TIA STYLE MANUAL

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(Internet Version)

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FOREWORD

The purpose of this manual is to provide guidelines for the format and style of technical documents to be published by the Telecommunications Industry Association (TIA). It contains instructions for tables of contents, text, figures, tables, and indexes, and examples to illustrate the format and style prescribed.

Uniformity of format and style for similar types of publications will achieve several purposes: it will enhance their understanding and use by readers worldwide; it will enhance the image of TIA through use of a common style; and, most importantly, it will allow TIA documents to be submitted for consideration by international standards organizations without extensive re-editing.

This manual is based upon the IEC/ISO Directives, Part 3, *Drafting and presentation of International Standards, Second Edition, 1989*, adopted in principle by the American National Standards Institute (ANSI) for American National Standards and by TIA for TIA standards. The provisions of that document have been adapted to the needs of TIA Engineering Committees and to include TIA requirements not otherwise covered. Other sources used in its preparation include the ANSI *Style manual for preparation of proposed American National Standards*, *The Chicago Manual of Style,* and ANSI-approved standards on unit and letter symbols, abbreviations, and metric practices.

Although close adherence to this style manual is strongly encouraged, conformity with every detail is not mandatory. Formulating bodies may deviate from this manual when it makes clear, good sense to do so, provided that the deviations do not prejudice potential international use or consideration of the document. The TIA Technical Standards Subcommittee (TSSC) will be the final authority for determining admissibility of deviations from the style prescribed herein. By following the rules and procedures set forth in this manual, persons preparing draft documents for publication will minimize editorial changes and facilitate additions and modifications as the documents evolve.

There are seven annexes in this Manual. Annexes A, B, and C are normative and are considered part of this Manual; Annexes D, E, F, and G are informative and are not considered part of this Manual (see 2.1).

1 GENERAL PRINCIPLES

1.1 Objectives

The objective of this manual is to define clear and unambiguous guidelines to facilitate the preparation of documents developed by TIA Engineering Committees. Such documents include but are not limited to standards, specifications, trial use standards, bulletins, and engineering publications. (Unless otherwise stated, the term *standard* is used generically in this manual to apply to other documents listed above.) To achieve this objective, such documents shall

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

-- be consistent, clear and accurate;

-- take full account of the state of the art;

-- provide a framework for future technological development;

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

1.2 Style

To facilitate understanding by all readers, the style shall be as simple and concise as possible. This is particularly important for standards that might be of interest to readers in other countries.

For language and spelling, reference should be made to *Webster's Ninth New Collegiate Dictionary*.

1.3 Homogeneity

Uniformity of structure, of style, and of terminology shall be maintained, not only within each standard, but also within a series of associated documents. The structure of associated standards and the numbering of their clauses, insofar as possible, shall 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 standard or series of standards to designate a given concept. The use of an alternative term (synonym) for a concept already defined shall be avoided. Insofar as possible (see B.1.4.10), only one meaning shall be attributed to each term chosen.

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

1.4 Coherence of standards

In order to achieve the aim of coherence within the complete assemblage of TIA standards, the text of every standard shall follow the same basic style. The relevant provisions of general American National Standards, particularly pertaining to the following, shall be respected.

-- standardized terminology;

-- principles and methods of terminology;

-- quantities, units, and their symbols;

-- abbreviations;

-- bibliographic references;

-- technical drawings;

-- graphical symbols;

-- preferred numbers;

-- safety.

A list of basic American National Standards is given in annex G (informative).

1.5 Implementation

The text of a TIA standard shall be drawn up in such a way as to permit its direct application; to facilitate its adoption without change as an American National Standard, and to enhance its understanding and use worldwide.

1.6 Planning

In order to ensure the timely publication of a standard, or of a series of associated standards, a list of all aspects to be covered shall be defined before detailed drafting begins so that scope(s), structure(s), and interrelationships can be established. These rules for the drafting and presentation of TIA standards shall be applied from the very beginning of the work and throughout all subsequent stages to avoid delay at any stage.

2 FRAMEWORK, STRUCTURE, AND CONTENTS

2.1 General arrangement

The elements which together form a standard are classified in three groups:

-- *preliminary elements* are those elements that identify the standard, introduce its content, and explain its background, its development, and its relationship with other standards;

-- *normative elements* are those elements setting out the provisions with which it is necessary to comply in order to be able to claim conformity with the standard;

-- *supplementary elements* are those elements that provide additional information intended to assist the understanding or use of the standard.

These groups of elements are described in the following subclauses. An arrangement often used for product standards, with references to the appropriate subclauses in this manual, is indicated in table 1.

Notes integrated in the text (see 2.5.3) may be part of any element except the title page, the title, and footnotes.

