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Technical Specification Group Terminals
Technical Specification Group Core Network
Technical Specification Group Services and System Aspects
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Abstract of document:

Rules for handling 3GPP specifications.

This specification is a clarification of the rules concerning the production and maintenance of 3GPP specifications. It is based on the catch-all procedures document 21.900 (itself based on GSM 01.00), but is a cleaned up presentation of the procedures, in the light of 18 months' 3GPP operational experience. Approval of this specification implies removal of the source text from 21.900 and also of the annex dealing with work items from 21.101.

The deliverable type has been selected as "TS" rather than "TR" since it lays down what *shall be done* rather than simply stating that which *is*.

Outstanding Issues:

None.

Contentious Issues:

None.

3G TS 21.100 V1.0.0 (2000-06)

Technical Specification

3rd Generation Partnership Project; Technical Specification Group Services and System Aspects; 3G specification handling procedures (Release 2000)



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Keywords

GSM, UMTS, methodology

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Foreword

This Technical Specification has been produced by the 3rd Generation Partnership Project (3GPP).

The contents of the present document are subject to continuing work within the TSG and may change following formal TSG approval. Should the TSG modify the contents of the present document, it will be re-released by the TSG with an identifying change of release date and an increase in version number as follows:

Version x.y.z

where:

- x the first digit:
 - 1 presented to TSG for information;
 - 2 presented to TSG for approval;
 - 3 or greater indicates TSG approved document under change control.
- y the second digit is incremented for all changes of substance, i.e. technical enhancements, corrections, updates, etc.
- z the third digit is incremented when editorial only changes have been incorporated in the document.

1 Scope

The present document provides a methodology for the handling of Technical Specifications and Reports produced by the Technical Specification Groups (and their Working Groups) of the 3rd Generation Partnership Project. The procedures described are applicable to the TSGs, their WGs, individual delegates, and the Secretariat (provided by the ETSI Mobile Competence Centre).

These procedures are based on those originally devised by ETSI Technical Committee SMG [1] and their subsequent adaptation [2], revised to make them applicable to the 3GPP environment. Although primarily intended to relate to the production of 3rd Generation TSs and TRs, they are equally applicable to the GSM specifications inherited from ETSI TC SMG.

The present document does not cover the procedures relating to "electronic meetings".

These procedures supplement the respective working procedures of the collaborating Organizational Partners.

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies.
- Non-specific references to 3GPP documents should be interpreted as referring to the same Release as the present document, as indicated on the title page.

[1] GSM 01.00: "Working procedures for SMG".

[2] 3G TR 21.900: "3GPP working methods".

[3] 3G TR 21.905: "3G vocabulary".

[4] 3G TR 21.200: "Specification drafting rules".

3 Definitions and abbreviations

For the purposes of the present document, the following terms and those in 3G TR 21.905 [3] apply.

building block: sub-division of a feature, representing a coherent set of technical functionality which would generally be expected to reside in a single system element

committee: TSG, WG or a sub-body of a WG

feature: new or substantially enhanced functionality which represents added value to the existing system

3GPP Secretariat: support team comprised of ETSI Mobile Competence Centre (MCC) staff and contracted experts

specification: 3G Technical Specification or 3G Technical Report

work task: sub-division of a building block, representing a self-contained, well-scoped and well-scheduled item of work

4 Specifications

4.1 Numbering scheme

The specifications shall be numbered according to the following scheme:

3G TS aa.bbb (for Technical Specifications); or

3G TR aa.bbb (for Technical Reports).

The fields aa and bbb are selected according to the nature of the specification as given in tables 1 and 2. The provisions of table 1 shall be strictly enforced, but those of table 2 should be used for guidance: it is acceptable to deviate from these provisions for backwards compatibility or other reasons.

Table 1: Specification number ranges aa

Range	Use	Remarks
21.bbb	Requirements specifications	Often transient specifications containing requirements leading to other specifications; may become obsolete when technical solutions have been fully specified; they could then, e.g., be replaced by reports describing the performance of the system, they could be deleted without replacement, or be kept for historical reasons but treated as background material.
22.bbb	Service aspects	Services, service features, building blocks or platforms for services (a service feature or service building block may provide certain generic functionality for the composition of a service, including the control by the user; a platform may comprise one or more network elements, e.g. UIM, mobile terminal, auxiliary system to the core network etc.); also appropriate stage 1 specifications; also reports defining services which can be realized by generic building blocks etc.
23.bbb	Technical realization	Mainly stage 2 specifications (or specifications of a similar nature describing interworking over several interfaces, the behaviour in unexceptional cases, etc.).
24.bbb	Signalling protocols (UE to CN)	Detailed and bit-exact stage 3 specifications of protocols between MS/UE and the Core Network.
25.bbb	UTRA aspects	25.1bb: UTRAN radio performance 25.2bb: UTRA layer 1 25.3bb: UMTS layers 2 & 3 25.4bb: UTRAN Iub, Iur & Iu interfaces
26.bbb	Codecs	Speech and other codecs (video etc.).
27.bbb	Data	Functions necessary to support data applications.
28.bbb	(reserved)	
29.bbb	Core Network signalling protocols	Detailed and bit-exact stage 3 specifications of protocols within the Core Network.
30.bbb	Programme management	3 rd Generation Mobile System, project plans / project work programme and stand-alone documents for major work items.
31.bbb	UIM	User Identity Module (UIM) and the interfaces between UIM and other entities.
32.bbb	Operation and maintenance	Application of TMN for the 3GPP 3 rd Generation Mobile System and other functions for operation, administration and maintenance of a 3 rd Generation Mobile System network.
33.bbb	Security aspects	
34.bbb	Test specifications	
35.bbb	Algorithms	Specifications of encryption algorithms for confidentiality and authentication, etc.

