UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

DELL INC.,
ZTE (USA) INC.,
and
ZTE CORPORATION,
Petitioners,

v.

3G LICENSING S.A.,
Patent Owner.

Case No. IPR2020-01157

U.S. Patent No. 7,274,933

**DECLARATION OF CRAIG BISHOP IN SUPPORT OF PETITION FOR
INTER PARTES REVIEW OF U.S. PATENT NO. 7,274,933**

TABLE OF CONTENTS

i

I. INTRODUCTION

I, Craig Bishop, declare as follows:

1. I have been retained as an independent expert witness on behalf of Petitioners related to *Inter Partes* Review ("IPR") of U.S. Patent No. 7,274,933 ("the '933 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. In the preparation of this Declaration I have reviewed Exhibits 1007, 1008, and 1009, each of which is a type of material that experts in my field would reasonably rely upon when forming their opinions.

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

   1) Exhibits 1007, 1008, and 1009; and

   2) My own academic background, knowledge, and professional experiences in the field of wireless communications and 3GPP standards-development, as described below.

5.   Although 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

6.   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.

7.   I earned my Bachelor of Electronic Engineering degree with Honors

from Polytechnic of Central London in 1989.   In 2005, I earned my MSC in

Computer Science with Distinction from the University of Kent.

8.   After graduating with my first degree, I worked as an operations

engineer at the British Broadcasting Corporation (BBC) for 4 years, then as a civil

servant at the UK Radiocommunications Agency until 1996, during which time I

became involved in telecommunications standardization in the European

Telecommunication Standards Institute ("ETSI"), working in particular in Technical

Committee Radio Equipment and Systems (TC RES2) concerned with the

standardization of Private Mobile Radio (PMR). From 1994 through 1996, I acted

as Rapporteur for voice and data related PMR standards ETS 300 113, ETS 300 219

and ETS 300 390. I participated as the only TC RES2 delegate on behalf of the UK

Radiocommunications   Agency,   generating   proposals   in   support   of   UK

administration and business requirements, downloading and reviewing other meeting input documents, and proposing changes as necessary to ensure input documents and the resulting specifications were in line with said requirements.

9. In 1996, I joined Samsung Electronic Research Institute as a Senior Standards Engineer where I worked for 16 years, eventually becoming Director of Standards and Industry Affairs in 2011. My work at Samsung mainly focused on the standardization of GSM/GPRS, UMTS, and LTE/EPS systems. Initially, I participated in ETSI Special Mobile Group (SMG) committees SMG1, SMG2, SMG4, SMG5, 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. I was specifically involved in the ETSI SMG2 meetings leading up to selection of WCDMA as the radio access technology for the Frequency Division Duplex mode of UMTS.

10. Beginning in 1998, I worked as a Principal Standards Engineer on the 3rd Generation Partnership Project (3GPP) on UMTS. I have been involved with 3GPP since its inception. I attended the inaugural 3GPP TSG meetings held in December 1998, and I began attending Working Group meetings in 1999. Specifically, I regularly attended Radio Access Network (RAN) WG1, Services & System Aspects (SA) WG1, Terminals (T) WG2, but also other Working Groups and Technical Specification Group (TSG) plenary meetings covering similar

3

technical aspects as in my previous work in ETSI. As examples, RAN WG1 was, and is, a Working Group responsible for the specification of the physical layer of the latest wireless cellular standards, and RAN WG2 was, and is, a Working Group responsible for signaling protocol layers 2 and 3 residing just above the physical layer. As part of this work, I would prepare meeting contributions in support of Samsung's research and development activities. Also, by way of preparation for each meeting, I would download all contributions and review those of interest to Samsung, and where necessary, prepare additional input to the meeting based on said review.

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

12.   During this period, in addition to authoring and presenting technical contributions for the 3GPP standard, and producing technical requirements for the radio modem, I acted as Rapporteur for 3GPP Technical Reports covering User

4

Equipment ("UE") capability requirements (3GPP TR 21.904) from 1999–2000, and the Evolution of the 3GPP System (3GPP TR 21.902) in 2003 (the first Study Item to consider the 3GPP system beyond UMTS towards LTE/EPS).

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

meeting discussions, expert assessment of third-party standards contributions, and provision of implementation guidance to Samsung developers.

14. From 2006 until the time I stopped attending SA WG1 meetings in 2011, I authored and presented over 100 contributions to SA WG2 and SA WG1 meetings at 3GPP and appeared as an author/co-author on 18 patent applications related to User Equipment operation in the IMS and the 3GPP Core Network.

15. In 2011, I became Director of Standards and Industry Affairs at Samsung, and in November of that year I was elected to the Board of ETSI on which I served for a term of 3 years until November 2014.

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

17. Through my extensive work on 3GPP standardization issues, I have become very familiar with 3GPP's practices relating to making final specifications, draft standards, and standards-related contributions publicly available, including in the 1999–2011 timeframe when I was attending or monitoring various 3GPP Working Groups including SA WG1.

18. For the purposes of my analysis in this Declaration, I have been informed by counsel that a person of ordinary skill in the art ("POSITA") in the field

6

of the '933 patent in approximately 2003 would have had a degree in electrical engineering or a similar discipline, with at least three years of relevant industry or research experience (or additional education). The relevant experience would include a working understanding of the then-existing wireless cellular communications standards.

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

19. Based on my years of experience working in various capacities in 3GPP and on 3GPP technical specifications 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—including the business practices through which 3GPP makes these documents public.

A. Prominence and Purpose of 3GPP

20. 3GPP was inaugurated in December 1998 to produce Technical Specifications and Technical Reports for the 3G mobile system called Universal Mobile Telecommunications System ("UMTS"). Appendix 9 at 2–3 (3GPP Partnership Project Description); Appendix 10 at 4; Appendix 15 at 15. A number of standards organizations 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 9 at 3, 5 (3GPP Partnership Project Description).

21.   3GPP is a global initiative partnership made up of organizational

partners, market representation partners, and individual members. Appendix 19 at

7 (3GPP Working Procedures, 2002); Appendix 16 at 13; Appendix 9 at 10. Today,

3GPP unites seven telecommunications standard development organizations

("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 organizations that

have the authority to define, publish, and set standards for their respective regions.

Appendix 9 at 12. 3GPP also includes "Market Representation Partners" that

represent various industry perspectives and offer market advice. Appendix 19 at 7–

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[1] The specific organizational partners that make up 3GPP have changed over time.

8 (3GPP Working Procedures, 2002, "Market Representation Partnership");

Appendix 9 at 14; Appendix 15 at 15. Additionally, 3GPP includes individual

member companies ("Individual Members") that participate in 3GPP through their

membership in a 3GPP Organizational Partner. Appendix 19 at 8 (3GPP Working

Procedures, 2002, "Individual Membership"); Appendix 15 at 15. As an example of

how prominent 3GPP was in the industry, by January 2000, there were 284

companies participating as Individual Members. Appendix 15 at 18; Appendix 16 at

14 (textbook noting there were 297 Individual members by 2006). In fact, 350

delegates attended the first 3GPP Technical Meeting in December 1998. Appendix

15 at 6.

22.   As noted in paragraph 20, a primary goal of 3GPP is to provide an

environment to produce technical specifications and technical reports that define and

standardize technologies covering cellular telecommunications networks, including

User Equipment or Mobile Device (UE) technologies, Radio Access Network

(RAN) technologies, Core Network (CN) technologies, and service and system

capabilities—including work on codecs, security, and quality of service. The

specifications also provide hooks for interworking with non-3GPP networks

including but not limited to Wi-Fi networks.

23.   Given the prominence of 3GPP in the wireless communication industry,

beginning in 1998 and continuing through today, interested POSITAs were tracking

the developments of the latest 3GPP specifications and other submissions to ensure that the standards reflected their employers' technology visions, included their technological solutions and features, and that the products and services developed by their companies were consistent with the standards being developed. In other words, it is my opinion that a POSITA in cellular communications would necessarily need to be familiar with 3GPP and 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 (and later 4G) 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 15 at 23 (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 in cellular communications 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.

24.   My personal experience at Samsung confirms 3GPP's prominence in the wireless industry. Engineers and managers at Samsung who were responsible

for developing 3G modem software (and who were not attending 3GPP meetings or involved with 3GPP in any direct way) regularly asked me to which version of a given 3GPP specification they should be developing their products. Similarly, managers at Samsung would ask me when specific 3GPP releases would be ready and what would be included in those releases. A significant part of my role at Samsung was to ensure that Samsung's development engineers were made aware of changes and proposals made in the 3GPP development process that would likely impact their work—and to discuss the implications of those changes or proposals with them. Such communication became so regular that around 2003 we began holding regular feedback sessions between those of us involved with 3GPP and the development engineers who were not involved with 3GPP work. I also maintained an internal company database that tracked changes that had been approved by 3GPP, to help the various development groups at Samsung stay informed as to changes that would impact their development work. The database contained summaries of changes introduced (and by whom), a brief assessment on the potential impact of the change, and the time and date information, including from which version the change was introduced. The database also included links to relevant 3GPP documents so that engineers could access the documents directly. In short, the technical work of 3GPP was at the forefront of development at Samsung, even for engineers who were not involved with creating or contributing to the 3GPP process.

11

B.   3GPP's Policy and Practice of Making Documents Public

25.   3GPP's policy was to make 3GPP documents available to the public, including to interested POSITAs. The free availability of 3GPP documents to any interested member of the public was widely recognized in the industry. As an example of the prominence of 3GPP and its place in the wireless standards industry, I note that textbooks directed readers to the 3GPP website for information about relevant standards. Making the documents available to the public was intended to help foster discussion and collaboration among 3GPP Working Group members, as well as among other interested POSITAs. Appendix 15 at 23 (directing readers to the 3GPP website).

26.   Because the purpose of 3GPP was worldwide adoption of a common standard, no restrictions on distribution or discussion were placed on 3GPP documents. For example, I personally recall sharing some documents with a colleague who was not involved in the 3GPP process. Specifically, when I was working on Voice Call Continuity, which was proposed to use the Intelligent Networking functionality provided by CAMEL (Customised Applications for Mobile network Enhanced Logic), I shared some 3GPP documents with a non-3GPP colleague who had some prior familiarity with CAMEL so that we could discuss the proposed solution and improve my knowledge on the topic. As another example, the internal company database I created at Samsung, discussed in paragraph 24,

included links to 3GPP documents so that others (including individuals not involved with 3GPP) could access those documents directly.

C.   3GPP Structure and Standards Development Process

27.   Within 3GPP, responsibility for producing specifications was delegated to the Technical Specification Groups ("TSGs"). Appendix 19 at 11–12 (3GPP Working Procedures, 2002, "TSG tasks"). Each TSG is further divided into a number of Working Groups ("WGs"). Appendix 9 at 31 (3GPP Partnership Project Description); Appendix 15 at 16, 25, 39. Each TSG is further divided into a number of Working Groups (WGs). Appendix 16 at 14; *see also* Appendix 19 at 22 (3GPP Working Procedures, 2002, defining "Working Group"). Two of the TSGs were (and still are in 2020) called: TSG Radio Access Networks ("RAN") and TSG Service & Systems Aspects ("SA"). 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). A fifth TSG, GSM EDGE Radio Access Networks (GERAN), was responsible for evolution of the GSM radio technology until it closed in 2016 and its work was transferred to a RAN working group responsible for legacy systems (RAN WG6).

28.   The TSGs held quarterly plenary meetings[2] where members' contributions, draft specifications/reports, and other documents that had been agreed upon by the Working Groups were presented for discussion and approval. Appendix 19 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). Once a Technical Specification was, or Change Requests creating a new version of a Technical Specification were, formally approved by TSG plenary, the latest version of said Technical Specification would be created by the Mobile Competence Centre (MCC) and uploaded to the file server. Appendix 14 at 8 (#4.15). In that way, the conclusion of 3GPP TSG plenary meetings serves as notice that new versions of specifications incorporating Change Requests approved by the TSG meeting will shortly be made available on the public 3GPP server.

29.   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 to make suggestions as to what technology and/or features should (or should not) be included. Delegates also attended 3GPP meetings

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

to keep their employers abreast of developments related to the standards that would ultimately apply to those companies and the products those companies produce. 3GPP members around the world—and the interested POSITAs employed by them—would have been motivated to stay up to date regarding 3GPP developments to ensure their products, networks, and research programs remained consistent and relevant to with the specifications being developed. In light of this need to follow the standards development process, delegates often distributed 3GPP-related documents far beyond the attendees at 3GPP meetings by distributing documents to other individuals at their respective companies. This was certainly my experience at Samsung, as I described in paragraphs 24–26.

30. Although attendance at 3GPP meetings was generally limited to 3GPP members, the public, including interested POSITAs, would have been made aware of Working Group meeting dates and times on 3GPP's website and via 3GPP Working Group email lists. Appendix 6 (SA WG1 Meetings Page). For example, POSITAs would have been aware of the meeting information pages for each TSG Working Group.

D. Types of 3GPP Documents

31. The technical specifications and 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. As relevant to

this proceeding, the 3GPP process involved the consideration of temporary documents[3] ("TDocs," also referred to as "technical contributions," or "member contributions"), resulting in the production of technical specifications.

32.   As I noted in paragraphs 20 and 22, a primary purpose of 3GPP is to prepare, approve, and maintain globally applicable Technical Specifications and Technical Reports. Appendix 19 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 19 at 22. 3GPP would (and still does) periodically freeze a complete set of standards (referred to as a "Release"[4]), and each set would include many new

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

[4] This is denominated by the major version field (*see* paragraph 37). *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,

specifications. Appendix 16 at 14. 3GPP would also publish draft specifications. These would usually be included as part of the next Release. Appendix 16 at 14.

33.   It was widely known that Technical Specifications (and Technical Reports) were publicly available on 3GPP's website. It was also well known that the latest version of a given specification that was under change control would be made available following each TSG Plenary meeting responsible for that specification, and that TSG Plenary meetings usually occur four times per year. Appendix 14 at 8 (#4.15).

34.   Technical specifications, and revisions of technical specifications, could be easily accessed from the 3GPP website. In 2002 and 2003, the specifications page could be reached from the 3GPP website's home page by clicking "Specifications." Appendix 18. The Specifications page provided a direct link to the specifications area in the 3GPP website's file repository and also a link to the Specification numbering page. Appendix 8 at 1.

35.   Additionally, the 3GPP specifications followed a clear numbering scheme to help the public, including interested POSITAs, identify the subject matter

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

17

of each specification. Appendix 13 at 1. As described on the 3GPP Specification numbering page, all 3G and GSM specifications had a specification number of 4 or 5 digits,[5] where the first two digits defined the series. Appendix 13 at 1. The Numbering Scheme webpage included a table showing the subject matter corresponding to each series. Appendix 13 at 1. For example, the "31 series" of specifications is directed to "User Identity Module (SIM / USIM)," while the "22 series" is focused on "Service aspects ('stage 1')." Appendix 13 at 1. An interested POSITA could also narrow down the relevant specifications based on whether the specification applied to only 3G or to both GSM and 3G. (GSM specifications were transferred from ETSI to 3GPP in July 2000.) For a specification in the 21–35 series, this could be determined based on the third digit of the specification number, where a "0" would indicate that the specification applied to both systems. Appendix 13 at 1.

36. The specifications were stored on the 3GPP website's file repository as zipped files, where the filenames followed the structure: SM[-P[-Q]]-V.zip. This format corresponded to the numbering scheme discussed in paragraph 35. "S"

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

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 13 at 1.

37. The Working Groups would create incremental versions of the

standards[6] (e.g., V0.6.6, 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. Appendix 17 at 1–2. The version numbering scheme for

Technical Specifications and Technical Reports was standardized by 3GPP.

Appendix 17 at 1. The major version field reflects the stage of the specification,

with "0" representing an immature draft and a value of "3" or greater representing a

specification that has been approved by the relevant TSG and thus had been moved

to change control. Appendix 17 at 1. The technical version field begins at zero and

is incremented every time a technical change is made to the specification (either as

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[6] 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.

19

part of the drafting process or as part of an approved change request). Appendix 17

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). Appendix 17 at 1.

38. The documents on which I opine in this Declaration are either "V5.3.0,"

"V5.8.0," or "V5.2.0." Consistent with the 3GPP version numbering scheme, each

specification has a major version field value of "5," which coincides with Release 5.

The second digit is the technical change number, so a "3" means it is the third

technical change for the corresponding technical specification. And the third digit,

"0" means that no non-technical changes had been made to technical specifications

since the latest versions had been approved respectively by CN plenary #18

(TS 23.122 v5.3.0), SA plenary #18 (TS 22.101 v5.8.0) and T plenary #18 (TS

31.102 v5.2.0).

39. I understand that the alleged invention in the '933 patent relates to a

method for selecting and registering with a wireless communication network, such

as in the GSM and/or UMTS context. 3GPP was the standard-setting organization

project responsible for developing standards for cellular telecommunications

systems including GSM and UMTS. Any POSITA interested in GSM and/or UMTS

would be monitoring the activities of the relevant 3GPP TSG and could be already

participating as a full or associate member or observer in this development process

or would have at least known that information regarding the proposed revisions to

the technical specifications under discussion were available through 3GPP or from

a member.

E.   Distribution over the 3GPP Listserv

40.   Another means of distributing documents to 3GPP members, interested

POSITAs, and interested members of the public was through the 3GPP e-mail

listservs (also referred to as the "e-mail exploder" or "e-mail reflector"). All TSGs

and Working Groups, including SA WG1, CN1, and T3, had listservs corresponding

to their groups. Each listserv acted as an e-mail alias that distributed e-mails and

e-mail attachments sent to that alias to every person subscribed to that listserv.

41.   In many Working Groups, including SA WG1, as well as SA Plenary,

a delegate submitting a TDoc would send the document to the meeting secretary

prior to a meeting. The meeting secretary would announce the availability of

meeting document templates via the SA WG1 email reflector, together with the

deadline for request of document numbers and submission of TDocs. The meeting

secretary would notify subscribers when the document deadline had expired, inform

them of any missing TDoc (those that had been allocated numbers but had not yet

been received), and would then upload all received TDocs to the meeting directory

on the file server. The notification of deadline expiry served as notice to subscribers

of the availability of the meeting TDocs on the 3GPP file server. The listservs were

also intended to foster discussion of proposals prior to and following meetings as a

means to determine which should be adopted and included in the technical specifications. In short, the purpose of the e-mail listservs was to disseminate ideas and information broadly, among 3GPP participants as well as non-3GPP participants, to generate discussion and ultimately to help identify the best technical proposals to include in the standard. Subscribing to a listserv was simple and was open to any member of the public—not just 3GPP members. Indeed, the second category of questions on the 3GPP Frequently Asked Questions page focuses on the e-mail listservs ("e-mail exploder lists") and provides instructions on how to subscribe. Appendix 14 at 1, 3 (an archived version of the 3GPP FAQ page also prominently featuring instructions on how to subscribe, *e.g.*, #2.1 and #2.2). As described below, anyone could subscribe to the SA WG1 e-mail listserv by sending an e-mail with the person's name and the listserv that person wanted to join— nothing more was required. Appendix 14 at 1, 3. The 3GPP website included instructions on how to join the listservs. *See, e.g.*, Appendix 14 at 1, 3. An interested individual could browse through the listservs available, find a list he or she was interested in, then follow the instructions to subscribe.

42.   It is my opinion that the 3GPP e-mail listservs were well known among persons interested in following or participating in the development of wireless cellular standards. Non-3GPP sources encouraged interested individuals to subscribe to the 3GPP listservs. Appendix 15 at 17 (textbook noting that "[g]iven

that 3GPP has participants from all over the world, the use of the Internet, e-mail

exploders [*i.e.*, listservs] and other such facilities have proved invaluable for

distributing and sharing information, working drafts and so on"). Moreover, even

in 2002 and 2003, the 3GPP website's Specification Groups page prominently

featured a link to "email lists" so that anyone who visited the website would quickly

become aware of the e-mail listservs. Appendix 7 at 1; Appendix 14 at 1, 4. Clicking

on that link would take a user to the general information, described in paragraph 41,

regarding how to subscribe.

43. There were many hundreds of subscribers (and at times over a

thousand) to the SA WG1 listserv. Appendix 12 at 2 (listing 939 subscribers to the

SA WG1 listesrv). The people that subscribed were typically engineers, such as me,

but also technology strategists, and technical managers who were interested in

following and/or participating in 3GPP standards development and/or that were

interested in keeping abreast of new ideas being submitted in TDocs. 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 review and form opinions about the ideas

in TDocs and their potential impact on the standard, the user, and the network

equipment. The e-mail listservs for SA WG1 provided an efficient way for

contributors to quickly and efficiently disseminate TDocs and provided a forum for

discussion about TDocs where desired. 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, 59 delegates attended SA WG1 Meeting #19, which occurred in January 2003 (a meeting in which I personally participated). Appendix 20 (Report of SA1 meeting #19). At that point in time, somewhere around 900 individuals were subscribed to the SA WG1 e-mail listserv. Appendix 12 at 2 (excerpt below).

> 3GPP_TSG_SA
>   3GPP_TSG_SA: TSG System Aspects group *(574 subscribers)*
> 3GPP_TSG_SA_WG1
>   3GPP_TSG_SA_WG1: TSG SA Services *(939 subscribers)*
> 3GPP_TSG_SA_WG1_DSR
>   3GPP_TSG_SA_WG1_DSR: TSG SA1 Distributed Speech Recognition *(97 subscribers)*

44. The number of listserv subscribers far exceeded the number of individuals participating in Working Group discussions throughout my experience working with 3GPP, including in 1999 and continuing through 2012 and beyond. It is my recollection and my opinion that this discrepancy in numbers between subscribers and meeting attendees demonstrated that individuals not directly involved in 3GPP meetings were also subscribed to the 3GPP listservs. This conclusion is further supported and confirmed by my experience at Samsung. For example, some of my colleagues at Samsung who were involved in technical development (and who were POSITAs), but who were not involved with 3GPP, would subscribe to the 3GPP e-mail listservs. Generally, at least one person in each development group would subscribe to the relevant listserv to monitor 3GPP

24

developments, receive 3GPP documents, and occasionally raise an issue related to the 3GPP work with me or with other standards engineers working with 3GPP.

45.   In addition to the subscribers discussed in paragraphs 40–43, it was my experience that some departments within companies would subscribe to the listservs using an e-mail alias that would then automatically distribute listserv e-mails to many individuals within that department. In other words, when the department's e-mail alias would receive an e-mail from the listserv, that e-mail would be forwarded to many others who were not otherwise included on the listserv subscription list.

46.   No confidentiality limitations or restrictions on further dissemination were placed on documents distributed via the listservs. For example, any recipient could forward a listserv e-mail to whomever he or she thought might be interested to see the contents of the e-mail, including documents attached to the e-mail. Submitters were on notice that distributing a document via the e-mail listserv resulted in public disclosure. "This distribution on the group's e-mail 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." Appendix 11 at 9 (emphasis added). This has been the practice and understanding since I became involved with 3GPP in 1998—distribution over the e-mail listserv results in unrestricted public disclosure of the document.

47.   The listservs were also used to distribute information about upcoming TSG or Working Group meetings. For example, invitations and draft agendas for each meeting were sent over the listserv. Appendix 19 at 15 (3GPP Working Procedures, "TSG and WG meeting invitation" and "TSG and WG meeting agenda"). This meant that individuals not involved in 3GPP who were subscribed to the listserv would be able to track and know the date and location of each meeting, as well as the specific subject matter to be discussed at each meeting.

48.   The listserv e-mails were (and remain) archived in a public online archive (available at http://list.etsi.org/scripts/wa.exe?INDEX). This archive has existed since the e-mail lists were created in 1998. Appendix 12 (list of all archived listservs as of 2002). Each archived e-mail contains a computer-generated date stamp indicating when the e-mail was sent and thereby when any attached document became publicly disclosed through distribution to listserv subscribers. The date stamp on the e-mail was and is an accurate and automatically computer-generated electronic record of when the e-mail was sent. As noted on the 3GPP FAQ page, "[s]earching the group's e-mail 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." Appendix 11 at 9. In my experience, listserv e-mails

26

were and still are archived immediately after they were sent. 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 Public File Repository

49.   3GPP also makes 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. 3GPP documents were accessible to any member of the public through the 3GPP website in 2002.

50.   3GPP documents were accessible to any member of the public through the 3GPP website. Any interested individual, including interested POSITAs could download documents from the 3GPP website's file repository without providing any login credentials or other exclusive access criteria.

51.   An interested POSITA could have located relevant documents of interest on the 3GPP website using reasonable diligence based on the website's indexing scheme. As explained further below, the documents on the 3GPP website were (and remain) organized according to the relevant Working Groups within 3GPP

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

52.   An interested POSITA could access the 3GPP file repository through the web address www.3gpp.org/ftp. Appendix 2. Regardless of how an individual initially accessed the public files, the indexed navigation of the files follows a clear pattern—the top two levels of indexing within the file repository are based wholly on subject matter. Appendix 2. As shown in the earliest available archived page in Appendix 2, the 3GPP file repository organized "Specs" (commonly understood as shorthand for "Technical Specifications").

53.   3GPP's public file repository provides a reliable mechanism for identifying the date a document was uploaded to the website for public viewing. 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 11 at 9 (3GPP FAQs (added emphasis)). This has always been the practice regarding uploading documents to the 3GPP 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.

IV. EXHIBIT 1007 (TS 23.122)

54. 3GPP TS 23.122 V5.2.0 (Ex. 1007) is a Technical Specification titled "3rd Generation Partnership Project (3GPP); Technical Specification Group Core Network; NAS Functions related to Mobile Station (MS) idle mode (Release 5)" ("TS 23.122") Ex. 1007, at 1. This Technical Specification indicates that it was produced by 3GPP in December 2002. To obtain this document, I directed a web browser to the URL: https://www.3gpp.org/ftp/Specs/archive/23_series/23.122/. Appendix 3 at 1. I selected the link for "23122-520.zip" and downloaded a zip file of the same name. Appendix 3 at 1. The zip file contained a Microsoft Word document titled "23122-520.doc." A true and correct copy of the Word document within the zip file "23122-520.zip," printed to PDF form, is provided as Ex. 1007.

55. TS 23.122 was available for download from 3GPP's public file repository on the 3GPP website as of December 18, 2002, as evidenced by the upload date corresponding to that file:

23122-390.zip	2002/12/18 13:29	168,3 KB
23122-430.zip	2002/12/18 13:30	182,6 KB
23122-520.zip	2002/12/18 13:32	183,2 KB

Appendix 3 at 1 (annotated).

56. As I explained above, technical specifications could be readily obtained through the 3GPP website. Interested POSITAs would have been well aware of

29

3GPP and of the 3GPP website, and they would have known that 3GPP documents were available to the public. As explained in paragraph 52 above, the specifications area of the 3GPP file repository could be accessed from the 3GPP website's home page (which, in turn, was directly accessible from the 3GPP Home Page through the "3G Specifications" link). Additionally, the 3G Specifications page provided a direct link to each technical specification Release. As described in paragraphs 51–52, an interested POSITA could then narrow the relevant specifications of interested based on the subject matter covered by each Working Group, as well as the specification numbering scheme.

57.   With that knowledge, to download TS 23.122, an interested POSITA could have navigated to the specifications area of the file repository via the direct link on the specifications page. Appendix 8 at 1. As described in paragraph 52, 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.

58.   As I described in paragraphs 55–55, the upload time stamp indicates that 23122.520.zip was uploaded to 3GPP's publicly available website on December 18, 2002, 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 December 18, 2002, and anytime thereafter. As I

30

described in paragraph 53, 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 particular time stamp is inaccurate. I have determined that TS 23.122 (Ex. 1007) was available for any member of the public to download from the 3GPP website no later than December 18, 2002. Further, as described in paragraphs 26 and 46, 3GPP documents were freely available and were not burdened by any confidentiality requirements or restrictions on further dissemination.

59.   It is my opinion, therefore, that by December 18, 2002, an interested POSITA using reasonable diligence could have located TS 23.122 on the 3GPP website, downloaded the reference without providing any credentials, and disseminated the reference to others without restriction.

V.   EXHIBIT 1008 (TS 22.101)

60.   3GPP TS 22.101 V5.8.0 (Ex. 1008) is a Technical Specification titled "3rd Generation Partnership Project (3GPP); Technical Specification Group Services and System Aspects; System aspects; Service principles (Release 5)" ("TS 22.101") Ex. 1008, at 1. This Technical Specification indicates that it was produced by 3GPP in December 2002. To obtain this document, I directed a web browser to the URL: https://www.3gpp.org/ftp/Specs/archive/22_series/22.101/. Appendix 4 at 2. I selected the link for "22101-580.zip" and downloaded a zip file of the same

name. Appendix 4 at 2. The zip file contained a Microsoft Word document titled

"22101-580.doc." A true and correct copy of the Word document within the zip file

"22101-580.zip," printed to PDF form, is provided as Ex. 1008.

61.   TS 22.101 was available for download from 3GPP's public file

repository on the 3GPP website as of December 17, 2002, as evidenced by the upload

date corresponding to that file:

	22101-570.zip	2002/09/17 14:10	106,3 KB
	22101-580.zip	2002/12/17 15:29	112 KB
	22101-620.zip	2002/12/17 15:29	115,2 KB

Appendix 4 at 2 (annotated).

62.   As I explained above, technical specifications could be readily obtained

through the 3GPP website. 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. As explained in paragraph 52 above, the specifications

area of the 3GPP file repository could be accessed from the 3GPP website's home

page (which, in turn, was directly accessible from the 3GPP Home Page through the

"3G Specifications" link). Additionally, the 3G Specifications page provided a

direct link to each technical specification Release. As described in paragraphs 51–

52, an interested POSITA could then narrow the relevant specifications of interested

in Support of Petition for *Inter Partes* Review of
U.S. Patent No. 7,274,933

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

63.   With that knowledge, to download TS 22.101, an interested POSITA could have navigated to the specifications area of the file repository via the direct link on the specifications page. Appendix 8 at 1. As described in paragraph 52, 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.

64.   As I described in paragraphs 60–61, the upload time stamp indicates that 22101.580.zip was uploaded to 3GPP's publicly available website on December 17, 2002, 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 December 17, 2002, and anytime thereafter. As I described in paragraph 53, 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 particular time stamp is inaccurate. I have determined that TS 22.101 (Ex. 1008) was available for any member of the public to download from the 3GPP website no later than December 17, 2002. Further, as described in paragraphs 26 and 46, 3GPP documents were

Page 35 of 335

freely available and were not burdened by any confidentiality requirements or restrictions on further dissemination.

65.   It is my opinion, therefore, that by December 17, 2002, an interested POSITA using reasonable diligence could have located TS 22.101 on the 3GPP website, downloaded the reference without providing any credentials, and disseminated the reference to others without restriction.

VI.   EXHIBIT 1009 (TS 31.102)

66.   3GPP TS 31.102 V5.3.0 (Ex. 1009) is a Technical Specification titled "3rd Generation Partnership Project (3GPP); Technical Specification Group Terminals; Characteristics of the USIM Application (Release 5)" ("TS 31.102") Ex. 1009, at 1. This Technical Specification indicates that it was produced by 3GPP in January 2003. To obtain this document, I directed a web browser to the URL: https://www.3gpp.org/ftp/Specs/archive/31_series/31.102/. Appendix 5 at 1. I selected the link for "31102-530.zip" and downloaded a zip file of the same name. Appendix 5 at 1. The zip file contained a Microsoft Word document titled "31102-530.doc." A true and correct copy of the Word document within the zip file "31102-530.zip," printed to PDF form, is provided as Ex. 1009.

67.   TS 31.102 was available for download from 3GPP's public file repository on the 3GPP website as of January 2, 2003, as evidenced by the upload date corresponding to that file:

📄 31102-470.zip	2003/01/02 13:43	418,3 KB
📄 31102-530.zip	2003/01/02 13:43	417,6 KB
📄 31102-600.zip	2003/01/02 13:44	414 KB

Appendix 5 at 1 (annotated).

68. As I explained above, technical specifications could be readily obtained through the 3GPP website. 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. As explained in paragraph 52 above, the specifications area of the 3GPP file repository could be accessed from the 3GPP website's home page (which, in turn, was directly accessible from the 3GPP Home Page through the "3G Specifications" link). Additionally, the 3G Specifications page provided a direct link to each technical specification Release. As described in paragraphs 51–52, an interested POSITA could then narrow the relevant specifications of interested based on the subject matter covered by each Working Group, as well as the specification numbering scheme.

69. With that knowledge, to download TS 31.102, an interested POSITA could have navigated to the specifications area of the file repository via the direct link on the specifications page. Appendix 8 at 1. As described in paragraph 52, that navigation structure was simple, as it was based on the filename structure. Thus, an

35

interested POSITA would have been capable of navigating to relevant 3GPP specifications on the 3GPP website using reasonable diligence.

70.   As I described in paragraphs 66–67, the upload time stamp indicates that 31102.530.zip was uploaded to 3GPP's publicly available website on January 2, 2003, 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 January 2, 2003, and anytime thereafter. As I described in paragraph 53, 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 particular time stamp is inaccurate. I have determined that TS 31.102 (Ex. 1009) was available for any member of the public to download from the 3GPP website no later than January 2, 2003. Further, as described in paragraphs 26 and 46, 3GPP documents were freely available and were not burdened by any confidentiality requirements or restrictions on further dissemination.

71.   It is my opinion, therefore, that by January 2, 2003, an interested POSITA using reasonable diligence could have located TS 31.102 on the 3GPP website, downloaded the reference without providing any credentials, and disseminated the reference to others without restriction.

36

VII.   CONCLUSION

72.   In sum, the upload date of December 18, 2002, supports my opinion that TS 23.122 (Ex. 1007), titled "3rd Generation Partnership Project (3GPP); Technical Specification Group Core Network; NAS Functions related to Mobile Station (MS) idle mode (Release 5)" was publicly available on December 18, 2002. Additionally, the upload date on the 3GPP file repository supports my opinion that an interested POSITA exercising reasonable diligence could have located and downloaded this reference from the 3GPP website by no later than December 18, 2002.

73.   In addition, the upload date of December 17, 2002, supports my opinion that TS 22.101 (Ex. 1008), titled "3rd Generation Partnership Project (3GPP); Technical Specification Group Services and System Aspects; System aspects; Service principles (Release 5)" was publicly available on December 17, 2002. Additionally, the upload date on the 3GPP file repository supports my opinion that an interested POSITA exercising reasonable diligence could have located and downloaded this reference from the 3GPP website by no later than December 17, 2002.

74.   Finally, the upload date of January 2, 2003, supports my opinion that TS 31.102 (Ex. 1009), titled "3rd Generation Partnership Project (3GPP); Technical Specification Group Terminals; Characteristics of the USIM Application (Release

37

5)" was publicly available on January 2, 2003. Additionally, the upload date on the 3GPP file repository supports my opinion that an interested POSITA exercising reasonable diligence could have located and downloaded this reference from the 3GPP website by no later than January 2, 2003.

VIII. DECLARATION

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.

Executed on June 22 , 2020.

By: _____

Craig Bishop

Appendix 1

Curriculum Vitae – March 2020

Name: Craig Bishop

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

Email: craig@bishopcom.co.uk

Current job title: Independent Consulting Engineer, CEO

Address: 32 Nightingale Road, Faversham, Kent, ME13 8RF

Key Skills and Experience

- 30 years Telecoms, Radio and Broadcast experience
- 24 years experience in 2G/3G/4G telecoms standardisation and mobile handset development
- Extensive knowledge of 3GPP and ETSI specifications and procedures including ETSI role from regulatory perspective (harmonised standards, mandates, spectrum, etc)
- Sound understanding of 3GPP systems, including Radio Access Interfaces and Networks, Access Stratum protocols, Core Networks, Non-Access Stratum protocols, and IMS
- Declaration and deposition as expert witness 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.   13/01 –

Independent Telecommuncations Standards and Intellectual Property Consultant

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 via declaration and deposition.

- 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 7 years include: Alston & Bird LLP, DLA Piper LLP, European Telecommunications Standards Institute (ETSI), Fish & Richardson P.C., Haynes and Boone LLP, Hillebrand-CE GmbH (work for third party clients as Consulting Engineer for Hillebrand-CE), Kilpatrick Townsend & Stockton, Morgan, Lewis & Bokius LLP, MckoolSmith LLP, Paul Hastings LLP, Powell

Gilber LLP, Sidley Austin LLP, Samsung Electronics Research & Development Institute UK (SRUK), 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.*, IPR Nos. IPR2017-00696 and IPR2017-00697 (PTAB). On behalf of T-Mobile US Inc.

- *LG Electronics, Inc., v. Koninklijke KPN N.V.*, IPR Nos. Case IPR2018-00558 (PTAB). On behalf of LG Electronics, Inc.

Expert testimony in court:

- *Between IPCom GmbH and Vodafone, e 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.

A list of reports and declarations submitted but not deposed for can be provided on request.

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

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

Mission and Tasks as for previous role plus:

- Proactive member of ETSI Board following election as Board member in November 2011

- Worked with Samsung internal and external legal counsel in response to EC investigation into Samsung suspected abuse of Standards Essential Patents.

- Deposed by Apple as fact witness in ITC investigation 337-TA-794.

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

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

Key tasks:

- Developed standards and research strategy and coordinated activites with head office, acting as official Samsung contact for the European Telecommunications Standars Institute.

- Programme managed standardisation and regulation projects covering 3GPP (RAN2, CT1, SA2, SA1, SA, RAN, CT), OMA, and mobile Broadcast strategies and technologies (DVB Forum), European Framework projects (FP7), Spectrum Management (CEPT, ETSI EM, TFES, BRAN, …) and European Regulatory affairs (Digital Europe, relations with European Commission, …). - Grew department from 3 to 12 persons to cater for these activities.

- Participated and actively contributed to 3GPP SA1 (11/08 – 11/11), SA2 (10/05 – 08/11) , SA and ETSI TC SCP groups on issues including IMS / CS Interworking (VCC / SRVCC, VoLTE, T-ADS, ICS), Local IP Access & Selected IP Traffic Offload (LIPA-SIPTO), MOSAP, M2M/MTC, Embedded / 4FF UICC.

- Drafted and filed communication technology related patents related to 3GPP SA2 and CT1 technologies – 18 filed, mainly IMS and 3GPP NAS related

- Supported Samsung IP team with analysis of Samsung and 3rd party communication technology related patents and claim charts including GSM/GPRS, UTRAN, NAS, and IMS patents

- Chaired SERI Patent Committee from 2007-2009 - SERI achieved patent targets for first time in 2007 and did so in every year following

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

(Whilst studying fulltime for MSC)

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

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

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

Key Tasks:

- Defined and implemented System Engineering group strategy including recruitment and line management of the group which grew from 3 to 10 engineers during this period.

- Developed detailed system requirements for SERI's dual mode 2G/3G radio modem platform(s) including production of background documentation describing system wide behaviour

- Defined system test programme for platform, including example test cases using off the shelf test equipment. This project outsourced (under my supervision) to a third party company for completion.

- Provided continued support to development engineers in terms of understanding specification and system requirements, particularly with respect to Access Stratum and Non Access Stratum specifications and protocols.

- Instigated and managed studies investigating optimised system architecture for future Samsung mobile platforms.

- Analysed Samsung and 3rd party 3GPP technology related patents and claim charts on request by Samsung IP team and reported on their value and standards essentiality.

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

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

Key Tasks:

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

- Attended 3GPP TSG SA plenary and occasional SA WG1 meetings - acted as rapporteur for 3GPP Evolution technical report 3GPP TR 21.902.

- Analysed 3rd party GSM/GPRS technology related patents and claim charts on request by Samsung IP team and reported on their value and standards essentiality.

- Line managed 3 engineers, ensuring that the group provided expert support for SERI SW and HW developers in terms of standards interpretation and system requirements, particularly with respect to the Radio Access Network.

Project Manager   04/00 – 04/02

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

Key tasks:

- Defined and managed work relating to core technology development for Samsung's 3G handsets.

- Determined major technical architecture and parameters for the platform producing high level system requirements specification and project development plan.

- As a technical authority on UMTS, supported the project in terms of requirements specification and interpretation (L1, MAC/RLC, RRC, and NAS specifications), and contributed towards the training of UMTS project team members.

- Acting in a consultative capacity, interfaced with other departments in Samsung and with external customers/suppliers on issues relating to 2G and 3G technologies

- Responsible for the overall planning, work allocation and co-ordination of engineers for the project, as well as being involved in recruitment – during this period the number of engineers working on the project increased from 10 to over 40.

- Instigated, defined and managed a feasibility study involving HW and SW engineers, as essential preparation for the development of a dual mode GSM/UMTS radio modem platform.

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

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

Key Tasks:

- Gathered and disseminated information throughout Samsung concerning latest specifications and trends in telecommunications, providing advice to Senior Management on future strategies for telecommunications development.

- Acted as sole Samsung representative in ETSI TC SMG2 from December 1996 and during the selection phase for the UMTS Radio Acces Technology providing training for Samsung engineers on elaborated technologies

- Participated in 3GPP TSG RAN WG1 (UTRA Physical Layer), and RAN WG2 (L2/3) contributing specifically in areas related to FEC, Common Packet Channel, and Transmit Diversity

- In 3GPP TSG T WG2 I initiated and acted as rapporteur for the UE capabilities work item. I also acted as liaison officer between TSG T WG2, TSG RAN WG1 and TSG SA WG1 (Service Aspects) on issues of common interest

- Acted as main spokesperson for and advisor on Samsung strategic activities in, 3GPP TSG RAN from 3GPP's creation until April 2000

- Acted in a consultative capacity advising the company on technical, commercial and regulatory issues relating to 3rd generation telecommunications development and implementation.

- Developed and promoted programme to co-ordinate standards activities throughout Samsung. – Samsung Global Standards Strategy Group established in September 1998.

- Attended ETSI TCs, SMG1, SMG4, SMG5, SMG7, SMG9 and SMG11 as required by Samsung to keep abreast of developments prior to establishment of 3GPP

Radiocommunications Agency   06/93 -11/96

HPTO Spectrum Engineer

- Responsible for the management of spectrum for use by PMR and Wireless LAN technologies.

- Defined and instigated development of an improved assignment methodology for Private Mobile Radio (PMR) channels, promoting increased quality and spectrum efficiency.

- Managed research projects involving the assessment and selection of bids from external companies, submitted under competitive tender.

- Represented the Agency in the National and International fora associated with the use of Land Mobile Radio, acting as rapporteur for PMR voice and data standards in ETSI Sub-Technical-Committee RES02, and as chairman of a sub-working group under ITU WP8A drafting the recommendation for use of the radio spectrum by Radio LANs.

- Involved in CEPT Spectrum Engineering Project Teams, dealing with spectrum for Narrow band PMR technology and co-ordination between that technology and T-DAB transmissions in Band III.

-   Dispensed technical advice both within the Agency and to external customers, on national and international PMR standards, assessing requests for additional frequencies, and providing technical justification for assignments and wider spectrum policy

BBC Radio   11/89 – 05/93

Radio Operations Engineer

-   Worked on projects requiring the design, development, maintenance and testing of equipment for use within the broadcasting chain.

-   Responsible for acceptance testing of new studios for Radio 5, and in particular redesign of outside source circuits for the main sports continuity studio.

-   Involved in acceptance testing for NICAM transmission routers. Designed and implemented modifications to synchronise transmission feeds, resulting in seamless switching between routers.

Education

1. MSC in Computer Science from the University of Kent

    Awarded (with distinction): 07/2006

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

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

    Awarded: 07/1989

3. In house and external technical and management training including: Learning Tree courses on System Analysis and Design, User Requirements, UML, and Project Management.

4. On-line courses from: Cousera, Udemy, and Zenva courses covering Machine Learning, Python, Data Science, and Natural Language Processing

Appendix 2

www.3gpp.org / ftp

3gpp.org/ftp

	sort by name/desc	sort by date/desc	sort by size/desc
📁	3guInternal	2019/02/21 10:39	
📁	Email_Discussions	2020/03/25 16:17	
📁	erm	2020/03/31 13:51	
📁	Inbox	2020/02/04 15:32	
📁	Information	2019/04/03 8:03	
📁	Invitation	2012/09/26 16:03	
📁	Joint_Meetings	2016/11/08 14:18	
📁	Meetings_3GPP_SYNC	2017/11/28 5:07	
📁	MembersOnly	2018/07/31 12:56	
📁	Op	2020/05/04 8:40	
📁	PCG	2020/05/04 8:40	
📁	Specs	2020/03/18 16:03	
📁	TdocListDefault	2020/05/31 18:29	
📁	tsg_cn	2008/11/04 18:53	
📁	tsg_ct	2018/10/23 16:11	
📁	tsg_geran	2016/02/10 14:55	

sort by name/desc	sort by date/desc	sort by size/desc
📁 tsg_ran	2018/01/23 13:34	
📁 tsg_sa	2020/02/07 15:35	
📁 tsg_t	2008/11/04 21:08	
📁 webExtensions	2018/12/17 9:28	
📁 workshop	2020/05/26 13:53	

21 items.

Appendix 3

sort by name/desc	sort by date/desc	sort by size/desc
23122-310.zip	1999/12/30 8:48	111,2 KB
23122-300.zip	2000/01/25 15:52	107,3 KB
23122-320.zip	2000/03/31 7:28	108,3 KB
23122-311.zip	2000/05/11 9:15	130,2 KB
23122-330.zip	2000/07/10 15:24	113,5 KB
23122-340.zip	2000/10/06 14:13	113,9 KB
23122-341.zip	2000/10/24 10:34	114,3 KB
23122-342.zip	2000/11/02 9:23	113,4 KB
23122-350.zip	2001/01/02 10:18	130,7 KB
23122-360.zip	2001/04/11 14:57	152,8 KB
23122-400.zip	2001/04/11 14:57	152,7 KB
23122-370.zip	2001/07/04 14:35	160,5 KB
23122-410.zip	2001/07/04 14:36	174,2 KB
23122-500.zip	2002/06/24 8:39	174,3 KB
23122-510.zip	2002/09/14 13:51	175,5 KB
23122-380.zip	2002/09/14 14:37	161 KB
23122-420.zip	2002/09/17 13:27	174,4 KB
23122-390.zip	2002/12/18 13:29	168,3 KB
23122-430.zip	2002/12/18 13:30	182,6 KB
23122-520.zip	2002/12/18 13:32	183,2 KB
23122-3a0.zip	2003/10/09 17:45	170 KB
23122-440.zip	2003/10/09 17:45	183,3 KB
23122-530.zip	2003/10/09 17:45	184 KB
23122-600.zip	2004/03/14 20:26	184,5 KB
23122-610.zip	2004/06/12 16:39	185,4 KB
23122-620.zip	2004/09/20 13:31	181,5 KB
23122-700.zip	2005/01/07 13:52	183,6 KB
23122-630.zip	2005/01/07 14:54	182,8 KB

Name	Date	Size
23122-640.zip	2005/04/01 13:39	182,9 KB
23122-710.zip	2005/04/01 13:39	184,2 KB
23122-650.zip	2005/06/15 13:27	183,7 KB
23122-720.zip	2005/06/15 13:47	184,8 KB
23122-730.zip	2005/09/30 11:46	186,6 KB
23122-740.zip	2006/03/20 14:14	187,2 KB
23122-750.zip	2006/06/05 11:07	187,9 KB
23122-741.zip	2006/08/10 15:04	187,7 KB
23122-760.zip	2006/10/05 10:02	188,6 KB
23122-770.zip	2006/12/13 20:54	184 KB
23122-780.zip	2007/03/16 15:56	184,5 KB
23122-790.zip	2007/06/20 9:53	188,6 KB
23122-7a0.zip	2007/09/19 14:57	185,6 KB
23122-7b0.zip	2007/12/17 10:38	189,6 KB
23122-800.zip	2007/12/17 10:41	185,6 KB
23122-7c0.zip	2008/03/05 15:11	185,5 KB
23122-810.zip	2008/03/05 15:20	185,7 KB
23122-7c1.zip	2008/04/02 15:02	185,7 KB
23122-820.zip	2008/06/03 13:18	186,6 KB
23122-830.zip	2008/09/24 8:48	187,9 KB
23122-840.zip	2008/12/17 15:46	414,2 KB
23122-850.zip	2009/03/19 9:12	427,7 KB
23122-860.zip	2009/06/08 7:31	428,2 KB
23122-870.zip	2009/09/27 11:21	427,3 KB
23122-900.zip	2009/09/27 11:23	427 KB
23122-910.zip	2009/12/15 15:18	340,1 KB
23122-880.zip	2009/12/15 15:18	340,4 KB
23122-890.zip	2010/03/31 11:44	341,9 KB
23122-920.zip	2010/03/31 11:44	433,5 KB
23122-a00.zip	2010/06/14 10:15	432,1 KB
23122-8a0.zip	2010/06/14 10:16	342,3 KB
23122-930.zip	2010/06/14 10:16	431,6 KB

	Name	Date	Size
	23122-8b0.zip	2010/09/27 14:54	342,5 KB
	23122-a10.zip	2010/09/27 14:55	435,2 KB
	23122-940.zip	2010/09/27 14:56	432,3 KB
	23122-950.zip	2010/12/17 9:18	435,7 KB
	23122-a20.zip	2010/12/17 9:18	441,5 KB
	23122-a30.zip	2011/04/01 14:27	412,8 KB
	23122-8c0.zip	2011/06/15 8:35	345,5 KB
	23122-960.zip	2011/06/15 8:35	438,9 KB
	23122-a40.zip	2011/06/15 9:25	413,6 KB
	23122-a50.zip	2011/09/27 12:20	404,5 KB
	23122-b00.zip	2011/09/27 12:20	410,3 KB
	23122-b10.zip	2011/12/20 8:40	405,5 KB
	23122-b20.zip	2012/06/25 8:27	389,8 KB
	23122-b30.zip	2012/09/17 13:43	391,9 KB
	23122-b40.zip	2012/12/19 8:47	393,2 KB
	23122-c00.zip	2013/03/11 9:12	388,2 KB
	23122-c10.zip	2013/06/24 7:03	395,2 KB
	23122-c20.zip	2013/09/16 7:10	391,6 KB
	23122-c30.zip	2013/12/19 8:37	494,2 KB
	23122-c40.zip	2014/03/13 10:12	501 KB
	23122-c50.zip	2014/06/26 11:37	478,7 KB
	23122-d00.zip	2014/12/17 14:50	478,3 KB
	23122-c60.zip	2015/03/19 14:29	478,6 KB
	23122-d10.zip	2015/03/19 14:30	478,7 KB
	23122-c70.zip	2015/06/25 11:16	481,2 KB
	23122-d20.zip	2015/06/25 11:17	482,3 KB
	23122-c80.zip	2015/09/23 13:53	481,1 KB
	23122-d30.zip	2015/09/23 13:55	483,4 KB
	23122-d40.zip	2016/03/18 14:24	391,6 KB
	23122-c90.zip	2016/06/24 12:13	482,3 KB
	23122-d50.zip	2016/06/24 12:14	393,3 KB
	23122-d60.zip	2016/09/30 11:47	394,8 KB

Name	Date	Size
23122-e00.zip	2016/09/30 11:47	395,6 KB
23122-e10.zip	2016/12/16 8:35	397,8 KB
23122-e20.zip	2017/03/17 10:33	399,3 KB
23122-e30.zip	2017/06/15 14:08	399,9 KB
23122-f00.zip	2017/06/15 14:09	394,3 KB
23122-e40.zip	2017/09/22 9:05	403,8 KB
23122-f10.zip	2017/09/22 9:05	399,9 KB
23122-f20.zip	2017/12/28 12:14	396,7 KB
23122-f30.zip	2018/03/28 12:37	447,2 KB
23122-e50.zip	2018/06/20 15:02	400,3 KB
23122-f40.zip	2018/06/20 15:02	441,9 KB
23122-f50.zip	2018/09/19 12:14	493,3 KB
23122-f60.zip	2018/12/20 10:20	424,8 KB
23122-g00.zip	2018/12/20 10:21	425 KB
23122-f70.zip	2019/03/26 16:49	427,3 KB
23122-g10.zip	2019/03/26 16:50	429,3 KB
23122-g20.zip	2019/06/14 6:49	440,3 KB
23122-g30.zip	2019/09/24 8:39	469,2 KB
23122-g40.zip	2019/12/19 9:20	511,3 KB
23122-g50.zip	2020/03/27 13:08	518,6 KB

112 items.

Appendix 4

sort by name/desc	sort by date/desc	sort by size/desc
22101-350.zip	1999/05/06 13:43	57 KB
22101-360.zip	1999/08/16 12:13	92,2 KB
22101-370.zip	1999/10/29 5:58	56 KB
22101-380.zip	2000/01/14 18:55	75,7 KB
22101-390.zip	2000/03/29 7:03	76,7 KB
22101-3a0.zip	2000/07/04 7:53	74,8 KB
22101-3b0.zip	2000/10/17 14:34	79,9 KB
22101-3c0.zip	2001/01/08 14:47	77,4 KB
22101-3d0.zip	2001/06/27 12:22	80,3 KB
22101-3e0.zip	2003/06/18 13:33	88,6 KB
22101-3f0.zip	2003/09/30 13:08	88,4 KB
22101-3g0.zip	2004/01/06 9:50	88,9 KB
22101-3h0.zip	2004/03/23 12:53	89,3 KB
22101-400.zip	2000/07/04 7:53	76,4 KB
22101-410.zip	2000/10/17 14:38	81,4 KB
22101-420.zip	2001/01/08 14:47	79,2 KB
22101-430.zip	2001/04/02 12:49	88,3 KB
22101-440.zip	2001/06/27 8:44	89,6 KB
22101-441.zip	2001/07/31 9:00	89,1 KB
22101-450.zip	2001/10/22 13:41	90,2 KB
22101-460.zip	2002/03/25 10:15	81 KB
22101-470.zip	2003/06/18 13:33	87,7 KB
22101-480.zip	2003/09/30 13:08	87,9 KB
22101-490.zip	2004/01/06 9:50	88,3 KB
22101-4a0.zip	2004/03/23 12:53	88,8 KB
22101-500.zip	2000/10/17 14:41	108,9 KB
22101-510.zip	2001/01/08 14:47	108,9 KB
22101-520.zip	2001/04/02 13:02	111,4 KB

22101-530.zip	2001/06/27 8:44	113,7 KB
22101-540.zip	2001/10/05 13:59	114,5 KB
22101-550.zip	2002/03/25 10:15	106,5 KB
22101-560.zip	2002/07/04 9:00	105,8 KB
22101-570.zip	2002/09/17 14:10	106,3 KB
22101-580.zip	2002/12/17 15:29	112 KB
22101-590.zip	2003/03/25 10:25	113,1 KB
22101-5a0.zip	2003/06/18 13:33	114,4 KB
22101-5b0.zip	2003/09/30 13:08	115,8 KB
22101-5c0.zip	2004/01/06 9:50	107,4 KB
22101-5d0.zip	2004/03/23 12:53	107,7 KB
22101-5e0.zip	2007/06/12 10:13	112,6 KB
22101-600.zip	2002/07/04 9:00	106,3 KB
22101-610.zip	2002/09/17 14:10	106,8 KB
22101-620.zip	2002/12/17 15:29	115,2 KB
22101-630.zip	2003/03/25 10:25	117,7 KB
22101-640.zip	2003/06/18 13:33	118,6 KB
22101-650.zip	2003/09/30 13:08	120,7 KB
22101-660.zip	2004/01/06 9:50	113,2 KB
22101-670.zip	2004/03/23 12:53	110,1 KB
22101-680.zip	2004/06/09 10:34	117 KB
22101-690.zip	2005/03/24 16:59	118,1 KB
22101-6a0.zip	2005/06/24 9:41	119,6 KB
22101-6b0.zip	2005/12/12 9:59	118,1 KB
22101-6c0.zip	2007/06/12 10:14	120,8 KB
22101-700.zip	2004/06/14 10:06	117,5 KB
22101-710.zip	2005/03/24 16:59	119,5 KB
22101-720.zip	2005/06/24 9:44	119,5 KB
22101-730.zip	2005/10/05 8:10	130,2 KB
22101-740.zip	2005/12/12 10:00	126,5 KB
22101-750.zip	2006/03/22 14:44	128,4 KB
22101-760.zip	2006/06/20 11:11	133,9 KB

Name	Date	Size
22101-770.zip	2006/10/03 13:31	128,1 KB
22101-780.zip	2006/12/12 14:50	131,7 KB
22101-790.zip	2007/06/12 15:41	124,8 KB
22101-7a0.zip	2007/12/19 15:55	130,8 KB
22101-7b0.zip	2008/09/23 15:08	131,9 KB
22101-7c0.zip	2009/03/17 15:33	132,2 KB
22101-800.zip	2006/03/22 14:48	143,4 KB
22101-810.zip	2006/06/20 11:11	152,4 KB
22101-820.zip	2006/10/03 13:31	146,6 KB
22101-830.zip	2006/12/12 14:50	152,1 KB
22101-840.zip	2007/03/23 13:16	145,5 KB
22101-850.zip	2007/06/12 15:41	146,8 KB
22101-860.zip	2007/10/02 15:35	154,9 KB
22101-870.zip	2007/12/19 15:55	158 KB
22101-880.zip	2008/03/25 15:46	166,4 KB
22101-890.zip	2008/06/10 14:31	160,5 KB
22101-8a0.zip	2008/12/18 0:15	166,8 KB
22101-8b0.zip	2009/03/17 15:33	173 KB
22101-8c0.zip	2009/06/10 7:25	174,3 KB
22101-8d0.zip	2009/10/01 13:17	175,1 KB
22101-8e0.zip	2009/12/31 8:58	169,9 KB
22101-8f0.zip	2012/09/19 15:13	173 KB
22101-900.zip	2008/06/10 14:31	171,2 KB
22101-910.zip	2008/09/23 15:08	172,2 KB
22101-920.zip	2008/12/18 0:15	174,9 KB
22101-930.zip	2009/03/17 15:33	181,5 KB
22101-940.zip	2009/06/10 7:25	183 KB
22101-950.zip	2009/10/01 13:17	178,4 KB
22101-960.zip	2009/12/18 22:58	185,7 KB
22101-970.zip	2010/03/31 16:02	182,9 KB
22101-980.zip	2010/10/01 17:54	182,2 KB
22101-990.zip	2011/06/20 11:38	171,1 KB

Name	Date	Size
22101-9a0.zip	2012/06/29 14:23	171,5 KB
22101-9b0.zip	2012/09/18 16:05	178,8 KB
22101-9c0.zip	2013/07/02 14:59	152,7 KB
22101-9d0.zip	2014/12/19 5:22	153,3 KB
22101-a00.zip	2009/10/01 13:17	185,5 KB
22101-a10.zip	2009/12/18 22:58	186,9 KB
22101-a20.zip	2010/03/31 16:05	188,1 KB
22101-a30.zip	2010/06/16 13:49	182,7 KB
22101-a40.zip	2010/10/01 17:24	183 KB
22101-a50.zip	2010/12/23 15:28	184 KB
22101-a51.zip	2011/02/11 10:07	559 KB
22101-a60.zip	2011/06/20 11:38	563 KB
22101-a70.zip	2011/09/30 14:32	562 KB
22101-a80.zip	2012/06/29 14:23	556,4 KB
22101-a90.zip	2012/09/18 16:05	556,2 KB
22101-aa0.zip	2012/12/14 15:30	556,6 KB
22101-ab0.zip	2013/06/28 14:55	565,3 KB
22101-ac0.zip	2014/12/19 5:22	536,2 KB
22101-b00.zip	2010/10/01 17:24	183,3 KB
22101-b10.zip	2011/04/01 15:31	561,6 KB
22101-b20.zip	2011/06/20 11:38	566,1 KB
22101-b21.zip	2011/07/19 13:41	565,7 KB
22101-b30.zip	2011/09/30 14:32	569,8 KB
22101-b40.zip	2011/12/21 16:38	575,5 KB
22101-b50.zip	2012/03/15 17:07	568,9 KB
22101-b60.zip	2012/06/29 14:23	568,6 KB
22101-b70.zip	2012/09/18 16:05	568,6 KB
22101-b80.zip	2012/12/14 15:30	568,4 KB
22101-b90.zip	2013/06/28 14:55	567,7 KB
22101-ba0.zip	2014/12/19 5:23	545,9 KB
22101-c00.zip	2012/03/15 16:04	573,6 KB
22101-c10.zip	2012/06/29 14:23	567,3 KB

Name	Date	Size
22101-c20.zip	2012/09/18 16:05	579,6 KB
22101-c30.zip	2012/12/14 15:30	574 KB
22101-c40.zip	2013/03/15 15:45	584 KB
22101-c50.zip	2014/09/26 14:52	549,9 KB
22101-c60.zip	2014/12/19 5:23	550,2 KB
22101-d00.zip	2013/09/20 13:06	554,3 KB
22101-d10.zip	2013/12/20 10:25	558,5 KB
22101-d20.zip	2014/03/17 19:46	557,6 KB
22101-d30.zip	2014/09/26 14:52	568 KB
22101-d40.zip	2014/12/19 5:23	569,7 KB
22101-d50.zip	2015/03/20 10:17	568,3 KB
22101-d60.zip	2015/09/25 8:57	568,8 KB
22101-d70.zip	2015/12/17 9:58	196,1 KB
22101-d80.zip	2016/03/18 13:08	199,7 KB
22101-d90.zip	2016/06/24 13:08	200,1 KB
22101-da0.zip	2017/03/17 6:58	197,9 KB
22101-db0.zip	2017/06/16 13:18	199,8 KB
22101-e00.zip	2015/06/26 12:03	573,5 KB
22101-e10.zip	2015/09/25 8:57	571,1 KB
22101-e20.zip	2016/03/18 13:07	207,3 KB
22101-e30.zip	2016/06/24 13:06	208,8 KB
22101-e40.zip	2016/09/30 11:09	206,9 KB
22101-e50.zip	2016/12/16 15:43	210,2 KB
22101-e60.zip	2017/03/17 6:57	209,9 KB
22101-e70.zip	2017/06/16 13:15	214 KB
22101-e80.zip	2017/09/22 14:16	213,4 KB
22101-e90.zip	2018/01/05 11:25	214,7 KB
22101-f00.zip	2017/03/17 6:56	210,9 KB
22101-f10.zip	2017/06/16 13:16	209,6 KB
22101-f20.zip	2017/09/22 14:17	208,1 KB
22101-f30.zip	2018/01/05 11:26	208,7 KB
22101-f40.zip	2018/04/06 14:43	208,8 KB

22101-f50.zip	2018/06/23 13:13	208,8 KB
22101-f60.zip	2018/09/21 13:42	208,6 KB
22101-f70.zip	2019/06/14 13:35	208,7 KB
22101-g00.zip	2018/07/05 14:12	209 KB
22101-g10.zip	2018/09/21 13:43	218,8 KB
22101-g20.zip	2019/06/14 13:35	214,2 KB
22101-h00.zip	2019/09/27 14:56	225,7 KB
22101-h10.zip	2019/12/20 18:46	229,7 KB

164 items.

