Technical Specification Group, Radio Access Network
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TSGR#2(99)159

Source:	**Lucent Technologies**
Title:	**Making TSG RAN specifications clear and unambiguous**
Document for:	**Recommendation**
Agenda Item:	**8**

This document is presented to encourage editors of TSG RAN documents to use the words defined in the 3GPP TSG Drafting Rules (TR 00.00). These are contained in Annex E of that document.

These rules are similar to those used in ETSI. We have used these rules in contributing to ETSI specifications, and has found them to be helpful in creating clear specifications which are not ambiguous. We also have experience of the ambiguity which can result in specifications when they have not been followed!

The document has two attachments:

■ The slides used in the presentation (these can also be used as a reminder by document editors!)
■ TR 00.00. The electronic version of this document contains the whole of TR 00.00, but the paper copy only contains Annex E (pages 36 and 37).

VERBS TO USE IN SPECIFICATIONS

REQUIREMENT

SHALL   **SHALL NOT**

RECOMMENDATION

SHOULD   **SHOULD NOT**

PERMISSION / OPTION

MAY   **NEED NOT**

POSSIBILITY / CAPABILITY

CAN   **CAN NOT**

WORDS <u>NOT</u> TO USE

… IS ASSUMED

MUST

WILL

MAY NOT

(IM)POSSIBLE

TR 00.00 V1.0.0 (1998-11)

3rd Generation Partnership Project (3GPP);
Technical Specification Group (TSG) Drafting rules

3GPP

Reference

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3GPP

Postal address

Office address

Internet

http://www.3gpp.org

3GPP

Contents

Foreword

The present document has been produced by a 3GPP Drafting rules group.

The present document is based on the ETSI drafting rules (which were are based on ISO/IEC Directives). Most clauses of the ETSI drafting rules have been retained.

At the time of drafting of this document the 3GPP Partner Organizations consist of ARIB, ETSI, T1, TTA and TTC. The 3GPP functions referred to in this document have yet to be assigned within the 3GPP Organization.

The 3GPP may provide further guidance on drafting of 3GPP deliverables, the latest versions of the present document, templates, skeleton documents, a guide on use of English, a list of abbreviations, ICS proforma, and other useful information.

Items concerning word-processor specific layout and formatting matters when using the Microsoft Word for Windows® based 3GPP skeleton documents and templates are shown with shaded background. Boiler plate text (i.e. text which shall be directly used in 3GPP deliverables) is represented by *italic* characters.

1   Scope

The present document specifies rules for the structure and drafting of documents intended to become a 3GPP deliverable (specification or Report). These rules are intended to ensure that such documents are drafted in as uniform a manner as is practicable, irrespective of the technical content.

The present document is based on the ETSI drafting rules but is a self-contained document that will be maintained as such.

These drafting rules complement the 3GPP Technical Working Procedures.

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, subsequent revisions do apply.

- A non-specific reference to an ETS shall also be taken to refer to later versions published as an EN with the same number.

3GPP Technical Working Procedures".

ETSI TR 101 262 V1.1.1 (1998-04): "ETSI drafting rules".

ISO/IEC Directives - Part 3 (1997): "Rules for the structure and drafting of International Standards".

ISO/IEC Guide 2:1996: "Standardization and related activities - General vocabulary".

3   Definitions and abbreviations

3.1   Definitions

For the purposes of the present document, the following terms and definitions apply:

informative elements: those elements that provide additional information intended to assist the understanding or use of the 3GPP deliverable

instruction: provision that conveys an action to be performed [ISO/IEC Guide 2:1996, definition 7.3]

normative elements: those elements setting out the provisions to which it is necessary to conform in order to be able to claim compliance with the 3GPP deliverable

provision: expression in the content of a normative document, that takes the form of a statement, an instruction, a recommendation or a requirement [ISO/IEC Guide 2:1996, definition 7.1]

> NOTE: These types of provision are distinguished by the form of wording they employ; e.g. instructions are expressed in the imperative mood, recommendations by the use of the auxiliary "should" and requirements by the use of the auxiliary "shall" (see annex E)

recommendation: provision that conveys advice or guidance [ISO/IEC Guide 2:1996, definition 7.4]

requirement: provision that conveys criteria to be fulfilled [ISO/IEC Guide 2:1996, definition 7.5]

statement: provision that conveys information [ISO/IEC Guide 2:1996, definition 7.2]

3.2 Abbreviations

For the purposes of the present document, the following abbreviations apply:

3GPP	3rd Generation Partnership Project
ICS	Implementation Conformance Statement
IPR	Intellectual Property Rights
PDF	Portable Document Format
SDL	Specification and Description Language
tbd	to be defined
TR	3GPP Technical Report
TS	3GPP Technical Specification
TSG	Technical Specification Group
TTCN	Tree and Tabular Combined Notation

4 General principles

4.1 Objective

The objective of a 3GPP deliverable is to define clear and unambiguous provisions in order to facilitate international trade and communication. To achieve this objective, the 3GPP deliverable shall:

- be as complete as necessary within the limits specified by its scope;

- be consistent, clear and accurate;

- provide a framework for future technological development; and

- be comprehensible to qualified persons who have not participated in its preparation.

4.2 Homogeneity

Uniformity of structure, of style and of terminology shall be maintained not only within each 3GPP deliverable, but also within a series of associated 3GPP deliverables. The structure of associated 3GPP deliverables and the numbering of their clauses shall, as far as possible, be identical. Analogous wording shall be used to express analogous provisions; identical wording shall be used to express identical provisions.

The same term shall be used throughout each 3GPP deliverable or series of 3GPP deliverables to designate a given concept. The use of an alternative term (synonym) for a concept already defined shall be avoided. As far as possible, only one meaning shall be attributed to each term chosen.

These requirements are particularly important not only to ensure comprehension of the 3GPP deliverable but also to derive the maximum benefit available through automated text processing techniques.

4.3 Consistency of 3GPP deliverables

In order to achieve the aim of consistency within the complete body of 3GPP deliverables, the text of every 3GPP deliverable shall be in accordance with the relevant provisions of existing basic 3GPP deliverables. This relates particularly to:

- standardized terminology;

- principles and methods of terminology;

- quantities, units and their symbols;

- abbreviations;

- bibliographic references; and

- graphical symbols.

In addition, for specific technical aspects, the relevant provisions of general 3GPP deliverables dealing with the following subjects shall be respected:

- limits;

- tolerancing of dimensions and uncertainty of measurement;

- preferred numbers;

- statistical methods;

- environmental conditions and associated tests.

4.4   Equivalence of official language versions

3GPP deliverables shall be in the English language only.

4.5   Fitness for implementation as a national, regional or international standard

The content of a 3GPP deliverable shall be drawn up in such a way as to facilitate its application and its adoption as a national, regional or international standard.

4.6   Planning

Rules for the planning of new work items are **[tbd]**. In order to ensure the timely publication of a 3GPP deliverable or of a series of associated 3GPP deliverables, the intended structure and any interrelationships shall be established before detailed drafting begins. In particular, consideration shall be given to the subdivision of the subject matter (see 5.1). In the case of a multi-part 3GPP deliverable, a list of the intended parts together with their titles shall be drawn up. The rules given in the present document shall be applied from the very beginning of the work and throughout all subsequent stages to avoid delay at any stage.

4.7   Legal master of a 3GPP deliverable

3GPP deliverables are made publicly available by 3GPP in PDF **[tbd].**

From a legal point of view, the official version of a document is the one which is recognized by the author as being the definitive and mature version of his/her work at a certain date. The official version of a document constitutes a reference from which it is possible to identify that amendments have been made.

In 3GPP, the definitive version of a 3GPP deliverable (until further amendments are made) is the one that has been checked by the **[tbd]** and incorporates the amendments resulting from the Approval process prescribed for the 3GPP deliverable in the Technical Working Procedures. When 3GPP has ensured that the 3GPP deliverables produced are available in PDF **[tbd]** format, the official version of the 3GPP deliverable is the electronic file kept in 3GPP.

However, the information contained in an electronic file is not directly visible, and becomes only visible for the public when the file is either opened on the computer screen or when the file is printed. Therefore, it can be said that the official versions of the 3GPP deliverables, which are entirely produced in electronic format, are the printed version on 3GPP printers of the files, which are kept on a specific drive in 3GPP.

In case of a complaint for a mistake included in a 3GPP deliverable, the legal reference would so far be the paper version of the 3GPP deliverable kept in 3GPP, or the printing of the electronic version of the 3GPP deliverable kept by 3GPP.

5   Structure

5.1   Subdivision of the subject matter

5.1.1   General

3GPP deliverables are so diverse that no universally acceptable rules can be established for the subdivision of the subject matter.