A standard need not contain all the *technical normative elements* shown, and it may contain technical normative elements other than those shown. Both the nature of the technical normative elements and their sequence are determined by the nature of the standard in question.

Table 1 - Arrangement of elements

Type of element		Element	Subclause
Preliminary		Title Page Contents Foreword Introduction	2.2.1 2.2.2 2.2.3 2.2.4
NORMATIVE	GENERAL	Title Scope Normative references	2.3.1 2.3.2 2.3.3
	TECHNICAL	Definitions Symbols/abbreviations Requirements Sampling Test methods Classification/ designation Marking, labeling, packaging Normative annexes	2.4.1 2.4.2 2.4.3 2.4.4 2.4.5 2.4.6 2.4.7 2.4.8
Supplementary		Informative annexes Footnotes	2.5.1 2.5.2

2.2 Preliminary elements

2.2.1 Title Page

The title page is prepared in a standard format by TIA.

The reference number of the document is assigned by TIA upon approval of a Project Request (see 4.3, *TIA Engineering Manual*).

2.2.2 Contents

The contents shall appear in every standard; it enhances the overall view of the standard and facilitates its consultation. The contents may list only clauses or both clauses and subclauses at the option of the formulating group. All elements listed shall be cited with their full titles.

2.2.3 Foreword

The foreword shall appear in every standard; it consists of a general part giving information relating to the organization responsible and to standards in general and a specific part giving as many of the following as are appropriate:

-- an indication of the committee that prepared the standard;

-- information regarding the approval of the standard;

-- an indication of any other organization that has contributed to the preparation of the standard;

-- a statement that the standard cancels and replaces other documents in whole or in part;

-- a statement of significant technical changes from the previous edition of the standard;

-- the relationship of the standard to other standards or other documents;

-- a statement of which annexes are normative and which are informative. (e.g., There are two annexes in this Standard. Annex A is normative and is considered part of this Standard; Annex B is informative and is not considered part of this Standard.)

The following disclaimer shall appear above the text:

(This foreword is not part of this Standard.)

2.2.4 Introduction

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

2.3 General normative elements

2.3.1 Title

The wording of the title shall be established with the greatest care; while being concise as possible, it shall indicate, without ambiguity, the subject matter of the standard in such a way as to distinguish it from that of other standards 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* indicating the general field to which the standard belongs (this often can be based upon the title of the committee);

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

c) a *complementary element* indicating the particular aspect of the principal subject or giving details which distinguish the document from other standards or other parts of the same standard.

Detailed rules for the drafting of titles are given in annex A (normative).

2.3.2 Scope

This element shall appear at the beginning of every standard to define without ambiguity the subject of the standard and the aspect(s) covered, thereby indicating the limits of applicability of the standard or particular parts of it. It shall not contain requirements.

2.3.3 Normative references

This element shall give a list of normative documents (in most cases, standards), to which reference is made in the text in such a way as to make them indispensable for the application of the standard.

The list shall be introduced by the following wording:

"The following standards contain provisions which, through reference in this text, constitute provisions of this Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. ANSI and TIA maintain registers of currently valid national standards published by them."

The list shall not include the following [such documents can be listed in an informative annex (see 2.5.1) entitled "Bibliography."]:

-- documents that are not publicly available;

-- documents to which only informative reference is made;

-- documents which have merely served as reference in the preparation of the standard.

Documents shall be listed alphanumerically with American National Standards listed first. Designation numbers of documents listed in the normative references clause shall contain the year of publication.

Titles of referenced documents shall be set in italics. Only the first word of the main title or subtitle of standards shall be capitalized; however, publications and books listed as references shall retain their original capitalization.

Future revisions shall not be referenced.

References shall be listed in the style and order indicated below.

-- *American National Standards*: List alphanumerically by designation, including the full title and year of publication.

EXAMPLE - ANSI/EIA 455-65-1987, *Optical Fiber Flexure Test*.

-- *Other standards*: List the designation, full title, and year of publication. The name and address of the organization issuing the standard shall be provided in a footnote.

EXAMPLE - IEC/ISO Directives, Part 3, *Drafting and presentation of International Standards*, 1989.

-- *Books*: List, in order, the last name of author, followed by first and middle names or initials; title; city of publication; name of publisher; year of publication; number of pages (optional).

EXAMPLE - Doe, John E., *How to Write*, Any City, Podunk Press, 1990, 85 pages.

-- *Articles in journals*: List, in order, the last name of author, followed by first and middle names or initials; title of article (in upright type); title of journal in full (in italics); volume number; issue number; first and last pages of article; and date of publication.