Appendix 5

sort by name/desc	sort by date/desc	sort by size/desc
31102-050.zip	1999/07/20 6:46	149,1 KB
31102-100.zip	1999/10/20 15:49	167,2 KB
31102-300.zip	2000/01/12 13:43	206,6 KB
31102-310.zip	2000/04/20 8:42	240,2 KB
31102-320.zip	2000/07/21 14:25	309,6 KB
31102-330.zip	2000/10/18 12:18	311,6 KB
31102-340.zip	2001/01/05 6:09	325,6 KB
31102-400.zip	2001/04/09 7:36	325,9 KB
31102-350.zip	2001/04/09 7:36	317,9 KB
31102-360.zip	2001/07/06 13:41	319,1 KB
31102-410.zip	2001/07/20 8:43	331,1 KB
31102-420.zip	2001/10/11 15:23	341,2 KB
31102-370.zip	2001/10/11 15:25	321,3 KB
31102-380.zip	2002/01/17 8:26	320,1 KB
31102-430.zip	2002/01/17 8:28	344,6 KB
31102-440.zip	2002/03/26 10:24	407,3 KB
31102-500.zip	2002/03/26 10:27	403,6 KB
31102-390.zip	2002/06/28 14:46	321,6 KB
31102-450.zip	2002/06/28 14:46	403,6 KB
31102-510.zip	2002/06/28 14:46	404,2 KB
31102-460.zip	2002/09/25 13:54	408,8 KB
31102-3a0.zip	2002/09/25 13:55	323,4 KB
31102-520.zip	2002/09/25 13:55	409,5 KB
31102-3b0.zip	2003/01/02 13:42	333,3 KB
31102-470.zip	2003/01/02 13:43	418,3 KB
31102-530.zip	2003/01/02 13:43	417,6 KB
31102-600.zip	2003/01/02 13:44	414 KB
31102-3c0.zip	2003/03/31 12:59	326 KB

sort by name/desc	sort by date/desc	sort by size/desc
31102-480.zip	2003/03/31 13:31	359,1 KB
31102-540.zip	2003/03/31 13:37	362,7 KB
31102-610.zip	2003/03/31 13:41	355,7 KB
31102-550.zip	2003/06/13 11:08	425,9 KB
31102-490.zip	2003/06/23 15:13	423,7 KB
31102-3d0.zip	2003/06/23 15:14	339,2 KB
31102-620.zip	2003/06/23 15:15	418,2 KB
31102-3e0.zip	2003/09/30 9:48	338,7 KB
31102-4a0.zip	2003/09/30 9:48	425,4 KB
31102-560.zip	2003/09/30 9:49	423,7 KB
31102-630.zip	2003/09/30 9:50	418,8 KB
31102-4b0.zip	2004/01/09 12:56	506 KB
31102-3f0.zip	2004/01/12 10:07	477,7 KB
31102-570.zip	2004/01/12 10:08	504,2 KB
31102-640.zip	2004/01/12 10:09	477,6 KB
31102-3g0.zip	2004/03/24 20:59	464 KB
31102-4c0.zip	2004/03/24 21:06	483,5 KB
31102-580.zip	2004/03/24 21:15	483,4 KB
31102-650.zip	2004/03/25 13:55	447,9 KB
31102-3h0.zip	2004/06/15 10:20	472,3 KB
31102-4d0.zip	2004/06/15 10:21	502,1 KB
31102-590.zip	2004/06/15 10:21	504,6 KB
31102-660.zip	2004/06/24 7:32	530,5 KB
31102-5a0.zip	2004/09/23 15:27	509,5 KB
31102-670.zip	2004/10/07 12:59	520,9 KB
31102-4e0.zip	2005/01/04 16:00	508,1 KB
31102-680.zip	2005/01/05 14:43	512,6 KB
31102-5b0.zip	2005/01/06 10:07	510,4 KB
31102-5c0.zip	2005/03/18 11:37	482,9 KB
31102-690.zip	2005/03/18 11:37	552,3 KB
31102-700.zip	2005/03/18 11:37	501,4 KB
31102-3i0.zip	2005/06/14 17:15	470,7 KB

sort by name/desc	sort by date/desc	sort by size/desc
31102-4f0.zip	2005/06/14 17:20	497,8 KB
31102-6a0.zip	2005/06/14 17:21	522,3 KB
31102-710.zip	2005/06/14 17:23	515,1 KB
31102-5d0.zip	2005/06/15 12:38	490,9 KB
31102-5e0.zip	2005/10/10 11:46	487,5 KB
31102-6b0.zip	2005/10/10 11:47	522,1 KB
31102-720.zip	2005/10/10 11:47	518,9 KB
31102-6c0.zip	2005/12/10 14:05	568,9 KB
31102-730.zip	2005/12/10 14:06	559,1 KB
31102-6d0.zip	2006/03/30 15:15	573,3 KB
31102-740.zip	2006/03/31 13:15	569,8 KB
31102-741.zip	2006/04/28 7:27	526,8 KB
31102-6e0.zip	2006/06/02 7:11	577,2 KB
31102-750.zip	2006/06/02 7:15	574,4 KB
31102-6f0.zip	2006/09/28 16:47	541,3 KB
31102-760.zip	2006/09/28 16:51	533,9 KB
31102-6g0.zip	2006/11/30 13:02	542,2 KB
31102-770.zip	2006/11/30 13:05	579,9 KB
31102-6h0.zip	2007/03/19 10:31	567,6 KB
31102-780.zip	2007/03/19 10:45	568,1 KB
31102-6i0.zip	2007/06/03 0:23	555,7 KB
31102-790.zip	2007/06/03 2:05	500,4 KB
31102-6i1.zip	2007/06/18 13:53	549,4 KB
31102-791.zip	2007/06/20 5:48	500,8 KB
31102-6j0.zip	2007/09/21 14:17	512,4 KB
31102-7a0.zip	2007/09/21 14:52	561 KB
31102-7b0.zip	2007/12/21 16:07	527,7 KB
31102-800.zip	2007/12/21 16:09	527,4 KB
31102-6k0.zip	2008/03/28 13:50	520,3 KB
31102-7c0.zip	2008/03/28 14:08	519,2 KB
31102-810.zip	2008/03/31 8:59	560,6 KB
31102-820.zip	2008/06/18 16:49	529,7 KB

sort by name/desc	sort by date/desc	sort by size/desc
31102-6l0.zip	2008/10/02 20:55	522,8 KB
31102-7d0.zip	2008/10/02 21:03	523,6 KB
31102-830.zip	2008/10/02 21:57	581,9 KB
31102-840.zip	2009/01/08 16:43	694 KB
31102-850.zip	2009/03/27 14:48	726,7 KB
31102-7e0.zip	2009/06/12 13:52	523,9 KB
31102-860.zip	2009/06/12 19:47	705,9 KB
31102-870.zip	2009/09/26 11:53	697,8 KB
31102-900.zip	2009/09/26 11:54	754,3 KB
31102-7f0.zip	2009/12/20 10:07	531,8 KB
31102-880.zip	2009/12/20 10:07	712,8 KB
31102-910.zip	2009/12/20 10:07	765,1 KB
31102-920.zip	2010/04/13 13:36	730,1 KB
31102-890.zip	2010/06/18 9:56	561,9 KB
31102-930.zip	2010/06/18 9:56	574,9 KB
31102-8a0.zip	2010/10/02 13:33	567,1 KB
31102-940.zip	2010/10/02 14:22	569,7 KB
31102-8b0.zip	2011/01/02 17:11	567,5 KB
31102-950.zip	2011/01/02 17:35	578,1 KB
31102-a00.zip	2011/01/02 17:50	584,7 KB
31102-960.zip	2011/04/01 5:17	582,8 KB
31102-a10.zip	2011/04/01 7:15	609,2 KB
31102-8c0.zip	2011/06/21 13:05	568 KB
31102-970.zip	2011/06/21 16:08	584,3 KB
31102-a20.zip	2011/06/21 16:47	620,4 KB
31102-8d0.zip	2011/10/03 16:49	568,6 KB
31102-980.zip	2011/10/03 16:49	585,3 KB
31102-a30.zip	2011/10/03 16:49	622,3 KB
31102-b00.zip	2011/10/03 16:49	622,5 KB
31102-a40.zip	2012/01/06 14:26	611,8 KB
31102-990.zip	2012/01/06 14:26	582,8 KB
31102-8e0.zip	2012/01/06 14:26	568,6 KB

31102-a50.zip	2012/03/23 19:18	623,5 KB
31102-b10.zip	2012/03/23 19:40	614,5 KB
31102-9a0.zip	2012/06/29 14:59	587,2 KB
31102-a60.zip	2012/06/29 15:00	627 KB
31102-b20.zip	2012/06/29 15:00	629,6 KB
31102-5f0.zip	2012/09/21 8:21	380,8 KB
31102-6m0.zip	2012/09/21 8:33	395,6 KB
31102-7g0.zip	2012/09/21 8:47	403,6 KB
31102-8f0.zip	2012/09/21 8:53	571,1 KB
31102-9b0.zip	2012/09/21 9:04	587,9 KB
31102-a70.zip	2012/09/21 9:10	628,4 KB
31102-b30.zip	2012/09/21 9:16	627,9 KB
31102-6n0.zip	2012/12/21 8:54	398,9 KB
31102-7h0.zip	2012/12/21 10:19	404 KB
31102-8g0.zip	2012/12/21 10:29	571,7 KB
31102-9c0.zip	2012/12/21 13:20	586,1 KB
31102-a80.zip	2012/12/21 13:25	628,6 KB
31102-b40.zip	2012/12/21 13:49	619,5 KB
31102-c00.zip	2013/06/28 13:31	631,5 KB
31102-b50.zip	2013/06/28 13:31	630,8 KB
31102-a90.zip	2013/06/28 13:31	626,2 KB
31102-9d0.zip	2013/06/28 13:32	585,8 KB
31102-8h0.zip	2013/06/28 13:32	569,1 KB
31102-c10.zip	2013/09/20 18:48	629,4 KB
31102-b60.zip	2013/09/20 18:48	629,1 KB
31102-aa0.zip	2013/09/20 18:49	628,4 KB
31102-9e0.zip	2013/09/20 18:50	586,4 KB
31102-c20.zip	2013/12/20 15:34	633,9 KB
31102-c30.zip	2014/03/19 17:26	645,5 KB
31102-c40.zip	2014/07/02 15:17	659 KB
31102-c50.zip	2014/09/26 16:34	667,1 KB
31102-b70.zip	2014/09/26 16:35	632,4 KB

sort by name/desc	sort by date/desc	sort by size/desc
31102-c60.zip	2015/01/06 15:13	678,6 KB
31102-c70.zip	2015/03/27 16:18	686,4 KB
31102-8i0.zip	2015/06/26 4:47	573,1 KB
31102-b80.zip	2015/06/26 5:15	631,5 KB
31102-ab0.zip	2015/06/26 5:15	628,5 KB
31102-9f0.zip	2015/06/26 5:16	587,3 KB
31102-c80.zip	2015/06/26 5:35	699,9 KB
31102-c81.zip	2015/07/03 9:08	700,4 KB
31102-d00.zip	2015/07/03 9:20	701,6 KB
31102-c90.zip	2015/09/25 14:28	691,3 KB
31102-d10.zip	2015/09/25 14:48	685,6 KB
31102-9g0.zip	2016/01/08 18:11	590,3 KB
31102-ac0.zip	2016/01/08 18:27	630,3 KB
31102-b90.zip	2016/01/08 18:31	634,4 KB
31102-d20.zip	2016/01/08 19:23	693,3 KB
31102-8j0.zip	2016/01/12 10:44	573,5 KB
31102-ca0.zip	2016/01/12 10:45	699,8 KB
31102-8k0.zip	2016/03/18 15:39	603,7 KB
31102-9h0.zip	2016/03/18 15:47	622 KB
31102-ad0.zip	2016/03/18 17:06	664 KB
31102-ba0.zip	2016/03/18 17:23	667,8 KB
31102-cb0.zip	2016/03/18 18:05	741,9 KB
31102-d30.zip	2016/03/25 23:21	771,4 KB
31102-d40.zip	2016/06/24 21:41	772,9 KB
31102-e00.zip	2016/10/07 21:36	650,4 KB
31102-d50.zip	2016/10/07 21:37	645,9 KB
31102-d60.zip	2017/01/19 15:56	649,6 KB
31102-e10.zip	2017/01/19 17:01	641,3 KB
31102-e20.zip	2017/03/17 15:21	717,5 KB
31102-9i0.zip	2017/03/17 16:19	613,9 KB
31102-ae0.zip	2017/03/17 16:24	654 KB
31102-bb0.zip	2017/03/17 16:29	660 KB

31102-cc0.zip	2017/03/17 16:34	733,4 KB
31102-d70.zip	2017/03/17 16:41	680,9 KB
31102-8l0.zip	2017/03/17 16:44	595,1 KB
31102-9i1.zip	2017/04/11 16:05	619,1 KB
31102-ae1.zip	2017/04/11 16:11	661,6 KB
31102-e30.zip	2017/06/16 12:04	669,7 KB
31102-d80.zip	2017/06/16 12:06	641,6 KB
31102-e40.zip	2017/12/30 1:36	677,3 KB
31102-d90.zip	2017/12/30 1:37	636,2 KB
31102-cd0.zip	2017/12/30 1:38	691,9 KB
31102-bc0.zip	2017/12/30 1:39	628,7 KB
31102-af0.zip	2017/12/30 1:40	621,8 KB
31102-9j0.zip	2017/12/30 1:41	582 KB
31102-8m0.zip	2017/12/30 1:42	564 KB
31102-d81.zip	2018/01/11 11:28	649 KB
31102-d91.zip	2018/01/11 11:34	649,4 KB
31102-f00.zip	2018/04/03 16:58	720,6 KB
31102-e50.zip	2018/04/03 17:01	722,7 KB
31102-f10.zip	2018/06/22 22:16	697,8 KB
31102-f20.zip	2018/10/04 6:36	757,7 KB
31102-e60.zip	2018/12/21 20:14	687,7 KB
31102-f30.zip	2018/12/21 20:15	727,8 KB
31102-f40.zip	2019/02/21 13:14	739,8 KB
31102-e70.zip	2019/03/24 19:16	676,7 KB
31102-f50.zip	2019/03/24 19:17	721,9 KB
31102-e61.zip	2019/04/26 9:45	733,9 KB
31102-e62.zip	2019/04/26 12:51	740,8 KB
31102-e80.zip	2019/06/10 8:02	669,5 KB
31102-f60.zip	2019/06/10 8:04	837,1 KB
31102-g00.zip	2019/06/10 8:05	839,6 KB
31102-f70.zip	2019/09/26 12:01	838,9 KB
31102-g10.zip	2019/09/26 12:01	840,1 KB

📄	31102-f80.zip	2020/01/08 11:11	842,9 KB
📄	31102-g20.zip	2020/01/08 11:11	849,8 KB
📄	31102-f90.zip	2020/03/30 16:33	785,9 KB
📄	31102-g30.zip	2020/03/30 16:33	795,2 KB

224 items.

Appendix 6

http://list.etsi.fr/scripts/wa.exe?A1=ind0211&L=3gpp_tsg_sa_wg1

Go

DEC **JAN** OCT

◄ **13** ►

2004 **2005** 2006

3 captures
13 Jan 2005 - 21 Oct 2005

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3GPP_TSG_SA_WG1 Archives – November 2002

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Chronologically | **Most recent first**

Options: Show author | **Hide author**
Show table of contents | Hide table of contents
Back to main 3GPP_TSG_SA_WG1 page
Join or leave 3GPP_TSG_SA_WG1
Search

1. 2 Tdoc numbers request for the next meeting
   - **2 Tdoc numbers request for the next meeting** *(27 lines)*
     From: Volahanta RAMIARAMANANA <Volahanta.RAMIARAMANANA@GEMPLUS.COM>
     Date: Mon, 4 Nov 2002 15:15:29 +0100
   - **Re: 2 Tdoc numbers request for the next meeting** *(977 lines)*
     From: Volahanta RAMIARAMANANA <Volahanta.RAMIARAMANANA@GEMPLUS.COM>
     Date: Mon, 4 Nov 2002 17:48:32 +0100

2. 3rd UICC Physical Size
   - **3rd UICC Physical Size** *(9614 lines)*
     From: Koichi HARADA <haradakou@NTTDOCOMO.CO.JP>
     Date: Wed, 6 Nov 2002 13:06:48 +0900

3. =?gb2312?B?zrTUxLbBOiBbSU1TIE1lc3NhZ2luZ10gam91cm5hbGluZyBmZWF0dQ==?= =?gb2312?B?cmUgZm9yIGltbWVkaWF0ZSBhbmQgc2VjdlvbiBiYXNlZCBtZXNzYWdpbmc=?=
   - **=?gb2312?B?zrTUxLbBOiBbSU1TIE1lc3NhZ2luZ10gam91cm5hbGluZyBmZWF0dQ==?= =?gb2312?B?cmUgZm9yIGltbWVkaWF0ZSBhbmQgc2VjdlvbiBiYXNlZCBtZXNzYWdpbmc=?=** *(37 lines)*
     From: lizhiming <lizhiming@HUAWEI.COM>
     Date: Wed, 27 Nov 2002 10:21:15 +0800

4. A word of caution
   - **A word of caution** *(20 lines)*
     From: Michael Clayton <Michael.Clayton@ETSI.FR>
     Date: Wed, 20 Nov 2002 10:05:25 +0100

5. Agenda for Messaging SWG and Network Sharing SWG
   - **Agenda for Messaging SWG and Network Sharing SWG** *(290 lines)*
     From: Michele Zarri <Michele.Zarri@T-MOBILE.CO.UK>
     Date: Tue, 5 Nov 2002 17:25:11 -0000
   - **Agenda for Messaging SWG and Network Sharing SWG** *(968 lines)*
     From: Volahanta RAMIARAMANANA <Volahanta.RAMIARAMANANA@GEMPLUS.COM>
     Date: Wed, 6 Nov 2002 09:50:59 +0100
   - **Re: Agenda for Messaging SWG and Network Sharing SWG** *(59 lines)*
     From: Michael Clayton <Michael.Clayton@ETSI.FR>
     Date: Wed, 6 Nov 2002 09:59:34 +0100

6. April and October meetings
   - **April and October meetings** *(168 lines)*
     From: Holley Kevin <Kevin.Holley@O2.COM>
     Date: Sat, 23 Nov 2002 09:19:23 -0000

7. AW: What does Mandatory mean
   - **AW: What does Mandatory mean** *(94 lines)*
     From: Swetina Joerg <joerg.swetina@SIEMENS.COM>
     Date: Wed, 20 Nov 2002 11:50:38 +0100

8. Beijing report slides
   - **Beijing report slides** *(866 lines)*
     From: Holley Kevin <Kevin.Holley@O2.COM>
     Date: Fri, 8 Nov 2002 09:48:12 -0000

10. Call for nominations for SA1 Chairman elections
    - Call for nominations for SA1 Chairman elections *(116 lines)*
      From: Michael Clayton <Michael.Clayton@ETSI.FR>
      Date: Wed, 20 Nov 2002 11:39:31 +0100

11. CAMEL-IMS CRs (tidy up)
    - CAMEL-IMS CRs (tidy up) *(556 lines)*
      From: Daniel, Elizabeth Mary (Liz) <lizdaniel@LUCENT.COM>
      Date: Tue, 5 Nov 2002 15:49:14 -0000
    - Re: CAMEL-IMS CRs (tidy up) *(69 lines)*
      From: Lantelme Isabelle <Isabelle.Lantelme@ALCATEL.FR>
      Date: Thu, 7 Nov 2002 19:07:50 +0100
    - Re: CAMEL-IMS CRs (tidy up) *(82 lines)*
      From: Daniel, Elizabeth Mary (Liz) <lizdaniel@LUCENT.COM>
      Date: Fri, 8 Nov 2002 09:28:43 -0000

12. Contribution for Busan meeting
    - Contribution for Busan meeting *(3423 lines)*
      From: Lieve Bos <lieve.bos@ALCATEL.BE>
      Date: Thu, 7 Nov 2002 17:45:18 +0100

13. Contribution on OSA
    - Contribution on OSA *(308 lines)*
      From: Daniel, Elizabeth Mary (Liz) <lizdaniel@LUCENT.COM>
      Date: Tue, 5 Nov 2002 18:01:12 -0000

14. Document status list from SA1 last week
    - Document status list from SA1 last week *(1125 lines)*
      From: Holley Kevin <Kevin.Holley@O2.COM>
      Date: Mon, 18 Nov 2002 11:15:40 -0000

15. EMC2 and IAEI (rep by Vimatix) Tdocs for SA1#18 in Busan
    - EMC2 and IAEI (rep by Vimatix) Tdocs for SA1#18 in Busan *(258 lines)*
      From: Ehud Spiegel <ehuds@VIMATIX.COM>
      Date: Tue, 5 Nov 2002 21:20:44 +0200

16. Fw: WG: [E-mail Discussion] "Enhanced CSE capability of dialled service"
    - Fw: WG: [E-mail Discussion] "Enhanced CSE capability of dialled service" *(310 lines)*
      From: Soojin Kim <soojin@SKTELECOM.COM>
      Date: Thu, 28 Nov 2002 02:55:31 +0900

17. FW: [SMS over GPRS] Is this mandatory in the SGSN
    - FW: [SMS over GPRS] Is this mandatory in the SGSN *(303 lines)*
      From: Brian Marchent <Brian.Marchent@PANASONICMOBILE.CO.UK>
      Date: Fri, 1 Nov 2002 14:47:37 +0000
    - FW: [SMS over GPRS] Is this mandatory in the SGSN *(551 lines)*
      From: Kokkola Tommi <tommi.kokkola@NOKIA.COM>
      Date: Tue, 5 Nov 2002 13:03:05 +0200

18. Gemplus contributions on MMS
    - Gemplus contributions on MMS *(956 lines)*
      From: Volahanta RAMIARAMANANA <Volahanta.RAMIARAMANANA@GEMPLUS.COM>
      Date: Tue, 5 Nov 2002 17:09:46 +0100

19. Hutchison 3G Streaming contribution
    - Hutchison 3G Streaming contribution *(671 lines)*
      From: Adrian Escott <Adrian.Escott@THREE.CO.UK>
      Date: Wed, 6 Nov 2002 08:39:19 -0000

20. Impact of OMA on the Mobile Industry and my involvement in OMA

21. IMS SWG Agenda Draft 0.1
    - IMS SWG Agenda Draft 0.1 *(892 lines)*
      From: Paul Carpenter <pcarpenter@RIM.NET>
      Date: Thu, 7 Nov 2002 07:26:09 -0500

22. Jpeg 2000 in SA1
    - Jpeg 2000 in SA1 *(78 lines)*
      From: Kevin Holley <kevinaholley@HOTMAIL.COM>
      Date: Wed, 13 Nov 2002 09:29:22 -0000
    - Re: Jpeg 2000 in SA1 *(59 lines)*
      From: Kari Jarvinen <kari.ju.jarvinen@NOKIA.COM>
      Date: Fri, 22 Nov 2002 15:51:08 +0200
    - Re: Jpeg 2000 in SA1 *(105 lines)*
      From: Järvinen Kari <kari.ju.jarvinen@NOKIA.COM>
      Date: Tue, 26 Nov 2002 13:24:17 +0200

23. Late docs for Busan on >REL5 USIM support
    - Late docs for Busan on >REL5 USIM support *(2194 lines)*
      From: Max DE-GROOT <Max.DE-GROOT@GEMPLUS.COM>
      Date: Mon, 4 Nov 2002 15:11:56 +0100

24. List of liaisons
    - List of liaisons *(241 lines)*
      From: Kevin Holley <kevinaholley@HOTMAIL.COM>
      Date: Sat, 9 Nov 2002 10:27:03 -0000

25. LS on ISIM S1-022053- new number S1-022109.
    - Re: LS on ISIM S1-022053- new number S1-022109. *(93 lines)*
      From: Kokkola Tommi <tommi.kokkola@NOKIA.COM>
      Date: Sun, 3 Nov 2002 13:07:55 +0200
    - Re: LS on ISIM S1-022053- new number S1-022109. *(292 lines)*
      From: Holley Kevin <Kevin.Holley@O2.COM>
      Date: Sun, 3 Nov 2002 11:39:07 -0000

26. MBMS contribution 2172
    - MBMS contribution 2172 *(91 lines)*
      From: Andre Jarvis <Andre.Jarvis@THREE.CO.UK>
      Date: Mon, 4 Nov 2002 15:13:44 -0000

27. My participation in 3GPP SA1
    - My participation in 3GPP SA1 *(216 lines)*
      From: Mark Cataldo <mark.cataldo@OPENWAVE.COM>
      Date: Fri, 22 Nov 2002 04:57:13 -0000
    - Re: My participation in 3GPP SA1 *(263 lines)*
      From: Holley Kevin <Kevin.Holley@O2.COM>
      Date: Fri, 22 Nov 2002 09:18:40 -0000

28. Nicht gelesen: [IMS Messaging] journaling feature for immediate and session based messaging
    - Nicht gelesen: [IMS Messaging] journaling feature for immediate and session based messaging *(38 lines)*
      From: Stephan Steglich <steglich@FOKUS.GMD.DE>
      Date: Wed, 13 Nov 2002 19:40:12 +0100

29. Nortel Contributions for SA1#18 in Busan
    - Nortel Contributions for SA1#18 in Busan *(1642 lines)*
      From: Amarjit Deol <deola@NORTELNETWORKS.COM>
      Date: Tue, 5 Nov 2002 09:22:08 -0600

30. Proposed LS on to OMA (IMS messaging, presence, IMS group management)
    - Proposed LS on to OMA (IMS messaging, presence, IMS group management) *(260 lines)*
      From: Juha Kalliokulju <juha.kalliokulju@NOKIA.COM>
      Date: Wed, 6 Nov 2002 12:10:26 +0200

http://list.etsi.fr/scripts/wa.exe?A1=ind0211&L=3gpp_tsg_sa_wg1

Go   DEC   **JAN**   OCT

◀ **13** ▶

3 captures
13 Jan 2005 - 21 Oct 2005

2004   **2005**   2006   ▼ About this capture

- Re: question on TR23.923 *(35 lines)*
  From: Bengt-Ake Lindholm <Bengt-Ake.I.Lindholm@TELIA.SE>
  Date: Tue, 12 Nov 2002 08:52:51 +0100
- Re: question on TR23.923 *(74 lines)*
  From: Kourosh Parsa <kparsa@3G-GPRS.COM>
  Date: Tue, 12 Nov 2002 05:53:37 -0800

32. Reminder: January S1 Meeting
    - Reminder: January S1 Meeting *(9662 lines)*
      From: Marchetto, Luisa <luisa.marchetto@ATTWS.COM>
      Date: Tue, 26 Nov 2002 12:56:31 -0800

33. SA1 Chairmanship
    - SA1 Chairmanship *(590 lines)*
      From: Michael Clayton <Michael.Clayton@ETSI.FR>
      Date: Fri, 22 Nov 2002 14:36:26 +0100

34. SA1 meeting dates in 2003
    - SA1 meeting dates in 2003 *(183 lines)*
      From: Holley Kevin <Kevin.Holley@O2.COM>
      Date: Tue, 19 Nov 2002 09:40:06 -0000

35. SA1 SWG WLAN contributions
    - SA1 SWG WLAN contributions *(10536 lines)*
      From: Daniel, Elizabeth Mary (Liz) <lizdaniel@LUCENT.COM>
      Date: Tue, 5 Nov 2002 13:49:50 -0000

36. SA1 view on SMS over GPRS
    - SA1 view on SMS over GPRS *(156 lines)*
      From: Kevin Holley <kevinaholley@HOTMAIL.COM>
      Date: Wed, 13 Nov 2002 10:02:50 -0000

37. Samsung's contribution for reintroduction of Enhanced CSE cap ability for dialed services.
    - Re: Samsung's contribution for reintroduction of Enhanced CSE cap ability for dialed services. *(88 lines)*
      From: Rogier Noldus (ELN) <Rogier.Noldus@ELN.ERICSSON.SE>
      Date: Thu, 7 Nov 2002 13:56:27 +0100
    - Re: Samsung's contribution for reintroduction of Enhanced CSE cap ability for dialed services. *(137 lines)*
      From: Palviainen Keijo <keijo.palviainen@NOKIA.COM>
      Date: Fri, 8 Nov 2002 09:31:23 +0200
    - Re: Samsung's contribution for reintroduction of Enhanced CSE cap ability for dialed services. *(169 lines)*
      From: Homann Christian <C.Homann@ALCATEL.DE>
      Date: Fri, 8 Nov 2002 16:48:32 +0100

38. Samsung's contribution for reintroduction of Enhanced CSE capability for dialed services.
    - Samsung's contribution for reintroduction of Enhanced CSE capability for dialed services. *(2384 lines)*
      From: KiHo Chung <khchung@SAMSUNG.COM>
      Date: Mon, 4 Nov 2002 15:29:03 +0900
    - Samsung's contribution for reintroduction of Enhanced CSE capability for dialed services. *(96 lines)*
      From: Lantelme Isabelle <Isabelle.Lantelme@ALCATEL.FR>
      Date: Thu, 7 Nov 2002 11:03:10 +0100
    - Re: Samsung's contribution for reintroduction of Enhanced CSE capability for dialed services. *(118 lines)*
      From: Palviainen Keijo <keijo.palviainen@NOKIA.COM>
      Date: Thu, 7 Nov 2002 14:13:26 +0200

39. Schedule for San Francisco
    - Schedule for San Francisco *(894 lines)*
      From: Holley Kevin <Kevin.Holley@O2.COM>
      Date: Tue, 19 Nov 2002 12:38:08 -0000

40. Service Specific Entities
    - Re: Service Specific Entities *(182 lines)*
      From: Holley Kevin <Kevin.Holley@O2.COM>

http://list.etsi.fr/scripts/wa.exe?A1=ind0211&L=3gpp_tsg_sa_wg1

Go   DEC   **JAN**   OCT

3 captures

◀   **13**   ▶

13 Jan 2005 - 21 Oct 2005

2004   **2005**   2006   ▼ About this capture

From: 3GPP List <3GPP List@ETSI.FR>
Date: Mon, 4 Nov 2002 16:17:56 +0100

42. Summary doclist and SFO schedule
   - Summary doclist and SFO schedule *(135 lines)*
     From: Holley Kevin <Kevin.Holley@O2.COM>
     Date: Thu, 21 Nov 2002 15:11:40 -0000

43. SWG Chairs for Busan
   - SWG Chairs for Busan *(149 lines)*
     From: Holley Kevin <Kevin.Holley@O2.COM>
     Date: Thu, 7 Nov 2002 10:45:46 -0000

44. Telia contribution on Network Sharing S1-022146 for SA1#18
   - Telia contribution on Network Sharing S1-022146 for SA1#18 *(460 lines)*
     From: Ulf Nilsson <Ulf.S.Nilsson@TELIA.SE>
     Date: Tue, 5 Nov 2002 17:01:26 +0100

45. test
   - test *(10 lines)*
     From: test <whereami2000@CHOLLIAN.NET>
     Date: Wed, 27 Nov 2002 15:15:40 +0900

46. test LISTSERV
   - test LISTSERV *(77 lines)*
     From: Site Manager <sitemanager@ETSI.FR>
     Date: Wed, 6 Nov 2002 12:04:15 +0100

47. Tommi is not able to participate to next SA1
   - Tommi is not able to participate to next SA1 *(28 lines)*
     From: Kokkola Tommi <tommi.kokkola@NOKIA.COM>
     Date: Sat, 2 Nov 2002 11:34:37 +0200
   - Re: Tommi is not able to participate to next SA1 *(87 lines)*
     From: Holley Kevin <Kevin.Holley@O2.COM>
     Date: Mon, 4 Nov 2002 11:12:57 -0000

48. Two Siemens documents for Busan
   - Two Siemens documents for Busan *(918 lines)*
     From: Swetina Joerg <joerg.swetina@SIEMENS.COM>
     Date: Tue, 5 Nov 2002 15:02:39 +0100

49. WG: [E-mail DIscussion] "Enhanced CSE capability of dialled servi ce"
   - Re: WG: [E-mail DIscussion] "Enhanced CSE capability of dialled servi ce" *(54 lines)*
     From: Sumio Miyagawa <sumio.miyagawa@SIEMENS.COM>
     Date: Mon, 25 Nov 2002 13:50:50 +0100

50. WG: [E-mail Discussion] "Enhanced CSE capability of dialled service"
   - Re: WG: [E-mail Discussion] "Enhanced CSE capability of dialled service" *(105 lines)*
     From: Soojin Kim <soojin@SKTELECOM.COM>
     Date: Wed, 27 Nov 2002 02:12:50 +0900
   - Re: WG: [E-mail Discussion] "Enhanced CSE capability of dialled service" *(114 lines)*
     From: Sumio Miyagawa <sumio.miyagawa@SIEMENS.COM>
     Date: Wed, 27 Nov 2002 00:29:02 +0100
   - Re: WG: [E-mail Discussion] "Enhanced CSE capability of dialled service" *(303 lines)*
     From: Soojin Kim <soojin@SKTELECOM.COM>
     Date: Thu, 28 Nov 2002 02:31:13 +0900
   - Re: WG: [E-mail Discussion] "Enhanced CSE capability of dialled service" *(258 lines)*
     From: Sumio Miyagawa <sumio.miyagawa@SIEMENS.COM>
     Date: Thu, 28 Nov 2002 10:52:58 +0100

51. What does Mandatory mean

From: Paul Carpenter <pcarpenter@RIM.NET>
Date: Tue, 19 Nov 2002 10:56:57 -0500

- Re: What does Mandatory mean *(157 lines)*
  From: Ken Peirce <Ken@MALIBUNETWORKS.COM>
  Date: Tue, 19 Nov 2002 10:07:08 -0800
- Re: What does Mandatory mean *(191 lines)*
  From: Alan Cox <Alan.Cox@VODAFONE.COM>
  Date: Tue, 19 Nov 2002 18:28:55 -0000
- Re: What does Mandatory mean *(160 lines)*
  From: Pierre-Yves Hébert <pierre-yves.hebert@NOOS.FR>
  Date: Tue, 19 Nov 2002 19:42:04 +0100
- Re: What does Mandatory mean *(210 lines)*
  From: Ken Peirce <Ken@MALIBUNETWORKS.COM>
  Date: Tue, 19 Nov 2002 10:47:32 -0800
- Re: What does Mandatory mean *(223 lines)*
  From: Doig Ian-IANDOIG1 <Ian.Doig@MOTOROLA.COM>
  Date: Wed, 20 Nov 2002 09:01:08 -0000
- Re: What does Mandatory mean *(253 lines)*
  From: Paul Carpenter <pcarpenter@RIM.NET>
  Date: Wed, 20 Nov 2002 05:41:29 -0500
- Re: What does Mandatory mean *(246 lines)*
  From: Doig Ian-IANDOIG1 <Ian.Doig@MOTOROLA.COM>
  Date: Wed, 20 Nov 2002 10:44:51 -0000
- Re: What does Mandatory mean *(62 lines)*
  From: Brook Richard <RichardBrook39@AOL.COM>
  Date: Wed, 20 Nov 2002 10:39:36 EST
- Re: What does Mandatory mean *(301 lines)*
  From: Kokkola Tommi <tommi.kokkola@NOKIA.COM>
  Date: Wed, 20 Nov 2002 18:51:29 +0200
- Re: What does Mandatory mean *(71 lines)*
  From: Brian Marchent <Brian.Marchent@PANASONICMOBILE.CO.UK>
  Date: Thu, 21 Nov 2002 01:59:11 +0000
- Re: What does Mandatory mean *(194 lines)*
  From: Alan Cox <Alan.Cox@VODAFONE.COM>
  Date: Thu, 21 Nov 2002 18:31:03 -0000

52. [E-mail DIscussion] "Enhanced CSE capability of dialled service"
- [E-mail DIscussion] "Enhanced CSE capability of dialled service" *(371 lines)*
  From: KiHo Chung <khchung@SAMSUNG.COM>
  Date: Mon, 25 Nov 2002 09:40:02 +0900

53. [GUP] Two Telia contributions for Busan
- [GUP] Two Telia contributions for Busan *(228 lines)*
  From: Anita Olsson <Anita.E.Olsson@TELIA.SE>
  Date: Wed, 6 Nov 2002 12:10:13 +0100

54. [IMS] Contributions on IMS subscriptions and access scenarios
- [IMS] Contributions on IMS subscriptions and access scenarios *(3849 lines)*
  From: Robert Frank <Robert.B.Frank@TELIA.SE>
  Date: Tue, 5 Nov 2002 14:44:10 +0100

55. [MBMS] Late Telia contribution for Busan
- [MBMS] Late Telia contribution for Busan *(119 lines)*
  From: Anita Olsson <Anita.E.Olsson@TELIA.SE>
  Date: Thu, 7 Nov 2002 20:52:34 +0100

56. [Messaging] LS to T2 on roaming awareness
- Re: [Messaging] LS to T2 on roaming awareness *(154 lines)*
  From: Holley Kevin <Kevin.Holley@O2.COM>
  Date: Fri, 1 Nov 2002 13:31:30 -0000

57. [Messaging] Openwave contributions for Busan
  - [Messaging] Openwave contributions for Busan *(1305 lines)*
    From: Milt Roselinsky <milt.roselinsky@OPENWAVE.COM>
    Date: Tue, 5 Nov 2002 14:21:01 -0800

58. [netshar]:Where does the Tdoc s1-021363 hide?
  - [netshar]:Where does the Tdoc s1-021363 hide? *(51 lines)*
    From: Sun Chengzhen <suncz@CATT.AC.CN>
    Date: Wed, 20 Nov 2002 10:24:25 +0800
  - Re: [netshar]:Where does the Tdoc s1-021363 hide? *(4984 lines)*
    From: Shahab Lavasani <Shahab.A.Lavasani@TELIA.SE>
    Date: Wed, 20 Nov 2002 14:34:06 +0100

59. [OSA] Ericsson contributions for Busan
  - [OSA] Ericsson contributions for Busan *(903 lines)*
    From: Olle Eriksson (EAB) <Olle.Eriksson@ERA.ERICSSON.SE>
    Date: Tue, 5 Nov 2002 10:01:05 +0100

60. [SMS over GPRS] Is this mandatory in the SGSN
  - Re: [SMS over GPRS] Is this mandatory in the SGSN *(102 lines)*
    From: Paul Carpenter <pcarpenter@RIM.NET>
    Date: Fri, 1 Nov 2002 10:42:37 -0500
  - Re: [SMS over GPRS] Is this mandatory in the SGSN *(160 lines)*
    From: Armin Toepfer <armin.toepfer@VODAFONE.COM>
    Date: Mon, 4 Nov 2002 11:58:59 +0100
  - Re: [SMS over GPRS] Is this mandatory in the SGSN *(434 lines)*
    From: Holley Kevin <Kevin.Holley@O2.COM>
    Date: Tue, 5 Nov 2002 09:05:37 -0000
  - Re: [SMS over GPRS] Is this mandatory in the SGSN *(555 lines)*
    From: Holley Kevin <Kevin.Holley@O2.COM>
    Date: Tue, 5 Nov 2002 09:29:42 -0000
  - Re: [SMS over GPRS] Is this mandatory in the SGSN *(444 lines)*
    From: Mills Duncan <duncan.mills@VF.VODAFONE.CO.UK>
    Date: Tue, 5 Nov 2002 09:22:53 -0000
  - Re: [SMS over GPRS] Is this mandatory in the SGSN *(620 lines)*
    From: Mills Duncan <duncan.mills@VF.VODAFONE.CO.UK>
    Date: Tue, 5 Nov 2002 09:41:08 -0000
  - Re: [SMS over GPRS] Is this mandatory in the SGSN *(148 lines)*
    From: Brian Marchent <Brian.Marchent@PANASONICMOBILE.CO.UK>
    Date: Tue, 5 Nov 2002 10:31:17 +0000
  - Re: [SMS over GPRS] Is this mandatory in the SGSN *(476 lines)*
    From: Holley Kevin <Kevin.Holley@O2.COM>
    Date: Tue, 5 Nov 2002 11:18:22 -0000

61. [SMS over GPRS] with TDOC number
  - [SMS over GPRS] with TDOC number *(256 lines)*
    From: Brian Marchent <Brian.Marchent@PANASONICMOBILE.CO.UK>
    Date: Tue, 5 Nov 2002 13:36:24 +0000

Back to the main 3GPP_TSG_SA_WG1 page

LIST.ETSI.ORG

Appendix 7

3GPP
A GLOBAL INITIATIVE

| Project Management | Technical Bodies | Delegates Corner | Project Support | Contact 3GPP | **Quick Access** FAQ |
| About 3GPP | Specifications | Membership | Meetings | Email Lists | Search |

3GPP E-mail Exploder Lists

A full list of the 3GPP email exploder lists is available here <http://list.3gpp.org/>

This list does contain all the ETSI exploder lists also, however the majority of the 3GPP lists are located right at the top of the list. For some TSG SA WG1 lists, you will need to scroll further as they may start with S1_xxx

In order to subscribe to any of these lists please scroll down until you find the list you are interested in, click on the link and follow the simple instructions.

Those delegates who already have an ETSI username and password should use the list management application available here >>

If you have any problems subscribing to the lists, or you are unsure of which list would be of interest to you please send an email to 3GPPContact.

last updated 14th January 2002

Appendix 8

http://www.3gpp.org/specs/specs.htm   Go   DEC FEB APR

539 captures
8 Jun 2002 - 19 Jan 2020

◀ 10 ▶
2002 2003 2004

▼ About this capture

3GPP
A GLOBAL INITIATIVE

| Project Management | Technical Bodies | Delegates Corner | Project Support | Contact 3GPP | **Quick Access** |
| About 3GPP | Specifications | Membership | Meetings | Email Lists | FAQ Search |

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!

The term "*3GPP specification*" covers all **GSM** (including **GPRS** and **EDGE**) and **3G** specifications. The following terms are also used to describe networks using the 3G specifications: **UTRAN**, **W-CDMA**, **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. 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.

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 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.

year-month	remark	status list	specs directory	TSG CN	TSG RAN	TSG T	TSG SA	TSG GERAN
2002-11 2002-12		StatusList	ftp://ftp.3gpp.org/specs/2002-12/	18th meeting	18th meeting	18th meeting	18th meeting	12th meeting
2002-09		StatusList	ftp://ftp.3gpp.org/specs/2002-09/	17th meeting	17th meeting	17th meeting	17th meeting	11th meeting
2002-06			ftp://ftp.3gpp.org/specs/2002-06-geran-mtg-10-delta/					10th meeting
2002-06	Rel-5 features content functionally frozen (remainder)	StatusList	ftp://ftp.3gpp.org/specs/2002-06/	16th meeting	16th meeting	16th meeting	16th meeting	
2002-04			ftp://ftp.3gpp.org/specs/2002-04-geran-mtg-09-delta/					9th meeting
2002-03	Rel-5 features content functionally frozen (part)	StatusList	ftp://ftp.3gpp.org/specs/2002-03/	15th meeting	15th meeting	15th meeting	15th meeting	
2002-02								8th meeting
2001-12		StatusList	ftp://ftp.3gpp.org/specs/2001-12/	14th meeting	14th meeting	14th meeting	14th meeting	
2001-11								7th meeting
2001-09		StatusList	ftp://ftp.3gpp.org/specs/2001-09/	13th meeting	13th meeting	13th meeting	13th meeting	
2001-08								6th meeting
2001-06		StatusList	ftp://ftp.3gpp.org/specs/2001-06/	12th meeting	12th meeting	12th meeting	12th meeting	5th meeting
2001-06								4th meeting
2001-03	Rel-4 features content functionally frozen	StatusList	ftp://ftp.3gpp.org/specs/2001-03/	11th meeting	11th meeting	11th meeting	11th meeting	

2000-11								2nd meeting
2000-09		StatusList	ftp://ftp.3gpp.org/specs/2000-09/	9th meeting	9th meeting	9th meeting	9th meeting	1st meeting
2000-06		StatusList	ftp://ftp.3gpp.org/specs/2000-06/	8th meeting	8th meeting	8th meeting	8th meeting	
2000-03				7th meeting	7th meeting	7th meeting	7th meeting	
1999-12	R99 features content functionally frozen			6th meeting	6th meeting	6th meeting	6th meeting	

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.

Latest version

The **latest versions** of the specifications can always be found here:
ftp://ftp.3gpp.org/specs/latest/.

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.
ftp://ftp.3gpp.org/specs/archive/

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. A high level description of each *series* (of specification e.g. the 25.- series) is available in on the page called "Releases and the numbering scheme for 3G specifications". Once you have identified possible specification numbers, go the "Latest Version" directory mentioned above.

Specs related to a particular working group

Each 3GPP TSG Working Group has a home page, which lists the specifications under their 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.

Further 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.

- **Numbering scheme.** What is the system for numbering specifications? Which specifications contain information on .....? Find out here.

- **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. If you like pretty charts, look here.

last updated
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.

Appendix 9

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

3GPP

Project Co-ordination Group

Technical Specification Groups

Support Functions

Technical Specifications
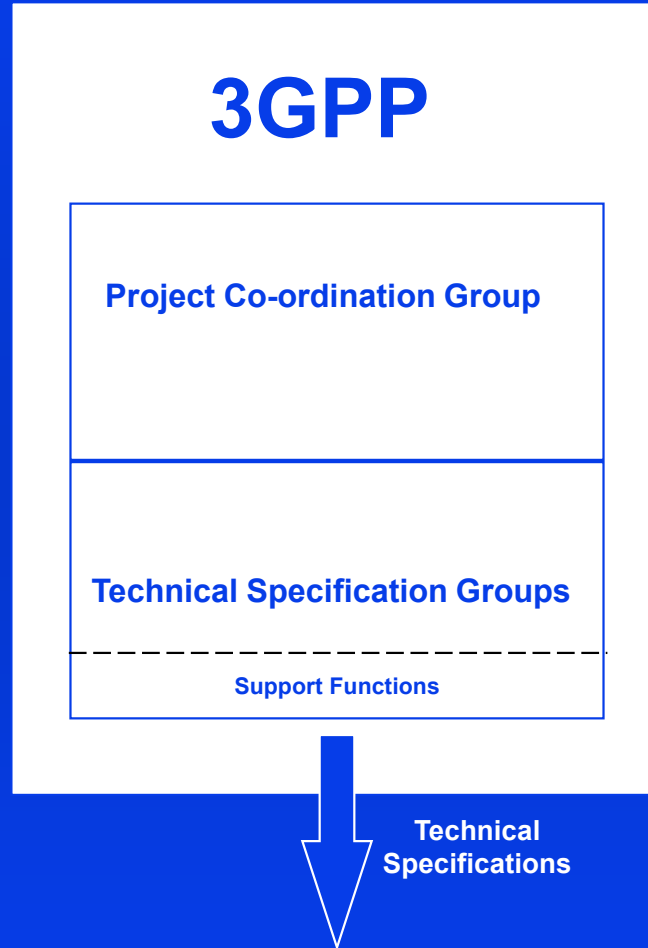
Definition of the Third Generation Partnership Project

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**

6

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)

3GPP

PARTNERS

Project Co-ordination Group

Organizational
Partners

Technical Specification Groups

Support Functions

Technical
Specifications

Organizational Partners' Standardization Process

Organizational Partners' deliverables

11
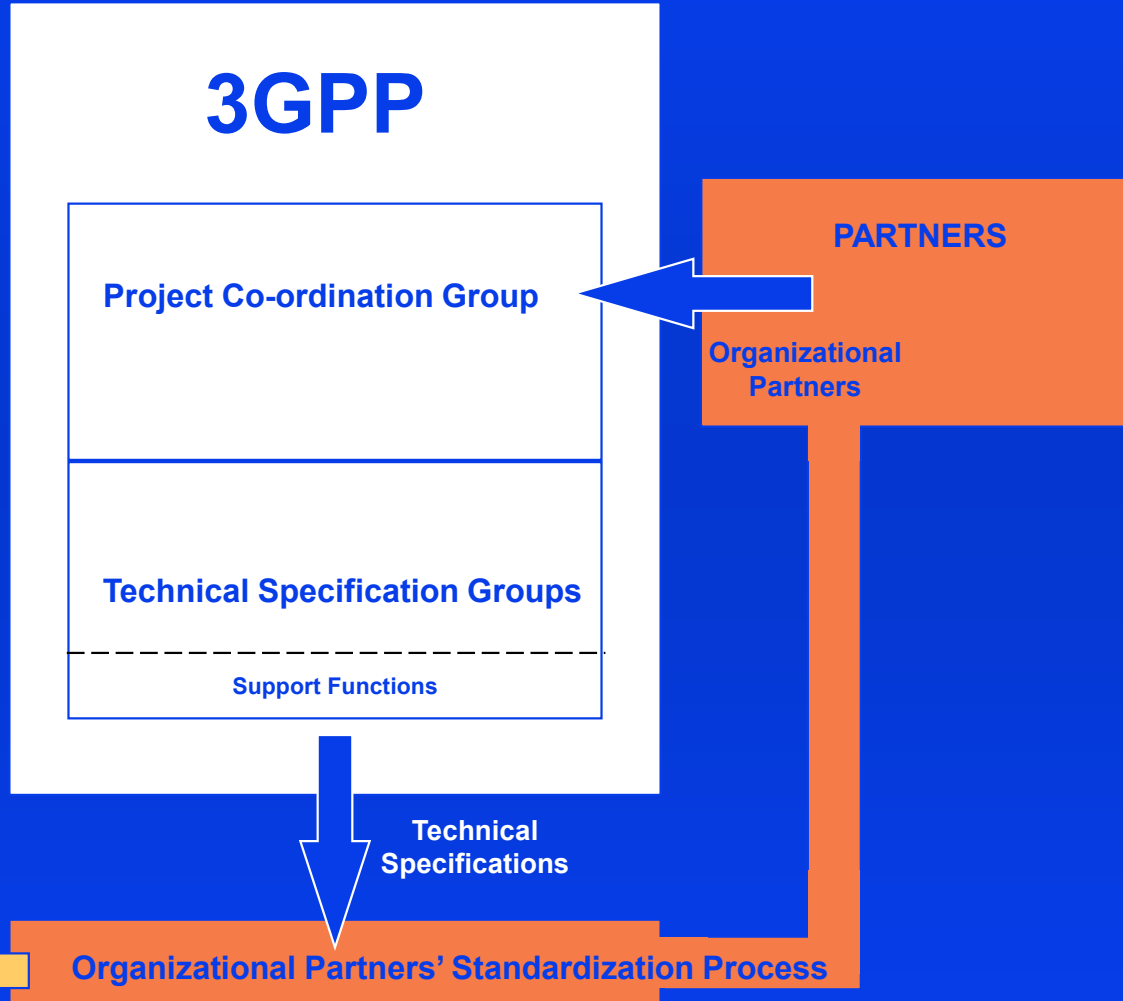
Organizational Partners (2)

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)

3GPP

Project Co-ordination Group

Technical Specification Groups

Support Functions

Technical Specifications

Organizational Partners' Standardization Process

Organizational Partners' deliverables

PARTNERS

Organizational Partners

Market Representation Partners

13
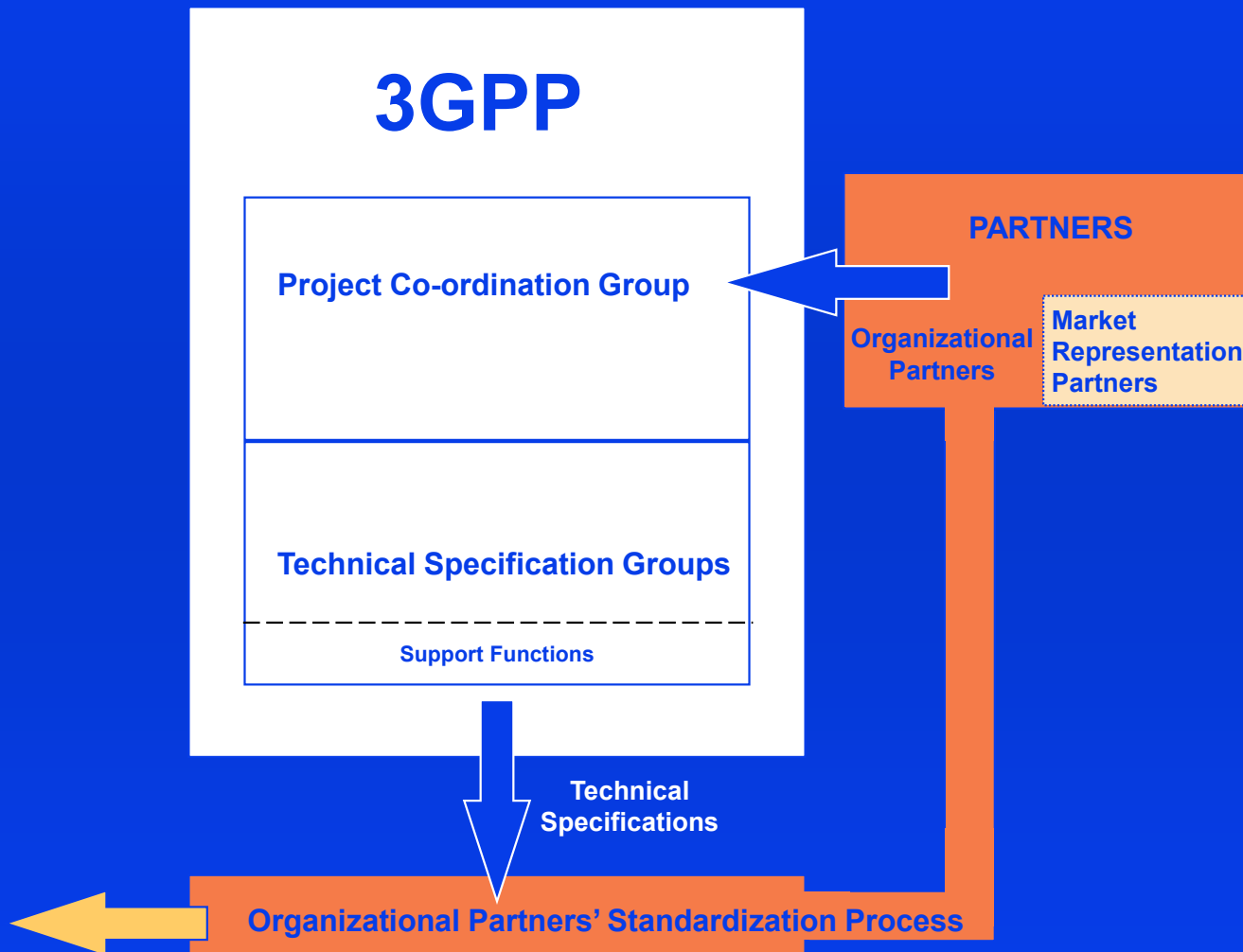
Market Representation Partners (2)

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**

14

Individual Members (1)

3GPP

Project Co-ordination Group

Technical Specification Groups

Support Functions

PARTNERS

Organizational Partners

Market Representation Partners

INDIVIDUAL MEMBERS

Technical Contributions

Technical Specifications

Organizational Partners' Standardization Process

Organizational Partners' deliverables

15
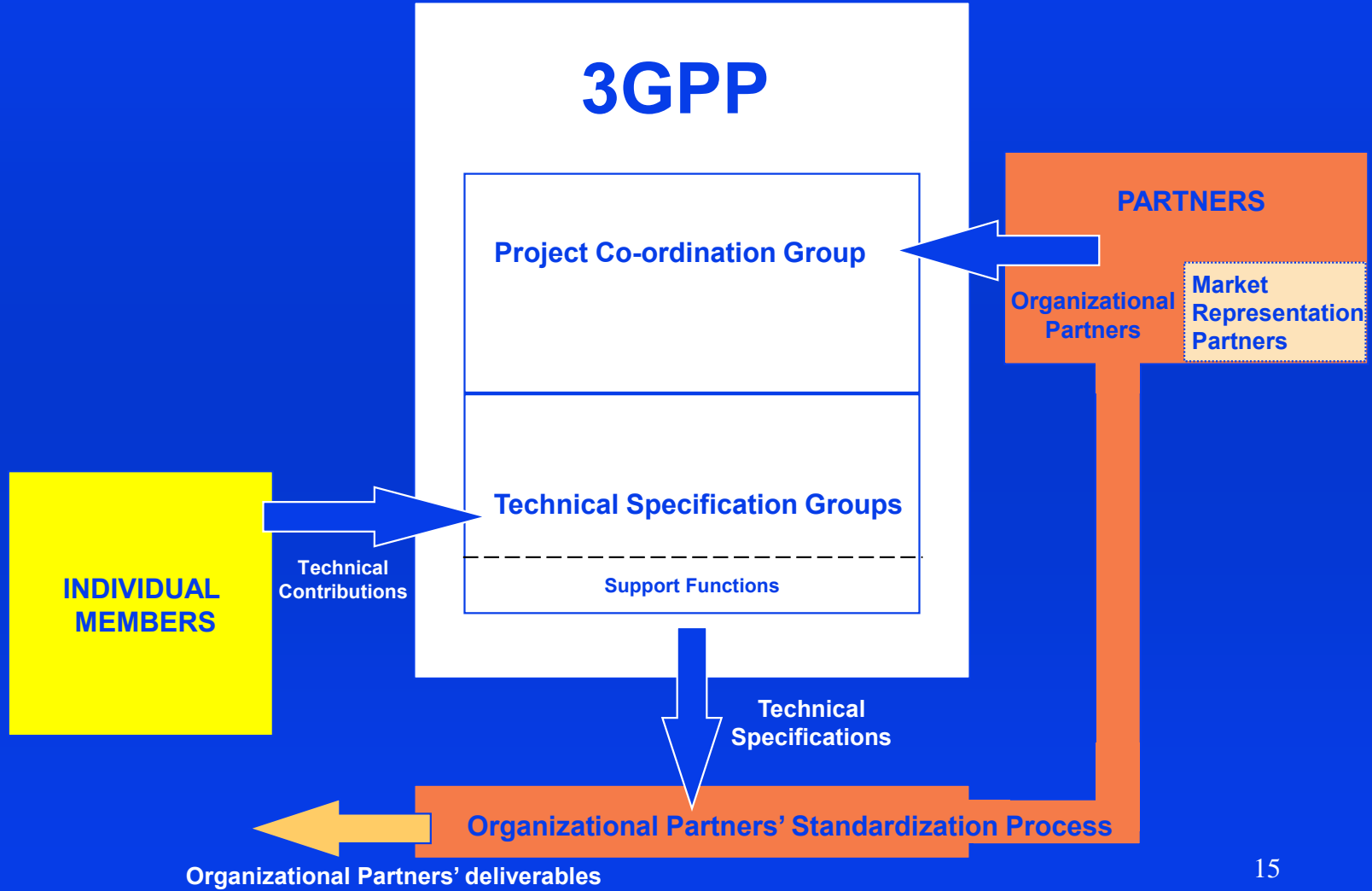
Individual Members (2)

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.

