UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ERICSSON INC. AND TELEFONAKTIEBOLAGET LM ERICSSON
Petitioners,

v.

KONINKLIJKE KPN N.V.
Patent Owner.

Case No. IPR2023-00582

Patent No. 8,660,560

DECLARATION OF CRAIG BISHOP

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I. INTRODUCTION

I, Craig Bishop, declare as follows:

1. I have been retained as an independent expert witness on behalf of Ericsson Inc. and Telefonaktiebolaget LM Ericsson ("Petitioners") related to Inter Partes Review ("IPR") of U.S. Patent No. 8,660,560 ("the '560 patent").

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

3. I have been asked to opine on the date of public accessibility for three documents: TR 32.816 v1.0.0 (Ex. 1007), TS 36.300 v8.7.0 (Ex. 1009), and S5-070974 (Ex. 1008). In doing so I have also considered my own academic background, knowledge, and professional experiences in the field of wireless communications and 3rd Generation Partnership Project (3GPP) standards-development, as described below.

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

II. QUALIFICATIONS

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

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

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

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

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

my previous work in ETSI. As an example, SA WG1 was, and is, a Working Group responsible for the specification of the Service Requirements for the latest wireless cellular standards. As part of this work, I would prepare meeting contributions in support of Samsung's research and development activities. Also, by way of preparation for each meeting, I would download all contributions and review those of interest to Samsung, and where necessary, prepare additional input to the meeting based on said review.

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

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

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

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

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

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

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

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

16. Through my extensive work in ETSI and on 3GPP standardization issues over the years, I have become very familiar with ETSI and 3GPP practices for when and how the technical standards (including revisions thereto) and other standards-related contributions are made publicly available, including in the 1999-2011 timeframe when I was attending or monitoring various 3GPP Working Groups.

17. For purposes of my analysis in this declaration, I have been informed that a person of ordinary skill in the art ("POSITA") in the field of the '560 patent

at the time of the alleged invention of the '560 patent would have had a degree in electrical engineering or a similar discipline, with at least three years of relevant industry or research experience, including designing or implementing cellular systems. This definition is approximate, and more education may substitute for industry experience or vice versa. I was a POSITA in the 2007-2009 timeframe, based on my education and experience, which are described above and in my attached CV.

III. PUBLIC AVAILABILITY OF 3GPP TECHNICAL SPECIFICATIONS AND OTHER DOCUMENTS TO POSITAS

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

A. Prominence and Purpose of 3GPP

19. 3GPP was inaugurated in December 1998 to produce Technical Specifications and Technical Reports for the Universal Mobile Telecommunications System (UMTS), a 3G Mobile System based on evolved GSM core networks and a new radio access network known as UTRA (UMTS Terrestrial Radio Access). Appendix 2 at 2–3 (3GPP Partnership Project Description); Appendix 3 at 1;

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

20. 3GPP is a global initiative partnership made up of Organizational Partners, Market Representation Partners, and Individual Members. Appendix 5 at 7 (3GPP Working Procedures, 1999); Appendix 2 at 10. Today, 3GPP unites seven telecommunications standard development organisations ("Organizational Partners") from around the world: the Association of Radio Industries and Businesses (ARIB) and the Telecommunication Technology Committee (TTC) from Japan, the China Communications Standards Association (CCSA) from China, the Telecommunications Standards Development Society, India (TSDSI) from India, the Telecommunications Technology Association (TTA) from Korea, the European Telecommunications Standards Institute (ETSI), and the Alliance for

Telecommunications Industry Solutions (ATIS) from the United States.[1] These Organizational Partners are regional standards organisations that have the authority to define, publish, and set standards for their respective regions. Appendix 2 at 12. 3GPP also includes "Market Representation Partners" that represent various industry perspectives and offer market advice. Appendix 5 at 7–8 (3GPP Working Procedures, 1999, "Market Representation Partnership"); Appendix 2 at 14; Appendix 4 at 5. Additionally, 3GPP includes individual member companies ("Individual Members") that participate in 3GPP through their membership in a 3GPP Organizational Partner. Appendix 5 at 8 (3GPP Working Procedures, 1999, "Individual Membership"); Appendix 6 at 5 (textbook including a chart showing 3GPP structure at the time of publication); Appendix 8 at 9, 10. As an example of how prominent 3GPP was and remains in the industry, there were 284 participating Individual Members in 2007. Appendix 7 at 10 (3GPP Project Coordination Group document showing 3GPP membership growth 2004 to 2009). There are 801 individual members as of January 2023. Appendix 16.

21. As noted in paragraph 19, a primary goal of 3GPP is to provide an environment to produce technical specifications and technical reports that define and

[1] The number, and some of the names, of Organizational Partners that make up 3GPP have changed over time.

standardize technologies covering cellular telecommunications networks, including User Equipment or Mobile Device (UE) technologies, Radio Access Network (RAN) technologies, Core Network (CN) technologies, and service and system capabilities such as codecs, security, quality of service, and network management. The specifications also provide hooks for interworking with non-3GPP networks including but not limited to Wi-Fi networks.

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

conclusion of the chapter on the success of 3GPP in the standards development process). As a POSITA myself, I would regularly visit the 3GPP website for the latest developments in 3G standards setting and refer colleagues involved in the development of 3G devices to the 3GPP website as a valuable reference.

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

the 3GPP standard process.

B. 3GPP Document Policies and Practices

24. 3GPP's policy was to make 3GPP documents available to the public, including to interested POSITAs. The free availability of 3GPP documents to any interested member of the public was widely recognized in the industry. As an example of the prominence of 3GPP and its place in the wireless standards industry, I note that textbooks directed readers to the 3GPP website for information about relevant standards. For example, Appendix 6 at 6, 9 "The latest specifications can be obtained from 3GPP [9]", "[9] http//:www.3GPP.org". Appendix 8 at 10 "3GPP TSs and TRs are publicly available at the 3GPP web site at either of the following URLs: http://www.3gpp.org/specs/specs.htm http://www.3gpp.org/ftp/Specs/archive/". Because the purpose of 3GPP was worldwide adoption of a common standard, no restrictions on distribution or discussion were placed on 3GPP documents. Appendix 9 at 9 "No password is needed to access any information on the 3GPP Web site, all information is openly published".

C. 3GPP Structure and Standards Development Process

25. Within 3GPP, responsibility for producing specifications was delegated to the Technical Specification Groups (TSGs). Appendix 5 at 11 (3GPP Working Procedures, 1999, "TSG tasks"). 3GPP was initially divided into four Technical

Specification Groups (TSGs), each covering a particular category of technology. Appendix 2 at 31 (3GPP Partnership Project Description); Appendix 6 at 5, 6 (textbook listing four TSGs and noting the subsequent addition of a fifth TSG); Appendix 4 at 6, 11, 12. Each TSG is further divided into a number of Working Groups (WGs). Appendix 8 at 8, 9; Appendix 4 at 5; *see also* Appendix 5 at 21 (3GPP Working Procedures, 1999, defining "Working Group"). Two of the TSGs from 1999 are still in existence in 2023: TSG Radio Access Networks (RAN) and TSG Service & Systems Aspects (SA). The activities of two other TSGs, TSG Core Networks (CN) and TSG Terminals (T), were amalgamated under Core Network and Terminals (CT) following the closure of TSG T in 2005, with responsibility for terminal test specifications being moved to a RAN working group (RAN WG5). The fifth TSG, GSM EDGE Radio Access Networks (GERAN), was responsible for evolution of the GSM radio technology from 2000 until that TSG closed in 2016 and its work was transferred to a RAN working group (RAN WG6) which was itself closed in July 2020.

26. The TSGs held quarterly plenary meetings[2] where members' contributions, draft specifications/reports, and other documents that had been agreed

[2] Except in 1999 when 5 meetings were held.

upon by the Working Groups were presented for discussion and approval. Appendix 5 at 18 (3GPP Working Procedures, "Deliverable types," stating that Technical Specifications and Technical Reports are "drawn up by the TSGs" and are approved by TSGs). Appendix 8 at 10 "3GPP Deliverables". Once a Technical Specification was, or Change Requests creating a new version of a Technical Specification were, formally approved by TSG plenary, the latest version of said Technical Specification would be created by the Mobile Competence Centre (MCC[3]) and uploaded to the file server. Appendix 9 at 6. In that way, the conclusion of 3GPP TSG plenary meetings serves as notice that new versions of specifications incorporating Change Requests approved by the TSG meetings will shortly be made available on the public 3GPP server.

27. As part of the standards development process, delegates could submit contributions on behalf of the Individual Members. Members had an incentive to stay updated on 3GPP developments because those members usually wanted to contribute to the standard and make suggestions as to what technology and/or features should (or should not) be included. Delegates also attended 3GPP meetings to keep their employers abreast of developments related to the standards that would

[3] Part of the ETSI secretariat supporting 3GPP activities.

ultimately apply to those members and the products those members (e.g., companies) produced. 3GPP members around the world, and the interested POSITAs employed by them, would have been motivated to stay up to date regarding 3GPP technology evolution to ensure their research and development programmes remained relevant to the systems being specified and that their products were compliant with the published 3GPP specifications. In light of this need to follow the standards development process, delegates often distributed 3GPP-related documents far beyond the attendees at 3GPP meetings. This was certainly my experience at Samsung.

D. 3GPP documents

i. Technical Specifications and Technical Reports

28. The Technical Specifications and Technical Reports developed by 3GPP were, and are, driven by the technical contributions of 3GPP members. As part of that development process, various types of documents were produced. The 3GPP process involved the consideration of temporary[4] documents ("TDocs," also

[4] The term "temporary" is used to designate documents that are submitted to and dealt with by 3GPP TSGs and WGs in the process of elaborating the standards, but do not constitute permanent 3GPP deliverables such as Technical Specifications

referred to as "contributions,"), many of which constituted technical proposals for how the system should be implemented and some of which were adopted as the basis for parts of the Technical Specifications and Technical Reports.

29. As I noted in paragraphs 19 and 21, a primary purpose of 3GPP is to prepare, approve, and maintain globally applicable Technical Specifications and Technical Reports. Appendix 5 at 6 (3GPP Working Procedures, "Purpose"). A "Technical Specification," as defined by 3GPP, is "[a] 3GPP output document containing normative provisions approved by a Technical Specification Group." Appendix 5 at 21. A Technical Report is defined by 3GPP as "A 3GPP output document containing mainly informative elements approved by a Technical Specification Group." Appendix 5 at 21. 3GPP would (and still does) periodically freeze a complete set of specifications and reports (referred to as a "Release"[5]), and

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and Reports. Temporary documents are permanently archived by and freely available from 3GPP once they have been submitted.

[5] As denominated by the major version field (see paragraph 34). E.g. v4.x.x versions are part of release 4, v8.x.x versions are part of release 8. The exception to the matching major version field number and the release number is v3.x.x versions,

each set would include many new deliverables. Appendix 9 at 6. 3GPP would also make publicly available draft Technical Specifications and Technical Reports that would usually be included as part of the next Release once approved.

30. It was widely known that Technical Specifications (and Technical Reports) were publicly available on 3GPP's website. It was also well known that the latest version of a given Technical Specification / Report that was under change control would be made available following each TSG Plenary meeting responsible for that Technical Specification / Report, and that TSG Plenary meetings usually occur four times per year. Appendix 9 at 6.

31. Latest and previous versions of Technical Specifications and Technical Reports could be easily accessed from the 3GPP website. The specifications page provided direct links to the specifications area in the 3GPP website's file repository. Appendix 11 at 1. In the 2007 to 2009 timeframe, the specifications page listed specifications and reports by the date of the approval of the latest versions reflecting the TSG plenary meeting date. Appendix 11 at 1.

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which are part of Release 99 (rather than release 3, to be consistent with the GSM release designation).

32. Additionally, the 3GPP Technical Specifications / Reports followed a clear numbering scheme to help the public, including interested POSITAs, identify the subject matter of each. Appendix 12 at 1. As described on the 3GPP Numbering Scheme webpage, all 3G and GSM specifications and reports had a specification number of 4 or 5 digits,[6] where the first two digits defined the series. Appendix 12 at 1. The Numbering Scheme webpage included a table showing the subject matter corresponding to each series. Appendix 12 at 1. For example, the "36 series" focused on evolved UTRA aspects of the system. Appendix 12 at 1. I note that the Technical Specification referenced in this Declaration is a 36 series specification on "Evolved Universal Terrestrial Radio Access (E-UTRA) and Evolved Universal Terrestrial Radio Access Network (E-UTRAN); Overall description; Stage 2". An interested POSITA could also narrow down the relevant specifications based on whether the specification applied to only E-UTRA, to 3G, to GSM, or to E-UTRA, 3G and GSM (GSM only specifications were transferred from ETSI to 3GPP in July 2000). For a specification in the 21–35 series, this could be determined based on the third digit of the specification number, where a "0" would indicate that the specification applied

[6] Four-digit specification numbers were used for GSM specifications transferred from ETSI, *i.e.*, pre-3GPP Rel-4.

to GSM and other 3GPP systems. Appendix 12 at 1. Specifications outside the 21–36 series in 2008[7] applied only to GSM systems. Appendix 12 at 1.

33. The Technical Specifications / Reports were stored on the 3GPP website's file repository as zipped files, where the filenames followed the structure: SM[-P[-Q]]-V.zip. This format corresponded to the numbering scheme discussed in paragraph 32. "S" represented the series number; "M" represented the mantissa (the part after the series number); "P" represented an optional part number; "Q" represented an optional sub-part number; and "V" represented the version number (without the separating dots). Appendix 12 at 1, 2.

34. The Working Groups would create incremental versions of the draft specifications and reports[8] (*e.g.*, V0.2.1, V1.0.0, V1.1.0, etc.). These versions were made available on the 3GPP website's file repository which is accessible from the 3GPP specifications page. The version numbering scheme for Technical

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[7] Series 37, and 38 specifications now cover other radio access technologies 5G.

[8] This was prior to the versions receiving formal approval by the relevant Technical Specification Group upon being deemed sufficiently complete. After that, they are placed under change control, and each subsequent version is based on Change Requests approved by the relevant Technical Specification Group.

Specifications and Technical Reports was standardized by 3GPP. The version number included three fields: the major version field, the technical version field, and the editorial version field. Appendix 13 at 1. The major version field reflects the stage of development of the Specification / Report, with: "0" representing an immature draft; "1" representing a draft that is sufficiently mature (at least 50% in the 2007-2009 timeframe) to be presented to the plenary group for information; "2" representing a draft that is at least 80% complete to be presented to the plenary group for approval; and a value of "3" or greater representing a specification that has been approved by the relevant TSG and thus had been moved to change control. Appendix 10, Appendix 13 at 1. The technical version field begins at zero and is incremented every time a technical change is made to the specification (either as part of the drafting process or as part of an approved change request). Appendix 13 at 1. The editorial version field begins at zero and is incremented each time a non-technical change is made to the specification (*e.g.*, to fix a typo or formatting issue). Appendix 13 at 1.

35. The Technical Specification on which I opine in this Declaration is a version of the technical specification with the following label: "V8.7.0." Consistent with the 3GPP version numbering scheme, the specification has a major version field value of "8" which means it represents a specification approved by the applicable TSG, as part of 3GPP Release 8. The second field value, "7" means that an eleventh

technical change[9] had been approved for the technical specification since that specification's initial approval. And the third digit, "0" means that no non-technical (editorial) changes had been made to the technical specification since the latest version had been approved by the TSG plenary group (TSG RAN in this case). The Technical Report on which I opine in this Declaration is a version of the technical report with the following label: "V1.0.0" Consistent with the 3GPP version numbering scheme, the report has a major version field value of "1" which means it represents a draft report that is at least 50% complete and is to be presented to the TSG plenary group (TSG SA in this case) for information.

36. I understand that the alleged invention in the '560 patent relates to cellular telecommunications, and more particularly to a system updating the neighbor cell list of a wireless access node, such as a base station, in a telecommunications architecture that includes multiple wireless access networks. Any POSITA interested in neighbour cell relations in a telecommunications network would have been monitoring 3GPP's activities in this area and would probably have been already participating as a full or associate member or observer in the standard development process or would have at least known that information regarding the proposed revisions to the technical specifications under discussion were available

[9] Or set of technical changes.

through 3GPP.

ii. TDocs

37. As mentioned under paragraph 28, the 3GPP process involved the consideration of temporary documents or "TDocs," which are also referred to as proposals, contributions, or change requests. The agreement of proposals submitted as TDocs results in the production of technical specifications.

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

39. Each TDoc was assigned a TDoc number, according to a standard format set by 3GPP. As described in the 3GPP Working Procedures from 1999, the numbering system followed the format Gxmnnzzz.ext. Appendix 5 at 15. Within that format, "Gx" referred to the relevant TSG. For example, "S" was used for TSG SA. Likewise, "m" referred to the relevant Working Group. Appendix 5 at 15. A document for SA WG5 would therefore begin with "S5." The two digits "nn" represented the year (e.g., 07), and the digits "zzz" represented the unique document number. This document number was used as the TDoc's filename. This general

naming convention has been in use since at least 1999 with only minor variations[10].

40. Each TDoc would include in its header the meeting at which the contributor intended the TDoc to be discussed. Most TDocs were uploaded to the 3GPP website for public viewing prior to the relevant Working Group meeting listed on the TDoc, although some TDocs including those created at meetings, were uploaded during or after the meeting. Appendix 27. Specifically, "TDoc numbers start to be allocated some weeks before a 3GPP meeting; the authors then create them and they or the group's secretary uploads them to the public file server as soon as possible." Appendix 27. The documents were uploaded to the public file repository in an area allocated to the particular Working Group. Appendix 17 (SA WG5 homepage with link to WG5's "Documents Area"). Immediately upon upload, any member of the public could download and access the TDocs and other documents offered for discussion. This process has been in place since I began attending Working Group meetings in 1999.

E. Distribution over the 3GPP listserv

41. An important means of distributing working documents such as TDocs and draft Technical Specifications / Reports (and information about them) to 3GPP

[10] E.g. from 2000, in order to cater for the large number of TDocs being submitted, the number of digits representing the unique document number was increased to four "zzzz."

members and interested members of the public was through the 3GPP email listservs (also referred to as the "email exploder" or "email reflector"). All TSGs and Working Groups, including TSG SA WG5, had listservs corresponding to their groups. Each listserv acted as an email alias that distributed emails and email attachments sent to that alias to every person subscribed to that listserv.

42. Subscribing to a listserv was simple and was open to any member of the public—not just 3GPP members. Appendix 19. The email listservs were featured prominently on 3GPP's web pages, e.g. in 2007 it could be accessed via the "Email exploder lists" link in the header of all main 3GPP pages. Appendix 20, Appendix 12. That link would take a user to a list of email listservs, organized by TSG. Appendix 21. It is my opinion that the 3GPP email listservs were well known among persons interested in following or participating in the development of wireless cellular standards. Appendix 4 at 7 (textbook noting that "[g]iven that 3GPP has participants from all over the world, the use of the Internet, email exploders [i.e., listservs] and other such facilities have proved invaluable for distributing and sharing information, working drafts and so on").

43. There were hundreds subscribers to the SA WG5 and RAN WG2 listservs. The people that subscribed were typically engineers, such as me, but also technology strategists and technical managers. The subscriber list typically included at least all those persons who planned to attend an upcoming meeting where a TDoc

may be discussed. The typical practice among people who were to attend an upcoming meeting was to use the WG's listserv to review and form opinions about the ideas in TDocs. The email listserv for SA WG5 provided an efficient way for contributors to quickly and efficiently discuss draft Technical Specifications, Technical Reports, and TDocs. E.g., as shown in Appendix 22. In my recollection, the number of subscribers for a particular WG listserv usually far exceeded the number of people attending those WG meetings. For example, 37 delegates were listed as attending SA WG5 Meeting #53, which occurred in May 2007. Appendix 23, pp. 2-24. At that point in time, 319 individuals were subscribed to the SA WG5 email listserv. Appendix 21 at 3.

44. No confidentiality limitations or restrictions on further dissemination were placed on documents distributed via the listservs. Appendix 27 "This distribution on the group's email exploder is important, because once that happens, the document is effectively in the public domain, since membership of the exploder is open to all and is (almost) unpoliced."). This has been the practice and understanding since I became involved with 3GPP in 1998.

45. The listserv emails were (and remain) archived in a public online archive (available at http://list.etsi.org/scripts/wa.exe?INDEX). In my experience, this archive has existed and been accessible to interested members of the public since the email lists were created in 1998. Each archived email contains a computer-

generated date stamp indicating when the email was sent and thereby when any attached document became publicly disclosed through distribution to listserv subscribers. In addition, the archives are text searchable, and include advanced searching features. For example, and without limitation, the archives can be searched using keywords, quoted phrases, and terms and connectors (e.g., "and," "or," and "and not"). The archives have been text searchable since at least 2002.

F. The 3GPP Online File Repository

46. 3GPP makes TDocs, draft and approved technical specifications, technical reports, and other materials freely available to interested POSITAs (and to any interested member of the public) through the public file repository on the 3GPP website. Interested POSITAs would have been well aware of 3GPP and of the 3GPP website in the 2007 - 2009 timeframe.

47. As described in paragraph 24, 3GPP documents were accessible to any member of the public through the 3GPP website. Any interested individual, including interested POSITAs, could have downloaded documents from the 3GPP website's file repository without providing any login credentials or other exclusive access criteria. Appendix 9 at 9 "No password is needed to access any information on the 3GPP website, all information is openly published."

48. An interested POSITA could have also accessed the 3GPP file repository directly through the web address www.3gpp.org/ftp. Regardless of how

an individual initially accessed the public files, the indexed navigation of the files followed a clear pattern with the top two levels of indexing within the file repository are based wholly on subject matter, as reflected by the division of subject matter. Appendix 14. As shown in the archived page from December 2008 in Appendix 14, the 3GPP file repository organized "Specs" (commonly understood as shorthand for "Technical Specifications").

49. 3GPP's public file repository provides a reliable mechanism for identifying the date a document was uploaded to the website. When a document is uploaded, the file server automatically assigns the document a time stamp, an accurate and automatically computer-generated electronic record of when the document was uploaded, as part of the regular business practices of 3GPP. *"[T]he time stamp of the Zip file can be relied upon to indicate when the upload occurred*." Appendix 10 (added emphasis). This has always been the practice regarding uploading documents to the file repository, and my personal experience further confirms that the time stamps have always been a reliable way to indicate when a file was uploaded to the 3GPP website. In my experience, whilst the servers used for 3GPP file repository have been updated since 1999 and responsibility for the GSM standard moved from ETSI to 3GPP in 2000, the original upload date for files including specifications has always been preserved, providing a true and accurate indication of their earliest availability for download.

IV. EXHIBIT 1007 ("TR 32.816 V1.0.0")

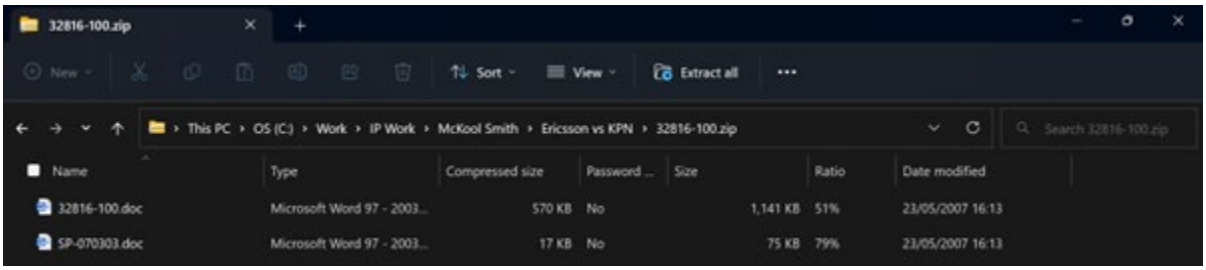
50. 3GPP TR 32.816 v1.0.0 (Ex. 1007) is a draft Technical Report titled "3rd Generation Partnership Project; Technical Specification Group Services and System Aspects; Telecommunication management; Study on Management of LTE and SAE (Release 8)". Ex. 1007 at 1. The report states that it was produced by 3GPP in May 2007. Ex. 1007 at 1. To obtain this document, I directed a web browser to the URL: https://www.3gpp.org/ftp/Specs/archive/32_series/32.816. Appendix 15. I selected the link for "32816-100.zip" and downloaded a zip file of the same name. The zip file contained a Microsoft Word document, titled "32816-100.doc." and "SP-070303.doc" being a cover note to present the draft report to TSG SA plenary meeting for information. A true and correct copy of the Word document within the zip file (32816-100.doc) is provided as Ex. 1007.

51. TS 32.816 v1.0.0 was available to download from 3GPP's public file on May 23, 2007, as evidenced by the upload date corresponding to that file:

Appendix 15, at 1.

52. The word document within the zip file "32816-100.doc" has a date stamp of "23/05/2007." (European data format). An excerpt of the zip file directory

is provided below. Selecting the link for "32816-100.doc" with a date stamp of "23/05/2007" I have confirmed that the technical contents of the file "32816-100.doc" are the same as those provided in TS 32.816 v1.0.0. A true and correct copy of the Microsoft Word document titled "32816-100.doc" is the TS 32.816 v1.0.0 that is provided in Ex. 1007.



53. As I described above in paragraphs 24, 30-32, 46-48, technical specifications were readily available through the 3GPP website in the 2007-2009 time period. Interested POSITAs would have been well aware of 3GPP and of the 3GPP website, and they would have known that 3GPP documents were available to the public. ¶¶ 22–24, 30-32. As specifically explained in paragraph 31, the specifications area of the 3GPP file repository was accessible from the 3GPP website's specifications page (which, in turn, was directly accessible from the 3GPP Home Page through the "Specifications" link). Additionally, the Specifications page provided a direct link to versions of technical specifications grouped according to their approval date. ¶ 30-32. As described in paragraphs 46-48, an interested POSITA had the ability to narrow the relevant specifications of interest based on the

subject matter covered by each Working Group, as well as the specification numbering scheme.

54. In addition, the 319 subscribers to the 3GPP SA WG5 listserv would each have received 6 emails discussing the email agreement of TR 32.816 v1.0.0 for subsequent presentation to TSG SA plenary meeting, and would therefore have been explicitly informed as to its availability. Appendix 22, Appendix 24.

55. With that knowledge, to download TR 32.816 v1.0.0, an interested POSITA could have navigated to the specifications area of the file repository via the direct link on the specifications page. Appendix 11 at 1. As described in paragraph 40, that navigation structure was simple, as it was based on the filename structure. Thus, an interested POSITA would have been capable of navigating to relevant 3GPP specifications on the 3GPP website using reasonable diligence.

56. As I described in paragraph 49, the upload time stamp indicates that 32816-100.zip was uploaded to 3GPP's publicly available website on May 23, 2007, and that any member of the public could have downloaded the zip file, extracted the Word document enclosed, and viewed the contents of the Word document without restriction on that date, and anytime thereafter. As I described in paragraph 40, based on my personal knowledge and experience, this time stamp accurately reflects the date the document was uploaded to the 3GPP public file repository, and I have no reason to believe this time stamp is inaccurate. I have therefore determined that TR

32.816 v1.0.0 was available for any member of the public to download from the 3GPP website as of May 23, 2007. Further, as described in paragraph 24, 3GPP documents were freely available and were not burdened by any confidentiality requirements or restrictions on further dissemination.

57. It is my opinion, therefore, that from May 23, 2007, an interested POSITA using reasonable diligence could have located TR 32.816 v1.0.0 on the 3GPP website, downloaded the reference without providing any credentials, and disseminated the reference to others without restriction.

V. EXHIBIT 1009 ("3GPP TS 36.300 V8.7.0")

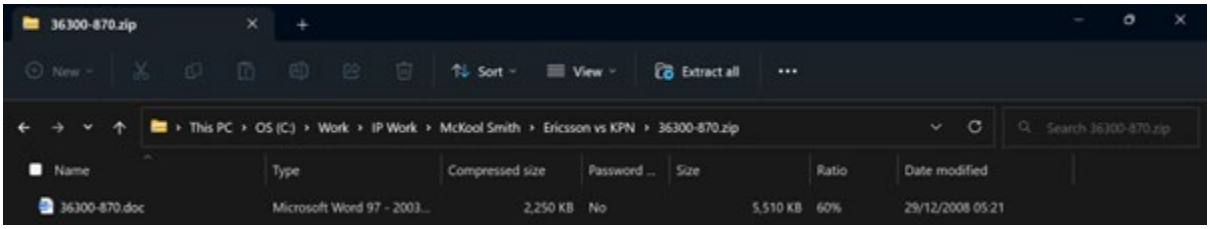
58. 3GPP TS 36.300 v8.7.0 (Ex. 1009) is a Technical Specification titled "3rd Generation Partnership Project; Technical Specification Group Radio Access Network; Evolved Universal Terrestrial Radio Access (E-UTRA) and Evolved Universal Terrestrial Radio Access Network (E-UTRAN); Overall description; Stage 2 (Release 8)". Ex. 1009 at 1. The report states that it was produced by 3GPP in January 2009. Ex. 1009 at 1. To obtain this document, I directed a web browser to the URL: https://www.3gpp.org/ftp/Specs/archive/36_series/36.300. Appendix 25. I selected the link for "36300-870.zip" and downloaded a zip file of the same name. The zip file contained a Microsoft Word document, titled "36300-870.doc." A true and correct copy of the technical contents of the Word document within the zip file (36300-870.doc), is present in Ex. 1009.

59. TS 36.300 v8.7.0 was available to download from 3GPP's public file on January 5, 2009, as evidenced by the upload date corresponding to that file:

36300-860.zip	2008/09/18 13:08	1660,3 KB
36300-870.zip	2009/01/05 8:52	2249,6 KB
36300-880.zip	2009/04/03 13:13	2466,6 KB

Appendix 25, at 1.

60. The word document within the zip file "36300-870.doc" has a date stamp of "29/12/2008." (European data format). An excerpt of the zip file directory is provided below. Selecting the link for "36300-870.doc" with a date stamp of "29/12/2008" I have confirmed that the technical contents of the file "36300-870.doc" are the same as those provided in TS 36.300 v8.7.0. A true and correct copy of the technical contents of the Microsoft Word document titled "36300-870.doc" is provided in Ex. 1009.



61. As I described above in paragraphs 24, 30-32, 46-48, technical specifications were readily available through the 3GPP website in the 2007-2009 timeframe. Interested POSITAs would have been well aware of 3GPP and of the 3GPP website, and they would have known that 3GPP documents were available to

the public. ¶¶ 22–24, 30-32. As specifically explained in paragraph 31, the specifications area of the 3GPP file repository was accessible from the 3GPP website's specifications page (which, in turn, was directly accessible from the 3GPP Home Page through the "Specifications" link). Additionally, the Specifications page provided a direct link to versions of technical specifications grouped according to their approval date. ¶ 30-32. As described in paragraphs 46-48, an interested POSITA had the ability to narrow the relevant specifications of interest based on the subject matter covered by each Working Group, as well as the specification numbering scheme.

62. With that knowledge, to download TS 36.300 v8.7.0, an interested POSITA could have navigated to the specifications area of the file repository via the direct link on the specifications page. Appendix 11 at 1. As described in paragraph 40, that navigation structure was simple, as it was based on the filename structure. Thus, an interested POSITA would have been capable of navigating to relevant 3GPP specifications on the 3GPP website using reasonable diligence.

63. As I described in paragraph 50, the upload time stamp indicates that 36.300-870.zip was uploaded to 3GPP's publicly available website on January 5, 2009, and that any member of the public could have downloaded the zip file, extracted the Word document enclosed, and viewed the contents of the Word document without restriction on that date, and anytime thereafter. As I described in

paragraph 50, based on my personal knowledge and experience, this time stamp accurately reflects the date the document was uploaded to the 3GPP public file repository, and I have no reason to believe this time stamp is inaccurate. I have therefore determined that TS 36.300 v8.7.0 was available for any member of the public to download from the 3GPP website as of January 5, 2009. Further, as described in paragraph 24, 3GPP documents were freely available and were not burdened by any confidentiality requirements or restrictions on further dissemination.

64. It is my opinion, therefore, that from January 5, 2009, an interested POSITA using reasonable diligence could have located TS 36.300 v8.7.0 (Ex. 1009), on the 3GPP website, downloaded the reference without providing any credentials, and disseminated the reference to others without restriction.

VI. EXHIBIT 1008 ("S5-070974")

65. S5-070974 is a technical contribution submitted to 3GPP TSG SA WG5. It follows the general naming format ("Gxmnnzzz.ext") described in the paragraph 39. Accordingly, "S5" indicates that the contribution was submitted to SA WG5, "07" indicates the year (2007) that this technical contribution was submitted, and "0974" is the unique number that was assigned to this contribution document by the working group secretary. It is titled "Discussion on Automatic Neighbour Relation Lists for LTE".

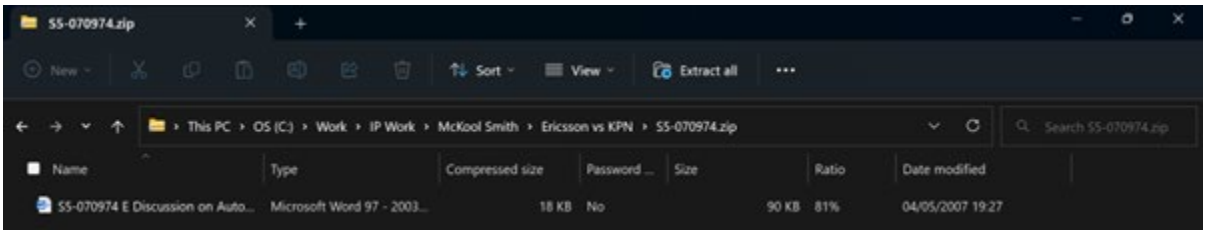
66. Document S5-070974 was revised from S5-070962 and submitted to the SA WG5 meeting #53 in Sophia Antipolis, France, which was held May 7 – 11, 2007. Ex. 1008 at 1. Appendix 23 at 31.

67. As I mention in paragraphs 28, 46-48, meeting documents are, and were in the 2007 timeframe, made publicly available on the 3GPP public file server from where an interested member of the public exercising reasonable diligence could freely access them. "TDoc numbers start to be allocated some weeks before a 3GPP meeting; the authors then create them and they or the group's secretary uploads them to the public file server as soon as possible." (Appendix 27). To confirm the availability of S5-070974 on the 3GPP document server in the 2007 timeframe, I navigated to the 3GPP website at http://www.3gpp.org, selected "Specification Groups" from the menu bar, and then selected "TSG SA" from the dropdown menu. I then selected "SA WG5" and the "Meeting documents" link to access the public file server where documents for the TSG-SA Working Group 5 are stored, and from where I navigated to the documents for SA WG5 #53. S5-070974 was available to download from 3GPP's public file on May 4, 2007, as evidenced by the corresponding upload date:

S5-070973.zip	2007/05/03 17:03	8,2 KB
S5-070974.zip	2007/05/04 16:28	17,9 KB
S5-070976.zip	2007/05/11 9:39	32,7 KB

Appendix 26, at 5.

68. The Docs directory index stated that S5-070974 was uploaded on "2007/05/04" (European date format). I selected the link for "S5-070974.zip" and downloaded a zip file of the same name. The zip file contained a Microsoft Word document, "S5-070974.doc", with a date stamp of "04/05/2007" (European date format) the same day that the zip file was uploaded.



69. A true and correct copy of the document within the zip file (S5-070974) is provided as Ex-1008. Based on my experience, I understand that these date stamps mean that S5-070974.zip was uploaded to 3GPP's publicly available website on May 4, 2007, and that any member of the public could have downloaded the zip file, extracted the Word document enclosed, and viewed the contents of said document without restriction on May 4, 2007 and thereafter. The report from SA WG5 #53 confirms the availability of S5-070974 at that time and that it was available in the meeting. (Appendix 23, p.31). I have no reason to believe the date stamp, nor the report from SA WG5 #53, are inaccurate. I have therefore determined that S5-070974 was publicly available on the file server no later than May 4, 3007.

70. Based on the information above, it is my opinion that S5-070974 titled "Discussion on Automatic Neighbour Relation Lists for LTE" and provided as Ex-

1008 was publicly available to download from the 3GPP file server no later than May 4, 2007 and could have been distributed thereafter without restriction.

VII. SUMMARY

71. Based on the information above, it is my opinion that TR 32.816 v1.0.0 titled "3rd Generation Partnership Project; Technical Specification Group Services and System Aspects; Telecommunication management; Study on Management of LTE and SAE (Release 8)" and provided as Ex. 1007, was publicly available on the 3GPP website on May 23, 2007, from where it could have been located and downloaded by a POSITA using reasonable diligence, and without providing any credentials, and thereafter disseminated to others without restriction.

72. Based on the information above, it is my opinion that TS 36.300 v8.7.0 titled "3rd Generation Partnership Project; Technical Specification Group Radio Access Network; Evolved Universal Terrestrial Radio Access (E-UTRA) and Evolved Universal Terrestrial Radio Access Network (E-UTRAN); Overall description; Stage 2 (Release 8)" and provided as Ex. 1008, was publicly available on the 3GPP website on January 5, 2009, from where it could have been located and downloaded by a POSITA using reasonable diligence, and without providing any credentials, and thereafter disseminated to others without restriction.

73. Based on the information above, it is my opinion that S5-070974 titled "Discussion on Automatic Neighbour Relation Lists for LTE" and provided as Ex-

1008, was publicly available to download from the 3GPP file server no later than May 4, 2007, from where it could have been located and downloaded by a POSITA using reasonable diligence, and without providing any credentials, and thereafter disseminated to others without restriction.

VIII. DECLARATION

74. Pursuant to Section 1746 of Title 28 of United States Code, I declare under penalty of perjury under the laws of the United States of America that the foregoing is true and correct and that the foregoing is based upon personal knowledge and information and is believed to be true, and further, that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States code.

Executed on February 14, 2023.

By: 

Craig Bishop

Curriculum Vitae

Name: Craig Bishop

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

Email: craig@bishopcom.co.uk

Current job title: Independent Consulting Engineer, CEO

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

Key Skills and Experience

- 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

Table of Contents

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.

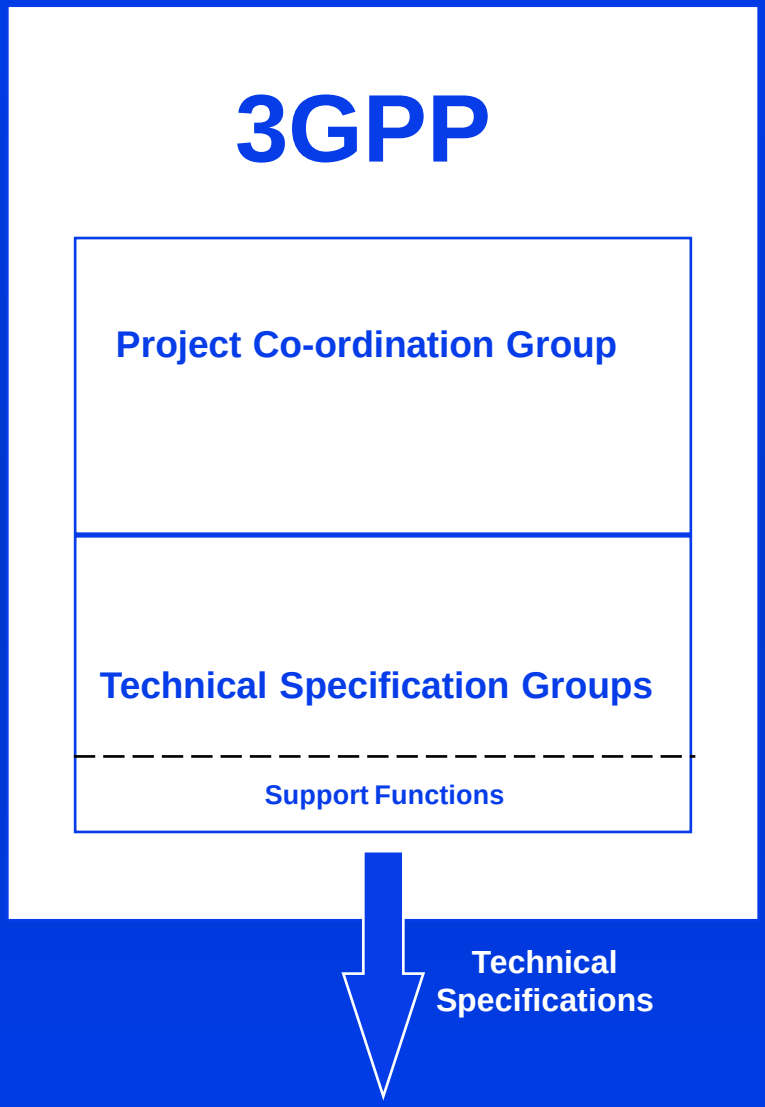
Preamble

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

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

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

3GPP Overview



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).

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**

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.

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**

Characteristics of 3GPP (2)

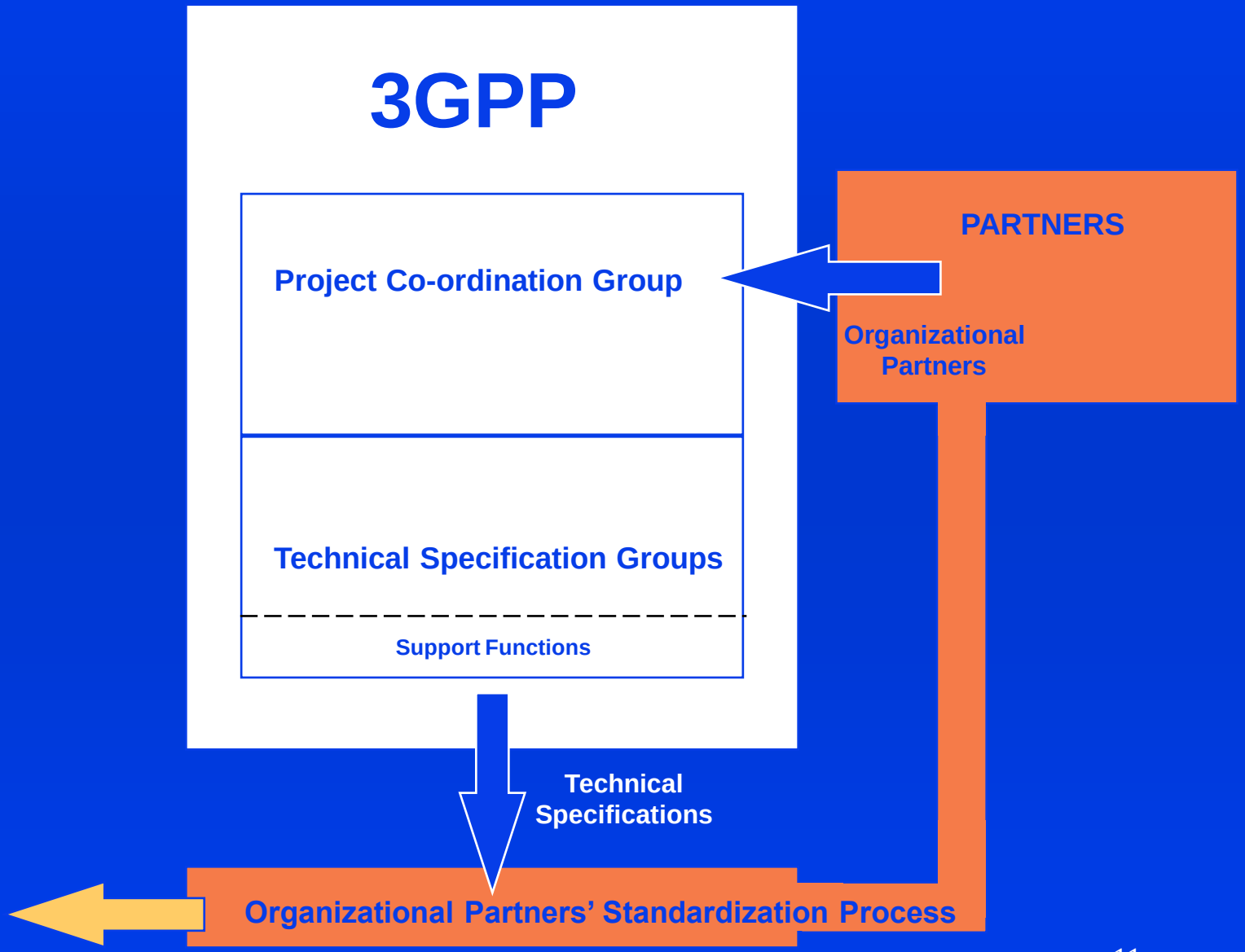
- **A Project Co-ordination function and a Technical Specification function**
- **Task oriented, ensuring that on completion of the tasks the future of the project is re-evaluated**
- **Cost effective use of financial/human resources provided by Partner Organizations (if required)**

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**

Organizational Partners (1)



Organizational Partners (2)

An Organizational Partner is:

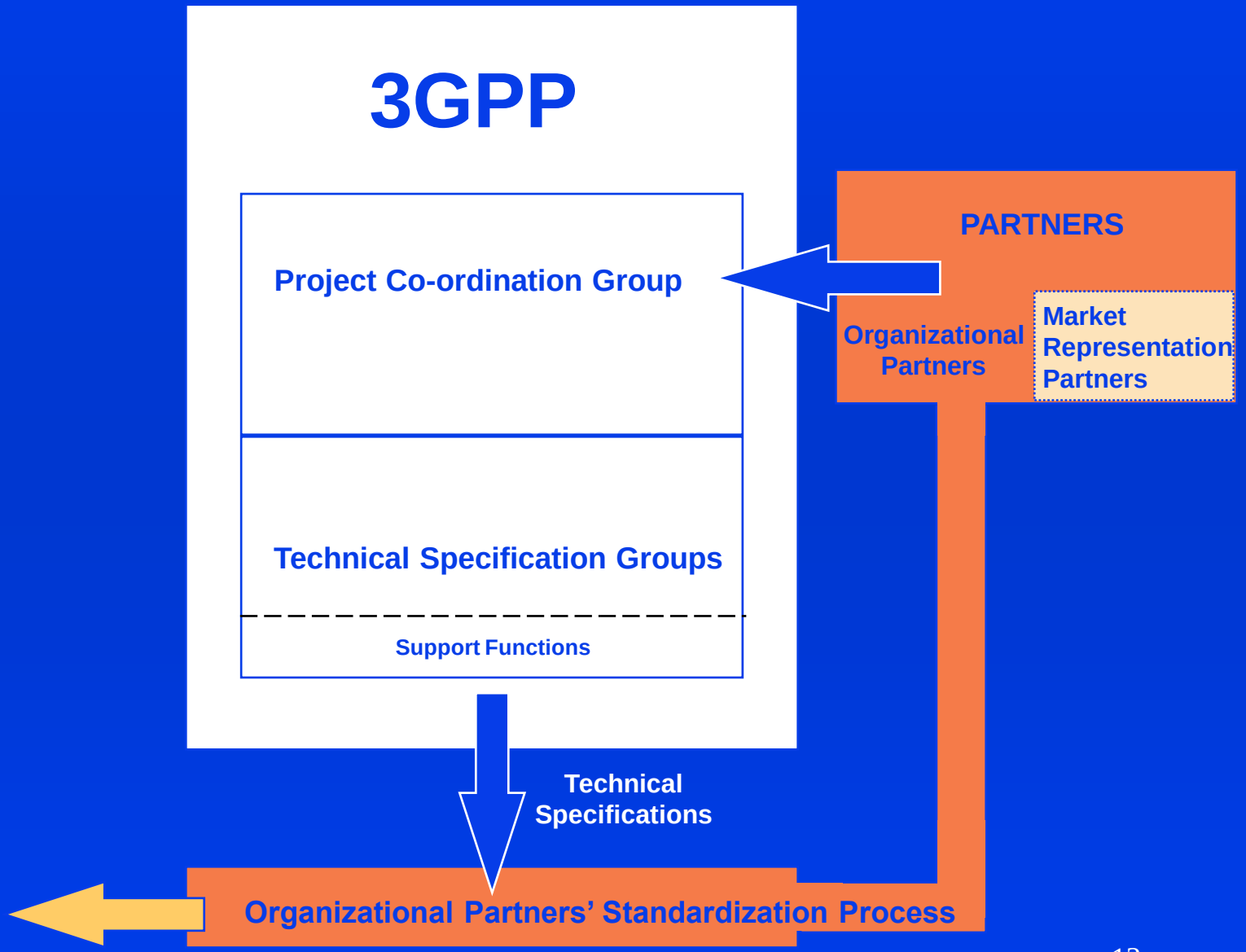
An open standards organization with a national, regional or other officially recognized status (in their country or region)

that:

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

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

Market Representation Partners (1)



Market Representation Partners (2)

Standardization should meet market needs.