However, as a general rule, an individual 3GPP deliverable shall be prepared for each subject to be standardized, and published as a complete entity. In specific cases and for practical reasons, for example:

- the 3GPP deliverable is likely to become too voluminous;

- subsequent portions of the content are interlinked;

- portions of the 3GPP deliverable could be referred to in regulations; or

- portions of the 3GPP deliverable are intended to serve for certification purposes,

the 3GPP deliverable may be split into separate parts under the same number. This has the advantage that each part can be changed separately when the need arises.

In particular, the aspects of a product which will be of separate interest to different parties (e.g. manufacturers, operators, certification bodies, legislative bodies) shall be clearly distinguished, preferably as parts of a 3GPP deliverable or as separate 3GPP deliverables.

Such individual aspects are, for example:

- performance requirements;

- maintenance and service requirements; and

- quality assessment.

The terms that shall be used to designate the divisions and subdivisions that a 3GPP deliverable may have are shown in table 1.

Table 1: Names of divisions and subdivisions

Term	Example of numbering
part	tbd
sub-part	tbd
clause	1
subclause	1.1
subclause	1.1.1
annex	A
clause	A.1
subclause	A.1.1

5.1.2   Subdivision of the subject matter within a series of parts

There are two systems in use for subdividing into parts:

a) Each part deals with a specific aspect of the subject and can stand alone.

b) There are both common and specific aspects to the subject. The common aspects shall be given in part 1. Specific aspects (which may modify or supplement the common aspects and therefore cannot stand alone) shall be given in individual parts.

Where the system described in b) is used, care shall be taken that the references from one part to another are always to the latest edition. There are two ways to achieve this:

- If reference is made to a particular element, the reference shall be specific (see 6.6.6.5.2).

- Since the complete series of parts is normally under the control of the same Technical Specification Group, the use of non-specific references (see 6.6.6.5.3) is permitted, provided that corresponding changes are implemented simultaneously in all parts.

The use of non-specific references requires a high degree of discipline by the Technical Specification Group responsible for the 3GPP deliverable.

Their use is not permitted between 3GPP deliverables of different Technical Bodies except where the reference is intentionally non-specific, i.e. it is accepted that it will be possible to use all future changes of the text referred to for the purposes of the referring 3GPP deliverable.

Each part of a multi-part 3GPP deliverable shall be drafted in accordance with the rules for an individual 3GPP deliverable as specified in the present document.

5.1.3 Subdivision of the subject matter within an individual 3GPP deliverable

Table 2: Example of a typical arrangement of elements in a 3GPP deliverable

Type of element	Arrangement of elements in 3GPP deliverable (note 1)	Permitted content of element(s) in 3GPP deliverable (note 1)
Informative preliminary	*Title page*	Title
	Table of contents	*(generated content, see 6.1.2)*
	Intellectual Property Rights (note 3) ***Foreword (note 4)***	*Text* *Note(s)*
	Introduction	*Text* *Figure(s)* *Table(s)* *Note(s)*
Normative general	**Scope**	**Text (no requirements)** Figure(s) Table(s) *Note(s)*
	Reference(s)	Reference(s)
Normative technical	Definition(s) Symbols and abbreviations Requirements : Normative annex	Text Figure(s) Table(s) *Note(s)*
Informative supplementary	*Informative annex, (note 2)*	*Text* *Figure(s)* *Table(s* *Note(s)*
Informative supplementary	*Bibliography*	*Informative reference(s)*
	Index	*(generated content)*
	History (note 3)	*Table*
NOTE 1: **Bold type** = required element; upright type = normative element; *italic type* = informative element.		
NOTE 2: Informative annexes may not contain normative elements unless these elements constitute optional provisions (e.g. a test method that is optional may contain provisions).		
NOTE 3: Provided by the 3GPP.		
NOTE 4: Partly provided by the 3GPP.		

A 3GPP deliverable need not contain all the normative technical elements shown in table 2 and it may contain normative technical elements other than those shown. Both the nature of the normative technical elements and their sequence are determined by the nature of the 3GPP deliverable in question.

For an example of numbering of divisions and subdivisions see annex B.

A 3GPP deliverable may also contain notes to figures and tables (see 6.6.4.8, 6.6.4.9, 6.6.5.6 and 6.6.5.7).

5.2   Description and numbering of divisions and subdivisions

5.2.1   Parts and sub-parts

Tbd

5.2.1A   General numbering issues

Every attempt shall be made to use continuous numbering as described in the remainder of 5.2. However, if continuous numbering cannot be maintained, a new element may be inserted in existing text using an appropriate alphanumeric designation that does not disturb the existing numbering scheme. This applies to all elements (e.g. clause, subclause, annex, figure, table, note, list).

EXAMPLE 1:   It is necessary to update a 3GPP deliverable. A new clause needs to be inserted between the existing clauses 8 and 9. A new clause 8A may be inserted in preference to re-numbering the existing clauses.

EXAMPLE 2:   A new figure needs to be inserted between existing figures 4 and 5. A new figure 4A may be inserted to avoid re-numbering of all subsequent figures.

Similarly, an existing element may be deleted and replaced with the term "Void." to minimize disruption to the numbering scheme. However, the title of the deleted element shall be retained.

EXAMPLE 3:   During the updating of a 3GPP deliverable, it is decided that annex C is no longer required. The title of annex C remains while the content simply becomes "Void.". Later annexes may therefore remain unchanged.

EXAMPLE 4:   It is decided to delete a note 3, so the text of note 3 becomes "Void." and there is no need to re-number note 4.

5.2.2   Clause

The clauses in each 3GPP deliverable or part shall be numbered with arabic numerals, beginning with 1 for the "Scope" clause. The numbering should be continuous, see also 5.2.1A.

Each clause shall have a title (for formatting see 5.2.3).

5.2.3   Subclause

A subclause is a numbered subdivision of a clause. A primary subclause (e.g. 5.1, 5.2, etc.) may be subdivided into secondary subclauses (e.g. 5.1.1, 5.1.2, etc.) and this process of subdivision may be continued as far as the sixth heading level (e.g. 6.5.4.3.2.1).

Subclauses shall be numbered with arabic numerals, see also 5.2.1A.

A subclause should not be created unless there is at least one further subclause at the same level. For example, a piece of text in clause 10 should not be designated subclause "10.1" unless there is also a subclause "10.2".

Each subclause shall be given a title, which shall be placed after its number.

Treat (sub)clause titles as normal text i.e. no additional capitalization, but no full stop.

- Use the **Heading** style appropriate to its level.

- Separate the number of the heading and the text of the heading with a tab.

- **Do not use automatic heading numbering**; you may, however, use it as an initial aid when outlining the structure of your document, as long as it is eliminated before handover to 3GPP.

5.2.4 Paragraph

"Hanging paragraphs" such as those shown in the following example should be avoided since reference to them is ambiguous.

EXAMPLE: In the following example, the hanging paragraphs indicated cannot be uniquely identified as being in "clause 5" since strictly speaking the paragraphs in 5.1 and 5.2 are also in clause 5. To avoid this problem it would be necessary either to identify the unnumbered paragraphs as subclause "5.1 Xxxxxxxxxxxx" and to renumber the existing 5.1 and 5.2 accordingly (as shown), or to move the hanging paragraphs elsewhere.

Recommended	Not recommended
5 Designation **5.1 Xxxxxxxxxxx** xxxxxxx x xxxxxxxxxxxxx xxxxxxxxxxxxxxxx xxxxxxx x xxxxxxxxxxxxx xxxxxxxxxxxxxxxx **5.2 Xxxxxxxxxxx** xxxxxxx x xxxxxxxxxxxxx xxxxxxxxxxxxxxxx **5.3 Xxxxxxxxxxx** xxxxxxx x xxxxxxxxxxxxx xxxxxxxxxxxxxxxx xxxxxxxxxxxx xxxxxxxxxxxxx **6 Test report**	**5 Designation** xxxxxxx x xxxxxxxxxxxxx } xxxxxxx x xxxxxxxxxxxxx } hanging paragraphs xxxxxxx x xxxxxxxxxxxxx } **5.1 Xxxxxxxxxxx** xxxxxxx x xxxxxxxxxxxxx xxxxxxxxxxxxxxxx **5.2 Xxxxxxxxxxx** xxxxxxx x xxxxxxxxxxxxx xxxxxxxxxxxxxxxx xxxxxxxxxxxx xxxxxxxxxxxxx **6 Test report**

5.2.5 Lists

Lists may be introduced by a sentence, a complete grammatical proposition followed by a colon, or by the first part of a proposition (without a colon), completed by the items in the list.

Each item in a list shall be preceded by a bullet or a dash.

EXAMPLE 1:

- list item 1;

- list item 2.

EXAMPLE 2:

- list item 1;

- list item 2.

If necessary for identification, a lower-case letter followed by a parenthesis may be used. If it is necessary to subdivide an item further in this type of list, arabic numerals followed by a parenthesis shall be used (see also 5.2.1A).

EXAMPLE 3:

a) list item a;

b) list item b;

   1) list item a 1);

   2) list item a 2).