18

Documentation for 3GPP

The following 3 documents describe 3GPP:

- **The Partnership Project Agreement**

- **The Partnership Project Description (this present document)**

- **The Partnership Project Working Procedures**

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**

21

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.

DELL Ex. 1010

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

23

DELL Ex. 1010

Contributions to ITU

3GPP

International Recommendations

ITU

IMT 2000 Contributions via existing processes

INDIVIDUAL MEMBERS

Technical Contributions

Project Co-ordination Group

Technical Specification Groups

Support Functions

PARTNERS

Organizational Partners

Market Representation Partners

Technical Specifications

Organizational Partners' Standardization Process

Organizational Partners' deliverables

24
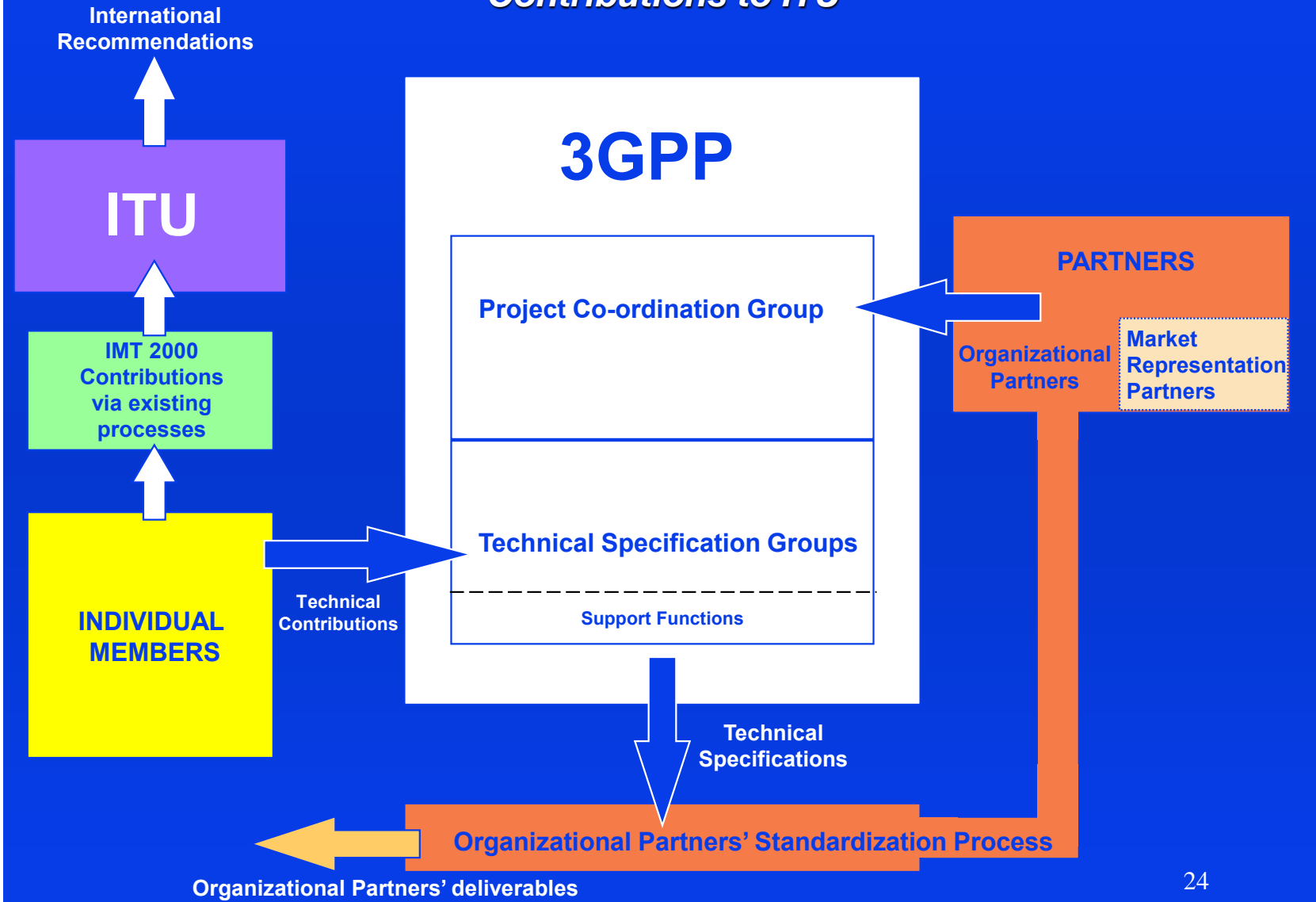
3GPP will not contribute directly to the ITU.

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

25

3GPP-04/12/1998

26

3GPP-04/12/1998

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.

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.

28

3GPP-04/12/1998

Overview showing external interfaces

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

3GPP-04/12/1998

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).

30

3GPP-04/12/1998

Internal structure of 3GPP (2)

3GPP

Project Co-ordination Group

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

Technical Specifications

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**

32

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**

35

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	

37

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)

42

D41 of 47 Ex. 1010

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**

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.**

Appendix 10

The Mobile
Broadband
Standard

A Global
Partnership

About 3GPP   **Specifications Groups**   **Specifications**   **3GPP Calendar**   **Technologies**   **News & Events**   **Home**   **Sitemap**   **Contact**

About 3GPP Home

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

The project covers 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.

3GPP specifications and studies are contribution-driven, by member companies, in Working Groups and at the Technical Specification Group level.

The three Technical Specification Groups (TSG) in 3GPP are;

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

Project Coordination Group (PCG)

TSG RAN
Radio Access Network

RAN WG1
Radio Layer 1 spec

RAN WG2
Radio Layer 2 spec
Radio Layer 3 RR spec

RAN WG3
Iub spec, Iur spec, Iu spec
UTRAN O&M requirements
(Radio CN Interfaces)

RAN WG4
Radio Performance
Protocol aspects

RAN WG5
Mobile Terminal
Conformance Testing

RAN WG6
GSM EDGE
Radio Access Network

TSG CT
Core Network & Terminals

CT WG1
MM/CC/SM (Iu)
(end-to-end aspects)

CT WG3
Interworking with external
networks

CT WG4
MAP/GTP/BCH/SS
(protocols within the CN)

CT WG6
Smart Card Application Aspects

TSG SA
Service & Systems Aspects

SA WG1
Services

SA WG2
Architecture

SA WG3
Security

SA WG4
Speech, audio, video, and
multimedia Codecs

SA WG5
Telecom Management

SA WG6
Mission-Critical Applications

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 (see example below) is TSG SA, which also has responsibility for the overall coordination of the technical work and for the monitoring of its progress.

Search

3GPP Website: Search for...

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More News:

● Adjustments to Rel-16 & Rel-17 Timelines

● Changing 3GPP to help the verticals

● 3GPP working on-line 1H 2020

● 5G for Industry 4.0

● Recorded 3GPP webinars and interviews (no registration needed)

News Feeds

3GPP tweets

3GPP's Meeting Cycle (Q4 example)

These examples are to demonstrate the principle and are not based an actual meeting dates.
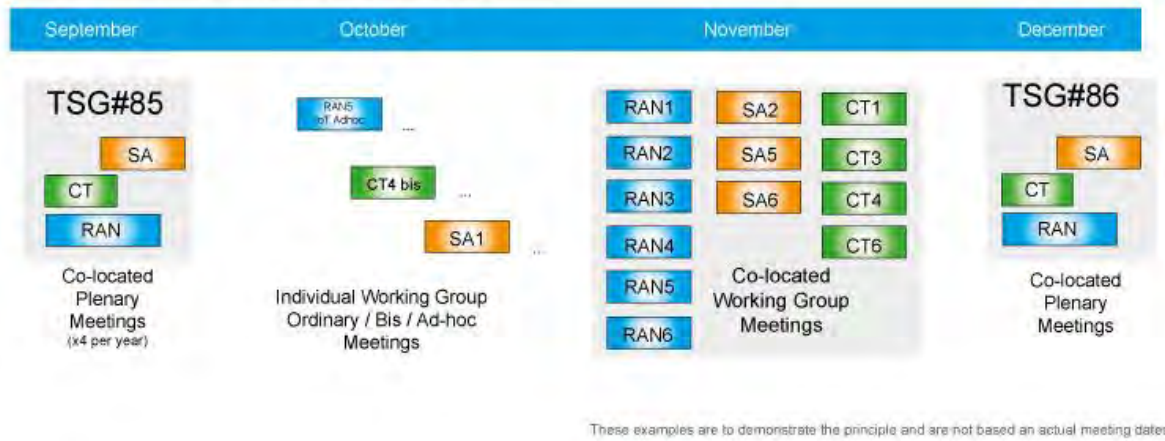
The 3GPP technologies from these groups are constantly evolving through Generations of commercial cellular / mobile systems (see table below). With LTE, LTE-Advanced, LTE Advanced Pro and 5G work - 3GPP has become the focal point for the vast majority of mobile systems beyond 3G.

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. A good example of this principle was the priority placed on backward compatibility between LTE and LTE-Advanced, so that an LTE-A terminal can work in an LTE cell and an LTE terminal works in the LTE-A cell.

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' in to Non-Standalone NR equipment, to ensure that it will be fit for use on Standalone 5G NR systems.

Generations of Mobile Systems

Generation	Major Systems Milestones
1G	Analogue technology, from the 1980s onwards. Various technologies were deployed, Nationally or Regionally, including: NMT (Nordic Mobile Telephone), AMPS (Advanced Mobile Phone System), TACS (Total Access Communications System), A-Netz to E-Netz, Radiocom 2000, RTMI (Radio Telefono Mobile Integrato), JTACS (Japan Total Access Communications System) and TZ-80n (Source:wikipedia)
2G	First digital systems, deployed in the 1990s introducing voice, SMS and data services. The Primary 2G technologies are: GSM/GPRS & EDGE, CDMAOne, PDC, iDEN, IS-136 or D-AMPS.
3G	The 3G system from 3GPP is based on evolved Global System for Mobile communication (GSM) core networks and the radio access technologies that they support. This has allowed for the maintenance and development of GSM, with the evolution of General Packet Radio Service (GPRS) and Enhanced Data rates for GSM Evolution (EDGE), as well as further developments with the Universal Mobile Telecommunications System (UMTS) and High Speed Packet data Access (HSPA). 3G brought a global vision to the evolution of mobile networks, with the creation of the ITU's family of IMT-2000 systems which included EDGE, CDMA2000 1X/EVDO and UMTS-HSPA+ radio access technologies.

Generation	Major Systems Milestones
3G/4G	LTE and LTE-Advanced have crossed the "generational boundary" offering the next generation(s) of capabilities. With their capacity for high speed data, significant spectral efficiencies and adoption of advanced radio techniques, their emergence has been the basis for all new mobile systems from Release 8 onwards. It should be noted that LTE-Advanced (From Release 10) is 3GPP's ITU-R IMT-Advanced radio interface. LTE-Advanced is the first true 4G technology to be specified by 3GPP. LTE-Advanced Pro is the name that helps the industry describe what has been achieved with the completion of Release 13. LTE Pro is set to be used by other sectors, beyond telecoms, including Critical Communications (blue light services & other Mission Critical systems), the machine-to-machine or Internet of Things (IoT) sector, Transport (Rail, ITS, etc), Education and many other areas. LTE-Advanced Pro is 3GPP's stepping stone to 5G systems.
5G	5G brings another major technology step, with the creation of a 'New Radio' (NR). Unlike with 4G, where 3GPP hesitated to join the generational march onwards beyond 3G, we have embraced the alignment of the industry on NR and on LTE-Advanced Pro to provide 5G – from 3GPP Release 15 onwards.

Radio Access Milestones

3GPP Technical Specification Group RAN, like other TSGs, ensures that systems based on 3GPP specifications are capable of rapid development and deployment with the provision of global roaming of equipment.

Each progressive 3GPP radio access technology aims to reduce complexity and avoid fragmentation of technologies on offer.

Core Network Evolution

GSM networks used circuit-switch telephony initially, with packet-switching added with GPRS. In the UMTS architecture, this dual-domain concept was kept on the core network side. Some network elements were evolved, but the concept remained very similar.

When considering the evolution of the 3G system towards LTE, the 3GPP community decided to use IP (Internet Protocol) as the key protocol to transport all services. It was therefore agreed that the Evolved Packet Core (EPC) would not have a circuit-switched domain but that the EPC should be an evolution of the packet-switched architecture used in GPRS/UMTS.

This decision had consequences on the architecture itself but also on the way that the services were provided. Traditional use of circuits to carry voice and short messages needed to be replaced by IP-based solutions in the long term... *Read more on the EPC at*

http://www.3gpp.org/The-Evolved-Packet-Core
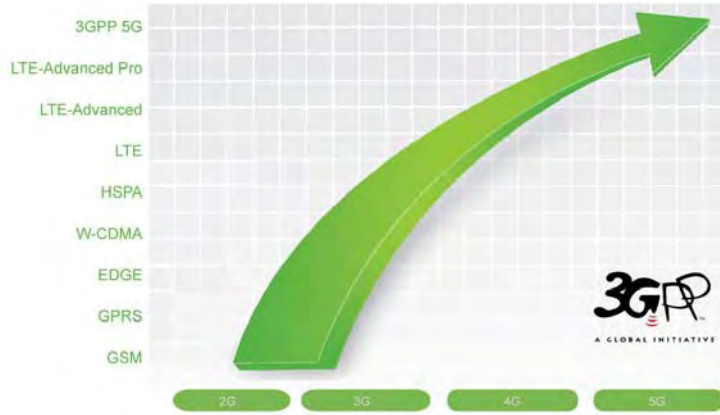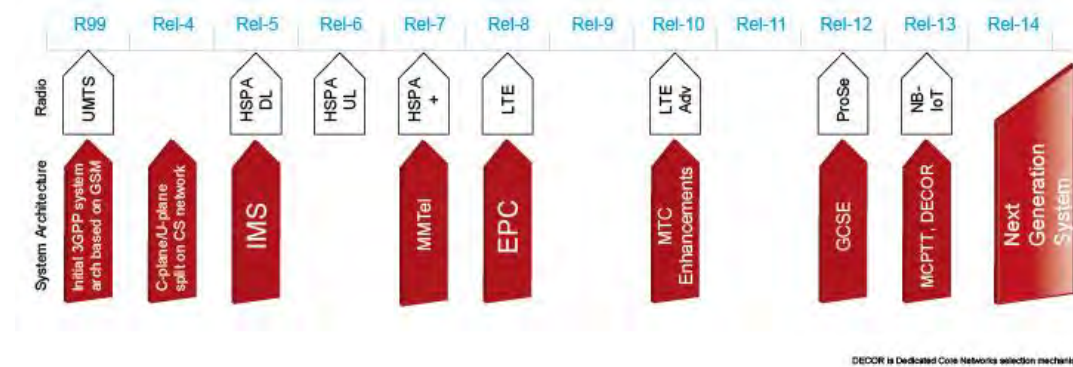
For details of the contents of each Release, see the appropriate 'Release Description' document (or see direct link at bottom of this page).

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'.

3GPP 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 Global System for Mobile communication (GSM) Technical Specifications and Technical Reports including evolved radio access technologies (e.g. General Packet Radio Service (GPRS) and Enhanced Data rates for GSM Evolution (EDGE)).

3GPP was created in December 1998 by the signing of the "The 3rd Generation Partnership **Project Agreement**". The latest **3GPP Scope and Objectives document** has evolved from this original Agreement.

The discussions that led to the signing of the 3GPP 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 Partnership Project Description has not been maintained since its first creation but the principles of operation of the project still remain valid.

ABOUT RELEASES

Release 17
Release 16
Release 15
Release 14
Release 13
Release 12
Release 11
Release 10
Release 9
Release 8
Release 7
Release 6
Release 5
Release 4
Release 1999

FULL MEETING CALENDAR

**Face to face meetings have been suspended for the time being.
The calendar of replacement e-meetings is online at
https://portal.3gpp.org/**

BROWSE KEYWORDS & TECH.

Common API Framework (CAPIF)
Carrier Aggregation Explained
Coordinated Vulnerability Disclosure (CVD)
The Evolved Packet Core
GPRS & EDGE
HSPA
LTE-Advanced
LTE
UAS - UAV
UMTS
V2X
W-CDMA
...more keywords

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Appendix 11

3GPP FAQs

3GPP FAQs

Questions about 3GPP Membership
Questions about 3GPP email exploder lists
Questions about Legal Matters
Questions about 3GPP Specifications
Questions about Technical Specification Group/Working Group
Questions about Documents and TSG/WG Meetings
Questions about Work Items and Deliverables
Miscellaneous
Technical topics

Questions about 3GPP Membership

Who can become an Individual Member of 3GPP and how much does it cost?
Who may participate in 3GPP meetings?
Who shall fill in the 3GPP Individual Member Application form?
What shall I do if a 3GPP company or official contact details change?
What are the different membership categories?
Who may become an observer?
Who may become a Guest Member and do guests have to pay any fees?
Who can apply for market representative Partnership?
Can an ETSI Observer become an Individual Member of 3GPP?
Can an ETSI Applicant apply for 3GPP Membership?
Can an ETSI Member apply for 3GPP Guest status?

Questions about 3GPP email exploder lists

Are there discussion archives for the 3GPP exploder lists?
How do I subscribe to the 3GPP exploder lists?

Questions about Legal Matters

What is the 3GPP IPR Policy?
What is the 3GPP policy on licensing?
Who owns the Technical Specifications and the Technical Reports approved by 3GPP?
Are meeting contributions to ETSI TC SMG publically available?
Is permission needed to use the 3GPP logo in marketing collaterals or on a web site?
Can I use computer code included with a 3GPP TS to implement a product?

Questions about 3GPP Specifications

How do I create the next Release version of a TS or TR?
Where can the rules, protocols or software needed to develop applications for UMTS be found?
What is the correlation between Stage 1, Stage 2 and Stage 3?
Are the 3GPP specifications produced only in word?
Which group works with specifications covering the use of the GSM codec (either in C or Java based)?
Where can I find documents produced by the GSM MoU Group / GSM Association?
Where would I find a document (e.g. UMTS 30.03 version 3.1.0) which does not appear on the status list?
Where are all the Change Requests (CRs) located?
Where are all the current ETSI SMG specs located?
Which group works on Physical Layer aspects of UMTS/LTE?
Where can I find the list of Abstract syntax notation (ASN.1) object identifiers?

Search

3GPP Website: Search for...

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

ADVANCED FTP SEARCH

More News:

● Adjustments to Rel-16 & Rel-17 Timelines

● Changing 3GPP to help the verticals

● 3GPP working on-line 1H 2020

● 5G for Industry 4.0

● Recorded 3GPP webinars and interviews (no registration needed)

News Feeds

3GPP tweets

Where can I find the 3GPP Confidentiality and Integrity algorithms?
What is a Release - how does specification version numbering work?
Where can I find information on the current status of 3GPP specifications?
What is the system for numbering specifications?
What is the meaning of the text at the foot of the TS/TR cover page?

Questions about Technical Specification Group/Working Group

Who are the TSG/WG Officials and Support team and where can I find their contact details?
Where can I find the Terms of Reference for my TSG/WG?
May I become an Official?
Where are my TSG/WGs documents stored?

Questions about Documents and TSG/WG Meetings

How do I register for a meeting?
Who can submit a change proposal on any 3GPP specifications to 3GPP?
If a change proposal is submitted how long does it take for it to get approved?
How to get a user name and password for "Reserve a Document Number"?
How do I obtain a document number for my contribution?
Where can I download documents for an upcoming meeting?
Where can I find a temporary document template?

Questions about Work Items and Deliverables

What is my role when my TSG/WGs has to approve a deliverable?
What are the different types of deliverables?
Can I write an 3GPP Document myself?
Do I and my company have to support my TSG/WGs Work Items?

Miscellaneous

Do I need a password and user name to access the 3GPP Web site ?
Can you give me information about which companies manufacture particular types of equipment. (...)
How can I determine when a meeting contribution document (TDoc) became publicly available?
Is it possible to determine the date and time of publication of a particular version of a 3GPP specification?

Technical topics

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?
Where can I find a list of technical terms and abbreviations used in 3GPP documents?
What is the difference between a SIM and a USIM? What is a UICC?
I have transferred a video file from my phone to my PC. Where can I find a player for 3gp files?
Where can I find the specification of the SIM Lock feature?

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).

ETSI Members' and associate members' fees are calculated by class. The class is derived from the member
company's annual ECRT band (Electronics Communications Related Turnover) – see ECRT definition.
Each class corresponds to a number of units. This number determines the contribution payable.

Example: If your organization declares an annual ECRT of up to 135€ million, you would need to pay 2 Units of
Contribution (corresponding to 9380€ per year) plus an additional UoC for participation in 3GPP of 3380€ (see fees
table). Members joining ETSI during the 2nd half of the year benefit from a 50% rebate on the membership fee of the
current year. In this case, you would pay 12760€ minus 50% = 6380€ for yyyy.

Who may participate in 3GPP meetings?

To attend a 3GPP meeting, you must be a 3GPP Individual Member (i.e., you must be a Member of one of the
Organizational Partners involved in the project; ARIB, CCSA, ETSI, ATIS, TTA , TTC or TSDSI). 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?

https://www.3gpp.org/about-3gpp/3gpp-faqs

Page 2 of 11
Dec. Incl. Ex. 1010
Page 140 of 335
2/11

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 ETSI Membership and 3GPPMembership.
In case of change of official contact an ETSI Online (EOL) account will be created for the new contact.
Please note that as official contact person you can view and modify your personal and organization's contact details via the "Manage my membership" web interface.

What are the different membership categories?

The different membership categories of 3GPP are described in Article 4 of the 3GPP Working Procedures.

Who may become an observer?

The status of Observer may be granted by the Organizational Partners to an entity which has the qualifications to become a future Partner (see also 3GPP Working Procedures Article 10)

Who may become a 3GPP Guest Member and do guests have to pay any fees?

The 3GPP Guest status is for potential Individual Members who may be granted permission to participate in 3GPP for a maximum period of 6 months. Guest status is granted on a case-by-case basis by the Organizational Partners (see also 3GPP Working Procedures Article 10). If you like to apply for a Guest status, please complete the on-line 3GPP Application form.

No membership fees are requested for Guest applications. The Guest status is a one time only membership which is used to enable a company to decide whether or not they wish to become a full member (by joining one of the Partners).

Who can apply for market representative Partnership?

Organisation who have the ability to offer market advice to 3GPP and to bring into 3GPP a consensus view of market requirements (e.g., services, features and functionality) falling within the 3GPP scope (see also 3GPP Working Procedures, Article 7).

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

An ETSI Observer cannot become an Individual Member of 3GPP. 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 ETSI Applicant means that your request to become an ETSI Member will be addressed (and normally approved) at the next General Assembly and that the company has specified they want to participate in 3GPP activities. See also above regarding 3GPP fees.

Can an ETSI Member apply for 3GPP Guest status?

Yes, any ETSI Member can apply for a 3GPP Guest status by filling in the on-line 3GPP Application form.

Are there discussion archives for the 3GPP exploder lists?

Yes! To see the complete list please have a look here: Home page of listserv and scroll down until you find the list you are interested in. For example, the archives for the main RAN email list.

How do I subscribe to the 3GPP exploder lists?

All 3GPP email exploder lists can be found at list.3gpp.org. In order to subscribe to any of the lists, scroll down until you find the list you are interested in, then click on the link and on the right side of the page you will find Subscribe or Unsubscribe. Click on the link and follow the simple instructions. Delegates who already have an ETSI username and password should use the list management application on the ETSI site.

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 Working Procedures which request that each Individual Members should declare "at the earliest opportunity, any IPR which they believe to be essential, or potentially essential, to any work ongoing within 3GPP".

What is the 3GPP policy on licensing?

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

Neither 3GPP nor its component OPs offer an IPR search service. It is the responsibility of each manufacturer / system implementor to seek and obtain its own licenses from the individual IPR holders. For more information, and a guide to the IPRs declared to each 3GPP OP, look here>>>

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.

Are meeting contributions to ETSI TC SMG publically available?

ETSI TC SMG meeting documents can be found on the ETSI docbox file server. Access is limited to bona fide representatives of ETSI member organizations. These, together with early versions of the GSM specifications, have been gathered together into a set of DVDs "A Technical History of GSM" available to ETSI members via the ETSI WEB store.

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

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

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

TC-approved versions of ETSI "deliverables" (see ETSI Directives for formal definition of this term) would have been transferred by the support officer of the committee to the secretariat team responsible for publishing ETSI deliverables. That team would have made cosmetic (non-technical) modifications to the draft deliverables before issuing them. Depending on the type of "deliverable", those documents would have been issued via National Standards Organizations (NSOs) either for immediate publication, or first via either a one-step or two-step national public enquiry and vote process prior to final publication by ETSI. In ETSI parlance, "publication" of a deliverable is the final step in the development cycle of a technical standard, and has a precise meaning. That meaning is not "making publically available", since draft deliverables released for public enquiry or for vote are "publically available" but not yet "published".

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

Collections of TDocs / meeting reports have from time to time been made available to ETSI members in CD or DVD form, look here >>>

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, 3GPP and LTE logos. ETSI Members are authorized to use these Trade Marks in accordance with Collective Letter 1943. Authorization is needed to use the above mentioned acronyms and logos.

For further information contact the ETSI Legal Team or see http://www.3gpp.org/about-3gpp/legal-matters/logo-use.

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

Yes, but read this clause carefully. Some 3GPP Technical Specifications include computer code such as ASN.1 or XML (protocols), ANSI-C language (codecs), ...; and some include test vectors (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 implementers are obliged to seek licences from IPR owners to use that technology. See also What is the 3GPP policy on licensing?

Moreover, the copyright of all 3GPP TSs and TRs vests jointly by all the 3GPP OPs. Other than for in-house copies for the purpose of further development of the 3GPP standard or for product design purposes, etc. you may not reproduce any part of a 3GPP TS or TR without seeking permission from 3GPP (e.g. from the ETSI Legal Team): use the procedure described on the legal area of this site. 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.

How do I create the next Release version of a TS or TR?

There are three ways of upgrading a Release X spec to Release X+1:

1. Write a CR to the latest Release X version to incorporate technical changes to satisfy a Release X+1 work item, and on the cover sheet showing the WI code for that work item and the Release code for Release X+1. If the CR is approved at TSG level, this will automatically create the first instance of the next Release of the spec.
2. Make a specific request to the TSG to upgrade the latest version of the spec from Release X to Release X+1. This might be needed if the functionalities of the two Releases diverge, though backwards-incompatibility is to be avoided if possible.
3. Do nothing. If a spec has survived unchanged throughout the period during which Release X+1 was developed, when Release X+1 is frozen, all such specs will automatically be upgraded from Release X to Release X+1 without technical change.

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.

What is the correlation between Stage 1, Stage 2 and Stage 3?

A three-stage methodology as defined in ITU T Recommendation I.130 is applied in 3GPP according TR 21.900 clause 4.1:

Stage 1 is an overall service description from the user's standpoint.
Stage 2 is an overall description of the organization of the network functions to map service requirements into network capabilities.
Stage 3 is the definition of switching and signalling capabilities needed to support services defined in stage 1.

Are the 3GPP specifications produced only in word?

The 3GPP specs are published as ETSI deliverables, and these are available in PDF form http://www.etsi.org/standards-search. But you can download a free Word viewer (i.e. 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 SMG STC 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 : http://www.3gpp.org/ftp/Information/Databases/Spec_Status/)

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/standards-search.

Where can I find documents produced by the GSM MoU Group / GSM Association?

These documents are not available via 3GPP or its Organizational Partners. You must address this question to the GSM Association.

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://www.3gpp.org/DynaReport/3003U.htm. 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://www.etsi.org/standards-search.

Where are all the Change Requests (CRs) located?

The CR database can be downloaded under: http://www.3gpp.org/ftp/Information/Databases/Change_Request/

Or you select the specification under:
http://www.3gpp.org/specifications/79-specification-numbering

The information is classed by series so it is very easy to locate the particular specification which interests you. After selecting a series and a specification you will find a line "Change Requests for this spec: click here." which provides a web list of the CRs for this specification.

If, for example, you are looking for CRs on GSM 08.18 then you would use this link:
http://www.3gpp.org/ftp/Specs/html-info/0818-CRs.htm
http://www.3gpp.org/DynaReport/0818http://www.3gpp.org/ftp/Specs/html-info/0818-CRs.htm
-CRs.htm

Where are all the current ETSI SMG specs located?

All the ETSI SMG specs are located here 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 at http://webapp.etsi.org/key/queryform.asp

Which group works on Physical Layer aspects of UMTS/LTE?

The radio aspects are standardised in TSG-RAN. The technical work is done in the 5 Working Groups of RAN (WG1 radio layer 1, WG2 radio layer 2/3, WG3 interfaces, WG4 RF measurements, WG5 Mobile Terminal Conformance Testing).
So Physical Layer aspects are addressed by TSG RAN WG1. Their UMTS specifications are numbered 25.2xx and their LTE specifications are numbered 36.2xx.
The temporary documents (meeting documents etc.) of WG1 are stored on ftp://ftp.3gpp.org/TSG_RAN/WG1_RL1.

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?

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 >>>.

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 and a secretary who is 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 "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.

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

How do I register for a meeting?

To register to any 3GPP TSG/WG meeting, please go to the Meetings tab on the 3GPP Ultimate portal (3GU) at https://portal.3gpp.org/, log in with your EOL credentials, and click "Not registered" in the Registration column of the meeting in question. When registration is complete, you will receive a confirmation email. Keep this email, it contains important information, without which you will not be able to confirm your presence!

Once you are at the meeting you have to "Check-in" to confirm your presence at the meeting itself. To check in, open the registration confirmation email and click on the check-in URL. This will take you to a page on the local meeting server (not the Internet). After you have checked in, your token will be sent to the main 3GPP server, and the web-based participants list will now show "yes" in the Participated column. Obviously you must be physically present at the meeting venue to be able to reach the local server.

Who can submit a change proposal on any 3GPP specifications to 3GPP?

Any bona fide representative of any 3GPP Individual Member (see list via the first sentence at http://www.3gpp.org/membership) can present a technical contribution - for example, a Change Request - to any 3GPP TSG or WG meeting.

If a change proposal is submitted how long does it take for it to get approved?

The usual procedure is that the responsible Working Group will examine a CR and agree it (or revise it until such time as it be agreeable - or not!). Having been agreed at WG level, it is packaged with related CRs and sent to the TSG plenary, where it will be discussed if necessary and then - if appropriate - formally approved. Within a matter a few weeks at most, a new version of the Specification is produced, which includes the contents of the TSG-approved CR.

TSGs meet every three months, and WGs meet at least once between each TSG meeting (sometimes two or occasionally even more times). Thus from inception of a CR to its approval is normally a matter of a few weeks,

depending on the point in the meeting schedule of the WG and TSG concerned.

How to get a user name and password for "Reserve a Document Number"?

You need to request an EOL account via: http://webapp.etsi.org/createaccount/form.asp (username and password will then be sent to you by separate email).

How do I obtain a document number for my contribution?

Delegates wishing to make contributions must first obtain a document number either from the secretary or automatically via an on-line application "Automatic Document Numbering (ADN)" which is used by some groups.

You need a user name and password to "Reserve a Document Number" (see above).

Where can I download documents for an upcoming meeting?

Each TSG/WG has a specific area allocated on the 3GPP ftp server. For example TSG SA look here ftp://ftp.3gpp.org/tsg_sa/TSG_SA/. 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 (see above).

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.

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.

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 Chairman'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 his own PC) to the public server, he may opt to only copy the missing files (i.e. the new ones), which is the best approach; or he 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.

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.

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/Directives/DirectiveList.asp.

General electrical equipment is covered by the EMC Directive & Low Voltage Directives, see http://ec.europa.eu/enterprise/sectors/electrical/documents/index_en.htm.
The harmonized standards are listed at http://ec.europa.eu/enterprise/policies/european-standards/harmonised-standards/index_en.htm
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/policies/european-standards/harmonised-standards/rtte/index_en.htm, which also includes a link to the one-stop procedure for "placing on the market" (http://ec.europa.eu/enterprise/sectors/rtte/documents/guidance/one-stop-procedure_en.htm).

Further information on EU harmonized standards relevant to telecommunications can be found on the ETSI site at http://www.etsi.org/standards/looking-for-an-etsi-standard/list-of-harmonized-standards, and the published standards themselves can be downloaded via http://pda.etsi.org/pda/queryform.asp.

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.

I have transferred a video 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 3GPP TS 26.412. However, 3GPP has not defined a specific 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.

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

In clause 8 of 3GPP TS 22.022.

What is the meaning of the text at the foot of the TS/TR cover page?

The present document has been developed within the 3rd Generation Partnership Project (3GPP TM) and may be further elaborated for the purposes of 3GPP..
The present document has not been subject to any approval process by the 3GPPOrganizational Partners and shall not be implemented.
This Specification is provided for future development work within 3GPPonly. The Organizational Partners accept no liability for any use of this Specification.
Specifications and Reports for implementation of the 3GPP TM system should be obtained via the 3GPP Organizational Partners' Publications Offices.

3GPP is not a legally incorporated body, and its technical work is conducted under the auspices of its Organizational Partners, each of which transposes relevant 3GPP specifications as its own publications. Thus the "raw" 3GPP TSs and TRs have no legal status per se. Under an agreement with the ITU at the time 3GPP was created, the ITU would not publish the output of 3GPP but would make reference to the publications of the participating Organizational Partners from its Recommendations; this state of affairs accounts for the text found on the cover of each 3GPP TS and TR. More information can be found here.

Revision histoory:

2020-02-21: Minor improvements to the answer to FAQ "How can I determine when a meeting contribution document (TDoc) became publicly available?" (JMM)
2018-01-04: Clarifications to the answer to faq M12. (JMM)
2016-11-16: Correction of minor typo. (JMM)

ABOUT RELEASES

Release 17
Release 16
Release 15
Release 14
Release 13
Release 12
Release 11
Release 10
Release 9
Release 8
Release 7
Release 6
Release 5
Release 4
Release 1999

FULL MEETING CALENDAR

**Face to face meetings have been suspended for the time being.
The calendar of replacement e-meetings is online at
https://portal.3gpp.org/**

BROWSE KEYWORDS & TECH.

Common API Framework (CAPIF)
Carrier Aggregation Explained
Coordinated Vulnerability Disclosure (CVD)
The Evolved Packet Core
GPRS & EDGE
HSPA
LTE-Advanced
LTE
UAS - UAV
UMTS
V2X
W-CDMA
...more keywords

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Appendix 12

http://list.3gpp.org/ [Go]

115 captures
30 Mar 2001 - 27 Nov 2018

SEP **NOV** FEB
◄ **28** ►
2001 **2002** 2003

▼ About this capture

Server Archives

Subscriber's Corner
Server Archives

List Management
List Moderation
Server Management

Help
Log off

Archive Search

List Archives at LIST.ETSI.FR

From this page you can browse the online archives of the following mailing lists:

3GPP-REVIEW
  3GPP-Review : GSMTRANS replacement *(28 subscribers)*
3GPP_3GPP2_SCM
  3GPP_3GPP2_SCM : 3GPP-3GPP2 Spatial Channel Modelling *(173 subscribers)*
3GPP_EVOLUTION
  3GPP_evolution : Evolution of 3GPP *(574 subscribers)*
3GPP_GUP
  3GPP_GUP : Evolution of 3GPP *(224 subscribers)*
3GPP_ORGANIZATION
  3GPP_organization: 3GPP discussion group *(188 subscribers)*
3GPP_TSG_CN
  3GPP_TSG_CN: TSG Core Network group *(364 subscribers)*
3GPP_TSG_CN_AH_ITUT
  3GPP_TSG_CN_AH_ITUT: TSG CN ITU-T Ad-Hoc Group *(39 subscribers)*
3GPP_TSG_CN_WG1
  3GPP_TSG_CN_wg1: TSG CN Working Group 1 *(788 subscribers)*
3GPP_TSG_CN_WG2
  3GPP_TSG_CN_wg2: TSG CN Working Group 2 *(287 subscribers)*
3GPP_TSG_CN_WG3
  3GPP_TSG_CN_wg3: TSG CN Working Group 3 *(273 subscribers)*
3GPP_TSG_CN_WG4
  3GPP_TSG_CN_WG4: TSG Core Network group *(427 subscribers)*
3GPP_TSG_CN_WG4_TRFO
  3GPP_TSG_CN_WG4_TRFO: TSG Core Network group *(16 subscribers)*
3GPP_TSG_CN_WG5
  3GPP_TSG_CN_WG5: TSG Core Network group *(120 subscribers)*
3GPP_TSG_CN_WG5_CALLCONTROL
  3GPP_TSG_CN_WG5_Callcontrol : THIS LIST HAS BEEN CLOSED *(3 subscribers)*
3GPP_TSG_CN_WG5_EDITORS
  3GPP_TSG_CN_WG5_EDITORS : List for Editors of CN5 Specs *(14 subscribers)*
3GPP_TSG_CN_WG5_JOINTAPIWORK
  3GPP_TSG_CN_WG5_JointAPIwork : TSG CN WG5 joint API work mailing list *(228 subscribers)*
3GPP_TSG_CN_WG5_JOINTCALLCONTROL
  3GPP_TSG_CN_WG5_JointCallcontrol: THIS LIST HAS BEEN CLOSED *(36 subscribers)*
3GPP_TSG_GERAN
  3GPP_TSG_GERAN : list for ETSI TSG GERAN mailing *(451 subscribers)*
3GPP_TSG_GERAN_FUTURERAN
  3GPP_TSG_GERAN_FutureRAN : list for ETSI TSG GERAN FutureRAN mailing *(92 subscribers)*
3GPP_TSG_GERAN_TDOC
  3GPP_TSG_GERAN_Tdoc : list for ETSI TSG GERAN Temporary documents *(218 subscribers)*
3GPP_TSG_GERAN_WG1
  3GPP_TSG_GERAN_WG1 : list for ETSI TSG GERAN WG1 mailing *(186 subscribers)*
3GPP_TSG_GERAN_WG2
  3GPP_TSG_GERAN_WG2 : list for ETSI TSG GERAN WG2 mailing *(265 subscribers)*
3GPP_TSG_GERAN_WG3
  3GPP_TSG_GERAN_WG3 : list for ETSI TSG GERAN WG3 mailing *(49 subscribers)*
3GPP_TSG_GERAN_WG4
  3GPP_TSG_GERAN_WG4 : list for ETSI TSG GERAN WG4 mailing *(160 subscribers)*
3GPP_TSG_GERAN_WG4_EDGE
  3GPP_TSG_GERAN_WG4_EDGE : list for ETSI TSG GERAN WG4_EDGE mailing *(48 subscribers)*
3GPP_TSG_GERAN_WG4_GPRS

http://list.3gpp.org/

Go

SEP **NOV** FEB

◀ **28** ▶

2001 **2002** 2003

115 captures

30 Mar 2001 - 27 Nov 2018

▼ About this capture

3GPP_TSG_GERAN_WG4_TTCN
        3GPP_TSG_GERAN_WG4_TTCN : THIS LIST IS NOW CLOSED *(18 subscribers)*
3GPP_TSG_GERAN_WG5
        3GPP_TSG_GERAN_WG5 : list for ETSI TSG GERAN Working Group 5 *(107 subscribers)*
3GPP_TSG_RAN
        3GPP_TSG_RAN: TSG Radio Access Network group *(610 subscribers)*
3GPP_TSG_RAN_ADHOC
        3GPP_TSG_RAN_ADHOC: TSG RAN Ad Hoc meetings *(90 subscribers)*
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        3GPP_TSG_RAN_WG3: TSG RAN Working Group 3 *(865 subscribers)*
3GPP_TSG_RAN_WG4
        3GPP_TSG_RAN_WG4: TSG RAN Working Group 4 *(728 subscribers)*
3GPP_TSG_RAN_WG4_TEM
        3GPP_TSG_RAN_WG4_TEM : Test Equipment Ad hoc mailing list *(36 subscribers)*
3GPP_TSG_SA
        3GPP_TSG_SA: TSG System Aspects group *(575 subscribers)*
3GPP_TSG_SA_WG1
        3GPP_TSG_SA_WG1: TSG SA Services *(937 subscribers)*
3GPP_TSG_SA_WG1_DSR
        3GPP_TSG_SA_WG1_DSR: TSG SA1 Distributed Speech Recognition *(96 subscribers)*
3GPP_TSG_SA_WG1_GLOBALTEXT
        3GPP_TSG_SA_WG1_GlobalText: THIS LIST IS NO LONGER IN USE *(0 subscriber)*
3GPP_TSG_SA_WG1_PAS
        3GPP_TSG_SA_WG1_PAS: TSG SA1 Priority Access Service *(63 subscribers)*
3GPP_TSG_SA_WG1_S1_NETSELECT
        3GPP_TSG_SA_WG1_S1_NetSelect: Network Selection issues *(30 subscribers)*
3GPP_TSG_SA_WG1_USERPROFILE
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3GPP_TSG_SA_WG1_WLAN
        3GPP_TSG_SA_WG1_WLAN: TSG SA1 Wireless LAN *(243 subscribers)*
3GPP_TSG_SA_WG2
        3GPP_TSG_SA_WG2: TSG SA Architecture *(867 subscribers)*
3GPP_TSG_SA_WG3
        3GPP_TSG_SA_WG3: TSG SA Security *(337 subscribers)*
3GPP_TSG_SA_WG3_LI
        3GPP_TSG_SA_WG3_LI: (TSG SA WG3 Lawful Interception Group) *(87 subscribers)*
3GPP_TSG_SA_WG4
        3GPP_TSG_SA_WG4: TSG SA CODEC *(345 subscribers)*
3GPP_TSG_SA_WG5
        3GPP_TSG_SA_WG 5: TSG SA5 Telecoms Management *(385 subscribers)*
3GPP_TSG_SA_WG5_FM
        3GPP_TSG_SA_WG5_FM : TSG SA5 FM *(218 subscribers)*
3GPP_TSG_SA_WG5_PM
        3GPP_TSG_SA_WG5_PM : THIS LIST IS NO LONGER IN USE *(1 subscriber)*
3GPP_TSG_SA_WG5_SWGA
        3GPP_TSG_SA_WG5_SWGA : Architecture & Requirements *(258 subscribers)*
3GPP_TSG_SA_WG5_SWGB
        3GPP_TSG_SA_WG5_SWGB : Charging *(259 subscribers)*
3GPP_TSG_SA_WG5_SWGC
        3GPP_TSG_SA_WG5_SWGC : Telecom Network Infrastructure *(244 subscribers)*
3GPP_TSG_SA_WG5_SWGD
        3GPP_TSG_SA_WG5_SWGD : Performance & Trace Management *(241 subscribers)*

http://list.3gpp.org/   Go   **SEP NOV FEB**

◄ **28** ►

2001 2002 2003

115 captures

30 Mar 2001 - 27 Nov 2018

▼ About this capture

3GPP_TSG_T_WG1_RF

    3GPP_TSG_T_WG1_RF: TSG T1 RF subworking group *(201 subscribers)*

3GPP_TSG_T_WG1_SIG

    3GPP_TSG_T_WG1_Sig: TSG T1 Signalling subworking group *(295 subscribers)*

3GPP_TSG_T_WG2

    3GPP_TSG_T_WG2: TSG T MT Services and Capabilities *(298 subscribers)*

3GPP_TSG_T_WG2_SWG1

    3GPP_TSG_T_WG2_SWG1 : Execution Environment *(220 subscribers)*

3GPP_TSG_T_WG2_SWG2

    3GPP_TSG_T_WG2_SWG2 : Terminal Interfaces *(150 subscribers)*

3GPP_TSG_T_WG2_SWG3

    3GPP_TSG_T_WG2_SWG3 : Messaging *(373 subscribers)*

3GPP_TSG_T_WG3

    3GPP_TSG_T_WG3: TSG T3 USIM *(468 subscribers)*

3GPP_TSG_T_WG3_API

    3GPP_TSG_T_WG3_API: TSG-T3 API Sub Working Group discussion *(162 subscribers)*

3GPP_TSG_T_WG3_TEST

    3GPP_TSG_T_WG3_TEST: T3 Testing related discussion *(173 subscribers)*

3GPP_TSG_T_WG3_UI

    3GPP_TSG_T_WG3_UI: TSG-T3 USAT Interpreter discussion *(69 subscribers)*

3GPP_TSG_T_WG3_USAT

    3GPP_TSG_T_WG3_USAT: TSG-T3 USIM Application Toolkit Discussion *(294 subscribers)*

3GPP_WP_GROUP

    3GPP_WP_GROUP: 3GPP_WP_GROUP list *(6 subscribers)*

ADMIN_GROUP

    ADMIN_GROUP : ADMIN_GROUP list *(76 subscribers)*

AT

    AT: TC Access & Terminals - The ETSI "home" for terminal matters *(153 subscribers)*

AT-2GCABLEMODEM

    AT-2Gcablemodem@list.etsi.fr 2nd generation cable modem *(39 subscribers)*

AT-A

    AT-A: TC AT Working Group for Conventional Analogue Technologies *(109 subscribers)*

AT-CABLENET

    AT-CableNet: TC Rapporteurs Group for MultiMedia IP telecomms over cable *(76 subscribers)*

AT-D

    AT-D: TC AT Working group for digital technologies *(138 subscribers)*

AT-F

    AT-F: TC AT Working group for Enhanced Features *(85 subscribers)*

AT-IP

    AT-IP: TC Rapporteurs Group for IP *(53 subscribers)*

AT-N

    AT-N: AT-N list *(63 subscribers)*

AT-SMS

    At-sms : AT-SMS *(48 subscribers)*

AT-TBR

    AT-TBR : AT-TBR *(43 subscribers)*

AT_ANNOUNCE

    AT_announce: AT_announce list *(95 subscribers)*

AT_A_ANNOUNCE

    AT Analogue announce list *(60 subscribers)*

AT_D_ANNOUNCE

    AT Digital announce list *(79 subscribers)*

AT_F_ANNOUNCE

    AT Features announce list *(51 subscribers)*

AT_N_ANNOUNCE

    AT_N_ANNOUNCE: AT NGNatHome announce list *(12 subscribers)*

BOARD_3GFF

    Board_3GFF: 3GPP Funding Formula Board ad hoc group *(29 subscribers)*

BRAN

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SEP **NOV** FEB

◀ **28** ▶

2001 **2002** 2003

115 captures
30 Mar 2001 - 27 Nov 2018

▼ About this capture

Broadband Radio Access Networks announcement list *(100 subscribers)*

BRAN_HA
   BRAN_HA: BRAN HIPERACCESS Standards Area mailing list *(107 subscribers)*
BRAN_HA_DLC_DG
   BRAN_HA_DLC_DG: ETSI BRAN HIPERACCESS DLC Drafting Group *(46 subscribers)*
BRAN_HETF
   BRAN_HETF: BRAN HETF list *(56 subscribers)*
BRAN_HL
   BRAN_HL: BRAN HIPERLAN/2 Standards Area mailing list *(168 subscribers)*
BRAN_HL_3G
   BRAN_HL_3G list: ETSI BRAN HL_3G Interworking *(99 subscribers)*
BRAN_HL_SPECTRUM
   BRAN_HL_SPECTRUM: BRAN HIPERLAN/2 SPECTRUM GROUP *(107 subscribers)*
BRAN_HL_TESTING
   BRAN_HL_TESTING: BRAN HIPERLAN/2 conformance testing *(72 subscribers)*
BRAN_HM
   BRAN_HM: ETSI BRAN HIPERMAN (FWA below 11 GHz) *(91 subscribers)*
BRAN_SDL
   BRAN_SDL: BRAN SDL team members *(47 subscribers)*
BROADCAST
   BROADCAST : EBU/CENELEC/ETSI Joint Technical Committee *(58 subscribers)*
BROADCAST_ANNOUNCE
   BROADCAST Announcement list *(27 subscribers)*
CATV_CO-ORD
   CATV_CO-ORD:ETSI co-ordination for CATV matters (CENELEC TC 209) *(14 subscribers)*
CENELEC_ETSI_JWG_EMC
   CENELEC_ETSI_JWG_EMC : CENELEC/ETSI *(111 subscribers)*
CEPT_ETSI
   CEPT_ETSI : CEPT/ETSI Officials meeting distribution list *(48 subscribers)*
CLC-ETSI-JCG-CATV-SMATV
   CLC-ETSI-JCG-CATV-SMATV : CENELEC/ETSI JCG CATV/SMATV *(14 subscribers)*
CLC-ETSI-JWG-PLTCOEX
   CLC-ETSI-JWG-PLTCOEX:CENELEC ETSI Joint Working Group *(25 subscribers)*
DECT_A
   DECT_A : ETSI DECT Non-Testing Sub-Project mailing list *(50 subscribers)*
DECT_A_ANNOUNCE
   DECT A announce list *(11 subscribers)*
DECT_T
   DECT_T : DECT Testing Sub-Project *(39 subscribers)*
DECT_T_ANNOUNCE
   DECT T announce list *(7 subscribers)*
DELIVERABLE-NOTIFICATIONS
   DELIVERABLE-NOTIFICATIONS : Deliverable Notifications *(101 subscribers)*
EDS-NEWS
   EDS-NEWS: ETSI Documentation Service News *(134 subscribers)*
EE
   ENVIRONMENTAL ENGINEERING Technical Committee membership and mailing list *(44 subscribers)*
EE1
   EE1 : (Environmental Conditions) membership and mailing list *(32 subscribers)*
EE1_ANNOUNCE
   EE 1 announce list *(13 subscribers)*
EE2
   EE2 : (Power Supply) membership and mailing list *(32 subscribers)*
EE2_ANNOUNCE
   EE 2 announce list *(6 subscribers)*
EESSI
   EESSI: European Electronique Signature Standardization Initiative *(29 subscribers)*
EE_ANNOUNCE
   ENVIRONMENTAL ENGINEERING Announce list *(12 subscribers)*

http://list.3gpp.org/

115 captures
30 Mar 2001 - 27 Nov 2018

SEP NOV FEB
◀ 28 ▶
2001 2002 2003

About this capture

EF3_BOARD
  EF3_BOARD: EF3 BOARD MEMBERS *(7 subscribers)*
EL-SIGN
  EL-Sign: Electronic Signatures - Open Discussion *(229 subscribers)*
EMTEL
  EMTEL : Emergency Telecommunications Distribution list *(85 subscribers)*
EPDECT
  EPDECT : ETSI Project DECT discussion list *(52 subscribers)*
EPDECT_ANNOUNCE
  Announce list for ETSI Project DECT *(10 subscribers)*
ERM
  ERM : EMC and Radio Spectrum Matters distribution *(187 subscribers)*
ERMCC
  ERMCC: ERM Co-ordination Committee *(39 subscribers)*
ERM_ACEA
  ERM_ACEA : ACEA/ETSI meetings *(19 subscribers)*
ERM_ANNOUNCE
  erm_announce : EMC and Radio Spectrum Matters distribution *(70 subscribers)*
ERM_EMC
  ERM_EMC : ERM WG on Electromagnetic Compatibility *(132 subscribers)*
ERM_EMC_ANNOUNCE
  erm_em_announce: erm_em_announce list *(43 subscribers)*
ERM_ITU-R_WP8A
  ERM_ITU-R_WP8A : Preparation for ITU-R WP8A *(16 subscribers)*
ERM_ITU-R_WP8A_P
  ERM_ITU-R_WP8A_P : ITU-R WP8A participants *(15 subscribers)*
ERM_LIAISON
  ERM_liaison : external liaison statements from TC ERM *(15 subscribers)*
ERM_RM
  ERM_RM : Radio Matters *(146 subscribers)*
ERM_RM_ANNOUNCE
  ERM_RM : Radio Matters *(58 subscribers)*
ERM_TG04
  ERM_TG04 : Automotive EMC *(54 subscribers)*
ERM_TG11
  ERM_TG11 : Radio LANs *(58 subscribers)*
ERM_TG14
  ERM_TG14 : Radio Interfaces under Article 4.2 of the R&TTE; Directive *(10 subscribers)*
ERM_TG17
  ERM_TG17 : Standards for broadcast and ancillary communications equipment *(40 subscribers)*
ERM_TG17_WG1_2_4
  ERM_TG17_WG1_2_4 : ERM_TG17 Working Groups Exploder List *(55 subscribers)*
ERM_TG17_WG3
  ERM_TG17_WG3 : Working Group 3 on Radio Microphones *(30 subscribers)*
ERM_TG17_WG5
  ERM_TG17_WG5 : Active TV Reception *(26 subscribers)*
ERM_TG20_INTEGRATION
  ERM_TG20_Integration : Integration of radio *(40 subscribers)*
ERM_TG21
  ERM_TG21 : Co-ordination of ETSI inputs to RAST#10 *(18 subscribers)*
ERM_TG23
  ERM_TG23 : Standards for a close-field peer-to-peer symmetrical data communication system *(27 subscribers)*
ERM_TG25
  ERM_TG25 : Aeronautical *(62 subscribers)*
ERM_TG25_VDL_MODE2
  ERM_TG25_VDL_Mode2: Support Team to finalise EN 301 841 Part 2 *(30 subscribers)*
ERM_TG25_VDL_MODE4
  ERM_TG25_VDL_Mode4: Support Team to finalise EN 301 842 Part 2 *(30 subscribers)*
ERM_TG26

http://list.3gpp.org/

115 captures
30 Mar 2001 - 27 Nov 2018

SEP NOV FEB
◀ 28 ▶
2001 2002 2003

▼ About this capture

**Server
Archives**

List Archives at LIST.ETSI.FR

From this page you can browse the online archives of the following mailing lists:

3GPP-REVIEW
     3GPP-Review : GSMTRANS replacement *(28 subscribers)*
3GPP_3GPP2_SCM
     3GPP_3GPP2_SCM : 3GPP-3GPP2 Spatial Channel Modelling *(173 subscribers)*
3GPP_EVOLUTION
     3GPP_evolution : Evolution of 3GPP *(574 subscribers)*
3GPP_GUP
     3GPP_GUP : Evolution of 3GPP *(224 subscribers)*
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     3GPP_organization: 3GPP discussion group *(188 subscribers)*
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http://list.3gpp.org/   Go   **SEP** **NOV** **FEB**

◄ 28 ►

2001 2002 2003

115 captures

30 Mar 2001 - 27 Nov 2018

▼ About this capture

3GPP_TSG_GERAN_WG4_TTCN

    3GPP_TSG_GERAN_WG4_TTCN : THIS LIST IS NOW CLOSED *(18 subscribers)*

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    3GPP_TSG_SA_WG1_USERPROFILE : TSG SA1 Userprofile *(223 subscribers)*

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    3GPP_TSG_SA_WG1_VOCABULARY: TSG SA1 vocabulary *(165 subscribers)*

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    3GPP_TSG_SA_WG2: TSG SA Architecture *(867 subscribers)*

3GPP_TSG_SA_WG3

    3GPP_TSG_SA_WG3: TSG SA Security *(337 subscribers)*

3GPP_TSG_SA_WG3_LI

    3GPP_TSG_SA_WG3_LI: (TSG SA WG3 Lawful Interception Group) *(87 subscribers)*

3GPP_TSG_SA_WG4

    3GPP_TSG_SA_WG4: TSG SA CODEC *(345 subscribers)*

3GPP_TSG_SA_WG5

    3GPP_TSG_SA_WG 5: TSG SA5 Telecoms Management *(385 subscribers)*

3GPP_TSG_SA_WG5_FM

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     3GPP_TSG_T_WG3: TSG T3 USIM *(468 subscribers)*

3GPP_TSG_T_WG3_API

     3GPP_TSG_T_WG3_API: TSG-T3 API Sub Working Group discussion *(162 subscribers)*

3GPP_TSG_T_WG3_TEST

     3GPP_TSG_T_WG3_TEST: T3 Testing related discussion *(173 subscribers)*

3GPP_TSG_T_WG3_UI

     3GPP_TSG_T_WG3_UI: TSG-T3 USAT Interpreter discussion *(69 subscribers)*

3GPP_TSG_T_WG3_USAT

     3GPP_TSG_T_WG3_USAT: TSG-T3 USIM Application Toolkit Discussion *(294 subscribers)*

3GPP_WP_GROUP

     3GPP_WP_GROUP: 3GPP_WP_GROUP list *(6 subscribers)*

ADMIN_GROUP

     ADMIN_GROUP : ADMIN_GROUP list *(76 subscribers)*

AT

     AT: TC Access & Terminals - The ETSI "home" for terminal matters *(153 subscribers)*

AT-2GCABLEMODEM

     AT-2Gcablemodem@list.etsi.fr 2nd generation cable modem *(39 subscribers)*

AT-A

     AT-A: TC AT Working Group for Conventional Analogue Technologies *(109 subscribers)*

AT-CABLENET

     AT-CableNet: TC Rapporteurs Group for MultiMedia IP telecomms over cable *(76 subscribers)*

AT-D

     AT-D: TC AT Working group for digital technologies *(138 subscribers)*

AT-F

     AT-F: TC AT Working group for Enhanced Features *(85 subscribers)*

AT-IP

     AT-IP: TC Rapporteurs Group for IP *(53 subscribers)*

AT-N

     AT-N: AT-N list *(63 subscribers)*

AT-SMS

     At-sms : AT-SMS *(48 subscribers)*

AT-TBR

     AT-TBR : AT-TBR *(43 subscribers)*

AT_ANNOUNCE

     AT_announce: AT_announce list *(95 subscribers)*

AT_A_ANNOUNCE

     AT Analogue announce list *(60 subscribers)*

AT_D_ANNOUNCE

     AT Digital announce list *(79 subscribers)*

AT_F_ANNOUNCE

     AT Features announce list *(51 subscribers)*

AT_N_ANNOUNCE

     AT_N_ANNOUNCE: AT NGNatHome announce list *(12 subscribers)*

BOARD_3GFF

     Board_3GFF: 3GPP Funding Formula Board ad hoc group *(29 subscribers)*

BRAN

Broadband Radio Access Networks announcement list *(100 subscribers)*
BRAN_HA
    BRAN_HA: BRAN HIPERACCESS Standards Area mailing list *(107 subscribers)*
BRAN_HA_DLC_DG
    BRAN_HA_DLC_DG: ETSI BRAN HIPERACCESS DLC Drafting Group *(46 subscribers)*
BRAN_HETF
    BRAN_HETF: BRAN HETF list *(56 subscribers)*
BRAN_HL
    BRAN_HL: BRAN HIPERLAN/2 Standards Area mailing list *(168 subscribers)*
BRAN_HL_3G
    BRAN_HL_3G list: ETSI BRAN HL_3G Interworking *(99 subscribers)*
BRAN_HL_SPECTRUM
    BRAN_HL_SPECTRUM: BRAN HIPERLAN/2 SPECTRUM GROUP *(107 subscribers)*
BRAN_HL_TESTING
    BRAN_HL_TESTING: BRAN HIPERLAN/2 conformance testing *(72 subscribers)*
BRAN_HM
    BRAN_HM: ETSI BRAN HIPERMAN (FWA below 11 GHz) *(91 subscribers)*
BRAN_SDL
    BRAN_SDL: BRAN SDL team members *(47 subscribers)*
BROADCAST
    BROADCAST : EBU/CENELEC/ETSI Joint Technical Committee *(58 subscribers)*
BROADCAST_ANNOUNCE
    BROADCAST Announcement list *(27 subscribers)*
CATV_CO-ORD
    CATV_CO-ORD:ETSI co-ordination for CATV matters (CENELEC TC 209) *(14 subscribers)*
CENELEC_ETSI_JWG_EMC
    CENELEC_ETSI_JWG_EMC : CENELEC/ETSI *(111 subscribers)*
CEPT_ETSI
    CEPT_ETSI : CEPT/ETSI Officials meeting distribution list *(48 subscribers)*
CLC-ETSI-JCG-CATV-SMATV
    CLC-ETSI-JCG-CATV-SMATV : CENELEC/ETSI JCG CATV/SMATV *(14 subscribers)*
CLC-ETSI-JWG-PLTCOEX
    CLC-ETSI-JWG-PLTCOEX:CENELEC ETSI Joint Working Group *(25 subscribers)*
DECT_A
    DECT_A : ETSI DECT Non-Testing Sub-Project mailing list *(50 subscribers)*
DECT_A_ANNOUNCE
    DECT A announce list *(11 subscribers)*
DECT_T
    DECT_T : DECT Testing Sub-Project *(39 subscribers)*
DECT_T_ANNOUNCE
    DECT T announce list *(7 subscribers)*
DELIVERABLE-NOTIFICATIONS
    DELIVERABLE-NOTIFICATIONS : Deliverable Notifications *(101 subscribers)*
EDS-NEWS
    EDS-NEWS: ETSI Documentation Service News *(134 subscribers)*
EE
    ENVIRONMENTAL ENGINEERING Technical Committee membership and mailing list *(44 subscribers)*
EE1
    EE1 : (Environmental Conditions) membership and mailing list *(32 subscribers)*
EE1_ANNOUNCE
    EE 1 announce list *(13 subscribers)*
EE2
    EE2 : (Power Supply) membership and mailing list *(32 subscribers)*
EE2_ANNOUNCE
    EE 2 announce list *(6 subscribers)*
EESSI
    EESSI: European Electronique Signature Standardization Initiative *(29 subscribers)*
EE_ANNOUNCE
    ENVIRONMENTAL ENGINEERING Announce list *(12 subscribers)*

EF3_BOARD

     EF3_BOARD: EF3 BOARD MEMBERS *(7 subscribers)*

EL-SIGN

     EL-Sign: Electronic Signatures - Open Discussion *(229 subscribers)*

EMTEL

     EMTEL : Emergency Telecommunications Distribution list *(85 subscribers)*

EPDECT

     EPDECT : ETSI Project DECT discussion list *(52 subscribers)*

EPDECT_ANNOUNCE

     Announce list for ETSI Project DECT *(10 subscribers)*

ERM

     ERM : EMC and Radio Spectrum Matters distribution *(187 subscribers)*

ERMCC

     ERMCC: ERM Co-ordination Committee *(39 subscribers)*

ERM_ACEA

     ERM_ACEA : ACEA/ETSI meetings *(19 subscribers)*

ERM_ANNOUNCE

     erm_announce : EMC and Radio Spectrum Matters distribution *(70 subscribers)*

ERM_EMC

     ERM_EMC : ERM WG on Electromagnetic Compatibility *(132 subscribers)*

ERM_EMC_ANNOUNCE

     erm_em_announce: erm_em_announce list *(43 subscribers)*

ERM_ITU-R_WP8A

     ERM_ITU-R_WP8A : Preparation for ITU-R WP8A *(16 subscribers)*

ERM_ITU-R_WP8A_P

     ERM_ITU-R_WP8A_P : ITU-R WP8A participants *(15 subscribers)*

ERM_LIAISON

     ERM_liaison : external liaison statements from TC ERM *(15 subscribers)*

ERM_RM

     ERM_RM : Radio Matters *(146 subscribers)*

ERM_RM_ANNOUNCE

     ERM_RM : Radio Matters *(58 subscribers)*

ERM_TG04

     ERM_TG04 : Automotive EMC *(54 subscribers)*

ERM_TG11

     ERM_TG11 : Radio LANs *(58 subscribers)*

ERM_TG14

     ERM_TG14 : Radio Interfaces under Article 4.2 of the R&TTE; Directive *(10 subscribers)*

ERM_TG17

     ERM_TG17 : Standards for broadcast and ancillary communications equipment *(40 subscribers)*

ERM_TG17_WG1_2_4

     ERM_TG17_WG1_2_4 : ERM_TG17 Working Groups Exploder List *(55 subscribers)*

ERM_TG17_WG3

     ERM_TG17_WG3 : Working Group 3 on Radio Microphones *(30 subscribers)*

ERM_TG17_WG5

     ERM_TG17_WG5 : Active TV Reception *(26 subscribers)*

ERM_TG20_INTEGRATION

     ERM_TG20_Integration : Integration of radio *(40 subscribers)*

ERM_TG21

     ERM_TG21 : Co-ordination of ETSI inputs to RAST#10 *(18 subscribers)*

ERM_TG23

     ERM_TG23 : Standards for a close-field peer-to-peer symmetrical data communication system *(27 subscribers)*

ERM_TG25

     ERM_TG25 : Aeronautical *(62 subscribers)*

ERM_TG25_VDL_MODE2

     ERM_TG25_VDL_Mode2: Support Team to finalise EN 301 841 Part 2 *(30 subscribers)*

ERM_TG25_VDL_MODE4

     ERM_TG25_VDL_Mode4: Support Team to finalise EN 301 842 Part 2 *(30 subscribers)*

ERM_TG26

http://list.3gpp.org/

115 captures

30 Mar 2001 - 27 Nov 2018

SEP **NOV** FEB

◄ **28** ►

2001 **2002** 2003

About this capture

ERM_TG28 : Generic SRD's *(57 subscribers)*
ERM_TG29
    ERM_TG29 : Road Transport and Telematics *(52 subscribers)*
ERM_TG30
    ERM_TG30 : Wireless Medical Services *(31 subscribers)*
ERM_TG31A
    ERM_TG31A : Ultra Wide Band for Short Range Devices *(50 subscribers)*
ERM_TG31B
    ERM_TG31B : Ultra Wide Band Automotive Radar *(30 subscribers)*
ERM_TG32
    ERM_TG32 : PMR *(47 subscribers)*
ERM_TG32_DIIS
    ERM_TG32_DIIS: Digital Interchange of Information and Signalling *(37 subscribers)*
ERM_TG33
    ERM_TG33 : Measurement Methods and their Uncertainties *(44 subscribers)*
ERM_TG34
    ERM_TG34 : RF Identification Devices *(28 subscribers)*
ESI
    ESI : ETSI TC ESI (Electronic Signatures and Infrastructures) *(108 subscribers)*
ESI_ANNOUNCE
    ESI_announce : ETSI TC Electronic Signatures *(16 subscribers)*
ETSAG
    ETSAG : THIS LIST IS NO LONGER IN USE *(19 subscribers)*
ETSI-NEWS
    ETSI-NEWS: Technical News, General News and Press announcements from ETSI
    (3,412 subscribers)
GSC
    GSC : GSC members *(102 subscribers)*
GSC-IMT-2000
    GSC-IMT-2000 : Global Standards Collaboration IMT-2000 *(5 subscribers)*
GSC-IPR
    GSC-IPR: GSC Intellectual Property Rights *(12 subscribers)*
GSC-USER
    GSC-User : GSC User Group *(10 subscribers)*
GSC_RAST
    gsc_rast: gsc_rast list *(153 subscribers)*
GTSC_HND
    GTSC_HND: Heads of Delegations in GTSC and GRSC *(23 subscribers)*
HF
    HF : ETSI TC Human Factors (HF) *(45 subscribers)*
HF_ANNOUNCE
    HF announcement list *(9 subscribers)*
HF_CALLCENT
    HF_CALLCENT : STF 203 list *(9 subscribers)*
HF_EEUROPE
    HF_eEUROPE : ETSI TC HF Steering Group of all HF STFs list *(21 subscribers)*
HF_IDUCI
    HF_IDUCI : ETSI TC HF STF199 list *(23 subscribers)*
HF_KEYS
    listname : HF_KEYS *(12 subscribers)*
HF_KIDS
    listname : HF_KIDS *(15 subscribers)*
HF_MOBILE
    hf_mobile : STF 231 discussion *(13 subscribers)*
HF_MULTINAV
    HF_MULTINAV : ETSI TC HF STF 204 list *(10 subscribers)*
HF_UCI
    HF_UCI : ETSI TC HF Steering Group of STF 180 list *(24 subscribers)*
ICANN-MATTERS
    ICANN-MATTERS : ICANN-MATTERS list *(99 subscribers)*
IMPACT

JOINTNM

    JOINTNM: Joint group on management aspects of integrated switched circuits and IP networks *(158 subscribers)*

JWG-TC74

    JWG-TC74 : ETSI TC Safety/CLC TC74 Working Group 1 *(36 subscribers)*

JWG_TC74_ANNOUNCE

    Safety JWG TC74 announce list *(11 subscribers)*

LI

    LI : ETSI TC LI (Lawful Interception) *(118 subscribers)*

LI_ANNOUNCE

    LI_announce : ETSI TC Lawful Interception announce list *(49 subscribers)*

MESA_ORGANIZATION

    MESA_Organization: Main distribution list for all Mesa related information *(159 subscribers)*

MESA_SC

    MESA_SC: Mesa Steering Committee *(122 subscribers)*

MESA_SSG_SA

    MESA_SSG_SA: MESA SSG Services and Applications *(97 subscribers)*

MESA_TSG_SYS

    MESA_TSG_SYS: MESA TSG System *(82 subscribers)*

MSG

    MSG : Mobile Standards Group *(140 subscribers)*

MTS-GEN

    MTS-GEN : MTS-GEN / mainly organisation, or policy matters *(43 subscribers)*

MTS-INTERVAL

    MTS-INTERVAL : MTS-INTERVAL *(8 subscribers)*

MTS-IPT

    MTS-IPT: MTS *(37 subscribers)*

MTS-TTCN

    MTS-TTCN : MTS-TTCN / contributions to ISO 9646-3 Ed. 2+ *(35 subscribers)*

MTS-TTCN3-GFT

    MTS-ttcn3-gft g : MTS *(20 subscribers)*

MTS_ANNOUNCE

    MTS announcement list *(16 subscribers)*

MTS_TCI

    MTS_TCI: TTCN-3 Control Interfaces *(30 subscribers)*

M_COMMERCE

    M_COMMERCE: Mobile Commerce *(97 subscribers)*

M_COMMERCE_ANNOUNCE

    M_COMMERCE_ANNOUNCE: Mobile Commerce Announce list *(17 subscribers)*

NGN_IG

    NGN_IG : ETSI NGN Implementation Group list *(140 subscribers)*

NGN_SG

    ETSI NGN_SG list *(97 subscribers)*

NIS

    NIS: Network Information Security *(101 subscribers)*

NSO-CONTACTS

    NSO-contacts :NSO Voting Contacts *(53 subscribers)*

NSO_INFO

    NSO_INFO : Distribution list for NSO Information *(54 subscribers)*

OCG_ADHOC_IP_CABLECOMM

    OCG_adhoc_IP_cablecomm : OCG ad-hoc group on Cable Communications *(41 subscribers)*

OCG_EMTEL

    OCG_EMTEL : OCG ad-hoc group on Emergency Telecommunications *(94 subscribers)*

OCG_RTTED

    OCG_RTTED : Steering Committee on Harmonised Standards *(67 subscribers)*

OCG_SECURITY

    OCG_SECURITY: OCG ad hoc group on Security issues *(59 subscribers)*

PLT

    PLT : ETSI Project Powerline Telecommunications *(87 subscribers)*

http://list.3gpp.org/

Go

SEP **NOV** FEB

◀ **28** ▶

2001 **2002** 2003

115 captures

30 Mar 2001 - 27 Nov 2018

▼ About this capture

RT
    RT Railway Telecommunications *(16 subscribers)*
S1_ANSI-41
    S1_ANSI-41 : list for S1_ANSI-41 *(13 subscribers)*
S1_CAMEL
    S1_CAMEL : CAMEL issues in 3GPP TSG SA WG1 *(55 subscribers)*
S1_CHARGING
    S1_charging : list S1_Charging *(21 subscribers)*
S1_DISCUSS
    S1_Discuss : list for ETSI STC S1_Discuss mailing *(21 subscribers)*
S1_HANDOVER
    S1_Handover : list S1_Handover *(17 subscribers)*
S1_IP
    S1_IP : list for 3GPP S1_IP mailing *(74 subscribers)*
S1_LCS
    S1_LCS : list S1 on Location Based Services *(42 subscribers)*
S1_MM
    SMG1 : list for S1_MM *(28 subscribers)*
S1_MULTICALL
    S1_Multicall : THIS LIST IS NO LONGER IN USE *(4 subscribers)*
S1_PRESENCE
    S1_Presence: TSG SA WG1 *(66 subscribers)*
S1_QOS
    S1_QoS : list S1_QoS *(40 subscribers)*
S1_SMS
    S1_SMS : list S1_SMS *(21 subscribers)*
S1_VHE
    S1_VHE : THIS LIST IS NO LONGER IN USE *(0 subscriber)*
SA1_OSA
    SA1_OSA : list for 3GPP TSG SA Working Group 1 OSA mailing *(46 subscribers)*
SAFETY
    SAFETY : ETSI TC for telecommunications equipment safety *(88 subscribers)*
SAFETY-WG-RADIO
    SAFETY-WG-RADIO : Human exposure to electro-magnetic fields. *(60 subscribers)*
SAFETY_ANNOUNCE
    SAFETY announcement list *(17 subscribers)*
SAFETY_WG_RADIO_ANNOUNCE
    SAFETY WG RADIO announce list *(20 subscribers)*
SCP_ANNOUNCE
    SCP_Announce : ETSI Project Smart Card Platform - Annoucements list *(221 subscribers)*
SCP_PLENARY
    SCP_Plenary : ETSI Project Smart Card Platform *(230 subscribers)*
SCP_WG1
    SCP_WG1 : ETSI Project Smart Card Platform - Working Group 1 *(112 subscribers)*
SCP_WG2
    SCP_WG2 : ETSI Project Smart Card Platform - Working Group 2 *(100 subscribers)*
SCP_WG3
    SCP_WG3 : ETSI Project Smart Card Platform - Working Group 3 *(85 subscribers)*
SERV-MGMT
    serv-mgmt : Open Discussion - Info provided by PNO/SP *(5 subscribers)*
SES
    SES : ETSI TC Satellite Earth Stations and Systems (SES) *(72 subscribers)*
SES_AES
    SES_AES : ETSI TC SES WG on Aeronautical Satellite Earth Stations *(14 subscribers)*
SES_ANNOUNCE
    : ETSI TC Satellite Earth Stations and Systems announcement list *(13 subscribers)*
SES_BSM
    SES_BSM : SES_BSM (Broadband Satellite Multimedia) *(55 subscribers)*
SES_GMR

http://list.3gpp.org/

115 captures
30 Mar 2001 - 27 Nov 2018

SEP NOV FEB
◀ 28 ▶
2001 2002 2003

About this capture

SES_GSO_SPCN
        SES_GSO_SPCN : ETSI TC SES WG on GSO S-PCN *(20 subscribers)*
SES_KU-BAND_AES
        SES_KU-BAND_AES : Ku-Band Satellite Aircraft *(17 subscribers)*
SES_NGSO_KA-BAND
        SES_NGSO_KA-BAND : ETSI TC SES WG on NGSO KA-BAND *(17 subscribers)*
SES_NGSO_KU-BAND
        SES_NGSO_Ku-Band : ETSI TC Satellite Satellite Earth Stations and Systems WG on
        NGSO Ku *(15 subscribers)*
SES_STF_165_PH2
        SES_STF_165_PH2 : STF 165 Phase 2 *(13 subscribers)*
SES_SUMTS
        SES_SUMTS : Working Group on S-UMTS *(44 subscribers)*
SES_SUMTS_ANNOUNCE
        SES S-UMTS announce list *(12 subscribers)*
SL_MEMBERS
        SL_MEMBERS : subscriber line compatibilty matters. *(63 subscribers)*
SPAN11
        SPAN11 : ETSI SPAN WG11 list *(87 subscribers)*
SPAN11_ANNOUNCE
        SPAN11 announce list *(31 subscribers)*
SPAN11_ENUM
        SPAN11_ENUM : ETSI SPAN11_ENUM list *(3 subscribers)*
SPAN11_NAR
        SPAN11_nar : ETSI SPAN11_nar list *(59 subscribers)*
SPAN11_WP2
        SPAN11_WP2 : SPAN2 WP2 *(44 subscribers)*
SPAN12
        ETSI SPAN WG12 list *(74 subscribers)*
SPAN12_ANNOUNCE
        SPAN 12 announce list *(16 subscribers)*
SPAN13
        SPAN13 : ETSI SPAN WG13 list *(131 subscribers)*
SPAN13_ANNOUNCE
        SPAN13 announce *(28 subscribers)*
SPAN14
        SPAN14 : ETSI SPAN WG14 list *(76 subscribers)*
SPAN14_ANNOUNCE
        SPAN14 announce list *(21 subscribers)*
SPAN14_IPFN
        SPAN14_IPFN : SPAN14 activity on IP Federating Network *(31 subscribers)*
SPAN_ANNOUNCE
        SPAN Announcement list *(31 subscribers)*
SPAN_EMTEL
        SPAN_EMTEL : ETSI SPAN Emergency Telecom services activity list *(33 subscribers)*
SPAN_NGN
        SPAN_NGN : ETSI SPAN_NGN activity list *(56 subscribers)*
SPAN_NM
        SPAN_NM : ETSI SPAN_NM activity list *(30 subscribers)*
SPAN_PLEN
        SPAN_PLEN : Services and Protocols for Advanced Networks Tecnical Committee list
        (127 subscribers)
SPAN_SMS
        SPAN_SMS : ETSI SPAN_SMS activity list *(40 subscribers)*
SRS-ANNOUNCE
        srs-announce : srs-announce list *(0 subscriber)*
SRS-TEST-ANNOUNCE
        srs-test-announce : srs-test-announce list *(1 subscriber)*
STF217
        STF217 : Mail discussion and distribution list for STF217 *(11 subscribers)*
STF_222

STQ_A-shock: For the development of acoustic safety related deliverables *(27 subscribers)*

STQ_ANNOUNCE
  STQ announcement list *(42 subscribers)*
STQ_AURORA
  STQ_aurora : ETSI STQ Aurora Project for Distributed Speech Recognition *(67 subscribers)*
STQ_AURORA_ANNOUNCE
  STQ AURORA announce list *(39 subscribers)*
STQ_ONP
  STQ_ONP: For anyone interested in the development of EG 201 769 (ex-ETR 138) for ONP *(31 subscribers)*
SYSEMAIL
  sysemail : ETSI Systems Administrators Discussion List *(10 subscribers)*
TBINFO
  Tbinfo : TBinfo list *(164 subscribers)*
TC106X-4
  TC106X-4 : SAFETY Joint Working Group TC 106X WG4 *(62 subscribers)*
TC106X-7
  TC106x-7 : SAFETY Joint Working Group TC 106X WG7 *(33 subscribers)*
TEST-CERTIF
  Test-Certif: Open Discussion - Testing and Certification *(3 subscribers)*
TESTCOM_2003_AC
  TESTCOM_2003_AC : Aréa Coordinators *(3 subscribers)*
TESTCOM_2003_SC
  TESTCOM_2003_SC : Steering Committee *(4 subscribers)*
TESTCOM_2003_TPC
  TESTCOM_2003_TPC: TPC Technical Program Committee *(28 subscribers)*
TESTLIST
  TESTLIST : List for ListServ tests *(3 subscribers)*
TETRA
  TETRA : ETSI Project TETRA *(81 subscribers)*
TETRATG23
  TETRATG23 : EPT TG23 / Task Group 23 of ETSI Project TETRA *(30 subscribers)*
TETRAWG1
  TETRAWG1 : EPT WG1/ Working Group 1 of ETSI Project TETRA *(73 subscribers)*
TETRAWG1_A2G
  TETRAWG1_A2G: TETRAWG1_A2G list *(29 subscribers)*
TETRAWG1_ANNOUNCE
  TETRAWG1 announce list *(24 subscribers)*
TETRAWG2
  TETRAWG2 : EPT WG2 / Working Group 2 of ETSI Project TETRA *(36 subscribers)*
TETRAWG2_ANNOUNCE
  TETRAWG2_announce : TETRAWG2_announce list *(6 subscribers)*
TETRAWG3
  TETRAWG3 : EPT WG3/ Working Group 3 of EP TETRA *(70 subscribers)*
TETRAWG3_ANNOUNCE
  TETRA WG3Announce List *(15 subscribers)*
TETRAWG4
  TETRAWG4 : EPT WG4/ Working Group 4 of ETSI Project TETRA *(58 subscribers)*
TETRAWG4_ANNOUNCE
  TETRA WG4 Announce list *(10 subscribers)*
TETRAWG5
  TETRAWG5 : EPT WG5 / Working Group 5 of ETSI Project TETRA *(33 subscribers)*
TETRAWG5_ANNOUNCE
  tetrawg5_announce : tetrawg5_announce list *(9 subscribers)*
TETRAWG6
  TETRAWG6 : EPT WG6/ Working Group 6 of EP TETRA *(58 subscribers)*
TETRAWG6_ANNOUNCE
  TETRA WG6 Announce *(17 subscribers)*
TETRAWG7

http://list.3gpp.org/

115 captures
30 Mar 2001 - 27 Nov 2018

SEP NOV FEB
◀ **28** ▶
2001 **2002** 2003

About this capture

TETRAWG8 : EP1 WG8/ Working Group 8 of ETSI Project TETRA (63 subscribers)
TETRAWG8_ANNOUNCE
    TETRA WG8 Announce list *(16 subscribers)*
TETRA_ANNOUNCE
    ETSI Project TETRA announcement list *(19 subscribers)*
TFES
    TFES : Tfes list *(54 subscribers)*
TIPHON
    TIPHON : interoperabillity of VoIP/ISDN/PSTN. *(281 subscribers)*
TIPHON_ANNOUNCE
    TIPHON announcement list *(40 subscribers)*
TIPHON_WG1
    TIPHON_WG1: TIPHON WG1 mailing list *(74 subscribers)*
TIPHON_WG1_ANNOUNCE
    TIPHON WG1 announce list *(14 subscribers)*
TIPHON_WG2
    TIPHON_WG2: TIPHON WG2 mailing list *(86 subscribers)*
TIPHON_WG2_ANNOUNCE
    TIPHON WG2 announce list *(16 subscribers)*
TIPHON_WG3
    TIPHON_WG3: TIPHON WG3 mailing list *(86 subscribers)*
TIPHON_WG3_ANNOUNCE
    TIPHON WG3 announce list *(12 subscribers)*
TIPHON_WG4
    TIPHON_WG4: TIPHON WG4 mailing list *(74 subscribers)*
TIPHON_WG4_ANNOUNCE
    TIPHON WG4 announce list *(12 subscribers)*
TIPHON_WG5
    TIPHON_WG5: TIPHON WG5 mailing list *(110 subscribers)*
TIPHON_WG5_ANNOUNCE
    TIPHON WG5 announce list *(20 subscribers)*
TIPHON_WG6
    TIPHON_WG6: TIPHON WG6 mailing list *(63 subscribers)*
TIPHON_WG6_ANNOUNCE
    TIPHON WG6 announce list *(13 subscribers)*
TIPHON_WG7_ANNOUNCE
    TIPHON WG7 announce list *(11 subscribers)*
TIPHON_WG8
    TIPHON_WG8: TIPHON WG8 mailing list *(70 subscribers)*
TIPHON_WG8_ANNOUNCE
    TIPHON WG8 announce list *(16 subscribers)*
TM
    TM : TM (general information for TC/TM) *(58 subscribers)*
TM1-ATM
    TM1-ATM : WP3 ATM Equipment *(11 subscribers)*
TM1-GEN
    TM1-Gen : TM1 Plenary Meetings management *(35 subscribers)*
TM1-SDH
    TM1-SDH : SDH Equipment *(28 subscribers)*
TM1-TEST
    TM1-TEST : WP3-Conformance Testing *(13 subscribers)*
TM1-WP1
    TM1-WP1 : Optical fibres and components *(15 subscribers)*
TM1-WP2
    TM1-WP2 : Core Networks Architecure *(15 subscribers)*
TM1-WP3
    TM1-WP3 : Transport Equipment, Systems and Interfaces *(30 subscribers)*
TM1-WP4
    TM1-WP4 : Timing and Synchronization *(25 subscribers)*
TM1_ANNOUNCE
    TM1 announce list *(9 subscribers)*

TM4-WP2
      TM4-wp2 : Tm4-wp2 list *(59 subscribers)*
TM4-WP4
      TM4-wp4 : Tm4-wp4 list *(41 subscribers)*
TM4_ANNOUNCE
      TM4 Announce list *(33 subscribers)*
TM6_ADSL
      TM6_ADSL : Asymmetric DSL (ADSL discussion) *(81 subscribers)*
TM6_ALL
      TM6_ALL : Access Networks (Architecture, UNIs, xDSL ISDN) *(172 subscribers)*
TM6_ANA
      TM6_ANA : TM6 Access Network Architecture WP *(34 subscribers)*
TM6_ANNOUNCE
      TM6 announce list *(56 subscribers)*
TM6_SDSL
      TM6_SDSL : Symmetric DSL (Line code discussion) *(90 subscribers)*
TM6_SPAN
      TM6_SPAN : Joint discussion group on narrow band signalling for DSL *(59 subscribers)*
TMABC
      TMABC : TM Approval by Correspondence list *(52 subscribers)*
TM_ANNOUNCE
      TM announcement list for TC/TM *(22 subscribers)*
TOR_G
      TOR_G : ETSI Technical Organization Reform Group list *(116 subscribers)*
TOR_IG
      TOR_IG : ETSI Technical Organization Reform Implementation Group list *(45 subscribers)*
TTCN3
      Active_TTCN3 : MTS STF133 TTCN Version 3 - Active Members Only *(265 subscribers)*
USER-INFO
      USER-INFO : USER-INFO/Mailing list for the USER GROUP *(40 subscribers)*
USER_ANNOUNCE
      Announcement list for the USER GROUP *(9 subscribers)*
VIRUS-ALERT
      virus-alert: virus alert mailing list *(68 subscribers)*
WAN_TESTS
      WAN_TESTS : ETSI.ORG Migration Adresses Tests - WAN Team *(2 subscribers)*
WIG
      WIG : Wireless LAN Interworking Group *(118 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 underlined_archive_form instead.

LIST.ETSI.FR

Appendix 13

Project Management	Technical Bodies	Delegates Corner	Project Support	Contact 3GPP	Quick Access
About 3GPP	Specifications	Membership	Meetings	Email Lists	FAQ / Search

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 52 series.

The full title, specification number and latest version number for every specification can be found in the status list and more information about terms such 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. This can be determined by 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. All other series apply only to GSM systems.

Subject of specification series	3G/GSM R99 and later	GSM only (Rel-4 and later)	GSM only (before Rel-4)
Requirements	21 series	41 series	01 series
Service aspects	22 series	42 series	02 series
Technical realization	23 series	43 series	03 series
Signalling protocols (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	07 series
Signalling protocols (RSS-CN)	28 series	48 series	08 series
Signalling protocols (intra-fixed-network)	29 series	49 series	09 series
Programme management	30 series	50 series	10 series
User Identity Module (SIM / USIM)	31 series	51 series	11 series
O&M	32 series	52 series	12 series
Access requirements and test specifications		13 series (1)	13 series (1)
Security aspects	33 series	(2)	(2)
Test specifications	34 series	(2)	11 series
Security algorithms	35 series	(2)	(2)

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 specification of these aspects were spread throughout several series.

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

Related Information. Further information about the Specification numbering scheme, 3GPP releases, phases, file naming conventions, and other related information can be found in 3GPP TR 21.900 "*Technical Specification Group working methods*". See the download page to find the latest version of TS 21.900.

last updated 31 January 2002

Appendix 14

3GPP Frequently Asked Questions

1. Membership | **2. Mailing Lists** | **3. Legal Matters** | **4. Specifications** | **5. Technical Specification Group/Working Group** |
| **6. Documents and Meetings** | **7. Miscellaneous**

1.   Membership

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

1.1.1 How do I become a member of 3GPP? **Answer>>>**

1.2 Who may participate in 3GPP meetings? **Answer>>>**

1.3 Who should fill in the 3GPP membership application form? **Answer>>>**

1.4 What should I do if the details of a 3GPP member company or official contact change? **Answer>>>**

1.5 What are the different membership categories? **Answer>>>**

1.6 Who may become a 3GPP Observer? **Answer>>>**

1.7 Who may become a Guest Member and do guests have to pay any fees? **Answer>>>**

1.8 Who can apply for Market Representative Partnership? **Answer>>>**

1.9 Can an ETSI Observer become an Individual Member of 3GPP? **Answer>>>**

1.10 Can ETSI Applicant apply for 3GPP Membership? **Answer>>>**

1.11 My company is already an ETSI Member, what do I have to do to join 3GPP and do I have to pay any fees? **Answer>>>**

back to top

2. 3GPP email exploder lists

2.1 Are there discussion archives for the 3GPP exploder lists? **Answer>>>**

2.2 How do I subscribe to the 3GPP exploder lists? **Answer>>>**

back to top

3. Legal matters

3.1 What is the 3GPP IPR Policy? **Answer>>>**

3.2 What is the 3GPP policy on licensing? **Answer>>>**

3.3 What is the 3G Patent Platform? **Answer>>>**

3.4 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? **Answer>>>**

3.5 Who owns the Technical Specifications and the Technical Reports approved by 3GPP? **Answer>>>**

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

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

3.8 Can I use computer code included with a 3GPP TS to implement a product ? **Answer>>>**

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

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

4.3 Is there any simple guide to the different CAMEL specifications? **Answer>>>**

4.4 Where are the specifications which identify the Vcc voltages for the SIM interface? **Answer>>>**

4.5 Are the 3GPP specifications produced only in word? **Answer>>>**

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

4.7 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? **Answer>>>**

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

4.9 Where are all the Change Requests (CRs) located? **Answer>>>**

4.10 Where are all the current ETSI SMG specs located? **Answer>>>**

4.11 Which group works on the W-CDMA and the Physical Layer of W-CDMA? **Answer>>>**

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

4.13 Where can I find the 3GPP Confidentiality and Integrity algorithms? **Answer>>>**

4.14 What is a Release - how does specification version numbering work? **Answer>>>**

4.15 Where can I find information on the current status of 3GPP specifications? **Answer>>>**

4.16 What is the system for numbering specifications? Which specifications contain information on specific topics? **Answer>>>**

back to top

5. Technical Specification Group/Working Group

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

5.2 Where can I find the Terms of Reference for my TSG/WG? **Answer>>>**

5.3 When did the Officials begin their Term of Office? **Answer>>>**

5.4 May I become an Official? **Answer>>>**

5.5 Where are my TSG/WGs documents stored? **Answer>>>**

5.6 Is the ETSI Secretariat responsible for the management of the Application Provider Codes for 3GPP ? **Answer>>>**

back to top

6. Documents and Meetings

6.1 How do I register for a meeting? **Answer>>>**

6.2 How do I submit a contribution for a meeting? **Answer>>>**

6.3 How do I obtain a document number for my contribution? **Answer>>>**

6.4 Where can I download documents for an upcoming meeting? **Answer>>>**

6.5 Where can I find a temporary document template? **Answer>>>**

6.6 What happens if I am unable to attend a meeting? **Answer>>>**

Work Items and Deliverables

6.7 What is my role when my TSG/WGs has to approve a deliverable? **Answer>>>**

6.10 Do I and my company have to support my TSG/WGs Work Items? **Answer>>>**

back to top

7. Miscellaneous

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

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

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

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

back to top

ANSWERS

1.   Membership

1.1   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, T1 and CCSA have a right to take part in 3GPP. There are no fees payable directly to 3GPP. However, the funds required for the running of 3GPP are collected from the Organizational Partners and you may be required to contribute in some way through that route.

If you are not a member of one of the above Standardization bodies then you can find links to these bodies from the 3GPP home page.

If you require further guidance on how to participate in 3GPP activities you should contact the Mobile Competence Centre.

back to top

1.2   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.

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

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

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

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

1.5   Different membership categories ?

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

1.6   Who may become an observer ?

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

The Guest Status is for potential Individual Members who may be granted permission to participate in 3GPP for a maximum period of 6 months. Guest status is granted on a case-by-case basis by the Organizational Partners (see also 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.

back to top

1.8   Who can apply for market representative Partnership?

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

1.10   Can an ETSI Applicant apply for 3GPP Membership ?

YES, an Applicant means that your request to become an ETSI Member will be approved at the next General Assembly. You can participate in 3GPP as soon as the ETSI application has been processed and you are flagged as a Candidate Member (i.e. there is no need to wait until the next GA).

1.11   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).

back to top

2.   3GPP email exploder lists

2.1   Are there discussion archives for the 3GPP exploder lists ?

The home page of listserv is at: http://list.3gpp.org/scripts/wa.exe

Then, just follow the links to the archives. For example, the archives for the main RAN email list can be found at:

http://list.3gpp.org/archives/3gpp_tsg_ran.html

2.2   How do I subscribe to the 3GPP exploder lists ?

follow the instructions found on this page: http://www.3gpp.org/Discussion_Lists/mailing.htm

back to top

3.   Legal Matters

3.1 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".

back to top

3.2   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.)

back to top

3.3   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:

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 to be found at http://www.3gpatents.com/

back to top

3.4   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 ?

- Discussion started in the UMTS IPR working Group (1998),
- 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.
- 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.

3.5   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.

3.6   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.

back to top

3.7   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

back to top

3.8   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.)

back to top

4.   Specifications

4.1   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 http://www.3gpp.org, and particularly the specifications list at http://www.3gpp.org/specs/specs.htm.

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

back to top

4.3   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).

back to top

4.4   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.

back to top

4.5   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.

back to top

4.6   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 .

back to top

4.7   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.

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/ .

back to top

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

Look at http://docbox.etsi.org/tech-org/smg/Document/smg/specs/UMTS/3003_320.zip but, an ETSI server account is needed to access this. It is a document stemming from the initial TC-SMG studies on UMTS, not a product of 3GPP. It was, in fact, published as an ETSI deliverable, TR 101 112, and this may be downloaded via http://pda.etsi.org/pda.

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

back to top

4.9   Where are all the Change Requests (CRs) located ?

The information on CRs is available via the 3GPP website at this address:

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

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

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

http://www.3gpp.org/ftp/Specs/html-info/0818-CRs.htm

back to top

4.10   Where are all the current ETSI SMG specs located ?

The latest GSM status database located at

http://docbox.etsi.org/zarchive/smg/.

An ETSI account is needed to access this directory.

back to top

4.11   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.

back to top

4.12   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 >>>

back to top

4.13   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 >>>

back to top

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

back to top

4.15   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 >>>.

back to top

4.16   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 >>>

back to top

5. Technical Specification Group/Working Group

5.1 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, a secretary and a member of the support team (officials).

Who are the other members of the TSG/WG?

Active participant lists are maintained by the TSGs. Any member attending a meeting will be added to the TSG/WG active participants list, and may be removed after not attending 3 or more consecutive meetings (see Article 35 of 3GPP Working Procedures).

back to top

5.2 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.

back to top

5.3 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.

back to top

5.4 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

back to top

5.5 Where are my TSG/WGs documents stored?

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

back to top

5.6 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.

- 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.

back to top

6. Documents and TSG/WG Meetings

6.1 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.

back to top

6.2 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.

6.3 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.

6.4 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.

back to top

6.5 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.

6.6 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

6.7 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.

back to top

6.8 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.

6.9 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.

6.10 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.

7.1   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:

- To solve the problem, you need to have MS Office 2000 Service Release 1/1a installed . To check this, in Word on the "Help" menu point to "About Microsoft Word". The first line in the window shows you the MSWord version you have. You should get something like: "Microsoft Word 2000 (9.0.3821 SR-1)". If you don't get SR-1 (or SR-1a) at the end, you need to install the Service Release. Contact your IT department or follow this link: http://support.microsoft.com/support/kb/articles/Q245/0/25.ASP
- 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.
- Open MSWord normally. The fix proposed will open the corrupted files without warning and delete the unused list templates, so its count goes under 1500. The user will not notice anything, but this implies that the document is modified. When closing, MSWord will ask the user if he wants to save the changes, even if apparently no change has been made.

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

http://support.microsoft.com/support/kb/articles/q241/5/81.asp

7.2   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.

7.3   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.

7.4   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.

back to top

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Appendix 15

GSM and UMTS

The Creation of Global Mobile Communication

Edited by

Friedhelm Hillebrand
Consulting Engineer, Germany

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

JOHN WILEY & SONS, LTD

This common concept would be based on UMTS service innovation, UTRA and the GSM core network evolution. This result had been prepared and enabled by a network of interested companies active at the global level.

8.2.6.2 The Efficient Global Open Organisation of the UMTS and GSM Specification Work in the Third Generation Partnership Project (3GPP)

8.2.6.2.1 Problem Situation

The implementation of the agreement on the UMTS cornerstones within the existing organisations would have been unmanageable. Three committees in different continents would have worked on the UMTS radio specifications (SMG2, T1P1.5 radio sub-working group, ARIB), several other committees would have worked on network aspects (SMG12 and SMG3, T1P1.5 network sub-working group, TTC). The situation in other key areas like services, SIM, O&M would have been comparably difficult. There would have been no overall decision-making body for conflict resolution. Therefore, the global strategic agreement on the UMTS cornerstones called for a new more efficient global organisational solution, in order to lead the agreement on the cornerstones to a complete and consistent UMTS system specification available in time for the market.

8.2.6.2.2 Proposal to Initiate a Partnership Project for GSM and UMTS

In order to secure the integrity of GSM and UMTS, the cohesion between GSM and UMTS, the ongoing cross-fertilisation between UMTS and GSM and an efficient specification work, I proposed in the fourth quarter of 1997 to create an ETSI Partnership Project for UMTS and GSM to several network operators and manufacturers. This would provide a single lean working structure and would be open to all committed parties world-wide. This Partnership Project model had been developed in the ETSI reform in 1996, but had never been used.

This Partnership Project for GSM and UMTS was proposed by several GSM network operators at SMG#24 in December 1997.[119] The document "Future Organisation for GSM and UMTS Standardisation", source T-Mobil, Mannesmann Mobilfunk, E-Plus Mobilfunk, aimed at a smooth and efficient standardisation process for the evolution of GSM and towards UMTS. The GSM community is now a global community of operators and manufacturers but has experienced difficulties in opening up for a wider participation in ETSI/SMG. Organisations from outside Europe still cannot become full ETSI members. Even voting rights for associate members in Technical Bodies were not endorsed by ETSI's General Assembly in November 1997. Present working methods with ANSI T1P1 on common GSM specifications are proven as a best possible solution for co-operation with other standard bodies, but they are very complex. This situation calls for a closer and more efficient overall co-operation. The GSM MoU Association and especially the Asian Pacific Interest Group (APIG) of GSM MoU have expressed their desire to participate fully in GSM work and in third generation standardisation and to ensure roaming with Japan.

For these reasons, these three companies proposed the establishment of SMG as the joint working structure among the interested bodies to produce GSM and UMTS standards for ETSI (as an ETSI partnership project) and for the other interested bodies, avoiding parallel work and overhead co-ordination; current budget allocations for ETSI/SMG to be considered

[119] SMG P-97-1062 submitted by T-Mobil, Mannesmann and Eplus.

as an asset for this possible joint working structure; the SMG chairman to carry out an exploratory mission in this sense." [120]

8.2.6.2.3 Endorsement of the Partnership Project by Technical Committee SMG and Mandate for Exploratory Missions

After an intensive discussion and some revisions of the document it was approved by SMG#24 in December 1997. [121] This included a mandate for exploratory missions to Japan and the US. This mission mandate was endorsed by the chairman of the ETSI General Assembly and Board as well as the ETSI director general in a meeting on 13 January 1997 in Sophia Antipolis.

I gave a first progress report to SMG#24bis in January 1999. [122] Then I led – as mandated by SMG – an exploratory mission to Japan on 3–11 February 1998. We found a strong interest in such an intensified co-operation [123]. The following summary was agreed in the meeting on 5-6 February 1998 between ETSI SMG, UMTS Forum, GSMA, ARIB, TTC and ANSI T1P1:

> "1. There is interest to create common specifications for IMT -2000 in the areas of terminals, radio access networks and core networks
>
> 2. It was recognised that the development of these standards in parallel organisations would be slow and could lead to unnecessary differences
>
> 3. It was agreed that the best way to proceed would be to further explore the creation of a common working structure (a "Project") to produce common specifications.
>
> 4. Such a Project, built on agreed common interests, would need appropriate recognition by as well as relationship / membership to the standardisation bodies.
>
> 5. A procedure for a transition phase into the full implementation of the Project would need to be worked out." [124]

This was the basic agreement for the creation of the Third Generation Partnership Project.

8.2.6.2.4 Lead Taken by the ETSI Board

Creation of the UMTS Globalisation Group

Due to the fundamental importance the creation of such a Partnership Project had for ETSI, the ETSI Board created the UMTS Globalisation Group with a strong SMG participation who undertook the negotiations for the implementation (see Chapter 9, Section 1). This group was chaired by Karl Heinz Rosenbrock, the ETSI director general.

The interest of the GSM and UMTS community was especially actively supported by the members of the ETSI Board in the UMTS Globalisation Group and in ETSI Board meetings: Wolf Haas of Mannesmann Mobilfunk, Kari Lang of Nokia and Tom Lindström of Ericsson. Their contribution was decisive for the ultimate success, the creation of 3GPP.

Great help for the ultimate resolution came also from the UMTS Forum and the chairmen

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[120] Extract from the SMG#24 Meeting Report (CD ROM folder B1), Section 3.3

[121] SMG P-97-1154.

[122] SMG P-98-0009.

[123] Report on the Japan mission in SMG P-98-0112.

[124] This summary is contained in SMG P-98-0112 as appendix B13. It was also presented to SMG and the ETSI Board in February 1998.

Thomas Beijer. His diplomacy, bridge building ability and the ability not to give up strategic targets was an indispensable key to the ultimate success.

SMG was represented in the UMTS Globalisation Group by Gunnar Sandegren (SMG vice chairman), Francois Grassot (ECTEL TMS chairman) and me as SMG chairman.

Factions in the UMTS Globalisation Group

There was a very strong polarisation between three factions in the UMTS Globalisation Group. They were not officially organised. Therefore, I will name and describe them briefly:

"*Greater ETSI faction*": they wanted an even stronger and greater role for ETSI in the future in UMTS. They feared a big loss, if SMG the greatest producer of deliverables in ETSI were to "emigrate" to the Partnership Project. They tried to bring non-European partners into ETSI. But after the decision of the ETSI General Assembly to grant these parties only associate membership without voting rights, this was not attractive to the non-Europeans. In the UMTS Globalisation Group they tried in the beginning to block the Partnership Project and later to minimise the scope of work to be transferred to the Partnership Project.

"*Fixed-mobile convergence faction*": this community came from a fixed network background. They hoped to reach fixed-mobile convergence by bringing the relatively independent GSM/UMTS work into an organisation which would be created by melting the existing fixed network committees with SMG under the leadership of the fixed side. Their UMTS vision was dominated by fixed-mobile convergence as a high priority. They lacked in their groups dealing with the fixed network evolution towards third generation a sufficient support and momentum. They wanted to keep GSM and UMTS in ETSI in order to reach their targets and to exploit the SMG momentum and know-how. They tried in the beginning to block the creation of the Partnership Project. Later they tried to limit the scope of the transferred work as much as possible.

"*GSM-UMTS faction*": due to the global acceptance of GSM and the UMTS cornerstones they needed an efficient globally open work structure which dealt with all system aspects. Their prime concern was the progress of their GSM-based UMTS vision. This was complemented with work on the "mobile-fixed convergence". They saw that the number of mobile users would very soon be much bigger than the number of fixed users. They wanted to transfer all GSM and UMTS work into the Partnership Project.

The Decision of the ETSI General Assembly Which Freed the Way for 3GPP

Due to the strong polarisation in ETSI a decision of the General Assembly on principles was needed in September 1998. During this General Assembly I was charged with negotiating a compromise, which was acceptable to the whole ETSI membership. The compromise proposal foresaw:

- to create 3GPP for an initial phase of UMTS;
- to keep GSM in ETSI; and
- to create the ETSI Project UMTS for long-term UMTS aspects.

This proposal was endorsed with a very high majority. It cleared the way to the 3GPP agreement signed in December 1998.

The Success of 3GPP

The first 3GPP Technical Meeting in December 1998 attracted 350 delegates and the level

of participation and contributions remained high. 3GPP produced a common set of Technical Specifications for UMTS based on service innovation, UTRA and the GSM core network evolution. The work was started in December 1998. The Technical Specifications of UMTS Release 99 were completed in December 1999. Some smaller issues were resolved by March 2000. For this purpose all pure UMTS work was transferred from SMG to 3GPP during the first quarter of 1999. The responsibility for the common GSM and UMTS specifications was transferred in the third quarter of 1999. 3GPP was supported by a large number of SMG contributors and SMG leaders. The full-time program managers of the SMG technical support were made available to 3GPP. All proven SMG working methods were made available to 3GPP.

In autumn 1999 ANSI T1P1 and TIA with UWCC proposed the transfer of the remaining GSM work (mainly EDGE, SIM and mobile station testing) to 3GPP in order to ensure the cohesion between the classic GSM and UMTS. The ETSI Board endorsed this proposal based on a review and recommendation of SMG. A Board ad-hoc group was installed with SMG representation. The negotiations between the partners led to an acceptance in principle in May 2000. Therefore, the remaining GSM activities were transferred to 3GPP in mid-2000. ETSI Project UMTS attracted 30–50 delegates and did not have the momentum to produce UMTS specifications. It was closed in 2000.

So finally the SMG vision of 3GPP was realised. The creation of 3GPP ensures the integrity of GSM and UMTS, the cohesion between GSM and UMTS and the cross-fertilisation of GSM and UMTS. 3GPP allows all interested and committed organisations, e.g. regulators, network operators and manufacturers world-wide to participate in the work with equal rights.

8.2.7 Complementary Work to 3GPP in ETSI

8.2.7.1 The Transposition of 3GPP Documents in ETSI Documents

After the creation of 3GPP the question arose, how to "transpose" the 3GPP documents into ETSI documents and whether there is a need for additional documents. 3GPP elaborates and approves common Technical Specifications and Technical Reports, which should be transposed into ETSI documents. I developed the following concept, which was endorsed by SMG and the ETSI Board.[125]

3GPP is acknowledged by the ETSI internal rules as an ETSI Technical Body. Therefore Technical Specifications and Reports approved by 3GPP are to be recognised directly as ETSI Technical Specifications and Reports without another "ETSI internal approval". They can be published directly by the ETSI Secretariat.

Besides Technical Specifications and Reports there are in ETSI European Standards (ENs). They are approved by an ETSI Technical Body and then in a second step by the whole ETSI membership with the assistance of the National Standardisation Organisations.

A broad demand survey[126] regarding the demand for ENs in autumn 1999 showed that a demand for ENs exists for the purposes of the R&TTE-Directive only (access of terminals to the market). All other demand can be covered by Technical Specifications.

These ENs should be elaborated and approved by a "pure" European Committee of

[125] P-99-751.
[126] P-99-736.

Technical Committee SMG). In this process 3GPP results should be referred to as much as possible.

8.2.7.2 The Elaboration of European UMTS/IMT-2000 Harmonised Standards for Terminals Pursuant to the R&TTE Directive

In order to avoid barriers to international trade the European Commission requested ETSI in a letter in December 1999 to produce European harmonised standards pursuant to the R&TTE Directive, which "would typically describe emission masks ensuring proper coexistence of the different members of the IMT-2000 family and that it would be aligned with similar standards outside the Community".

I was charged by SMG with forming a small delegation and to talk to the different parties involved to explore a way forward. A strategic framework and several technical documents were elaborated and endorsed by SMG. The principles were endorsed by the ETSI Board. A joint ERM/SMG Task Force was formed in May 2000 to do the technical work.

The strategic framework document developed by me and endorsed by Technical Committee SMG[127] identifies the regulatory requirements and contains the following key targets for the standardisation work:

- ETSI needs to produce harmonised standards for all IMT-2000 systems.
- The work can reference ITU, 3GPP2 and TIA specifications directly. There is no need to transpose these into ETSI documents.
- The harmonised standards will be produced by a joint ERM/SMG Task Force and EP DECT.
- The first release of the harmonised standard needs to be completed ideally in October 2000.

8.2.7.3 Technical Committee MSG, the New Body for ENs

The work, which remains in ETSI, is the elaboration and approval of ENs needed for regulatory purposes. For this task I proposed to create a new body Technical Committee MSG (Mobile Standards Group) and its terms of reference. This was endorsed by SMG[128] and approved by the ETSI Board. It started in June 2000.

8.2.7.3.1 EP SCP (ETSI Project Smart Card Platform)

The generic smart-card work and the work on common lower layer functions for smart-cards of all 3G systems was transferred to EP SCP which was created in March 2000.

8.2.8 Conclusions

During the period from April 1996 to February 1999 ETSI Technical Committee SMG formed a UMTS strategy consensus on a vision which was based on services' innovation, GSM evolution and Internet orientation. All basic concepts for the UMTS standard were

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[127] SMG P-00-194.
[128] SMG P-00-183.

elaborated and agreed. Very difficult decisions like the UTRA decision were taken. On this basis a set of reports and raw specifications were produced. The creation of a globally open efficient new working structure, the 3GPP, was initiated and brought to life. All UMTS and GSM work was transferred to 3GPP. The necessary changes in ETSI were initiated. Then the Technical Committee SMG was closed at the end of July 2000 since its mission was fulfilled.

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 only.

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

Classical examples of ETSI success stories that witness this slogan are among others: the Global System for Mobile Communication (GSM); Digital Enhanced Cordless Telecommunications (DECT); Digital Audio Broadcasting (DAB); Digital Video Broadcasting (DVB); Terrestrial Trunked Radio (TETRA), just to name a few of them.

In positioning ETSI in the standardisation landscape, it became clear that the trends and changes towards globalisation, convergence and new value chains would lead to the creation of a huge volume of standards making space. Furthermore, it was not tenable for ETSI to try to fill the entire space. Choices had to be made. In addition, the investigations revealed that collaboration by means of appropriate partnerships could be a promising formula.

ETSI consciously withstood the temptation to become a global standards body. But it has always undertaken great efforts to ensure that all of its products, i.e. deliverables, such as European Norms (ENs), ETSI Standards (ESs), ETSI Technical Specifications (TSs), etc. satisfy real market needs and have the potential to become global standards. The ITU remains ETSI's global partner of choice. But the fast moving markets were expected to require ETSI to supplement this with various international partnerships on a case-by-case basis.

The high level task force that undertook the ETSI review in 1995/1996 advised the Institute that it had to sustain its core competence of making high quality standards for large and complex telecommunications systems. But, if neat demarcation lines are going to cease to exist, then ETSI must inevitably move more into the IT, audio-visual and other fields. It should do this in good partnerships, where other Standards Developing Organisations (SDOs) or appropriate fora and consortia are willing to co-operate with ETSI. Retrenchment by ETSI was not considered to be in Europe's interest.

Other results of interest here, of ETSI's re-engineering process after 7 years of existence were:

- to reduce the hierarchical structure in the Technical Organisation to a minimum;
- to delegate power (of approval, etc.) to the Technical Bodies where the main work is being done;
- to focus on semi-autonomous projects;
- to aim at proper project management;
- to allow the creation of ETSI Partnerships Projects (EPPs);
- to streamline and rationalise the ETSI Working Procedures;
- to improve the use of electronic tools for further rationalisation and innovation;
- to use audio and video conferencing;
- to broadcast inter-active meetings;
- to increase standards promotion activities;
- to facilitate and to promote direct electronic access to ETSI documents and deliverables free of charge.