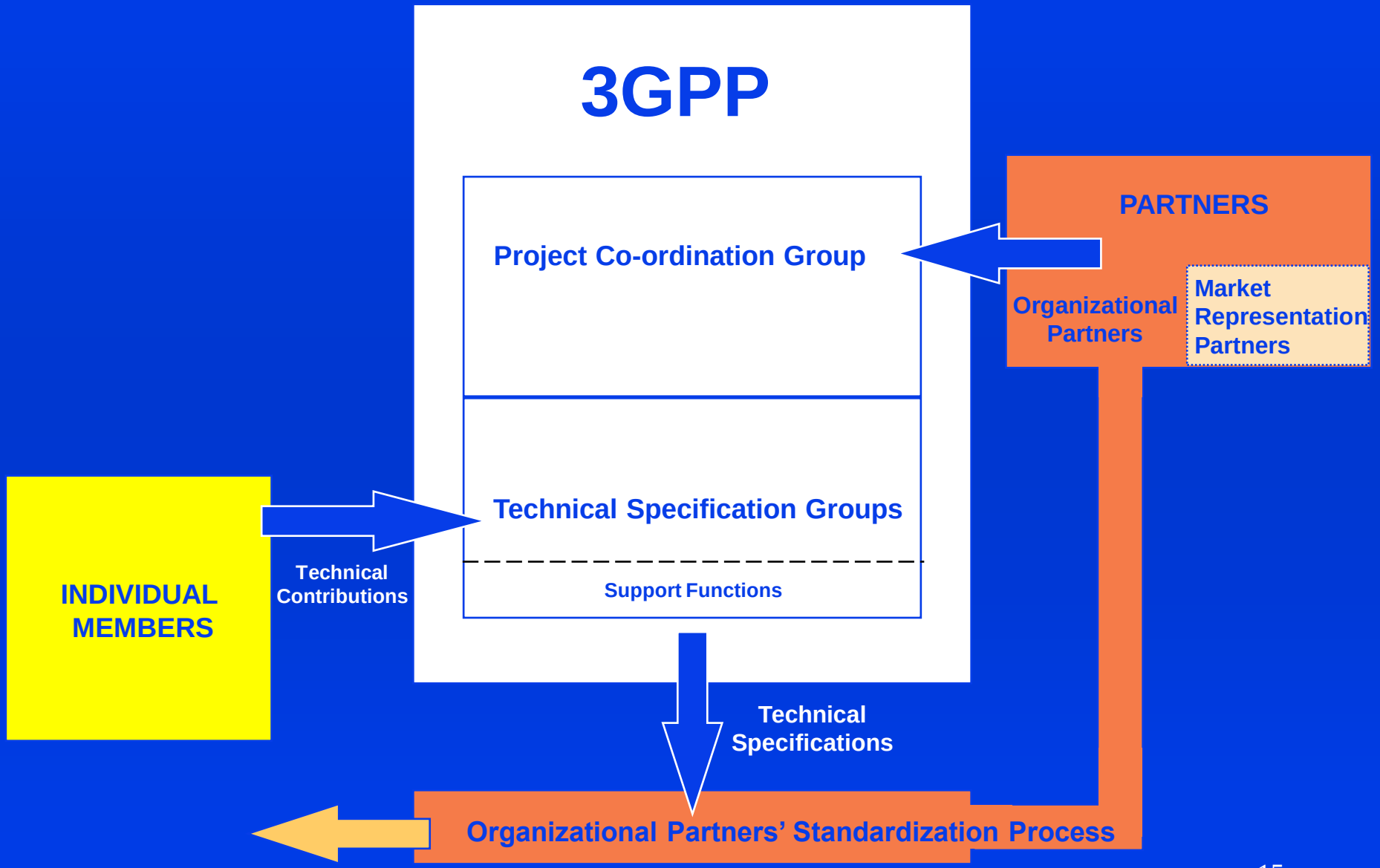
In order to identify market requirements, the high competence of Market Representation Partners should be used.

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**

Individual Members (1)



Individual Members (2)

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

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

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

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

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)

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.

The following 3 documents describe 3GPP:

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

The Partnership Project Agreement (1)

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

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

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

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**

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:

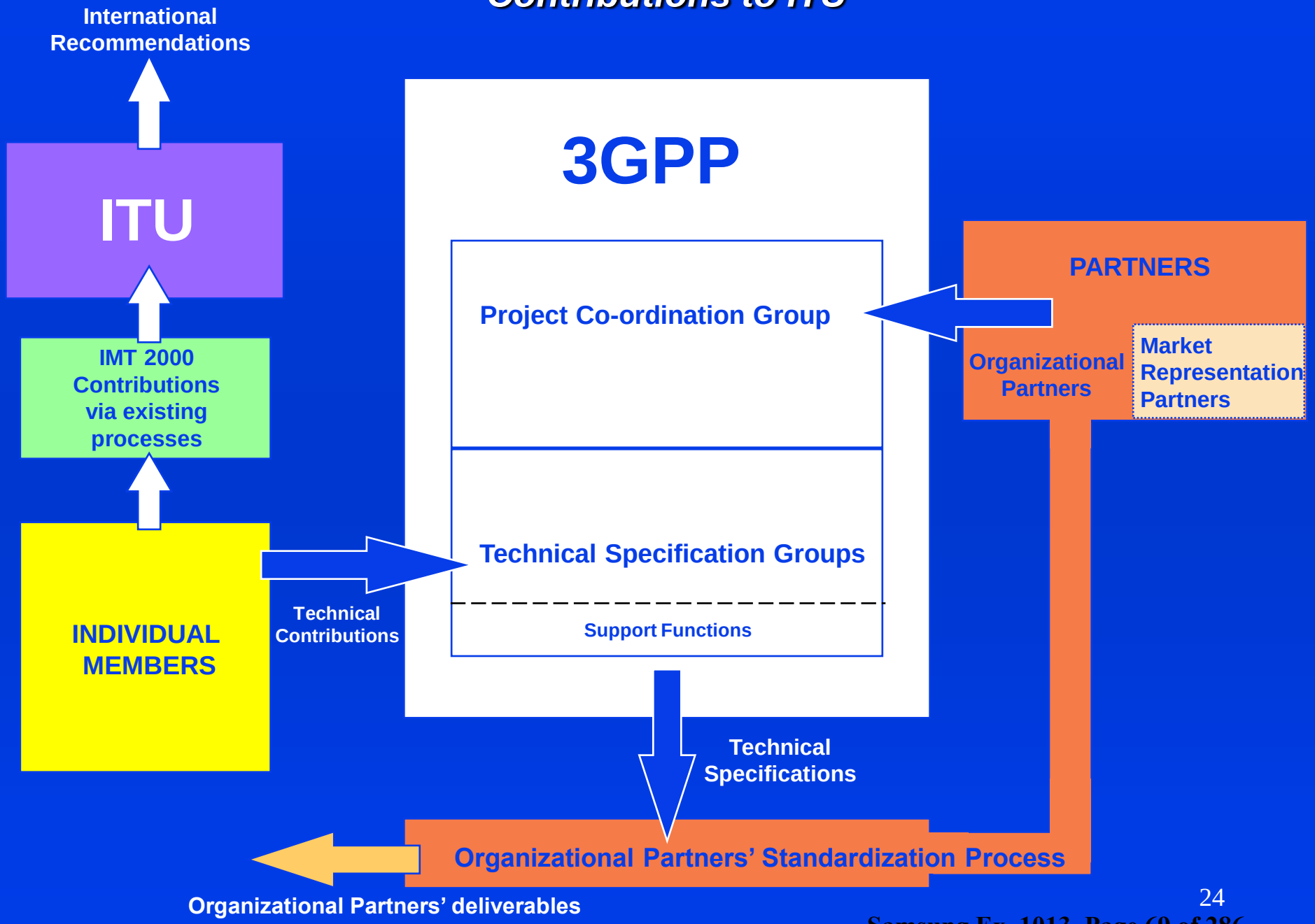
- **the promotion of 3GPP**
- **the definition of 3GPP System and Service scenarios**

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

Ownership of the Partnership Project results

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

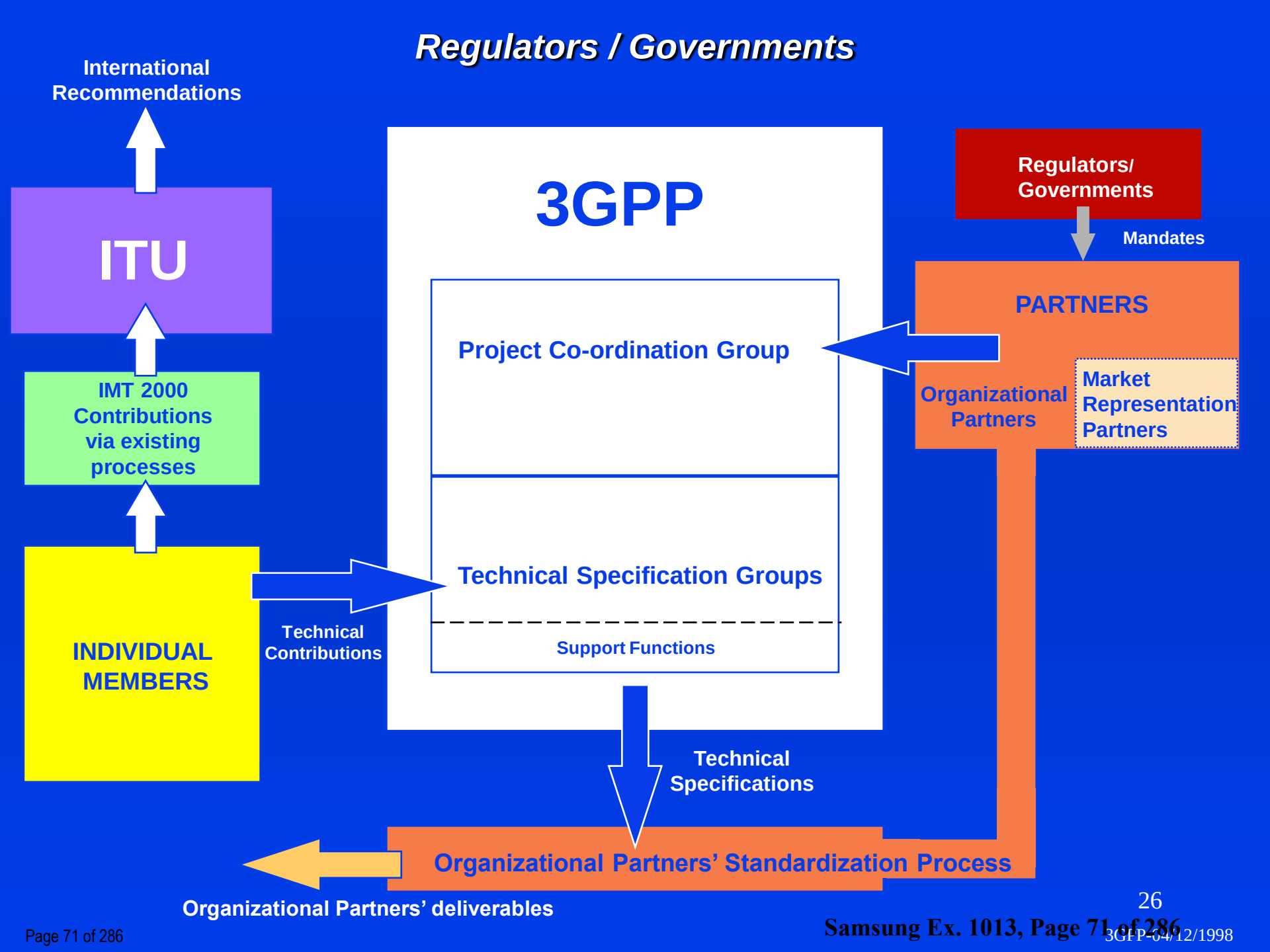
Contributions to ITU



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.


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

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.

Resource requirements for establishing 3GPP

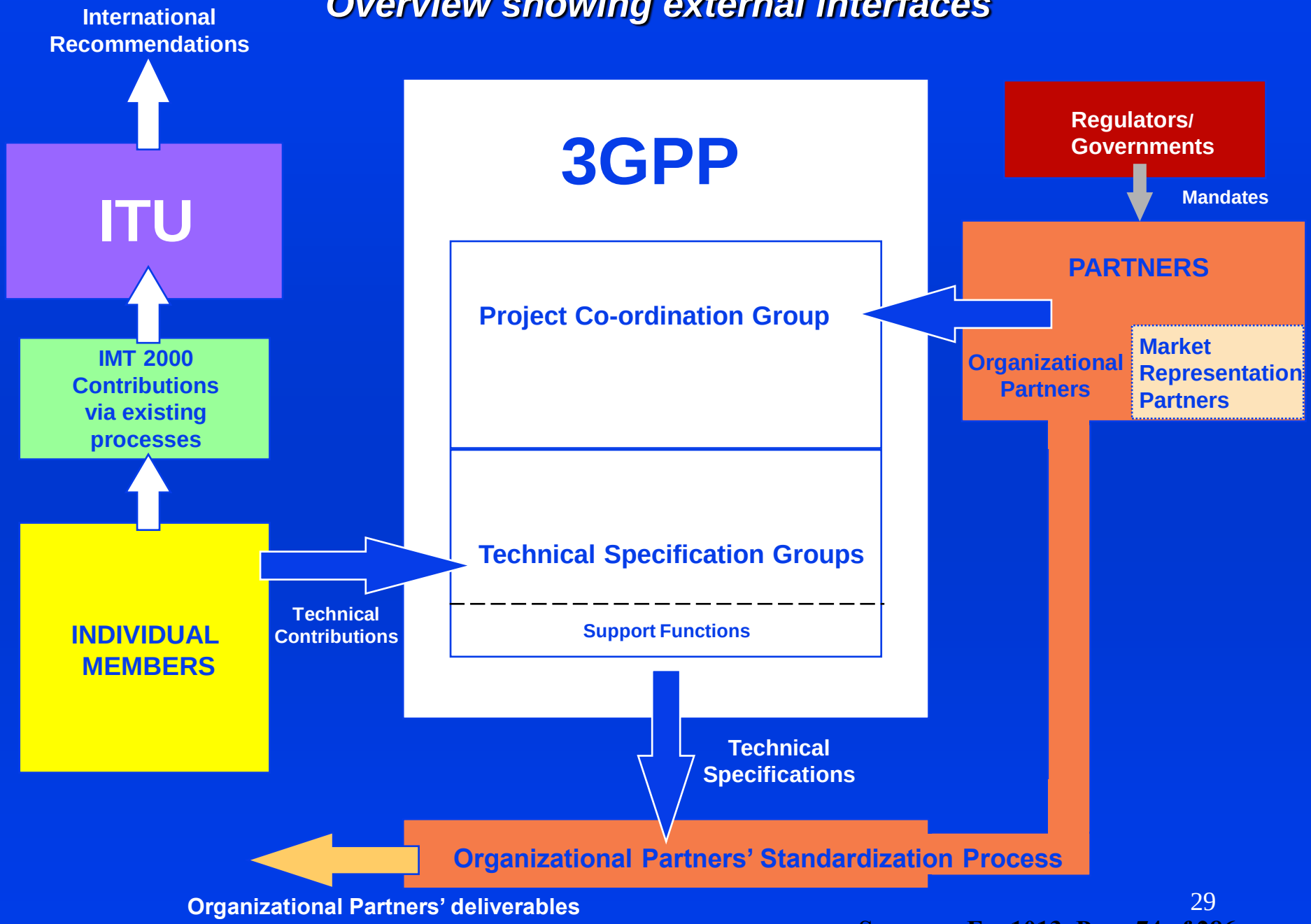
ETSI will absorb the initial cost of establishing the 3GPP, if required.

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.

Overview showing external interfaces

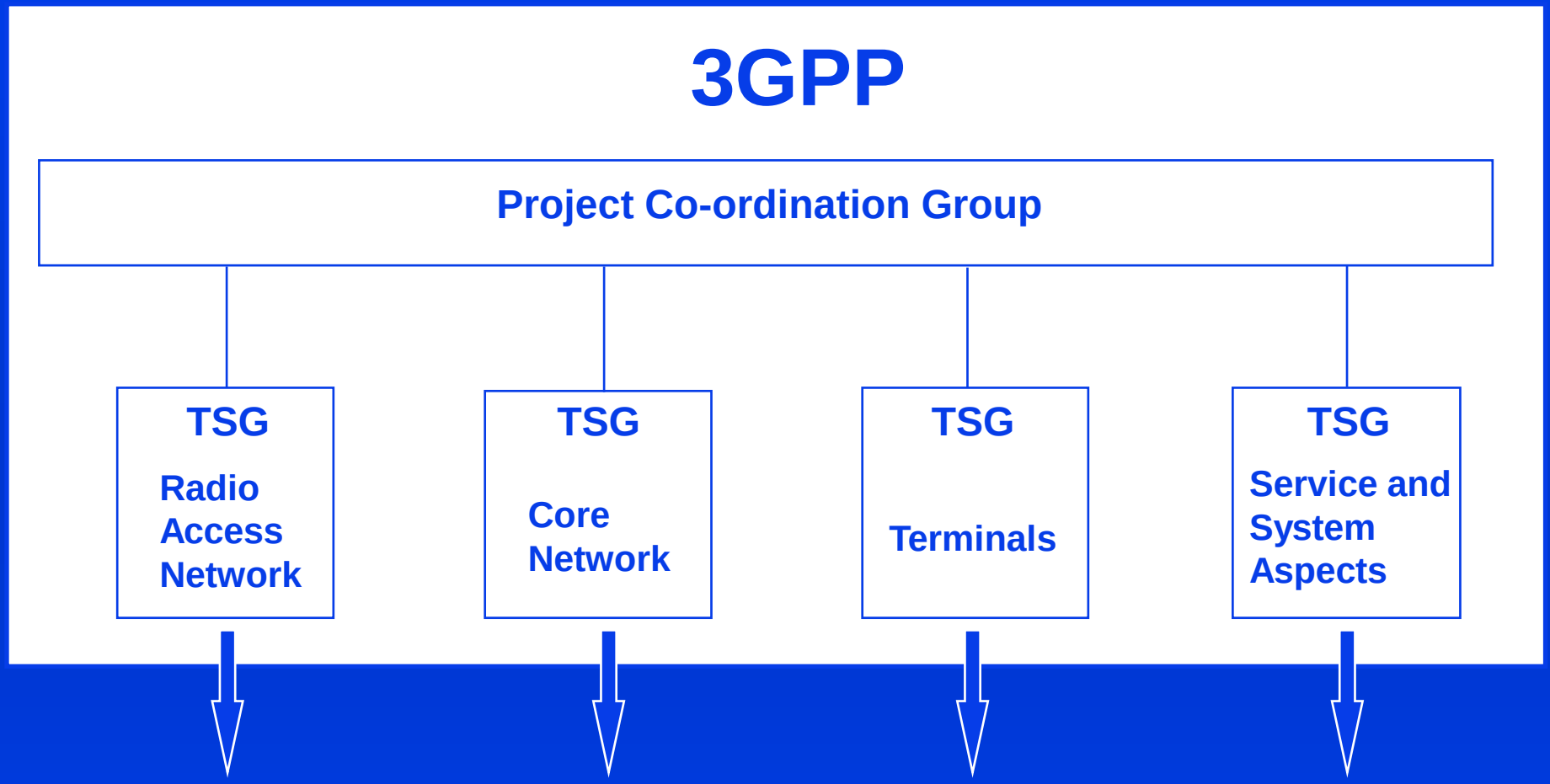


Internal structure of 3GPP (1)

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).

Internal structure of 3GPP (2)



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

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**

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**

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**

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

Primary responsibilities of PCG and TSGs (2)

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

Primary responsibilities of PCG and TSGs (3)

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

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		

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		

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**

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)

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**

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**

Relationship with other groups

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

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.

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.**

Introducing 3GPP

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

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

The Project’s Scope

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

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

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

Organizing the work

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

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

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

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

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

Generational Approach

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

Although these Generations have become an adequate descriptor for the type of network under discussion, real progress on 3GPP standards is measured by the milestones achieved in particular Releases. New features are 'functionality frozen' and are ready for implementation when a Release is completed. 3GPP works on a number of Releases in parallel, starting future work well in advance of the completion of the current Release. Although this adds some complexity to the work of the groups, such a way of working ensures that progress is continuous & stable.

Backward Compatibility

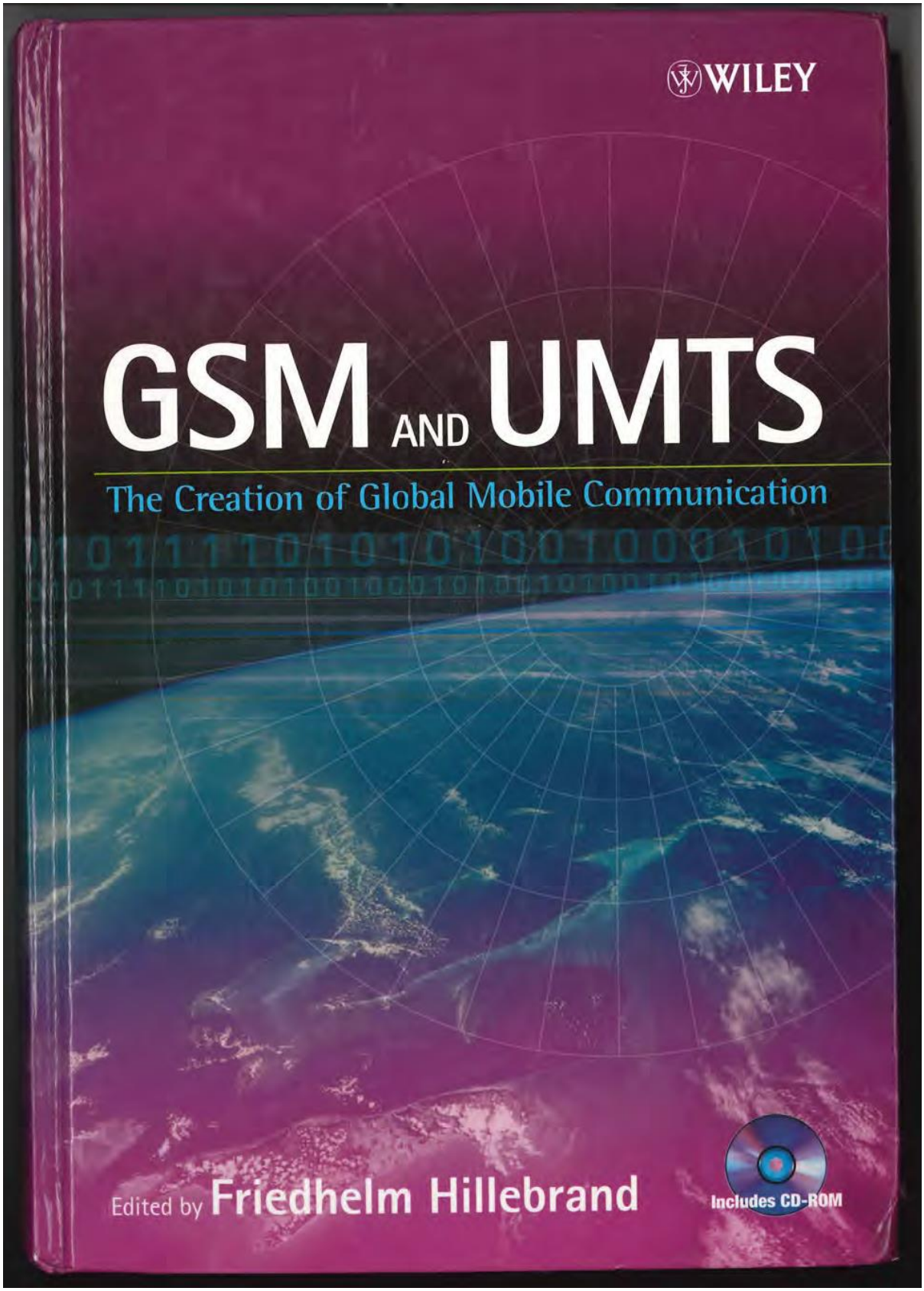
The major focus for all 3GPP Releases is to make the system backwards and forwards compatible where possible, to ensure that the operation of user equipment is uninterrupted.

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

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

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

Previous Next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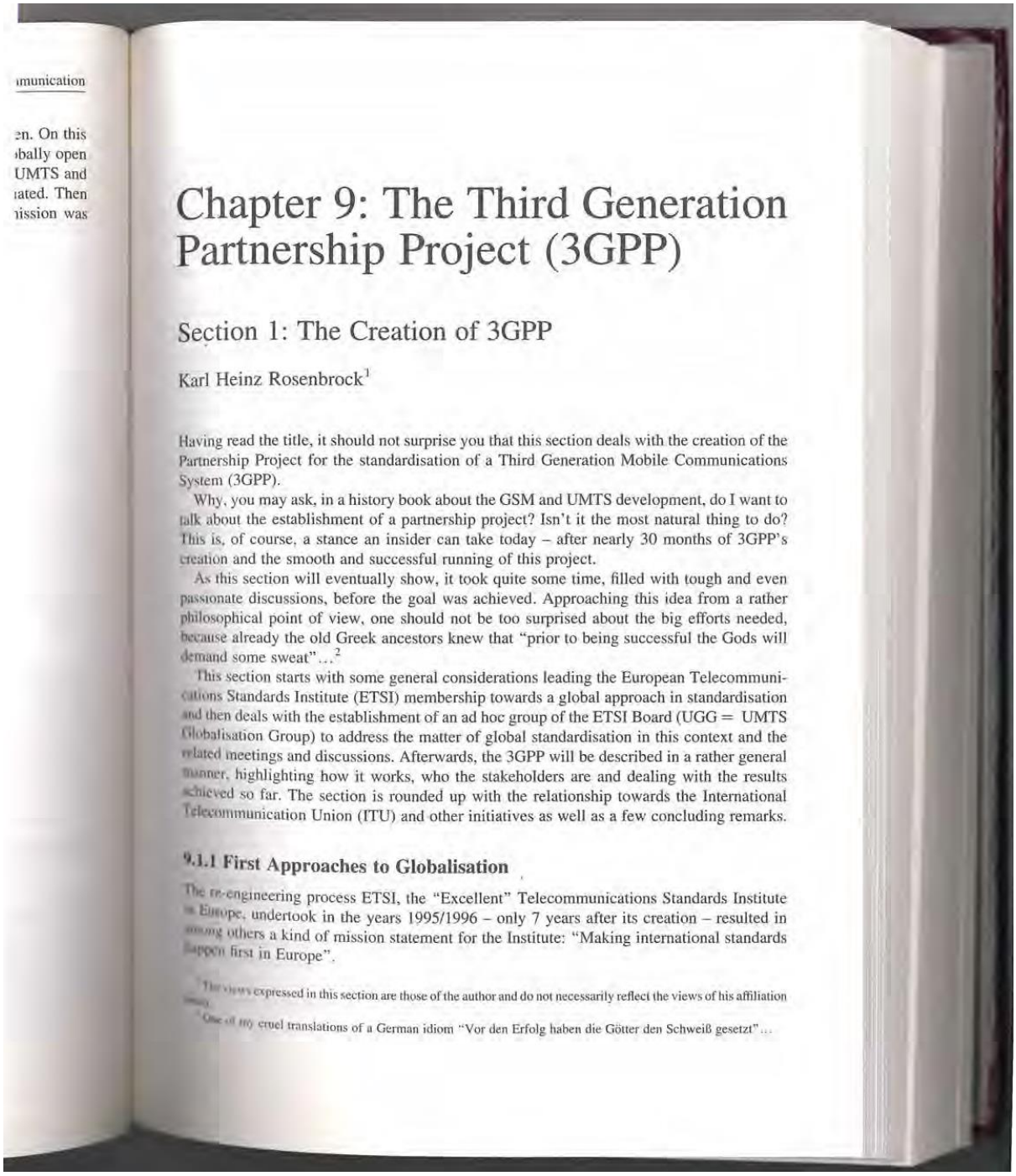

Chapter 9: The Third Generation Partnership Project (3GPP)

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 [illegible].

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

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

9.1.2.4.14 Happy End in Copenhagen

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

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

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

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

9.1.3 What is 3GPP?

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

Partnership in 3GPP is open to all national, regional or other SDOs, irrespective of their geographical location – within the project the participating SDOs are referred to as OPs. The OPs may invite MRPs to participate: these may be any organisation from anywhere in the world that can offer market advice to 3GPP and bring a consensus view of market requirements that fall within the project's scope. Individual membership is open to companies and organisations within the communications industry that are active members of one of the OPs. The truly global nature and the breadth of the market interest in the task of specifying this 3G system is evident from the identity of the 3GPP partners (see further in sub-paragraph 9.13.2) 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

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

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

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

9.1.3.1 How Does 3GPP Work?

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

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

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

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

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

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

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

9.1.3.1.1 Electronic Working

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

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

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

9.1.3.1.2 Project Support

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

9.1.3.2 Who are the Stakeholders in 3GPP?

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

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

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

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

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

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

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

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

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

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

Niels Peter Skov Andersen[1]

9.2.1 A Change of Environment

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

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

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

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

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

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

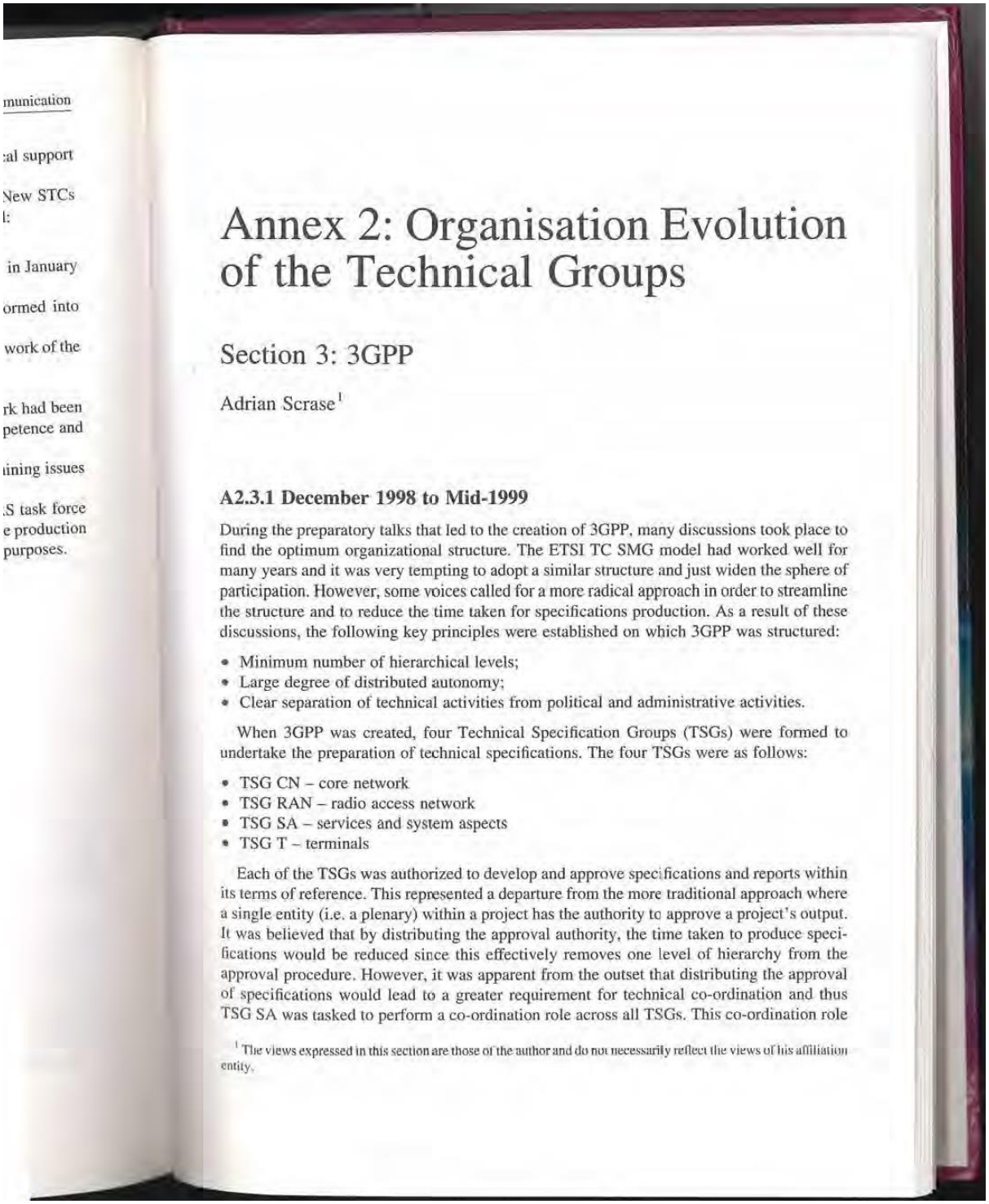
In addition to the technical groups the 3GPP organisation has a Project Coordination Group (PCG). However, the role of this PCG cannot be compared to the role the SMG plenary played. The SMG plenary was an open technical group with the approving authority in all technical questions including approval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

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

9.2.2 The First Two TSG Meetings

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

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



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Annex 2: Organisation Evolution of the Technical Groups

Section 3: 3GPP

Adrian Scrase[1]

A2.3.1 December 1998 to Mid-1999

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

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

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

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

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

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

Third Generation Partnership Project

3GPP

Working Procedures

7 July 1999

Foreword

These Working Procedures of the Third Generation Partnership Project (3GPP) are effective from 7 July 1999.

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

http://www.3gpp.org

Contents

SECTION A: GENERAL

Article 1: Description

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

ARIB (Japan)

CWTS (China)

ETSI (Europe)

T1 (US)

TTA (Korea)

TTC (Japan)

The Partnership Project is entitled the “THIRD GENERATION PARTNERSHIP PROJECT” and may be known by the

Article 2: Purpose

The purpose of 3GPP is to prepare, approve and maintain globally applicable Technical Specifications and Technical Reports for a 3rd Generation Mobile System based on the evolved GSM core network, and the Universal Terrestrial Radio Access (UTRA), to be transposed by the Organizational Partners into appropriate deliverables (e.g., standards).

Article 3: Scope and objectives

The 3rd Generation Mobile System and its capabilities shall be developed in a phased approach. Initially, 3GPP shall prepare, approve and maintain the necessary set of Technical Specifications and Technical Reports for 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);
- Service and system aspects.

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 first phase of the 3GPP core network and the specifications for the GSM core network should be common to the greatest extent possible and should not be unnecessarily different.

The results of the 3GPP work may 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, 3GPP shall prepare Technical Specifications and Technical Reports that are intended to form the basis of standards, or parts of standards, of the Organizational Partners.

SECTION B: PARTICIPATION

Article 4: Categories

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

- Partners;
- Individual Members.
- Observers and Guests

Article 5: Partnership

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

- Organizational Partners;
- Market Representation Partners.

Article 6: Organizational Partnership

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

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

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

Article 7: Market Representation Partnership

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

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

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

Organizations may apply to become Market Representation Partners by writing to any of the existing Partners.

Article 8: Individual Membership

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

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

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

Applications for Individual Membership of a Technical Specification Group shall be made in writing to the relevant Organizational Partner using the form given at **Annex C**.

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

Article 9: Termination of Individual Membership

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

Article 10: Observership and Guests

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

An Observer may send a single representative to an Organizational Partners or PCG meeting. An Observer may also have representatives at TSG meetings. Representatives of Observers may participate in discussions, receive and contribute documents but may not take part in decision making or hold any leadership positions.

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

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

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

SECTION C: STRUCTURE

Article 11: Structure of 3GPP

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

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

SECTION D: PARTNERS' COLLECTIVE RESPONSIBILITIES

Article 12: Organizational Partners' Collective Responsisbilities

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

In addition the Organizational Partners shall perform the following tasks:

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

Article 13: Collective responsibilities of all Partners

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

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

SECTION E: PROJECT CO-ORDINATION GROUP (PCG)

Article 14: PCG tasks

The PCG shall perform the following tasks:

- appointment of PCG Chairman and Vice Chairmen;
- allocation of human and financial resources provided by Organizational Partners to TSGs;
- allocation of voluntary human and financial resources provided by Market Representation Partners and Individual Members;
- management of the 3GPP Support Team;
- handling of appeals from Individual Members on procedural matters referred to them;
- propose and approve modifications to the Partnership Project Working Procedures
- handling of appeals from Individual Members on technical matters referred to them;

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

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

Article 15: PCG participation

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

- Three representatives of each Organizational Partner;
- Three representatives of each Market Representation Partner;
- The Chairmen and Vice Chairmen of the TSGs as ex-officio members.
- One representative of each Observer

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Article 16: PCG appointment of Chairman and Vice Chairman

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

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

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

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

Article 17: PCG Chairman Responsibilities

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

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

The Chairman may nominate officials to assist in the work.

The Chairman may be assisted by the Support Team.

The Chairman may delegate tasks to the Vice Chairmen.

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

Article 18: PCG meetings

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

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

Article 19: PCG decision making

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

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

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

SECTION F: TECHNICAL SPECIFICATION GROUPS

Article 20: TSG tasks

The TSGs shall prepare, approve and maintain the 3GPP Technical Specifications and Technical Reports.

The TSGs shall also perform the following tasks:

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

- Assignment of work to Partners. (Specification development may be accomplished using various methods, including the assignment of work to Partners.)
- Maintenance of the list of Individual Members eligible to vote within the TSG (Voting Members).

Article 21: TSG participation

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

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

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

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

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

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

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

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

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 a vailable

When a new TSG is established, the Organizational Partners shall appoint a convenor for the first two TSG meetings. The initial election for TSG Chairman and Vice Chairmen shall take place at the second TSG meeting.

When a new TSG Working Group is established, the TSG shall appoint a Convenor for the first two Working Group meetings. The initial election for Working Group Chairman and Vice Chairmen shall take place at the second Working Group meeting.

Article 23: TSG Chairman responsibilities

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

The Chairman may nominate officials to assist in the work.

The Chairman may delegate tasks to the Vice Chairmen.

The Chairman may be assisted by the Support Team.

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

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

Article 24: TSG and WG Chairman and Vice Chairmen dismissal

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

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

Article 25: TSG and WG decision making

TSGs and WGs shall endeavour to reach consensus on all issues, including decisions on Technical Specifications and Technical Reports. If consensus cannot be achieved, the Chairman can decide to take a vote. The vote may exceptionally be performed by a secret ballot if decided by the TSG or WG. A vote may be conducted during a TSG or WG meeting or by correspondence.

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

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

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

Article 26: TSG and WG voting during a meeting

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

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

Article 27: TSG or WG voting by correspondence

The following procedures apply for voting by correspondence:

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

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

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

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

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

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

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

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

Article 30: TSG and WG meetings

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

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

Article 31: TSG and WG meeting invitation

The invitation to a TSG or WG meeting and the necessary logistical information shall be disseminated at least 21 days before the meeting to all on the TSG or WG membership list.

Article 32: TSG and WG meeting agenda

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

Article 33: TSG and WG meeting registration

Every attendee shall register on arrival at each TSG or WG meeting. Each attendee who represents an Individual Member shall declare the precise name of that Individual Member. An attendee may only register to represent one Individual Member. This information shall be used for the preparation of voting forms.

Article 34: TSG and WG meeting document and file naming

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

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

This numbering system has four logical elements:

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

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

   N (Core Network)

   S (Service and System Aspects)

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

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

Gxmnnzzz.ext

This numbering system has four logical elements:

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

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

   N (Core Network)

   S (Service and System Aspects)

   T (Terminals)
2) **m** Working Group identity (if required)
3) **nn**: to indicate the year, e.g. (98);

4) **zzz**: unique number of the document or its status, etc.

5) .**ext**: file type extension e.g. pdf, rtf

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

Article 35: TSG and WG Participant and Membership List

Each TSG shall maintain a list of active participants and voting members. To qualify for either list it is necessary to attend TSG or WG meetings. Individuals who fail to attend three consecutive meetings of a TSG or WG without justification shall be removed from the active participants list. A member or company (or agency) which is not represented at three consecutive meetings of the TSG or WG without justification shall be removed from the voting members list. In either case, those removed shall be re-instated after attending one meeting. The right to vote is reinstated at the next meeting attended.

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

Voting members shall designate a Principal and Alternate individual for document distribution and voting. Either of these individuals may designate a replacement in writing to represent them. This is not considered a proxy if the person designated registers as representing the same Individual Member.

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

Article 36: TSG Sub Working Groups

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

SECTION G: WORK PROGRAMME AND TECHNICAL CO-ORDINATION

Article 37: Work Programme

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

Article 38: Work Items

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

- title;
- intended output (ie Technical Specifications or Technical Reports);
- impact on other Technical Specifications and Technical Reports;

- technical scope, including the field of application of the intended output;
- impact on other 3GPP Work Items;
- the schedule of tasks to be performed;
- the identities of the supporting Individual Members;
- the identity of the Work Item Rapporteurs.

