missing Abbreviations in Specification	12.1.0	12.2.0	R5	TEI9_Test
37.571-3	0028	-	Rel-12	F	RP-150326	R5-150889	approved	Missing Fine Time Assistance Conditions	12.1.0	12.2.0	R5	TEI9_Test
37.571-3	0029	-	Rel-12	F	RP-150345	R5-150890	approved	Applicability for new 20+10MHz RSTD test cases	12.1.0	12.2.0	R5	TEI12_Test
37.571-4	0046	-	Rel-12	F	RP-150344	R5-150735	approved	Addition of BeiDou Test Model	10.8.0	12.0.0	R5	LCS_BDS-UEConTest
37.571-4	0047	-	Rel-10	F	RP-150337	R5s141359	approved	Correction of errors in implementation of positioning CRs	10.8.0	10.9.0	R5	TEI9_Test
37.571-4	0048	-	Rel-10	B	RP-150337	R5s150027	approved	Addition of GCF WI-166 EUTRA UE Positioning test case 7.3.4.1.4s	10.8.0	10.9.0	R5	TEI9_Test
37.571-4	0049	-	Rel-10	F	RP-150336	-	approved	Add new verified and e-mail agreed TTCN test cases in the TC lists in 37.571-4 (prose), Annex A	10.8.0	10.9.0	R5	TEI9_Test
37.571-5	0107	-	Rel-12	F	RP-150326	R5-150052	approved	Updates to expectedRSTD values following changes in RAN 4	12.0.0	12.1.0	R5	TEI9_Test
37.571-5	0108	-	Rel-12	F	RP-150329	R5-150106	approved	Change Nprs value in tests 10.3B, 10.3C, 10.4B, 10.4C	12.0.0	12.1.0	R5	TEI10_Test
37.571-5	0109	-	Rel-12	F	RP-150344	R5-150237	approved	LBS Perf: Correction to simulated BDS satellites	12.0.0	12.1.0	R5	LCS_BDS-UEConTest
37.571-5	0110	-	Rel-12	F	RP-150326	R5-150839	approved	Missing Abbreviations in Specification	12.0.0	12.1.0	R5	TEI9_Test

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Spec	CR	Rev	Phase	Cat	Plenary doc	WG doc	TSG status	Subject	CR written to	Resulting vers	WG	Workitem
37.571-5	0111	-	Rel-12	F	RP-150329	R5-150840	approved	Missing OTDOA CA Test Cases	12.0.0	12.1.0	R5	TEI10_Test
37.571-5	0112	-	Rel-12	F	RP-150344	R5-150891	approved	Abbreviation Corrections for BDS in 37.571-5	12.0.0	12.1.0	R5	LCS_BDS-UEConTest
37.822	0001	2	Rel-12	F	RP-150356	R3-150308	approved	Inclusion of solution evaluation for MRO Re-establishment scenarios	12.1.0	12.2.0	R3	TEI12

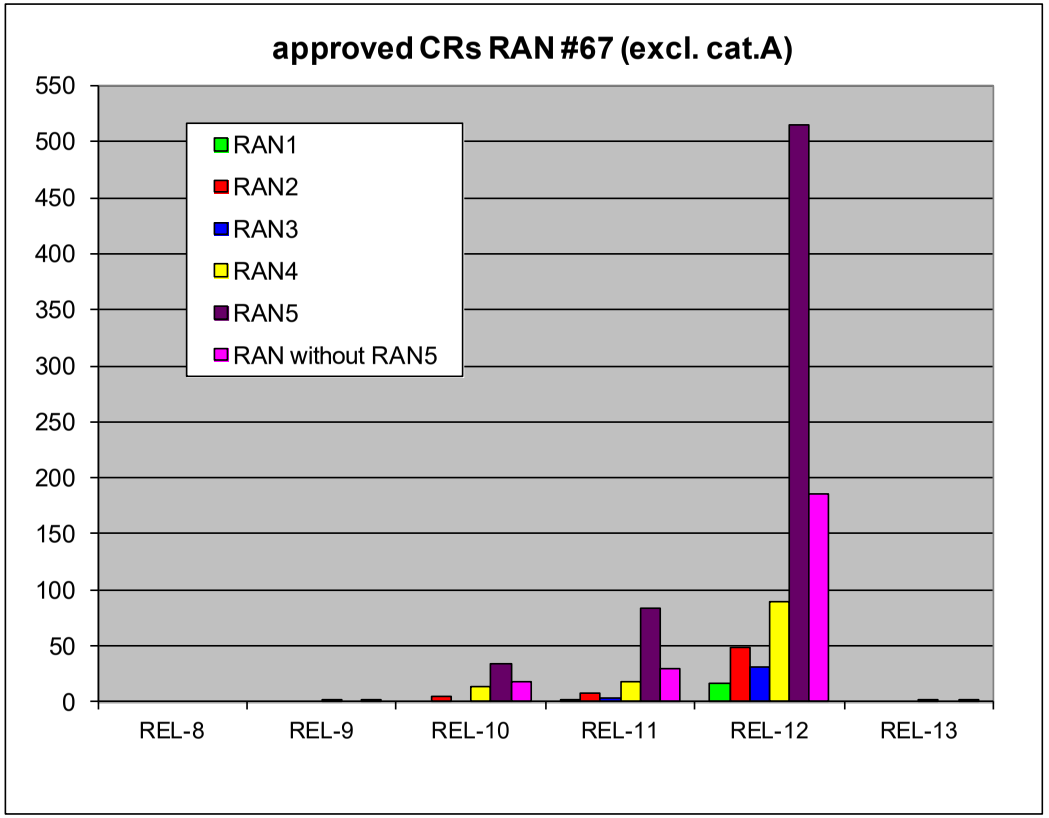


Fig. E-1: Approved CRs (<u>excluding</u> category A CRs) of RAN #67 per WG and release

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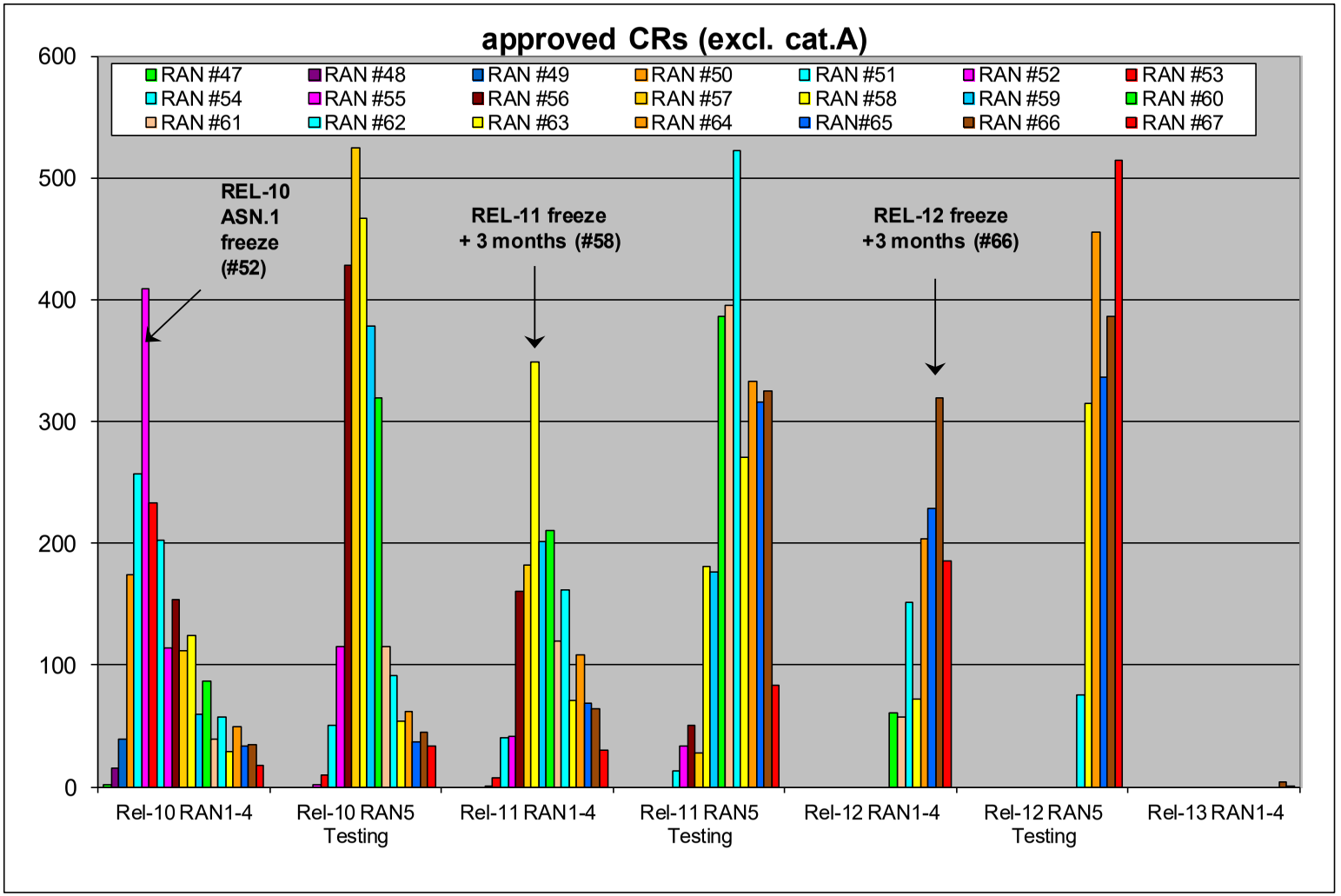


Fig. E-2: Approved CRs (<u>excluding</u> category A CRs) of previous RAN meetings per release
<u>REL freeze</u>: REL-8: RAN #42, REL-9: RAN #46, REL-10: RAN #51, REL-11: RAN #57, REL-12: RAN #65
<u>ASN.1 freeze</u>: REL-8: RAN #43 (713 CRs), REL-9: RAN #47 (355 CRs), REL-10: RAN #52 (apart from Un), REL-11: RAN #59, REL-12: RAN #67

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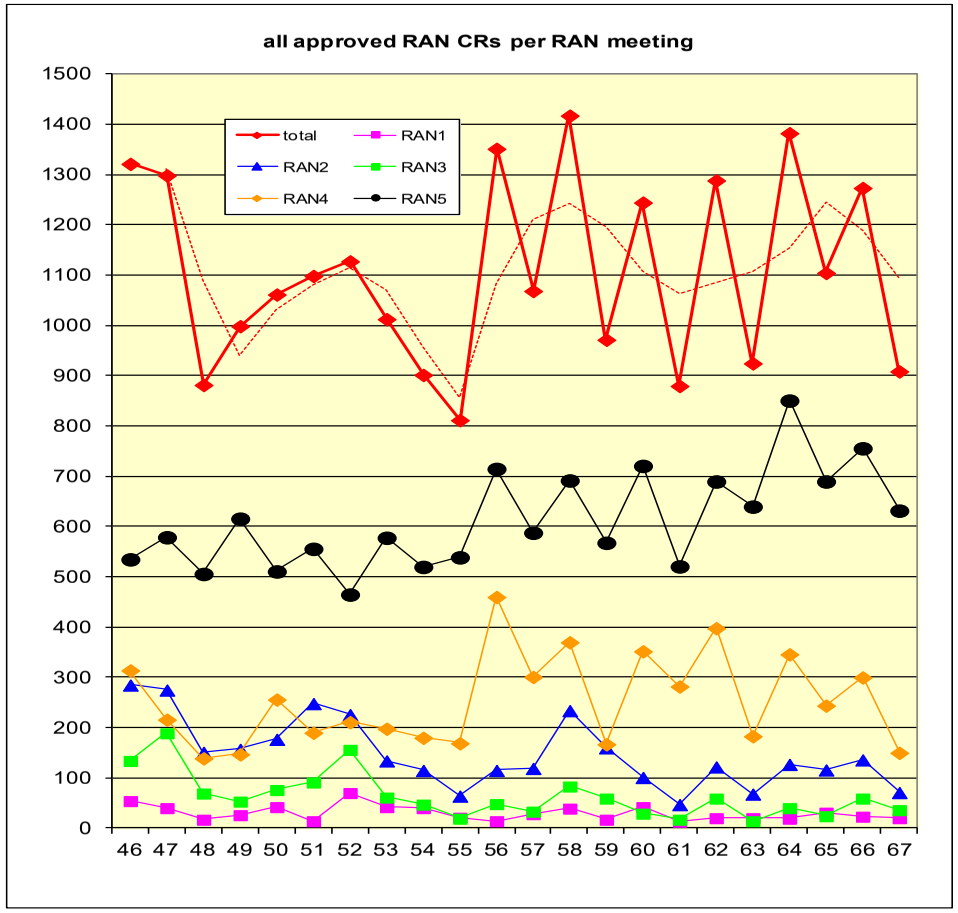


Fig. E-3: Approved CRs (all releases <u>including</u> category A CRs) per RAN WG and per RAN meeting
REL freeze: REL-9: RAN #46, REL-10: RAN #51, REL-11: RAN #57, REL-12: RAN #65
ASN.1 freeze: REL-8: RAN #43, REL-9: RAN #47, REL-10: RAN #52 (apart from Un), REL-11: RAN #59, REL-12: RAN #67

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Annex F:
Summary of RAN work items (WI) and study items (SI)

An overview of recent RAN work items and study items (starting from REL-9 and including the new WIs & SIs approved at this meeting) is attached to this report.

This overview is used as input for the 3GPP workplan which lists all 3GPP work and study items.

status after RAN #67:

REL-7:		
REL-7 stage 1 freeze:	Sep.05	TSG #29
REL-7 stage 2 freeze:	Sep. 06	TSG #33
REL-7 freeze:	March 07	TSG #35
REL-7 ASN.1 freeze:	March 08	TSG #39
REL-8:	7 quarters	
REL-8 stage 1 freeze:	Dec.07	TSG #38
REL-8 stage 2 freeze:	June 08	TSG #40
REL-8 freeze:	Dec.08	TSG #42
REL-8 ASN.1 freeze:	March 09	TSG #43
REL-9:	4 quarters	
REL-9 stage 1 freeze:	Dec.08	TSG #42
REL-9 stage 2 freeze:	June 09	TSG #44
REL-9 freeze:	Dec.09	TSG #46
REL-9 ASN.1 freeze:	March 10	TSG #47
REL-10:	5 quarters	
REL-10 stage 1 freeze:	March 10	TSG #47
REL-10 stage 2 freeze:	Sep.10	TSG #49
REL-10 freeze:	March 11	TSG #51
REL-10 ASN.1 freeze:	June 11	TSG #52 (apart from Un for Relays: frozen in Sep.11 at TSG #53)
REL-11:	6 quarters	
REL-11 stage 1 freeze:	Sep.11	TSG #53
REL-11 stage 2 freeze:	March 12	TSG #55
REL-11 freeze:	Sep.12	TSG #57
REL-11 ASN.1 freeze:	March 13	TSG #59

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REL-12:	8 quarters	
REL-12 stage 1 freeze:	March 13	TSG #59
REL-12 stage 2 freeze:	Dec.13	TSG #62
REL-12 freeze:	Sep.14	TSG #65
REL-12 ASN.1 freeze:	March 15	TSG #67

REL-13:	5 quarters	
REL-13 stage 1 freeze:	Sep.14	TSG #65
REL-13 stage 2 freeze:	June 15	TSG #68 (planned)
REL-13 freeze:	Dec.15	TSG #70 (planned)
REL-13 ASN.1 freeze:	March 16	TSG #71 (planned)

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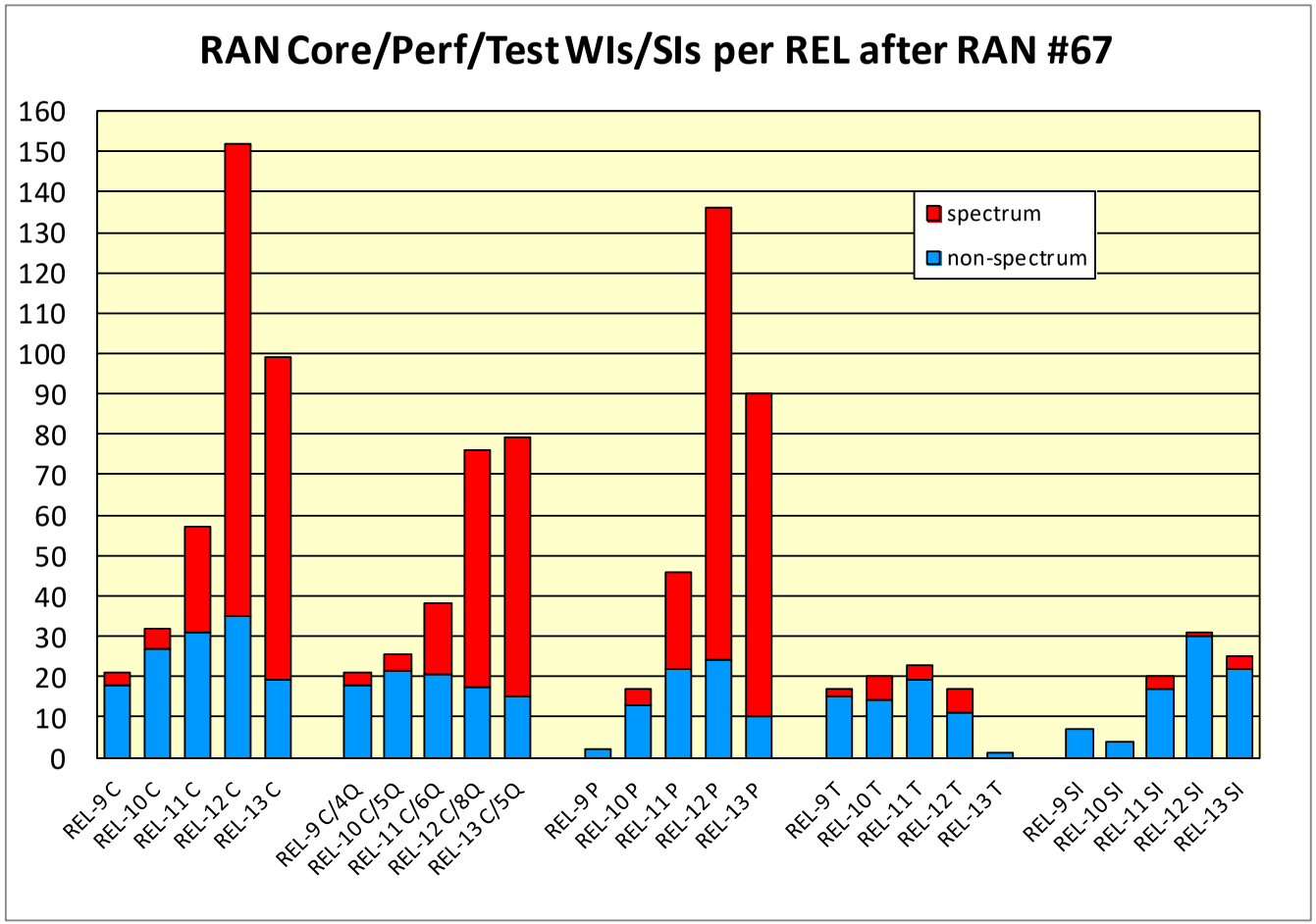


Fig. F-1: Statistics of all approved RAN WIs/SIs of REL-9/10//11/12/13 (status: after RAN #67) split into spectrum and non-spectrum related topics (<u>including</u> already completed WIs/SIs)

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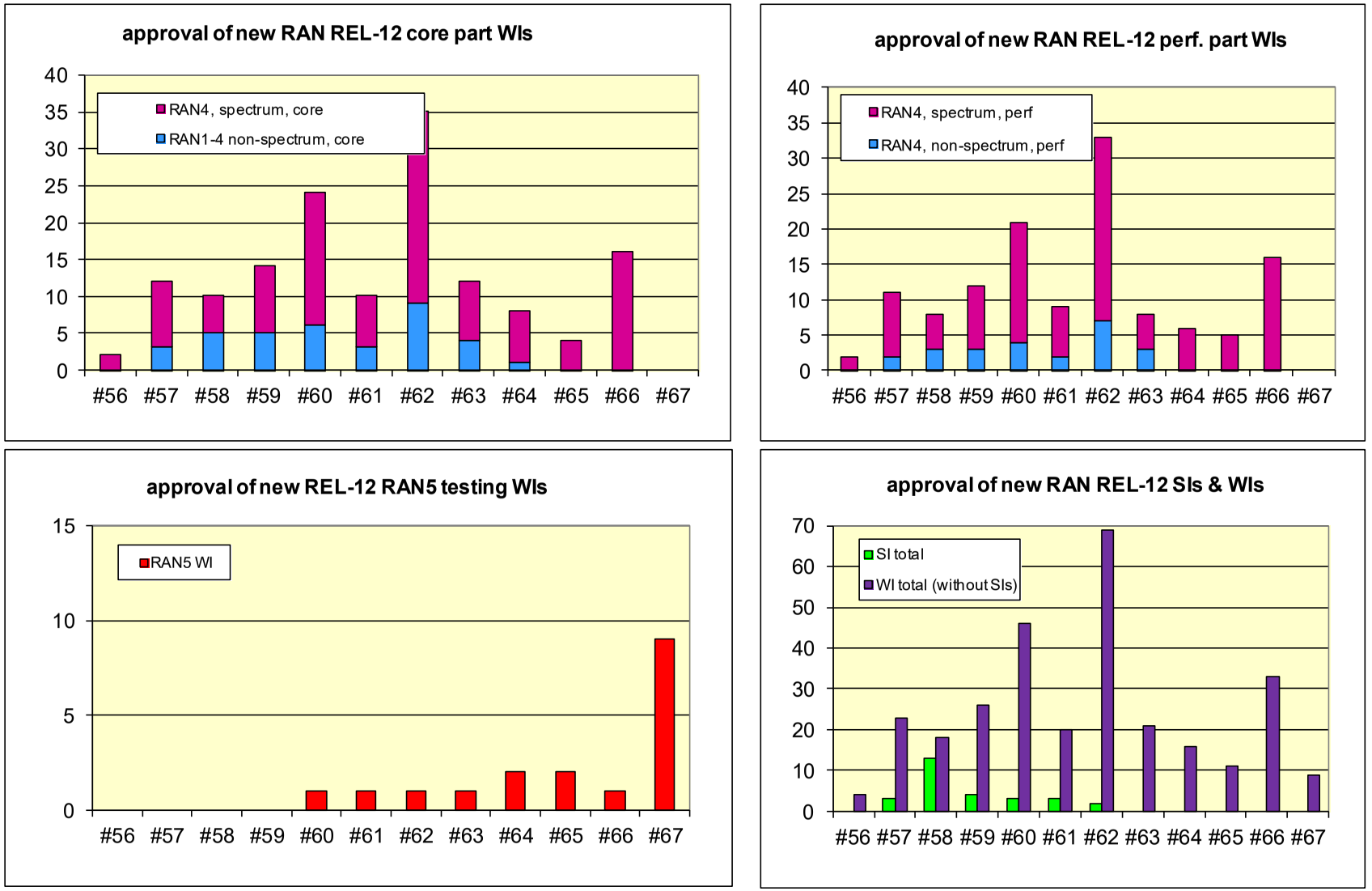


Fig. F-2: Overview of <u>new</u> REL-12 WIs and SIs per RAN meeting (REL-11 freeze: RAN #57, REL-12 freeze: RAN #65) (including WIs started as REL-13 WIs and then completed as REL-12 WIs)

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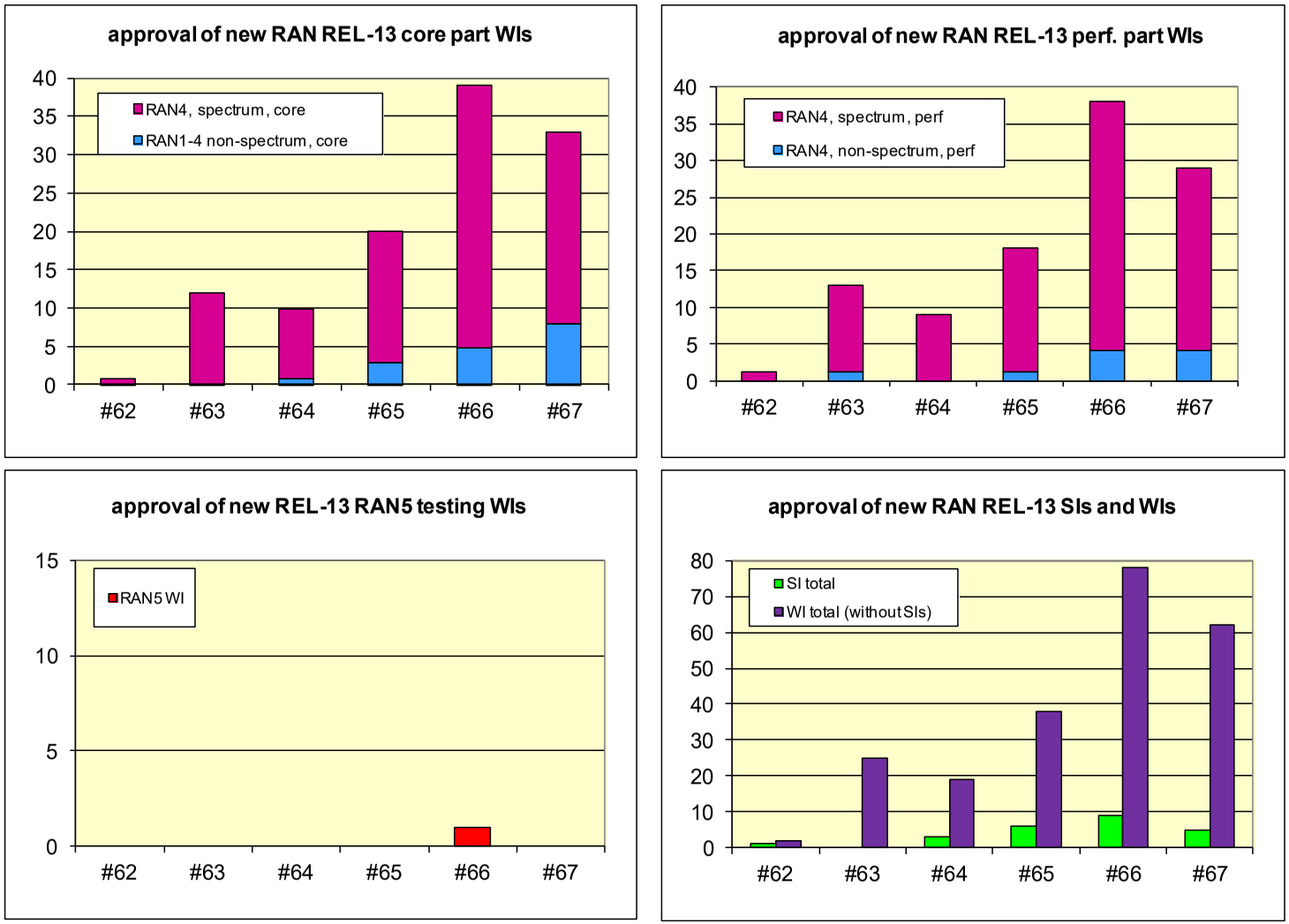


Fig. F-3: Overview of <u>new</u> REL-13 WIs and SIs per RAN meeting (REL-12 freeze: RAN #65, REL-13 freeze: planned for RAN #70) (including WIs shifted from REL-12 to REL-13)

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Annex G:
Actions decided by RAN #67

No Actions allocated.

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Annex H:
History

Document history		
Date	**TSG RAN Tdoc**	**Subject**
08.03.2015	-	Skeleton report for RAN #67 provided before the meeting.
13.03.2015	-	Draft report of RAN #67 v1.0 (this version is also submitted as SP-150153 to SA #67 for information)
31.05.2015	RP-150526	Draft report of RAN #67 v2.0
15.06.2015	RP-150581	Report of RAN #67 as approved by RAN #68

In case of comments/questions/corrections please contact:

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email: Joern.Krause@etsi.org

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Appendix 20

www.3gpp.org / ftp / Specs / archive / 36_series / 36.300

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139 items.

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Appendix 21

www.3gpp.org / ftp / tsg_ran / WG1_RL1 / TSGR1_66 / Docs

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R1-112025.zip	2011/07/07 7:13	9 KB
R1-112026.zip	2011/07/07 7:13	14,8 KB
R1-112027.zip	2011/07/07 7:13	35,1 KB
R1-112028.zip	2011/07/07 7:13	95,6 KB
R1-112029.zip	2011/08/17 7:03	187 KB
R1-112030.zip	2011/08/17 7:03	13,8 KB
R1-112032.zip	2011/08/16 7:55	210,9 KB
R1-112033.zip	2011/08/17 7:03	68,6 KB
R1-112034.zip	2011/08/16 7:55	100,7 KB
R1-112035.zip	2011/08/16 7:55	135,9 KB
R1-112036.zip	2011/08/16 7:55	100,8 KB
R1-112037.zip	2011/08/17 7:03	213,2 KB
R1-112038.zip	2011/08/16 7:55	349,6 KB
R1-112039.zip	2011/08/16 7:56	556,8 KB
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R1-112043.zip	2011/08/16 7:56	29,3 KB
R1-112045.zip	2011/08/16 7:56	18,1 KB
R1-112046.zip	2011/08/19 7:45	40,5 KB
R1-112047.zip	2011/08/17 7:03	78 KB
R1-112048.zip	2011/08/16 7:56	27,4 KB
R1-112049.zip	2011/08/16 7:56	139,6 KB
R1-112050.zip	2011/08/16 7:56	35 KB
R1-112051.zip	2011/08/16 7:56	130,6 KB

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IPR2024-01217

sort by name/desc	sort by date/desc	sort by size/desc
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R1-112056.zip	2011/08/16 7:56	206,5 KB
R1-112057.zip	2011/08/16 7:56	93,9 KB
R1-112058.zip	2011/08/16 7:56	274 KB
R1-112059.zip	2011/07/07 7:13	256,1 KB
R1-112060.zip	2011/08/16 7:56	217,9 KB
R1-112061.zip	2011/08/16 7:56	217,7 KB
R1-112062.zip	2011/08/16 7:56	577,9 KB
R1-112063.zip	2011/08/16 7:57	268,3 KB
R1-112064.zip	2011/08/16 7:57	85,9 KB
R1-112065.zip	2011/08/16 7:57	321,1 KB
R1-112066.zip	2011/08/16 7:57	251,7 KB
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R1-112068.zip	2011/08/16 19:57	415,5 KB
R1-112069.zip	2011/08/16 7:57	229 KB
R1-112070.zip	2011/08/16 7:57	23 KB
R1-112071.zip	2011/08/16 12:09	4,6 KB
R1-112072.zip	2011/08/16 11:57	21,1 KB
R1-112073.zip	2011/08/16 11:57	106 KB
R1-112074.zip	2011/08/16 11:57	6,8 KB
R1-112076.zip	2011/08/16 11:57	5,8 KB
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R1-112078.zip	2011/08/16 11:57	6,7 KB
R1-112079.zip	2011/08/16 11:57	12,7 KB
R1-112080.zip	2011/08/16 11:57	16,7 KB
R1-112081.zip	2011/08/16 19:58	9,9 KB
R1-112082.zip	2011/08/16 19:58	14,8 KB
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R1-112085.zip	2011/08/17 7:03	47 KB
R1-112086.zip	2011/08/17 7:03	96,3 KB

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IPR2024-01217

sort by name/desc	sort by date/desc	sort by size/desc
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R1-112092.zip	2011/08/19 20:13	23,5 KB
R1-112093.zip	2011/08/17 15:49	50,2 KB
R1-112094.zip	2011/08/17 15:49	25 KB
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R1-112097.zip	2011/08/26 11:09	32,2 KB
R1-112098.zip	2011/08/26 11:09	24,9 KB
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R1-112100.zip	2011/08/26 11:09	24,5 KB
R1-112101.zip	2011/08/16 7:57	45,9 KB
R1-112102.zip	2011/08/16 7:57	38,8 KB
R1-112103.zip	2011/08/16 7:57	50,2 KB
R1-112104.zip	2011/08/16 7:57	114,4 KB
R1-112105.zip	2011/08/16 7:57	41,5 KB
R1-112106.zip	2011/08/16 7:57	224,4 KB
R1-112107.zip	2011/08/16 7:57	188,2 KB
R1-112108.zip	2011/08/16 7:57	380,7 KB
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R1-112112.zip	2011/08/16 7:58	35,2 KB
R1-112113.zip	2011/08/16 7:58	44,4 KB
R1-112114.zip	2011/08/16 7:58	38,8 KB
R1-112115.zip	2011/08/16 7:58	26,7 KB
R1-112116.zip	2011/08/16 7:58	35,5 KB
R1-112117.zip	2011/08/16 7:58	30,9 KB
R1-112118.zip	2011/08/16 7:58	25,2 KB
R1-112119.zip	2011/08/16 7:58	57,8 KB
R1-112120.zip	2011/08/16 7:58	34,7 KB

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IPR2024-01217

sort by name/desc	sort by date/desc	sort by size/desc
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R1-112125.zip	2011/08/16 7:58	26,9 KB
R1-112126.zip	2011/08/16 7:58	31,9 KB
R1-112127.zip	2011/08/16 7:58	29,1 KB
R1-112128.zip	2011/08/16 7:58	132,7 KB
R1-112129.zip	2011/08/16 7:58	34,8 KB
R1-112130.zip	2011/08/16 7:58	154 KB
R1-112131.zip	2011/08/16 7:58	35,6 KB
R1-112132.zip	2011/08/19 7:45	34,4 KB
R1-112133.zip	2011/08/16 7:58	9,4 KB
R1-112134.zip	2011/08/16 7:58	108,7 KB
R1-112135.zip	2011/08/16 7:58	80,2 KB
R1-112136.zip	2011/08/16 7:58	72,6 KB
R1-112137.zip	2011/08/16 7:58	399,6 KB
R1-112138.zip	2011/08/16 7:58	166,2 KB
R1-112139.zip	2011/08/16 7:58	214,3 KB
R1-112140.zip	2011/08/16 7:58	907,4 KB
R1-112141.zip	2011/08/16 7:58	7,5 KB
R1-112142.zip	2011/08/16 7:59	37,4 KB
R1-112143.zip	2011/08/16 12:17	611,5 KB
R1-112144.zip	2011/08/16 8:00	591,1 KB
R1-112145.zip	2011/08/16 11:57	91,1 KB
R1-112146.zip	2011/08/16 11:57	18,5 KB
R1-112147.zip	2011/08/18 8:19	40,9 KB
R1-112148.zip	2011/08/18 8:19	72,3 KB
R1-112149.zip	2011/08/18 8:19	55,4 KB
R1-112150.zip	2011/08/16 19:57	90,5 KB
R1-112152.zip	2011/08/16 8:00	22,8 KB
R1-112153.zip	2011/08/16 8:00	24,5 KB
R1-112154.zip	2011/08/16 8:00	77,2 KB
R1-112155.zip	2011/08/18 8:19	50,9 KB

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R1-112160.zip	2011/08/16 8:00	31,3 KB
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R1-112162.zip	2011/08/16 8:00	74,5 KB
R1-112163.zip	2011/08/16 8:00	30,9 KB
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R1-112172.zip	2011/08/16 8:01	83,5 KB
R1-112173.zip	2011/08/16 8:01	24,4 KB
R1-112174.zip	2011/08/16 8:01	72,6 KB
R1-112175.zip	2011/08/16 8:01	22,1 KB
R1-112176.zip	2011/08/16 8:01	26,9 KB
R1-112177.zip	2011/08/16 8:01	1331 KB
R1-112178.zip	2011/08/16 8:01	634,8 KB
R1-112179.zip	2011/08/16 8:01	368,5 KB
R1-112180.zip	2011/08/16 8:01	920,7 KB
R1-112181.zip	2011/08/16 8:01	106,3 KB
R1-112182.zip	2011/08/16 8:02	106,7 KB
R1-112183.zip	2011/08/16 8:02	132 KB
R1-112184.zip	2011/08/16 8:02	29,3 KB
R1-112185.zip	2011/08/16 8:02	15,7 KB
R1-112186.zip	2011/08/16 8:02	30,2 KB
R1-112187.zip	2011/08/16 8:02	21,1 KB
R1-112188.zip	2011/08/16 8:02	40,1 KB
R1-112189.zip	2011/08/16 8:02	47,3 KB

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sort by name/desc	sort by date/desc	sort by size/desc
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R1-112204.zip	2011/08/16 8:02	39,4 KB
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R1-112207.zip	2011/08/16 8:02	133 KB
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R1-112213.zip	2011/08/16 8:03	69,1 KB
R1-112214.zip	2011/08/16 8:03	69,2 KB
R1-112215.zip	2011/08/16 8:03	152,7 KB
R1-112216.zip	2011/08/16 8:03	228,5 KB
R1-112217.zip	2011/08/16 8:03	369,5 KB
R1-112218.zip	2011/08/16 8:03	31,7 KB
R1-112219.zip	2011/08/16 8:03	123,9 KB
R1-112220.zip	2011/08/16 8:03	55,3 KB
R1-112221.zip	2011/08/16 8:03	177,5 KB
R1-112222.zip	2011/08/16 8:03	58,8 KB
R1-112223.zip	2011/08/16 8:03	390,3 KB

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sort by name/desc	sort by date/desc	sort by size/desc
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R1-112237.zip	2011/08/16 8:04	28,4 KB
R1-112238.zip	2011/08/16 8:04	33,3 KB
R1-112239.zip	2011/08/16 8:04	154,9 KB
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R1-112241.zip	2011/08/16 8:05	22,3 KB
R1-112242.zip	2011/08/16 8:05	21,7 KB
R1-112243.zip	2011/08/16 8:05	292,2 KB
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R1-112245.zip	2011/08/16 11:58	35,1 KB
R1-112246.zip	2011/08/16 11:58	26,8 KB
R1-112247.zip	2011/08/16 11:58	277,7 KB
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R1-112249.zip	2011/08/16 11:58	304,9 KB
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R1-112253.zip	2011/08/16 11:58	80,3 KB
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R1-112256.zip	2011/08/19 7:45	53 KB
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R1-112265.zip	2011/08/19 7:45	23,8 KB
R1-112266.zip	2011/08/19 7:45	319,9 KB
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R1-112272.zip	2011/08/17 15:49	26,8 KB
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R1-112278.zip	2011/08/16 11:59	86,6 KB
R1-112279.zip	2011/08/16 11:59	162 KB
R1-112280.zip	2011/08/16 11:59	888,8 KB
R1-112281.zip	2011/08/16 11:59	95,2 KB
R1-112282.zip	2011/08/17 15:50	165,7 KB
R1-112283.zip	2011/08/16 11:59	47,6 KB
R1-112284.zip	2011/08/17 15:49	12,6 KB
R1-112285.zip	2011/08/16 11:59	38,5 KB
R1-112286.zip	2011/08/16 11:59	28,5 KB
R1-112287.zip	2011/08/16 11:59	178,9 KB
R1-112288.zip	2011/08/17 15:49	373,7 KB
R1-112289.zip	2011/08/17 15:49	79,1 KB
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R1-112292.zip	2011/08/16 16:08	19,2 KB
R1-112293.zip	2011/08/16 12:00	302,6 KB
R1-112294.zip	2011/08/16 8:05	169,9 KB

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IPR2024-01217

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R1-112299.zip	2011/08/16 8:05	101,7 KB
R1-112300.zip	2011/08/16 8:05	14 KB
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R1-112306.zip	2011/08/16 8:05	42 KB
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R1-112316.zip	2011/08/16 8:05	53,1 KB
R1-112317.zip	2011/08/17 15:49	139 KB
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R1-112328.zip	2011/08/16 16:07	111,3 KB
R1-112329.zip	2011/08/16 16:08	24 KB

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R1-112334.zip	2011/08/16 12:00	96 KB
R1-112335.zip	2011/08/16 12:00	38,9 KB
R1-112336.zip	2011/08/18 8:19	27,5 KB
R1-112337.zip	2011/08/16 12:00	29,4 KB
R1-112338.zip	2011/08/16 12:00	59,4 KB
R1-112339.zip	2011/08/16 12:00	72,4 KB
R1-112340.zip	2011/08/16 12:00	30,2 KB
R1-112341.zip	2011/08/16 12:00	51,5 KB
R1-112342.zip	2011/08/17 15:49	90,6 KB
R1-112343.zip	2011/08/17 7:03	33,1 KB
R1-112344.zip	2011/08/17 7:03	60,3 KB
R1-112345.zip	2011/08/17 7:03	75,3 KB
R1-112346.zip	2011/08/17 7:03	90,5 KB
R1-112347.zip	2011/08/17 7:04	95,7 KB
R1-112348.zip	2011/08/17 7:04	108,7 KB
R1-112349.zip	2011/08/17 15:49	208,2 KB
R1-112350.zip	2011/08/16 12:00	137 KB
R1-112351.zip	2011/08/16 12:00	32 KB
R1-112352.zip	2011/08/16 12:00	26,8 KB
R1-112353.zip	2011/08/16 12:00	39,2 KB
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R1-112362.zip	2011/08/16 12:00	248,6 KB
R1-112363.zip	2011/08/16 12:00	13,4 KB

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IPR2024-01217

sort by name/desc	sort by date/desc	sort by size/desc
R1-112364.zip	2011/08/16 12:00	20,5 KB
R1-112365.zip	2011/08/16 12:00	14,6 KB
R1-112366.zip	2011/08/16 12:00	31,8 KB
R1-112367.zip	2011/08/16 12:00	98,8 KB
R1-112368.zip	2011/08/16 8:06	69,4 KB
R1-112369.zip	2011/08/16 8:06	287,7 KB
R1-112370.zip	2011/08/16 8:06	59,8 KB
R1-112371.zip	2011/08/16 8:06	26,2 KB
R1-112372.zip	2011/08/16 8:06	159,3 KB
R1-112373.zip	2011/08/16 8:06	126 KB
R1-112374.zip	2011/08/17 15:49	26,7 KB
R1-112375.zip	2011/08/16 8:06	127,1 KB
R1-112376.zip	2011/08/16 8:06	27,3 KB
R1-112377.zip	2011/08/16 8:06	43,9 KB
R1-112378.zip	2011/08/16 8:06	72,5 KB
R1-112379.zip	2011/08/18 8:19	253,8 KB
R1-112380.zip	2011/08/16 8:06	157,9 KB
R1-112381.zip	2011/08/16 8:06	40,2 KB
R1-112382.zip	2011/08/16 8:06	50,8 KB
R1-112383.zip	2011/08/16 8:06	24,8 KB
R1-112384.zip	2011/08/19 20:13	32 KB
R1-112386.zip	2011/08/16 8:06	36,6 KB
R1-112387.zip	2011/08/16 8:06	156 KB
R1-112388.zip	2011/08/16 8:06	38,6 KB
R1-112389.zip	2011/08/16 8:06	28,7 KB
R1-112390.zip	2011/08/17 15:49	219,1 KB
R1-112391.zip	2011/08/16 8:06	183,4 KB
R1-112392.zip	2011/08/16 8:07	21,9 KB
R1-112393.zip	2011/08/16 8:07	46,8 KB
R1-112394.zip	2011/08/16 8:07	24,2 KB
R1-112395.zip	2011/08/16 8:07	22 KB
R1-112396.zip	2011/08/16 8:07	21,6 KB
R1-112397.zip	2011/08/16 8:07	17,3 KB
R1-112398.zip	2011/08/16 8:07	11,3 KB

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sort by name/desc	sort by date/desc	sort by size/desc
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R1-112402.zip	2011/08/16 19:58	14,3 KB
R1-112403.zip	2011/08/19 20:13	49,6 KB
R1-112404.zip	2011/08/16 8:07	20,2 KB
R1-112405.zip	2011/08/16 8:07	10 KB
R1-112406.zip	2011/08/18 8:19	25,2 KB
R1-112407.zip	2011/08/16 8:07	190,1 KB
R1-112408.zip	2011/08/18 8:19	147,6 KB
R1-112409.zip	2011/08/16 8:07	23,1 KB
R1-112410.zip	2011/08/16 8:07	85,6 KB
R1-112411.zip	2011/08/18 8:19	57,2 KB
R1-112412.zip	2011/08/16 8:07	22,8 KB
R1-112413.zip	2011/08/18 8:19	48,8 KB
R1-112414.zip	2011/08/19 7:45	63,7 KB
R1-112415.zip	2011/08/18 8:19	377,4 KB
R1-112416.zip	2011/08/19 7:45	11,9 KB
R1-112417.zip	2011/08/18 8:19	55,5 KB
R1-112418.zip	2011/08/18 8:19	191,4 KB
R1-112419.zip	2011/08/16 8:07	46,3 KB
R1-112420.zip	2011/08/18 8:19	190,3 KB
R1-112421.zip	2011/08/18 8:20	23,8 KB
R1-112422.zip	2011/08/19 20:13	342,3 KB
R1-112423.zip	2011/08/19 7:46	292,1 KB
R1-112426.zip	2011/08/17 7:04	14,6 KB
R1-112427.zip	2011/08/16 12:00	24,8 KB
R1-112428.zip	2011/08/16 12:00	220 KB
R1-112429.zip	2011/08/16 12:00	283,2 KB
R1-112430.zip	2011/08/16 12:00	118,5 KB
R1-112431.zip	2011/08/16 12:01	132,1 KB
R1-112432.zip	2011/08/16 12:01	91,9 KB
R1-112433.zip	2011/08/16 12:01	363,8 KB
R1-112434.zip	2011/08/16 12:01	236,7 KB

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sort by name/desc	sort by date/desc	sort by size/desc
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R1-112438.zip	2011/08/18 8:20	10,2 KB
R1-112439.zip	2011/08/16 8:07	71,6 KB
R1-112440.zip	2011/08/16 8:07	185,6 KB
R1-112441.zip	2011/08/16 8:07	261,2 KB
R1-112442.zip	2011/08/16 8:07	60,9 KB
R1-112443.zip	2011/08/16 8:07	27,7 KB
R1-112444.zip	2011/08/16 8:07	27,9 KB
R1-112445.zip	2011/08/16 8:07	64,5 KB
R1-112446.zip	2011/08/18 8:20	71,2 KB
R1-112447.zip	2011/08/16 8:07	49,2 KB
R1-112448.zip	2011/08/16 8:07	27,9 KB
R1-112449.zip	2011/08/16 8:07	19,7 KB
R1-112450.zip	2011/08/16 8:07	35,4 KB
R1-112451.zip	2011/08/17 15:49	219,7 KB
R1-112452.zip	2011/08/17 15:49	121,2 KB
R1-112453.zip	2011/08/16 8:07	208,8 KB
R1-112454.zip	2011/08/16 8:07	229,5 KB
R1-112455.zip	2011/08/16 12:01	947,5 KB
R1-112456.zip	2011/08/19 7:46	550,3 KB
R1-112457.zip	2011/08/16 12:01	106,4 KB
R1-112458.zip	2011/08/16 8:07	46,2 KB
R1-112459.zip	2011/08/16 8:07	53,6 KB
R1-112460.zip	2011/08/16 8:07	184,4 KB
R1-112461.zip	2011/08/16 8:07	50,4 KB
R1-112462.zip	2011/08/16 8:07	208,1 KB
R1-112463.zip	2011/08/16 8:07	34,5 KB
R1-112464.zip	2011/08/16 8:07	119,6 KB
R1-112465.zip	2011/08/16 8:08	127,8 KB
R1-112466.zip	2011/08/16 8:08	46 KB
R1-112467.zip	2011/08/16 8:08	44,4 KB
R1-112468.zip	2011/08/19 7:46	72,3 KB

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sort by name/desc	sort by date/desc	sort by size/desc
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R1-112472.zip	2011/08/16 19:57	345,2 KB
R1-112473.zip	2011/08/16 19:57	515,2 KB
R1-112474.zip	2011/08/16 19:57	151,9 KB
R1-112475.zip	2011/08/16 19:57	46,7 KB
R1-112476.zip	2011/08/16 19:58	23,8 KB
R1-112477.zip	2011/08/18 9:28	15 KB
R1-112478.zip	2011/08/16 19:57	76,9 KB
R1-112479.zip	2011/08/18 9:28	25 KB
R1-112480.zip	2011/08/16 19:58	44,1 KB
R1-112481.zip	2011/08/16 19:57	100 KB
R1-112482.zip	2011/08/16 19:58	13 KB
R1-112483.zip	2011/08/17 15:49	74,7 KB
R1-112485.zip	2011/08/16 8:08	29,1 KB
R1-112486.zip	2011/08/16 8:08	147,9 KB
R1-112487.zip	2011/08/16 8:08	13,9 KB
R1-112488.zip	2011/08/16 12:01	105,8 KB
R1-112489.zip	2011/08/16 12:01	63,2 KB
R1-112490.zip	2011/08/16 12:01	42,8 KB
R1-112491.zip	2011/08/18 8:20	1583,8 KB
R1-112492.zip	2011/08/16 12:01	20,1 KB
R1-112493.zip	2011/08/18 8:20	25,8 KB
R1-112494.zip	2011/08/16 12:01	35,8 KB
R1-112495.zip	2011/08/16 12:01	45 KB
R1-112496.zip	2011/08/16 12:01	70,3 KB
R1-112497.zip	2011/08/16 12:01	47,5 KB
R1-112498.zip	2011/08/16 12:01	53,1 KB
R1-112499.zip	2011/08/16 12:01	61,6 KB
R1-112500.zip	2011/08/16 12:01	607,1 KB
R1-112501.zip	2011/08/16 12:01	24 KB
R1-112502.zip	2011/08/16 12:01	151,4 KB
R1-112503.zip	2011/08/16 12:01	99,1 KB

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sort by name/desc	sort by date/desc	sort by size/desc
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R1-112505.zip	2011/08/16 12:02	36,3 KB
R1-112506.zip	2011/08/16 12:02	286,2 KB
R1-112507.zip	2011/08/16 12:02	64,3 KB
R1-112508.zip	2011/08/16 12:06	89,7 KB
R1-112509.zip	2011/08/26 11:09	45,5 KB
R1-112510.zip	2011/08/19 7:46	95,1 KB
R1-112512.zip	2011/08/16 12:06	131 KB
R1-112513.zip	2011/08/26 11:09	27 KB
R1-112514.zip	2011/08/16 12:06	45,7 KB
R1-112515.zip	2011/08/16 12:06	28 KB
R1-112516.zip	2011/08/16 12:06	129,6 KB
R1-112517.zip	2011/08/16 12:06	97,6 KB
R1-112518.zip	2011/08/16 12:06	107,1 KB
R1-112519.zip	2011/08/16 12:06	54,2 KB
R1-112520.zip	2011/08/16 12:06	696,4 KB
R1-112521.zip	2011/08/16 12:06	42,2 KB
R1-112522.zip	2011/08/17 15:50	43,5 KB
R1-112523.zip	2011/08/17 15:50	402,9 KB
R1-112524.zip	2011/08/17 15:50	230,2 KB
R1-112525.zip	2011/08/16 12:07	57 KB
R1-112526.zip	2011/08/16 12:07	12,4 KB
R1-112527.zip	2011/08/16 8:08	19,3 KB
R1-112528.zip	2011/08/16 8:08	28,3 KB
R1-112529.zip	2011/08/16 8:08	22,9 KB
R1-112530.zip	2011/08/16 8:08	23,8 KB
R1-112531.zip	2011/08/16 8:08	27,5 KB
R1-112532.zip	2011/08/16 8:08	51,8 KB
R1-112533.zip	2011/08/16 8:08	43 KB
R1-112534.zip	2011/08/16 8:08	53 KB
R1-112535.zip	2011/08/16 8:08	50,2 KB
R1-112536.zip	2011/08/16 8:08	21 KB
R1-112537.zip	2011/08/16 8:08	24,9 KB
R1-112538.zip	2011/08/16 8:08	26,4 KB