Regarding ETSI's external relations the advice given was: that ETSI should add to its strength through partnerships in complementing areas, ceding some sovereignty on a case-by-case basis to achieve common purposes.

ETSI should continue its dialogue (in GSC/RAST) with its major regional/national counterparts, with the objective of strengthening arrangements for effective co-operation and be prepared to enter into bilateral co-operation on a case-by-case basis.

With this short excerpt of some basic results stemming from the ETSI re-engineering

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process undertaken in the middle of the 1990s, we have the fertile soil, i.e. the driving forces, motivations, basic elements needed in order to establish a partnership project.

The tremendous success story of GSM may have even led some ETSI members to believe that it would have been the most natural choice to repeat this with the third generation mobile communication system within ETSI, too. But for insiders it became clear that such a success could not be guaranteed another time.

After having dealt with the ETSI internal change in orientation from Europe-centric to international and global, let's have a short look at the first attempts at getting into closer contact with our partners. Let's start with our American friends.

In Sections 5.3 and 5.4 the standardisation work on PCS 1900 in ANSI T1P1 as well as the new co-operation between ANSI T1P1 and ETSI Technical Committee SMG are described.

The relationship between ANSI T1P1 and ETSI TC SMG started in 1996/1997. Both Technical Committees were working on independent sets of Technical Specifications, i.e. GSM 1900 in the US and GSM 900/1800 in Europe, etc. Parallel working with different speeds includes the risk of differences that may result in incompatibilities. In order to avoid these difficulties both SDOs agreed to merge the two independent sets of specifications into a common one and to further develop it commonly using a co-ordinated approach, i.e. each work item and the results were approved in both committees and incorporated into the common specifications.

Despite the fact that the co-operation between T1P1 and SMG was excellent, it suffered a little from the fact that the double approval process and the difficult co-ordination process at several levels, e.g. first in T1P1 and then within SMG, were not very efficient and too time consuming. One of the lessons learnt from this exercise was: Why don't we really co-operate, i.e. work together, from the very beginning – then avoiding any type of "approval ping-pong"? This was another good reason to consider what and how to improve the standardisation work for the third generation…

Now let's have a look at the relationships with our friends from Asia.

In the People's Republic of China, network operators had implemented large GSM networks based on existing ETSI standards. In order to avoid divergence, Chinese authorities (RITT) joined ETSI as an associate member and participated fully in the work of ETSI TC SMG since 1997. Thus, it was possible to fully integrate the Chinese requirements into the standardisation process within TC SMG in order to secure the integrity of GSM between China and the "rest of the world".

In the meantime – with the Universal Terrestrial Radio Access (UTRA) decision in January 1998 – contacts with Japanese ARIB/TTC colleagues had been established within ETSI TC SMG. These contacts had started in spring 1997, 1 year earlier

Discussions on the Technical Committee working level at the end of 1997 and the beginning of 1998 between ETSI, ARIB/TTC, and T1P1[3] led to the hope that the creation of a common UMTS concept applicable in all territories – and thus de facto globally – was possible. Such a concept could be based on UMTS service innovation, UTRA and the GSM core network evolution.

In other words, there was from the beginning a lot of goodwill available from all sides to undertake something in common. But how to do it? It became clear that to perform the UMTS standardisation within the three (or more) existing organisations would have been really unmanageable. Three committees in different continents could have developed the

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[3] More information is in Chapter 8, Section 8.2.6.2.3

UMTS radio specifications whilst several other committees would have worked on network aspects. The situation in other key areas, such as services, Subscriber Identification Module (SIM), and Operation and Maintenance would have been equally difficult. Furthermore, there would have been no overall decision-making body for the resolution of possible conflicts. All these difficulties sketched out here simply called for a new and much more effective global organisational solution.

As the friends from ARIB were quite interested in developing a common radio interface whose key parameters had been agreed in Japan and in the UTRA radio interface decision in January 1997, a delegation from the ETSI TC SMG undertook an exploratory mission to Japan on 5 and 6 February 1998 in order to find out whether or not a kind of co-operation with them would be possible. Further information is given in Chapter 8, Section 8.2.6.2.3.

These informal contacts on the working level revealed that there was a good resonance on the Japanese side. In an association like ETSI, there is not only the working level, there are other levels as well, e.g. the General Assembly (GA), the highest ETSI authority, and the Board, a body with some 25 clearly identified powers delegated by the GA. In 1997/1998 the first ETSI Board could have looked back at about 18 months of existence and had, of course, to play its role… Without acting like a "donkey who eats up the grass that has grown over (above) an old and nasty story,"[4] one has to admit that the communication/co-operation between the ETSI Board and the ETSI TC SMG suffered a little bit from irritations, mis-understandings, mal-perceptions, etc. In other words, it was far from optimum at that time… Nevertheless, there was a role to play from a more political strategic point of view. And now the question was what to do in order to make something useful happen?

What do you do, when you do not exactly know how to proceed? You create a committee. At least the politicians are supposed to do so. Well, within ETSI it was the Board that – after an interesting extraordinary meeting at the Frankfurt Airport on 27 February 1998 – decided to create an ETSI UMTS Globalisation Group (UGG), i.e. not a committee but an ad-hoc group, but what is the difference? The next section will tell you more.

Coming back to the extraordinary ETSI Board meeting on 27 February 1998, to simply mention "it was an interesting one" is, of course, correct, but an understatement. We had already quite an emotional ETSI Board#11 meeting dealing, with among other items, the question of how to standardise UMTS in the most useful manner. As no consensus could be achieved, a specially convened Board meeting was required.

At the beginning, a recall of the ETSI Board#11 results concerning the third generation mobile standardisation was made. In addition, reports from ETSI TC SMG were given, especially about their exploratory contacts with potential partners.

Regarding the ETSI strategy and policy for the standardisation of a third generation mobile communications system, there were quite differing opinions and fears expressed. The two extreme positions were something like:

- create a new and independent 3G forum; and
- keep all 3G standardisation within ETSI.

With all shades of compromise in between – among others why not use an ETSI Partnership Project (EPP)? By the way, at that time it was not very clear what an EPP was. There existed a general description in the ETSI Rules of Procedure, but it dated from 1995/1996 and covered some basic characteristics only, allowing for a great variety of different implementa-

[4] Wenn endlich Gras über eine (traurige) Angelegenheit gewachsen ist, kommt ein Esel, der das Gras

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The result of this heated discussion was the idea to create a kind of starter group, UGG. And the Board agreed that the group should consider the requirements for the globalisation of GSM-based UMTS and make recommendations as to how this may be achieved.

9.1.2 The ETSI UMTS Globalisation Group

The UMTS Globalisation Group (UGG) was an ad-hoc group established by the ETSI Board from where it got its first draft Terms of Reference. They have been refined since based on the experience gained in the meantime.

9.1.2.1 Terms of Reference of UGG

In the following you will find the UGG Terms of Reference as revised during the first UGG meeting and approved by correspondence by the ETSI Board.

9.1.2.1.1 Objectives of the Group

The objective of this Group was to consider the actions, which are required to enable UTRA and "GSM-based" UMTS specifications to be prepared and promoted in a manner, which makes them attractive to global partners such that they will be implemented world-wide.

To achieve this objective the Group should:

- provide strategic management of those activities which fall within the scope of this Group;
- investigate the development of relationships with external partners and identify their expectations for UMTS;
- propose an organisational structure which meets the expectations of the Institute and external partners, taking into account the recommendations of the ETSI GA ad-hoc Group on fixed/mobile convergence (after their approval by the ETSI GA);
- consider what transition arrangements are necessary to move towards a new organisational structure;
- propose a mechanism, which enables all active partners to take part in the approval of related specifications.

In their work the Group may need to take into account the following factors:

1. Management characteristics (*How do stakeholders define and approve strategic direction? How is the "work-programme" defined and approved to carry out the strategic objectives?*)
2. Business model (*How are "regional" priorities, based on their business model, defined such that the standards are truly global?*)
3. Financial model (*How are "overhead" costs assigned?*)
4. Operating principles (*How is actual standardisation work carried out? How are the standards approved in different regions/countries?*)
5. Maintenance work (*How are improvements, maintenance of standards performed?*)
6. European fall-back (*What is the fall-back solution for Europe if there are disagreements at*

- 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, for and other industry groupings. 3GPP is a collaborative activity between officially recognised SDOs, with the participation of other industry groups and individual members.

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

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

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

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

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

9.1.3.1 How Does 3GPP Work?

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

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

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

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

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

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

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

9.1.3.1.1 Electronic Working

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

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

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

9.1.3.1.2 Project Support

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

9.1.3.2 Who are the Stakeholders in 3GPP?

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

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

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- The China Wireless Telecommunication Standards Organisation (CWTS)
- The European Telecommunications Standards Institute (ETSI)
- Committee T1, US
- The Telecommunications Technology Association (TTA), Korea
- The Telecommunication Technology Committee (TTC), Japan

ARIB, ETSI, T1, TTA and TTC can be considered as founding OPs of 3GPP who signed the agreement in Copenhagen on 4 December 1998. CWTS signed the 3GPP agreement during the OP meeting #1 in Seoul on 8 June 1999.

In addition to the six OPs mentioned above, there are now seven MRPs (in chronological order of joining 3GPP):

- The UMTS Forum (December 1998 at Antibes/Juan les Pins)
- The Global Mobile Suppliers Association (GSA) (February 1999 at Cannes)
- The GSM Association (OP meeting #1 in Seoul)
- The Universal Wireless Communications Consortium (UWCC) (September 1999 at Geneva)
- The IPv6 Forum (OP meeting #2 at Sophia Antipolis)
- The Multimedia Wireless Internet Forum (MWIF) (during OP meeting #3 in Beijing)
- The 3G.IP Focus Group (during OP meeting #3 in Beijing)

In addition, by January 2000 3GPP had 284 companies participating as individual members, and the numbers continue to grow; their affiliation with the OPs is as follows:

ETSI (Europe)	173 companies	(61%)
T1 (US)	22 companies	(8%)
ARIB (Japan)	37 companies	(13%)
TTC (Japan)	18 companies	(6%)
TTA (Korea)	25 companies	(9%)
CWTS (China)	nine companies	(3%)

The brackets at the end indicate the percentage of individual OP members active in 3GPP. From this, one can deduce that the representation from the three continents involved in 3GPP is as follows:

Asia	89 (31%)
Europe	173 (61%)
North America	22 (8%)

9.1.3.2.1 Leadership positions

During the first meeting of the 3GPP PCG and the OPs in Fort Lauderdale, US in March 1999, a lot of effort was undertaken in order to establish a good regional balance regarding the leadership positions within 3GPP. Fortunately, that goal was achieved as can be seen in the following:

PCG for the first 2 years: chairman from Europe, vice-chairmen from Asia (ARIB) and North America.

From 2001 on there will be an annual rotation. For 2001 the PCG chairman comes from Asia (ARIB).

Regarding the four TSGs: CN, RAN, SA&T, with one chairman and two vice-chairmen each, we can register the following situation as of the end of the year 2000:

- Europe has five (of 12) leadership positions;
- North America has four (of 12) leadership positions;
- Asia has three (of 12) leadership positions.

9.1.3.3 3GPP Meetings

Regarding the meetings within 3GPP, we have to distinguish basically between three different levels:

- PCG/OP meetings;
- TSG meetings; and
- WG meetings underneath the TSG level.

PCG/OP meetings are not that frequent. Until April 2001, the following meetings took place:

PCG#1	1–4 March 1999 in Fort Lauderdale, US
PCG#2	6–7 July 1999 at Sophia Antipolis, France
PCG#3	19–20 January 2000 at Sophia Antipolis, France
PCG#4	17 July 2000 in Beijing, China
PCG#5	14 November 2000 in San Francisco, US
PCG#6	10 April 2001 at Sophia Antipolis, France

The composition of PCG, the project co-ordination group, is as follows:

Six OPs with a maximum five delegates each;
Seven MRPs with a maximum of three delegates each;
Five TSGs with one chairman and two vice-chairmen each;
Two observers with one delegate each;
ITU-T and -R with three delegates as special observers,
One secretary, Mr Adrian Scrase.

Thus – ignoring any guests – the PCG may encompass up to about 70 delegates. This high amount of delegates within PCG – although most of the delegations do not send the maximum number of delegates allowed – does not correspond anymore to the "light structure" originally intended.

Decisions within PCG are taken by consensus among the OPs. In "unavoidable cases" a vote may be taken.

Most of the OP meetings were organised in connection with the PCG meetings as follows:

OP#1	27–28 May 1999 in Seoul, Korea
OP#2	18 January 2000 at Sophia Antipolis, France
OP#3	18–19 July 2000 in Beijing, China
OP#4	15 November 2000 in San Francisco, US
OP#5	11 April 2001 at Sophia Antipolis, France

The OP meetings are composed of delegations stemming from the participating OPs. They are normally chaired by a representative of the hosting OP. The delegation number is not fixed, but as most OP meetings are joined with a PCG meeting, the delegations from the OPs do not differ very much from PCG meetings with the difference that the TSG chairmen and vice-chairmen are now part of the OP delegations. Up to now the MRPs have been invited to participate as guests within the OP meetings.

There is a 3GPP Funding and Finance Group, chaired by Mr Phil Davidson, active and reporting to the OP meetings providing appropriate advice.

The TSGs meet quarterly in parallel (CN, RAN, T) and in sequence with SA. The TSGs have met 11 times since the creation of 3GPP.

TSG#1	Sophia Antipolis (December 1998), France
TSG#2	Fort Lauderdale (March 1999), US
TSG#3	Yokohama (April 1999), Japan
TSG#4	Miami (June 1999), US
TSG#5	Kyongju (October 1999), South Korea
TSG#6	Nice (December 1999), France
TSG#7	Madrid (March 00), Spain
TSG#8	Düsseldorf (June 00), Germany
TSG#9	Hawaii (September 00), US
TSG#10	Bangkok (December 00), Thailand
TSG#11	Palm Springs (March 01), US

At those TSG meetings between 400 and 600 delegates can be expected. During the recent ones we have been closer to 600 – quite a challenge from the logistics point of view!

The working groups belonging to the TSGs may even meet more frequently. Therefore, it does not make much sense to refer to them here in more detail. But it should be clearly pointed out that the bulk of the 3GPP work is being done there…

9.1.3.4 What Progress has been Made in 3GPP?

In little over 1 year, the project had already produced the first series of more than 300 specifications and reports in what is called Release 99. The specifications in Release 99 include those that define UTRA, the radio interface, and these have been submitted by the 3GPP OPs to the ITU-R for reference in its IMT.RSPC Recommendation, which forms the compendium of 3G terrestrial radio interfaces.

In addition to UTRA, this initial release of specifications includes the definition of around 50 services including multimedia messaging, plus architectural aspects, other features and enhancements. Release 99 has enabled industry to proceed with the development of the system, which, as noted earlier, is planned to come into service in Japan in 2001, with progressive launches around the world thereafter. These incredibly short timescales have necessitated an extremely efficient, and yet open, specification process. The fact that around 300 vital specifications have been produced so quickly confirms both the commitment of all concerned and the effectiveness of the 3GPP process.

The Project's specification activities will continue as it develops Release No. 4 (scheduled for March 2001) and beyond, providing more enhancements and features including an "all-IP" based network, specification of a UTRA repeater, further refinements of radio access

modes, seamless service provisioning, enhancements to security, emergency calls, languages and alphabets, optimisation of power, spectrum and quality of service, and numerous other aspects. The task also entails an updating of the Release 99 specifications as needed (the technology is still evolving), for which a mechanism for handling quarterly updates has been established.

9.1.4 What is the Relationship Between 3GPP and ITU?

The 3GPP has been recognised by the ITU as one of the sources of technical specifications for the IMT-2000 family. There is thus a clear understanding between the two parties, which includes that 3GPP results will be submitted to the ITU where appropriate. However, because of the Project's status it does not contribute directly to the ITU. Formal contributions to ITU Study Groups, based on 3GPP Technical Specifications and Technical Reports, are made by individual members or OPs who are also members of the ITU.

The ITU entrusts the work of developing the standards needed for 3G systems to groups such as 3GPP, 3GPP2, UWCC and ETSI. For its part, the ITU is focusing on the interfaces between IMT-2000 family members to ensure seamless operation for users. A large number of 3GPP specifications, notably those for UTRA, have been accepted by the ITU as an essential component of its IMT.RSPC Recommendation, and 3GPP will continue to contribute to this process as the ITU updates and enhances the Recommendation.

In order to improve the exchange of information with the two sectors of the ITU, ITU-R and ITU-T, 3GPP agreed during its recent PCG/OP meetings in San Francisco to provide a special observer status for the ITU within the PCG of 3GPP.

9.1.5 What is the Relationship Between 3GPP and Other Initiatives?

The technologies that form the terrestrial component of IMT-2000 are being developed in several different communities: 3GPP is producing the specifications for the UTRA FDD (W-CDMA) mode and the UTRA TDD modes (high and low chip rates, the low chip rate mode
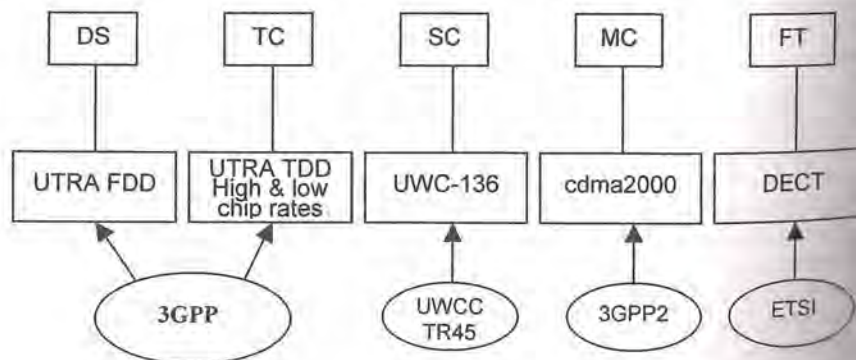
Figure 9.1.1 The five IMT-2000 terrestrial interfaces agreed by ITU-R
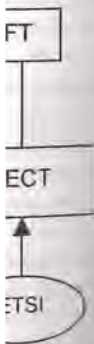
being TD-SCDMA, proposed by CWTS. A similar group, 3GPP2, is preparing the cdma2000 specifications, UWC-136 TDMA specifications are being developed principally by UWCC, and DECT specifications are defined by a set of ETSI standards (Figure 9.1.1).

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.

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

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

The term UMTS is throughout this section used to keep consistency of terminology with the other chapters and .... The term UMTS do not appear in the in 3GPP agreement, which defines the system as a third generation .... 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 coordinate their views on 3GPP?" Coming from the ETSI SMG background this was a completely unexpected question, as the working procedures for 3GPP were very similar to those of ETSI, it was clear to me that the contributions to 3GPP in general should come from the individual members – the companies, regulators etc. – in their own name and not as regional contributions. I explained this, but I also understood that for delegates with a background in international standardization from, e.g. ITU this was the normal way of thinking. During this

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first meeting a lot of small explanations similar to this were given over a cup of coffee and already by the second meeting there was a far better common understanding on how the work in the groups was intended to be performed.

Even though the partners, already before the first meeting of the TSGs, had made the principle decision of having four TSGs and had elaborated draft terms of references for the groups, the definition of the area of responsibility for the TSGs and refinement of the terms of references was a key item on the agenda. Each of the TSGs adjusted their terms of references and with some subsequent adjustments at the second meeting, the terms of reference for the TSGs have until now (March 2001) stayed the same except for few minor adjustments.

In order to get the detailed work started and not loose the momentum, which had existed in the SDOs before the creation of 3GPP, it was a very important task at the first meeting of the TSGs to get the detailed work within the TSGs organised so technical work could commence and progress in the period up to the second meetings of the TSGs in March 1999 in Fort Lauderdale. This part of the programme for the first meetings of the TSGs went well, and by the end of the meeting each of the TSGs had established between three and five working groups, outlined their area of responsibility and appointed convenors for the groups. With the establishment of the working groups the detailed technical work was ready to start, and already by the second meeting of the TSGs significant progress was reported.

By the second meeting of the TSGs, which took place in Fort Lauderdale, the complete atmosphere had changed from the general uncertainty and procedural questions to a far more technical focus, even though a few items of a management and organisational nature still needed to be sorted out. In addition, at this second meeting the leadership (chairman and vice-chairmen) for the individual TSGs was elected for the next 2-year period.

As indicated, one of the main differences with the 3GPP organisation compared to the organisation of SMG was the lack of a superior technical group with an open plenary with responsibility for the technical coordination, final decision making, conflict resolution and the project management including adaptation of work items, etc. Already the original description for the role of TSG SA, which was elaborated by partners together with the 3GPP agreement in Copenhagen in early December 1998, contained a paragraph on giving TSG SA the role of "High level co-ordination of the work performed in other TSGs and monitoring of progress". This role was subsequently reflected in the terms of references for TSG SA agreed at the first meeting of TSG SA (TSG SA#01). At the second meeting of TSG SA the TSG SA convenor Mr Fred Harrison, BT, provide a proposal[3] for how the TSG SA could fulfil its project coordination role. The key principles of the proposal were:

- To establish a project management function to create and maintain a cross TSG project programme including status of technical specification and reports.
- To establish close co-operation with TSG CN; TSG RAN and TSG T. Requiring the chairman or vice-chairman of each TSG to attend the TSG-SA meetings and bring new work items, issues and progress information to the attention of TSG-SA.

At the meeting another proposal[4] was received from a group of companies[5] who suggested that a TSG plenary be created, i.e. a fifth TSG with plenary function similar to that of ETSI

[3] SP-99050: proposals for managing the TSG project co-ordination role.
[4] SP-99068: TSG plenary.
[5] AT&T, BT, FRANCE TELECOM, NTT DOCOMO, TIM, TMOBIL.

SMG. The argument for this proposal was that a TSG plenary would help to ensure overall project coordination and elaboration of a consistent and complete set of UMTS specifications.

After long discussions a compromise not requiring changes to the TSG structure was found and agreed. This comprise[6] was based on the following principles for the TSG SA's project coordination role:

- At least while performing its project co-ordination role, the TSG SA will not meet at the same time as other TSGs.
- At least one representative of TSGs RAN, CN and T and their working groups will attend each TSG SA meeting, to report on the activities of their respective TSG. They shall be responsible for bringing new work items, issues and progress statements on work such as specifications and existing work items from their respective TSGs to the attention of TSG SA.
- The TSG SA plenary will also include reports from its own working groups and facilitate information exchange between those working groups and the other TSGs.
- The TSG SA shall have arbitration responsibility to resolve disputes between TSGs.

As can be seen from the principles, the independence and the rights of the other TSGs was not touched by the compromise. Each TSG maintained its right to approve work items and deliverables, etc. As a result of the way forward on the TSG SA management role, the TSG meetings in Fort Lauderdale were the last meetings where all four TSGs met in parallel. At the subsequent TSG meetings in Shin-Yokohama in Japan at the end of April TSG CN, TSG RAN and TSG T met in parallel followed by TSG SA and the chairmen of TSG CN; TSG RAN and TSG T provided to TSG SA a status report on the work and progress in their respective TSGs. The TSG SA meetings starting from the third meeting in Shin-Yokohama then had a three part structure. A part related to TSG SA internal matters where the different TSG SA working groups report the progress of their work and submit their contributions for approval, this part is similar to the work in the other TSGs. A second part related to the technical coordination with the other TSGs and a third part dealt with general project management issues such as working methods, document handling, etc.

By the end of the second TSG meetings most of the "beginners" difficulties had been resolved, the interaction between the TSGs defined and TSG SA was ready to take on-board its role in the coordination role. Also the second TSG meetings showed that the detailed work in the working groups had got a good start, the work handed over from the partners was well received and progressing well. All in all, the definition and establishment phase of the technical work in 3GPP had been completed successfully and the transfer of work from the partners to 3GPP had been performed without causing any major disruption in the ongoing technical work.

9.2.3 The First Release – Release 99

After the two first two meetings of the TSGs where especially TSG SA had used time to organise the work, the third meetings were into their routine and could fully concentrate on the technical specification work.

The work in 3GPP followed the same basic methodology as was used for the GSM work in ETSI. The specifications generally are based on a three stage approach, with a

[6] SP-99087: proposals for managing the TSG project co-ordination role.

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description containing the functional requirements, stage 2 containing the overall functional description and architecture for a given functionality and stage 3 being the detailed technical specification down to the bit level. Working with this methodology the idea is of course that the stage 1 description is first completed or nearly completed so the requirements are clear. The next step is then to complete the stage 2 description and thereby define the overall architecture and functional split for the technical realisation of the functionality. When stage 2 is complete or close to completion the third step the stage 3 specifications containing the detailed technical specification is complete.

However, it was not possible for 3GPP to do this work serially, because of the very short timescale for completion of the first set of specifications in December 1999 only 1 year from 3GPP's creation in December 1998. Thus the work on stage 1, 2 and 3 specifications had to a large degree to be performed in parallel. Doing so TSG SA WG2, which is responsible for system architecture, quickly became a bottleneck in the process, as it was difficult, especially for TSG CN (core network) to draft the detailed specification before the architectural decisions were made. This problem peaked at the fourth TSG SA meeting in June 1999, when going through the status report from TSG SA WG2, where it became clear to the full membership that an extraordinary effort was needed to ensure that the architectural work was speeded up.

Standardisation by committee is not a traditional project, where the project leader can reallocate resources to the most urgent task. In standardisation the important task is to ensure that all the participants know and understand where additional effort is most urgently needed, so the volunteer work effort is pointed in the right direction. The recognition of the need for an extraordinary effort in TSG SA WG2 helped to speed up the architectural work and minimise the problem of TSG SA WG2 being a bottleneck. The initial delay of course made the work schedule even tougher for the groups responsible for the detailed stage 3 specifications.

As you can imagine it is not possible here to go into the details of the work, which led to the first set of specification from 3GPP in December 1999. In the following I will therefore only provide a few of examples of items, which required resolution by TSG SA.

For UMTS a new ciphering and authentication mechanism providing a higher degree of security has been developed. The SIM card (for UMTS USIM) is involved in the authentication process and calculates the necessary keys for the authentication and ciphering. Thus new SIM cards are required, or to be technically correct, cards with the USIM application are required. In the following I will use the short term USIM to indicate the card supporting the new security algorithms and SIM for the old cards supporting the GSM level of security. At the third meeting of the TSGs there was the question of whether the UMTS networks should only support USIM and thus always provide the highest possible degree of security or whether it should be possible to access a UMTS network with terminals with a SIM only. On one hand a number of delegates believed that it was preferable only to allow the usage of USIMs in the UMTS terminals, this on the other hand was questioned by operators that could foresee a slower roll-out of UMTS, e.g. due to the expected licensing time. For them a requirement for usage of USIM only in the UMTS terminals would leave them with two alternatives; either to issue USIMs even though they did not yet have a UMTS network, or be in a situation where their customers could not roam to, e.g. Japan and Korea with no GSM networks but only UMTS networks. This lead to a long discussion where it could have been tempting to perform a quick vote; however, to keep the good spirit of cooperation and

consensus based work I as 3GPP TSG SA chairman considered voting as an emergency solution if everything else failed. As almost always the attempt to find a solution for which consensus could be obtained succeeded. The comprise was found based on the following elements:[7]

- Support access to UMTS access networks while using cards equipped with either the SIM, the USIM functionality or both; and
- Allow a serving UMTS operator the option to block access to the UMTS access network when a card equipped only with a SIM functionality is used.

As usual when compromises of this type were obtained it was the assumption of the meeting that the companies/members who required the capability should do the work to specify the signalling and other mechanisms required.

At the fourth TSG meetings the very rare situation of one of the other TSGs raising an issue to TSG SA for resolution occurred. TSG CN had completed the feasibility study of the Gateway Location Register (GLR). TSG CN had then decided not to start specification work for the GLR. However, as some members of TSG CN had expressed strong interest in the GLR, it had been proposed to let the interested parties elaborate the specifications required for the GLR outside TSG CN and submit the result to TSG CN. This decision had caused some problems and the TSG CN raised the question to TSG SA of how to proceed, e.g. should a vote be taken. I as chairman of TSG SA indicated to the meeting that votes were to be seen as an emergency solution when everything else has failed. First, an attempt should be made to find a solution for which consensus can be obtained. For this explicit case it seemed clear that the resistance to start work on the GLR was coming from operators not seeing the need for a GLR and fearing that the introduction would impact existing networks and other networks without a GLR. On the other hand especially operators with no GSM legacy network showed a strong interest in the GLRs as a way to reduce the amount of international signalling caused by roamers moving around in very densely populated areas. Taking into account the strong interest and the concerns expressed, it was found, that there would be no problem, if a GLR could be done in such a way, that it had no impact on an existing HLR[8] (pre-3G), if a subscriber belonging to a HLR roamed onto a network utilising a GLR. Similarly the support of the GLR in one network should not impact networks not utilising the GLR. Based on this analysis, TSG SA recommended that TSG CN adopt a work item on GLR requiring a GLR to be fully compatible with old and new non-GLR networks. As hopefully can be seen from this example it is and has been a key priority in 3GPP to as far as possible base decisions on consensus as it also was the case for the GSM development in ETSI.

Another type of problem, which every now and then needs resolution at TSG level is the specific national or regional requirement often caused by the local regulation. Requirements that often can cause problems in relation to roaming. One example of this is the emergency call where TSG SA at meeting number 5 received a proposal[9] for national variation in terminals to cater for the differences in emergency call requirements. When GSM was introduced one unique number for initiating emergency calls had been defined (112) this ensured that a roaming user would always be able to perform a emergency call without

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[7] SP-99208.
[8] HLR = home location register.
[9] SP-99481.

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knowing a any specific local situation. When GSM entered into new parts of the world this function had been improved by letting the local operator store a number on the SIM card which should be considered as the emergency call number, and thus, e.g. and American user could use 911 wherever he brought his mobile. However, there are other differences in the handling of emergency calls other than just the number to dial. The GSM solution only allows routing of emergency calls to one central emergency centre and does not differentiate the type of service needed such as ambulance, fire brigade or police. However, some operators had a regulatory requirement to route directly emergency calls to the relevant service and thus needed different numbers per service. Therefore, they had suggested having a national variation of terminals. After some discussion in TSG SA the proposal was rejected. The main reasons for this was that it was seen as essential to avoid local variations of terminals and secondly a solution based on local variation of terminals would not solve the problem of subscribers roaming from other parts of the world with terminals without the specific local variation. Anyhow, the rejection of the proposal did not mean that the problem was ignored; on the contrary the relevant working groups were tasked to find a generic solution, which would satisfy the local regulations without causing problems with roaming or requiring variation in terminals.

That the previous examples from the elaboration of 3GPP Release 99 all come from the TSG SA does not mean that this type of problem does not appear in the other TSGs. As also can be imagined, the specification of a complete new radio access network in TSG RAN in the timeframe of 1 year was one of the most demanding tasks during the elaboration of the first set of specifications from 3GPP (Release 99).

As mentioned earlier, when 3GPP started in December 1998 a target date of December 1999 was set for the first set of specifications. So the sixth meetings of the TSGs in Nice, France in December 1999 were the meetings where the status for the first year of 3GPP was to be made. In order to get a full overview of the status of the work and the degree of completion, the process for documenting the remaining open issues had been agreed amongst the chairs and vice-chairs of all of the TSGs.

The principle for this was relatively simple and building on the assumption and desire that a set of specifications should be completed and frozen at the sixth meetings of the TSGs. The term frozen meant that there should be no functional changes or additions made to the set of specifications, but only strictly necessary corrections of errors or omissions which if uncorrected risk making the system malfunction. The idea behind the principle was that at the next meetings of the TSGs all proposed changes to the specifications, which could not be justified as an essential correction should be rejected, unless an exception for that specific item had been given in December 1999. In order to document these exceptions all working groups and TSGs had prepared and forwarded to TSG SA sheets describing the non-completed functionality for which they wished to have granted an exception from the general rule of no functional changes. In addition to the description of the functionality, the sheet also indicated the consequences if this functionality was completely removed from Release 99.

TSG SA collected the status reports from the different groups and created a relatively large table[10] where on one side was the different functionalities and on the other side the different groups and in the table an indication if a group had requested an exception for completion of the functionality. After having created this table based on the status reports, TSG SA went through the table on a per functionality basis and evaluated the expected completion date and

SP-99839

the necessity of the function in Release 99. In order to maximise the stability of the set of specifications, especially in the case where several groups had items open for the same functionality, specifications were scrutinised in detail and in several cases the functionality was completely removed from 3GPP Release 99. This review led to the removal of functionalities such as Enhanced Cell Broadcast, Tandem Free Operation for AMR, Support of Localised Service Area and a reduction in the location service functionality in Release 99.

At the end of the December 1999 TSG SA meeting approximately 80 exceptions from the rule of no functional changes were granted. At the following meeting of the TSGs in Madrid in March 2000 the status and the list of open items was once again reviewed and the number of open items was reduced from 80 to approximately 30. At the TSG meetings in June 2000 the remaining open items were completed and since then only necessary corrections could be made. However, it is to be understood, that when such a substantial set of specifications for the 3GPP Release 99 have been elaborated in the time frame of approximately 1 year, it is unavoidable that there are some ambiguities and errors in the specifications. It is a very important task to have these errors corrected in the specification as soon as they are discovered, as this is the only way to avoid small differences in implementation due to different solutions to errors. Differences which if not avoided could lead to problems of interoperability, etc. Also it should be noted that there will continuously be errors discovered in the specifications which need to be corrected, at least until every detail has been implemented and made operational in the field.

9.2.4 Introduction of Project Management

As indicated, one of the main differences with the 3GPP organisation compared to the organisation of SMG was the lack of a superior technical group with an open plenary with responsibility for the technical coordination, final decision making, conflict resolution and the project management including adaptation of work items, etc. Instead the different TSGs approved work items and technical work on their own. Even though they reported the status of their work to TSG SA there was no simple way to for linking a given functionality with the work being performed in the different TSGs. This was clearly a problem during the elaboration of Release 99, as it was difficult for the delegates to get an overview of which functionalities were on the critical path for completion. To get an overview actually required that key experts from the different areas sit together and fit the different parts of the puzzle. It therefore, required quite some effort in and outside the TSG meetings of December 1999 to provide an overview, which allowed the meetings to make conscious decisions.

As this potential problem was clear to me from the start of the project, I had, already at the second meeting of the TSGs in March 1999, had discussions with the chairmen of TSG SA WG1 and TSG SA WG2 on introducing a model for the project co-ordination which would follow the work from the initial requirements to completion. This model was then introduced for initial discussion to the leadership (chairmen and vice-chairmen) of the other TSGs at the third meeting of the TSGs. During the rest of 1999 additional background work was done in order to prepare for the introduction of the model for project co-ordination. At the December 1999 TSG SA the model was presented to TSG SA for approval and became the model for the organization of the work for the following releases and the basis for the overall project plan.

The model was based on the introduction of the Feature, Building Block and Work Task concept, and categorization and linkage of the work items. The model was thought of as a

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reference model for structuring the work. It was not the intention to rigorously enforce the usage of the model on all ongoing work, but merely to use the model as a common reference model across the TSGs and to structure future work. The model took its origin from the typical flow for creation of a new feature or service and can briefly be described as follows.

TSG SA is through TSG SA WG1 responsible for defining the features and services required in the 3GPP specifications. TSG SA WG1 is responsible for producing the stage 1 descriptions (requirement) for the relevant features and passing them on to TSG SA WG2. TSG SA WG1 can also forward their considerations on possible architecture and implementation to TSG SA WG2, but is not responsible for this part of the work.

TSG SA WG2 should then define the architecture for the features and the system, and then divide the features into building blocks based on the architectural decisions made in TSG SA WG2. TSG SA WG2 will then forward the building blocks to the relevant TSGs for the detailed work. These proposals will be reviewed and discussed in an interactive way together with TSGs/WGs, until a common understanding of the required work is reached. During the detailed work of the TSGs and their working groups, TSG SA WG2 is kept informed about the progress.

The TSGs and their WGs treat the building block as one or several dedicated Work Tasks (WTs). The typical output of a given WT would be new specification(s), updated specification(s), technical report(s) or the conclusion that the necessary support is already provided in the existing specifications.

A part of TSG SA WG2's role is in co-operation with the TSGs and their WGs to identify if synergy can be obtained by using some of the building blocks or extended building blocks for more than one feature. Part of TSG SA WG2's task is to verify, that all required work for a full system specification of the features relevant take place within 3GPP without overlap between groups. In order for TSG SA WG2 to be successful, this has to be done in co-operation with other TSGs/WGs.

About the project scheduling: TSG SA WG1 sets a target, TSG SA WG2 performs a first technical review and comments on the target. TSG SA WG2 indicates some target for time schedule together with allocation of the defined building blocks. The TSGs and their WGs comment back on these targets. TSG SA WG2 tries if necessary to align the new target between the involved parties. TSG SA WG1 and TSG SA are kept informed of the overall schedule.

It was also in the model, it was identified as a task for TSG SA, TSG SA WG1 and TSG SA WG2 to ensure early involvement of TSG SA WG3 (working group responsible for security) to ensure that the potential security requirements, service requirements and the architectural requirements are aligned and communicated to the TSGs and their WGs.

In order for TSG T and its subgroups to plan and perform its horizontal tasks on conformance testing and mobile station capabilities, it was foreseen to invite TSG T to evaluate the potential impact of a new feature. Also work on the horizontal tasks is required to be included in the overall work plan.

With the acceptance of the modeling of the work based on the work breakdown into features, building blocks and work tasks, the next step was to map the work onto the model, create the corresponding work items for the features and building blocks and establish a first version of an overall project plan for 3GPP. In order to kick-start this process a number of Inter Group Coordination groups were establish within TSG SA WG2. The purpose of these groups was to try to establish a first version of a project plan for a given area. To ensure

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the correctness of the information rapporteurs and representatives from the different working groups were invited to either participate or provide status and planning information, which then was used to establish a "traditional" project plan. Also the groups identified and informed the relevant groups if, e.g. building blocks or WTs were missing.

After the establishment of stable versions of the project plan covering ongoing activities for all of the TSGs and their working groups. The responsibility for maintenance of the project plan, was shifted so each TSG was made responsible for keeping updated the parts of the work plan, which correspond to their work. The practical maintenance of the project plan was then transferred to the MCC, the team of technical experts functioning as technical secretaries for the groups and responsible for implementation of the decisions of the meetings. The MCC corresponds to the Permanent Nucleus later known as PT12 during the elaboration of GSM.

Today the project plan is just another well functioning and convenient tool, which allows delegates and their organizations a quick overview of the status of the ongoing activities. However, this is only possible because the different groups and the MCC make a significant effort in keeping the plan up to date.

In the August 2000 TSG SA held an ad-hoc release planning, which recommended entirely controlling the 3GPP work program via the work plan, and doing this independent of releases. This recommendation, which later was confirmed by TSG SA further proposed that approved work items introduced into the plan are given calendar target dates and not particular release target dates. These "calendar" work item target dates will need to monitored and adjusted as work and knowledge about the work items progress. For this purpose reasonable milestones shall be defined. The work plan calendar should then also indicate planned future release dates with reasonable frequency to allow for stability, e.g. approximately every 12 months, depending on whether there would be enough completed work to justify the issue of a release.

The content of each release could then be easily deduced from the work plan, i.e. those items scheduled for completion by the closing day for the release being included in that particular release, a 3GPP road map. The definition of the content of a release could then be based upon the work plan, with a review of the release content starting approximately 6-4 months before the initial predicted closing date of the release. Work items not completed at the chosen closing time of the release are not included in that particular release. Maintaining the closing date of a release is a priority. Only when it is identified that no substantial new features would be available at the target date, is shifting the date considered to be an option.

In addition, independently of the actual release date, upon completion of a particular work item, the work item is frozen, denying any further functional change on the completed work item, permitting only essential technical corrections. This helps stabilize the specifications and the availability of the draft new release versions of the specifications can assist companies wanting to start developing the new features.

In all, the definition and establishment of an overall project plan was successful and has provided a high degree of visibility of 3GPP's activities. Especially, when the second set of specifications from 3GPP (Release 4) was completed in March 2001. The advantage of having the project plan to identify the completed features showed a major advantage and helped simplify the work compared to when Release 99 was completed. Also the process has changed from a release centric approach to a project plan approach with individual planning for each function or feature. To mark this change the naming of the releases was decoupled from the calendar and changed to refer to the version number on the specification and the

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what would in the old philosophy have been called Release 2000 is called Release 4, which then is to be followed by Release 5, etc.

9.2.5 Technical Work in 3GPP Following the First Release

About the first release of specification from 3GPP, one can in short describe the system specified as a core network evolution where the circuit switched domain provides circuit oriented services based on nodal MSCs (an evolution of GSM). Similarly the packet switched domain provides IP-connectivity between the mobiles and IP-networks based on an evolved GSM GPRS core network. In contrast to this the radio access network is a complete revolution with a brand new radio access technology. From this background it was not a major surprise that the most significant changes to come in the next releases are focused on the core network side.

Already when the work after Release 99 was discussed for the first time at the fourth meeting of the TSGs in Miami, this trend was clear. It was at this meeting that 3GPP accepted the idea of specifying an all IP based architecture option, i.e. an architectural option not requiring the traditional nodal MSC. The work on an all IP based architectural option started with a short feasibility study to identify the implications and to plan the time-scales. However, this work progressed so fast and in parallel with the time critical task of completing Release 99 that several organization, especially those amongst the smaller operators had problems following the work. Also the architectural analysis progressed much faster than the work on requirements. Therefore, in order to bring everybody level again, it was, at the TSG meetings in December 1999, decided to hold a workshop on the subject of the "All IP" option. This workshop took place in Nice, France in February 2000.

The "All IP" workshop in February 2000 was organized as a two part event, the first part where members were invited to present their vision for the "All IP" work, being about operational scenarios, technical visions, etc. The second part of the workshop was used to draw up the general trends from the presentations and thereby identify the goals by going "All IP", the requirements for the solutions and the way forward.

From the discussions it was clear that the key motivator for moving toward the "All IP" option was to establish a flexible service creation environment, allowing for quick service/application creation with well defined APIs allowing for third party applications and thus allowing gain from Internet as well as intranet services. Further, the development should provide for real time applications including multimedia services, this to allow the operators to market new and interesting services allowing the creation of additional revenue streams. Further, the introduction of IP based architecture was seen as providing the option for independence of access type and thus allowing seamless services across different access networks. Also the independence of access type could allow savings through the common development of services for several access types. Clearly one of the key motivators for the operators' interest in an IP based architecture was the expectation of cost reduction due to the possibility of leveraging the IP technology cost factor and the expected gains from the better scalability compared to nodal switched based networks.

From the discussions at the workshop it was also clear that a hybrid circuit switched and packet switched network would exist for a long time. It was also clear that the changes towards the IP based architecture should not be done at any price. Especially, the need for an open multi-vendor environment with at least the same quality and security levels as the

"state of the art" mobile networks at the time of introduction. Another requirement identified due to the co-existence of the circuit switched and packet switched domains was the requirement for service transparency across domains. Finally, an important and far from trivial requirement to fulfill, was the need to respect spectrum efficiency. It was noted at the workshop, that the IP header was actually larger than a standard 20 ms speech frame in the cellular system, which on its own clearly made the spectrum efficiency requirement a challenge. During 2000 the need for being economical with spectrum was clearly illustrated by the prices paid at the 3G spectrum auctions, with payments of approximately US$35 billion in the UK and approximately US$50 billion in Germany for the licenses to install and operate 3G networks.

At the workshop in February 2000, there were different opinions about what would be a reasonable and realistic timescale for the specification of the IP based architecture option. Some of the large operators indicated that they felt that a target date of December 2000 was too aggressive and not realistic, whilst other large operators indicated that they believed it could be completed by December 2000 and wanted to keep a target date of December 2000. Even though it was never said, one of the reasons for the aggressive timescale was clearly to ensure that the focus especially from the manufacturers was kept on this development, and not risk unnecessary delays, due to a time schedule, which people might regard as relaxed.

Even though the initial time schedule kept a target date of December 2000, in the further work the size of the task quickly became clear and some more realism appeared in the definition of targets in terms of content and completion dates. With respect to this it should not be forgotten that in difference to when working on the creation of the first release (Release 99), 3GPP now had a major task to perform in parallel to all new developments, that was the maintenance and error correction of Release 99. As mentioned earlier the first years of maintenance of a brand new standard are very time consuming, and thus it was very ambitious to plan for a next release already 1 year after the first. Even though the GSM work in ETSI used an annual release schedule, one should not forget that it took more than 3 years from the stable specification for GSM phase 1 before it was followed by the second set of specification for GSM phase 2.

Anyhow the second release (Release 4) was planned for and completed in March 2001, this without the result of the ongoing IP based work, which is the target for the next release (Release 5) expected approximately 1 year later than Release 4. Thus Release 4 does not contain significant revolutionary news, but instead it contains a number of smaller features and functionalities, which can be seen as an important complement to Release 99.

The work on the IP based architecture for Release 5 is focusing on the introduction of an IP multimedia subsystem, the part of the IP based network providing the capabilities for multimedia services. This choice has been made in order to ensure that the first results of the "All IP" work do not only provide for alternative methods of providing already existing and well known services, but also allow the operators to create new innovative services and new revenue streams which can justify the investment in the IP based architecture. The service drivers for Release 5 have evolved to be compatible with Release 99 and Release 4, with the addition of IP based multimedia services, including efficient support for voice over IP over the radio for the multimedia services. In Release 5 it is foreseen that the circuit switched domain is retained and provides 100% backward compatibility for the circuit switched services. Similarly the existing packet service domain is kept and the IP multi-subsystem

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In the longer term, the IP multimedia subsystem might evolve to the extent to where it can provide all services previously provided by the CS-domain, and thus the specification will need to support all the commercial interesting services from today's circuit switched domain in the packet switched domain in the IP based architecture.

9.2.6 The Transfer of the Remaining GSM Activities into 3GPP

As described earlier, the original terms of reference for 3GPP covered a third generation mobile system based on an evolved GSM core network and UTRAN (including UTRAN (FDD and TDD modes)) and not covering the GSM/EDGE Radio Access Network (GERAN) part. This work together with a few other GSM only items remained in ETSI under the responsibility of SMG. This resulting split of the GSM standardization caused concern when 3GPP was created. However, time showed that it was possible to co-ordinate the work between 3GPP and SMG. For most areas, except for the GERAN specific work, co-locating the meetings of the SMG working groups with their corresponding 3GPP groups enabled the co-ordination. However, it was also clear that there was no longer one single forum with an overall responsibility for GSM as a system. This overall co-ordination was to some degree made during the TSG meetings, in the corridors and in the meetings by delegates, who ensured that the service, architectural and core network decisions would be compatible with the GERAN. However, this way of working reduced transparency of the background for arguments and decisions, both for those interested in the further development of GSM as a system and for those not interested in the GSM legacy.

In September 1999, Committee T1 sent a liaison to its 3GPP Organizational Partners requesting that the terms of reference of 3GPP be expanded to include evolved GSM radio access; that all evolutionary work of GSM should be transferred to 3GPP. The reasoning provided was that for the foreseeable future, the GSM/EDGE radio access would co-exist with the 3G radio access and there would be a clear benefit for all parties in ensuring co-ordination between the further GSM/EDGE development and the work related to the UTRAN access. Also the liaison statement indicated that by including the remaining GSM/EDGE radio work in 3GPP the overall number of meetings, liaison statements, etc. could be reduced and thus the efficiency increased.

At the 3GPP PCG meeting in January 2000, the responses from the other partners was tabled and discussed. ETSI indicated that they could support the proposal from T1 and suggested that the transfer should be effective from June 2000. ARIB indicated that 3GPP activities were based on common interest, meaning that each participating SDO and individual member needs to commit to the 3GPP objective and scope. ARIB continued that unfortunately, ARIB had no requirements to produce standards of GSM radio access including EGPRS in Japan. In conclusion ARIB could not support the request of ARIB individual members to take part in the study related to GSM radio access in 3GPP. Also the response from ARIB indicated concerns regarding potential impact on the timescales for the UMTS work as well as concern regarding financing of the project if not all parties had equal benefit of the work performed. TTA's response was very similar to that of ARIB additionally commenting that the existing process was functioning well.

At the PCG meeting CWTS indicated that they could support a transfer of the GSM radio

work into 3GPP. After some short discussions it was agreed to form an "Ad-Hoc Group on Movement of Work into 3GPP" to assess the impacts and appropriate program structure to support the transfer of appropriate ETSI/SMG and T1 programs related to the GSM/EDGE radio access into a 3GPP. It was agreed that the work should be based on the following key assumptions:

- Any proposed new 3GPP work items should have no negative impact on current Release 99/Release 4 schedules, resources and funding.
- Only those parties within 3GPP interested in contributing to 3GPP developments in the area of GSM/EDGE radio access will be required to resource and fund this specific activity.

The ad-hoc group, which was lead by a member of the T1 delegation to 3GPP, meet three times in order to elaborate on a detailed report covering the concerns, potential advantages and disadvantages of the transfer, and the proposal for how the transfer could be performed, in terms of organization, funding, timing, etc. At the final meeting of the ad-hoc group in late March 2000 in Tokyo the report of the ad-hoc group was completed and contained the following proposals:

- A new TSG should be created – TSG GERAN – into which essentially all current SMG2 work would be moved.
- The work of SMG7 would be moved into the proposed TSG GERAN.
- The generic operations and maintenance work of SMG 6 would be transferred to 3GPP TSG SA WG5, while radio-specific GERAN work in SMG 6 would be transferred into the proposed TSG GERAN.
- The work of SMG9 that is specific to GSM and 3GPP systems would be transferred into 3GPP T3.
- The other ETSI SMG groups already have direct SMG-3GPP correlation, and the corresponding groups are already meeting in parallel or at least in close collaboration. Therefore this proposal recommends the formal transfer of this work.

This proposal from the ad-hoc group was accepted by all the partners in 3GPP at the PCG and OP meetings in July 2000 in Beijing. At these meetings also the corresponding modifications to the 3GPP working procedures, project description, and partnership agreement was approved. At this meeting, terms of references for TSG GERAN was approved and I was appointed convenor for TSG GERAN with the task of convening the first meetings of TSG GERAN.

TSG GERAN held its first meeting in Seattle at the end of August 2000 on the days originally planned for the meeting of ETSI SMG2, which held its last meeting in late May 2000. With the transfer of the remaining GSM work from ETSI to 3GPP, the first part of the GSM era in standardization had finished and the forming of 3GPP completed.

The transfer of the GSM/EDGE radio activities to 3GPP went without any major problems and without causing any delays to ongoing GSM/EDGE or UMTS activities. The work of TSG GERAN is now focusing on upgrading the GSM/EDGE radio access network to support the Iu interface as defined for UMTS, as well as supporting the IP multimedia subsystem. This is in order to allow full independence for the core network from the type of radio access network used, being either UTRAN or GERAN. This of course only as long as the required

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As a part of the decision of transferring the remaining GSM activities into 3GPP it was agreed to perform an organizational review in a 6 month time frame after the transfer. This review was performed during early 2001 and at the PCG meeting in April 2001 it was as a result of this review concluded, that there was no need for changes to the 3GPP organizations. It was further noted that the current organization of 3GPP had been able to evolve and handle the changes and challenges appearing.

In all, 3GPP is now a mature organization able to continue the good work and the co-operative spirit, which was always the trademark of the GSM/SMG group.

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.

has been aided by the collocation of the TSG meetings and by concerted efforts from the industrial members within 3GPP.

On the creation of 3GPP, a large amount of the work previously undertaken by ETSI TC SMG was transferred to the four TSGs. It was important for all involved to track the transfer of work carefully and meticulous care was taken to map the work from its old home in SMG to its new home in the 3GPP TSGs. This mapping information was made openly available on the 3GPP and ETSI websites to ensure that the telecommunications community could, as a whole, follow the work. This transfer of work was a form of "soft handover", with groups existing in parallel within SMG and within 3GPP for a period of time and items of work being transferred at the most appropriate point. The complete transfer of work was achieved within a period of 6 months.

The scope of 3GPP had been a subject of much debate and at the time of creation the scope covered the 3G system incorporating the UTRA radio access technology. This implied that not all of the work that existed within ETSI TC SMG was to be transferred to 3GPP. There remained a lot of work to be done for the evolving GSM radio interface (i.e. GPRS and EDGE) and this work would remain within SMG for the time being. In addition, the generic work relating to IC cards did not belong in 3GPP either and this too remained within ETSI TC SMG. SMG also retained the responsibility for European issues relating to both 2G and 3G, particularly for regulatory matters, and was also responsible for the transposition of 3GPP specifications into ETSI deliverables.

3GPP had no responsibility for the long-term evolution of the 3G system nor any responsibility for the fixed access component of UMTS. An ETSI project was therefore created (EP UMTS) to take care of these aspects.

A2.3.2 Mid-1999 to Mid-2000

3GPP was an entirely new concept and the first few months of operation were, in effect, experimental. However, in a very short time the project proved to be successful, and the industrial members gained confidence in the new method of working. The preparation of the first release of specifications proceeded at an alarming speed with more than 300 specifications being completed within the first year of operation. At the same time, the development of GPRS and EDGE continued within the ETSI TC SMG environment with active participation from North America. It was not long before serious consideration was to be given to the transfer of all remaining work and the closure of ETSI TC SMG.

An ad-hoc group was created within 3GPP in January 2000 to give full consideration to the widening of the 3GPP scope, particularly to include GPRS and EDGE. It was clear that not all 3GPP partners had a commercial interest in GPRS and EDGE and assurances were required that the ongoing UTRA based activities would not be unduly delayed by such a change in the 3GPP scope. By July 2000 the necessary agreements had been obtained by each 3GPP partner and the scope of 3GPP was formally changed to include the development and maintenance of GSM specifications, including the GSM evolved radio access technologies (such as the General Packet Radio Service (GPRS) and Enhanced Data Rates for GSM Evolution (EDGE)). This was achieved by the creation of a new TSG called TSG GERAN – GSM/ EDGE Radio Access Network.

The scope of 3GPP was also modified to make clear that the responsibility for the long-

term evolution of the 3G system was vested there. This enabled the ETSI group EP UMTS to be closed, thus focusing efforts firmly within 3GPP.

With the transfer of GSM into 3GPP it was a natural progression for ETSI TC SMG to be closed. However, ETSI still had the important task of transposing the 3GPP results into ETSI deliverables and the preparation of harmonised standards required to meet European regulations. This activity was not expected to be particularly onerous but it was nevertheless of high important for the European industry. To accommodate this work, the ETSI TC Mobile Standards Group (TC MSG) was created.

The only remaining activity to be accommodated was the generic activity pertaining to IC cards. ETSI had earned a high reputation for this work and since it was not specific to mobile telecommunications systems it was not appropriate for this to be placed within 3GPP. This led to the creation of an ETSI project later to be called Smart Card Platform (EP SCP).

A2.3.3 Mid-2000 Onwards

By mid-2000 the focus of attention was now clearly on 3GPP where all UTRA based and GSM radio based activities were now taking place within five TSGs. The European regulatory interests were being taken care of by ETSI TC MSG, and the generic IC card activities by EP SCP. (The former TC SMG and EP UMTS had been closed by this time).

Within Europe, interest had been shown by the railway community to adapt the GSM system and to use it as the basis for a European railway telecommunications system. This work had progressed well within the former ETSI TC SMG with much of the work having been completed before its closure. The systems were now close to deployment and it was desirable to have a permanent home for these activities. This led to the creation of a new ETSI Project called Railway Telecommunications (EP RT).

By late 2000, 3GPP had grown used to having five TSGs and had gained some experience of operating with its expanded scope. Part of the agreement reached for the expansion of the scope was that a review should be held after 6 months of operation to ensure that the best organizational structure had been found. At the time of writing that review had just begun.

