

**TELECOMMUNICATION
STANDARDIZATION SECTOR****TD 1**

STUDY PERIOD 2009-2012

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TEMPORARY DOCUMENT**Source:** TSB**Title:** Input to discussion on providing guidance on writing definitions**1. Introduction**

At the last meeting of Standardization Committee for Vocabulary (SCV), it was identified that it would be useful for the group to prepare guidance for the study groups on how to write definitions. This document provides input to discussions to enable the preparation of such guidance. TSB was also asked to provide guidance on the preferred approach to the use of figures / equations within definitions. This guidance has been incorporated into this document, as well.

2. Discussion**2.1 Best practices for writing definitions within ITU-T Recommendations**

Annex 2 to WTSA Resolution 67 (Johannesburg, 2008) provides basic guidance on the elements of a definition. (For the convenience of the reader, that annex is attached to the current document.) This clause gives additional clarification on this topic.

2.1.1 Content of definitions

A formal definition is based upon a concise, logical pattern that includes as much information as it can within a minimum amount of space. A formal definition consists of three parts.

1. The term (word or phrase) to be defined
2. The class of object or concept to which the term belongs
3. The differentiating characteristics that distinguish it from all others of its class

The following points are characteristics of well written definitions:

Contact:	Greg Ratta	Tel:	+41 22 730 6320
	TSB	Fax:	+41 22 730 5853
		Email	greg.ratta@itu.int

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- Definitions should be concise. Complex definitions shall contain only information that makes the concept unique; any additional descriptive information deemed necessary is to be included in a note. [ISO 704]
- Duplicating terms that already exist should be avoided. Existing glossaries should be consulted before a new term is defined to see if the term/concept has already been defined. Only if no satisfactory definition exists should a new definition be considered. When defining a new term/concept, the name used for the term should not duplicate the name used for an already-defined term/concept.
- Definitions use different terms, rather than using the term being defined.
- Definitions begin with an indication of the class of object or concept to which the term belongs; the differentiating characteristics that distinguish it from all others of its class follow.
- The form of the definition should also be the same part of speech as the term or concept being defined. For example, one should not define a noun by expressing the definition as a verb.
- Standard symbols for measurement units should not be defined.
- Abbreviations used within a definition include an explanation or expansion of those abbreviations.
- Protocol code points and elements should be avoided within the Definitions clause; these are best handled within the body of the Recommendations (clause 6 or later).
- Supplementary (i.e. non-normative, non-essential) information to that which is necessary for differentiating the concept from other concepts may be included as notes, figures or equations.
Note – it is recognized that for mathematical terms, equations may be the most effective and efficient method of definition.

2.1.2 Formatting of Definitions

Refer to the *Author's Guide for drafting ITU-T Recommendations*, which is available online here: www.itu.int/oth/T0A0F000004/en. Additionally, the following stylistic aspects are preferred:

- Each definition should begin with a clause number, placed at the margin with a tab between the number and the term. The term should be in bold, beginning with a lower-case letter and followed by a colon. Definitions should end with a period.
- Definitions with more than one explanation should be separated with semi-colons.
- Definitions should appear in alphabetical order.

2.2 Troublesome practices related to definitions within ITU-T Recommendations

TSB has initiated an activity to extract definitions from Recommendations to populate the ITU Terms and Definitions online database. This is a replacement for the SANCHO system that had not been updated since 2005. There are several practices that complicate the automatic extraction of definitions, adding to cost and delay for the appearance of terms in the online database. Several of these troublesome practices are highlighted below.

2.2.1 Location of definitions

The ITU-T *Author's Guide for drafting ITU-T Recommendations* (<http://www.itu.int/oth/T0A0F000004/en>) indicates that definitions should appear in clause 3 of ITU-T Recommendations. When a different document structure is employed, or when definitions are scattered throughout the documents, it is not possible to utilize the tools to extract such definitions for transfer to the ITU Terms and Definitions online database.

2.2.2 Format of definitions

Definitions that do not match the following, preferred style are difficult to extract automatically:

3.x term: definition

2.2.3 Figures, equations and tables within definitions

Figures, equations and tables should not normally replace the verbal representation of the basic definition; however, they may form useful, supplemental information.

2.2.4 Variables and special notations defined in definitions clause

The definitions clause should be limited to concepts related to terms and should not define or describe the method of representing information within a Recommendation. The latter group is more appropriately documented in within clause 5, Conventions.

2.2.5 Protocol code points catalogued within definitions

Protocol elements and coding are best handled within the body of the Recommendations (clause 6 or later) and should not be included in definitions.

2.3 Illustrations within definitions

While figures or equations can assist with the understanding of the meaning of a term, they should not form the essence of the definition. In other words, they are best applied as supplemental, informative material to enhance the presentation of the concepts involved. They should not replace, in general, the verbal representation of the basic definition. It is recognized, however, that for mathematical terms, equations may be the most effective and efficient method of definition.

It must be observed that the ITU Terms and Definitions online database (<http://www.itu.int/ITU-R/index.asp?redirect=true&category=information&rlink=terminology-database>) currently does not have the capacity to include figures or equations. Therefore, the use of such representations within the basic definition of a term renders them inoperable within the database.

3. Summary

This document has presented information to assist SCV to prepare guidance for the study groups on how to write definitions. SCV may consider accepting or modifying this information for incorporation into a liaison to the ITU-T Study Groups, through TSAG chairperson or through TSB Director.