Table 2: Specification number ranges bbb

Range	Use	Remarks
aa.0bb	Specifications applicable to both 2G (GSM) and 3G systems.	For most specifications in this range for a given Release, a GSM specification numbered [aa - 20].[bb] will have existed for earlier Releases. Example: 3G TS 28.032 replaces GSM 08.32 for Release 1999 onwards.
aa.1bb	Specification derived from earlier 2G (GSM) specification, but with technical modification.	For most specifications in this range for a given Release, a GSM specification numbered [aa - 20].[bbb - 100] will have existed for earlier Releases, and may continue to exist (in parallel) for the same Release. Example: 3G TS 28.133 will have been based on GSM 08.33, but both specifications exist for Release 1999 onwards.
aa.2bb to aa.7bb	New specifications.	Not, in general, derived from GSM predecessors. NOTE: See table 1 for specific allocation within 25.bbb series.
aa.8bb	Technical Reports not intended for publication.	Working documents of 3GPP committees not intended to be transposed into publications by the Partner Organizations.
aa.9bb	Technical Reports intended for publication.	As distinct from those of the aa.8bb series.

4.2 Version nomenclature

Each specification is associated with a "version number" in the form x.y.z which uniquely identifies the document. The significance of the three fields is defined in table 3.

Table 3: Version number fields

Field	Use	Remarks
x	major also referred to as "release"	0: draft 1: presented to TSG for information (specification estimated to be 60% stable) 2: presented to TSG for approval (specification estimated to be 80% stable) 3 or greater: approved by TSG and under change control; the value indicates the Release according to table 4.
y	technical	Incremented every time a technical change is introduced into the specification. Once under change control, such changes may only occur when the TSG approves one or more Change Requests. Reset to zero every time the "major" field is incremented.
z	editorial	Incremented every time a purely editorial change is introduced into the specification. Reset to zero every time the "technical" field is incremented or reset to zero.

Table 3 shows the estimated degree of stability to be used as a guideline for determining when to raise a specification to version 1.y.z and to 2.y.z. Such figures are obviously subjective, and the decision is ultimately at the discretion of the responsible committee.

4.3 Releases

Specifications are grouped into "Releases". A new Release is generally expected to be made annually, though Releases may in principle be made less frequently (or more frequently). A 3rd generation mobile system can be constructed based on the set of all specifications which comprise a given Release. A Release differs from the previous Release by having added functionality introduced as a result of ongoing standardization work within the committees.

Specifications pertaining to a given Release shall be distinguished by the first field of the version number ("x" in x.y.z) according to table 4. Table 4 also shows for comparison the equivalent significance of the GSM Releases.

For further details on Release control, see clause 7.

Table 4: Version numbers vs. Releases

version	GSM Phase/Release (2G)	UMTS Release (3G)
0.y.z		See table 3.
1.y.z		See table 3.
2.y.z		See table 3.
3.y.z	Phase 1	Release 1999
4.y.z	Phase 2	Release 2000
5.y.z	Phase 2+ Release 1996	etc.
6.y.z	Phase 2+ Release 1997	
7.y.z	Phase 2+ Release 1998	
8.y.z	Phase 2+ Release 1999	

5 Handling of specifications

5.1 Procedural overview

A new specification shall be created in a TSG or one of its WGs. Each specification shall be associated with a "prime responsible" committee (normally a WG, though possibly, in practice, a subgroup of a WG, or occasionally a TSG itself), which is responsible for the decision when to present it to the TSG for information (version 1.y.z) and, subsequently, for approval (version 2.y.z).

In addition, other committees with an interest in the specification may be deemed "secondary responsible" committees.

At creation, a rapporteur for the specification shall be nominated. The rapporteur - who should be an active delegate of the prime responsible committee - shall produce an initial draft, version 0.0.0, and present it to the committee.

The rules for drafting specifications, and the software tools to be used are listed in the drafting rules specification [4].

Further drafts may be produced, with appropriate increments in the "technical" / "editorial" fields of the version number. Every new draft with an incremented "technical" version field shall be presented to the responsible committee. Although two or more committees may have an interest in contributing to the development of a specification, ultimate responsibility vests in a single (responsible) committee. The responsible committee shall ensure that all other committees which might have an interest are given the opportunity to participate in the drafting.

As soon as title, scope and possibly the basic structure of the specification is stable, the Secretariat shall assign it a formal number according to the provisions of subclause 4.1. The Working Group responsible for the specification shall inform its parent TSG that such a new specification is under construction.