EXAMPLE - Swanson, R. H., Emerging Technologies for Network Management, *Business Communications Review*, 21(8), 53-58, August 1991.

NOTE - Alternatively, the date of publication may follow the title of the journal.

2.4 Technical normative elements

2.4.1 Definitions

This is an optional element giving definitions necessary for the understanding of certain terms used in the standard. The definitions shall be introduced by the following wording:

"For the purposes of this Standard, the following definitions apply."

2.4.2 Symbols and abbreviations

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

For convenience, this element may be combined with element 2.4.1 in order to bring together terms and their definitions, symbols, abbreviations, and perhaps units under an appropriate composite title such as "Definitions, symbols and abbreviations."

2.4.3 Requirements

This element includes the following:

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

b) the required limiting values of quantifiable characteristics;

c) for each requirement, either a reference to the test method for determining or verifying the values of the characteristic (see 2.4.5) or the test method itself.

A clear distinction shall be made between normative requirements and statements included only for information or guidance.

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

In some standards, 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. Specific

requirements concerning use or installation as such shall be included in a separate standard since they are not requirements applicable to the product itself.

Standards listing characteristics for which suppliers are required to state values that are not specified by the standard itself shall specify how the values are to be measured and stated.

2.4.4 Sampling

This element specifies the conditions and methods of sampling, if required, as well as the method for the preservation of the sample(s). This information may appear at the beginning of element 2.4.5.

2.4.5 Test methods

Whenever possible, test methods and procedures specified in ANSI standards developed by the Institute of Electrical and Electronic Engineers (IEEE) will be cited. Otherwise, this element gives all the instructions concerning the procedure for determining the values of characteristics, or for checking compliance with stated requirements, and for ensuring that the results can be reproduced. Where appropriate, tests shall be identified to indicate whether they are type tests, routine tests, sampling tests, and so on.

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

a) principle;

b) reagents or materials;

c) apparatus;

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

e) procedure (see 4.12.8 for warning statement);

f) expression of results, including method of calculation and precision of the test method;

g) test report.

Test methods may be presented as separate clauses, be incorporated in element 2.4.3, be presented as annexes (see 2.4.8), or as separate parts (see 3.3.1). A test method shall be established as a separate standard if it is likely to be referred to in a number of other standards.

2.4.6 Classification and designation

This element may establish a system of classification, designation, or coding of products, processes, or services that conform with stated requirements. For convenience, this element may be combined with element 2.4.3.

2.4.7 Marking, labeling, packaging

This element may specify the marking of a product (e.g., manufacturer's or vendor's trademark, model, or type number). It may include requirements for the labeling and packaging of the product (e.g., handling instructions, hazard warnings, date of manufacture) as appropriate.

Symbols specified for marking shall be in conformity with relevant national standards.

Elements 2.4.6 and 2.4.7 may be supplemented by an informative annex giving an example of the requirements specified.

2.4.8 Normative annexes

Normative annexes are integral parts of the standard which, for reasons of convenience, are placed after all other normative elements. The fact that an annex is normative (as opposed to informative - see 2.5.1) shall be made clear by the way in which it is referred to in the text, by a statement to this effect in the foreword (see 2.2.3), and by an indication at the head of the annex itself.

2.5 Supplementary elements

2.5.1 Informative annexes

Informative annexes give additional information and are placed after the normative elements of a standard. They shall not contain requirements. The fact that an annex is informative (as opposed to normative - see 2.4.8) shall be made clear by the way in which it is referred to in the text, by a statement to this effect in the foreword (see 2.2.3), and by an indication at the head of the annex itself.

2.5.2 Footnotes

Footnotes give additional information, but their use shall be kept to a minimum. They shall not contain requirements.

Footnotes shall be placed at the foot of the relevant page and be separated from the text by a short, thin horizontal line on the left of the page.

Normally, footnotes shall be distinguished by arabic numerals followed by one parenthesis: 1), 2), 3), etc. forming a continuous numerical sequence through the document. The footnotes shall be referred to in the text by inserting the same numerals, as superscripts, after the word or sentence in question: [1), 2), 3)], etc.

In certain cases (e.g., to avoid confusion with superscript numbers), one or more asterisks followed by one parenthesis may be used instead: [*), **), ***)], etc.

2.5.3 Notes integrated in the text

Notes integrated in the text of a standard may be used only for giving information that is essential to the understanding of the document. They shall not contain requirements not covered elsewhere.

Notes normally should be placed after the clause, subclause, or paragraph to which they refer.

All lines of a note shall be inset from the left margin of the main text so that the extent of the note and the text to which it applies can be correctly understood.