Article 39: Work Item creation

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

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

Article 40: Work Item adoption by PCG

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

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

Article 41: Work Item stopping

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

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

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

Article 42: Technical co-ordination

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

SECTION H: DELIVERABLES

Article 43: Deliverable types

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

Article 44: Approval process

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

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

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

Article 45: Drafting rules

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

Article 46: Copyright and ownership

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

Article 47: Conversion by Organizational Partners

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

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

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

SECTION I: REPORTING

Article 48: Chairman’s reporting obligations

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

Article 49: Changes to structure and officials

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

Article 50: Calendar of meetings

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

SECTION J: EXTERNAL RELATIONS

Article 51: Relationship with the ITU

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

3GPP will not contribute directly to the ITU. Formal contributions to ITU Study Groups shall be made by Indivividual Members who are also members of the ITU. 3GPP Technical Specifications and Technical Reports may be taken as the technical content of such contributions.

Article 52: Relations with other groups

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

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

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

The external liaison approval process is described in Annex D.

SECTION K: MISCELLANEOUS

Article 53: Resources

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

Article 54: Support Team

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

Article 55: Intellectual Property Rights (IPR) Policy

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

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

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

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

Article 56: Working language

The working language for 3GPP shall be English.

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

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

Article 57: Duration

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

Article 58: Review of activities

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

Article 59: Dissolution, winding up

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

Article 60: Amendments to 3GPP Working Procedures

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

Annex A: Definitions

Attendee:	An individual taking part in a TSG/WG meeting physically or by electronic means, if not designated as a face-to-face meeting.
Consensus:	General agreement, characterized by the absence of sustained opposition to substantial issues by any important part of the concerned interest and by a process that involves seeking to take into account the views of all parties concerned and to reconcile any conflicting arguments. (Note: consensus need not imply unanimity).
Conversion:	The transformation of a 3GPP output document into an Organizational Partners deliverable following the Organizational Partners' recognized processes.
Drafting Rules:	A document approved by the Organizational Partners providing rules for the drafting of 3GPP Technical Specifications and Technical Reports.
Election:	The voting process used to identify an individual from a number of individuals.
Guest:	An entity fulfilling the criteria to become a future Individual Member, which has been granted temporary participation rights in the 3GPP
Individual Member:	A member of an Organizational Partner having participation rights within that Organizational Partner and which has registered to take part in 3GPP.
Market Representation Partner:	An Partner invited by the Organizational Partners to participate in 3GPP to offer advice and to bring into 3GPP a consensus view of market requirements.
Observer:	An Organization fulfilling the criteria to become a future Partner which has been granted temporary participation rights in the 3GPPOrganizational Partner: A recognized Standards Organization which has been accepted as a Partner in 3GPP.
Partner:	An Organizational Partner or a Market Representation Partner of 3GPP.
Partnership Project Agreement:	The document signed by 3GPP Partners defining their rights and obligations.
Partnership Project Description:	A document which describes the overall structure and operation of 3GPP.
Sub Working Group	A subordinate body of a Working Group.
Support Team:	A number of persons dedicated to support 3GPP.
Technical Report:	A 3GPP output document containing mainly informative elements approved by a Technical Specification Group.
Technical Specification:	A 3GPP output document containing normative provisions approved by a Technical Specification Group.
Voting Member	An Individual Member who has voting rights within a TSG/WG.
Work Item:	The documented record of a specific technical activity of 3GPP.
Work Programme:	The documented record of the all technical activities of 3GPP.
Working Group:	A subordinate body of a Technical Specification Group.

Annex B: Abbreviations

3GPP	Third Generation Partnership Project
ARIB	Association of Radio Industries and Businesses
CDMA	Code Division Multiple Access
CWTS	China Wireless Telecommunications Standards Group
ETSI	European Telecommunications Standards Institute
FDD	Frequency Division Duplex
GSM	Global System for Mobile Communication
IMT-2000	International Mobile Telecommunication
ITU	International Telecommunication Union
PCG	Project Co-ordination Group
SWG	Sub Working Group
T1	Standards Committee T1
TDD	Time Division Duplex
TSG	Technical Specification Group
TTA	Telecommunications Technology Association
TTC	Telecommunication Technology Committee
UIM	User Identity Module
UTRA	Universal Terrestrial Radio Access
UTRAN	Universal Terrestrial Radio Access Network
W-CDMA	Wideband CDMA
WG	Working Group

Annex C: Individual member application form

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

COMPANY NAME ……

Please indicate below which ORGANIZATIONAL PARTNER you are a member of

ARIB	
CWTS	
ETSI	
T1	
TTA	
TTC	

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

Radio Access Network	
Core Network	
Terminals	
Service and System Aspects	

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

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

ANNEX D: EXTERNAL LIAISON APPROVAL PROCESS

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

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

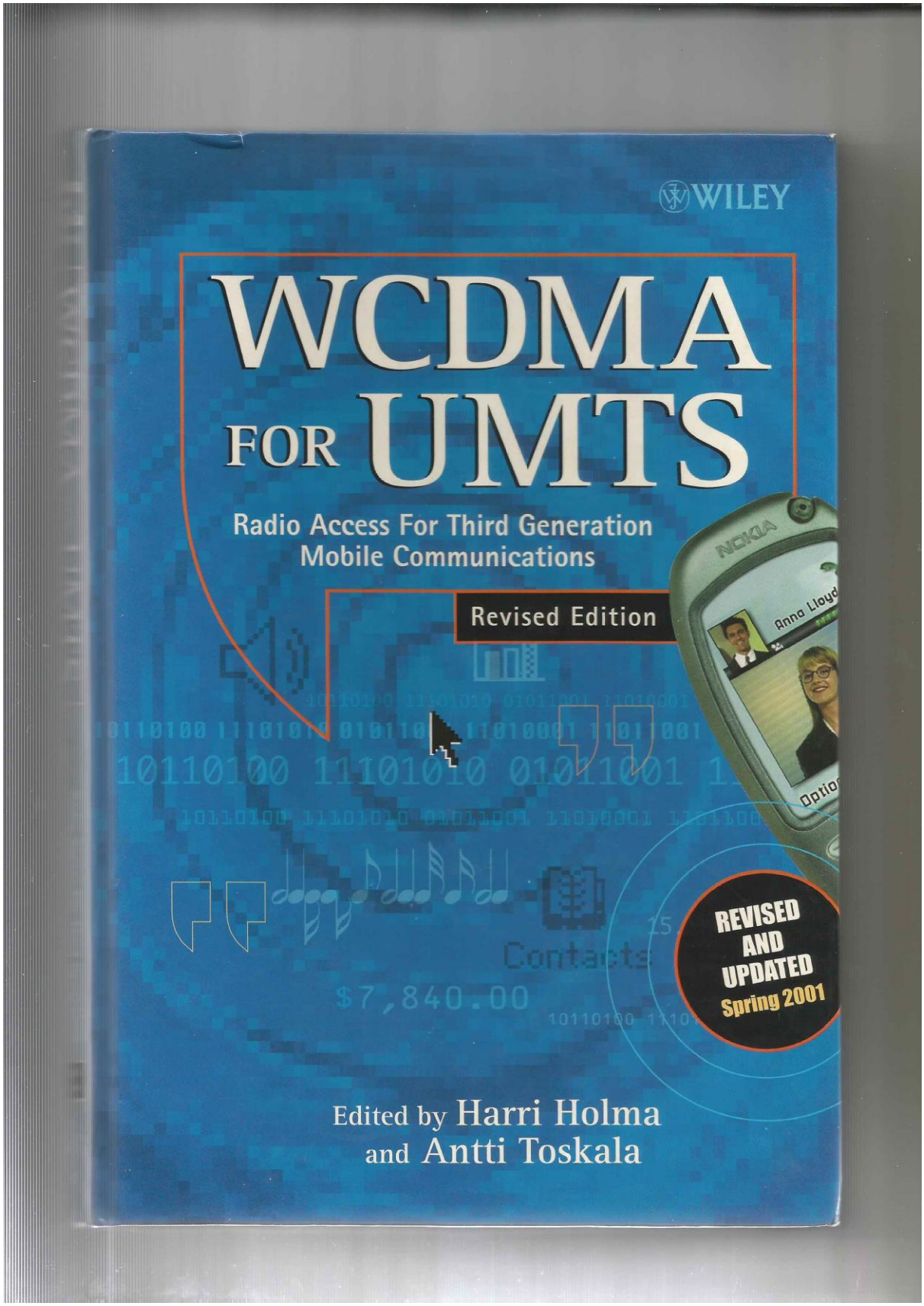
  (a) Name of Organization

  (b) Contact information (including URL)

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

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

- PCG Secretary shall send request to the PCG exploder list giving deadline for negative comments
- Request shall be considered approved unless negative comments received
- PCG Secretary will inform PCG members and update the web page accordingly
- A TSG or any subtending Working Group may send individual liaisons to any external organization on that TSGs approved list without further PCG approval, except if the statement is considered "sensitive" by the TSG Chairman, in which case PCG clearance is needed.
- It is not necessary to have all external liaisons copied to the PCG and/or TSG SA. The liaison originating TSG should decide, at its own discretion, who should be copied. External liaisons that may have management implications such as schedules, organization, process, procedures, and policy shall be copied to the PCG, or approved by the PCG if "sensitive".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4.5.3 *cdma2000*

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

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

4.5.4 *TR46.1*

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

4.5.5 *WP-CDMA*

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

4.6 Creation of 3GPP

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

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

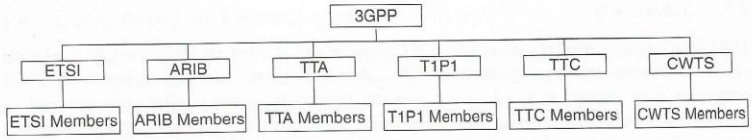

Figure 4.2. 3GPP organisational partners

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.

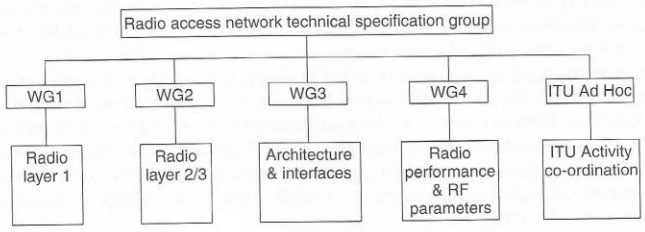

Figure 4.3. 3GPP RAN TSG working groups

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.

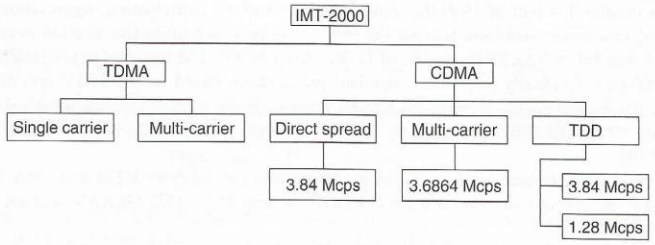

Figure 4.4. ITU-R IMT-2000 grouping

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.

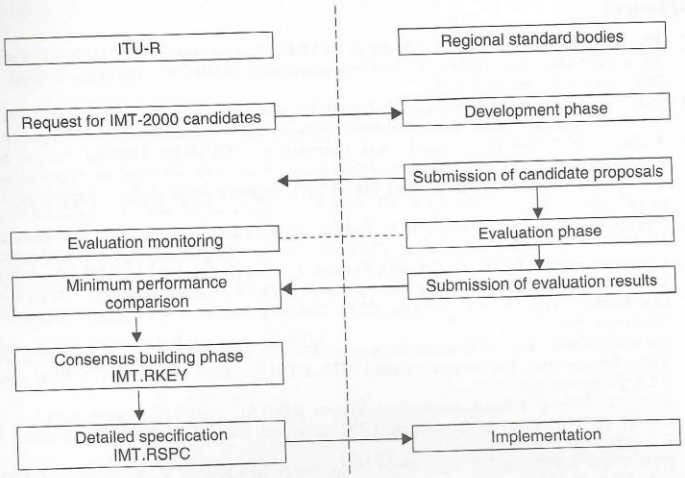

Figure 4.5. Relationship of ITU-R to the regional standards bodies

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

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

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

3GPP PCG#23
Denver, US, 27 October 2009
PCG23_12

LATE CONTRIBUTION

MCC Activity Report

Source

Adrian Scrase

Contents

- Organizational Changes
- Resource Allocation
- Workload
- 3GPP Membership
- 3GPP Meeting Participation
- 3GPP Satisfaction Survey
- OP Improvement Actions update
- Marketing and Communications
- IT Service at Working Group Meetings
- Outlook for 2009

Organizational Changes

Departures

Dr Stefania Sesia
has decided it is time to return to her original company (now called ST-Ericsson).

Stefania spent two years in MCC supporting the RAN Plenary and RAN4.

She will depart following the October 2009 RAN4 meeting but will ensure a smooth handover to her successor during the month of November.

A Call for Experts has been issued and has now closed.

Organizational Changes

Arrivals

Dr Issam Toufik
has been selected to support RAN4. Issam will work as a contractor to MCC whilst remaining with his company ST-Ericsson.

Issam has direct experience in the work of RAN4 and comes highly qualified to provide the sort of support which RAN4 has grown to expect.

He will start with MCC on or about 1 November.

Organizational Changes

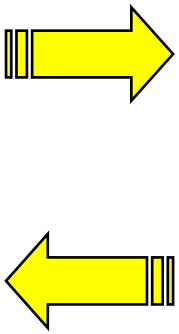
Reallocation of Work

Joern Krause
will now support the RAN Plenary as well as RAN2. Joern has considerable experience in MCC and is ideally suited to this task.

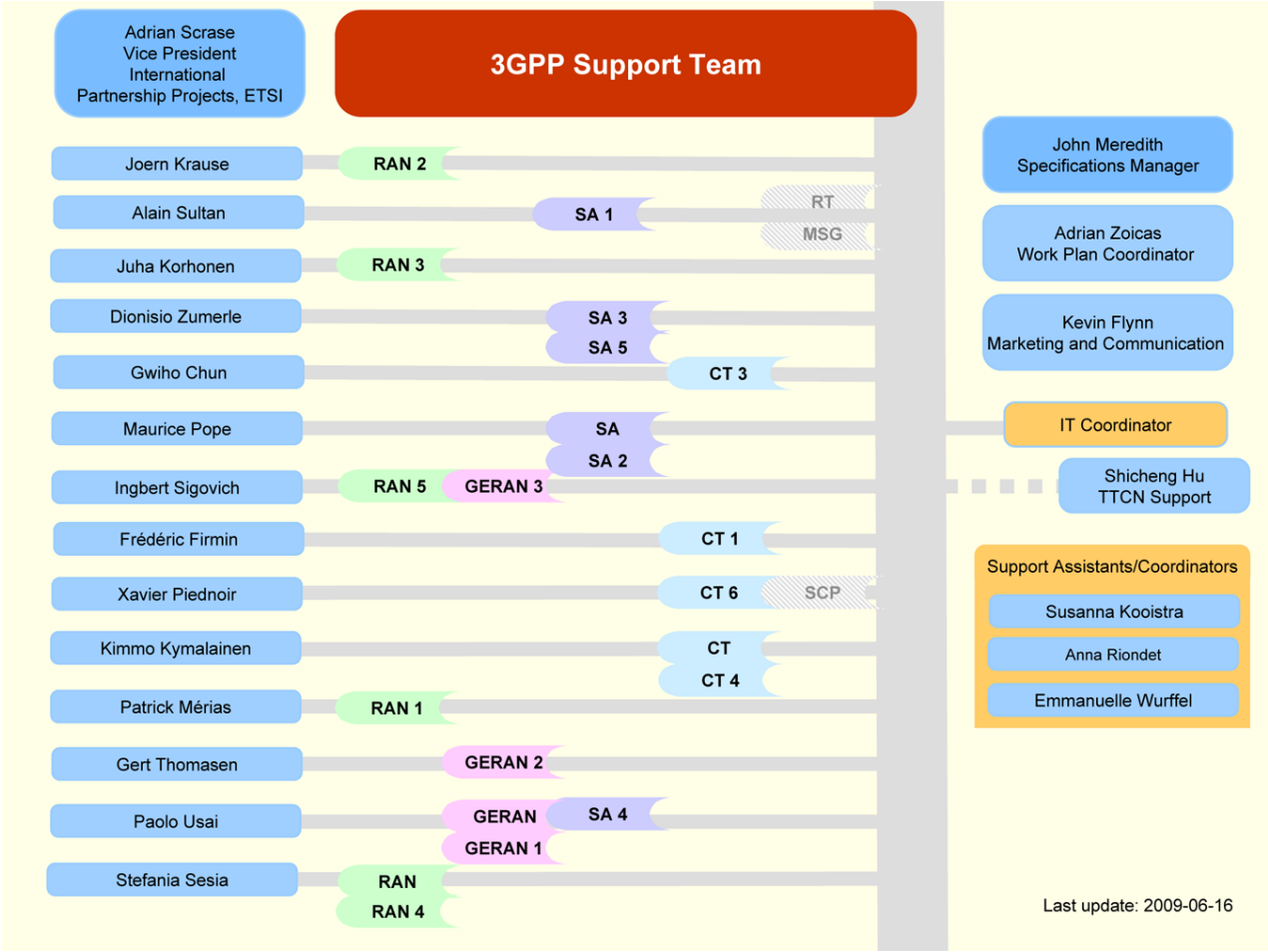
Organizational Changes

Reallocation of Work

In a minor internal reshuffle to ensure the best skills fit
Gert Thomasen
and
Juha Korhonen
have swapped groups. Gert now again supports GERAN2 and Juha supports RAN3.



Current Resource Allocation



Workload

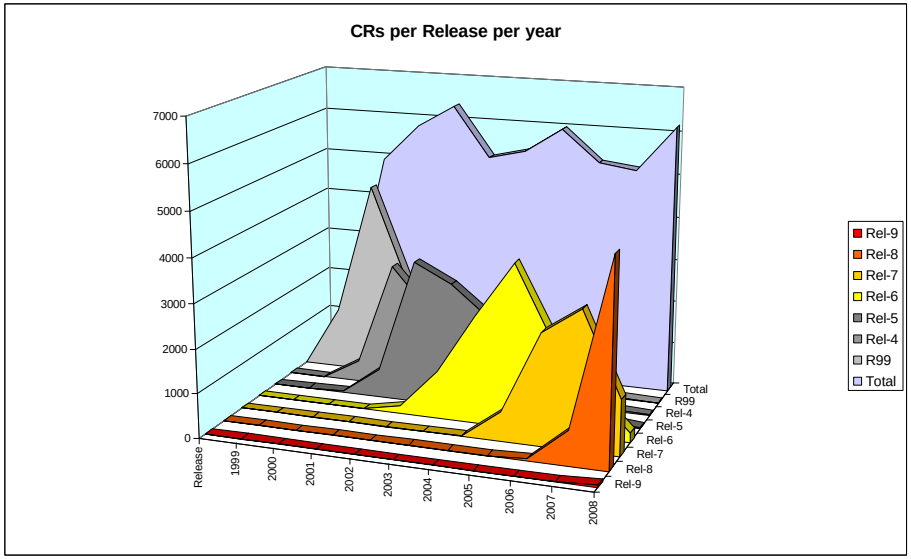
Approved CRs per Release per Year

Release	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Total
R99	1408	4398	2266	1004	581	512	111	42	23	5	1	**10351**
Rel-4		376	2828	1900	690	257	122	63	48	22	11	**6317**
Rel-5		27	644	3274	2842	2162	1357	509	94	25	11	**10945**
Rel-6				172	1088	2458	3721	2074	1078	212	36	**10839**
Rel-7					1	20	663	2529	3132	1262	265	**7872**
Rel-8								49	777	4609	3985	**9420**
Rel-9										49	521	**570**
Rel-10											1	**1**
Total	**1408**	**4801**	**5738**	**6350**	**5202**	**5409**	**5974**	**5266**	**5152**	**6184**	**4831**	**56315**

* To date, excluding Sept TSG meetings

Please note:

More than 2700 CRs were approved during the Sept TSG meetings



Workload

Active Specifications per Release

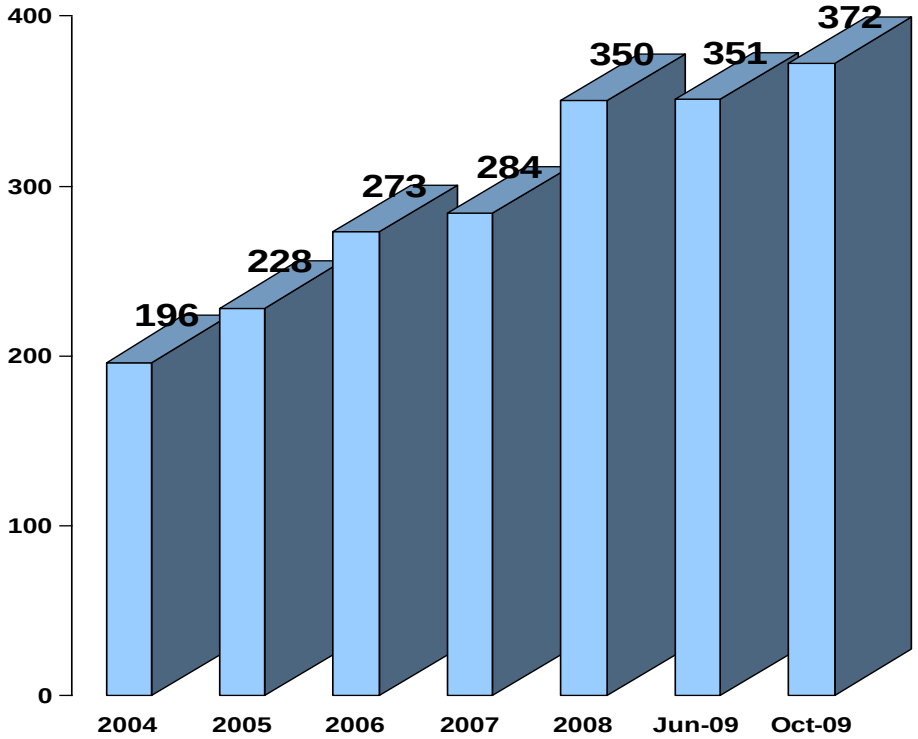
RELEASE	NUMBER OF ACTIVE SPECS *
GSM Phase 1 #	122
GSM Phase 2 #	184
GSM Phase 2+ Release 96 #	201
GSM Phase 2+ Release 97	220
GSM Phase 2+ Release 98	282
GERAN / UTRAN Release 99	447
GERAN / UTRAN Release 4	517
GERAN / UTRAN Release 5	582
GERAN / UTRAN Release 6	761
GERAN / UTRAN Release 7	878
GERAN / (E-)UTRAN Release 8	1071
GERAN / (E-)UTRAN Release 9	207
GERAN / (E-)UTRAN Release 10	7
TOTAL SPECIFICATIONS	5479

Greyed Releases are closed.

3GPP Membership

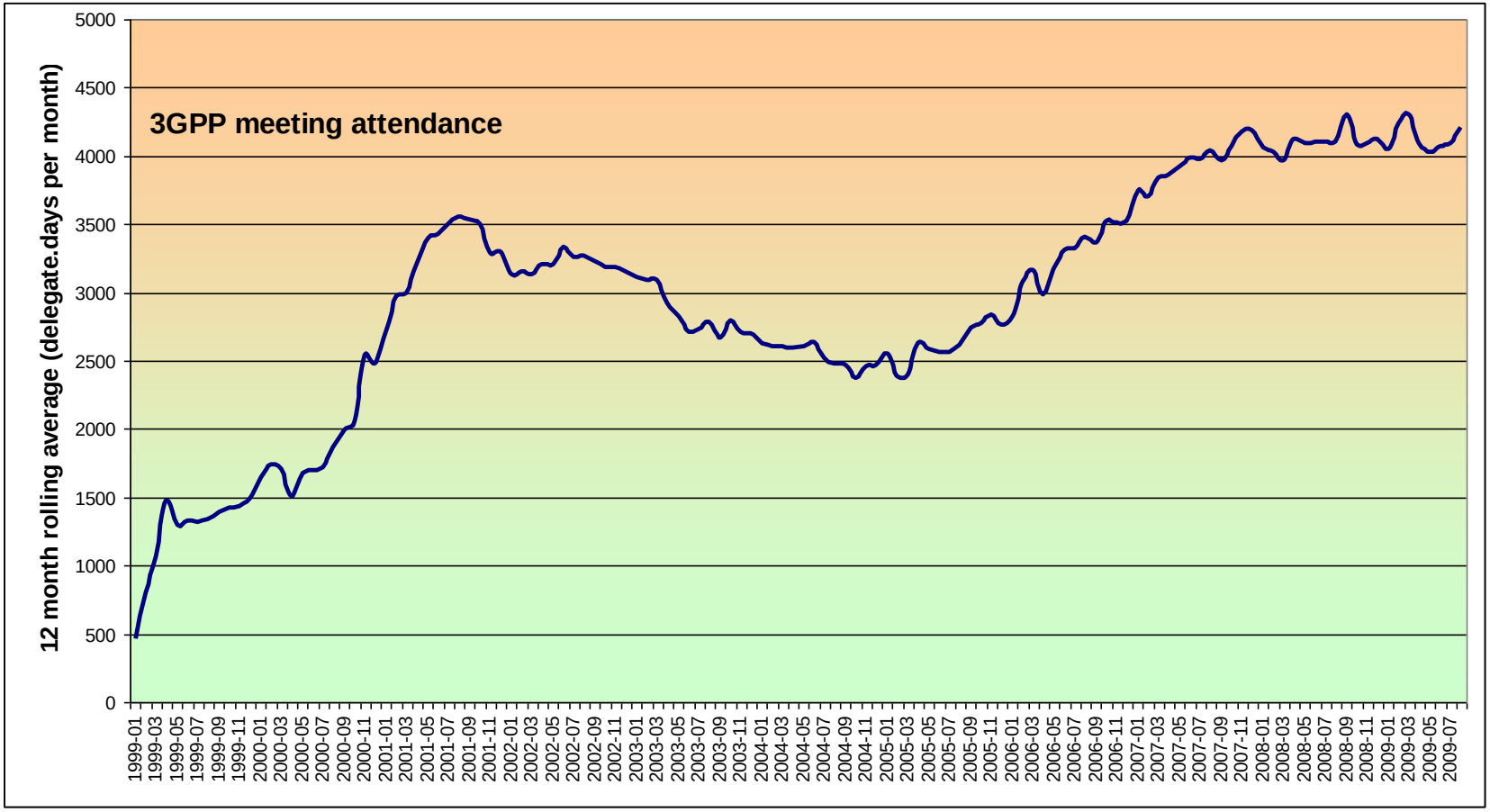
Despite economic conditions, 3GPP Membership still appears to be growing. The number of Individual members has increased by 24 since PCG#22. In addition, there are 20 companies having Guest Status, which are potential IMs of the future.

Number of Individual Members in 3GPP



3GPP Meeting Participation

In general, current statistics show no decline in the number of delegates attending 3GPP meetings.



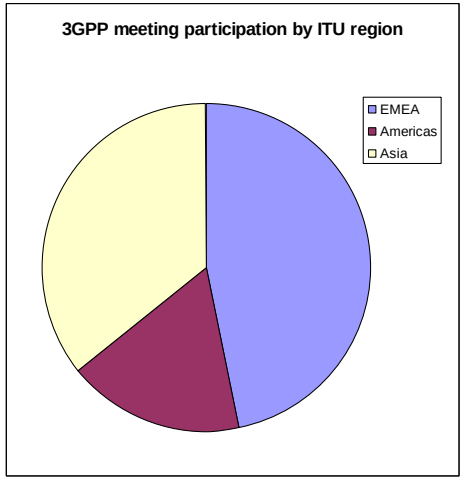
3GPP Meeting Participation per Region

The table shows the number of participants in TSG and WG meetings over the last year, by region*.

Region 1: Europe, Middle East, Africa

Region 2: Americas

Region 3: Asia



		regional split		
body	Total_attendance	1	2	3
C1	597	294	128	175
C3	246	119	65	62
C4	412	225	74	113
C6	121	83	16	22
CP	303	157	52	94
G1	309	189	36	84
G2	251	145	40	66
G3new	67	45	13	9
GP	391	241	52	98
R1	1438	464	220	754
R2	1285	514	194	577
R3	548	265	91	192
R4	783	350	163	270
R5	590	302	75	213
RP	536	260	91	185
S1	338	167	62	109
S2	1264	496	299	469
S3	329	175	59	95
S4	264	166	49	49
S5	437	223	79	135
SP	508	252	92	164
all	**11017**	**5132**	**1950**	**3935**
		46,6%	***17,7%***	***35,7%***

* Based on delegates' postal addresses

3GPP Satisfaction Survey

A 3GPP Satisfaction Survey will take place during Q1 2010.

The participation of elected officials during the last survey was embarrassingly low. (Only two Chairmen responded out of a possible 84!)

The TSG and WG Chairmen and Vice-Chairmen are urged to complete the survey to help MCC determine what improvements need to be made.

Details of the survey will be announced during the December TSG meetings.

OP Improvement Actions (update)

The OP Ad Hoc activity on improvements led to a number of implications for MCC, as follows:

Leadtimes: The target of 1 week (instead of 2 weeks) for availability of specifications following each TSG meeting has been implemented in TSGs SA,CT and GERAN. Despite the peak workloads this new target is largely been met.

Electronic CR Approval tool: The requirements for such a tool are in still in the process of being prepared. A budget estimate can only be made once the requirements are established. Draft requirements were submitted to PCG22 but very little feedback has been received. It appears that enthusiasm for this tool is waning.

Marketing and Communications

The 3GPP Marketing and Communications role continues with considerable effort

PCG22 requested that a Marcoms email list be established to include one Marcoms representative from each Partner. This has been done and the list is now in active use.

A full report of these activities is given in PCG22_13

IT Service at WG Meetings

The regime of providing professional IT support, using new servers, switches and access points, for meetings involving more than 400 delegates continues. The number of days of onsite support has been reduced in accordance with the experience gained.

MCC has analysed the task of providing IT support at the expected Jumbo meetings (where approximately 12 working groups and 1200 delegates are expected to be supported.)

MCC believes that IT support can still be provided for these meetings without any significant budget increase. This belief will be reassessed after the first Jumbo meeting scheduled to take place in February 2010.

Outlook

Outlook for 2010:

- Number of delegates, number of meetings, number of contributions show no sign of decline.
- Release 9 represents significant work which is to be completed before December 2009.
- Active work has alredy begun on Release 10.
- The MCC workload will remain high for the foreseable future
- Global economic situation calls for financial prudence but MCC is working at full capacity with the current resources available

The 3G IP Multimedia Subsystem (IMS)

Merging the Internet and the Cellular Worlds

Gonzalo Camarillo and Miguel A. García-Martín

Both of
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Chapter 2

The History of the IMS Standardization

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

2.1 Relations between IMS-related Standardization Bodies

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

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

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

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

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

2.2 Internet Engineering Task Force (IETF)

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

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

2.2.1 Structure of IETF

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

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

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

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

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

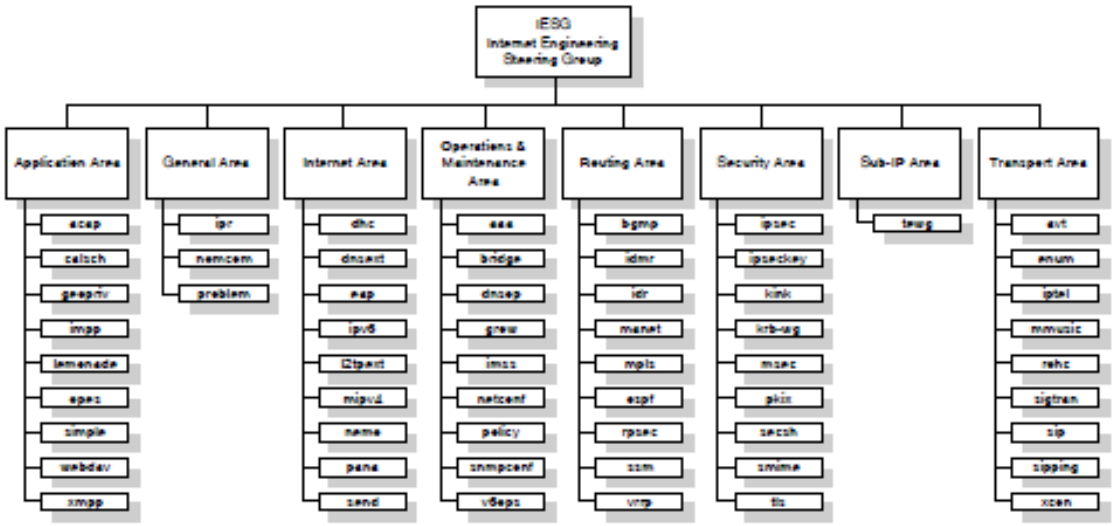


Figure 2.1: The structure of the IETF

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.

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.

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`

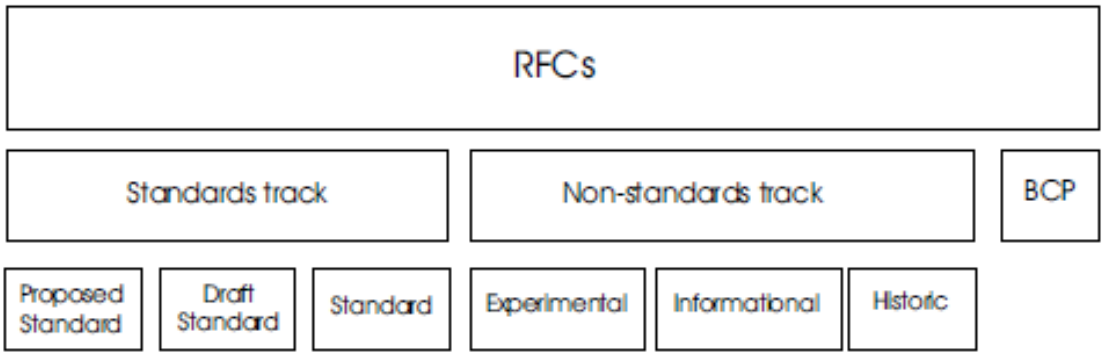


Figure 2.2: RFC types

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/`

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

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

4. Committee T1 in the United States of America,

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

5. TTA (Telecommunications Technology Association) of Korea

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

6. TTC (Telecommunication Technology Committee) in Japan,

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

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

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

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

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

2.3.1 3GPP Structure

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

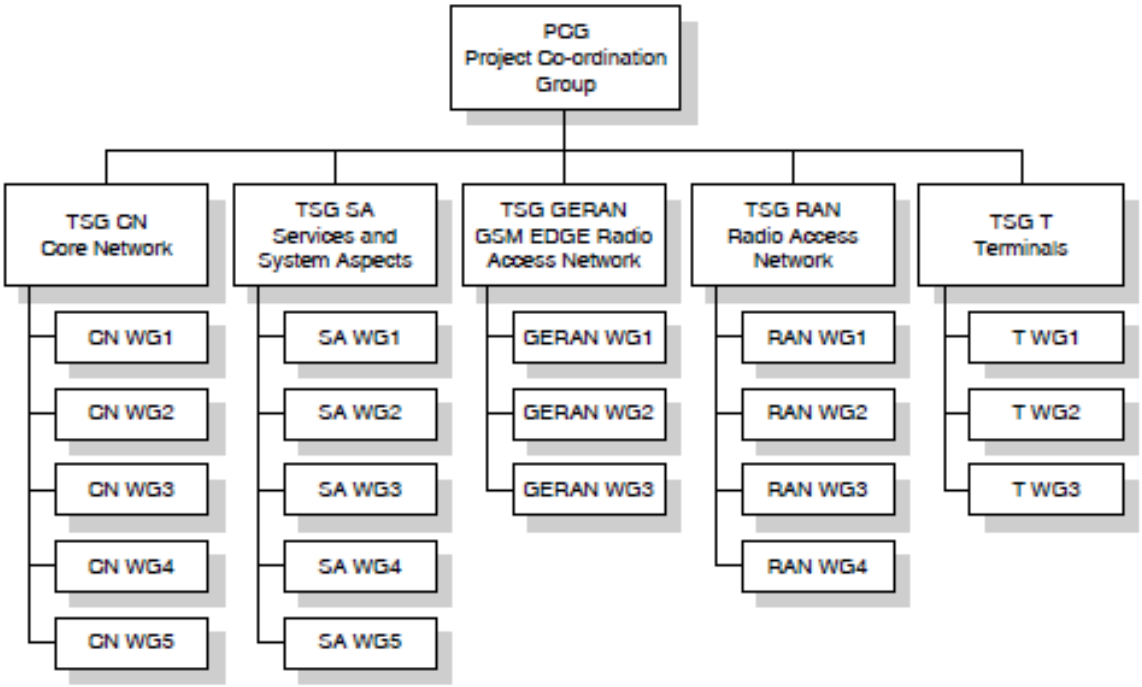


Figure 2.3: The structure of 3GPP

2.3.2 3GPP Deliverables

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

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

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

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

About 3GPP

FAQ

Table of contents

Membership

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

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

Who may participate in 3GPP meetings?

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

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

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

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

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

Different membership categories?

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

Who may become an observer?

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

3GPP News
3GPP Partners News

Search for:
In: Entire Site Search

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

Other conferences »

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

3GPP scope
Tools and Templates

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

No membership fees are requested for Guest applications.

Who can apply for market representative Partnership?

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

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

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

Can an ETSI Applicant apply for 3GPP Membership?

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

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

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

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

3GPP email exploder lists

Are there discussion archives for the 3GPP exploder lists?

Home page of listserv

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

How do I subscribe to the 3GPP exploder lists?

follow the instructions found >>>here

Legal Matters

What is the 3GPP IPR Policy?

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

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

What is the 3GPP policy on licensing?

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

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

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

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

What is the 3G Patent Platform?

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

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

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

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

The 3G Patent Platform will provide services for:

Evaluating,
Certifying and,
Licensing

essential patents for 3G Mobile communications.

3. Implementation of the 3G Patent Platform scheme.

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

More information...

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

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

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

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

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

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

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

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

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

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

ETSI,
DECT,
UMTS,
3GPP and
TIPHON,

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

For further information please contact : 3GPP Legal

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

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

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

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

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

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

Specifications

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

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

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

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

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

Is there any simple guide to the different CAMEL specifications?

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

In the SS7 arena,

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

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

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

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

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

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

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

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

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

Are the 3GPP specifications produced only in word?

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

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

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

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

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

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

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

Version release:

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

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

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

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

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

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

Where are all the Change Requests (CRs) located?

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

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

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

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

Where are all the current ETSI SMG specs located?

All the archives for the GSM documentation

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Technical Specification Group/Working Group

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

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

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

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

When did the Officials begin their Term of Office?

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

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

May I become an Official?

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

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

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

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

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

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

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

Where are my TSG/WGs documents stored?

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

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

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

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

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

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

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

Documents and TSG/WG Meetings

How do I register for a meeting?

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

How do I submit a contribution for a meeting?

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

How do I obtain a document number for my contribution?

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

Where can I download documents for an upcoming meeting?

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

Where can I find a temporary document template?

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

What happens if I am unable to attend a meeting?

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

Work Items and Deliverables

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

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

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

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

What are the different types of deliverables?

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

Can I write an 3GPP Document myself?

Why not?! If you wish to propose a deliverable then bring it to the attention of your chairman and the other members of the TSG/WG in order to discuss the subject.

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

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

Do I and my company have to support my TSG/WGs Work Items?

Neither you or your company is obliged to support the work items of your TSG/WG, however it is normal that if you and your company are supporting members of a Work Item that you be in agreement with their work and will normally support the production of the related deliverable.

Miscellaneous

How do I resolve the problem with the corrupt file warning in MSWord. Note that this only applies to MSWord2000?

Problem: When opening a document in Word 2000, the following error message appears: This document may be corrupt. To preserve the contents: Choose Select All from the Edit menu, then choose Copy from the Edit menu. Create a new document, then choose Paste from the Edit menu.

Cause: This may be related to something called list templates. A list template is created for every numbering or bulleting scheme defined in the document. Apparently, a minor change in a scheme, or even switching a list from numbered to bulleted creates a new template. In an arcane way, tables are also related to list templates. The template count increases automatically, but cannot be decreased by the user. When more than 1500 templates are defined in the list, the document becomes corrupt. There are more reasons why a document is corrupt, so the fix proposed will not solve the problem 100% of the times.

Resolution:

1. To solve the problem, you need to have MS Office 2000 Service Release 1/1a installed . To check this, in Word on the "Help" menu point to "About Microsoft Word". The first line in the window shows you the MSWord version you have. You should get something like: "Microsoft Word 2000 (9.0.3821 SR-1)". If you don't get SR-1 (or SR-1a) at the end, you need to install the Service Release. Contact your IT department or follow this link: http://support.microsoft.com/suppor...
2. You have to introduce a new entry in the Windows registry. You can do this simply by clicking twice in the file "word_bug_fix.reg" attached. Note that modifying the Windows Registry incorrectly can cause serious problems; this fix simply introduces a new entry in a MSWord part of the registry, but if you don't feel confident, contact your IT department or check the Microsoft link below.
3. Open MSWord normally. The fix proposed will open the corrupted files without warning and delete the unused list templates, so its count goes under 1500. The user will not notice anything, but this implies that the document is modified. When closing, MSWord will ask the user if he wants to save the changes, even if apparently no change has been made.

This bug is confirmed by Microsoft and it is listed in its Support Web Site. Follow this link to get the complete report: http://support.microsoft.com/suppor...

Where is the information regarding the Core Network located ?

Unfortunately, there is no one document that describes the Core Network, as it is an area of work far too involved to be contained in one specification. For a general overview document of Network Architecture TS 23.002 may be downloaded from our FTP server. ftp://ftp.3gpp.org/Specs/October_99/23_series. For more general organizational information, have a look at the 3GPP web site which shows the individual areas of 3GPP and in particular Core Network. http://www.3gpp.org/TSG/CN.htm .

Do I need a password and user name to access the 3GPP Web site ?

No password is needed to access any information on the 3GPP Web site, all information is openly published.

Can you give me information about which companies manufacture particular types of equipment. Or about what services are available on particular networks?

No. The 3GPP Support Team must remain neutral and must not show bias to any of its Individual Members. Such information may be available from the Global Mobile Suppliers Association (www.gsacom.com) where you will find a statistics area which could be of help.

Technical topics

Where can I find a list of technical terms and abbreviations used in 3GPP documents?

Individual terms are defined in each 3GPP Technical Specification and Technical Report. A compendium of terms and abbreviations can be found in 3GPP TR 21.905. ETSI maintains a list of all terms and abbreviations defined in its publications in "TEDDI".

What is the difference between a SIM and a USIM? What is a UICC?

The Universal Integrated Circuit Card (UICC) is the removable card bearing a silicon chip which holds 3GPP system subscriber information. The UICC is a general purpose card having both non-volatile memory and a general-purpose processor. Thus while it is used, in a 3GPP terminal, to hold (U)SIM information / applications, it is can also be used for other purposes, possibly unrelated to telecommunications. A common use of UICCs is in the well-known credit card format, and there is no reason why a single card could not hold (U)SIM functionality in addition to electronic purse / credit card functionality, or indeed any other application / data.

The Subscriber Identity Module (SIM) is the collection of functions which personalize a 3GPP terminal. The SIM contains static information about the services subscribed to, the phone number, the identity of the home network, a list of preferred roaming networks, and so on. The SIM also contains storage capacity for the subscriber's contacts' phone numbers. The term "SIM" is often misused for "UICC". The SIM concept was created during the early development of the GSM standards, and second-generation (based on GERAN) terminals up to and including Release 4 use SIM functionality.

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

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

What is an R-UIM?

Short answer: nothing to do with us!

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

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

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

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

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

General electrical equipment is covered by the EMC Directive & Low Voltage Directives, see http://ec.europa.eu/enterprise/elec... . The harmonized standards are listed at http://ec.europa.eu/enterprise/newa... and

http://ec.europa.eu/enterprise/newa... respectively. More general information on procedures to declare conformity and how equipment should be marked are contained on the web sites related to the two Directives.

Radio Equipment and Telecommunications Terminal Equipment is covered by the Radio and Telecommunications Terminal Equipment Directive, see http://ec.europa.eu/enterprise/rtte... , which also includes a link to the one-stop procedure for "placing on the market" (http://ec.europa.eu/enterprise/rtte...). The standards are listed at http://ec.europa.eu/enterprise/newa... .

Further information on EU harmonized standards relevant to telecommunications can be found on the ETSI site at http://www.etsi.eu/WebSite/Standard... , and the published standards themselves can be downloaded via http://pda.etsi.org/pda/queryform.asp .

Where can I find the specification of the SIM Lock feature?

In clause 8 of 3GPP TS 22.022 .