When a specification is sufficiently stable, it shall be presented as version 1.0.0 to the TSG for information. Further drafts bearing version numbers 1.y.z may be produced until the specification is sufficiently stable to be approved by the TSG. . At this stage, and until formal approval by the TSG, the specification is, unless it belongs directly to a TSG, under the control of the responsible Working Group. The modalities governing the introduction of changes shall be decided on a case by case basis by the WG concerned.

Once the responsible committee considers that the draft is sufficiently stable that it is desirable to place it under change control, the latest version 1.y.z shall be converted to version 2.0.0 and presented for the TSG for approval.

If the TSG does not approve the draft, further drafts version 2.y.z may be produced by the responsible committee.

If the TSG does approve the draft, the approved version (with no technical changes) shall be converted to version x.0.0 where "x" corresponds to the Release identity given in table 4.

NOTE: It is thus quite normal that a 3G specification approved for, say, Release 2000, jumps directly from version 2.0.0 to version 4.0.0; there is no Release 1999 document, therefore no version 3.y.z.

Once approved by the TSG, further technical changes may only be made using the change control procedures. See clause 6. Editorial changes may be introduced by the Secretariat without the change control procedure. However, such changes should be minimized, and effectively be limited to those essential for correct interpretation of the specification.

Once under change control, a specification may only be edited by (or under the explicit control of) the responsible person in the Secretariat (normally the Secretary of the responsible committee).

5.2 Transposition by Organizational Partners

Once a specification has been approved at TSG level and placed under change control, the Secretariat shall make the draft available on the 3GPP file server.

The Secretariat should also endeavour to make earlier drafts available on the server, even prior to approval, i.e. versions 0.y.z, 1.y.z and 2.y.z.

Such "availability" does not constitute formal "publication". Under the terms of the 3GPP partnership agreement, the Organizational Partners which are Standards Development Organizations will publish TSG-approved specifications in the form of their own standards. The modalities of such publication processes are specific to those individual Organizations and are beyond the scope of the present document.

6 Change control

6.1 Change Requests

Once a specification has been approved by the TSG and version x.0.0 (where $x \geq 3$, corresponding to the Release - see table 4) has been produced, it shall be considered to be "under change control". Any technical change which may be identified for inclusion in the specification from this point on shall be accomplished by means of a Change Request (CR). (See however subclause 6.3.)

A CR may be raised by any individual and brought to the attention of the responsible Working Group. If the change is agreed by the WG, the WG Secretary shall allocate a unique (for that specification) reference number to the CR, and shall cause its details to be entered into a CR database maintained by the Secretariat and made available on the 3GPP file server. CR numbers shall not be re-used, even if a CR is ultimately rejected by the TSG. The TSG Secretary shall collate all CRs approved by the WGs of that TSG and shall bring them to the TSG for approval. For specifications which are directly under the control of a TSG, the CR shall be allocated a number and brought directly to the attention of the TSG by the TSG Secretary.

Following approval at TSG level, the Secretariat person responsible for the specification shall edit the original specification to incorporate the changes of all Change Requests agreed by the TSG. The new version of the specification shall then be made available on the 3GPP file server.

A Change Request shall relate to a specific version of a specification. A CR may be revised by the responsible committee; thus care shall be taken that the latest revision of a CR is presented for approval and subsequently implemented.

The TSG should approve or reject a CR en bloc. That is, the argument of the CR should either be accepted without change, or unconditionally rejected. For ease of management, a single Change Request should therefore pertain to a single technical topic only. Each topic can thus be cleanly accepted or rejected by the TSG.

Where two or more CRs pertain to the same (version of a) specification, the responsible committee shall check for potential interaction amongst those CRs to ensure that, if all are approved by the TSG, each is implementable without contradicting any other.

The TSG Secretary shall record the TSG's decisions (see table 5) on each CR in the meeting report.

The Change Request form, with embedded instructions for use, is available from the 3GPP file server (<http://www.3gpp.org/ftp/Information/>).

The CR database is available from the 3GPP file server (http://www.3gpp.org/ftp/Information/Databases/Change_Request/).

6.2 Consistency amongst specifications

If the contents of a CR is such that, in isolation, it makes the whole set of approved specifications inconsistent, corresponding CRs to other specifications shall also be considered and produced. This should preferably be carried out by the originator of the CR (and colleagues in other committees) in advance of submission to the TSG.

In principle, a CR shall not be forwarded to the TSG unless the potential impact on other specifications has been thoroughly examined and concluded, either resulting in a "no impact" statement or in a full and consistent set of corresponding CRs to all affected specifications. Such sets of CRs should be combined in one single document by the Secretariat, before submission to all responsible TSGs. Approval by all responsible TSGs is necessary.

If some of the corresponding CRs are to be considered by other committees then the Secretariat shall monitor the results in those committees and shall submit the full set, when available, to the TSGs.

Other "consequential" CRs, needed for reasons other than direct consistency, may be drafted, presented and agreed independently. This covers typically additions to Test specifications and Operations and Maintenance specifications. If a CR causes an inconsistency with an existing, approved test or O&M specification, the corresponding CRs should be presented together with the core specification CR.

TSGs shall examine CRs presented to them and shall give a clear decision on each one. The decision shall take the form of a choice amongst those offered in table 5.