Respect normal rules of punctuation: if the elements of a list are cast as phrases of a sentence which introduces the list, start each element with a lower case letter and end it with a semicolon. End the last item in the list with a full stop, unless the introductory sentence continues after the end of the list, in which case use the most appropriate punctuation (semicolon, comma, or none). If, however, each element of a list is a self-contained sentence, begin each with a capital letter and end each with a full-stop.

Use "and" or "or" at the end (following the semicolon) of the penultimate element of a list to indicate unambiguously whether the elements are combinable or whether they are mutually exclusive.

- Use the appropriate bullet styles, i.e. styles **B1** to **B5**.

- Separate the list item identifier (e.g. bullet) and the text with a tab (if not using automatic bullets and numbering).

- Ensure that the formatting of the lists is consistent throughout the deliverable.

5.2.6 Annex

For the description of normative and informative annexes, see 6.3.8 and 6.4.1.

Each annex shall be designated by a heading comprising the word "Annex" followed by a capital letter designating its serial order, beginning with "A", e.g. "Annex A" (see also 5.2.1A). The annex heading shall be followed by the indication "(normative):" or "(informative):", and by the title on the next line.

EXAMPLE: Annex A (normative):
                  Title of annex A

Numbers given to the clauses, subclauses, tables, figures and mathematical formulae of an annex shall be preceded by the letter designating that annex followed by a full-stop (e.g. figure B.1, table C.4). The numbering shall start afresh with each annex. A single annex shall be designated "Annex A".

Clauses in annex A shall be designated "A.1", "A.2", "A.3", etc. (see also 5.2.1A).

For endorsement of documents from other standards organizations, see annex J.

- Use the **Heading 8** style (for EG and TR use the **Heading 9** style) for the annex heading. Insert a line break (↵ "shift" + "enter") between the colon and the title.

- For all (sub)clause headings use the appropriate Heading styles, starting from **Heading 1,** e.g. for clause A.1 use **Heading 1**, for A.1.1 use **Heading 2**.

5.2.7 Bibliography

A bibliography, if present, shall appear after the last annex and it is called "Bibliography".

5.2.8 Index

An index, if present, shall appear as the last element, but before the History clause. The title shall be "Index".

- Use **Heading 1** style for the title.

5.2.9 History

Shall appear as the last element.

- Use **Heading 1** style for the title.

6 Drafting

6.1 Preliminary informative elements

6.1.1 Title page

The title page shall contain the title of the 3GPP deliverable.

The wording of the title shall be established by the Technical Specification Group with the greatest care. While being as concise as possible, it shall indicate, without ambiguity, the subject matter of the 3GPP deliverable in such a way as to distinguish it from that of other 3GPP deliverables, without going into unnecessary detail. Any necessary additional particulars shall be given in the scope.

The title shall be composed of separate elements, each as short as possible, proceeding from the general to the particular. In general, not more than the following three elements shall be used:

   a) an introductory element (optional) indicating the general field to which the 3GPP deliverable belongs;

   b) a main element (obligatory) indicating the principal subject treated within that general field;

   c) a complementary element (optional) indicating the particular aspect of the principal subject or giving details that distinguish the 3GPP deliverable from other 3GPP deliverables, or other parts of the same 3GPP deliverable.

See also annex D.

   NOTE: The 3GPP is responsible for the final preparation of the title page.

For multi-part deliverables, all the individual titles in a series of parts shall contain the same introductory element (if present) and main element, while the complementary element shall be different in each case in order to distinguish the parts from one another. The complementary element shall be preceded in each case by the designation "Part …:" and "Sub-part ...:".

For endorsement of documents from other standards organizations, see annex J.

6.1.2 Table of contents

The table of contents shall be generated automatically and shall not be set manually. The title shall be "Contents".

- Use the **TT** style for the title.
- Use the field **{TOC \o}** for the table itself.

   NOTE: The 3GPP is responsible for the final layout of the table of contents.

6.1.2A Intellectual Property Rights

Any published 3GPP deliverable shall include information pertaining to essential IPRs which are brought to the attention of 3GPP prior to such publication. This element is provided by the Technical Specification Group responsible for drafting the 3GPP deliverable.

As a minimum, the IPR clause shall contain an indication how to retrieve information pertaining to essential IPRs brought to the attention of 3GPP. This element is provided by the **[tbd]**.

6.1.3 Foreword

The foreword shall appear in each 3GPP deliverable. It shall not contain requirements, figures or tables, except for the transposition table (see 6.1.3A).

It consists of a general part giving information on:

- the designation and name of the Technical Specification Group that prepared the 3GPP deliverable;

- information regarding the approval of the 3GPP deliverable;

and a specific part that shall give as many of the following as are appropriate:

- an indication of any other organization that has contributed to the preparation of the 3GPP deliverable;

- a statement that the 3GPP deliverable cancels and replaces other documents in whole or in part;

- a statement of significant technical changes from the previous version of the 3GPP deliverable;

- the relationship of the 3GPP deliverable to other 3GPP deliverables or other documents.

For multi-part deliverables, the first part shall include in its foreword an explanation of the intended structure of the series. In the foreword of each part belonging to the series, a reference shall be made to the titles of all other parts, if they are known.

6.1.4 Introduction

The introduction is an optional preliminary element used, if required, to give specific information or commentary about the technical content of the 3GPP deliverable, and about the reasons prompting its preparation. It shall not contain requirements.

The introduction shall not be numbered unless there is a need to create numbered subdivisions. In this case, it shall be numbered 0 with subclauses being numbered 0.1, 0.2, etc. Any numbered figure, table or displayed formula shall be numbered normally beginning with 1 (see also 5.2.1A).

6.2 General normative elements

6.2.1 Scope

This element shall be clause 1 of each 3GPP deliverable and define without ambiguity the subject of the 3GPP deliverable and the aspect(s) covered, thereby indicating the limits of applicability of the 3GPP deliverable or particular parts of it. It shall not contain requirements.

The scope shall be succinct so that it can be used as a summary for bibliographic purposes.

This element shall be worded as a series of statements of fact. Forms of expression such as the following shall be used:

"The present document

$$
\cdot \quad \textit{specifies} \quad \left\{ \begin{array}{l} \textit{the functional requirements for ..."} \\ \textit{a method of ..."} \\ \textit{the characteristics of ..."} \end{array} \right.
$$

$$
\cdot \quad \textit{establishes} \quad \left\{ \begin{array}{l} \textit{a system for ..."} \\ \textit{general principles for ..."} \end{array} \right.
$$

· *gives guidelines for ..."*

· *gives terms and definitions ..."*

Statements of applicability of the 3GPP deliverable shall be introduced by the following wording:

"The present document is applicable to ..."

6.2.2   References

This is an optional element which shall be provided if references are made to other documents. References shall normally be given to Standards and Recommendations issued by recognized standardization bodies. Referencing of documents other than Standards and Recommendations are allowed under the following conditions:

- such references shall not be used in 3GPP deliverables that are planned to be used for regulatory purposes;

- all referenced text shall be publicly available in the English language during the approval phases and for the expected lifetime of the 3GPP deliverable, via the originating body;

- if public availability cannot be guaranteed over a period of time as stated above, the originating body of the referenced text shall give 3GPP the right to reproduce the text;

- if the referenced text will not be made publicly available otherwise, agreement permitting 3GPP to take over the copying and distribution rights will be required, in which case it shall be made available to 3GPP in an agreed electronic format;

- all copyright and other IPR issues shall have been settled;

- the 3GPP shall establish and maintain a list of the referenced documents and the relevant external bodies, for document tracking and cross-referencing purposes, and keep the necessary liaison with the originating body.

The list of references shall be introduced by the following wording:

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, subsequent revisions do apply.*

- *A non-specific reference to an ETS shall also be taken to refer to later versions published as an EN with the same number.*

The list shall not include the following:

- documents that are not publicly available (such documents may be listed in a bibliography (see 6.4.2));

- documents which have merely served as references in the preparation of the 3GPP deliverable and documents which are not explicitly cited in the provisions of the deliverable (such documents may be listed in a bibliography (see 6.4.2)).

- Use the **EX** style, if using numbered references; enclose the numbers in square brackets and separate the numbering from the title with a tab (you may use sequence fields for automatically numbering references, see clause H.4: "Sequence numbering").

- Use the **Normal** style, if not using numbered references.

EXAMPLE 1:

[1]   ES 201 999 (V1.1): "Title".

[2]   ETS 300 163 (1996): "Title".

EXAMPLE 2:

ES 201 999 (V1.2): "Title".

ES 201 999: "Title".

ETS 300 163 (1996): "Title".

6.3   Technical normative elements

6.3.1   Definitions

This is an optional element giving definitions necessary for the understanding of certain terms used in the 3GPP deliverable. The following introductory wording, modified as appropriate, shall be used:

For the purposes of the present document, the terms and definitions given in ... and the following apply.

Rules for the drafting and presentation of terms and definitions are given in annex C, together with special rules for terminology standards, such as vocabularies, or nomenclatures.