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sort by name/desc	sort by date/desc	sort by size/desc
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R1-112541.zip	2011/08/16 8:08	27,7 KB
R1-112542.zip	2011/08/16 8:08	550,3 KB
R1-112543.zip	2011/08/16 8:08	411,5 KB
R1-112544.zip	2011/08/16 8:08	294,3 KB
R1-112545.zip	2011/08/16 8:08	41,7 KB
R1-112546.zip	2011/08/16 8:09	29,3 KB
R1-112547.zip	2011/08/16 8:09	27,6 KB
R1-112548.zip	2011/08/16 8:09	123 KB
R1-112549.zip	2011/08/16 8:09	44,4 KB
R1-112550.zip	2011/08/17 7:04	32,1 KB
R1-112551.zip	2011/08/16 8:09	187,3 KB
R1-112552.zip	2011/08/16 8:09	28,6 KB
R1-112553.zip	2011/08/16 8:09	34,5 KB
R1-112554.zip	2011/08/16 8:09	93,9 KB
R1-112555.zip	2011/08/17 7:04	18,9 KB
R1-112556.zip	2011/08/17 7:04	27,4 KB
R1-112557.zip	2011/08/16 8:09	29,9 KB
R1-112558.zip	2011/08/16 8:09	35,6 KB
R1-112559.zip	2011/08/16 8:09	74,7 KB
R1-112560.zip	2011/08/16 8:09	79,7 KB
R1-112561.zip	2011/08/16 8:09	20,3 KB
R1-112562.zip	2011/08/16 8:09	130,4 KB
R1-112563.zip	2011/08/16 8:09	46,4 KB
R1-112564.zip	2011/08/16 8:09	77 KB
R1-112565.zip	2011/08/16 8:09	50,1 KB
R1-112566.zip	2011/08/16 8:09	22,2 KB
R1-112567.zip	2011/08/16 8:09	22,1 KB
R1-112568.zip	2011/08/16 8:09	22,1 KB
R1-112569.zip	2011/08/16 8:09	22,6 KB
R1-112570.zip	2011/08/16 8:09	22,3 KB
R1-112571.zip	2011/08/16 8:09	22,3 KB
R1-112572.zip	2011/08/16 8:09	22,1 KB

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sort by name/desc	sort by date/desc	sort by size/desc
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R1-112575.zip	2011/08/16 8:09	18,9 KB
R1-112576.zip	2011/08/16 8:09	19,4 KB
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R1-112578.zip	2011/08/16 12:07	15,2 KB
R1-112579.zip	2011/08/16 12:07	239,9 KB
R1-112580.zip	2011/08/16 12:07	28,2 KB
R1-112581.zip	2011/08/16 12:07	29,2 KB
R1-112582.zip	2011/08/16 12:07	138,3 KB
R1-112583.zip	2011/08/16 12:07	9,9 KB
R1-112584.zip	2011/08/17 7:04	82 KB
R1-112585.zip	2011/08/16 12:07	15,7 KB
R1-112586.zip	2011/08/16 8:09	622,1 KB
R1-112587.zip	2011/08/16 8:09	524 KB
R1-112588.zip	2011/08/16 12:07	54,9 KB
R1-112589.zip	2011/08/16 12:07	483 KB
R1-112590.zip	2011/08/16 12:08	1278,8 KB
R1-112591.zip	2011/08/16 12:08	125 KB
R1-112592.zip	2011/08/16 12:08	63,8 KB
R1-112593.zip	2011/08/16 12:08	395,8 KB
R1-112594.zip	2011/08/16 12:08	23,8 KB
R1-112595.zip	2011/08/16 12:08	27,2 KB
R1-112596.zip	2011/08/16 12:08	34 KB
R1-112597.zip	2011/08/19 7:46	11,9 KB
R1-112598.zip	2011/08/19 7:46	13,4 KB
R1-112599.zip	2011/08/19 7:46	11,6 KB
R1-112600.zip	2011/08/16 12:08	188,2 KB
R1-112602.zip	2011/08/16 16:08	21,6 KB
R1-112603.zip	2011/08/16 16:08	29,2 KB
R1-112604.zip	2011/08/16 16:06	1131,1 KB
R1-112605.zip	2011/08/16 16:07	731,9 KB
R1-112606.zip	2011/08/16 16:07	288,2 KB
R1-112607.zip	2011/08/16 16:06	846,4 KB

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sort by name/desc	sort by date/desc	sort by size/desc
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R1-112611.zip	2011/08/19 20:13	23,7 KB
R1-112612.zip	2011/08/16 16:07	48,2 KB
R1-112613.zip	2011/08/16 16:07	58,3 KB
R1-112614.zip	2011/08/16 16:07	57,5 KB
R1-112615.zip	2011/08/16 16:08	47,5 KB
R1-112616.zip	2011/08/16 16:08	26,7 KB
R1-112617.zip	2011/08/16 16:07	106,4 KB
R1-112618.zip	2011/08/16 16:08	26,5 KB
R1-112619.zip	2011/08/16 8:09	23,1 KB
R1-112620.zip	2011/08/16 8:09	304,2 KB
R1-112621.zip	2011/08/19 7:46	35,2 KB
R1-112622.zip	2011/08/16 8:10	12,2 KB
R1-112623.zip	2011/08/16 8:10	20,2 KB
R1-112624.zip	2011/08/16 8:10	495,1 KB
R1-112626.zip	2011/08/16 8:10	9,9 KB
R1-112627.zip	2011/08/19 7:46	275,7 KB
R1-112628.zip	2011/08/16 8:10	455,3 KB
R1-112629.zip	2011/08/16 8:10	247,8 KB
R1-112630.zip	2011/08/16 8:10	11,7 KB
R1-112631.zip	2011/08/17 7:04	13 KB
R1-112632.zip	2011/08/19 7:46	217,4 KB
R1-112635.zip	2011/08/16 8:10	47,2 KB
R1-112636.zip	2011/08/16 8:10	384,2 KB
R1-112637.zip	2011/08/19 20:14	120,3 KB
R1-112638.zip	2011/08/18 8:20	14,6 KB
R1-112639.zip	2011/08/18 8:20	177 KB
R1-112640.zip	2011/08/18 8:20	16,8 KB
R1-112641.zip	2011/08/26 11:09	43,2 KB
R1-112642.zip	2011/08/16 8:10	260,7 KB
R1-112643.zip	2011/08/16 8:10	21,9 KB
R1-112644.zip	2011/08/16 8:10	72,1 KB

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sort by name/desc	sort by date/desc	sort by size/desc
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R1-112646.zip	2011/08/16 8:10	35,4 KB
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R1-112648.zip	2011/08/16 12:08	384,2 KB
R1-112649.zip	2011/08/16 8:10	7,3 KB
R1-112650.zip	2011/08/16 8:10	11,1 KB
R1-112651.zip	2011/08/16 8:10	6,5 KB
R1-112652.zip	2011/08/16 8:10	23 KB
R1-112653.zip	2011/08/16 8:10	16,3 KB
R1-112654.zip	2011/08/16 8:10	34,6 KB
R1-112655.zip	2011/08/16 8:10	10,8 KB
R1-112656.zip	2011/08/16 8:10	347,6 KB
R1-112657.zip	2011/08/16 12:08	29,8 KB
R1-112658.zip	2011/08/16 12:08	19,7 KB
R1-112659.zip	2011/08/16 12:08	30,9 KB
R1-112660.zip	2011/08/17 15:50	235,7 KB
R1-112661.zip	2011/08/17 15:50	133 KB
R1-112662.zip	2011/08/17 15:50	142,2 KB
R1-112663.zip	2011/08/17 15:50	37,2 KB
R1-112664.zip	2011/08/17 15:50	30,7 KB
R1-112666.zip	2011/08/17 15:50	30,8 KB
R1-112667.zip	2011/08/17 15:50	65,2 KB
R1-112668.zip	2011/08/17 15:50	35,6 KB
R1-112669.zip	2011/08/16 12:08	30,3 KB
R1-112670.zip	2011/08/16 8:10	33,1 KB
R1-112671.zip	2011/08/19 7:46	93,1 KB
R1-112672.zip	2011/08/20 12:36	28,9 KB
R1-112673.zip	2011/08/19 7:46	62 KB
R1-112674.zip	2011/08/26 11:08	100,2 KB
R1-112675.zip	2011/08/16 16:08	33,7 KB
R1-112676.zip	2011/08/26 11:08	68,3 KB
R1-112677.zip	2011/08/16 16:08	17,1 KB
R1-112678.zip	2011/08/26 11:08	94,3 KB
R1-112679.zip	2011/08/16 16:07	314,6 KB

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sort by name/desc	sort by date/desc	sort by size/desc
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R1-112684.zip	2011/08/16 16:07	246 KB
R1-112685.zip	2011/08/16 16:07	153,2 KB
R1-112686.zip	2011/08/16 16:07	107,5 KB
R1-112687.zip	2011/08/19 7:46	70,5 KB
R1-112688.zip	2011/08/16 16:08	21,2 KB
R1-112689.zip	2011/08/19 7:46	11,2 KB
R1-112690.zip	2011/08/16 16:07	60 KB
R1-112691.zip	2011/08/16 16:07	84,5 KB
R1-112692.zip	2011/08/26 11:08	16,3 KB
R1-112693.zip	2011/08/16 8:11	26,5 KB
R1-112694.zip	2011/08/16 19:58	30,5 KB
R1-112695.zip	2011/08/17 15:50	348,2 KB
R1-112696.zip	2011/08/19 7:46	118,9 KB
R1-112697.zip	2011/08/16 16:07	611,2 KB
R1-112698.zip	2011/08/16 16:07	591,6 KB
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R1-112710.zip	2011/08/19 20:14	69,4 KB
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R1-112713.zip	2011/08/19 20:14	486,7 KB

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R1-112795.zip	2011/08/26 11:04	335 KB
R1-112796.zip	2011/08/26 11:04	12 KB

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R1-112801.zip	2011/08/26 11:04	51,1 KB
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832 items.

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Appendix 22

3GPP TSG RAN WG1 Meeting #66bis **R1-112886**
Zhuhai, China, 10 – 14 October, 2011

Agenda item	**3**
Title:	**Final Report of 3GPP TSG RAN WG1 #66 v1.0.0**
Document for:	**Approval**
Source:	**MCC Support**



Fact Summary

Meeting:	**3GPP TSG RAN WG1 #66**
Dates:	**22nd through 26th August, 2011**
Venue:	**Athenaeum Intercontinental Hotel – Athens, Greece**

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Main facts summary

3GPP TSG WG RAN1 #66 meeting, hosted by the European Friends of 3GPP took place at the Intercontinental Hotel in Athens, Greece.
The meeting started at 9:00 on Monday 22nd August and finished at 17:00 on Friday 26th August 2011.
The number of attending delegates was 245.

On the second day, 25th of August, the election of WG RAN1 Chairman and Vice Chairmen took place and here below listed candidates were all re-elected for a second term by acclamation. Therefore, the result is summarized as follows:

New Chairman (second term):	Mr. Matthew Baker (Alcatel-Lucent, ETSI)
New Vice Chairmen (second term):	Dr. Tetsushi Abe (DoCoMo Inc., ARIB)
	Dr. Charlie Zhuang (Samsung Telecommunications, ATIS)

The week was scheduled as follows:

- Monday: Common session on Agenda items 1, 2, 3, 4 and 6.1 (LTE maintenance).
- Tuesday morning: Election. Then main session on the remaining maintenance issues (AI 6.1) chaired by Matthew Baker. LTE-A parallel sessions on Enh.CA (AI 6.2) chaired by Matthew Baker on one hand and on DL CoMP (AI 6.5) chaired by Tetsushi Abe on the other hand. Dedicated session to HSPA on Agenda items 5.1 (maintenance), 5.5 (HSDPA Multipoint) and 5.4 (Enh.Cell_FACH) chaired by Johan Bergman
- Wednesday (parallel sessions): First one dedicated to HSPA, 5.2 (UL TxD) chaired by Matthew Baker and 5.3 (8C HSDPA) chaired by Johan Bergman. Second one dedicated UL CoMP (AI 6.5) and Enh.UL (AI 6.7) chaired by Charlie Zhang followed by further enhancements ICIC (AI 6.3) chaired by Matthew Baker.
- Thursday (parallel sessions): First one Network Based Positioning (AI 6.4), then DL MIMO enhancements (6.6) followed by CA TDD (6.2) chaired by Matthew Baker. Second one dedicated to HSPA on Agenda items 5.6 (Uplink MIMO) and CRs drafting for UL TxD and 8C-HSDPA, by Johan Bergman. Third one on Simulation assumptions for Further Enhancements to LTE TDD for DL-UL Interference Management and Traffic Adaptation chaired by Zukang Shen, followed by Simulation assumptions for alignment of eICIC evaluations (RAN1#66bis preparation) chaired by Tetsushi Abe.
- Friday morning: Revisions and revisiting open issues left during the week chaired by Matthew Baker. In parallel, off line session on DL MIMO assumptions chaired by Eric Hardouin.
- Friday afternoon: Revisions

The list of action points that required RAN1 close follow-up is listed in Annex F (end of document).

The number of contribution documents for this meeting was 829.

Agenda Item	Input Document	Discussed Document
AI 4 to AI 6.9	825	422

Note: The amount of documents includes those discussed during the email discussion session post meeting.

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1 Opening of the meeting

Mr. Matthew Baker (RAN1 Chairman) welcomed the participants to the 65th RAN WG1 meeting and opened the meeting at 09:05.
Mr Raphael Le Hegarat from Bouygues Telecom welcomed the delegates on behalf of the European Friends of 3GPP, Alcatel-Lucent, Bouygues, Cisco, Ericsson, Motorola, Nokia, Nokia Siemens Networks, Orange, Qualcomm, SIMAlliance, TeliaSonera, Telefonica, Telecom Italia, Telenor, T-Mobile and Vodafone, and further detailed the domestic arrangements (meeting rooms, coffee breaks, restaurants and lunch suggestions) for the week.

1.1 Call for IPR

The Chairman drew attention to Members' obligations under the 3GPP Partner Organizations' IPR policies. Every Individual Member organization is obliged to declare to the Partner Organization or Organizations of which it is a member any IPR owned by the Individual Member or any other organization which is or is likely to become essential to the work of 3GPP.

The attention of the members 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 members take note that they are hereby invited:
- to investigate in their company whether their company does own IPRs which are, or are likely to become Essential in respect of the work of the Technical Specification Group.
- to notify the Director-General, or the Chairman of their **respective** Organizational Partners, of all potential IPRs that their company may own, by means of the IPR Statement and the Licensing declaration forms (e.g. see the ETSI IPR forms http://webapp.etsi.org/Ipr/).

2 Approval of Agenda

R1-112124	Draft Agenda for RAN1#66 meeting	RAN1 Chairman	(R1-112020)

Matthew Baker (Chairman) proposed the agenda for the meeting and the plan (tentative schedule) of the week. It is noted that AI 6.8 on enhancements to LTE TDD won't be discussed on line but after the meeting, through email discussion. Nevertheless, Mr Chairman expected off line discussion to occur during the week in order to smooth the process and help progressing on the topic.
Decision: The agenda is approved.

3 Approval of Minutes from previous meeting

R1-112021	Final report of RAN1#65 meeting	MCC Support	

The document was presented by Patrick Mérias (ETSI Mobile Competence Center) and provides the outcomes of last meeting.
Discussion (Question / Comment): It was noted that, following RAN#52 CR implementation, some typos were found in TS36.216 and may require correction → shall be reviewed under AI6.1.

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Decision: The document is noted.

R1-112710	Selected highlights from RAN#52 of relevance to RAN1	RAN1 Chairman	

The document was presented by Matthew Baker (RAN1 Chairman) and summarizes the main outcomes relevant to RAN1 from last RAN plenary meeting.
Decision: The document is noted for information.

4 Incoming Liaison Statements

R1-112022	LS on the frequency band specific compressed mode	RAN2, Nokia Siemens Networks	= R2-113591

The document was presented by Karri Ranta-aho from NSN and shows RAN2 agreements made for the Rel-10 functionality referred to as "frequency band specific compressed mode". RAN2 asks RAN1 to check whether any further clarifications are needed regarding CQI report values when the secondary carrier/band experiences a gap upon the configured frequency band specific compressed mode feature.
Discussion (Question / Comment): LS shall be handled under HSPA on Tuesday session.
See R1-112860 under AI5.1.1
Decision: The document is noted.

R1-112025	Reply LS on signalling support to de-activate HS-SCCH orders	RAN3, Qualcomm	= R3-111687

The document was presented by Juan Montojo from Qualcomm and asks RAN2 to proceed under the assumption that RAN3 will introduce signalling to inform NodeB of the UE behavior for HS-SCCH activation/deactivation orders.
Discussion (Question / Comment): No action for RAN1.
Decision: The document is noted.

R1-112023	LS on Removal of MDT M3 LTE Measurement	RAN2, MediaTek	= R2-113651

The document was presented by Chienhwa Hwang from Mediatek and informs that the EUTRA MDT measurement "M3: Uplink signal strength/SINR" has been agreed to be excluded from Rel-10 scope and removed from TS 37.320.
Discussion (Question / Comment): No action for RAN1.
Decision: The document is noted.

R1-112027	LS on MDT UL Measurements	SA5, Nokia Siemens Networks	= S5-112126

The document was presented by Karri Ranta-aho from NSN and informs that SA5 has modified TS 32.422 according to the CR provided by RAN2.
Discussion (Question / Comment): No action for RAN1.
Decision: The document is noted.

R1-112028	LS on Equivalent PLMN identities and MDT	SA, Teliasonera	= SP-110433

The document was presented by Anders Dahlén from Teliasonera and requests the relevant WGs to investigate the necessary changes, in Release 10 or 11, to MDT to make it also applicable in a context where Equivalent PLMN identities are applied within a single operator's network and where the country as identified by the MCC of the RPLMN is the same as the country identified by the MCC in the IMSI.

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Discussion (Question / Comment): No action to RAN1.
Decision: The document is noted.

R1-112024	LS on timing advance calculation using time difference measurement	RAN2, Renesas	= R2-113653

The document was presented by Asbjorn Grovlen from Renesas and requests RAN1 to address questions 2, 3 and 4 and comment on any other issues related to multiple timing advance, if any.
Decision: The document is noted.

R1-112029	Multiple timing advance for carrier aggregation in Rel-11	Huawei, HiSilicon	

The document was presented by Bo Li from Huawei and provides the following conclusions:

- Method (a) (procedure is completed by UE, which can be considered as "open-loop" TA adjustment) cannot provide enough accuracy for automatic TA estimation for the SCell in the inter-band CA scenario.
- Method (b) (the network can provide periodic time alignment adjustments for the SCell using Timing Advance MAC CEs) would meet the accuracy and robustness requirements, if the uplink arrival time based on the initial TA can be restricted within the CP length around the eNB's timing, which is upon RAN4's analysis.
- As the methods described in the LS are used for the scenario with inter-band CA, it is not quite clear to RAN1 how it is applied in CoMP scenario.
- Additional work on investigation for uplink power control may be needed if method (a) or (b) rather than the multiple RACH solution is adopted

Discussion (Question / Comment): Panasonic commented that network based calculation of SCell TA value is necessary to support future techniques such as UL CoMP.
Decision: The document is noted.

R1-112030	Draft reply LS on timing advance calculation using time difference measurement	Huawei	

R1-112072	On timing advance calculation using time difference measurement	Ericsson, ST-Ericsson	

The document was presented by Daniel Larsson from Ericsson and proposes the following answers to questions 2,3 and 4:

- Q2: It is RAN1 understanding that both a) and b) in R1-112024 will severely limit the possibility of performing UL CoMP on a secondary cell. In order to support UL CoMP efficiently RAN1 prefers that RAN2 adopts the current working solution based on random access on secondary cells.
- Q3: RAN1 understanding is that the question is mainly a RAN4 question as there will be need to define new requirements for scheme a) and scheme b) if either one of them is adopted.
- Q4: RAN1 does not see any increase in workload for CA independent which of the three schemes is adopted, i.e. scheme a), scheme b) or the scheme based on random access. RAN1 however see a risk for an increase work load to support UL CoMP efficiently together with CA with multiple TA if either scheme a) or scheme b) is adopted over the random access based scheme.

Decision: The document is noted.

R1-112071	Draft LS reply on timing advance calculation using time difference measurement	Ericsson, ST-Ericsson	

R1-112149	Discussions on timing difference based TA calculation	New Postcom	

The document was presented by Zichao Ji from New Postcom and suggests that RAN2 should keep its original agreement that RACH based method is applied for calculating the TAs on SCells

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Decision: The document is noted.

R1-112234	Discussion on Timing Advance calculation using time difference measurement	InterDigital Communications, LLC	

The document was presented by Marian Rudolf from InterDigital and proposes:

- That Method (a), which allows the UE to be in sole control of TA without any adjustments from the eNB, may result in undesirable behaviour especially in the case of poor channel conditions.
- That it is essential for the eNB to have the ability to at least adjust/override the TA after the initial TA.
- That it is needed to determine whether the initial TA can be made accurately enough to at least meet R8 performance requirements to avoid unnecessary UL interference.

Decision: The document is noted.

R1-112707	Multiple Timing Advance related issues	ZTE	(R1-112244)

The document was presented by Zhisong Zuo from ZTE and concludes that both methods a) and b) listed would be compatible with anticipated future environments such as CoMP. However, the calculating timing advance by the methods (a) and (b) would only meet the accuracy and robustness for UE to perform timing aligned uplink transmission on the SCells in some of feasible deployments. To adopt a solution based on method (a) or (b) will not reduce much the workload than for adopting the multiple RACH solution in RAN1 since the Rel-10 already have solutions for most of issues related to multiple RACH solution.

Decision: The document is noted.

R1-112301	Discussion on TDOA based TA calculation scheme	Renesas Mobile Europe Ltd	

The document was presented by Asbjorn Grovlen from Renesas and provides the following answers:

- Q2: Even though CoMP introduces multiple spatially separated transmission and reception points, from the UE perspective there is no difference in the UE timing compared to the non-CoMP case as the UE bases its timing on a single cell per carrier. Hence, there should be no issues with compatibility between the introducing the TDOA based solution and CoMP.
- Q3: Solution b) lets the eNB to adjust the UE's TA value for the SCell after the initial UL transmission. This will result in the same performance for the UL timing accuracy as in Rel-8
- Q4: There is no significant specification work needed in RAN1 from introducing the TDOA based solution. On the other hand, the RACH based solution will require RAN1 to define the procedure/power of simultaneous transmission of preamble on SCell and PUCCH/PUSCH/SRS on PCell.

Decision: The document is noted.

R1-112323	Draft LS response on timing advance calculation using time difference measurement	LG Electronics	

The document was presented by Joon-Kui Ahn from LGE and proposes:

- Q2: RAN1 does not assume the propagation delay estimation of a DL node corresponding to an UL node in a cell is always possible especially for such as CoMP scenario in Rel 11 and future releases. Moreover, RAN1 does not exclude the aggregation of more uplink cells than downlink cells in Rel-11 and future releases. Therefore, it is not a future proof approach assuming there is always a reference downlink carrier for estimating uplink propagation delay of an uplink carrier in managing uplink transmission timing.
- Q3: It is questionable if eNB can keep track on the transmission timing of a RRH by an enough accuracy (for example, it is specified in [2] a UE should keep its initial transmission

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timing error within ±12Ts (=391ns) for a 3 MHz or larger system bandwidth). However, RAN1 believes this issue should be answered by RAN4.
- Q4: In RAN1 perspective, introducing method (a) or (b) would not incur a great work load for Rel-11.

Decision: The document is noted.

Mr Chairman then decided to look for consensus trying to find proper reply LS and skipped looking at the following contributions.

R1-112350	Comparison of Uplink Time Alignment Synchronization methods for SCell TA groups	Panasonic	
R1-112398	[Draft] LS reply on timing advance calculation using time difference measurement	Alcatel-Lucent, Alcatel-Lucent Shanghai Bell	
R1-112488	Discussion on timing advance calculation using time difference measurement	Samsung	
R1-112694	Multiple timing advance commands	Qualcomm Incorporated	

At this stage, the possible conclusions as starting point for offline discussion are:
- At least method (a) is not considered to be suitable
- (a) and (b) may not be suitable for some CoMp schemes – further analysis would be needed
- W.r.t accuracy, RAN4 should provide their view
- RAN1 doesn't see significant extra work for both methods (with the possible exception of the case of some CoMP scenarios)

Offline, draft reply LS shall be prepared in R1-112760 (Huawei)

Monday evening

R1-112760	Draft LS reply on timing advance calculation using time difference measurement	Huawei	

Discussion (Question / Comment): DoCoMo suggested deleting "may work in some CoMP scenarios but RAN1 did not reach the conclusion whether these methods".

Decision: The document is noted and final LS is agreed as R1-112790.

R1-112716	LS on Radio metrics with respect to QoE	SA4, Qualcomm	= S4-110800

The document was presented by Peter Gaal from Qualcomm and requests the help of RAN1 to assist SA4 in investigating the viability of associating existing radio metrics with Quality of Experience metrics collected during an MBMS service.

Decision: The document is noted.

R1-112026	Response to NGMN LS RP-110476 on coordination between ITU-T and 3GPP on synchronization	RAN, Orange	= RP-110904

The document was presented by Eric Hardouin from Orange.

Decision: The document is noted.

R1-112059	Response to Liaison "NGMN coordination between ITU-T and 3GPP on synchronization topic"	ITU-T Study Group 15, Calnex Solutions, Ericsson	

The document provides ITU-T feedback on current work plan to that topic. Further on, it informs the availability of some Rec. recently approved; G.8265 / G.8265.1: first PTP telecom profile for frequency synchronization of a network without timing support (e.g. no Boundary Clock or Transparent Clock).

Discussion (Question / Comment): Document for information, no action to RAN1. The LS from ITU-T should be treated at RAN#53.

Decision: The document is noted.

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ToR

R1-112141	Proposed update to TSG RAN1 Terms of Reference	RAN1 Chairman	

The document was presented by Matthew Baker (Chairman).
Decision: The document is noted and endorsed by RAN1. MCC shall forward it to RAN for approval @RAN#53.

4.1 Incoming LS received @RAN1#66

None.

5 UTRA

R1-112723	Minutes from RAN1#66 HSPA sessions	HSPA session chairman	

The document was presented by Johan Bergman from Ericsson.
Set of Draft CRs and draft TRs for Rel-11 have been prepared and could be for email approval.
Decision: The document is endorsed and captured as follows in sections 5.1, 5.3, 5.4, 5.5, 5.6 and 5.7.

5.1 Maintenance of UTRA Release 99 – Release 10

5.1.1 FDD

R1-112165	CQI reports in frequency specific compressed mode	Huawei, HiSilicon	

Decision: The document is noted.

R1-112619	Frequency band-specific compressed mode	Nokia Siemens Networks, Nokia	

Decision: The document is noted. Provide draft reply LS to RAN2 (cc RAN3 and RAN4) in 2724 (NSN) and 25.214 CR in 2725 (NSN).
Friday 26th

R1-112724	Draft Reply LS on the frequency band specific compressed mode	NSN	

The document was presented by Karri Ranta-aho from NSN.
Decision: The document is noted and final LS is agreed in R1-112860, assuming the dates of future meetings are added. It is also noted that the plan to draw a 25.214 CR shall be revisited later on and R1-112725 is withdrawn.

R1-112714	On the use of Sync A procedure during transition from CELL_FACH to CELL_DCH	Qualcomm Incorporated	(R1-112671)

Decision: The document is noted.

R1-112672	25.214 CR0654 (Rel-8, F) Clarification of when to use Sync A procedure when UE transitions from CELL_FACH to CELL_DCH	Qualcomm Incorporated	

Decision: The document is noted. Continue discussion offline. Revised CR (R1) can be provided in 2726/2727/2728 for Rel-8/9/10 (Qualcomm).
Friday 26th
The CRs are for email approval until Friday 2nd September.

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5.1.2 TDD

R1-112566	25.223 CR0064 (Rel-8, F) Clarification of 64QAM for LCR TDD	TD Tech	
R1-112567	25.223 CR0065 (Rel-9, A) Clarification of 64QAM for LCR TDD	TD Tech	
R1-112568	25.223 CR0066 (Rel-10, A) Clarification of 64QAM for LCR TDD	TD Tech	

Decision: The documents are noted. Provide revisions (R1) in 2729/2730/2731 (TD Tech) with correct work item code.
Friday 26th
Revision 2 of the CRs were provided in R1-112817/R1-112818/R1-112819 and are all agreed.

R1-112569	25.221 CR0217 (Rel-7,F) Modifications for LCR TDD	TD Tech	
R1-112570	25.221 CR0218 (Rel-8,A) Modifications for LCR TDD	TD Tech	
R1-112571	25.221 CR0219 (Rel-9,A) Modifications for LCR TDD	TD Tech	
R1-112572	25.221 CR0220 (Rel-10,A) Modifications for LCR TDD	TD Tech	

Decision: The documents are noted. Continue discussion offline. A new Rel-10 Cat-F CR can be provided in 2732 (TD Tech) with correct work item code and more explanatory title.
Friday 26th

R1-112820	25.221 CR0220R2 (Rel-10, F) Clarifications on HSUPA for LCR TDD	TD Tech	(R1-112732)

Decision: The document is noted and CR rev 2 is agreed.
Post meeting: CR coversheet doesn't refer to correct version of the specification (MCC source)

R1-112573	25.224 CR0267 (Rel-7,F) Modifications for LCR TDD	TD Tech	
R1-112574	25.224 CR0268 (Rel-8,A) Modifications for LCR TDD	TD Tech	
R1-112575	25.224 CR0269 (Rel-9,A) Modifications for LCR TDD	TD Tech	
R1-112576	25.224 CR0270 (Rel-10,A) Modifications for LCR TDD	TD Tech	

Decision: The documents are noted. Provide a new Rel-10 Cat-F CR in 2733 (TD Tech) with correct work item code and more explanatory title.
Friday 26th

R1-112821	25.224 CR0270R2 (Rel-10, F) Clarifications on SYNC-UL signatures for E-RUCCH procedure for LCR TDD	TD Tech	(R1-112733)

Decision: The document is noted and CR rev 2 is agreed.

5.2 Uplink Transmit Diversity for HSPA – closed loop

5.2.1 Feedback

R1-112166	Performance of absolute and recursive feedback methods	Huawei, HiSilicon	

The document was presented by Zongjie Wang from Huawei and provides some simulation results and considerations of absolute and recursive feedback schemes in UL CLTD. The results showed that the absolute feedback scheme has better gains over the recursive feedback scheme.
Decision: The document is noted.
Proposal: the absolute feedback scheme is provided in CLTD.

R1-112167	CLTD Performance with CPC and Impact of Feedback	Huawei, HiSilicon	

The document was presented by Zongjie Wang from Huawei and concludes:

- Both CLTD BF and CLTD AS can be supported in CPC.
- The UE updates PCI per DTX cycle and keeps the last received PCI until a new PCI is received in the case of CLTD Beamforming and CLTD Antenna Selection.

Decision: The document is noted.

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R1-112399	Closed Loop UL Transmit Diversity operation under CPC	Alcatel-Lucent, Alcatel-Lucent Shanghai Bell	

The document was presented by Shin horng Wong from ALU and proposes that, when CPC is configured:

- at the start of a preamble, the UE uses the most recently signalled precoding vector;
- the UE applies the MSB of the first precoding indicator received during a burst in the first slot after it is available, and the LSB in the next slot;
- subsequently-received precoding vectors are applied in full at the TTI boundary in the usual way..

Decision: The document is noted.

R1-112622	UL CLTD Operation in the Presence of CPC	Nokia Siemens Networks, Nokia	

The document was presented by Thomas Chapman from NSN and proposes:

- The joint UL CLBF and CPC operation principles are based on the joint operation of UL IL PC and CPC operation, as described in section 2.3.
- In the case of CPC and HS-SCCH orders for TD activation/deactivation etc., the rules defined by section 6C.3 of [25.214] are followed. The activation/deactivation time of TD sub-features is FFS.

Decision: The document is noted.

R1-112673	Impact of PCI Update Rate on CLTD Performance in CPC	Qualcomm Incorporated	

The document was presented by Ravi Agarwal from Qualcomm and shows link simulations to compare the performance of 1slot and 3 slot PCI update rates for CLTD operation when CPC is enabled. It can be seen from the results that the 3 slot PCI update rate retains most of the CLTD gains even when CPC is enabled. Therefore, it is concluded that 3slot PCI update rate should for all CLTD operation.

Decision: The document is noted.

InterDigital indicated that their paper also had section covering CPC.

Conclusions that can be drawn from the set of contributions presented so far:

- At the start of a burst, UE applies the most recently received PCI
- Absolute feedback is confirmed

The above two bullets are agreed.

R1-112063	Feedback channel design and considerations for UL CLTD	InterDigital Communications LLC	

The document was presented by Joseph Levy from InterDigital and proposes:

- PCI information is transmitted over a single slot on the F-PCICH.
- The 2 bit PCI information uses one F-PCICH symbol.
- Map the PCI index to better protect errors leading to large phase difference.
- The UE holds the last PCI uplink weight it received between CPC bursts.
- Clarify that for 2ms PCI update rate, the UE is not restricted to update its weights at the subframe boundary.

Decision: The document is noted.

R1-112302	Discussion on the remaining issues of UL CL Tx diversity	Renesas Mobile Europe Ltd	

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The document (sections 2.2 and 2.3) was presented by Arto Lehti from Renesas and lists the following proposals:

- Only one update rate is used for F-PCICH.
- Same timing is used for updating precoding in all cases.
- F-PCICH power control follows power control of F-DPCH or DPCH with a configurable power offset.
- Consecutive symbols are used to signal precoding codeword index in F-PCICH.

Decision: The document is noted.

R1-112611	Remaining design consideration for CLTD	Ericsson, ST-Ericsson	

The document was presented by Johan Hultell from Ericsson and proposes:

- Agree to use an absolute feedback scheme for CLTD
- Only two out of the four signal constellation points should be used to signal the PCI commands
- Two consecutive QPSK symbols should be used to signal the PCI.
- The mapping between the PCI codeword should be such that a 180 degree phase error only occurs if all bits are received erroneously by the UE.
- It should be possible to configure how frequently the UE transmit the S-DPCCH via RRC.
- Different PCI feedback cycles should be proposed. Exact details of supported feedback cycles are FFS.
- CLTD operation should be supported in CELL_FACH state.

Discussion (Question / Comment): Mr Chairman raised concern on bullet 3 → Ericsson is flexible and opened to other solution.
Decision: The document is noted.

R1-112620	F-PCICH design	Nokia Siemens Networks, Nokia	

The document was presented by Karri Ranta-aho from NSN and proposes a specific F-PCICH design, based on existing F-DPCH with the relevant adjustments.
Decision: The document is noted.

R1-112621	UL CLTD UE Behaviour	Nokia Siemens Networks, Nokia	

The document was presented by Thomas Chapman from NSN and deals with the merits of applying the PCI at either slot or 2 ms TTI boundaries. On one hand, the TTI-wise option may lead to link performance penalties of up to 0.5 dB under the Case 3 scenario. On the other, network strategies exist that limit the chance of such a scenario taking place. Further arguments, related to bursty data and UL MIMO commonality also speak in favour of applying the PCI at TTI boundaries.
Decision: The document is noted.

R1-112674	Sensitivity to PCI Feedback Delay for UL CLTD	Qualcomm Incorporated	

The document was presented by Ravi Agarwal from Qualcomm and proposes:

- The PCI information that is signalled is applied by the UE at the next slot boundary after reception of the PCI. It is preferable if the PCI is applied in the second or third slots of the TTI.
- The PCI feedback is transmitted in a single slot to the UE on the F-PCICH channel. This ensures minimal feedback delay.
- The slot index per 2ms subframe and the two F- PCICH symbol indices (ON periods) within a slot will be signalled to the UE. This allows for optimal code utilization where in each of the other 2 slots in the subframe, the same F- PCICH symbols can be allocated to a different UE.

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- The PCI feedback bits are NOT transmitted on F- PCICH symbols that overlap with the SCH channel.
- The PCI feedback bits are NOT transmitted on F- PCICH symbols that overlap with the TPC bits on the F-DPCH channel. This allows for optimization of resources to despread, demodulate and decode the symbols.

Decision: The document is noted.

R1-112720	Downlink PCI feedback channel timing design	Huawei, HiSilicon	(R1-112168)

The document was presented by Zongjie Wang from Huawei and proposes:

- PCI is transmitted in two consecutive F-PCICH slots, the slot format is same to F-DPCH.
- The pre-coding weight adjustment of each E-DCH could be done at the E-DCH subframe border.
- The F-PCICH timing frame offset $\tau_{F-PCICH,n} = \tau_{DPCH,n}$ or $\tau_{F-PCICH,n} = \tau_{F-DPCH,n}$
- The F-PCICH slot index, in which the NodeB starts to transmit PCI, should satisfy

$$(15*\mathrm{CFN}+i+1) \bmod \mathrm{PCI\_Update\_cycle} = 0 \quad N_{OFF1} = 0 \; or \; 2$$

$$(15*\mathrm{CFN}+i+2) \bmod \mathrm{PCI\_Update\_cycle} = 0 \quad N_{OFF1} \text{ larger than } 2$$

Decision: The document is noted.

Attempt for conclusion:

- Application of precoder change, choice between:
  - Slot boundary
  - TTI boundary
  - Small performance gain versus compatibility with UL MIMO
- Number of slots used for PCI
  - 1 slot: InterDigital, Qualcomm, Renesas, NSN, Ericsson
  - 2 adjacent slots: Huawei, ZTE
  - Configure 2 symbols within 2 slots by higher layers
  - Configure 1 QPSK symbol per TTI by higher layers

Working assumptions:

- Application of precoder change:
  - Slot boundary:
- Slots used for PCI:
  - Configure 2 BPSK symbols by higher layers:
    - If both symbols are in the same slot then they are adjacent
    - FFS until RAN1#66bis whether the 2 symbols can also be in different slots with the same position in the 2 slots
- Mapping of PCI to F-PCICH symbols:
  - Maximise phase distance such that 180deg phase error only occurs if all bits are received in error.

Agreements:

- The working assumption from RAN1#65 that the update rate of the UE'e precoder is once per 2ms is confirmed.
- Same update rate of UE's precoder for CPC and non-CPC.
- F-PCICH frame timing offset: $\tau_{F\text{-}PCICH,m} = T_m*256$, $T_m \in \{0,1,\ldots 149\}$.

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5.2.2 HS-SCCH orders for UL TxD (de-)activation

Mr Chairman recalled the agreements made at RAN1#65: configurations 1 and 4 are already agreed. The others are FFS.

UL CLTD Configuration	Uplink Channels				
	DPCCH	HS-DPCCH	E-DPCCH	E-DPDCH	S-DPCCH
1	Primary Precoding Vector				Secondary Precoding Vector
2	Physical Antenna 1				Physical Antenna 2
3	Physical Antenna 2				Physical Antenna 1
4	Physical Antenna 1				De-activate
5	Physical Antenna 2				De-activate

R1-112171	HS-SCCH Orders for UL CLTD Activation/Deactivation	Huawei, HiSilicon	

The document was presented by Zongjie Wang from Huawei and proposes:

- Define two HS-SCCH orders for the two different UL CLTD configurations, namely CLTD and AS.
- S-DPCCH is transmitted in gating when AS mode is activated.
- Redefine the PCI on F-PCICH indicating AS codebooks or add a HS-SCCH order when AS mode is activated.

Discussion (Question / Comment): Ericsson was pleased to see the "gating" as a solution (but the restriction to certain modes is an issue).
Decision: The document is noted.

R1-112400	HS-SCCH orders for UL TxD (de-)activation	Alcatel-Lucent, Alcatel-Lucent Shanghai Bell	

The document was presented by Shin horng Wong from ALU and concludes that, in addition to configurations 1 and 4, configurations 2 and 3 should be supported by HS-SCCH orders, to provide antenna selection. Configuration 5 could also be considered as an addition.
Decision: The document is noted.

R1-112608	Activation and deactivation of CLTD	Ericsson, ST-Ericsson	

The document was presented by Johan Hultell from Ericsson and proposes:

- HS-SCCH ordered transitions between different CLTD configurations shall be applied by the UE at the same time-instant as if the HS-SCCH order corresponded to PCI command transmitted on the F-PCICH.
- The maximum allowed interruption due to an HS-SCCH order should be 1 slot.
- All agreed CLTD configurations should be supported all UEs – independently of their PA architecture.
- If support for configurations 2, 3 and 5 are agreed for UE PA architectures where the second physical antenna is associated with a half-power PA send an LS to RAN2 requesting them to take this into account when modifying definitions of the UPH and Event 6D.
- Support configurations 2, 3, and 5.

Decision: The document is noted.

Mr Chairman decided not looking on line to all contributions and draws the following:

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Agreement:
- Activation / deactivation of configurations 2, 3 and 5 are also supported

S-DPCCH gating
- Supported in all configurations: Ericsson, Huawei, Motorola
- Not needed: NSN, Qualcomm, ALU

Agreement:
- Signalling to support gating is not specified

Working assumptions:
- HS-SCCH ordered transitions between different CLTD configurations shall be applied by the UE
  - after the ACK for transitions to/from configuration 4 and 5
  - for other transitions, as soon as possible - exact timing FFS until RAN1#66bis
- The maximum allowed interruption time when receiving an HS-SCCH order is as short as possible, FFS until RAN1#66bis (e.g. 1 or 2 slots)

Not treated.

R1-112064	Dynamic antenna selection via HS-SCCH order for UL CLTD	InterDigital Communications LLC	
R1-112170	Antenna selection scheme for UL CLTD	Huawei, HiSilicon	
R1-112675	Dynamic control of UL CLTD via HS-SCCH orders	Qualcomm Incorporated	

5.2.3 S-DPCCH design

5.2.3.1 Spreading code

R1-112065	S-DPCCH channelization code and power offset range	InterDigital Communications LLC	
R1-112172	Channelisation code allocation and I/Q mapping for S-DPCCH	Huawei, HiSilicon	

Documents are just noted.

Agreement:
- S-DPCCH is transmitted on the Q-branch

Code:
- Huawei: 2,4, 7, 31, 41
- InterDigital: 34-39

Mr Chairman asked what value to use? Huawei proposed 31 according to the best of their simulations.

Agreement:
- Code 31

5.2.3.2 Use of remaining 2 bits in slot format

R1-112173	On the use of remaining 2 bits in a slot of S-DPCCH	Huawei, HiSilicon	

The document was presented by Zongjie Wang from Huawei and deals with the use of the remaining 2 bits in a slot of S-DPCCH, and concludes:

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- The remaining 2 bits on S-DPCCH are used to repeat the TPC command transmitted on the DPCCH.
- F-PCICH is transmitted on all the DL radio links from serving NodeB to UE.
- Raise the power offset of F-PCICH when UE is in soft handover region.

Discussion (Question / Comment): Qualcomm apologized for late 2676 but suggested to look at it.
Decision: The document is noted.

R1-112676	On the reliability of sending control information on S-DPCCH in UL CLTD	Qualcomm Incorporated	

The document was presented by Ravi Agarwal from Qualcomm and deals with link simulations to evaluate the reliability of bits transmitted on the S-DPCCH channel using slot format 1. It is observed that a target bit error rate can be obtained if the bits are combined over 12 slots if a single bit is transmitted whereas the bits need to be combined over 28 bits if two bits are transmitted. Further consideration is required to determine the purpose of these bits.
Decision: The document is noted.

R1-112609	On the quality of PCI feedback for CLTD	Ericsson, ST-Ericsson	

The document was presented by Johan Hultell from Ericsson and proposes:

- Agree that the UE only considers PCI information if the estimated reception quality meets some quality threshold.
- To evaluate whether to account for the received PCI information the UE shall monitor the quality of the F-PCICH.
- In time-periods during which PCI feedback channel the UE does not update its pre-coding vector.
- Agree that there is a need for the UE to inform the Node-B that the downlink quality of the PCI is inferior.

Decision: The document is noted.
Conclusion: Proposals in bullet 1-3 for FFS till next meeting

Mr Chairman decided not looking on line to all contributions and made an attempt summarizing the different views of use of remaining 2 bits:

Proposals:

- to indicate PCI weights used: supported by InterDigital, ALU, ZTE
- to repeat TPC command: supported by Huawei
- to indicate the F-PCICH quality: supported by Ericsson
- fixed value / extended pilot: supported by Renesas, NSN

Working assumption:

- Fixed value
- FFS until RAN1#66bis whether a more useful purpose can be agreed.

Not treated.

R1-112278	Usage of S-DPCCH remaining two bits for UL CLTD	ZTE	
R1-112401	Discussion on spare information bits in the S-DPCCH	Alcatel-Lucent, Alcatel-Lucent Shanghai Bell	

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5.2.4 State / channel requirements for support of UL TxD

Support of UL CLTD in Cell_FACH

Support in Cell_FACH
- Yes: Huawei, Ericsson, ZTE
- No: NSN, Qualcomm

R1-112623	UL CLTD compatibility with E-DCH in Cell_FACH	Nokia Siemens Networks, Nokia	

The document was presented by Karri Ranta-aho from NSN and highlights the drawbacks of the introduction of UL CLTD for Common E-DCH. It is proposed not to support it in Cell_FACH state.
Decision: The document is noted.

R1-112611	Remaining design consideration for CLTD	Ericsson, ST-Ericsson	

The document (section 2.3) was presented by Johan Hultell from Ericsson and states that CLTD operation should be supported in CELL_FACH state, unless technical obstacles exist.
Discussion (Question / Comment): Motorola raised concern on power consumption drawback
Decision: The document is noted.

Agreements:
- CLTD is not supported in Cell_FACH in Rel-11
- Enhancements to support CLTD in Cell_FACH in a later release are not precluded.

Not treated online, just noted.

R1-112174	E-DPCCH boosting for UL CLTD	Huawei, HiSilicon	
R1-112175	UL CLTD support in CELL_FACH state	Huawei, HiSilicon	
R1-112717	On the applicability of UL CLTD in CELL_FACH	Qualcomm Incorporated	

5.2.5 Draft CRs

R1-112677	Impact to RAN1 Specifications due to UL CLTD	Qualcomm Incorporated	

Decision: The document is noted.

R1-112624	Draft 25.211 CR on Introduction of F-PCICH channel	Nokia Siemens Networks, Nokia	

Decision: The document is noted.

R1-112812	CR for 25.211: Introduction of Uplink Closed Loop Transmit Diversity for HSPA	Huawei, HiSilicon	(R1-112177)

Decision: The document is noted.

R1-112813	CR for 25.212: Introduction of Uplink Closed Loop Transmit Diversity for HSPA	Huawei, HiSilicon	(R1-112178)

Decision: The document is noted.

R1-112814	CR for 25.213: Introduction of Uplink Closed Loop Transmit Diversity for HSPA	Huawei, HiSilicon	(R1-112179)

Decision: The document is noted.

R1-112815	CR for 25.214: Introduction of Uplink Closed Loop Transmit Diversity for HSPA	Huawei, HiSilicon	(R1-112180)

Decision: The document is noted.

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R1-112181	CR for 25.215: Introduction of Uplink Closed Loop Transmit Diversity for HSPA	Huawei, HiSilicon	

Decision: The document is noted.
Provide updated draft CRs in 2743/2744/2745/2746/2747 (Huawei) according to the RAN1 agreements.
Friday 26th
The CRs are for email endorsement by Friday 2nd September.

5.2.6 Performance evaluation

R1-112712	25.863 DraftCR (Rel-11,B) Inclusion of CLTD in the ULTD technical report	Ericsson, ST-Ericsson	(R1-112612)

Decision: The document is noted. An updated CR and summary document can be provided at the next RAN1 meeting.

5.2.7 Other

R1-112066	Synchronization and radio link monitoring for UL CLTD	InterDigital Communications LLC	

Decision: The document is noted.

R1-112176	Interaction with DC-HSUPA	Huawei, HiSilicon	

Decision: The document is noted.

R1-112610	Power based deactivation for CLTD	Ericsson, ST-Ericsson	

Decision: The document is noted.

Agreements:

- Autonomous activation/deactivation by the UE of CLTD is not supported.
- The need for UE requested (de)activation is FFS.
- Any potential UE requests for deactivation/activation of CLTD should be sent to serving Node-B only (i.e. the S-RNC does not need to be involved).

R1-112169	Performance of asymmetric and enhanced symmetric beamforming in SHO for CLTD	Huawei, HiSilicon	

Decision: The document is noted.

R1-112678	Further analysis on Enhanced Symmetric Beamforming	Qualcomm Incorporated	

Qualcomm informed of the proposal to support enhanced symmetric beamforming in 2678 but recommended not to spend too much time on it as the author, Arjun Bharadwaj, could not attend RAN1#66 meeting due to medical reason.
Mr Chairman tasked Ravi to convey to Arjun RAN1 best wishes for a speedy recovery.
Decision: The document is noted.
The choice between asymmetric and enhanced symmetric beamforming is FFS.

Provide draft LS on RAN1 agreements on UL CLTD to RAN2, RAN3 and RAN4 in 2741 (Huawei).
Friday 26th

R1-112741	[DRAFT] LS on RAN1 agreements on uplink Closed Loop Transmit Diversity for HSPA	Huawei, HiSilicon	

The document was presented by Zongjie Wang from Huawei.

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Discussion (Question / Comment): NSN commented that revision might be needed to clarify the impacts to other groups → and further agree to provide Huawei with some inputs.
Decision: The document is noted.
NSN/Huawei shall revise it to make clearer the relevant information / actions for the other WGs – it's also agree adding the draft CRs as attachment to the LS.
Revision in R1-112861 is for email discussion/approval by Friday 9th September.

5.3 8-carrier HSDPA

5.3.1 Remaining details of HS-DPCCH design

R1-112067	Selection of Channelization Codes for HS-DPCCH when DPDCH is configured in 8-carrier HSDPA	InterDigital Communications LLC	

Decision: The document is noted.