A single note shall be preceded by the title "**NOTE -**," placed at the beginning of the first line of the text of the note. If two or more notes are grouped together, they shall be placed under the title "**NOTES**," this word being on a line by itself; the text of each note then shall be preceded only by an arabic numeral at the beginning of its first line. Each group of notes shall be separately numbered; i.e., 1, 2, 3, etc.

If isolated notes occur at separate places within the same numbered subdivision of text, they shall be designated "**NOTE 1**," "**NOTE 2**," etc.

Alternatively, all notes integrated in the text may be numbered in a continuous sequence throughout the document. (This method is more suited to documents produced using computer-aided text processing systems.)

2.5.4 Notes to tables and figures

Notes to tables and to figures shall be treated independently from footnotes (see 2.5.2) and notes integrated in the text (see 2.5.3). They shall be located within the frame of the relevant table or immediately above the title of the relevant figure. A separate numbering sequence shall be used for each table and each figure. Such notes may explain requirements but may not contain requirements not covered elsewhere.

3 DIVISIONS AND SUBDIVISIONS

3.1 General

Standards are so diverse, as regards both the nature of their content and their length, that no universally applicable rules can be established for splitting them up into divisions and subdivisions. However, such splitting up is necessary to ensure that the document is logically structured and therefore easy to understand, refer to, and apply.

3.2 Names of divisions and subdivisions

The terms shown in Table 2 shall be used to designate the divisions and subdivisions in a standard. The *period* is merely a separator and is not a decimal. For an example of numbering, see Annex E (informative).

3.3 Descriptions of divisions and subdivisions

3.3.1 Part

A part is one of a series of documents published separately under the same standard number.

The number of a part shall be indicated by an arabic numeral following the standard number and preceded by a hyphen (e.g., 999-1, 999-2, etc.).

The title of a part shall be composed in the same way as that of a normal standard (see 2.3.1). All the individual titles in a series of parts shall contain the same introductory and main elements, while the complementary element shall be different in each case to distinguish the parts from one another. The complementary element shall be preceded in each case by the part number (e.g., Part 2).

If a standard is published in the form of a number of separate parts, the first part shall include in its foreword (see 2.2.3) an explanation of the intended structure. A reference shall be made to the titles of all other parts in the foreword of each part belonging to the series if they are known.

Table 2 - Names of divisions and subdivisions

Term	Example of Numbering
part	999-1
clause[1)]	1
primary subclause	1.1
secondary subclause	1.1.1
secondary subclause	1.1.1.1
secondary subclause	1.1.1.1.1
paragraph	(no number)
annex	A
1) But see 3.3.2	

3.3.2 Section

For practical reasons, it may be desirable to subdivide a lengthy standard, or a lengthy part of one, into sections. In such cases, the sections shall be numbered with arabic numerals, beginning with 1. The numbers of the clauses within a section shall include, as their first numeral, the number of the section; e.g., clauses in section 2 would be numbered 2.1, 2.2, 2.3, etc.

3.3.3 Clause

A clause is the basic component in the subdivision of the text of a standard.

The clauses in each standard or part of it shall be numbered with arabic numerals, beginning with 1 for "SCOPE." The numbering shall be continuous up to but excluding any annexes (see 3.3.6).

Each clause shall have a title, in upper case letters, placed immediately after its number, on a line separate from the text which follows.

3.3.4 Subclause

A subclause is a numbered subdivision of a clause. A primary subclause may be further subdivided into numbered secondary subclauses, and this process of further subdivision may be continued up to five levels of numbering (e.g., 1.1.1.1.1).

Subclauses shall be numbered with arabic numerals [see annex E (informative) for an example].

Numbering shall not be used to create a subclause unless there is at least one further subclause at the same level. For example, a piece of text in clause 1 shall not be designated subclause "1.1" unless there also is a subclause 1.2.

Each primary subclause preferably should be given a title that shall be placed after its number on a line separate from the text which follows. Secondary subclauses may be treated in the same way. However, the use of titles shall be uniform; i.e., all subclauses within one clause or subclause shall bear a title or all shall be untitled. In the absence of titles, key terms or phrases (underlined in typed texts and composed in distinctive type in printed documents) appearing at the beginning of the text of the subclause may be used to call attention to the subject matter dealt with in the various subclauses.

3.3.5 Paragraph

A paragraph is an unnumbered subdivision of a clause or subclause.

3.3.6 Annex

For the description of the two types of annex, see 2.4.8 and 2.5.1.

Annexes shall be designated by capital letters of the alphabet beginning with A but omitting I and O. The word "Annex" shall be followed by the letter designating its serial order and by the word "normative" or "informative" in parentheses. The title of the annex shall be placed three lines below the annex designation. Numbers given to the clauses, subclauses, tables, figures, and equations of an annex shall be preceded by the letter assigned to that annex (e.g., A.1.2). The first clause shall begin on the fourth line below the title. The numbering shall start afresh with each annex. A single annex shall be designated "Annex A." The layout of annexes should conform with 3.4.