Entries in the definition clause may be numbered.

- Order the terms alphabetically, unless some logical grouping dictates otherwise.

- The term shall be in **bold**, and shall start with a lower case letter (unless it is *always* rendered with a leading capital) followed by a colon, one space, and the definition.

- Use the **Normal** style.

EXAMPLE:

requirement: a provision that conveys criteria to be fulfilled

6.3.2   Symbols and abbreviations

This is an optional element giving a list of the symbols and abbreviations necessary for the understanding of the 3GPP deliverable.

Unless there is a need to list symbols in a specific order to reflect technical criteria, all symbols should be listed in alphabetical order in the following sequence:

- upper case Latin letter followed by lower case Latin letter (A, a, B, b, etc.);

- letters without indices preceding letters with indices, and with letter indices preceding numerical ones (B, b, C, C_m, C_2, c, d, d_{ext}, d_{int}, d_1, etc.);

- Greek letters following Latin letters (Z, z, A, a, B, b, … L, l, etc.);

- any other special symbols.

This list shall contain all technical abbreviations/acronyms and their corresponding full terms which are used within the 3GPP deliverable. See also 6.6.2.

For convenience, this element may be combined with the definitions in order to bring together terms and their definitions, symbols and abbreviations under an appropriate composite title, for example "Definitions, symbols and abbreviations".

Do not number the entries in the symbols and/or abbreviations subclause.

- Use the **EW** style.

- Separate the abbreviation/acronym from the full term with a tab.

EXAMPLE:

dB   decibel
DDI   Direct Dialling-In

6.3.3   Requirements

This element is optional. If present, it shall contain the following:

a) all characteristics relevant to the aspect(s) of the product(s), process(es) or service(s) covered by the 3GPP deliverable, either explicitly or by reference;

b) the required limiting values of quantifiable characteristics.

For test methods see 6.3.5.

A clear distinction shall be made between requirements, statements and recommendations.

Contractual requirements concerning claims, guarantees, covering of expenses, etc. shall not be included.

In some product 3GPP deliverables, it may be necessary to specify that the product shall be accompanied by warning notices or by instructions to the user or installer, and to specify their nature. On the other hand, requirements concerning use or installation as such shall be included in a separate part or a separate 3GPP deliverable since they are not requirements applicable to the product itself.

3GPP deliverables listing characteristics for which suppliers are required to state values that are not specified by the 3GPP deliverable itself shall specify how such values are to be measured and stated.

For endorsement of documents from other standards organizations, see annex J.

6.3.4   Sampling

This optional element specifies the conditions and methods of sampling, as well as the method for the preservation of the sample(s). This element may appear at the beginning of test methods.

6.3.5   Test methods

This optional element gives all the instructions concerning the procedure for determining the values of characteristics, or for checking conformity to stated requirements, and for ensuring the reproducibility of the results. If appropriate, tests shall be identified to indicate whether they are type tests, routine tests, sampling tests and so on.

Instructions relating to test methods may be subdivided in the following order (where appropriate):

a) principle;

b) apparatus;

c) preparation and preservation of test samples and test pieces;

d) procedure;

e) test report.

Test methods may be presented as separate clauses, or be incorporated in requirements, or be presented as annexes (see 6.3.8) or as separate parts (see 5.2.1). A test method shall be prepared as a separate 3GPP deliverable if it is likely to be referred to in a number of other 3GPP deliverables.

The need for specification of test methods shall be evaluated on a case by case basis.

A test specification enables verification that products designed to a standard conform to its requirements. When writing a TS, you should consider the need for an accompanying test specification.

Every requirement of a 3GPP deliverable specifying a product (equipment, system or service) needs to be testable, and such requirements need to be clearly distinguishable from statements of fact or of supposition.

EXAMPLE: Comparing the two sentences below:

"On receiving a START CALL message, the terminal shall respond by sending an ACKNOWLEDGE message within a delay of t_1."

"On receiving a START CALL primitive, the layer 3 protocol of the terminal shall move to state CALL ACTIVATED and shall start timer t_2."

It is clear that conformance to the first requirement can be verified by external stimulus and observation, whereas the second puts demands on a conceptual model which cannot be explicitly tested. Whilst requirements of the latter sort are useful - even essential - for describing operational details, the essential behavioural characteristics (normative provisions) are given by requirements of the type of the former, and only these are verifiable.

6.3.6 Classification and designation

Void.

6.3.7 Marking, labelling and packaging

Void.

6.3.8 Normative annexes

For reasons of convenience it may be decided to place some part of the normative text in an annex.

Normative annexes contain provisions to which it is necessary to conform in order to be able to claim compliance with the 3GPP deliverable. Their presence is optional and their status shall be indicated in the heading of the annex (see 5.2.6).

6.4 Supplementary informative elements

6.4.1 Informative annexes

For reasons of convenience it may be decided to place some part of the informative text in an annex.

Informative annexes give additional information intended to assist the understanding or use of the 3GPP deliverable and shall not contain provisions to which it is necessary to conform in order to be able to claim compliance with the 3GPP deliverable. Their presence is optional and their status shall be indicated in the heading of the annex (see 5.2.6).

6.4.2 Bibliography

The Bibliography gives additional information concerning documents, which are not explicitly cited in the provisions of the deliverable. Documents which are not publicly available shall always be placed in a Bibliography.

Format references as described in 6.2.2.

6.4.3 Index

- Format the index in a section having two columns separated by 0,5 cm using the field **{INDEX \e "→" \c "2"}**.

6.4.4 History

A history box is provided by the 3GPP as the final element in a 3GPP deliverable and shows the major milestones in the life of a document. See also H.6.

NOTE: The 3GPP is responsible for the final preparation of the history box.

6.5   Other informative elements

6.5.1   Notes and examples integrated in the text

Notes and examples integrated in the text of a 3GPP deliverable shall only be used for giving additional information intended to assist the understanding or use of the 3GPP deliverable. They shall not contain provisions to which it is necessary to conform in order to be able to claim compliance with the 3GPP deliverable.

Notes and examples should preferably be placed at the end of the clause or subclause, or after the paragraph, to which they refer.

A single note in a (sub)clause shall be preceded by "NOTE:", placed at the beginning of the first line of the text of the note. When several notes occur within the same element (e.g. subclause), they shall be designated "NOTE 1:", "NOTE 2:", "NOTE 3:", etc. (see also 5.2.1A).

The word NOTE shall appear in upper case.

- Use the **NW** or **NO** style.

- Separate NOTE: from the text of the note with a tab.

EXAMPLE 1:

NOTE 1: Note text formatted with the **NW** style will be formatted **without** a space after the paragraph.
NOTE 2: Note text formatted with the **NO** style will be formatted **with** a space after the paragraph.

END of EXAMPLE 1

A single example in a (sub)clause shall be preceded by "EXAMPLE:", placed at the beginning of the first line of the text of the example. When several examples occur within the same element (e.g. subclause), they shall be designated "EXAMPLE 1:", "EXAMPLE 2:", "EXAMPLE 3:", etc. (see also 5.2.1A).

When there is a danger that it may not be clear where the example ends and the normal text continues, then the end of the example may be designated by "END of EXAMPLE".

The word EXAMPLE shall appear in upper case.

- Use the **EX** style.

- Separate EXAMPLE: from the text of the example with a tab.

EXAMPLE 2:

EXAMPLE: Example text.

END of EXAMPLE 2

6.5.2   Footnotes to the text

Footnotes shall not be used in 3GPP deliverables.

6.6   Common rules and elements

6.6.1   Verbal forms for the expression of provisions

A 3GPP deliverable does not in itself impose any obligation upon anyone to follow it. However, such an obligation may be imposed, for example, by legislation or by a contract. In order to be able to claim compliance with a 3GPP deliverable, the user needs to be able to identify the requirements that are obligatory. The user also needs to be able to distinguish these requirements from other provisions where there is a certain freedom of choice.

Clear rules for the use of verbal forms (including modal auxiliaries) are therefore essential. Annex E gives, in the first column of each table, the verbal form that shall be used to express each kind of provision. The equivalent expressions given in the second column shall be used only in exceptional cases when the form given in the first column cannot be used for linguistic reasons.

6.6.2   Spelling and abbreviation of names of organizations, and style

The spelling of the names of organizations, and their abbreviations, shall be as used by those organizations.

To facilitate understanding by all readers, the style shall be as simple and concise as possible. This is particularly important for those readers whose first language is not English.

The "Shorter Oxford English Dictionary" and the "Concise Oxford Dictionary" are suggested.

Abbreviations shall be used with care, and their use shall be limited to those cases where it is not likely to cause confusion.

An abbreviation shall be specified only if used subsequently in the 3GPP deliverable.

The general rule is that abbreviations consisting of the initial letters of words be printed in lower-case letters (for example, "a.c." for "alternating current") and a full-stop be placed after each letter. Where, however, an abbreviation comprises capital letters, no full-stops are required.