Table 5: TSG decision possibilities on CRs

Verdict	Meaning
Approved	Contents to be incorporated in the specification.
Postponed	Concept seems acceptable in principle but further refinements necessary. CR returned to the responsible committee for revision and possible re-submission at a later TSG meeting.
Rejected	CR not acceptable. Further discussions on the subject, if any, to take place within the responsible committee.

6.3 Other changes to specifications

If it is discovered that a Change Request has been incorrectly introduced into a specification, then the Secretariat, in agreement with the rapporteur and the responsible committee, shall correct the error and shall produce a new version of the specification. If the change has a technical impact on the provisions of the specification, the new issue shall bear a version number with the "technical" field (second digit) incremented.

The Secretariat may also update a specification to correct purely editorial deficiencies brought to its attention. In this case, only the "editorial" field (third digit) of the version number shall be incremented. Such changes should be avoided if possible: normally, they should be held over for inclusion next time a technical change is made to the specification.

All such changes shall be clearly explained in the "change history" of the specification.

6.4 "Freezing" of specifications

A TSG may decide that a specification shall no longer be maintained. That is, no further Change Requests shall be considered. The specification remains available, but no further Change Requests should be produced, even corrective ones to align with the equivalent specification of a subsequent Release.

The action of "freezing" a specification will normally only be taken when the specifications is obsolescent or obsolete, and (usually) pertaining to an old Release.

6.5 "Withdrawing" of specifications

A TSG may decide to withdraw a specification which is obsolete if its remaining available would confuse implementors (for example, if it contained provisions which were contradictory to provisions of other, later, specifications).

Before withdrawing a specification, the TSG shall ensure that no references are made to it from any other 3GPP specification (and raise appropriate Change Requests to eliminate any such references discovered).

7 Release control

7.1 Creation of a new Release version of a specification

The concept of Releases was introduced in subclause 4.3. A given specification may simultaneously exist in several versions, each corresponding to a different Release.

In principle, a Release of the 3G specification can be identified as consisting of all those specifications with a "major" version field of a given value.

7.1.1 With no technical changes compared to the previous Release

A given Release consists of a set of specifications having a common "major" version field; therefore, for the set of specifications to be complete, a new specification needs to be produced even if its provisions are identical with those of the previous Release's version. The creation of such a specification shall be delayed until the latest possible moment - that is, until the TSG is on the point of declaring a given Release to be complete, having determined that no technical changes are needed in the specification compared with the previous Release.

NOTE: This will normally take place at the last meeting of the TSG in the calendar year to which the Release relates.

The creation of the new version under these circumstances shall be via the responsible committee's raising a Change Request to create a new (technically identical) version of the specification relating to the new Release. Such CRs shall be explicitly approved by the relevant TSG in the usual way.

This implies that all committees need to conduct a rigorous review of all specifications for which they are responsible to determine which are to be propagated to the next Release and which are not.

7.1.2 When introducing technical changes

A new version of a specification, corresponding to a new Release, shall be prepared when a technical change needs to be introduced to satisfy a requirement of a feature of that new Release. This shall be accomplished by the raising of a Change Request (see clause 6.1) in the usual way, with the version number of the resulting specification indicating the new Release.

7.1.3 Version number convention

To make it possible to distinguish between the two cases above, the following convention is recommended to be followed for producing the first version of a specification pertaining to a particular Release:

- If the new version was derived from the equivalent specification of the previous Release with no technical changes, the new version shall bear a "technical" field of *zero*.
- If the new version includes technical changes compared with its predecessor in the previous Release, the new version shall bear a "technical" field of *one*.

The distinction between these two circumstances is illustrated by the examples below.

EXAMPLE 1: The TSG decides that specification 21.789 is to be included in Release 2000. No technical differences are required. The TSG or its responsible WG raises a CR. The Secretariat takes the latest Release 1999 version of the specification (say 3.4.0), edits the cover page to show Release 2000, adds a line to the Change History annex to show its creation from version 3.4.0 with no technical changes, and issues it as 21.789 version 4.0.0.

EXAMPLE 2: In order to satisfy the requirements of a new feature being introduced into Release 2000, it is necessary to make technical changes to specification 29.678. A Change Request is raised to the latest Release 1999 version of the specification (say 3.6.0) to incorporate the required provisions. The CR is approved by the TSG; and the Secretariat edits the document to include the technical changes, modify the cover page, add an entry to the Change History annex; and issues specification 29.678 version 4.1.0.

Specifications which are not propagated from Release N-1 to Release N in one of the above two methods shall be deemed not to form part of Release N. Under these circumstances, the responsible committee shall undertake a review of all other specifications of Release N to eliminate references to the specification concerned.

7.2 Mirror Change Requests

When a committee produces a Change Request relating to a specific version of a specification, it shall check whether the change also needs to be made to the still-current versions of the specification pertaining to other Releases. Changes which are corrective or clarificative in nature will generally be applicable to such other versions, except where they relate to functionality newly introduced into the latest Release.

Where it is determined that other Releases are also affected, a Change Request shall be created for *each such affected version* of the specification. Such CRs are termed "mirror Change Requests".

The TSG shall approve (or reject) a CR to the latest Release together with the corresponding mirror CRs to previous Releases. This will provide consistency between Releases.