3GPP Plenary Meetings

Full Meeting Calendar

3GPP GERAN#41 - Valetta (tbc) MT - From 16 to 20 February 2009
3GPP RAN/CT/SA #43 - Biarritz FR - From 3 to 12 March 2009
3GPP GERAN#42 - Shenzhen CN - From 11 to 15 May 2009
3GPP RAN/CT/SA #44 - TBD US - From 26 May 2009 to 6 June 2009

Releases

About Releases

Release 9
Release 8
Release 7
Release 6
Release 5
Release 4
Release 1999
Functionality in early GSM releases

Keywords

Browse Technologies

UMTS
GPRS & EDGE
HSPA
IMS
LTE-Advanced
LTE
W-CDMA

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

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. Consultation of the exploder archives can reveal this. Alternatively, a revised draft may be sent directly to the 3GPP Support Team, and it will be uploaded to the public file server (specs archive directory) shortly afterwards. Again, the time stamp of the Zip file can be relied upon to indicate when the upload occurred.

After formal approval by the TSG (versions 3.0.0 or greater), Specs are edited only by the Support Team. The first approved version is based upon the draft version formally approved by the TSG, and thereafter versions are generated whenever Change Requests are approved by the TSG. These versions are made available shortly after the TSG meeting at which such approval occurred. The date (year and month) shown at the top of the Spec's cover page indicates either the date of (the last day of) the meeting, or the month in which the new version was prepared. However a more precise indication of the date of availability can be obtained from the Spec's web page (via the table at http://www.3gpp.org/specifications/) 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/specifications/63-official-publications.

3GPP Specifications Home Page

Spec download | Titles and spec numbers | Current version | Releases | Numbering scheme | Change Requests
Published specifications | Historical information | Work plan | TSG Working methods | Drafting rules | Delegates corner| ASN.1

Quick link to the specifications file server area (http) for those who know where they are going!

To find a particular spec quickly, go here and click on the links in the spec-series in the table or use the links in the "further information" section.

The term "***3GPP specification***" covers all **GSM** (including **GPRS** and **EDGE**) and **W-CDMA** specifications. The following terms are also used to describe networks using the 3G specifications: **UTRAN**, **UMTS** (in Europe) and **FOMA** (in Japan). Revised versions of many of these specifications are produced up to four times a year following the quarterly TSG plenary meetings. (TSG GERAN meets five times a year.) See the table below which gives links to lists of specifications arising from each plenary TSG meeting since the freezing of Release 1999. The month of the meeting and the meeting number are shown in each case. Note that **the tables show only those specifications newly approved or modified at the meeting concerned**; they do *not* contain a complete list of all specifications current following the meeting. For such a list, consult the "status list" - see below.

Following each TSG SA plenary meeting, a complete set of specifications is produced. This set includes not only the new specifications generated at that meeting, but also the latest versions of each specification that was not changed at that meeting. i.e. each directory holds a complete set of specifications. Each set has an associated **status list** as detailed in the table below. Each set (and corresponding status list) includes the specs arising from the TSG GERAN meetings held since the preceding SA meeting. (GERAN meets asynchronously from the other TSGs.)

The **Status List** (ZIPped RTF or Word format) summarizes the current version number for every release of every 3GPP specification following each TSG plenary meeting. Also listed for each specifications are:

- the 3GPP working group and rapporteur responsible for the specification
- the Project Manager in MCC (Mobile Competence Centre) responsible for the specification
- the meeting at which it was, or is expected to be, "frozen" (i.e. the point after which only corrections are allowed)

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

Missing Specs: Click **here** to see those Specs not yet available following the most recent round of TSG meetings.

year-month	remark	latest status	specs directory	TSG CN meeting number	TSG RAN* meeting number	TSG T meeting number	TSG SA meeting number	TSG GERAN meeting number	TSG CT meeting number
2008-09		StatusList	ftp://ftp.3gpp.org/specs/2008-09		41		41	39	41
2008-06		StatusList	ftp://ftp.3gpp.org/specs/2008-06		40		40	38	40
2008-03		StatusList	ftp://ftp.3gpp.org/specs/2008-03		39		39	37	39
2007-12		StatusList	ftp://ftp.3gpp.org/specs/2007-12		38		38	36	38
2007-09		StatusList	ftp://ftp.3gpp.org/specs/2007-09		37		37	35	37
2007-06		StatusList	ftp://ftp.3gpp.org/specs/2007-06		36		36	34	36
2007-03		StatusList	ftp://ftp.3gpp.org/specs/2007-03		35		35	33	35
2006-12		StatusList	ftp://ftp.3gpp.org/specs/2006-12		34		34	32	34
2006-09	GERAN henceforward meets synchronously with other TSGs, so no further "delta" directories necessary.	StatusList	ftp://ftp.3gpp.org/specs/2006-09		33		33	31	33
2006-06	New at GERAN only.		ftp://ftp.3gpp.org/specs/2006-06-geran-mtg-30-delta/					30	
2006-06		StatusList	ftp://ftp.3gpp.org/specs/2006-06		32		32		32
2006-04	New at GERAN only.		ftp://ftp.3gpp.org/specs/2006-04-geran-mtg-29-delta/					29	
2006-03		StatusList	ftp://ftp.3gpp.org/specs/2006-03		31		31		31
2006-01	New at GERAN only.		ftp://ftp.3gpp.org/specs/2006-01-geran-mtg-28-delta/					28	
2005-12		StatusList	ftp://ftp.3gpp.org/specs/2005-12		30		30		30
2005-11	New at GERAN only.		ftp://ftp.3gpp.org/specs/2005-11-geran-mtg-27-delta/					27	
2005-09		StatusList	ftp://ftp.3gpp.org/specs/2005-09		29		29		29
2005-08/09	New at GERAN only.		ftp://ftp.3gpp.org/specs/2005-09-geran-mtg-26-delta/					26	
2005-06	New at GERAN only.		ftp://ftp.3gpp.org/specs/2005-06-geran-mtg-25-delta/					25	

2005-06		StatusList	ftp://ftp.3gpp.org/specs/2005-06		28		28		28
2005-04	New at GERAN only.		ftp://ftp.3gpp.org/specs/2005-04-geran-mtg-24-delta/					24	
2005-03	RAN closed and RANnew opened. CN and T closed. CT opened.	StatusList	ftp://ftp.3gpp.org/specs/2005-03	27	27bis 27	27	27		27
2005-01	New at GERAN only.		ftp://ftp.3gpp.org/specs/2005-01-geran-mtg-23-delta/					23	
2004-12		StatusList	ftp://ftp.3gpp.org/specs/2004-12	26	26	26	26		
2004-11	New at GERAN only.		ftp://ftp.3gpp.org/specs/2004-11-geran-mtg-22-delta/					22	
2004-09		StatusList	ftp://ftp.3gpp.org/specs/2004-09/	25	25	25	25		
2004-08	New at GERAN only.		ftp://ftp.3gpp.org/specs/2004-08-geran-mtg-21-delta/					21	
2004-06	New at GERAN only.		ftp://ftp.3gpp.org/specs/2004-06-geran-mtg-20-delta/					20	
2004-06		StatusList	ftp://ftp.3gpp.org/specs/2004-06/	24	24	24	24		
2004-04	New at GERAN only.		ftp://ftp.3gpp.org/specs/2004-04-geran-mtg-19-delta/					19	
2004-03		StatusList	ftp://ftp.3gpp.org/specs/2004-03/	23	23	23	23		
2004-02	New at GERAN only.		ftp://ftp.3gpp.org/specs/2004-02-geran-mtg-18-delta					18	
2003-12		StatusList	ftp://ftp.3gpp.org/specs/2003-12/	22	22	22	22		
2003-11	New at GERAN only.		ftp://ftp.3gpp.org/specs/2003-11-geran-mtg-17-delta					17	
2003-09		StatusList	ftp://ftp.3gpp.org/specs/2003-09/	21	21	21	21		
2003-09	New at GERAN only.		ftp://ftp.3gpp.org/specs/2003-09-geran-mtg-16-delta					16	
2003-06	New at GERAN only.		ftp://ftp.3gpp.org/specs/2003-06-geran-mtg-15-delta					15	
2003-06		StatusList	ftp://ftp.3gpp.org/specs/2003-06/	20	20	20	20		
2003-04	New at GERAN only.		ftp://ftp.3gpp.org/specs/2003-04-geran-mtg-14-delta					14	
2003-02		StatusList	ftp://ftp.3gpp.org/specs/2003-03/	19	19	19	19		
2003-02	New at GERAN only.		ftp://ftp.3gpp.org/specs/2003-02-geran-mtg-13-delta					13	
2002-12 2002-11		StatusList	ftp://ftp.3gpp.org/specs/2002-12/	18	18	18	18	12	
2002-09		StatusList	ftp://ftp.3gpp.org/specs/2002-09/	17	17	17	17	11	
2002-06	Rel-5 GERAN features content functionally frozen		ftp://ftp.3gpp.org/specs/2002-06-geran-mtg-10-delta/					10	
2002-06	Rel-5 features content functionally frozen (remainder, non-GERAN)	StatusList	ftp://ftp.3gpp.org/specs/2002-06/	16	16	16	16		
2002-04			ftp://ftp.3gpp.org/specs/2002-04-geran-mtg-09-delta/					9	
2002-03	Rel-5 features content functionally frozen (part)	StatusList	ftp://ftp.3gpp.org/specs/2002-03/	15	15	15	15		
2002-02								8	
2001-12		StatusList	ftp://ftp.3gpp.org/specs/2001-12/	14	14	14	14		
2001-11								7	
2001-09		StatusList	ftp://ftp.3gpp.org/specs/2001-09/	13	13	13	13		
2001-08								6	
2001-06		StatusList	ftp://ftp.3gpp.org/specs/2001-06/	12	12	12	12	5	
2001-06	Rel-4 GERAN features content functionally frozen							4	
2001-03	Rel-4 non-GERAN features content functionally frozen	StatusList	ftp://ftp.3gpp.org/specs/2001-03/	11	11	11	11		
2001-01								3	
2000-12 2000-11		StatusList	ftp://ftp.3gpp.org/specs/2000-12/	10	10	10	10	2	
2000-11									
2000-09		StatusList	ftp://ftp.3gpp.org/specs/2000-09/	9	9	9	9	1	
2000-06		StatusList	ftp://ftp.3gpp.org/specs/2000-06/	8	8	8	8		
2000-03				7	7	7	7		
1999-12	R99 features content functionally frozen			6	6	6	6		
1999-10				5	5	5	5		

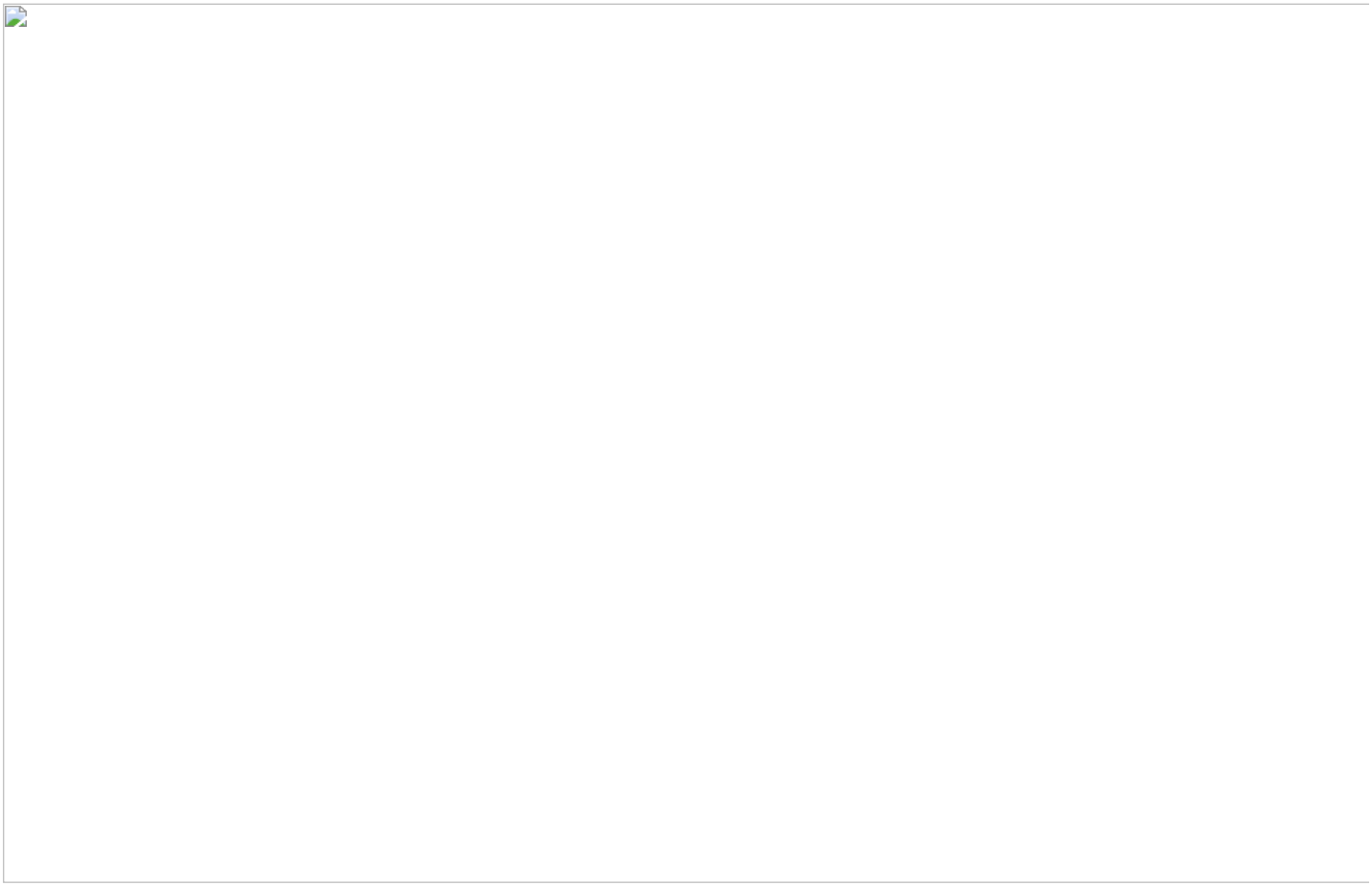
1999-06					4	4	4		
1999-05				4					
1999-04				3	3	3	3		
1999-03				2	2	2	2		
1998-12				1	1	1	1		

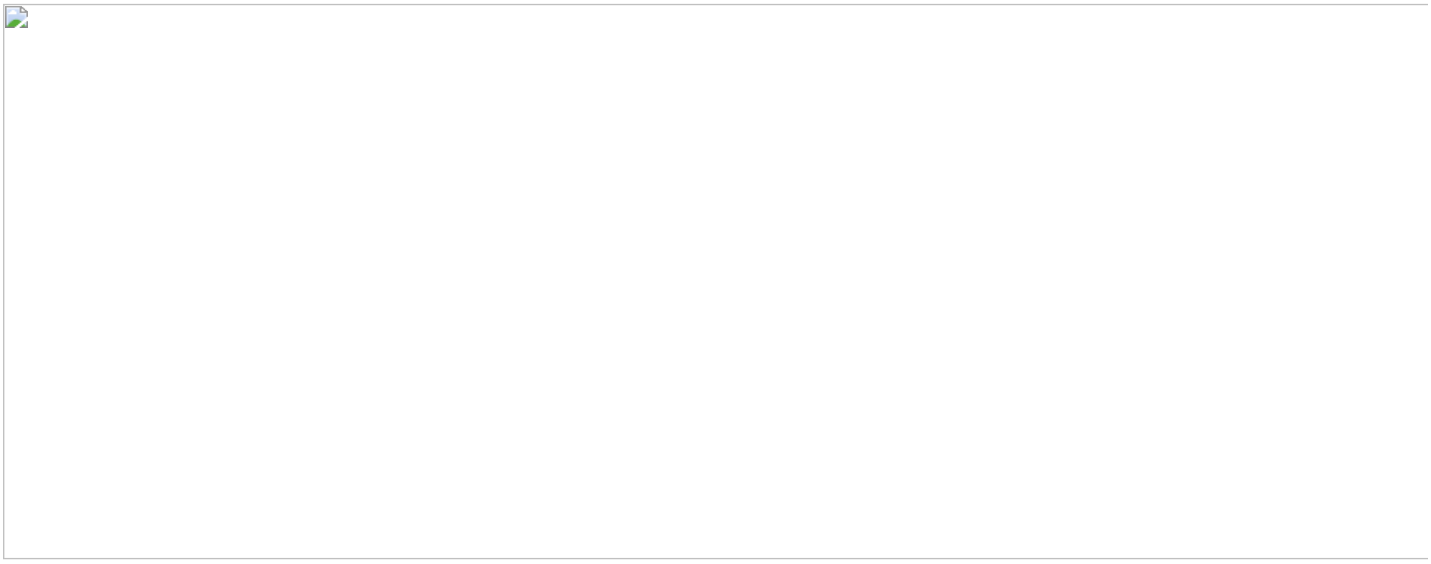
* TSG RAN was closed at the end of meeting 27 and re-opened for meeting 27 bis.

If you plan to download a large number of specifications and are using MS Explorer 4.0 or earlier, it may be worthwhile acquiring an FTP client software tool such as:

- Ipswitch WS_FTP Pro® : This general purpose file transfer program simplifies the process of downloading large numbers of files from an FTP site.
- FTPSync®: This tool allow the user to specify a directory on their local disk and synchronize it with a directory on an FTP site.

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





This page maintained by Specifications Manager.

last updated:
2008-10-06: #41 (#39) added, charts updated.

2008-06-09: #40 (#38) added.
2008-03-20: #39 (#37) added, charts updated
2008-01-28: Link to missing specs page added
2007-09-24: #38 (#36) added, charts updated
2007-09-24: #37 (#35) added, charts updated
2007-06-13: #36 (#34) added, charts updated
2007-04-20: typo and link corrected
2007-03-21: typo corrected
2007-03-19: TSGs#35 (GERAN#33) added
2006-12-08: TSGs#34 (GERAN#32) added, charts updated
2006-09-13 (2): Other TSGs#33 added on same line.
2006-09-13: GP-31 added.
2006-07-06: GP-30 added.
2006-06-12: TSGs#32 added, charts updated
2006-05-02: GP-29 added
2006-03-20: TSGs#31 added
2006-01-23: GP-28 added
2006-01-17: charts updated
2005-12-15: hyperlinks to status lists fixed
2005-12-12: TSGs#30 added
2005-11-15: GP-27 added
2005-10-03: RP-29, CP-29, SP-29 added
2005-09-18: GP-26 misprint corrected
2005-09-06: GP-26 added.
2005-06-28: GP-25 added.
2005-06-13: Hyperlinks for TSGs#28 added
2005-04-28: Charts updated.
2005-04-21: GP-24 directory included.
2005-04-19: Hyperlink for GP-24 list added.
2005-04-04: All TSG links changed as to point to auto pages.
2005-04-01: Links for TSGs#27 changed to point to experimental pages automatically generated from status database rather than manually maintained pages.
2005-03-29: early TSG meeting entries added; GERAN#24 and other TSGs#28 entries added (no hyperlinks); column for TSG CT added
2005-03-21: TSGs#27 added, charts updated
2005-02-01: GERAN#23 added
2005-01-26: broken link to chart fixed
2005-01-19: charts updated
2004-12-23: TSGs#25 added
2004-11-19: GERAN#22 added
2004-11-03: charts updated
2004-09-28: TSGs#25 added, link to 2004-06 status list corrected.
2004-09-01: GERAN#21 added
2004-08-02: Spec availability chart updated.
2004-07-01: GERAN#20 added
2004-06-18: TSGs 24 added
2004-05-07: GP-19 added; clarifications to introductory text above the table of meetings.
2004-04-14: Specs delivery chart updated.
2004-03-26: minor errors in hyperlinks fixed.
2004-03-22: table entry for TSGs 23 added.
2004-02-18: table entry for GP-18 added.
2004-01-27: chart of spec delivery added.
2004-01-05: table entry for TSGs 22 added.
2003-12-03: table entry for GP-17 added.
2003-10-21: "further information" section moved to the "numbering" page.
2003-09-26: table entries for GP-16 and other TSGs 'P-21 added
2003-08-18: broken link repaired, links to cited spec pages made relative.
2003-07-02: typo corrected
2003-06-26: Further GERAN#15 info added; minor cosmetic improvements to text; hyperlinks for identified specs are now to their info page, not their archive storage directory
2003-06-23 - CN, RAN, T, SA #20 info and preliminary GERAN#15 info added
2003-04-25 - GERAN#14 info added
2003-04-24 - quick link to spec series table page added near top; from this it is possible to get to lists of specs in each series, and thence to details of the individual specs.
2003-03-25 - table entry for TSGs#19 added
2003-02-24 - table entry for GERAN#13 added
2003-01-13 - link to CR trends page added.
2002-12-15 - TSGs#18 (GERAN#12) line added; quick link to specs file at top of page added.
2002-10-18 - reference to 3GPP Specifications Status database added.

3GPP Specifications - Numbering scheme

Spec download | Titles and spec numbers | Current version | Releases | Numbering scheme | Change Requests
Published specifications | Historical information | Work plan | TSG Working methods | Drafting rules | Delegates corner| ASN.1

All 3G and GSM specifications have a 3GPP specification number consisting of 4 or 5 digits. (e.g. 09.02 or 29.002). The first two digits define the series as listed in the table below. They are followed by **2** further digits for the 01 to 13 series or **3** further digits for the 21 to 55 series. The term "3G" means a 3GPP system using a UTRAN radio access network; the term "GSM" means a 3GPP system using a GERAN radio access network. (Thus "GSM" includes GPRS and EDGE features.)

The full title, specification number and latest version number for every specification can be found in the current status list [**warning: large file!**] (see also main specs page for status lists pertaining to each TSG SA meeting) and more information about terms such as R99 and Rel-4 can be found on the Releases and phases page.

A specification in the 21 to 35 series may apply either to 3G only or to GSM *and* 3G. A clue lies in the third digit, where a "0" indicates that it applies to both systems. For example, 29.002 applies to 3G and GSM systems whereas 25.101 and 25.201 apply only to 3G. Most specs in all other series apply only to GSM systems. However, as the spec numbering space has been used up, this guide is frequently broken, and it is necessary to examine the information page for each spec (see the table below) or to check the lists in 01.01 / 41.101 (GSM) and 21.101 (3G) for the definitive specification sets for each system and each Release.

Subject of specification series	3G/GSM R99 and later	GSM only (Rel-4 and later)	GSM only (before Rel-4)
General information *(long defunct)*			00 series
Requirements	21 series	41 series	01 series
Service aspects ("stage 1")	22 series	42 series	02 series
Technical realization ("stage 2")	23 series	43 series	03 series
Signalling protocols ("stage 3") - user equipment to network	24 series	44 series	04 series
Radio aspects	25 series	45 series	05 series
CODECs	26 series	46 series	06 series
Data	27 series	47 series (none exists)	07 series
Signalling protocols ("stage 3") -(RSS-CN)	28 series	48 series	08 series
Signalling protocols ("stage 3") - intra-fixed-network	29 series	49 series	09 series
Programme management	30 series	50 series	10 series
Subscriber Identity Module (SIM / USIM), IC Cards. Test specs.	31 series	51 series	11 series
OAM&P and Charging	32 series	52 series	12 series
Access requirements and test specifications		13 series (1)	13 series (1)
Security aspects	33 series	(2)	(2)
UE and (U)SIM test specifications	34 series	(2)	*11 series*
Security algorithms (3)	35 series	55 series	(4)
Evolved UTRA aspects	36 series	-	-

Note (1): The 13 series GSM specifications relate to European-Union-specific regulatory standards. On the closure of ETSI TC SMG, responsibility for these specifications was transferred to ETSI TC MSG, (Mobile Specification Group) and they do not appear on the 3GPP file server.

Note (2): The specifications of these aspects are spread throughout several series.

Note (3): Algorithms may be subject to export licensing conditions. See the relevant 3GPP page. See also the relevant ETSI pages.

Note (4): The original GSM algorithms are not published and are controlled by the GSM Association.

Technical Reports are of two classes:

- Those intended to be transposed and issued by the Organizational Partners as their own publications; and
- Those not intended for publication but which are simply 3GPP internal working documents, used, for example, for documenting planning and scheduling of work, or for holding the interim results of feasibility studies.

The first category have numbers of the form:
xx.**9**xx

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

Missing Specs: Click **here** to see those Specs not yet available following the most recent round of TSG meetings.

The 3GPP Specifications are stored on the file server as zipped MS-Word files. The filenames have the following structure:

SM[-P[-Q]]-V.zip

where the character fields have the following significance ...

S = series number - 2 characters (see the table above)
M = mantissa (the part of the spec number after the series number) - 2 or 3 characters (see above)
P = optional part number - 1 or 2 digits if present
Q = optional sub-part number - 1 or 2 digits if present
V = version number, without separating dots - 3 digits

So for example:
21900-320.zip is 3GPP TR 21.900 version 3.2.0
0408-6g0.zip is 3GPP TS 04.08 version 6.16.0
32111-4-410 is 3GPP TS 32.111 part 4 version 4.1.0
29998-04-1-100 is 3GPP TS 29.998 part 4 sub-part 1 version 1.0.0

Further information:

Latest version

The latest versions of the approved specifications in the "latest" directory. The latest version of draft specs (i.e. those not yet under change control) are in the "latest-drafts" directory. See also the page on version numbering.

Particular version

All older versions of specifications (where available) are stored in the archive subdirectory. All versions of all releases of a given specification are placed directly under the name of the specification.

Title or subject

If you only know the **title** or the subject, but not the specification number, the best place to start looking is the complete list of all 3GPP specification numbers and titles. This list also shows the most recent version in each Release.

Specs related to a particular working group

Each 3GPP TSG Working Group has a home page, which lists the specifications under its responsibility. Follow the links from here....

Official versions published by recognized Standards Development Organizations

The 3GPP Technical Specifications (and Technical Reports) which are publicly available from this site have, in themselves, no legal standing. They only become "official" when transposed into corresponding publications of the Partner Organizations. If you are looking for the **official versions**, see the official publications page.

Yet more information:

- **Work plan.** The 3GPP Work plan describes the new functionality currently being elaborated in the TSG working groups. It also indicates the expected timescales for their finalization.
- **Releases (and phases, stages).** An introduction to the 3GPP mechanism for specifications releases can be found here.
- **Historical information.** If you need to look for old / superseded specifications or change requests, start here.
- **TSG working methods.** The procedures for creating, enhancing and maintaining specifications are described in TR 21.900. A presentation outlining the release and change request process can be found here.
- **3GPP Drafting rules.** The rules for drafting specifications are described in TR 21.801.
- **Change Requests (CRs).** The change request mechanism is used when a correction or new functionality is required for an existing specification. Here you can find all information related to change requests.
- **Version numbering.** More information on the version numbering page.
- **Issuing new TS/TR numbers.** More information on this page.

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last updated:
2008-08-19: Link to guidance on new spec numbers added; guidance on TR numbering added.
2008-01-28: Link to missing specs page added.
2006-09-04: 36.- series added.
2005-08-05: Title for table entry 32/52/12.- series changed from "O&M".
2005-07-29: Title for 34.-series changed from "(U)SIM test specs" to add "UE" as well.
2005-07-21: corrects hyperlink to TB chart; adds links to info on version numbering
2004-08-02: missing bracket inserted
2004-03-02: typo in hyperlink to 45-series specs corrected.
2003-10-21: "further information" section originally in main specs page transferred to this page; sundry editorial improvements.
2003-09-10: links to current status list and to spec numbering system added.
2003-07-10: minor editorial clarifications
2003-06-27: 00.-series added to table; URLs to spec lists made relative rather than absolute (to aid site mirroring)
2003-09-26: minor corrections and clarifications
2003-04-24: links to specs series indexes added
2002-10-10: mention of 55 series specs added, plus notes 3 & 4.

3GPP Specifications - Version numbering scheme

Spec download | Titles and spec numbers | Current version | Releases | Numbering scheme | Change Requests
Published specifications | Historical information | Work plan | TSG Working methods | Drafting rules | Delegates corner| ASN.1

As 3GPP Technical Specifications and Technical Reports evolve from the early drafting stages, though progressively more stable versions, to being brought under change control, so the version number of the document changes. The rules for maintaining the version number are contained in clause 4.4 of 3GPP TR 21.900, but are briefly summarized here.

The "version" is comprised of three fields:

- major
- technical
- editorial

and each has a numeric value, starting with zero. The fields are separated with dots, and the version number shows major, technical and editorial fields respectively from left to right. Thus a spec whose major field is 4, whose technical field is 7 and whose editorial field is 1 would be shown as **version 4.7.1**.

The **major version field** reflects the stage of the spec:

- 0 = immature draft
- 1 = draft which is at least 50% complete and has been presented / will shortly be presented to the responsible TSG for *information*
- 2 = draft which is at least 80% complete and has been presented / will shortly be presented to the responsible TSG for *approval*
- 3 or greater = spec which has been approved by the responsible TSG and is under change control.

Once under change control, the major field indicates the Release to which the spec applies. Thus it is quite normal for a Release 7 specification to go, on TSG approval, from version 2.0.0 directly to version 7.0.0. There will be no versions 3.0.0, 4.0.0 etc between.

The **technical version field** is incremented each time a technical change is made to the spec as a result of the drafting process (major version <= 2) or as a result of the incorporation of one or more approved Change Requests (major version > 2).

The **editorial version** field is incremented each time a non-technical change is made to the spec, for example to correct trivial typographical errors. Note that any change which could conceivably have an effect on the interpretation of the *technical* provisions of a spec cannot be considered as *editorial*. (Thus changing the greater-than symbol > into the less-than symbol <, although only the result of a mistyped character, is *not* considered editorial, since it makes a profound difference to the interpretation of the technical provisions of the document.) Exceptionally, the editorial version is used to show the replacement of a new version of a spec within the period (normally three working weeks) immediately following the end of a TSG meeting prior to the "all specs available" deadline, even though the modification might be more than purely editorial. Such circumstances cover, for example, the late availability of C code or TTCN associated with a spec. The document's change history annex will always explain the nature of any such change.

The version number, consisting of the three numeric fields, is reflected in the filename of the TS or TR concerned. Each field is represented by a single character, and the mapping between version field value and the character representing that value in the filename is as shown in the table below:

version field value	filename character
0	0
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	a
11	b
12	c
13	d
14	e
15	f
16	g
17	h

18	i
19	jh
20	k
21	l
22	m
23	n
24	o
25	p
26	q
27	r
28	s
29	t
30	u
31	v
32	w
33	x
34	y
35	z
36 onwards	for further study

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last updated:
2005-07-21: original

www.3gpp.org - /ftp/Specs/archive/24_series/24.008/

[To Parent Directory]

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19 October 1999	10:24	618890	24008-310.zip
27 December 1999	12:00	612716	24008-320.zip
04 January 2000	14:24	619497	24008-321.zip
31 March 2000	08:28	696170	24008-330.zip
25 April 2000	11:52	762985	24008-331.zip
10 July 2000	16:06	807078	24008-340.zip
17 July 2000	07:40	817683	24008-341.zip
06 October 2000	15:30	861370	24008-350.zip
03 January 2001	13:56	794880	24008-360.zip
05 April 2001	18:15	813826	24008-370.zip
06 July 2001	14:51	810494	24008-371.zip
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13 September 2002	16:18	2555048	24008-3d0.zip
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12 June 2004	17:38	2533451	24008-3j0.zip
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06 July 2001	14:50	803131	24008-421.zip
13 July 2001	07:52	2472855	24008-430.zip
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05 June 2006	11:40	3210502	24008-740.zip
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18 December 2006	16:19	3133129	24008-760.zip
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20 June 2007	15:42	3106307	24008-780.zip
17 September 2007	15:03	3207223	24008-790.zip
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04 June 2008	21:11	3222188	24008-820.zip
24 September 2008	09:48	3230926	24008-830.zip

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32816-800.zip	2008/12/19 13:56	732,5 KB

10 items.

3GPP MEMBERSHIP

2023-01-19 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
5G WIN (5G Wireless Intelligent Networks)	ISRAEL	ETSI
7LAYERS GmbH (7LAYERS 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
Airwave Solutions Limited (Airwave Solutions Limited)	UNITED KINGDOM	ETSI
albis-elcon system GermanyGmbH (albis-elcon system Germany GmbH)	GERMANY	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
Amdocs Software Systems Ltd (Amdocs Software Systems Limited)	IRELAND	ETSI
Anemone Technology (Anemone Technology)	DENMARK	ETSI
Anritsu Corporation (ANRITSU CORPORATION)	JAPAN	ARIB
ANRITSU LTD (ANRITSU LTD)	UNITED KINGDOM	ETSI
Anterix (Anterix)	UNITED STATES	ATIS
Apple (Apple Purchase Operation management)	CHINA	CCSA
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 **(Apple AB)**	SWEDEN	ETSI
Apple AB Denmark **(Apple AB, filial AF Apple Aktiebolag, Sverige)**	DENMARK	ETSI
Apple AB Finland **(Apple AB, filial I Finland)**	FINLAND	ETSI
Apple AB NUF **(Apple AB NUF)**	NORWAY	ETSI
Apple Advertising (Beijing) **(Apple Advertising (Beijing) Ltd.)**	CHINA	CCSA
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 Czech s.r.o. **(Apple Czech s.r.o.)**	CZECH REPUBLIC	ETSI
Apple Distribution Intl Ltd **(Apple Distribution International Limited)**	IRELAND	ETSI
Apple Electronics **(Apple Electronics Products Commerce (BeiJing) Company Limited)**	CHINA	CCSA
Apple EPE **(Apple EPE)**	GREECE	ETSI
Apple Europe Limited **(Apple Europe Limited)**	UNITED KINGDOM	ETSI
Apple France **(Apple France)**	FRANCE	ETSI
Apple Gesellschaft m.b.H. **(Apple Gesellschaft m.b.H.)**	AUSTRIA	ETSI
Apple GmbH **(Apple GmbH)**	GERMANY	ETSI
Apple Hungary Kft. **(Apple Hungary Kft.)**	HUNGARY	ETSI
Apple Inc **(Apple Inc)**	UNITED STATES	ATIS
Apple Italia S.R.L. **(Apple Italia S.R.L.)**	ITALY	ETSI
Apple Lithuania UAB **(Apple Lithuania UAB)**	LITHUANIA	ETSI
Apple Marketing Iberia **(Apple Marketing Iberia, S.A.U.)**	SPAIN	ETSI
Apple Operations Europe Ltd **(Apple Operations Europe Limited)**	IRELAND	ETSI
Apple Poland Sp. z.o.o. **(Apple Poland Sp. z.o.o.)**	POLAND	ETSI
Apple Portugal **(Apple Portugal)**	PORTUGAL	ETSI
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 Technical Services **(Apple Technical Services (Shanghai) Company Limited)**	CHINA	CCSA
Apple Trading **(Apple Trading (Shanghai) Company Limited)**	CHINA	CCSA
AQSACOM S.A.S. **(AQSACOM S.A.S.)**	FRANCE	ETSI
ARTICLE19 **(ARTICLE19)**	UNITED KINGDOM	ETSI

ASELSAN **(ASELSAN Inc.)**	TÜRKIYE	ETSI
Asia Pacific Telecom co. Ltd **(Asia Pacific Telecom co. Ltd)**	TAIWAN, PROVINCE OF CHINA	ETSI
AsiaInfo **(AsiaInfo Technologies (China), Inc.)**	CHINA	CCSA
AsiaInfo Technologies Inc **(AsiaInfo Technologies Inc)**	CHINA	ETSI
ASR **(ASR Microelectronics Technology 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
ATEME **(ATEME SA)**	FRANCE	ETSI
Attorney-General's Department **(Attorney-General's Department, Australian Government)**	AUSTRALIA	ETSI
Avanti **(Avanti Communications Ltd)**	UNITED KINGDOM	ETSI
Azimuth **(Azimuth Systems)**	UNITED STATES	ETSI
BAE Systems AI Ltd **(BAE Systems Applied Intelligence Limited)**	UNITED KINGDOM	ETSI
Baicells Technologies Co. Ltd **(Baicells Technologies Co. Ltd)**	CHINA	CCSA
BankID BankAxept **(BankID BankAxept AS)**	NORWAY	ETSI
BBA **(BMW Brilliance Automotive 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
Bharat Electronics Limited **(Bharat Electronics Limited)**	INDIA	TSDSI
Bharti Airtel Limited **(Bharti Airtel Limited)**	INDIA	TSDSI
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
BMWK **(Bundesministerium für Wirtschaft und Klimaschutz)**	GERMANY	ETSI
BOCRA **(Botswana Communications Regulatory Authority)**	BOTSWANA	ETSI
BOUYGUES Telecom **(BOUYGUES Telecom)**	FRANCE	ETSI
Broadcast Networks Europe **(Broadcast Networks Europe)**	BELGIUM	ETSI
Broadcom (EU) **(Broadcom Europe Ltd)**	UNITED KINGDOM	ETSI
BROADCOM CORPORATION **(BROADCOM CORPORATION)**	UNITED STATES	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
Bull SAS **(Bull SAS)**	FRANCE	ETSI
BUPT **(Beijing University of Posts and Telecommunications)**	CHINA	CCSA
Bureau Veritas **(Bureau Veritas)**	TAIWAN, PROVINCE OF CHINA	ETSI
Bytedance Technology **(Beijing Bytedance Technology 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
Casa Systems Inc. **(Casa Systems Inc.)**	UNITED STATES	ETSI
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

C-DAC **(Centre for Development of Advanced Computing)**	INDIA	TSDSI
C-DOT **(C-DOT)**	INDIA	TSDSI
CEA-LETI **(Commissariat à l'Energie Atomique et 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 GmbH **(CETECOM GmbH - Certification and Testing in Communications)**	GERMANY	ETSI
CEWiT **(Centre of Excellence in Wireless Technology (CEWiT))**	INDIA	TSDSI
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 Mobile (Hangzhou) Inf. **(China Mobile (Hangzhou) Information Technology Co., Ltd.)**	CHINA	CCSA
China Mobile (Suzhou) Software **(China Mobile (Suzhou) Software Technology Co., Ltd.)**	CHINA	CCSA
China Mobile Com. Corporation **(China Mobile Communications Corporation (CMCC))**	CHINA	CCSA
China Mobile E-Commerce Co. **(China Mobile E-Commerce Co.)**	CHINA	CCSA
China Mobile Group Device Co. **(China Mobile Group Device Co., Ltd)**	CHINA	CCSA
China Mobile International Ltd **(China Mobile International Limited)**	CHINA	CCSA
China Mobile M2M Company Ltd. **(China Mobile M2M Company Ltd.)**	CHINA	CCSA
China Southern Power Grid Co. **(China Southern Power Grid Co., Ltd.)**	CHINA	CCSA
China Telecom Corporation Ltd. **(China Telecom Corporation Ltd.)**	CHINA	CCSA
China Telecommunications **(China Telecommunications Corporation)**	CHINA	ETSI
China Telecomunication Corp. **(China Telecomunication Corporation)**	CHINA	CCSA
China Unicom **(China Unicom)**	CHINA	CCSA
Chinatelecom Cloud **(China Telecom Cloud Technology Co., Ltd)**	CHINA	CCSA
Chongqing Angying **(Chongqing Angying Telecommunications Technology Corp., Ltd.)**	CHINA	CCSA
Chongqing University **(Chongqing University)**	CHINA	CCSA
Chosun University **(Chosun University)**	KOREA (REPUBLIC OF)	TTA
CHTTL **(Chunghwa Telecommunication Laboratories, Chunghwa Telecommunication Co.)**	TAIWAN, PROVINCE OF CHINA	ETSI
CICT **(China Information Communication Technologies Group Corporation)**	CHINA	CCSA
CICT **(China Information Communication Technologies Group)**	CHINA	ETSI
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
Cisco Systems India Pvt. Ltd. **(Cisco Systems India Pvt. Ltd.)**	INDIA	TSDSI
CITC **(CHINA INFORMATION TECHNOLOGY DESIGNING&CONSULTING INSTITUTE CO.,LTD.)**	CHINA	CCSA
CKH IOD UK LIMITED **(CKH IOD UK LIMITED)**	UNITED KINGDOM	ETSI
Classon Consulting **(Classon Consulting)**	UNITED STATES	ATIS
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 Software Ltd)**	ISRAEL	ETSI
Comba **(Comba Network Systems Company Limited)**	CHINA	CCSA
Comcast **(Comcast)**	UNITED STATES	ATIS
Commsat **(Beijing Commsat Technology Development Co.,Ltd.)**	CHINA	CCSA
Comprion GmbH **(Comprion GmbH)**	GERMANY	ETSI
Comtech Telecommunications Cor **(Comtech Telecommunications Corp)**	UNITED STATES	ATIS
CONNECT Centre **(College of the Holy and Undivided Trinity of Queen Elizabeth near Dublin)**	IRELAND	ETSI
Consort Digital **(Consort Digital Private Limited)**	INDIA	ETSI
Continental Automotive **(Continental Automotive Technologies GmbH)**	GERMANY	ETSI
Convida Wireless **(Convida Wireless, LLC)**	UNITED STATES	ETSI
CQUPT **(Chongqing University of Posts and Telecommunications)**	CHINA	CCSA
CSA **(Cyber Security Agency of Singapore)**	SINGAPORE	ETSI
CSIRO **(Commonwealth Scientific and Industrial Research Organisation)**	AUSTRALIA	ETSI
CSPIA **(CHINA SECURITY & PROTECTION INDUSTRY ASSOCIATION)**	CHINA	CCSA
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
CUJO **(CUJO AI)**	FINLAND	ETSI
Cygnusemi **(Cygnusemi)**	CHINA	CCSA

Czech Telecommunication Office **(Czech Telecommunication Office)**	CZECH REPUBLIC	ETSI
DAC-UPC **(Departamento de Arquitectura de Computadores de la Universidad Politecnica de Cataluna (DAC-UPC))**	SPAIN	ETSI
DanKook University **(DanKook University')**	KOREA (REPUBLIC OF)	TTA
Datang Linktester Technology **(Datang Linktester Technology Co., Ltd.)**	CHINA	CCSA
Datang Mobile Com. Equipment **(Datang Mobile Communications Equipment Co., Ltd)**	CHINA	CCSA
DCMS **(Department for Digital, Culture, Media and Sport)**	UNITED KINGDOM	ETSI
DECT Forum **(DECT Forum)**	SWITZERLAND	ETSI
DEKRA **(DEKRA testing and Certification, S.A.U.)**	SPAIN	ETSI
Dell Technologies **(Dell Technologies)**	UNITED STATES	ATIS
Deloitte Tohmatsu Cyber LLC **(DTCY)**	JAPAN	TTC
DENSO CORPORATION **(DENSO CORPORATION)**	JAPAN	ARIB
Department of Telecom **(Department of Telecommunications)**	INDIA	TSDSI
Deutsche Telekom AG **(Deutsche Telekom AG)**	GERMANY	ETSI
DFH Satellite Co., LTD **(DFH Satellite Co., LTD)**	CHINA	CCSA
Dish Network **(Dish Network)**	UNITED STATES	ATIS
DKK Co., Ltd. **(DKK Co., Ltd.)**	JAPAN	ARIB
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 Laboratories Inc. **(Dolby Laboratories Inc.)**	UNITED KINGDOM	ETSI
Dolby Sweden AB **(Dolby Sweden AB)**	SWEDEN	ETSI
Dongguan OPPO Precision Elec. **(Dongguan OPPO Precision Electronic Corp., Ltd.)**	CHINA	CCSA
DTS Licensing Limited **(DTS Licensing Limited)**	IRELAND	ETSI
EAST SA **(EAST SA)**	LUXEMBOURG	ETSI
EBU **(EBU - European Broadcasting Union)**	SWITZERLAND	ETSI
ECO **(European Communications Office)**	DENMARK	ETSI
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
EMITE **(EMITE Ingenieria S.L.)**	SPAIN	ETSI