6.6.2A   Use of capital letters

Unnecessary use of capital letters should be avoided.

> EXAMPLE: "user" is preferred to "User".

6.6.2B   Pagination

Unnecessary pagination, (i.e. use of hard page breaks) should be avoided.

- Use Format | Paragraph | Text Flow | Keep Lines Together and Keep with Next attributes instead of "hard" page breaks.

6.6.3   Use of trade names

A correct designation or description of a product shall be given rather than a trade name (brand name).

Proprietary trade names (i.e. trade marks) for a particular product should as far as possible be avoided, even if they are in common use.

If, exceptionally, trade names cannot be avoided, their nature shall be indicated, e.g. by the symbol ® for a registered trade mark (see example 1).

> EXAMPLE 1:   Instead of "Teflon®", write "polytetrafluoroethylene (PTFE)".

If it is known that only one product is currently available that is suitable for the successful application of the standard, the trade name of the product may be given in the text of the standard but shall be associated with a note as shown in example 2.

> EXAMPLE 2:

> NOTE: "… [trade name of product] … is the trade name of a product supplied by … [supplier] …. This information is given for the convenience of users of the present document and does not constitute an endorsement by 3GPP of the product named. Equivalent products may be used if they can be shown to lead to the same results."

If it is considered to be essential to give an example (or examples) of commercially available products suitable for successful application of the standard because the product characteristics are difficult to describe in detail, trade names may be given in a note as shown in example 3.

EXAMPLE 3:

NOTE: " … [trade name(s) of product(s)] … is (are) an example(s) of a suitable product(s) available
          commercially. This information is given for the convenience of users of the present document and does
          not constitute an endorsement by 3GPP of this (these) product(s)."

6.6.4   Figures

6.6.4.1   Usage

Figures should be used wherever appropriate to present information in an easily comprehensible form. It shall be
possible to refer to each figure explicitly within the text.

6.6.4.2   Format

Figures shall be prepared in accordance with annex I.

- Use the **TH** style on the paragraph which contains the figure itself.

- Maximum size for figures is 17 cm by 22 cm.

6.6.4.3   Numbering

Figures may be numbered sequentially throughout the document without regard to the clause numbering, e.g. first figure
is figure 1 and the twentieth figure (in, say clause 7) is figure 20.

Figures may also be numbered taking account of clause or subclause numbering.

EXAMPLE 1:   First figure in clause 7 is figure 7.1, fifth figure in clause 7 is figure 7.5.

EXAMPLE 2:   First figure in subclause 7.3.2 is figure 7.3.2.1, fifth figure in subclause 7.3.2 is figure 7.3.2.5.

One level of subdivision only is permitted (e.g. figure 1 may be subdivided as 1 a), 1 b), 1 c), etc.). See also 5.2.1A. For
the numbering of figures in annexes, see 5.2.6.

- You may use sequence fields for automatically numbering tables. See clause H.4: "Sequence numbering".

6.6.4.4   Layout of title

The figure title shall be below the figure. An explicit figure name is optional. See the following examples:

EXAMPLE 1:

Figure 1: Details of apparatus

EXAMPLE 2:

Figure 1

- Use the **TF** style.

- If applicable, the figure number is followed by a colon, a space and the figure name

6.6.4.5   Choice of letter symbols, style of lettering, and labelling

- Use Arial font.

- Use a font size of at least 8 points (final size), to ensure legibility.

6.6.4.6   Technical drawings

Void.

6.6.4.7   Diagrams

Void.

6.6.4.8   Notes to figures

Notes to figures shall be treated independently from notes integrated in the text (see 6.5.1). They shall be located above the title of the relevant figure. A single note in a figure shall be preceded by "NOTE:". When several notes occur in the same figure, they shall be designated "NOTE 1:", "NOTE 2:", "NOTE 3:", etc. (see also 5.2.1A). A separate numbering sequence shall be used for each figure.

Notes to figures may contain requirements.

- Write notes to a figure using the word processor rather than embedding them in the figure itself.

- Use the **NF** style.

- Separate NOTE: from the text of the note with a tab.

6.6.4.9   Footnotes to figures

Footnotes shall not be used in 3GPP deliverables.

6.6.5   Tables

6.6.5.1   Usage

Tables should be used wherever appropriate to present information in an easily comprehensible form. It shall be possible to refer to each table explicitly within the text.

A table within a table is not permitted. Subdivision of a table into subsidiary tables is not permitted.

- Center tables horizontally.

- The "space between columns" is 0,1 cm.

- Maximum width for tables in portrait orientation: 17 cm and for landscape orientation: 22 cm.

- Set table columns widths in centimetres (not inches).

- Use borders to separate the rows and columns of tables, as appropriate; the precise format will depend on the structure of each table, but be consistent throughout a deliverable (or series of related deliverables). Borders should be ¾ pt single line.

- Each table shall be followed by an empty "Normal" style paragraph ("Enter" key).

6.6.5.2   Numbering

Tables may be numbered sequentially throughout the document without regard to the clause numbering, e.g. first table is table 1 and the twentieth table (in, say clause 7) is table 20.

Tables may also be numbered taking account of clause or subclause numbering.

EXAMPLE 1:   First table in clause 7 is table 7.1, fifth table in clause 7 is table 7.5.

EXAMPLE 2:   First table in subclause 7.3.2 is table 7.3.2.1, fifth table in subclause 7.3.2 is table 7.3.2.5.

See also 5.2.1A. For the numbering of tables in annexes, see 5.2.6.

- You may use sequence fields for automatically numbering tables. See clause H.4: "Sequence numbering".

6.6.5.3   Layout of title

The title shall be above the table. An explicit table name is optional. See the following examples:

EXAMPLE 1:

Table 1: Electrical properties

EXAMPLE 2:

Table 1

- Use the **TH** style.

- If applicable, the table number is followed by a colon, a space and the table name

6.6.5.4   Headings

The first word in the heading of each column shall begin with a capital letter. The units used in a given column shall generally be indicated under the column heading.

EXAMPLE:

Type	Linear density (kg/m)	Inside diameter (mm)	Outside diameter (mm)

- Use of the table headings tool (**Table, Headings**) is encouraged for tables that require more than one page.

- Use the following styles:

-    Table Headings   **TAH**

-    Text Left justified   **TAL**

-    Text Centred   **TAC**

-    Text Right justified   **TAR**

6.6.5.5   Continuation of tables

The column headings shall be repeated on all pages after the first.

6.6.5.6   Notes to tables

Notes to tables shall be treated independently from notes integrated in the text (see 6.5.1). They shall be located within the frame of the relevant table. A single note in a table shall be preceded by "NOTE:". When several notes occur in the same table, they shall be designated "NOTE 1:", "NOTE 2:", "NOTE 3:", etc. (see also 5.2.1A). A separate numbering sequence shall be used for each table.

Notes to tables may contain requirements.

- Use the **TAN** style.

- Include notes to a table within its borders in *one* cell, at the bottom.

- Merge all cells to one, as in the following example:

EXAMPLE:

Column 1 cell	Column 2 cell	Column 3 cell	Column 4 cell
NOTE: This cell is a merged cell.			

6.6.5.7   Footnotes to tables

Footnotes shall not be used in 3GPP deliverables.

6.6.6   References

6.6.6.1   General

As a general rule, references to particular pieces of text shall be used instead of repetition of the original source material, since such repetition involves the risk of error or inconsistency and increases the length of the document. However, if it is considered necessary to repeat such material, its source shall be identified precisely.

References shall be made in the forms indicated in 6.6.6.2 to 6.6.6.5 and shall not be made to page numbers.

6.6.6.2   References to the 3GPP deliverable as a whole in its own text

The form "the present document …" shall be used.

6.6.6.3   References to elements of text

Use, for example, the following forms:

- "in accordance with clause 3";

- "according to 3.1";

- "as specified in 3.1 b)";

- "details as given in 3.1.1";

- "see annex B";

- "the requirements given in B.2";

- "see the note in table 2";

- "see example 2 in 6.6.3";

- "see note 3 in 6.6.1".

It is required to use the terms clause and annex where applicable. It is unnecessary to use the term "subclause".

If there is a need to refer to an unordered list item in another standard, the following formulation shall be used:

"as specified in 3.1 of ES 201 001, second list item".

Lower case letters are recommended (e.g. clause 1, annex A), however capital letters are also acceptable (e.g. Clause 1, Annex A). Usage should be consistent throughout the document.

6.6.6.4   References to tables and figures

Every table and figure included in the 3GPP deliverable shall normally be referred to in the text.

Use, for example, the following forms:

- "given in table 2";

- "(see table B.2)";

- "shown in figure A.6";

- "(see figure 3)".

Lower case letters are recommended (e.g. table 1, figure 2), however capital letters are also acceptable (e.g. Table 1, Figure 2). Usage should be consistent throughout the document.

6.6.6.5 References to other documents

6.6.6.5.1 General

References to other documents may be specific or non-specific. All references, specific and non-specific, shall be given in the "References" clause (see 6.2.2).