3.4 Layout of divisions and subdivisions

In drafts of standards at all stages of preparation, the numbers and the text of divisions and subdivisions shall be aligned on the left-hand margin of the page. However, as an aid to composition of the printed text, lists (see 4.1.3) and notes integrated in the text (see 2.5.3) shall be inset from the margin.

For an example, see annex F (informative).

4 EDITORIAL DETAILS

4.1 Text of the standard

4.1.1 Wording of "Scope" clause

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

"This Standard

-- specifies

the dimensions of ..."

a method of ..."

the characteristics of ..."

-- establishes

a system for ..."

general principles for ..."

-- gives guidance on ..."

-- defines terms ..."

Statements of applicability of the standard shall be introduced by the following wording:

"This Standard is applicable to ..."

4.1.2 Verbal forms for the expression of requirements

A standard 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 standard, the user needs to be able to identify the requirements he is obliged to satisfy. He needs also to be able to distinguish these requirements from other provisions where he has a certain freedom of choice.

Clear rules for the use of verbal forms are therefore essential.

Annex C (normative) 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.

4.1.3 Lists

Lists may be introduced either by a complete grammatical proposition followed by a colon (see example 1), or by the first part of a proposition without a colon (see example 2), completed by the items in the list.

EXAMPLES

1 No switch is required for any of the following categories of apparatus:

-- apparatus having a power consumption not exceeding 10 W under normal operating conditions;

-- apparatus having a power consumption not exceeding 50 W, measured 2 min after the application of any of the fault conditions;

-- apparatus intended for continuous operation.

2 Vibrations in the apparatus may be caused by

-- unbalance in the rotating elements;

-- slight deformations in the frame;

-- the rolling bearings;

-- aerodynamic loads.

Each item in a list shall be preceded by a dash (--) or, if necessary for identification, by a lower-case letter followed by a parenthesis. If it is necessary to subdivide further an item in such a list, arabic numerals followed by one parenthesis shall be used.

EXAMPLE

a) ……

b) ……

1) ……

2) ……

c) ……

4.1.4 Spelling and abbreviation of names of organizations

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

4.1.5 Use of trade names

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

Proprietary trade names for a particular product should, insofar as possible, be avoided, even if they are in common use.

EXAMPLE 1 - Instead of "Teflon," write "polytetraflourethylene" (PTFE)."

If, exceptionally, trade names cannot be avoided, their nature shall be indicated; e.g., by the symbol ™ for a trademark, ® for a registered trademark, © for copyright, and ℠ for a service mark. An appropriate explanation shall be given as in the following examples.

EXAMPLE 2 - If it is known that only one product that is suitable for the successful application of the standard is currently available, the trade name of the product may be given in the text of the standard but shall be associated with a footnote as follows:

> "1) (Trade name of product) is the trade name of a product supplied by (supplier). This information is given for the convenience of users of this Standard and does not constitute an endorsement by (ANSI/TIA or TIA) of the product named. Equivalent products may be used if they can be shown to lead to the same results."

EXAMPLE 3 - 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 footnote as follows:

> "1) [Trade name(s) of products(s)] (is/are) (an) example(s) of (a) suitable product(s) available commercially. This information is given for the convenience of users of this Standard and does not constitute an endorsement by (ANSI/TIA or TIA) … of (this/these) product(s)."

4.1.6 Effective Dates

Effective dates shall not be part of a standard approved by ANSI. However, some applications may require the establishment of effective dates for the provisions of the standard. Such dates may be included only when considered necessary by the formulating group and only if it is clearly shown that they are not part of the standard. Effective dates may appear on the cover, in the foreword, as footnotes, or in parentheses following a provision to which such a date applies.

When an effective date appears in any portion of a standard, the following statement shall be included:

> "The effective date is established by TIA and not by the American National Standards Institute."

4.1.7 Special word usage

4.1.7.1 "And/or"

The term *and/or* shall be avoided. Wherever possible, the statement shall be rewritten to clarify the meaning.

EXAMPLE 1 - "compatibility advantages, performance advantages, or both; not compatibility *and/or* performance advantages."

EXAMPLE 2 - "nuts, or screws, or bolts, or a combination thereof; not nuts, screws, *and/or* bolts."

4.1.7.2 "That" and "which"

That is a defining or restrictive pronoun. *Which* is a nondefining or nonrestrictive pronoun.

EXAMPLE 1 - "The lawn mower *that* is in the garage is broken." (Tells which one.)