8 File naming conventions

Specifications shall be maintained in the form of computer-based files. The file name shall be of the form

aabb-xyz.eee

where:

aa and bbb have the same significance as in the specification number (see tables 1 and 2);

x, y and z have the same significance as in the version number (see table 6);

eee is the de facto standard filename extension corresponding to the software tool used to create the file (normally "doc" for Microsoft Word ®).

For multipart standards, the filename shall be extended to

aabb-n-xyz.eee

Where:

n is the part number (see table 6).

To save storage space and to speed up uploading and downloading, source files shall be saved compressed in industry standard "Zip" ® format. The filename of the zipped file shall be the same as that of the contained source file, and it shall bear the file extension ".zip".

If a specification consists of multiple source files - for example, when a very long document is divided into several smaller files for ease of editing and manipulation - , each file should be named with the above convention, but appending a file identifier in the form:

aabb-xyz(m).eee

where:

m is the file number using characters from table 6.

Where a specification has accompanying files - e.g. ASN.1 coding, C programming language code, TTCN test sequences, etc. - it may not be convenient or possible to abide by the last-mentioned rule. Under these circumstances,

the associated files shall be contained in a separate zip file, which shall itself abide by the multiple-source-file rule. A "readme" text file should be included in that zip file to explain the nature of each other file.

EXAMPLE 1: 29341-420.zip is the compressed file of specification 29.341 version 4.2.0.

EXAMPLE 2: 31811-m-6g2.doc is the source file of specification 31.811 part 22 version 6.16.2.

EXAMPLE 3: 22354-480(1).doc and 22354-480(2).doc are the two files which make up specification 22.354 version 4.8.0 (and which will both be compressed into file 22354-480.zip).

EXAMPLE 4: 34101-300(1).doc and 34101-300(2).zip are the source text file and the compressed set of TTCN files respectively which together comprise 34.101 version 3.0.0.

Table 6: Characters used in filenames to represent numeric values

Value	Character	Remarks
0	0	Only for use in version number fields. Part numbers and file numbers start at 1.
1	1	
2	2	
3	3	
4	4	
5	5	
6	6	
7	7	
8	8	
9	9	
10	a	
11	b	
12	c	
13	d	
14	e	
15	f	
16	g	
17	h	
18	i	
19	j	
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	Higher values for further study if necessary.

9 File server

The Secretariat shall make all approved versions of all specifications available as soon as possible after their approval (or after approval of CRs thereto) on a file server. The server shall allow anonymous access by any interested party.

The directory structure shall differentiate amongst approved and draft specifications, amongst versions of specifications approved at specific TSG meetings, amongst versions of specifications pertaining to different Releases, and between specifications relating to 2nd generation (GSM) only and 3rd generation (UMTS) systems.

A clear and unambiguous directory structure shall be adopted, and a guide to that structure provided on the server. A "status list" shall also be provided, showing the latest version of each Release of each specification.

10 Work item management

NOTE 1: Subclauses 10.1 and 10.2 are based on TDoc SP-000109.

NOTE 2: Subclause 10.3 originally appeared as clause 6 of 3G TR 21.900. The revisions shown indicate changes to that original text.

NOTE 3: Subclause 10.4 originally appeared as annex A of 3G TS 21.101. The revisions shown indicate changes to that original text.

10.1 Introduction: why manage a project?

In any complex engineering venture, it is necessary to plan the project, to monitor its progress, and to be able to determine whether it is being completed on schedule and within budget. In many ways, the concepts and constraints which apply to an engineering project can also be applied to system standardization activity.

10.2 How to manage a project?

Any project needs to have its goals defined. It is then possible to analyse the steps needed to achieve each goal, starting from the status quo.

This analysis will naturally lead to defining the new *features* which it is wished to add to the existing system.

Feature:

New, or substantially enhanced functionality which represents added value to the existing system.

A feature should be more or less self-contained - that is, each feature can be viewed as an optional extra, which can be added or not as a function of market demand. Network operators and equipment manufacturers can decide using *commercial* considerations whether or not to implement a feature. The description of a feature need not be technically precise, but should represent a concept which can be understood at a "service" level. It should answer the question: what do I get for my money? **A feature should normally embody an improved service to the customer and / or increased revenue generation potential to the supplier.**

This being the case, most features would be the responsibility of TSG-SA WG1. The ensemble of the features of a particular release of the system represents the difference between that release and the previous release.

A feature can be considered as a high-level goal for project management purposes. But most features will be quite complex, and will need to be broken down into simpler elements or building blocks for the purpose of specifying precise functionality.

Building block:

A sub-division of a feature, representing a coherent set of technical functionality which would generally be expected to reside in a single system element.

A building block shall be defined in technical terms, and its description will require an understanding of the architecture of the overall system. A building block should generally be restricted to a single physical or logical entity or a single protocol such as "terminal" or "call control". **Building blocks may be "re-usable" - that is, a single building block may be common to two or more features.** This implies a generic or object-oriented approach. A building block should normally be the responsibility of a single TSG.

In the case of very simple features, a single building block may suffice, in which case the feature and its building block are synonymous.

To implement a building block it will generally be necessary further to subdivide the functionality into smaller tasks, each representing a closely specified and easily comprehended activity. Such work tasks may not only be divided by technical content, but potentially by phase. So, for example, it is necessary fully to define service aspects (one or more

work tasks) before considering functional information flows (one or more work tasks) which in turn will be followed by detailed protocol specification (one or more work tasks).