R1-112183	Cubic metric analysis for HS-DPCCH designs of 8C-HSDPA	Huawei, HiSilicon	

Decision: The document is noted.

R1-112602	Further discussions on the channelization for HS-DPCCH	Ericsson, ST-Ericsson	

Decision: The document is noted.

R1-112068	Physical Channel Mapping for 2xSF128 HS-DPCCH in 8C-HSDPA	InterDigital Communications LLC	

Decision: The document is noted.

R1-112705	Carriers remapping on HS-DPCCH after activation/deactivation for 8C-HSDPA	Huawei, HiSilicon	(R1-112182)

Decision: The document is noted.

Agreements:

- The I and Q branches of $C_{ch,128,16}$ shall be used for transmitting HS-DPCCH when UL DPDCH is configured.
- For each HS-DPCCH, HARQ-ACK and CQI information are remapped according to the Rel-10 principles.
- The power offsets used on the two HS-DPCCHs may be different as a result of different amount of repetition of HARQ-ACK or CQI fields.
- If Secondary_Cell_Active is larger than 3 and the UE does not detect HS-SCCH for any downlink carrier whose HARQ-ACK information is mapped to the same HS-DPCCH and - at the same time - at least on HS-SCCH is detected for a carrier whose HARQ-ACK information is mapped to the other HS-DPCCH then the UE shall repeat the DTX in the HARQ-ACK field of the HS-DPCCH for which it did not detect any HS-SCCH transmissions.
- PRE/POST procedure is updated so that PRE/PRE is sent on both HS-DPCCHs prior to a transmissions and POST/POST is sent on both HS-DPCCHs subsequent to a transmission if Secondary_Cell_Active is larger than 3.
- One Δ_{ACK}, Δ_{NACK} and Δ_{CQI} is signaled to the UE. When selecting the power offsets to use in a certain sub-frame the UE shall consider the number of activated carriers on HS-DPCCH1 and HS-DPCCH2 individually.
- No remapping of HARQ-ACK or CQI information is performed between the two HS-DPCCHs.

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- The HARQ-ACK and CQI information associated with the serving HS-DSCH cell, the 1st, 2nd, and 3rd secondary serving HS-DSCH cells are always transmitted on HS-DPCCH$_1$.
- The HARQ-ACK and CQI information associated with the 4th, 5th, 6th, and 7th secondary serving HS-DSCH cells are transmitted on HS-DPCCH$_2$.
- If the 4th, 5th, 6th, and 7th secondary serving HS-DSCH cells are deactivated, HS-DPCCH$_2$ is not transmitted.

5.3.2 Draft CRs

R1-112604	25.211 CR288R1 (Rel-11,B) Introduction of 8C-HSDPA	Ericsson, ST-Ericsson	(R1-111757)

Decision: The document is noted.

R1-112605	25.212 CR0296R1 (Rel-11,B) Introduction of 8C-HSDPA	Ericsson, ST-Ericsson	(R1-111758)

Decision: The document is noted. Consider keeping the 2/3/4C-HSDPA and 8C-HSDPA cases in separate tables.

R1-112606	25.213 CR0109R1 (Rel-11,B) Introduction of 8C-HSDPA	Ericsson, ST-Ericsson	(R1-111759)

Decision: The document is noted. Add the DPDCH case in Table 0 and Table 1D.

R1-112607	25.214 CR0652R1 (Rel-11,B) Introduction of 8C-HSDPA	Ericsson, ST-Ericsson	(R1-111760)

Decision: The document is noted.

Provide revisions (R2) in 2736/2737/2738/2739 (Ericsson) updated according to the RAN1 agreements.
Friday 26th
The CRs are for email endorsement by Friday 2nd September.

5.3.3 Other

R1-112603	Open issues related to 8C-HSDPA	Ericsson, ST-Ericsson	

Decision: The document is noted.

Provide draft LS on RAN1 agreements on 8C-HSDPA to RAN2, RAN3 and RAN4 in 2740 (Ericsson).
Friday 26th

R1-112740	Draft LS on RAN1 agreements on 8C-HSDPA	Ericsson, ST-Ericsson	

The document was presented by Johan Hultell from Ericsson.
Discussion (Question / Comment): NSN commented that revision might be needed to clarify the impacts to other groups → and further agree to provide Ericsson with some inputs.
Decision: The document is noted.
NSN/Ericsson shall revise it to make clearer the relevant information / actions for the other WGs – it's also agree adding the draft CRs as attachment to the LS.
Revision in R1-112862 is for email discussion/approval by Friday 9th September.

5.4 Further Enhancements for Cell_FACH

See LS from RAN2 in R1-111336.

5.4.1 Downlink related improvements of resource utilization, throughput, latency and coverage

Stand-alone HS-DPCCH without ongoing E-DCH transmission

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R1-112185	Discussion on stand-alone HS-DPCCH	Huawei, HiSilicon	

Decision: The document is noted.

R1-112402	Standalone HS-DPCCH in Enhanced CELL_FACH	Alcatel-Lucent, Alcatel-Lucent Shanghai Bell	

Decision: The document is noted.

R1-112616	Further downlink enhancements to CELL_FACH	Ericsson, ST-Ericsson	

Decision: The document is noted.

R1-112626	Node B controlled HS-DPCCH setup for HS-FACH	Nokia Siemens Networks, Nokia	

Decision: The document is noted.

R1-112679	On the merits of Standalone HS-DPCCH in CELL_FACH	Qualcomm Incorporated	

Decision: The document is noted.

R1-112715	Physical channels and procedures to support standalone HS-DPCCH in CELL_FACH	Qualcomm Incorporated	(R1-112680)

Decision: The document is noted.

Other topics

R1-112184	On the benefits of DC-HSDPA operation in CELL_FACH state	Huawei, HiSilicon	

Decision: Not treated. A corresponding contribution has been submitted to RAN2.

R1-112681	On the limitation of H-RNTIs in CELL_FACH	Qualcomm Incorporated	

Decision: The document is noted.

5.4.2 Uplink related improvements of resource utilization, throughput, latency and coverage

TTI alignment between CELL_FACH UEs and CELL_DCH UEs;
Reduction in timing of the initial access in the physical random access procedure;
Signalling-based interference control

R1-112617	Further uplink enhancements to CELL_FACH	Ericsson, ST-Ericsson	

Decision: The document is noted.

R1-112683	On the benefits of signaling based Interference control in CELL_FACH	Qualcomm Incorporated	

Decision: The document is noted.

Other topics

R1-112186	Co-existence of 2ms and 10ms TTI	Huawei, HiSilicon	

Decision: Not treated. A corresponding contribution has been submitted to RAN2.

R1-112187	UE based TTI length decision in CELL-FACH state	Huawei, HiSilicon	

Decision: The document is noted. It is noted that this issue (TTI length decision) is not one of the issues listed in the LS from RAN2.

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R1-112188	Solution of Fallback to R99 PRACH	Huawei, HiSilicon	

Decision: The document is noted. A corresponding contribution has been submitted to RAN2.

R1-112189	Blocking and Collision Probability Analysis for E-RACH	Huawei, HiSilicon	

Decision: Not treated**.** A corresponding contribution has been submitted to RAN2.

R1-112682	Comparison of link efficiency of transmission of small packets between R99 and EUL in CELL_FACH	Qualcomm Incorporated	

Decision: The document is noted.

5.5 Study on HSDPA multipoint transmission

5.5.1 Impact on performance of legacy UEs

Section 9 in TR 25.872

R1-112205	TP on Impact on performance of legacy Ues due to SF-DC aggregation	Huawei, HiSilicon	

Decision: The document is noted. Refer to simulation results instead of company name.
Ericsson comment: Rephrase paragraph on impact on legacy UEs.
NSN comment: Simplify description.
Qualcomm comment: Mention the possibility to reduce the impact on legacy UEs through load sharing techniques.

R1-112627	Multiflow impact on legacy UEs	Nokia Siemens Networks, Nokia	

Decision: The document is noted.
Note: It is enough to capture the conclusions regarding the impact on legacy UEs in the TR and refer to the Excel sheet (attached to the TR) and to company contributions for further details.

5.5.2 Other evaluations

Section 7 in TR 25.872

R1-112069	System simulation summary for MP-HSDPA	InterDigital Communications LLC	

Decision: The document is noted.

R1-112070	System simulation text proposal for MP-HSDPA	InterDigital Communications LLC	

Decision: The document is noted.

R1-112190	System Performance Evaluation of Intra-NodeB SF-DC Aggregation in uniform loading and 100% penetration	Huawei, HiSilicon	
R1-112191	System Performance Evaluation of Intra-NodeB SF-DC Aggregation in uniform loading and 30% penetration	Huawei, HiSilicon	
R1-112192	System Performance Evaluation of Intra-NodeB SF-DC Aggregation in non uniform loading and 100% penetration	Huawei, HiSilicon	
R1-112193	System Performance Evaluation of Intra-NodeB SF-DC Aggregation in non uniform loading and 30% penetration	Huawei, HiSilicon	
R1-112194	System Performance Evaluation of Inter-NodeB SF-DC Aggregation in uniform loading and 100% penetration	Huawei, HiSilicon	

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R1-112195	System Performance Evaluation of Inter-NodeB SF-DC Aggregation in uniform loading and 30% penetration	Huawei, HiSilicon	
R1-112196	System Performance Evaluation of Inter-NodeB SF-DC Aggregation in non uniform loading and 100% penetration	Huawei, HiSilicon	
R1-112197	System Performance Evaluation of Inter-NodeB SF-DC Aggregation in non uniform loading and 30% penetration	Huawei, HiSilicon	
R1-112198	System Performance Evaluation of Inter-NodeB SF-DC Aggregation in uniform loading and 100% penetration with realistic RLC and flow control	Huawei, HiSilicon	
R1-112199	System Performance Evaluation of Inter-NodeB SF-DC Aggregation in uniform loading and 30% penetration with realistic RLC and flow control	Huawei, HiSilicon	
R1-112200	System Performance Evaluation of Inter-NodeB SF-DC Aggregation in non uniform loading and 30% penetration with realistic RLC and flow control	Huawei, HiSilicon	
R1-112201	System Performance Evaluation of Inter-NodeB SF-DC Aggregation in non uniform loading and 100% penetration with realistic RLC and flow control	Huawei, HiSilicon	

R1-112202	Summary of System performance for SF-DC Aggregation	Huawei, HiSilicon	

Decision: The document is noted.

R1-112203	Text Proposal on System Performance Evaluation of SF-DC aggregation with ideal flow control	Huawei, HiSilicon	
R1-112204	Text Proposal on System Performance Evaluation of SF-DC aggregation with realistic RLC and flow control	Huawei, HiSilicon	

R1-112303	System Performance Evaluation of SF-DC Inter-NodeB aggregation with Type 3 and Type 3i receivers in Pedestrian A channel	Renesas Mobile Europe Ltd	

Decision: The document is noted.

R1-112304	System Performance Evaluation of SF-DC Inter-NodeB aggregation with Type 3 and Type 3i receivers in Vehicular A channel	Renesas Mobile Europe Ltd	

Decision: The document is noted.

R1-112403	Further evaluations of HSDPA multipoint transmission	Alcatel-Lucent, Alcatel-Lucent Shanghai Bell	

Decision: The document is noted. It is sufficient to include results for one threshold value for traffic profile 2.

R1-112613	Performance evaluation of Inter+Intra Node-B Aggregation for SF-DC-HSDPA	Ericsson, ST-Ericsson	

Decision: The document is noted.

R1-112614	Performance evaluation of Intra Node-B Aggregation for SF-DC-HSDPA	Ericsson, ST-Ericsson	

Decision: The document is noted.

R1-112628	Multiflow RRH system results for balanced load	Nokia Siemens Networks, Nokia	

Decision: The document is noted.

R1-112713	Multiflow RRH system results for unbalanced load	Nokia Siemens Networks, Nokia	(R1-112629)

Decision: The document is noted.

R1-112684	System Performance Evaluation of DF-DC Inter NodeB aggregation in uniform loading scenario- 100% penetration	Qualcomm Incorporated	

Decision: The document is noted.

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R1-112685	System Performance Evaluation of SF-DC Inter NodeB aggregation assuming realistic RLC and flow control in a uniform loading scenario	Qualcomm Incorporated	

Decision: The document is noted.

R1-112686	TCP Performance Evaluation of SF-DC Inter NodeB aggregation assuming realistic RLC, flow control and congestion control	Qualcomm Incorporated	

Decision: The document is noted.

R1-112687	TP to 27.871 on Updated System Performance Evaluations for MP-Tx	Qualcomm Incorporated	

Decision: The document is noted.

5.5.3 Implementation impact

Section 8 in TR 25.872

R1-112207	HS-DPCCH Timing Analysis for MP-HSDPA	Huawei, HiSilicon	

Decision: The document is noted.

5.5.4 Specification impact

Section 10 in TR 25.872

R1-112206	TP on Specification impact due to SF-DC aggregation	Huawei, HiSilicon	

Decision: The document is noted.

R1-112688	TP on Impact to RAN specifications due to HSDPA MP-Tx	Qualcomm Incorporated	

Decision: The document is noted.

5.5.5 Conclusions for TR 25.872

Section 11 in TR 25.872

R1-112636	TR25.872 v1.0.1	Rapporteur (Nokia Siemens Networks)	

Decision: The document is noted.

R1-112630	TP to 25.872 on SI conclusions	Nokia Siemens Networks, Nokia	

Decision: The document is noted.
Ericsson comments: Mention that gains are larger at low load. State something on impact on legacy UEs or UEs with a single RL. Estimate the required implementation effort for the different (inter- and intra-site) cases. Try to state typical numbers instead of large ranges.

R1-112689	TP on Conclusions of HSDPA MP-Tx feature	Qualcomm Incorporated	

Decision: The document is noted.
Provide an updated draft TR in 2734 (NSN) and an updated simulation result summary Excel sheet in 2735 (InterDigital) to be attached to the TR.
Friday 26th
The TR is for email approval as v2.0.0 by Friday 2nd September.

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5.6 Study on Uplink MIMO for HSPA

5.6.1 Physical layer structure alternatives

Section 5 in TR 25.871

R1-112279	Further design considerations for UL MIMO	ZTE	

Decision: The document is noted.

R1-112631	TP to 25.871 on hysical layer structures	Nokia Siemens Networks, Nokia	

Decision: The document is noted.

R1-112690	TP on 25.871 on Chapter 5 "Physical Layer Structure Alternatives due to UL MIMO in HSPA"	Qualcomm Incorporated	

Decision: The document is noted.

5.6.2 Impact on UE and UTRAN implementation

Section 10 in TR 25.871

R1-112691	TP to 25.871 on Chapter 10 " Impact to UE and UTRAN implementation due to UL MIMO in HSPA"	Qualcomm Incorporated	

Decision: The document is noted.

5.6.3 Evaluations

R1-112632	TP to 25.871 link level performance of UL MIMO	Nokia Siemens Networks, Nokia	

Decision: The document is noted.

5.6.3.1 Cubic metric

Section 9 in TR 25.871

R1-112615	Text proposal on the cubic metric impact from pre-coding for rank-2 transmissions	Ericsson, ST-Ericsson	

Decision: The document is noted.

5.6.3.2 Other

Section 8 in TR 25.871

R1-112208	Initial link-level simulation results for UL MIMO	Huawei, HiSilicon	

Decision: The document is noted.

R1-112209	TP on performance evaluation results for UL MIMO	Huawei, HiSilicon	

Decision: The document is noted.

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5.6.4 Specification impact

Section 11 in TR 25.871

R1-112702	TP to 25.871 on specification impacts	Nokia Siemens Networks, Nokia	(R1-112635)

Decision: The document is noted.

5.6.5 Conclusions for TR 25.871

Section 12 in TR 25.871

R1-112692	TP to 25.871 on "Conclusions on UL MIMO in HSPA"	Qualcomm Incorporated	

Decision: The document is noted.

5.6.6 Other

R1-112210	Considerations on UL MIMO	Huawei, HiSilicon	

Decision: The document is noted.

Provide updated draft TR in 2742 (Qualcomm) on the RAN1 HSPA email reflector by Tuesday 30th August, for email approval as v1.0.0 until Friday 2nd September.

5.7 Other

R1-112618	On the benefit of introducing UL 64 QAM for HSUPA	Ericsson	

Not treated

6 E-UTRA

6.1 Maintenance of E-UTRA Releases 8 – 10

6.1.1 36.211

R1-112125	Further clarification on PDSCH transmission in MBSFN subframes	NEC Group	

The document was presented by Takahiro Sasaki from NEC and proposes capturing the following clarifications:

- that normal CP length is used for PDSCH in MBSFN subframes (see 2126);
- that collision of PDSCH and PRS in MBSFN subframes is same behaviour as in normal subframes or an error case. No text is necessary in the specification on collision handling;
- It is clarified which MBSFN subframes are assumed to be used for PMCH transmissions and no additional text is not necessary in the specification.

Discussion (Question / Comment): Bullet 2 → Revisit the issue on Friday - proposal is to delete the square-bracketed sentence in 36.213 as proposed in R1-111312.
Bullet 3 → Send LS to RAN2: draft it in 2764 (Panasonic) after offline discussion - revisit on Friday
Decision: The document is noted.

R1-112126	Clarification on cyclic prefix of PDSCH in MBSFN subframes	NEC Group	

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Discussion (Question / Comment): Question where the clarification is needed at all, no issue in principle. CP length is already defined in section 6.1 of TS36.211 and this section may need to be reworded.
Decision: The document is noted. Revisit on Friday.
Friday 26th

R1-112830	36.211 CR0165 (Rel-10, F) Clarification on cyclic prefix of PDSCH in MBSFN subframes	NEC group, Panasonic, Qualcomm Incorporated, Samsung, Renesas Mobile Europe, Alcatel-Lucent, Alcatel-Lucent Shanghai Bell, CATT, Ericsson, ST-Ericsson	(R1-112126)

Decision: The document is noted and CR is agreed.

R1-112776	36.213 CR0277R1 (Rel-10, F) Correction to reception of PRS in MBSFN subframes	Qualcomm Incorporated, Panasonic, NEC, Ericsson, ST-Ericsson, ZTE	(R1-111312)

The document was presented by Hidetoshi Suzuki from Panasonic.
Discussion (Question / Comment): Huawei wondered whether WI code was correct.
Decision: The document is noted and CR is agreed.

R1-112764	[Draft] LS on the unicast usage in MBSFN subframe	Panasonic	

The document was presented by Hidetoshi Suzuki from Panasonic.
Discussion (Question / Comment): Deletion of paragraph about "default behaviour" and correction of two instances replacing RAN1 by RAN2.
Decision: The document is noted and final LS is agreed in R1-112853.

R1-112491	36.211 CR0162 (Rel-10, F) Corrections on DMRS for Extended CP	Samsung, Renesas Mobile Europe, Panasonic, LG Electronics, TI, Qualcomm, Research in Motion, Alcatel-Lucent, Alcatel-Lucent Shanghai Bell, Huawei, HiSilicon, Motorola Mobility	

The document was presented by … from Samsung and changes the equation defining $a_{k,l}^{(p)}$ and $w_p(i)$ for the extended CP subframe such that the DMRS sequence definition for the second slot is also included.
Discussion (Question / Comment): Similar proposal in 2703.
Decision: The document is noted and CR0162 is agreed.

R1-112703	36.211CR0161R1 (Rel-10, F) Correction on UE-Specific resource mapping formula	ZTE	(R1-112277)

Decision: The document is noted and CR is not needed.

R1-112594	Collision of Msg3 transmission and UE-specific Aperiodic SRS subframe	ASUSTeK	

The document was presented by Eddie Lin from ASUSTeK and proposes:

- Discuss whether rate-matching the last symbol is intended for Msg 3 if the PUSCH doesn't overlap with SRS bandwidth and this subframe is UE-specific aperiodic SRS subframe.
- If the rate matching in the concerned case is not intended, it is proposed to add some restriction on the resource mapping and rate-matching procedure so that the new rule for aperiodic SRS is not applied to Msg3. Draft CR[2595] [2596] are available to address this concern.

Discussion (Question / Comment): Not seen as essential correction, according to Ericsson.
Decision: The document is noted. No consensus approving this change proposal. If a problem arises, it can be handled by eNB implementation.

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R1-112595	PUSCH resource mapping for Msg3 in UE-specific aperiodic SRS subframe	ASUSTeK	
R1-112596	Channel interleaving for Msg3 in UE-specific aperiodic SRS subframe	ASUSTeK	

R1-112670	Clarification of applicability of precoding power scaling factors for PDSCH	Agilent Technologies, Motorola	

The document was presented by Robert Love from Motorola and provides additional wording indicating that for the PDSCH symbols, the EPRE power scaling is to be applied in accordance with the requirements in Section 5.2 of TS 36.213.
Discussion (Question / Comment): Huawei do not see it as essential correction to Rel-8.
ME box on cover sheet shall be selected.
It is RAN1 understanding that this is also the intended assumption of UEs of earlier releases
Decision: The document is noted. Update the CR to Rel-10 as CR0163 in R1-112765, assuming:

- Addition of the sentence: "It is RAN1's understanding that this is also the intended assumption of UEs of earlier releases"
- Rel-10
- ME applicability
- Clarify non-applicability to PMCH.

Friday 26th

R1-112765	36.211 CR0163 (Rel-10, F) Clarification of applicability of precoding power scaling factors for PDSCH	Agilent Technologies, Motorola	(R1-112670)

Decision: The document is noted and CR is agreed.

R1-112699	PRACH antenna port	Panasonic	

The document was presented by Hidetoshi Suzuki from Panasonic and proposes to define PRACH antenna port and to allow PRACH signal is passed to the modulation and up-conversion processing.
Decision: The document is noted. Prepare a draft CR for modulation/upconversion section: "… for each antenna port **or PRACH transmission**…" as CR0164 in R1-112766.
Friday 26th

R1-112766	36.211 CR0164 (Rel-10, F) Correction to modulation and upconversion on PRACH	Panasonic	(R1-112699)

Decision: The document is noted and CR is agreed.
Note that the relationship between the antenna ports of the PUSCH, PUCCH and PRACH is implementation dependent.

Late / not available:

R1-112761	36.211 Draft CR (Rel-8, F) PHICH overbooking can occur in narrow BW	Sequans Communications	(R1-112098)
R1-112762	36.211 Draft CR (Rel-9, A) PHICH overbooking can occur in narrow BW	Sequans Communications	(R1-112099)
R1-112763	36.211 Draft CR (Rel-10, A) PHICH overbooking can occur in narrow BW	Sequans Communications	(R1-112100)

Friday 26th

R1-112097	PHICH over booking can occur in narrow BW operation	Sequans Communications	

The document was presented by Eilon Riess from Sequans and proposes to solve the overbooking/overlap and suggests to limit N_g in this case to preclude the value '2', i.e. to have

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$N_g \in \{1/6, 1/2, 1\}$, when N_{RB}^{DL}=6. In such case the total number of required REGs is not more than 6 for PHICH + 4 for PCFICH =10 REGs <12 available REGs
Discussion (Question / Comment): CATT
Decision: The document is noted. Offline discussion needed.

6.1.2 36.212

R1-112562	36.212 CR0123 (Rel-10, F) Corrections on N_{SRS}	CATT	

The document was presented by Zukang Shen from CATT and proposes changing the wording "N_{SRS} is equal to 1 if UE is configured to send PUSCH and SRS in the same subframe for initial transmission" to "N_{SRS} is equal to 1 if UE transmits PUSCH and SRS in the same subframe for initial transmission".
Discussion (Question / Comment): WI code might be not relevant – proposal to change it to LTE-Phys.
Decision: The document is noted and is agreed as rev 1 in R1-112777 after offline discussion. LTE-Phys shall be added, not removed.

R1-112032	36.212 CR0119 (Rel-10, F) Corrections on transport block processing for UL-SCH	Huawei, HiSilicon, I2R	

The document was presented by Ms Elean Fan from Huawei and corrects misalignment in section 5.2.2.
Discussion (Question / Comment): Both Ericsson and ZTE do not see the need for this CR – current transport block notation should remain.
Mr Chairman raised the question of possible misinterpretation if CR is rejected – what the impact would be?
Decision: The document is noted. No consensus to approve this CR – offline discussion can take place and CR can be revisited if consensus can be reached – revisit on Friday
Friday 26th

R1-112847	36.212 CR0119R1 (Rel-10, F) Corrections on transport block processing for UL-SCH	Huawei, HiSilicon, I2R	(R1-112032)

The document was presented by Ms Elean Fan from Huawei. Ericsson still disagreed with the proposed change – finally abandoned its objection.
Decision: The document is noted and CR is agreed.

R1-112033	draft 36.212 CR on channel coding of control information, DCI Format 2C and 4	Huawei, HiSilicon, CATT	

The document was presented by Bo Li from Huawei and proposes:

- Remove the descriptions related to no initial PDCCH and the determination of $M_{sc}^{PUSCH-initial}C$, and K_r in case of two transport blocks transmission.
- $j < Q_{CQI}$ is replaced by $j < N_L \cdot Q_{CQI}$.
- When one codeword with two layers is enabled for retransmission, n_{SCID} is set to 0.
- Add redundancy version and correct the reference for transport block 1 in the description of DCI format 4.

Discussion (Question / Comment): Need to add DL MIMO WI code too.
Decision: The document is noted. Offline discussion on how/where to clarify that n_SCID = 0 (e.g. all rows in the table, or in 36.211) - revisit on Friday – revision shall be prepared in R1-112770.
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R1-112770	36.212 CR0128 (Rel-10, F) Corrections on channel coding of control information and DCI Format 4	Huawei, HiSilicon, CATT	(R1-112033)

Decision: The document is noted and CR is agreed.

R1-112831	36.211 CR0166 (Rel-10, F) Corrections on indication in scrambling identity field in DCI format 2B and 2C	Huawei, HiSilicon, Fujitsu, ZTE, Qualcomm Inc	

Decision: The document is noted. CR shall be revised to cover the missing cases.

R1-112837	36.211 CR0166R1 (Rel-10, F) Corrections on indication in scrambling identity field in DCI format 2B and 2C	Huawei, HiSilicon, Fujitsu, ZTE, Qualcomm Inc, Texas Instruments, Ericsson, ST-Ericsson	(R1-112831)

The CR was further revised in 2857 due to downloading error into the inbox (content identical to 2831). Finally the CR is agreed as revision 3 in R1-112863 with the deletion of "v" in caption of Table 6.10.3.1-1.

R1-112127	Correction to the information of modulation and coding scheme for PUSCH transport block 1 in DCI format 4	NEC Group	

Decision: The document is noted. This was already covered in R1-112033.

R1-112255	36.212 CR0120 (Rel-10, F) on correction of channel coding of control information and format 3/3a effective cell	ZTE	

The document was presented by Wenfeng Zhang from ZTE.
Discussion (Question / Comment): Mr Chairman wondered whether last change is relevant as "we usually do specify features which are supported rather than not".
Ericsson agreed with proposed changes 2 and 3
Decision: The document is noted. Offline discussion on change 1 (e.g. whether to remove sentence "For TDD and a UE that does not support aggregating more than one configured serving cell, two HARQ-ACK feedback modes are supported by higher layer configuration.
- HARQ-ACK bundling, and
- HARQ-ACK multiplexing"

Remove change 4. Revision shall be made in R1-112771 - Revisit on Friday.
Friday 26th
2771 is noted. Delete CR number from title, and delete "HARQ-ACK" in first changed paragraph – the revision 2 in R1-112838 is for email approval by Friday 2nd September.

R1-112351	36.212 CR0122 (Rel-10, F) on size alignment of DCI format 0, 1A and 1	Panasonic	

The document was presented by … from Panasonic and proposes removing "CRC scrambled by the same RNTI" in section 5.3.3.1.1, 5.3.3.1.2 and 5.3.3.1.3.
Decision: The document is noted. Offline discussion till Friday
Friday 26th
Revision 1 in R1-112802 is agreed.

R1-112404	CR36.212 UE-specific search space	Alcatel-Lucent, Alcatel-Lucent Shanghai Bell	

The document was presented by Ms… from ALU and proposes changing the wording from "the UE specific C-RNTI search space" to "the UE specific search space given by the C-RNTI" in the description of DCI format 1 in Section 5.3.3.1.2.
Discussion (Question / Comment): Add "by" in reason for change on cover sheet → Unclear and inconsistent wording "UE specific by C-RNTI search space" in DCI format 1…
Decision: The document is noted and is agreed as CR0125 in R1-112772.

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R1-112693	36.212 CR0124 (Rel-10, F) Corrections on DCI format 1B/1D	CATT	

The document was presented by Zukang Shen from CATT and specifies that zero padding bit(s) shall be added to DCI format 1B/1D, if the number of information bits in format 1B/1D is equal to that for format 0/1A for scheduling the same serving cell and mapped onto the UE specific by C-RNTI search space.
Decision: The document is noted. Offline discussion till Friday
Friday 26th

R1-112791	36.212 CR0124R1 (Rel-10, F) Corrections on DCI format 1B/1D	CATT	(R1-112693)

Decision: The document is noted and CR is agreed as revision 2 in R1-112839 assuming the statement "and CRC scrambled by the same RNTI" is removed (two instances).

R1-112470	Draft CR 36.212 correction on ACK/NACK mapping	LG Electronics	

The document was presented by … from LGE.
Discussion (Question / Comment): Although second change can be considered as an editorial, first one should rather be considered as a correction.
Decision: The document is noted and agreed in principle. Prepare Rel-9 CR Cat-F, and Rel-10 CR Cat-A (resp.) as CR0126 (R1-112773), and CR0127 (R1-112774) (resp.).
Friday 26th
Both CRs in R1-112773 and R1-112774 are agreed.

R1-112271	36.212 Draft CR (Rel-10, F) Clarification and correction to configuration signalling condition for channel quality information formats	ZTE	

The document was presented by Wenfeng Zhang from ZTE and specifies that if TM9 is configured with PMI/RI reporting with 2/4/8 antenna ports, there exist channel quality information formats of PMI/RI reporting; otherwise no.
Discussion (Question / Comment): Few typos on coversheet need correction.
Decision: The document is noted and agreed as CR0128 in R1-112775.
Note: Post-meeting, it is noticed that CR0128 was used twice – therefore R1-112775 is withdrawn and replaced by CR0129 in R1-112866 for email approval until Sept 2nd.

R1-112275	Draft CR 212 _ Reordering UCI fields for joint report of RI and PTI	ZTE, Samsung	

The document was presented by Zhisong Zuo from ZTE and proposes to reverse the order of PTI /RI in Table 5.2.3.3.2-4A of 3GPP TS 36.212 V10.2.0. This change has no any impact on other aspect in Rel-10.
Decision: The document is noted.

6.1.3 36.213

R1-112557	36.213 CR0337 (Rel-8, C) PDSCH EPRE for transmission mode 7	CATT	

The document was presented by Zukang Shen from CATT and proposes that for a UE in TM7 and a PDSCH transmission based on UE specific reference signal, i.e. antenna port 5, the absolute value of PDSCH EPRE is not defined, i.e. the absolute value of \rho_A is not specified for this case.
Discussion (Question / Comment): Mr Chairman commented that there's no way approving cat C CR for rel-8.
Decision: The document is noted and CR is rejected.
Note from CATT: For PDSCH transmission with antenna port 5, eNB implementation can set the PDSCH EPRE not following the absolute value defined by \rho_A.

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R1-112533	Clarification of Ambiguous DCI Formats 0 and 1A	Qualcomm Incorporated	

The document was presented by Wanshi Chen from Qualcomm and deals with some ambiguity in DCI formats 0/1A when aperiodic SRS is configured, and/or when the support of aperiodic CQI in carrier aggregation. It is proposed to prioritize the common search space over the UE-specific search space when the ambiguity occurs.
Discussion (Question / Comment): ETRI requested offline discussion to decide proper wording.
Decision: The document is noted. Offline discussion till Friday.
Friday 26th

R1-112832	36.213 CR0353 (Rel-10, F) Clarification on ambiguous DCI information between UE-specific search space and common search space for DCI formats 0 and 1A	Qualcomm Inc., LGE, ETRI	

Decision: The document is noted. Check whether the wording can be improved. "DCI information field" is clarified and the CR is finally agreed as revision 1 in R1-112845.

R1-112356	draft CR 36.213: Clarification on Search space description for SPS C-RNTI	Panasonic	

The document was presented by Hidetoshi Suzuki from Panasonic and proposes the following clarifications:

- That CIF field is not present only when in the common search space for PDCCH scrambled with SPS C-RNTI.
- Note that CIF field itself is present for BD trial perspective but SPS is only works in PCell. Therefore, CIF field itseld itself shall always indicate PCell.
- That CIF field is not present for any seach space for PDCCH scrambled with temporary C-RNTI

Decision: The document is noted. Offline discussion till Friday.
Friday 26th

R1-112828	36.213 CR0352 (Rel-10, F) Clarification on the common search space description	Panasonic, Qualcomm Inc, ZTE, NEC, Huawei, HiSilicon, Motorola Mobility, Ericsson, ST-Ericsson	(R1-112356)

Decision: The document is noted and CR is agreed.

R1-112073	36.213 CR0324 (Rel-10, Cat F) Accumulation of power control commands from DCI format 3/3A with UL transmission	Ericsson, ST-Ericsson	

The document was presented by Daniel Larsson from Ericsson and proposes that the UE shall accumulate power control commands in case the UE can not determine P_CMAX,c.
Discussion (Question / Comment): Panasonic questioned the wording "has reached…".
Decision: The document is noted. Offline discussion till Friday.
Friday 26th

R1-112834	Way forward on DCI format 3/3A	Ericsson, ST-Ericsson, LG Electronics, Panasonic, Qualcomm, Huawei, HiSilicon, NTT DoCoMo	

The document was presented by Daniel Larsson from Ericsson.

- For Rel-8 and Rel-9, when there is no corresponding PUSCH (for f(i)) or PUCCH (for g(i)), the UE evaluates every 3/3A TPC command and applies it unless it reaches min/max power; the determination of the min/max power saturation is left to UE implementation
- For Rel-10, target next meeting (Zhuhai) to define UE behavior under these conditions

Decision: The document is noted and the way forward is agreed.

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R1-112563	36.213 CR0342 (Rel-10, F) Corrections on power headroom reporting	CATT	

The document was presented by Zukang Shen from CATT and proposes:

- For type 1 PHR and when the UE transmits PUSCH without PUCCH in subframe i for serving cell c, $P_{\mathrm{CMAX},c}$ is changed to $P_{\mathrm{CMAX},c}(i)$.
- For type 2 PHR and when the UE transmits PUCCH without PUSCH in subframe i for the primary cell, K_{PUSCH} is removed.
- For type 2 PHR and when the UE does not transmit PUCCH or PUSCH in subframe i for the primary cell, K_{PUSCH} and $P_{\mathrm{CMAX,c}}$ is removed.
- $\Delta_{TF,c}(i)$ is changed to $\Delta_{\mathrm{TF},c}(i)$.

Decision: The document is noted and CR is agreed.

R1-112353	36.213 CR0331 (Rel-10, F) Correction to uplink transmission scheme usage for random access response and PHICH-triggered retransmissions	Panasonic	

The document was presented by Alexander Golitschek from Panasonic and specifies that a UE shall always use "Single-antenna port, port 10" transmission scheme for random access transmissions and clarifies the usage of spatial multiplexing for retransmission of PUSCH..
Discussion (Question / Comment): Missing text for TDD.
Decision: The document is noted. Check missing text for TDD spatial multiplexing. Discuss offline whether to change "Single-antenna port, port 10" to "single antenna port".
Include discussion of first change from 2252. Revisit on Friday.
Friday 26th

R1-112835	Correction to uplink transmission scheme usage for random access response and PHICH-triggered retransmissions	Panasonic, ZTE, Texas Instruments	(R1-112353)

Decision: The document is noted and CR is agreed.

R1-112471	Draft CR 36.213 correction on TBS translation table	LG Electronics	

The document was presented by … from LGE and proposes that the table number of Table 7.7.2.4-1 is changed into Table 7.1.7.2.4-1. LGE indicated that correct WI should be DL_MIMO and category F.
Decision: The document is noted and CR is agreed as CR0346 in R1-112778 assuming Cat-F and correction of the WI code.

R1-112274	36.213 Draft CR (Rel-10, F) Correction to the condition of enabling PMI feedback	ZTE	

The document was presented by Zhisong Zuo from ZTE and clarifies that: if TM9 is configured with PMI/RI reporting with number of CSI-RS ports >1, there exist PMI/RI reporting; if TM9 is configured without PMI/RI reporting or configured with number of CSI-RS ports = 1, they don't exsit.
Decision: The document is noted. Correct "the number of CSI-RS ports" in 7.2.4.

R1-112449	Clarification for the definition of rank indicator	ITRI	

The document was presented by … from ITRI and clarifies that the configuration of PMI/RI reporting for transmission modes 8 and 9.
Decision: The document is noted. It is agreed to merge both 2274 and 2449, and check the whole specification to make sure all instances are corrected – update shall be prepared as CR0347 in R1-112779.
Friday 26th

R1-112842	36.213 CR0347R1 (Rel-10, F) Correction to the condition of enabling PMI feedback	ZTE, China Telecom., ITRI	(R1-112779)

Editorial: comma in "mode 3, and 4" must be deleted just above section 7.2.4. The CR is agreed as revision 2 in R1-112843

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R1-112128	Miscellaneous corrections to 36.213	NEC Group	

The document was presented by Takahiro Sasaki from NEC.
Discussion (Question / Comment): Overlapping with 2274 needs further check.
Decision: The document is noted. Remove the 2nd change, and the 3rd change (already covered by 2274). Revision shall be prepared as CR0348 in R1-112780.
Friday 26th

R1-112780	36.213 CR0348 (Rel-10, F) Miscellaneous corrections to 36.213	NEC Group	(R1-112128)

Decision: The document is noted and CR is agreed.

R1-112458	Draft 36.213 CR Corrections on reporting Channel State Information	Huawei, HiSilicon	

The document was presented by Bo Li from Huawei and proposes:

- The sentence "it transmits periodic CSI for all activated serving cells as configured by higher layers" in section 7.2 in 36.213 is replaced by "it transmits CSI only for activated serving cells" to support both periodic and aperiodic CSI reports.
- Capture the same sentence "where reporting prioritization and collision handling of periodic CSI reports of a certain PUCCH reporting type is given in Section 7.2.2" that is specified for the case if UE is configured with more than one serving cell and not configured with simultaneous PUSCH and PUCCH transmission.
- Clarify that the collision handling in section 10.1.1 is applied for FDD, and add the sentence "For TDD, in case of collision between a CSI and an HARQ-ACK in a same subframe without PUSCH and the UE is configured with more than one serving cell, the collision handling is defined in section 7.3".

Discussion (Question / Comment): Bullet 3 → CATT suggested reviewing the wording to indicate when CSI and HARQ-ACK occur in one subframe.
Decision: The document is noted. Offline discussion till Friday
Friday 26th

R1-112836	36.213 CR0355 (Rel-10, F) Corrections on reporting Channel State Information	Huawei, HiSilicon,Qualcomm Incorporated, CATT, ZTE, Ericsson, ST-Ericsson	(R1-112458)

Samsung noticed duplication of wording ("with a single serving cell") in first change under section 10.1.1.
Decision: The document is noted and shall be revised in 2844 (rev 1). The CR is finally agreed as revision 2 in R1-112858 assuming the wording "and the UE is configured" is deleted.

R1-112494	36.213 CR0336 (Rel-10, F) Corrections on transmission mode 9	Samsung	

The document was presented by … from Samsung.
Decision: The document is noted and CR is agreed.

R1-112492	36.213 CR0334 (Rel-10, F) Corrections on PUCCH mode 1-1	Samsung	

The document was presented by … from Samsung.
Discussion (Question / Comment): Just delete the word "second".
Decision: The document is noted and CR is agreed in principle. Be consistent on "selected single precoding matrix" – for offline discussion till Friday.

R1-112493	36.213 CR0335 (Rel-10, F) Corrections on PUCCH mode 2-1	Samsung, LG Electronics, ZTE	

The document was presented by … from Samsung.
Decision: The document is noted and CR is agreed in principle.

R1-112719	36.213 CR0345 (Rel-10, F) Corrections on PUCCH mode 1-0 and 1-1	Samsung, LGE	

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Decision: The document is noted as revision of 2492 – for offline discussion till Friday.

R1-112535	Clarification of of PUCCH 2-1 operation	Qualcomm Incorporated	

The document was presented by Peter Gaal from Qualcomm and proposes specifying that if the latest reported first PMI was computed based on an RI that is different from the last reported RI, then the reporting of the second PMI should be conditioned on the lowest first PMI index that is allowed by the bitmap parameter *codebookSubsetRestriction* corresponding to the last reported periodic RI..
Decision: The document is noted. An offline discussion is needed on whether the change is necessary.

R1-112704	36.213 CR0329 (Rel-10, F) Correction on type3 feedback of Mode 2-1 for TM9 with 8 CSI-RS ports	China Telecom, ZTE, Huawei, Ericsson, ST-Ericsson	

The document was presented by Peng Chen from China Telecom.
Decision: The document is noted and CR is agreed in principle.
Merge 2492 or 2719 (depending on the outcomes of the offline discussion), 2493 and 2704 into a single CR as CR0349 in R1-112783 (Samsung)
Friday 26th

R1-112783	36.213 CR0349 (Rel-10, F) Corrections on PUSCH and PUCCH modes	Samsung, LG Electronics, Intel, ZTE, Motorola Mobility	

Decision: The document is noted and CR is agreed. It should be noted that NSN also supported the CR; therefore the revision prepared to highlight NSN support is not needed – 2846 is withdrawn.

R1-112101	Draft CR to 36.213 on PDSCH transmission scheme assumed for CSI reference resource of TM9	CATT	

The document was presented by Rakesh Tamrakar from CATT and specifies how the PDSCH QAM symbols (for TM9 with PMI/RI) are precoded and mapped to the antenna ports with channel estimation from the corresponding CSI-RS antenna ports. Further on, it's adding a correction that a UE in TM9 can be configured without PMI/RI reporting.
Decision: The document is noted. Offline discussion is needed to consider whether the phase reference for the DM-RS precoders is sufficiently clearly defined as the CSI-RS ports. Also consider power offsets - contact Tim Moulsley (Fujitsu) - revisit on Friday.

R1-112273	36.213 CR0328 (Rel-10, F) Correction to PDSCH transmission assumption for CQI calculation	ZTE	

The document was presented by Wenfeng Zhang from ZTE and states the following:

- For TM9, if the UE is configured with PMI/RI reporting, "Closed-loop spatial multiplexing with" should be deleted from the sentence and leave "up to 8 layer transmission, ports 7-14" alone

Discussion (Question / Comment): Also co-sourced by TI, Samsung and LGE. Consistency with previous CR needs further checking.
Decision: The document is noted. Include it in the offline discussion with 2101.

R1-112272	36.213 CR0327 (Rel-10, F) Clarification and correction to CRS overhead assumption to derive CQI index	ZTE	

The document was presented by Wenfeng Zhang from ZTE and states the UE shall always assume CRS overhead of non-MBSFN subframe when deriving the CQI index.
Discussion (Question / Comment): Also co-sourced by TI, Samsung, LGE and New Postcom.
Decision: The document is noted.

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- Proposal: Change the change to : "For transmission mode 9 CSI reporting, CRS REs after the first 3 OFDM symbols are as in the non-MBSFN subframes, and if UE is configured for PMI/RI reporting, assume DMRS ~~overhead~~ REs are ~~is~~ consistent with most recent reported rank"
- For offline discussion until Friday.

Merge the outcomes of offline discussions on 2101, 2272 and 2273 into a new tdoc (if some changes are needed) - R1-112786.

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R1-112786	36.213 CR0328R1 (Rel-10, F) A correction to PDSCH transmission assumption for CQI calculation	Fujitsu	

Ericsson requested clarification that same precoding is applied to DM-RS and data.
The principle of the clarification in 2786 for TM9 CSI reporting assumption is agreeable.
Debate whether codebooks should be moved from 211 to 213.
Decision: The document is noted. Discuss which specification needs to change; consider whether to put the precoding tables that are used for CSI reporting in 36.213. Aim to conclude on a CR at RAN1#66bis.

R1-112848	36.213 CR0356 (Rel-10, F) Corrections on HARQ-ACK feedback procedures	Huawei, HiSilicon, CATT, LGE	

The document was presented by Li Bo from Huawei and proposes to:

- Clarify that the determination of o is only applicable for the case of configured with more than one serving cell in section 10.1.2. Move the first paragraph to the 10.1.2.2.
- Specify how to determine the mapping table size A for TDD channel selection with $M=1$.

Decision: The document is noted. Correct the CR cover sheet in R1-112859 - for email discussion / approval until Friday 2nd September.

R1-112534	Clarification of reference power for CSI-RS based channel state information feedback	Qualcomm Incorporated	

The document was presented by Wanshi Shen from Qualcomm and proposes to clarify that in the definition of P_c, PDSCH EPRE corresponding to ρ_A is used.
Discussion (Question / Comment): Both Renesas and Samsung expressed their doubt to the need of such proposal.
Decision: The document is noted. Offline discussion till Friday on whether this change is needed.

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R1-112833	36.213 CR0354 (Rel-10, F) Clarification of Reference PDSCH Power for CSI-RS based CSI Feedback	Qualcomm Inc.	

Also supported by Samsung.
Decision: The document is noted and CR is agreed.

R1-112459	Draft 36.213 CR on HARQ-ACK feedback procedures	Huawei, HiSilicon	

The document was presented by Bo Li from Huawei and proposes to:

- Specify that PUCCH format 3 is supported for TDD UEs capable of aggregating more than 1 cells and include the case of UL-DL configuration 5.
- Delete the determination of o in section 10.1.2 and specify that the mapping table size A is determined based on the number of configured serving cells and configured transmission modes..

Discussion (Question / Comment): Do not delete the text at the start of section 10.1.2.
Remove change above Table 10.1.2.2.1-1.
Decision: The document is noted.

R1-112769	36.213 CR0325R1 (Rel-10, F) on Corrections in UE procedure for reporting HARQ-ACK	ZTE	(R1-112253)

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The document was presented by Huaming Wu from ZTE and proposes:

- Correct the description of the TDD HARQ-ACK feedback mode.
- Clarify the definitions of V_{DAI}^{DL}, U_{DAI} .
- Add "where the value of M is replaced by W_{DAI}^{UL}" to clarify.

Decision: The document is noted. Offline discussion on 2459 and 2769 - merge the outcome into a single CR as CR0325R2 in R1-112787

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R1-112787	36.213 CR0325R2 (Rel-10, F) on Corrections in UE procedure for reporting HARQ-ACK	ZTE, Qualcomm Incorporated, Huawei, HiSilicon, CATT, Samsung, I2R, Ericsson, ST-Ericsson	(R1-112769, R1-112459)

Decision: The document is noted and CR is agreed as revision 3 in R1-112849 with HAQR corrected to HARQ (2 instances) on cover sheet.

R1-112564	36.213 CR0343 (Rel-10, F) Corrections on TDD HARQ-ACK modes	CATT	

Decision: Already covered by 2459; thus CR is not needed.

R1-112489	Draft 36.213 CR on HARQ-ACK Multiplexing in PUSCH for UL CA in TDD	Samsung	

The document was presented by Aris Papasakellariou from Samsung and states that a UE determines the HARQ-ACK payload in a PUSCH based on whether *any* PUSCH (not only the PUSCH carrying the HARQ-ACK) is adjusted based on a detected PDCCH with DCI format 0/4.

Decision: The document is noted. "Table 7.3-Z: Value of W_{DAI}^{UL} determined" is approved in principle… and should be captured in another CR.

R1-112325	Draft CR for clarification on UL DAI value for multiple UL grants in TDD	LG Electronics	

Decision: Same as Samsung's CR, according to LG. Same conclusion.

R1-112560	36.213 CR0340 (Rel-10, F) Corrections on TDD PUCCH format 1b with channel selection and HARQ-ACK transmission on PUSCH	CATT	

The document was presented by Zukang Shen from CATT and proposes to changes the notation of O_j^{ACK} to o_j^{ACK} in the proper places.

Decision: The document is noted and CR is agreed.

R1-112327	Draft CR for a description of the HARQ-ACK feedback bits	LG Electronics	

Decision: Same as 2560, not needed.

R1-112532	Clarification on the codebook size for PUCCH format 3 based ACK/NAK feedback in TDD	Qualcomm Incorporated	

The document was presented by Wanshi Chen from Qualcomm and clarifies that the codebook size is fixed at M-M^s_c, where M is the bundling window size, and M^s_c denotes the number of special subframes with the particular configurations described above within the bundling window, and such condition is applied when PUCCH format 3 is configured for CA.

Discussion (Question / Comment): Huawei suggested that the number of special subframes is either 0 or 1.

Decision: The document is noted. State that M^s_c is equal to either 0 or 1.

R1-112559	36.213 CR0339 (Rel-10, F) Corrections on HARQ-ACK codebook size determination	CATT	

The document was presented by Zukang Shen from CATT and provides following clarifications:

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- Clarified on the condition when special subframe of configurations 0 and 5 with normal CP or of configurations 0 and 4 with extended CP shall not be included for HARQ-ACK codebook size determination, i.e. when PUCCH format 3 is configured for the transmission of HARQ-ACK.
- Clarified on the HARQ-ACK codebook size determination.

Discussion (Question / Comment): Samsung supported the proposal.
Decision: The document is noted. Offline discussion to decide how to merge 2532 and 2559 in R1-112788 - revisit on Friday
Friday 26th
Decision: Qualcomm confirmed that they were happy with the formulation in R1-112559; therefore 2788 is withdrawn and CR0339 is agreed.

R1-112252	Draft CR 36.213 on PHICH-triggered retransmission and UE transmit antenna selection	ZTE	

The document was presented by Shupeng Li from ZTE.
Decision: The document is noted. First change shall be discussed together with 2353.
Offline discussion until Friday on the need for the other changes.
Friday 26th

R1-112807	36.213 CR0351 (Rel-10, F) Correction on UL DMRS resources for PHICH-triggered retransmission	ZTE, Texas Instruments, LG Electronics	(R1-112252)

Decision: The document is noted and CR is agreed as revision 1 (title corrected) in R1-112840.

R1-112354	Clarification of one shot SRS	Panasonic	

The document was presented by Hidetoshi Suzuki from Panasonic and proposes to clarify the behaviour of SRS trigger type 0 on UpPTS.
Discussion (Question / Comment): ZTE, CATT are in favour of interpretation 2 “Single duration means one symbol. In SRS configuration index=0, two symbols are sent in UpPTS. In SRS configuration index=1, 3 and 5, one symbol is sent in UpPTS”.
Ericsson asked on which symbol interpretation 2 is based on.
Motorola, Ericsson are in favour of interpretation 1 “Single duration means one subframe. In SRS configuration index=0, two symbols are sent in UpPTS. In SRS configuration index=1, 3 and 5, one symbol is sent in UpPTS”.
Decision: The document is noted.
Conclusion: The interpretation is unspecified for one-shot SRS with trigger type 0.