EXAMPLE 2 - "The lawn mower, *which* is broken, is in the garage." (Adds a fact about the only mower in question.)

4.2 Tables

4.2.1 Usage

Tables should be used wherever appropriate to present information in an easily comprehensible form. Each table shall be referred to explicitly in the text so that its significance in relation to the provisions of the standard is made clear.

4.2.2 Numbering

Tables shall be numbered with arabic numerals, beginning with 1, in the order in which they appear in the text. This numbering shall be independent of the numbering of the clauses and of any figures. A single table shall be designated "Table 1."

4.2.3 Layout

Subject to word processor limitations, tables should be contained within a 1-point box. Columns and subcolumns should be separated by vertical rules. Horizontal rules should be placed under heads, above notes, and above subcolumns. The title shall be centered in bold type above the table and laid out as in the following example:

"**Table 5 - Mechanical properties**"

4.2.4 Headings

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

EXAMPLE 1

Type	**Linear density** kg/m	**Inside diameter** mm	**Outside diameter** mm

As an exception to this rule, when all units are the same, a suitable statement shall instead be placed above the right-hand corner of the table.

EXAMPLE 2

Dimensions in millimeters

Type	**Length**	**Inside diameter**	**Outside diameter**

4.2.5 Continuation of tables

When a table is continued over two or more pages, repeat the number of the table, followed by the appropriate word as in the following examples:

-- **"Table 1** (*continued*)" on intermediate pages;

-- **"Table 1** (*concluded*)" on the final page.

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

4.3 Figures

4.3.1 Usage

Figures should be used wherever appropriate to present information in an easily comprehensible form. Each figure shall be referred to explicitly in the text so that its significance in relation to the provisions of the standard is made clear.

4.3.2 Form

Figures shall be in the form of line drawings. Photographs may be used only if it is not practicable to convert them into line drawings.

4.3.3 Numbering

Figures shall be numbered with arabic numerals, beginning with 1, in the order in which they are first mentioned in the text. This numbering shall be independent of the numbering of the clauses and of any tables. A single figure shall be designated "Figure 1."

4.3.4 Layout of title

The title shall be centered below the figure and laid out as in the following example:

"**Figure 1 - Details of apparatus**"

4.3.5 Choice of symbols

Symbols used on figures to represent general cases of angular and linear quantities shall be in accordance with ANSI/IEEE 260 and ANSI X3.50, subscripts being used where necessary to differentiate between different applications of a given symbol.

EXAMPLE - For a series of symbols indicating various lengths on a drawing, use l_1, l_2, l_3, etc. and not, for instance, *A*, *B*, *C*, etc., or *a*, *b*, *c*, etc.

4.3.6 Style of lettering

Inclined (italic) letters shall be used for

-- symbols for quantities;

-- subscripts representing symbols for quantities;

-- letter symbols representing numbers.

Vertical (upright) style shall be used for all other lettering.

4.3.7 Units

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

4.4 References

When possible, references to particular pieces of text shall be used instead of repetition of the original source material because such repetition involves the risk of error or inconsistency and increases the length of the document. If it is not possible to avoid repetition of such material, its source shall be identified precisely.

Cross-references within the main text or within the annexes shall not contain the year unless they appear before the normative references clause, except as provided in 4.4.4, second example.

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

4.4.1 References to the standard as a whole in its own text

Generally, the form "this Standard . . ." should be used.

However, to avoid possible confusion in the case where a standard is published in separate parts, the following forms may be used:

-- "this part of ANSI/TIA/EIA 999" (reference to a part only);

-- "ANSI/TIA/EIA 999" (reference to a whole series of parts).

4.4.2 References to elements of text

Elements of text shall be referred to in forms such as the following:

-- "in accordance with clause 3";

-- "according to 3.1";

-- "details as given in 3.1.2";

-- "see annex B."

It is unnecessary to use the term "subclause."

4.4.3 References to tables and figures

Tables and figures shall be cited in the text in the form "table *X*" and figure *X*" (see 4.11.1).

Tables and figures shall be referred to in forms such as the following:

-- "given in table 2";
-- "(see table 2)";

-- "shown in figure 3";

-- "(see figure 3)."

The figure shall always be referenced in proper numeric order. However, a figure also may be referenced in the text out of numerical sequence when the context requires it.

4.4.4 References to other standards

Other standards to which reference is made in the text of a standard shall be indicated by their reference number only since full details of the title and date are given in the "Normative references" clause (see 2.3.3).

EXAMPLE 1 - "ANSI/TIA/EIA 999."

References to particular elements of other standards shall be made using the forms given in 4.4.2 and 4.4.3, together with the date of publication.