A3.3 List of the Chairpersons in T1P1 and JTC[2]

Group	Name	Terms of Office Start	Terms of Office End
T1P1			
T1P1 chairs	Mel Woinsky	February 1994	February 1998
	Asok Chatterjee	February 1998	Expires February 2002
T1P1 vice-chairs	Mel Woinsky	February 1991	February 1994
	Jim Papadouplis	February 1994	February 1996
	Stephen Hayes	February 1996	June 1996
	Asok Chatterjee	June 1996	February 1998
	Mark Younge	February 1998	Expires February 2002
T1P1 working groups			
T1P1.4 chair	Ed Ehrlich	April 1995	July 1996
T1P1.5 chair	Ed Ehrlich	February 1996	February 2000
T1P1.5 vice-chair	Quent Cassen	February 1996	February 1998
	Don Zelmer	February 1998	February 2000
JTC			
Co-chairs	Gary Jones	February 1993	July 1996
	Charles Cook	February 1993	April 1995
	Ed Ehrlich	April 1995	July 1996

A3.4 Officials of 3GPP[3]

TSG/WG	Position	Name	Start date	End date
CN	Convenor	Stephen Hayes	1998-12-07	1999-03-03
	Chairman	Dettner Harald	1999-03-03	2000-03-15
	Chairman	Stephen Hayes	2000-03-15	
CN 1	Convenor	Hannu Hietalahti	1998-12-07	1999-03-22
	Chairman	Hannu Hietalahti	1999-03-22	
CN 2	Convenor	Masami Yabasaki	1998-12-07	1999-03-01
	Chairman	Ian David Chalmer Park	1998-12-07	2000-03-17
	Convenor	Keijo Palviainen	2000-03-17	2000-05-26
	Chairman	Keijo Palviainen	2000-05-26	
CN 3	Joint Convenors	Oscar Lopez-Torres and Norbert Klehn	1998-12-07	1999-03-15
	Chairman	Norbert Klehn	1999-03-15	
CN 4	Convenor	Yun Chao Hu	2000-05-26	
	Chairman	Yun Chao Hu	1999-11-04	2000-03-17

[2] Editor: Don Zelmer
[3] Editor: Adrian Scrase

TSG/W
CN 5
CN ITI
GERAI
GERAI
GERAI
GERAI
GERAI
RAN
RAN 1
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RAN 4
SA
SA 1
SA 2
SA 3
SA 4
SA 5
T

TSG/WG	Position	Name	Start date	End date
CN 5	Convenor	Lucas Klostermann	2000-03-17	2000-05-25
	Chairman	Lucas Klostermann	2000-05-26	
CN ITU-T	Chairman	Masami Yabusaki	2000-03-17	
GERAN	Convenor	Niels Peter Skov Andersen	2000-07-31	2001-04-02
	Chairman	Niels Peter Skov Andersen	2001-04-02	
GERAN 1	Convenor	Niels Peter Skov Andersen	2000-08-28	2001-04-03
	Chairman	Niels Peter Skov Andersen	2001-04-03	
GERAN 2	Convenor	Jean-Francois Minet	2000-09-04	2000-11-10
	Chairman	Bruno Landais	2000-11-10	
GERAN 3	Convenor	Ake Busin	2000-08-28	2000-11-06
	Chairman	Ake Busin	2000-11-06	
GERAN 4	Convenor	Jean Marc Recouvreux	2000-08-28	2000-11-22
	Chairman	Jean-Marc Recouvreux	2000-11-23	
RAN	Convenor	Akio Sasaki	1998-12-07	1999-03-01
	Chairman	Yukitsuna Furuya	1999-03-01	2001-03-13
	Chairman	Francois Courau	2001-03-13	
RAN 1	Convenor	Yukitsuna Furuya	1998-12-07	1999-02-22
	Chairman	Antti Toskala	1999-02-22	
RAN 2	Convenor	Denis Fauconnier	1998-12-07	1999-03-08
	Chairman	Denis Fauconnier	1999-03-09	
RAN 3	Convenor	Per Willars	1998-12-07	1999-04-26
	Chairman	Per Willars	1999-04-26	2001-02-26
	Chairman	Martin Israelsson	2001-02-26	
RAN 4	Convenor	Howard Benn	1998-12-07	1999-02-15
	Chairman	Howard Benn	1999-02-15	
SA	Convenor	Fred Harrison	1998-12-07	1999-03-01
	Chairman	Niels Peter Skov Andersen	1999-03-01	
SA 1	Convenor	Alan Cox	1998-12-07	1999-03-10
	Chairman	Alan Cox	1999-03-10	2001-02-08
	Chairman	Kevin Holley	2001-02-08	
SA 2	Convenor	Yukio Hiramatsu	1998-12-07	1999-03-01
	Chairman	Teuvo Jarvela	1999-03-01	2001-02-26
	Chairman	Mikko Puuskari	2001-02-26	
SA 3	Convenor	Michael Walker	1998-12-07	1999-03-27
	Chairman	Michael Walker	1999-03-27	
SA 4	Convenor	Kari Järvinen	1998-12-07	1999-03-01
	Chairman	Alain Ohana	1999-03-01	2000-06-28
	Chairman	Kari Järvinen	2000-06-28	
SA 5	Convenor	Inaki Cabrera	1998-12-07	1999-03-01
	Chairman	Albert Yuhan	1999-03-01	
T	Convenor	Sang Keun Park	1998-12-07	1999-03-01
	Chairman	Sang Keun Park	1999-03-01	

TSG/WG	Position	Name	Start date	End date
T 1	Convenor	Remi Thomas	1998-12-07	1999-03-01
	Chairman	Bjarke Nielsen	1999-03-01	
T 2	Convenor	Kevin Holley	1998-12-07	1999-03-01
	Chairman	Kevin Holley	1999-03-01	
T 3	Convenor	Klaus Vedder	1998-12-07	1999-03-01
	Chairman	Klaus Vedder	1999-03-01	
PCG	Chairman	Karl Heinz Rosenbrock	1999-03-04	2000-12-31
	Chairman	Akio Sasaki	2001-01-01	

A3.5 List of the Chairpersons in the GSM MoU Group/Association and GSM Association[4]

Name	Start date	End Date
Armin Silberhorn	September 1987	March 1988
Philippe Dupuis	March 1988	September 1988
Renzo Failli	September 1988	March 1989
Ted Beddoes	March 1989	September 1989
Gunnar Fremin	September 1989	March 1990
Dick Hoefsloot	March 1990	September 1990
Petter Bliksrud	September 1990	March 1991
Miguel Menchen	March 1991	September 1991
Arne Foxman	September 1991	March 1992
Kari Marttinen	March 1992	March 1993
George Schmitt	March 1993	March 1994
Bruno Massiet du Biest	March 1994	March 1995
Mike Short	March 1995	March 1996
Gretel Holcomb Hoffman	March 1996	March 1997
Adriana Nugter	March 1997	April 1998
Richard Midgett	May 1998	April 1999
Michael Stocks	May 1999	April 2000
Jim Healy	May 2000	April 2001
Scott Fox	May 2001	April 2002

[4] Editor: Friedhelm Hillebrand.

3G
3GPP

3GPP2

ACTS

AMPS

AMR
ANSI
ARIB
CAMEL
CDMA

CEPT
CN
CR
CWTS
DCS1800

DECT
Doc
EDGE
EGPRS
ETSI
FPLMTS

GERAN
GHz
GPRS
GSM

GSM#1, 2, 3,
GSM1, 2, 3, e
GSM400, 900

Appendix 16

Hyung G. Myung and David J. Goodman

Single Carrier
FDMA

A New Air Interface for Long Term Evolution

Wiley Series on
Wireless Communications
and Mobile Computing

WILEY

SINGLE CARRIER FDMA

Wiley Series on Wireless Communications and Mobile Computing

Series Editors: Dr Xuemin (Sherman) Shen, *University of Waterloo, Canada*
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Ippolito: *Satellite Communications Systems Engineering: Atmospheric Effects, Satellite Link Design and System Performance*, September 2008 978-0-470-72527-6

Lin and Sou: *Charging for Mobile All-IP Telecommunications*, September 2008 987-0-470-77565-3

Hart, Tao, Zhou: *IEEE 802.16j Multi-hop Relay*, March 2009 978-0-470-99399-6

Qian, Muller, Chen: *Security in Wireless Networks and Systems*, May 2009 978-0-470-51212-8

Wang, Kondi, Luthra, Ci: *4G Wireless Video Communications*, May 2009 978-0-470-77307-9

Shen, Cai, Mark: *Multimedia for Wireless Internet — Modeling and Analysis*, May 2009 978-0-470-77065-8

Stojmenovic: *Wireless Sensor and Actuator Networks: Algorithms and Protocols for Scalable Coordination and Data Communication*, August 2009 978-0-470-17082-3

SINGLE CARRIER FDMA

A NEW AIR INTERFACE FOR LONG TERM EVOLUTION

Hyung G. Myung

Qualcomm/Flarion Technologies, USA

David J. Goodman

Polytechnic University, USA

Contents

1

Introduction

In less than three decades, the status of cellular telephones has moved from laboratory breadboard via curious luxury item to the world's most pervasive consumer electronics product. Cellular phones have incorporated an ever-growing array of other products including pagers, cameras, camcorders, music players, game machines, organizers, and web browsers. Even though wired telephony is 100 years older and the beneficiary of "universal service" policies in developed countries, the number of cellular phones has exceeded wired phones for a few years and the difference keeps growing. For hundreds of millions of people in developing countries, cellular communications is the only form of telephony they have experienced.

First conceived as a marriage of mature telephony and mature radio communications, cellular communications is now widely recognized as its own technical area and a driver of innovation in a wide range of technical fields including – in addition to telephony and radio – computing, electronics, cryptography, and signal processing.

1.1 Generations

The subject of this book, Single Carrier Frequency Division Multiple Access (SC-FDMA), is a novel method of radio transmission under consideration for deployment in future cellular systems. The development of SC-FDMA represents one step in the rapid evolution of cellular technology. Although technical progress is continuous and commercial systems frequently adopt new improvements, certain major advances mark the transition from one generation of technology to another. First generation systems, introduced in the early 1980s, were characterized by analog

speech transmission. Second generation technology, deployed in the 1990s, transmits speech in digital format. Equally important, second generation systems introduced advanced security and networking technologies that make it possible for a subscriber to initiate and receive phone calls throughout the world.

Even before the earliest second generation systems arrived on the market, the cellular community turned its attention to third generation (3G) technology with the focus on higher bit rates, greater spectrum efficiency, and information services in addition to voice telephony. In 1985, the International Telecommunication Union (ITU) initiated studies of Future Public Land Telecommunication Systems [1]. Fifteen years later, under the heading IMT-2000 (International Mobile Telecommunications-2000), the ITU issued a set of recommendations, endorsing five technologies as the basis of 3G mobile communications systems. In 2008, cellular operating companies are deploying two of these technologies, referred to as WCDMA (wideband code division multiple access) and CDMA2000, where and when they are justified by commercial considerations. Meanwhile, the industry is looking beyond 3G and considering SC-FDMA as a leading candidate for the "long term evolution" (LTE) of radio transmissions from cellular phones to base stations. It is anticipated that LTE technology will be deployed commercially around 2010 [2].

With respect to radio technology, successive cellular generations have migrated to signals transmitted in wider and wider radio frequency bands. The radio signals of first generation systems occupied bandwidths of 25 and 30 kHz, using a variety of incompatible frequency modulation formats. Although some second generation systems occupied equally narrow bands, the two that are most widely deployed, GSM and CDMA, occupy bandwidths of 200 kHz and 1.25 MHz, respectively. The third generation WCDMA system transmits signals in a 5 MHz band. This is the approximate bandwidth of the version of CDMA2000 referred as 3X-RTT (radio transmission technology at three times the bandwidth of the second generation CDMA system). The version of CDMA2000 with a large commercial market is 1X-RTT. Its signals occupy the same 1.25 MHz bandwidth as second generation CDMA, and in fact it represents a graceful upgrade of the original CDMA technology. For this reason, some observers refer to 1X-RTT as a 2.5G technology [3]. Planners anticipate even wider signal bands for the long term evolution of cellular systems. Orthogonal Frequency Division Multiplexing (OFDM) and SC-FDMA are attractive technologies for the 20 MHz signal bands under consideration for the next generation of cellular systems.

1.2 Standards

The technologies employed in cellular systems are defined formally in documents referred to as "compatibility specifications". A compatibility specification is one type of technical standard. Its purpose is to ensure that two different network elements interact properly. In the context of cellular communications, the two most obvious examples of interacting equipment types are cellular phones and base stations. As readers of this book are aware, standards organizations define a large number of other network elements necessary for the operation of today's complex cellular networks.

In addition to cellular phones and base stations, the most familiar cellular network elements are mobile switching centers, home location registers, and visitor location registers. In referring to standards documents, it is helpful to keep in mind that the network elements defined in the documents are "functional" elements, rather than discrete pieces of equipment. Thus, two different network elements, such as a visitor location register and a mobile switching center, can appear in the same equipment and the functions of a single network element (such as a base transceiver station) can be distributed among dispersed devices.

Figure 1.1 shows the network elements and interfaces in one 3G system [4]. The network elements (referred to in the standards as "entities") are contained in four major groups enclosed by dotted boxes. The core network (CN) is at the top of the figure. Below the core network is the radio access network with three sets of elements; a Base Station System (BSS) exchanges radio signals with mobile stations (MS) to deliver circuit switched services, and a corresponding Radio Network System (RNS) exchanges radio signals with mobile stations to deliver packet switched services. This book focuses on the radio signals traveling across the air interfaces. The Um interface applies to circuit switched services carrying signals between mobile stations and Base Transceiver Stations (BTS). Uu applies to packet switched services carrying signals between a mobile station and a base station system.

1.3 Cellular Standards Organizations 3GPP and 3GPP2

Two Third Generation Partnership Projects publish 3GPP cellular standards. The original Partnership Project, 3GPP, is concerned with descendents of the Global System for Mobile (GSM). The 3G technologies standardized by 3GPP are often referred to collectively as WCDMA (wideband code division multiple access). 3GPP uses two other acronyms

CN: Core Network
BSS: Base Station System
BSC: Base Station Controller
BTS: Base Transceiver Station
RNS: Radio Network System
RNC: Radio Network Controller
MS: Mobile Station
ME: Mobile Equipment
SIM: Subscriber Identity Module
USIM: UMTS Subscriber Identity Module
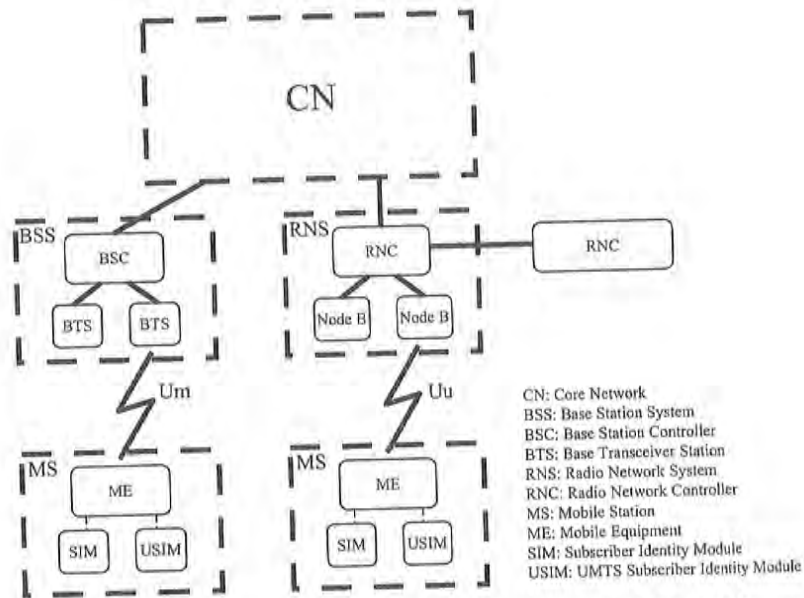
Figure 1.1 Basic configuration of a public land mobile network (PLMN) supporting circuit switched (CS) and packet switched (PS) services and interfaces [4]. *Source:* ETSI (European Telecommunications Standards Institute) © 2007. 3GPP™ TSs and TRs are the property of ARIB, ATIS, CCSA, ETSI, TTA and TTC who jointly own the copyright in them. They are subject to further modifications and are therefore provided to you "as is" for information purposes only. Further use is strictly prohibited.

to describe its specifications: UMTS (Universal Mobile Telecommunications System) applies to the entire cellular network contained in hundreds of 3GPP specifications; and UTRAN (Universal Terrestrial Radio Access Network) refers to the collection of network elements, and their interfaces, used for transmission between mobile terminals and the network infrastructure. The other project, 3GPP2, is concerned with advanced versions of the original CDMA cellular system. The technologies standardized by 3GPP2 are often referred to collectively as CDMA2000.

The Partnership Projects consist of "organizational partners", "market representation partners", and "individual members". The organizational partners are the regional and national standards organizations, listed in Table 1.1, based in North America, Europe, and Asia. The market representation partners are industry associations that promote deployment of specific technologies. The individual members are companies associated with one

Table 1.1 Organizational members of the Partnership Projects

Organizational member	Nationality	Affiliation
Association of Radio Industries and Businesses	Japan	3GPP and 3GPP2
Alliance for Telecommunication Industry Solutions	United States	3GPP
China Communications Standards Association	China	3GPP and 3GPP2
European Telecommunication Standards Institute	Europe	3GPP
Telecommunications Industry Association	North America	3GPP2
Telecommunications Technology Association	Korea	3GPP and 3GPP2
Telecommunication Technology Committee	Japan	3GPP and 3GPP2

or more of the organizational partners. In October 2006 there were 297 individual members of 3GPP and 82 individual members of 3GPP2.

The technologies embodied in WCDMA and CDMA2000 appear in hundreds of technical specifications covering all aspects of a cellular network. In both Partnership Projects, responsibility for producing the specifications is delegated to Technical Specification Groups (TSG), each covering one category of technologies. In 3GPP, the TSGs are further subdivided into Work Groups (WG). The publication policies of the two Partnership Projects are different. 3GPP periodically "freezes" a complete set of standards, including many new specifications. Each set is referred to as a "Release". Each Release is complete in that it incorporates all unchanged sections of previous standards that are still in effect as well as any new and changed sections. 3GPP also publishes preliminary specifications that will form part of a future Release. By contrast, each TSG in 3GPP2 publishes a new or updated specification whenever the specification obtains necessary approvals.

Release 5 of WCDMA was frozen in 2002, Release 6 in 2005, and Release 7 in 2007 [5]. In 2008, LTE specifications are being finalized as Release 8. Two of the innovations in Release 5 are High Speed Downlink Packet Access (HSDPA) and the IP Multimedia Subsystem (IMS). In Release 6, the innovations are High Speed Uplink Packet Access (HSUPA), the Multimedia Broadcast/Multicast Service (MBMS), and Wireless LAN/cellular interaction, and in Release 7, Multiple Input

Multiple Output (MIMO) and higher order modulation. Release 8 deliberations focus on the Long Term Evolution (LTE) of WCDMA. In the Radio Access Network (RAN), the LTE goals are data rates "up to 100 Mbps in full mobility wide area deployments and up to 1 Gbps in low mobility, local area deployments" [6]. For best effort packet communication, the long term spectral efficiency targets are 5–10 b/s/Hz in a single (isolated) cell; and up to 2–3 b/s/Hz in a multi-cellular case [6]. In this context, SC-FDMA is under consideration for transmission from mobile stations to a Base Station Subsystem or a Radio Network System.

1.4 IEEE Standards

In addition to the two cellular Partnership Projects, the Institute of Electrical and Electronic Engineers (IEEE) has published standards used throughout the world in products with a mass market. Within the IEEE LAN/MAN standards committee (Project 802), there are several working groups responsible for wireless communications technologies. The one with the greatest influence to date is IEEE 802.11, responsible for the "WiFi" family of wireless local area networks. Two of the networks conforming to the specifications IEEE 802.11a and IEEE 802.11g employ OFDM technology for transmission at bit rates up to 54 Mb/s [7,8]. The other working group standardizing OFDM technology is IEEE 802.16, responsible for wireless metropolitan area networks. Among the standards produced by this working group, IEEE802.16e, referred to as "WiMAX" and described in the next section, most closely resembles technology under consideration by 3GPP for cellular long term evolution.

1.5 Advanced Mobile Wireless Systems Based on FDMA

Three standards organizations, IEEE, 3GPP, and 3GPP2, have work in progress on advanced mobile broadband systems using frequency division transmission technology. The following subsections describe key properties of Mobile WiMAX (developed by the IEEE), Ultra Mobile Broadband (developed by 3GPP2), and 3GPP Long Term Evolution (LTE). SC-FDMA, the subject of this book, is a component of LTE.

1.5.1 IEEE 802.16e-Based Mobile WiMAX

Following in the footsteps of the highly successful IEEE 802.11 family of wireless local area network (WLAN) standards, the IEEE 802.16 Working Group on Broadband Wireless Access (BWA) began its work of

Table 1.2 Evolution of the IEEE 802.16 standard

Standards	Publication date	Highlights
802.16	Apr. 2002	Line-of-sight fixed operation in 10 to 66 GHz band.
802.16a	Apr. 2003	Air interface support for 2 to 11 GHz band.
802.16-2004 (802.16d)	Oct. 2004	Minor improvements and fixes to 802.16a.
802.16e	Feb. 2006	Support for vehicular mobility and asymmetrical link.
802.16m	In progress	Higher peak data rate, reduced latency, and efficient security mechanism.

developing the IEEE 802.16 wireless metropolitan area network (WMAN) standards in July 1999. Initially, IEEE 802.16 primarily focused on a point-to-multipoint topology with a cellular deployment of base stations, each tied into core networks and in contact with fixed wireless subscriber stations.

Since the first publication of the standard in 2002, the IEEE 802.16 standard has evolved through various amendments and IEEE 802.16e, published in February 2006, specifies physical and medium access control layers for both fixed and mobile operations [9]. Currently, 802.16m is being developed for the next generation system. Table 1.2 summarizes the IEEE 802.16 evolution.

Mobile WiMAX is an IEEE 802.11e-based technology maintained by the WiMAX Forum [10], which is an organization of more than 400 operators and communications component/equipment companies. Its charter is to promote and certify the compatibility and interoperability of broadband wireless access equipment that conforms to the IEEE 802.16 specifications. The WiMAX Forum Network Working Group (NWG) develops the higher-level networking specifications for Mobile WiMAX systems beyond what is defined in the IEEE 802.16 specifications, which address the air interface only.

Key features of the 802.16e-based Mobile WiMAX are:

- Up to 63 Mb/s for downlink and up to 28 Mb/s for uplink per sector throughput in a 10 MHz band.
- End-to-end IP-based Quality of Service (QoS).

- Scalable OFDMA and spectrum scalability.
- Robust security: Extensible Authentication Protocol (EAP)-based authentication, AES-CCM-based authenticated encryption, and CMAC/HMAC-based control message protection schemes.
- Optimized handoff scheme and low latency.
- Adaptive modulation and coding (AMC).
- Hybrid automatic repeat request (HARQ) and fast channel feedback.
- Smart antenna technologies: beamforming, space-time coding, and spatial multiplexing.
- Multicast and broadcast service (MBS).

1.5.2 3GPP2 Ultra Mobile Broadband

3GPP2 developed Ultra Mobile Broadband (UMB) based on the frameworks of CDMA2000 1xEV-DO revision C [11], IEEE 802.20 [12], and Qualcomm Flarion Technologies' FLASH-OFDM [13]. The UMB standard was published in April 2007 by the 3GPP2 and the UMB system is expected to be commercially available in early 2009.

The key features of UMB include [11]:

- OFDMA-based air interface.
- Multiple Input Multiple Output (MIMO) and Space Division Multiple Access (SDMA).
- Improved interference management techniques.
- Up to 280 Mb/s peak data rate on forward link and up to 68 Mb/s peak data rate on reverse link.
- An average of 16.8 msec (32-byte, round trip time) end-to-end network latency.
- Up to 500 simultaneous VoIP users (10 MHz FDD allocations).
- Scalable IP-based flat or hierarchical architecture.
- Flexible spectrum allocations: scalable, noncontiguous, and dynamic channel (bandwidth) allocations and support for bandwidth allocations of 1.25 MHz, 5 MHz, 10 MHz, and 20 MHz.
- Low power consumption and improved battery life.

1.5.3 3GPP Long Term Evolution

3GPP's work on the evolution of the 3G mobile system started with the Radio Access Network (RAN) Evolution workshop in November 2004

[14]. Operators, manufacturers, and research institutes presented more than 40 contributions with views and proposals on the evolution of the Universal Terrestrial Radio Access Network (UTRAN), which is the foundation for UMTS/WCDMA systems. They identified a set of high level requirements at the workshop: reduced cost per bit, increased service provisioning, flexibility of the use of existing and new frequency bands, simplified architecture and open interfaces, and reasonable terminal power consumption. With the conclusions of this workshop and with broad support from 3GPP members, a feasibility study on the Universal Terrestrial Radio Access (UTRA) and UTRAN Long Term Evolution started in December 2004. The objective was to develop a framework for the evolution of the 3GPP radio access technology towards a high-data-rate, low-latency, and packet-optimized radio access technology. The study focused on means to support flexible transmission bandwidth of up to 20 MHz, introduction of new transmission schemes, advanced multi-antenna technologies, signaling optimization, identification of the optimum UTRAN network architecture, and functional split between radio access network nodes.

The first part of the study resulted in an agreement on the requirements for the Evolved UTRAN (E-UTRAN). Key aspects of the requirements are as follows [15]:

- Up to 100 Mb/s within a 20 MHz downlink spectrum allocation (5 b/s/Hz) and 50 Mb/s (2.5 b/s/Hz) within a 20 MHz uplink spectrum allocation.
- Control-plane capacity: at least 200 users per cell should be supported in the active state for spectrum allocations up to 5 MHz.
- User-plane latency: less than 5 msec in an unloaded condition (i.e., single user with single data stream) for small IP packet.
- Mobility: E-UTRAN should be optimized for low mobile speeds 0–15 km/h. Higher mobile speeds between 15 and 120 km/h should be supported with high performance. Connections shall be maintained at speeds 120–350 km/h (or even up to 500 km/h depending on the frequency band).
- Coverage: throughput, spectrum efficiency, and mobility targets should be met for 5 km cells and with a slight degradation for 30 km cells. Cells ranging up to 100 km should not be precluded.
- Enhanced multimedia broadcast multicast service (E-MBMS).
- Spectrum flexibility: E-UTRA shall operate in spectrum allocations of different sizes including 1.25 MHz, 1.6 MHz, 2.5 MHz, 5 MHz, 10 MHz, 15 MHz, and 20 MHz in both uplink and downlink.

- Architecture and migration: packet-based single E-UTRAN architecture with provision to support systems supporting real-time and conversational class traffic and support for an end-to-end QoS.
- Radio Resource Management: enhanced support for end-to-end QoS, efficient support for transmission of higher layers, and support of load sharing and policy management across different radio access technologies.

The wide set of options initially identified by the early LTE work was narrowed down in December 2005 to a working assumption that the downlink would use Orthogonal Frequency Division Multiplex (OFDM) and the uplink would use Single Carrier Frequency Division Multiple Access (SC-FDMA). Supported data modulation schemes are QPSK, 16QAM, and 64QAM. The use of Multiple Input Multiple Output (MIMO) technology with up to four antennas at the mobile side and four antennas at the base station was agreed. Re-using the expertise from the UTRAN, they agreed to the same channel coding type as UTRAN (turbo codes), and to a transmission time interval (TTI) of 1 msec to reduce signaling overhead and to improve efficiency [16,17].

The study item phase ended in September 2006 and the LTE specification is due to be published in 2008.

1.5.4 Summary and Comparison of Mobile WiMAX, LTE and UMB

In summary, the upcoming systems beyond 3G overviewed in the previous sections have the following features in common:

- Up to 20 MHz transmission bandwidth.
- Multi-carrier air interface for robustness against frequency-selective fading and for increased spectral efficiency: OFDM/OFDMA and its variant forms are the basic modulation and multiple access schemes.
- Advanced multi-antenna techniques: various MIMO techniques are integrated to the system to increase spectral efficiency and to make the link more reliable.
- Fast time-frequency resource scheduling.
- Flat all-IP network architecture: reduced network overhead by eliminating network layers.
- Multicast and broadcast multimedia service.

Table 1.3 compares the air interfaces of the three beyond-3G systems.

Table 1.3 Summary and comparison of Mobile WiMAX, LTE and UMB

	Mobile WiMAX	3GPP LTE	3GPP2 UMB
Channel bandwidth	5, 7, 8.75, and 10 MHz	1.4, 3, 5, 10, 15, and 20 MHz	1.25, 2.5, 5, 10, and 20 MHz
DL multiplex	OFDM	OFDM	OFDM
UL multiple access	OFDMA	SC-FDMA	OFDMA and CDMA
Duplexing	TDD	FDD and TDD	FDD and TDD
Subcarrier mapping	Localized and distributed	Localized	Localized and distributed
Subcarrier hopping	Yes	Yes	Yes
Data modulation	QPSK, 16-QAM, and 64-QAM	QPSK, 16-QAM, and 64-QAM	QPSK, 8-PSK, 16-QAM, and 64-QAM
Subcarrier spacing	10.94 kHz	15 kHz	9.6 kHz
FFT size (5 MHz bandwidth)	512	512	512
Channel coding	Convolutional coding and convolutional turbo coding: block turbo coding and LDPC coding optional	Convolutional coding and turbo coding	Convolutional coding, turbo coding, and LDPC coding
MIMO	Beamforming, space-time coding, and spatial multiplexing	Multi-layer precoded spatial multiplexing, space-time/ frequency block coding, switched transmit diversity, and cyclic delay diversity	Multi-layer precoded spatial multiplexing, space-time transmit diversity, spatial division multiple access, and beamforming

1.6 Figures of Merit

Standards organizations, in principle, provide a venue for interested parties to establish the technologies that provide the best tradeoff among a variety of performance objectives. In practice, the aim for excellence is modulated by the need for industry participants to advance the interests of

their employers. In balancing these conflicting interests, the organizations measure possible solutions with respect to several figures of merit. The figures of merit most relevant to the systems covered in this book are spectral efficiency, throughput, delay, and power consumption in mobile portable devices.

SC-FDMA, which utilizes single carrier modulation, DFT-precoded orthogonal frequency multiplexing, and frequency domain equalization, is a technique that has similar performance and essentially the same overall complexity as OFDMA. One prominent advantage over OFDMA is that the SC-FDMA signal has better peak power characteristics because of its inherent single carrier structure. SC-FDMA has drawn great attention as an attractive alternative to OFDMA, especially in the uplink communications where better peak power characteristics greatly benefit the mobile terminal in terms of transmit power efficiency and manufacturing cost. SC-FDMA has been adopted for the uplink multiple access scheme in 3GPP LTE.

A major purpose of this book is to show how the details of an SC-FDMA transmission scheme influence the tradeoffs among these figures of merit.

1.7 Frequency Division Technology in Broadband Wireless Systems

Frequency division was a mature radio technology, and therefore the earliest cellular systems used it to separate different analog speech transmissions: frequency division multiplexing in the forward (downlink) direction and frequency division multiple access in the reverse (uplink) direction. Second generation systems use either code division technology or a hybrid of time division and frequency division to convey speech and other signals in digital form. Although the two 3G systems are based on code division technologies, all of the advanced broadband systems are reverting to frequency division. As explained in Chapter 2, frequency division technology is well-suited to transmission through mobile radio channels subject to frequency-selective fading due to multipath propagation. Orthogonal frequency division techniques, which effectively transmit a high-speed data signal as a composite of a large number of low-speed signals, each occupying a narrow frequency band, have been employed in digital audio and digital television broadcasting, wireless metropolitan area networks, and wireless local area networks. The same reasons that make them effective in those environments, also make frequency division techniques attractive for the long term evolution of cellular networks. In establishing standards for LTE, 3GPP recognized that OFDMA places significant implementation

burdens on mobile terminals. From the point of view of implementation, SC-FDMA can be viewed as a modification of OFDMA with extended battery life in mobile terminals due to low peak power characteristics.

Chapter 2 describes the propagation characteristics of broadband mobile radio signals that make frequency division techniques attractive for high-speed data transmission. It also provides a summary of the main characteristics of OFDM and OFDMA, the predecessors of SC-FDMA. Finally, before presenting details of SC-FDMA in the remainder of this book, Chapter 2 describes in general terms single carrier high-speed data transmission with frequency domain equalization.

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Single Carrier FDMA

A New Air Interface for Long Term Evolution

Hyung G. Myung, *Qualcomm/Flarion Technologies, USA*
David J. Goodman, *Polytechnic University, USA*

Single Carrier Frequency Division Multiple Access (SC-FDMA) is a novel method of radio transmission under consideration for deployment in future cellular systems; specifically, in 3rd Generation Partnership Project Long Term Evolution (3GPP LTE) systems. SC-FDMA has drawn great attention from the communications industry as an attractive alternative to Orthogonal Frequency Division Multiple Access (OFDMA).

Single Carrier FDMA places SC-FDMA in the wider context of wireless communications, providing the reader with an in-depth tutorial on SC-FDMA technology. The book introduces the reader to this new multiple access technique that utilizes single carrier modulation along with orthogonal frequency multiplexing and frequency domain equalization, plus its applications in communications settings. It considers the similarities with and differences from orthogonal frequency division modulation, multiplexing, and multiple access used extensively in cellular, broadcasting, and digital subscriber loop applications. Particular reference is made to the peak power characteristics of an SC-FDMA signal as an added advantage over OFDMA.

Key features:

- Provides an extensive overview of the principles of SC-FDMA and its relation to other transmission techniques.
- Explains how the details of a specific implementation influence the tradeoffs among various figures of merit.
- Describes in detail the configuration of the SC-FDMA uplink transmission scheme published by 3GPP.
- Features link level simulation of an uplink SC-FDMA system using MATLAB®.

This is an essential text for industry engineers who are researching and developing 3GPP LTE systems. It is suitable for engineers designing wireless network equipment, handsets, data cards, modules, chipsets, and test equipment as well as those involved in designing LTE infrastructure. It would also be of interest to academics, graduate students, and industry researchers involved in advanced wireless communications, as well as business analysts who follow the cellular market.

Cover design by Dan Jubb

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Appendix 17

Project Management	Technical Bodies	Delegates Corner	Project Support	Contact 3GPP	Quick Access
About 3GPP	Specifications	Membership	Meetings	Email Lists	FAQ

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

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

last updated:
2005-07-21: original

Appendix 18

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

3,044 captures
25 Jan 1999 - 16 Jun 2020

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- About 3GPP
  - Project Management
    - Technical Bodies
    - Project Support
    - Specifications
    - Membership of 3GPP
    - Delegates Corner
  - Meetings
- Contact 3GPP
  - Email Lists
  - FAQ

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Legal notice

Appendix 19

Third Generation Partnership Project

3GPP

Working Procedures

25 April 2002

Foreword

These Working Procedures of the Third Generation Partnership Project (3GPP) are effective from 25 April 2002.

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 acronym "3GPP".

Article 2: Purpose

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

Article 3: Scope and objectives

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

- UTRAN (including UTRA; in Frequency Division Duplex (FDD) and Time Division Duplex (TDD) modes);

- 3GPP Core Network (Third Generation networking capabilities evolved from GSM. These capabilities include mobility management, global roaming, and utilisation of relevant Internet Protocols);

- Terminals for access to the above (including specifications for a UIM); and

- System and service aspects.

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

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

3GPP shall consider the long term evolution.

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

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

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

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

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

SECTION B: PARTICIPATION

Article 4:   Categories

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

- Partners;

- Individual Members;

- ITU Representatives;

- Observers;

- Guests.

Article 5:   Partnership

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

- Organizational Partners;

- Market Representation Partners.

Article 6:   Organizational Partnership

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

- a national, regional or other officially recognized status and the capability and authority to define, publish and set standards within the 3GPP scope, in that nation or region;

- an Intellectual Property Rights (IPR) Policy which is compatible with those of the Organizational Partners;

- committed itself to all or part of the 3GPP scope;

- signed the Partnership Project Agreement.

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

Article 7:   Market Representation Partnership

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

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

- has the ability to offer market advice to 3GPP and to bring into 3GPP a consensus view of market requirements (e.g., services, features and functionality) falling within the 3GPP scope;

- does not have the capability and authority to define, publish and set standards within the 3GPP scope, nationally or regionally;

- has committed itself to all or part of the 3GPP scope;

- has signed the Partnership Project Agreement.

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

Article 8:   Individual Membership

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

- to contribute technically or otherwise to one or more of the Technical Specification Groups within the 3GPP scope;

- to use the 3GPP results to the extent feasible.

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

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

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

Article 9:   Termination of Individual Membership

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

Article 10:   Observers and Guests

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

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

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

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

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

SECTION C: STRUCTURE

Article 11:   Structure of 3GPP

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

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

SECTION D: PARTNERS' COLLECTIVE RESPONSIBILITIES

Article 12:   Organizational Partners' Collective Responsibilities

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

In addition the Organizational Partners shall perform the following tasks:

- approval and maintenance of the 3GPP scope;

- maintenance the Partnership Project Description;

- taking decisions on the creation or cessation of Technical Specification Groups, and approving their scope and terms of reference;

- approval of Organizational Partner funding requirements;

- allocation of human and financial resources provided by the Organizational Partners to the Project Co-ordination Group;

- acting as a body of appeal on procedural matters referred to them.

Article 13:   Collective responsibilities of all Partners

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

- maintenance of the Partnership Project Agreement;

- approval of applications for 3GPP partnership;

- taking decisions relating to the dissolution of 3GPP.

SECTION E: PROJECT CO-ORDINATION GROUP (PCG)

Article 14:   PCG tasks

The PCG shall perform the following tasks:

- appointment of PCG Chairman and Vice Chairmen;

- allocation of human and financial resources provided by Organizational Partners to TSGs;

- allocation of voluntary human and financial resources provided by Market Representation Partners and Individual Members;

- management of the 3GPP Support Team;

- handling of appeals from Individual Members on procedural matters referred to them;

- propose and approve modifications to the Partnership Project Working Procedures;

- handling of appeals from Individual Members on technical matters referred to them;

- determination of the overall time frame and manage overall work progress;

- final adoption of new and stopped work items proposed by the TSGs within the agreed 3GPP scope and objectives;

- when a work item is outside the scope of the 3GPP, and where a common global solution is desired, recommend how to achieve a global solution;

- appointment or dismissal of TSG Chairmen and Vice Chairmen, as proposed by TSGs based on election results. (The proposed candidate shall be appointed unless there are extraordinary reasons that prevent such an appointment, e.g., severe company or geographical imbalance within 3GPP. In such cases the TSG shall be requested to elect an alternative candidate. The decision not to appoint a candidate shall be made by consensus.);

- authorizing requests from the TSGs for approval to liaise with external organizations, and maintain a list of approved requests;

- maintenance of the register of Individual Members eligible to participate in 3GPP;

- maintenance of the register of IPR declarations relevant to 3GPP, received by the Organizational Partners.

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

Article 15: PCG participation

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

- A maximum of five representatives of each Organizational Partner;

- A maximum of three representatives of each Market Representation Partner. (MRPs are however urged to limit their participation to one representative wherever possible.);

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

- A maximum of three ITU representatives;

- One representative of each Observer.

Article 16: PCG appointment of Chairman and Vice Chairman

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

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

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

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

Article 17: PCG Chairman Responsibilities

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

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

The Chairman may nominate officials to assist in the work.

The Chairman may be assisted by the Support Team.

The Chairman may delegate tasks to the Vice Chairmen.

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

Article 18: PCG meetings

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

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

Article 19: PCG decision making

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

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

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

SECTION F: TECHNICAL SPECIFICATION GROUPS

Article 20: TSG tasks

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

The TSGs shall also perform the following tasks:

- Propose to the PCG for appointment TSG Chairman and Vice Chairmen based on election results;

- Creation of TSG Working Groups and approval of their terms of reference;

- When a new Working Group is created, the appointment of TSG Working Group Convenor;

- Allocation of resources within the TSG;

- Allocation of voluntary human and financial resources provided by Market Representation Partners and Individual Members;

- Handling of appeals from Individual Members on technical matters;

- Preparation of a detailed time frame and management of detailed work progress;

- Management of work items;

- Technical Co-ordination;

- Proposal and approval of work items within the agreed scope and terms of reference of the TSG;

- Where a work item is outside the scope of the 3GPP, but a common global solution is desired, recommend an approach to the PCG;

- Assignment of work to Partners. (Specification development may be accomplished using various methods, including the assignment of work to Partners.);

- Maintenance of the list of Individual Members eligible to vote within the TSG (Voting Members).

Article 21: TSG participation

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

- Representatives of members of participating Organizational Partners (i.e. Individual Members);

- Representatives of Organizational Partners;

- Representatives of Market Representation Partners;

- Representatives of Observers;

- Representatives of Guests.

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

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 the Individual Member that he/she represents. 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 a second consecutive term. If no other candidates are available, the Chairman or Vice Chairmen may be appointed for a further term. Regular TSG elections shall be held every two years in the March time frame in odd numbered years.

Should the office of Chairman or Vice Chairman, of a TSG, become vacant for reasons other than expiration of term of office, a special election shall be conducted to fill the unexpired term. This special election shall be conducted at a regularly scheduled meeting of the TSG, and shall be announced in writing, at least 21 days in advance of the meeting.

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

A partial term of office does not count towards the two consecutive term limit.

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

Successive Chairmen should not be from the same Organizational Partner, the same region or from the same group of companies, unless no other candidate is available. This does not apply to special/regular successive elections.

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

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

At the Working Group level the election is for a two year term. At the TSG level the special election is for the unexpired term. A partial term of office does not count towards the two consecutive term limit. If the incumbent is elected, at the TSG or WG level, it is for the unexpired term and that term does count toward the term limit. If the change of affiliation is that of the Chairman, he shall select a Vice Chairman to determine consensus and if necessary to manage the election. If there is an election, the Vice Chairman managing the election should not be a candidate. When a Working Group Chairman is elected, this does not necessarily imply the re-election of Vice Chairmen unless their terms of office have expired.

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 delegates, the Chairman should encourage a minimum number of meetings, especially parallel meetings, and maximize the use of electronic means to advance the work.

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

Article 24:   TSG and WG Chairman and Vice Chairmen dismissal

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

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

Article 25:   TSG and WG decision making

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

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

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

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

Article 26:   TSG and WG voting during a meeting

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

- before voting, a clear definition of the issues shall be provided by the Chairman;

- Voting Members shall only be entitled to one vote;

- if a Voting Member has more than one representative present, only one representative may vote;
- each Voting Member may only cast the vote once;
- each Voting Member may carry proxy votes for up to five other Voting Members. All proxy votes shall be accompanied by a letter of authority from the authorising Voting Member. Proxies will not be taken into account when determining the quorum;

- the quorum required for voting during a TSG or WG meeting shall be 30% of the total number of Voting Member companies on the TSG or WG 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 the TSG or WG .

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

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

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

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

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

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

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

Article 30: TSG and WG meetings

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

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

Article 31: TSG and WG meeting invitation

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

Article 32: TSG and WG meeting agenda

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

Article 33: TSG and WG meeting registration

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

Article 34:   TSG and WG meeting document and file naming

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

3GPP/TSGx.m#y(nn)zzzz

This numbering system has six 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)

   G (GSM/EDGE Radio Access Network)

3) **m**   Working Group identity (if required)

4) **#y**:   TSG or WG meeting number

5) **(nn)**:   to indicate the year, e.g., (99);

6) **zzzz**:   unique number of the document or its status, etc.

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 Voting Membership List

Each TSG and WG shall maintain a list of voting Individual Members (company or agency). To qualify for the list it is necessary for Individual Members to be represented at the TSG or WG meetings. An Individual Member which is absent from three consecutive meetings of the TSG or WG shall be removed from the voting membership list. Those removed shall be restored after being represented at one meeting, but the right to vote is reinstated at the next (second) meeting at which the Individual Member is represented.

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

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

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

Article 36:   TSG Sub Working Groups

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

SECTION G: WORK PROGRAMME AND TECHNICAL CO-ORDINATION

Article 37:   Work Programme

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

Article 38:   Work Items

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

- title;

- intended output (i.e. Technical Specifications or Technical Reports);

- impact on other Technical Specifications and Technical Reports;

- technical scope, including the field of application of the intended output;

- impact on other 3GPP Work Items;

- the schedule of tasks to be performed;

- the identities of the supporting Individual Members;

- the identity of the Work Item Rapporteurs.

Article 39:   Work Item creation

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

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

Article 40:   Work Item adoption by PCG

The 3GPP work programme shall be made available to all Individual Members. A new Work Item shall remain flagged as "new" until the end of the month following the month during which the 3GPP work item was entered into the 3GPP work programme. A new Work Item shall be adopted by the PCG unless a substantial objection is received from an Individual Member or Partner during this period. At the end of the period, the "new" flag shall be removed (even if there is an objection) and it is the responsibility of any objecting Individual Member or Partner to discuss their objections

with the TSG Chairman. If it is not possible to resolve the objection, it is the responsibility of the Individual Member or Partner to raise the issue with the PCG.

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

Article 41: Work Item stopping

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

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

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

Article 42: Technical co-ordination

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

SECTION H: DELIVERABLES

Article 43: Deliverable types

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

Article 44: Approval process

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

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

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

Article 45: Drafting rules

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

Article 46: Copyright and ownership

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

Article 47: Conversion by Organizational Partners

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

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

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

SECTION I: REPORTING

Article 48: Chairman's reporting obligations

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

Article 49: Changes to structure and officials

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

Article 50: Calendar of meetings

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

SECTION J: EXTERNAL RELATIONS

Article 51: Relationship with the ITU

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

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

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

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 cannot be approved by SWGs.

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. Declarations should be made by Individual Members to their respective Organizational Partners.

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

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

Article 56: Working language

The working language for 3GPP shall be English.

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

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

Article 57: Duration

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

Article 58: Review of activities

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

Article 59: Dissolution, winding up

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

Article 60: Amendments to 3GPP Working Procedures

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

Annex A: Definitions

Consensus:	General agreement, characterized by the absence of sustained opposition to substantial issues by any important part of the concerned interest and by a process that involves seeking to take into account the views of all parties concerned and to reconcile any conflicting arguments. (Note: consensus need not imply unanimity).
Conversion:	The transformation of a 3GPP output document into an Organizational Partners deliverable following the Organizational Partners' recognized processes.
Delegate:	An individual taking part in a TSG/WG meeting physically or by electronic means.
Drafting Rules:	A document approved by the Organizational Partners providing rules for the drafting of 3GPP Technical Specifications and Technical Reports.
Election:	The voting process used to identify an individual from a number of individuals.
Guest:	An entity fulfilling the criteria to become a future Individual Member, which has been granted temporary participation rights in the 3GPP
Individual Member:	A member of an Organizational Partner having participation rights within that Organizational Partner and which has registered to take part in 3GPP.
ITU Representative	Representatives of ITU-D, ITU-R and ITU-T invited to participate in the Project Coordination Group for the efficient coordination and exchange of information.
Market Representation Partner:	A Partner invited by the Organizational Partners to participate in 3GPP to offer advice and to bring into 3GPP a consensus view of market requirements.
Observer:	An Organization fulfilling the criteria to become a future Partner which has been granted temporary participation rights in 3GPP.
Organizational Partner:	A recognized Standards Organization which has been accepted as a Partner in 3GPP.
Partner:	An Organizational Partner or a Market Representation Partner of 3GPP.
Partnership Project Agreement:	The document signed by 3GPP Partners defining their rights and obligations.
Partnership Project Description:	A document which describes the overall structure and operation of 3GPP.
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	
GSM EDGE Radio Access Network (GERAN)	

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

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

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

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

Annex D: 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".

Annex E: Guidance for MRP applicants

E.1 Introduction

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

E.2 Guidance

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

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

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

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

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

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

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

Appendix 20
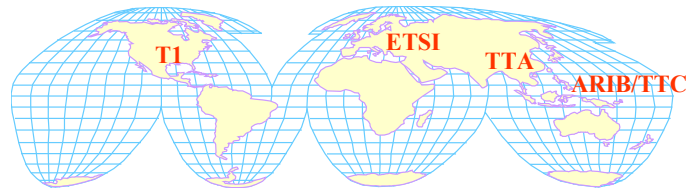
3rd Generation Partnership Project

REPORT Version C

TSG_SA1#19 Plenary Meeting

San Francisco, USA
20 –24th January 2003

TSG_SA WG1 Chairman: **Kevin Holley**
Secretary: **Michael Clayton**

TABLE OF CONTENTS

MEETING REPORT

1 Opening of the Meeting

The TSG_SA1#19 Plenary Meeting was held in San Francisco, USA from the 20 –24th January 2003. It was chaired by Mr Kevin Holley (mmO2) and the secretary was Mr Michael Clayton from the MCC. The host was AT&T Wireless Services and Rogers Wireless.

2 Agreement of the agenda

Document Number	Title	Source	Result
S1-030001	Agenda of SA1 meeting # 19	MCC	

The agenda was provided in document S1-030001. There was a comment on the schedule regarding a conflict between QoS and WLAN. The chairman of WLAN indicated that there may not need to be four slots and so it is possible that other slots may become available.

The chairman noted that there may be a gap for chairmanship of the SWGs. It was confirmed that the chairmen will be:

IMS	Tommi Kokkola
Netshare	Michele Zarri
Messaging	Michele Zarri
Feature Interaction	None
QoS	Liz Daniels
WLAN	Mark Younge
GUP	Michel Grech
Priority	Jim Garrahan
OSA	Chirstelle Faure
Joint T2/S1	Michele Zarri

The agenda was approved as version E with some minor edits. It was updated as the meeting progressed.

3 Call for IPR
The chairman made the standard call for IPR:

> The attention of the members of this Working Group is drawn to the fact **that 3GPP Individual Members have the obligation** under the IPR Policies of their respective Organizational Partners to **inform their respective** Organizational Partners **of Essential IPRs they become aware of**.
>
> The 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.

4 Report of the last meeting

Document Number	Title	Source	Result

| S1-030002 | Report of SA1 meeting #18 | MCC | |

The meeting report from the last meeting was provided in document S1-030002. It was approved without comment.

5 Reports from other groups

Document	Title	Source	Result
S1-030134	Incoming LS review	Vice Chairman	
S1-030008	Reply on Reply on Requirement for standardizing a Transcoding interface	SA2	
S1-030009	LS on management and regulatory requirements for Presence service	SA2	
S1-030014	LS on "Work Item Description PSS Rel-6"	SA4	

Document S1-030134 contained a review of incoming liaison statements. The results were:

Document S1-030004 contained a LS on MBMS requirements from GERAN. GERAN asks questions related to paging and Traffic classes/ QoS. Answer expected. It was moved to agenda item 8 and Joerg Swetina agreed to draft a response.

Document S1-030005 contained LS on Use of E164 numbers for emerging mobile systems. It was dealt with under agenda item 5.2.4.

Document S1-030006 was withdrawn as it is the same as S1-022227.

Document S1-030007 was dealt with under agenda item 5.2.

Document S1-030008 was noted.

Document S1-030009 was noted.

Document S1-030010 was sent to WLAN SWG.

Document S1-030011 was sent to IMS SWG.

Document S1-030012 was noted.

Document S1-030013 was sent to the messaging SWG

Document S1-030014 was noted.

Document S1-030015 was dealt with under agenda item 5.1.4.

Document S1-030016 was sent to the IMS SWG.

Document S1-030017 was dealt with under agenda item 5.1.4.

Document S1-030018 was dealt with under agenda item 5.1.4.

Documents S1-030019, S1-030020 and S1-030022 were sent to the Messaging SWG.

Document S1-030021 was sent to the Messaging and OSA SWGs

Documents S1-03023 and S1-030024 were sent to the GUP SWG.

Document S1-030058 was sent to the WLAN SWG.

Document S1-030124 was sent to the IMS SWG.

Document S1-030133 was dealt with in agenda item 8.5.

With this, document S1-030134 was noted.

5.1 SA

Document	Title	Source	Result
S1-030003	Status of SA1 documents into SA #18	MCC	
S1-030124	Additional Release 5 work needed for Policy	SA	
S1-030142	Information about the Liberty Alliance Project	SA #18	
S1-030231	CR to 22.060 on SS SMS transfer over GPRS	Siemens	
S1-030232	CR to 22.060 on SS SMS transfer over GPRS	Siemens	

Document S1-030003 contained a summary of the documents handled in SA relating to SA1.

It was agreed that:

On document SP-020645, regarding slide 21 (SMS over GPRS), this text is agreed by SA in principle., SA1 is given an action to produce the service requirement for this. Also CN is asked to implement it. Joerg Swetina agreed to draft the CRs (S1-030231, S1-030232).

On document SP-020647, (Release 99/4/5/6 CRs to 22.038 on USAT requirements (deletion and re-introduction)), the document was sent back to SA1 for checking and passed to T3 for confirmation. Tommi Kokkola agreed to look at the CRs and return later in the meeting.

On document SP-020660, CRs 20,21,22 are approved, but regarding CR 20, SA1 is asked to clarify the definition of priority. CR 23 is sent back to SA1. Interworking with autofetch is to be clarified by SA1 and also see doc SP-020807. In addition the (separate) DRM issue needs further thought on whether DRM is mandatory for a UA supporting Rel. 6 MMS. SWG Messaging was tasked to produce CR on priority for SMS and autofetch etc. Tommi Kokkola was asked to draft CR on DRM stage 1. Michael Clayton was asked to make SP-815 available.

Document S1-030003 was noted.

Document S1-030142 contained information about the Liberty Alliance Project. This was presented since SA had asked SA1 for analysis of requirements. The project is a joint effort to generate a single method of exchanging identities and authentication elements. The intention is allow sign-on in a secure manner to any supporting technologies. It was proposed for someone to do an analysis on this and make a proposal for the next meeting. Nokia agreed to do this.

Documents S1-030231 and S1-030232 contained CRs to 22.060 on SS SMS transfer over GPRS in response to document S1-030003 and a request from SA #18. Support of SMS over GPRS is mandatory in the standard. However, there are commercial issues related to this from an operator perspective which may prevent the support of SMS over GPRS in some networks. If, on the other hand, the UE relies on the support of SMS over GPRS this may lead to a situation in which the UE is unable to send an SMS at all.

There were some comments on this. The intention was to encourage operators to implement this without forcing them to do it. It may be better to indicate that it might not be implemented in all networks. It was revised to S1-030237. Since there is no release 6 of 22.060, document S1-030232 was withdrawn.

Document S1-030237 was agreed to be sent to SA for approval as CR 030.

5.1.1 SA2

5.1.2 SA3

5.1.3 SA4

5.1.4 SA5

Document Number	Title	Source	Result

S1-03015	Liaison Statement on Entities of the mobile system	SA5	CR provided in document 139 (Michele)
S1-03017	LS on Preservation of PDP Context	SA5	Reply in 140 (John Watson)
S1-03018	Reply LS on Indication of call termination as a result of IST operation	SA5	Reply in 141 (Liz Daniel)
S1-030139	CR on Entities of the mobile system	SA1	Revised to 239
S1-030140	LS on Preservation of PDP Context	SA1	Agreed to be sent
S1-030141	Reply LS on Indication of call termination as a result of IST operation	SA1	Revised to 240
S1-030152	CR on Entities of the mobile system	SA1	Revised to 238
S1-030238	CR on Entities of the mobile system	SA1	Agreed to be sent to SA for approval
S1-030239	CR on Entities of the mobile system	SA1	Agreed to be sent to SA for approval
S1-030240	Reply LS on Indication of call termination as a result of IST operation	SA1	Agreed to be sent

Document S1-02015 contained a Liaison Statement on Entities of the mobile system. This is a Vocabulary issue and SA1 could consider again the addition of the term Service Specific Entities to TR21.905. This is in response to a liaison statement sent to them. The original CR was provided in document S1-022002.

The updated CRs were provided in documents S1-030139 (Rel-5) and S1-030152 (Rel-6). There were some corrections to the Rel-6 CR which was revised to S1-030238. Document S1-030139 was revised to S1-030239. The CRs were agreed to be sent to SA for approval as CRs 045 and 046.

Document S1-030017 contained LS on Preservation of PDP Context. SA5 asks SA1 group to provide information on the requirements to indicate the PDP context preservation or radio loss in the GPRS CDRs. The chairman asked if this is required from the operator community. The comment was received that there is not a definite requirement for this.

An answer to this effect was provided in document S1-030140. It was approved to be sent.

Document S1-030018 contained a reply LS on Indication of call termination as a result of IST operation. SA5 asks SA1 group to clarify the requirements on including support for the IST operation in charging specifications concerning the applicable 3GPP release. It was commented that the question from SA5 is in what release it is required, and not if it is required at all.

It was decided to reply that there is no requirement. The answer was given in document S1-030141. It was revised to S1-030240 and was approved to be sent.

5.2   CN

Document Number	Title	Source	Result
S1-000307	LS on SS barring for SMS transfer over GPRS	CN	Reply in 138 (Joerg)
S1-030138	LS on SS barring for SMS transfer over GPRS	SA1	Revised to 241
S1-030241	LS on SS barring for SMS transfer over GPRS	SA1	Agreed to be sent

Document S1-030007 contained a LS on SS barring for SMS transfer over GPRS . CN asks if it acceptable to have only invocation of SMS barring over GPRS, but no control of the SS.

Furthermore, TSG CN is asking SA WG1 to confirm to CN WG1 and CN WG4 that it is acceptable to specify the **invocation** of SS barring of SMS transfer (both MO and MT) in the PS domain as part of UMTS Release 6.

A response was provided in document S1-030138. There was a minor change regarding the location of the next meeting. Also, it may be better to confirm that SA1 does want this feature implemented in Rel-6. It was revised to S1-030241 and it was approved to be sent.

5.2.4   CN4

Document Number	Title	Source	Result
S1-030005	LS on Use of E164 numbers for emerging mobile systems	CN4	Reply in 137
S1-030137	LS on Use of E164 numbers for emerging mobile systems	SA1	Revised to 242
S1-030242	LS on Use of E164 numbers for emerging mobile systems	SA1	Revised to 276
S1-030276	LS on Use of E164 numbers for emerging mobile systems	SA1	Agreed to be sent

Document S1-030005 contained LS on Use of E164 numbers for emerging mobile systems. It was commented by the chairman that this may have been seen before. This appears to be a slightly new subject. CN4 asks SA1 to consider the need for services to have an E.164 number associated with it. An answer is required in order for CN4 to have co-ordinated response to European Numbering Forum. It was commented by Paul Carpenter that there is a specific requirement in 22.174 and he suggested that this be communicated back.

Mr Carpenter was asked to draft a reply. It was provided in S1-030137. It was questioned why it is the job of SA1 to state IPv6. It was answered that if an E.164 number is not associated with each subscriber then some other public identity would need to be defined to handle mobile terminated traffic. The use of IPv6 is merely used for expediency. A group was asked to revise this outside the meeting and it was revised to S1-030242. It was revised once again to document S1-030276 to provide some actions and it was approved to be sent.

5.3   RAN

5.4   T

5.4.1   T2

Document Number	Title	Source	Result
S1-030188	Codings for storing melodies in the USIM (Release 6)	T2	Noted; it was believed that SA4 will deal with this.

Document S1-030188 contained a liaison statement regarding codings for storing melodies in the USIM (Release 6). It was understood that SA4 will deal with this and so the document was noted.

5.4.2   T3

5.5   GERAN

5.6   Other Groups

6   Reports from SWG Meetings

Document Number	Title	Source	Result
S1-030026	Contribution to TR22.800 IMS SWG Paris	Telia AB	Noted. Partially include in 22.800 v 0.2.0.
S1-030027	Contribution on Access Independence section in TR22.800	Telia AB	Noted. Partially include in 22.800 v 0.2.0.
S1-030028	Contribution to TR22.800 - 'Non-3GPP Access Scenario'	Telia AB	Noted. Partially include in 22.800 v 0.2.0.
S1-030029	Contribution to TR22.800 - 'multiple IMS scenario (part one)'	Telia AB	Noted. Partially include in 22.800 v 0.2.0.
S1-030030	Contribution to TR22.800 - 'multiple IMS scenario (part two)'	Telia AB	Noted. Partially include in 22.800 v 0.2.0.