R1-112090	Draft 36.213 CR on UL HARQ ACK determination	Ericsson, ST-Ericsson	

The document was presented by Stefano Sorrentino from Ericsson and deals with a conflict with the granted transport format on layer 1.
Decision: The document is noted. Check offline until Friday (including whether the CR is needed); if so, revise as CR0350 in R1-112789
Friday 26th

R1-112789	36.213 CR0350 (Rel-10, F) CR on UL HARQ ACK determination	Ericsson, ST-Ericsson, CATT	(R1-112090) R1-112850

Decision: The document is noted and CR is agreed as revision 1 in R1-112850 assuming “i” in italics “…in downlink subframe ***i***…”

R1-112782	36.213 CR0326R1 (Rel-10, F) on Corrections in Physical Uplink Control Channel Procedure	ZTE	(R1-112254)

The document was presented by … from ZTE and proposes:

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- Delete "1" from "PUCCH format 1/1a/1b/3"
- Delete "in the case of FDD" in the sentence "Format 1b for up to 4-bit HARQ-ACK with channel selection when the UE is configured with more than one serving cell in the case of FDD or, in the case of TDD, when the UE is configured with a single serving cell".
- Add some description when deternmining the PUCCH resource for two antenna port transmission for clarification.
- Change "transport block" to "codeword" in several places, and "TB" to "CW" in Table 10.1.2.2.1-1.

Discussion (Question / Comment): CATT asked for the differences between 2254 and the updated version → only editorials
Mr Chairman suggested looking at 2324.
Decision: The document is noted.
Undo the changes related to "transport block" (but the numbering should be TB1 and TB2 in the table). Remove reference to 2 antenna ports for Format 1a.
With these changes, the CR is agreed in principle.

R1-112324	Draft CR for correction on nHARQ equation for TDD with PUCCH format 3	LG Electronics	

The document was presented by … from LGE.
Discussion (Question / Comment): Ericsson → change of wording between TB and codeword should be avoided.
Huawei requested more time to check the equation.
Decision: The document is noted. Check the formula offline, and if agreeable merge it into 2782 - R1-112795 (ZTE).

Friday 26th

R1-112795	36.213 CR0326R2 (Rel-10, F) Corrections on Physical Uplink Control Channel Procedure	ZTE, CATT, I2R, NTT DoCoMo, LG Electronics, Qualcomm Incorporated, Samsung, Ericsson, ST-Ericsson	(R1-112782, R1-2324)

Decision: The document is noted and CR is agreed.

R1-112558	36.213 CR0338 (Rel-10, F) Corrections on aperiodic CSI transmission on PUSCH related to RACH procedure	CATT	

The document was presented by Zukang Shen from CATT and proposes an update allowing aperiodic CSI reporting on a PUSCH related to RACH procedure.
Decision: The document is noted and is not agreed.

R1-112561	36.213 CR0341 (Rel-10, F) Corrections on NACK generation	CATT	

The document was presented by Zukang Shen from CATT and proposes in section 10.1.1, that the condition when the UE shall generate NACK for the other transport block is included, i.e. if spatial HARQ-ACK bundling is not applied.
Decision: The document is noted and is agreed.

R1-112565	36.213 CR0344 (Rel-10, F) Corrections on FDD HARQ-ACK procedure	CATT	

The document was presented by Zukang Shen from CATT and proposes the following changes:

- $A \in [2,3,4]$ is updated to $A \in \{2,3,4\}$.
- Table 10.1.2.2.1-1, "TB3" and "TB4" are updated to "TB1" and "TB2" respectively.
- The left columns in Table 10.1.2.2.1-2 and Table 10.1.2.2.2-1 are updated to be aligned with Table 9.2-2.

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- The right column in Table 10.1.2.2.1-2 is updated to include the case where two PUCCH resources are assigned.

Decision: The document is noted and is agreed in principle and can be merged into 2795.

R1-112377	36.213 CR0332 (Rel-10, Cat F) Clarification on mapping table in PUCCH format 1b with channel selection	Research In Motion UK Limited, Panasonic	

The document was presented by Mark Harrison from RIM and proposes removing DTX when the other HARQ response scheduled from the same cell is ACK or NACK only. It is noted that the row of (NACK/DTX, NACK/DTX) is not modified because there is no problem if one interprets the row as only (NACK, NACK) or (DTX,DTX) is allowed.
Discussion (Question / Comment): LGE, Huawei and CATT were against the proposal.
Decision: The document is noted and CR is not agreed.

R1-112457	36.213 CR0333 (Rel-10, D) Editorial Corrections to 36.213	I2R, NTT DoCoMo	

The document was presented by … from NTT DoCoMo and proposes that:

- C is changed to N_{cells}^{DL} in sections 7.3, 10.1 & 10.1.3, in which N_{cells}^{DL} has already defined in Section 7.1.8 as the number of configured cells
- Small c remains unchanged

Decision: The document is noted and is approved in principle.
Merge into 2795. Add N_{cells}^{DL} to list of symbols in section 3.
Check offline whether a CR is needed also for 36.211.

R1-112326	Draft CR for search space sharing in case of same DCI size	LG Electronics	

The document was presented by … from LGE and proposes deleting the restrictive statement, "CRC scrambled by C-RNTI".
CIF can be added only DCI formats transmitted on UE-specific search space, where only DCI formats with CRC scrambled by C-RNTI or SPS C-RNTI can be transmitted. Therefore, the description about RNTI is not necessary.
Discussion (Question / Comment): Looks like an optimization, according to Mr Chairman.
Decision: The document is noted.

R1-112536	CR Clarification of of PUCCH 2-1 operation	Qualcomm Incorporated	

Not treated as discussion paper was rejected on Monday

6.1.4 36.214

R1-112146	36.214 CR0017 (Rel-10, Cat F) Alignment of UE RX-TX time difference measurement with RAN2 definition	Ericsson, ST-Ericsson	

The document was presented by Daniel Larsson from Ericsson and proposes that the UE RX-TX time difference measurement is defined for the primary cell.
Discussion (Question / Comment): One typo in consequences box on cover sheet.
Decision: The document is noted and CR is not agreed.
Note that according to the RAN2 spec, if there is only one serving cell it is the primary cell.

6.1.5 36.216

R1-112352	Clarification on combination of RS on R-PDCCH and RS on PDSCH	Panasonic	

The document was presented by Ms Ayako Iwata from Panasonic and proposes the following clarifications:

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- In case that the first slot is R-PDCCH with DMRS and the second slot is PDSCH with single antenna port 8, the first slot contains only antenna port 7 and the second slot contains only antenna port 8. In case that the first slot is R-PDCCH with DMRS and the second slot is PDSCH with single antenna port 7, both slots contain antenna port 7.
- In case that the first slot is R-PDCCH with DMRS and the second slot is PDSCH with CRS, REs for antenna port 7 are reserved and transmitted on only first slot and REs for port 7 are not reserved in the second slot.
- In cross interleaving case, R-PDCCH with CRS and PDSCH with DMRS are not allowed to collocate on the same PRB pair.

And raises the following issue for further discussion:

- In case that the first slot is R-PDCCH with CRS and the second slot is PDSCH with TM 7 or TM 8, it should be decided whether RN assumes that REs for antenna port 5 for TM 7 and antenna port 7/8 for TM 8 are reserved in the first slot or not

Decision: The document is noted. Discuss offline and revisit on Friday.

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R1-112826	RS relation between R-PDCCH and PDSCH for the 2nd slot configuration 0	Panasonic	

The document was presented by Ms Ayako Iwata from Panasonic and shows Panasonic observation of the offline discussion.

Decision: The document is noted. CR is not necessary, as a large number of companies do not see the need of the further clarification.

6.1.6 Other

R1-112706	Soft buffer handling in TS36.213 and TS36.321	NTT DOCOMO	

The document was presented by Tetsushi Abe from NTT DoCoMo and proposes:

- The UE behaviour related to soft buffer handling in TS36.321 should be revised to be aligned with the UE behaviour in TS36.213 for the case of CA, which is based on the principle that the UE stores soft channel bits after decoding.
- RAN1 sends an LS to RAN2 to ask RAN2 to do the necessary revision.

Decision: The document is noted.

R1-112767	Draft LS on soft buffer handling in TS36.213 and TS36.321	NTT DOCOMO	

Decision: The document is noted and final LS is agreed in R1-112796.

Due to shortage of time for detailed review of the following contributions, Mr Chairman suggested taking them for offline discussion.

R1-112355	Range for virtual PHR	Panasonic	(R1-111007)
R1-112490	Discussion on TTI bundling in TDD	Samsung, CATT	
R1-112526	SC-FDMA symbol?	Panasonic	

Friday 26th

R1-112490	Discussion on TTI bundling in TDD	Samsung, CATT	

The document was presented by Aris Papasakellariou from Samsung and it is proposed to reconsider TTI bundling issue in more TDD configurations.

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The current restriction on TDD configuration is based on the gain evaluation having done for Rel-8 for the current HARQ RTT timing, which is not very appropriate and could be shorter in some TDD configurations. Hence, the gain should be re-evaluated based on the reconsideration on timing and bundle size.
Discussion (Question / Comment): No offline discussion - status to be checked in RAN2. It could be considered for Rel-11.
Decision: The document is noted. Discuss further at RAN1#66bis; not an essential correction for Rel-10; this could be considered for Rel-11.

R1-112355	Range for virtual PHR	Panasonic	(R1-111007)

Decision: The document is noted. Current range is sufficient.

R1-112526	SC-FDMA symbol?	Panasonic	

Decision: The document is noted. No CR is needed. It is understood that SC-FDMA symbol includes multi-cluster transmission.

6.2 LTE Carrier Aggregation Enhancements

WID RP-110732.

R1-112357	Carrier aggregation enhancement for Rel.11	Panasonic	

Not treated.

6.2.1 Trade-off analysis method for CA enhancements

Mr Chairman informed that main objective was to agree how to do trade-off analysis so that the aspects from all the RAN WGs are considered.

R1-112074	Views on trade-off analysis method for CA enhancements	Ericsson, ST-Ericsson	

The document was presented by Daniel Larsson from Ericsson and proposes that

- The proponent of a proposal shall also prepare a trade-off analysis
- The trade-off analysis shall contain the applicable scenarios, benefits, potential drawbacks and impact analysis on all working groups (RAN1, RAN2, RAN3 and RAN4) for the proposal.
  - The impact analysis is performed on high functional level per working group
- The trade-off analysis can be built into a contribution and do not need to be a specific part or section of a contribution.

Decision: The document is noted.

R1-112405	Proposal for trade-off analysis method for CA enhancements	Alcatel-Lucent, Alcatel-Lucent Shanghai Bell, Qualcomm Incorporated	

The document was presented by Ms Sigen Ye from ALU and proposes that a trade-off analysis should be provided by the proponent of any enhancement, based on:

- Complexity
  - Provide analysis of impact on UE/eNB complexity
  - Specification complexity: show expected specification impact
- IOT
  - Feature duplication should be avoided

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- Analysis should be provided of the existing configuration / operation mode(s) that come closest to providing the same benefit as a proposed enhancement, taking into account layers 1, 2 and 3
- Optionality: The intended mandatory/optional status of an enhancement should be identified

- Backward compatibility
  - It should be identified which release of terminals can benefit from a proposed enhancement
  - Any negative impacts on legacy terminals should be assessed
- RAN4 workload
  - Any need for new performance requirements / conformance tests should be identified
- Impact on energy consumption
  - Relevant for both UE and eNB
  - Impact on DTX/DRX possibilities should be analysed

Decision: The document is noted.

R1-112537	Tradeoff analysis method for CA enhancements	Qualcomm Incorporated	

The document was presented by Wanshi Chen from Qualcomm and concludes that the tradeoff analysis should consider the existing features in Rel-10, the features discussed but not accepted in Rel-10 and the background behind the decisions, the deployment scenarios in Rel-11 (vs. Rel-10), the benefits, and the involved standardization and implementation efforts.

Decision: The document is noted.

R1-112460	Trade-off analysis of CA enhancements for Rel-11	Huawei, Hisilicon	

The document was presented by Bo Li from Huawei and proposes that specific trade-off analysis method for CA enhancement is:

- List CA R11 enhancement requirements
- List possible candidate solutions for all the R11 CA enhancement requirements
- Identify the key impacts to different WGs caused by the candidate solutions
- Identify the driving WG for each candidate solution based on the identified key impacts
- The driving WG needs to identify whether corresponding enhancement requirements for each candidate solution are necessary, and indentify the detailed candidate solutions for the enhancement requirements or purposes with the help from other WGs if necessary.

Decision: The document is noted.

From the above set of contributions, conclusions on how to perform trade-off analysis:

- The proponent of a proposal should provide a trade-off analysis
- The trade-off analysis should include a high level identification of:
  - Applicable scenarios
  - Potential benefits and drawbacks, including
    - Complexity, backward compatibility aspects, analysis of existing similar features, energy consumption impact…
  - Specification / workload impact analysis on RAN1, 2, 3 and 4.

Above is considered as an agreement.

6.2.2 Candidate methods for CA enhancements

6.2.2.1 Signalling

General

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R1-112495	Trade-off Considerations for CA Enhancements	Samsung	

The document (section 2.1) was presented by Aris Papasakellariou from Samsung and identifies potential areas for CA enhancements, their respective characteristics, and an initial assessment/analysis of the associated tradeoffs. Many enhancements can provide improvements while requiring only RRC signaling.
Decision: The document is noted.

R1-112152	Consideration of CA Enhancements for Rel-11	Texas Instruments	

The document was presented by Anthony Ekpenyong from TI and recommends:

- A unified CSI feedback solution is recommended for both CoMP and CA when a UE is configured to receive PDSCH from multiple serving cells, or to perform CSI measurements corresponding to multiple transmission points.
- Enhancements to DL control channel design should consider the requirements for higher order DL MIMO, CoMP, CA and eICIC techniques.
- Proposed control signaling enhancements for CA configuration should show benefits of L1 signaling with respect to higher layer signaling.
- For TDD UL-DL configurations early input from RAN4 is necessary to avoid solutions for which IoT tests would not be available in Release-11.
- Avoid redundant solutions regarding different UL-DL configurations in the eICIC WI and the TDD SI.

Discussion (Question / Comment): CATT commented that TDD SI wasn't part of the CA Enh WI..
Decision: The document is noted.

R1-112427	Views on carrier aggregation enhancement for Rel-11	NTT DOCOMO	

The document was presented by Kazuaki Takeda from NTT DoCoMo and suggests that the necessity for enhancing the PDCCH capacity and CSI reporting should be investigated with the highest priority from a performance perspective. An enhanced CSI feedback mechanism should be studied by considering the aspects of CoMP in addition to CA.
Decision: The document is noted.

R1-112538	Signalling enhancements for CA	Qualcomm Incorporated	

The document was presented by Wanshi Chen from Qualcomm and highlights the need for re-evaluating some of the features already presented in Rel-10 for potential applicability in Rel-11, evaluating the new features based on the Rel-11 deployment needs and lists some potential features concerning physical layer:
Discussion (Question / Comment): Mr Chairman asked whether Qualcomm already identified prioritization from the exhaustive list. The priority should be based on the trade-off analysis.
Decision: The document is noted.

R1-112638	CA Enhancement on Signalling	HTC	

The document was presented by Elliot Jen from HTC and suggests considering simultaneous ACK/NACK+CSI transmission and multiple CSI reporting in Rel-11. It also briefly addresses the importance of DL signaling enhancement in Rel-11 and consider possible directions for enhancement which should be evaluated.
Decision: The document is noted.

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Downlink

R1-112076	On PDCCH capacity for CA	Ericsson, ST-Ericsson	

The document was presented by Mattias Frenne from Ericsson and concludes that under the control channel enhancements for CA work in RAN1, further enhancements of PDCCH coverage and reduced CCE blocking probability could be studied. As an example, a more compact DCI format for the type of transmission modes using CSI-RS and UE specific DMRS could be investigated.
Discussion (Question / Comment): Mr Chairman, as a general comment, stressed on the necessity to show analysis of the potential issues/problems of any proposed solutions.
Decision: The document is noted.

R1-112516	Compact DCI Format for PUSCH Assignments	Samsung	

The document was presented by Aris Papasakellariou from Samsung and concludes that optimizations to the size of DCI format 0 (the most frequently used DCI format) can yield meaningful reductions in the average DL control region size. A compact DCI format 0A, at least for UEs with relatively low UL SINRs, can reduce the average DL control size by about 10%-12.5% without introducing meaningful throughput loss.
If the DL control region is resource limited, a compact DCI format 0A can provide, on average, an additional 1/3 OFDM symbol. At 20 MHz, this corresponds to about 12 additional CCEs and enables scheduling of 3/6 more UEs with PDCCH size of 4/2 CCEs, respectively. If the DL control region is not resource limited, a compact DCI format 0A can provide, on average, about 3% gain in DL throughput.
Discussion (Question / Comment): ZTE raised concerns on Blind decoding operations impact.
Decision: The document is noted.

R1-112245	Further CA enhancement on PDCCH	ZTE	

The document was presented by Zhisong Zuo from ZTE and concludes that, aiming at reducing the number of blind decoding, blocking probability and payload size of PDCCH in Rel-11, an improved PDCCH procedure should be considered.
Discussion (Question / Comment): Impact to primary PDCCH should be considered, according to Panasonic.
Decision: The document is noted.

R1-112376	PDCCH Enhancement in Rel-11 Carrier Aggregation	Research In Motion UK Limited	

The document was presented by … from RIM and recommends that RAN1 discuss the reduction of the number of blind decodes for PDCCH in Rel-11 CA WI based on the possible schemes described in Section 3.
Decision: The document is noted.

R1-112285	On PDCCH bundling	Pantech	

The document was presented by … from Pantech and proposes:

- Bundling PDCCH should be supported to increase the capacity within the conventional control region.
- Subframe bundling is preferred and the support of cell bundling is FFS.
- The sizes of new DCI formats for bundling should be the same as Rel-8/9/10 DCI formats or small number of bits could be added to Rel-8/9/10 DCI formats for additional signaling.

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Decision: The document is noted.

R1-112797	New DCI Formats with Differential Information	Alcatel-Lucent, Alcatel-Lucent Shanghai Bell	(R1-112406)

The document was presented by Ms Sigen Ye from ALU and concludes that the DL control region can easily become overloaded in CA-based het-net deployments and proposes that methods should be investigated to reduce DCI overhead.
One possible solution for further consideration could be to introduce differential DCI messages, which avoid repeating information that has not changed. Such messages could for example be used for retransmission indications for groups of UEs.
Decision: The document is noted.

R1-112461	PDCCH enhancement in Rel-11 carrier aggregation	Huawei, HiSilicon	

The document was presented by Ms Elean Fan from Huawei and provides the following proposals for further study:

- Methods for PDCCH overhead reduction can be considered in Rel-11 CA.
- The multi-CC joint encoded PDCCH can be considered in Rel-11 and the resulting open issues is FFS.
- Reducing PDCCH blocking probability can be considered in Rel-11 CA.
- The design for E-PDCCH in case of CA should be aligned with that for the CA PDCCH enhancement.

Decision: The document is noted.

Conclusions that can be drawn from above set of contributions:

- Possible areas for enhancement include:
  - PDCCH capacity for CA-based Het-Net or inter-band deployments
    - Reduce PDCCH overhead / increase capacity / reduce blocking probability
    - Need to show what gain in capacity and reduction in blocking probability can be achieved with the proposed methods
      - How serious is the problem; what impact would the proposed solution.
- Working assumption: Reduction in PDCCH blind decodes below Rel-10 levels is not seen as necessary in the context of this WI.

Samsung requested adding coverage enhancement

- Consider PDCCH coverage enhancement under DL MIMO SI.
- Consider whether gains resulting from any agreements under DL MIMO SI affect the need for, and improvements from, the above aspects (in order not to duplicate solutions) and vice versa.

Until RAN1#66bis:

- Email discussion to identify scenarios and evaluation assumptions for downlink control signalling enhancement for CA-Enh WI (rapporteur Lars Lindh).

Uplink

Not treated.

R1-112034	Uplink signaling enhancements in Rel-11 carrier aggregation	Huawei, HiSilicon	
R1-112246	Consideration on uplink control channel enhancement	ZTE	

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R1-112077	On collision handling of periodic CSI feedback	Ericsson, ST-Ericsson	
R1-112104	Enhancement for CSI transmission in LTE-A Rel-11 with CA	CATT	
R1-112496	Multi-Cell Periodic CSI Reporting	Samsung	
R1-112329	Simultaneous CSI+ACK/NACK transmission on PUCCH format 3	LG Electronics	
R1-112103	Enhancements on UL ACK/NACK in Rel-11 carrier aggregation	CATT	
R1-112328	TDD UL ACK/NACK mode 1 enhancements	LG Electronics	
R1-112497	HARQ-ACK and CSI Multiplexing in PUCCH for DL CA	Samsung	
R1-112498	Enhancements to HARQ-ACK Multiplexing in PUSCH for DL CA	Samsung	
R1-112499	HARQ-ACK Bundling for PUCCH Format 3	Samsung	

6.2.2.2 PUCCH transmit diversity for Format 3 and Format 1b with Channel Selection

R1-112102	Overview and tradeoff analysis for Rel-11 carrier aggregation	CATT	

The document was presented by Zukang Shen from CATT and proposes some design guidelines and procedures for tradeoff analysis, together with the following for the Rel-11 CA enhancements:

- Focus on the areas that have not been supported or optimized in Rel-10.
- Use cases and design guidelines shall be clearly identified.
- Minimal specification impact is preferable whenever possible

Discussion (Question / Comment): TI requested clarification of what spec impact minimization is meant for. → CATT answered no change of PUCCH structure as an example.
Decision: The document is noted. The following guidelines were further discussed for selection of TxD scheme(s):

- Reduced PUCCH overhead compared to SORTD
- Performance similar to SORTD
  - Consider cases with and without antenna gain imbalance
- Minimize the specification impact
- Take inter-cell interference into account

After debate, the Guidelines for selection of Tx diversity scheme(s) are:

- PUCCH overhead as close as possible to single antenna case
- Performance significantly improved compared to single antenna and as close as possible to SORTD
- Minimize the specification impact
- Consider cases with and without antenna gain imbalance
- Take inter-cell interference into account
- Consider both normal and extended CP

R1-112539	PUCCH transmit diversity for Format 3 and Format 1b with Channel selection	Qualcomm Incorporated	

The document was presented by Juan Montojo from Qualcomm and recommend the adoption of precoding vector switching (PVS) as the TxDiv scheme for PUCCH format 1b with channel selection and for PUCCH format 3 in Rel-11.

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Based on the state of the current RAN1 and RAN4 specifications, PVS across slots of the same subframe is already allowed for PUCCH. However, if RAN1 decides to adopt PVS as a mandatory as opposed to optional feature then RAN1 specification change should be implemented.
Decision: The document is noted.

R1-112105	Transmit diversity for Format 3 and Format 1b with channel selection	CATT	

The document was presented by Zukang Shen from CATT and proposes that PUCCH antenna port selection shall be considered as the PUCCH transmit diversity scheme in Rel-11.
Decision: The document is noted.

R1-112078	Enhanced transmit diversity for PUCCH	Ericsson, ST-Ericsson	

The document was presented by … from Ericsson and proposes:

- Rel.11 transmit diversity schemes for Format 3 and Format 1b with channel selection should strive for using the same number of resources as in their corresponding single antenna case respectively
- For Format 3, jointly consider encoded bit mapping with transmit diversity scheme to ensure enhanced diversity
- Inter-cell interference shall be considered when evaluating the proposals

Decision: The document is noted.

Format 1b

R1-112305	Transmit Diversity for PUCCH Format 3 and 1b with channel selection	Renesas Mobile Europe Ltd	

The document (section 2.2) was presented by Asbjorn Grovlen from Renesas and shows, for format 1b with channel selection, an evaluation of the PVS that satisfies the agreement of keeping the mapping table. However, no significant improvement is found in our simulation and thus PVS does not seem an attractive alternative in our view.
Decision: The document is noted. Mr Chairman asked Renesas and Qualcomm (R1-112539) having an offline discussion in order to identify what the differences are.

R1-112035	TxD for format 1b with channel selection in Rel-11	Huawei, HiSilicon	

The document was presented by Jianghua Liu from Huawei and proposes that SORTD is the transmit diversity scheme for format 1b with channel selection.
Decision: The document is noted.

R1-112370	Transmit Diversity for Channel Selection	Research In Motion UK Limited	

The document was presented by Mark Harisson from RIM and recommends that:

- Transmit diversity should be supported for channel selection
- Channel selection with Tx diversity should occupy no more than 4 PUCCH resources as a baseline.
- Rel-10 resource allocation mechanisms supported for single antenna transmission should be a baseline for channel selection Tx diversity
- An RSTD (resource selection transmit diversity) scheme that exploits reference symbol and slot coding such as **Error! Reference source not found.** is used to support up to 4 Ack/Nack bits.

Discussion (Question / Comment): LGE asked whether the recommendations apply both to FDD and TDD → RIM focus was on FDD, but don't believe TDD would be a problem.

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Decision: The document is noted.

R1-112378	On PUCCH transmit diversity for Format 3 and Format 1b with Channel Selection	Nokia Siemens Networks, Nokia	

The document was presented by Timo Lunttila from NSN and concludes that transmission diversity scheme having minimal impact to resource consumption and the signalling needs to be specified for PUCCH Format 1b with channel selection. Diversity methods for PUCCH format 3 should be studied further taking into account both the gain over single antenna port mode transmission as well as the multiplexing capacity.
Decision: The document is noted.

R1-112407	Transmit Diversity for PUCCH Format 1b with Channel Selection	Alcatel-Lucent, Alcatel-Lucent Shanghai Bell	

The document was presented by Ms Sigen Ye from ALU and shows simulation results for different transmit diversity schemes for format 1b with channel selection. RSTD and the newly proposed M-SORTD2 are both resource-efficient schemes which avoid the need to increase resources compared to SIMO, but they still give similar performance to SORTD. As M-SORTD2 has a simpler mapping structure than RSTD, it is proposed to adopt it in Rel-11.
Decision: The document is noted.

R1-112472	Transmit Diversity for PUCCH Format 1b with Channel Selection in Rel-11	LG Electronics	

The document was presented by Seung hee Han from LGE and concludes:

- SORTD is applied for the following cases;
  - Case A-1) FDD channel selection for 2 A/N bits and TDD channel selection for 2 A/N bits with M=1 in two configured cells
  - Case A-2) TDD channel selection for 4 A/N bits with M=2, 3, 4 in two configured cells (TDD mode b)
  - Case A-3) TDD channel selection in single configured cell
- TxD scheme using up to 4 orthogonal resources (eg. E-SORTD) is applied for the following cases;
  - Case B-1) FDD channel selection for 3 A/N bits and TDD channel selection for 3 A/N bits with M=1 in two configured cells
  - Case B-2) FDD channel selection for 4 A/N bits and TDD channel selection for 4 A/N bits with M=1 in two configured cells

Decision: The document is noted.

Conclusion on DTX definition:
Use RAN4 definition as baseline; companies can provide results for the other definition too.

R1-112501	Discussion on transmit diversity for PUCCH format 1b with channel selection	Samsung	

The document was presented by … from Samsung and considers the support of SORTD for PUCCH format 1b with channel selection. Enabling fallback operation is one main property and implicit allocation of channel resources is prioritized to minimize PUCCH resource overhead.
Decision: The document is noted.

Format 3

R1-112701	Transmit diversity schemes for PUCCH Format 3	Mitsubishi Electric	(R1-112293)

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The document was presented by Loic Brunel from Mitsubishi and proposes to:

- Introduce Low-CM SFBC as an enhanced TxD scheme for PUCCH Format 3 with normal CP (FFS for extended CP),
- Introduce size-2 OCC multiplexing in PUCCH Format 3 DM-RS with normal CP.

Discussion (Question / Comment): Samsung questioned on DTX detection scheme be used.
Decision: The document is noted.

R1-112305	Transmit Diversity for PUCCH Format 3 and 1b with channel selection	Renesas Mobile Europe Ltd	

The document (section 2.1) was presented by Asbjorn Grovlen from Renesas and shows, for format 3 three possible TxD schemes that may reduce the resource consumption of SORTD. According to the simulation results, PVS and punctured SORTD did not show promising performance and thus should not be considered. The dynamic switching between SORTD and SFBC reduces the resource waste by falling back to SFBC when payload size is small. Thus this dynamic switching should be further considered as an efficient way to perform TxD with no BER performance loss while the complexity implications should be further evaluated.
Decision: The document is noted.

R1-112462	TxD scheme enhancement for PUCCH format 3	Huawei, HiSilicon	

The document was presented by Jianghua Liu from Huawei and provides simulation results, showing that FSTD and BS-DFT (Beam Switching before DFT) have significant gain over Single AP case, and are better than SC-STBC and MSFBC when joint Data+RS ML receiver is used.
Slightly preferred choice is BS-DFT as TxD scheme for format 3, if one new TxD scheme other than SORTD should be adopted for format 3 in Rel-11.
Decision: The document is noted.

R1-112473	Transmit Diversity for PUCCH Format 3 in Rel-11	LG Electronics	

The document was presented by Seung hee Han from LGE and deals with ACK/NACK performance evaluation of the TxD schemes (SORTD, FSTD1, FSTD2, SFBC, and STBC). Among FSTD2, SFBC, and STBC, results show the similar ACK/NACK performances and that SORTD outperforms all the other TxD schemes>
It is therefore proposed that no additional TxD scheme for PUCCH format 3 is introduced in Rel-11.
Decision: The document is noted.

R1-112500	PUCCH Format 3 Transmit Diversity for Rel-11	Samsung	

The document was presented by … from Samsung and provides the following recommendations.

- Proposal 1: Alt 1 is used for PUCCH format 3 transmit diversity in Rel-11.
- Proposal 2: Use RRC signaling for PUCCH format 3 TxD scheme selection in Rel-11.

Decision: The document is noted.

Better convergence is expected at next meeting – Need to narrow down the number of proposals should be targeted.
Companies are encouraged to make details of any new proposals or modified schemes available on the reflector as early as possible to enable evaluation.

6.2.2.3 Support of different TDD UL-DL configurations on different bands

General

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R1-112495	Trade-off Considerations for CA Enhancements	Samsung	

The document (section 2.2) was presented by Aris Papasakellariou from Samsung and concludes that specification effort may be required for supporting different TDD UL-DL configurations in different bands, for DL control signaling enhancements (also relevant to the studies in other WIs).
Decision: The document is noted.

R1-112036	Discussion on different UL-DL configuration for TDD with inter-band CA	Huawei, HiSilicon	

The document was presented by Bo Li from Huawei and is summarized as follows:

- Only limited number of CCs and combinations of different UL-DL configurations should be considered.
- It is assumed that Rel-11 TDD UE that supports inter-band CA is able to support simultaneous transmission and reception on different bands.
- PUCCH should be transmitted on one CC for the inter-band TDD CA with different UL-DL configurations.
- For the HARQ timing of a SCell, if the UL-DL configuration of the SCell is different from that of the PCell, it is FFS whether the PUCCH is always on Pcell, or can also be on one Scell.
- For inter-band TDD CA with different UL-DL configurations, the UL&DL scheduling timing

Decision: The document is noted.

R1-112079	Operating principles of interband TDD CA with different UL-DL configurations	Ericsson, ST-Ericsson	

The document was presented by … from Ericsson and proposes:

- Provide UL-DL configuration information of the aggregated Scell(s) to the UE.
- The following principles are adopted in RAN1 investigation to minimize specification and implementation impact:
  - No new HARQ control timing table is introduced.
  - PUCCH is carried on the Pcell.
  - PHICH is carried on the cell that carried the UL grant(s).
  - A UE sends or receives HARQ A/N information for concurrent subframes across different CCs in the same subframe.
- Reuse Rel-8 FDD half-duplex operation principles for support of half-duplex UE operations in interband CA with different UL-DL configurations.
- The design of HARQ control communication should support CC load balancing and dynamic UL-DL prioritization of subframes with conflicting directions for better system performance and user experience.
- Cross-carrier scheduling between TDD cells with different UL-DL configurations is not supported in Rel-11.

Decision: The document is noted.

R1-112214	Supporting Different UL-DL Configurations for LTE-TDD Inter-band Carrier Aggregation	Intel Corporation	

The document was presented by … from Intel and proposes:

- The inter-band CA for Release 11 should be based on the UL-DL configurations already defined for LTE TDD in Rel-8/9/10 for each deployed band. Additional DL-UL configurations should be avoided unless proven necessary.
- The simultaneous transmission in one band and reception in other band by TDD-LTE UEs in the overlapping downlink and uplink subframes should be avoided, as it may not be supported by many UEs.

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- The impact of having a mix of UEs with and without simultaneous TX/RX support on overall system performance and the overall benefit of inter-band CA in mixed TDD configurations should be further studied.

Decision: The document is noted.

Mr Chairman then asked whether the following statement could be agreed:

- No new TDD UL/DL configurations will be considered in this WI

Above statement is agreed.

R1-112306	Operation Principles of CC specific TDD Configuration	Renesas Mobile Europe Ltd	

Renesas didn't formally present the document and just raised the principle to indicate the actual TDD configuration for new UEs that support CC specific TDD configuration

Decision: The document is noted.

Agreement:

- If Support of different TDD UL-DL configurations on different bands is specified, the UEs will be informed of the actual UL/DL configuration of each aggregated CC.

Following CATT's comment:
Note that depending on how the Rel-10 signalling is modified, it should be ensured that CCs in the same band have the same configuration.

Following Qualcomm's comment: Mr Chairman asked whether RAN1 was already capable answering the following question
Inter-band aggregation of CCs with different TDD UL / DL configurations will be supported in Rel-11?
(Note that intra-band aggregated CCs shall have the same TDD UL / DL configuration)
Premature according to LGE, Sharp

For the next meeting, aim to provide analysis of the motivation/benefits for inter-band aggregation of CCs with different TDD UL-DL configurations, before deciding whether inter-band aggregation of CCs with different TDD UL-DL configurations will be supported in the RAN1 specs in Rel-11.
(Note that intra-band aggregated CCs shall have the same TDD UL-DL configuration)

R1-112540	Support of different TDD UL-DL configurations on different bands	Qualcomm Incorporated	

The document was presented by Wanshi Chen from Qualcomm and concludes the following:

- Carrier aggregation of TDD CCs with different UL-DL configurations offers flexibility in operation for load balancing, heterogeneous network deployments, and operation with eMBMS
- Consider designs solutions maximizing the use of existing Rel-8/9/10 procedures, providing efficient support of CA-based heterogeneous network deployments, and providing support of operation with a single UL CC
- Need to address the impact on UL control due to PUCCH transmission only on PCC
- Need to address the impact on DL control when cross-carrier control is configured

Decision: The document is noted.

Not treated.

R1-112247	On support of inter-band CA with different TDD UL-DL configurations	ZTE	

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R1-112280	Views on support of different TDD configuration in Rel-11	Pantech	
R1-112358	Issues on TDD different DL/UL configurations on different bands for Rel-11	Panasonic	
R1-112379	Views on inter-band CA with different TDD configurations on different bands	Nokia Siemens Networks, Nokia	
R1-112474	Consideration on Different TDD UL/DL Configurations for Inter-band CA	LG Electronics	
R1-112579	Support of different TDD UL-DL configurations on different bands	Potevio	
R1-112597	Discussion on different TDD UL-DL configurations on different bands in Carrier Aggregation	HTC	
R1-112656	Inter-band CA with different UL-DL configuration in TDD	New Postcom	

UE functionality

R1-112080	Hardware impact of supporting interband TDD CA with different UL-DL configurations	Ericsson, ST-Ericsson	

The document was presented by … from Ericsson and concludes that:

- For interband TDD aggregation scenarios with small frequency separation, half-duplex operations can be beneficial to UE implementation (particularly for low-cost UEs) and power consumption.
- For interband TDD aggregation scenarios with large frequency separation, incremental costs to support full-duplex operations may be addressable.
- High-end UE capable of temporary full-duplex operations can fully utilize the radio resources from all aggregated TDD cells and provide better end-user experience.

It is hence proposed

- To investigate an interband TDD carrier aggregation solution to support half-duplex UEs in RAN1.
- To investigate whether support of full-duplex UEs can be integrated with no incremental complexity on top of those needed for half-duplex UEs.

Decision: The document is noted.

R1-112106	TDD Inter-band Carrier Aggregation	CATT	

The document was presented by Zukang Shen from CATT and deals with the design principles as well as the specification impact for several UE types.

- Proposal: The Rel-11 TDD inter-band CA shall assume a baseline UE type which is not capable of simultaneous transmission and reception on different bands in the same subframe. A complete solution with minimal specification impact is preferred for such a baseline UE to support TDD inter-band CA.

Decision: The document is noted.

R1-112451	Support cell-specific TDD UL-DL configuration for inter-band CA	ITRI	

The document was presented by Chia-Pang Yen from ITRI and concludes that, from the perspective on resource utilization, UE shall support simultaneous transmission and reception to maximized resource utilization. In other words, non-transparent solution is the preferable resolution.

Decision: The document is noted.

Proposed conclusions:

- At least half-duplex UE operation should be supported
- Evaluate UE implications for support of simultaneous rx/tx in different bands

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- Compare benefits of supporting different UL/DL configurations in different bands with / without simultaneous rx/tx

Qualcomm raised concern limiting to half-duplex

Way forward on UE functionality (half vs full duplex):

- Compare benefits of supporting aggregation of CCs with different UL/DL configurations in different bands with/without simultaneous Rx/Tx
- Evaluate UE implications for support of simultaneous Rx/Tx in different bands
  - Send LS to RAN4 to ask about relevant inter-band spacings (and their priorities) compared to FDD duplex spacings - can simultaneous Tx/Rx be assumed - R1-112823 (CATT).
    - Also ask how many bands should be supported.
- Compare total specification complexity with/without half-duplex constraint
- Continue discussion until RAN1#66bis.

Friday 26th

R1-112823	[Draft] LS on TDD inter-band CA with different UL-DL configurations on different bands	CATT	

The document was presented by Zukang Shen from CATT.
Discussion (Question / Comment): LGE requested more time for review.
Decision: The document is noted. The draft LS is for email approval until Friday 2nd September.

Scheduling impact

Not formally reviewed.

R1-112503	Data scheduling in CA with different TDD UL-DL configurations	Samsung	
R1-112584	Cross-carrier scheduling on different TDD configurations	MediaTek	

HARQ-ACK impact

Not formally reviewed.

R1-112213	Control/Timing Issues related to Mixed TDD Configurations in Inter-band CA	Intel Corporation	
R1-112349	HARQ Feedback Mechanism in CA with Different TDD Configurations	MediaTek	
R1-112408	CC-specific TDD configuration for enhanced CA in Re11	Alcatel-Lucent Shanghai Bell, Alcatel-Lucent	
R1-112502	DL/UL HARQ-ACK transmission in CA with different TDD configurations	Samsung	

Questions to address (key questions raised in contributions, certainly not exhaustive list)

- Is cross-carrier scheduling between aggregated TDD cells with different UL-DL configurations supported?
- How many bands are supported? (QC: supporting more than 2 bands is quite unrealistic)
- Are there any restrictions on which combinations of UL-DL configurations can be aggregated?
- Is PUCCH still transmitted on only 1 CC?
- Is PUCCH always on the PCell?
- Is PHICH transmitted on the cell carrying the UL grant?

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- Same HARQ timing rules as in Rel-10?
- Same scheduling timing as in Rel-10?

6.2.3 Additional carrier types

Note that if additional carrier types (including non-backward-compatible elements) are treated at RAN1#66 (subject to availability of sufficient time in the meeting), it will be for discussion of RAN1-related aspects only. Aspects that are dependent on RAN4 will await information from RAN4 regarding the corresponding target scenarios.

Not treated.

R1-112081	Considerations on use cases for introduction of additional carrier types	Ericsson, ST-Ericsson	
R1-112082	Discussion on design principles for additional carrier types	Ericsson, ST-Ericsson	
R1-112129	Views on Extension carrier and Carrier segments	NEC Group	
R1-112215	On New Carrier Types: Extension Carriers and Carrier Segments	Intel Corporation	
R1-112235	Additional carrier types for R11 CA Enhancements	InterDigital Communications, LLC	
R1-112248	Introduction of additional carrier types	ZTE	
R1-112281	Views on additional carrier types for CA in Rel-11	Pantech	
R1-112307	Initial Discussions on New Carrier Types for LTE Rel-11	Renesas Mobile Europe Ltd	
R1-112344	Discussion on The Necessity of Additional Carrier Types	MediaTek	
R1-112409	Discussions on Additional Carrier Types in LTE Rel 11	Alcatel-Lucent, Alcatel-Lucent Shanghai Bell	
R1-112428	On need of additional carrier type in Rel-11 CA	NTT DOCOMO	
R1-112438	Additional carrier types for LTE Rel-11	Motorola Mobility	
R1-112463	Additional carrier types – motivations and issues	Huawei, HiSilicon	
R1-112475	Consideration on Additional Carrier Type	LG Electronics	
R1-112504	Additional Carrier Types for Rel.11	Samsung	
R1-112527	Considerations on additional carrier types	Nokia / Nokia Siemens Networks	
R1-112541	Use Cases for Extension Carriers	Qualcomm Incorporated	
R1-112578	Extension carrier in Rel-11	Potevio	
R1-112598	Discussion on Additional Carrier Types in Carrier Aggregation for Release 11	HTC	
R1-112668	Non backward component carrier	Fujitsu	

6.2.4 Other

Not treated.

R1-112107	Support of multiple timing advances in LTE-A Rel-11 with CA	CATT	
R1-112330	Discussion on multiple TA for carrier aggregation	LG Electronics	
R1-112410	CA-based Het Net operation	Alcatel-Lucent, Alcatel-Lucent Shanghai Bell	

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R1-112452	Discussion on CA-based Heterogeneous Networks	ITRI	
R1-112654	Common Search Space for RACH on Scell	New Postcom	

6.3 Further Enhanced Non-CA-based ICIC for LTE

WID RP-110824

6.3.1 Identification of scenarios

Based on system performance gains, identify the scenarios for which the following UE performance requirements will be specified, in terms of, e.g., number of interferers and their relative levels with respect to the serving cell.

- *UE performance requirements to enable significantly improved detection of PCI and system information (MIB/SIB-1/Paging) in the presence of dominant interferers for FDD and TDD systems, and different network configurations (e.g., subframe offset / no-subframe offset)*
- *UE performance requirements for significantly improved DL control and data detection and UE measurement/reporting in the presence of dominant interferers (including colliding and non-colliding RS, as well as, MBSFN used as ABS, as well as, ABS subframe configurations) for FDD and TDD systems.*
    - *Dominant interference applicable to both macro-pico and CSG scenarios and with or without handover biasing*

R1-112130	Performance of Cell Range Extension with Time-domain solutions	NEC Group	

The document was presented by Yassin Awad from NEC and concludes that large values of CRE offset degrade the pico user performance both in terms of control channel reliability and 5%-tile user throughput. TDM solution improves the control channel reliability in trade of with macro user throughput. In 3GPP case 1 as simulated, in which the interference from macro cell is dominant for pico UEs, TDM solution plus large values of CRE offset with suitable RSRQ threshold setting can improve the total system capacity without degrading control channel performance.
Introducing a RSRQ threshold parameter across the macro/pico eNBs together with the CRE bias offset, provides a simple mechanism to maintain consistent cell edge user throughput and control channel performance in both macro and pico cells.
Discussion (Question / Comment): Huawei questioned on RSRQ threshold.
Decision: The document is noted.

R1-112222	Futher analysis on Macro-Pico scenario	Intel Corporation	

The document was presented by Jong-kae Fwu from Intel and reconfirms the consensus in RAN1#62b that “CRE gives gains at least for low to moderate cell association bias values”. As additional gains by using a large bias value are limited, it is suggested defining the receiver requirements for various system signals only for low to moderate RSRP values.
Discussion (Question / Comment): Qualcomm raised concern on Intel’s interpretation of the results as shown and the conclusion as drawn.
Decision: The document is noted.

R1-112798	Discussion on Rel’11 eICIC scenarios	Renesas Mobile Europe Ltd	(R1-112308)

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The document was presented by Tero Kuosmanen from Renesas and introduces scenarios (i.e. macro-pico-femto scenario and CA Scell with eICIC) and some initial simulation results for large CRE values in macro-pico case. The full buffer results presented here show that when analysing CRE gains, some care should be taken with the comparison point. More investigations into how the gains are split between cell and user throughput, especially for finite buffer cases, would be needed.
Decision: The document is noted.

R1-112147	Discussions on certain open issues in ICIC	New Postcom	

The document was presented by Zichao Ji from New Postcom and proposes that:

- RAN1 is kindly requested to consider the issues listed in Observations 2, 3 and 4 in the e2ICIC WI for Rel-11.
- RAN1 based solutions for the PSS/SSS/MIB detection issues arising from the macro-femto deployment should be discussed in Rel-11.
- Frequency domain solutions and symbol offset based solutions are not preferred for solving the PCI/system information detection problems.
- Time domain solutions based on subframe offset do not require new RAN1 standardization efforts for FDD, while its standardization impact on TDD should be clarified.
- Large CRE bias values are precluded from performance evaluation of macro-pico deployment in Rel-11 e2ICIC WI.

Decision: The document is noted.

R1-112429	Investigation on performance improvement by CRE	NTT DOCOMO	

The document was presented by Satoshi Nagata from NTT DoCoMo and provides simulation results (4 picocells and 30 UEs are located within 1 macrocell) assuming a full buffer model showing that when the CRE offset value is set between 8 to 20 dB, almost the same user throughput performance is obtained by allocating the appropriate resources to protect UEs connected to picocells.
Discussion (Question / Comment): Qualcomm raised concern on DoCoMo's interpretation of the results → although figures showed some gain, simulation might be too ideal said DoCoMo.
Decision: The document is noted.

R1-112331	Performance Evaluation in Heterogeneous Networks	LG Electronics	

The document was presented by Hanbyul Seo from LGE and concludes that, looking into the system performance gains according to the various HetNet deployment scenarios through simulation, it is desirable to consider a scenario of further enhanced non-CS-based ICIC for LTE in which the interference level that UEs receive is about 10dB higher than the receiving signal power from its own serving cell relatively.
Decision: The document is noted.

R1-112411	Scenarios for UE performance requirements	Alcatel-Lucent, Alcatel-Lucent Shanghai Bell	

The document was presented by Fang-chen Cheng from ALU and draws the following observations:

- **Observation 1:** High gains are observed from the use of CRE with ABSs in the strong hotspot scenario (3GPP scenario 4b) with high bias values, up to 15dB.
- **Observation 2:** Low / no ABS gains are seen for uniform user distribution (scenario 1).

Further work on UE performance requirements / signalling should therefore focus on scenarios with CRE with large bias up to 15dB, in particular in the hotspot user distribution scenario 4b.
In particular, UE cell search capability needs to be enhanced, and performance requirements for detection/reception of PSS/SSS/CRS/PBCH down to -15dB should be examined.

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Decision: The document is noted.

R1-112543	Scenarios for eICIC evaluations	Qualcomm Incorporated	

The document was presented by Alex Damnjanovic from Qualcomm and deals with investigating the system throughput sensitivity on the selected bias values for the macro/pico scenario.
Bias value of 18 dB can provide significant performance benefits and outperforms lower bias values for both uniform and hot spot distribution of UEs in the network.
The following is proposed:

- Define UE performance requirements to enable detection of PCI and system information for the scenario where neighbouring cell is 18 dB stronger then the serving cell and subframe shift offset is not configured.
- Define UE performance requirements for improved DL control and data detection for the scenario where neighbouring cell is 18 dB stronger then the serving cell for non-MBSFN and MBSFN almost blank subframes and colliding and non-colliding CRS.

Decision: The document is noted.

R1-112154	System Performance Gains with Rel-10 ICIC and Het-Net Enhancements for Rel-11	Texas Instruments	

The document was presented by Vikram Chandrasekhar from TI and proposes:

- Zero-power PDSCH (PDSCH RE muting) is supported so that PDSCH of serving cell is rate-matched around CRS positions of a set of neighboring cell (s).
- Zero-power PDSCH configuration (potentially v-shift, subframe offset and periodicity) is signalled via higher-layer.
- Investigate collision avoidance techniques (via air interface enhancements) for addressing dominant interference on PBCH/PSS/SSS/PCH in co-channel het-nets.

Decision: The document is noted.

R1-112506	PDSCH performance under various macro-pico scenarios	Samsung	

The document was presented by Joonyoung Cho from Samsung and draws the following conclusions:

- System simulations for the following CRS interference modeling scenarios
  - No CRS interference
  - With white-modeled CRS interference
  - With colored CRS interference
  - CRS RE puncturing Receiver
- Severe performance degradation in cases without CRS interference cancellation with large cell selection bias
- CRS interference cancellation
  - Offers huge gain compared to the cases without CRS interference cancellation
  - Only 8% cell throughput loss with CRS RE puncturing receiver compared to “No CRS interference” case

Decision: The document is noted.

R1-112464	Interference scenario analysis in further eICIC	Huawei, Hisilicon	

The document was presented by Qiang Li from Huawei and concludes:

- Interference scenario in Macro-Pico deployment and corresponding interference mitigation scheme should be the focus of this WI
  - Large CRE bias might be unnecessary according to the system evaluation results and the purpose of the Pico cell deployment.

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- Even with large CRE bias, up to 1 interfering cell is the most predominant case in this deployment.

- Carrier-based solution or power setting solution might be more feasible to apply in Macro-Femto case due to the un-planned deployment of Femtos.

Decision: The document is noted.

R1-112648	On scenarios for further time domain ICIC evaluations	Ericsson, ST-Ericsson	

The document was presented by Lars Lindbom from Ericsson and proposes:

- For open access networks, focus evaluations on macro-pico deployments based on configuration 4b and 1, with 2 and/or 4 pico's per macro cell.
- Introduce an additional traffic hotspot scenario based on configuration 4b with 4 traffic hotspots and 2 pico cells per macro cell.
- For macro-pico evaluations, consider ITU UMa and UMi pathloss, penetration and shadowing generation methodology for macro to UE and pico to UE, respectively, inline with the agreements captured in [36.819]
- Introduce an efficiency loss parameter, inline with [36.819], also for the HetNet evaluations in the present WI.
- As a baseline, consider a planned cell ID layout for macro cells and randomly selected cell IDs for low power nodes.
- Focus further time domain ICIC evaluations on non full buffer traffic models for system-level data performance evaluation.
- Evaluate potential time domain ICIC enhancements with optimized static ABS rate/density and with reduced transmissions power on the downlink unicast traffic in ABS.

Decision: The document is noted.

Not treated.