EXAMPLE 2 - "according to 3.1.1 of ANSI/TIA/EIA 999-1990."

4.5 Bibliographic references

Bibliographic references shall follow the pattern set forth in annex G (informative).

4.6 Mathematical style

4.6.1 Equations shall be expressed in mathematically correct form, the various quantities being represented by letter symbols, the meanings of which are explained below the equation unless they appear in a "Symbols and abbreviations" clause (see 2.4.2). Descriptive terms or names of quantities shall not be arranged in the form of an equation.

The following style shall be used:

$$RL = 20 \log (Z_{tt} + Z_{ref})/(Z_{tt} - Z_{ref}) \text{ dB}$$

where

RL is return loss of a 2-wire interface;
Z_{tt} is the impedance of the 2-wire tie trunk;

Z_{ref} is a reference impedance composed of 600 Ω resistance in series with 2.15 FF capacitance.

NOTE - Names of units are spelled out in full when they are not preceded by a numerical value.

4.6.2 Symbols for quantities shall be chosen, wherever possible, from ANSI/IEEE 280 or other appropriate ANSI standards. Mathematical signs and symbols shall be in accordance with ANSI Y10.20.

4.6.3 Insofar as possible, symbols having subscripts which themselves bear subscripts should be avoided.

4.6.4 If a standard contains more than one equation, all equations shall be numbered and placed flush right, using arabic number in parentheses, as in the following example:

$$x^2 + y^2 = z^2 \qquad (1)$$

The numbering shall be independent of the numbering of clauses, tables, and figures.

4.7 Representation of numerical values

4.7.1 Arabic numerals shall be used for all units of measure, time, and quantity.

4.7.2 The decimal sign shall be a period on the line.

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

EXAMPLE - 0.001.

4.7.4 Each group of three digits, reading to the left or to the right of a decimal sign, shall be separated by a space from the preceding digits or following digits, respectively. In numbers of four digits on either side of the decimal point, the space usually is not necessary except for uniformity in tables.

EXAMPLES - 2.343 456; 2 345; 2.345 67; 73 722; 7372.

4.7.5 A multiplication sign (x), rather than a point, shall be used to indicate multiplication of numerical values.

4.7.6 To express numbers of items (as opposed to numerical values of physical quantities), the numerals one to nine shall be spelled out in full, except for contrast within a paragraph.

EXAMPLES

1 "Carry out the test on five tubes, each 5 m long."

2 "Select a further 15 tubes for the pressure test."

3 "The test shall be performed on 5 to 15 tubes. When performed on fewer than 9 tubes, the test shall be repeated."

To express numerical values of physical quantities, arabic numerals, accompanied by the international symbol for the unit (see ANSI/IEEE 280), shall be used.

4.8 Quantities, units and symbols

The International System of Units (SI), as specified in ANSI/IEEE-268, shall be used in TIA standards. Equivalent U. S. Customary Units, rounded to the intended accuracy; may be added in parentheses following the SI unit value; e.g., 6.4 m (21 ft). If metric equivalents are not used, the reason shall be explained in the foreword or introduction.

4.8.1 Many units have been derived from the seven basic SI units by forming combinations of symbols. When units are used in combination to express *ratios*, such as any quantity per unit of time, weight, area, degree temperature, or distance, symbols shall be separated by a solidus (/) with no spaces.

EXAMPLE - "kilobits per second (kb/s)"

4.8.2 When a quantity is expressed as a numerical value and a unit symbol, a space shall be left between them.

EXAMPLE - 35 mm (not 35mm)

EXCEPTION: No space is left between the numerical value and the symbol for degree, minute, and second of a plane angle.

EXAMPLE - 90° angle

4.8.3 When a quantity expressed as a numerical value and a unit is used as an adjective, a hyphen should be used in lieu of a space between the number and the unit name or symbol.

EXAMPLES

1 A three-meter pole

2 A 33-cm rule

4.8.4 To express the number of degrees temperature, a space shall be left between the numerical value and the symbol for the temperature scale. The symbol for degree and the symbol for temperature scale shall not be separated by a space.

EXAMPLE - 21 °C (not 21° C)

4.9 Abbreviations

Abbreviations shall be used with care, and their use shall be limited to those cases where it cannot give rise to confusion. Generally, abbreviations should conform with ANSI/ASME Y1.1.

If a list of abbreviations is not given in the standard (see 2.4.2), then the first time that an abbreviation is used, the full term shall be given with the abbreviation following in parentheses.

Generally, except for acronyms and abbreviations derived from proper names, lower case letters are used for abbreviations in text. Capital letters are used in drawings. Abbreviations (i.e., acronyms) derived from initial letters of words should be written close together with no spaces (abbreviations of some words are spaced) or punctuation except the solidus (/) and the hyphen (-).

