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Technical Report

3rd Generation Partnership Project;

Technical Specification Group Services and System Aspects;

Specification drafting rules

(Release 17)

** 

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# Foreword

This Technical Report has been produced by the 3rd Generation Partnership Project (3GPP) Secretariat on behalf of the 3GPP Technical Specification Groups (TSGs).

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.

The present document is based ISO/IEC Directives. Most clauses of the ISO/IEC document have been retained, while some clauses have been modified or deleted. Additional material has been inserted.

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

# 1 Scope

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

The present document is based on the ISO/IEC Directives, Part 3, but is a self-contained document that will be maintained as such.

These drafting rules complement the 3GPP 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, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

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

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

[3] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".

[4] ISO/IEC 9646 (all parts): "Information technology - Open Systems Interconnection - Conformance testing methodology and framework".

[5] ETSI ES 201 873 (all parts): "Methods for Testing and Specification (MTS); The Testing and Test Control Notation version 3".

# 3 Definitions and abbreviations

## 3.1 Definitions

For the purposes of the present document, the terms and definitions given in 3G TR 21.905 [3] and the following apply:

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

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

**normative element:** an element setting out provisions to which it is necessary to conform in order to be able to claim compliance with the Technical Specification

**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 abbreviations given in 3GPP TR 21.905 [3] and the following apply:

ICS Implementation Conformance Statement

PDF Portable Document Format

SDL Specification and Description Language

TR Technical Report

TS Technical Specification

TTCN-2 Tree and Tabular Combined Notation

TTCN-3 Testing and Test Control Notation

# 4 General principles

## 4.1 Objective

The objective of a 3GPP Technical Specification or Technical Report is to define clear and unambiguous provisions in order to facilitate international trade and communication. To achieve this objective, the 3GPP TS or TR 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 TS or 3GPP TR, but also within a series of associated 3GPP TSs or 3GPP TRs. The structure of associated 3GPP TSs or 3GPP TRs 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 TS or 3GPP TR or series of 3GPP TSs or 3GPP TRs 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 TS or 3GPP TR but also to derive the maximum benefit available through automated text processing techniques.

See also clause 5.3.

## 4.3 Consistency of 3GPP TSs and 3GPP TRs

In order to achieve the aim of consistency within the complete body of 3GPP TSs and 3GPP TRs, the text of every 3GPP TS and 3GPP TR shall be in accordance with the relevant provisions of existing basic 3GPP TSs and 3GPP TRs. 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 TSs or 3GPP TRs 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 TSs or 3GPP TRs shall be in the English language only.

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

The content of a 3GPP TS or 3GPP TR shall be drawn up in such a way as to facilitate its direct application and its adoption without change as a national, regional or international standard.

## 4.6 Planning

In order to ensure the timely publication of a 3GPP TS or 3GPP TR or of a series of associated 3GPP TSs or 3GPP TRs, 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 clause 5.1). In the case of a multi-part 3GPP TS or 3GPP TR, 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 (void)

## 4.8 Use of inclusive language

3GPP TSs and TRs should not contain non-inclusive terminology.

Terms that have been deemed to fall into this category are listed in Annex K and should be replaced by inclusive terminology.

Where a change in terminology would introduce backwards incompatibilities or interoperability issues, a deliverable may contain such terminology.

# 5 Structure

## 5.1 Subdivision of the subject matter

### 5.1.1 General

3GPP TSs or 3GPP TRs 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 TS or 3GPP TR 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 TS or 3GPP TR is likely to become too voluminous;

- subsequent portions of the content are interlinked;

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

- portions of the 3GPP TS or 3GPP TR are intended to serve for certification purposes,

the 3GPP TS or 3GPP TR 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 TS or 3GPP TR or as separate 3GPP TSs or 3GPP TRs.

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 TS or 3GPP TR may have are shown in table 1.

Table 1: Names of divisions and subdivisions

|  |  |
| --- | --- |
| Term | Example of numbering |
| part clause clause clause annex clause clause | 3GPP TS 21.299-1  1 1.1 1.1.1 A A.1 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 version. There are two ways to achieve this:

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

- Since the complete series of parts is normally under the control of the same TSG, the use of non-specific references (see clause 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 TSG responsible for the 3GPP TS or 3GPP TR.

Their use is not permitted between 3GPP TSs or 3GPP TRs 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 TS or 3GPP TR.

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

### 5.1.3 Subdivision of the subject matter within an individual 3GPP TS or 3GPP TR

Table 2: Example of a typical arrangement of elements in a 3GPP TS or 3GPP TR

|  |  |  |
| --- | --- | --- |
| Type of element | Arrangement of elements in  3GPP TS or 3GPP TR (note 1) | Permitted content of element(s) in 3GPP TS or 3GPP TR (note 1) |
| Informative preliminary | **Title pages** | title, number, logo(s), copyright statement, etc |
| **Table of contents** | (generated content, see clause 6.1.2) |
| **Foreword** | text (note 3) |
| Introduction | text, figures, tables, notes |
| **Scope** | text, figures, tables, notes |
| **References** | stock text followed by numbered references of documents specifically cited in the TS/TR (note 4) |
| **Definition of  terms,  symbols and  abbreviations** | stock text plus specific definitions (note 4)  text, notes |
| Normative technical (TS)  Informative technical (TR) | **Clauses comprising the main body of the document** | text, figures, tables, notes, equations (note 2) |
| Normative supplementary (TS) | Annexes | text, figures, tables, notes, equations (notes 2, 5) |
| Informative supplementary | Annexes | text, figures, tables, notes, equations (notes 2, 5) |
| Bibliography | unnumbered list of documents for further reading not specifically cited elsewhere in the TS/TR |
| Index |  |
| **Change history annex** | table (notes 3, 6) |
| NOTE 1: **Bold type** = required element. These elements shall not be removed from the skeleton TS/TR. Elements in normal weight type are optional and shall be omitted from the TS/TR if not required.  NOTE 2: Informative elements shall not contain normative content. Normative elements may additionally contain informative content.  NOTE 3: Provided by the 3GPP Support Team.  NOTE 4: Partly provided by the 3GPP Support Team.  NOTE 5: The order of inclusion of annexes and the mix of normative and informative annexes is not mandated by the present document. There is no requirement that all normative annexes precede any informative annexes.  NOTE 6: The change history annex shall always be the last annex of the TS/TR. | | |

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

A 3GPP TS or 3GPP TR may also contain notes to figures and tables (see clauses 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

The number of a part shall be indicated by arabic numerals, beginning with 1, following the 3GPP TS or 3GPP TR number and preceded by a hyphen, for example:

- 3GPP TR 21.999-1, 3GPP TR 21.999-2.