R1-112037	Considerations on further enhancements of Rel-10 eICIC	Huawei, Hisilicon	
R1-112236	Scenarios for FeICIC techniques	InterDigital Communications, LLC	
R1-112237	Evaluation of FeICIC in R11	InterDigital Communications, LLC	
R1-112282	Discussions on different network configurations in eICIC	Pantech	
R1-112348	Identification of scenarios for Rel-11 Non-CA-based e2ICIC	MediaTek	
R1-112368	PCFICH Detection in an eICIC Enabled Heterogeneous Network	Research In Motion UK Limited	
R1-112380	Rel'11 considerations on common control channel performance in connection to TDM eICIC	Nokia Siemens Networks, Nokia	
R1-112439	DL Performance results for eICIC	Motorola Mobility	
R1-112505	Open issues and scenarios for Rel-11 eICIC	Samsung	
R1-112507	CRS interference cancellation in HetNet scenarios for UE performance requirements	Samsung	
R1-112588	Scenarios identification for further enhanced non-CA-based ICIC	ZTE	
R1-112591	Discussion on the common solution for FDD and TDD on improving PCI and system information detection in the presence of dominant interferer	CMCC	
R1-112653	Consideration on how to get Femto ABS pattern	New Postcom	

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R1-112542	Summary of Rel-10 requirements for eICIC and scenarios for Rel-11 requirements	Qualcomm Incorporated	

Two way forward were proposed:

R1-112806	Way forward on identification of scenarios for eICIC	Alcatel-Lucent, Alcatel-Lucent Shanghai-Bell, AT&T, CATT, CMCC, Deutsche Telekom, Fujitsu, Qualcomm Inc, Samsung	R1-112801

The document was presented by Alex Damnjanovic from Qualcomm.

- Large bias (e.g. 15dB) can provide significant performance gains for some macro/pico scenario in interference limited deployments
  - Significant performance benefit is achieved for CSG HeNB scenario as well
- UE requirements for large bias for DL control and data detection and UE measurements and reporting for receiver based techniques would need to be defined according to WID
- RAN1 to continue discussions on benefits of network assistance for Rx based techniques and of Tx based techniques

Discussion (Question / Comment): Renesas found a bit too early stating the first bullet and to conclude on it.
Decision: The document is noted.

R1-112803	Way forward on scenarios for further eICIC	Ericsson, Huawei, HiSilicon, ST-Ericsson	

The document was presented by Lars Lindbom from Ericsson.

- Scenarios/system baseline parameters
  - For macro-pico deployment scenarios
    - Adopt the ITU UMa and UMi channel modeling as described in TR36.819
    - Focus on Conf. 1 and 4b, with maximum 4 pico's deployed per macro cell
      - For Conf. 4b, number of traffic hotspots are 2 or 4 per macro cell
  - Planned cell ID layout for macro cells and randomly selected cell IDs for low power nodes
  - System performance evaluations with bursty traffic models should be prioritized over full buffer
- Evaluations based on static ABS rates

Decision: The document is noted.

Attempt for conclusion:

- Based on available assumptions, some evaluations show large bias (e.g. 15dB) can provide significant performance gains for some macro/pico scenario in interference limited deployments
- Further evaluations until RAN1#66bis following the assumptions in 2803
  - Include full CRS modeling (e.g. see R1-112506)
  - Aim for tighter convergence between companies' results
- Provide details of tx-based solutions for evaluation
  - At RAN1#66bis, aim to agree which tx-based solutions are to be evaluated

According to Ericsson, "assumptions" have not been clearly defined – so, the observation in first bullet is questionable.

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Mr Chairman suggested having an offline session on Thursday to aim to reach consensus on evaluation / modelling assumptions for all further evaluations until RAN1#66bis
- Use 2803 as starting point for discussion
- Identify divergences between currently available evaluation assumptions and agree how to harmonise them
- Also include details of CRS interference modelling (e.g. see R1-112506)

For RAN1#66bis, proponents to provide details of tx-based solutions for evaluation
- At RAN1#66bis, aim to agree which tx based solutions are to be evaluated.

R1-112856	Summary of ad hoc session on FeICIC simulation assumptions	Ad hoc Chairman (NTT DoCoMo)	

The document was presented by Tetsushi Abe from NTT DoCoMo and provides the outcomes of the adhoc.
Decision: The document is noted and the summary is agreed. In addition, the following are also agreed:
- 3GPP Model-1 SCM or TU? TU is agreed instead of SCM.
- Alt2 "For each codeblock, average interference level over all relevant REs. Use the average as common noise level of each RE in effective SINR calculation" is chosen as baseline, but companies are encouraged to check/validate the alternatives further until RAN1#66bis.

6.3.2 Other

Not treated.

R1-112161	On supporting reduced power transmission in non-CA-based ICIC	KDDI Corporation	
R1-112332	Handling the legacy transmission in ABS	LG Electronics	
R1-112333	Enhancement to Time-domain Resource Partitioning	LG Electronics	
R1-112369	PSS/SSS Detection in Heterogeneous Networks	Research In Motion UK Limited	
R1-112381	Uplink co-channel HetNet performance and PC optimization	Nokia Siemens Networks, Nokia	
R1-112382	On TDM eICIC Performance with Different Receiver Models	Nokia Siemens Networks, Nokia	
R1-112383	Potential for uplink capacity enhancement when applying TDM eICIC	Nokia Siemens Networks, Nokia	

6.4 Network-Based Positioning Support for LTE

SRS measurement definition

R1-112347	Definition of SRS measurements for Network-Based Positioning	MediaTek	

The document was presented by Chienhwa Hwang from MediaTek and deals with the SRS measurement definition related to network based positioning in LTE. Two measurement definitions were proposed, one is based on the time difference of an uplink transmission containing a specific SRS from the target UE and the received signal at the respective eNB, and the other is based on the time of the occurrence of the receiving of the uplink subframe containing the SRS intended for positioning. Through analysis and simulation results, Measurement Definition 1 can provide information allowed for a more accurate position estimate.

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Discussion (Question / Comment): ALU questioned how T_{eNB-RX} absolute time is defined. → Offline is needed to clarify MediaTek view.
Decision: The document is noted.

R1-112809	UL Time of Arrival	Alcatel-Lucent, Alcatel-Lucent Shanghai Bell, Andrew	(R1-112412)

The document was presented by Fang-chen Cheng from ALU and drafts a CR adding the following definition to 36.214

- The UL Time of Arrival (T_{UL-TOA}) is the start of sounding reference signals (SRS) from UE transmitted from cell j (T_{Rxj}) received at measurement cell j at the reference time (T_{Refi}), defined as $T_{Rxj} - T_{Refi}$. The reference time of measurement cell j (T_{Refi}) is defined as the start of the SRS symbol of the subframe at the measurement cell i. The reference point for the UL time of arrival shall be the antenna connector of the eNB.

Discussion (Question / Comment): Measurement title changed to "UL Relative Time of Arrival".
TruePosition supported the proposal including the change for adding "Relative"
Mr Chairman asked whether the CR could be agreed in principle.
Ericsson commented that CR should be agreed together with the outcomes from RAN2 and RAN3.
Mr Chairman agreed that CRs should be approved by plenary as a whole.
Ericsson asked to note that further discussion may be needed for the case of standalone LMUs.
Mr Chairman suggested agreement of the CR in principle; time left for companies to check whether any technical problems may arise.
Then Mr Chairman proposed to technically endorse the CR; and send LS to RAN2 ccRAN3.
Ericsson asked this should be done for information only, endorse the definition is enough, no need to endorse it as a CR.
Decision: The document is noted.

Conclusion:
Definition as modified below is technically endorsed.
Send in LS to RAN2 cc RAN3 for information, asking them to let RAN1 know if they have any comments – draft LS shall be made in R1-112810.
Note that further discussion may be needed for the case of standalone LMUs.

The UL Relative Time of Arrival (T_{UL-TOA}) is the start of sounding reference signals (SRS) from UE transmitted from cell j (T_{Rxj}) received at measurement cell j at the reference time (T_{Refi}), defined as $T_{Rxj} - T_{Refi}$. The reference time of measurement cell j (T_{Refi}) is defined as the start of the SRS symbol of the subframe at the measurement cell i. The reference point for the UL time of arrival shall be the antenna connector of the eNB.

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Friday 26th

R1-112810	Draft LS on Physical Layer Measurement for network positioning	Alcatel-Lucent	

Decision: The document is noted and final LS is agreed in R1-112864.

6.5 Study on Coordinated Multi-Point Operation for LTE

R1-112824	DL and UL CoMP Chairman's Notes	NTT DOCOMO, Samsung	

The joint summary was presented by Tetsushi (for DL part) and Charlie (for UL part).
Decision: The document is noted and endorsed. The content is as shown below.

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6.5.1 Evaluation results for Phase 2 (Scenarios 3 and 4)

Email / offline discussion summary

R1-112017	Performance calibration results for Scenarios 3 and 4	NTT DoCoMo	

Decision: The document is noted.

R1-112794	Conclusions of offline session on CoMP Phase 2 evaluations	Samsung	

Decision: The document is noted.

Followings will be captured in TR:

- Summary tables in 2794
  - Mention that all the results are averaged.
- Disclaimers
  - Clarify that this is for the summary tables
- Conclusions in 2794 (Two sentences)
  - Added to the conclusion section of the TR
- Tables in the excel sheet
  - Add a column indicating the channel model
  - Add a relative gain used to create the summary tables

Evaluation results

R1-112039	Full buffer performance evaluation of DL JT in scenarios 3 and 4	Huawei, HiSilicon	

Decision: The document is noted.

R1-112060	System Performance of JT-CoMP in Phase 2 TDD	CATT	

Decision: The document is noted.

R1-112061	System Performance of CS/CB-CoMP in Phase2 TDD	CATT	

Decision: The document is noted.

R1-112093	DL CoMP Phase 2 Evaluation Results	Ericsson, ST-Ericsson	

Decision: The document is noted.

R1-112544	Phase 2 evaluation results for HetNet CoMP scenarios	Qualcomm Incorporated	

Decision: The document is noted.

R1-112257	CoMP Phase 2 CS/CB Evaluation Results	ZTE	

Decision: The document is noted.

R1-112258	CoMP Phase 2 JP Evaluation Results	ZTE	

Decision: The document is noted.

R1-112334	Full-buffer Simulation results for scenario 3 & 4	LG Electronics	

Decision: The document is noted.

R1-112335	Non Full-buffer Simulation results for scenario 3 & 4	LG Electronics	

Decision: The document is noted.

R1-112441	Coordinated Scheduling (CS) Schemes with Low Power RRH: Details and Phase-2 Evaluations Results	Motorola Mobility	

Decision: The document is noted.

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R1-112709	Full buffer evaluation results for CoMP scenario 3 and 4	Samsung	(R1-112508)

Decision: The document is noted.

R1-112509	Non-full buffer evaluation results for CoMP scenario 3 and 4	Samsung	

Decision: The document is noted.

R1-112062	Performance Evaluations of JT-CoMP and TDM eICIC in the CoMP Scenario 3	KDDI Corporation	

Decision: The document is noted.

R1-112342	Simulation Results for Phase-2 CoMP Evaluation	MediaTek	

Decision: The document is noted.

R1-112374	Phase 2 Evaluation Results for CoMP	Research In Motion UK Limited	

Decision: The document is noted.

R1-112660	Phase 2 performance evaluation of JT CoMP	Fujitsu	

Decision: The document is noted.

Add additional observations if consensus is made by Friday.

FDD Downlink

Not treated.

R1-112038	Full buffer performance evaluation of DL CS/CB in scenarios 3 and 4	Huawei, HiSilicon	
R1-112040	Non-Full buffer performance evaluation of DL JT in scenarios 3 and 4	Huawei, HiSilicon	
R1-112132	Evaluation Results for FDD CoMP CB Scenario 3	NEC Group	
R1-112140	Phase 2 downlink CoMP evaluation results	Alcatel-Lucent Shanghai Bell, Alcatel-Lucent	
R1-112150	Scenario 3 results and analysis for CoMP Phase 2	New Postcom	
R1-112155	Performance evaluation of CoMP in Phase II hetergeneous environment	Texas Instruments	
R1-112768	CoMP performance analysis in Scenarios 3 and 4 for full buffer traffic model	Intel Corporation	(R1-112223)
R1-112238	CoMP Phase 2 performance results	InterDigital Communications, LLC	
R1-112384	DL CoMP phase2 simulation results	Nokia Siemens Networks, Nokia	
R1-112793	CoMP Phase 2 evaluations for Scenario 3 (DL: FDD and TDD)	Alcatel-Lucent Shanghai Bell, Alcatel-Lucent	(R1-112413)
R1-112721	System performance of JP-CoMP in Scenario 3	NTT DOCOMO	(R1-112430)
R1-112722	System performance of CS/CB-CoMP in Scenario 3	NTT DOCOMO	(R1-112431)
R1-112440	Phase-2 Evaluations of Joint Transmission (JT) and Dynamic Cell Selection (DCS) Schemes	Motorola Mobility	
R1-112577	Simulation results for Phase 2 CoMP scenario 3/4	CMCC	
R1-112637	Performance Evaluation Results for Phase 2 CoMP under Full-Buffer Traffic	CHTTL	
R1-112645	Performance evaluation for JP CoMP of scenario 3	China Unicom	

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R1-112661	CS/CB performance evaluation for CoMP Scenario 3/4	Fujitsu	
R1-112697	Performance evaluation of CS/CB for CoMP Scenario3	Sony Corporation	(R1-112143)
R1-112698	Performance evaluation of JP for CoMP Scenario3	Sony Corporation	(R1-112144)
R1-112718	Update of CoMP Phase 2 evaluation results for JT with non full buffer traffic model	Panasonic	(R1-112095)
R1-112224	CoMP performance analysis in Scenarios 3 and 4 for non full buffer traffic model	Intel Corporation	

FDD Uplink

R1-112784	UL CoMP phase 2 evaluations in scenario 3	Huawei, HiSilicon	(R1-112041)

Decision: The document is noted.

R1-112294	Evaluation Results for UL-CoMP	Sharp	

Decision: The document is noted.

R1-112414	CoMP Phase 2 evaluations for Scenario 3 (UL)	Alcatel-Lucent Shanghai Bell, Alcatel-Lucent	

Decision: The document is noted.

Observations:
- UL COMP provide performance benefit over non-COMP schemes
- The performance gain is dependant on factors such as
  - coordination area
  - channel and interference estimation
  - RS orthogonality and capacity
  - Timing synchronization
  - power control mechanism
  - interference cancellation capability
  - assumption on joint processing/combining of received signals from multiple points

Evaluation results to be included in the TR
- For CoMP JR, considerable gain is achievable for scenarios 1-4.
- The evaluation results are captured in the following tables:

Configuration 1 (Uniform UE dropping)

FDD UL Full Buffer	CoMP JR Scn3/4 Gains	
	Macro Cell Area Avg	5% Worst User
Relative Gain vs HetNet	13.5%	39.7%

Configuration 4b (Clustered UE dropping)

FDD UL Full Buffer	CoMP JR Scn3/4 Gains	
	Macro Cell Area Avg	5% Worst User
Relative Gain vs HetNet	15.2%	45.0%

TDD

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Not treated.

R1-112131	Evaluation Results for TDD CoMP JT Scenario 3	NEC Group	
R1-112696	CoMP Phase 2 evaluations for Scenario 3 (DL: TDD)	Alcatel-Lucent Shanghai Bell, Alcatel-Lucent	

Discussion

Not treated.

R1-112510	Discussion on the performance aspects of CoMP and eICIC in heterogeneous networks	Samsung	
R1-112545	Comparison of CoMP Scenarios 3 and 4	Qualcomm Incorporated	
R1-112361	Comparison between CoMP Scenario 3 and 4	Panasonic	
R1-112225	Analysis of PDCCH capacity for Scenario 3 and 4	Intel Corporation	
R1-112226	Analysis of CRS and PDSCH collisions in Scenarios 3 and 4	Intel Corporation	
R1-112586	Further Considerations on Scenario3	Hitachi Ltd.	
R1-112587	System Design Considerations for CoMP and eICIC	Hitachi Ltd.	
R1-112800	Offline discussion summary on UL CoMP evaluation	Sharp	
R1-112811	RAN1 Phase 2 CoMP Results	Samsung	(R1-112808)

6.5.2 Standardisation impact

Summary of email / offline discussion

R1-112513	Summary of email discussion on specification impacts of CoMP	Samsung	

Decision: The document is noted.

R1-112785	Text proposal for standard impacts and design principles of CoMP in Rel-11	Huawei, HiSilicon	(R1-112042)

Decision: The document is noted.

R1-112094	Standardization Impact of CoMP	Ericsson, ST-Ericsson	

Decision: The document is noted.

R1-112108	Discussion on CoMP Specification Impact	CATT	

Decision: The document is noted.

R1-112110	Considerations on Interference Measurement and its Specification Impact in CoMP	CATT	

Decision: The document is noted.

R1-112711	Cell aggregation: A unified approach to CoMP and carrier aggregation	Nokia Siemens Networks, Nokia	(R1-112390)

Decision: The document is noted.

Uplink aspects

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R1-112295	Standardization Impact of UL-CoMP	Sharp	

Decision: The document is noted.

R1-112426	Standardization Support for UL CoMP	Ericsson, ST-Ericsson	

Decision: The document is noted.

R1-112212	Uplink power control for CoMP Scenarios 3 and 4	ETRI	

Decision: The document is noted.

R1-112415	Uplink Power Control Considerations for CoMP	Alcatel-Lucent Shanghai Bell, Alcatel-Lucent	

Decision: The document is noted.

R1-112432	Views on UL power control for HetNet scenario	NTT DOCOMO	

Decision: The document is noted.

R1-112387	On the PUCCH Modifications for UL CoMP	Nokia Siemens Networks, Nokia	

Decision: The document is noted.

The inputs to TR agreed in this session are captured in the update of the email summary (Samsung).

Not treated.

R1-112109	Considerations on CoMP in TDD Mode	CATT, CMCC	
R1-112111	CQI Feedback and its Specification Impact in CoMP	CATT	
R1-112112	Considerations on SRS Enhancement for CoMP Transmission	CATT, CMCC	
R1-112133	Specification Impact of HARQ Retransmission for Downlink CoMP	NEC Group	
R1-112148	Feedback enhancements for CoMP	New Postcom	
R1-112156	On standardization impact of CoMP	Texas Instruments	
R1-112227	Standardization impact for CoMP	Intel Corporation	
R1-112259	Consideration on specification impact of CoMP	ZTE	
R1-112310	On CoMP standardization impacts	Renesas Mobile Europe Ltd	
R1-112336	Consideration points on E-PDCCH design	LG Electronics	
R1-112337	Consideration of CSI Feedback Structure for CoMP	LG Electronics	
R1-112338	Considerations on the Specification Impact of CoMP	LG Electronics	
R1-112343	Further Discussions of Standardization Impacts on CoMP	MediaTek	
R1-112359	Standardization Impact of CoMP	Panasonic	
R1-112360	Operation of Traffic Offloading in RRH-based Heterogeneous Network and Possible Spec Impact	Panasonic	
R1-112386	Uplink Power Control with UL CoMP	Nokia Siemens Networks, Nokia	

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R1-112388	Inter-cell orthogonal reference signal impact on UL CoMP performance	Nokia Siemens Networks, Nokia	
R1-112389	Standardization impact of CoMP	Nokia Siemens Networks, Nokia	
R1-112442	Standardization Impact of CoMP with Coordinated Scheduling (CS) Schemes	Motorola Mobility	
R1-112512	Discussion on the specification impact of CoMP	Samsung	
R1-112546	CoMP standardization impact	Qualcomm Incorporated	
R1-112600	Investigation of Specification Impact for Rel. 11 CoMP	NTT DOCOMO	
R1-112659	Standard impact of antenna virtualization schemes in DL CoMP JP	Fujitsu	
R1-112664	Consideration on CSI Feedback for DL CoMP	Fujitsu	
R1-112666	Consideration on SRS enhancement for DL CoMP	Fujitsu	
R1-112228	Uplink Power Control Discussion for CoMP Scenario 4	Intel Corporation	
R1-112393	Channel Estimation Modeling for Uplink in System Level Simulation	Nokia Siemens Networks, Nokia	

6.5.3 Evaluation of constraints from lower capacity/higher latency communication between transmission points

R1-112339	CoMP Performance Evaluation under Low-capacity/High-latency Backhaul	LG Electronics	

Decision: The document is noted.

R1-112391	CoMP performance in non-ideal backhaul	Nokia Siemens Networks, Nokia	

Decision: The document is noted.

R1-112260	Performance Evaluation of CS/CB and JP with non-zero X2 latency	ZTE	

Decision: The document is noted.

Observations:

- Performance of CoMP schemes relying on spatial information exchange is sensitive to the delay between two transmission points.
- Level of sensitivity depends on the CoMP schemes.

Capture the results on 2339, 2391, 2260 in the TR.
➔ Revised TR will be revisited on Friday

Not treated.

R1-112456	Clustering Methods for Base Station Cooperation in LTE-A	I2R	
R1-112547	HetNet CoMP performance in Macro/Pico scenarios	Qualcomm Incorporated	

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R1-112851	CoMP SI TR36.819 v1.1.0	Samsung	

The document was presented by Juho Lee from Samsung and contains the text proposal capturing:

- Phase 2 evaluation results and observation agreed in the CoMP sessions
- Specification impact agreed in the CoMP sessions
- Rapporteur's proposal for the SI conclusion based on the RAN1 decisions

Discussion (Question / Comment): Harmonization between scenario 1&2 and scenarios 3&4 in conclusion section ➔ "…CoMP can offer performance benefits..." is the preferred choice.
Decision: The document is noted and the conclusions are agreed, assuming:

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- In section 7.5.2: For CoMP JR, considerable gain is achievable for ~~all~~ scenarios 3 and 4
- In section 7.5.1: For CoMP JR, considerable gain is achievable for scenarios 1 and 2.

Conclusions on design principles

R1-112852	Proposal for DL CoMP standardization impact	Ericsson, Motorola Mobility, Nokia, Nokia Siemens Networks, Qualcomm, ST-Ericsson	

The document was presented by Stefan Geirhofer from Qualcomm.

- The standardization impact section of the TR includes all possible CoMP schemes
  - It would be beneficial to prioritize in order to make future work feasible
- Specification of CoMP support in Rel-11 should focus on
  - Dynamic point selection, including dynamic point blanking
  - Coordinated scheduling, including dynamic point blanking
  - Rel-10 PMI/CQI/RI feedback is used as the starting point
- To the possible extent, specify further support of the following in Rel-11:
  - Single user joint transmission
  - Coordinated beamforming

Discussion (Question / Comment): NTT DoCoMo → would like to push single-user JT higher up
LGE → it's not clear why CB is separated from CS - would like to push CB higher up
Orange → the proposal seems to imply standardization first of the schemes that show the lowest gains for the scenario of most interest to operators
Huawei requested looking at the other proposal before trying to conclude.
Decision: The document is noted.

R1-112829	Way forward on CoMP performance gains	Huawei, Orange, CMCC, Telefónica, CATT, CATR, HiSilicon	

The document was presented by David Mazzarese from Huawei. As Scenario 1 is seen as an important scenario by operators:

- JT provides significant gain over SU/MU-MIMO in scenario 1
- The averaged gain of CS/CB in scenario 1 is not as high

	2x2 Xpol FDD	4x2 Xpol FDD	2x2 Xpol TDD	4x2 Xpol TDD	8x2 Xpol TDD
JT	26.13% (7)	20.42% (7)	36.94% (4)	29.37% (4)	16.09% (4)
CS/CB	4.35% (1)	4.11% (4)	8.66% (2)	12.15% (2)	10.51% (2)

CS/CB and JT averaged cell-edge gains over single cell SU/MU-MIMO in 3GPP case 1 (number of sources in brakets)

Discussion (Question / Comment): Huawei → At least JT should be supported for scenario 1.
Decision: The document is noted.

Trying to reach a conclusion, the following was drawn:
In view of the observed results, it is recommended to specify support for CoMP operation
Qualcomm would like to consider separately DL and UL (as the later may request more effort for standardization)

It is agreed that:
In view of the observed results, it is recommended to specify support for DL CoMP operation and to investigate the extent to which specified support is needed for UL CoMP.
(This agreement shall be captured at the end of the conclusions of the TR)

Email discussion until Thursday 1st Sept (Samsung) to see if more detailed text can be agreed in addition, e.g:

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- what would be required in the RAN1 specifications
- which CoMP scheme(s)

6.5.4 Evaluation of applicability of X2 for different CoMP modes/schemes

Not treated.

R1-112392	CoMP and the X2 interface	Nokia Siemens Networks, Nokia	
R1-112548	Leveraging the existing X2 interface in HetNet CoMP deployments	Qualcomm Incorporated	
R1-112340	Consideration of X2 Backhaul for CoMP	LG Electronics	
R1-112485	Discussion on the potential benefit of X2 interface for downlink CoMP	SOFTBANK MOBILE	

6.5.5 Other

Not treated.

R1-112043	Cooperating set management and control channel access consideration	Huawei, HiSilicon	
R1-112096	Proposal of a CoMP study focused on relay-based networks	DAC-UPC	
R1-112162	Downlink control signaling enhancement in CoMP scenario 4	KDDI Corporation	
R1-112261	Evaluation on impact of synchronization error between CoMP transmission points	ZTE	
R1-112262	Consideration on SRS enhancement for CoMP	ZTE	
R1-112263	Evaluation on necessity of DMRS enhancement under HetNet CoMP scenarios	ZTE	
R1-112283	Aperiodic CSI feedback trigging for joint transmission CoMP	Pantech	
R1-112311	Interference aware receiver modeling at system level	Renesas Mobile Europe Ltd	
R1-112312	System level results on UE MMSE receiver modeling	Renesas Mobile Europe Ltd	
R1-112362	Flexible CoMP Operation based on Dedicated CSI-RS Configuration	Panasonic	(R1-111587)
R1-112453	Clarification of CoMP Joint Transmission Operation	ITRI	
R1-112455	Opportunistic Coordinated Multi-Point Reception for Multi-Codeword Uplink Transmission	I2R	
R1-112639	Considerations for CoMP Operation	HTC	(R1-111915)
R1-112642	Adaptive cell clustering scheme for CoMP in baseband pool deployment	China Unicom	
R1-112646	Enhancement of the cell-edge performance in the future evolution	ChinaUnicom	

6.6 Study on Downlink MIMO Enhancement for LTE-Advanced

6.6.1 Issues from real-life DL MIMO deployments

Observations from RAN1#65:

- *Rank adaptation*
- *Time alignment errors*
- *Antenna calibration and partial reciprocity*
- *Vertical beamforming for dense urban deployments*

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- *Specific antenna configurations: cross-polarized; geographically-separated antenna deployments; circular array;*
- *Antenna tilting*
- *UE interference measurements and feedback processing time*
- *Feedback granularity*
- *DL control channel limitations for high numbers of tx antennas*

Priority for RAN1#66: consider which are the highest priority real-life issues to address, and how they might be addressed.

Overall prioritisation

R1-112115	Overall discussion on real life issues of DL MIMO	CATT	

The document was presented by Rakesh Tamrakar from CATT and provides some observations and proposals:

- Observation 1: Rank estimation at UE is not an issue.
- Observation 2: Antenna calibration is beneficial in the system with correlated antenna setup.
- Proposal 1: Impact of time alignment errors should be studied to improve the performance.
- Proposal 2: Vertical beamforming should not be prioritized.
- Proposal 3: Priority should be given to 4 Tx cross-polarized antenna array.
- Proposal 4: Need to study new interference measurement mechanism.
- Proposal 5: Feedback enhancement should be studied further.
- Proposal 6: Study on PDCCH enhancement should be prioritized, and benefit of ePDCCH over legacy PDCCH should be demonstrated..

Discussion (Question / Comment): For AT&T standpoint, proposal 3 is ok, wondered whether vertical beamforming be worth to prioritize for outdoor cases. → Channel modelling issue according to CATT

Decision: The document is noted.

R1-112045	Prioritization of real-life network deployment issues	Huawei, HiSilicon	

The document was presented by Yongxing Zhou from Huawei and concludes:

- For Rank adaptation, it is observed that the receiving power imbalance causes rank adaptation error and performance loss.
  - Proposal: The report of RSRP of each antenna port or similar measurement can be considered to avoid the receiving power imbalance and the rank adaptation problem.
- For Time misalignment and feedback granularity, it is observed that Wideband PMI is not robust for downlink transmission with time misalignment.
  - Proposal: To enhance the performance in case of time misalignment, subband PMI and subband CQI can be considered.

Decision: The document is noted.

R1-112416	Overview of DL MIMO enhancements	Alcatel-Lucent, Alcatel-Lucent Shanghai Bell	

The document was presented by Fang-chen Cheng from ALU and proposes that the focus should be as follows:

- Real-life issues:
  - Rank adaptation for geographically separated antenna deployments is worth investigating.
  - Antenna calibration mechanisms for TDD systems should be examined.
- CSI Feedback Enhancement

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- A unified approach should be adopted to address MU-MIMO with cross-polarized antenna configurations, geographically separated antenna deployments, and 3D/vertical beamforming.

- PDCCH Enhancement
  - Any solution should aim to increase the multiplexing capacity and coverage of the PDCCH.

Decision: The document is noted.

R1-112528	Priority Issues from Real-Life DL MIMO Deployments	Nokia / Nokia Siemens Networks	

The document was presented by Klaus Hugl from Nokia and can be summarized in short in the following table:

Topic		**Priority**	**Comments**
Rank adaptation		Low	RAN4 issue
Time alignment errors		Low	eNB implementation issue
Antenna calibration and partial reciprocity		Low	eNB implementation issue
Vertical beamforming for dense urban deployments		Medium	Consider gain investigations in later phase of DL MIMO SI
Antenna tilting		Low	Already considered in simulations
Specific antenna configurations	Cross-polarized	High	Should be baseline
	Geographically-separated deployments	High	CoMP SI scenario 4 & possible distributed small cell deployments
	Circular array	Low	Usage limited
UE interference measurements and feedback processing time		Medium	In connection with studies for CoMP scenario 4 & CSI Enhancements
Feedback granularity		Low	Already considered in R10
DL control channel limitations for high numbers of TX antennas		High	Study on DM RS based PDCCH needed

Decision: The document is noted.

R1-112091	Discussion on Real-life DL MIMO issues	Ericsson, ST-Ericsson	

The document was presented by George Jöngren from Ericsson and proposes as follows concerning prioritized topics:

- Prioritization of study areas presented under real-life issues need to consider the other main topics as well
- Include feedback granularity and rank adaptation as part of CSI feedback enhancement
- The topic of antenna port association to physically separate locations as part of geographically separated antenna deployments should be prioritized
  - Consider schemes for controlling the UE rank reporting
  - Consider whether mobility measurements need to be enhanced to cope with geographically separated antennas and future flexible deployments
  - Introduce RAN4 performance requirements to ensure flexibility with respect to association of antenna ports to geographical locations
    - Including ensuring that UE specific RS truly makes the transmission transparent to the UE also in practice.
- UE interference measurements need to be prioritized
  - Present use of CRS REs for interference estimation is becoming even more erroneous as new functionality such as CoMP and data in MBSFN subframes is introduced
  - Fits nicely as a CSI feedback enhancement

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To maintain a reasonable study item scope, it is further observed and proposed:

- Vertical beamforming and antenna tilting would require considerable work on introducing new and accurate 3-dimensional channel models
  - Not manageable in Rel-11 which already puts very high work load demands in the area of DL MIMO and CoMP
- Vertical beamforming and antenna tilting is not handled in Rel-11
  - Completely in-line with the study item description which gives no indications of the treatment of this vast topic

Decision: The document is noted.

Mr Chairman decided not to go online through all contributions.

Conclusions:
High priority areas identified for study in RAN1:

- Time misalignment / antenna calibration
- DM-RS-based downlink control signalling enhancement (especially UE-specific RS-based)
- Feedback and related enhancements, including
  - Interference measurement enhancement
  - Rank reporting
  - CSI accuracy for the high-priority scenarios and antenna configurations

Samsung commented that second bullet could be interpreted to exclude CRS-based downlink control signalling enhancements. Therefore Samsung strongly recommends that the reference signal structure be concluded after proper evaluations without imposing constraints in advance.

Way Forward:
High priority areas for study in RAN1:

- Time misalignment / antenna calibration
- Downlink control signalling enhancement (including UE-specific RS-based)
  - Further discussion required on prioritization
- Feedback and related enhancements, including:
  - Interference measurement enhancement
  - Rank reporting
    - Further discussion required on prioritization
  - CSI accuracy (especially for MU-MIMO) for the high-priority scenarios and antenna configurations.

Scenarios and antenna configurations (to be discussed more later with corresponding tdocs):

- Geographically separated antennas
- Power-imbalanced antenna ports
- X-pol antenna deployments

Mr Chairman observed that some aspects (in downlink control signalling enhancements and feedback enhancements) overlap with other aspects of the SI. He clarified that these aspects will in future be treated together with the relevant aspects of the SI, rather than treating them partly under “real-life issues”.

Not treated.

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R1-112113	Impact of time alignment error on real-life transmission	CATT, CMCC	
R1-112363	Views on issues from real-life DL MIMO deployments	Panasonic	
R1-112443	Views on Real-life DL-MIMO Deployment Issues and Prioritization	Motorola Mobility	
R1-112476	Consideration on Issue Prioritization for Real-life DL MIMO Deployment	LG Electronics	
R1-112549	Issues from real-life DL MIMO deployments	Qualcomm Incorporated	
R1-112640	Real Life Issues for DL-MIMO	HTC	

Rank adaptation

R1-112046	Analysis of closed-loop DL MIMO rank adaptaion with received power imbalance	Huawei, HiSilicon	

The document was presented by Jianghua Liu from Huawei and deals with the estimated rank distribution in the LTE DL closed-loop MIMO transmission over a TU-Channel with received power imbalance. The received power imbalance is assumed to be consequence of geographically-separated transmit antenna ports, although the results are independent of the source of the RX power imbalance. A consequence of this power imbalance is that the LTE MIMO channel becomes rank-deficient and low rank reporting based on the LTE DL MIMO codebooks happens more often. This impacts considerably achievable throughputs.
As a conclusion, the problem can be significantly mitigated if the UE measures and reports to the eNB the RX power imbalance, as well as the reconstructed CSI estimated in the UE, which eNB then uses to adjust its transmission parameters.
Decision: The document is noted.

R1-112114	Discussion on Rank adaptation	CATT	

The document was presented by Rakesh Tamrakar from CATT and concludes that, based on simulation results, rank estimation at UE is not an issue both for homogeneous and received power imbalance deployments. No issue with the rank adaptation.
Decision: The document is noted.

R1-112217	Rank adaptatoin in heterogeneous networks	Intel Corporation	

The document was presented by Jong-kae Fwu from Intel and and deals with the rank ill-match problem in heterogeneous networks, which is identified in Rel-10 but not solved yet. It is found that this problem is more severe for the Macro UE(s) when CRE is applied to the Pico eNB(s). In geographically unbalanced traffic scenario, the problem is also expected to be severe. A simple solution is that the eNB sends signalling bits to the UE to select the RI/PMI/CQI calculation for a given *subframe subset* and the UE computes the RI/PMI/CQI accordingly. Because MU-MIMO requires multiple active UEs involved the signalling bits sent by the eNB has a broadcasting nature but could also be delivered through RRC.
Discussion (Question / Comment): Nokia asked there was a rank selection in the schemes used in the simulations.
Decision: The document is noted. Further discussion of this technique may be under the CSI feedback enhancement topic.

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R1-112265	Discussion on rank adaptation and CSI feedback granularity in real-life DL MIMO deployments	ZTE	

The document was presented by Ruyue Li from ZTE and discusses two issues of real-life MIMO deployments namely rank adaptation and feedback granularity. RI mismatch problem can be a potential issue but requires further study.
Feedback granularity should be another important potential enhancement since clear benefits of enhancing the frequency-domain granularity can be seen especially when there is time misalignment. Potential directions of enhancement are introducing PUSCH mode 3-2 and having configurable subband size.
Decision: The document is noted.

R1-112417	Analysis of geographically-separated antenna systems	Alcatel-Lucent Shanghai Bell, Alcatel-Lucent	

The document was presented by Hongwei Yang from ASB. It is observed that:

- With the current specifications, much higher throughput can be achieved by collocating the eNB antenna ports than by interleaving them in space.
- In an indoor scenario, rank 2 should be selected most of the time due to the short distance. A corollary of this is that any power imbalance between different ports will affect the throughput significantly. Grouped ports can achieve good power balance between different ports, which will result in good throughput performance.
- With grouped antennas, more than 30% throughput gain can be achieved compared to with interleaved ports.

It concludes that:

- Careful consideration needs to be given to antenna configurations when they are deployed.
- For cases when distributed antennas are important and they cannot be collocated, attention should be given to feedback enhancements to optimize the throughput. Some possible considerations are given in [2420].

Decision: The document is noted.

From now, discussions should continue until next meeting – aim to determine whether there is further work of relevance to RAN1.

Time alignment / antenna calibration

Not treated.

R1-112256	Considerations on the enhancement for Partial Reciprocity in TDD	ZTE	
R1-112313	On the real life DL MIMO issues	Renesas Mobile Europe Ltd	
R1-112418	Antenna calibration for TDD HTN CoMP	Alcatel-Lucent Shanghai Bell, Alcatel-Lucent	
R1-112667	DL-MIMO performance with time alignment error	Fujitsu	

6.6.2 DL MIMO enhancements for non-uniform networks, low-power nodes and practical antenna configurations

6.6.2.1 CSI feedback enhancements

Scenarios and assumptions

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R1-112419	Evaluation assumptions for scenarios / antenna configurations to be evaluated for CSI feedback enhancement	Alcatel-Lucent, Alcatel-Lucent Shanghai Bell	

Decision: The document is not treated as identical to the one submitted on reflector for [65-57] – revisit after scenarios discussions.

R1-112437	Operators scenarios for DL MIMO enhancements	Orange, AT&T, CMCC, Deutsche Telekom, KDDI, NTT DOCOMO, Telecom Italia, Telefónica, Vodafone	

The document was presented by Eric Hardouin from Orange and provides the following prioritization of scenarios:

Scenarios	Descriptions & Antenna Configurations	Priority
Macro cell	Cross-polarized Macro-sites (2Tx, 4Tx) o Closely or widely spaced	High
	Cross-polarized Macro-sites (8Tx) o Closely or widely spaced	Mid
	Cross-polarized Macro-sites with single or multiple active column(s) o 3D beam-forming o Active antennas	Mid
RRHs with same cell ID	Outdoor and/or indoor low-power RRHs, with coordination with the macro o high power RRH + low power RRHs (Scenario 4 in the CoMP SI)	High
	Outdoor and/or indoor low-power RRHs, without coordination with the macro o low power RRHs only (Indoor and/or outdoor)	Mid
Small cells	Outdoor small cell(s) with localized antennas o Cross polarized/Co-polarized (mainly 4Tx) o Uncorrelated (less correlated) o Low mobility	High
Relay backhaul	Relay Node backhaul link & CPE o Cross polarized o Low mobility	Mid

Discussion (Question / Comment): Mr Chairman thanked for the very useful inputs.
On slide 7, for Scenario 4, division between CoMP and DL MIMO SIs is as agreed previously.
Relay backhaul will be treated at RAN level, not worth spending much time on such topic.
Samsung asked what the expected gain (any figure) for macro-cell scenarios is → From Orange perspective, 15% may be considered moderate gain compared to Rel-10, but further discussion required
Orange expects the gains to come from MU-MIMO rather than SU-MIMO.
Decision: The document is noted.

R1-112433	Scenarios and potential CSI feedback enhancements for DL MIMO in Rel-11	NTT DOCOMO	

The document was presented by Anass Benjebbour from NTT DoCoMo and can be summarized as below:

- The study of the macro cell scenario can be studied in Rel-11 but at the same time unnecessary repetition of Rel-10 discussions needs to be avoided. In particular, it is important to identify new study elements for the macro cell scenario that were not discussed in Rel-10. One potential study element could be 3D-beaforming.
- The HetNet scenario with macro cell and small cells with RRHs using same cell ID (i.e., CoMP scenario 4) is an important deployment scenario for traffic offloading to local area networks. The study should consider not only the coordination between macro cell and small

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cells, but also among RRHs for indoor and/or outdoor deployments. It is also important that the scope and work splits among CoMP SI and DL MIMO SI are clarified.
- Small cells scenario with localized antennas would motivate increased CSI feedback bits and advanced MU-MIMO operation. The study of this scenario should consider two cases: 1) small cells are deployed under the umbrella of the macro cell (i.e., co-channel deployments), and 2) small cells are not deployed under the umbrella of the macro cell (i.e, small cells are deployed on another frequency band than the macro cell, e.g, higher frequency bands). In addition, in our view, CSI feedback designs would set higher priority to small cells scenario but at the same time design extensibility and applicability to the macro cell scenario would be taken into consideration as a secondary target design.

Decision: The document is noted.

R1-112444	Scenario and Modeling Discussion for DL-MIMO Enhancement	Motorola Mobility	

The document was presented by Jeff Zhang from Motorola and is summarized as follows:
- Distributed antennas network (heterogeneous or homogenous antenna and/or Tx power configuration) is the most interesting scenario to be addressed in the Rel-11 DL-MIMO enhancements.
- Consider the objective of the DL-MIMO study item to identify enhancement areas that may address both real-life issues and new deployment scenarios together, especially in the case of distributed antenna handling and optimization.
- Consider to limit the scope of DL-MIMO SI to only same cell ID, which means removing case "B" and "D" from the DL-MIMO simulation scenario but include both heterogeneous (case "A") and homogeneous (case "C") distributed antennas.
- Consider to have CoMP SI to cover mainly heterogeneous (i.e., non-uniform) distributed antennas, focusing slightly more on separate cell ID (scenario 3) but include the comparison of scenario 3 and scenario 4 (same cell ID).
- Not to focus on 3D beamforming in Rel-11, but could strive to design the precoding operation to be generic and future-proof for different antenna configurations and 3D beamforming

Decision: The document is noted.
Distinction between CoMP and DL MIMO SIs is along technique lines, with the techniques in each SI being evaluated in the relevant scenarios.

R1-112465	Small cell scenarios and assumptions for enhanced DL MIMO	Huawei, Hisilicon	

The document was presented by David Mazzarese from Huawei and proposes:
- It is beneficial to investigate small cell scenarios where as many as previous macro sites can be reused but the transmission power should be smaller accordingly. Two nodes per hexagonal area are of high priority (layout1).
- For distributed antennas (scenario B and C), the coordination area can be either one hexagonal area or three hexagonal areas having the same macro site.
- CAS (Centralized Antenna Systems) with the same total number of transmit antennas in one sector can also be used as a baseline.
- It is suggested to use the ITU UMi channel model for all the points.

Discussion (Question / Comment): Question whether both scenarios B and C need to be studied in the DL MIMO SI.
Orange – need to consider whether feedback enhancement evaluations are affected by the interference when deciding the cell layout to be evaluated.
Qualcomm - note that the cell ID should have no impact on the feedback evaluated under the DL MIMO SI.
Decision: The document is noted.

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R1-112515	Prioritization of CSI feedback enhancement scenarios for DL-MIMO	Samsung	

The document was presented by … from Samsung and concludes:

- The feedback enhancements for 4 Tx antennas merit further improvement.
- The feedback enhancements targeting small cell environment to improve MU-MIMO system performance should be considered as high priority.
- Consider 3D beamforming and uniform circular arrays after potential pros and cons are better understood.

Discussion (Question / Comment): AT&T asked Samsung whether they have had a chance evaluating the gains for MU-MIMO for macro cell.
Orange emphasized that uniform circular arrays are low priority for operators.
NTT DoCoMo / Samsung - should consider delay spread of small cells
Decision: The document is noted.

R1-112529	Rel. 11 CSI Feedback Enhancement Studies	Nokia / Nokia Siemens Networks	

The document was presented by Klaus Hugl from Nokia and proposes:

- Cross-polarized antenna setups are to be considered as the main Macro-cell deployments but have been extensively studied already during Rel-10. Therefore, we see CSI feedback enhancement studies for Macro only with medium to low priority, as the related investigations carried out and conclusions drawn during the Rel-10 timeframe are still valid.
- Consider the needed feedback enhancements for combined macro-cell and small-cell operation (i.e. COMP Scenario 4) as a high-priority study scenario.
- CSI Enhancements for localized small cells should be treated with medium priority.
- CSI Enhancements for distributed small cells should be handled in parallel to (and with similar priority as) the related investigations for distributed antennas created by macro and small cells in order to converge to a single, generic solution supporting most distributed antenna scenarios.
- Keep the single cell/single point CSI feedback overhead for static UEs low - increasing the overhead by specific Rel-11 enhancements is not seen as favourable.
- Consider implicit feedback framework as the basis for CSI feedback in Rel-11 Enhanced DL MIMO studies. RAN4 related testing issues should be clarified before considering explicit feedback as alternative.
- Do not study MU-MIMO enhancement features already considered during Rel-10.

Decision: The document is noted.

Way forward:

- Aim to update R1-112419 taking into account (at least) contributions 2437 - 2529 above.

R1-112854	Report from the offline discussion on scenarios priorities and evaluation assumptions for the DL MIMO enhancements SI	Ad hoc Chairman (Orange)	

The document was presented by Eric Hardouin from Orange and captures the outcomes of the offline discussion on the scenarios and simulation assumptions for the DL MIMO enhancements SI, including:

- Priority of the scenarios to study in the DL MIMO enhancements SI
- Simulation assumptions for the prioritized scenarios
- Identification of needs for clarifications regarding the study.

Decision: The document including the agreements is endorsed.

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The following proposals are agreed:

- Scenarios A,C and B are evaluated at least until RAN1#66bis, within which Scenarios A and C have higher priority than Scenario B (refer to motivations in the report).
- Discuss further if all these scenarios are needed for evaluation beyond RAN1#66bis

Not treated.

R1-112550	CSI feedback enhancements	Qualcomm Incorporated	
R1-112240	CSI Feedback for Non-Uniform Networks	InterDigital Communications, LLC	
R1-112048	CSI feedback and utilization for MU-MIMO and considerations for testing	Huawei, HiSilicon	
R1-112092	Enhanced CSI for DL MIMO	Ericsson, ST-Ericsson	
R1-112117	Codebook enhancements for DL MIMO	CATT	
R1-112218	CSI feedback enhancement in heterogeneous networks	Intel Corporation	
R1-112266	Feedback Enhancements for geographically-separated antennas	ZTE	
R1-112268	Discussion on codebook enhancement under 4Tx widely spaced XPOL Antenna	ZTE	
R1-112314	CSI feedback enhancements	Renesas Mobile Europe Ltd	
R1-112420	Considerations on CSI feedback enhancements for high-priority antenna configurations	Alcatel-Lucent Shanghai Bell, Alcatel-Lucent	
R1-112434	Capacity enhancement of DL MU-MIMO with increased feedback bits for small cells scenario	NTT DOCOMO	
R1-112435	Enhanced operation for geographically distributed antennas in Rel-11	NTT DOCOMO	
R1-112445	CSI Feedback Enhancement for Rel-11	Motorola Mobility	
R1-112514	Discussion on CSI Feedback for DL MIMO with Geographically Separated Tx Points	Samsung	
R1-112047	Investigation on CSI feedback enhancements for closed-loop MIMO	Huawei, HiSilicon	
R1-112116	CSI feedback for geographically-separated antennas	CATT	
R1-112805	Enhancements to DL MU-MIMO CSI Feedback	NEC Group	(R1-112134)
R1-112267	DL MIMO Enhancements for Single-Cell with RRHs	ZTE	
R1-112781	Downlink CSI feedback accuracy enhancement for MU-MIMO	KDDI Corporation	(R1-112164)
R1-112221	On CSI-RS configuration/reconfiguration	Intel Corporation	
R1-112364	DL MIMO CSI Feedback Enhancements in Rel-11	Panasonic	(R1-111588)
R1-112371	Discussion on Downlink MIMO CSI Enhancement in CoMP	Research In Motion UK Limited	
R1-112454	Preliminary Study on Codebook Design for JT-CoMP in Scenario 4	ITRI	
R1-112477	Consideration on Rel-11 MIMO feedback enhancement	LG Electronics	
R1-112478	Consideration on CSI feedback for geographically separated antennas	LG Electronics	
R1-112518	Discussion on CSI Feedback for MU-MIMO Enhancement	Samsung	
R1-112519	Discussion on CSI feedback enhancement for DL MIMO	Samsung	
R1-112555	Codebook design for distributed antennas	Marvell	
R1-112556	Multiuser CQI enhancement for distributed antennas	Marvell	
R1-112641	Enhanced PMI Indication for Refining MIMO Precoder Codebook	HTC	
R1-112643	Consideration on codebook enhancement for Rel-11 DL MIMO	China Unicom	
R1-112647	Discussions on CSI feedback enhancment for non-uniform networks with low-power nodes	ChinaUnicom	
R1-112657	DL MIMO without PMI	Fujitsu	
R1-112658	Possibilities of using global precoding scheme in enhanced DL MIMO for geographically separated antennas	Fujitsu	

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6.6.2.2 Downlink control signalling enhancements

R1-112592	Application scenario for introducing enhanced PDCCH in Rel-11	CMCC	

The document was presented by Xiaodong Shen from CMCC and proposes UL HARQ timing for TDD system based on:

- DM-RS-based E-PDCCH which carriers DCI shall be considered in Rel-11.
- Proposal 2: Frequency-domain ICIC for E-PDCCH shall be considered in Rel-11
- Proposal 3: for cross-carrier scheduling, reconsider linkage design between PDCCH/E-PDCCH carrier to PDSCH/PUSCH carrier in Rel-11. Whether multiple-to-multiple linkage shall be used, needs to be investigated.

Decision: The document is noted.

R1-112135	DL control channel enhancements for Rel-11	NEC Group	

The document was presented by Satha Sathananthan from NEC and shows views on requirements and design aspects for Rel-11 PDCCH enhancements.
Discussion (Question / Comment): Requirements/decision factors need to be narrowed down for next meeting, said Mr Chairman.
Decision: The document is noted. Try to agree principles for motivation and possible design at RAN1#66bis.

R1-112136	Performance aspects of DL control channel enhancements for Rel-11	NEC Group	

The document was presented by Satha Sathananthan from NEC and shows initial view on the performance aspects for Rel-11 PDCCH enhancements.
Decision: The document is noted.

R1-112163	Considerations on downlink control signaling enhancement	KDDI Corporation	

The document was presented by … from KDDI and lists the following observations:

- The requirement of PDCCH enhancement capacity can be assumed to be several times over Rel-8/9/10 PDCCH capacity.
- The e-PDCCH consumes much more RBs in the PDSCH region than that of R-PDCCH. Therefore e-PDCCH-only solution seems unable to meet the requirement of the PDCCH enhancement capacity which is estimated as several times over Rel-8/9/10 PDCCH capacity.
- Because mobility, density and poor channel quality issues are not considered in R-PDCCH design, further discussion on R-PDCCH-based enhancement. Probably, R-PDCCH-based enhancement has a major specification impact.