Document Number	Title	Source	Result
S1-030031	Contribution to TR22.800 - "Interoperability scenario'	Telia AB	Noted. Partially include in 22.800 v 0.2.0.
S1-030032	New scenario input to TR22.800	Telia AB	Withdrawn
S1-030033	Agenda for IMS SWG (only 22.800) at Paris	TB Chairman	Approved in SWG.
S1-030035	Minutes of IMS SWG, Paris	TB Chairman	Approved by SA1
S1-030044	Contribution to TR 22.800 'traditional role scenario' and 'non 3gpp access scenario'	Telecom Italia	Noted. Partially include in 22.800 v 0.2.0.

There was one SWG meeting held between SA1 #18 and #19, which was a special IMS meeting. The report of this was provided in document S1-030035. A new version of 22.800 V0.2.0 was provided in document S1-030034.

Document S1-030034 was noted as input for the meeting of the SWG at this meeting and document S1-030035 was approved. The remaining documents were handled as per the table above.

One point made was that the there needs to be a conclusion to the report as requested by SA #18.

7   Document Handling

7.1   Review of documents handled by email

8   Issues not covered by SWGs

Document Number	Title	Source	Result
S1-030047	Introduction of the method of codeword distribution and verification procedure focused on LCS server	Huawei	Noted, see CR in 048.
S1-030048	The method of codeword distribution and verification procedure focused on LCS server	Huawei	Revised to 146
S1-030146	The method of codeword distribution and verification procedure focused on LCS server	Huawei	Revised to 243
S1-030243	The method of codeword distribution and	Huawei	Withdrawn

Document S1-030047 contained a proposal on introduction of the method of codeword distribution and verification procedure focused on LCS server. In the current TS 22.071 v6.2.0, there are two methods be provided to Target UE user for setting and checking the codeword. The two methods both need the Target UE user to distribute the codeword for each requestor/LCS client. If the Target UE user wants to distribute different codeword for different requestor/LCS client, he has to memorize a lot of codewords and the relationships of the codewords and the requestors/LCS clients to avoid repetition when he wants to distribute a new codeword to a requestor/LCS client. Therefore, the target UE user cannot manage the codeword conveniently if he has quite a few requestors/LCS clients.

To solve this problem it is proposed to introduce a method to simplify distribution and management of the codeword as an improvement to the second method.

Document S1-030047 was noted and the meeting moved on to the CR to implement the changes, which was provided in document S1-030048. In the current specification, the Target UE user shall distribute the codeword for each Requestor/LCS client, in this way he has to memorize and manage all the codewords to avoid repetition when he wants to distribute a new codeword to the Requestor/LCS client. If the Target UE has quite a few Requestors/LCS clients, he cannot manage the codewords conveniently.

It was asked if this is an SA1 or SA2 requirement. After examining the CR, it was replied that this is an SA1 issue.

After some discussion outside the meeting, document S1-030048 was revised to document S1-030146. It was commented that this was included as part of the regulations from Japan. The code words will be generated by the LCS Server and the user will need to send them out to potential requestor sources. Then the LCS Server will check the codeword appropriate to the requestor. What is being defined is a protocol to convey the list of authorised requestors.

It was queried if this could be implemented some other way and it was asked if this mechanism is required in the standard. Alternatively, this could form the basis of an informative annex. It was noted for the time being pending some discussion outside the meeting. Failing that, it will be discussed by email. The revision, if any, will be provided in document S1-030243. This was subsequently withdrawn.

Document Number	Title	Source	Result
S1-030066	Clarification of network status attribute description within Presence Service Stage 1	NTT DoCoMo Inc.	Agreed to be sent to SA for approval

Document S1-030066 contained a CR to 22.142 on Clarification of network status attribute description within Presence Service Stage 1. Currently it is stated within the Presence Stage 1 (TS 22.141) that the network status attribute of the Presence Service describes the 'connectivity of the device'. This text is unclear and insufficiently describes information this attribute may include.

It was asked if the term "CS Call Active" is a normal term used in other specifications. The answer was that this is not clear, but the term does describe the situation. Also, the CR is indicated as a correction and it was commented that this could be broken into two CRs; a correction and an addition.

The decision was to change the category to C. With this it was agreed to be sent to SA for approval with CR number 017.

Document Number	Title	Source	Result
S1-030068	Applicability of Operator Determined Barring to the Location Service	NTT DoCoMo Inc.	Revised to 148
S1-030148	Applicability of Operator Determined Barring to the Location Service	NTT DoCoMo Inc.	Revised to 244
S1-030148	Applicability of barring capability to the Location Service	NTT DoCoMo Inc.	Revised to 244
S1-030244	Applicability of barring capability to the Location Service	NTT DoCoMo Inc.	Revised to 277
S1-030277	Applicability of barring capability to the Location Service	NTT DoCoMo Inc.	Agreed to be sent to SA for approval

Document S1-030068 contained a CR to 22.071 on Applicability of Operator Determined Barring to the Location Service. There is no description to bar Location Service features by a network operator. The Call Barring function is also NOT applicable to the LCS, but a Target UE user can bar the LCS feature from LCS Clients by using his Privacy Exception List himself. Especially in a roaming case, this ODB function would be useful for operators to limit their financial exposure to defaulters.

There was some confusion regarding what exactly is being barred here. In this case, it was thought that the action is to bar access to some information and ODB is against what the user may do (whereas in this case, it is stopping a third party).

It was evident that the CR needed to be clarified. The document was revised to S1-030148. On reviewing the CR, the meeting was a little confused as to is being barred from what. A sentence was proposed to clarify this. It was commented that the main intention was to stop (bar) the service in some circumstances.

Based on the confusion, the CR was revised to S1-030244 and then on-line in document S1-030277. It was agreed to be sent to SA for approval as CR 049.

Document Number	Title	Source	Result
S1-030070	PSS charging information	Huawei	Revised to 149
S1-030149	PSS charging information	Huawei	Revised to 245
S1-030245	PSS charging information	Huawei	Agreed to be sent to SA for approval

Document S1-030070 contained a CR to 22.233 to clarify the PSS charging information that is provided in conjunction with a streaming event. It was commented that "baud rate" is not a term that should be used. Some other comments were made and the document was revised to S1-030149.

It was revised on-line to S1-030245 and it was agreed to send this CR to SA for approval as CR number 10.

Document Number	Title	Source	Result
S1-030078	Rel 99 and later Emergency calls in case on UE attached to data only network	Nokia	Results in liaison statement in 150
S1-030150	Rel 99 and later Emergency calls in case on UE attached to data only network	Nokia	Revised to 247
S1-030247	Rel 99 and later Emergency calls in case on UE attached to data only network	Nokia	Agreed to be sent

Document S1-030078 contained a discussion document on Rel 99 and later Emergency calls in case on UE attached to data only network. When attached to a PS only network, it is not certain what the requirement is for the UE. It has noted that Stage 3 specifications in 24.008 (section 4.7.3.2.3.2) do not allow MS to behave as described in section 10.1 of 22.101 in case it gets partial reject allowing only PS domain service in a network supporting both CS and PS domain.

So, SA1 could change its requirement or ask CN to fulfil the SA1 requirement (if it can be). It was commented this is a hangover from a time when some operators wanted only to run a GPRS network or run it separately. It was decided to write a liaison statement to SA2 and CN1 if there is a problem with the requirement and the extent to which it is implemented. It should also be sent to SA for information. It was provided in document S1-030150. It was revised on line to S1-030247 and it was approved to be sent.

It was also agreed that this should be reported to SA.

Document Number	Title	Source	Result
S1-030081	Correction of contradictory information (former: 'Removal of references')	Nokia	Revised to 151
S1-030112	CR to TS 22.243	Ericsson	Not accepted, part of text included in 151
S1-030151	Correction of contradictory information (former: 'Removal of references')	Nokia	Agreed to be sent to SA for approval

Document S1-030081 contained a correction to 22.243 containing a Correction of contradictory information (formerly presented as: 'Removal of references'). There was some discussion regarding the reason to have a codec in the SES unless it is related to speech recognition; speech mobiles have a default codec already, but it may not be appropriate for speech recognition.

It was revised to document S1-030151. It was agreed to send this CR to SA for approval as CR 003.

Document S1-030112 also related to SES. Once again, there were a number of objections and so the document was noted. However, part of the text was included in the revision of S1-030081 to S1-030151.

Document Number	Title	Source	Result
S1-030107	CR to 22.146 - MBMS Cell broadcast in shared network	Telia AB	Revised to 126
S1-030126	CR to 22.146 - MBMS Cell broadcast in shared network	Telia AB	Revised to 154
S1-030154	CR to 22.146 - MBMS Cell broadcast in shared network	Telia AB	Agreed to be sent to SA for approval

Document S1-030126 contained a CR to 22.146 on MBMS Cell broadcast in shared network. This had been discussed over email and is a revision of S1-030107. It is important that the MBMS broadcast service functions the same way, from a customer point of view, in a shared network as in a non-shared network.

There were some comments and so it was revised to document S1-030154. It was agreed to send this CR to SA for approval as CR 040.

Document Number	Title	Source	Result
S1-030004	LS on MBMS requirements	GERAN (WG2)	GERAN asks questions related to paging and Traffic classes/ QoS. Reply in 230
S1-030230	LS on MBMS requirements	GERAN (WG2)	Revised to 246
S1-030246	LS on MBMS requirements	GERAN (WG2)	Agreed to be sent

Document S1-030004 contained a LS on MBMS requirements from GERAN. GERAN asks questions related to paging and Traffic classes/ QoS. It was agreed that a response should be drafted and Joerg Swetina agreed provide one.

The LS was provided in document S1-030230 and revised on line to document S1-030246. It was approved to be sent.

Document Number	Title	Source	Result
S1-030045	Introduction of the protective mechanism of the Registration, Erasure, Activation, Deactivation and Interrogation of the Target UE.	Huawei	Noted for the moment and Huawei is asked to start an email discussion
S1-030046	The protective mechanism of the Registration, Erasure, Activation, Deactivation and Interrogation of the Target UE	Huawei	Noted for the moment and Huawei is asked to start an email discussion

Document S1-030045 contained a proposal for Introduction of the protective mechanism of the Registration, Erasure, Activation, Deactivation and Interrogation of the Target UE.

It is understood that in LCS, one of the most important things is to protect the privacy of the Target UE user, and the Target UE user has the absolutely right to control whether or not his location information is provided to others. That means, even if the LCS request from the requestor/LCS client has passed the privacy check successfully, or even if the LCS request has been permitted by the LCS server/Target UE user, the Target UE user also can cancel this LCS request when he may not wish to be located. In this case this LCS position procedure will be terminated. This instance particularly occurs LDR and periodic LR. The proposal is to provide a user controlled password and require the LCS to authenticate the Target UE to see what the setting of LCS is.

The CR to implement this was provided in S1-030046 for release 6. It was commented that much of this proposal should be directed to the Generalised Privacy WI. However, the work is good and thorough and there are some elements that could be taken in isolation. The chairman asked if this could be completed at this meeting or if it should be deferred. It was decided that the documents are noted for the moment and Huawei is asked to start an email discussion.

Document Number	Title	Source	Result
S1-030248	DRM collaboration with OMA	Nokia	Agreed to be sent to SA for approval

Document S1-030248 contained a CR to 22.242 on DRM collaboration with OMA. This was provided as a result of the discussion of the issue and the agreement that the work should be done in OMA. It was agreed to send this CR to SA for approval as CR 002.

Document Number	Title	Source	Result
S1-030072	Correction to forwarding of DTMF digits for CPH calls	Ericsson	

Document S1-030072 was withdrawn.

8.1 Vocabulary

8.2 Push

Document Number	Title	Source	Result
S1-03059	Removal of MMS content	Research in Motion	Agreed to be sent to SA for approval
S1-03060	Push Service Independence	Research in Motion	Revised to 249
S1-03062	Barring of Push Service	Research in Motion	Revised to 250
S1-03063	Removal of 'Null' Interworking Chapter	Research in Motion	Agreed to be sent to SA for approval
S1-03064	Overview of Changes to 22.174	Research in Motion	Noted; explains preceeding CRs.
S1-030117	CR to the PUSH Stage 1 TS on the Feature Interactions section	AT&T Wireless Services	Agreed to be sent to SA for approval
S1-030121	CR on 22.174 to clarifiy the definition of Push function	RIM	Noted; as this CR ould appears to be predicting what the architecture elements could be.
S1-030147	Unclear PUSH requirements	Nokia	Noted and it was asked if some companies to consider this and if any changes are requried.
S1-030249	Push Service Independence	Research in Motion	Revised to 281
S1-030250	Barring of Push Service	Research in Motion	Agreed to be sent to SA for approval; input contributions are requested to further elaborate text concerning the barring of the PUSH
S1-030281	Push Service Independence	Research in Motion	Agreed to be sent to SA for approval

Document S1-0300059 contained a CR to 22.174 on Removal of MMS content. This Requirement duplicates a function already available in MMS. It was agreed to send this CR to SA for approval with CR 006.

Document S1-030060 contained a CR to 22.174 on Push Service Independence. The requirement for Push to be independent of other services is vague. The intention of the CR was to improve clarity and there were some comments that perhaps the original text is more appropriate.

It was taken off line and a revision was provided in S1-030249. Once again there appeared to be no consensus to the CR. It was revised on line to strip it down to the bare bones and was provided in S1-030281. It was agreed to be sent to SA for approval as CR 010.

Document S1-030062 contained a CR on Barring of Push Service. Requirement is unlcear, and open to misinterpretation. It was refined on line to document S1-030250 and it was agreed to be sent to SA for approval as CR 007. Some input contributions are requested to further elaborate text concerning the barring of the PUSH service.

Document S1-030063 contained a CR on Removal of 'Null' Interworking Chapter. No requirements have been identified. It was asked if the clause number should be kept as "void". There is a subsequent clause and this is being proposed later for deletion. However, another comment was that for interworking, it would be better to put in the text that there is no interaction. It was announced that this was discussed in the SWG and the choice was to leave it and allow contributions. There have been none for over a year and so perhaps now it is appropriate to delete it. It was agreed to be sent to SA for approval as CR 008.

Document S1-030064 contained a discussion document on all the above CRs. It was noted.

Document S1-030117 contained a CR to 22.174 the PUSH Stage 1 TS on the Feature Interactions section. Feature Interactions will be placed in a separate TR in SA1. There is no reason for Push to do this differently from other SA1 capabilities. Also, no requirements have yet been identified. It was agreed to be sent to SA for approval as CR 009 (so the meeting could do something useful).

Document S1-030121 contained CR on 22.174 to clarifiy the definition of Push function to make the "Push function" definition relate to other push terms used. It was commented that this CR would appear to be predicting what the architecture elements could be. It was not accepted at this time and the document was noted.

Document S1-030147 contained an input document on some unclear requirements. It is felt that the current PUSH stage 1 is not mature enough. It does not give adequate guidance what should be improved with existing 3GPP specifications. Also it is pointed out that OMA has activity on PUSH area, thus stage 1 service requirement specification should be also reviewed by OMA (MAG Push SWG and OMA requirements WG). The Push service requirements from SA1 are unclear in many areas at the moment and they should be clarified. Thereafter, a LS to OMA should be sent.

It was commented that all the issues identified have been covered with the exception of 5.4 which was a requirement from the GSM Association. It was noted and it was asked if some companies to consider this and if any changes are requried.

8.3   GPRS

Document Number	Title	Source	Result
S1-030055	Service Examples	Research in Motion	Revised to 251
S1-030056	Delay Criteria	Research in Motion	Revised to 252
S1-030057	Modification to 9.3	Research in Motion	Revised to 253
S1-030251	Service Examples	Research in Motion	Agreed to be sent to SA for approval
S1-030252	Delay Criteria	Research in Motion	Agreed to be sent to SA for approval
S1-030253	Modification to 9.3	Research in Motion	Decided to bring this issue to the next meeting and so the document was withdrawn

Document S1-030055 contained a CR to 22.060 containing the section on service examples do not cover services available in Release 6. There was one point about the use of "unsolicited" where an a priori agreement exists. It was revised to S1-030251 and it was agreed to be sent to SA for approval as CR 028.

Document S1-030056 contained a CR to 22.060 on Delay Criteria. The specification of the delay criteria does not explicitly cover the case where the intial SDU to establish communications contains user data. It was commented that there is an implication that the mean transfer delay could be for one SDU. It was revised on line to clarify that the SDUs used to establish communication are counted in the delay value. It was agreed to be sent to SA for approval as CR 029 in document S1-030252.

Document S1-030057 contained a CR to modify section 9.3. The current Stage 1 infers that MT services can only address the UE by the IMSI. This would prevent addressing by other methods as per 5.2.3. It was revised on line and then off line to S1-030253. After discussion, it was decided to bring this issue to the next meeting and so the document was withdrawn.

8.4   CAMEL

Document Number	Title	Source	Result
S1-030071	Correction to CAMEL interworking with CLIR and COLR	Ericsson	Agreed to be sent to SA for approval
S1-030075	Corrections to re-introduction of	Lucent	Agreed to be sent to SA for

	enhancements of dialled services in CAMEL 4	Technologies	approval
S1-030077	Removal of duplicate text in procedure describing 'subscribed dialled services'	Lucent Technologies	Revised to 254
S1-030108	CR to 22.078 Rel'6 Enhancement of Dialled Services regardless of the existing relationship	SIEMENS	Replaced by 118
S1-030111	CAMEL support for pre-paid SCUDIF calls	Ericsson	Withdrawn
S1-030118	CR to 22.078 Rel'6 'Enhancement of Dialled Services regardless of the existing relationship'	Siemens	Noted, as there was not sufficient support
S1-030135	Removal of $(CAMEL4)$ markers	Lucent	Agreed to be sent to SA for approval
S1-030136	Removal of $(CAMEL4)$ markers	Lucent	Agreed to be sent to SA for approval
S1-030254	Removal of duplicate text in procedure describing 'subscribed dailled services'	Lucent Technologies	Agreed to be sent to SA for approval

Document S1-030071 contained some Correction to CAMEL interworking with CLIR and COLR to align the stage 1 with the stage 2. The CR corrects some ambiguity for Service Logic designers; the stage 1 does not reflect the actual capabilities of the CSE. It was agreed to be sent to SA for approval as CR 154.

Document S1-030075 contained some corrections to re-introduction of enhancements of dialled services in CAMEL 4. The procedure for enhanced subscriber dialled services when no relationship exists with the CSE (as proposed in SP-020817) should be identical to the procedure when dialled digits have been collected for normal CAMEL call set up request (ie O-CSI triggered call). The change request in SP-020817 that re-introduced the procedures for the "Enhancements CSE capabilitiy for Dialled Services" was based on text that pre-dated additional changes to the normal CAMEL call set up request, namely the possibilty that the CSE could continue handling of the call party without routeing the call to the destination (for CPH purposes). The purpose of this change request is to have identical capabilities for the following cases :

- Call triggered by a O-CSI
- Call triggered by a D-CSI (and not previously triggered by an O-CSI)

The WI code is not correct as there is a WI for Enhanced Dialled Services. This will be fixed by the MCC. It was agreed to be sent to SA for approval as CR 155.

Document S1-030077 contained a CR to 22.078 to remove duplicate text in procedure describing 'subscribed dialled services'. Section 5.3.2.2 contains duplicate text relating to the action that a CSE can perform after it sends instructions to the VPLMN/HPLMN. This change request is an editorial correction, removing this additional text. It was revised on line to document S1-030254 and it was agreed to be sent to SA for approval as CR 156.

Document S1-030108 contained a CR to 22.078 on Enhancement of Dialled Services regardless of the existing relationship. It was replaced by S1-030118.

Document S1-030135 contained a CR to 22.078 on Removal of $(CAMEL4)$ markers. Histrocially, TS 22.078 used 'markers' between CAMEL phases to highlight the differences with sucessive CAMEL releases in the form of $(CAMEL4$)$. This change request proposes the removal of the CAMEL phase markers completely.

Document S1-030135 was agreed to be sent to SA for approval as CR 0157, and S1-030136 it was agreed to be sent to SA for approval as CR 158.

Document S1-030118 contained CR to 22.078 Rel'6 'Enhancement of Dialled Services regardless of the existing relationship'. There were several comments that companies were not happy with this CR. In particular it was commented that this would affect the WI, and it would need a change to the WID in order to accept this. Moreover, it was a struggle to get the work item into CN and to extend this would be difficult as it would cause more work load for them. Document S1-030118 was noted.

Document S1-030111 was withdrawn.

8.5   SIM Issues

Document Number	Title	Source	Result
S1-030080	CR to 22.101 Rel 5 on SIM support	Nokia	Revised to 256
S1-030103	CR to 22.101 on SIM support Rel' 5	SIEMENS	Noted; more input required. Revised to 278
S1-030104	CR to 22.101 on SIM support Rel' 6	SIEMENS	Noted; more input required.
S1-030119	UICC temperature Range proposal	Intel	Results in an LS in 144 (Andrew)
S1-030133	Third Form Factor work status and request for additional requirements	EP SCP	Reply in 145 (Chris Sachno) and in 224
S1-030144	UICC temperature Range proposal	Intel	Revised to 258
S1-030145	Third Form Factor work status and request for additional requirements	NTT DoCoMo	Not provided, see 259
S1-030224	Not Allocated		Not Allocated
S1-030256	CR to 22.101 Rel 5 on SIM support	Nokia	Agreed to be sent to SA for approval
S1-030257	CR to 22.101 Rel 5 on SIM support	Nokia	Agreed to be sent to SA for approval
S1-030258	UICC temperature Range proposal	Intel	Agreed to be sent
S1-030259	Third Form Factor work status and request for additional requirements	NTT DoCoMo	Revised to 272
S1-030272	Third Form Factor work status and request for additional requirements	NTT DoCoMo	Agreed to be sent
S1-030278	CR to 22.101 on SIM support Rel' 5	SIEMENS	It was decided to resolve this on email discussion

Document S1-030133 contained a liaison statement from SCP on a Third Form Factor work status and request for additional requirements.

SCP would appreciate some guidance from GSMA SCaG and SA1 on the following points:

a.   GSMA SCaG mentions "new components". SCP has taken the notion of "new components" to be the possibility of larger chips. Does GSMA SCaG have in mind something else?

b.   GSMA SCaG also mentions a "rigid holder" in association with "new components". Is this for holding the new components or the third form factor UICC or something else entirely?

c.   GSMA SCaG and SA1 mention the backward compatibility. Does this cover the contacts layout – is it required to keep the physical contacts as they are today? What about other issues - card thickness, etc.?

d.   GSMA SCaG mentions the development of an adapter. Does that stand for holder (for personalisation and logistics) or adapter for legacy terminals? Be advised that (as it was the case for plug-in) SCP does not intend to specify any adapter, but SCP would consider any additional requirements on the third form factor such an adapter might have.

e.   The suggestions for combining the Third Form Factor WI and the UICCng WI indicate that the need for a third form factor in the near-term is not universally felt. Would GSMA SCaG and SA1 please indicate their preferred schedule for the third form factor?

f.   Concerns were expressed regarding the space available for the display of the ICCID and branding information on the UICC. SCP's only guidance here is GSM 02.17 and its mention that ICCID display "should" be possible. There is currently no 3GPP requirement. Are there any requirements from SA1 or GSMA SCaG in this area?

g.   Should there be a physical mechanism to prevent incorrect insertion (as there is today on the Plug-in card) or is an optical orientation feature for this purpose sufficient?

h.   SA1 mentions "smooth migration". Could GSMA SCaG and SA1 provide examples of what would and what would not be regarded as a "smooth migration", particularly in the area of logistics?

SCP would also appreciate some guidance regarding priority between the following requirements:
-   backward compatibility (mechanical, e.g. contact layout)
-   timeframe
-   size reduction

This was discussed in the last meeting (S1-022203 and S1-022191) and it was identified that there would be a need for this:

> This is not really an SA1 issue, but an LS to notify the SCP that this seems desirable to SA1. The liaison statement in reply was provided in document indicating that support is desirable, but there is some concern over the timeframe. The document was provided in S1-022220, it was revised on line to document S1-022248 and it was approved to be sent.

It was decided to have a response with some more SA1 type detail. One point on the smooth migration to the new form factor and what this means; ability to have the new form put into the ID-1 format. There are also some logistic issues.

The response should have been provided in document S1-030145 but was provided in document S1-030259 intead. It was revised to S1-030272 and it was approved to be sent.

Another document S1-030119 was taken in conjunction with this subject and contained a presentation on UICC temperature Range proposal. The proposal is to change the new UD-2 temperature range to -40 to 85 ºC versus present range of -25 to 70 ºC with occasional peaks of 85 ºC.

It was asked what the term UD-2 is. It was clarified that the new proposed form factor is UD-2 although this could be an Intel term. It was commented that this presentation was provided to SCP also, and the point of the higher temperature relates to the plastic in which the module is imbedded. A number of other factors also need to be taken into account; e.g. emergency calls in cold environments and other temperature issues related to security.

The chairman pointed out that the there is no temperature range in SA1 specifications. It was asked if what the purpose of the document was. It was answered that it is hoped to send a liaison statement back to support the proposal.

The response was provided in document S1-030144. It was commented that there are some instances where even the new range will not allow a call (in a fire). However, there were some sensible comments and it was revised on-line to S1-030258. It was approved to be sent.

Document S1-030080 contained a CR to 22.101 Rel 5 on SIM support. The CR adds a note clarifying that, in 22-series SIM refers to Rel 4 and that if SIM is supported all mandatory features need to be supported. It was commented that there should not be a "shall" since notes are informatory (sic; Barnes).

Some on-line editing caused a revision to S1-030256. It was commented that in the revision should include some changes to the references section. The release 6 change was provided in document S1-030257. Document S1-030256 was agreed to be sent to SA for approval as CR 116. Document S1-030257 was agreed to be sent to SA for approval as CR 117.

Document S1-030103 contained CR to 22.101 on SIM support Rel' 5. In a previous CR (SP-020651) it has been clarified, that UE support of GSM Phase 2 and 2+ SIM cards is optional from Rel' 5 on. However the CR also specified network support for SIMs being optional, which could result in the undesirable situation of a UE - with SIM - being unable to receive service from a network that does not support SIM identification. It was revised in S1-030278 and it was decided to resolve this on email discussion.

It was commented that the text does imply that support of the SIM in the network is mandatory. Some more consideration is necessary and so documents S1-030103 and S1-030104 were noted and further input was requested.

Document S1-030224 was not used.

8.6   Generalised Privacy Capability

Document Number	Title	Source	Result
S1-030105	Some first input for a study on a "Generalised Privacy Capability"	SIEMENS	Noted; To be merged with the other documents (127, 128) for a dedicated session at the next meeting. LS in

Document Number	Title	Source	Result
			261
S1-030127	Proposed outline for TR on Generalised Privacy Capability	Lucent	Noted; To be merged with the other documents (105, 128) for a dedicated session at the next meeting.
S1-030128	Proposed Introduction and Scope for TR on Generalised Privacy Capability	Lucent	Noted; To be merged with the other documents (127, 105) for a dedicated session at the next meeting.
S1-030261	LS to OMA on "Generalised Privacy Capability"	SIEMENS	Revised to 275
S1-030275	LS to OMA on "Generalised Privacy Capability"	SIEMENS	Agreed to be sent

Document S1-030105 contained Some first input for a study on a "Generalised Privacy Capability". It was suggested that there should be a session on this at the next meeting. Also, document S1-030127 contained a proposed outline for TR on Generalised Privacy Capability and S1-030128 contained an introduction and sope for a TR. These were all noted and should be merged to form a draft for consideration at the session next time.

It was asked how this work relates to the OMA. It was answered that SA1 will be tracking the work in OMA and perhaps the role of SA1 would be identify additional requirements.

Document S1-030261 contained a liaison statement to the OMA in order to ask them what the status of the work is on Privacy. It was tinkered with on-line and provided in document S1-030275. It was agreed to send this liaison statement.

9   Future / Workplan

10   SWGs during plenary

10.1   Feature Interaction

Document Number	Title	Source	Result
S1-030110	Contribution to the Feature Interaction TR	SIEMENS	Revised to 233
S1-030155	Report of Feature Interaction SWG	SWG Chairman	Not used
S1-030156	Presentation of Feature Interaction SWG	SWG Chairman	Not used
S1-030233	Contribution to the Feature Interaction TR	SIEMENS	To be used as a basis for future contributions on email and/or the next meeting.

There was a small meeting of the Feature Interaction SWG and so a report was not provided (Document numbers S1-030155 and S1-030156 were not used).

Document S1-030110 contained the only contribution to the Feature Interaction TR. This was revised in the meeting to take into account additional input from AWS. The revised version of the TR was provided in document S1-030233. It was noted and is to be used as a basis for future contributions on email and/or the next meeting.

10.2   GUP

Document Number	Title	Source	Result
S1-030006	LS on clarification of User Data Management requirements	CN5	Withdrawn, same as S1-022227.
S1-030023	LS on T2 proposal for GUP requirements- UE Data access and Backwards Compatibility	T2	Revised to 211
S1-030024	LS on T2 proposed changes to TS22.240 v1.0.0, Stage1 Service Requirements for GUP	T2	Revised to 212

S1-030052	Proposal for the update of GUP work item description	Nokia	Revised to 206
S1-030053	Replacement of DDF in GUP stage 1 specification	Nokia	Revised to 207
S1-030054	GUP Component Master Concept	Alcatel/Lucent	Revised to 213
S1-030073	GUP Tidy-up	Siemens AG	Revised to 217
S1-030074	GUP-enabled data	Siemens AG	Revised to 226
S1-030120	GUP for IMS subscription management	Nokia	Revised to 182
S1-030143	Agenda for GUP SWG sessions	GUP Chairman	Agreed in SWG
S1-030157	Report of GUP SWG	SWG Chairman	Approved
S1-030158	Presentation of GUP SWG	SWG Chairman	Noted
S1-030182	GUP for IMS subscription management	Nokia	Agreed by the SWG. For submission to SA1 plenary for approval; Agreed to be sent to SA for approval
S1-030206	Proposal for the update of GUP work item description	Nokia	Agreed in SWG; see new version of TS in 209
S1-030207	Replacement of DDF in GUP stage 1 specification	Nokia	Agreed in SWG; see new version of TS in 209
S1-030208	Cover sheet for GUP stage 1 presentation		Agreed in SWG; Agreed to be sent to SA for approval
S1-030209	TS 22.240 V1.3.0 GUP stage 1		Agreed in SWG; Agreed to be sent to SA for approval
S1-030210	LS to SA1 about GUP	SA2	Noted in SWG
S1-030211	Response LS on T2 proposal for GUP requirements- UE Data access and Backwards Compatibility	SA1	Revised to 218
S1-030212	Response to LS on T2 proposed changes to TS22.240 v1.0.0, Stage1 Service Requirements for GUP	SA1	Agreed in SWG; Agreed to be sent
S1-030213	GUP Component Master Concept	Alcatel/Lucent	Revised to 227
S1-030217	GUP Tidy-up	Siemens AG	Agreed in SWG; Incorporated in revision of stage 1.
S1-030218	Response LS on T2 proposal for GUP requirements- UE Data access and Backwards Compatibility	SA1	Agreed in SWG; Agreed to be sent
S1-030226	GUP-enabled data	Siemens AG	Revised to 229
S1-030227	GUP Component Master Concept	Alcatel/Lucent	Agreed in SWG; Incorporated in revision of stage 1.
S1-030229	GUP-enabled data	Siemens AG	Agreed in SWG; Incorporated in revision of stage 1.

Document S1-022055 contained some additional GUP requirements. This was postponed to this meeting in San Francisco. It was not dealt with in the SWG and was addressed in plenary. It was noted.

The Report of SWG GUP was provided in document S1-030157. It was approved. A summary slide was provided in document S1-030158 which was noted. The status of the documents handled in the meeting is as per the table above.

The summary was:

- Meeting progressed with next version of Stage 1 TS22.240 version 1.3.0 (S1-030209)
- SWG agreed that TS22.240 has reached the 80% completion milestone and recommends that be sent to SA for approval (S1-030208)
- Two incoming LS from SA2 and one from SA2 were handled with responses in S1-030212 and S1-030218
- Issues to be addressed at next SA1
    - Contents of GUP should be standardised
    - Security section would benefit from a distinction between requestor and recipient of GUP data

- SWG still lacks a permanent chair and a permanent editor for TS 22.240
- It is anticipated that there will not be sufficient documents at the next SA1#20 to warrant a separate GUP SWG meeting
- The group looked at a CR in document S1-030182 and the group concurred with the CR from IMS.

Document S1-030182 contained the CR to 22.228 on GUP for IMS subscription management. Standardised creation, usage and management of the user related data is beneficial for the management and value added services. This has been stated by 3GPP SA5 also in the TS 32.140 for Subscription management requirements which also mentions HSS as one central element in subscription management. The Generic User Profile (GUP) provides for the generic data model and interfaces for user data handling. The IMS subscription data stored in HSS is one case where GUP can be well applied. The HSS has the Sh interface but its scope is limited in a way that it cannot fulfill e.g. all the management needs.

It was questioned whether the intention of the CR was to make support of GUP mandatory within IMS. It replied that it was not. Merely, that if GUP was available within the network it would be used to perform the functionality described. It was agreed to be sent to SA for approval as CR 018.

Document S1-030212 contained a liaison statement on T2 proposed changes to TS22.240 v1.0.0, Stage1 Service Requirements for GUP. This was required since not all the proposed changes were included in 22.240. It was approved to be sent.

Document S1-030218 contained Response LS on T2 proposal for GUP requirements- UE Data access and Backwards Compatibility. It was agreed to be sent.

Document S1-030208 contained a cover sheet for the TS 22.240 to plenary for approval. The document was approved.

Document S1-030209 contained the TS 22.240 version 1.3.0 for presentation to SA #19. It was asked if GUP is a mandatory feature. The answer was that section 4.5 does imply that GUP is not mandatory in a roundabout way. It was agreed to be sent to SA for approval.

Document S1-030006 contained a LS on clarification of User Data Management requirements. It was withdrawn, as it is the same as S1-022227.

10.3   IMS

Document Number	Title	Source	Result
S1-030011	Requirement to Allow Access to IMS by Means of SIM in 3G UEs	SA2	LS asking SA3 to identify authentication/security technical impact of Allowing IMS Access Using SIM in 3G Ues. Proposed action; Noted in SWG.
S1-030016	Reply LS on 'New requirements about functionality to make subscription to different domains independent or linked based on operator decision'	SA5	Noted in SWG
S1-030034	IMS Subscription and access scenarios	TB Chairman	Noted in SWG
S1-030035	Minutes of IMS SWG, Paris	TB Chairman	Approved by SA1
S1-030036	Agenda of IMS SWG	TB Chairman	Approved in SWG
S1-030037	New scenario input to TR22.800 – Stand Alone IMS Operator	Telia AB	Noted and Scenario agreed to be included in next version of TR
S1-030038	RESERVED for IMS SWG	TBD	Not allocated
S1-030039	RESERVED for IMS SWG	TBD	Not allocated
S1-030067	Alignment of terminology used within TR 22.800 'IMS Subscriber and access scenarios'	NTT DoCoMo Inc.	Noted and Scenario agreed to be included in next version of TR
S1-030079	Updated scenario on Multiple terminals to TR 22.800	Nokia	Noted and Scenario agreed to be included in next

			version of TR
S1-030082	Contribution on service continuity from IMS to GSM	Alcatel	Noted; See CR in 83
S1-030083	CR on service continuity from IMS to GSM	Alcatel	Revised to 183
S1-030084	CR to 22.101 on SIM access to IMS (Rel-5)	T-Mobile	Revised to 180
S1-030085	CR to 22.101 on SIM access to IMS (Rel-6)	T-Mobile	Revised to 181
S1-030086	Contribution for TR 22.800 0.2.0 (chapter 8)	T-Mobile	Revised to 191
S1-030092	New scenarios for TR 22.800 about subscription relationships	Telecom Italia	Noted and Scenario agreed to be included in next version of TR
S1-030099	Contributions to the Revision of TR 22.800 scenarios	Telecom Italia	Noted in SWG, not agreed
S1-030100	Proposed structure for section Summary of all scenarios of TR22 800	Telecom Italia	Noted and Scenario agreed to be included in next version of TR
S1-030101	Initial conclusions on TR 22.800	Telecom Italia	Noted in SWG; to be revised for next meeting
S1-030120	GUP for IMS subscription management	Nokia	Revised to 182
S1-030124	Additional Release 5 work needed for Policy Control and Subscription Control of Media	SA	Noted in SWG
S1-030159	Report of IMS SWG	SWG Chairman	Approved
S1-030160	Presentation of IMS SWG	SWG Chairman	Noted
S1-030180	CR to 22.101 on SIM access to IMS (Rel-5)	T-Mobile	Revised to 221
S1-030181	CR to 22.101 on SIM access to IMS (Rel-6)	T-Mobile	Revised to 222
S1-030182	GUP for IMS subscription management	Nokia	Agreed by the SWG. For submission to SA1 plenary for approval; Agreed to be sent to SA for approval
S1-030183	CR on service continuity from IMS to GSM	Alcatel	Revised to 220
S1-030190	TR 22.800 version 0.2.1	Rapporteur	Revised to 195
S1-030191	Contribution for TR 22.800 0.2.0 (chapter 8)	T-Mobile	Postponed to the next IMS SWG
S1-030192	Reserved for IMS		Not allocated
S1-030193	Reserved for IMS		Not allocated
S1-030194	Additional scenario	TIM	Noted and Scenario agreed to be included in next version of TR
S1-030195	TR 22.800 version 0.3.0	Rapporteur	Revised to 223
S1-030220	CR on service continuity from IMS to GSM	Alcatel	Postponed until the next meeting
S1-030221	CR to 22.101 on SIM access to IMS (Rel-5)	T-Mobile	Revised to 279
S1-030222	CR to 22.101 on SIM access to IMS (Rel-6)	T-Mobile	Revised to 280
S1-030223	TR 22.800 version 0.4.0	Rapporteur	Noted as the basis for futher elaboration
S1-030279	CR to 22.101 on SIM access to IMS (Rel-5)	T-Mobile	Revised to 282
S1-030280	CR to 22.101 on SIM access to IMS (Rel-6)	T-Mobile	Noted, the use of the SIM in Rel-6 should be discussed in SA
S1-030282	CR to 22.101 on SIM access to IMS (Rel-5)	T-Mobile	Agreed to be sent to SA for approval

The Report of SWG IMS was provided in document S1-030159. It was approved. A summary slide was provided in document S1-030160 which was noted. The status of the documents handled in the meeting is as per the table above.

The summary was:

- Meeting progressed with 22.800, and produced new version 0.4.0 in Tdoc S1-030223.
- It was agreed that a additional meeting is needed to finalise the scenarios. No new scenario to be accepted after next meeting. Additional meeting should result a version to be sending for SA1 email approval to allow TR to be send for information to SA plenary.

- Alcatel contribution on IMS voice to CS telephony service continuity (Take-over) was discussed. The idea got some support but group was not able to finalise the CRs.
- Nokia proposal to add GUP requirements to 22.228 were agreed in principle, but more details were agreed. Task to finalise the CR was given to GUP SWG.
- Based on SA request T-mobile provided revised CRs on SIM access to IMS. There was discussion about how long this feature needs to be supported. It was agreed to forward this discussion to SA1 and perhaps to SA.

It was agreed to ask SA how long the SIM access to IMS should exist in the subsequent releases.

Document S1-030191 contained a contribution for TR 22.800 0.2.0 (chapter 8). This was postponed to the next IMS SWG.

Document S1-030220 contained a CR to 22.228 on service continuity from IMS to GSM. There was a little concern regarding this CR. It was postponed until the next meeting.

Document S1-030221 contained CR to 22.101 on SIM access to IMS (Rel-5). Though there are requirements on access to the IMS services via existing R99/R4 USIMs to enable a smoother customer transition towards new IMS services, it seems more and more realistic that at the launch of IMS services, a number of operators will still be supporting 2G SIMs. This allows for some flexibility in planning SIMs replacements and not be forced by incoming SIM-uncompatible new IMS services. It also changes the way security for IMS is performed when accessing IMS via SIM but other methods based on GSM SIM algorithms (e.g. EAP SIM) could be applied to IMS authentication to enable access via legacy SIMs as well, although they don't guarantee mutual authentication like IMS AKA.

Once again this issue got bogged-down. The problem was the deletion of "Access to the IMS services shall be possible using 3GPP release 99 and release 4 UICCs". If you can buy UICC and implement IMS then what is the point of an ISIM. However, SA3 has devised the security based on the ISIM. It was clarified that the point of this CR is to allow access to IMS with a SIM. The point is that when a UICC has an ISIM on it, then that shall be used. Moreover, it should not be forbidden to use a release 5 UICC without an ISIM.

More elaboration was required and so documents S1-030221 and S1-030222 were revised to S1-030279 and S1-030280. It was reported that the work in SA2, SA3 and CN1 has been done. It was not sure what had happened in CN4.

Document S1-030279 was revised to S1-030282 and it was agreed to send this CR to SA for approval as CR 118.

As for S1-030280 for Rel-6 it was commented there is a reason to have it for release 5, but the use of the SIM in Rel-6 should be discussed in SA. Therefore document S1-030280 was noted.

Document S1-030223 contained TR 22.800 version 0.4.0 for the IMS Subscription and access scenarios. Some new scenarios have been added (§12, §14) . It was noted as the basis for further elaboration.

A meeting will be held on 18 – 20 February 2003, in Turin, Italy, Hosted by TIM. The output of this will be discussed by email until the 28th February when a version shall be available for email approval. This document will be prepared for SA and if there are any objections prior to 8th March then the document prepared for SA will be withdrawn.

10.4 Messaging

Document Number	Title	Source	Result
S1-030013	Liaison Statement on Additional Tags for MMS SMIL	SA4	Noted in SWG
S1-030019	LS - Identification of a Directory Number in MMS	T2	Noted in SWG
S1-030020	LS on MM7 functionality enhancements requested by GSMA SERG	T2	Revised to 196
S1-030021	Re: LS on OSA support for MMS	T2	Noted in SWG
S1-030022	LS on MMS parameter storage on the (U)SIM, and the Stage 1 Rel-4 specifications	T2	SA and SA1 are asked to provide clarification on MMS parameter storage; this is

			history and was noted.
S1-030049	TS22.250 :IMS group management should be utilized by MMS to economize network resource	Huawei	Noted in SWG
S1-030050	TS22.140 :IMS group management should be utilized by MMS to economize network resource	Huawei	Noted in SWG
S1-030051	Introduction of application IMS group management in MMS.	Huawei	Noted in SWG
S1-030069	Synthetic Video Applications	IAEI (rep by Vimatix)	Noted for information
S1-030088	Agenda for the MSG SWG #8	Chairman (T-Mobile)	Noted in SWG
S1-030125	Liaison statement to 3GPP SA1 on Roaming Awareness (reply to S1-022270)	GSMA BARG	Noted in SWG
S1-030161	Report of Messaging SWG	SWG Chairman	Approved
S1-030162	Presentation of Messaging SWG	SWG Chairman	Noted
S1-030196	Reply to LS on MM7 functionality enhancements requested by GSMA SERG	SA1	Not seen in SWG Revised to 268
S1-030197	CR to 22.115 on roaming awareness for charging	T-Mobile	Not seen in SWG; postponed and perhaps have email discussion and approval.
S1-030198	Reply to LS on Roaming awareness to BARG		Not seen in SWG; withdrawn based on the decision on S1-030197. This may also be seen on email approval.
S1-030199	Report from the joint S1 T2 Meeting	Chairman (T-Mobile)	Approved
S1-030200	CR to 22.140 on preferred delivery mechanism	Orange, Telefonica, T-Mobile	See 255 Revised to 266
S1-030225	Response to LS on Synthetic Video Media Type	SA1	Withdrawn
S1-030255	Roaming impacts on MMS delivery & charging	Ericsson	Revised to 266
S1-030260	CR to 22.340 on required message formats for IMS messaging	T-Mobile	Agreed to be sent to SA for approval
S1-030263	Update to 22.140 to clarify prioritisation	Openwave	Revised to 267
S1-030266	CR to 22.140 on preferred delivery mechanism	Orange, Telefonica, T-Mobile	Decided to postpone this to an email discussion
S1-030267	Update to 22.140 to clarify prioritisation	Openwave	Agreed to be sent to SA for approval
S1-030268	Reply to LS on MM7 functionality enhancements requested by GSMA SERG	SA1	Agreed to be sent

The Report of SWG Messaging was provided in document S1-030161. It was approved. A summary slide was provided in document S1-030162 which was noted. The status of the documents handled in the meeting is as per the table above.

The summary was:

Progress during Messaging SWG in SF:
– Held a joint meeting with T2 on MMS rel 6 issues
– Received three presentations on Synthetic video (Vimatix), subset of SVG Tiny (RIM) and update on MMS work in 3GPP2 (Openwave)
– The current Chairman of the SWG is stepping down, no volunteer to replace him yet.
– Considering the possibility of an additional joint meeting with T2

Outputs

–   Processed 22 documents
–   Produced two liaison statements:
     •   To T2, GSM Association SerG on MM7 enhancements
     •   To GSM Association BARG on roaming awareness
–   Produced two change requests to 22.140
     •   On prioritisation definition and charging principle
     •   On preferred delivery mechanism
–   Produced one change request to 22.115
     •   On roaming awareness in CRDs

Paul Carpenter volunteered to become chairman. He was congratulated.

Document S1-030200 contained a CR to 22.140 on preferred delivery mechanism. This change is asking for preferred delivery behaviours at MM retrieval. In some scenarios such as: user roaming, MMs charged to the recipient (e-mail to MMS, value-added MMs, etc.) or spamming, manual retrieval of the MM could be desirable. With this functionality, user service experience improves since complex settings on the UE are avoided.

Document S1-030255 also contained a CR to 22.140 on the similar subject; i.e. Roaming impacts on MMS delivery & charging. This CR adds requirements to detect, act on, and charge when an MMS originator/recipient is roaming.

It was decided that the two CRs should be combined to a single CR. This was provided in document S1-030266. After some discussion it was decided to postpone this to an email discussion.

Document S1-030263 contained a CR to 22.140 with an update to 22.140 to clarify prioritisation. The current version of 22.140 contains a requirement for MM prioritisation that is ambiguous. It currently implies that MM prioritisation is something that will provide prioritised handling of the MM by the network. The delivery of that prioritised handling, when possible at all, is very complex. Some readers have also interpreted the requirement to be a method to tag a MM with an importance level. The SA1 Messaging SWG discussed this and agreed that the proposed new wording for prioritisation is the MMS requirement. It was revised to change the front sheet to document S1-030267 as CR 024. It was agreed to be sent to SA for approval.

Document S1-030196 contained a reply to LS on MM7 functionality enhancements requested by GSMA SERG. SA1 is asking T2 update TS 23.140 enhance MM7 with support for reply_to address, authentication and security. There were a number of changes and so it was revised to S1-030268. With this it was approved to be sent.

Document S1-030022 contained a LS on MMS parameter storage on the (U)SIM, and the Stage 1 Rel-4 specifications, wherein SA and SA1 are asked to provide clarification on MMS parameter storage. This is largely history and was noted in Plenary.

Document S1-022356 contained a Liaison Statement on required message formats for IMS messaging. SA4 is asking SA1 to update the text (should read "AMR for speech") and update the references for multimedia formats as indicated above, i.e. correct the title of TS 26.234 and add a reference to the 3GPP file format specification (and to the timed text specification if applicable). Note that the final status of the references is due to the assignment of TS number. This resulted in a CR at this meeting that was provided in document S1-030260.

Document S1-030260 contained a CR to 22.340 on required message formats for IMS messaging. Upon request from SA4 the text "AMR for audio" was changed into "AMR for speech". Furthermore the references to 26.234 has been updated to reflect the fact that it was split into 3 specifications. It was agreed to be sent to SA for approval as CR 001.

Document S1-030197 contained CR to 22.115 on roaming awareness for charging. The mechanism to charge a subscriber based on TAP records received by the HPLMN from the VPLMN will not work anymore in the case that the service logic is "owned" by the HPLMN (e.g. MMS/IMS): In these cases the service actually invoked by the subscriber will be transparent to the VPLMN and consequently TAP records created by the VPLMN cannot provide sufficient detail on the service invocation. This was stated by GSMA CPWP (see LS S1-030125).

It was asked if this should apply to MMS since section 4.3 is really for IMS only. It was answered that it should apply to MMS. Since the changes could not be done in time for this meeting it was decided to postpone this and perhaps have email approval.

Document S1-030198 was withdrawn based on the decision on S1-030197. This may also be seen on email approval.

Document S1-030225 was withdrawn.

10.5   NETSHARE

Document Number	Title	Source	Result
S1-030087	Agenda for the Network Sharing SWG #7	Chairman (T-Mobile)	Noted in SWG
S1-030089	CR to 22.951 (Network Sharing)	T-Mobile	Revised to 235
S1-030093	Netshare CR to TS 22.101	Telia AB	Revised to 204
S1-030094	Netshare CR to TS 22.011	Telia AB	Revised to 236
S1-030095	Netshare CR to TS 22.129	Telia AB	Revised to 234
S1-030096	Netshare CR to TS 21.905	Telia AB	Withdrawn in SWG
S1-030097	Netshare CR to TS 22.115	Telia AB	Revised to 205
S1-030098	Netshare CR to TR 22.951	Telia AB	Revised to 202
S1-030163	Report of NETSHAR SWG	SWG Chairman	Approved
S1-030164	Presentation of NETSHAR SWG	SWG Chairman	Noted
S1-030201	Netshare CR to TS 22.101	Telia AB	Revised to 204
S1-030202	Netshare CR to TR 22.951	Telia AB	Revised to 203
S1-030203	Implementing Network Sharing Requirements in Rel-6	Telia AB	Agreed in SWG; Agreed to be sent to SA for approval
S1-030204	Requirements for Network Sharing in Rel-6	Telia AB	Agreed in SWG Revised to 269
S1-030205	Requirements for Network Shairng in Rel-6	Telia AB	Agreed in SWG Revised to 270
S1-030234	Netshare CR to TS 22.129 on Requirements for Network Sharing in Rel-6	Telia AB	Agreed in SWG Revised to 271
S1-030235	CR to 22.951 (Network Sharing) Dynamic sharing of inbound roaming subscribers in a shared network	T-Mobile	Agreed in SWG; Agreed to be sent to SA for approval
S1-030236	Netshare CR to TS 22.011	Telia AB	Agreed in SWG; Agreed to be sent to SA for approval
S1-030269	Requirements for Network Sharing in Rel-6	Telia AB	Agreed to be sent to SA for approval
S1-030270	Requirements for Network Shairng in Rel-6	Telia AB	Agreed to be sent to SA for approval
S1-030271	Netshare CR to TS 22.129 on Requirements for Network Sharing in Rel-6	Telia AB	Agreed to be sent to SA for approval

The Report of SWG Netshare was provided in document S1-030163. It was approved. A summary slide was provided in document S1-030164 which was noted. The status of the documents handled in the meeting is as per the table above.

The summary was:

General
–   The current chairman will step down from the next meeting. Telia will propose a candidate to take over
–   The work has now moved to a new phase and the SWG has started to draft change requests to the existing stage 1 documents to support network sharing

Progress during Network Sharing SWG in SF:
–   Agreed the following change requests:
•   CR to 22.951 to clarify scenario 2 and 4 and to introduce new text in the network requirements paragraph
•   CR to 22.951 to enable dynamic allocation of visiting international roamers.

- CR to 22.101 a new paragraph 4.2 to collect specific requirements for network sharing
- CR to 22.129 to create requirements for handover in a shared network
- CR to 22.115 to create requirements for charging in a shared network

Mr Shahab Lavasani agreed to become chairman of the network sharing SWG. He was congratulated by the meeting.

Document S1-030203 contained a CR to 22.951 with some clarifications of scenario 4 and 2 and editorial modifications to chapter 8 for network requirements. It was agreed to be sent to SA for approval as CR 001.

Document S1-030204 contained a CR to 22.101 to include the requirements for network sharing from TR 22.951. It was revised on-line to S1-030269. It was agreed to be sent to SA for approval as CR 115.

Document S1-030205 contained a CR to 22.115 to implement the requirements for Network Shairng in Rel-6. It was revised on-line to document S1-030270 and It was agreed to be sent to SA for approval as CR 009.

Document S1-030234 contained a CR to 22.129 to create requirements for handover in a shared network. It was revised to S1-030271 which was agreed to be sent to SA for approval in CR 027.

Document S1-030235 contained a CR to 22.951 on Dynamic sharing of inbound roaming subscribers in a shared network. It was agreed to be sent to SA for approval as CR 002.

Document S1-030236 contained a CR to 22.011 to create requirements for handover in a shared network Requirements in Rel-6. It was agreed to be sent to SA for approval as CR 050.

10.6   OSA

Document	Title	Source	Result
S1-030006	LS on clarification of User Data Management	CN5	Withdrawn, same as S1-
S1-030021	Re: LS on OSA support for MMS	T2	Noted in SWG
S1-030090	Agenda for SA1 OSA SWG Meeting #17	Fujitsu	Noted in SWG
S1-030091	Updated OSA R6 WID	Fujitsu	Revised to 178
S1-030165	Report of OSA SWG	SWG Chairman	Approved
S1-030166	Presentation of OSA SWG	SWG Chairman	Noted
S1-030178	Updated OSA R6 WID	Fujitsu	Agreed to be sent to SA for
S1-030179	Reserved for OSA		Not used

The Report of SWG OSA was provided in document S1-030165. It was approved. A summary slide was provided in document S1-030166 which was noted. The status of the documents handled in the meeting is as per the table above.

The summary was:

- The OSA session was very short

- The following documents were handled:
  - The incoming LS from T2 on the support of MM7 in OSA was noted (S1-030021). Companies were invited to provide contributions on this feature.
  - An updated version of the WID for OSA R6 was created (S1-030178). This WID reflects the requirements that are actually covered in R6. This updated WID will give a better visibility to CN5 on the workload they shall expect for R6.

Document S1-030178 contained the revised WID for OSA. It was agreed to be sent to SA for approval.

10.7   Priority

Document Number	Title	Source	Result
S1-030025	ITU-T SG 11 and SSG Activities Concerning Priority Service	National Communications System	Noted in SWG
S1-030040	Agenda for the Priority SWG	Priority SWG	Agreed as modified.

		Chairman	
S1-030041	Proposed Priority Service Guide - outline	Jim Garrahan	Agreed as modified. To be used as a baseline document for further contribution
S1-030042	Proposed Priority Service Guide - introduction	Jim Garrahan	Agreed as modified. To be incorporated into the baseline document.
S1-030043	Proposed Priority Service Guide - scope	Jim Garrahan	Agreed as modified. To be incorporated into the baseline document.
S1-030065	ETS Work Item Description (Priority)	SBC	Revised to 129
S1-030113	Distinguishing Priority Service users vs. eMLPP users	Nortel Networks	Noted in SWG. Use cases requested for clarification.
S1-030129	ETS Work Item Description (Priority)	SBC	Revised to 219
S1-030167	Report of Priority SWG	SWG Chairman	Approved
S1-030168	Presentation of Priority SWG	SWG Chairman	Noted
S1-030185	CR to TS 22.950 addressing progression of priority level when interworking with external networks	Priority SWG	Agreed to be sent to SA for approval
S1-030186	Reserved for Priority		Not allocated
S1-030187	Reserved for Priority		Not allocated
S1-030219	ETS Work Item Description (Priority)	SBC	Revised to 262
S1-030262	ETS Work Item Description (Priority)	SBC	Agreed to be sent to SA for approval

The Report of SWG Priority was provided in document S1-030167. It was approved. A summary slide was provided in document S1-030168 which was noted. The status of the documents handled in the meeting is as per the table above.

The summary was:

- 8 input documents, 4 output documents
- The meeting noted S1-030025 that contains a summary of the ITU-T Study Group 11 and SSG activities related to Priority Services.
- The meeting agreed to S1-030041 with modifications on a proposed outline for a Priority Service Guide.
- The meeting agreed to S1-030042 with modifications on a proposed introduction for the Priority Service Guide.
- The meeting agreed to S1-030043 with modifications on a proposed scope for the Priority Service Guide.
- The meeting noted S1-030113 and requested Use Cases for distinguishing Priority Service users and eMLPP users.

- CR proposed for approval
    – S1-030185 proposed CR to TS 22.950 addressing progression of priority level when interworking with external networks. It was agreed to send this CR to SA for approval as CR 006.

- WID proposed for approval
    – S1-030129 proposed WID for a Multimedia Priority Service Feasibility Study.

- Next Steps
    – Conference call on 6 March 2003, starting at 10am Eastern Time, USA, duration up to 2 hours, to progress work on distinguishing Priority Service users and eMLPP users and to progress work on the Priority Service Guide. The details of the conference call will be announced on the SA1 email list.
    – Meet during the April 2003 SA1 meeting (half-day session requested).

- For more detail see Report in S1-030167

The WID in S1-030129 was revised in document S1-030219, which was revised after the meeting. It was further revised in document S1-030262 and it was agreed to be sent to SA for approval.

It was announced that there will be a conference call on the March 6th and 10.00am Eastern standard time USA.

10.8   QoS

Document Number	Title	Source	Result
S1-030012	Final response to LS on 'Procedure for specifying UMTS QoS parameters per application'	SA4	LS asking RAN3 and CN3 questions relating to QoS. Proposed action; Noted
S1-030114	R6 Service Based Local Policy (SBLP): Background and Rationalle	Nortel Networks	Noted in SWG
S1-030115	R6 Service Based Local Policy : Possible Implementations	Nortel Networks	Withdrawn in SWG
S1-030116	R6 Service Based Local Policy : Analysis	Nortel Networks	Withdrawn in SWG
S1-030169	Report of QoS SWG	SWG Chairman	Approved
S1-030170	Presentation of QoS SWG	SWG Chairman	Noted

The Report of SWG QoS was provided in document S1-030169. It was approved. A summary slide was provided in document S1-030170 which was noted. The status of the documents handled in the meeting is as per the table above.

The summary was:

- One input document on the proposed requirements for Service Based Policy Management in Release 6 was discussed.
  – Requirements for Service Based authorisation and policing per IP flow and Support for charging per IP flow were agreed in principle
  – Requirement for authorization independently of the Access QoS was not agreed as the use case was not clear
  – A CR to include the requirements "agreed in principle" is needed for the next meeting.