### 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, annex, figure, table, note, list).

EXAMPLE 1: It is necessary to update a 3GPP TS. 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 may be retained. See clause 5.2.1B for further details.

EXAMPLE 3: During the updating of a 3GPP TS, 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.

Once a TS or TR is under change control, changing existing clause, figure, table, annex, etc. numbers is strongly deprecated, since external documents might reference specific clauses (figures, tables, ...) of the TS/TR.

### 5.2.1B Removal of redundant numbered elements

As described in clause 5.2.1A, it is occasionally necessary to remove text which has become obsolete or redundant. If an entire clause, or figure, table, or other numbered element having a title is concerned, the preferred method is to eliminate the text of the clause and to replace the title with the word "Void" in round brackets. Alternatively, if it is felt important to leave some trace of the clause's subject material prior to its removal, the author of the Change Request could leave the title of the element unchanged, and delete just the body of the text of the clause (or figure, or table, …), replacing the text with the word "Void" in round brackets.

EXAMPLE 1: The following clause is to be removed:

11.2 Functional procedures associated with lunch

If a DISSOCIATE message is received containing the indicator "User out to lunch", then the equipment shall start timer T100 and respond with an ACKNOWLEDGE message containing the indicator "Have a nice siesta".

The preferred method, replacing the title of the clause with "Void" and deleting completely the text of the clause, yields:

11.2 (Void)

The alternative is to retain the title, and delete only the body text:

11.2 Functional procedures associated with lunch

(Void)

Whichever method is used, the author of a Change Request provoking such a change shall ensure that any reference to the clause in question from elsewhere in the same TS or TR is eliminated by appropriate inclusion in the same Change Request. Ideally, the author should also check for references to that specific clause in other 3GPP TSs or TRs if he suspects there might be any, and raise appropriate Change Requests to those TSs or TRs to modify or eliminate those references.

### 5.2.1C Avoidance of re-use of a voided element for a new purpose

A clause which has been voided using the procedures of clause 5.2.1B above shall not be re-used for a different purpose if at some subsequent moment it is necessary to add another clause in the same logical position as the clause previously voided.

That is, based on the example in clause 5.2.1B, a subsequent Change Request to add a clause entitled "Colour options for the on/off switch" – which patently has no relationship to the original clause 11.2 – shall not re-use clause 11.2, but shall be added as a clause with a completely new number (e.g. 11.3 or 11.2A).

The only circumstances in which re-use of a voided clause number might be appropriate is if the new clause were to have exactly or very nearly the same title as the original clause (in this case, "Functional procedures associate with lunch".

The same considerations apply to other numbered elements such as figures and tables.

### 5.2.2 Clause

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

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

### 5.2.3 Subclause

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

It is unnecessary to use the term "subclause" unless using the term "clause" would be ambiguous, for example, if in the context, it were not clear if the term "clause" referred only to the top level clause ("4") or to all the subclauses ("4.1", "4.1.1", "4.1.2", "4.2" etc) beneath the clause. Such ambiguity can only occur where there are hanging paragraphs; these are sometimes encountered in older 3GPP Technical Specifications and Technical Reports produced before the outlawing of hanging paragraphs (see clause 5.2.4).

Subclauses shall be numbered with arabic numerals, see also clause 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.

(Sub)clause titles shall be treated as normal text i.e. no additional capitalization; there should be no full stop at the end of a (sub)clause title.

- 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 the 3GPP Support Team.

### 5.2.4 Paragraph

"Hanging paragraphs" such as those shown in the following example shall 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 clause "5.1 Xxxxxxxxxxxx" and to renumber the existing 5.1 and 5.2 accordingly (as shown), or to add a new clause header immediately below the header for clause 5 numbered it 5.0.

If hanging paragraphs are to be removed from a TS or TR already under change control, the renumbering of existing clauses being deprecated (see clause 5.2.1A), the newly introduced clause shall be numbered 5.0 (using the above example) and clauses 5.1 and 5.2 remain unchanged.

|  |  |  |
| --- | --- | --- |
| Permitted |  | Not permitted |
| **5 Designation**  **5.1 Xxxxxxxxxxx**  xxxxxxx x xxxxxxxxxxxxx xxxxxxxxxxxxxxxxx  xxxxxxx x xxxxxxxxxxxxx xxxxxxxxxxxxxxxxx  **5.2 Xxxxxxxxxxx**  xxxxxxx x xxxxxxxxxxxxx xxxxxxxxxxxxxxxxx  **5.3 Xxxxxxxxxxx**  xxxxxxx x xxxxxxxxxxxxx xxxxxxxxxxxxxxxxx  xxxxxxxxxxxx xxxxxxxxxxxxx  **6 Test report** |  | **5 Designation**  xxxxxxx x xxxxxxxxxxxxx   }  xxxxxxx x xxxxxxxxxxxxx   } hanging paragraphs  xxxxxxx x xxxxxxxxxxxxx   }  **5.1 Xxxxxxxxxxx**  xxxxxxx x xxxxxxxxxxxxx xxxxxxxxxxxxxxxxx  **5.2 Xxxxxxxxxxx**  xxxxxxx x xxxxxxxxxxxxx xxxxxxxxxxxxxxxxx  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 dash.

EXAMPLE 1:

- 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 clause 5.2.1A).

EXAMPLE 2:

a) list item a;

b) list item b;

1) list item a1;

2) list item a2.

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

Each annex shall start on a new page.

Note: This is one of the very few places in a TS or a TR where a manual page break is likely to be legitimate. The skeleton model TS and TR documents contain other page or section breaks, for example at the end of the cover page, before the Contents page, before the Foreword and before the Scope clauses, and these are intended to remain in the final document. Elsewhere in 3GPP TSs and TRs, page breaks are better controlled by the use of the "keep lines together" and "keep with next" properties of paragraphs.