4. References

- [Essay] Essay Writing Center, *Definition Essay*, http://essayinfo.com/essays/definition_essay.php.
(Referenced 06.01.2010)
- [ISO] ISO 704:2009, Terminology work — Principles and methods.
- [Kemerling] Garth Kemerling, *Definition and Meaning*, <http://www.philosophypages.com/lg/e05.htm#kinds>.
(Referenced 06.01.2010)

5. Acknowledgements

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Appendix I The philosophy of definitions

I.1 The concept of a definition

A definition is an explanation of the meaning of a term (a word or phrase). The utility of agreeing on the definition of a term is provide a common engineering language and to prevent or eliminate differences in the use of language. The philosophers and logicians have expended significant energy concerning “meaning” and the ways of explaining it. The five major kinds of definition (distinguished by the functions they may be used to perform) [Kemerling] include:

- **lexical**, which simply reports the way in which a term is already used within a particular community. The goal here is to inform someone else of the accepted meaning of the term, so the definition is more or less correct, depending upon the accuracy with which it captures that usage.
- **stipulative**, which freely assigns meaning to a completely new term, creating a usage that had never previously existed. Since the goal in this case is to propose the adoption of shared use of a novel term, there are no existing standards against which to compare it, and the definition is always correct (though it might fail to win acceptance if it turns out to be inapt or useless). In an ITU context, stipulative definitions are those that define terms or concepts specific to a particular situation such as within a single Recommendation.
- **precising**, which combines the above two techniques and is often an effective way to reduce the vagueness of a term. These precising definitions begin with the lexical definition of a term but then propose to sharpen it by stipulating more narrow limits on its use.
- **theoretical**, which are special cases of stipulative or precising definition, distinguished by their attempt to establish the use of this term within the context of a broader intellectual framework.
- **persuasive**, which is an attempt to attach emotive meaning to the use of a term. Since this can only serve to confuse the literal meaning of the term, persuasive definitions have no legitimate use.

Within the standardization activities of ITU-T, the stipulative and precising kinds of definitions are most useful. While some documents have included lexical definitions, this kind of definition is of less value within a Recommendation because subject matter experts would already have knowledge of such general definitions. There is also the risk of misstating the lexical definition and inadvertently modifying the meaning.

Note - Unlike an encyclopedic description or an explanation, a definition's main purpose is not to provide a means for a complete understanding of a given concept but rather to provide enough understanding so as to avoid confusing the concept in question with other related concepts. [ISO]

There are several ways to define a term [Essay]. Here are a few options that are useful within the context of ITU-T Recommendations.

- Define by function: Explain what something does or how something works. For example:
reference point:
A conceptual point at the conjunction of two non-overlapping functional entities that can be used to identify the type of information passing between these functional entities.
- Define by structure: Tell how something is organized or put together. For example:
country code (CC) for geographic areas:
The combination of one, two or three digits identifying a specific country, countries in an integrated numbering plan, or a specific geographic area.
- Define by analysis: Compare the term to other members of its class and then illustrate the differences. These differences are special characteristics that make the term stand out. For example:

canonical XML algorithm:

An algorithm that takes as input an XML infoset, a well-formed XML document or an XPath node set, and generates, as output, a well-formed XML document in canonical form.

NOTE – Canonical XML algorithms are currently specified by W3C Canonical XML and W3C Exclusive Canonical XML.

Appendix II

Annex 2 to WTS Resolution 67 (Johannesburg, 2008) Guidelines for the preparation of terms and definitions

1 Terms

1.1 What is meant by a term?

A term is a word or a group of words used to express a definite concept.

1.2 Conciseness of terms

The term should be selected to be as concise as possible, without impairing the understanding of the text containing the term.

When a term is used in more than one field in a general vocabulary, the field of application may be added between brackets if justified.

1.3 Ambiguous terms

The occurrence of terms with more than one meaning is occasionally inevitable. When one term has several meanings, confusion can arise in the following cases:

- The meanings are very similar
- The terms appearing in the same text with different meanings.

In such cases, different terms should be found to express the different meanings of such ambiguous terms, unless their use is limited to the text of a Recommendation or Recommendations or a Supplement and it is not needed for any regulatory purposes and not generalized for the whole ITU.

1.4 Complex terms

A complex term should reflect the combination of concepts included in the definition. However, it need not include every constituent of the combination of concepts shown in the definition.

Care should be taken to avoid the unnecessary proliferation of terms and definitions where an already-defined qualifying term, used in conjunction with a simpler term, would suffice.

2 Definitions

2.1 What is meant by definition?

To define is to state clearly, accurately and precisely what is a concept.

2.2 Use of terms in definitions

The following general principles may be adopted for the terms used in a definition:

- all the terms which appear in a definition must either be well known or defined elsewhere in the text
- the term or terms representing a concept to be defined should not appear in the definition
- the meaning of a term must not be expressed using another term which is itself defined by means of the first term.

2.3 Accuracy of definitions

The degree of accuracy of definitions may depend on their intended use. Attempts to achieve greater accuracy may lengthen the text unnecessarily. This may involve the use of more specific and hence less familiar terms, thereby making the definition harder rather than easier to understand.

2.4 Formulation of definitions

The wording of the definition should clearly indicate whether the term is a substantive noun, a verb or an adjective.

2.5 Definitions with more than one term

Where more than one term applies to the same concept, the alternative term(s) may also be mentioned (separated by a semicolon), to the extent that this does not cause confusion.

2.6 Illustrations

Illustrations can often be used to clarify or explain a definition. The type of illustration used will depend on each specific case; examples of such illustrations may be found in the CCITT Blue Book Volume 1, Fascicule 1.3 of the IX Plenary Assembly 1988. In addition, that volume contains many agreed terms and definitions by that assembly.