Work task:

A sub-division of a building block, representing a self-contained, well-scoped and well-scheduled item of work.

It is at this lowest hierarchical level of breakdown that estimations of work content and thus time scales can be calculated. From the estimated schedules of all work tasks which comprise a building block, and from their inter-dependences, can be derived the overall schedule for the "parent" building block. From the schedules of all component building blocks, the time-to-completion of the parent feature can be estimated. **A work task will almost certainly be the responsibility of a single Working Group.**

The output of a work task shall be:

- One or more new Technical Specifications (or Reports); and / or
- Change Requests to existing TSs / TRs.

Features, building blocks and work tasks are the three specific types of "work item".

In the case of very simple building blocks, a single work task may suffice, in which case the building block and its work task are synonymous.

Work item:

A generic term used to encompass feature, building block and work task.

All work items, whatever their class (feature, building block or work task) require

- A precise definition of content ("scope");
- An estimated schedule, with milestones to track progress if possible; (in the case of building blocks and features, the schedule can be derived from those of the component work tasks);
- A named person to act as rapporteur (in effect, the manager of the work item);
- At least four Member Organizations supporting the work item and willing to offer active participation in its realization.

10.3 Work items

For project management purposes, the work ~~is shall be~~ itemised into ~~w~~work ~~i~~tems (~~WI~~), which are documented, developed and handled as described in this ~~section~~subclause.

The possible modifications of the specifications are basically of different natures:

- Error corrections; ~~m~~Modifications which correct overlooked errors or inconsistencies in the specifications.
- Enhancements; ~~m~~Modifications that enhance the system, e.g. by new services or features, or by improving performance or decreasing costs.

Modifications of the correction category are ongoing maintenance tasks and are handled with direct CRs and thus not by means of ~~w~~Work ~~i~~tems.

Modifications of the enhancement category are handled within the concept of ~~w~~Work ~~i~~tems ~~as described in the sections below. Note that prior agreement of the TSG is needed before any substantial work is launched.~~

10.3.1 Creation of a ~~w~~Work ~~i~~tem

When an enhancement of the standard is considered desirable a delegate or delegation ~~can may~~ make a proposal by submitting a ~~w~~Work ~~i~~tem ~~d~~Description sheet to the relevant TSG or TSG WG.

- For new services, features or functions, the TSG responsible for Services and System Aspects is the relevant TSG. This TSG shall also assign prime and, if necessary, secondary responsible TSGs for the corresponding work items.
- For pure performance enhancements, other TSG WGs may be ~~the~~ responsible TSGs (the test specifications are normally not seen as independent work items).

The relevant TSG WG should study and refine the WI work item description sheet before passing it on to the TSG for adoption.

No substantial work shall commence in a TSG WG prior to a decision of the responsible TSG.

The actual WI work item description sheets to be used and guidance on how to apply them ~~are shall be distributed made available~~ by the Support Team 3GPP Secretariat. ~~The access to them is described in an annex of each TSG plenary report.~~

The TSG shall not approve a WI work item unless the wWork iItem dDescription (WID) sheet has been properly filled in to the degree possible ~~at that time~~.

~~Once the TSG has approved the WI, it is included in the WI Status List and the WI Description sheet is included in the WID compilation. Both these actions are carried out by the Support Team. The WID should be updated as soon as new information is available.~~

The Secretariat shall maintain a database of work items, and make it available on the 3GPP file server.

~~The effects of the WI in terms of initial work distribution and responsibilities in the TSG (WG)s must be identified and allocated. Also, one or more rapporteurs have to be identified for the initial tasks, typically one for the service aspects and one for the system requirements. This should preferably be done prior to submission to the TSG, but in the worst case during the following TSG (WG) meetings. This information is also included in the WI Status List managed by the Support Team. During the lifetime of the WI, additional responsibilities as well as output documents and corresponding rapporteurs can be identified. Similarly, this information is then included in the status list.~~

A work item normally implies the creation of new specification and Change Requests to existing specifications.

10.3.2 Type of wWork iItems

Modifications of the standard could in principle be of two different types:

- New services/features/functions that in general affects several specifications ~~and several TSG SGs~~;
- Pure (technical) enhancements that affects one or a small number of specifications ~~and TSG SGs only (generally only one)~~.

~~Of these, m~~ Modifications of the latter type can may be submitted to the TSG SG(s) and then TSG directly as a Change Request without prior presentation/agreement of a WI work item dDescription sheet. Such CRs shall instead refer to the pseudo wWork iItem "Technical Enhancements". For the other type of modifications, the following sections provisions of subclause 10.3.3 apply.

10.3.3 Start and continuation of the work and responsibilities

An early task when elaborating a work item; is to identify the tasks related to the WI work item, and to allocate ~~those them~~ to the TSGs and TSG SGs WGs.

In most cases the tasks from a WI work item can be split immediately into the following areas:

- Service requirements
- System/Architectural requirements and implications
- Protocol specifications

Service requirements:

The responsibility of the service requirements can usually be allocated immediately at the creation/adoption of the WI work item. Occasionally another groups committee may be given responsibility for the service requirements. ~~This~~

~~might be another TSG SG, e.g. a Task Force.~~ In any case, however, it should be a single group committee and ~~one~~ that reports directly to the TSG.