For the description of normative and informative annexes, see clauses 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 clause 5.2.1A). The annex heading of a TS shall be followed by the indication "(normative):" or "(informative):", and by the title on the next line. In the case of a TR, the entire document is informative, so the text "(normative):" or "(informative):" shall be omitted.

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

Numbers given to the clauses, clauses, 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 clause 5.2.1A).

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

- Insert a manual page break before the title line of each annex. Use the **Heading 8** style (for 3GPP TSs) or **Heading 9** style(for 3GPP TRs) for the annex heading. Insert a line break (↵ "shift" + "enter") between the colon and the title.

- For all 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**. Do not insert manual page breaks before each clause of an annex.

### 5.2.7 Bibliography

A bibliography, if present, shall appear after the penultimate annex entitled "Bibliography".

### 5.2.8 Index

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

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

### 5.2.9 Change history

Shall appear as the last element (informative annex).

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

## 5.3 Consistency amongst Releases

In line with the general provisions of clause 4.2 (homogeneity), it is essential to preserve insofar as possible the structure of a TS or TR from one Release to another.

This is particularly important when voiding clauses (or figures, notes, etc) and when adding new clauses (figures, notes, etc). If a new clause is introduced, it shall be added in the logically correct place and shall be given a new clause number. It is not acceptable to re-use an existing, redundant, clause (ie one which had previously been used but has subsequently been voided).

Similarly, if an identical or near identical provision is introduced into two or more Releases, the provision should use the same clause (or figure, note, etc) number in each Release instance of the TS or TR. This may mean introducing void padding clauses (or figures, notes, etc) in older Release instances in order to keep the numbering aligned.

Example: The structure of the Release 10 version of a TS is  
  
…  
5.3 Some provision  
5.4 Another provision  
5.5 A third provision  
  
and, due to extra functionality having been added in the Release 11 instance, the structure of the Release 11 version of the TS has become  
  
…  
5.3 Some provision  
5.4 Another provision  
5.5 A third provision  
5.6 A new provision for Rel-11 only  
5.7 Another new Rel-11 requirement  
5.8 Something else peculiar to Rel-11

It is now decided to retrospectively add some requirement at Release 10, which will be mirrored in Release 11. The new clause shall have the same number in both Releases, with void padding clauses introduced into the Release 10 instance as necessary. Thus the structure of the Release 10 TS becomes  
…  
5.3 Some provision  
5.4 Another provision  
5.5 A third provision  
5.6 Void  
5.7 Void  
5.8 Void  
5.9 An afterthought  
  
and that of the Release 11 TS becomes  
  
…  
5.3 Some provision  
5.4 Another provision  
5.5 A third provision  
5.6 A new provision for Rel-11 only  
5.7 Another new Rel-11 requirement  
5.8 Something else peculiar to Rel-11  
5.9 An afterthought

That is, the new provision takes the clause number 5.9 in each both Releases.

# 6 Drafting

## 6.1 Preliminary informative elements

### 6.1.1 Title page

The title page shall contain the title of the 3GPP TS or 3GPP TR.

The wording of the title shall be established by the TSG with the greatest care. While being as concise as possible, it shall indicate, without ambiguity, the subject matter of the 3GPP TS or 3GPP TR in such a way as to distinguish it from that of other 3GPP TSs or 3GPP TRs, 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 "3rd Generation Partnership Project; Technical Specification Group nn;" (where nn is the full name of theTSG which produced the TS/TR);

NOTE 1: If prime responsibility for a TS/TR moves from one TSG to another, subsequent versions of that TS/TR will bear the name of the new TSG.

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 TS or 3GPP TR from other 3GPP TSs or 3GPP TRs, or other parts of the same 3GPP TS or 3GPP TR.

d) in parentheses, "Release yyyy" where yyyy indicates the Release identifier of the Release (e.g. Release 1999, Release 4).  
When modifying the Release text, editors shall take care not to modify the *style* of that text from the style preset in the skeleton document. The style is used to replicate the Release in the header of subsequent pages of the TS/TR.

See also annex D.

NOTE 2: The 3GPP Secretariat 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 …:".

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 Support Team is responsible for the final layout of the table of contents.

### 6.1.2A (void)

### 6.1.3 Foreword

The foreword shall appear in each 3GPP TS or 3GPP TR. It shall not contain requirements, figures or tables.

It consists of a general part giving information on:

- the designation and name of the TSG that prepared the 3GPP TS or 3GPP TR;

- information regarding the approval of the 3GPP TS or 3GPP TR;

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 TS or 3GPP TR;

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

- a statement of significant technical changes from the previous version of the 3GPP TS or 3GPP TR;

- the relationship of the 3GPP TS or 3GPP TR to other 3GPP TSs or 3GPP TRs 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.

### 6.1.3A (void)

### 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 TS or 3GPP TR, 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 clause 5.2.1A).

### 6.1.5 Scope

This element shall be clause 1 of each 3GPP TS or 3GPP TR and define without ambiguity the subject of the 3GPP TS or 3GPP TR and the aspect(s) covered, thereby indicating the limits of applicability of the 3GPP TS or 3GPP TR 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*

|  |  |  |
| --- | --- | --- |
| *- specifies* |  | *the functional requirements for …"*  *a method of …"*  *the characteristics of …"* |
| *- establishes* |  | *a system for …"*  *general principles for …"* |

*- gives guidelines for …"*

*- gives terms and definitions …"*

Statements of applicability of the 3GPP TS or 3GPP TR shall be introduced by the following wording:

*"The present document is applicable to …"*

### 6.1.6 References

References should 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:

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

- if public availability cannot be guaranteed over a period of time as stated above, the 3GPP Support Team will endeavour to secure the rights from the copyright holder (normally the originating body of the referenced text) to reproduce the text; in this case:

- agreement permitting 3GPP or its Organizational Partners to take over the copying and distribution rights shall have been obtained, in which case it shall be made available to 3GPP or its Organizational Partners in an agreed electronic format;

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

- the 3GPP Support Team 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;

- if agreement with the copyright holder along the above lines cannot be achieved, the TSG /WG responsible shall make appropriate changes to the document and remove the reference from the 3GPP TS or TR.

The list of references shall be introduced by the wording given in the approved 3GPP TS / TR template.