ENENSYS **(ENENSYS Technologies SA)**	FRANCE	ETSI
Ericsson España S.A. **(Ericsson España S.A.)**	SPAIN	ETSI
Ericsson France S.A.S **(Ericsson France S.A.S)**	FRANCE	ETSI
Ericsson GmbH, Eurolab **(Ericsson GmbH, Eurolab - Unternehmensbereich Forschung und Entwicklung)**	GERMANY	ETSI
Ericsson Hungary Ltd **(Ericsson Hungary Ltd)**	HUNGARY	ETSI
Ericsson Inc. **(Ericsson Incorporated)**	UNITED STATES	ATIS
Ericsson India Private Limited **(Ericsson India Private Limited)**	INDIA	TSDSI
Ericsson Japan K.K. **(Ericsson Japan K.K.)**	JAPAN	ARIB
Ericsson Limited **(Ericsson Limited)**	UNITED KINGDOM	ETSI
Ericsson LM **(Ericsson Telefonaktiebolaget LM)**	SWEDEN	ETSI
Ericsson 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
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 Digital Testing **(Eurofins Digital Testing Belgium NV)**	BELGIUM	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 S.A. **(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 India **(Facebook India Online Services Pvt Ltd)**	INDIA	TSDSI
Facebook Japan K.K. **(Facebook Japan K.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
Federated Wireless **(Federated Wireless)**	UNITED STATES	ETSI
FGI **(FG Innovation Company Limited)**	CHINA	CCSA
Fiberhome Technologies Group **(Fiberhome Technologies Group)**	CHINA	CCSA
FirstNet **(FirstNet)**	UNITED STATES	ATIS
FORCE Technology **(FORCE Technology)**	DENMARK	ETSI
Ford **(Ford Motor Company)**	UNITED STATES	ETSI
France Brevets **(France Brevets)**	FRANCE	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
Fudan University **(Fudan University)**	CHINA	CCSA
FUJITSU CONNECTED TECHNOLOGIES **(FUJITSU CONNECTED TECHNOLOGIES LIMITED)**	JAPAN	ARIB
Fujitsu Limited **(Fujitsu Limited)**	JAPAN	TTC
Fujitsu Limited **(Fujitsu Limited)**	JAPAN	ARIB
Fujitsu Limited **(Fujitsu Limited)**	JAPAN	ETSI
Futurewei **(Futurewei Technologies Inc.)**	UNITED STATES	ETSI
Futurewei Technologies **(Futurewei Technologies)**	UNITED STATES	ATIS
G+D MS **(Giesecke+Devrient Mobile Security GmbH)**	GERMANY	ETSI
GANPAT UNIVERSITY **(GANPAT UNIVERSITY)**	INDIA	TSDSI
Gatehouse Satcom A/S **(Gatehouse Satcom A/S)**	DENMARK	ETSI
GDCNI **(Guangdong Communicaions and Networks Institute)**	CHINA	CCSA
GEESPACE **(ZHE JIANG GEESPACE TECHNOLOGY CO., LTD.)**	CHINA	CCSA
Gigaset Communications GmbH **(Gigaset Communications GmbH)**	GERMANY	ETSI
Gilat **(Gilat Satellite Networks Ltd)**	ISRAEL	ETSI
GLOBALSTAR Inc. **(GLOBALSTAR Inc.)**	UNITED STATES	ETSI
GM - ATCI **(General Motors - ATCI)**	ISRAEL	ETSI
GOHIGH DATA NETWORKS TECH. **(GOHIGH DATA NETWORKS TECHNOLOGY CO., LTD)**	CHINA	CCSA

Google Inc. **(Google Inc.)**	UNITED STATES	ATIS
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
Haier W. W. **(Qingdao Haier Technology Co., Ltd.)**	CHINA	CCSA
Hangzhou Douku **(Hangzhou Douku Software Technologies Co., Ltd.)**	CHINA	CCSA
Hangzhou Mengyuxiang **(Hangzhou Mengyuxiang Network Technology Corp., Ltd.)**	CHINA	CCSA
Hansung University **(Hansung University)**	KOREA (REPUBLIC OF)	TTA
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
HFCL **(HFCL)**	INDIA	TSDSI
HiSilicon Technologies Co. Ltd **(HiSilicon Technologies Co.Ltd)**	CHINA	CCSA
HISPASAT SA **(HISPASAT SA)**	SPAIN	ETSI
HOME OFFICE **(HOME OFFICE)**	UNITED KINGDOM	ETSI
Honor **(Honor Device Co., Ltd.)**	CHINA	CCSA
Honor **(Honor Device Co., Ltd)**	CHINA	ETSI
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	ARIB
Huawei Technologies Japan K.K. **(Huawei Technologies Japan K.K.)**	JAPAN	TTC
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
HUGHES Network Systems Ltd **(HUGHES Network Systems Ltd)**	UNITED KINGDOM	ETSI

Huizhou Speed Wireless **(Huizhou Speed Wireless Technology Co., Ltd.)**	CHINA	CCSA
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 Delhi **(Indraprastha Institute of Information Technology Delhi)**	INDIA	TSDSI
IIIT Hyderabad **(International Institute of Information Technology, Hyderabad)**	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 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 Roorkee **(Indian Institute Of Technology–Roorkee)**	INDIA	TSDSI
IIT, Kharagpur **(IIT, Kharagpur)**	INDIA	TSDSI
IMDA **(Infocomm Media Development Authority)**	SINGAPORE	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
INSPUR **(Inspur Software Technology Co. , Ltd.)**	CHINA	CCSA
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 Finland Oy **(Intel Finland Oy)**	FINLAND	ETSI
Intel Ireland **(Intel Ireland Ltd)**	IRELAND	ETSI
Intel K.K. **(Intel K.K.)**	JAPAN	ARIB
Intel Korea, Ltd. **(Intel Korea, Ltd.)**	KOREA (REPUBLIC OF)	TTA
Intel Romania **(Intel Romania)**	ROMANIA	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
Intelsat **(Intelsat)**	UNITED STATES	ATIS
InterDigital Belgium. LLC **(InterDigital Belgium, LLC)**	BELGIUM	ETSI
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, 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
INVAS Technologies Pvt Ltd **(INVAS Technologies Pvt Ltd)**	INDIA	TSDSI
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
ISED **(Innovation, Science and Economic Development Canada)**	CANADA	ETSI
ISRO **(Indian Space Research Organisation)**	INDIA	TSDSI
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
Japan Radio Co., Ltd **(Japan Radio Co., Ltd)**	JAPAN	ARIB
Jetflow **(Jetflow Technologies Co., Ltd)**	CHINA	CCSA
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
Kapsch TrafficCom AG **(Kapsch TrafficCom AG)**	AUSTRIA	ETSI
KDDI Corporation **(KDDI Corporation)**	JAPAN	ARIB
KDDI Corporation **(KDDI Corporation)**	JAPAN	TTC
Kepler **(Kepler Communications GmbH)**	GERMANY	ETSI
Keysight Technologies UK Ltd **(Keysight Technologies UK Ltd)**	UNITED KINGDOM	ETSI
KIPO **(Korean Intellectual Property Office)**	KOREA (REPUBLIC OF)	TTA
Kontron Transportation France **(Kontron Transportation France S.A.S)**	FRANCE	ETSI
Korea Testing Laboratory **(Korea Testing Laboratory)**	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
Kumu Networks **(Kumu Networks)**	UNITED STATES	ATIS
Kymeta Corporation **(Kymeta Corporation)**	UNITED STATES	ETSI
Kyocera Corporation **(Kyocera Corporation)**	JAPAN	ARIB
Kyonggi University **(Kyonggi University)**	KOREA (REPUBLIC OF)	TTA
L.M. Ericsson Limited **(L.M. Ericsson Limited)**	IRELAND	ETSI
L3Harris Technologies **(L3Harris Technologies)**	UNITED STATES	ATIS
Landis+Gyr AG **(Landis+Gyr Switzerland AG)**	SWITZERLAND	ETSI
Langbo **(Shanghai Langbo Communication Technology Co., Ltd.)**	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
Lenovo Mobile Com. Technology **(Lenovo Mobile Communication Technology 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
Locaila **(Locaila)**	UNITED STATES	ATIS
Lockheed Martin **(Lockheed Martin)**	UNITED STATES	ATIS
Lynk Global **(Lynk Global)**	UNITED STATES	ATIS
Magister Solutions Ltd **(Magister Solutions Ltd)**	FINLAND	ETSI
MATRIXX Software **(MATRIXX Software, Inc.)**	UNITED STATES	ETSI
Mavenir **(Mavenir Systems, Inc)**	UNITED STATES	ETSI
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 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
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 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
MinEA **(Ministry of Economic Affairs and Climate Policy)**	NETHERLANDS	ETSI
MINECO **(MINISTRY OF ECONOMY AND BUSINESS)**	SPAIN	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 of Transport and Cons **(Ministry of Transport and Construction of the Slovak Republic)**	SLOVAKIA	ETSI

MITRE Corporation **(MITRE Corporation)**	UNITED STATES	ETSI
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 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 Danmark A/S **(Motorola Solutions Danmark A/S)**	DENMARK	ETSI
Motorola Solutions Germany **(Motorola Solutions Germany GmbH)**	GERMANY	ETSI
Motorola Solutions Poland **(Motorola Solutions Systems Polska s.p. z.o.o.)**	POLAND	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 Ericsson Panda Com Ltd **(NANJING ERICSSON PANDA COMMUNICATIONS 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 Smart Grid Mission **(National Smart Grid Mission)**	INDIA	TSDSI
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
NCSC **(National Cyber Security Centre)**	UNITED KINGDOM	ETSI
NDRE **(National Defence Radio Establishment)**	SWEDEN	ETSI
NEC Corporation **(NEC Corporation)**	JAPAN	ETSI
NEC Corporation **(NEC Corporation)**	JAPAN	ARIB
NEC Corporation **(NEC Corporation)**	JAPAN	TTC
NEC Europe Ltd **(NEC Europe Ltd)**	UNITED KINGDOM	ETSI
NEC Telecom MODUS Ltd. **(NEC Telecom MODUS Ltd.)**	UNITED KINGDOM	ETSI
NEMERGENT **(NEMERGENT SOLUTIONS SL)**	SPAIN	ETSI
NERCDTV **(Shanghai National Engineering Research Center of Digital Television Co.,Ltd.)**	CHINA	CCSA

Netherlands Police **(Netherlands Police, Division MDC)**	NETHERLANDS	ETSI
Netscout Systems Inc. **(Netscout Systems Inc.)**	UNITED STATES	ETSI
Neustar, Inc. **(Neustar, Inc.)**	UNITED STATES	ATIS
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
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 Italy **(Nokia Solutions and Networks Italia SpA)**	ITALY	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 Advanced Technology Corpor **(NTT Advanced Technology Corporation)**	JAPAN	TTC
NTT corporation **(Nippon Telegraph and Telephone Corporation)**	JAPAN	ETSI
NTT DOCOMO INC. **(NTT DOCOMO INC.)**	JAPAN	ARIB
NTT DOCOMO INC. **(NTT DOCOMO INC.)**	JAPAN	TTC
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
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
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 **(Operational Technology Division (OTD))**	UNITED STATES	ETSI
OTD_US **(OTD_US)**	UNITED STATES	ATIS
OTECH **(OTECH Germany GmbH)**	GERMANY	ETSI
Oy LM Ericsson AB **(Oy LM Ericsson AB)**	FINLAND	ETSI
P.I. WORKS **(P.I. WORKS TR BILISIM HIZMETLERI A.S.)**	TÜRKIYE	ETSI
Panasonic Holdings Corporation **(Panasonic Holdings Corporation)**	JAPAN	ARIB
PANASONIC R&D Center Germany **(PANASONIC R&D Center Germany GmbH)**	GERMANY	ETSI
PCCW Global B.V. **(PCCW Global B.V.)**	FRANCE	ETSI
Peking University **(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
Pivotal Commware **(Pivotal Commware)**	UNITED STATES	ATIS
PML **(Purple Mountain Laboratories: Networking, Communications and Security)**	CHINA	CCSA
Polaris Wireless **(Polaris Wireless)**	UNITED STATES	ATIS
Polisen **(Polismyndigheten)**	SWEDEN	ETSI
Polizia di Stato **(Direzione Centrale Anticrimine della Polizia di Stato)**	ITALY	ETSI
POST Luxembourg **(POST Luxembourg)**	LUXEMBOURG	ETSI
Potevio Company Limited **(Potevio Company Limited)**	CHINA	CCSA
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 CDMA Technologies **(Qualcomm CDMA Technologies GmbH)**	GERMANY	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 Europe Inc. Sweden **(Qualcomm Europe Inc. Sweden)**	SWEDEN	ETSI
Qualcomm Finland RFFE Oy **(Qualcomm Finland RFFE Oy)**	FINLAND	ETSI
Qualcomm France **(Qualcomm France SARL)**	FRANCE	ETSI
Qualcomm Incorporated **(Qualcomm Incorporated)**	UNITED STATES	ATIS
Qualcomm India Pvt Ltd **(Qualcomm India Pvt Ltd)**	INDIA	TSDSI
Qualcomm Israel Ltd. **(Qualcomm Israel Ltd.)**	ISRAEL	ETSI
QUALCOMM JAPAN LLC. **(QUALCOMM JAPAN LLC.)**	JAPAN	ARIB
Qualcomm Korea **(Qualcomm Korea)**	KOREA (REPUBLIC OF)	TTA
Qualcomm Tech. Netherlands B.V **(Qualcomm Technologies Netherlands B.V.)**	NETHERLANDS	ETSI
Qualcomm Technologies Int **(Qualcomm Technologies International, Ltd)**	UNITED KINGDOM	ETSI
Qualcomm Technologies Ireland **(QT Technologies Ireland Limited)**	IRELAND	ETSI
Quanray **(Shanghai Quanray Electronics Co., Ltd.)**	CHINA	CCSA

Quectel **(Quectel Wireless Solutions Co., Ltd.)**	CHINA	CCSA
RadiSys **(RadiSys Inc.)**	CANADA	ETSI
Rakuten Mobile, Inc **(Rakuten Mobile, Inc)**	JAPAN	ARIB
Rakuten Symphony **(Rakuten Symphony)**	UNITED STATES	ATIS
RATEL **(Regulatory Agency For Electronic Communications and Postal Services)**	SERBIA	ETSI
Reliance Jio **(Reliance Jio)**	INDIA	TSDSI
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
S&T Iskratel d.o.o. **(S&T Iskratel, informacijske in komunikacijske rešitve, d.o.o.)**	SLOVENIA	ETSI
Saankhya Labs **(Saankhya Labs Private Limited)**	INDIA	TSDSI
Sagemcom Broadband SAS **(Sagemcom Broadband SAS)**	FRANCE	ETSI
SAICT **(Shenzhen Academy of Information and Communication Technology)**	CHINA	CCSA
SAMEER **(SAMEER - Centre for Electromagnetics)**	INDIA	TSDSI
Samsung Electronics Austria **(Samsung Electronics Austria GmbH)**	AUSTRIA	ETSI
Samsung Electronics Benelux BV **(Samsung Electronics Benelux BV)**	NETHERLANDS	ETSI
Samsung Electronics Co., Ltd **(Samsung Electronics Ind. 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 Electronics Romania **(Samsung Electronics Romania SRL)**	ROMANIA	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
Sandvine Incorporated **(Sandvine Incorporated)**	CANADA	ETSI

Sanechips **(Sanechips Technology Co. , Ltd.)**	CHINA	CCSA
Sateliot **(Satelio IoT Services)**	SPAIN	ETSI
Schindler **(Schindler Elevator Ltd)**	SWITZERLAND	ETSI
SDI Squared **(SDI Squared LLC)**	UNITED STATES	ETSI
Sectra Communications AB **(Sectra Communications AB)**	SWEDEN	ETSI
Security Service **(Swedish Security Service)**	SWEDEN	ETSI
Semtech Neuchatel SA **(Semtech Neuchatel SA)**	SWITZERLAND	ETSI
Sennheiser Electronic GmbH **(Sennheiser Electronic GmbH & Co. KG)**	GERMANY	ETSI
Sensorise **(Sensorise Digital Services Pvt Ltd)**	INDIA	TSDSI
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
SEU **(Southeast University)**	CHINA	CCSA
SGDSN **(Secrétariat Général de la Défense et de la Sécurité Nationale (SGDSN))**	FRANCE	ETSI
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
Sierra Wireless. S.A. **(Sierra Wireless, S.A.)**	FRANCE	ETSI
Signalchip Innovations Pvt. **(Signalchip Innovations Pvt. Ltd.)**	INDIA	TSDSI
SIST **(Slovenian Institute for Standardisation)**	SLOVENIA	ETSI
Sisvel **(Sisvel International S.A.)**	LUXEMBOURG	ETSI
SITA **(SITA OnAir Switzerland Sarl)**	SWITZERLAND	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

SmarterMicro Inc. **(Smarter Microelectronics(Guangzhou) Co.,Ltd)**	CHINA	CCSA
SnT - University of Luxembourg **(Interdisciplinary Centre for Security, Reliability and Trust/University of Luxembourg)**	LUXEMBOURG	ETSI
SoftBank Corp. **(SoftBank Corp.)**	JAPAN	ARIB
Softel Systems **(Softel Systems Pty Ltd)**	AUSTRALIA	ETSI
Softil Ltd **(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
Southern Linc. **(Southern Linc.)**	UNITED STATES	ATIS
Southwest Jiaotong university **(Southwest Jiaotong university)**	CHINA	CCSA
SpaceX **(SpaceX Services, Inc)**	UNITED STATES	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
Stellar **(Stellar telecommunications)**	FRANCE	ETSI
Sterlite Technologies Ltd **(Sterlite Technologies Ltd)**	INDIA	TSDSI
STMicroelectronics **(STMicroelectronics International NV)**	SWITZERLAND	ETSI
Sumitomo Elec. Industries, Ltd **(Sumitomo Electric Industries, Ltd.)**	JAPAN	ARIB
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.)**	UNITED KINGDOM	TSDSI
TA **(Tantra Analyst)**	UNITED STATES	ETSI
Tait Europe Limited **(Tait Europe Limited)**	AUSTRIA	ETSI
TCIL **(Telecommunications Consultants India Ltd)**	INDIA	TSDSI

TCL Communication Ltd. **(TCL Communication Ltd.)**	CHINA	CCSA
TCS **(TATA Consultancy Services)**	INDIA	TSDSI
TD Tech Ltd **(TD Tech Ltd)**	CHINA	CCSA
TDF **(TDF SAS)**	FRANCE	ETSI
Tech Mahindra Limited **(Tech Mahindra Limited)**	INDIA	TSDSI
Tejas Networks Ltd. **(Tejas Networks Ltd.)**	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
Tessares **(Tessares S.A.)**	BELGIUM	ETSI
Texas A&M University **(Texas A&M University)**	UNITED STATES	ETSI
TEXAS Instruments **(Texas Instruments France)**	FRANCE	ETSI
THALES **(THALES)**	FRANCE	ETSI
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
Tongji University **(Tongji University)**	CHINA	CCSA
Toshiba **(Toshiba)**	UNITED KINGDOM	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
Trimble **(Trimble)**	UNITED STATES	ATIS
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
TUV SUD BABT **(TUV SUD BRITISH APPROVALS BOARD FOR TELECOMMUNICATIONS)**	UNITED KINGDOM	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
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
UIET Panjab University **(UIET Panjab University Chandigarh)**	INDIA	TSDSI
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
Unicom Broadband Online **(Unicom Broadband Online Co., Ltd.)**	CHINA	CCSA
Unicompay **(Unicompay Co., Ltd.)**	CHINA	CCSA
Union Inter. Chemins de Fer **(Union Internationale des Chemins de Fer)**	FRANCE	ETSI
Union Telephone Company **(Union Telephone Company)**	UNITED STATES	ATIS
Unisoc **(Unisoc (Shanghai) Technologies Co., Ltd.)**	CHINA	CCSA
Unisoc Beijing **(Beijing Unisoc Communications Technology Co., Ltd.)**	CHINA	CCSA
UPV/EHU **(Universidad del País Vasco/Euskal Herriko Unibertsitatea)**	SPAIN	ETSI
US Cellular Corporation. **(US Cellular Corporation/TDS.)**	UNITED STATES	ATIS
UTIMACO TS GmbH **(UTIMACO TS GmbH)**	GERMANY	ETSI
UTokyo **(The University of Tokyo)**	JAPAN	ETSI
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 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 Communication Technology **(vivo Communication Technology Co., Ltd.)**	CHINA	CCSA
vivo Japan KK **(vivo Japan KK)**	JAPAN	ARIB
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 TECH GmbH **(VIVO TECH GmbH)**	GERMANY	ETSI
VMware Bulgaria EOOD **(VMware Bulgaria EOOD)**	BULGARIA	ETSI
Vodafone España SA **(Vodafone España SA)**	SPAIN	ETSI
Vodafone GmbH **(Vodafone GmbH)**	GERMANY	ETSI
VODAFONE Group Plc **(Vodafone Group Plc)**	UNITED KINGDOM	ETSI
Vodafone Ireland Plc **(Vodafone Ireland Plc)**	IRELAND	ETSI
Vodafone Italia SpA **(Vodafone Italia SpA)**	ITALY	ETSI
Vodafone Romania S.A. **(Vodafone Romania S.A.)**	ROMANIA	ETSI
Vodafone Telekomünikasyon A.S. **(Vodafone Telekomünikasyon A.S.)**	TÜRKIYE	ETSI
VoiceAge Corporation **(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
Western Digital **(Western Digital Technologies, Inc.)**	UNITED STATES	ETSI
Wiliot Ltd. **(Wiliot Ltd.)**	ISRAEL	ETSI

WILUS Inc. **(WILUS Inc.)**	KOREA (REPUBLIC OF)	TTA
Wipro Limited. **(Wipro Limited.)**	INDIA	TSDSI
Xiaomi Communications **(Xiaomi Communications)**	CHINA	CCSA
Xiaomi EV Technology **(Xiaomi EV Technology Co., Ltd.)**	CHINA	CCSA
Xiaomi Technology **(Xiaomi Technology)**	CHINA	CCSA
Xidian University **(Xidian University)**	CHINA	CCSA
Xilinx Ireland **(Xilinx Ireland)**	IRELAND	ETSI
ZEKU **(ZEKU TECHNOLOGY (SHANGHAI) CORP., LTD.)**	CHINA	CCSA
Zhejiang Lab **(Zhejiang Lab)**	CHINA	CCSA
Zhejiang University **(Zhejiang University)**	CHINA	CCSA
ZITiS **(Central Office for Information Technology in the Security Sector)**	GERMANY	ETSI
Zollkriminalamt (ZKA) **(Zollkriminalamt (ZKA))**	GERMANY	ETSI
ZONSON **(ZONSON SAMRT AUTO CORPORATION)**	CHINA	CCSA
ZTE Corporation **(ZTE Corporation)**	CHINA	ETSI
ZTE Corporation. **(ZTE Corporation.)**	CHINA	CCSA
ZTE FRANCE SASU **(ZTE FRANCE SASU)**	FRANCE	ETSI
ZTE Korea Limited **(ZTE Korea Limited)**	KOREA (REPUBLIC OF)	TTA
ZTE Photonics **(ZTE Photonics Technology Co.,Ltd.)**	CHINA	CCSA
ZTE Wistron Telecom AB **(ZTE Wistron Telecom AB)**	SWEDEN	ETSI
ZXNE **(ZXNE CORPORATION)**	CHINA	CCSA

Total : 801 Individual Members

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

TSG SA WG5 (Telecom Management)

Overview: elections2007/election.htm

TSG SA WG5 Telecom Management: The WG will specify the management framework and requirements for management of the 3G system, delivering the architecture descriptions of the telecommunication management network (TMN) and coordinating across TSGs all work pertinent to the 3G system telecom management.

Useful links and information			
	New: Elections for two Vice Chairmen of TSG SA WG 5		
About SA5	List of elected officials	**Meetings**	Next meeting information & previous meeting reports and documents
	Terms of Reference		Liaison Statements
			Full SA5 meeting calendar
Documents	Documents area	**General info**	Email exploder lists
	Specifications		
	Work items		Contact SA5 @

Last update:
2007-07-09: Election information added
2006-07-17: Election information removed
2006-05-09: added Christian Toche
2006-04-13: Election information added
2006-01-09: Election information removed
2005-01-10: link to meetings page changed
2004-11-25: next meeting information updated

Join or leave the 3GPP_TSG_SA_WG5 list

This screen allows you to join or leave the 3GPP_TSG_SA_WG5 list. To confirm your identity and prevent third parties from subscribing you to the list against your will, an e-mail message with a confirmation code will be sent to the address you specify in the form. Simply wait for this message to arrive, then follow the instructions to confirm the operation.

Alternatively, you can login with your LISTSERV password (if you have one) and update your subscription interactively, without e-mail confirmation.

Your e-mail address:

Your name. Use Firstname LASTNAME:

Join the list | Leave the list | Leave all the lists

Subscription type:

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- ( ) Digest (traditional) [NOMIME DIGEST]
- ( ) Digest (MIME format) [NOHTML MIME DIGEST]
- ( ) Digest (HTML format) [HTML DIGEST]
- ( ) Index (traditional) [NOHTML INDEX]
- ( ) Index (HTML format) [HTML INDEX]

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- ( ) LISTSERV-style, with list name in subject [SUBJECTHDR]
- ( ) LISTSERV-style, short [SHORTHDR]
- ( ) "Dual" (second header in mail body) [DUALHDR]
- ( ) sendmail-style [IETFHDR]

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- (•) [Special or obsolete setting]

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Shaping the future of mobile communication standards

News & info

- 2007-07-05: Updated voting list for SA3#48
- 2007-07-04: Updated election for officials of SA3 to be held in July
- 2007-07-04: Voting list for RAN1-50
- 2007-07-04: Updated voting list for RAN2-59
- 2007-07-04: Updated voting list for RAN3-57
- 2007-07-04: Updated voting list for RAN4-44
- 2007-07-04: Updated voting list for CT1-48
- 2007-07-04: Updated voting list for CT3-45
- 2007-07-04: Updated voting list for CT4-36
- 2007-07-03: Updated elections for officials of RAN2 to be held in August
- 2007-07-02: Voting list for CT6-44
- 2007-07-02: Voting list for GERAN3-35
- 2007-07-02: Updated voting list for RAN5-36
- 2007-07-02: Updated elections for officials of RAN3 to be held in August
- 2007-06-28: Mr Hong LIU elected Vice Chairman of SA2
- 2007-06-28: Updated elections for officials of CT1 to be held in August
- 2007-06-28: Elections for officials of CT3 to be held in August
- 2007-06-28: Updated elections for officials of CT4 to be held in August
- 2007-06-28: Updated elections for officials of CT6 to be held in August
- 2007-06-28: Elections for officials of RAN1 to be held in August
- 2007-06-28: Elections for officials of RAN4 to be held in August
- 2007-06-28: Elections for officials of RAN5 to be held in August

- **2007-06-28: Elections for Chairman of GERAN3 to be held in August**
- **2007-06-28: Elections for 2 Vice Chairmen of SA5 to be held in August**
- **2007-07-03: Revised terms of reference for TSGs SA and CT following agreement on the transfer of core IMS standardization to 3GPP. Additionally, TSG SA WG1 will close following meeting #37 and immediately re-open under new terms of reference catering for requirements from non-3GPP technologies (eg NGN originating in ETSI TISPAN). Full details in the SA#36 report. Attendance at first meeting of new SA1 (meeting #37bis or meeting #38) is *essential* for securing voting rights for the Chairman and Vice-Chairman elections which will take place at SA1 #39 (or SA1 #38bis if there is one).**
- **2007-04-20: Vacancies within the 3GPP Support Team.**
- **2007-04-19: Fixed-Mobile Convergence was given a real boost this week, when the 3GPP Project Coordination Group gave the green light to transfer of fixed network IMS specifications from ETSI TISPAN. At its meeting on 18 April, the PCG agreed to widen the scope of the Project to include "common IMS" work, and to open up the IMS requirements process, paving the way for IMS to be used in Next Generation Networks of all kinds, fixed and mobile. The cable TV industry is keen to use IMS to develop its own service offering. The move was endorsed by the Organizational Partners at their meeting 19 April.**
- **2006-11-28: Results of 3GPP Satisfaction survey 2006**
- **3GPP-endorsed conferences**
- **UTRA-UTRAN Long Term Evolution and System Architecture Evolution**

  What does the future hold for 3GPP technolgies?
- Downloadable iCalendar files for each future meetings. See the last column of (for example) the TSG SA WG1 meetings page: click on ICS to have the meeting registered as an appointment in your personal calendar (eg MS Outlook). *(Each TSG and WG has a dedicated web page, accessible from the 3GPP structure page. To see meetings information, use the link top right of the table on the TSG/WG page.)*
- **3GPP IETF Dependencies and Priorities**
- **What is UMTS? (overview of the content of Releases 99 to 6)**
- **TSG meeting highlights**

Click here for access to the 3GPP ftp site

Last update:
2007-07-04

Legal notice

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 *(8 subscribers)*
3GPP_3GPP2_SCM
3gpp_3gpp2_scm : 3gpp-3gpp2 spatial channel modelling *(23 subscribers)*
3GPP_COMMON_IMS_XFER
3GPP_common_ims_xfer: IMS work transfer *(226 subscribers)*
3GPP_FFG
3gpp_ffg :3gpp list *(16 subscribers)*
3GPP_GUP
3gpp_gup : evolution of 3gpp *(19 subscribers)*
3GPP_ORGANIZATION
3gpp_organization: 3gpp discussion group *(47 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 *(287 subscribers)*
3GPP_TSG_CT_WG1
3GPP_TSG_CT_WG1 - Core Network and Terminals WG 1 *(874 subscribers)*
3GPP_TSG_CT_WG1_MMS_SMS_CBS_AT
3GPP_TSG_CT_WG1_MMS_SMS_CBS_AT:Commands *(134 subscribers)*
3GPP_TSG_CT_WG2
3GPP_TSG_CT_WG2 - Core Network and Terminals WG 2 *(52 subscribers)*
3GPP_TSG_CT_WG3
3GPP_TSG_CT_WG3 - Core Network and Terminals WG 3 *(299 subscribers)*
3GPP_TSG_CT_WG4
3GPP_TSG_CT_WG4 - Core Network and Terminals WG 4 *(401 subscribers)*
3GPP_TSG_CT_WG5
3GPP_TSG_CT_WG5 - Core Network and Terminals WG 5 *(226 subscribers)*
3GPP_TSG_CT_WG6
3GPP_TSG_CT_WG6 - Core Network and Terminals WG 6 *(189 subscribers)*
3GPP_TSG_CT_WG6_API_TEST
3GPP_TSG_CT_WG6_API_TEST: Mailing List *(38 subscribers)*
3GPP_TSG_GERAN
3gpp_tsg_geran : list for etsi tsg geran mailing *(295 subscribers)*
3GPP_TSG_GERAN_FUTURERAN
3gpp_tsg_geran_futureran : list for etsi tsg geran futureran mailing *(53 subscribers)*
3GPP_TSG_GERAN_TDOC
3gpp_tsg_geran_tdoc : list for etsi tsg geran temporary documents *(271 subscribers)*
3GPP_TSG_GERAN_WG1
3gpp_tsg_geran_wg1 : list for etsi tsg geran wg1 mailing *(215 subscribers)*
3GPP_TSG_GERAN_WG2
3gpp_tsg_geran_wg2 : list for etsi tsg geran wg2 mailing *(209 subscribers)*
3GPP_TSG_GERAN_WG3
3gpp_tsg_geran_wg3 : list for etsi tsg geran wg3 mailing *(200 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 *(5 subscribers)*

3GPP_TSG_GERAN_WG4_GPRS
3gpp_tsg_geran_wg4_gprs : THIS LIST HAS BEEN CLOSED *(6 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 *(70 subscribers)*

3GPP_TSG_RAN
3gpp_tsg_ran: tsg radio access network group *(676 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 *(47 subscribers)*

3GPP_TSG_RAN_AHG1
3gpp_tsg_ran_ahg1: tsg ran ad-hoc group on itu co-ordination *(46 subscribers)*

3GPP_TSG_RAN_WG1
3gpp_tsg_ran_wg1: tsg ran working group 1 *(1,143 subscribers)*

3GPP_TSG_RAN_WG1_EUL_AH
3GPP_TSG_RAN_WG1_EUL_AH *(84 subscribers)*

3GPP_TSG_RAN_WG1_WCDMA_MIMO
3GPP_TSG_RAN_WG1_WCDMA_MIMO *(133 subscribers)*

3GPP_TSG_RAN_WG2
No title defined *(895 subscribers)*

3GPP_TSG_RAN_WG2_MBMS_RRC
3GPP_TSG_RAN_WG2_MBMS_RRC List *(96 subscribers)*

3GPP_TSG_RAN_WG2_ROHC
3GPP_TSG_RAN_WG2_ROHC : 3GPP_TSG_RAN_WG2_ROHC List *(63 subscribers)*

3GPP_TSG_RAN_WG3
3gpp_tsg_ran_wg3: tsg ran working group 3 *(794 subscribers)*

3GPP_TSG_RAN_WG4
3gpp_tsg_ran_wg4: tsg ran working group 4 *(642 subscribers)*

3GPP_TSG_RAN_WG4_BANDS
3GPP_TSG_RAN_WG4_Bands : New UMTS frequency bands *(103 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 *(61 subscribers)*

3GPP_TSG_RAN_WG4_DIVERSITY_OFF
3gpp_tsg_ran_wg4_DIVERSITY_OFF: tsg ran working group 4 Diversity off *(56 subscribers)*

3GPP_TSG_RAN_WG4_EDCH
3GPP_TSG_RAN_WG4_EDCH : Enhanced Uplink Performance Requirements *(120 subscribers)*

3GPP_TSG_RAN_WG4_HSDPA
3GPP_TSG_RAN_WG4_HSDPA : HSDPA PERFORMANCE REQUIREMENTS *(163 subscribers)*

3GPP_TSG_RAN_WG4_LTE
3GPP TSG RAN WG4 Long Term Evolution *(210 subscribers)*

3GPP_TSG_RAN_WG4_MBMS
3GPP_TSG_RAN_WG4_MBMS : List closed *(0 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 *(20 subscribers)*

3GPP_TSG_RAN_WG4_UE_ANTENNA
3GPP_TSG_RAN_WG4_UE_Antenna: UE Antenna Performance *(172 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 *(497 subscribers)*

3GPP_TSG_RAN_WG5_IMSCC
3GPP TSG RAN WG5 IMS Call Control mailing *(107 subscribers)*

3GPP_TSG_RAN_WG5_RF

3GPP_TSG_RAN_WG5_RF : Radio Frequency *(153 subscribers)*

3GPP_TSG_RAN_WG5_SIG
3GPP_TSG_RAN_WG5_SIG: Signalling *(392 subscribers)*

3GPP_TSG_RAN_WGS_LONG_TERM_EVOLUTION
3GPP_TSG_RAN_WGS_LONG_TERM_EVOLUTION: UTRA/UTRAN Long Term Evolution *(317 subscribers)*

3GPP_TSG_RAN_WGS_LTE_UE_TRANSCEIVER
3gpp_tsg_ran_wgs_lte_ue_transceiver *(91 subscribers)*

3GPP_TSG_SA
3gpp_tsg_sa: tsg system aspects group *(465 subscribers)*

3GPP_TSG_SA_WG1
3gpp_tsg_sa_wg1: tsg sa services *(592 subscribers)*

3GPP_TSG_SA_WG1_AIPN
3GPP_TSG_SA_WG1_AIPN List *(49 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 *(74 subscribers)*

3GPP_TSG_SA_WG1_WLAN
THIS LIST HAS BEEN CLOSED *(10 subscribers)*

3GPP_TSG_SA_WG2
3gpp_tsg_sa_wg2: tsg sa architecture *(866 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 *(327 subscribers)*

3GPP_TSG_SA_WG3_LI
3gpp_tsg_sa_wg3_li: (tsg sa wg3 lawful interception group) *(140 subscribers)*

3GPP_TSG_SA_WG4
3gpp_tsg_sa_wg4: tsg sa codec *(291 subscribers)*

3GPP_TSG_SA_WG5
3gpp_tsg_sa_wg 5: tsg sa5 telecoms management *(319 subscribers)*

3GPP_TSG_SA_WG5_CHARGING
3GPP_TSG_SA_WG5_Charging: Charging Management *(240 subscribers)*

3GPP_TSG_SA_WG5_OAM
3GPP_TSG_SA_WG5_OAM : OAM *(223 subscribers)*

3GPP_TSG_SA_WG5_SWGA
3GPP_TSG_SA_WG5_SWGA : Harmonization *(192 subscribers)*

3GPP_TSG_SA_WG5_SWGB
3GPP_TSG_SA_WG5_SWGB : Charging CLOSED 270407 *(241 subscribers)*

3GPP_TSG_SA_WG5_SWGC
3GPP_TSG_SA_WG5_SWGC : OAM&P Interface Definition Closed 270407 *(224 subscribers)*

3GPP_TSG_SA_WG5_SWGD
3GPP_TSG_SA_WG5_SWGD : OAM&P Data Definition CLOSED 270407 *(225 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 *(48 subscribers)*

3GPP_TSG_T_WG2_SWG2
3gpp_tsg_t_wg2_swg2 : terminal interfaces LIST HAS BEEN CLOSED 12/07/2004 *(111 subscribers)*

3GPP_TSG_T_WG2_SWG3
3gpp_tsg_t_wg2_swg3 : messaging LIST HAS BEEN CLOSED 12/07/2004 *(275 subscribers)*

3GPP_TSG_T_WG3

Smart Card Application Aspects: THIS LIST HAS NOW BEEN CLOSED 18.03.05 *(134 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 *(126 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 *(37 subscribers)*

3GPP_WORKSHOP_LTE_GSM_HANDOVERS
3GPP_WS *(96 subscribers)*

3GPP_WP_GROUP
3GPP_WP_GROUP: 3GPP Working Procedures Group list *(25 subscribers)*

ADMIN_GROUP
admin_group : admin_group list *(79 subscribers)*

AMETIS
AMETIS : Ametis *(0 subscribers)*

AT
at: tc access & terminals - the etsi "home" for terminal matters CLOSED 170407 *(69 subscribers)*

AT-D
at-d: tc at working group for digital technologies close 170407 *(56 subscribers)*

AT-I
at-i: installation and cabling matters list closed 170407 *(26 subscribers)*

AT-N
at-n: at-n list Closed *(0 subscribers)*

AT1
AT1: tc ATTM working group for Analogue & Digital Terminals *(64 subscribers)*

AT2
at2: tc attm working group for Infrastructure, Physical Networks & Communication Systems *(112 subscribers)*

ATMOBILE
ATmobile STF 304 *(7 subscribers)*

ATTM
ATTM: Access, Terminals, Transmission and Multiplexing *(125 subscribers)*

B2B_PLUGTESTS
B2B_Plugtests *(15 subscribers)*

BOARD_3GFF
board_3gff: 3gpp funding formula board ad hoc group *(1 subscriber)*

BOARD_IMS
Board_IMS 3GPP-TISPAN synergies (group now closed) *(45 subscribers)*

BOARD_IMS-TEST
Board ad hoc group on IMS Testbed *(65 subscribers)*

BOARD_NGG
BOARD_NGG: ETSI Board NGN Globalization Group *(32 subscribers)*

BOARD_OP_ADHOC
Board_op_adhoc: ETSI Board list for input to 3GPP OP ad hoc *(95 subscribers)*

BOARD_SDR
BOARD_SDR (ETSI Board Software Defined Radio) *(55 subscribers)*

BRAN
bran: broadband radio access networks mailing list *(172 subscribers)*

BRAN_5GHZ_HARM_STD
BRAN_5GHZ_HARM_STD : LIST CLOSED *(65 subscribers)*

BRAN_ANNOUNCE
broadband radio access networks announcement list *(48 subscribers)*

BRAN_HA
bran_ha: bran hiperaccess standards area mailing list *(37 subscribers)*

BRAN_HA_DLC_DG
bran_ha_dlc_dg: LIST CLOSED *(1 subscriber)*

BRAN_HL
bran hiperlan2 standardization area *(42 subscribers)*

BRAN_HM

bran_hm: etsi bran hiperman (fwa below 11 ghz) *(50 subscribers)*

BRAN_RCWG
BRAN_RCWG : BRAN harmonized standards and related work *(66 subscribers)*

BROADCAST
jtc broadcast official mailing list *(81 subscribers)*

BROADCAST_ANNOUNCE
broadcast announcement list *(30 subscribers)*

BROADCAST_M331
BROADCAST_M331: Response to EC/EFTA *(47 subscribers)*

CENELEC_ETSI_JWG_EMC
No title defined *(64 subscribers)*

CEPT_ETSI
ETSI liaison officers to CEPT ECC *(20 subscribers)*

CLC-ETSI-JWG-PLTCOEX
clc-etsi-jwg-pltcoex:cenelec etsi joint working group *(42 subscribers)*

DANET-TOOL
Danet-tool *(1 subscriber)*

DECT
Dect : DECT mailing list *(54 subscribers)*

DECT_A
dect_a : THIS LIST HAS BEEN CLOSED *(11 subscribers)*

DECT_ANNOUNCE
announce list for etsi dect *(14 subscribers)*

DECT_INTEREST_GROUP
DECT_Interest_Group : DECT interest group *(35 subscribers)*

DECT_NEWGENERATION
DECT_NewGeneration : DECT_NewGeneration List *(64 subscribers)*

DECT_T
dect_t : THIS LIST HAS BEEN CLOSED *(10 subscribers)*

DELIVERABLE-NOTIFICATIONS
deliverable-notifications : deliverable notifications *(85 subscribers)*

DISTRIBUTIONS_INDEPT_DISTRIBUTORS
Distributions_Indept_Distributors: Distributions Indept Distributors list *(8 subscribers)*

ECALL
eCall related issues *(31 subscribers)*

EDS-NEWS
eds-news: etsi documentation service news *(136 subscribers)*

EE
environmental engineering technical committee membership and mailing list *(51 subscribers)*

EE1
ee1 : THIS LIST HAS BEEN CLOSED *(15 subscribers)*

EE1_ANNOUNCE
EE1 ANNOUNCE : THIS LIST HAS BEEN CLOSED *(10 subscribers)*

EE2
ee2 : (power supply) membership and mailing list *(35 subscribers)*

EE2_ANNOUNCE
No title defined *(16 subscribers)*

EE_ANNOUNCE
environmental engineering announce list *(21 subscribers)*

EE_ECO-ENVIRONMENTAL_PRODUCT_STANDARDS_GROUP
EE EEPS: Eco-environmental Product Standards *(26 subscribers)*

EF3
EF3 : EF3 list *(33 subscribers)*

EHEALTH
ETSI Project eHEALTH *(32 subscribers)*

EHEALTH_STARTER_GROUP
ehealth_starter_group: eHealth Starter Group Closed 11.04.07 *(3 subscribers)*

EL-SIGN
el-sign: electronic signatures - List has been closed *(285 subscribers)*

EMERGING_ICT
Open discussion on ICT Emerging Technologies *(27 subscribers)*

EMTEL
emtel : Emtel *(115 subscribers)*

EPDECT
epdect : THIS LIST HAS BEEN CLOSED *(119 subscribers)*

ERM
erm : emc and radio spectrum matters distribution *(219 subscribers)*

ERMCC

ermcc: erm co-ordination committee *(48 subscribers)*

ERM_ACEA
No title defined *(20 subscribers)*

ERM_ANNOUNCE
erm_announce : emc and radio spectrum matters distribution *(46 subscribers)*

ERM_EMC
ERM_EMC : erm wg on electromagnetic compatibility *(100 subscribers)*

ERM_EMC_ANNOUNCE
erm_em_announce: erm_em_announce list *(22 subscribers)*

ERM_ITU-R_WP8A
erm_itu-r_wp8a : preparation for itu-r wp8a *(15 subscribers)*

ERM_ITU-R_WP8A_P
erm_itu-r_wp8a_p : itu-r wp8a participants *(18 subscribers)*

ERM_JOINT_TG34_TG28
ERM_Joint_TG34_TG28: ERM TG34 TG28 work on RFID and SRD *(65 subscribers)*

ERM_LIAISON
erm_liaison : external liaison statements from tc erm *(18 subscribers)*

ERM_RM
erm_rm : radio matters *(133 subscribers)*

ERM_RM_ANNOUNCE
erm_rm : radio matters *(67 subscribers)*

ERM_TG04
erm_tg04 : automotive emc *(21 subscribers)*

ERM_TG11
erm_tg11 : radio lans *(39 subscribers)*

ERM_TG14
erm_tg14 : radio interfaces under article 4.2 of the r&tte directive *(3 subscribers)*

ERM_TG17
erm_tg17 : standards for broadcast and ancillary communications equipment *(33 subscribers)*

ERM_TG17_WG1_2_4
erm_tg17_wg1_2_4 : erm_tg17 working groups exploder list *(29 subscribers)*

ERM_TG17_WG3
erm_tg17_wg3 : working group 3 on radio microphones *(34 subscribers)*

ERM_TG17_WG5
erm_tg17_wg5 : active tv reception *(28 subscribers)*

ERM_TG21
erm_tg21 : co-ordination of etsi inputs to rast#10 *(2 subscribers)*

ERM_TG23
erm_tg23 : standards for a close-field peer-to-peer symmetrical data communication system *(17 subscribers)*