System/Architectural requirements and implications:

~~Also~~In addition, the responsibility for system/architectural requirements should be allocated immediately, even though the implications and requirements normally will be seen only after the study on service/system requirements have been initiated. The responsibility for the system/architectural requirements ~~must~~shall be given to a single body to guarantee the consistency of the adopted solution.

The choice of group committee should not ~~pre-~~determine the technical choices and in many cases, the responsibility for system and architectural requirement study needs a widening of the competency and a readiness to look ~~at~~at a variety of technical aspects. This can be obtained either by drawing the attraction of the suitable experts (e.g., by setting special meetings or clear meeting dates) or by the organisation of joint meetings.

TSG SA shall maintain t~~The overall consistency of the system architecture must be maintained along with~~despite the numerous modifications due to various work items. ~~This responsibility is allocated to TSG SA, which for this purpose shall ensures~~ the co-ordination of the development of general architecture concepts and their applications to individual wWork items, and should thus also draw attention and expertise from other TSGs ~~and TSG WGs as well.~~

Protocol specifications:

The responsibility for the elaboration of the protocol specifications can~~not~~not, in most cases, ~~not~~ be allocated at the early stages since it depends on the technical implementation choices and hence on the results of the study of the service/system requirements as well as on the architectural conclusions.

The identification of new protocols to be specified and/or existing protocols to be enhanced ~~will~~shall be derived from the system/architectural requirements. In general, modifications of existing protocols ~~are~~shall be done by the TSG Wg committee responsible for in charge of the protocol in question, whilst the responsibility for development of new protocols ~~shall be~~is allocated by the TSG based on proposals from the TSG WG on system/architecture. Then, whether the actual work is done in the TSG WG itself or in an ad hoc subgroup thereof is at the discretion of that TSG WG.

10.3.4 Realizsation of wWork items

10.3.4.1 Planning and categorizsation of the deliverables (and control thereof)

Planning:

An initial time plan should be set up at an early point. As a basis, the time plan should include at least the following points:

1. Presentation for principle agreement of the service requirements;
2. Presentation for principle agreement of the architectural/system implications and requirements;
3. Presentation for information of the drafts of all needed deliverables,
4. Presentation for approval of all needed deliverables.

The time plane shall ~~includes~~ realistically achievable dates for each step ~~and should be part of the Status List.~~

The ~~WI Status List~~work item database shall also ~~contains also~~ information ~~lists~~ about existing and planned permanent and semi-permanent documents related to the Wwork item, e.g. future specifications as well as interim/temporary requirements "specifications", including the responsible TSG SG/group committee, the rapporteur, the state of the documents, expected completion dates, etc.

Categorizsation:

Before the substantial work on a wWork item starts, the Wwork item shall be examined in the light of its technical and commercial dependency ~~with respect to~~on the existing specifications as well as with respect to other wWork items. Aspects that ~~must~~shall be considered and settled at an early stage are:

- Required versus acceptable time scales;
- Whether the Wwork item has an impact on User Equipment or not;

- Whether the WI-work item has an architectural impact or not;
- To which degree the WI-work item needs to ~~be~~ standardizse (and hence how much can be left "open", to speed up the work);
- Whether the WIwork item can be technically and/or commercially combined/grouped with other WIwork items;

Unless the above aspects are sorted out in-at the beginning of (or prior to) the work, the risk of getting inefficient and non-optimal specifications increases and the control of the work becomes difficult and unmanageable.

~~These aspects are also contained in the WI Status List.~~

10.3.4.2 Choice of deliverables

The WIwork item will be realized as new specifications and/or amendments to existing specifications; the exact structure lies with the individual TSG SGs and the TSGcommittee. Typically, a new feature may result in at least three completely new specifications (sStages 1, 2 and 3) but also cause amendments to the major protocol specifications.

10.3.4.3 Contents of deliverables

10.3.4.3.1 Service rRequirements

This task, allocated and controlled according to the provisions above ~~clauses~~, consists in describing in details the aim of the work item, as seen by those for which a service is provided, e.g. end users, operators, service providers, etc.

~~Apart from the general rules on how to write specifications, certain state-of-the-art ways of producing service requirements specifications are established in the TSG, but as most new types of service differ in nature and structure from each other, no detailed rules are written.~~

In many cases it is preferred-desirable that, prior to the actual service requirements specification being produced, an initial combined service and system/architectural requirements and considerations document is produced, involving both service-oriented and implementation expertise. In particular when an ad hoc tTask fForce is charged with performing a study on a certain WIwork item (aspect), such a starting point document is-should be produced and then used as a basis for the TSG SGscommittees when carrying out the detailed work on service requirements/descriptions and technical realization specifications. Such setting-the-basis documents are-should generally kept for some time after the actual work on the detailed specifications has progressed to a mature level (mainly for the purpose of easing the understanding and to shorten the interaction and negotiation period between service requirements and system/architectural and technical restrictions).

Such "setting-the-basis" document can also be used to describe the project management of a work item (to collect all prepared but not yet approved CRs related to the WIwork item-in-question-and-so-on).