The list shall not include the following:

- documents that are not publicly available;

- documents which are not explicitly cited in the body of the deliverable (such documents may be listed in a bibliography (see clause 6.4.2)).

- Use the **EX** style; 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").

EXAMPLE 1:

[1] 3GPP TS 21.299 (V1.1): "Title".

In documents intended to be formally issued as publications of the Standards Development Organizations which comprise the Organizational Partners of 3GPP, references shall not be made to internal working documents of 3GPP which are not issued as such formal publications. Examples of documents which shall not be referenced are:

- Contributions to meetings ("TDocs");

- Reports of meetings;

- Internal Technical Reports, in particular, those of the following series:

- 10.xx

- 30.xxx

- 50.xxx

- xx.8xx

- 25.7xx

If the use in a TS or in a TR (other than those TRs in the list above) of text from such a document is unavoidable the text shall be reproduced in the TS or TR itself (possibly in an annex). Such text may need to be corrected to make it abide by the rules contained in the present TR.

The foregoing restriction does not apply to TRs not intended to be formally published by the Organizational Partners.

For further instructions on references, see clause 6.6.6.

### 6.1.7 Terms

This is a mandatory element giving formal definitions of terms used in the 3GPP TS or 3GPP TR. The introductory wording given in the 3GPP TS / TR template shall be used.

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.

- 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

### 6.1.8 Symbols

This is a mandatory element listing the symbols used in the 3GPP TS or 3GPP TR.

Unless there is a need to list symbols in a specific order to reflect technical criteria, 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*, *Α*, *α*, *Β*, *β*, … *Λ*, *λ*, etc.);

- any other special symbols.

See also clause 6.6.2.

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

- Use the **EW** style.

EXAMPLE:

fl lower reference frequency

### 6.1.9 Abbreviations

This is a mandatory element listing the abbreviations used in the 3GPP TS or 3GPP TR.

Unless there is a need to list symbols in a specific order to reflect technical criteria, all abbreviations 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*, *Α*, *α*, *Β*, *β*, … *Λ*, *λ*, etc.);

- any other special symbols.

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

- Use the **EW** style.

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

EXAMPLE:

dB decibel

## 6.2 (void)

### 6.2.1 (void)

### 6.2.2 (void)

## 6.3 Technical normative elements

### 6.3.1 (void)

### 6.3.2 (void)

### 6.3.3 Requirements

This element is only applicable to TSs. 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 TS or 3GPP TR, either explicitly or by reference;

b) the required limiting values of quantifiable characteristics.

For test methods see clause 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 TSs or 3GPP TRs, 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 TS or 3GPP TR since they are not requirements applicable to the product itself.

3GPP TSs or 3GPP TRs listing characteristics for which suppliers are required to state values that are not specified by the 3GPP TSPP or 3G TR itself shall specify how such values are to be measured and stated.

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

### 6.3.3a Technical analysis

This element is option and may appear in both TSs and TRs. It shall not contain any normative requirements.

It gives technical analysis of investigations, for example, of a feasibility study, and conclusions and recommendations. It may also contain guidance on the use or interpretation of TSs or external normative material without in itself being normative.

In a TS, requirements and technical analysis clauses may be freely intermixed to provide a logical structure. The language (modal verbs) suffices to distinguish between normative and informative material.

### 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 clause 6.3.8) or as separate parts (see clause 5.2.1). A test method shall be prepared as a separate 3GPP TS if it is likely to be referred to in a number of other 3GPP TSs.

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 3GPP TS you should consider the need for an accompanying test specification.

Every requirement of a 3GPP TS 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 t1."

"On receiving a start call primitive, the layer 3 protocol of the terminal shall move to state call activated and shall start timer t2."

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 (void)

## 6.3a Supplementary normative elements

### 6.3a.1 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 TS. Their status shall be indicated in the heading of the annex (see clause 5.2.6).

Normative annexes shall not appear in 3GPP TRs.

## 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 TS (or 3GPP TR) and shall not contain provisions to which it is necessary to conform in order to be able to claim compliance with the 3GPP TS. Their presence is optional and their status shall be indicated in the heading of the annex (see clause 5.2.6).

All annexes in 3GPP TRs are "informative" since 3GPP TRs cannot contain normative provisions. Therefore, the word "informative" shall not appear in the title line of annexes in 3GPP TRs.

### 6.4.2 Bibliography

The Bibliography identifies documents which are not explicitly cited in the body of the 3GPP TS or 3GPP TR.

Format references as described in clause 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 Change history

A history box is provided by the 3GPP Support Team as the final element in a 3GPP TS or 3GPP TR and shows the major milestones in the life of a document. See also clause H.6.

NOTE: The 3GPP Support Team 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 TS or 3GPP TR shall only be used for giving additional information intended to assist the understanding or use of the 3GPP TS or 3GPP TR. They shall not contain provisions to which it is necessary to conform in order to be able to claim compliance with a 3G TS.

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

A single note in a 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 clause 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.

A single example in a 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. clause), they shall be designated "EXAMPLE 1:", "EXAMPLE 2:", "EXAMPLE 3:", etc. (see also clause 5.2.1A).

When there is a danger that it might 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 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

### 6.5.2 Footnotes to the text

Footnotes shall not be used in 3GPP TSs or 3GPP TRs.

## 6.6 Common rules and elements

### 6.6.1 Verbal forms for the expression of provisions

A 3GPP TS 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 TS, 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 defined only if used subsequently in the 3GPP TS or 3GPP TR.

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.

#### 6.6.4.2 Format

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

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

Where SDL, Program Code, ICS, or TTCN is included in figures it shall be prepared in accordance with annex I.

#### 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 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 clause 7.3.2 is figure 7.3.2.1, fifth figure in clause 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 clause 5.2.1A. For the numbering of figures in annexes, seeclause 5.2.6.

- You may use sequence fields for automatically numbering figures. 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 clause 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 clause 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 TSs or 3GPP TRs.

### 6.6.5 Tables

#### 6.6.5.1 Usage

Tables should be used wherever appropriate to present information in an easily comprehensible form.

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

- Centre 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 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 clause 7.3.2 is table 7.3.2.1, fifth table in clause 7.3.2 is table 7.3.2.5.