ERM_TG25
erm_tg25 : aeronautical *(41 subscribers)*

ERM_TG25_VDL_MODE2
No title defined *(21 subscribers)*

ERM_TG25_VDL_MODE4
No title defined *(18 subscribers)*

ERM_TG26
erm_tg26 : maritime *(32 subscribers)*

ERM_TG27
erm_tg27 : radio site engineering *(43 subscribers)*

ERM_TG28
erm_tg28 : generic srd's *(52 subscribers)*

ERM_TG30
erm_tg30 : wireless medical services *(33 subscribers)*

ERM_TG31A
erm_tg31a : ultra wide band for short range devices *(66 subscribers)*

ERM_TG31B
erm_tg31b : ultra wide band automotive radar *(32 subscribers)*

ERM_TG31C
erm_tg31c: ultra wide band sensors *(37 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 *(87 subscribers)*

ERM_TG35
ERM_TG35 : Co-ordination of ETSI inputs to GSRC#1 *(19 subscribers)*

ERM_TG37
ERM_TG37 : Intelligent Transport Systems *(70 subscribers)*
ERM_TG37_DSRC
ERM_TG37_DSRC : technical discussion on DSRC testing and updating *(16 subscribers)*
ERM_TG39
ERM_TG39 : Code Division Multiple Access (CDMA) *(16 subscribers)*
ERM_TG40
Broadband Disaster Relief *(10 subscribers)*
ERM_TGDMR
ERM_TGDMR : Digital Mobile Radio *(52 subscribers)*
ERM_TGRX
erm_tgrx: ERM Task Group on Receiver parameters *(62 subscribers)*
ERM_TGTLPR
erm_tgtlpr : Tank Level Probing Radar *(22 subscribers)*
ERM_WP
ERM_WP: Improvement of ERM working procedures discussion list *(6 subscribers)*
ESI
esi : etsi tc esi (electronic signatures and infrastructures) *(72 subscribers)*
ESI_ALGO
ESI_ALGO : TC ESI discussion list for maintenance of the ALGO paper *(27 subscribers)*
ESI_ANNOUNCE
esi_announce : etsi tc electronic signatures *(13 subscribers)*
ETSAG
etsag : THIS LIST HAS BEEN CLOSED *(14 subscribers)*
ETSI-MEDIA-LIST
etsi-media-list : etsi media mailing list for press releases *(180 subscribers)*
ETSI-NEWS
etsi-news: technical news, general news and press announcements from etsi *(589 subscribers)*
FOE
foe: ga ad hoc group on Financing of ETSI *(0 subscribers)*
GRID
GRID: Open discussion on ETSI GRID Standardization *(133 subscribers)*
GSC
GSC: *(195 subscribers)*
GSC-GRSC
GSC-GRSC : *(124 subscribers)*
GSC-GTSC
GSC-GTSC : *(164 subscribers)*
GSC-HOD
GSC-HoD: *(39 subscribers)*
GSC-IPR
gsc-ipr: gsc intellectual property rights *(32 subscribers)*
GSC-USER
gsc-user : gsc user group *(35 subscribers)*
GSM_ONBOARD_PLANES
GSM_onboard_planes: GSM_onboard_planes *(61 subscribers)*
HF
hf : etsi tc human factors (hf) *(50 subscribers)*
HF_ANNOUNCE
hf announcement list *(12 subscribers)*
HF_MOBILE
No title defined *(8 subscribers)*
HF_MULTICULTURAL_COMMUNICATION
HF_MULTICULTURAL_COMMUNICATION:
HF_MULTICULTURAL_COMMUNICATION STF 287 list *(14 subscribers)*
HF_SETUP
HF_SETUP: HF_SETUP STF 285 list *(7 subscribers)*
HF_TELECAREUX
Telecare User Experience *(5 subscribers)*
HF_UG
HF_UG: HF_UG STF 285 list *(7 subscribers)*
HF_USER_PROFILE_MANAGEMENT
HF_User_Profile_Management : STF 265 list *(39 subscribers)*
HIPERMAN_WIMAX_TESTING
HiperMAN_WiMAX_testing : HiperMAN WiMAX testing related mailing list *(87 subscribers)*

HLRG
HLRG: GA ad hoc High Level Review Group *(70 subscribers)*
ICANN-MATTERS
icann-matters : icann-matters list *(87 subscribers)*
IMPACT
impact : impact list *(58 subscribers)*
IPR
ipr: ga ad hoc group on ipr policy implementation *(229 subscribers)*
JEEC
No title defined *(20 subscribers)*
LI
li : etsi tc li (lawful interception) *(146 subscribers)*
LI_ANNOUNCE
li_announce : etsi tc lawful interception announce list *(63 subscribers)*
MESA_ORGANIZATION
mesa_organization: main distribution list for all mesa related information *(161 subscribers)*
MESA_SC
mesa_sc: mesa steering committee *(119 subscribers)*
MESA_SSG_SA
mesa_ssg_sa: mesa ssg services and applications *(139 subscribers)*
MESA_TSG_SYS
mesa_tsg_sys: mesa tsg system *(164 subscribers)*
MSG
msg : mobile standards group *(109 subscribers)*
MTS-GEN
MTS_GEN *(45 subscribers)*
MTS-IPT
MTS-IPT: MTS-IPT *(27 subscribers)*
MTS-IPT-H248
MTS-IPT-H248 : MTS-IPT-H248 *(11 subscribers)*
MTS-IPT-H323
MTS-IPT-H323 : MTS-IPT-H323 *(10 subscribers)*
MTS-IPT-IPV6
MTS-IPT-IPV6 : MTS-IPT-IPV6 *(13 subscribers)*
MTS-IPT-SIGTRAN
MTS-IPT-SIGTRAN :MTS-IPT-SIGTRAN *(11 subscribers)*
MTS-IPT-SIP
MTS-IPT-SIP : MTS-IPT-SIP *(27 subscribers)*
MTS_ANNOUNCE
mts announcement list *(10 subscribers)*
NGN_IMS
NGN_IMS: Joint 3GPP-TISPAN open list *(344 subscribers)*
NSO-CONTACTS
nso-contacts :nso voting contacts *(62 subscribers)*
NSO_INFO
nso_info : distribution list for nso information *(79 subscribers)*
OCG
ocg: list of ocg members (ep and tc chairmen) *(140 subscribers)*
OCG_ECNS
OCG_ECNS: OCG ad hoc group on Electronic Communications Networks & Services *(35 subscribers)*
OCG_IOP
OCG ad hoc group on Interoperability *(18 subscribers)*
OCG_RTTED
ocg_rtted : steering committee on harmonised standards *(72 subscribers)*
OCG_SECURITY
ocg_security: ocg ad hoc group on security issues *(39 subscribers)*
PLT
plt : etsi project powerline telecommunications *(112 subscribers)*
PLT_ANNOUNCE
etsi project powerline telecommunications announcement list *(39 subscribers)*
PLT_INHOUSE
PLT_InHouse@list.etsi.org : In-House PLT *(39 subscribers)*
PLT_WI_DISCUSSION
PLT_WI_DISCUSSION@list.etsi.org: Workitem 19 Layer 1 and 2 of a comprehensive PLC System *(40 subscribers)*
PLUGTESTS-EBXML
Plugtests-ebxml: Discussion list on ebxml Interoperability matters *(2 subscribers)*

PLUGTESTS-ENUM
PLUGTESTS-ENUM : Discussion list on enum matters *(9 subscribers)*
PLUGTESTS-GRID
PLUGTESTS-GRID: Discussion list on GRID COMPUTING Interoperability matters *(16 subscribers)*
PLUGTESTS-XADES
plugtests-xades : discussion list on xades *(17 subscribers)*
PUBLICINTERNETACCESS
PublicInternetAccess List *(0 subscribers)*
RCCBRIEFING
RCC Briefing List *(44 subscribers)*
RT
RT Railway Telecommunications *(28 subscribers)*
RT_DMO
RT_DMO : RT Direct Mode Operation *(17 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 *(19 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 *(49 subscribers)*
SAFETY-JWG-TC108
SAFETY-JWG-TC108 list *(23 subscribers)*
SAFETY-JWG-TC108_ANNOUNCE
SAFETY-JWG-TC108_ANNOUNCE list *(7 subscribers)*
SAFETY_ANNOUNCE
safety announcement list *(14 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 *(321 subscribers)*
SCP_REQUIREMENTS
SCP_REQUIREMENTS : REQUIREMENTS WORKING GROUP *(195 subscribers)*
SCP_TECHNICAL
SCP_TECHNICAL : Technical Working Group *(264 subscribers)*
SCP_WG1
THIS LIST HAS BEEN CLOSED *(15 subscribers)*
SCP_WG2
THIS LIST HAS BEEN CLOSED *(14 subscribers)*
SCP_WG3
THIS LIST HAS BEEN CLOSED *(18 subscribers)*
SDHA
SDHA : LI Rapporteurs list for DTR/LI-00020 Closed *(50 subscribers)*
SDR-CR

SDR-CR : Software defined radio-cognitive radio list *(48 subscribers)*

SES
ses : etsi tc satellite earth stations and systems (ses) *(41 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 *(12 subscribers)*

SES_BSM
ses_bsm : ses_bsm (broadband satellite multimedia) *(34 subscribers)*

SES_BSM_C2P
BSM C2P work items *(25 subscribers)*

SES_ECAS
SES_ECAS:European Commission Activity support *(8 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 *(10 subscribers)*

SES_GMR_ANNOUNCE
ses gmr announce list *(4 subscribers)*

SES_HARM
listname : SES_HARM *(12 subscribers)*

SES_MAR_ESV
ses_mar_esv : SES working group on Maritime Earth Stations on Board Vessels *(13 subscribers)*

SES_SATEC
SES_SatEC: Satellite Emergency Communications *(25 subscribers)*

SES_SDR
ses_sdr : ses_sdr satellite digital radio *(27 subscribers)*

SES_SUMTS
ses_sumts : working group on s-umts *(27 subscribers)*

SES_SUMTS_ANNOUNCE
ses s-umts announce list *(15 subscribers)*

SG_GNGN
Global NGN stakeholders group on future services and capabilities for NGN *(35 subscribers)*

SG_UCI
SG_UCI : UCI stakeholders group on UCI matters *(23 subscribers)*

SOSINTEROP
SOSinterop: SOS Interoperability workshop series *(158 subscribers)*

SRS-ANNOUNCE
srs-announce : srs-announce list *(0 subscribers)*

SRS-TEST-ANNOUNCE
srs-test-announce : srs-test-announce list *(0 subscribers)*

STF217
stf217 : mail discussion and distribution list for stf217 Closed *(0 subscribers)*

STF260
STF260: STF 260 steering group on NGN OSS activity Closed *(0 subscribers)*

STF268
STF268: STF 268 stakeholders group closed *(43 subscribers)*

STF280
STF280: STF 280 AND STF 281 STAKEHOLDERS GROUP Closed *(31 subscribers)*

STF283-SC
STF283-SC *(18 subscribers)*

STF293SG
STF293SG : STF 293 steering group closed *(9 subscribers)*

STF297
STF297: STF 297 stakeholders group on CTS closed *(14 subscribers)*

STF315
STF315 : Stakeholders group (SG) *(15 subscribers)*

STQ
stq : for anyone interested in the work of etsi stq *(91 subscribers)*

STQ_AURORA
stq_aurora : etsi stq aurora project for distributed speech recognition *(17 subscribers)*

STQ_MOBILE
stq_mobile : QoS aspects of mobile telephony *(67 subscribers)*

TBINFO
tbinfo : tbinfo list has been closed 09/03/2005 *(0 subscribers)*

TC106X-4

tc106x-4 : safety joint working group tc 106x wg4 *(31 subscribers)*

TC106X-7
tc106x-7 : safety joint working group tc 106x wg7 *(23 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)*

TESTLIST
TESTLIST : List for ListServ tests *(2 subscribers)*

TEST_DB
list for testing dbms feature *(1 subscriber)*

TETRA
TETRA : Technical Committee TETRA *(57 subscribers)*

TETRAMAN
TETRAMAN : restricted to the ETSI Project TETRA Management Committee *(11 subscribers)*

TETRAWG1
TETRAWG1 : User Requirements / Services *(47 subscribers)*

TETRAWG1_ANNOUNCE
tetrawg1 announce list *(17 subscribers)*

TETRAWG3
TETRAWG3 : Network aspects *(51 subscribers)*

TETRAWG31
TETRAWG31 : General Issues *(19 subscribers)*

TETRAWG32
TETRAWG32 : Air interface lowest layers, mainly physical layer *(19 subscribers)*

TETRAWG33
TETRAWG33 : Air interface protocols *(21 subscribers)*

TETRAWG34
TETRAWG34 : ISI *(15 subscribers)*

TETRAWG35
TETRAWG35 : Interworking with other telecommunication networks *(17 subscribers)*

TETRAWG36
TETRAWG36 : Supplementary Services *(19 subscribers)*

TETRAWG37
TETRAWG37 - SIM *(17 subscribers)*

TETRAWG38
TETRAWG38 : PEI *(18 subscribers)*

TETRAWG3_ANNOUNCE
tetra wg3announce list *(18 subscribers)*

TETRAWG4
TETRAWG4 : TETRA High Speed Data *(46 subscribers)*

TETRAWG4_ANNOUNCE
tetra wg4 announce list *(22 subscribers)*

TETRAWG5
TETRAWG5 : TETRA Voice coding *(25 subscribers)*

TETRAWG5_ANNOUNCE
tetrawg5_announce : tetrawg5_announce list *(14 subscribers)*

TETRAWG6
TETRAWG6 : TETRA Security *(48 subscribers)*

TETRAWG6_ANNOUNCE
tetra wg6 announce *(20 subscribers)*

TETRAWG8
TETRAWG8 : TETRA DMO (Direct Mode Operation) *(47 subscribers)*

TETRAWG8_ANNOUNCE
tetra wg8 announce list *(17 subscribers)*

TETRA_ANNOUNCE
etsi project tetra announcement list *(17 subscribers)*

TFES
tfes : tfes list *(37 subscribers)*

TISPAN_EMTEL
TISPAN_EMTEL: TISPAN project EMTEL on Emergency communications *(72 subscribers)*

TISPAN_F-MMS
TISPAN_F-MMS: TISPAN project F-MMS *(56 subscribers)*

TISPAN_FORUM
TISPAN_FORUM: TISPAN open list *(145 subscribers)*

TISPAN_GEN
TISPAN_GEN: technical committee list *(490 subscribers)*
TISPAN_NGN
TISPAN_NGN: technical committee list dealing with NGN Project matters *(480 subscribers)*
TISPAN_STF328_SG
TISPAN_STF328_SG: IMS NNI Interop *(28 subscribers)*
TISPAN_WG1
TISPAN_WG1: Services *(402 subscribers)*
TISPAN_WG2
TISPAN_WG2: Architecture *(325 subscribers)*
TISPAN_WG3
TISPAN_WG3: Protocols *(404 subscribers)*
TISPAN_WG4
TISPAN_WG4: Numbering and Routeing *(190 subscribers)*
TISPAN_WG5
TISPAN_WG5: NGN Home Networking *(56 subscribers)*
TISPAN_WG5_OLD
TISPAN_WG5_OLD: NGN Home Networking OLD *(0 subscribers)*
TISPAN_WG6
TISPAN_WG6: Testing *(96 subscribers)*
TISPAN_WG7
TISPAN_WG7: Security *(257 subscribers)*
TISPAN_WG8
TISPAN_WG8: Network Management *(244 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
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 *(82 subscribers)*
TM4-WP1
tm4-wp1 : tm4-wp1 list closed *(44 subscribers)*
TM4-WP2
tm4-wp2 : tm4-wp2 list closed *(43 subscribers)*
TM4-WP4
tm4-wp4 : tm4-wp4 list closed *(37 subscribers)*
TM6_ALL
tm6_all : access networks (architecture, unis, xdsl isdn) *(112 subscribers)*
TM6_ANA
tm6_ana : tm6 access network architecture wp CLOSED 170407 *(16 subscribers)*
TMSIX_OPS
TM6 operators group *(30 subscribers)*
TPLAN
Test Purpose Language *(9 subscribers)*
TTCN3
active_ttcn3 : mts stf133 ttcn version 3 - active members only *(382 subscribers)*
TTCN3CR
TTCN3CR : TTCN3 Change Request *(8 subscribers)*
TTCN3_DOC
TTCN3-DOC *(10 subscribers)*
USER-INFO
No title defined *(33 subscribers)*
USER_ANNOUNCE
announcement list for the user group *(11 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

3GPP_TSG_SA_WG5 Archives

May 2007

New in LISTSERV 17.0 ×

3GPP_TSG_SA_WG5@LIST.ETSI.ORG

Options: Show Pending Messages
Show Drafts

Subject	From	Date
FW: ETSI: CL07_2541 - Recruitment of a Technical Officer in Technical Body Support Unit (ETSI Standardization Projects Competence)	Adrian Zoicas <Adrian.Zoicas@ETSI.ORG>	Thu, 31 May 2007 19:13:32 +0200
Clarification on RAN3-SA5 LTE joint meeting agenda	Christian Toche <christian.toche@HUAWEI.COM>	Thu, 31 May 2007 13:30:34 +0200
SA5 withdraws SP-070281 R7 CRs 32.632 on OAM7-Trace	Adrian Zoicas <Adrian.Zoicas@ETSI.ORG>	Thu, 31 May 2007 02:48:18 +0200
3GPP SA5-SWG-CH#53 detailed report	BIBAS Alain RD-CORE-ISS <alain.bibas@ORANGE-FTGROUP.COM>	Wed, 30 May 2007 16:34:34 +0200
SP-070267 SA5_presentation_SA_36 DELIVERED	Adrian Zoicas <Adrian.Zoicas@ETSI.ORG>	Wed, 30 May 2007 11:20:19 +0200
Re: Review of the Work Plan at Plenaries #36	Adrian Zoicas <Adrian.Zoicas@ETSI.ORG>	Wed, 30 May 2007 11:08:34 +0200
AW: Review of the Work Plan at Plenaries #36	Goermer, Gerald <gerald.goermer@NSN.COM>	Wed, 30 May 2007 11:03:45 +0200
Re: DRAFT 01 SP-070267 SA5_presentation_SA_36.zip	Christian Toche <christian.toche@HUAWEI.COM>	Mon, 28 May 2007 11:08:52 +0200
Re: DRAFT 01 SP-070267 SA5_presentation_SA_36.zip	Christian Toche <christian.toche@HUAWEI.COM>	Mon, 28 May 2007 11:02:18 +0200
FW: NGNMFG#27 meeting agenda - 29 May 2007	Christian Toche <christian.toche@HUAWEI.COM>	Mon, 28 May 2007 09:03:08 +0200
Re: == MISSING conclusions on completed R7 OAM&P Feasibility Studies (Nortel, Motorola, China Mobile) == RE: Review of the Work Plan at Plenaries #36	Christian Toche <christian.toche@HUAWEI.COM>	Fri, 25 May 2007 23:46:46 +0200
Re: == MISSING conclusions on completed R7 OAM&P Feasibility Studies (Nortel, Motorola, China Mobile) == RE: Review of the Work Plan at Plenaries #36	Adrian Zoicas <Adrian.Zoicas@ETSI.ORG>	Fri, 25 May 2007 23:40:31 +0200
DRAFT 01 SP-070267 SA5_presentation_SA_36.zip	Adrian Zoicas <Adrian.Zoicas@ETSI.ORG>	Fri, 25 May 2007 22:50:51 +0200
Reminders about SA5 and RAN3/SA5 LTE meetings	Christian Toche <christian.toche@HUAWEI.COM>	Fri, 25 May 2007 19:28:48 +0200
Re: == MISSING conclusions on completed R7 OAM&P Feasibility Studies (Nortel, Motorola, China Mobile) == RE: Review of the Work Plan at Plenaries #36	Christian Toche <christian.toche@HUAWEI.COM>	Fri, 25 May 2007 09:02:06 +0200
== MISSING conclusions on completed R7 OAM&P Feasibility Studies (Nortel, Motorola, China	Adrian Zoicas <Adrian.Zoicas@ETSI.ORG>	Fri, 25 May 2007 07:54:12 +0200

Subject	From	Date
Mobile) == RE: Review of the Work Plan at Plenaries #36		
Recall: == MISSING conclusions on completed R7 OAM&P Feasibility Studies (Nortel, 2 x China Mobile) == RE: Review of the Work Plan at Plenaries #36	Adrian Zoicas <Adrian.Zoicas@ETSI.ORG>	Fri, 25 May 2007 07:53:40 +0200
== MISSING conclusions on completed R7 OAM&P Feasibility Studies (Nortel, 2 x China Mobile) == RE: Review of the Work Plan at Plenaries #36	Adrian Zoicas <Adrian.Zoicas@ETSI.ORG>	Fri, 25 May 2007 07:52:36 +0200
FW: NGNMFG#26 meeting notice - 29 May 2007	Christian Toche <christian.toche@HUAWEI.COM>	Wed, 23 May 2007 23:54:38 +0200
Re: S5-eP0006 Email approval for SA information TR 32.816 LTE OAM Study	Christian Toche <christian.toche@HUAWEI.COM>	Wed, 23 May 2007 20:48:01 +0200
Re: All SA5 WIDs / Extension sheets to SA#36 == for FINAL checking	Adrian Zoicas <Adrian.Zoicas@ETSI.ORG>	Wed, 23 May 2007 16:07:32 +0200
AW: All SA5 WIDs / Extension sheets to SA#36 == for FINAL checking	Suerbaum, Clemens <clemens.suerbaum@NSN.COM>	Wed, 23 May 2007 16:04:08 +0200
Re: All SA5 WIDs / Extension sheets to SA#36 == for FINAL checking	Adrian Zoicas <Adrian.Zoicas@ETSI.ORG>	Wed, 23 May 2007 15:59:04 +0200
AW: All SA5 WIDs / Extension sheets to SA#36 == for FINAL checking	Suerbaum, Clemens <clemens.suerbaum@NSN.COM>	Wed, 23 May 2007 15:48:00 +0200
All SA5 TS/TR to SA#36 == for FINAL checking	Adrian Zoicas <Adrian.Zoicas@ETSI.ORG>	Wed, 23 May 2007 15:25:53 +0200
All SA5 WIDs / Extension sheets to SA#36 == for FINAL checking	Adrian Zoicas <Adrian.Zoicas@ETSI.ORG>	Wed, 23 May 2007 13:45:59 +0200
Review of the Work Plan at Plenaries #36	Adrian Zoicas <Adrian.Zoicas@ETSI.ORG>	Wed, 23 May 2007 12:17:17 +0200
All SA5 CRs to SA#36 == for FINAL checking	Adrian Zoicas <Adrian.Zoicas@ETSI.ORG>	Wed, 23 May 2007 07:43:32 +0200
List of SA5 input to SA#36 == for comment	Adrian Zoicas <Adrian.Zoicas@ETSI.ORG>	Tue, 22 May 2007 16:23:22 +0200
S5-eP0006 Email approval for SA information TR 32.816 LTE OAM Study	Christian Toche <christian.toche@HUAWEI.COM>	Tue, 22 May 2007 14:08:48 +0200
FW: Tdoc allocation and submission for RAN3/SA5 LTE meeting	Christian Toche <christian.toche@HUAWEI.COM>	Tue, 22 May 2007 11:14:54 +0200
FW: draft agenda for SA5-RAN3 WS 13-14 June 07	Christian Toche <christian.toche@HUAWEI.COM>	Tue, 22 May 2007 10:09:12 +0200
Re: S5-eP0006 Email approval for SA information TR 32.816 LTE OAM Study	Christian Toche <christian.toche@HUAWEI.COM>	Tue, 22 May 2007 01:10:36 +0200
SWG-CH leadership	BIBAS Alain RD-CORE-ISS <alain.bibas@ORANGE-FTGROUP.COM>	Mon, 21 May 2007 11:14:10 +0200
Re: S5-eP0005 Email approval for three R7 CRs Add Link_As_Icscf To IMS NRM	Christian Toche <christian.toche@HUAWEI.COM>	Sat, 19 May 2007 23:09:23 +0200
Re: S5-eP0004 Email approval for two 32.735 XSD R7 CRs	Christian Toche <christian.toche@HUAWEI.COM>	Sat, 19 May 2007 23:09:04 +0200

Subject	From	Date
2 SA5 Charging WID/Extensions sheet for SA#36 Approval == for FINAL checking	Adrian Zoicas <Adrian.Zoicas@ETSI.ORG>	Thu, 17 May 2007 17:38:35 +0200
10 SA5 OAM WID for SA#36 Approval == for FINAL checking	Adrian Zoicas <Adrian.Zoicas@ETSI.ORG>	Thu, 17 May 2007 16:11:51 +0200
Recall: 9 SA5 OAM WID for SA#36 Approval == for FINAL checking	Adrian Zoicas <Adrian.Zoicas@ETSI.ORG>	Thu, 17 May 2007 16:10:56 +0200
9 SA5 OAM WID for SA#36 Approval == for FINAL checking	Adrian Zoicas <Adrian.Zoicas@ETSI.ORG>	Thu, 17 May 2007 16:08:01 +0200
12+1 = 13 SA5 TR/TS for SA#36 Information/Approval == for FINAL checking	Adrian Zoicas <Adrian.Zoicas@ETSI.ORG>	Wed, 16 May 2007 16:38:26 +0200
REVISED : S5-eP0006 Email approval for SA information TR 32.816 LTE OAM Study	Adrian Zoicas <Adrian.Zoicas@ETSI.ORG>	Wed, 16 May 2007 16:36:59 +0200
Re: S5-eP0006 Email approval for SA information TR 32.816 LTE OAM Study	Adrian Zoicas <Adrian.Zoicas@ETSI.ORG>	Wed, 16 May 2007 15:57:37 +0200
Re: S5-eP0006 Email approval for SA information TR 32.816 LTE OAM Study	Robert Petersen (LI/EAB) <robert.petersen@ERICSSON.COM>	Tue, 15 May 2007 19:15:39 +0200
DRAFT 0.1 SA5_53_PLENARY Report == for comment == This plus the Xian SA5 report are the basis for input to SA in June 2007	Adrian Zoicas <Adrian.Zoicas@ETSI.ORG>	Sun, 13 May 2007 16:05:43 +0200
End_of_meeting SA5#53 TdocList_2007-05-11_17h27.htm	Adrian Zoicas <Adrian.Zoicas@ETSI.ORG>	Fri, 11 May 2007 17:35:06 +0200
S5-071052 Executive Report of THIS SA5 OAM meeting to SA5 closing plenary	Adrian Zoicas <Adrian.Zoicas@ETSI.ORG>	Fri, 11 May 2007 16:13:54 +0200
2008 SA5 Meeting Calendar	Christian Toche <christian.toche@HUAWEI.COM>	Fri, 11 May 2007 13:52:41 +0200
S5-eP0005 Email approval for three R7 CRs Add Link_As_Icscf To IMS NRM	Christian Toche <christian.toche@HUAWEI.COM>	Fri, 11 May 2007 13:31:44 +0200
Re: S5-eP0004 Email approval for two 32.735 XSD R7 CRs	Christian Toche <christian.toche@HUAWEI.COM>	Fri, 11 May 2007 13:27:06 +0200
S5-eP0004 Email approval for two 32.735 XSD R7 CRs	Christian Toche <christian.toche@HUAWEI.COM>	Fri, 11 May 2007 13:16:00 +0200
C4-070871 LS from CT4 on Correction of Diameter AVP code allocation	Adrian Zoicas <Adrian.Zoicas@ETSI.ORG>	Fri, 11 May 2007 09:50:17 +0200
WG: S5-eD0002: Service-Context AVP Clarification	Goermer, Gerald <gerald.goermer@NSN.COM>	Thu, 10 May 2007 14:38:56 +0200
for immediate despatch to CT4 meeting in Beijing == S5-070830 LS_out from SA5 CH to CT4 on LS on Correction of Diameter AVP code allocation	Adrian Zoicas <Adrian.Zoicas@ETSI.ORG>	Wed, 9 May 2007 11:18:24 +0200
Social event	Christian Toche <christian.toche@HUAWEI.COM>	Tue, 8 May 2007 17:49:17 +0200
Update of CPS-TR	Haidegger, Wolfgang <wolfgang.haidegger@SIEMENS.COM>	Tue, 8 May 2007 14:23:16 +0200

Subject	From	Date
FW: Reminder of Concert by the Purcell Chamber Choir, Fri 11 May	Adrian Zoicas <Adrian.Zoicas@ETSI.ORG>	Tue, 8 May 2007 12:59:49 +0200
SA5_53 UPDATED AgendaWithTdocAllocation_2007-05-06_18h11.zip	Adrian Zoicas <Adrian.Zoicas@ETSI.ORG>	Sun, 6 May 2007 18:17:17 +0200
CHANGE for CHARGING of Meeting room allocation on 7-8 May for SA5#53 Sophia Antipolis May 7-11	Adrian Zoicas <Adrian.Zoicas@ETSI.ORG>	Sun, 6 May 2007 18:09:08 +0200
FW: Agenda and logistics info for June NGNMFG f2f meeting	Christian Toche <christian.toche@HUAWEI.COM>	Sat, 5 May 2007 23:15:17 +0200
SA5_53 AgendaWithTdocAllocation_2007-05-05_11h25.zip	Adrian Zoicas <Adrian.Zoicas@ETSI.ORG>	Sat, 5 May 2007 11:58:04 +0200
How to avoid automatic ad-hoc modes with the Wireless connection.	Christian Toche <christian.toche@HUAWEI.COM>	Sat, 5 May 2007 09:22:02 +0200
SA5 SWG-CH/TISPAN ad-hoc inputs	BIBAS Alain RD-CORE-ISS <alain.bibas@ORANGE-FTGROUP.COM>	Fri, 4 May 2007 16:50:53 +0200
Re: SWG-CH#53 Agenda & DocList	BIBAS Alain RD-CORE-ISS <alain.bibas@ORANGE-FTGROUP.COM>	Fri, 4 May 2007 15:21:56 +0200
SWG-CH#53 Agenda & DocList	BIBAS Alain RD-CORE-ISS <alain.bibas@ORANGE-FTGROUP.COM>	Fri, 4 May 2007 11:36:07 +0200
S5-070805 Pre_SA5_53 LS_Status	Christian Toche <christian.toche@HUAWEI.COM>	Fri, 4 May 2007 10:40:57 +0200
Late contributions	Thomas Tovinger (LN/EAB) <thomas.tovinger@ERICSSON.COM>	Thu, 3 May 2007 19:25:51 +0200
Unallocated Documents...the SA5#53 (Source: Nokia Siemens Networks, Huawei, Ericsson)	Adrian Zoicas <Adrian.Zoicas@ETSI.ORG>	Thu, 3 May 2007 17:59:57 +0200
S5-070829 LS_in from OMA on IM Charging	Adrian Zoicas <Adrian.Zoicas@ETSI.ORG>	Thu, 3 May 2007 17:35:04 +0200
FW: E-mail list for common IMS work transfer	Adrian Zoicas <Adrian.Zoicas@ETSI.ORG>	Thu, 3 May 2007 15:59:37 +0200
Meeting room allocation for SA5#53 Sophia Antipolis May 7-11	Christian Toche <christian.toche@HUAWEI.COM>	Thu, 3 May 2007 10:51:59 +0200
Tdoc allocation for SA5#53	Goermer, Gerald <gerald.goermer@NSN.COM>	Thu, 3 May 2007 10:04:22 +0200
2 LS_in from SA2 (copy SA5)	Adrian Zoicas <Adrian.Zoicas@ETSI.ORG>	Wed, 2 May 2007 23:36:30 +0200
S5-070803 SA5#53 OAM SWG Timeplan	Christian Toche <christian.toche@HUAWEI.COM>	Wed, 2 May 2007 22:44:01 +0200
S5-070971 Draft 2008 SA5 Calendar (replaces S5-070810)	Christian Toche <christian.toche@HUAWEI.COM>	Wed, 2 May 2007 19:46:01 +0200

ATOM RSS1 RSS2

S5-071103

TSG-SA5 (Telecom Management)
Report of Meeting #53, Sophia Antipolis, FRANCE, 7 - 11 May 2007

Contents

TB Chairman:	Christian TOCHE (Huawei)	
TB Vice-Chairman:	Yewen LI (China Mobile) - **Absent**	
TB Vice-Chairman:	Gerald GÖRMER (Nokia Siemens Networks)	
TB Officer:	Adrian ZOICAS (ETSI, 3GPP Mobile Competence Centre)	
Meeting Host:	ETSI, Sophia Antipolis, FRANCE	
Web Home Page:	http://www.3gpp.org/TB/SA/SA5/SA5.htm	
E-mail Lists:	http://www.3gpp.org/email/lists.htm	http://list.etsi.org/
Main E-mail List:	3GPP_TSG_SA_WG5@LIST.ETSI.ORG	
Server:	http://www.3gpp.org/ftp/TSG_SA/WG5_TM	ftp://ftp.3gpp.org/TSG_SA/WG5_TM

Report

1 Opening of the meeting

Christian TOCHE (Huawei), SA5 Chairman, has opened the SA5 plenary meeting.

Tdoc	Title	Source	Type	Agenda	Decision	Replaced-by	Replaces
S5-070800	Invitation to this SA5 meeting	Host	Tdoc	1	Noted		
S5-070801	List of participants	TB Officer	Tdoc	1	Noted		

37 delegates attended the meeting. The list of participants can be found in Annex A.

Those delegates with an ETSI On-Line (EOL) account (file server username and password) can obtain the full/updated contact information for any delegate by going to the URL for the delegates' database at: http://webapp.etsi.org/teldir/TelDirectory.asp

They are also able to update their own information (new address / tel. / fax / email etc.) by using the URL: http://webapp.etsi.org/teldir/PersonalInfo.asp

2 Approval of the agenda and registration of new documents

Tdoc	Title	Source	Type	Agenda	Decision	Replaced-by	Replaces
S5-070802	Agenda	TB Chairman	Agenda	2	Approved		
S5-070803	OAM SWG Meeting Timeplan	TB Chairman	Tdoc	2	Noted		
S5-070804	Meeting Document List	TB Officer	Tdoc	2	Noted		

The draft agenda proposed by the Chair was approved and can be found in Annex B.

New documents were registered. More discipline was again requested for submitting meeting contributions at least five (5) working days before the respective meeting starts. The list of meeting documents can be found in Annex C.

SA5 multi-annual Document List: http://www.3gpp.org/ftp/TSG_SA/WG5_TM

Meeting Automatic Document Numbering (ADN) List: http://webapp.etsi.org/MeetingDocuments/ViewDocumentList.asp?MTG_ID=26126

Meeting Document Area (FTP): ftp://ftp.3gpp.org/TSG_SA/WG5_TM/TSGS5_51/Docs/

3 IPR Declarations

The chair made the following call for IPRs:

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/).

4 Meetings and activities reports

4.1 Last SA5 meeting report

Tdoc	Title	Source	Type	Agenda	Decision	Replaced-by	Replaces
S5-070807	DRAFT Report of the last SA5 meeting	TB Officer	Report_in	4.1	Approved		
S5-070808	APPROVED Report of the last SA5 meeting	TB Officer	Report_out	4.1	Noted		

4.2 Last SA meeting report

There was no SA meeting since the last SA5#53 in Xian.

4.3 LS status overview

Tdoc	Title	Source	Type	Agenda	Decision	Replaced-by	Replaces
S5-070805	Liaison Statement Status BEFORE this meeting	TB Chairman	Tdoc	4.3	Noted		
S5-070806	Liaison Statement Status AFTER this meeting	TB Chairman	Tdoc	4.3			

S5-070805 provides the LS status before SA5#53 as:

New Input LSs for SA5#53

Doc	SA 5	Title	Source	Type	Allocation	Status	Comment
S5-070820	53	LS_in from GSMA CPWP on Identification of applications within IMS charging information	CPWP 43_004	LS-in	Charging	New	
S5-070821	53	LS_in from TISPAN on Cooperation between ITU-T and ETSI TISPAN about Charging in NGN – March 2007	13bTD474r2	LS-in	Charging	New	
S5-070822	53	LS_in from TISPAN on Accounting- and Charging	13bTD459r2	LS-in	Charging	New	
S5-070827	53	LS_in from SA2 (copy SA5) on 'Specification Update of GBR and MBR due to MIMO'	S2-072105	LS-in	OAM	New	
S5-070828	53	LS_in from SA2 (copy SA5) on Removal of limitation of SRNC identity	S2-072266	LS-in	OAM	New	
S5-070829	53	LS_in from OMA on IM Charging	OMA-LS_194	LS-in	Charging	New	

Resubmitted LS from SA5#52

Doc	SA5	Title	Source	Type	Allocation	Status	Comment
S5-070826 S5-070439	52	LS_in from 3GPP2 to SA5 on IMS Management Harmonization	3GPP2 _C00__TSG-S	LS-in	OAM&P Maintenance and small enhancements	Ongoing	The CRs included in the LS were discussed. Feedback to 3GPP2 to be provided by common 3GPP/3GPP2 members. Need to do a formal reply to be further assessed.

Resubmitted LS from SA5#51

Doc	SA5	Title	Source	Type	Allocation	Status	Comment
S5-070823 S5-070435 S5-070077	51	LS_in from 3GPP2 to 3GPP SA5 on OAM&P Topics	S07_TSG-S	LS-in	OAM&P Maintenance and small enhancements	Ongoing	Reply when more progress. Item 1: China Mobile contributions are being discussed. No progress at SA5#52. Ongoing. Item 2: Received a set of CRs from 3GPP2 with the LS in S5-070439. Closed. Item 3: Allocated to WT051 IRP Methodology. Ongoing. Item 4: Noted Item 5: Postponed to Rel-8

							Item 6: Link model for PM to be further discussed. See Motorola contribution for SA5#52 in S5-070618. Ongoing. Item 7: Email discussion conclusions expected in S5-070671: not available, expected for next meeting. Item 8: One CR approved at SA5#52 in S5-070488 under 6.5 WT051 IRP Methodology. Other issues ongoing. Item 9: Action China Mobile. No progress at SA5#52. Postponed. Item 10: Open. Contributions welcome.

Resubmitted LSs from older meetings

Doc	SA5	Title	Source	Type	Allocation	Status	Comment
S5-070824 S5-070436 S5-060123	46	LS from 3GPP2 TSG-S WG5 Proposal for XSD sub classing	3GPP2 TSG-S	LS-in	OAM&P WT051 IRP Methodology RG	Ongoing	Ongoing work in SA5 and joint SA5/3GPP2 S5. A reply will be made when the issue is concluded. No final results yet.
S5-070825 S5-070437 S5-060864	49	LS_in from 3GPP2 on 3GPP SA5 Common sessions and RET Antenna	3GPP2	LS_in	OAM&P Maintenance and small enhancements	Ongoing	RET aspects needs more discussion. Ericsson took action items to clarify some of those aspects with RAN3 (SA5#49 CRD Report). No progress at SA5#50 (CRD#50 Report). Item 1 closed at SA5#51 (CR S5-070312r2). Ongoing Items: 3, 4, 5, 6, 7. See S5-070695 at SA5#52.

4.4 Inter-organizational communication reports

4.5 Other reports

5 Cross-SWG issues at SA5 level

5.1 Administrative issues at SA5 level

Tdoc	Title	Source	Type	Agenda	Decision	Replaced-by	Replaces
S5-070811	SA5 Structure and Meeting Facility Requirements	TB Chairman	Tdoc	5.1	Approved		
S5-070812	SA5 Templates (Tdoc, CR, LS_out, WID, TS-TR submission to SA)	TB Officer	Tdoc	5.1	Noted		

5.1.1 SA5 elections and renewal of the SWG Leadership

The Chairman reminded that SA5 elections will take place at SA5#55 in Bucharest, 27 - 31 Aug 2007. MCC will issue in due time the call for candidates.

Also the SWG (OAM, CH) leadership will be renewed at SA5#55 in Bucharest, 27 - 31 Aug 2007.

Christian TOCHE (SA5 Chair) chaired the last two SWG OAM meetings and pointed out that he will not candidate for the SWG OAM Chair and invited SA5 members to step forward for this position.

People interested in SWGs leadership positions should contact the SA5 Chair.

5.2 Technical issues at SA5 level

5.3 Other issues at SA5 level

6 OAM

The OAM SWG was chaired by Christian TOCHE, SA5 Chair.

Tdoc	Title	Source	Type	Decision	Replaced-by	Replaces
S5-070809	DRAFT Report of the last SA5 OAM meeting	TB Officer	Report_in	Approved. Review of Action items in S5-071005	S5-070849, S5-071005	
S5-070849	Approved Report of the last SA5 OAM meeting	OAM SWG	Report_in	Noted		
S5-071005	Review of action items from Xian in S5-070809 SA5_52_OAM_v100_Report	TB Officer	Tdoc	Noted		S5-070809
S5-071051	DRAFT Report of THIS SA5 OAM meeting	TB Officer	Report_out			
S5-071052	Executive Report of THIS SA5 OAM meeting to SA5 closing plenary	TB Officer	Report_out			

Tdoc	Title	Source	Type	Decision	Replaced-by	Replaces

Tdoc	Title	Source	Type	Decision	Replaced-by	Replaces
S5-070827	LS_in from SA2 (copy SA5) on 'Specification Update of GBR and MBR due to MIMO'	S2-072105	LS_in	Noted		
S5-070828	LS_in from SA2 (copy SA5) on Removal of limitation of SRNC identity	S2-072266	LS_in	Noted		

Tdoc	Title	Source	Type	Decision	Replaced-by	Replaces
S5-071006	WID Study of System Maintenance by Itf-N	ZTE	WID	for SA Approval		S5-070947

6.1 OAM7-NIM

Tdoc	Title	Source	Type	Decision	Replaces
S5-070936	R7 CR 32.733 Add Link_As_Icscf To IMS NRM - align with 23.002	Alcatel-Lucent	CR	For Email Approval	
S5-071054	R7 CR 32.732 Add Link_As_Icscf To IMS NRM - align with 23.002	Alcatel-Lucent	CR	For Email Approval	S5-070935
S5-071055	R7 CR 32.735 Add Link_As_Icscf To IMS NRM - align with 23.002	Alcatel-Lucent	CR	For Email Approval	S5-070937
S5-071010	Rel-7 CR 32.732 Clarify AsFunction - Align with 23.002	Huawei	CR	Approved. MCC add impacted TS.	S5-070919
S5-071011	Rel-7 CR 32.733 Add more concrete AsFunction - Align with 23.002	Huawei	CR	Approved. MCC add in Scope link to IS version.	S5-070920
S5-071012	Rel-7 CR 32.735 Add more concrete AsFunctions - Align with 23.002	Huawei	CR	Approved. MCC add in Scope link to IS version. Update Tdoc#.	S5-070921
S5-071013	R7 CR 32.735 Add missing XSD optional containment to IMS NRM	Alcatel-Lucent, Ericsson	CR	For Email Approval.	S5-070932
S5-071014	R7 CR 32.735 Add missing XSD types to IMS NRM	Alcatel-Lucent, Ericsson	CR	For Email Approval.	S5-070933
S5-071015	CR R7 32.642 Alignment with 25.466 on handling of additional data of TMAAP	Vodafone, Huawei	CR	Approved	S5-071001, S5-070686
S5-071018	R7 CR 32.643 Alignment with 25.466 on handling of additional data of TMAAP	Vodafone, Huawei	CR	Approved	S5-071002, S5-070687
S5-071019	R7 CR 32.645 Alignment with 25.466 on handling of additional data of TMAAP	Vodafone, Huawei	CR	Approved	S5-070952, S5-070688
S5-071020	R7 32.392 Correct the information type of input parameter	ZTE	CR	Approved. MCC Editorials in CR Cover needed.	S5-070953
S5-071023	Add missing cell (re-)selection attributes (CO~OP feature) to 3GPP TS32.642	Nokia Siemens Networks	CR	Approved	S5-070881
S5-071027	CR NSN Align UTRAN NRM CORBA SS with UTRAN NRM IS	Nokia Siemens Networks	CR	Approved	S5-070916
S5-071028	CR NSN Align UTRAN NRM XML SS with UTRAN NRM IS	Nokia Siemens Networks	CR	Approved. MCC in CR cover tick RAN.	S5-070918

6.1.1 R7 WT044 NRM Enhancement for NGN (OAM7-NIM)

Rapporteur: **Vacant (was Motorola)**
Work progress: **from 80% to 100% (completed)**
Summary of progress in Xian:

- Work is ongoing in TISPAN based on SA5 NRM.
- SA5 and 3GPP2 analysis has been provided.
- SA5 have identified a common core for IMS Harmonization.
- A complete set of new TSs and CRs to move common SDOs' IMS model from CN NRM into new IMS TSs have been approved by SA#34 (Dec 2006)
- Agreed actions with 3GPP2 delegates to help progress IMS harmonization further.
- Discussions and liaisons and conference calls are continuing with 3GPP2 and TISPAN to further progress the harmonization.

- Responses to LS in to SA5#51 from TISPAN8 and 3GPP2 WG5 are pending.
- CRs to add HssFunction and remove IMS links from CN NRM accepted.
- SA5 is studying the analysis contributions in order to help identify a common core and how to best harmonize IMS.