It is further suggested that, in order to solve the PDCCH capacity insufficient problem in CoMP scenario 4, continuous multiple PDSCH transmission scheduling should be discussed for reducing the requirement of PDCCH enhancement capacity.
Discussion (Question / Comment): TI stressed that e-PDCCH should be seen as complementary to legacy.
Decision: The document is noted.

R1-112270	Aspects on DL control signaling enhancements	ZTE	

The document was presented by Ruyue Li from ZTE and proposes to adopt the alternative of placing the new PDCCH in the original PDSCH region as a baseline..
Decision: The document is noted.

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R1-112316	System-level evaluation of PDCCH capacity impact on MU-MIMO performance	Renesas Mobile Europe Ltd	

The document was presented by … from Renesas and shows system-level evaluation on PDCCH capacity impacts on MU-MIMO performance. The results clearly verify that indeed MU-MIMO benefits are heavily decreased by PDCCH capacity limitations. It is noted that it can be expected that with CoMP the impact would be even more severe since typically CoMP UEs are cell edge UEs that may require higher aggregation levels and hence only a small number of CoMP UEs may be scheduled within one subframe.
Clearly the results shown in this contribution serve as motivation for studying control channel enhancements.
Decision: The document is noted.

R1-112366	Initial system level performance comparison of Enhanced-PDCCH and PDCCH	Panasonic	

The document was presented by Michael Einhaus from Panasonic and provides the following observation from initial system level simulation results:

- E-PDCCH shows gain vs. PDCCH in both homogeneous network scenario and heterogeneous network scenario
  - In homogeneous network scenario, E-PDCCH provides ~ 9% gain in average user throughput as well as in cell-edge throughput
  - In heterogeneous network scenario with 12 dB CRE bias, E-PDCCH provides ~ 7-8% gain in average user throughput as well as in cell-edge throughput
- MU-MIMO would have the case of the shortage of PDCCH resource.

Discussion (Question / Comment): Simulation assumptions should be better defined and aligned between companies, said Samsung.
Decision: The document is noted.

R1-112530	On enhanced downlink control signalling for Rel-11	Nokia / Nokia Siemens Networks	

The document was presented by Lars Lindh from Nokia and is summarized into the conclusions below.

- The E-PDCCH studies should focus on increasing the control channel performance, efficiency and flexibility in terms of overhead.
- The E-PDCCH shall be able to coexist with the regular PDCCH in a transparent way to guarantee backwards compatibility for legacy UEs
- In the E-PDCCH studies, capacity enhancing mechanisms like frequency domain scheduling, higher-order modulation, multi-antenna precoding including SU-MIMO and MU-MIMO transmission may be considered.
- The E-PDCCH region shall be located in the first available symbols in the sub frame.
- Localized PRBs and DMRS based precoding are the means by which the E-PDCCH is expected to achieve its gain. The use of CRS or some other kind of reference signals is FFS.
- For known CSI, the performance of E-PDCCH should be superior to that of the PDCCH
- Explore which of the R-PDCCH features and properties could be reused for the E-PDCCH.

Decision: The document is noted.

Conclusions

- At RAN1#66bis:
  - Aim to agree on motivations (if any) for the investigations of enhanced PDCCH
  - Aim to agree on the scenarios (if any) to be targeted by these investigations and corresponding evaluation assumptions.
- Until RAN1#66bis:

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- Email discussion to aim towards consensus on the above 2 points (rapporteur Nokia).

Not treated.

R1-112049	Design principles of enhanced PDCCH	Huawei, HiSilicon	
R1-112118	Views on control signalling enhancements for Rel-11 DL-MIMO	CATT	
R1-112119	Design of enhanced PDCCH in Rel-11	CATT	
R1-112137	DL Control channel enhancements with carrier aggregation solutions	NEC Group	
R1-112157	Aspects of downlink control signaling enhancements in Rel.11	Texas Instruments	
R1-112211	Discussions on enhanced PDCCH structure	ETRI	
R1-112219	Futther discussions on downlink control signaling enhancement	Intel Corporation	
R1-112284	E-PDCCH resource management	Pantech	
R1-112292	On Downlink control signalling enhancements	Ericsson, ST-Ericsson	
R1-112296	DL control channel enhancement for DL MIMO in Rel.11	Sharp	
R1-112315	On control signaling enhancements	Renesas Mobile Europe Ltd	
R1-112317	Link-level evaluation of E-PDCCH design aspects	Renesas Mobile Europe Ltd	
R1-112345	Discussion on Signaling Methods for UE-Specific PDCCH	MediaTek	
R1-112346	Discussion on CSI-RS Reconfiguration for CoMP Scenario 4	MediaTek	
R1-112365	Considerations on PDCCH Enhancements for Release 11	Panasonic	(R1-111589)
R1-112373	Design Consideration for E-PDCCH	Research In Motion UK Limited	
R1-112421	PDCCH Enhancement in Rel-11	Alcatel-Lucent, Alcatel-Lucent Shanghai Bell	
R1-112436	Enhanced PDCCH for DL MIMO in Rel-11	NTT DOCOMO	
R1-112446	Enhanced control channels for LTE Rel-11	Motorola Mobility	
R1-112479	Discussion on downlink control signaling enhancement	LG Electronics	
R1-112517	Discussion on ePDCCH design issues	Samsung	
R1-112531	Considerations on which gain mechanisms to evaluate when considering E-PDCCH	Nokia / Nokia Siemens Networks	
R1-112580	Discussion on downlink control channel enhancements	Potevio	
R1-112655	Enhancements to MU-MIMO for LTE-A	New Postcom	
R1-112663	Control Signaling Enhancements for DL-MIMO	Fujitsu	
R1-112241	DL Control Signaling Enhancements	InterDigital Communications, LLC	

6.6.3 Other

Not treated.

R1-112050	Open-loop DL MIMO for Rel.11	Huawei, HiSilicon	
R1-112051	DMRS enhancements for geographically distributed antennas	Huawei, HiSilicon	
R1-112052	CSI-RS port selection for distributed antennas	Huawei, HiSilicon	
R1-112138	Open-loop DL MIMO using UE specific RS	NEC Group	
R1-112139	Downlink DM-RS enhancements	NEC Group	
R1-112220	Discussions on UE-RS based open loop MIMO	Intel Corporation	
R1-112239	Study on Enhanced MIMO for Geographically-Separated Antennas	InterDigital Communications, LLC	
R1-112242	Discussion on MIMO Enhancements for Backhaul Relays	InterDigital Communications, LLC	
R1-112243	Study of Open-Loop MIMO using UE-specific RS	InterDigital Communications, LLC	
R1-112286	Enhance MIMO operation for low power node RRH	Pantech	
R1-112287	Discussion on demodulation RS for DL MIMO enhancements in Rel-11	Pantech	
R1-112318	Need of standardized open-loop MIMO based on UE-specific RS	Renesas Mobile Europe Ltd	
R1-112466	MIMO enhancements for downlink relay backhaul	Huawei, HiSilicon	

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R1-112582	Considerations on RRH subset selection mechanism	Potevio	
R1-112583	The enhancements of transmission schemes for downlink MIMO	Potevio	
R1-112662	Enhanced MU-MIMO for system with geographically-separated antenna deployments	Fujitsu	

6.7 Study on Enhanced Uplink Transmission for LTE

SID RP-110448

R1-112825	UL_enh Chairman's Notes	Samsung	

The document was presented by Charlie Zhang from Samsung and shows the outcomes of the ad-hoc session.
Decision: The document is endorsed and reported as below section 6.7.3.

R1-112053	Skeleton TR for UL Enhancement Study Item	Huawei, HiSilicon	

Decision: The document is noted and the TR skeleton is agreed.

6.7.1 UL RS Enhancements

Not treated.

R1-112054	UL Reference Signal enhancements in Rel.11	Huawei, HiSilicon	
R1-112085	Potential Enhancements for SRS in Rel-11	Ericsson, ST-Ericsson	
R1-112086	Potential Enhancements for DMRS in Rel-11	Ericsson, ST-Ericsson	
R1-112142	Enhancement for UL RS in Rel-11	CATT	
R1-112158	Proposed Enhancements for Rel-11 SRS	Texas Instruments	
R1-112233	Discussion on uplink DM-RS enhancements for Release 11	Intel Corporation	
R1-112249	Considerations on the enhancement for UL RS	ZTE	
R1-112288	The SRS frequency hopping with multi-shot in Rel-11	Pantech	
R1-112289	The aperiodic sounding using non-precoded DMRS	Pantech	
R1-112290	Considerations on UL DM-RS enhancements for Rel-11	Pantech	
R1-112297	UL RS Proposed Enhancements in Rel-11	Sharp	
R1-112394	On cell-edge enhancements via inter-cell orthogonal DM RS	Nokia Siemens Networks, Nokia	
R1-112480	Discussion on UL RS Enhancements for Rel-11	LG Electronics	
R1-112481	Consideration on UL DM RS for High-speed UEs in LTE-A	LG Electronics	
R1-112520	UL DM RS enhancement in Rel-11	Samsung	
R1-112521	SRS Enhancements in Rel.11	Samsung	
R1-112551	UL RS enhancements	Qualcomm Incorporated	
R1-112581	Discussion on UL-RS enhancements	Potevio	
R1-112650	Frequency hopping and multi-shot A-SRS for A-SRS enhancements	New Postcom	
R1-112651	Non-precoded DMRS bearing A-SRS for capacity enhancement for A-SRS	New Postcom	

6.7.2 UCI Transmission Enhancements

Not treated.

R1-112055	Enhancement for transmission of UCI on PUSCH	Huawei, HiSilicon	
R1-112087	Potential enhancements for CQI-only transmission	Ericsson, ST-Ericsson	
R1-112120	Discussion on enhancement for CQI-only transmission in Rel-11	CATT	
R1-112159	Discussion on UCI Transmission Enhancements for Rel.11 Enhanced Uplink	Texas Instruments	
R1-112232	Discussion of UCI only transmission on PUSCH	Intel Corporation	
R1-112395	Need for Enhanced SR Multiplexing Capacity and Coverage	Nokia Siemens Networks, Nokia	

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R1-112396	On CSI Transmission Enhancements	Nokia Siemens Networks, Nokia	
R1-112467	Investigation on PUCCH enhancements in Rel.11	Huawei, HiSilicon	
R1-112482	Discussion on UCI transmission enhancement	LG Electronics	
R1-112522	Discussion on UCI transmission enhancments in Rel-11	Samsung	
R1-112552	UCI transmission enhancements	Qualcomm Incorporated	
R1-112649	Capacity enhancement for CQI-only transmission	New Postcom	
R1-112700	UCI-only PUSCH transmission enhancements	Renesas Mobile Europe Ltd	(R1-112319)

6.7.3 Improvements for new deployment scenarios

Decision: The document is noted.

Power control enhancement for new deployment scenario

R1-112320	Uplink enhancements for new deployments scenarios	Renesas Mobile Europe Ltd	

Decision: The document is noted.

R1-112367	Uplink enhancement for Rel.11	Panasonic	

Decision: The document is noted.

R1-112056	Uplink power control enhancements in Rel.11	Huawei, HiSilicon	

Decision: The document is noted.

R1-112088	Enhancements to UL power control for Rel-11	Ericsson, ST-Ericsson	

Decision: The document is noted.

R1-112423	Individual Setting of UL Open-loop Power Control for Heterogeneous Networks with Shared Cell-ID	Alcatel-Lucent Shanghai Bell, Alcatel-Lucent	

Decision: The document is noted.

R1-112486	TPC Issues on New Deployment Scenario	Sharp	(R1-112298)

Decision: The document is noted.

R1-112523	UL PC for Networks with Geographically Distributed RRHs	Samsung	

Decision: The document is noted.

Conclusion:
Enhancements to the uplink power control for open-loop as well as closed-loop operation may be considered including e.g.

- enhancement to support selection of intended reception point(s)
  - potentially take into account new interference environment
- path-loss determination and signalling that targets intended reception point(s)
  - reception point(s) may vary for different uplink physical channels

In addition, coexistence with legacy UEs should be considered in these enhancements.

Power control enhancement for UL MIMO

R1-112708	Consideration on power control of UL MIMO	ZTE	(R1-112250)

Decision: The document is noted.

R1-112483	Enhancements to uplink power control in Rel-11	LG Electronics	

Decision: The document is noted.

R1-112554	Power control enhancements for UL MIMO	Qualcomm Incorporated	

Decision: The document is noted.

Observation:
This topic has been treated in Rel-10 for homogeneous network, not for hetnet scenario.

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Conclusion:
- FFS whether or not non-zero K_s UL MIMO is supported in Rel-11.

Timing and RACH enhancement

R1-112372	PRACH Enhancement and UL Power Control for CoMP Scenario 4	Research In Motion UK Limited	

Decision: The document is noted.

R1-112057	Uplink timing advance for geographically distributed antennas	Huawei, HiSilicon	

Decision: The document is noted.

Conclusion:
- FFS the necessity of enhancement on PRACH procedure an uplink timing advance signalling, especially for the lower power node deployment scenario.

Open-loop MIMO and beamforming

Not treated.

R1-112121	Considerations on UL MIMO enhancement for new deployment scenarios	CATT	
R1-112160	Rel.11 Enhanced Uplink Improvements for New Deployment Scenarios	Texas Instruments	
R1-112291	Uplink configuration for a single cell with RRH	Pantech	
R1-112422	On UL beamforming	Alcatel-Lucent Shanghai Bell, Alcatel-Lucent	
R1-112589	Discussion of UL-MIMO Enhancement for LTE Rel-11	ZTE	
R1-112652	Support for openloop spatial multiplexing in R11	New Postcom	
R1-112553	Open loop UL MIMO	Qualcomm Incorporated	

6.7.4 Improvements addressing issues in practical multi-antenna UE implementation

Not treated.

R1-112299	UL MIMO Proposed Enhancements in Rel-11	Sharp	
R1-112058	Channel-independent UL MIMO	Huawei, HiSilicon	
R1-112089	First analysis of UL channel independent transmission schemes for Rel-11	Ericsson, ST-Ericsson	
R1-112251	Uplink channel-independent MIMO schemes	ZTE	
R1-112397	On uplink channel-independent MIMO schemes	Nokia Siemens Networks, Nokia	
R1-112447	Issues in Practical Multi-antenna Uplink Transmission - Relative Phase Continuity	Motorola Mobility	

6.7.5 Other

Not treated.

R1-112468	Spatial multiplexing for 8Tx Uplink relay backhaul	Huawei, HiSilicon	

6.8 Study on Further Enhancements to LTE TDD for DL-UL Interference Management and Traffic Adaptation

SID RP-110450.

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Note that it is not planned to treat this agenda item during the meeting.

R1-112084	UL/DL interference scenarios in LTE TDD	Ericsson, ST-Ericsson	
R1-112590	Further Discussion on UL/DL asymmetry for TDD system	CMCC	

6.8.1 Simulation Assumptions

Offline session on Thurday (9am) (Zukang) to start to work towards consensus on the simulation assumptions.
Note that this will only provide input for email discussion after RAN1#66 - no agreements will be made at RAN1#66.

R1-112816	Summary of offline session on simulation assumptions for LTE TDD eIMTA	CATT	

R1-112083	Simulation assumptions for evaluation of dynamic traffic adaptation for LTE TDD	Ericsson, ST-Ericsson	
R1-112122	Traffic adaptation evaluation methodologies and assumptions for LTE TDD eIMTA	CATT	
R1-112229	Interference environment and DL-UL traffic asymmetry in LTE-TDD systems	Intel Corporation	
R1-112230	Deployment scenarios and evaluation assumptions for LTE-TDD SI	Intel Corporation	
R1-112231	Discussion on LTE-TDD traffic asymmetry modeling	Intel Corporation	
R1-112321	Discussion on simulation assumptions for TDD DL-UL interference management and traffic adaptation	Renesas Mobile Europe Ltd	
R1-112341	Simulation Assumptions for Further Enhancements to LTE TDD	LG Electronics	
R1-112469	Discussion on Evaluation of TDD DL-UL re-configuration dependent on traffic adaptation	Huawei, Hisilicon	
R1-112524	Traffic model for evaluating benefits of TDD UL-DL reconfiguration	Samsung	
R1-112525	Preliminary evaluation of TDD uplink-downlink reconfiguration performance	Samsung	
R1-112585	On Simulation Methodology for Study of LTE TDD Enhancement	ZTE	

6.8.2 Other

R1-112123	Work plan for SI on LTE TDD eIMTA	CATT	
R1-112322	Views on the use cases and scenarios for TDD DL-UL interference management	Renesas Mobile Europe Ltd	
R1-112375	Traffic Scenario for dynamic UL/DL TDD configuration	Research In Motion UK Limited	
R1-112487	Fast uplink-downlink re-configuration with traffic adaptation by PHY layer signaling	Sharp	(R1-112300)
R1-112599	Possible Enhancements to LTE TDD for DL-UL Interference Management and Traffic Adaptation	HTC	

6.9 Other

R1-112593	Special subframe configuration	CMCC	

Due to lack of time, this was not treated. Companies are encouraged to consider this contribution, said Mr Chairman.

R1-112669	On support of low-cost MTC terminals with reduced Tx/Rx bandwidths	Fujitsu	

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7 Closing of the meeting

R1-112855	Way forward	Chairman emeritus	

The document was presented by Dirk Gerstenberger to bid RAN1 farewell after 12 years attending this unique group, said Dirk.
Dirk started in 1999 and worked on both the standardization of HSPA and LTE, enjoying chairing the group for 6,5 years but also from the back of the room for the last two years.
Dirk commented that writing a clean standard and making decisions is tough, but also make the life of chairman so exciting; he further thanked the group for making our standards best of the world.

Mr Chairman congratulated Dirk for surviving such long in RAN1 and thanked him for all that has been achieved during his mandates.

Before closing the meeting, Mr Chairman thanked again the European friends of 3GPP for organizing the meeting and all participants for the work achieved during the week.
He was looking forward to see some in the next plenary meeting to discuss new WI/SI for Rel-11 and the rest of the group in upcoming RAN1#66bis meeting in Zhuhai.

The meeting was closed at 17:05.

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Annex A: List of Tdocs at RAN1 #66

Please see excel file attached to this report

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Annex B: List of CRs agreed at RAN1#66

Spec	CR	Rev	Rel	Title	Cat	Vsn	TDoc	Source to WG	Work Item	Clauses affected
25.214	0654	1	Rel-8	Clarification of when to use Sync A procedure when UE transitions from CELL_FACH to CELL_DCH	F	8.11.0	R1-112726	Qualcomm Incorporated	RANimp-UplinkEnhState	4.3.2.1
25.214	0655	-	Rel-9	Clarification of when to use Sync A procedure when UE transitions from CELL_FACH to CELL_DCH	A	9.6.0	R1-112727	Qualcomm Incorporated	RANimp-UplinkEnhState	4.3.2.1
25.214	0656	-	Rel-10	Clarification of when to use Sync A procedure when UE transitions from CELL_FACH to CELL_DCH	A	10.3.0	R1-112728	Qualcomm Incorporated	RANimp-UplinkEnhState	4.3.2.1
25.221	0220	2	Rel-10	Clarifications on HSUPA for LCR TDD	F	10.2.0	R1-112820	TD Tech	LCRTDD-EDCH-Phys	5A.3.5,7
25.223	0064	2	Rel-8	Clarification of 64QAM for LCR TDD	F	8.4.0	R1-112817	TD Tech	RANimp-64Qam1.28TDD	4
25.223	0065	2	Rel-9	Clarification of 64QAM for LCR TDD	A	9.0.0	R1-112818	TD Tech	RANimp-64Qam1.28TDD	4
25.223	0066	2	Rel-10	Clarification of 64QAM for LCR TDD	A	10.0.0	R1-112819	TD Tech	RANimp-64Qam1.28TDD	4
25.224	0270	2	Rel-10	Clarifications on SYNC-UL signatures for E-RUCCH procedure for LCR TDD	F	10.2.0	R1-112821	TD Tech	LCRTDD-EDCH-Phys	5.6.3A
36.211	0162	-	Rel-10	Corrections on DMRS for Extended CP	F	10.2.0	R1-112491	Samsung, Renesas Mobile Europe, Panasonic, LG Electronics, TI, Qualcomm, Research in Motion, Alcatel-Lucent, Alcatel-Lucent Shanghai Bell, Huawei, HiSilicon, Motorola Mobility	LTE_eDL_MIMO-Core	6.10.3.2
36.211	0163	-	Rel-10	Clarification of applicability of precoding power scaling factors for PDSCH	F	10.2.0	R1-112765	Agilent Technologies, Motorola Mobility	LTE-Phys	6.3.5
36.211	0164	-	Rel-10	Correction to modulation and upconversion on PRACH	F	10.2.0	R1-112766	Panasonic	LTE-Phys	5.8

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Spec	CR	Rev	Rel	Title	Cat	Vsn	TDoc	Source to WG	Work Item	Clauses affected
36.211	0165	-	Rel-10	Clarification on cyclic prefix of PDSCH in MBSFN subframes	F	10.2.0	R1-112830	NEC group, Panasonic, Qualcomm Incorporated, Samsung, Renesas Mobile Europe, Alcatel-Lucent, Alcatel-Lucent Shanghai Bell, CATT, Ericsson, ST-Ericsson	LTE_eDL_MIMO-Core	6.1, 6.4, 6.10.2, 6.10.4
36.211	0166	3	Rel-10	Corrections on indication in scrambling identity field in DCI format 2B and 2C	F	10.2.0	R1-112863	Huawei, HiSilicon, Fujitsu, ZTE, Qualcomm Inc, Texas Instruments, Ericsson, ST-Ericsson	LTE_eDL_MIMO-Core	6.10.3.1
36.212	0119	1	Rel-10	Corrections on transport block processing for UL-SCH	F	10.2.0	R1-112847	Huawei, HiSilicon, I2R, Samsung, CATT, Panasonic	LTE-Phys	5.2.2
36.212	0120	2	Rel-10	On correction of channel coding of control information	F	10.2.0	R1-112838	ZTE	LTE_CA-Core	5.2.2.6 , 5.2.2.7, 5.2.3.1
36.212	0122	1	Rel-10	Size adjustment of DCI format 0, 1A and 1	F	10.2.0	R1-112802	Panasonic, Qualcomm, ZTE, Ericsson, ST-Ericsson, Huawei, HiSilicon, Alcatel-Lucent, Alcatel-Lucent Shanghai-Bell, LG, TI, CATT	LTE_CA-Core	5.3.3.1.1, 5.3.3.1.2, 5.3.3.1.3
36.212	0123	1	Rel-10	Corrections on	F	10.2.0	R1-112777	CATT	LTE_CA-Core, LTE-Phys	5.2.2.6
36.212	0124	2	Rel-10	Corrections on DCI format 1B/1D	F	10.2.0	R1-112839	CATT	LTE_CA-Core, LTE_eDL_MIMO-Core, LTE_UL_MIMO-Core	5.3.3.1.3A, 5.3.3.1.4A
36.212	0125	-	Rel-10	Minor Correction on DCI Format 1 Description	F	10.2.0	R1-112772	Alcatel-Lucent and Alcatel-Lucent Shanghai Bell	LTE-phys	5.3.3.1.2
36.212	0126	-	Rel-9	Correction on ACK/NACK mapping	F	9.3.0	R1-112773	LG Electronics	LTE-Phys	5.2.3.4
36.212	0127	-	Rel-10	Correction on ACK/NACK mapping	A	10.2.0	R1-112774	LG Electronics	LTE-Phys	5.2.3.4
36.212	0128	-	Rel-10	Corrections on channel coding of control information and DCI Format 4.	F	10.2.0	R1-112770	Huawei, HiSilicon, CATT	LTE_UL_MIMO-Core	5.2.2.6, 5.2.2.7, 5.3.3.1.5C, 5.3.3.1.8
36.212	0129	-	Rel-10	Clarification and correction to configuration signalling condition for channel quality information formats	F	10.2.0	R1-112866	ZTE	LTE_eDL_MIMO-Core	5.2.2.6.1, 5.2.2.6.2, 5.2.2.6.3, 5.2.3.3.1 and 5.2.3.3.2
36.213	277	1	Rel-10	Correction to reception of PRS in MBSFN subframes	F	10.2.0	R1-112776	Qualcomm Incorporated, Panasonic, NEC, Ericsson, ST-Ericsson, ZTE	LTE_eDL_MIMO-Core	7.1

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Spec	CR	Rev	Rel	Title	Cat	Vsn	TDoc	Source to WG	Work Item	Clauses affected
36.213	0325	3	Rel-10	Corrections on UE procedure for reporting HARQ-ACK	F	10.2.0	R1-112849	ZTE, Qualcomm Incorporated, Huawei, HiSilicon, CATT, Samsung, I2R, Ericsson, ST-Ericsson	LTE_CA-Core	7.3, 8.0
36.213	0326	2	Rel-10	Corrections on Physical Uplink Control Channel Procedure	F	10.2.0	R1-112795	ZTE, CATT, I2R, NTT DoCoMo, LG Electronics, Qualcomm Incorporated, Samsung, Ericsson, ST-Ericsson	LTE_CA-Core	3.1, 7.3, 10.1, 10.1.1, 10.1.2.2.1, 10.1.2.2.2, 10.1.3, 10.1.3.1, 10.1.3.2.1, 10.1.3.2.2
36.213	0331	1	Rel-10	Correction to uplink transmission scheme usage for random access response and PHICH-triggered retransmissions	F	10.2.0	R1-112835	Panasonic, ZTE, Texas Instruments	LTE_UL_MIMO-Core	6.2, 8.0
36.213	0336	-	Rel-10	Corrections on transmission mode 9	F	10.2.0	1- 112494	Samsung	LTE_eDL_MIMO-Core	7.2
36.213	0339	-	Rel-10	Corrections on HARQ-ACK codebook size determination	F	10.2.0	R1-112559	CATT	LTE_CA-Core	7.3
36.213	0340	-	Rel-10	Corrections on TDD PUCCH format 1b with channel selection and HARQ-ACK transmission on PUSCH	F	10.2.0	R1-112560	CATT	LTE_CA-Core	7.3
36.213	0341	-	Rel-10	Corrections on NACK generation	F	10.2.0	R1-112561	CATT	LTE_CA-Core	10.1.1
36.213	0342	-	Rel-10	Corrections on power headroom reporting	F	10.2.0	R1-112563	CATT	LTE_CA-Core	5.1.1.2
36.213	0346	-	Rel-10	Correction on TBS translation table	F	10.2.0	R1-112778	LG Electronics	LTE_eDL_MIMO-Core	7.1.7.2.4
36.213	0347	2	Rel-10	Correction to the condition of enabling PMI feedback	F	10.2.0	R1-112843	ZTE, China Telecom., ITRI	LTE_eDL_MIMO-Core	7.2, 7.2.1, 7.2.4
36.213	0348	-	Rel-10	Miscellaneous corrections to 36.213	F	10.2.0	R1-112780	NEC group	LTE_CA-Core LTE_eDL_MIMO-Core	7.2, 7.2.2, 7.3, 10.1, 10.1.1
36.213	0349	-	Rel-10	Corrections on PUSCH and PUCCH modes	F	10.2.0	R1-112783	Samsung, LG Electronics, Intel, ZTE, Motorola Mobility,	LTE_eDL_MIMO-Core	7.2.1, 7.2.2
36.213	0350	1	Rel-10	CR on UL HARQ ACK determination	F	10.2.0	R1-112850	Ericsson, ST-Ericsson, CATT	LTE_UL_MIMO_Core	8.3
36.213	0351	1	Rel-10	Correction on UL DMRS resources for PHICH-triggered retransmission	F	10.2.0	R1-112840	ZTE, Texas Instruments, LG Electronics	LTE_UL_MIMO-Core	8.0 and 8.7
36.213	352	-	Rel-10	Clarification on the common search space description	F	10.2.0	R1-112828	Panasonic, Qualcomm Inc, ZTE, NEC, Huawei, HiSilicon, Motorola Mobility, Ericsson, ST-Ericssion	LTE_CA-Core	7.1

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Spec	CR	Rev	Rel	Title	Cat	Vsn	TDoc	Source to WG	Work Item	Clauses affected
36.213	0353	1	Rel-10	Clarification on ambiguous DCI information between UE-specific search space and common search space for DCI formats 0 and 1A	F	10.2.0	R1-112845	Qualcomm Inc., LGE, ETRI, Panasonic	LTE_CA-Core, LTE_UL_MIMO-Core	9.1.1
36.213	0354	-	Rel-10	Clarification of Reference PDSCH Power for CSI-RS based CSI Feedback	F	10.2.0	R1-112833	Qualcomm Inc.	LTE_eDL_MIMO-Core	7.2.5
36.213	0355	2	Rel-10	Corrections on reporting Channel State Information	F	10.2.0	R1-112858	Huawei, HiSilicon,Qualcomm Incorporated, CATT, ZTE, Ericsson, ST-Ericsson, Samsung, Alcatel-Lucent, Alcatel-Lucent Shanghai Bell	LTE_CA-Core	7.2, 10.1

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Annex C - 1: List of Outgoing LSs from RAN1#66

R1	Response to (Ic LS)	To	Cc	Title	Contact	Ref'd /Attachd Tdoc	Release	WI
R1-112790	R2-113653 (R1-112024)	R2	R4	LS reply on timing advance calculation using time difference measurement	Huawei		Rel-11	LTE_CA_enh-Core
R1-112796		R2		LS on Soft buffer handling in TS36.213 and TS36.321	NTT DoCoMo		Rel-10	LTE_CA-Core
R1-112853		R2		LS on the unicast usage in MBSFN subframe	Panasonic		Rel-10	LTE_MIMO
R1-112860	R2-113591 (R1-112022)	R2	R3, R4	Reply LS on the frequency band specific compressed mode	Nokia Siemens Networks		Rel-10	TEI10
R1-112864		R2, R3		LS on Physical Layer Measurement for network positioning	Alcatel Lucent		Rel-11	LCS_LTE-NBPS
R1-112862		R2, R3, R4		LS on the RAN1 agreements for 8C-HSDPA	Ericsson	R1-112736, R1-112875, R1-112876, R1-112877	Rel-11	8C_HSDPA
R1-112867		R4	R2	LS on TDD inter-band CA with different UL-DL configurations on different bands	CATT		Rel-11	LTE_CA_enh-Core
R1-112881		R2, R3	R4	LS on RAN1 agreements on uplink Closed Loop Transmit Diversity for HSPA	Huawei	R1-112870, R1-112871, R1-112872, R1-112868, R1-112869	Rel-11	HSPA_UL_TxDiv_CL-Core

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Annex C - 2: List of Incoming LSs from RAN1#66

Source	Original Tdoc nbr	RAN1 Tdoc nbr	To	Cc	Title	Response to (Ic LS)	Release	WI	Contact
R2	R2-113591	R1-112022	R3, R1	R4	LS on the frequency band specific compressed mode		Rel-10	TEI10	Nokia Siemens Networks
R2	R2-113651	R1-112023	S5, R3, R1, R4		LS on Removal of MDT M3 LTE Measurement		Rel-10	MDT_UMTSLTE-Core	MediaTek
R2	R2-113653	R1-112024	R1, R4		LS on timing advance calculation using time difference measurement		Rel-11	LTE CA enhancement	Renesas
R3	R3-111687	R1-112025	R2	R1	Reply LS on signalling support to de-activate HS-SCCH orders	R2-112459 (R3-111143)	Rel-10	RANimp-DCHSDPA	Qualcomm
RAN	RP-110904	R1-112026	NGMN (P-OSB), ITU-T SG15/Q13	R1, R3, R4	Response to NGMN LS RP-110476 on coordination between ITU-T and 3GPP on synchronization	RP-110476 (R1-111308)	-	-	Orange
S5	S5-112126	R1-112027	R2	R3, R1, R4	LS on MDT UL Measurements	R2-111780 (S5-111697)	Rel-10	LTE_Relay-Core / OAM-PM-UE	Nokia Siemens Networks
SA	SP-110433	R1-112028	S3, S5, CT, C1, RAN, R2, R3	S1, S2, S4, C3, C4, C6, R1, R4, R5, GERAN, G1, G2, G3	LS on Equivalent PLMN identities and MDT				Teliasonera
ITU-T	COM 15 – LS 305 – E	R1-112059	NGMN P-OSB, R1, R3, R4		Response to Liaison "NGMN coordination between ITU-T and 3GPP on synchronization topic"		-	-	Calnex Solutions, Ericsson
S4	S4-110800	R1-112716	R1, R4, S5	R2	LS on Radio metrics with respect to QoE		-	-	Qualcomm

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Annex D: List of Approved updated WIDs

None

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Annex E: List of draft TSs/TRs agreed at RAN1 #66

Tdoc Number	Title	Source	Conclusion/Decision
R1-112878	25.871 v2.0.0 Uplink MIMO for HSPA	Qualcomm Inc.	Agreed
R1-112879	25.872 v2.0.0 HSDPA Multipoint Transmission	Nokia Siemens Networks	Agreed
R1-112882	36.819 v1.2.0 for Coordinated Multi-Point Operation for LTE	Samsung	Agreed

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Annex F: List of actions

1. **Outgoing LS.**

[66-05] Zukang Shen (CATT)

R1-112823	[Draft] LS on TDD inter-band CA with different UL-DL configurations on different bands	CATT	

For email approval by Friday 2nd Sept.
Done: The final LS is agreed as R1-112867 according to Mr Chairman's decision on September 5th.

[66-22] Karri Ranta-aho and Zhongjie Wang

R1-112861	[DRAFT] LS on RAN1 agreements on uplink Closed Loop Transmit Diversity for HSPA	Huawei, HiSilicon	(R1-112741)

Email discussion/approval by Friday 9th September.
Done: The final LS is agreed as R1-112881 according to Mr Chairman's decision on September 12th.

[66-24] Karri Ranta-aho / Johan Bergman

R1-112862	LS on RAN1 agreements on 8C-HSDPA	RAN1, Ericsson	(R1-112740)

Email discussion/approval by Friday 9th September.
Done: The LS is agreed to Mr Chairman's decision on September 12th.

2. **CR approval**

[66-20] Qualcomm

R1-112726	25.214 CR0654R1 (Rel-8, F) Clarification of when to use Sync A procedure when UE transitions from CELL_FACH to CELL_DCH	Qualcomm Inc.	(R1-112672)
R1-112727	25.214 CR0655 (Rel-9, A) Clarification of when to use Sync A procedure when UE transitions from CELL_FACH to CELL_DCH	Qualcomm Inc.	(R1-112672)
R1-112728	25.214 CR0656 (Rel-10, A) Clarification of when to use Sync A procedure when UE transitions from CELL_FACH to CELL_DCH	Qualcomm Inc.	(R1-112672)

Email approval until Friday 2nd September.
Done: The CRs are agreed according to Mr Chairman's decision on September 5th.

[66-21] Huawei

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R1-112743	25.211 CR draft (Rel-11, B) Introduction of Uplink Closed Loop Transmit Diversity for HSPA	Huawei, HiSilicon	(R1-112812)
R1-112744	25.212 CR draft (Rel-11, B) Introduction of Uplink Closed Loop Transmit Diversity for HSPA	Huawei, HiSilicon	(R1-112813)
R1-112745	25.213 CR draft (Rel-11, B) Introduction of Uplink Closed Loop Transmit Diversity for HSPA	Huawei, HiSilicon	(R1-112814)
R1-112746	25.214 CR draft (Rel-11, B) Introduction of Uplink Closed Loop Transmit Diversity for HSPA	Huawei, HiSilicon	(R1-112815)
R1-112747	25.215 CR draft (Rel-11, B) Introduction of Uplink Closed Loop Transmit Diversity for HSPA	Huawei, HiSilicon	(R1-112181)

Email endorsement by Friday 2nd September.
Done: The CRs are endorsed as R1-112286[illegible]8 (25.211), R1-112869 (25.212), R1-112870 (25.213), R1-112871 (25.214) and R1-112872 (25.215), according to Mr Chairman's decision on September 5th.

[66-23] Ericsson

R1-112736	25.211 CR0288R2 (Rel-11, B) Introduction of 8C-HSDPA	Ericsson, ST-Ericsson	(R1-112604)
R1-112737	25.212 CR0296R2 (Rel-11, B) Introduction of 8C-HSDPA	Ericsson, ST-Ericsson	(R1-112605)
R1-112738	25.213 CR0109R2 (Rel-11, B) Introduction of 8C-HSDPA	Ericsson, ST-Ericsson	(R1-112606)
R1-112739	25.214 CR0652R2 (Rel-11, B) Introduction of 8C-HSDPA	Ericsson, ST-Ericsson	(R1-112607)

Email endorsement by Friday 2nd September.
Done: The CRs are endorsed as R1-112736 (25.211 CR0288R2), R1-112875 (25.212 CR0296R3), R1-112876 (25.213 CR0109R3) and R1-112877 (25.214 CR0625R3) according to Mr Chairman's decision on September 6th.

[66-01] ZTE

R1-112838	36.212 CR0120R2 (Rel-10, F) on correction of channel coding of control information	ZTE	(R1-112771)

Email approval by Friday 2nd September.
Done: The CR is agreed according to Mr Chairman's decision on September 5th.

[66-02] Tim Moulsley (Fujitsu)

R1-112786	36.213 CR0328R1 (Rel-10, F) A correction to PDSCH transmission assumption for CQI calculation	Fujitsu	

Email discussion on which spec to change (36.211 and/or 36.213), until RAN1#66bis.
Done: Status shall be checked in RAN1#66bis, where the intention is to agree on 2 CRs: one to 36.213 moving the precoding codebooks for TM9 from 36.211 to 36.213, and one to 36.211 maintaining a consistent specification (deletion of the TM9 codebooks in 36.211).

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[66-03] Huawei

R1-112859	36.213 CR0356R1 (Rel-10, F) Corrections on HARQ-ACK feedback procedures	Huawei, HiSilicon, CATT, LGE	

For email discussion / approval until Friday 2nd September.

Done: More time is needed to ensure accurate resolution of the issue. The CR is not agreed and RAN1 is invited to continue the discussion until RAN1#66bis, according to Mr Chairman's decision on September 7th.

3. Text proposal for TS and TR

[66-25] NSN

R1-112734	Draft TR 25.872 HSDPA Multipoint Transmission	Nokia Siemens Networks	(R1-112636)
R1-112735	Simulation result summary for HSDPA Multipoint Transmission	InterDigital Communications	

Email approval as v2.0.0 by Friday 2nd September.

Done: The TR v1.0.3 is agreed in R1-112734, according to decision of Mr Chairman on September 8th. Both below are also agreed.

R1-112879	25.872 v2.0.0 HSDPA Multipoint Transmission	Nokia Siemens Networks	(R1-112734)
R1-112880	Simulation result summary for HSDPA Multipoint Transmission	InterDigital Communications, LLC., Alcatel-Lucent, Alcatel-Lucent Shanghai-Bell, Ericsson, HiSilicon, Huawei, Nokia, Nokia Siemens Networks, Qualcomm Incorporated, Renesas Mobile Europe Ltd., ST-Ericsson	(R1-112735)

[66-26] Qualcomm

R1-112742	Draft TR 25.871 v1.0.2 Uplink MIMO for HSPA	Qualcomm Inc.	(R1-111865)

Note that RAN2 input will also need to be inserted as soon as it is approved by email by RAN2.

Email approval as v1.0.0 by Friday 2nd September.

Done: The TR v1.0.2 is agreed in R1-112734, according to decision of Mr Chairman on September 8th. Version for approval is also agreed.

R1-112878	25.871 v2.0.0 Uplink MIMO for HSPA	Qualcomm Inc.	(R1-112742)

[66-06] Juho Lee (Samsung)

CoMP TR conclusions / recommendations / way forward to see if more detailed text can be agreed in addition to that already agreed

Email discussion until Thursday 1st Sept.

Done: Extremely long debate to decide between the following two TP alternatives:

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- **Alt1: → supported by NTT DOCOMO, Ericsson, ST-Ericsson, LG Electronics, Intel, NEC, Fujitsu, I2R, Motorola Mobility, RIM, KDDI, ETRI, Pantech, Alcatel-Lucent, Alcatel-Lucent Shanghai Bell, Samsung; acceptable to Orange**
  - **Following the observations on CoMP performance benefits, which are based on the evaluations of coherent joint transmission, coordinated scheduling/beamforming, dynamic point selection, and dynamic point blanking, the work for specifying CoMP support in Rel-11 should focus on**
    - **Joint transmission**
    - **Dynamic point selection, including dynamic point blanking**
    - **Coordinated scheduling/beamforming, including dynamic point blanking**
  - **All schemes will be developed assuming that the UE reports CSI feedback based on the assumption of single-user transmission for the work specifying CoMP. This assumption causes no restriction on the SU/MU scheduling decision at the eNB when the PDSCH is demodulated based on UE-specific RS.**

- **Alt2: → supported by China Mobile, Huawei, HiSilicon, NewPostcom, ZTE, Potevio, CATT, Orange, Alcatel-Lucent, Alcatel-Lucent Shanghai Bell; acceptable to Fujitsu, RIM, Pantech**
  - **Following the observations on CoMP performance benefits, which are based on the evaluations of coherent joint transmission, coordinated scheduling/beamforming, dynamic point selection, and dynamic point blanking, the work for specifying CoMP support in Rel-11 should focus on**
    - **Coherent joint transmission**
    - **Dynamic point selection, including dynamic point blanking**
    - **Coordinated scheduling/beamforming, including dynamic point blanking**
  - **All schemes will be developed assuming that the UE reports CSI feedback based on the assumption of single-user transmission for the work specifying CoMP. This assumption causes no restriction on the SU/MU scheduling decision at the eNB when the PDSCH is demodulated based on UE-specific RS.**

Finally Alt 1 was agreed for the sake of progress (Huawei's email dated on Sept 13th) and TR agreed as version v1.2.0 in:

R1-112882	36.819 v1.2.0 for Coordinated Multi-Point Operation for LTE	Samsung	(R1-112865)

4. Miscellaneous

[66-09] Zukang Shen (CATT)
Simulation assumptions for Study on Further Enhancements to LTE TDD for DL-UL Interference Management and Traffic Adaptation.
Email discussion until Friday 9th Sept.
Done: Conclusions were agreed in R1-112884 according to Mr Chair's email dated on Sept 24th.

R1-112884	Summary of email discussion on simulation assumptions for study on further enhancements to LTE TDD for DL-UL interference management and traffic adaptation	Rapporteur (CATT)	

[66-04] Lars Lindh (Nokia)
Email discussions until RAN1#66bis:
1. Identify scenarios and evaluation assumptions for downlink control signalling enhancement for CA-Enh WI.
2. Aim for consensus on motivations (if any) for the investigations of enhanced PDCCH
3. Aim for consensus on the scenarios (if any) to be targeted by investigations of enhanced PDCCH, and corresponding evaluation assumptions.
Done: Status shall be checked in RAN1#66bis.

[66-07] Eric Hardouin (Orange)

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3GPP TSG RAN WG1 Meeting #66bis **R1-112886**
Zhuhai, China, 10 – 14 October, 2011

DL MIMO Enhancement scenarios and assumptions.
Email discussions on the points identified in R1-112854 until Friday 9th Sept.
Done: Aiming at proceeding with the actual simulation work, within the combined scope of the CoMP WI and the DL MIMO SI, RAN1 agreed considering Scenarios A, B and C. Scenario B receives its priority from the fact that CoMP is a WI, while Scenarios A and C receive highest priority from the point of view of the DL MIMO SI. Final version was agreed in R1-112883 according to Mr Chair's email dated on Sept 20th.

R1-112883	Report from email discussion on scenarios and assumptions for DL MIMO feedback enhancements	Orange (rapporteur)	

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Annex G: List of participants at RAN1 #66

Please see excel file attached to this report

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Annex H: TSG RAN WG1 meetings in 2011 - 2012

TITLE	TYPE	DATES	LOCATION	CTRY
3GPPRAN1#66bis	WG	10 – 14 Oct 2011	Zhuhai	China
3GPPRAN1#67	WG	14 – 18 Nov 2011	San Francisco	US
3GPPRAN1#68	WG	06 – 10 Feb 2012	Dresden	Germany
3GPPRAN1#68bis	WG	26 – 30 Mar 2012	TBD	Korea
3GPPRAN1#69	WG	21 – 25 May 2012	Prague	CZ
3GPPRAN1#70	WG	13 – 17 Aug 2012	Qingdao	China
3GPPRAN1#70bis	WG	8 – 12 Oct 2012	TBD	TBD
3GPPRAN1#71	WG	12 – 16 Nov 2012	TBD	TBD

MEETING TYPES	
AH = Ad Hoc	CM = Chairmen's meeting
JM = Joint	OR = Ordinary
PM = Preparatory Meeting	RG = Rapporteurs Group
RM = Resolution Meeting	SG = Steering Group
ST = Startup Meeting	TG = Task Group
WG = Working Group	XO = Extraordinary

End of document

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Appendix 23



3GPP_TSG_RAN_WG1 Archives

August 2011, Week 3

3GPP_TSG_RAN_WG1@LIST.ETSI.ORG



Options: Use Monospaced Font
Show Text Part by Default
Show All Mail Headers

Message: [<< First] [< Prev] [Next >] [Last >>]
Topic: [<< First] [< Prev] [Next >] [Last >>]
Author: [<< First] [< Prev] [Next >] [Last >>]





Subject: Samsung contributions - batch 2
From: Juho Lee <juho95.lee@SAMSUNG.COM>
Reply To: Juho Lee <juho95.lee@SAMSUNG.COM>
Date: Tue, 16 Aug 2011 19:51:00 +0900
Content-Type: multipart/mixed
Parts/Attachments: text/plain (1718 bytes) , text/html (34 kB) , R1-112506.zip (293 kB) , R1-112507.zip (66 kB) , R1-112508.zip (92 kB) , R1-112512.zip (134 kB) , R1-112514.zip (46 kB) , R1-112515.zip (28 kB) , R1-112516.zip (133 kB) , R1-112517.zip (100 kB) , R1-112518.zip (109 kB) , R1-112519.zip (55 kB) , R1-112520.zip (714 kB) , R1-112521.zip (43 kB) , R1-112522.zip (133 kB) , R1-112523.zip (496 kB) , R1-112525.zip (58 kB)

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Dear all,

Attached please find the second set of Samsung contributions for the RAN1 meeting next week.

6.3.1	Discussion/Decision	R1-112506	PDSCH performance under various macro-pico scenarios	Samsung
6.3.1	Discussion/Decision	R1-112507	CRS interference cancellation in HetNet scenarios for UE performance requirements	Samsung
6.5.1	Discussion/Decision	R1-112508	Full buffer evaluation results for CoMP scenario 3 and 4	Samsung
6.5.2	Discussion/Decision	R1-112512	Discussion on the specification impact of CoMP	Samsung
6.6.2.1	Discussion/Decision	R1-112514	Discussion on CSI Feedback for DL MIMO with Geographically Separated Tx Points	Samsung
6.6.2.1	Discussion/Decision	R1-112515	Prioritization of CSI feedback enhancement scenarios for DL-MIMO	Samsung
6.6.2.2	Discussion/Decision	R1-112516	Compact DCI Format for PUSCH Assignments	Samsung
6.6.2.2	Discussion/Decision	R1-112517	Discussion on ePDCCH design issues	Samsung
6.6.3	Discussion/Decision	R1-112518	Discussion on CSI Feedback for MU-MIMO Enhancement	Samsung
6.6.3	Discussion/Decision	R1-112519	Discussion on CSI feedback enhancement for DL MIMO	Samsung
6.7.1	Discussion	R1-112520	UL DM RS enhancement in Rel-11	Samsung
6.7.1	Discussion/Decision	R1-112521	SRS Enhancements in Rel.11	Samsung
6.7.2	Discussion	R1-112522	Discussion on UCI transmission enhancments in Rel-11	Samsung
6.7.3	Discussion	R1-112523	UL PC for Networks with Geographically Distributed RRHs	Samsung
6.8.1	Discussion/Decision	R1-112525	Preliminary evaluation of TDD uplink-downlink reconfiguration performance	Samsung

Best regards,
Juho

Juho LEE, Ph. D.