10.3.4.3.2 Technical realization specifications

~~This-These~~ covers both the overall architectural and interface-specific detailed specifications. The architectural implications and requirements need to be identified at a very early stage, for the purpose of knowing which parts of the standard (and hence of the system) are affected by a WIwork item, and for the purpose of supporting the identification of cross-WIwork item similarities (and hence more overall efficient solutions).

The overall co-ordination of the architectural/system requirements is with a single group-committee as stated above, whilst the ensuing detailed protocol definitions and specifications may be distributed over several groups-committees (according to their scope).

10.3.4.3.3 Test sSpecifications

Changes to the core specifications may have impact on the test specifications. The corresponding changes to test specifications should be approved before publication the new core specifications.

10.3.5 Closing of ~~w~~Work ~~i~~Items

When all necessary modifications for a given ~~w~~Work ~~i~~Item (or group of ~~w~~Work ~~i~~Items) are completed ~~all over the scope of the system~~, and all the corresponding new specifications and Change Requests have been approved and released, then the ~~w~~Work ~~i~~Item ~~may be~~ officially closed.

10.4 Work item model

The model ~~described below can be~~ thought of as a reference model for structuring the work. It is not the intention to rigorously enforce the usage of the model on all ongoing work, but merely to use it as the common reference model across the TSGs and to structure future work.

TSG SA is, through S1, responsible for defining the features and services required in the 3GPP specifications. S1 is responsible of producing the stage 1 descriptions (requirements) for the relevant features and passing them to S2. S1 ~~can~~ ~~may~~ also forward their considerations on possible architecture and implementation to S2, but is not responsible for this part of the work.

S2 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 S2. S2 ~~will~~ ~~shall~~ then forward the building blocks to the relevant TSGs for the detailed work. These proposals ~~will~~ ~~shall~~ 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 the work of the TSGs and their working groups, S2 ~~is~~ ~~shall be~~ kept informed about the progress.

The TSGs and their WGs treat the building block as one or several dedicated ~~Work-work~~ ~~tTasks~~ ~~(WT)~~. Typical output of a ~~given~~ ~~W~~work ~~tTask~~ ~~would be~~ new specification(s), updated specification(s), technical report(s) or the conclusion that the necessary support ~~already is~~ ~~already~~ provided in the existing specifications.

S2's role is in co-~~o~~peration 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 S2's task is to verify that all required work for a full system specification of the features relevant will take place within 3GPP without overlap between groups. In order for S2 to be successful, this has to be done in co-operation with other TSGs/WGs.

The following guidelines are proposed for project scheduling. S1 sets a target, S2 performs a first technical review and comments on the target. S2 indicates target for time schedule together with allocation of the defined building blocks. The TSGs and their WGs comment back on these targets. S2 tries if necessary to align the new target ~~between amongst~~ the involved parties. S1 and SA ~~are~~ kept informed ~~on of~~ the overall schedule.

It is the task of TSG SA, S1 and S2 to ensure early involvement of S3 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 their horizontal tasks on conformance testing and mobile station capabilities, S2 should invite TSG T to evaluate the potential impact of a new feature. If work on ~~the~~ horizontal tasks are required, this should be included in the overall work plan.

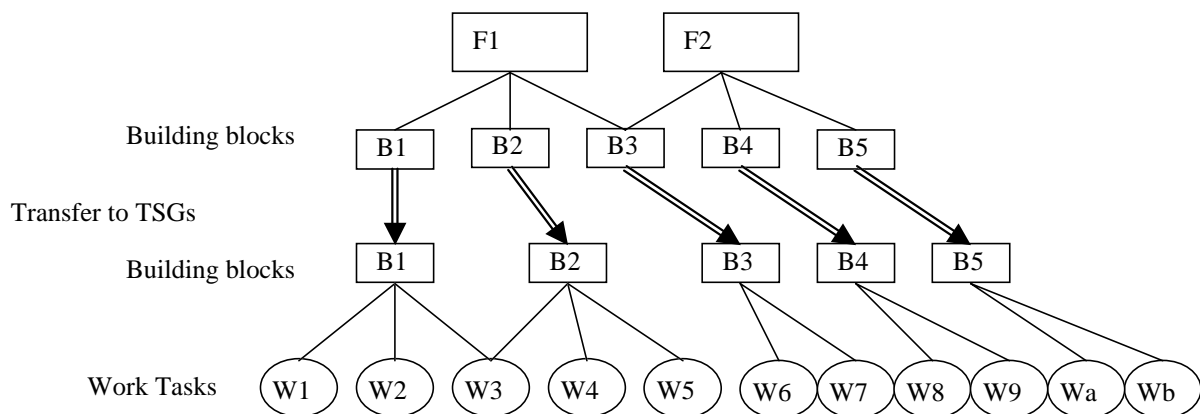


Figure A.1

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Annex A (informative): Change history

Change history								
Date	TSG #	TSG Doc.	CR	Rev	Cat	Subject/Comment	Old	New
May 2000						First draft, based on GSM 01.00 v8.0.0 and 3G TR 21.900		0.0.0
June 2000						Update based on MCC comments. Inclusion of clause 10.	0.0.0	0.0.1
June 2000	S#8					Presentation to TSG#SA	0.0.1	1.0.0