See also clause 5.2.1A. For the numbering of tables in annexes, see clause 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, Heading row repeat**) 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 (see clause 6.6.5.4).

#### 6.6.5.6 Notes to tables

Notes to tables shall be treated independently from notes integrated in the text (see clause 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 clause 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 TSs or 3GPP TRs.

### 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. If it is necessary to reproduce text from a work other than a 3GPP TS or TR, appropriate copyright permission shall be obtained.

References shall be made in the forms indicated in clauses 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 TS or 3GPP TR 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 clause 3.1";

- "as specified in clause 3.1 b)";

- "details as given in clause 3.1.1";

- "see annex B";

- "the requirements given in clause B.2";

- "see the note in table 2";

- ''see example 2 in clause 6.6.3";

- "see note 3 in clause 6.6.1".

It is required to use the terms *clause* and *annex* where applicable.

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

"as specified in TS 21.299 [n] in clause 3.1, 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 TS or 3GPP TR shall 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 clause 6.1.6).

##### 6.6.6.5.2 Specific references

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

In the body of the text, use the following form:

- " … in accordance with TS 21.299 [n] … ".

For specific references, it is permissible to refer to a specific clause, figure or table of the referenced document. However, great care needs to be taken, especially when referencing documents still under development, and such referencing of specific clauses, figures or tables is to be avoided if there is a reasonable chance that the structure of the referenced document may change in time.

##### 6.6.6.5.3 Non-specific references

Non-specific references may be made only 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 TS or 3GPP TR.

In the case of references to 3GPP TSs and TRs, unless otherwise indicated, a non-specific reference refers to the TS or TR *in the same Release* as that of the referring TS or TR. It is implicitly to the latest version of the referenced TS or TR in the Release in question.

For non-specific references, it is not permissible to cite particular clauses, figures or tables, since it cannot be guaranteed that the numbering will be unchanged in later versions of the referenced document.

In the body of the text, use the forms as given in clause 6.6.6.5.2.

#### 6.6.6.6 Numbering

References in clause 2 shall be numbered sequentially. If a reference is removed when a specification is under change control, the entry in clause 2 shall be replaced by a [void] entry, using the same principle as for deletion of clauses.

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

### 6.6.7 Representation of numbers and numerical values

For decimal and thousands separator characters, one of the following options shall be employed:

Option 1: The decimal sign shall be a comma. The thousands separator shall be a space.

Option 2: The decimal sign shall be a full-stop (period). The thousands separator shall be a comma.

The chosen option shall be used throughout the TS or TR. It is not permissible to mix the two systems in a single document. If there is any ambiguity as to which system is in use, the characters in question shall be defined as symbols in clause 3.3 of the TS or TR. For example, unless there are other instances nearby in the document, the string 234,557 is ambiguous (is it two hundred and thirty four point five five seven or two hundred and thirty four thousand five hundred and fifty seven?). The present document uses Option 1.

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 (not ,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 × 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°×°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 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: 3GPP°TR°21.801.

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

EXAMPLE 8: 2ºpages 4ºseconds 15º%

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 clause 6.3.2). Descriptive terms, acronyms or names of quantities shall not be arranged in the form of an equation.

EXAMPLE:



where: xj are samples of time errors data;

N is the total number of samples;

τ is the time error sampling interval;

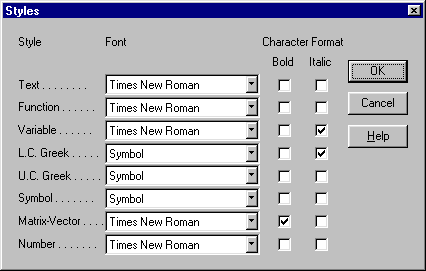
n is the number of sampling intervals, with n = 1,2,...,integer part (N/3).

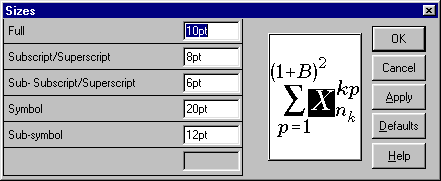
#### 6.6.9.2 Presentation

- 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:





#### 6.6.9.3 Numbering

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

*x*2 + *y*2 < *z*2 (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 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 clause 7.3.2 is equation 7.3.2.1, fifth equation in clause 7.3.2 is equation 7.3.2.5.

See also clause 5.2.1A. For the numbering of equations in annexes see clause 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 TS or 3GPP TR but should be clearly marked as such.

- Use the **PL** style.

Annex A (informative):  
(void)

Annex B (informative):  
(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 TS or 3GPP TR 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 clause C.3.3).

In an independent terminology deliverable, the concepts defined shall be restricted to the field corresponding to the scope of 3GPP. In other 3GPP TSs or 3GPP TRs, only such concepts shall be defined as are used in those 3GPP TSs or 3GPP TRs, 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 TS or 3GPP TR.

If the concept is used in several 3GPP TSs or 3GPP TRs, it should be defined in the most general of those standards, or in an independent terminology deliverable. The other 3GPP TSs or 3GPP TRs 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 TS or 3GPP TR or other) from which it is reproduced (see clause 6.6.6.5).

If a term and a definition for a concept are established in one 3GPP TS or 3GPP TR, the introduction in another 3GPP TS or 3GPP TR 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 clause 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 clause 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.

EXAMPLE:

**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.

EXAMPLE 1:

**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.

EXAMPLE 2:

**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.

EXAMPLE 3:

**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.

EXAMPLE:

**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.

EXAMPLE:

**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 TS or 3GPP TR

# D.1 Elements of the title

## D.1.1 The introductory element

See clause 6.1.1.

## D.1.2 The main element

The main element shall always be included. If a complementary element is included, the main element shall be terminated with a semi-colon. If no complementary element is included, there shall be no terminating semicolon.

## D.1.3 The complementary element

The complementary element is necessary if the 3GPP TS or 3GPP TR 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 TS or 3GPP TR 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 TS or 3GPP TR both:

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

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

The complementary element may be sudivided if necessary, with each sub-element adding further refinement to the topic covered. The first word of each sub-element shall start with a capital letter. Each sub-element other than the last shall be terminated with a semicolon.

# 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 TS or 3GPP TR.

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

# D.3 Wording

The Work Item Description form which proposes the creation of a new TS or TR shall give a preliminary title for the TS or TR. This "working" title may be modified, within reason, during the drafting of the TS/TR.