Deliveries: -
Outstanding issues: -
Request to SA5: -

6.1.2 R7 WT047 Itf-N Performance Criteria (OAM7-NIM)

Rapporteur: China Mobile
Work progress: from 95% to 100% (completed)
Summary of progress: Completed
Deliveries: TR 32.811
Outstanding issues: None
Request to SA5: 32.811 for SA Approval

Tdoc	Title	Source	Type	Decision	Replaced-by	Replaces
S5-071044	R7 TR 32.811 v200 Itf-N Performance Criteria Requirements - for SA Approval	China Mobile	TR	for SA Approval		S5-071022

6.1.3 R7 WT048 Delta Synchronization (OAM7-NIM)

Rapporteur: Nokia Siemens Networks
Work progress: from 90% to 100% (completed)
Summary of progress: CR to IS. Aligned CORBA SS and XML file format definition ready for approval
Deliveries: CR to 32.392, new 32.393 and 32.395
Outstanding issues: None
Request to SA5: 32.393, 32.395 and CR to 32.392 for SA Approval

Tdoc	Title	Source	Type	Decision	Replaced-by	Replaces
S5-071024	R7 CR 32.392 for support of 2 modes of op	Nokia Siemens Networks	CR	Approved. MCC remove revisions of revisions in CR Body.		S5-071017
S5-071025	32.393 Delta Synchronisation CORBA SS	Nokia Siemens Networks	TS	for SA Approval		S5-070908
S5-071026	32.395 Delta Synchronisation XML file format definition	Nokia Siemens Networks	TS	for SA Approval		S5-070909

6.1.4 R7 WT052 Partial suspension of Itf-N during maintenance/testing (OAM7-NIM)

Rapporteur: **Nokia Siemens Networks**
Work progress: **100% (completed) already Mar 2007**
Summary of progress: **completed Mar 2007**
Deliveries: **TS 32.381/2/3/5**
Outstanding issues: **None**
Request to SA5: **None**

6.1.5 R7 WT064 Backward and Forward Compatibility of IRP systems (OAM7-NIM)

Rapporteur: **Ericsson**
Work progress: **from 90% to 100% (completed)**
Summary of progress: **32.154 completed**
Deliveries: **TS 32.154**
Outstanding issues: **None**
Request to SA5: **32.154 for SA Approval**

Tdoc	Title	Source	Type	Decision	Replaced-by	Replaces
S5-070923	TS 32.154 Backward and Forward Compatibility (BFC)	Ericsson	TS	for SA Approval		

6.2 OAM7-PM

6.2.1 R7 WT058 UTRAN Measurements (OAM7-PM)

Rapporteur: **China Mobile**
Work progress: **from 85% to 100% (completed)**
Summary of progress: **agreed CRs 32.405**
Deliveries: **CRs 32.405**
Outstanding issues: **?**
Request to SA5: **CRs 32.405 for SA Approval**

Tdoc	Title	Source	Type	Decision	Replaced-by	Replaces

Tdoc	Title	Source	Type	Decision	Replaced-by	Replaces
S5-070956	CR R7 Change the measured object class UtranCell according to the new models	Motorola	CR	Approved		
S5-071029	CMCC Addition of block error rate related measurements	China Mobile	CR	Approved		S5-070943

6.2.2 R7 WT069 Performance measurements definition for IMS (OAM7-PM)

Rapporteur: **China Mobile**
Work progress: **from 85% to 100% (completed)**
Summary of progress: **completed TS 32.409**
Deliveries: **TS 32.409**
Outstanding issues: **None**
Request to SA5: **32.409 for SA Approval**

Tdoc	Title	Source	Type	Decision	Replaced-by	Replaces
S5-071030	TS 32.409 IMS Performance Measurements	China Mobile	TS	for SA Approval		S5-070938

6.2.3 R7 WT073 HSDPA performance measurements (OAM7-PM)

Rapporteur: **China Mobile**
Work progress: **from 85% to 100% (completed)**
Summary of progress: **CR 32.405**
Deliveries: **CR 32.405**
Outstanding issues: **None**
Request to SA5: **CRs 32.405 for SA Approval**

Tdoc	Title	Source	Type	Decision	Replaced-by	Replaces
S5-070940	Resubmission of S5-70611 HSDPA Release Measurements	Nokia Siemens Networks	CR	Approved		

6.3 OAM7-Trace

6.3.1 R7 WT063 IRP for Subscriber and Equipment Trace Management (OAM7-Trace)

Rapporteur: **Nokia Siemens Networks**
Work progress: **from 80% to 100% (completed)**
Summary of progress: **TS 32.443 and 32.445 in v100**
Deliveries: **TS 32.443, 32.445**
Outstanding issues: **None**
Rapporteur: **Nokia Siemens Networks**
Request to SA5: **v100 TS 32.442 (from Xian), 32.443 and 32.445 for SA Approval**

Tdoc	Title	Source	Type	Decision	Replaced-by	Replaces
S5-071032	TS 32.443 v100 Trace IRP CORBA Solution Set - for SA Approval	Nokia Siemens Networks	TS	for SA Approval		S5-070865
S5-071033	TS 32.445 v100 Trace IRP XML file format definition - for SA Approval	Nokia Siemens Networks	TS	for SA Approval		S5-071016

6.4 OAM Maintenance and Rel-8 small Enhancements

Tdoc	Title	Source	Type	Decision
S5-070823	RESUBMIT S5-070435 (S5-070077) LS_in from 3GPP2 to 3GPP SA5 on OAM&P Topics	3GPP2	LS_in	Reply in S5-071034
S5-070825	RESUBMIT S5-070437 (S5-060864) LS_in from 3GPP2 on 3GPP SA5 Common sessions and RET Antenna	3GPP2	LS_in	Reply in S5-071035
S5-071034	LS reply to 3GPP2 on OAM&P Topics	Ericsson	LS_out	Approved. Reply to S5-070823
S5-071059	LS reply to 3GPP2 on Common sessions at SA5#50 and comments & questions regarding RET Antennas	Ericsson	LS_out	Approved. Reply to S5-070825.

Tdoc	Title	Source	Type	Decision	Replaces
S5-070874	R7 CR 32.407 Addition of missing MGW measurements for user plane services, related to call loss	Ericsson	CR	Approved	
S5-071036	R7 CR 32.632 Add BmscFunction to CN NRM IS	Nokia Siemens Networks	CR	Approved	
S5-071037	R7 CR 32.633 Add BmscFunction to CN NRM CORBA SS	Nokia Siemens Networks	CR	Approved	S5-070863
S5-071038	R7 CR 32.635 Add BmscFunction to CN NRM XML	Nokia Siemens Networks	CR	Approved	S5-070864
S5-071062	R7 CR 32.404 Add rule for subcounter naming of standardised causes without numeric value	Motorola	CR	Approved	S5-070955

6.5 OAM8-NIM

6.5.1 R8 WT051 IRP Methodology (OAM8-NIM)

Rapporteur: **Ericsson**
Work progress: **from 00% to 20%**
Summary of progress: **TS 32.155 Requirements Template - for SA Information**
Deliveries: **TS 32.155 v100**
Outstanding issues: **-**
Request to SA5: **TS 32.155 for SA Information**

Tdoc	Title	Source	Type	Decision	Replaced-by	Replaces
S5-070824	RESUBMIT S5-070436 (S5-060123) LS from 3GPP2 TSG-S WG5 Proposal for XSD sub classing (OAM&P WT051 IRP Methodology)	3GPP2	LS_in	Reply in S5-071042	S5-071042	
S5-071042	LS reply to 3GPP2 on XSD sub classing	Ericsson	LS_out	Reply to S5-070824		S5-070824

Tdoc	Title	Source	Type	Decision	Replaced-by	Replaces
S5-071041	R8 TS 32.155 Requirements Template - for SA Information	Ericsson	TS	for SA Information		S5-070972

6.5.2 R8 WT053 Itf-N Advanced Alarming (OAM8-NIM)

Rapporteur: **Nokia Siemens Networks**
Work progress: **from 10% to 20%**
Summary of progress: **Requirements TS produced, Draft IS created**
Deliveries: **TS 32.121 Advanced Alarming Requirements**
Outstanding issues: **Next steps: progress IS and produce SSs**
Request to SA5: **TS 32.121 for SA Information**

Tdoc	Title	Source	Type	Decision	Replaced-by	Replaces
S5-071045	R8 TS 32.121 Advanced Alarming Requirements	Nokia Siemens Networks	TS	for SA Information		

6.5.3 R8 WT056 CS Bearer Transport NRM (OAM8-NIM)

Rapporteur: **China Mobile**
Work progress: **from 10% to 20%**
Summary of progress: **-**
Deliveries: **-**
Outstanding issues: **-**
Request to SA5: **WID for SA Approval**

Tdoc	Title	Source	Type	Decision	Replaced-by	Replaces
S5-071046	WID WT056 CN CS Bearer Transport Network (BTN) relative Resource Model Unique_ID 35056	China Mobile	WID	Approved		S5-071003

6.6 OAM8-PM

6.6.1 R8 WT061 IP Measurements (OAM8-PM)

Rapporteur: **China Mobile**
Work progress: **from 10% to 20%**
Summary of progress: **WIP updated**
Deliveries: **32.32x**
Outstanding issues: **-**
Request to SA5: **WID for SA Approval**

Tdoc	Title	Source	Type	Decision	Replaced-by	Replaces
S5-071047	WID WT061 IP Network Performance Measurement	China Mobile	WID	Approved		S5-070899

6.7 OAM8-Trace

6.8 OAM-Study

6.8.1 WT065 Study of Element Operations Systems Function (EOSF) definition (OAM8-Study)

Rapporteur: **China Mobile**
Work progress: **from 10% to 20%**
Summary of progress: **-**
Deliveries (target Mar 2008): **TR 32.8xy Element Operations Systems Function (E-OSF) definition**
Outstanding issues: **-**
Request to SA5: **WID for SA Approval**

Tdoc	Title	Source	Type	Decision	Replaced-by	Replaces
S5-071048	WID WT065 Study of Element Operations Systems Function (EOSF) definition Unique_ID 35065	China Mobile	WID	Approved		S5-071004

6.8.2 WT074 Study on SA5 MTOSI XML Harmonization (OAM8-Study)

Rapporteur: **Nortel**
Work progress: **from 70% to 90%**
Summary of progress: **TR 32.818 for SA Information**
Deliveries: (target Dec 2007): **TR 32.818 Recommendations for XML Improvements**
Outstanding issues: **-**
Request to SA5: **WID (from Xian) for SA Approval, TR 32.818 for SA Information**

Tdoc	Title	Source	Type	Decision	Replaced-by	Replaces
S5-071050	SA5 MTOSI XML Harmonisation Study -- To SA for information	Nortel Networks (Europe)	TR	for SA Information		S5-070906

6.8.3 WT320006 Study on Common Profile Storage framework (OAM8-Study)

Rapporteur: **T-Mobile**
Work progress: **from 90% to 100% (completed)**
Summary of progress: **Completed**
Deliveries (target Jun 2007): **TR 32.808 v200**
Outstanding issues: **None**
Request to SA5: **TR 32.808 for SA Approval**

Tdoc	Title	Source	Type	Decision	Replaced-by	Replaces
S5-071049	TR 32.806 CPS Study - SA submission sheet	Nokia Siemens Networks S.p.A	TR	Approved		

6.8.4 WT340036 Study on Management for LTE and SAE (OAM8-Study)

Rapporteur: **Ericsson**
Work progress: **from 30% to 60%**
Summary of progress: **-**
Deliveries (target Sep 2007): **TR 32.816**
Outstanding issues: **-**
Request to SA5: **-**

Tdoc	Title	Source	Type	Decision	Replaced-by	Replaces
S5-071060	TR 32.816 LTE OAM Study - Email approval for SA Information	Ericsson	TR			S5-071056

6.8.5 WT3600ab Study on SON related OAM interfaces for Home NodeB (OAM8-Study)

Rapporteur: **Huawei**
Work progress: **from 00% to 10%**
Summary of progress: **-**
Deliveries (target Dec 2007): **TR 32.8xy Self-Organising Networks related OAM architecture for Home NodeB**
Outstanding issues: **-**
Request to SA5: **-**

Tdoc	Title	Source	Type	Decision	Replaced-by	Replaces
S5-071061	WID Study of Self-Organising Networks (SON) related OAM interfaces for Home NodeB	Huawei	WID			S5-070850

7 Charging Management

Tdoc	Title	Source	Type	Decision	Replaced-by	Replaces
S5-070817	Charging Executive Meeting Report	Rapporteur	Report			

Liaison Statements

Tdoc	Title	Source	Type	Agenda	Remarks
S5-070820	LS_in from GSMA CPWP on Identification of applications within IMS charging information	CPWP 43_004	LS_in	CH8	Response by e-mail approval (21 May)
S5-070821	LS_in from TISPAN on Cooperation between ITU-T and ETSI TISPAN about Charging in NGN – March 2007	13bTD474r2	LS_in	CH8	Noted
S5-070822	LS_in from TISPAN on Accounting- and Charging	13bTD459r2	LS_in	CH8	For the joint session with TISPAN (14 May)
S5-070829	LS_in from OMA on IM Charging	OMA-LS_194	LS_in	CH8	Noted

S5-070977	draft LS to CT4 on Allocation of Diameter AVP codes	SWG CH	LS_out	7 LS CM	Revision of S5-070896. Revised	S5-070830	
S5-070830	LS_out from SA5 CH to CT4 on LS on Correction of Diameter AVP code allocation	SA5 CH SWG	LS_out	7			S5-070977

7.1 CH7

7.1.1 R7 CH7-IMS-ACP

Rapporteur: **Alcatel-Lucent**
Work progress: **from 80% to 100% (completed)**
Summary of progress: **CRs**
Deliveries: **CRs**
Outstanding issues: **None**
Request to SA5: **CRs for SA Approval**

Tdoc	Agenda	Title	Source	Comment
S5-070980	CH7-IMS-ACP	R7 CR 32.298 Add a new field into the AS-CDR for Alternate Charged Party Offline charging	Alcatel-Lucent	MCC to implemented after S5-070540 from Xian
S5-070981	CH7-IMS-ACP	R7 CR 32.299 Add Alternate Charged Party AVP for Offline charging	Alcatel-Lucent	
S5-070982	CH7-IMS-ACP	R7 CR 32.260 Add Alternate Charged Party Address to AS CDR content.	Alcatel-Lucent	

7.1.2 R7 CH7-PoC

Rapporteur: **Nokia Siemens Networks**
Work progress: **from 90% to 100% (completed)**
Summary of progress: **CRs**
Deliveries: **CRs**
Outstanding issues: **None**
Request to SA5: **CRs for SA Approval**

Tdoc	Agenda	Title	Source	Comment
S5-070989	CH7-POC	R7 CR 32.298 Add Media initiator info for PoC CDR definition	Huawei	Supersedes S5-070718 from last meeting. S5-070718 withdrawn
S5-070990	CH7-POC	R7 CR 32.299 Add Media Initiator Party	Huawei	
S5-070991	CH7-POC	R7 CR 32.272 Add Media Initiator Party	Huawei	
S5-070992	CH7-POC	R7 CR 32.299 Multi-AS Covering Description Enhancement	Huawei	Supersedes S5-070721 from last meeting. S5-070721 withdrawn

7.1.3 R7 PCC-CH

Rapporteur: **Orange**
Work progress: **from 85% to 100% (completed)**
Summary of progress: **CRs**
Deliveries: **CRs**
Outstanding issues: **None**
Request to SA5: **CRs for SA Approval**

Tdoc	Agenda	Title	Source
S5-070984	PCC-CH	R7 CR 32.251 Correction to the category of the MSCC AVP. Align with 23.203	Telefonica
S5-070985	PCC-CH	R7 CR 32.299 Correction to the category of the MSCC AVP. Align with 23.203	Telefonica
S5-070986	PCC-CH	R7 CR 32.251 Clarification on PCC charging principles – Align with 23.203	Nokia Siemens Networks
S5-070987	PCC-CH	R7 CR 32.251 Correction to the Charging-Rule-Base-Name AVP definition	Telefonica
S5-070988	PCC-CH	R7 CR 32.299 Correction to the Charging-Rule-Base-Name AVP definition	Telefonica

7.1.4 R7 ServID-CH

Rapporteur: **Orange**
Work progress: **from 10% to 15% (No progress since last THREE consecutive SA5 meetings)**
Summary of progress: Serv-ID issue is still under progress in CT1 which should provide SA5 with a solution for the delivery of this information to the CDR Generating Nodes in IMS. An additional exception sheet has to be submitted to SA#36.
Deliveries: **None**
Outstanding issues: **CRs to be submitted to SA5#54 (Jun 2007) that will rely on CT1 output if any**
Request to SA5: **Submit exception sheet to SA#36 for Approval**

7.1.5 R7 VCC-CH

Rapporteur: **Orange**
Work progress: **from 85% to 100% (completed)**
Summary of progress: **-**
Deliveries: **None**
Outstanding issues: **None**
Request to SA5: **None**

7.2 Charging Maintenance and Rel-8 small Enhancements

Tdoc	Agenda	Title	Source
S5-070976	CH	R6 CR 32.299 Corrections to misalignments in the usage of the Trigger-Type AVP	Telefonica, Ericsson
S5-070978	CH	R7 CR 32.299 Corrections to misalignments in the usage of the Trigger-Type AVP	Telefonica, Ericsson

Tdoc	Agenda	Title	Source
S5-070983	CH8	R8 CR 32.260 Clarification of unsuccessful re-INVITE and UPDATE	Ericsson

7.3 CH8

7.3.1 R8 Online charging correlation

Rapporteur: **Orange**
Work progress: **from 00% to 10%**
Summary of progress: **Orange CR 32.296 not agreed. For Email discussion**
Deliveries: **None**
Outstanding issues: **CRs for next meeting**
Request to SA5: **None**

7.3.2 R8 SMS Online charging

Rapporteur: **Vodafone**
Work progress: **from 00% to 60%**
Summary of progress: **Draft TS 32.xyz updated with agreed changes**
Deliveries: **None**
Outstanding issues:

- Definition of SMS information
- Formal parameter description (SMS charging information for CDRs, SMS charging information for charging events)

Request to SA5: **None**

7.4 Study on Charging Aspects of 3GPP System Evolution (SAE-CH)

Rapporteur: **Nokia Siemens Networks**
Work progress: **from 00% to 20%**
Summary of progress: Draft TR 32.820 not ready for SA#36 Information. SA Approval delayed to Dec 2007
Deliveries: **None**
Outstanding issues:

- Charging for 3GPP Access (roaming cases)
- Charging for non-3GPP access (roaming and non-roaming cases)
- Recommendations for work item, for charging architecture, for charging data and protocols

Request to SA5: **Update WID**

Tdoc	Agenda	Title	Source
S5-070993	CH8	Updated Study item 3GPP System Architecture Evolution: Charging aspects	Nokia Siemens Networks

8 Meeting Calendar

Tdoc	Title	Source	Type	Agenda	Decision	Replaced-by	Replaces
S5-070810	Draft 2008 SA5 Meeting Calendar	TB Chairman	Tdoc	8	Revised	S5-070971	
S5-070971	Draft 2008 SA5 Meeting Calendar (replaces S5-070810)	TB Chairman	Tdoc	8	Noted. Consensus 2-1-2-1.	S5-071000	S5-070810
S5-071000	Draft 2008 SA5 Meeting Calendar	SA5	Tdoc	8	Noted		S5-070971

SA5 fixed the dates of the first two meetings in 2008. Hence, the SA5 Chairman will start negotiations with potential hosts.

SA5 members wishing to host an SA5 meeting were invited to contact the SA5 Chairman. SA5 Structure and Meeting Facility Requirements can be found in

Tdoc	Title	Source	Type	Agenda	Decision	Replaced-by	Replaces
S5-070811	SA5 Structure and Meeting Facility Requirements	TB Chairman	Tdoc	5.1	Approved		

TITLE	DATES	LOCATION	CTRY		
SA5#51	22 - 26 Jan 2007	Seville	ES	EF3	YES
SA#35	12 - 15 Mar 2007	Larnaca	CY		
SA5#52	2 - 6 Apr 2007	Xi'an	CN	ZTE	YES
SA5#53	7 - 11 May 2007	Sophia Antipolis	FR	ETSI	YES
3GPPSA5-TISPAN2-Charging Ad-Ho	14 May 2007	Sophia Antipolis	FR	ETSI	YES
3GPPSA5-TISPAN8-Joint Meeting	14 - 15 May 2007	Sophia Antipolis	FR	ETSI	YES
SA#36	4 - 7 Jun 2007	Busan	KR		
3GPPSA5-LTE Ad Hoc	11 - 12 Jun 2007	Sophia Antipolis	FR	ETSI	YES
3GPPRAN3-3GPPSA5-LTE Ad Hoc	13 - 14 Jun 2007	Sophia Antipolis	FR	ETSI	YES
SA5#54	25 - 29 Jun 2007	Orlando	US	NAF	YES
SA5#55	27 - 31 Aug 2007	Bucharest	RO	EF3	YES
SA#37	17 - 20 Sep 2007	Riga	LV		
SA5#56	22 - 26 Oct 2007	Guangzhou	CN	CMCC	NO
SA#38	3 - 7 Dec 2007	US	US		

TITLE	DATES	LOCATION	CTRY	HOST	Invitation available
3GPPSA5#57	7 - 11 Jan 2008	Sophia Antipolis	FR		
3GPPSA5#58	18 - 22 Feb 2008				
3GPPCT#39	5 - 7 Mar 2008	US	US	NAF	
3GPPSA#39	10 - 13 Mar 2008	US	US	NAF	
3GPPSA5#59 **TO BE DECIDED**	14 - 18 Apr 2008				
3GPPCT#40	28 - 30 May 2008	Prague	CZ	EF3	
3GPPSA#40	2 - 5 Jun 2008	Prague	CZ	EF3	
3GPPSA5#60 **TO BE DECIDED**	7 - 11 Jul 2008				
3GPPSA5#61 **TO BE DECIDED**	18 - 22 Aug 2008				
3GPPCT#41	10 - 12 Sep 2008	JP	JP		
3GPPSA#41	15 - 18 Sep 2008	JP	JP		
3GPPSA5#62 **TO BE DECIDED**	10 - 14 Nov 2008				
3GPPCT#42	3 - 5 Dec 2008	Athens	GR	EF3	
3GPPSA#42	8 - 11 Dec 2008	Athens	GR	EF3	

9 Any Other Business

9.1 Acknowledgements

SA5 warmly thanked for the long time service with excellent results and handed over certificates to:

- Benni ALEXANDER (Nokia) as active participant for 6 years from Feb 2001 (SA5-#18 Versailles) and Vice Chairman for 2 years of SWG-B Charging Management
- Dr. Wolfgang HAIDEGGER (Siemens) as Rapporteur from Apr 2006 (SA5-#46 Athens) on TR 32.808 Study of Common Profile Storage Framework
- Enxi WANG (Nokia) as active participant for 5 years from June 2002 (SA5-#29 Beijing)

10 Close of Meeting

On behalf of the SA5 participants, Christian TOCHE (SA5 Chair) thanked the Host, ETSI, for the nice venue and excellent meeting facilities.

The meeting was closed on Friday at 13.00 hrs.

Annex A: Participants list

Nick Mazzarella	Alcatel-Lucent	3GPPMEMBER (ATIS)
Véronique Belfort	Alcatel-Lucent	3GPPMEMBER (ETSI)
Jian Li	China Mobile Com. Corporation	3GPPMEMBER (CCSA)
Shuangchun Liang	China Mobile Com. Corporation	3GPPMEMBER (CCSA)
Yu Chengzhi	China Mobile Com. Corporation	3GPPMEMBER (CCSA)
Sankar Ray	Cingular Wireless LLC	3GPPMEMBER (ATIS)
Edwin Tse	Ericsson Inc.	3GPPMEMBER (ATIS)
Patrik Teppo	Ericsson Inc.	3GPPMEMBER (ATIS)
Adrian Zoicas	ETSI Secretariat	3GPPORG_REP (ETSI)
Christian Toche	HUAWEI TECHNOLOGIES Co. Ltd.	3GPPMEMBER (ETSI)
Zhao Dong	HUAWEI TECHNOLOGIES Co. Ltd.	3GPPMEMBER (ETSI)
Li Yang	HuaWei Technologies Co., Ltd	3GPPMEMBER (ATIS)
Paul Stephens	MOTOROLA Ltd	3GPPMEMBER (ETSI)
Ian Doig	MOTOROLA S.A.S	3GPPMEMBER (ETSI)
Jerry Nan	Nanjing Ericsson Panda Com Ltd	3GPPMEMBER (CCSA)
Robert Petersen	Nanjing Ericsson Panda Com Ltd	3GPPMEMBER (CCSA)
Thomas Tovinger	Nippon Ericsson K.K.	3GPPMEMBER (ARIB)
Clemens Suerbaum	Nokia Siemens Networks	3GPPMEMBER (ETSI)
Gerald Görmer	Nokia Siemens Networks	3GPPMEMBER (ETSI)
Olaf Pollakowski	Nokia Siemens Networks	3GPPMEMBER (ETSI)
Mikael Rutanen	Nokia Siemens Networks nv/sa	3GPPMEMBER (ETSI)
Peter Gaigg	Nokia Siemens Networks S.p.A	3GPPMEMBER (ETSI)
Wolfgang Haidegger	Nokia Siemens Networks S.p.A	3GPPMEMBER (ETSI)
Jean Duguay	NORTEL NETWORKS (EUROPE)	3GPPMEMBER (ETSI)
Julian Mitchell	NORTEL NETWORKS (EUROPE)	3GPPMEMBER (ETSI)
Min Lou	NORTEL NETWORKS (EUROPE)	3GPPMEMBER (ETSI)
Alain Bibas	ORANGE SA	3GPPMEMBER (ETSI)
John B Fenn	Research in Motion UK Limited	3GPPMEMBER (ETSI)
Per Elmdahl	Telefon AB LM Ericsson	3GPPMEMBER (ETSI)
Ulf Hübinette	Telefon AB LM Ericsson	3GPPMEMBER (ETSI)
Tommy Berggren	TeliaSonera AB	3GPPMEMBER (ETSI)
Istvan Aba	T-Mobile Austria GmbH	3GPPMEMBER (ETSI)
Gavin Wong	Vodafone D2 GmbH	3GPPMEMBER (ETSI)
Adrian Neal	VODAFONE Group Plc	3GPPMEMBER (ETSI)

Kai Zhang	ZTE Corporation	3GPPMEMBER (CCSA)
Shuqiang Huang	ZTE Corporation	3GPPMEMBER (CCSA)
Weiyong Zhu	ZTE Corporation	3GPPMEMBER (CCSA)

Annex B: Agenda

Agenda	Topic
1	**Opening of the meeting**
2	**Approval of the agenda and registration of new documents**
3	**IPR Declarations**
	Page: 25 Reminder to Individual Members and the persons making the technical proposals about their obligations under their respective Organizational Partners IPR Policy 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 Chairman, or the Director-General 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
4	**Meetings and activities reports**
4.1	**Last SA5 meeting report**
4.2	**Last SA meeting report**
4.3	**LS status overview**
4.4	**Inter-organizational communication reports**
4.5	**Other reports**
5	**Cross-SWG issues at SA5 level**
5.1	**Administrative issues at SA5 level**
5.2	**Technical issues at SA5 level**
5.3	**Other issues at SA5 level**
6	**OAM**
6.1	**OAM7-NIM**
6.1.1	**R7 WT044 NRM Enhancement for NGN (OAM7-NIM)**
6.1.2	**R7 WT047 Itf-N Performance Criteria (OAM7-NIM)**
6.1.3	**R7 WT048 Delta Synchronization (OAM7-NIM)**
6.1.4	**R7 WT052 Partial suspension of Itf-N during maintenance/testing (OAM7-NIM)**
6.1.5	**R7 WT064 Backward and Forward Compatibility of IRP systems (OAM7-NIM)**
6.2	**OAM7-PM**
6.2.1	**R7 WT058 UTRAN Measurements (OAM7-PM)**
6.2.2	**R7 WT069 Performance measurements definition for IMS (OAM7-PM)**
6.2.3	**R7 WT073 HSDPA performance measurements (OAM7-PM)**

6.3	OAM7-Trace
6.3.1	R7 WT063 IRP for Subscriber and Equipment Trace Management (OAM7-Trace)
6.4	OAM Maintenance and Rel-8 small Enhancements
6.5	OAM8-NIM
6.5.1	R8 WT051 IRP Methodology (OAM8-NIM)
6.5.2	R8 WT053 Itf-N Advanced Alarming (OAM8-NIM)
6.5.3	R8 WT056 CS Bearer Transport NRM (OAM8-NIM)
6.6	OAM8-PM
6.6.1	R8 WT061 IP Measurements (OAM8-PM)
6.7	OAM8-Trace
6.8	OAM-Study
6.8.1	WT065 Study of Element Operations Systems Function (EOSF) definition (OAM8-Study)
6.8.2	WT074 Study on SA5 MTOSI XML Harmonization (OAM8-Study)
6.8.3	WT320006 Study on Common Profile Storage framework (OAM8-Study)
6.8.4	WT340036 Study on Management for LTE and SAE (OAM8-Study)
6.8.5	WT3600ab Study on SON related OAM interfaces for Home NodeB (OAM8-Study)
7	Charging Management
7.1	CH7
7.1.1	R7 CH7-IMS-ACP
7.1.2	R7 CH7-PoC
7.1.3	R7 PCC-CH
7.1.4	R7 ServID-CH
7.1.5	R7 VCC-CH
7.2	Charging Maintenance and Rel-8 small Enhancements
7.3	CH8
7.3.1	R8 Online charging correlation
7.3.2	R8 SMS Online charging
7.4	Study on Charging Aspects of 3GPP System Evolution (SAE-CH)
8	Meeting Calendar
9	Any Other Business
10	Close of Meeting

Annex C: Document list

Tdoc	Title	Source	Type	Agenda	Decision	Replaced-by	Replaces

Tdoc	Title	Source	Type	Agenda	Decision	Replaced-by	Replaces
S5-070800	Invitation to this SA5 meeting	Host	Tdoc	1	Noted		
S5-070801	List of participants	TB Officer	Tdoc	1	Noted		
S5-070802	Agenda	TB Chairman	Agenda	2	Approved		
S5-070803	OAM SWG Meeting Timeplan	TB Chairman	Tdoc	2	Noted		
S5-070804	Meeting Document List	TB Officer	Tdoc	2	Noted		
S5-070805	Liaison Statement Status BEFORE this meeting	TB Chairman	Tdoc	4.3	Noted		
S5-070806	Liaison Statement Status AFTER this meeting	TB Chairman	Tdoc	4.3			
S5-070807	DRAFT Report of the last SA5 meeting	TB Officer	Report_in	4.1	Approved		
S5-070808	APPROVED Report of the last SA5 meeting	TB Officer	Report_out	4.1	Noted		
S5-070809	DRAFT Report of the last SA5 OAM meeting	TB Officer	Report_in	6	Approved. Review of Action items in S5-071005	S5-070849, S5-071005	
S5-070810	Draft 2008 SA5 Meeting Calendar	TB Chairman	Tdoc	8	Revised	S5-070971	
S5-070811	SA5 Structure and Meeting Facility Requirements	TB Chairman	Tdoc	5.1	Approved		
S5-070812	SA5 Templates (Tdoc, CR, LS_out, WID, TS-TR submission to SA)	TB Officer	Tdoc	5.1	Noted		
S5-070815	Charging Agenda and schedule	Rapporteur	Agenda	7			
S5-070816r1	Charging Meeting Document List	Rapporteur	Doclist	7			
S5-070817	Charging Executive Meeting Report	Rapporteur	Report	7			
S5-070818	Charging Detailed Meeting Report	Rapporteur	Report	7			
S5-070819	Charging Global Document List	Rapporteur	Doclist	7			
S5-070820	LS_in from GSMA CPWP on Identification of applications within IMS charging information	CPWP 43_004	LS_in	7	Replied in S5-070xxx		
S5-070821	LS_in from TISPAN on Cooperation between ITU-T and ETSI TISPAN about Charging in NGN – March 2007	13bTD474r2	LS_in	7			
S5-070822	LS_in from TISPAN on Accounting- and Charging	13bTD459r2	LS_in	7			
S5-070823	RESUBMIT S5-070435 (S5-070077) LS_in from 3GPP2 to 3GPP SA5 on OAM&P Topics (OAM&P Maintenance and small enhancements)	3GPP2	LS_in	6.4	Reply in S5-071034	S5-071034	
S5-070824	RESUBMIT S5-070436 (S5-060123) LS from 3GPP2 TSG-S WG5 Proposal for XSD sub classing (OAM&P WT051 IRP Methodology)	3GPP2	LS_in	6.5.1	Reply in S5-071042	S5-071042	
S5-070825	RESUBMIT S5-070437 (S5-060864) LS_in from 3GPP2 on 3GPP SA5 Common sessions and RET Antenna (OAM&P Maintenance and small enhancements)	3GPP2	LS_in	6.4	Reply in S5-071035	S5-071035	
S5-070826	RESUBMIT S5-070439 LS_in from 3GPP2 to SA5 on IMS Management Harmonization (OAM&P Maintenance and small enhancements)	3GPP2	LS_in	6.4	CRs provided to this meeting		
S5-070827	LS_in from SA2 (copy SA5) on 'Specification Update of GBR and MBR due to MIMO'	S2-072105	LS_in	6	Noted		
S5-070828	LS_in from SA2 (copy SA5) on Removal of limitation of SRNC identity	S2-072266	LS_in	6	Noted		
S5-070829	LS_in from OMA on IM Charging	OMA-LS_194	LS_in	7			
S5-070830	LS_out from SA5 CH to CT4 on LS on Correction of Diameter AVP code allocation	SA5 CH SWG	LS_out	7			S5-070977
S5-070849	Approved Report of the last SA5 OAM meeting	OAM SWG	Report_in	6	Noted		
S5-070850	WID Study of Self-Organising Networks (SON) related OAM interfaces for Home NodeB	Huawei	WID	6.8.5	Revised	S5-071061	
S5-070851	R6 CR 32.299 Corrections to misalignments in the usage of the Trigger-Type AVP	Telefónica	CR	7 CM	Revised to S5-070xxx		

Tdoc	Title	Source	Type	Agenda	Decision	Replaced-by	Replaces
S5-070852	R7 CR 32.299 Corrections to misalignments in the usage of the Trigger-Type AVP	Telefónica	CR	7 CM	Revised to S5-070xxx		
S5-070853	R7 CR 32.251 Correction to the category of the MSCC AVP. Align with TS23.203	Telefónica	CR	7 BC	Revised to S5-070984		
S5-070854	R7 CR 32.299 Correction to the category of the MSCC AVP. Align with TS23.203	Telefónica	CR	7 BC	Revised to S5-070985		
S5-070855	R7 CR 32.251 Correction to the Charging-Rule-Base-Name AVP definition	Telefónica	CR	7 BC	Revised to S5-070985		
S5-070856	R7 CR 32.299 Correction to the Charging-Rule-Base-Name AVP definition	Telefónica	CR	7 BC	Revised to S5-070985		
S5-070857	R7 CR 32.299 Clarification of Node-Functionality	Ericsson	CR	7 IMS			
S5-070858	R7 CR 32.299 Trigger-Type correction	Ericsson, Vodafone	CR	7 BC			
S5-070859	R8 CR 32.260 unsuccessful RE-INVITE and UPDATE	Ericsson	CR	7 IMS	Revised to S5-070983		
S5-070860	TR 32.806 CPSF Study	Nokia Siemens Networks S.p.A	TR	6.8.3	Revised	S5-071031	
S5-070861	R7 CR 32.298 Correction to the 'List of Traffic Data Volumes' field description	Telefónica	CR	7 BC			
S5-070862	TR 32.816 v0.2.0 LTE OAM Study	Ericsson	TR	6.8.4	Revised	S5-071056	
S5-070863	Adding BmscFunction to CN NRM CORBA SS	Nokia Siemens Networks	CR	6.4	Revised	S5-071037	
S5-070864	Adding BmscFunction to Cn NRM XML	Nokia Siemens Networks	CR	6.4	Revised	S5-071038	
S5-070865	Trace IRP CORBA Solution Set TS 32.443	Nokia Siemens Networks	TS	6.3.1	Revised	S5-071032	
S5-070866	ACP Online Charging WID Rel-8	Alcatel-Lucent, Huawei	WID	7 IMS			
S5-070867	Rel-8 ACP Online Charging Overview	Alcatel-Lucent, Huawei	CR	7 IMS			
S5-070868	New CDR field for ACP Offline charging - TS 32.298	Alcatel-Lucent	CR	7 IMS	Revised to S5-070980		
S5-070869	New AVP for ACP Offline charging - TS 32.299	Alcatel-Lucent	CR	7 IMS	Revised to S5-070981		
S5-070870	Service-Context-Id AVP additional information-32.299R6	Alcatel-Lucent	CR	7 CM			
S5-070871	Service-Context-Id additional information - 32.299R7	Alcatel-Lucent	CR	7 CM			
S5-070872	ACP Offline AVP information AS CDR content 32260-R7	Alcatel-Lucent	CR	7 IMS	Revised to S5-070982		
S5-070873	Rel-8 CR 32.296 Enhanced OCS architecture for online correlation	Orange	CR	7 CM	To be reopened at the next meeting		
S5-070874	R7 CR 32.407 Addition of missing MGW measurements for user plane services, related to call loss	Ericsson	CR	6.4	Approved		
S5-070875	SON related OAM Architecture for Home NodeB TR draft	Huawei	Tdoc	6.8.5	Noted		
S5-070876	Proposal on Performance and Fault Management for Home NodeB	Huawei	Tdoc	6.8.5	Revised	S5-071007	
S5-070877	Proposal on Self-Installation & Self-Configuration for Home NodeB	Huawei	Tdoc	6.8.5	Revised	S5-071008	
S5-070878	Proposal on Security Management for Home NodeB	Huawei	Tdoc	6.8.5	Noted		
S5-070879	Proposal on Subscription Management for Home NodeB	Huawei	Tdoc	6.8.5	Revised	S5-071009	
S5-070880	R8 Addn of WLAN to base arch for SAE charging study	Nortel Networks (Europe)	Tdoc	7 CM			
S5-070881	Add missing cell (re-)selection attributes (CO~OP feature) to 3GPP TS32.642	Nokia Siemens Networks	CR	6.1	Revised	S5-071023	
S5-070882	Supporting Paper on generic performance measurement definition method	Nortel Networks (Europe)	Tdoc	6.2	Noted		

Tdoc	Title	Source	Type	Agenda	Decision	Replaced-by	Replaces
S5-070883	Rel-7 CR 32.251 Clarification on PCC charging principles – Alignment with TS 23.203	Nokia Siemens Networks	CR	7 BC	Revised to S5-070986		
S5-070884	New baseline TR 32.820-011	Nokia Siemens Networks	TR	7 CM			
S5-070885	Charging for 3GPP access - Non- roaming case (5.1.1)	Nokia Siemens Networks	CR	7 CM			
S5-070886	CR R7 32.260 Add Accept-Contact header to Ro and Rf	Vodafone	CR	7 IMS			
S5-070887	CR R7 32.299 Add Accept-Contact header to Ro and Rf	Vodafone	CR	7 IMS			
S5-070888	CR R7 32.298 Add Accept-Contact header to Ro and Rf	Vodafone	CR	7 IMS			
S5-070889	Architecture for SMS online charging	Vodafone	Tdoc	7 SMS			
S5-070890	General SMS charging principles	Vodafone	Tdoc	7 SMS			
S5-070891	General SMS charging signalling flows	Vodafone	Tdoc	7 SMS	Late contribution		
S5-070892	Diameter level information used for SMS online charging	Vodafone	Tdoc	7 SMS	Late contribution		
S5-070893	R7 CR 32.299 Addition of Media Initiator Party -alignment with CDR definition	Huawei	CR	7 POC	Revised to S5-070990		
S5-070894	R7 CR 32.272 Addition of Media Initiator Party -alignment with CDR definition	Huawei	CR	7 POC	Revised to S5-070991		
S5-070895	R7 CR 32.299 Multi-AS Covering Description Enhancement	Huawei	CR	7 POC	Revised to S5-070992		
S5-070896	draft LS to CT4 on Allocation of Diameter AVP codes	Nokia Siemens Networks	LS_out	7 LS CM	Revised to S5-070xxx		
S5-070897	R6 CR 32.299 Correction on Diameter AVP code	Nokia Siemens Networks	CR	7 CM			
S5-070898	R7 CR 32.299 Correction on Diameter AVP codes	Nokia Siemens Networks	CR	7 CM			
S5-070899	Updated WID of WT61 (IP Network Performance Measurement)	China Mobile	WID	6.6.1	Revised	S5-071047	
S5-070900	New output in Connection and Loopback Test in TS32.321	China Mobile	CR	6.6.1	Need more discussion		
S5-070901	Introduction of Object Class and Interfaces in IP network performance measurement	China Mobile	Tdoc	6.6.1	Noted		
S5-070902	New Information Objects for network performance measurement in TS32.322	China Mobile	CR	6.6.1	Postponed		
S5-070903	New Interfaces for network performance measurement in TS32.323	China Mobile	CR	6.6.1	Postponed		
S5-070904	SA5 MTOSI XML Harmonisation Study -- Decision points	Nortel Networks (Europe)	Tdoc	6.8.2	Agreed to include in TR		
S5-070905	SA5 MTOSI XML Harmonisation Study -- Overall Conclusion	Nortel Networks (Europe)	Tdoc	6.8.2	Agreed to include in TR		
S5-070906	SA5 MTOSI XML Harmonisation Study -- To SA for information	Nortel Networks (Europe)	TR	6.8.2	Revised	S5-071050	
S5-070907	32.272 R7 Complete early session setup charging flow	Huawei	CR	7 POC			
S5-070908	32.393 Delta Synchronisation CORBA SS	Nokia Siemens Networks	TS	6.1.3	Revised	S5-071025	
S5-070909	32.395 Delta Synchronisation XML file format definition	Nokia Siemens Networks	TS	6.1.3	Revised	S5-071026	
S5-070910	32.445 Trace IRP XML file format definition	Nokia Siemens Networks	TS	6.3.1	Revised	S5-071016	
S5-070911	Advanced Alarming IS	Nokia Siemens Networks	TS	6.5.2	Agreed as a Baseline for future changes. Revised	S5-071053	
S5-070912	Material for Advanced Alarming IS	Nokia Siemens Networks	Tdoc	6.5.2	Breakout session		