6.6.6.5.2 Specific references

Except as provided for in 6.6.6.5.3, references shall be specific (identified by date of publication, edition number, version number, etc.).

Use the following forms:

- " … in accordance with ES 201 001, clause 3, … ";

- " … in accordance with [n], clause 3, … ";

- " … in accordance with ES 201 001 [n], clause 3, … ".

6.6.6.5.3 Non-specific references

Non-specific references may be made only in the following cases:

- if it is accepted that it will be possible to use future changes of the document referred to for the purposes of the referring 3GPP deliverable;

- if it is granted that the structure of the document referred to will not change for the specific locations which are used by the referring 3GPP deliverable (e.g. the referred to document is controlled by the same Technical Specification Group as the referring one).

Use the forms as in 6.6.6.5.2.

6.6.7 Representation of numbers and numerical values

The decimal sign shall be a comma. The thousand separator shall be a space.

NOTE: In the text below, ° represents the non-breaking space character.

If a value less than 1 is written in decimal form, the decimal sign shall be preceded by a zero.

EXAMPLE 1:   0,001

Each group of three digits reading to the left or to the right of a decimal sign shall be separated by a space from preceding digits or following digits respectively, except for four-digit numbers designating years.

EXAMPLE 2:   23°456 / 2°345 / 2,345 / 2,345°6 / 2,345°67 but the year 1997

For clarity, the symbol $\times$ or a lower case x (rather than a point or any other symbol) shall be used to indicate multiplication of numbers and numerical values.

EXAMPLE 3:   write $1,8°\times°10^{-3}$ (not $1,8 * 10^{-3}$ or $1,8 • 10^{-3}$ or $1,8 . 10^{-3}$)

To express numbers of items (as opposed to numerical values of physical quantities), the numerals one to nine shall as a general rule be spelt out in full.

EXAMPLE 4:   "Carry out the test on five tubes, each 5 m long."

EXAMPLE 5:   "Select a further 15 tubes for the pressure test."

Preserve document identities as in the original titles.

EXAMPLE 6:   ISO/IEC°10531-1 (not ISO/IEC 10°531-1).

EXAMPLE 7:   ES°201°150.

Put a non-breaking space between a number and its unit - including the percent sign (%) - even if the unit is not abbreviated:

EXAMPLE 8:   2°pages   4°seconds   15°%

Write a number preceded by an unary operator (sign) without an intervening space:

EXAMPLE 9:   … a level of -3°dB …

Put a non-breaking space both before and after binary operators (+, −, ×, etc.):

EXAMPLE 10:   a°+°b°=°c

- Use non-breaking spaces (Ctrl + Shift + space) for the thousand separator, before and after binary operators and preceding units.

- Use a non-breaking hyphen (Ctrl + Shift + -) for the minus sign.

6.6.8   Quantities, units, symbols and signs

The units in which any values are expressed shall be indicated.

6.6.9   Mathematical formulae

6.6.9.1   Types of equations

Equations between quantities are preferred to equations between numerical values. Equations shall be expressed in mathematically correct form, the variables being represented by letter symbols the meanings of which are explained in connection with the equations, unless they appear in a "Symbols and abbreviations" clause (see 6.3.2). Descriptive terms, acronyms or names of quantities shall not be arranged in the form of an equation.

EXAMPLE:

$$t = \sqrt{\frac{1}{(6n^2(N-3n+1))} \sum_{j=1}^{N-3n+1} (\sum_{i=j}^{n+j-1} (x_{i+2n} - 2x_{i+n} + x_i))^2}$$

where: x_j are samples of time errors data;
              N is the total number of samples;
              τ is the time error sampling interval;
              n is the number of sampling intervals, with n = 1,2,...,integer part (N/3).

6.6.9.2   Presentation

- Use the **EQ** style.

- Insert one tab before the equation to center it.

The equation editor sizes and styles should be respected as shown in the following examples:

Styles

Style	Font	Character Format	
		Bold	Italic
Text	Times New Roman	☐	☐
Function	Times New Roman	☐	☐
Variable	Times New Roman	☐	☑
L.C. Greek	Symbol	☐	☑
U.C. Greek	Symbol	☐	☐
Symbol	Symbol	☐	☐
Matrix-Vector	Times New Roman	☑	☐
Number	Times New Roman	☐	☐

Sizes

Full	10pt
Subscript/Superscript	8pt
Sub- Subscript/Superscript	6pt
Symbol	20pt
Sub-symbol	12pt

$$\sum_{p=1} (1+B)^2 X_{n_k}^{kp}$$
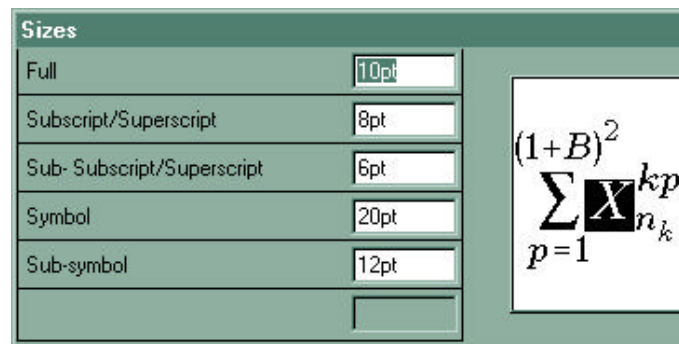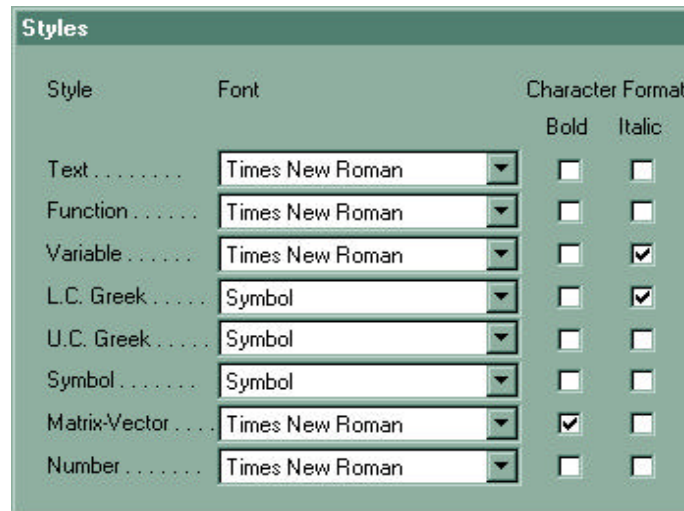
6.6.9.3   Numbering

If it is necessary to number some or all of the formulae in a 3GPP deliverable in order to facilitate cross-reference, arabic numbers in parentheses shall be used, beginning with 1:

$$x^2 + y^2 < z^2 \tag{1}$$

Equations may be numbered sequentially throughout the document without regard to the clause numbering, e.g. first equation is equation 1 and the twentieth equation (in, say clause 7) is equation 20.

Equations may also be numbered taking account of clause or subclause numbering.

EXAMPLE 1:   First equation in clause 7 is equation 7.1, fifth equation in clause 7 is equation 7.5.

EXAMPLE 2:   First equation in subclause 7.3.2 is equation 7.3.2.1, fifth equation in subclause 7.3.2 is
equation 7.3.2.5.

See also 5.2.1A. For the numbering of equations in annexes see 5.2.6.

- You may use sequence fields for automatically numbering tables. See clause H.4: "Sequence numbering".

- Insert a tab between the equation and the number to right-align the number.

6.6.10   Indication of dimensions and tolerances

Dimensions and tolerances shall be indicated in an unambiguous manner.

EXAMPLE 1:   80 mm°×°25 mm°×°50 mm (not 80 × 25 × 50 mm)

EXAMPLE 2:   80 μF°±°2 μF   or   (80 ± 2) μF

EXAMPLE 3:   16 kbit/s to 64 kbit/s (not 16 to 64 kbit/s)

EXAMPLE 4:   0 °C to 10 °C (not 0 to 10 °C)

In order to avoid misunderstanding, tolerances on percentages shall be expressed in a mathematically correct form.

EXAMPLE 5:   Write "from 63°% to 67°%" to express a range.

EXAMPLE 6:   Write "(65°±°2)°%" to express a centre value with tolerance.

The form "65°±°2°%" shall not be used.

7   Presentation of computer language and other code

Portions of code (e.g. ASN.1, GDMO, C, C++, etc.) can be included in a 3GPP deliverable but should be clearly marked as such.

- Use the **PL** style.

Annex A (informative):
Basic 3GPP deliverables and reference works

Void.

Annex B (informative):
Example of numbering of divisions and subdivisions

Void.

Annex C (normative):
Drafting and presentation of terms and definitions

C.1   General principles

C.1.1   Rules for development

Void.

C.1.2   Types of standard

Terminology may take the form of an independent 3GPP terminology deliverable (a vocabulary or a nomenclature) or be included in a "Definitions" clause in a 3GPP deliverable that also deals with other aspects.