In establishing the title of the TS/TR, the following shall be taken into account:

1. The title should be as succinct as possible yet shall clearly state the main aspects covered in the document.

2. In drafting the title, the author should not make the text either too vague or so restrictive as to artificially limit the potential broadening of the scope of the TS/TR during its lifetime.

3. Any abbreviations used in the title shall be expanded in full, using initial capital letters as appropriate, and followed by the abbreviation in parentheses. This rule may be waived for commonly understood abbreviations if it would result in unnecessarily complex or unwieldy text (see example 2 below)

EXAMPLE 1: Management Object (MO)

EXAMPLE 2: IP Multimedia core network Subsystem (IMS)  
This is preferable to:  
Internet Protocol (IP) Multimedia core network Subsystem (IMS)

4. Other than capitalization mentioned above, no other letters of the title shall be capitalized.

5. The title shall not include redundant words such as "Technical Specification" or "Technical Report".

# D.4 Stability

In preparing the TS/TR for presentation to the TSG for approval (bringing under change control), the responsible Project Manager should, in consutation with the Rapporteur and WG Chair, verify that the title conforms to the conventions given in the present annex, and modify it accordingly. If, for reasons of expediency, this step is omitted, it shall be carried out by the Specifications Manager prior to making the change-controlled version of the TS/TR available on the 3GPP server.

Once under change control, the text of the title of a TS/TR shall not be changed, even by Change Request, other than for the correction of typographical errors. If it is wished to change the scope of a TS/TR to the extent that a change of title would be necessary, this is best achieved by the creation of a completely new TS/TR instead.

NOTE: If it were allowed to change the title of a TS or TR when under change control, it would be necessary to identify all 3GPP TSs and TRs which reference the TS/TR in question, and raise Change Requests to all of them to change the title in that reference. Furthermore, if the title were to change, different versions of the TS/TR might appear in different places in any alphabetic index or catalogue of 3GPP documents, with predictable confusion for users.

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 clause 6.6.1) |
| **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 (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 clause 6.6.1) |
| **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 TS or 3GPP TR.

Table E.3: Permission

|  |  |
| --- | --- |
| Verbal form | Equivalent expressions for use in exceptional cases  (see clause 6.6.1) |
| **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.  Do not use "may" or "may not" to indicate a possibility or lack of possibility – see Table E.4 below.  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 clause 6.6.1) |
| **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 "may" instead of "can" in this context. Do not use "may not" 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. If there is uncertainty about whether an event will or will not happen, in particular where the normally expected behaviour will sometimes be impossible, a formulation such as "cannot always" should be used. | |

The verbal forms shown in table E.5 shall be used to indicate behaviour of equipment or sub-systems outside the scope of the document in which they appear. For example, in a standard specifying the requirements of terminal equipment, these forms shall be used to describe the expected behaviour of the network or network simulator to which the terminal is connected.

Table E.5: Inevitability

|  |  |
| --- | --- |
| Verbal form | Equivalent expressions |
| **will** |  |
| **will not** |  |
| Distinguish from "shall" / "shall not". Use to express behaviour of equipment or systems *outside* the scope of the document being drafted, where description of such behaviour is essential to the correct understanding of the requirements pertaining to equipment *within* the scope of the current document. | |

EXAMPLE: Extract from standard specifying behaviour of terminal equipment: "… On expiry of timer T3, the terminal shall send a TIMEOUT message to the network and start timer T4. The network will respond with a TIMOUT-ACKNOWLEDGE message. On receipt of a TIMEOUT-ACKNOWLEDGE message, the terminal shall stop timer T4 …"; thus is distinguished the strong future ("the terminal shall") used for requirements and the normal future ("the network will") used to indicate expected events.

The verbal forms shown in table E.6 shall be used to indicate statements of fact.

Table E.6: Fact

|  |  |
| --- | --- |
| Verbal form | Equivalent expressions |
| **is** | Any verb in the indicative mood, present tense. |
| **is not** |
| Distinguish from "shall" / "shall not". Do not use present indicative of verbs for expressing requirements. | |

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

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 (→ if numbered) |
| **Heading n** | Clause level n In exceptional cases, for level 6 or beyond, use **Heading 5** if required in contents list or **H6** if not to appear. → |
| **Heading 8** | Annex title for TS |
| **Heading 9** | Annex title for TR |
| **Normal** | Standard paragraph, Definition |
| **EX** | Reference, Example → |
| **EW** | Symbol, Abbreviation, Example continuation in text → |
| **Bn** | List element level n → |
| **FP** | Free paragraph (left justified) |
| **NO** | Note integrated in the text → |
| **NW** | Note continuation in text → |
| **NF** | Note in figure → |
| **TAN** | Note in table → |
| **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) |
| → use "tab" between "item/number" and "text".  EXAMPLE: The "tab" is preceding this example text. | |

Other styles exist in the template, but are for use by the Support Team only.

# 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 TS or 3GPP TR 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 H2. 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.

When drafting is complete and the TS or TR is ready to be presented to the TSG for placing under change control, hard code all automatic number sequences (Ctrl‑Shift‑F9) that might have been used. Thereafter, manual numbering shall be used. This will avoid invalidating references from extermal documents to particular clauses / tables / etc. in the document under consideration (see clause 5.2.1A).

You may use automatic clause numbering during the drafting phase of a TS or TR, but automatic clause numbering shall be disabled for a TS or TR under change control.