Tdoc	Title	Source	Type	Agenda	Decision	Replaced-by	Replaces
S5-070913	Advanced Alarming Requirements	Nokia Siemens Networks	Tdoc	6.5.2	Agreed with comments. Action: provide draft TS at next meeting		
S5-070914	R7 CR 32.299 Charging based on the QoS authorized for a PCC rule	Telefónica	CR	7 BC			
S5-070915	R7 CR 32.298 Charging based on the QoS authorized for a PCC rule	Telefónica	CR	7 BC			
S5-070916	CR NSN Align UTRAN NRM CORBA SS with UTRAN NRM IS	Nokia Siemens Networks	CR	6.1	Linked to S5-070881	S5-071027	
S5-070917	R6 CR 32.251 Clarification on FBC charging principles – Alignment with TS 23.125	Nokia Siemens Networks	CR	7 BC			
S5-070918	CR NSN Align UTRAN NRM XML SS with UTRAN NRM IS	Nokia Siemens Networks	CR	6.1	Linked to S5-070881	S5-071028	
S5-070919	Rel-7 CR 32.732 Add more concrete AsFunction - Align with 23.002	Huawei	CR	6.1	Revised	S5-071010	
S5-070920	Rel-7 CR 32.733 Add more concrete AsFunction - Align with 23.002	Huawei	CR	6.1	Revised	S5-071011	
S5-070921	Rel-7 CR 32.735 Add more concrete AsFunctions - Align with 23.002	Huawei	CR	6.1	Revised	S5-071012	
S5-070922	R7 CR 32.251 Charging based on the QoS authorized for a PCC rule	Telefónica	CR	7 BC			
S5-070923	TS 32.154 Backward and Forward Compatibility (BFC)	Ericsson	TS	6.1.5	for SA Approval		
S5-070924	Link IOC Discussion - Present various proposals	Ericsson	Tdoc	6.1	Breakout session. Postponed		
S5-070925	R7 CR 32.623 – Define LinkListSet Type – Proposal 1	Ericsson	CR	6.1	Breakout session. Postponed		
S5-070926	R7 CR 32.623 – Define LinkListSet Type – Proposal 2	Alcatel-Lucent	CR	6.1	Breakout session. Postponed		
S5-070927	R7 CR 32.625 – Define LinkListSet Type – Proposal 1	Ericsson	CR	6.1	Breakout session. Postponed		
S5-070928	R7 CR 32.625 – Define LinkListSet Type – Proposal 2	Alcatel-Lucent	CR	6.1	Breakout session. Postponed		
S5-070929	R7 CR 32.732 Add link attributes to IMS NRM	Alcatel-Lucent, Ericsson	CR	6.1	depends on decision of the Breakout session. Postponed		
S5-070930	R7 CR 32.733 Add link attributes to IMS NRM	Alcatel-Lucent, Ericsson	CR	6.1	depends on decision of the Breakout session. Postponed		
S5-070931	R7 CR 32.735 Add link attributes to IMS NRM	Alcatel-Lucent, Ericsson	CR	6.1	depends on decision of the Breakout session. Postponed		
S5-070932	R7 CR 32.735 Add missing XSD optional containment to IMS NRM	Alcatel-Lucent, Ericsson	CR	6.1	Revised	S5-071013	
S5-070933	R7 CR 32.735 Add missing XSD types to IMS NRM	Alcatel-Lucent, Ericsson	CR	6.1	Revised	S5-071014	
S5-070934	Link Attribute Type Definition	Alcatel-Lucent	Tdoc	6.1	Breakout session. Postponed		
S5-070935	R7 CR 32.732 Add Link_As_Icscf To IMS NRM - align with 23.002	Alcatel-Lucent	CR	6.1	Revised	S5-071054	
S5-070936	R7 CR 32.733 Add Link_As_Icscf To IMS NRM - align with 23.002	Alcatel-Lucent	CR	6.1	For Email Approval		
S5-070937	R7 CR 32.735 Add Link_As_Icscf To IMS NRM - align with 23.002	Alcatel-Lucent	CR	6.1	Postponed. Check on Friday. Revised	S5-071055	
S5-070938	TS 32.409 IMS Performance Measurements	China Mobile	TS	6.2.2	Update based on comments. Add SA submission sheet. Revised.	S5-071030	
S5-070940	Resubmission of S5-70611 HSDPA Release Measurements	Nokia Siemens Networks	CR	6.2.3	Approved		
S5-070941	CMCC Addition of CircuitEndPointSubgroup IOC in 32.632	China Mobile	CR	6.4	Update needed for CM requirements		
S5-070942	CMCC Addition of IOC ObservedDestination in 32.632	China Mobile	CR	6.4	Update needed for CM requirements		
S5-070943	CMCC Addition of block error rate related measurements	China Mobile	CR	6.2.1	Might impact CR in S5-070956. Revised	S5-071029	
S5-070944	CMCC Addition of RNC processor usage related measurements	China Mobile	CR	6.2.1	More work needed		
S5-070945	Proposal on the requirement of advanced alarming	ZTE	Tdoc	6.5.2	Revised	S5-071040	
S5-070946	Two change proposals on advanced alarming IS	ZTE	Tdoc	6.5.2	Need more discussion		

Tdoc	Title	Source	Type	Agenda	Decision	Replaced-by	Replaces
S5-070947	WID Study of System Maintenance by Itf-N	ZTE	WID	6	Revised	S5-071006	
S5-070948	CR R7 Add another reference point modelling method (RP_EP) to 32.622	Motorola, Nortel, CMCC	CR	6.4	Breakout session. Postponed		
S5-070949	Use cases for System Maintenance by Itf-N	ZTE	Tdoc	6	Noted		
S5-070950	CR R7 32.642 Alignment with 25.466 on handling of additional data of TMAAP	Vodafone, Huawei	CR	6.1	Late. Revised	S5-071001	
S5-070951	CR R7 32.643 Alignment with 25.466 on handling of additional data of TMAAP	Vodafone, Huawei	CR	6.1	Late. Revised	S5-071002	
S5-070952	CR R7 32.645 Alignment with 25.466 on handling of additional data of TMAAP	Vodafone, Huawei	CR	6.1	Late. Revised	S5-071019	
S5-070953	R7 32.392 Correct the information type of input parameter	ZTE	CR	6.1	Revised	S5-071020	
S5-070954	CR R7 Add sample for RP_EP modelling method to 32.152	Motorola, Nortel, CMCC	CR	6.4	Breakout session. Postponed		
S5-070955	CR R7 Moto Solutions for subcounter naming of standardised causes without numeric value	Motorola	CR	6.4	Revised	S5-071039	
S5-070956	CR R7 Moto Change the measured object class UtranCell according to the new models	Motorola	CR	6.2.1	Approved		
S5-070957	Motorola proposal on advanced alarming	Motorola	Tdoc	6.5.2	Need more discussion		
S5-070958	ZTE Discussion about the synchPoint creation related operation	ZTE	Tdoc	6.1.3	Revised. Agreed with changes. NSN will include in CR S5-071017	S5-071017	
S5-070959	Proposal on Advanced Alarming IS	ZTE	Tdoc	6.5.2	Revised	S5-071043	
S5-070960r1	WI Study On CDRs' Aggregation of IMS Offline Charging_CMCC&ZTE	ZTE, China Mobile	WID	7 IMS			
S5-070961	Requirements for Automatic Configuration of MME pools in LTE	Ericsson	Tdoc	6.8.4	Noted		
S5-070962	Discussion on Automatic Neighbour Relation Lists for LTE	Ericsson	Tdoc	6.8.4	Revised	S5-070974	
S5-070963	RET attribute mappings	Ericsson	Tdoc	6.4	Noted		
S5-070964	R6 CR 32.642 Remove not supported RET attributes - Align with 25.463	Ericsson	CR	6.4	Need email discussion		
S5-070965	R6 CR 32.643 Remove not supported RET attributes - Align with 32.642	Ericsson	CR	6.4	Need email discussion		
S5-070966	R6 CR 32.645 Remove not supported RET attributes - Align with 32.642	Ericsson	CR	6.4	Need email discussion		
S5-070967	R7 CR 32.642 Remove not supported RET attributes - Align with 25.463	Ericsson	CR	6.4	Need email discussion		
S5-070968	R7 CR 32.643 Remove not supported RET attributes - Align with 32.642	Ericsson	CR	6.4	Need email discussion		
S5-070969	R7 CR 32.645 Remove not supported RET attributes - Align with 32.642	Ericsson	CR	6.4	Need email discussion		
S5-070971	Draft 2008 SA5 Meeting Calendar (replaces S5-070810)	TB Chairman	Tdoc	8	Noted. Consensus 2-1-2-1.	S5-071000	S5-070810
S5-070972	Draft Requirements Template	Ericsson	TS	6.5.1	Late. Agreed for SA Information. Add SA submission sheet. Revised	S5-071041	
S5-070973	Report of open methodology issues	Ericsson	Tdoc	6.5.1	Late. Agreed as a work plan.		
S5-070974	Discussion on Automatic Neighbour Relation Lists for LTE update	Ericsson	Tdoc	6.8.4	Late.		S5-070962
S5-070976	R6 CR 32.299 Corrections to misalignments in the usage of the Trigger-Type AVP	SWG CH	CR	7 CM	Revision of S5-070851		
S5-070977	draft LS to CT4 on Allocation of Diameter AVP codes	SWG CH	LS_out	7 LS CM	Revision of S5-070896. Revised	S5-070830	
S5-070978	R7 CR 32.299 Corrections to misalignments in the usage of the Trigger-Type AVP	SWG CH	CR	7 CM	Revision of S5-070852		
S5-070979	Skeleton TR 32.820	SWG CH	TR	7 LS IMS	Incorporates the agreed changes of S5-070880/884/885		
S5-070980	New CDR field for ACP Offline charging - TS 32.298	SWG CH	CR	7 IMS	Revision of S5-070868 Note: guidance to provide to MCC for the implementation of the CT with S5-070540		

Tdoc	Title	Source	Type	Agenda	Decision	Replaced-by	Replaces
S5-070981	New AVP for ACP Offline charging - TS 32.299	SWG CH	CR	7 IMS	Revision of S5-070869		
S5-070982	ACP Offline AVP information AS CDR content 32260-R7	SWG CH	CR	7 IMS	Revision of S5-070872		
S5-070983	R8 CR 32.260 unsuccessful RE-INVITE and UPDATE	SWG CH	CR	7 IMS	Revision of S5-070859		
S5-070984	R7 CR 32.251 Correction to the category of the MSCC AVP. Align with TS23.203	SWG CH	CR	7 BC	Revision of S5-070853		
S5-070985	R7 CR 32.299 Correction to the category of the MSCC AVP. Align with TS23.203	SWG CH	CR	7 BC	Revision of S5-070854		
S5-070986	Rel-7 CR 32.251 Clarification on PCC charging principles – Alignment with TS 23.203	SWG CH	CR	7 BC	Revision of S5-070883		
S5-070987	R7 CR 32.251 Correction to the Charging-Rule-Base-Name AVP definition	SWG CH	CR	7 BC	Revision of S5-070855		
S5-070988	R7 CR 32.299 Correction to the Charging-Rule-Base-Name AVP definition	SWG CH	CR	7 BC	Revision of S5-070856		
S5-070989	R7 CR 32298-720 Modify initiator info in IMS and PoC CDR definition	SWG CH	CR	7 POC	Revision of S5-070718		
S5-070990	R7 CR 32.299 Addition of Media Initiator Party -alignment with CDR definition	SWG CH	CR	7 POC	Revision of S5-070893		
S5-070991	R7 CR 32.272 Addition of Media Initiator Party -alignment with CDR definition	SWG CH	CR	7 POC	Revision of S5-070894		
S5-070992	R7 CR 32.299 Multi-AS Covering Description Enhancement	SWG CH	CR	7 POC	Revision of S5-070895 Note: Supersedes S5-070721 from last meeting		
S5-070993	Updated study item: 3GPP System Architecture Evolution	SWG CH	WID	7 CM			
S5-071000	Draft 2008 SA5 Meeting Calendar	SA5	Tdoc	8	Noted		S5-070971
S5-071001	CR R7 32.642 Alignment with 25.466 on handling of additional data of TMAAP	Vodafone, Huawei	CR	6.1	Late. Combine with Xian S5-070686	S5-071015	S5-070950
S5-071002	CR R7 32.643 Alignment with 25.466 on handling of additional data of TMAAP	Vodafone, Huawei	CR	6.1	Late. Combine with Xian S5-070687	S5-071018	S5-070951
S5-071003	WT056 CN CS Bearer Transport Network (BTN) relative Resource Model Unique_ID 35056	China Mobile	WID	6.5.3	Revised	S5-071046	S5-070514
S5-071004	WT065 Study of Element Operations Systems Function (EOSF) definition Unique_ID 35065	China Mobile	WID	6.8.1	Action from #52. Revised	S5-071048	S5-070517
S5-071005	Review of action items from Xian in S5-070809 SA5_52_OAM_v100_Report	TB Officer	Tdoc	6	Noted		S5-070809
S5-071006	WID Study of System Maintenance by Itf-N	ZTE	WID	6	for SA Approval		S5-070947
S5-071007	Proposal on Performance and Fault Management for Home NodeB	Huawei, Vodafone	Tdoc	6.8.5	Noted		S5-070876
S5-071008	Proposal on Self-Installation & Self-Configuration for Home NodeB	Huawei, Vodafone	Tdoc	6.8.5	Noted. Update for the next meeting		S5-070877
S5-071009	Proposal on Subscription Management for Home NodeB	Huawei, Vodafone	Tdoc	6.8.5	Noted		S5-070879
S5-071010	Rel-7 CR 32.732 Clarify AsFunction - Align with 23.002	Huawei	CR	6.1	Approved. MCC add impacted TS.		S5-070919
S5-071011	Rel-7 CR 32.733 Add more concrete AsFunction - Align with 23.002	Huawei	CR	6.1	Approved. MCC add in Scope link to IS version.		S5-070920
S5-071012	Rel-7 CR 32.735 Add more concrete AsFunctions - Align with 23.002	Huawei	CR	6.1	Approved. MCC add in Scope link to IS version. Update Tdoc#.		S5-070921
S5-071013	R7 CR 32.735 Add missing XSD optional containment to IMS NRM	Alcatel-Lucent, Ericsson	CR	6.1	For Email Approval.		S5-070932
S5-071014	R7 CR 32.735 Add missing XSD types to IMS NRM	Alcatel-Lucent, Ericsson	CR	6.1	For Email Approval.		S5-070933
S5-071015	CR R7 32.642 Alignment with 25.466 on handling of additional data of TMAAP	Vodafone, Huawei	CR	6.1	Approved		S5-071001, S5-070686
S5-071016	32.445 Trace IRP XML file format definition	Nokia Siemens Networks	TS	6.3.1	Revised	S5-071033	S5-070910
S5-071017	R7 CR 32.392 for support of 2 modes of op	Nokia Siemens Networks	CR	6.1.3	Revised	S5-071024	S5-070700

Tdoc	Title	Source	Type	Agenda	Decision	Replaced-by	Replaces
S5-071018	R7 CR 32.643 Alignment with 25.466 on handling of additional data of TMAAP	Vodafone, Huawei	CR	6.1	Approved		S5-071002, S5-070687
S5-071019	R7 CR 32.645 Alignment with 25.466 on handling of additional data of TMAAP	Vodafone, Huawei	CR	6.1	Approved		S5-070952
S5-071020	R7 32.392 Correct the information type of input parameter	ZTE	CR	6.1	Approved. MCC Editorials in CR Cover needed.		S5-070953
S5-071021	Inconsistency in measurement family lists in performance measurement TSs	Nokia Siemens Networks	Tdoc	6.4	Noted		
S5-071022	R7 TR 32.811 v200 Itf-N Performance Criteria Requirements - for SA Approval	China Mobile	TR	6.1.2	Revised	S5-071044	S5-070732, S5-070742
S5-071023	Add missing cell (re-)selection attributes (CO~OP feature) to 3GPP TS32.642	Nokia Siemens Networks	CR	6.1	Approved		S5-070881
S5-071024	R7 CR 32.392 for support of 2 modes of op	Nokia Siemens Networks	CR	6.1.3	Approved. MCC remove revisions of revisions in CR Body.		S5-071017
S5-071025	32.393 Delta Synchronisation CORBA SS	Nokia Siemens Networks	TS	6.1.3	for SA Approval		S5-070908
S5-071026	32.395 Delta Synchronisation XML file format definition	Nokia Siemens Networks	TS	6.1.3	for SA Approval		S5-070909
S5-071027	CR NSN Align UTRAN NRM CORBA SS with UTRAN NRM IS	Nokia Siemens Networks	CR	6.1	Approved		S5-070916
S5-071028	CR NSN Align UTRAN NRM XML SS with UTRAN NRM IS	Nokia Siemens Networks	CR	6.1	Approved. MCC in CR cover tick RAN.		S5-070918
S5-071029	CMCC Addition of block error rate related measurements	China Mobile	CR	6.2.1	Approved		S5-070943
S5-071030	TS 32.409 IMS Performance Measurements	China Mobile	TS	6.2.2	for SA Approval		S5-070938
S5-071031	TR 32.806 CPSF Study	Nokia Siemens Networks S.p.A	TR	6.8.3	For SA Approval		S5-070860
S5-071032	TS 32.443 v100 Trace IRP CORBA Solution Set - for SA Approval	Nokia Siemens Networks	TS	6.3.1	for SA Approval		S5-070865
S5-071033	TS 32.445 v100 Trace IRP XML file format definition - for SA Approval	Nokia Siemens Networks	TS	6.3.1	for SA Approval		S5-071016
S5-071034	LS reply to 3GPP2 on OAM&P Topics	Ericsson	LS_out	6.4	Approved. Reply to S5-070823		S5-070823
S5-071035	LS reply to 3GPP2 on Common sessions at SA5#50 and comments & questions regarding RET Antennas	Ericsson	LS_out	6.4	Approved. Reply to S5-070825. MCC change in LS to 825. Revised	S5-071059	S5-070825
S5-071036	R7 CR 32.632 Add BmscFunction to CN NRM IS	Nokia Siemens Networks	CR	6.4	Approved		
S5-071037	R7 CR 32.633 Add BmscFunction to CN NRM CORBA SS	Nokia Siemens Networks	CR	6.4	Approved		S5-070863
S5-071038	R7 CR 32.635 Add BmscFunction to CN NRM XML	Nokia Siemens Networks	CR	6.4	Approved		S5-070864
S5-071039	R7 CR 32.404 Add rule for subcounter naming of standardised causes without numeric value	Motorola	CR	6.4	Provisionally Approved. CR Cat B => F	S5-071062	S5-070955
S5-071040	Proposal on the requirement of advanced alarming	ZTE	Tdoc	6.5.2	Need more discussion. Track the issue in the draft TS.		S5-070945
S5-071041	R8 TS 32.155 Requirements Template - for SA Information	Ericsson	TS	6.5.1	for SA Information		S5-070972
S5-071042	LS reply to 3GPP2 on XSD sub classing	Ericsson	LS_out	6.5.1	Reply to S5-070824		S5-070824
S5-071043	Proposal on Advanced Alarming IS	ZTE	Tdoc	6.5.2	Need more discussion		S5-070959
S5-071044	R7 TR 32.811 v200 Itf-N Performance Criteria Requirements - for SA Approval	China Mobile	TR	6.1.2	for SA Approval		S5-071022

Tdoc	Title	Source	Type	Agenda	Decision	Replaced-by	Replaces
S5-071045	R8 TS 32.121 Advanced Alarming Requirements	Nokia Siemens Networks	TS	6.5.2	for SA Information		
S5-071046	WID WT056 CN CS Bearer Transport Network (BTN) relative Resource Model Unique_ID 35056	China Mobile	WID	6.5.3	Approved		S5-071003
S5-071047	WID WT061 IP Network Performance Measurement	China Mobile	WID	6.6.1	Approved		S5-070899
S5-071048	WID WT065 Study of Element Operations Systems Function (EOSF) definition Unique_ID 35065	China Mobile	WID	6.8.1	Approved		S5-071004
S5-071049	TR 32.806 CPS Study - SA submission sheet	Nokia Siemens Networks S.p.A	Tdoc	6.8.3	Approved		
S5-071050	SA5 MTOSI XML Harmonisation Study -- To SA for information	Nortel Networks (Europe)	TR	6.8.2	for SA Information		S5-070906
S5-071051	DRAFT Report of THIS SA5 OAM meeting	TB Officer	Report_out	6	Despatched 12 May		
S5-071052	Executive Report of THIS SA5 OAM meeting to SA5 closing plenary	TB Officer	Report_out	6	Noted		
S5-071053	R8 TS 32.122 Advanced Alarming IS	Nokia Siemens Networks	TS	6.5.2	Noted	S5-070911	
S5-071054	R7 CR 32.732 Add Link_As_Icscf To IMS NRM - align with 23.002	Alcatel-Lucent	CR	6.1	For Email Approval		S5-070935
S5-071055	R7 CR 32.735 Add Link_As_Icscf To IMS NRM - align with 23.002	Alcatel-Lucent	CR	6.1	For Email Approval		S5-070937
S5-071056	TR 32.816 v0.2.0 LTE OAM Study	Ericsson	TR	6.8.4	Revised	S5-071060	S5-070862
S5-071059	LS reply to 3GPP2 on Common sessions at SA5#50 and comments & questions regarding RET Antennas	Ericsson	LS_out	6.4	Approved. Reply to S5-070825.		S5-071035
S5-071060	TR 32.816 LTE OAM Study - Email approval for SA Information	Ericsson	TR	6.8.4	For Email Approval		S5-071056
S5-071061	WID Study of Self-Organising Networks (SON) related OAM interfaces for Home NodeB	Huawei	WID	6.8.5	Approved		S5-070850
S5-071062	R7 CR 32.404 Add rule for subcounter naming of standardised causes without numeric value	Motorola	CR	6.4	Approved		S5-071039

C.1 OAM results LS, CR, TS/TR, WID

Tdoc	Title	Source	Type	Agenda	Decision	Replaced-by	Replaces
S5-070823	RESUBMIT S5-070435 (S5-070077) LS_in from 3GPP2 to 3GPP SA5 on OAM&P Topics	3GPP2	LS_in	6.4	Reply in S5-071034	S5-071034	
S5-070824	RESUBMIT S5-070436 (S5-060123) LS from 3GPP2 TSG-S WG5 Proposal for XSD sub classing	3GPP2	LS_in	6.5.1	Reply in S5-071042	S5-071042	
S5-070825	RESUBMIT S5-070437 (S5-060864) LS_in from 3GPP2 on 3GPP SA5 Common sessions and RET Antenna	3GPP2	LS_in	6.4	Reply in S5-071035	S5-071035	
S5-070826	RESUBMIT S5-070439 LS_in from 3GPP2 to SA5 on IMS Management Harmonization	3GPP2	LS_in	6.4	CRs provided to this meeting		
S5-070827	LS_in from SA2 (copy SA5) on 'Specification Update of GBR and MBR due to MIMO'	S2-072105	LS_in	6	Noted		
S5-070828	LS_in from SA2 (copy SA5) on Removal of limitation of SRNC identity	S2-072266	LS_in	6	Noted		
S5-071034	LS reply to 3GPP2 on OAM&P Topics	Ericsson	LS_out	6.4	Reply to S5-070823		S5-070823
S5-071042	LS reply to 3GPP2 on XSD sub classing	Ericsson	LS_out	6.5.1	Reply to S5-070824		S5-070824
S5-071059	LS reply to 3GPP2 on Common sessions at SA5#50 and comments & questions regarding RET Antennas	Ericsson	LS_out	6.4	Reply to S5-070825.		S5-071035

Tdoc	Title	Source	Type	Agenda	Decision	Replaced-by	Replaces
S5-070874	R7 CR 32.407 Addition of missing MGW measurements for user plane services, related to call loss	Ericsson	CR	6.4	Approved		
S5-070936	R7 CR 32.733 Add Link_As_Icscf To IMS NRM - align with 23.002	Alcatel-Lucent	CR	6.1	For Email Approval		
S5-070940	Resubmission of S5-70611 HSDPA Release Measurements	Nokia Siemens Networks	CR	6.2.3	Approved		
S5-070956	CR R7 Moto Change the measured object class UtranCell according to the new models	Motorola	CR	6.2.1	Approved		
S5-071010	Rel-7 CR 32.732 Clarify AsFunction - Align with 23.002	Huawei	CR	6.1	Approved. MCC add impacted TS.		S5-070919
S5-071011	Rel-7 CR 32.733 Add more concrete AsFunction - Align with 23.002	Huawei	CR	6.1	Approved. MCC add in Scope link to IS version.		S5-070920
S5-071012	Rel-7 CR 32.735 Add more concrete AsFunctions - Align with 23.002	Huawei	CR	6.1	Approved. MCC add in Scope link to IS version. Update Tdoc#.		S5-070921
S5-071013	R7 CR 32.735 Add missing XSD optional containment to IMS NRM	Alcatel-Lucent, Ericsson	CR	6.1	For Email Approval.		S5-070932
S5-071014	R7 CR 32.735 Add missing XSD types to IMS NRM	Alcatel-Lucent, Ericsson	CR	6.1	For Email Approval.		S5-070933
S5-071015	CR R7 32.642 Alignment with 25.466 on handling of additional data of TMAAP	Vodafone, Huawei	CR	6.1	Approved		S5-071001, S5-070686
S5-071018	R7 CR 32.643 Alignment with 25.466 on handling of additional data of TMAAP	Vodafone, Huawei	CR	6.1	Approved		S5-071002, S5-070687
S5-071019	R7 CR 32.645 Alignment with 25.466 on handling of additional data of TMAAP	Vodafone, Huawei	CR	6.1	Approved		S5-070952
S5-071020	R7 32.392 Correct the information type of input parameter	ZTE	CR	6.1	Approved. MCC Editorials in CR Cover needed.		S5-070953
S5-071023	Add missing cell (re-)selection attributes (CO~OP feature) to 3GPP TS32.642	Nokia Siemens Networks	CR	6.1	Approved		S5-070881
S5-071024	R7 CR 32.392 for support of 2 modes of op	Nokia Siemens Networks	CR	6.1.3	Approved. MCC remove revisions of revisions in CR Body.		S5-071017
S5-071027	CR NSN Align UTRAN NRM CORBA SS with UTRAN NRM IS	Nokia Siemens Networks	CR	6.1	Approved		S5-070916
S5-071028	CR NSN Align UTRAN NRM XML SS with UTRAN NRM IS	Nokia Siemens Networks	CR	6.1	Approved. MCC in CR cover tick RAN.		S5-070918
S5-071029	CMCC Addition of block error rate related measurements	China Mobile	CR	6.2.1	Approved		S5-070943
S5-071036	R7 CR 32.632 Add BmscFunction to CN NRM IS	Nokia Siemens Networks	CR	6.4	Approved		
S5-071037	R7 CR 32.633 Add BmscFunction to CN NRM CORBA SS	Nokia Siemens Networks	CR	6.4	Approved		S5-070863
S5-071038	R7 CR 32.635 Add BmscFunction to CN NRM XML	Nokia Siemens Networks	CR	6.4	Approved		S5-070864
S5-071054	R7 CR 32.732 Add Link_As_Icscf To IMS NRM - align with 23.002	Alcatel-Lucent	CR	6.1	For Email Approval		S5-070935
S5-071055	R7 CR 32.735 Add Link_As_Icscf To IMS NRM - align with 23.002	Alcatel-Lucent	CR	6.1	For Email Approval		S5-070937
S5-071062	R7 CR 32.404 Add rule for subcounter naming of standardised causes without numeric value	Motorola	CR	6.4	Approved		S5-071039

Tdoc	Title	Source	Type	Agenda	Decision	Replaced-by	Replaces
S5-071049	TR 32.806 CPS Study - SA submission sheet	Nokia Siemens Networks S.p.A	Tdoc	6.8.3	Approved		

Tdoc	Title	Source	Type	Agenda	Decision	Replaced-by	Replaces
S5-071031	TR 32.806 CPSF Study	Nokia Siemens Networks S.p.A	TR	6.8.3	for SA Approval		S5-070860
S5-071044	R7 TR 32.811 v200 Itf-N Performance Criteria Requirements - for SA Approval	China Mobile	TR	6.1.2	for SA Approval		S5-071022
S5-071050	SA5 MTOSI XML Harmonisation Study -- To SA for information	Nortel Networks (Europe)	TR	6.8.2	for SA Information		S5-070906
S5-071060	TR 32.816 LTE OAM Study - Email approval for SA Information	Ericsson	TR	6.8.4	For Email Approval		S5-071056
S5-070923	TS 32.154 Backward and Forward Compatibility (BFC)	Ericsson	TS	6.1.5	for SA Approval		
S5-071025	32.393 Delta Synchronisation CORBA SS	Nokia Siemens Networks	TS	6.1.3	for SA Approval		S5-070908
S5-071026	32.395 Delta Synchronisation XML file format definition	Nokia Siemens Networks	TS	6.1.3	for SA Approval		S5-070909
S5-071030	TS 32.409 IMS Performance Measurements	China Mobile	TS	6.2.2	for SA Approval		S5-070938
S5-071032	TS 32.443 v100 Trace IRP CORBA Solution Set - for SA Approval	Nokia Siemens Networks	TS	6.3.1	for SA Approval		S5-070865
S5-071033	TS 32.445 v100 Trace IRP XML file format definition - for SA Approval	Nokia Siemens Networks	TS	6.3.1	for SA Approval		S5-071016
S5-071041	R8 TS 32.155 Requirements Template - for SA Information	Ericsson	TS	6.5.1	for SA Information		S5-070972
S5-071045	R8 TS 32.121 Advanced Alarming Requirements	Nokia Siemens Networks	TS	6.5.2	for SA Information		

Tdoc	Title	Source	Type	Agenda	Decision	Replaced-by	Replaces
S5-071006	WID Study of System Maintenance by Itf-N	ZTE	WID	6	for SA Approval		S5-070947
S5-071046	WID WT056 CN CS Bearer Transport Network (BTN) relative Resource Model Unique_ID 35056	China Mobile	WID	6.5.3	Approved		S5-071003
S5-071047	WID WT061 IP Network Performance Measurement	China Mobile	WID	6.6.1	Approved		S5-070899
S5-071048	WID WT065 Study of Element Operations Systems Function (EOSF) definition Unique_ID 35065	China Mobile	WID	6.8.1	Approved		S5-071004
S5-071061	WID Study of Self-Organising Networks (SON) related OAM interfaces for Home NodeB	Huawei	WID	6.8.5	Approved		S5-070850

C.1 Charging results LS, CR, TS/TR, WID

Tdoc	Title	Source	Type	Agenda	Decision	Replaced-by	Replaces
S5-070820	LS_in from GSMA CPWP on Identification of applications within IMS charging information	CPWP 43_004	LS_in	7	Response by e-mail approval (21 May)		
S5-070821	LS_in from TISPAN on Cooperation between ITU-T and ETSI TISPAN about Charging in NGN – March 2007	13bTD474r2	LS_in	7	Noted		
S5-070822	LS_in from TISPAN on Accounting- and Charging	13bTD459r2	LS_in	7	For the joint session with TISPAN (14 May)		
S5-070829	LS_in from OMA on IM Charging	OMA-LS_194	LS_in	7	Noted		
S5-070830	LS_out from SA5 CH to CT4 on LS on Correction of Diameter AVP code allocation	SA5 CH SWG	LS_out	7			S5-070977

Tdoc	Agenda	Title	Source	
S5-070976	CH	R6 CR 32.299 Corrections to misalignments in the usage of the Trigger-Type AVP	Telefonica, Ericsson	
S5-070978	CH	R7 CR 32.299 Corrections to misalignments in the usage of the Trigger-Type AVP	Telefonica, Ericsson	
S5-070980	CH7-IMS-ACP	R7 CR 32.298 Add a new field into the AS-CDR for Alternate Charged Party Offline charging	Alcatel-Lucent	MCC to implemented after S5-070540 from Xian
S5-070981	CH7-IMS-ACP	R7 CR 32.299 Add Alternate Charged Party AVP for Offline charging	Alcatel-Lucent	
S5-070982	CH7-IMS-ACP	R7 CR 32.260 Add Alternate Charged Party Address to AS CDR content.	Alcatel-Lucent	

S5-070983	CH8	R8 CR 32.260 Clarification of unsuccessful re-INVITE and UPDATE	Ericsson	
S5-070984	PCC-CH	R7 CR 32.251 Correction to the category of the MSCC AVP. Align with 23.203	Telefonica	
S5-070985	PCC-CH	R7 CR 32.299 Correction to the category of the MSCC AVP. Align with 23.203	Telefonica	
S5-070986	PCC-CH	R7 CR 32.251 Clarification on PCC charging principles – Align with 23.203	Nokia Siemens Networks	
S5-070987	PCC-CH	R7 CR 32.251 Correction to the Charging-Rule-Base-Name AVP definition	Telefonica	
S5-070988	PCC-CH	R7 CR 32.299 Correction to the Charging-Rule-Base-Name AVP definition	Telefonica	
S5-070989	CH7-POC	R7 CR 32.298 Add Media initiator info for PoC CDR definition	Huawei	Supersedes S5-070718 from last meeting. S5-070718 withdrawn
S5-070990	CH7-POC	R7 CR 32.299 Add Media Initiator Party	Huawei	
S5-070991	CH7-POC	R7 CR 32.272 Add Media Initiator Party	Huawei	
S5-070992	CH7-POC	R7 CR 32.299 Multi-AS Covering Description Enhancement	Huawei	Supersedes S5-070721 from last meeting. S5-070721 withdrawn

Tdoc	Title	Source	Type	Agenda	Decision	Replaced-by	Replaces
S5-070993	Updated study item: 3GPP System Architecture Evolution	SWG CH	WID	7 CM			

History

Document history		
Ver. 0.0.1	14 May 2007	DRAFT Report submitted to SA5 for comment and posted at: http://www.3gpp.org/ftp/TSG_SA/WG5_TM/TSGS5_53/Report/
	25 Jun 2007	Approved without change at SA5#54 Orlando

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S5-070874.zip	2007/04/27 13:23	34,9 KB
S5-070875.zip	2007/04/29 11:52	369,9 KB
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sort by name/desc	sort by date/desc	sort by size/desc
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S5-070880.zip	2007/04/26 14:55	145,6 KB
S5-070881.zip	2007/04/27 13:27	73,2 KB
S5-070882.zip	2007/04/29 9:46	38 KB
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S5-070888.zip	2007/04/27 8:17	25,1 KB
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S5-070892.zip	2007/04/30 8:30	18,8 KB
S5-070893.zip	2007/04/29 1:14	14,9 KB
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S5-070897.zip	2007/04/27 12:38	45,2 KB
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S5-070898.zip	2007/04/27 12:36	54,4 KB
S5-070899.zip	2007/04/29 14:03	12,5 KB
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S5-070903.zip	2007/04/29 14:07	25,7 KB
S5-070904.zip	2007/04/27 12:08	10,5 KB
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S5-070922.zip	2007/04/27 15:41	45,5 KB
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S5-070925.zip	2007/04/27 23:38	26,4 KB
S5-070926.zip	2007/04/27 23:39	26,5 KB
S5-070927.zip	2007/04/27 23:39	31,3 KB
S5-070928.zip	2007/04/27 23:40	31,4 KB
S5-070929.zip	2007/04/27 23:41	35,6 KB
S5-070930.zip	2007/04/27 23:41	40,3 KB
S5-070931.zip	2007/04/27 23:42	39,5 KB
S5-070932.zip	2007/04/27 23:42	44,3 KB
S5-070933.zip	2007/04/27 23:43	39,9 KB
S5-070934.zip	2007/04/27 23:43	14,7 KB
S5-070935.zip	2007/04/27 23:44	92,4 KB
S5-070936.zip	2007/04/27 23:44	28,9 KB
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S5-070938.zip	2007/04/29 13:33	1190,1 KB
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S5-070941.zip	2007/04/29 7:05	37,9 KB
S5-070942.zip	2007/04/29 7:08	34,8 KB
S5-070943.zip	2007/04/29 7:10	22 KB

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S5-070947.zip	2007/04/29 13:58	15 KB
S5-070948.zip	2007/04/29 8:13	83,8 KB
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S5-070952.zip	2007/05/02 15:42	25,8 KB
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S5-070957.zip	2007/04/29 8:14	9,3 KB
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S5-070959.zip	2007/04/29 14:09	12 KB
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S5-070961.zip	2007/04/29 11:43	13 KB
S5-070962.zip	2007/04/29 12:02	15,8 KB
S5-070963.zip	2007/05/08 15:04	8,2 KB
S5-070964.zip	2007/04/29 13:17	36,9 KB
S5-070965.zip	2007/04/29 13:20	28,3 KB
S5-070966.zip	2007/04/29 13:24	23,8 KB
S5-070967.zip	2007/04/29 13:27	45,3 KB
S5-070968.zip	2007/04/29 13:30	28,4 KB
S5-070969.zip	2007/04/29 13:32	24,3 KB
S5-070971.zip	2007/05/02 17:40	5,8 KB
S5-070972.zip	2007/05/03 17:03	42,7 KB
S5-070973.zip	2007/05/03 17:03	8,2 KB
S5-070974.zip	2007/05/04 16:28	17,9 KB
S5-070976.zip	2007/05/11 9:39	32,7 KB
S5-070977.zip	2007/05/11 9:40	20,2 KB

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S5-070979.zip	2007/05/11 9:40	627,6 KB
S5-070980.zip	2007/05/11 9:41	18,7 KB
S5-070981.zip	2007/05/11 9:42	56,7 KB
S5-070982.zip	2007/05/11 9:42	37,3 KB
S5-070983.zip	2007/05/11 9:43	25,1 KB
S5-070984.zip	2007/05/11 9:43	20 KB
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S5-070988.zip	2007/05/11 9:44	56,9 KB
S5-070989.zip	2007/05/09 13:44	19,2 KB
S5-070990.zip	2007/05/09 13:44	15 KB
S5-070991.zip	2007/05/09 13:44	24,4 KB
S5-070992.zip	2007/05/11 9:45	21,9 KB
S5-070993.zip	2007/05/11 9:45	11,7 KB
S5-071000.zip	2007/05/07 17:20	6,1 KB
S5-071001.zip	2007/05/07 17:20	54,3 KB
S5-071002.zip	2007/05/07 17:20	48,3 KB
S5-071003.zip	2007/05/09 10:48	17,3 KB
S5-071004.zip	2007/05/09 10:48	15,7 KB
S5-071005.zip	2007/05/07 17:20	592,3 KB
S5-071006.zip	2007/05/09 10:48	15,4 KB
S5-071007.zip	2007/05/09 13:44	10,5 KB
S5-071008.zip	2007/05/09 13:44	13,2 KB
S5-071009.zip	2007/05/09 13:44	9,3 KB
S5-071010.zip	2007/05/11 14:16	127,8 KB
S5-071011.zip	2007/05/11 14:16	26,2 KB
S5-071012.zip	2007/05/11 14:16	36,7 KB
S5-071013 (070932r1) AL CR 32735-710 Add optional containment to IMS NRM - XSD.zip	2007/05/11 14:16	43,6 KB
S5-071014 (070933r1) AL CR 32735-710 Add missing type definitions to IMS NRM - XSD.zip	2007/05/11 14:16	38,9 KB
S5-071015.zip	2007/05/09 10:48	89,3 KB

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S5-071017.zip	2007/05/07 17:20	83 KB
S5-071018.zip	2007/05/09 10:48	51,2 KB
S5-071019.zip	2007/05/09 10:48	27,2 KB
S5-071020.zip	2007/05/09 13:44	27,5 KB
S5-071021.zip	2007/05/07 17:20	10,1 KB
S5-071022.zip	2007/05/07 17:20	144,9 KB
S5-071023.zip	2007/05/11 14:16	75,3 KB
S5-071024.zip	2007/05/09 16:35	83,9 KB
S5-071025.zip	2007/05/09 16:35	88,3 KB
S5-071026.zip	2007/05/09 16:35	51,2 KB
S5-071027.zip	2007/05/11 14:16	63,7 KB
S5-071028.zip	2007/05/11 14:16	41,9 KB
S5-071029.zip	2007/05/09 13:44	24,5 KB
S5-071030.zip	2007/05/11 14:16	1200,5 KB
S5-071031.zip	2007/05/09 10:48	3671,6 KB
S5-071032.zip	2007/05/11 14:16	58,9 KB
S5-071033.zip	2007/05/11 8:50	53,3 KB
S5-071034.zip	2007/05/09 16:35	8,1 KB
S5-071035.zip	2007/05/09 16:35	9 KB
S5-071036.zip	2007/05/09 16:35	110,8 KB
S5-071037.zip	2007/05/09 16:35	31,4 KB
S5-071038.zip	2007/05/09 16:35	30,4 KB
S5-071039.zip	2007/05/11 14:16	26,7 KB
S5-071040.zip	2007/05/09 10:48	10,7 KB
S5-071041.zip	2007/05/09 17:40	39 KB
S5-071042.zip	2007/05/25 22:41	7,8 KB
S5-071043.zip	2007/05/09 10:48	14,1 KB
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S5-071045.zip	2007/05/11 14:16	51,5 KB
S5-071046.zip	2007/05/09 16:35	30,1 KB
S5-071047.zip	2007/05/09 17:40	30,4 KB
S5-071048.zip	2007/05/09 17:40	30,2 KB

sort by name/desc	sort by date/desc	sort by size/desc
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S5-071050.zip	2007/05/11 14:16	227,7 KB
S5-071051 SA5_53_OAM_Report.zip	2007/05/12 15:11	167 KB
S5-071051r1 SA5_53_OAM_Report.zip	2007/05/12 15:26	172 KB
S5-071051r2 SA5_53_OAM_Report.zip	2007/05/16 15:00	194,8 KB
S5-071052 Executive Report of THIS SA5 OAM meeting to SA5 closing plenary.zip	2007/05/12 15:11	31 KB
S5-071052.zip	2007/05/11 14:16	31 KB
S5-071052r1 Executive Report of THIS SA5 OAM meeting to SA5 closing plenary.zip	2007/05/16 15:00	30,9 KB
S5-071053.zip	2007/05/11 14:16	116,8 KB
S5-071054.zip	2007/05/11 14:16	116,2 KB
S5-071055.zip	2007/05/11 14:16	37,9 KB
S5-071056 Draft 32816-020 v2.zip	2007/05/11 14:16	569,9 KB
S5-071059.zip	2007/05/11 14:16	9,4 KB
S5-071060.zip	2007/05/15 17:08	633,1 KB
S5-071061 Study of SON related OAM Interfaces for Home NodeB.zip	2007/05/11 14:16	12,4 KB
S5-071062 CR R7 Moto Solutions for subcounter naming of standardised causes without numeric value.zip	2007/05/11 14:16	27 KB
S5-Sophie Link Break Out Session Report.zip	2007/05/11 14:16	12,7 KB
Tdoc List.zip	2007/05/12 15:15	66,3 KB
TdocList_2007-05-12_17h03.zip	2007/05/12 15:11	13,7 KB
TDoc_List_Meeting_SA5#53.xlsm	2016/06/01 0:39	50,2 KB
TDoc_List_Meeting_SA5#53.xlsx	2017/10/13 11:26	55,3 KB
Update LTE KPIs Sophia 10May07.doc	2007/05/11 14:16	20,5 KB
Update LTE KPIs Sophia 10May07.zip	2014/11/07 12:58	3 KB
Use Case 3 LTE.doc	2007/05/11 14:16	21 KB
Use Case 3 LTE.zip	2014/11/07 12:58	3,2 KB
Use Case 4 LTE.doc	2007/05/11 14:16	21 KB
Use Case 4 LTE.zip	2014/11/07 12:58	3,4 KB
Use Case 5 LTE.doc	2007/05/11 14:16	20 KB
Use Case 5 LTE.zip	2014/11/07 12:58	2,7 KB
Use Case 6 LTE.doc	2007/05/11 14:16	20 KB
Use Case 6 LTE.zip	2014/11/07 12:58	2,5 KB

259 items.

How can I determine when a meeting contribution document (TDoc) became publicly available?

TDoc numbers start to be allocated some weeks before a 3GPP meeting; the authors then create them and they or the group's secretary uploads them to the public file server as soon as possible. Some may have been distributed to the group's members in draft form for review, using the email exploder, in advance of the final version becoming available, and for some groups, it is normal to distribute even the final TDoc via the exploder, from where the secretary picks it up and copies it to the public server.

Most Groups have a deadline for their meetings by which TDocs should have been uploaded. Contributions uploaded after this point are are considered to be "late" and will be addressed during the meeting only at the Chair's discretion, depending on the time available. Typically, at the start of a meeting, most TDocs for which numbers have been reserved are available. However, during the meeting, it is normal for further TDoc numbers to be reserved and uploaded. Typically, the final number of TDocs can be double the number reserved at the start of the meeting. Such TDocs are not subject to the "late" rules described above because they are generally produced as a result of discussions during the meeting itself.

TDoc numbers are allocated sequentially, from lowest to highest.

This distribution on the group's email exploder is important, because once that happens, the document is effectively in the public domain, since membership of the exploder is open to all and is (almost) unpoliced.

As noted above, during the meeting, further TDocs are created, mostly revisions of ones available before the meeting, but usually some brand new ones too – for example, outgoing liaison statements. These are uploaded to the *meeting* server, but may or may not be uploaded to the *public* server during the meeting. (Since 2014, for most meetings, meeting server contents have been mirrored to a folder on the public server, but these copies are deleted after the end of the meeting.)

Soon after the end of the meeting – at worst within a few days – the TDocs created during the meeting are uploaded by the secretary to the public server. Occasionally, some matters from the meeting cannot be resolved until maybe one week later, and these might result in some very late TDocs which are produced well after the end of the meeting, and thus uploaded onto the public server correspondingly late.

When the secretary copies from the meeting server (or from their own PC) to the public server, they may opt to only copy the missing files (i.e. the new ones), which is the best approach; or they may decide to overwrite everything and thus do a complete refresh of the files on the public server, which will now get an upload date/time-stamp of the new upload. This latter approach is now deprecated but has sometimes

happened; you can detect this most easily when a meeting shows the same date/time-stamp for all or nearly all TDoc files, and this date/time-stamp is after the end of the meeting.

In cases such as this, one has to descend to greater subterfuge to narrow down the likely “public availability” moment. The zip file for a TDoc typically contains a Word file which has its own date/time-stamp, which puts an absolute limit on the earliest moment that the TDoc could have become available in that form.

Searching the group’s email exploder archive (http://list.etsi.org/scripts/wa.exe?INDEX) on or about the suspected production date gleaned from the file date/time-stamp may well reveal the message in which the TDoc was *first* distributed, or perhaps the message by which the group’s secretary announced that it was available on the server. Note however that this technique does not reveal any earlier versions of the TDoc which might have been circulated, either as draft versions of the identified TDoc or as other Tdocs which were ultimately revised into the actual TDoc of interest. In order to identify this latter case, it is necessary to refer to the official secretary’s report of the meeting, where the train of revisions will be evident.

Some final considerations:

- Some FTP tools will retain the original timestamp of a file when copying it to (or from) a server, whilst others will use the current time for the new copy.
- The observed timestamp of a file depends on the time zone and the daylight saving time setting in force. Thus the apparent upload time of a given file may vary when viewed in summer compared to when viewed in winter.