C.1.3   Choice of concepts to be defined

Any term which is not self-explanatory or commonly known and which can be differently interpreted in different contexts shall be clarified by defining the relevant concept.

Common dictionary or current technical terms shall be included only if they are used with a specific meaning in the relevant context.

Trade names (brand names) and archaic and colloquial terms shall be avoided.

Deprecated terms may be included after the preferred term but their nature shall be indicated (by adding the word deprecated, see C.3.3).

In an independent terminology deliverable, the concepts defined shall be restricted to the field corresponding to the scope of the 3GPP deliverable. In other 3GPP deliverables, only such concepts shall be defined as are used in those deliverables, apart from any additional concepts and their terms that may be deemed necessary for the understanding of these definitions.

C.1.4   Avoidance of duplications and contradictions

Before a term and a definition are established for a concept, it should be ascertained that no other term and definition for that concept exist in another 3GPP deliverable.

If the concept is used in several 3GPP deliverables, it should be defined in the most general of those standards, or in an independent terminology deliverable. The other 3GPP deliverables should then refer to this deliverable, without repeating the definition of the concept.

When the repetition of a definition is necessary, an informative reference shall be made to the document (3GPP deliverable or other) from which it is reproduced (see 6.6.6.5).

If a term and a definition for a concept are established in one 3GPP deliverable, the introduction in another 3GPP deliverable of a different term (synonym) for the defined concept is strongly deprecated.

C.1.5   Drafting of definitions

- A definition shall not take the form of, or contain, a requirement.

- The form of a definition shall be such that it can replace the term in context. Additional information shall be given only in the form of examples or notes (see C.3.9).

- A definition given without an indication of its applicability may be taken as representing the general meaning of the term. Special meanings in particular contexts shall be indicated by designating the subject field (see C.3.6).

C.2   Independent terminology deliverables

C.2.1   Arrangement

An independent terminology deliverable containing terms and definitions should be preferably classified according to the hierarchy of the concepts. The terms and definitions of general concepts shall precede those of less general concepts. If a mixed system of concepts is used in which several groupings (according to different criteria) appear, each grouping shall be kept separate and the relevant criteria shall be indicated.

The grouping of terms shall be evident from their numbering.

C.2.2   Languages other than official languages

Void.

C.3   Presentation

C.3.1   Rules

Void.

C.3.2   Layout

The preferred term (set in bold type) shall be placed on a new line, (after its reference number, if used), starting with a lower-case letter except for any capital letters required by the normal written form in running text. The definition shall follow, after a colon and a space.

delamination: separation of two adjacent plies resulting from a lack of adhesion

C.3.3   Synonyms

Admitted terms (set in normal type in the printed publication) shall each be placed on a new line, after the preferred term.

serializer; parallel-serial converter dynamicizer: functional unit that converts a set of simultaneous signals into a corresponding time sequence of signals

Symbols shall be given following any admitted term(s).

Information regarding the units applicable to a quantity shall be given in a note.

resistance; R: electric difference divided by current when there is no electromotive force in the conductor

NOTE: Resistance is expressed in ohms.

Deprecated, obsolete and superseded terms (in normal type) shall each be placed after the recommended term, after any symbols, and shall be followed by an indication of their status, in parentheses.

radix; base (deprecated): positive integer by which the weight of any digit place is multiplied to obtain the weight of the digit place with the next higher weight

C.3.4   Grammatical form of terms

Terms shall in general be presented in their basic grammatical form, i.e. nouns in the singular, verbs in the infinitive.

C.3.5   Symbol for missing terms

Void.

C.3.6   Multiple meanings

If a term is used to represent several concepts, the subject field to which each concept belongs shall be indicated between angle brackets, before the definition.

die, noun: [extrusion] metal block with a shaped orifice through which plastic material is extruded

die, noun: [moulding] assembly of parts enclosing the cavity from which the moulding takes its form

die, noun: [punching] tool to punch sheet or film material

C.3.7   Codes for countries and for languages

Void.

C.3.8   Parentheses and brackets

Parentheses and square brackets shall be used only if they constitute part of the normal written form of the term. They shall not be used to show alternative terms.

bis(dimethylthiocarbamyl) disulfide

C.3.9   Examples and notes

Examples of term usage, and notes concerning entries, shall be presented as shown below.

radix; base (deprecated): [radix numeration system] positive integer by which the weight of any digital place is multiplied to obtain the weight of the digit place with the next higher weight

EXAMPLE: In the decimal numeration system the radix of each digit place is 10.

NOTE: The term "base" is deprecated in this sense because of its mathematical use.

Annex D (normative):
Drafting of the title of a 3GPP deliverable

D.1   Elements of the title

D.1.1   The introductory element

3GPP deliverables should include an introductory element in their title. It should not be based on the name of the Technical Specification Group which drafted the deliverable, especially if this is too broad to add much value.

D.1.2   The main element

The main element shall always be included.

D.1.3   The complementary element

The complementary element is necessary if the 3GPP deliverable covers only one or a few aspects of the subject indicated in the main element.

Experience has shown that the titles of most deliverables benefit from the precision supplied in the complementary element.

In the case of a 3GPP deliverable published as a series of parts, the complementary element shall serve to distinguish and identify the parts (the introductory element and the main element remaining the same for each part).

The complementary element shall be omitted if the 3GPP deliverable both:

- covers all essential aspects of the subject indicated in the main element; and

- is (and is intended to remain) the only 3GPP deliverable relating to this subject.

D.2   Avoidance of unintentional limitation of the scope

The title shall not contain details that might imply a limitation of the scope of the 3GPP deliverable.

However, if the 3GPP deliverable pertains to a specific type of product, this fact shall be reflected in the title.

D.3   Wording

Void.

Annex E (normative):
Verbal forms for the expression of provisions

NOTE: Only singular forms are shown.

The verbal forms shown in table E.1 shall be used to indicate requirements strictly to be followed in order to conform to the standard and from which no deviation is permitted.

Table E.1: Requirement

Verbal form	Equivalent expressions for use in exceptional cases (see 6.1.1.3)
shall	is to is required to it is required that has to only ... is permitted it is necessary
shall not	is not allowed [permitted] [acceptable] [permissible] is required to be not is required that ... be not is not to be
Do not use "must" as an alternative for "shall". (This will avoid any confusion between the requirements of a standard and external statutory obligations). Do not use "may not" instead "shall not" to express a prohibition. To express a direct instruction, for example referring to steps to be taken in a test method, use the imperative mood in English (e.g. "switch on the recorder").	

The verbal forms shown in table E.2 shall be used to indicate that among several possibilities one is recommended as particularly suitable, without mentioning or excluding others, or that a certain course of action is preferred but not necessarily required, or that (in the negative form) a certain possibility or course of action is deprecated but not prohibited.

Table E.2: Recommendation

Verbal form	Equivalent expressions for use in exceptional cases (see 6.1.1.3)
should	it is recommended that ought to
should not	it is not recommended that ought not to

The verbal forms shown in table E.3 are used to indicate a course of action permissible within the limits of the 3GPP deliverable.

Table E.3: Permission

Verbal form	Equivalent expressions for use in exceptional cases (see 6.1.1.3)
may	is permitted is allowed is permissible
need not	it is not required that no ... is required
Do not use "possible" or "impossible" in this context. Do not use "can" instead of "may" in this context. NOTE: "May" signifies permission expressed by the standard, whereas "can" refers to the ability of a user of the standard or to a possibility open to him.	

The verbal forms shown in table E.4 are used for statements of possibility and capability, whether material, physical or causal.

Table E.4: Possibility and capability

Verbal form	Equivalent expressions for use in exceptional cases (see 6.1.1.3)
can	be able to there is a possibility of it is possible to
cannot	be unable to there is no possibility of it is not possible to
Do not use "possible" or "impossible" in this context. Do not use "can" instead of "may" in this context. NOTE: "May" signifies permission expressed by the standard, whereas "can" refers to the ability of a user of the standard or to a possibility open to him.	

Annex F (informative): Checklist concerning quantities and units to be used in 3GPP deliverables

Void.

Annex G (informative): Example layout of a typescript

Void.

Annex H (informative):
3GPP styles and various information

H.1   The 3GPP styles

Use table H.1 when determining which style to use for various elements of the deliverable.

Table H.1

Use this style	For this type of element
Heading 1	Clause ($\rightarrow$ if numbered)
Heading n	Subclause level n In exceptional cases, for level 6 or beyond, use **Heading 5** if required in contents list or **H6** if not to appear. $\rightarrow$
Heading 8	Annex title for (I)ETS, EN, ES & TS
Heading 9	Annex title for EG & TR
Normal	Standard paragraph, Definition
EX	Reference, Example $\rightarrow$
EW	Symbol, Abbreviation, Example continuation in text $\rightarrow$
Bn	List element level n $\rightarrow$
FP	Free paragraph (left justified)
NO	Note integrated in the text $\rightarrow$
NW	Note continuation in text $\rightarrow$
NF	Note in figure $\rightarrow$
TAN	Note in table $\rightarrow$
TH	Table title, Figures
TAH	Heading within table
TAC	Centred text within table
TAL	Left justified text within table
TAR	Right justified text within table
TF	Figure title
TT	Contents list title
PL	Programming language
EQ	Equation
Header	Header (portrait and landscape pages)
$\rightarrow$ use "tab" between "item/number" and "text". EXAMPLE: The "tab" is preceding this example text.	