# H.5 Supported file formats

Software tools to be used for document development within 3GPP are detailed in table H.3

Table H.3: Permitted software tools

|  |  |  |
| --- | --- | --- |
| Type | Tool(s) | Comments |
| Text | Microsoft Word | For .doc format, file compatibility with Word 2000 shall be retained for 3GPP TSs and TRs.  For .docx format, file compatibility with Word 2007 shall be retained for 3GPP TSs and TRs. |
| Word's built-in equation editor, or Microsoft MathType | Used for editing equations. |
| Graphics | Micrografx Designer version 3.x or 6.0 or 7.0 (preferred) | Now part of CorelDraw, but older versions can be found for download.  Retained for legacy documents. Not to be used for new graphics. |
| Microsoft Visio | For general graphics; the rapporteur shall supply the source file.  File compatibility with version Professional 2003 or 2007 shall be maintained. |
| Microsoft Word built-in drawing tools | Final diagrams shall be visible in "normal" view (Word 2003 and earlier) or "draft" view (Word 2007 and later). |
| For Unified Modeling Language (UML) graphics:  Eclipse Papyrus (<http://www.eclipse.org/papyrus/>) | Many earlier UML diagrams have been supplied as uneditable JPGs. For ease of maintenance, rapporteurs should provide editable source files for new UML diagrams, and authors of CRs are encouraged to recast UML diagrams originally supplied as JPGs to Papyrus in order to ease future maintenance. |
| SDL, MSC | IBM Telelogic Tau (NOTE 1 and NOTE 2)  Msc-generator (NOTE 3) | SDL diagrams and Message Sequence Charts can be copy-and-pasted into Word. Rapporteurs shall supply the source files.  For SDLs, Microsoft Visio (see above) may be used.  NOTE 1: Rapporteurs should contact their Support Team officer for access to this tool.  NOTE 2: Retained for legacy documents. Not to be used for new documents.  NOTE 3: Available from <https://sourceforge.net/projects/msc-generator> User manual at <http://msc-generator.sourceforge.net/help/6.3/msc-gen.pdf> |
| TTCN-2 | Any TTCN-2 tool that is compliant with ISO/IEC 9646 [4] | Rapporteurs may contact their Support Team officer for access to a tool. |
| TTCN-3 | Any TTCN-3 tool that is compliant with ETSI ES 201 873 [5] | Rapporteurs may contact their Support Team officer for access to a tool. |
| Databases | Microsoft Access | Such databases are used principally by the Support Team for management and tracking purposes.  File compatibility with Access 2000 or 2007 shall be maintained. |
| General Tools | Microsoft Office software suite (Excel, Powerpoint, etc.) | File compatibility with Office version 2000 or 2007 shall be maintained if such documents form part of TSs or TRs. |

The file formats stipulated in table H.3 relating to Microsoft© Office refer strictly to the file format. It is not intended to mandate that a particular version of MS Office or MS Office compatible software be used: any word processor which can save files in the above format is acceptable.

Rapporteurs shall retain the source files of graphics where these exist, and they shall be retained within the zip file of the Spec for future maintenance of the document.

# H.6 Quick tips to working with your document

When working with your 3GPP TS or 3GPP TR remember ...

**... you shall 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, TR°21°801—1, etc.). These characters appear as normal spaces ( ) or hyphens (-) when printed out;

- use the default tab stops 0,5 cm;

- 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 you shall not 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;

- 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;

- unnecessarily use capital letters;

- use underlining to emphasize text (this can be confused with revision marking; see also clause H.7.1).

- use "curly" or "smart" (". . .") quotes.

# H.7 Other formatting considerations

## H.7.1 Text decoration

It is permissible to use italic and/or bold font for the purposes described in clause H.6.

The use of underlining shall be restricted to the special case where a TS or TR cites text from an external source but makes changes to it; those changes are marked by underlining of newly inserted text and strikeout of text to be deleted. See annex J.3.Underlining shall not be used in any other circumstances due to the risk of confusion with revision marks.

Coloured text shall not be used in TSs and TRs. The text colour shall be left as "automatic" which is normally rendered as black (but may vary depending on the user's setup).

Other text decoration such as highlighting, blinking, shadow, embossed, etc shall not be used.

## H.7.2 Colours within figures

It is acceptable to use colours for both graphic elements and text within figures, since this use cannot be confused with revision marks, where the whole figure is replaced rather than elements within the figure.

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

# I.1 SDL diagrams

Provide SDL diagrams in SDT binary files or, exceptionally, 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.

# 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

(For further study.)

# I.4 Tree and Tabular Combined Notation (TTCN-2)

Provide TTCN as a separate file.

Provide Machine Processable (MP) files.

The following text should be used for ATSs using TTCN-2. The subdivision is recommended.

*This ATS has been produced using the Tree and Tabular Combined Notation (TTCN-2) according to ISO/IEC 9646‑3 [<x>].*

*The ATS was developed on a separate TTCN-2 software tool and therefore the TTCN-2 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.*

***The TTCN-2 Machine Processable form (TTCN.MP)***

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

# I.5 Testing and Test Control Notation (TTCN-3)

Provide TTCN as a separate set of files.

The following text should be used for ATSs using TTCN-3. The subdivision is recommended.

*This ATS has been produced using the Testing and Test Control Notation (TTCN-3) according to ETSI ES 201 873-1 [<x>].*

*The ATS was developed on a separate TTCN-3 software tool and therefore the TTCN-3 definitions are not completely referenced in the table of contents.*

*The ATS is contained in a set of ASCII files (<filename>.TTCN contained in archive <filename>.ZIP) which accompanies the present document.*

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

# J.1 General

In the case that a 3GPP TS or 3GPP TR would become almost identical to a document from another standards organization, the TSG may decide to prepare a 3GPP TS or 3GPP TR defining only the differences, if any, between that document (commonly called "endorsed document") and the 3GPP TS or 3GPP TR.

Such a 3GPP TS or 3GPP TR, 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 TS or 3GPP TR 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 TS 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 TS or 3GPP TR 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 TS 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 manual revision marks for the presentation of the modifications is recommended. Deleted text should be struckout; inserted text should be underlined. Neither deleted nor inserted text should be coloured.

# 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.

Annex K (normative):  
Non-inclusive terminology and alternatives

Table K.1 contains a list of non-inclusive terminology together with a non-exhaustive list of suggested alternatives.