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Samsung Electronics Co., Korea
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ATOM RSS1 RSS2

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Appendix 24

The Wayback Machine - https://web.archive.org/web/20100326093131/http://list.etsi.org:80/

List Archives at LIST.ETSI.ORG

From this page you can browse the online archives of the following mailing lists:

3GPP-REVIEW
3gpp-review : gsmtrans replacement *(3 subscribers)*
3GPP_3GPP2_SCM
3gpp_3gpp2_scm : 3gpp-3gpp2 spatial channel modelling *(10 subscribers)*
3GPP_COMMON_IMS_XFER
3GPP_common_ims_xfer: IMS work transfer *(32 subscribers)*
3GPP_FFG
3gpp_ffg :3gpp list *(18 subscribers)*
3GPP_GUP
3gpp_gup : evolution of 3gpp *(6 subscribers)*
3GPP_MARCOM
3GPP_Marcom *(13 subscribers)*
3GPP_ORGANIZATION
3gpp_organization: 3gpp discussion group *(28 subscribers)*
3GPP_RAN_LEADERS
3GPP_RAN_LEADERS *(26 subscribers)*
3GPP_TSG_CN
3GPP_TSG_CN: THIS LIST HAS NOW BEEN CLOSED 18.03.05 *(0 subscribers)*
3GPP_TSG_CN_AH_ITUT
3GPP_TSG_CN_AH_ITUT: THIS LIST HAS NOW BEEN CLOSED *(0 subscribers)*
3GPP_TSG_CN_WG1
3GPP_TSG_CN_wg1: THIS LIST HAS NOW BEEN CLOSED 18.03.05 *(0 subscribers)*
3GPP_TSG_CN_WG2
3GPP_TSG_CN_wg2: THIS LIST HAS BEEN CLOSED 18.03.05 *(0 subscribers)*
3GPP_TSG_CN_WG3
3GPP_TSG_CN_wg3: THIS LIST HAS NOW BEEN CLOSED *(0 subscribers)*
3GPP_TSG_CN_WG4
3GPP_TSG_CN_WG4: THIS LIST HAS NOW BEEN CLOSED 18.03.05 *(0 subscribers)*
3GPP_TSG_CN_WG5
3GPP_TSG_CN_WG5: THIS LIST HAS NOW BEEN CLOSED *(0 subscribers)*
3GPP_TSG_CN_WG5_JOINTAPIWORK
3gpp_tsg_cn_wg5_jointapiwork : THIS LIST HAS NOW BEEN CLOSED 18.03.05 *(0 subscribers)*
3GPP_TSG_CT
3GPP_TSG_CT - Core Network and Terminals *(308 subscribers)*
3GPP_TSG_CT_WG1
3GPP_TSG_CT_WG1 - Core Network and Terminals WG 1 *(895 subscribers)*
3GPP_TSG_CT_WG1_MMS_SMS_CBS_AT
3GPP_TSG_CT_WG1_MMS_SMS_CBS_AT:Commands *(151 subscribers)*
3GPP_TSG_CT_WG2
3GPP_TSG_CT_WG2 - Core Network and Terminals WG 2 *(29 subscribers)*
3GPP_TSG_CT_WG3
3GPP_TSG_CT_WG3 - Core Network and Terminals WG 3 *(253 subscribers)*
3GPP_TSG_CT_WG4
3GPP_TSG_CT_WG4 - Core Network and Terminals WG 4 *(541 subscribers)*
3GPP_TSG_CT_WG5
3GPP_TSG_CT_WG5 - Core Network and Terminals WG 5 closed 26th Sept 2008 *(0 subscribers)*
3GPP_TSG_CT_WG6
3GPP_TSG_CT_WG6 - Core Network and Terminals WG 6 *(136 subscribers)*
3GPP_TSG_CT_WG6_API_TEST
3GPP_TSG_CT_WG6_API_TEST: Mailing List *(25 subscribers)*
3GPP_TSG_GERAN
3gpp_tsg_geran : list for etsi tsg geran mailing *(198 subscribers)*
3GPP_TSG_GERAN_FUTURERAN
3gpp_tsg_geran_futureran : list for etsi tsg geran futureran mailing *(33 subscribers)*
3GPP_TSG_GERAN_TDOC
3gpp_tsg_geran_tdoc : list for etsi tsg geran temporary documents *(199 subscribers)*
3GPP_TSG_GERAN_WG1
3gpp_tsg_geran_wg1 : list for etsi tsg geran wg1 mailing *(159 subscribers)*
3GPP_TSG_GERAN_WG2
3gpp_tsg_geran_wg2 : list for etsi tsg geran wg2 mailing *(146 subscribers)*
3GPP_TSG_GERAN_WG3

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3gpp_tsg_geran_wg3 : list for etsi tsg geran wg3 mailing *(151 subscribers)*

3GPP_TSG_GERAN_WG3_ELECTRONIC
3GPP_TSG_GERAN_WG3_ELECTRONIC *(35 subscribers)*

3GPP_TSG_GERAN_WG3_EMAIL_AGREEME
3GPP_TSG_GERAN_WG3_Email_Agreement *(5 subscribers)*

3GPP_TSG_GERAN_WG4
3gpp_tsg_geran_wg4 : THIS LIST HAS BEEN CLOSED *(0 subscribers)*

3GPP_TSG_GERAN_WG4_EDGE
3gpp_tsg_geran_wg4_edge : THIS LIST HAS BEEN CLOSED *(3 subscribers)*

3GPP_TSG_GERAN_WG4_GPRS
3gpp_tsg_geran_wg4_gprs : THIS LIST HAS BEEN CLOSED *(4 subscribers)*

3GPP_TSG_GERAN_WG4_PCS1900
3gpp_tsg_geran_wg4_pcs1900 : THIS LIST HAS BEEN CLOSED *(3 subscribers)*

3GPP_TSG_GERAN_WG4_TTCN
3gpp_tsg_geran_wg4_ttcn : THIS LIST HAS BEEN CLOSED *(2 subscribers)*

3GPP_TSG_GERAN_WG5
3gpp_tsg_geran_wg5 : THIS LIST HAS BEEN CLOSED *(0 subscribers)*

3GPP_TSG_LEADERS
3gpp_tsg_leaders: tsg leaders group *(80 subscribers)*

3GPP_TSG_RAN
3gpp_tsg_ran: tsg radio access network group *(819 subscribers)*

3GPP_TSG_RAN3-SA5-RET
3GPP_TSG_RAN3-SA5-RET : Common RAN3/SA5 Work Item discussion for Remote List closed *(0 subscribers)*

3GPP_TSG_RAN_ADHOC
3gpp_tsg_ran_adhoc: tsg ran ad hoc meetings *(36 subscribers)*

3GPP_TSG_RAN_AHG1
3gpp_tsg_ran_ahg1: tsg ran ad-hoc group on itu co-ordination *(74 subscribers)*

3GPP_TSG_RAN_LTE_ADVANCED
3GPP_TSG_RAN_LTE_Advanced *(290 subscribers)*

3GPP_TSG_RAN_WG1
3gpp_tsg_ran_wg1: tsg ran working group 1 *(1,313 subscribers)*

3GPP_TSG_RAN_WG1_EUL_AH
3GPP_TSG_RAN_WG1_EUL_AH *(41 subscribers)*

3GPP_TSG_RAN_WG1_HSPA
3GPP_TSG_RAN_WG1_HSPA *(94 subscribers)*

3GPP_TSG_RAN_WG1_WCDMA_MIMO
3GPP_TSG_RAN_WG1_WCDMA_MIMO *(49 subscribers)*

3GPP_TSG_RAN_WG2
No title defined *(1,019 subscribers)*

3GPP_TSG_RAN_WG2_MBMS_RRC
3GPP_TSG_RAN_WG2_MBMS_RRC List list closed 26th August 2009 *(34 subscribers)*

3GPP_TSG_RAN_WG2_ROHC
3GPP_TSG_RAN_WG2_ROHC : 3GPP_TSG_RAN_WG2_ROHC List Closed 26th August 2009 *(41 subscribers)*

3GPP_TSG_RAN_WG3
3gpp_tsg_ran_wg3: tsg ran working group 3 *(817 subscribers)*

3GPP_TSG_RAN_WG4
3gpp_tsg_ran_wg4: tsg ran working group 4 *(875 subscribers)*

3GPP_TSG_RAN_WG4_BANDS
3GPP_TSG_RAN_WG4_Bands : New UMTS frequency bands *(71 subscribers)*

3GPP_TSG_RAN_WG4_CELL_RESELECTION
3GPP_TSG_RAN_WG4_Cell_Reselection : List Closed *(0 subscribers)*

3GPP_TSG_RAN_WG4_CPC
3gpp_tsg_ran_wg4_CPC: tsg ran working group 4 CPC *(28 subscribers)*

3GPP_TSG_RAN_WG4_DIVERSITY_OFF
3gpp_tsg_ran_wg4_DIVERSITY_OFF: tsg ran working group 4 Diversity off *(28 subscribers)*

3GPP_TSG_RAN_WG4_EDCH
3GPP_TSG_RAN_WG4_EDCH : Enhanced Uplink Performance Requirements *(70 subscribers)*

3GPP_TSG_RAN_WG4_HSDPA
3GPP_TSG_RAN_WG4_HSDPA : HSDPA PERFORMANCE REQUIREMENTS *(66 subscribers)*

3GPP_TSG_RAN_WG4_LTE
3GPP TSG RAN WG4 Long Term Evolution *(30 subscribers)*

3GPP_TSG_RAN_WG4_MBMS
3GPP_TSG_RAN_WG4_MBMS : List closed *(0 subscribers)*

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3GPP_TSG_RAN_WG4_MIMO-OTA
3GPP_TSG_RAN_WG4_MIMO-OTA *(106 subscribers)*
3GPP_TSG_RAN_WG4_POWERCONTROL
3GPP_TSG_RAN_WG4_PowerControl : List closed *(0 subscribers)*
3GPP_TSG_RAN_WG4_TEM
3gpp_tsg_ran_wg4_tem : THIS LIST HAS NOW BEEN CLOSED *(3 subscribers)*
3GPP_TSG_RAN_WG4_UE_ANTENNA
3GPP_TSG_RAN_WG4_UE_Antenna: UE Antenna Performance *(196 subscribers)*
3GPP_TSG_RAN_WG4_UE_TXPOW
UE Max Output Power back off : List closed *(1 subscriber)*
3GPP_TSG_RAN_WG5
3GPP_TSG_RAN_WG5 : Testing *(650 subscribers)*
3GPP_TSG_RAN_WG5_IMSCC
3GPP TSG RAN WG5 IMS Call Control mailing *(49 subscribers)*
3GPP_TSG_RAN_WG5_LTE-CDMA2000
3GPP_TSG_RAN_WG5_LTE-CDMA2000 *(38 subscribers)*
3GPP_TSG_RAN_WG5_RF
3GPP_TSG_RAN_WG5_RF : Radio Frequency *(133 subscribers)*
3GPP_TSG_RAN_WG5_SIG
3GPP_TSG_RAN_WG5_SIG: Signalling *(370 subscribers)*
3GPP_TSG_RAN_WGS_LONG_TERM_EVOLUTION
3GPP_TSG_RAN_WGS_LONG_TERM_EVOLUTION: UTRA/UTRAN Long Term Evolution *(38 subscribers)*
3GPP_TSG_RAN_WGS_LTE_UE_TRANSCEIVER
3gpp_tsg_ran_wgs_lte_ue_transceiver *(30 subscribers)*
3GPP_TSG_SA
3gpp_tsg_sa: tsg system aspects group *(482 subscribers)*
3GPP_TSG_SA_WG1
3gpp_tsg_sa_wg1: tsg sa services *(426 subscribers)*
3GPP_TSG_SA_WG1_AIPN
3GPP_TSG_SA_WG1_AIPN List *(39 subscribers)*
3GPP_TSG_SA_WG1_GLOBALTEXT
3gpp_tsg_sa_wg1_globaltext: THIS LIST HAS BEEN CLOSED *(0 subscribers)*
3GPP_TSG_SA_WG1_VOCABULARY
THIS LIST HAS BEEN CLOSED *(54 subscribers)*
3GPP_TSG_SA_WG1_WLAN
THIS LIST HAS BEEN CLOSED *(4 subscribers)*
3GPP_TSG_SA_WG2
3gpp_tsg_sa_wg2: tsg sa architecture *(1,073 subscribers)*
3GPP_TSG_SA_WG2_VCC
SA WG2 Voice Call Continuity discussion list: THIS LIST HAS BEEN CLOSED *(0 subscribers)*
3GPP_TSG_SA_WG3
3gpp_tsg_sa_wg3: tsg sa security *(358 subscribers)*
3GPP_TSG_SA_WG3_LI
3gpp_tsg_sa_wg3_li: (tsg sa wg3 lawful interception group) *(119 subscribers)*
3GPP_TSG_SA_WG4
3gpp_tsg_sa_wg4: tsg sa codec *(252 subscribers)*
3GPP_TSG_SA_WG5
3gpp_tsg_sa_wg 5: tsg sa5 telecoms management *(387 subscribers)*
3GPP_TSG_SA_WG5_CHARGING
3GPP_TSG_SA_WG5_Charging: Charging Management *(226 subscribers)*
3GPP_TSG_SA_WG5_OAM
3GPP_TSG_SA_WG5_OAM : OAM *(257 subscribers)*
3GPP_TSG_SA_WG5_SWGA
3GPP_TSG_SA_WG5_SWGA : Harmonization *(146 subscribers)*
3GPP_TSG_SA_WG5_SWGB
3GPP_TSG_SA_WG5_SWGB : Charging CLOSED 270407 *(225 subscribers)*
3GPP_TSG_SA_WG5_SWGC
3GPP_TSG_SA_WG5_SWGC : OAM&P Interface Definition Closed 270407 *(211 subscribers)*
3GPP_TSG_SA_WG5_SWGD
3GPP_TSG_SA_WG5_SWGD : OAM&P Data Definition CLOSED 270407 *(209 subscribers)*
3GPP_TSG_T
3gpp_tsg_t: tsg terminals group: THIS LIST HAS NOW BEEN CLOSED *(0 subscribers)*
3GPP_TSG_T_WG1
3gpp_tsg_t_wg1: THIS LIST HAS NOW BEEN CLOSED - 18.03.05 *(0 subscribers)*
3GPP_TSG_T_WG1_RF

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3gpp_tsg_t_wg1_rf: THIS LIST HAS NOW BEEN CLOSED - 18.03.05 *(0 subscribers)*

3GPP_TSG_T_WG1_SIG
3gpp_tsg_t_wg1_sig: THIS LIST HAS NOW BEEN CLOSED - 18.03.05 *(0 subscribers)*

3GPP_TSG_T_WG2
3gpp_tsg_t_wg2: THIS LIST HAS NOW BEEN CLOSED 18.03.05 *(0 subscribers)*

3GPP_TSG_T_WG2_SWG1
3gpp_tsg_t_wg2_swg1 : execution environment LIST HAS BEEN CLOSED 12/07/2004 *(47 subscribers)*

3GPP_TSG_T_WG2_SWG2
3gpp_tsg_t_wg2_swg2 : terminal interfaces LIST HAS BEEN CLOSED 12/07/2004 *(107 subscribers)*

3GPP_TSG_T_WG2_SWG3
3gpp_tsg_t_wg2_swg3 : messaging LIST HAS BEEN CLOSED 12/07/2004 *(269 subscribers)*

3GPP_TSG_T_WG3
Smart Card Application Aspects: THIS LIST HAS NOW BEEN CLOSED 18.03.05 *(122 subscribers)*

3GPP_TSG_T_WG3_API
T3 API Sub-Working-Group discussion: THIS LIST HAS NOW BEEN CLOSED 18.03.05 *(0 subscribers)*

3GPP_TSG_T_WG3_TEST
T3 testing related discussion: THIS LIST HAS NOW BEEN CLOSED 18.03.05 *(118 subscribers)*

3GPP_TSG_T_WG3_UI
T3 USAT interpreter discussion: THIS LIST HAS NOW BEEN CLOSED 18.03.05 *(0 subscribers)*

3GPP_TSG_T_WG3_USAT
T3 USIM application toolkit discussion: THIS LIST HAS NOW BEEN CLOSED *(0 subscribers)*

3GPP_UE_POSITIONING
3GPP_UE_Positioning: 3GPP UE Positioning Reporting *(40 subscribers)*

3GPP_WORKSHOP_LTE_GSM_HANDOVERS
3GPP_WS *(18 subscribers)*

3GPP_WP_GROUP
3GPP_WP_GROUP: 3GPP Working Procedures Group list *(95 subscribers)*

ADMIN_GROUP
admin_group : admin_group list *(73 subscribers)*

AERO
aero : aeronautical *(84 subscribers)*

AERO_A_CDM
AERO_A_CDM *(26 subscribers)*

AERO_A_SMGCS
AERO_A_SMGCS *(32 subscribers)*

AERO_DLS
AERO_DLS *(40 subscribers)*

AFI_ISG
AFI_ISG *(41 subscribers)*

AMETIS
AMETIS : Ametis *(0 subscribers)*

AT
at: tc access & terminals - the etsi "home" for terminal matters CLOSED 170407 *(59 subscribers)*

AT-D
at-d: tc at working group for digital technologies close 170407 *(54 subscribers)*

AT-I
at-i: installation and cabling matters list closed 170407 *(24 subscribers)*

AT-N
at-n: at-n list Closed *(0 subscribers)*

AT1
AT1: tc ATTM working group for Analogue & Digital Terminals *(0 subscribers)*

AT2
at2: tc attm working group for Infrastructure, Physical Networks & Communication Systems *(55 subscribers)*

AT3
At3:tc attm working group for Integrated broadband cable and television networks *(20 subscribers)*

ATMOBILE
ATmobile STF 304 *(13 subscribers)*

ATTM

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ATTM: Access, Terminals, Transmission and Multiplexing *(79 subscribers)*

B2B_PLUGTESTS
B2B_Plugtests *(2 subscribers)*

B2B_WORKSHOP
B2B_WORKSHOP : discussion list on B2B Workshop matters *(3 subscribers)*

BOARD_IMT-A
BOARD_IMT-A (ETSI Board IMT-A ad hoc group) *(91 subscribers)*

BRAN
bran: broadband radio access networks mailing list *(113 subscribers)*

BRAN_5GHZ_HARM_STD
BRAN_5GHZ_HARM_STD : LIST CLOSED *(65 subscribers)*

BRAN_ANNOUNCE
broadband radio access networks announcement list *(35 subscribers)*

BRAN_HA
bran_ha: bran hiperaccess standards area mailing list *(26 subscribers)*

BRAN_HA_DLC_DG
bran_ha_dlc_dg: LIST CLOSED *(1 subscriber)*

BRAN_HL
bran hiperlan2 standardization area *(28 subscribers)*

BRAN_HM
bran_hm: etsi bran hiperman (fwa below 11 ghz) *(34 subscribers)*

BRAN_RCWG
BRAN_RCWG : BRAN harmonized standards and related work *(52 subscribers)*

BROADCAST
jtc broadcast official mailing list *(104 subscribers)*

BROADCAST_ANNOUNCE
broadcast announcement list *(36 subscribers)*

BROADCAST_M331
BROADCAST_M331: Response to EC/EFTA Closed 17th February 2009 *(0 subscribers)*

CENELEC_ETSI_DIGITAL_DIVIDEND
CENELEC_ETSI_Digital_Dividend *(84 subscribers)*

CENELEC_ETSI_JWG_EMC
No title defined *(51 subscribers)*

CEPT_ETSI
ETSI liaison officers to CEPT ECC *(21 subscribers)*

CINQ-MARS
Cinq-Mars closed 24/07/09 - Neocase ref 81034 CHT *(157 subscribers)*

CLC-ETSI-JWG-PLTCOEX
clc-etsi-jwg-pltcoex:cenelec etsi joint working group closed 7th July 08 *(0 subscribers)*

CONSULTATION_ETSI_SME_EXPERT_CTE
CONSULTATION_ETSI_SME_Expert_Ctee *(17 subscribers)*

DECT
DECT : DECT mailing list *(81 subscribers)*

DECT_A
dect_a : THIS LIST HAS BEEN CLOSED *(3 subscribers)*

DECT_ADVANCED
DECT_Advanced *(25 subscribers)*

DECT_ANNOUNCE
announce list for etsi dect *(17 subscribers)*

DECT_INTEREST_GROUP
DECT_Interest_Group : DECT interest group *(31 subscribers)*

DECT_NEWGENERATION
DECT_NewGeneration : DECT_NewGeneration List *(83 subscribers)*

DECT_T
dect_t : THIS LIST HAS BEEN CLOSED *(3 subscribers)*

DELIVERABLE-NOTIFICATIONS
deliverable-notifications : deliverable notifications *(68 subscribers)*

DISTRIBUTIONS_INDEPT_DISTRIBUTORS
Distributions_Indept_Distributors: Distributions Indept Distributors list *(8 subscribers)*

ECALL
eCall related issues *(29 subscribers)*

EDS-NEWS
eds-news: etsi documentation service news *(141 subscribers)*

EE
environmental engineering technical committee membership and mailing list *(71 subscribers)*

EE1
ee1 : THIS LIST HAS BEEN CLOSED *(12 subscribers)*

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EE1_ANNOUNCE
EE1 ANNOUNCE : THIS LIST HAS BEEN CLOSED *(8 subscribers)*
EE2
ee2 : (power supply) membership and mailing list *(55 subscribers)*
EE2_ANNOUNCE
No title defined *(36 subscribers)*
EE_ANNOUNCE
environmental engineering announce list *(42 subscribers)*
EE_ECO-ENVIRONMENTAL_PRODUCT_STANDARDS_GROUP
EE EEPS: Eco-environmental Product Standards *(55 subscribers)*
EF3
EF3 : EF3 list *(38 subscribers)*
EHEALTH
ETSI Project eHEALTH *(63 subscribers)*
EHEALTH_ANNOUNCE
eHealth_Announce *(11 subscribers)*
EHEALTH_STARTER_GROUP
ehealth_starter_group: eHealth Starter Group Closed 11.04.07 *(3 subscribers)*
EMTEL
emtel : Emtel *(91 subscribers)*
EPDECT
epdect : THIS LIST HAS BEEN CLOSED *(118 subscribers)*
ERM
erm : emc and radio spectrum matters distribution *(212 subscribers)*
ERMCC
ermcc: erm co-ordination committee *(40 subscribers)*
ERM_ACEA
No title defined *(19 subscribers)*
ERM_ANNOUNCE
erm_announce : emc and radio spectrum matters distribution *(35 subscribers)*
ERM_EMC
ERM_EMC : erm wg on electromagnetic compatibility *(102 subscribers)*
ERM_EMC_ANNOUNCE
erm_em_announce: erm_em_announce list *(29 subscribers)*
ERM_FLX
ERM_FLX : Flexible Bands *(54 subscribers)*
ERM_ITU-R_WP8A
erm_itu-r_wp8a : preparation for itu-r wp8a closed 16th March 2010 *(0 subscribers)*
ERM_ITU-R_WP8A_P
erm_itu-r_wp8a_p : itu-r wp8a participants closed 16th March 2010 *(5 subscribers)*
ERM_JOINT_TG34_TG28
ERM_Joint_TG34_TG28: ERM TG34 TG28 work on RFID and SRD *(48 subscribers)*
ERM_JTFEA
ERM_JTFEA *(57 subscribers)*
ERM_LIAISON
erm_liaison : external liaison statements from tc erm *(18 subscribers)*
ERM_RM
erm_rm : radio matters *(105 subscribers)*
ERM_RM_ANNOUNCE
erm_rm : radio matters *(67 subscribers)*
ERM_TG04
erm_tg04 : automotive emc *(14 subscribers)*
ERM_TG11
erm_tg11 : radio lans *(67 subscribers)*
ERM_TG14
erm_tg14 : radio interfaces under article 4.2 of the r&tte directive *(2 subscribers)*
ERM_TG17
erm_tg17 : standards for broadcast and ancillary communications equipment *(38 subscribers)*
ERM_TG17_WG1
erm_tg17_wg1: erm_tg17 working group 1 *(15 subscribers)*
ERM_TG17_WG1_2_4
erm_tg17_wg1_2_4 : erm_tg17 working groups exploder list *(31 subscribers)*
ERM_TG17_WG3
erm_tg17_wg3 : working group 3 on radio microphones *(38 subscribers)*
ERM_TG17_WG5
erm_tg17_wg5 : active tv reception *(20 subscribers)*
ERM_TG21
erm_tg21 : co-ordination of etsi inputs to rast#10 *(2 subscribers)*

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ERM_TG23
erm_tg23 : standards for a close-field peer-to-peer symmetrical data communication system *(17 subscribers)*
ERM_TG25
erm_tg25 : aeronautical *(30 subscribers)*
ERM_TG25_A_CDM
ERM_TG25_A_CDM *(11 subscribers)*
ERM_TG25_A_SMGCS
ERM_TG25_A_SMGCS *(12 subscribers)*
ERM_TG25_DLS
ERM_TG25_DLS *(8 subscribers)*
ERM_TG26
erm_tg26 : maritime *(34 subscribers)*
ERM_TG27
erm_tg27 : radio site engineering *(40 subscribers)*
ERM_TG28
erm_tg28 : generic srd's *(103 subscribers)*
ERM_TG30
erm_tg30 : wireless medical services *(33 subscribers)*
ERM_TG31A
erm_tg31a : ultra wide band for short range devices *(37 subscribers)*
ERM_TG31C
erm_tg31c: ultra wide band sensors *(18 subscribers)*
ERM_TG32
erm_tg32 : pmr List closed *(0 subscribers)*
ERM_TG33
erm_tg33 : measurement methods and their uncertainties List closed *(0 subscribers)*
ERM_TG34
erm_tg34 : rf identification devices *(72 subscribers)*
ERM_TG37
ERM_TG37 : Intelligent Transport Systems *(43 subscribers)*
ERM_TG37_DSRC
ERM_TG37_DSRC : technical discussion on DSRC testing and updating *(19 subscribers)*
ERM_TG39
ERM_TG39 : Code Division Multiple Access (CDMA) *(10 subscribers)*
ERM_TG40
Broadband Disaster Relief *(2 subscribers)*
ERM_TGDMR
ERM_TGDMR : Digital Mobile Radio *(51 subscribers)*
ERM_TGRX
erm_tgrx: ERM Task Group on Receiver parameters *(42 subscribers)*
ERM_TGSRR
erm_tgsrr: Automotive and Surveillance Radar *(39 subscribers)*
ERM_TGTLPR
erm_tgtlpr : Tank Level Probing Radar *(31 subscribers)*
ERM_TGUWB
Ultra Wide Band *(108 subscribers)*
ERM_WP
ERM_WP: Improvement of ERM working procedures discussion list *(15 subscribers)*
ESI
esi : etsi tc esi (electronic signatures and infrastructures) *(79 subscribers)*
ESI_ALGO
ESI_ALGO : TC ESI discussion list for maintenance of the ALGO paper *(22 subscribers)*
ESI_ANNOUNCE
esi_announce : etsi tc electronic signatures *(18 subscribers)*
ESI_ASIG
ESI_ASig *(6 subscribers)*
ESI_TSL
TC ESI discussion list for TSL *(17 subscribers)*
ESP_SUPPORT_TESTING
ESP_SUPPORT_TESTING *(0 subscribers)*
ETSI-EVENTS
ETSI-EVENTS: information on events organized, hosted by ETSI *(1,272 subscribers)*
ETSI-MEDIA-LIST
etsi-media-list : etsi media mailing list for press releases *(71 subscribers)*
ETSI-NEWS

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etsi-news: technical news, general news and press announcements from etsi *(607 subscribers)*

ETSI_M441
ETSI M441 coordination group *(48 subscribers)*

FIT
FIT - Future Internet Of Things RFID Networks and Internet Of Things open discussions *(8 subscribers)*

FOE
Board/GA ad hoc group on Finance *(56 subscribers)*

GO4ITCHINA
GO4ITCHINA *(6 subscribers)*

GO4ITC_TECHNICAL
GO4ITC_Technical *(8 subscribers)*

GRID
GRID: Open discussion on ETSI GRID Standardization *(44 subscribers)*

GRID_PLUGTESTS_2009
GRID_Plugtests_2009 *(29 subscribers)*

GSC-COM
GSC Communications list *(46 subscribers)*

GSC-HOD
GSC-HoD: *(19 subscribers)*

GSM_ONBOARD_PLANES
GSM_onboard_planes: GSM_onboard_planes *(65 subscribers)*

HF
hf : etsi tc human factors (hf) *(52 subscribers)*

HF_ANNOUNCE
hf announcement list *(16 subscribers)*

HF_MOBILE
No title defined *(14 subscribers)*

HF_MULTICULTURAL_COMMUNICATION
HF_MULTICULTURAL_COMMUNICATION: HF_MULTICULTURAL_COMMUNICATION STF 287 list *(10 subscribers)*

HF_SETUP
HF_SETUP: HF_SETUP STF 285 list *(15 subscribers)*

HF_TELECAREUX
Telecare User Experience *(13 subscribers)*

HF_UG
HF_UG: HF_UG STF 285 list *(15 subscribers)*

HF_USER_PROFILE_MANAGEMENT
HF_User_Profile_Management : STF 342 list *(53 subscribers)*

HIPERMAN_WIMAX_TESTING
HiperMAN_WiMAX_testing : HiperMAN WiMAX testing related mailing list closed 27th August 2009 *(0 subscribers)*

HLRG
HLRG: GA ad hoc High Level Review Group *(60 subscribers)*

IC-CG
IC-CG *(2 subscribers)*

IMPACT
impact : impact list *(50 subscribers)*

INS_ISG
INS_ISG: Identity and access management for Networks and Services *(28 subscribers)*

INT
IMS Network Testing *(49 subscribers)*

IPR
ipr: ETSI IPR Special Committee *(220 subscribers)*

ITS
ITS *(267 subscribers)*

ITS-NEWS
its-news *(720 subscribers)*

ITS_WG1
ITS_WG1 *(84 subscribers)*

ITS_WG2
ITS_WG2 *(75 subscribers)*

ITS_WG3
ITS_WG3 *(81 subscribers)*

ITS_WG4
ITS_WG4 *(80 subscribers)*

ITS_WG5
ITS_WG5 *(82 subscribers)*

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LI
li : etsi tc li (lawful interception) *(158 subscribers)*
LI_ANNOUNCE
li_announce : etsi tc lawful interception announce list *(69 subscribers)*
M2M
M2M *(262 subscribers)*
M415_TF_DOSSIER4_CONSULTATION
M415 Task Force on Dossier 4 List *(4 subscribers)*
M436_RFID
M436_RFID *(0 subscribers)*
M436_RFID_CG
M436_RFID_CG *(17 subscribers)*
M436_RFID_CONSULTATION
M436_RFID_CONSULTATION *(0 subscribers)*
M436_RFID_STF
M436_RFID_STF *(13 subscribers)*
MCD
Media Content Distribution *(122 subscribers)*
MCD_INTEREST_GROUP
MCD Interest Group: open to non ETSI members (no need to subscribe if you are already on MCD list) *(15 subscribers)*
MCD_MANAGE
MCD_management_list *(9 subscribers)*
MESA_ORGANIZATION
mesa_organization: main distribution list for all mesa related information *(80 subscribers)*
MESA_SC
mesa_sc: mesa steering committee *(71 subscribers)*
MESA_SSG_SA
mesa_ssg_sa: mesa ssg services and applications *(104 subscribers)*
MESA_TSG_SYS
mesa_tsg_sys: mesa tsg system *(92 subscribers)*
MOI_ISG
MOI_ISG: Measurement Ontology for IP traffic *(15 subscribers)*
MSG
msg : mobile standards group *(97 subscribers)*
MTC
MTC *(0 subscribers)*
MTC_ISG
MTC_ISG: Mobile Thin Client *(9 subscribers)*
MTS-GEN
MTS_Gen *(39 subscribers)*
MTS-IPT-SIGTRAN
MTS-IPT-SIGTRAN :MTS-IPT-SIGTRAN closed 12thAug 09. Neocase ref 84185 *(0 subscribers)*
MTS-IPT-SIP
MTS-IPT-SIP : MTS-IPT-SIP closed 12th Aug 09 Neocase ref 84185 *(0 subscribers)*
NGN_IMS
NGN_IMS: Joint 3GPP-TISPAN open list *(77 subscribers)*
NGN_INTERCONNECT
NGN_Interconnect closed 12th Aug 09 neocase 83766 *(19 subscribers)*
NSO-CONTACTS
nso-contacts :nso voting contacts *(71 subscribers)*
NSO_INFO
nso_info : distribution list for nso information *(85 subscribers)*
NWIOT_TESTBED
NWIOT_testbed *(24 subscribers)*
OCG
ocg: list of ocg members (ep and tc chairmen) *(178 subscribers)*
OCG_ECNS
OCG_ECNS: OCG ad hoc group on Electronic Communications Networks & Services *(31 subscribers)*
OCG_IOP
OCG ad hoc group on Interoperability *(0 subscribers)*
OCG_RTTED
ocg_rtted : steering committee on harmonised standards *(69 subscribers)*
OCG_SECURITY
ocg_security: ocg ad hoc group on security issues *(31 subscribers)*
PAS

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(CLOSED)Discussion in ETSI Board) *(21 subscribers)*

PLT
plt : etsi project powerline telecommunications *(64 subscribers)*

PLT_ANNOUNCE
etsi project powerline telecommunications announcement list *(24 subscribers)*

PLT_INHOUSE
PLT_InHouse@list.etsi.org : In-House PLT closed 7th July 08 *(0 subscribers)*

PLT_SC_STF332
PLT_SC_STF332 : etsi powerline telecommunications STF 332 Steering Committee *(3 subscribers)*

PLT_WI_DISCUSSION
PLT_WI_DISCUSSION@list.etsi.org: Workitem 19 Layer 1 and 2 of a comprehensive PLC System *(19 subscribers)*

PLUGTESTS-EBXML
Plugtests-ebxml: Discussion list on ebxml Interoperability matters *(1 subscriber)*

PLUGTESTS-FMCA
Plugtests-fmca : discussion list on FMCA interoperability matters *(38 subscribers)*

PLUGTESTS-GRID
PLUGTESTS-GRID: Discussion list on GRID COMPUTING Interoperability matters *(36 subscribers)*

PLUGTESTS-XADES
plugtests-xades : discussion list on xades *(28 subscribers)*

PLU_RFID_CHINA
PLU_RFID_CHINA *(4 subscribers)*

PUBLICINTERNETACCESS
PublicInternetAccess List *(0 subscribers)*

QKD_ISG
QKD_ISG: Quantum Key Distribution Industry Specification Group *(42 subscribers)*

RADIO_BRIEFING
Radio Briefing *(112 subscribers)*

RRS
RRS: Reconfigurable Radio Systems *(149 subscribers)*

RRS_WG1
RRS WG1 : System Aspects *(78 subscribers)*

RRS_WG2
RRS WG2 : Reconfigurable Radio Equipment Architecture *(74 subscribers)*

RRS_WG3
RRS WG3 : Functional Architecture and Cognitive Pilot Channel *(74 subscribers)*

RRS_WG4
RRS WG4 : Public Safety *(72 subscribers)*

RT
RT Railway Telecommunications *(42 subscribers)*

RT_DMO
RT_DMO : RT Direct Mode Operation *(6 subscribers)*

S1_ANSI-41
s1_ansi-41: THIS LIST HAS NOW BEEN CLOSED *(0 subscribers)*

S1_CAMEL
s1_camel : THIS LIST HAS NOW BEEN CLOSED *(0 subscribers)*

S1_CHARGING
s1_charging : THIS LIST HAS NOW BEEN CLOSED *(0 subscribers)*

S1_DISCUSS
s1_discuss : THIS LIST HAS NOW BEEN CLOSED *(0 subscribers)*

S1_HANDOVER
s1_handover : THIS LIST HAS NOW BEEN CLOSED *(0 subscribers)*

S1_IP
s1_ip : THIS LIST HAS NOW BEEN CLOSED *(0 subscribers)*

S1_LCS
s1_lcs : THIS LIST HAS NOW BEEN CLOSED *(14 subscribers)*

S1_MM
smg1 : list for s1_mm : THIS LIST HAS NOW BEEN CLOSED *(0 subscribers)*

S1_MULTICALL
s1_multicall : THIS LIST HAS NOW BEEN CLOSED *(0 subscribers)*

S1_PRESENCE
s1_presence: THIS LIST HAS NOW BEEN CLOSED *(0 subscribers)*

S1_QOS
s1_qos : THIS LIST HAS NOW BEEN CLOSED *(0 subscribers)*

S1_SMS
s1_sms : THIS LIST HAS NOW BEEN CLOSED *(0 subscribers)*

S1_VHE

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s1_vhe : THIS LIST HAS NOW BEEN CLOSED *(0 subscribers)*

SA1_OSA
sa1_osa : THIS LIST HAS NOW BEEN CLOSED *(0 subscribers)*

SAFETY
safety : etsi tc for telecommunications equipment safety *(49 subscribers)*

SCP_ANNOUNCE
ETSI Project Smart Card Platform - THIS LIST HAS NOW BEEN CLOSED *(0 subscribers)*

SCP_PLENARY
ETSI Project Smart Card Platform - Plenary discussion *(324 subscribers)*

SCP_REQUIREMENTS
SCP_REQUIREMENTS : REQUIREMENTS WORKING GROUP *(211 subscribers)*

SCP_TECHNICAL
SCP_TECHNICAL : Technical Working Group *(278 subscribers)*

SCP_TEST
SCP_TEST *(58 subscribers)*

SCP_WG1
THIS LIST HAS BEEN CLOSED *(14 subscribers)*

SCP_WG2
THIS LIST HAS BEEN CLOSED *(12 subscribers)*

SCP_WG3
THIS LIST HAS BEEN CLOSED *(14 subscribers)*

SES
ses : etsi tc satellite earth stations and systems (ses) *(37 subscribers)*

SES_AES
ses_aes : [List closed] etsi tc ses wg on aeronautical satellite earth stations *(2 subscribers)*

SES_ANNOUNCE
: etsi tc satellite earth stations and systems announcement list *(5 subscribers)*

SES_BSM
ses_bsm : ses_bsm (broadband satellite multimedia) *(34 subscribers)*

SES_BSM_C2P
BSM C2P work items *(12 subscribers)*

SES_ECAS
SES_ECAS:European Commission Activity support *(9 subscribers)*

SES_ECSS
SES WG on European Co-operation for Space Standardisation *(0 subscribers)*

SES_GMR
ses_gmr : etsi tc ses geo_mobile_radio (gmr) interface working group-Closed *(11 subscribers)*

SES_GMR_ANNOUNCE
ses gmr announce list *(2 subscribers)*

SES_HARM
listname : SES_HARM *(13 subscribers)*

SES_MAR_ESV
ses_mar_esv : SES working group on Maritime Earth Stations on Board Vessels *(10 subscribers)*

SES_MSS
ses_mss : etsi tc ses SES WG on Mobile Satellite Systems (mss) working group *(34 subscribers)*

SES_SATEC
SES_SatEC: Satellite Emergency Communications *(26 subscribers)*

SES_SDR
ses_sdr : ses_sdr satellite digital radio *(21 subscribers)*

SES_SUMTS
ses_sumts : working group on s-umts-Closed *(20 subscribers)*

SES_SUMTS_ANNOUNCE
ses s-umts announce list *(2 subscribers)*

SG_GNGN
Global NGN stakeholders group on future services and capabilities for NGN *(26 subscribers)*

SG_UCI
SG_UCI : UCI stakeholders group on UCI matters *(0 subscribers)*

SMG_PLENARY
SMG_PLENARY ARCHIVES TEMP RESTORED *(0 subscribers)*

SOSINTEROP
SOSinterop: SOS Interoperability workshop series *(152 subscribers)*

STF318-ESI-REGEMAIL-CONSULT
STF318 ESI RegEmail CONSULTATION *(10 subscribers)*

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STF318-ESI-REGEMAIL-CONSULTATI
STF318 ESI RegEmail CONSULTATION closed 14th April 2009 *(1 subscriber)*
STF351_CONSULTATION
STF351 ESI Electronic Signature XAdes Portal List *(1 subscriber)*
STF352_CONSULTATION
STF352_eHealth_Personalization_Consultation List *(6 subscribers)*
STF353_CONSULTATION
STF353 HF/ITS ICT in cars *(5 subscribers)*
STF374_USER_QOS_ASSESSMENT
STF374_USER_QoS_Assessment *(9 subscribers)*
STF375_USER_METER_BILL
STF375_USER_METER_BILL List *(6 subscribers)*
STF376_SMES_PROACTIVE_APPROACH
STF376_SMEs_Proactive_Approach List *(9 subscribers)*
STF390_RTEGSMR_RECEIVERPERFORM
STF390_RTEGSMR_ReceiverPerform *(9 subscribers)*
STF395_ITS4_RADIO
STF395_ITS4_Radio *(10 subscribers)*
STF397_TG34_RFID_DAA
STF397_TG34_RFID_Detect-And-Avoid *(0 subscribers)*
STF398_ITS2_INTEROP_TEST_FRAME
STF398_ITS2_Interop_Test_Framework *(0 subscribers)*
STF400_EPASSPORT_CONSULT
STF400_ePassport_CONSULT *(9 subscribers)*
STF401_ESI_LONG_TERM_STORAGE
STF401_ESI_Long_Term_Storage *(6 subscribers)*
STF402_ESI_REM
STF402_ESI_REM *(7 subscribers)*
STF_361
stf_361 *(3 subscribers)*
STF_391
STF_391 *(1 subscriber)*
STQ
stq : for anyone interested in the work of etsi stq *(59 subscribers)*
STQ_AURORA
stq_aurora : etsi stq aurora project for distributed speech recognition *(9 subscribers)*
STQ_MOBILE
stq_mobile : QoS aspects of mobile telephony *(53 subscribers)*
TBINFO
tbinfo : tbinfo list has been closed 09/03/2005 *(0 subscribers)*
TC106X-4
tc106x-4 : safety joint working group tc 106x wg4 *(25 subscribers)*
TC106X-7
tc106x-7 : safety joint working group tc 106x wg7 *(21 subscribers)*
TESTCOM_2003_AC
TESTCOM_2003_AC : Aréa Coordinators *(0 subscribers)*
TESTCOM_2003_SC
TESTCOM_2003_SC : Steering Committee *(0 subscribers)*
TESTCOM_2003_TPC
TESTCOM_2003_TPC: TPC Technical Program Committee *(0 subscribers)*
TEST_DB
list for testing dbms feature *(1 subscriber)*
TETRA
TETRA : Technical Committee TETRA *(64 subscribers)*
TETRAMAN
TETRAMAN : restricted to the TB TETRA Management Committee *(14 subscribers)*
TETRAWG1
TETRAWG1 : User Requirements / Services *(53 subscribers)*
TETRAWG1_ANNOUNCE
tetrawg1 announce list *(17 subscribers)*
TETRAWG3
TETRAWG3 : Network aspects *(66 subscribers)*
TETRAWG38
TETRAWG38 : PEI *(19 subscribers)*
TETRAWG3_ANNOUNCE
tetra wg3announce list *(23 subscribers)*
TETRAWG4
TETRAWG4 : TETRA High Speed Data *(57 subscribers)*
TETRAWG4_ANNOUNCE

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tetra wg4 announce list *(19 subscribers)*

TETRAWG5
TETRAWG5 : TETRA Voice coding *(34 subscribers)*

TETRAWG5_ANNOUNCE
tetrawg5_announce : tetrawg5_announce list *(18 subscribers)*

TETRAWG6
TETRAWG6 : TETRA Security *(50 subscribers)*

TETRAWG6_ANNOUNCE
tetra wg6 announce *(18 subscribers)*

TETRAWG8
TETRAWG8 : TETRA DMO (Direct Mode Operation) *(48 subscribers)*

TETRAWG8_ANNOUNCE
tetra wg8 announce list *(18 subscribers)*

TETRA_ANNOUNCE
etsi project tetra announcement list *(18 subscribers)*

TETRA_WORKSHOP
TETRA_workshop *(22 subscribers)*

TFES
tfes : tfes list *(39 subscribers)*

TISPAN_EMTEL
TISPAN_EMTEL: TISPAN project EMTEL on Emergency communications *(0 subscribers)*

TISPAN_F-MMS
TISPAN_F-MMS: TISPAN project F-MMS *(0 subscribers)*

TISPAN_FORUM
TISPAN_FORUM: TISPAN open list *(0 subscribers)*

TISPAN_GEN
TISPAN_GEN: technical committee list *(279 subscribers)*

TISPAN_NGN
TISPAN_NGN: technical committee list dealing with NGN Project matters *(382 subscribers)*

TISPAN_STF328_SG
TISPAN_STF328_SG: IMS NNI Interop Closed *(0 subscribers)*

TISPAN_WG1
TISPAN_WG1: Services done by CT on the request of Helene Schmidt *(184 subscribers)*

TISPAN_WG2
TISPAN_WG2: Architecture *(178 subscribers)*

TISPAN_WG2_IPTV
TISPAN_WG2_IPTV *(0 subscribers)*

TISPAN_WG3
TISPAN_WG3: Protocols *(248 subscribers)*

TISPAN_WG3_IPTV_STAGE3
TISPAN_WG3_IPTV: IPTV Stage 3 *(103 subscribers)*

TISPAN_WG4
TISPAN_WG4: Numbering and Routeing *(134 subscribers)*

TISPAN_WG5
TISPAN_WG5: NGN Home Networking *(57 subscribers)*

TISPAN_WG5_OLD
TISPAN_WG5_OLD: NGN Home Networking OLD *(0 subscribers)*

TISPAN_WG6
TISPAN_WG6: Testing *(51 subscribers)*

TISPAN_WG7
TISPAN_WG7: Security *(133 subscribers)*

TISPAN_WG8
TISPAN_WG8: Network Management *(55 subscribers)*

TM
TM : TM Approval by Correspondence list CLOSED 170407 *(0 subscribers)*

TM1-ATM
tm1-atm : wp3 atm equipment CLOSED 170407 *(28 subscribers)*

TM1-SDH
tm1-sdh : sdh equipment CLOSED 170407 *(11 subscribers)*

TM1-TEST
tm1-test : wp3-conformance testing CLOSED 170407 *(7 subscribers)*

TM1-WP1
tm1-wp1 : optical fibres and components CLOSE 170407 *(11 subscribers)*

TM1-WP2
tm1-wp2 : core networks architecure CLOSED 170407 *(9 subscribers)*

TM1-WP3

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tm1-wp3 : transport equipment, systems and interfaces CLOSED 170407 *(14 subscribers)*

TM1-WP4
tm1-wp4 : timing and synchronization CLOSED170407 *(6 subscribers)*

TM4
tm4 : digital radio relay systems *(52 subscribers)*

TM4-WP1
tm4-wp1 : tm4-wp1 list closed *(40 subscribers)*

TM4-WP2
tm4-wp2 : tm4-wp2 list closed *(39 subscribers)*

TM4-WP4
tm4-wp4 : tm4-wp4 list closed *(33 subscribers)*

TM6_ALL
tm6_all : access networks (architecture, unis, xdsl isdn) *(68 subscribers)*

TM6_ANA
tm6_ana : tm6 access network architecture wp CLOSED 170407 *(15 subscribers)*

TMSIX_OPS
TM6 operators group *(45 subscribers)*

TTCN3
active_ttcn3 : mts stf133 ttcn version 3 - active members only *(369 subscribers)*

USER-INFO
No title defined *(22 subscribers)*

USER_ANNOUNCE
announcement list for the user group *(11 subscribers)*

WIFA
wifa *(278 subscribers)*

WIG
wig : wireless lan interworking group LIST CLOSED *(2 subscribers)*

Note that confidential or sensitive lists may be unlisted. If you know the exact name of the list you are looking for but could not find it on this page, try the unlisted archive form instead.