NOTE: Other styles exist in the template.

H.2   Page numbering, page headers and footers

The skeleton document supplies fields for automatic page numbering and the identification of the deliverable in the page header. Do not add anything to or delete anything from the headers.

- Use the **HEADER** style on all page headers (sections) except for the title page (section)

H.3   Configuration of the Windows environment

Set your Windows environment to use the English (International) conventions (via Control Panel, International).

- Use centimetres as the preferred unit of measurement.

- Do *not* select "Change 'Straight Quotes' to 'Smart Quotes'" in the AutoCorrect options.

- Set Default Tab Stops to 0,5 cm.

- The remaining configurable elements of Windows and of Word are at your discretion.

H.4   Sequence numbering

You may use sequence numbering (**Insert Field Seq**) for tables, figures, equations, references, etc. Use the sequence identifiers shown in the following table.

Table H.2: Sequence numberings

Sequence	Bookmark name	Description
seq bib	bib_xx	for bibliography entries
seq equ	equ_xx	for equations (note 1)
seq fig	fig_xx	for figures (note 1)
seq ref	ref_xx	for references
seq tab	tab_xx	for tables (note 1)
NOTE 1: Reset the sequence numbering to one for the first item of each annex of a 3GPP deliverable by using the switch **\r1** (e.g. **{ seq fig \r1 }**).			
NOTE 2: "xx" represents the identifier for the particular object concerned, e.g. fig_ProcessControl. Do not use bookmarks of the form "fig_fig1". You can use underscores as separators in sequence identifiers if necessary.			

Thus the title of a table will read:

Table { seq tab }: Table title

where the *italic* part represents the sequence field code.

Bookmark each entry in a sequence (select it and use **Edit Bookmark Add**), using a bookmark name of the form shown in table 1. You can then refer to the table, figure, reference, etc. from the text by inserting a sequence field citing the same sequence identifier and the particular bookmark required. For example, table 1 has been bookmarked "tab_Seq_Num". Thus a reference to this table from the text reads:

… see table **{ seq tab tab_Seq_Num }** …

where the *italic* part represents the sequence field code.

You can force Word to recalculate and refresh the display of sequence numbers and their references by selecting the text and pressing F9.

Do not use Word's cross-referencing tool (Insert, Cross-reference), since it implies the use of automatic heading or caption numbering.

H.5   Supported file formats

The following document formats are currently accepted by the 3GPP **[tbd]**

- Word for Windows® 97

- Word for Windows® 95 (preferred)

- Word for Windows® 6.0

- Word for Windows® 2.0

The following graphic file formats for embedding into a document are currently accepted by the 3GPP:

- Designer 6.0 (preferred)

- Designer 3.x

- Microsoft® Drawing (embedded application)

- Microsoft® Word Picture (embedded application)

The following graphic file formats for linking to a document are currently accepted by the 3GPP:

- Encapsulated Postscript™ (preferred for SDL diagrams)

All other graphical formats are treated as bitmaps that cannot be modified.

H.6   Quick tips to working with your document

When working with your 3GPP deliverable remember you can...

... do this...

- use **bold** to **emphasize** text;

- use *italic* for citations, linguistic expressions or when a word/text/expression is extracted from a specific context;

- use non-breaking spaces (°) or hyphens (—) in order to avoid unexpected wrap around between two words and/or numbers (e.g. 50°cm, 1°000, clause°6, annex°A, table°1, figure°1, ES°201°999—1, etc.). These characters appear as normal spaces ( ) or hyphens (-) when printed out;

- use the default tab stops 0,5 cm for the new regime deliverables and 1 cm for old regime deliverables;

- use "straight" quotation marks (". . .") not "curly" or "smart" (". . .") ones. If a second set of quotations is needed (e.g. GDMO, ASN.1, etc.), single quotes ('. . .') may be used.

… but please don't do this …

- alter existing styles or formats pre-set in the 3GPP template;

- add new styles to the 3GPP template;

- delete 3GPP styles;

- use a font other than the one pre-set in the 3GPP styles;

- use the underline attribute, as this causes confusion when revision marks are used;

- put more than one space after a full stop;

- precede comma (,), semicolon (;), colon (:), full stop (.), question mark (?) or exclamation mark (!) by spaces;

- use spaces in place of tabs when indentation/alignment is required; this can cause text to be misaligned;

- use footnotes or end-notes;

- do not unnecessarily use capital letters.

Annex I (normative):
Text containing SDL, program code, ICS and TTCN

I.1 SDL diagrams

Provide SDL diagrams in SDT binary files or as CIF files when not using SDT.

When using SDT use the .ini file supplied on the 3GPP server.

Take into account the following when inserting SDL diagrams in Word documents

- Do not include SDL headers or footers.

- Insert SDL diagrams by importing individual embedded Postscript™ (.eps) files generated from the SDL tool that you are using.

I.2 Program code

Large volumes of program code, source code or formal description language shall be placed in a separate file.

I.3 Implementation Conformance Statement (ICS) proforma tables

Use the guidance and the ICS proforma templates contained in EG 201 058.

I.4 Tree and Tabular Combined Notation (TTCN)

Provide TTCN as a separate file.

Provide both Graphical Rendition (GR) and Machine Processable (MP) files.

The following text should be used for ATSs using TTCN. The subdivision is recommended.

This ATS has been produced using the Tree and Tabular Combined Notation (TTCN) according to ISO/IEC 9646-3 [<x>].

The ATS was developed on a separate TTCN software tool and therefore the TTCN tables are not completely referenced in the table of contents. The ATS itself contains a test suite overview part which provides additional information and references.

<x1> The TTCN Graphical form (TTCN.GR)

The TTCN.GR representation of this ATS is contained in a Portable Document Format file (<any_name>.PDF contained in archive <Shortfilename>.LZH) which accompanies the present document.

<x2> The TTCN Machine Processable form (TTCN.MP)

The TTCN.MP representation corresponding to this ATS is contained in an ASCII file (<any_name>.MP contained in archive <Shortfilename>.LZH) which accompanies the present document.

> NOTE: *According to ISO/IEC 9646-3 [<x>], in case of a conflict in interpretation of the operational semantics of TTCN.GR and TTCN.MP, the operational semantics of the TTCN.GR representation takes precedence."*

Annex J (normative):
Endorsement of documents from other standards organizations

J.1   General

In the case that a 3GPP deliverable would become almost identical to (i.e., with or without modifications use the entirety of) a document from another standards organization, the Technical Specification Group may decide to prepare a 3GPP deliverable defining only the differences, if any, between that document (commonly called "endorsed document") and the 3GPP deliverable.

Such a 3GPP deliverable, commonly called "endorsement", shall be drafted in accordance with the present document, with the exceptions defined below.

J.2   Title

If the endorsed document is referred to without modifications, the title of the 3GPP deliverable should be as close as possible to the title of the endorsed document, but comply with the provisions of annex D).

EXAMPLE 1:

Endorsement of ITU-T Recommendation Q.1215 (1993): "Physical plane for intelligent network CS-1", gives the 3GPP deliverable the title:

Intelligent Network (IN);
Physical plane for intelligent network Capability Set 1 (CS1)

[ITU-T Recommendation Q.1215 (1993)]

If the endorsed document is referred to with textual (technical and/or editorial) modifications, the title of the 3GPP deliverable shall indicate that.

EXAMPLE 2:

Endorsement of ITU-T Recommendation G.957 (1993): "Optical interfaces for equipments and systems relating to the synchronous digital hierarchy", gives the 3GPP deliverable the title:

Transmission and Multiplexing (TM);
Optical interfaces for equipments and
systems relating to the Synchronous Digital Hierarchy (SDH)

[ITU-T Recommendation G.957 (1993), modified]

J.3   Requirements

This element is mandatory and shall be entitled "Endorsement notice".

If the endorsed document is referred to without modifications, the following text should be used:

"All elements of …. apply."

If the endorsed document is referred to with modifications, the following text should be used:

"The elements of …. apply , with the following modifications:"

The modifications shall be presented in an order following the sequence of clauses of the endorsed document. General modifications shall precede specific modifications.

- The use of revision marks for the presentation of the modifications is recommended.

J.4   Annex

Designation of the serial order of an annex shall be with two letters, the first letter always being Z (i.e. ZA, ZB, ZC, etc.), in order to avoid confusion with any annexes of the endorsed document.

History

Document history		
V1.0.0	December 1998	Draft approved