Table K.1: Non-inclusive terms and alternatives

|  |  |
| --- | --- |
| Non-inclusive term | Examples of alternative terms |
| **master** (when used in "master / slave" context) | primary, controller, main |
| **slave** | secondary, standby |
| **white list** (NOTE) | allow list, accept list |
| **black list** (NOTE) | block list, drop list, forbidden list |
| **grey list** (a term which has been used in conjunction with white list and black list) should be replaced with e.g. track list, inspect list (NOTE). | |
| **NOTE:** **i**ncluding single word and hyphenated versions. | |

Annex L (informative):  
Change history

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Change history | | | | | | |
| TSG SA# | TDoc | Version | CR | <Phase> | New Version | Subject/Comment |
| 05-2000 |  |  | - |  | 0.0.0 | First draft, internal to MCC. |
| 06-2000 |  | 0.0.0 | - |  | 1.0.0 | Editorial clean up |
| SP-08 | SP-000278 | 1.0.0 | - |  | 1.0.1 | Presentation to SA#8 |
| SP-08 |  | 1.0.1 |  | Rel-4 | 4.0.0 | Approved (Rel-4) |
| SP-11 | SP-010193 | 4.0.0 | 001 | Rel-4 | 4.1.0 | Automatic numbering of references |
| SP-11 | SP-010213 | 4.0.0 | 002r1 | Rel-4 | 4.1.0 | Clarification on use of automatically numbered figures, tables, etc. |
| SP-13 | SP-010482 | 4.1.0 | 003 | Rel-4 | 4.2.0 | Corrections of invalid clause reference |
| SP-15 | SP-020105 | 4.2.0 | 004 | Rel-4 | 4.3.0 | Correction of invalid table number, annex H. |
| SP-16 |  | 4.3.0 |  | Rel-5 | 5.0.0 | Upgrade to Rel-5. |
|  |  | 5.0.0 |  | Rel-5 | 5.0.1 | 2002-07-19: Correct cover page. |
|  |  | 5.0.1 |  | Rel-5 | 5.0.2 | 2003-05-15: Correct cover page. |
| SP-23 |  | 5.0.2 |  | Rel-6 | 6.0.0 | Upgrade without change to Release 6 |
| SP-28 | SP-050401 | 6.0.0 | 009 | Rel-7 | 7.0.0 | The use of 'void' |
| SP-29 | SP-050535 | 7.0.0 | 013 | Rel-7 | 7.1.0 | Introduction of MS Visio |
| 014r1 | Specification of versions of permitted software packages |
| SP-30 | SP-050689 | 7.1.0 | 015 | Rel-7 | 7.2.0 | Inclusion of version identity for Visio |
| SP-34 | SP-060914 | 7.2.0 | 017 | Rel-7 | 7.3.0 | Alignment of section 6.6.4.2 and annex I in  respect of figure format. |
| SP-37 | SP-070527 | 7.3.0 | 018 | Rel-8 | 8.0.0 | Upgrade to Rel-8, allowing for more recent versions of application file formats |
| SP-39 | SP-080078 | 8.0.0 | 020 | Rel-8 | 8.1.0 | Correction of illegal text |
| 021 | Elimination of IPR provisions |
| SP-46 |  | 8.1.0 |  |  | 9.0.0 | Upgrade to Rel-9, no technical change |
| SP-48 | SP-100365 | 9.0.0 | 024r4 | Rel-10 | 10.0.0 | References to Figures and Tables |
| SP-100422 | 026r1 | Clarification on usage of "may", "may not", "can" and "cannot" |
| SP-49 | SP100655 | 10.0.0 | 028r3 | Rel-10 | 10.1.0 | Supported file formats |
| 029r3 | Rules on referencing unpublished documents |
| SP-100629 | 030 | Clarification on the use of References |
|  |  | 10.1.0 |  | Rel-10 | 10.1.1 | Editorial correction to previous meeting's entry in this history table. |
|  |  | 10.1.1 |  | Rel-10 | 10.1.2 | Editorial correction to table H.3 |
| SP-55 | SP-120112 | 10.1.2 | 031r1 | Rel-11 | 11.0.0 | Clarification on treatment of void clauses |
| SP-56 | SP-120317 | 11.0.0 | 033 | Rel-11 | 11.1.0 | Page breaks before annexes |
| SP-57 | SP-120610 | 11.1.0 | 034r1 | Rel-11 | 11.2.0 | TS and TR titles |
| SP-61 | SP-130365 | 11.2.0 | 035r1 | Rel-12 | 12.0.0 | Use of colour and other text decoration |
| 036 | Permissible file formats |
| SP-64 | SP-140201 | 12.0.0 | 037 | Rel-12 | 12.1.0 | Underlining |
| SP-65 | SP-140447 | 12.1.0 | 039 | Rel-12 | 12.2.0 | UML tool |
| SP-67 | SP-150115 | 12.2.0 | 040 | Rel-12 | 12.3.0 | On number stability and hanging paragraphs |
| SP-70 |  |  |  | Rel-13 | 13.0.0 | Upgrade without technical change |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Change history** | | | | | | | |
| **Date** | **Meeting** | **TDoc** | **CR** | **Rev** | **Cat** | **Subject/Comment** | **New version** |
| 2016-09 | SA#73 | SP-160746 | 0043 | 1 | B | Precisions on how to void redundant clauses | 13.1.0 |
| 2016-12 | SA#74 | SP-160800 | 0044 |  | F | Disambiguation of terminilogy | 14.0.0 |
| 2017-06 | SA#76 | SP-170409 | 0046 |  | F | Updates to drafting rules on TTCN file formats | 14.1.0 |
| 2017-10 |  |  |  |  |  | Correction of spelling error | 14.1.1 |
| 2018-06 | SA#80 | SP-180466 | 0047 |  | B | Introduction of new drawing tool | 15.0.0 |
| 2018-09 | SA#81 | SP-180846 | 0049 |  | F |  | 15.1.0 |
| 2018-12 | SA#82 | SP-181246 | 0050 | 1 | B | Introduction of MathType | 16.0.0 |
| 2019-03 | SA#83 | SP-190025 | 0053 |  | F |  | 16.1.0 |
| 2019-03 | SA#83 | SP-190257 | 0052 | 1 | F |  | 16.1.0 |
| 2019-03 | SA#83 | SP-190271 | 0054 | 2 | F |  | 16.1.0 |
| 2019-09 | SA#85 | SP-190665 | 0055 |  | F | Correction of internal references | 16.2.0 |
| 2020-12 | SA#90e | SP-201142 | 0056 | 1 | B | Use of inclusive terminology | 17.0.0 |
| 2021-03 | SA#91e | SP-210046 | 0057 |  | F | Permitted software tools update | 17.1.0 |
| 2021-06 | SA#92e | SP-210307 | 0058 |  | D | Replacing 'Chairman' by 'Chair' | 17.2.0 |