- Currently SBLP is required for IMS only. SA2 are studying the feasibility of extending SBLP to other services. SA1 currently has no requirement for this. Contributions are requested on this subject for the next meeting
- No output documents.

10.9   WLAN

Document Number	Title	Source	Result
S1-030010	LS on priorities for the support of PS based services	SA2	Proposed reply in 76
S1-030058	Proposed Liaison Statement on Network Selection principles in 3GPP system to WLAN Interworking	Lucent	Revised to 189
S1-030061	Network Selection for WLAN Interworking - requirements allocation and phasing	Motorola	Noted in SWG. Issues included in LS to S1-030189
S1-030076	Proposed Response to LS S2-023646 (LS on priorities for the support of PS based services)	Lucent Technologies	Revised in 177
S1-030106	CR to TS 22.115 - Clarification of the charging entity WLAN	Telia AB	Noted in SW; revised in S1-030184
S1-030123	CR to 22.101: removal of network selection in WLANs	Lucent	Withdrawn
S1-030171	Report of WLAN SWG	SWG Chairman	Approved
S1-030172	Presentation of WLAN SWG	SWG Chairman	Noted
S1-030174	SWG WLAN agenda	SWG Chairman	Agreed in SWG
S1-030175	LS from WIG (forwarded from SA#18)	WIG	Noted in SWG
S1-030176	Discussion of the CR "Clarification of the charging entity WLAN in TS22.115"	Telia AB	Noted in SWG. CR in S1-030106
S1-030177	LS on priorities for the support of PS based	WLAN SWG	Revised to 264

	services		
S1-030184	CR to TS 22.115 - Clarification of the charging entity WLAN	Telia AB	Agreed in WLAN SWG.; Agreed to be sent to SA for approval
S1-030189	Response to S2 on WLAN Network Selection	SA1	Agreed in WLAN SWG. Revised to 265
S1-030214	Prioritisation of work within SA2 WLAN	SA2	Withdrawn
S1-030215	Simultaneous connection to 3GPP systems and I-WLANs	WLAN SWG	Agreed in WLAN SWG.; Agreed to be sent to SA for approval
S1-030216	Reponse to Prioritisation of work within SA2 WLAN	WLAN SWG	Not used
S1-030264	LS on priorities for the support of PS based services	WLAN SWG	Agreed to be sent
S1-030265	Response to S2 on WLAN Network Selection	SA1	Agreed to be sent

The Report of SWG WLAN was provided in document S1-030171. It was approved. A summary slide was provided in document S1-030172 which was noted. The status of the documents handled in the meeting is as per the table above.

The summary was:

Items Reviewed
- 2 LSs from SA2 and 2 associated input papers regarding priority of PS services, and priority and characteristics of network selection, for release 6
- 1 LS to SA from WLAN Interworking Group (WIG)
- 1 CR to TS 22.115 and input paper on Clarification of the charging entity WLAN
- 1 CR to TS 22.101 – Simultaneous connection to 3GPP and I-WLAN
- Open Issues list

Output Draft Documents
- CR to TS 22.115 (S1-030184) - Clarification of the charging entity WLAN
- CR to TS 22.101 (S1-030215) - Simultaneous Connection to I-WLANs and the 3GPP systems
- LS to SA2 (S1-030177) - Response on priorities for PS services for release 6
- LS to SA2 (S1-030189) – Response on priority and criteria for 3GPP and I-WLAN network selection for release 6

Open Items

- Requirements for access to 3GPP via WLAN without SIM/USIM
- Requirements for charging to support the termination, interruption, and modification of the service and determine the need to support IST
- Review the list of PS based services and remove those that are now considered not to be relevant

Conclusion
- Request Plenary approval of 2 Draft CR's (S1-030184 and S1-030215)
- Request Plenary approval of 2 Draft LS's (S1-030177 and S1-030189)

The chairman of the SWG thanked Frederic Paint of Telenor for leading the WLAN SWG from it's inception. He also thanked Liz Daniel for her help as secretary.

Document S1-030177 contained the LS to SA2 with a response on priorities for PS services for release 6. SA1 is asking that SA2 considers the prioritisation in the liaison statement when planning their work. It was revised to S1-030264. It was approved to be sent out.

Document S1-030189 a LS to SA2 with a response on priority and criteria for 3GPP and I-WLAN network selection for release 6. It was revised on line to S1-030265. It was approved to be sent.

Document S1-030184 contained a CR to TS 22.115 on Clarification of the charging entity WLAN. It was agreed to be sent to SA for approval as CR 008.

Document S1-030215 contained a CR to TS 22.101 on Simultaneous Connection to I-WLANs and the 3GPP systems. It was agreed to be sent to SA for approval as CR 114.

10.10 Joint SA1/T2 meeting

Document Number	Title	Source	Result
S1-030069	Synthetic Video Applications	IAEI (rep by Vimatix)	Noted for information
S1-030122	Proposal for Incorporating a Subset of SVG-Tiny into the MMS Specification	RIM	Noted for information
S1-030130	Presentation on MMS activities in 3GPP2	Openwave	Noted for information
S1-030131	Examples of Plazmic Media Engine	RIM	Noted for information
S1-030132	Agenda for the Joint SA1 - T2 meeting	Meeting Chairman	Revised to 153
S1-030153	Agenda for the Joint SA1 - T2 meeting	Meeting Chairman	Approved
S1-030173	Report of Joint SA1/T2 Meeting	SWG Chairman	Withdrawn

The Report of the Joint SA1/T2 meeting was provided in document S1-030199. It was approved. The status of the documents handled in the meeting is as per the table above.

Document S1-030122 contained a proposal for Incorporating a Subset of SVG-Tiny into the MMS Specification. It is an input document also to SA4. 3GPP is being asked to consider simplifying or sub-setting the current SVG Tiny specification.

The SVG Tiny subset should be perceived as a stepping-stone into rich graphics, not an end point. Over time, handsets will be capable of running more and more complicated graphics environments. Indeed, SVG Tiny— and maybe even the complete SVG specification—will eventually be capable of running on mobile handsets. However, it is important to adopt and promote technology that can work on today's technology so that we can maximize the probability of MMS becoming successful in the long term.

It should also be noted that SA1 believes that is technically feasible for SVG Tiny to be implemented on some mobile handsets and incorporated into MMS solutions *today*, and this should be encouraged. However, SVG Tiny is not a solution that will, in the short term, be deployed broadly alongside MMS.

It was asked if there was any IPR on this subject. The answer was the WCR are IPR free. The trasmission of the content has been optimized and there could be some IPR on this, but the proposal is to to consider simplifying or sub-setting the current SVG Tiny specification.

Another question was the constraints from the terminal for the existing SVG Tiny. There are some, but these are not insurmountable. All the content now implemented is less than 10K.

The chairman asked if there were any tasks for SA1 regarding this. The answer was that this is purely to make SA1 aware of this.

Document S1-030069 contained a presentation from Vimatix on Synthetic Video Applications. What was requested was for SA1 to support the technology and prepare to move forward as part of a standard media format.

It was commented that it is not appropriate to have a video type to accommodate this technology and then ask SA4 to define a codec when there was only one candidate.

Furthermore, the main issue of mobile technology is bandwidth (as well as battery-life). So there is a place for technologies such as synthetic video. The question is if the manufacturers will implement this technology? If not then a potential gap could open up in the standard.

It was asked if there is an avi, then what is required to convert this to VIM. The answer was that there needs to be a mapping of the specific elements of the avi which will take a small amount of time. It is not intended for the synthetic video to replace the avi, but rather to pick of the significant elements in order to provide some form of reduced video.

There was a statement that for the time being there is a round-robin for synthetic video where each of the groups SA1, SA4 and T2 are asking for the other group to make a decision. It was answered that this is not correct and all that is required is a new work item with the appropriate support. Leading on from this, it was further stated that SA1 has seen this presentation before and each time delegates were asked to bring forward their requirements on this; there have been none.

The chairman noted that there is no consensus, but that the way forward would be for a WI to be created with the appropriate support of companies. Without this, nothing more can be done.

Document S1-030130 contained a presentation on MMS activities in 3GPP2. It was noted.

11   Postponed Items

None.

12   Late Items

Document Number	Title	Source	Result
S1-030228	Issues on the SA1 specification set	MCC	On 22.094 option 2 was chosen, 22.928 and 22.976 were stopped. TR 22.941 was moved to Rel-6 and contributions are invited.
S1-030273	Correlation between service class and traffic class	Siemens	Agreed to be sent to SA for approval
S1-030274	Correlation between service class and traffic class	Siemens	Agreed to be sent to SA for approval

The late items were dealt with on the appropriate agenda items rather than being separated. There was one late item provided separately in document S1-030228. This document contained two issues that need resolution.

Follow-me

The problem is that both 02.94 R99 (GSM only) and 22.094 R99 (joint GSM and UMTS) coexist. The issue has been open since April 2001 as to whether this (Follow-me) should be a common service or should have separate service descriptions for GSM and UMTS. The last CR of any substance was in December 1999.

Options:
1   Scrap both 02.94 R99 and R99 22.094.
2   Scrap 02.94 R99 and continue with common service 22.094.
3   Keep 02.94 R99 and scrap common service 22.094.

This discussion has been held and then it was proposed to make this a common service 22 series TS. Therefore, option 2 was chosen.

Specifications not under change control

The specs listed below are all not-yet-under-change-control, even though they belong to frozen Releases. Some have remained unchanged for years.

SA1 has been asked to either stop them, move them to a higher Release or even to complete them.

S1	22.928	Rel-5	IP-based multimedia services examples			
S1	22.941	Rel-5	IP based multimedia framework; Stage 0	0	7	0
S1	22.976	Rel-5	Study on PS domain services and capabilities	2	0	0

TR 22.928 was merged with 22.228 and so this can be stopped. Also, 22.976 could be deleted as it was stopped by SA.

As for TR 22.941, it was decided to put this on hold some time ago as it did not make Rel-5. There could be some useful text and delegates could be asked to provide some text, but contributions are required. Therefore, 22.941 was moved to Rel-6.

Document S1-030273 contained a CR to 22.105 on Correlation between service class and traffic class. During the last SA1 meeting an LS from SA2 (S1-021997) was discussed asking if a statement about the correlation between service classes and traffic classes should be added to TS 22.105. In the discussion it was agreed to have such statement for Release 5 onwards to prevent any misunderstanding due to the same terminology used for the service classes and traffic classes. It was agreed to be sent to SA for approval as CR 040. Document S1-030274 contained the companion CR for Rel-6. It was agreed to be sent to SA for approval as CR 041.

13 Next Meetings

13.1 SA1 plenaries – future proposed dates

Document Number	Title	Source	Result
S1-030283	Schedule for Seoul meetings SA1 #20	Chairman	Approved.

The meeting schedule, was reviewed in the meeting and a proposal was provided in document S1-030283 and was approved by the meeting.

SA1#20	07 - 11 April 2003,	Seoul, Korea, hosted by Samsung
SA1#21	07 - 11 July 2003,	Sophia Antipolis, hosted by ETSI
SA1#22	27 - 31 October 2003,	Asia, hosted by NEC et.al.

13.1 SWGs

The following SWGs were agreed by SA1:

SA1 SWGs IMS	18 – 20 February 2003,	Turin, Italy, Hosted by TIM
SA1 SWGs Priority	6th March 2003	Conference call 10.00 EST USA
SA1 SWGs #21	12 - 16 May 2003,	San Diego,USA, North American Friends
SA1 SWGs #22	25 - 29 August 2003,	Sweden, hosted by Telia

14 Any Other Business

14.1 Election of Chairman (possible vote)

Document Number	Title	Source	Result
S1-022000	Call for elections	MCC	It was noted.

At the last meeting, the chairman announced that subject to the rules of 3GPP, his term as chairman will expire in February 2003. The chairman also announced that he had been elected as chairman of the OMA requirements group and that based on this, he would not be standing for elections for SA1. Therefore, delegates were asked to consider nominations for chairman of SA1 at this plenary meeting. A written call was provided in document S1-022000. It was noted.

The chairman indicated at the beginning of the meeting that the election for chairman as SA1 was open. He noted that one nomination had been received and he asked for any further nominations for the post.

As there were no other nominations for chairmanship, Michele Zarri was elected by acclamation as the next chairman of SA1. The outgoing chairman, and the meeting, congratulated him.

14.1   Election of Vice Chairmen

It was announced that Tommi Kokkola's term as vice chair is finishing at this meeting. Since he has had two terms in office, he is eligible to stand if unopposed. Therefore, delegates were asked to consider nominations subject to a election at the next meeting.

15   Approval of Outputs and Liaisons

Change Requests

Release	Spec_Number	Document Number	Title	To
Rel-6	21.950	S1-030238	CR on Entities of the mobile system	SP-19
Rel-6	21.950	S1-030239	CR on Entities of the mobile system	SP-19
Rel-6	22.011	S1-030236	Netshare CR to TS 22.011	SP-19
Rel-6	22.060	S1-030252	Delay Criteria	SP-19
Rel-6	22.060	S1-030251	Service Examples	SP-19
Rel-5	22.060	S1-030237	CR to 22.060 on SS SMS transfer over GPRS	SP-19
Rel-6	22.071	S1-030277	Applicability of barring capability to the Location Service	SP-19
Rel-5	22.078	S1-030071	Correction to CAMEL interworking with CLIR and COLR	SP-19
Rel-6	22.078	S1-030075	Corrections to re-introduction of enhancements of dialled services in CAMEL 4	SP-19
Rel-5	22.078	S1-030135	Removal of $(CAMEL4)$ markers	SP-19
Rel-6	22.078	S1-030136	Removal of $(CAMEL4)$ markers	SP-19
Rel-5	22.078	S1-030254	Removal of duplicate text in procedure describing 'subscribed dailled services'	SP-19
Rel-5	22.101	S1-030282	CR to 22.101 on SIM access to IMS (Rel-5)	SP-19
Rel-6	22.101	S1-030215	Simultaneous connection to 3GPP systems and I-WLANs	SP-19
Rel-6	22.101	S1-030269	Requirements for Network Sharing in Rel-6	SP-19
Rel-5	22.105	S1-030273	Correlation between service class and traffic class	SP-19
Rel-6	22.105	S1-030274	Correlation between service class and traffic class	SP-19
Rel-6	22.115	S1-030270	Requirements for Network Shairng in Rel-6	SP-19
Rel-6	22.115	S1-030184	CR to TS 22.115 - Clarification of the charging entity WLAN	SP-19
Rel-6	22.129	S1-030271	Netshare CR to TS 22.129 on Requirements for Network Sharing in Rel-6	SP-19
Rel-6	22.140	S1-030267	Update to 22.140 to clarify prioritisation	SP-19
Rel-6	22.141	S1-030066	Clarification of network status attribute description within Presence Service Stage 1	SP-19
Re-6	22.146	S1-030154	CR to 22.146 - MBMS Cell broadcast in shared network	SP-19
Rel-6	22.174	S1-030281	Push Service Independence	SP-19
Rel-6	22.174	S1-030250	Barring of Push Service	SP-19
Rel-6	22.174	S1-030117	CR to the PUSH Stage 1 TS on the Feature Interactions section	SP-19
Rel-6	22.174	S1-030059	Removal of MMS content	SP-19
Rel-6	22.174	S1-030063	Removal of 'Null' Interworking Chapter	SP-19
Rel-6	22.228	S1-030182	GUP for IMS subscription management	SP-19
Rel-6	22.233	S1-030245	PSS charging information	SP-19
Rel-6	22.242	S1-030248	DRM collaboration with OMA	SP-19
Rel-6	22.243	S1-030151	Correction of contradictory information (former: 'Removal of references')	SP-19
Rel-6	22.340	S1-030260	CR to 22.340 on required message formats for IMS messaging	SP-19
Rel-6	22.950	S1-030185	CR to TS 22.950 addressing progression of priority level when interworking with external networks	SP-19
Rel-6	22.951	S1-030203	Implementing Network Sharing Requirements in Rel-6	SP-19
Rel-6	22.951	S1-030235	CR to 22.951 (Network Sharing) Dynamic sharing of	SP-19

		inbound roaming subscribers in a shared network	

WIs

Document Number	Title	To
S1-030178	Updated OSA R6 WID	SP-19
S1-030262	ETS Work Item Description (Priority)	SP-19

Specs

Release	Document Number	Title	To
Rel-6	S1-030209	TS 22.240 V1.3.0 GUP stage 1	SP-19

Email of issues dealt with in meeting

Release	Document Number	Title	To
Rel-6	S1-030197	CR to 22.115 on roaming awareness for charging	Email Discussion
	S1-030198	Reply to LS on Roaming awareness to BARG	Email Discussion
	S1-030233	Contribution to the Feature Interaction TR	Email Discussion
Rel-6	S1-030266	CR to 22.140 on preferred delivery mechanism	Email Discussion
Rel-5	S1-030278	CR to 22.101 on SIM support Rel' 5	Email Discussion
	S1-030045	Introduction of the protective mechanism of the Registration, Erasure, Activation, Deactivation and Interrogation of the Target UE.	Email Discussion
Rel-6	S1-030046	The protective mechanism of the Registration, Erasure, Activation, Deactivation and Interrogation of the Target UE	Email Discussion

Email of issues NOT dealt with in meeting

Release	Doc No	Title	To

SWGs

Release	Spec No.	Document Number	Title	To

Approved Liaison statements

Document Number	Title	To	Copy	Sent
S1-030140	LS on Preservation of PDP Context	SA5	SA2	27/01/2003
S1-030212	Response to LS on T2 proposed changes to TS22.240 v1.0.0, Stage1 Service Requirements for GUP	T2		27/01/2003
S1-030218	Response LS on T2 proposal for GUP requirements- UE Data access and Backwards Compatibility	T2, SA2, SA3		27/01/2003
S1-030240	Reply LS on Indication of call termination as a result of IST operation	SA3, SA5		27/01/2003
S1-030241	LS on SS barring for SMS transfer over GPRS	CN, CN1, CN4	SA2	27/01/2003
S1-030246	LS on MBMS requirements	GERAN WG2, SA2		27/01/2003
S1-030258	UICC temperature Range proposal	SCP	T3, SA, GSMA SCaG	27/01/2003

S1-030264	LS on priorities for the support of PS based services	SA2		27/01/2003
S1-030265	Response to S2 on WLAN Network Selection	SA2		27/01/2003
S1-030268	Reply to LS on MM7 functionality enhancements requested by GSMA SERG	T2, GSMA SERG		27/01/2003
S1-030272	Third Form Factor work status and request for additional requirements	ETSI SCP	GSMA SCAG, T3, SA	27/01/2003
S1-030275	LS to OMA on "Generalised Privacy Capability"	OMA Requirements Group		27/01/2003
S1-030276	LS on Use of E164 numbers for emerging mobile systems	CN4	SA2, CN1, T3	27/01/2003

17   Closure of Meeting

The chairman thanked the host for such excellent arrangements and the psychedelic surroundings. He said a final farewell and wished all the delegates all the best in the future.

With this, he closed the meeting and drank apple-juice with the secretary.

ANNEX A – Table of documents

Document Number	Title	Source	Result
S1-030001	Agenda of SA1 meeting # 19	MCC	Approved as version D
S1-030002	Report of SA1 meeting #18	MCC	Approved without comment
S1-030003	Status of SA1 documents into SA #18	MCC	Noted, All actions dealt with.
S1-030004	LS on MBMS requirements	GERAN (WG2)	GERAN asks questions related to paging and Traffic classes/ QoS. Reply in 230
S1-030005	LS on Use of E164 numbers for emerging mobile systems	CN4	Reply in 137
S1-030006	LS on clarification of User Data Management requirements	CN5	Withdrawn, same as S1-022227.
S1-030007	LS on SS barring for SMS transfer over GPRS	CN	Reply in 138 (Joerg)
S1-030008	Reply on Reply on Requirement for standardizing a Transcoding interface	SA2	It was noted.
S1-030009	LS on management and regulatory requirements for Presence service	SA2	LS asking SA2/5 if group if there are any service specific management and administration related requirements and functions that are applicable specifically to Presence service. Proposed action; Noted
S1-030010	LS on priorities for the support of PS based services	SA2	Proposed reply in 76
S1-030011	Requirement to Allow Access to IMS by Means of SIM in 3G UEs	SA2	LS asking SA3 to identify authentication/security technical impact of Allowing IMS Access Using SIM in 3G Ues. Proposed action; Noted in SWG.
S1-030012	Final response to LS on 'Procedure for specifying UMTS QoS parameters per application'	SA4	LS asking RAN3 and CN3 questions relating to QoS. Proposed action; Noted
S1-030013	Liaison Statement on Additional Tags for MMS SMIL	SA4	Noted in SWG
S1-030014	LS on "Work Item Description PSS Rel-6"	SA4	LS from SA4 with draft WI for streaming. No action required. Proposed action; Noted
S1-030015	Liaison Statement on Entities of the mobile system	SA5	CR provided in document 139 (Michele)
S1-030016	Reply LS on 'New requirements about functionality to make subscription to different domains	SA5	Noted in SWG

	independent or linked based on operator decision'		
S1-030017	LS on Preservation of PDP Context	SA5	Reply in 140 (John Watson)
S1-030018	Reply LS on Indication of call termination as a result of IST operation	SA5	Reply in 141 (Liz Daniel)
S1-030019	LS - Identification of a Directory Number in MMS	T2	Noted in SWG
S1-030020	LS on MM7 functionality enhancements requested by GSMA SERG	T2	Revised to 196
S1-030021	Re: LS on OSA support for MMS	T2	Noted in SWG
S1-030022	LS on MMS parameter storage on the (U)SIM, and the Stage 1 Rel-4 specifications	T2	SA and SA1 are asked to provide clarification on MMS parameter storage; this is history and was noted.
S1-030023	LS on T2 proposal for GUP requirements- UE Data access and Backwards Compatibility	T2	Revised to 211
S1-030024	LS on T2 proposed changes to TS22.240 v1.0.0, Stage1 Service Requirements for GUP	T2	Revised to 212
S1-030025	ITU-T SG 11 and SSG Activities Concerning Priority Service	National Communications System	Noted in SWG
S1-030026	Contribution to TR22.800 IMS SWG Paris	Telia AB	Noted. Partially include in 22.800 v 0.2.0.
S1-030027	Contribution on Access Independence section in TR22.800	Telia AB	Noted. Partially include in 22.800 v 0.2.0.
S1-030028	Contribution to TR22.800 - 'Non-3GPP Access Scenario'	Telia AB	Noted. Partially include in 22.800 v 0.2.0.
S1-030029	Contribution to TR22.800 - 'multiple IMS scenario (part one)'	Telia AB	Noted. Partially include in 22.800 v 0.2.0.
S1-030030	Contribution to TR22.800 - 'multiple IMS scenario (part two)'	Telia AB	Noted. Partially include in 22.800 v 0.2.0.
S1-030031	Contribution to TR22.800 - ''Interoperability scenario'	Telia AB	Noted. Partially include in 22.800 v 0.2.0.
S1-030032	New scenario input to TR22.800	Telia AB	Withdrawn
S1-030033	Agenda for IMS SWG (only 22.800) at Paris	TB Chairman	Approved in SWG in Paris.
S1-030034	IMS Subscription and access scenarios	TB Chairman	Noted in SWG
S1-030035	Minutes of IMS SWG, Paris	TB Chairman	Approved by SA1
S1-030036	Agenda of IMS SWG	TB Chairman	Approved in SWG
S1-030037	New scenario input to TR22.800 – Stand Alone IMS Operator	Telia AB	Noted and Scenario agreed to be included in next version of TR
S1-030038	RESERVED for IMS SWG	TBD	Not allocated
S1-030039	RESERVED for IMS SWG	TBD	Not allocated
S1-030040	Agenda for the Priority SWG	Priority SWG Chairman	Agreed as modified.
S1-030041	Proposed Priority Service Guide - outline	Jim Garrahan	Agreed as modified. To be used as a baseline document for further contribution
S1-030042	Proposed Priority Service Guide - introduction	Jim Garrahan	Agreed as modified. To be incorporated

			into the baseline document.
S1-030043	Proposed Priority Service Guide - scope	Jim Garrahan	Agreed as modified. To be incorporated into the baseline document.
S1-030044	Contribution to TR 22.800 'traditional role scenario' and 'non 3gpp access scenario'	Telecom Italia	Noted. Partially include in 22.800 v 0.2.0.
S1-030045	Introduction of the protective mechanism of the Registration, Erasure, Activation, Deactivation and Interrogation of the Target UE.	Huawei	Noted for the moment and Huawei is asked to start an email discussion
S1-030046	The protective mechanism of the Registration, Erasure, Activation, Deactivation and Interrogation of the Target UE	Huawei	Noted for the moment and Huawei is asked to start an email discussion
S1-030047	Introduction of the method of codeword distribution and verification procedure focused on LCS server	Huawei	Noted, see CR in 048.
S1-030048	The method of codeword distribution and verification procedure focused on LCS server	Huawei	Revised to 146
S1-030049	TS22.250 :IMS group management should be utilized by MMS to economize network resource	Huawei	Noted in SWG
S1-030050	TS22.140 :IMS group management should be utilized by MMS to economize network resource	Huawei	Noted in SWG
S1-030051	Introduction of application IMS group management in MMS.	Huawei	Noted in SWG
S1-030052	Proposal for the update of GUP work item description	Nokia	Revised to 206
S1-030053	Replacement of DDF in GUP stage 1 specification	Nokia	Revised to 207
S1-030054	GUP Component Master Concept	Alcatel/Lucent	Revised to 213
S1-030055	Service Examples	Research in Motion	Revised to 251
S1-030056	Delay Criteria	Research in Motion	Revised to 252
S1-030057	Modification to 9.3	Research in Motion	Revised to 253
S1-030058	Proposed Liaison Statement on Network Selection principles in 3GPP system to WLAN Interworking	Lucent	Revised to 189
S1-030059	Removal of MMS content	Research in Motion	Agreed to be sent to SA for approval
S1-030060	Push Service Independence	Research in Motion	Revised to 249
S1-030061	Network Selection for WLAN Interworking - requirements allocation and phasing	Motorola	Noted in SWG. Issues included in LS to S1-030189
S1-030062	Barring of Push Service	Research in Motion	Revised to 250
S1-030063	Removal of 'Null' Interworking Chapter	Research in Motion	Agreed to be sent to SA for approval
S1-030064	Overview of Changes to 22.174	Research in Motion	Noted; explains preceeding CRs.
S1-030065	ETS Work Item Description (Priority)	SBC	Revised to 129
S1-030066	Clarification of network status attribute description within Presence Service Stage 1	NTT DoCoMo Inc.	Agreed to be sent to SA for approval
S1-030067	Alignment of terminology used within TR 22.800 'IMS Subscriber and access scenarios'	NTT DoCoMo Inc.	Noted and Scenario agreed to be included in next version of TR
S1-030068	Applicability of Operator Determined Barring to the Location Service	NTT DoCoMo Inc.	Revised to 148

S1-030069	Synthetic Video Applications	IAEI (rep by Vimatix)	Noted for information
S1-030070	PSS charging information	Huawei	Revised to 149
S1-030071	Correction to CAMEL interworking with CLIR and COLR	Ericsson	Agreed to be sent to SA for approval
S1-030072	Correction to forwarding of DTMF digits for CPH calls	Ericsson	The document was withdrawn
S1-030073	GUP Tidy-up	Siemens AG	Revised to 217
S1-030074	GUP-enabled data	Siemens AG	Revised to 226
S1-030075	Corrections to re-introduction of enhancements of dialled services in CAMEL 4	Lucent Technologies	Agreed to be sent to SA for approval
S1-030076	Proposed Response to LS S2-023646 (LS on priorities for the support of PS based services)	Lucent Technologies	Revised in 177
S1-030077	Removal of duplicate text in procedure describing 'subscribed dialled services'	Lucent Technologies	Revised to 254
S1-030078	Rel 99 and later Emergency calls in case on UE attached to data only network	Nokia	Results in ls in 150
S1-030079	Updated scenario on Multiple terminals to TR 22.800	Nokia	Noted and Scenario agreed to be included in next version of TR
S1-030080	CR to 22.101 Rel 5 on SIM support	Nokia	Revised to 256
S1-030081	Correction of contradictory information (former: 'Removal of references')	Nokia	Revised to 151
S1-030082	Contribution on service continuity from IMS to GSM	Alcatel	Noted; See CR in 83
S1-030083	CR on service continuity from IMS to GSM	Alcatel	Revised to 183
S1-030084	CR to 22.101 on SIM access to IMS (Rel-5)	T-Mobile	Revised to 180
S1-030085	CR to 22.101 on SIM access to IMS (Rel-6)	T-Mobile	Revised to 181
S1-030086	Contribution for TR 22.800 0.2.0 (chapter 8)	T-Mobile	Revised to 191
S1-030087	Agenda for the Network Sharing SWG #7	Chairman (T-Mobile)	Noted in SWG
S1-030088	Agenda for the MSG SWG #8	Chairman (T-Mobile)	Noted in SWG
S1-030089	CR to 22.951 (Network Sharing)	T-Mobile	Revised to 235
S1-030090	Agenda for SA1 OSA SWG Meeting #17	Fujitsu Laboratories of Europe	Noted in SWG
S1-030091	Updated OSA R6 WID	Fujitsu Laboratories of Europe	Revised to 178
S1-030092	New scenarios for TR 22.800 about subscription relationships	Telecom Italia	Noted and Scenario agreed to be included in next version of TR
S1-030093	Netshare CR to TS 22.101	Telia AB	Revised to 204
S1-030094	Netshare CR to TS 22.011	Telia AB	Revised to 236
S1-030095	Netshare CR to TS 22.129	Telia AB	Revised to 234
S1-030096	Netshare CR to TS 21.905	Telia AB	Withdrawn in SWG
S1-030097	Netshare CR to TS 22.115	Telia AB	Revised to 205
S1-030098	Netshare CR to TR 22.951	Telia AB	Revised to 202
S1-030099	Contributions to the Revision of TR 22.800 scenarios	Telecom Italia	Noted in SWG, not agreed
S1-030100	Proposed structure for section Summary of all scenarios of TR22 800	Telecom Italia	Noted and Scenario agreed to be included in next version of TR
S1-030101	Initial conclusions on TR 22.800	Telecom Italia	Noted in SWG; to be revised for next meeting

S1-030102	- void -	SIEMENS	Not allocated
S1-030103	CR to 22.101 on SIM support Rel' 5	SIEMENS	Noted; more input required. Revised to 278
S1-030104	CR to 22.101 on SIM support Rel' 6	SIEMENS	Noted; more input required.
S1-030105	Some first input for a study on a "Generalised Privacy Capability"	SIEMENS	Noted; To be merged with the other documents (127, 128) for a dedicated session at the next meeting. LS in 261
S1-030106	CR to TS 22.115 - Clarification of the charging entity WLAN	Telia AB	Noted in SW; revised in S1-030184
S1-030107	CR to 22.146 - MBMS Cell broadcast in shared network	Telia AB	Revised to 126
S1-030108	CR to 22.078 Rel'6 Enhancement of Dialled Services regardless of the existing relationship	SIEMENS	Replaced by 118
S1-030109	- void -	SIEMENS	Not allocated
S1-030110	Contribution to the Feature Interaction TR	SIEMENS	Revised to 233
S1-030111	CAMEL support for pre-paid SCUDIF calls	Ericsson	Withdrawn
S1-030112	CR to TS 22.243	Ericsson	Not accepted, part of text included in 151
S1-030113	Distinguishing Priority Service users vs. eMLPP users	Nortel Networks	Noted in SWG. Use cases requested for clarification.
S1-030114	R6 Service Based Local Policy (SBLP): Background and Rationalle	Nortel Networks	Noted in SWG
S1-030115	R6 Service Based Local Policy : Possible Implementations	Nortel Networks	Withdrawn in SWG
S1-030116	R6 Service Based Local Policy : Analysis	Nortel Networks	Withdrawn in SWG
S1-030117	CR to the PUSH Stage 1 TS on the Feature Interactions section	AT&T Wireless Services	Agreed to be sent to SA for approval
S1-030118	CR to 22.078 Rel'6 'Enhancement of Dialled Services regardless of the existing relationship'	Siemens	Noted, as there was not sufficient support
S1-030119	UICC temperature Range proposal	Intel	Results in an LS in 144 (Andrew)
S1-030120	GUP for IMS subscription management	Nokia	Revised to 182
S1-030121	CR on 22.174 to clarifiy the definition of Push function	RIM	Noted; as this CR ould appears to be predicting what the architecture elements could be.
S1-030122	Proposal for Incorporating a Subset of SVG-Tiny into the MMS Specification	RIM	Noted for information
S1-030123	CR to 22.101: removal of network selection in WLANs	Lucent	Withdrawn
S1-030124	Additional Release 5 work needed for Policy Control and Subscription Control of Media	SA	Noted in SWG
S1-030125	Liaison statement to 3GPP SA1 on Roaming Awareness (reply to S1-022270)	GSMA BARG	Noted in SWG
S1-030126	CR to 22.146 - MBMS Cell broadcast in shared network	Telia AB	Revised to 154
S1-030127	Proposed outline for TR on Generalised Privacy Capability	Lucent	Noted; To be merged with the other documents (105, 128) for a dedicated session at the next meeting.
S1-030128	Proposed Introduction and Scope for TR on	Lucent	Noted; To be merged

	Generalised Privacy Capability			with the other documents (127, 105) for a dedicated session at the next meeting.
S1-030129	ETS Work Item Description (Priority)	SBC		Revised to 219
S1-030130	Presentation on MMS activities in 3GPP2	Openwave		Noted for information
S1-030131	Examples of Plazmic Media Engine	RIM		Noted for information
S1-030132	Agenda for the Joint SA1 - T2 meeting	Meeting Chairman		Revised to 153
S1-030133	Third Form Factor work status and request for additional requirements	EP SCP		Reply in 145 (Chris Sachno) and in 224
S1-030134	Incoming LS review	Vice Chairman		Noted
S1-030135	Removal of $(CAMEL4)$ markers	Lucent		Agreed to be sent to SA for approval
S1-030136	Removal of $(CAMEL4)$ markers	Lucent		Agreed to be sent to SA for approval
S1-030137	LS on Use of E164 numbers for emerging mobile systems	SA1		Revised to 242
S1-030138	LS on SS barring for SMS transfer over GPRS	SA1		Revised to 241
S1-030139	CR on Entities of the mobile system	SA1		Revised to 239
S1-030140	LS on Preservation of PDP Context	SA1		Agreed to be sent
S1-030141	Reply LS on Indication of call termination as a result of IST operation	SA1		Revised to 240
S1-030142	Information about the Liberty Alliance Project	SA #18		Noted; Nokia will do some analysis on implications on 3GPP and provide input at the next meeting.
S1-030143	Agenda for GUP SWG sessions	GUP Chairman		Agreed in SWG
S1-030144	UICC temperature Range proposal	Intel		Revised to 258
S1-030145	Third Form Factor work status and request for additional requirements	NTT DoCoMo		Not provided, see 259
S1-030146	The method of codeword distribution and verification procedure focused on LCS server	Huawei		Revised to 243
S1-030147	Unclear PUSH requirements	Nokia		Noted and it was asked if some companies to consider this and if any changes are requried.
S1-030148	Applicability of barring capability to the Location Service	NTT DoCoMo Inc.		Revised to 244
S1-030149	PSS charging information	Huawei		Revised to 245
S1-030150	Rel 99 and later Emergency calls in case on UE attached to data only network	Nokia		Revised to 247
S1-030151	Correction of contradictory information (former: 'Removal of references')	Nokia		Agreed to be sent to SA for approval
S1-030152	CR on Entities of the mobile system	SA1		Revised to 238
S1-030153	Agenda for the Joint SA1 - T2 meeting	Meeting Chairman		Approved
S1-030154	CR to 22.146 - MBMS Cell broadcast in shared network	Telia AB		Agreed to be sent to SA for approval
S1-030155	Report of Feature Interaction SWG	SWG Chairman		Not used
S1-030156	Presentation of Feature Interaction SWG	SWG Chairman		Not used
S1-030157	Report of GUP SWG	SWG Chairman		Approved
S1-030158	Presentation of GUP SWG	SWG Chairman		Noted

S1-030159	Report of IMS SWG	SWG Chairman	Approved
S1-030160	Presentation of IMS SWG	SWG Chairman	Noted
S1-030161	Report of Messaging SWG	SWG Chairman	Approved
S1-030162	Presentation of Messaging SWG	SWG Chairman	Noted
S1-030163	Report of NETSHAR SWG	SWG Chairman	Approved
S1-030164	Presentation of NETSHAR SWG	SWG Chairman	Noted
S1-030165	Report of OSA SWG	SWG Chairman	Approved
S1-030166	Presentation of OSA SWG	SWG Chairman	Noted
S1-030167	Report of Priority SWG	SWG Chairman	Approved
S1-030168	Presentation of Priority SWG	SWG Chairman	Noted
S1-030169	Report of QoS SWG	SWG Chairman	Approved
S1-030170	Presentation of QoS SWG	SWG Chairman	Noted
S1-030171	Report of WLAN SWG	SWG Chairman	Approved
S1-030172	Presentation of WLAN SWG	SWG Chairman	Noted
S1-030173	Report of Joint SA1/T2 Meeting	SWG Chairman	Withdrawn
S1-030174	SWG WLAN agenda	SWG Chairman	Agreed in SWG
S1-030175	LS from WIG (forwarded from SA#18)	WIG	Noted in SWG
S1-030176	Discussion of the CR "Clarification of the charging entity WLAN in TS22.115"	Telia AB	Noted in SWG. CR in S1-030106
S1-030177	LS on priorities for the support of PS based services	WLAN SWG	Revised to 264
S1-030178	Updated OSA R6 WID	Fujitsu Laboratories of Europe	Agreed to be sent to SA for approval
S1-030179	Reserved for OSA		Not used
S1-030180	CR to 22.101 on SIM access to IMS (Rel-5)	T-Mobile	Revised to 221
S1-030181	CR to 22.101 on SIM access to IMS (Rel-6)	T-Mobile	Revised to 222
S1-030182	GUP for IMS subscription management	Nokia	Agreed by the SWG. For submission to SA1 plenary for approval; Agreed to be sent to SA for approval
S1-030183	CR on service continuity from IMS to GSM	Alcatel	Revised to 220
S1-030184	CR to TS 22.115 - Clarification of the charging entity WLAN	Telia AB	Agreed in WLAN SWG.; Agreed to be sent to SA for approval
S1-030185	CR to TS 22.950 addressing progression of priority level when interworking with external networks	Priority SWG	Agreed to be sent to SA for approval
S1-030186	Reserved for Priority		Not allocated
S1-030187	Reserved for Priority		Not allocated
S1-030188	Codings for storing melodies in the USIM (Release 6)	T2	Noted; it was believed that SA4 will deal with this.

S1-030189	Response to S2 on WLAN Network Selection	SA1	Agreed in WLAN SWG. Revised to 265
S1-030190	TR 22.800 version 0.2.1	Rapporteur	Revised to 195
S1-030191	Contribution for TR 22.800 0.2.0 (chapter 8)	T-Mobile	Postponed to the next IMS SWG
S1-030192	Reserved for IMS		Not allocated
S1-030193	Reserved for IMS		Not allocated
S1-030194	Additional scenario	TIM	Noted and Scenario agreed to be included in next version of TR
S1-030195	TR 22.800 version 0.3.0	Rapporteur	Revised to 223
S1-030196	Reply to LS on MM7 functionality enhancements requested by GSMA SERG	SA1	Not seen in SWG Revised to 268
S1-030197	CR to 22.115 on roaming awareness for charging	T-Mobile	Not seen in SWG; postponed and perhaps have email discussion and approval.
S1-030198	Reply to LS on Roaming awareness to BARG		Not seen in SWG; withdrawn based on the decision on S1-030197. This may also be seen on email approval.
S1-030199	Report from the joint S1 T2 Meeting	Chairman (T-Mobile)	Approved
S1-030200	CR to 22.140 on preferred delivery mechanism	Orange, Telefonica, T-Mobile	See 255 Revised to 266
S1-030201	Netshare CR to TS 22.101	Telia AB	Revised to 204
S1-030202	Netshare CR to TR 22.951	Telia AB	Revised to 203
S1-030203	Implementing Network Sharing Requirements in Rel-6	Telia AB	Agreed in SWG; Agreed to be sent to SA for approval
S1-030204	Requirements for Network Sharing in Rel-6	Telia AB	Agreed in SWG Revised to 269
S1-030205	Requirements for Network Shairng in Rel-6	Telia AB	Agreed in SWG Revised to 270
S1-030206	Proposal for the update of GUP work item description	Nokia	Agreed in SWG; see new version of TS in 209
S1-030207	Replacement of DDF in GUP stage 1 specification	Nokia	Agreed in SWG; see new version of TS in 209
S1-030208	Cover sheet for GUP stage 1 presentation		Agreed in SWG; Agreed to be sent to SA for approval
S1-030209	TS 22.240 V1.3.0 GUP stage 1		Agreed in SWG; Agreed to be sent to SA for approval
S1-030210	LS to SA1 about GUP	SA2	Noted in SWG
S1-030211	Response LS on T2 proposal for GUP requirements- UE Data access and Backwards Compatibility	SA1	Revised to 218
S1-030212	Response to LS on T2 proposed changes to TS22.240 v1.0.0, Stage1 Service Requirements for GUP	SA1	Agreed in SWG; Agreed to be sent
S1-030213	GUP Component Master Concept	Alcatel/Lucent	Revised to 227
S1-030214	Prioritisation of work within SA2 WLAN	SA2	Withdrawn

S1-030215	Simultaneous connection to 3GPP systems and I-WLANs	WLAN SWG	Agreed in WLAN SWG.; Agreed to be sent to SA for approval
S1-030216	Reponse to Prioritisation of work within SA2 WLAN	WLAN SWG	Not used
S1-030217	GUP Tidy-up	Siemens AG	Agreed in SWG; Incorporated in revision of stage 1.
S1-030218	Response LS on T2 proposal for GUP requirements- UE Data access and Backwards Compatibility	SA1	Agreed in SWG; Agreed to be sent
S1-030219	ETS Work Item Description (Priority)	SBC	Revised to 262
S1-030220	CR on service continuity from IMS to GSM	Alcatel	Postponed until the next meeting
S1-030221	CR to 22.101 on SIM access to IMS (Rel-5)	T-Mobile	Revised to 279
S1-030222	CR to 22.101 on SIM access to IMS (Rel-6)	T-Mobile	Revised to 280
S1-030223	TR 22.800 version 0.4.0	Rapporteur	Noted as the basis for futher elaboration
S1-030224	Not Allocated		Not Allocated
S1-030225	Response to LS on Synthetic Video Media Type	SA1	Withdrawn
S1-030226	GUP-enabled data	Siemens AG	Revised to 229
S1-030227	GUP Component Master Concept	Alcatel/Lucent	Agreed in SWG; Incorporated in revision of stage 1.
S1-030228	Issues on the SA1 specification set	MCC	On 22.094 option 2 was chosen, 22.928 and 22.976 were stopped. TR 22.941 was moved to Rel-6 and contributions are invited.
S1-030229	GUP-enabled data	Siemens AG	Agreed in SWG; Incorporated in revision of stage 1.
S1-030230	LS on MBMS requirements	GERAN (WG2)	Revised to 246
S1-030231	CR to 22.060 on SS SMS transfer over GPRS	Siemens	Revised to 237
S1-030232	CR to 22.060 on SS SMS transfer over GPRS	Siemens	There is not Rel-6 and so this CR was withdrawn
S1-030233	Contribution to the Feature Interaction TR	SIEMENS	To be used as a basis for future contributions on email and/or the next meeting.
S1-030234	Netshare CR to TS 22.129 on Requirements for Network Sharing in Rel-6	Telia AB	Agreed in SWG Revised to 271
S1-030235	CR to 22.951 (Network Sharing) Dynamic sharing of inbound roaming subscribers in a shared network	T-Mobile	Agreed in SWG; Agreed to be sent to SA for approval
S1-030236	Netshare CR to TS 22.011	Telia AB	Agreed in SWG; Agreed to be sent to SA for approval
S1-030237	CR to 22.060 on SS SMS transfer over GPRS	Siemens	Agreed to be sent to SA for approval
S1-030238	CR on Entities of the mobile system	SA1	Agreed to be sent to SA for approval
S1-030239	CR on Entities of the mobile system	SA1	Agreed to be sent to SA for approval
S1-030240	Reply LS on Indication of call termination as a result of IST operation	SA1	Agreed to be sent

S1-030241	LS on SS barring for SMS transfer over GPRS	SA1	Agreed to be sent
S1-030242	LS on Use of E164 numbers for emerging mobile systems	SA1	Revised to 276
S1-030243	The method of codeword distribution and verification procedure focused on LCS server	Huawei	Withdrawn
S1-030244	Applicability of barring capability to the Location Service	NTT DoCoMo Inc.	Revised to 277
S1-030245	PSS charging information	Huawei	Agreed to be sent to SA for approval
S1-030246	LS on MBMS requirements	GERAN (WG2)	Agreed to be sent
S1-030247	Rel 99 and later Emergency calls in case on UE attached to data only network	Nokia	Agreed to be sent
S1-030248	DRM collaboration with OMA	Nokia	Agreed to be sent to SA for approval
S1-030249	Push Service Independence	Research in Motion	Revised to 281
S1-030250	Barring of Push Service	Research in Motion	Agreed to be sent to SA for approval; input contributions are requested to further elaborate text concerning the barring of the PUSH
S1-030251	Service Examples	Research in Motion	Agreed to be sent to SA for approval
S1-030252	Delay Criteria	Research in Motion	Agreed to be sent to SA for approval
S1-030253	Modification to 9.3	Research in Motion	Decided to bring this issue to the next meeting and so the document was withdrawn
S1-030254	Removal of duplicate text in procedure describing 'subscribed dailled services'	Lucent Technologies	Agreed to be sent to SA for approval
S1-030255	Roaming impacts on MMS delivery & charging	Ericsson	Revised to 266
S1-030256	CR to 22.101 Rel 5 on SIM support	Nokia	Agreed to be sent to SA for approval
S1-030257	CR to 22.101 Rel 5 on SIM support	Nokia	Agreed to be sent to SA for approval
S1-030258	UICC temperature Range proposal	Intel	Agreed to be sent
S1-030259	Third Form Factor work status and request for additional requirements	NTT DoCoMo	Revised to 272
S1-030260	CR to 22.340 on required message formats for IMS messaging	T-Mobile	Agreed to be sent to SA for approval
S1-030261	LS to OMA on "Generalised Privacy Capability"	SIEMENS	Revised to 275
S1-030262	ETS Work Item Description (Priority)	SBC	Agreed to be sent to SA for approval
S1-030263	Update to 22.140 to clarify prioritisation	Openwave	Revised to 267
S1-030264	LS on priorities for the support of PS based services	WLAN SWG	Agreed to be sent
S1-030265	Response to S2 on WLAN Network Selection	SA1	Agreed to be sent
S1-030266	CR to 22.140 on preferred delivery mechanism	Orange, Telefonica, T-Mobile	Decided to postpone this to an email discussion
S1-030267	Update to 22.140 to clarify prioritisation	Openwave	Agreed to be sent to SA for approval
S1-030268	Reply to LS on MM7 functionality enhancements requested by GSMA SERG	SA1	Agreed to be sent
S1-030269	Requirements for Network Sharing in Rel-6	Telia AB	Agreed to be sent to SA for approval
S1-030270	Requirements for Network Shairng in Rel-6	Telia AB	Agreed to be sent to

			SA for approval
S1-030271	Netshare CR to TS 22.129 on Requirements for Network Sharing in Rel-6	Telia AB	Agreed to be sent to SA for approval
S1-030272	Third Form Factor work status and request for additional requirements	NTT DoCoMo	Agreed to be sent
S1-030273	Correlation between service class and traffic class	Siemens	Agreed to be sent to SA for approval
S1-030274	Correlation between service class and traffic class	Siemens	Agreed to be sent to SA for approval
S1-030275	LS to OMA on "Generalised Privacy Capability"	SIEMENS	Agreed to be sent
S1-030276	LS on Use of E164 numbers for emerging mobile systems	SA1	Agreed to be sent
S1-030277	Applicability of barring capability to the Location Service	NTT DoCoMo Inc.	Agreed to be sent to SA for approval
S1-030278	CR to 22.101 on SIM support Rel' 5	SIEMENS	It was decided to resolve this on email discussion
S1-030279	CR to 22.101 on SIM access to IMS (Rel-5)	T-Mobile	Revised to 282
S1-030280	CR to 22.101 on SIM access to IMS (Rel-6)	T-Mobile	Noted, the use of the SIM in Rel-6 should be discussed in SA
S1-030281	Push Service Independence	Research in Motion	Agreed to be sent to SA for approval
S1-030282	CR to 22.101 on SIM access to IMS (Rel-5)	T-Mobile	Agreed to be sent to SA for approval
S1-030283	Schedule for Seoul meetings SA1 #20	Chairman	Approved.

ANNEX B – Participants list

Ms. Magdalena Akke	ERICSSON L.M.	3GPPMEMBER (ETSI)	+46 46 232 488	magdalena.akke@sonyericsson.com
Mr. Takashi Aramaki	Panasonic (MMCDE)	3GPPMEMBER (ETSI)	+81 468 40 5353	takashi.aramaki@yrp.mci.mei.co.jp
Mr. Atul Asthana	RIM	3GPPMEMBER (ETSI)	+015198887465x2866	aasthana@rim.net
Miss Vivien Bae	Samsung Electronics Co., Ltd	3GPPMEMBER (TTA)	+82-31-279-4623	vivien74@samsung.com
Mr. Hyo Chul Bang	Samsung Electronics Co., Ltd	3GPPMEMBER (TTA)	+82 31 279 4670	hcbang@samsung.com
Mr. Nigel Barnes	MOTOROLA Ltd	3GPPMEMBER (ETSI)	+44 1 256 790 169	Nigel.Barnes@motorola.com
Dr. Rainer Bauer	Vodafone D2 GmbH	3GPPMEMBER (ETSI)	+492115331543	Rainer.Bauer@vodafone.com
Mr. Craig Bishop	SAMSUNG Electronics	3GPPMEMBER (ETSI)	+44 1784 428 600	ckbishop@aol.com
Mr. Chema Bravo	TELEFONICA de España S.A.	3GPPMEMBER (ETSI)	+34 680019646	bravo_jm@tsm.es
Mr. Richard Brook	SAMSUNG Electronics	3GPPMEMBER (ETSI)	+44 1594 836646	richardbrook39@aol.com
Mr. Paul Carpenter	RIM	3GPPMEMBER (ETSI)	+44 7736 961131	pcarpenter@rim.net
Mr. Andrew Chow	Intel Sweden AB	3GPPMEMBER (ETSI)	+1 719 884 2335	andrew.chow@intel.com
Mr. Michael Clayton	Mobile Competence Centre		+33 4 92 94 42 28	michael.clayton@etsi.org
Dr. Elizabeth Daniel	Lucent Technologies N. S. UK	3GPPMEMBER (ETSI)	+44 1793 883412	lizdaniel@lucent.com
Mr. Max De Groot	GEMPLUS Card International	3GPPMEMBER (ETSI)	+33 4 42 36 50 36	max.de-groot@gemplus.com
Mr. Amar Deol	Nortel Networks	3GPPMEMBER (T1)	+1 972 685 4224	deola@nortelnetworks.com
Mr. Arnaud Druet	ORANGE FRANCE	3GPPMEMBER (ETSI)	+33 1 55 22 11 04	arnaud.druet@orangefrance.com
Mr. Christophe Dubois	SchlumbergerSema	3GPPMEMBER (ETSI)	+33 1 46 00 44 75	christophe.dubois@montrouge.sema.slb.com net
Mr. Olle Eriksson	ERICSSON L.M.	3GPPMEMBER (ETSI)	+46 8 757 0088	olle.eriksson@era.ericsson.se
Dr. Adrian Escott	3	3GPPMEMBER (ETSI)	+44 7866 600924	adrian.escott@three.co.uk
Miss Christelle Faure	FUJITSU Laboratories of Europe	3GPPMEMBER (ETSI)	+44 208 606 4806	c.faure@fle.fujitsu.com
Mr. Robert Frank	TeliaSonera AB	3GPPMEMBER (ETSI)	+46 8 713 81 15	robert.b.frank@telia.se
Mr. James Garrahan	Telcordia Technologies Inc.	3GPPMEMBER (T1)	+1 732 758 5227	jgarraha@TELCORDIA.COM
Mr. Michel Grech	Lucent Technologies N. S. UK	3GPPMEMBER (ETSI)	+44 2070040118	grech@lucent.com
Mr. Koichi Harada	NTT DoCoMo	3GPPMEMBER (ETSI)	+81 3 5156 1786	haradakou@nttdocomo.co.jp
Mr. Roland Hechwartner	T-Mobile AUSTRIA	3GPPMEMBER (ETSI)	+431795857890	roland.hechwartner@t-mobile.at
Mr. Kevin Holley	mmO2 plc	3GPPMEMBER (ETSI)	+44 1473 782214	kevin.holley@o2.com
Mr. Jan Ignatius	NOKIA Corporation	3GPPMEMBER (ETSI)	+358408209625	jan.ignatius@nokia.com
Mr. Barry Jones	EMC2	3GPPMEMBER (ETSI)	+44 7767335882	barry.jones@temc2.com
Mrs. Soo Jin Kim	SK Telecom	3GPPMEMBER (TTA)	+82-11-740-5632	soojin@sktelecom.com
Mr. Tommi Kokkola	NOKIA Corporation	3GPPMEMBER (ETSI)	+358 40 50 40 734	tommi.kokkola@nokia.com
Mr. Kennie Kwong	Cingular Wireless LLC	3GPPMEMBER (T1)	+1 404 236 6882	kennie.kwong@cingular.com
Mr. Juho Laatu	NOKIA Corporation	3GPPMEMBER (ETSI)	+358 40 5066 414	juho.laatu@nokia.com
Mr. Shahab Lavasani	TeliaSonera AB	3GPPMEMBER (ETSI)	+46 8 713 8192	shahab.a.lavasani@telia.se
Mr. Zhiming Li	HuaWei Technologies Co., Ltd	3GPPMEMBER (CWTS)	+86 13917806145	lizhiming@huawei.com
Miss Luisa Marchetto	AT&T Wireless Services, Inc.	3GPPMEMBER (T1)	+425.580.6840	luisa.marchetto@attws.com
Miss Maria Cristina Mascione	TELECOM ITALIA S.p.A.	3GPPMEMBER (ETSI)	+393357534906	mmascione@mail.tim.it
Mr. Michael Meyer	GIESECKE & DEVRIENT GmbH	3GPPMEMBER (ETSI)	+49 89 4119 1307	michael.meyer@de.gi-de.com
Mr. Sumio Miyagawa	SIEMENS AG	3GPPMEMBER (ETSI)	+43 51707 21381	sumio.miyagawa@siemens.com
Ms. Antonella Napolitano	TELECOM ITALIA S.p.A.	3GPPMEMBER (ETSI)	+39 335 6333336	annapolitano@mail.tim.it
Mr. Patrick Poiraud	ALCATEL S.A.	3GPPMEMBER (ETSI)	+33 1 30 77 34 64	patrick.poiraud@alcatel.fr

Mr. Milt Roselinsky	Openwave Systems (N.I.) Ltd	3GPPMEMBER (ETSI)	+1.805.884.6207	milt.roselinsky@openwave.com
Mr. Chris Sachno	NTT DoCoMo Inc.	3GPPMEMBER (ARIB)	+81 3 5156 1786	c.masyu@nttdocomo.co.jp
Mr. Bill Scales	Panasonic Mobile Comm.	3GPPMEMBER (ARIB)	+1 770 418 1005	scales@ts-group.com
Dr. Enrico Scarrone	TELECOM ITALIA S.p.A.	3GPPMEMBER (ETSI)	+39 335 6121214	ENRICO.SCARRONE@TILAB.COM
Dr. Gary Schlanger	AT&T Wireless Services, Inc.	3GPPMEMBER (T1)	+1-973-454-7230	gschlanger@comcast.net
Mr. Reinhard Schwanzer	T-Mobile AUSTRIA	3GPPMEMBER (ETSI)	+431795855219	reinhard.schwanzer@t-mobile.at
Mrs. Gamze Seckin	3	3GPPMEMBER (ETSI)	+1 650.390.9989	gamze@vidiator.com
Dr. Joerg Swetina	SIEMENS AG	3GPPMEMBER (ETSI)	+43 51707 21422	joerg.swetina@siemens.com
Mr. Seppo Tiainen	TeliaSonera AB	3GPPMEMBER (ETSI)	+358 2040 1	seppo.tiainen@sonera.com
Ms. Monica Tosetto	Vodafone Omnitel N.V	3GPPMEMBER (ETSI)	+39 0125 626 036	monica.tosetto@vodafoneomnitel.it
Ms. Jean Trakinat	National Communications System	3GPPMEMBER (ETSI)	+1-703-607-6113	trakinaj@ncs.gov
Mr. Arto Vaaraniemi	ALCATEL SEL AG	3GPPMEMBER (ETSI)	+49-71182141174	A.Vaaraniemi@alcatel.de
Mrs. Linda Werneman	ERICSSON L.M.	3GPPMEMBER (ETSI)	+46 46 23 16 46	linda.werneman@emp.ericsson.se
Mrs. Johanna Wild	MOTOROLA GmbH	3GPPMEMBER (ETSI)	+49 89 92103 177	johanna.wild@motorola.com
Dr. David Hugh Williams	QUALCOMM EUROPE S.A.R.L.	3GPPMEMBER (ETSI)	+33661268369	dwilliams@qualcomm.com
Mr. Randolph Wohlert	SBC Communications Inc.	3GPPMEMBER (T1)	+1 512 372 5838	rwohlert@tri.sbc.com
Mr. Mark Younge	T-Mobile USA Inc.	3GPPMEMBER (T1)	+ 1 760 918 1634	Mark.Younge@t-mobile.com
Mr. Michele Zarri	T-Mobile (UK)	3GPPMEMBER (ETSI)	+44 79 3200 2114	michele.zarri@t-mobile.co.uk

ANNEX C – Document Index