LIST.ETSI.ORG



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The Wayback Machine - https://web.archive.org/web/20120309181952/http://list.etsi.org:80/

List Archives at LIST.ETSI.ORG

From this page you can browse the online archives of the following mailing lists:

3GPP-REVIEW
3gpp-review : gsmtrans replacement *(3 subscribers)*
3GPP_3GPP2_SCM
3gpp_3gpp2_scm : 3gpp-3gpp2 spatial channel modelling *(9 subscribers)*
3GPP_COMMON_IMS_XFER
3GPP_common_ims_xfer: IMS work transfer list closed *(16 subscribers)*
3GPP_FFG
3gpp_ffg :3gpp list *(17 subscribers)*
3GPP_GUP
3gpp_gup : evolution of 3gpp *(5 subscribers)*
3GPP_HODS_LEGAL
3gpp_hods : 3gpp_hods_legal list *(14 subscribers)*
3GPP_MARCOM
3GPP_Marcom *(9 subscribers)*
3GPP_MARCOM_OP
3gpp_Marcom_OP *(11 subscribers)*
3GPP_ORGANIZATION
3gpp_organization: 3gpp discussion group *(18 subscribers)*
3GPP_RAN_LEADERS
3GPP_RAN_LEADERS *(28 subscribers)*
3GPP_TSG_CN
3GPP_TSG_CN: THIS LIST HAS NOW BEEN CLOSED 18.03.05 *(0 subscribers)*
3GPP_TSG_CN_AH_ITUT
3GPP_TSG_CN_AH_ITUT: THIS LIST HAS NOW BEEN CLOSED *(0 subscribers)*
3GPP_TSG_CN_WG1
3GPP_TSG_CN_wg1: THIS LIST HAS NOW BEEN CLOSED 18.03.05 *(0 subscribers)*
3GPP_TSG_CN_WG2
3GPP_TSG_CN_wg2: THIS LIST HAS BEEN CLOSED 18.03.05 *(0 subscribers)*
3GPP_TSG_CN_WG3
3GPP_TSG_CN_wg3: THIS LIST HAS NOW BEEN CLOSED *(0 subscribers)*
3GPP_TSG_CN_WG4
3GPP_TSG_CN_WG4: THIS LIST HAS NOW BEEN CLOSED 18.03.05 *(0 subscribers)*
3GPP_TSG_CN_WG5
3GPP_TSG_CN_WG5: THIS LIST HAS NOW BEEN CLOSED *(0 subscribers)*
3GPP_TSG_CN_WG5_JOINTAPIWORK
3gpp_tsg_cn_wg5_jointapiwork : THIS LIST HAS NOW BEEN CLOSED 18.03.05 *(0 subscribers)*
3GPP_TSG_CT
3GPP_TSG_CT - Core Network and Terminals *(265 subscribers)*
3GPP_TSG_CT_WG1
3GPP_TSG_CT_WG1 - Core Network and Terminals WG 1 *(858 subscribers)*
3GPP_TSG_CT_WG1_MMS_SMS_CBS_AT
3GPP_TSG_CT_WG1_MMS_SMS_CBS_AT:Commands *(145 subscribers)*
3GPP_TSG_CT_WG2
3GPP_TSG_CT_WG2 - Core Network and Terminals WG 2 *(22 subscribers)*
3GPP_TSG_CT_WG3
3GPP_TSG_CT_WG3 - Core Network and Terminals WG 3 *(239 subscribers)*
3GPP_TSG_CT_WG4
3GPP_TSG_CT_WG4 - Core Network and Terminals WG 4 *(351 subscribers)*
3GPP_TSG_CT_WG5
3GPP_TSG_CT_WG5 - Core Network and Terminals WG 5 closed 26th Sept 2008 *(0 subscribers)*
3GPP_TSG_CT_WG6
3GPP_TSG_CT_WG6 - Core Network and Terminals WG 6 *(122 subscribers)*
3GPP_TSG_CT_WG6_API_TEST
3GPP_TSG_CT_WG6_API_TEST: Mailing List *(23 subscribers)*
3GPP_TSG_GERAN
3gpp_tsg_geran : list for etsi tsg geran mailing *(159 subscribers)*
3GPP_TSG_GERAN_FUTURERAN
3gpp_tsg_geran_futureran : list for etsi tsg geran futureran mailing *(21 subscribers)*
3GPP_TSG_GERAN_TDOC
3gpp_tsg_geran_tdoc : list for etsi tsg geran temporary documents *(154 subscribers)*
3GPP_TSG_GERAN_WG1

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3gpp_tsg_geran_wg1 : list for etsi tsg geran wg1 mailing *(119 subscribers)*

3GPP_TSG_GERAN_WG2

3gpp_tsg_geran_wg2 : list for etsi tsg geran wg2 mailing *(118 subscribers)*

3GPP_TSG_GERAN_WG3

3gpp_tsg_geran_wg3 : list for etsi tsg geran wg3 mailing *(162 subscribers)*

3GPP_TSG_GERAN_WG3_ELECTRONIC

3GPP_TSG_GERAN_WG3_ELECTRONIC *(42 subscribers)*

3GPP_TSG_GERAN_WG3_EMAIL_AGREEME

3GPP_TSG_GERAN_WG3_Email_Agreement list closed 9th June 2010 *(4 subscribers)*

3GPP_TSG_GERAN_WG4

3gpp_tsg_geran_wg4 : THIS LIST HAS BEEN CLOSED *(0 subscribers)*

3GPP_TSG_GERAN_WG4_EDGE

3gpp_tsg_geran_wg4_edge : THIS LIST HAS BEEN CLOSED *(2 subscribers)*

3GPP_TSG_GERAN_WG4_GPRS

3gpp_tsg_geran_wg4_gprs : THIS LIST HAS BEEN CLOSED *(3 subscribers)*

3GPP_TSG_GERAN_WG4_PCS1900

3gpp_tsg_geran_wg4_pcs1900 : THIS LIST HAS BEEN CLOSED *(3 subscribers)*

3GPP_TSG_GERAN_WG4_TTCN

3gpp_tsg_geran_wg4_ttcn : THIS LIST HAS BEEN CLOSED *(2 subscribers)*

3GPP_TSG_GERAN_WG5

3gpp_tsg_geran_wg5 : THIS LIST HAS BEEN CLOSED *(0 subscribers)*

3GPP_TSG_LEADERS

3gpp_tsg_leaders: tsg leaders group *(80 subscribers)*

3GPP_TSG_RAN

3gpp_tsg_ran: tsg radio access network group *(962 subscribers)*

3GPP_TSG_RAN3-SA5-RET

3GPP_TSG_RAN3-SA5-RET : Common RAN3/SA5 Work Item discussion for Remote List closed *(0 subscribers)*

3GPP_TSG_RAN_ADHOC

3gpp_tsg_ran_adhoc: tsg ran ad hoc meetings *(24 subscribers)*

3GPP_TSG_RAN_AHG1

3gpp_tsg_ran_ahg1: tsg ran ad-hoc group on itu co-ordination *(57 subscribers)*

3GPP_TSG_RAN_LTE_ADVANCED

3GPP_TSG_RAN_LTE_Advanced *(125 subscribers)*

3GPP_TSG_RAN_WG1

3gpp_tsg_ran_wg1: tsg ran working group 1 *(1,223 subscribers)*

3GPP_TSG_RAN_WG1_EUL_AH

3GPP_TSG_RAN_WG1_EUL_AH *(24 subscribers)*

3GPP_TSG_RAN_WG1_HSPA

3GPP_TSG_RAN_WG1_HSPA *(131 subscribers)*

3GPP_TSG_RAN_WG1_WCDMA_MIMO

3GPP_TSG_RAN_WG1_WCDMA_MIMO *(21 subscribers)*

3GPP_TSG_RAN_WG2

3GPP_TSG_RAN_WG2 list *(900 subscribers)*

3GPP_TSG_RAN_WG2_MBMS_RRC

3GPP_TSG_RAN_WG2_MBMS_RRC List list closed 26th August 2009 *(33 subscribers)*

3GPP_TSG_RAN_WG2_ROHC

3GPP_TSG_RAN_WG2_ROHC : 3GPP_TSG_RAN_WG2_ROHC List Closed 26th August 2009 *(38 subscribers)*

3GPP_TSG_RAN_WG2_UMTS_DRAFTS

3GPP_TSG_RAN_WG2_UMTS_DRAFTS *(54 subscribers)*

3GPP_TSG_RAN_WG3

3gpp_tsg_ran_wg3: tsg ran working group 3 *(708 subscribers)*

3GPP_TSG_RAN_WG4

3gpp_tsg_ran_wg4: tsg ran working group 4 *(868 subscribers)*

3GPP_TSG_RAN_WG4_BANDS

3GPP_TSG_RAN_WG4_Bands : New UMTS frequency bands list closed *(214 subscribers)*

3GPP_TSG_RAN_WG4_CELL_RESELECTION

3GPP_TSG_RAN_WG4_Cell_Reselection : List Closed *(0 subscribers)*

3GPP_TSG_RAN_WG4_CPC

3gpp_tsg_ran_wg4_CPC: tsg ran working group 4 CPC list closed *(0 subscribers)*

3GPP_TSG_RAN_WG4_DIVERSITY_OFF

3gpp_tsg_ran_wg4_DIVERSITY_OFF: tsg ran working group 4 Diversity off list closed *(26 subscribers)*

3GPP_TSG_RAN_WG4_EDCH

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3GPP_TSG_RAN_WG4_EDCH : Enhanced Uplink Performance Requirements list closed *(0 subscribers)*

3GPP_TSG_RAN_WG4_EMEETING
3GPP_TSG_RAN_WG4_eMeeting *(36 subscribers)*

3GPP_TSG_RAN_WG4_HSDPA
3GPP_TSG_RAN_WG4_HSDPA : HSDPA PERFORMANCE REQUIREMENTS *(43 subscribers)*

3GPP_TSG_RAN_WG4_LTE
3GPP TSG RAN WG4 Long Term Evolution *(37 subscribers)*

3GPP_TSG_RAN_WG4_MBMS
3GPP_TSG_RAN_WG4_MBMS : List closed *(0 subscribers)*

3GPP_TSG_RAN_WG4_MIMO-OTA
3GPP_TSG_RAN_WG4_MIMO-OTA *(155 subscribers)*

3GPP_TSG_RAN_WG4_POWERCONTROL
3GPP_TSG_RAN_WG4_PowerControl : List closed *(0 subscribers)*

3GPP_TSG_RAN_WG4_TEM
3gpp_tsg_ran_wg4_tem : THIS LIST HAS NOW BEEN CLOSED *(0 subscribers)*

3GPP_TSG_RAN_WG4_UE_ANTENNA
3GPP_TSG_RAN_WG4_UE_Antenna: UE Antenna Performance list closed *(0 subscribers)*

3GPP_TSG_RAN_WG4_UE_TXPOW
UE Max Output Power back off : List closed *(0 subscribers)*

3GPP_TSG_RAN_WG5
3GPP_TSG_RAN_WG5 : Testing *(677 subscribers)*

3GPP_TSG_RAN_WG5_IMSCC
3GPP TSG RAN WG5 IMS Call Control mailing *(46 subscribers)*

3GPP_TSG_RAN_WG5_LTE-CDMA2000
3GPP_TSG_RAN_WG5_LTE-CDMA2000 *(17 subscribers)*

3GPP_TSG_RAN_WG5_RF
3GPP_TSG_RAN_WG5_RF : Radio Frequency *(131 subscribers)*

3GPP_TSG_RAN_WG5_SIG
3GPP_TSG_RAN_WG5_SIG: Signalling *(363 subscribers)*

3GPP_TSG_RAN_WGS_LONG_TERM_EVOLUTION
3GPP_TSG_RAN_WGS_LONG_TERM_EVOLUTION: UTRA/UTRAN Long Term Evolution *(17 subscribers)*

3GPP_TSG_RAN_WGS_LTE_UE_TRANSCEIVER
3gpp_tsg_ran_wgs_lte_ue_transceiver *(12 subscribers)*

3GPP_TSG_SA
3gpp_tsg_sa: tsg system aspects group *(448 subscribers)*

3GPP_TSG_SA_WG1
3gpp_tsg_sa_wg1: tsg sa services *(430 subscribers)*

3GPP_TSG_SA_WG1_AIPN
3GPP_TSG_SA_WG1_AIPN List *(28 subscribers)*

3GPP_TSG_SA_WG1_GLOBALTEXT
3gpp_tsg_sa_wg1_globaltext: THIS LIST HAS BEEN CLOSED *(0 subscribers)*

3GPP_TSG_SA_WG1_VOCABULARY
THIS LIST HAS BEEN CLOSED *(46 subscribers)*

3GPP_TSG_SA_WG1_WLAN
THIS LIST HAS BEEN CLOSED *(0 subscribers)*

3GPP_TSG_SA_WG2
3gpp_tsg_sa_wg2: tsg sa architecture *(1,011 subscribers)*

3GPP_TSG_SA_WG2_VCC
SA WG2 Voice Call Continuity discussion list: THIS LIST HAS BEEN CLOSED *(0 subscribers)*

3GPP_TSG_SA_WG3
3gpp_tsg_sa_wg3: tsg sa security *(229 subscribers)*

3GPP_TSG_SA_WG3_LI
3gpp_tsg_sa_wg3_li: (tsg sa wg3 lawful interception group) *(111 subscribers)*

3GPP_TSG_SA_WG4
3gpp_tsg_sa_wg4: tsg sa codec *(268 subscribers)*

3GPP_TSG_SA_WG4_MBS
3GPP_TSG_SA_WG4_MBS *(48 subscribers)*

3GPP_TSG_SA_WG5
3gpp_tsg_sa_wg 5: tsg sa5 telecoms management *(371 subscribers)*

3GPP_TSG_SA_WG5_CHARGING
3GPP_TSG_SA_WG5_Charging: Charging Management *(213 subscribers)*

3GPP_TSG_SA_WG5_OAM
3GPP_TSG_SA_WG5_OAM : OAM *(232 subscribers)*

3GPP_TSG_SA_WG5_SWGA

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3GPP_TSG_SA_WG5_SWGA : Harmonization *(136 subscribers)*

3GPP_TSG_SA_WG5_SWGB

3GPP_TSG_SA_WG5_SWGB : Charging CLOSED 270407 *(223 subscribers)*

3GPP_TSG_SA_WG5_SWGC

3GPP_TSG_SA_WG5_SWGC : OAM&P Interface Definition Closed 270407 *(209 subscribers)*

3GPP_TSG_SA_WG5_SWGD

3GPP_TSG_SA_WG5_SWGD : OAM&P Data Definition CLOSED 270407 *(206 subscribers)*

3GPP_TSG_T

3gpp_tsg_t: tsg terminals group: THIS LIST HAS NOW BEEN CLOSED *(0 subscribers)*

3GPP_TSG_T_WG1

3gpp_tsg_t_wg1: THIS LIST HAS NOW BEEN CLOSED - 18.03.05 *(0 subscribers)*

3GPP_TSG_T_WG1_RF

3gpp_tsg_t_wg1_rf: THIS LIST HAS NOW BEEN CLOSED - 18.03.05 *(0 subscribers)*

3GPP_TSG_T_WG1_SIG

3gpp_tsg_t_wg1_sig: THIS LIST HAS NOW BEEN CLOSED - 18.03.05 *(0 subscribers)*

3GPP_TSG_T_WG2

3gpp_tsg_t_wg2: THIS LIST HAS NOW BEEN CLOSED 18.03.05 *(0 subscribers)*

3GPP_TSG_T_WG2_SWG1

3gpp_tsg_t_wg2_swg1 : execution environment LIST HAS BEEN CLOSED 12/07/2004 *(46 subscribers)*

3GPP_TSG_T_WG2_SWG2

3gpp_tsg_t_wg2_swg2 : terminal interfaces LIST HAS BEEN CLOSED 12/07/2004 *(106 subscribers)*

3GPP_TSG_T_WG2_SWG3

3gpp_tsg_t_wg2_swg3 : messaging LIST HAS BEEN CLOSED 12/07/2004 *(264 subscribers)*

3GPP_TSG_T_WG3

Smart Card Application Aspects: THIS LIST HAS NOW BEEN CLOSED 18.03.05 *(118 subscribers)*

3GPP_TSG_T_WG3_API

T3 API Sub-Working-Group discussion: THIS LIST HAS NOW BEEN CLOSED 18.03.05 *(0 subscribers)*

3GPP_TSG_T_WG3_TEST

T3 testing related discussion: THIS LIST HAS NOW BEEN CLOSED 18.03.05 *(117 subscribers)*

3GPP_TSG_T_WG3_UI

T3 USAT interpreter discussion: THIS LIST HAS NOW BEEN CLOSED 18.03.05 *(0 subscribers)*

3GPP_TSG_T_WG3_USAT

T3 USIM application toolkit discussion: THIS LIST HAS NOW BEEN CLOSED *(0 subscribers)*

3GPP_UE_POSITIONING

3GPP_UE_Positioning: 3GPP UE Positioning Reporting *(29 subscribers)*

3GPP_WORKSHOP_LTE_GSM_HANDOVERS

3GPP_WS *(5 subscribers)*

3GPP_WP_GROUP

3GPP_WP_GROUP: 3GPP Working Procedures Group list *(86 subscribers)*

ADMIN_GROUP

admin_group : admin_group list *(71 subscribers)*

AERO

aero : aeronautical *(50 subscribers)*

AERO_A_CDM

AERO_A_CDM *(18 subscribers)*

AERO_A_SMGCS

AERO_A_SMGCS *(22 subscribers)*

AERO_DLS

AERO_DLS *(23 subscribers)*

AFI_ISG

AFI_ISG *(40 subscribers)*

AMETIS

AMETIS : Ametis *(0 subscribers)*

ANSI_EU

ANSI_EU *(27 subscribers)*

AT

at: tc access & terminals - the etsi "home" for terminal matters CLOSED 170407 *(55 subscribers)*

AT-D

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at-d: tc at working group for digital technologies close 170407 *(48 subscribers)*

AT-I
at-i: installation and cabling matters list closed 170407 *(23 subscribers)*

AT-N
at-n: at-n list Closed *(0 subscribers)*

AT1
AT1: tc ATTM working group for Analogue & Digital Terminals *(0 subscribers)*

AT2
at2: tc attm working group for Infrastructure, Physical Networks & Communication Systems *(45 subscribers)*

AT3
At3:tc attm working group for Integrated broadband cable and television networks *(30 subscribers)*

ATMOBILE
ATmobile STF 304 *(0 subscribers)*

ATTM
ATTM: Access, Terminals, Transmission and Multiplexing *(77 subscribers)*

ATTM_AH_EETNT
Energy Efficiencies Through Network Transmission *(10 subscribers)*

ATTM_IC_CG
ATTM_IC_CG *(23 subscribers)*

B2B_PLUGTESTS
B2B_Plugtests *(1 subscriber)*

B2B_WORKSHOP
B2B_WORKSHOP : discussion list on B2B Workshop matters list closed *(0 subscribers)*

BOARD_IMT-A
BOARD_IMT-A (CLOSED)ETSI Board IMT-A ad hoc group *(88 subscribers)*

BOARD_M2M_PP
M2M Partnership Project starter group *(41 subscribers)*

BRAN
bran: broadband radio access networks mailing list *(104 subscribers)*

BRAN_HM
bran_hm: etsi bran hiperman (fwa below 11 ghz) *(31 subscribers)*

BRAN_RCWG
BRAN_RCWG : BRAN harmonized standards and related work *(65 subscribers)*

BROADCAST
BROADCAST: jtc broadcast official mailing list *(81 subscribers)*

BROADCAST_ANNOUNCE
broadcast announcement list closed 24/06/11 *(0 subscribers)*

BROADCAST_M331
BROADCAST_M331: Response to EC/EFTA Closed 17th February 2009 *(0 subscribers)*

CENELEC_ETSI_DIGITAL_DIVIDEND
CENELEC_ETSI_Digital_Dividend *(46 subscribers)*

CENELEC_ETSI_JWG_EMC
No title defined *(44 subscribers)*

CEPT_ETSI
ETSI liaison officers to CEPT ECC *(26 subscribers)*

CINQ-MARS
Cinq-Mars closed 24/07/09 - Neocase ref 81034 CHT *(152 subscribers)*

CLC-ETSI-JWG-PLTCOEX
clc-etsi-jwg-pltcoex:cenelec etsi joint working group closed 7th July 08 *(0 subscribers)*

CLOUD
CLOUD List: Open discussion on ETSI CLOUD Standardization *(53 subscribers)*

CLUBDEGOURMANDS
clubdegourmands List Closed *(3 subscribers)*

CONSULTATION_ETSI_SME_EXPERT_CTE
CONSULTATION_ETSI_SME_Expert_Ctee *(2 subscribers)*

CONSULTATION_IOT_STANDARDS
CONSULTATION_iot_standards *(20 subscribers)*

CONSULTATION_TR_M436_RFID
CONSULTATION_TR_M436_RFID *(4 subscribers)*

DECT
DECT : DECT mailing list *(80 subscribers)*

DECT_A
dect_a : THIS LIST HAS BEEN CLOSED *(3 subscribers)*

DECT_ADVANCED
DECT_Advanced *(21 subscribers)*

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DECT_INTEREST_GROUP
DECT_Interest_Group : DECT interest group closed *(0 subscribers)*
DECT_NEWGENERATION
DECT_NewGeneration : DECT_NewGeneration List *(84 subscribers)*
DECT_T
dect_t : THIS LIST HAS BEEN CLOSED *(3 subscribers)*
DECT_ULE
DECT_ULE *(27 subscribers)*
DELIVERABLE-NOTIFICATIONS
deliverable-notifications : deliverable notifications *(56 subscribers)*
DISTRIBUTIONS_INDEPT_DISTRIBUTORS
Distributions_Indept_Distributors: Distributions Indept Distributors list *(8 subscribers)*
E-SIGNATURES_COMMENTS
E-SIGNATURES_Comments: ETSI TC ESI (electronic signatures and infrastructures) *(10 subscribers)*
E-SIGNATURES_NEWS
E-SIGNATURES_NEWS: ETSI TC ESI (electronic signatures and infrastructures) *(411 subscribers)*
E2NA
E2NA: Enhancing ETSI Network Activities *(57 subscribers)*
ECALL
eCall related issues *(31 subscribers)*
EDS-NEWS
eds-news: etsi documentation service news *(141 subscribers)*
EDS_PROMO_3GPP_COMMUNITY
EDS_Promo_3GPP_community *(202 subscribers)*
EDS_PROMO_EVENTS
EDS_Promo_Events *(0 subscribers)*
EDS_PROMO_FORA
EDS_Promo_Fora *(6 subscribers)*
EDS_PROMO_GUESTS
EDS_Promo_Guests *(2 subscribers)*
EDS_PROMO_MESA_COMMUNITY
EDS_Promo_MESA_community - Closed 2010-31-12 *(0 subscribers)*
EDS_PROMO_MISC
EDS_Promo_Misc *(26 subscribers)*
EDS_PROMO_NO_MORE_CUSTOMER
EDS_Promo_No_more_customer *(159 subscribers)*
EE
environmental engineering technical committee membership and mailing list *(62 subscribers)*
EE1
ee1 : (Environmental Conditions) membership and mailing list *(11 subscribers)*
EE1_ANNOUNCE
EE1 ANNOUNCE : THIS LIST HAS BEEN CLOSED *(0 subscribers)*
EE2
ee2 : (power supply) membership and mailing list *(52 subscribers)*
EE2_ANNOUNCE
EE2 Announce - list closed *(0 subscribers)*
EEPS
EE EEPS: Eco-environmental Product Standards *(57 subscribers)*
EETNT
Energy Efficiencies Through Network Transmission *(0 subscribers)*
EE_ANNOUNCE
environmental engineering announce list - list closed *(0 subscribers)*
EF3
EF3 : EF3 list *(41 subscribers)*
EHEALTH
ETSI Project eHEALTH *(34 subscribers)*
EHEALTH_ANNOUNCE
eHealth_Announce closed 03/03/11 *(0 subscribers)*
EHEALTH_STARTER_GROUP
ehealth_starter_group: eHealth Starter Group Closed 11.04.07 *(3 subscribers)*
EMTEL
EMTEL : Emtel *(84 subscribers)*
EPDECT
epdect : THIS LIST HAS BEEN CLOSED *(118 subscribers)*
ERM
erm : emc and radio spectrum matters distribution *(196 subscribers)*

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ERMCC
ermcc: erm co-ordination committee *(26 subscribers)*
ERM_ACEA
No title defined *(19 subscribers)*
ERM_ANNOUNCE
erm_announce : emc and radio spectrum matters distribution closed *(170 subscribers)*
ERM_EMC
ERM_EMC : erm wg on electromagnetic compatibility *(102 subscribers)*
ERM_EMC_ANNOUNCE
erm_emc_announce: erm_emc_announce list closed *(29 subscribers)*
ERM_FLX
ERM_FLX : Flexible Bands *(31 subscribers)*
ERM_ITU-R_WP8A
erm_itu-r_wp8a : preparation for itu-r wp8a closed 16th March 2010 *(0 subscribers)*
ERM_ITU-R_WP8A_P
erm_itu-r_wp8a_p : itu-r wp8a participants closed 16th March 2010 *(5 subscribers)*
ERM_JOINT_TG34_TG28
ERM_Joint_TG34_TG28: ERM TG34 TG28 work on RFID and SRD *(44 subscribers)*
ERM_JTFEA
ERM_JTFEA *(68 subscribers)*
ERM_JTFEA_A_SMGCS_HS_ASMR
ERM_JTFEA_A_SMGCS_HS_ASMR *(17 subscribers)*
ERM_JTFEA_A_SMGCS_HS_MLAT
ERM_JTFEA_A_SMGCS_HS_MLAT *(20 subscribers)*
ERM_JTFEA_GBAS
ERM_JTFEA_GBAS *(15 subscribers)*
ERM_JTFEA_HS_VDL_MODE2
ERM_JTFEA_HS_VDL_MODE2 *(13 subscribers)*
ERM_NEWS
ERM_NEWS *(12 subscribers)*
ERM_RM
erm_rm : radio matters *(103 subscribers)*
ERM_RM_ANNOUNCE
erm_rm_announce: radio matters list closed *(72 subscribers)*
ERM_TG04
erm_tg04 : automotive emc *(11 subscribers)*
ERM_TG11
erm_tg11 : radio lans *(73 subscribers)*
ERM_TG14
erm_tg14 : radio interfaces under article 4.2 of the r&tte directive *(1 subscriber)*
ERM_TG17
erm_tg17 : standards for broadcast and ancillary communications equipment *(31 subscribers)*
ERM_TG17_WG1
erm_tg17_wg1: erm_tg17 working group 1 *(9 subscribers)*
ERM_TG17_WG1_2_4
erm_tg17_wg1_2_4 : erm_tg17 working groups exploder list *(18 subscribers)*
ERM_TG17_WG3
erm_tg17_wg3 : working group 3 on radio microphones *(38 subscribers)*
ERM_TG17_WG5
erm_tg17_wg5 : active tv reception *(9 subscribers)*
ERM_TG21
erm_tg21 : co-ordination of etsi inputs to rast#10 *(2 subscribers)*
ERM_TG23
erm_tg23 : list closed 27042010 *(14 subscribers)*
ERM_TG25
erm_tg25 : aeronautical *(19 subscribers)*
ERM_TG25_A_CDM
ERM_TG25_A_CDM *(5 subscribers)*
ERM_TG25_A_SMGCS
ERM_TG25_A_SMGCS *(6 subscribers)*
ERM_TG25_DLS
ERM_TG25_DLS *(5 subscribers)*
ERM_TG26
erm_tg26 : maritime *(43 subscribers)*
ERM_TG27
erm_tg27 : radio site engineering *(28 subscribers)*
ERM_TG28
erm_tg28 : generic srd's *(122 subscribers)*

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ERM_TG30
erm_tg30 : wireless medical services *(45 subscribers)*
ERM_TG31A
erm_tg31a : ultra wide band for short range devices list closed *(0 subscribers)*
ERM_TG31C
erm_tg31c: ultra wide band sensors list closed *(0 subscribers)*
ERM_TG32
erm_tg32 : pmr List closed *(0 subscribers)*
ERM_TG33
erm_tg33 : measurement methods and their uncertainties List closed *(0 subscribers)*
ERM_TG34
erm_tg34 : rf identification devices *(67 subscribers)*
ERM_TG37
ERM_TG37 : Intelligent Transport Systems *(44 subscribers)*
ERM_TG37_DSRC
ERM_TG37_DSRC : technical discussion on DSRC testing and updating *(10 subscribers)*
ERM_TG39
ERM_TG39 : Code Division Multiple Access (CDMA) *(9 subscribers)*
ERM_TG40
Broadband Disaster Relief *(1 subscriber)*
ERM_TGDMR
ERM_TGDMR : Digital Mobile Radio *(49 subscribers)*
ERM_TGRX
erm_tgrx: ERM Task Group on Receiver parameters list closed 27042010 *(0 subscribers)*
ERM_TGSRR
erm_tgsrr: Automotive and Surveillance Radar *(47 subscribers)*
ERM_TGTLPR
erm_tgtlpr : Tank Level Probing Radar *(30 subscribers)*
ERM_TGUWB
Ultra Wide Band *(79 subscribers)*
ERM_WIRELESS_CHARGERS
ERM activity group on "Wireless chargers" *(33 subscribers)*
ESI
esi : etsi tc esi (electronic signatures and infrastructures) *(74 subscribers)*
ESI_ALGO
ESI_ALGO : TC ESI discussion list for maintenance of the ALGO paper *(30 subscribers)*
ESI_ANNOUNCE
esi_announce : etsi tc electronic signatures list closed 03/03/11 *(0 subscribers)*
ESI_ASIG
ESI_ASig *(21 subscribers)*
ESI_CSP_CONFORMANCE
ESI_CSP_Conformance list closed 19 may 2011 *(0 subscribers)*
ESI_TSL
TC ESI discussion list for TSL *(26 subscribers)*
ESP_SUPPORT_TESTING
ESP_SUPPORT_TESTING *(0 subscribers)*
ETSI-EVENTS
ETSI-EVENTS: information on events organized, hosted by ETSI *(1,465 subscribers)*
ETSI-MEDIA-LIST
etsi-media-list : etsi media mailing list for press releases *(77 subscribers)*
ETSI-NEWS
etsi-news: technical news, general news and press announcements from etsi list closed 7th Feb 2011 *(0 subscribers)*
ETSI_CDN
ETSI_CDN *(31 subscribers)*
ETSI_M441
ETSI M441 coordination group *(95 subscribers)*
ETSI_M462
ETSI_M462 *(15 subscribers)*
ETSI_M490
ETSI M490 List *(71 subscribers)*
ETSI_M493
ETSI_M493 *(85 subscribers)*
EUA_EU
Affairs ad hoc group (Strategic Topic 9) *(0 subscribers)*
FIT

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FIT - Future Internet Of Things RFID Networks and Internet Of Things open discussions *(4 subscribers)*

FOE
Board/GA ad hoc group on Finance *(52 subscribers)*

GO4ITCHINA
GO4ITCHINA *(1 subscriber)*

GO4ITC_TECHNICAL
GO4ITC_Technical *(1 subscriber)*

GRID
GRID: Open discussion on ETSI GRID Standardization *(173 subscribers)*

GS
GS:Review of Governance Structure and procedures *(30 subscribers)*

GSC-COM
GSC Communications list *(45 subscribers)*

GSC-EAS
GSC-EAS: Radio Aspects of Electronic Article Surveillance *(16 subscribers)*

GSC-HOD
GSC-HoD: *(18 subscribers)*

GSC-M2M
GSC-M2M: Machine to Machine communication *(79 subscribers)*

GSM_ONBOARD_PLANES
GSM_onboard_planes: GSM_onboard_planes *(61 subscribers)*

HF
hf : etsi tc human factors (hf) *(39 subscribers)*

HF_ANNOUNCE
hf announcement list - List closed February 2011 *(0 subscribers)*

HF_MOBILE
HF_Mobile closed *(12 subscribers)*

HF_MULTICULTURAL_COMMUNICATION
HF_MULTICULTURAL_COMMUNICATION: HF_MULTICULTURAL_COMMUNICATION STF 287 list closed *(0 subscribers)*

HF_SETUP
HF_SETUP: HF_SETUP STF 285 list *(0 subscribers)*

HF_TELECAREUX
Telecare User Experience closed *(0 subscribers)*

HF_UG
HF_UG: HF_UG STF 285 list *(0 subscribers)*

HF_USER_PROFILE_MANAGEMENT
HF_User_Profile_Management : STF 342 list *(0 subscribers)*

HIPERMAN_WIMAX_TESTING
HiperMAN_WiMAX_testing : HiperMAN WiMAX testing related mailing list closed 27th August 2009 *(0 subscribers)*

HLRG
HLRG: CLOSED + GA ad hoc High Level Review Group *(1 subscriber)*

IC-CG
IC-CG *(4 subscribers)*

IMPACT
impact : impact list *(47 subscribers)*

INS_ISG
INS_ISG: Identity and access management for Networks and Services *(20 subscribers)*

INT
IMS Network Testing *(39 subscribers)*

IPR
ipr: ETSI IPR Special Committee *(201 subscribers)*

ISI_ISG
ISI_ISG *(22 subscribers)*

ITS
ITS *(171 subscribers)*

ITS-NEWS
its-news *(762 subscribers)*

ITS_WG1
ITS_WG1 *(108 subscribers)*

ITS_WG2
ITS_WG2 *(94 subscribers)*

ITS_WG3
ITS_WG3 *(90 subscribers)*

ITS_WG4
ITS_WG4 *(100 subscribers)*

ITS_WG5

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ITS_WG5 *(98 subscribers)*

LI
li : etsi tc li (lawful interception) *(140 subscribers)*

LIS_ISG
LIS_ISG: Localisation Industry Standards Industry Specification Group *(43 subscribers)*

LI_ANNOUNCE
li_announce : etsi tc lawful interception announce list: closed 7th june 10 *(41 subscribers)*

LTS
Long Term Vision LTS:(CLOSED) Board ad hoc group on Long Term Strategy *(1 subscriber)*

M2M
M2M *(397 subscribers)*

M2M_RAPPORTEURS
M2M_rapporteurs *(22 subscribers)*

M415_TF_DOSSIER4_CONSULTATION
M415 Task Force on Dossier 4 List *(0 subscribers)*

M436_RFID
M436_RFID list closed *(0 subscribers)*

M436_RFID_CG
M436_RFID_CG *(18 subscribers)*

M436_RFID_CONSULTATION
M436_RFID_CONSULTATION *(14 subscribers)*

M436_RFID_STF
M436_RFID_STF *(11 subscribers)*

MBT_UC_PARTICIPANTS
MBT_UC_participants *(115 subscribers)*

MCD
MCD: Media Content Distribution *(74 subscribers)*

MCD_CA_DRM_INTEROP
MCD_CA_DRM_INTEROP *(26 subscribers)*

MCD_CDN-I
MCD CDN-I: MCD_CDN_Interconnection *(31 subscribers)*

MCD_INTEREST_GROUP
MCD Interest Group: open to non ETSI members (no need to subscribe if you are already on MCD list) *(7 subscribers)*

MCD_MANAGE
MCD_management_list *(5 subscribers)*

MEMBER_SURVEY
MEMBER_SURVEY *(1,666 subscribers)*

MESA_ORGANIZATION
mesa_organization: main distribution list for all mesa related information - Closed 31-12-2010 *(56 subscribers)*

MESA_PS_MEM
EDS_Promo_MESA_community - Closed 31-12-2010 *(0 subscribers)*

MESA_SC
mesa_sc: mesa steering committee - Closed 31-12-2010 *(56 subscribers)*

MESA_SSG_SA
mesa_ssg_sa: mesa ssg services and applications - Closed 31-12-2010 *(77 subscribers)*

MESA_TSG_SYS
mesa_tsg_sys: mesa tsg system - Closed 31-12-2010 *(54 subscribers)*

MOI_ISG
MOI_ISG: Measurement Ontology for IP traffic *(7 subscribers)*

MSG
msg : mobile standards group *(90 subscribers)*

MTC
MTC *(0 subscribers)*

MTC_ISG
MTC_ISG: Mobile Thin Client *(3 subscribers)*

MTS-GEN
MTS_Gen *(52 subscribers)*

MTS-IPT-SIGTRAN
MTS-IPT-SIGTRAN :MTS-IPT-SIGTRAN closed 12thAug 09. Neocase ref 84185 *(0 subscribers)*

MTS-IPT-SIP
MTS-IPT-SIP : MTS-IPT-SIP closed 12th Aug 09 Neocase ref 84185 *(0 subscribers)*

NGN_IMS
NGN_IMS: Joint 3GPP-TISPAN open list *(77 subscribers)*

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NGN_INTERCONNECT
NGN_Interconnect closed 12th Aug 09 neocase 83766 *(10 subscribers)*
NSO-CONTACTS
nso-contacts :nso voting contacts *(72 subscribers)*
NSOS_TRANSLATORS
NSOs_Translators *(25 subscribers)*
NSO_INFO
nso_info : distribution list for nso information *(86 subscribers)*
NSO_OFFICIAL_CONTACTS
NSO Official Contacts for OJEU *(23 subscribers)*
NUG
Nug *(21 subscribers)*
NWIOT_TESTBED
NWIOT_testbed *(22 subscribers)*
OCG
ocg: list of ocg members (ep and tc chairmen) *(194 subscribers)*
OCG_ECNS
OCG_ECNS: OCG ad hoc group on Electronic Communications Networks & Services List Closed 9/12/11 *(0 subscribers)*
OCG_IOP
OCG ad hoc group on Interoperability *(0 subscribers)*
OCG_MCP
OCG_MCP *(25 subscribers)*
OCG_RTTED
ocg_rtted : steering committee on harmonised standards *(60 subscribers)*
OCG_SECURITY
ocg_security: ocg ad hoc group on security issues *(31 subscribers)*
OEU_ISG
OEU_ISG *(3 subscribers)*
ORI_ISG
Open Radio equipment Interface Industry Specification Group *(118 subscribers)*
OSG_ISG
Open Smart Grid Industry Specification Group *(15 subscribers)*
PAS
(CLOSED)Discussion in ETSI Board) *(19 subscribers)*
PLT
plt : etsi project powerline telecommunications *(45 subscribers)*
PLT_ANNOUNCE
etsi project powerline telecommunications announcement list - List Closed *(0 subscribers)*
PLT_INHOUSE
PLT_InHouse@list.etsi.org : In-House PLT closed 7th July 08 *(0 subscribers)*
PLT_SC_STF332
PLT_SC_STF332 : etsi powerline telecommunications STF 332 Steering Committee *(1 subscriber)*
PLT_WI_DISCUSSION
PLT_WI_DISCUSSION@list.etsi.org: list closed 18th Jan 2010 *(0 subscribers)*
PLUGTESTS-EBXML
Plugtests-ebxml: Discussion list on ebxml Interoperability matters *(0 subscribers)*
PLUGTESTS-FMCA
Plugtests-fmca : discussion list on FMCA interoperability matters *(0 subscribers)*
PLUGTESTS-PADES
plugtests-pades *(30 subscribers)*
PLUGTESTS-XADES
plugtests-xades *(48 subscribers)*
PLU_RFID_CHINA
PLU_RFID_CHINA *(2 subscribers)*
PORTAL-FEATURE-REQUESTS
Portal Feature Requests *(3 subscribers)*
PUBLICINTERNETACCESS
PublicInternetAccess List *(0 subscribers)*
QKD_ISG
QKD_ISG: Quantum Key Distribution Industry Specification Group *(32 subscribers)*
QKD_ISG_TECH
QKD_ISG_TECH *(18 subscribers)*
RADIO_BRIEFING
Radio Briefing *(96 subscribers)*
RRS
RRS: Reconfigurable Radio Systems *(148 subscribers)*

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RRS_WG1
RRS WG1 : System Aspects *(94 subscribers)*
RRS_WG2
RRS WG2 : Reconfigurable Radio Equipment Architecture *(81 subscribers)*
RRS_WG3
RRS WG3 : Functional Architecture and Cognitive Pilot Channel *(81 subscribers)*
RRS_WG4
RRS WG4 : Public Safety *(64 subscribers)*
RT
RT Railway Telecommunications *(37 subscribers)*
RT_DMO
RT_DMO : RT Direct Mode Operation *(3 subscribers)*
S1_ANSI-41
s1_ansi-41: THIS LIST HAS NOW BEEN CLOSED *(0 subscribers)*
S1_CAMEL
s1_camel : THIS LIST HAS NOW BEEN CLOSED *(0 subscribers)*
S1_CHARGING
s1_charging : THIS LIST HAS NOW BEEN CLOSED *(0 subscribers)*
S1_DISCUSS
s1_discuss : THIS LIST HAS NOW BEEN CLOSED *(0 subscribers)*
S1_HANDOVER
s1_handover : THIS LIST HAS NOW BEEN CLOSED *(0 subscribers)*
S1_IP
s1_ip : THIS LIST HAS NOW BEEN CLOSED *(0 subscribers)*
S1_LCS
s1_lcs : THIS LIST HAS NOW BEEN CLOSED *(13 subscribers)*
S1_MM
smg1 : list for s1_mm : THIS LIST HAS NOW BEEN CLOSED *(0 subscribers)*
S1_MULTICALL
s1_multicall : THIS LIST HAS NOW BEEN CLOSED *(0 subscribers)*
S1_PRESENCE
s1_presence: THIS LIST HAS NOW BEEN CLOSED *(0 subscribers)*
S1_QOS
s1_qos : THIS LIST HAS NOW BEEN CLOSED *(0 subscribers)*
S1_SMS
s1_sms : THIS LIST HAS NOW BEEN CLOSED *(0 subscribers)*
S1_VHE
s1_vhe : THIS LIST HAS NOW BEEN CLOSED *(0 subscribers)*
SA1_OSA
sa1_osa : THIS LIST HAS NOW BEEN CLOSED *(0 subscribers)*
SAFETY
safety : etsi tc for telecommunications equipment safety *(35 subscribers)*
SCP_ANNOUNCE
ETSI Project Smart Card Platform - THIS LIST HAS NOW BEEN CLOSED *(0 subscribers)*
SCP_PLENARY
ETSI Project Smart Card Platform - Plenary discussion *(355 subscribers)*
SCP_REQUIREMENTS
SCP_REQUIREMENTS : REQUIREMENTS WORKING GROUP *(258 subscribers)*
SCP_TECHNICAL
SCP_TECHNICAL : Technical Working Group *(305 subscribers)*
SCP_TEST
SCP_TEST *(89 subscribers)*
SCP_WG1
THIS LIST HAS BEEN CLOSED *(13 subscribers)*
SCP_WG2
THIS LIST HAS BEEN CLOSED *(10 subscribers)*
SCP_WG3
THIS LIST HAS BEEN CLOSED *(13 subscribers)*
SES
ses : etsi tc satellite earth stations and systems (ses) *(38 subscribers)*
SES_AES
ses_aes : [List closed] etsi tc ses wg on aeronautical satellite earth stations *(2 subscribers)*
SES_ANNOUNCE
: etsi tc satellite earth stations and systems announcement list closed 21/03/11 *(0 subscribers)*
SES_BSM
ses_bsm : ses_bsm (broadband satellite multimedia) *(20 subscribers)*

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SES_BSM_C2P
BSM C2P work items - list closed 29/09/11 *(0 subscribers)*
SES_ECAS
SES_ECAS:European Commission Activity support *(7 subscribers)*
SES_ECSS
SES WG on European Co-operation for Space Standardisation *(0 subscribers)*
SES_GMR
ses_gmr : etsi tc ses geo_mobile_radio (gmr) interface working group-Closed *(7 subscribers)*
SES_GMR_ANNOUNCE
ses gmr announce list list closed *(0 subscribers)*
SES_HARM
SES_HARM *(10 subscribers)*
SES_MAR_ESV
ses_mar_esv : SES working group on Maritime Earth Stations on Board Vessels *(15 subscribers)*
SES_MSS
ses_mss : etsi tc ses SES WG on Mobile Satellite Systems (mss) working group *(21 subscribers)*
SES_SATEC
SES_SatEC: Satellite Emergency Communications *(25 subscribers)*
SES_SCN
ses_ scn Satellite Communications and Navigation *(37 subscribers)*
SES_SDR
ses_sdr : ses_sdr satellite digital radio *(16 subscribers)*
SES_SUMTS
ses_sumts : working group on s-umts-Closed *(14 subscribers)*
SES_SUMTS_ANNOUNCE
ses s-umts announce list - List closed *(0 subscribers)*
SG_GNGN
Global NGN stakeholders group on future services and capabilities for NGN *(24 subscribers)*
SG_UCI
SG_UCI : UCI stakeholders group on UCI matters *(0 subscribers)*
SMART_GRIDS
Smart_Grids *(18 subscribers)*
SMG2
SMG2 Archives only *(1 subscriber)*
SMG2UMTS-L1
Smg2umts-l1 archives restored *(1 subscriber)*
SMG_PLENARY
SMG_PLENARY ARCHIVES TEMP RESTORED *(0 subscribers)*
SMT_ISG
SMT_ISG *(24 subscribers)*
SOSINTEROP
SOSinterop: SOS Interoperability workshop series *(148 subscribers)*
STF318-ESI-REGEMAIL-CONSULT
STF318 ESI RegEmail CONSULTATION closed 05/09/11 *(0 subscribers)*
STF318-ESI-REGEMAIL-CONSULTATI
STF318 ESI RegEmail CONSULTATION closed 14th April 2009 *(0 subscribers)*
STF351_CONSULTATION
STF351 ESI Electronic Signature XAdes Portal List closed 05/09/11 *(0 subscribers)*
STF352_CONSULTATION
STF352_eHealth_Personalization_Consultation List closed *(2 subscribers)*
STF353_CONSULTATION
STF353 HF/ITS ICT in cars closed 05/09/11 *(3 subscribers)*
STF374_USER_QOS_ASSESSMENT
STF374_USER_QoS_Assessment *(3 subscribers)*
STF375_USER_METER_BILL
STF375_USER_METER_BILL List closed *(0 subscribers)*
STF376_SMES_PROACTIVE_APPROACH
STF376_SMEs_Proactive_Approach List closed *(1 subscriber)*
STF390_RTEGSMR_RECEIVERPERFORM
STF390_RTEGSMR_ReceiverPerform *(4 subscribers)*
STF395_ITS4_RADIO
STF395_ITS4_Radio *(1 subscriber)*
STF395_ITS_RADIO
STF395_ITS_Radio *(8 subscribers)*
STF397_TG34_RFID_DAA

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STF397_TG34_RFID_Detect-And-Avoid closed *(1 subscriber)*
STF398_ITS2_INTEROP_TEST_FRAME
STF398_ITS2_Interop_Test_Framework closed *(0 subscribers)*
STF400_EPASSPORT_CONSULT
STF400_ePassport_CONSULT *(3 subscribers)*
STF401_ESI_LONG_TERM_STORAGE
STF401_ESI_Long_Term_Storage *(3 subscribers)*
STF402_ESI_REM
STF402_ESI_REM *(8 subscribers)*
STF404_ITS_LDM
STF404_ITS_LDM *(1 subscriber)*
STF405_ITS1_3_GEONW
STF405_ITS1_3_GeoNW List *(2 subscribers)*
STF408_TISPAN_ITS_SECURITY
STF408_TISPAN_ITS_Security *(5 subscribers)*
STF409_MTS_TTCN3_TOOLS
STF409_MTS_TTCN3_tools *(1 subscriber)*
STF410_PLT_MIMO_MEASURES
STF410_PLT_MIMO_measures *(3 subscribers)*
STF411_ERM_LDC
STF411_ERM_LDC *(10 subscribers)*
STF412
STF412_TEST *(1 subscriber)*
STF412_ESI_EV
STF412_ESI_EV *(5 subscribers)*
STF416_EACCESSIBILITY_PH2
STF416_eAccessibility_Ph2 *(13 subscribers)*
STF417_VALIDATION_METHODS
STF417_Validation_Methods *(6 subscribers)*
STF420_ITS_G5_CONFIG
STF420_ITS_G5_config *(8 subscribers)*
STF421_ITS_G5_TEST
STF421_ITS_G5_test *(6 subscribers)*
STF422_ITS_EETS
STF422_ITS_EETS *(6 subscribers)*
STF423_ITS_SECURITY
STF423_ITS_Security *(10 subscribers)*
STF424_ITS_TEST_PLATFORM
STF424_ITS_Test_Platform *(10 subscribers)*
STF425_ESI_FRAMEWORK
STF425_ESI_Framework *(12 subscribers)*
STF426_ESI_QF_PROFILES
STF426_ESI_QF_profiles *(8 subscribers)*
STF427_ESI_QF_ESIGN
STF427_ESI_QF_eSign *(16 subscribers)*
STF427_QF1
STF427_QF1 *(7 subscribers)*
STF427_QF2
STF427_QF2 *(6 subscribers)*
STF427_QF3
STF427_QF3 *(9 subscribers)*
STF428_ESI_QF_TESTING
STF428_ESI_QF_testing *(8 subscribers)*
STF430_MTS_TTCN3
STF430_MTS_TTCN3 *(6 subscribers)*
STF431_SCP_SECURECHANNEL
STF431_SCP_SecureChannel *(4 subscribers)*
STF432
STF432 *(0 subscribers)*
STF433_MTS_TTCN_TOOLS
STF433_MTS_TTCN_tools *(11 subscribers)*
STF434_INT_TEST_DIAMETER
STF434_INT_Test_DIAMETER *(6 subscribers)*
STF435_INT_TEST_3GR9
STF435_INT_Test_3GR9 *(6 subscribers)*
STF436_STQ_QOS_MODEL
STF436_STQ_QoS_Model *(8 subscribers)*
STF437_STQ_QOS_LTE
STF437_STQ_QoS_LTE *(8 subscribers)*

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STF438
STF438_ESI_CA *(6 subscribers)*
STF439_ENERGY_EFFICIENCY_KPI
STF439_Energy_Efficiency_KPI *(20 subscribers)*
STF440_ATTM_AT3_CABLE_NW_IPV6
STF440_ATTM_AT3_Cable_NW_IPv6 *(9 subscribers)*
STF442_MTS_MBT
STF442_MTS_MBT *(11 subscribers)*
STF_361
stf_361 *(0 subscribers)*
STF_391
STF_391 *(1 subscriber)*
STQ
STQ: Speech and multimedia Transmission Quality *(55 subscribers)*
STQ_AURORA
stq_aurora : etsi stq aurora project for distributed speech recognition List Closed *(72 subscribers)*
STQ_MOBILE
stq_mobile : QoS aspects of mobile telephony *(46 subscribers)*
SWCOPYRIGHT
IPR Software Copyright Drafting group *(26 subscribers)*
TBINFO
tbinfo : tbinfo list has been closed 09/03/2005 *(0 subscribers)*
TC106X-4
tc106x-4 : safety joint working group tc 106x wg4 *(16 subscribers)*
TC106X-7
tc106x-7 : safety joint working group tc 106x wg7 *(13 subscribers)*
TESTCOM_2003_AC
TESTCOM_2003_AC : Aréa Coordinators *(0 subscribers)*
TESTCOM_2003_SC
TESTCOM_2003_SC : Steering Committee *(0 subscribers)*
TESTCOM_2003_TPC
TESTCOM_2003_TPC: TPC Technical Program Committee *(0 subscribers)*
TEST_DB
list for testing dbms feature *(0 subscribers)*
TETRA
TETRA : Technical Committee TETRA *(71 subscribers)*
TETRAWG1
TETRAWG1 : User Requirements / Services *(48 subscribers)*
TETRAWG1_ANNOUNCE
tetrawg1 announce list closed *(0 subscribers)*
TETRAWG3
TETRAWG3 : Network aspects *(57 subscribers)*
TETRAWG38
TETRAWG38 : PEI list closed 5th Jan 2011 *(0 subscribers)*
TETRAWG3_ANNOUNCE
tetra wg3announce list closed *(0 subscribers)*
TETRAWG4
TETRAWG4 : TETRA High Speed Data *(52 subscribers)*
TETRAWG4_ANNOUNCE
tetra wg4 announce list closed *(0 subscribers)*
TETRAWG5
TETRAWG5 : TETRA Voice coding *(29 subscribers)*
TETRAWG5_ANNOUNCE
tetrawg5_announce : tetrawg5_announce list closed *(0 subscribers)*
TETRAWG6
TETRAWG6 : TETRA Security *(46 subscribers)*
TETRAWG6_ANNOUNCE
tetra wg6 announce closed *(0 subscribers)*
TETRAWG8
TETRAWG8 : TETRA DMO (Direct Mode Operation) *(38 subscribers)*
TETRAWG8_ANNOUNCE
tetra wg8 announce list closed *(0 subscribers)*
TETRA_ANNOUNCE
etsi project tetra announcement list list closed *(0 subscribers)*
TETRA_WORKSHOP
TETRA_workshop *(9 subscribers)*
TFES
tfes : tfes list *(39 subscribers)*

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TISPAN_EMTEL
TISPAN_EMTEL: TISPAN project EMTEL on Emergency communications *(0 subscribers)*
TISPAN_F-MMS
TISPAN_F-MMS: TISPAN project F-MMS *(0 subscribers)*
TISPAN_FORUM
TISPAN_FORUM: TISPAN open list *(0 subscribers)*
TISPAN_FUTURE_ACTIVITIES
TISPAN_Future_Activities *(57 subscribers)*
TISPAN_GEN
TISPAN_GEN: technical committee list *(167 subscribers)*
TISPAN_NGN
TISPAN_NGN: technical committee list dealing with NGN Project matters *(92 subscribers)*
TISPAN_STF328_SG
TISPAN_STF328_SG: IMS NNI Interop Closed *(0 subscribers)*
TISPAN_WG1
TISPAN_WG1: Services done by CT on the request of Helene Schmidt *(173 subscribers)*
TISPAN_WG2
TISPAN_WG2: Architecture *(117 subscribers)*
TISPAN_WG2_IPTV
TISPAN_WG2_IPTV *(22 subscribers)*
TISPAN_WG3
TISPAN_WG3: Protocols *(99 subscribers)*
TISPAN_WG3_IPTV_STAGE3
TISPAN_WG3_IPTV: IPTV Stage 3 *(45 subscribers)*
TISPAN_WG4
TISPAN_WG4: Numbering and Routeing *(108 subscribers)*
TISPAN_WG5
TISPAN_WG5: NGN Home Networking *(23 subscribers)*
TISPAN_WG5_OLD
TISPAN_WG5_OLD: NGN Home Networking OLD *(0 subscribers)*
TISPAN_WG6
TISPAN_WG6: Testing *(42 subscribers)*
TISPAN_WG7
TISPAN_WG7: Security *(82 subscribers)*
TISPAN_WG8
TISPAN_WG8: Network Management *(47 subscribers)*
TM
TM : TM Approval by Correspondence list CLOSED 170407 *(0 subscribers)*
TM1-ATM
tm1-atm : wp3 atm equipment CLOSED 170407 *(28 subscribers)*
TM1-SDH
tm1-sdh : sdh equipment CLOSED 170407 *(10 subscribers)*
TM1-TEST
tm1-test : wp3-conformance testing CLOSED 170407 *(6 subscribers)*
TM1-WP1
tm1-wp1 : optical fibres and components CLOSE 170407 *(10 subscribers)*
TM1-WP2
tm1-wp2 : core networks architecure CLOSED 170407 *(8 subscribers)*
TM1-WP3
tm1-wp3 : transport equipment, systems and interfaces CLOSED 170407 *(13 subscribers)*
TM1-WP4
tm1-wp4 : timing and synchronization CLOSED170407 *(6 subscribers)*
TM4
tm4 : digital radio relay systems *(55 subscribers)*
TM4-WP1
tm4-wp1 : tm4-wp1 list closed *(36 subscribers)*
TM4-WP2
tm4-wp2 : tm4-wp2 list closed *(34 subscribers)*
TM4-WP4
tm4-wp4 : tm4-wp4 list closed *(30 subscribers)*
TM6_ALL
tm6_all : access networks (architecture, unis, xdsl isdn) *(60 subscribers)*
TM6_ANA
tm6_ana : tm6 access network architecture wp CLOSED 170407 *(14 subscribers)*
TMSIX_OPS

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TM6 operators group *(27 subscribers)*

TTCN3

active_ttcn3 : mts stf133 ttcn version 3 - active members only *(188 subscribers)*

USER-INFO

USER_INFO *(21 subscribers)*

USER_ANNOUNCE

announcement list for the user group - list closed *(0 subscribers)*

WIFA

wifa *(278 subscribers)*

Note that confidential or sensitive lists may be unlisted. If you know the exact name of the list you are looking for but could not find it on this page, try the unlisted archive form instead.

LIST.ETSI.ORG



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