Generally, the same abbreviations shall be used for all tenses, participle endings, the possessive case, the singular and plural, and the noun and modifying forms of a term.

If it is necessary to begin a sentence with an abbreviation, all letters of the abbreviation shall be capitalized.

4.10 Indication of dimensions and tolerances

Dimensions and tolerances shall be indicated in an unambiguous manner (see ANSI/IEEE-268).

EXAMPLES

1 80 mm x 25 mm x 50 mm (not 80 x 25 x 50 mm)

2 80 mm +/- 2 mm

3 80 +2/0 mm (not 80 +2/-0 mm)

4 80 mm +5/-2 mm

To avoid misunderstanding, tolerances on percentages shall be expressed in a mathematically correct form.

EXAMPLES

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

6 Write "(65 +/- 2)%" to express a center value with tolerance.

In neither case, shall the form "65 +/- 2%" be used.

4.11 Capitalization and punctuation

4.11.1 Capitalization

The first letter of the first word of element titles shall be capitalized. All other common words shall be expressed in lower case letters.

Generally accepted capitalization rules shall apply to text. Proper names shall be expressed in upper and lower case letters. See also 4.9.

In text, the word *standard* shall be capitalized when referring to a specific document (e.g., in this Standard) and shall be written in lower case when referring to documents in general (e.g., in TIA standards).
The terms *clause*, *table*, *annex*, and *figure* shall not be capitalized in cross-references.

See also 2.3.3.

4.11.2 Punctuation

Punctuation generally shall be in conformity with *The Chicago Manual of Style*.

4.11.2.1 Expressions in a series

Words in a series shall be separated by commas except that the comma before the conjunction may be omitted when there is no possibility of confusion.

EXAMPLES

1 "Equipment may be digital, analog, or hybrid."

2 "Equipment may be digital, analog or hybrid."

Phrases in a series shall always be separated by commas.

EXAMPLE - "Early common channel signaling systems were designed for low overhead, short addressing labels, and minimum retransmission to correct errors."

When used in a series, phrases containing one or more commas shall be separated by semicolons to avoid ambiguity.

4.11.2.2 Punctuation with quotations

In using marks of punctuation with quoted words, phrases, or sentences, the arbitrary printers' rules shall be used by placing

- the period and the comma always within the quotation marks;

- the colon and the semicolon always outside the quotation marks;

- the dash, the question mark, and the exclamation point within the quotation marks when they apply to the quoted matter only and outside the quotation marks when they refer to the whole sentence.

4.11.2.3 Hyphenation

Hyphenation of text shall be used only when necessary to avoid awkward presentation. Compound words used as an adjective shall be hyphenated unless the first of the compound words is an adverb ending in *ly*.

EXAMPLES - "8-kHz sampling, positive-response signal; poorly designed system."

EXCEPTION: Hyphens are not necessary in compound words that are commonly used as a single term.

EXAMPLES - "Central office equipment; error rate performance.

Hyphens shall be used in words only to avoid ambiguity or awkward union of letters or syllables between prefix or suffix and the root word.

EXAMPLE 1 - "re-covered (the roof)"; "recovered (his health)."

EXAMPLE 2 - "semi-independent; semicircle."

Hyphens shall be used with the prefixes *all-, ex-, self-,* and the suffix *-elect*.

EXAMPLES - "all-important; ex-governor; self-made; mayor-elect."

4.12 Submission format

Standards proposals shall follow the general style of this manual and shall be submitted to TIA in final form ready for printing, whenever possible.

4.12.1 Submission media

Standards proposals submitted to TIA shall include magnetic media and a hard paper copy. Acceptable media are:

-- 5.25-inch DS HD (1.2 Mb) floppy diskette;

-- 5.25-inch DS DD (360 kb) floppy diskette (may not be readable on 360-kb drives if written over by TIA);

-- 3.5-inch (1.44 Mb) floppy diskette;

-- 3.5-inch (720 kb) floppy diskette.

Diskettes should be formatted using MS-DOS 3.1 or higher.

4.12.2 Acceptable word processing programs

The preferred word processing program is *Word Perfect 5.0* or later version. Other programs that can be converted into *Word Perfect 5.0* are:

-- DCA (used by IBM mainframes);

-- Navy DIF Standard;

-- WordStar 3.3;

-- MultiMate Advantage II;

-- Seven-Bit Transfer Format;

-- Straight ASCII

NOTE - Although *Word Perfect* can convert files written by these programs, there is a substantial risk of losing some control codes such as underlining, bold type, etc.

If none of the above programs is available, provide magnetic media with any other program; later versions of *Word Perfect* may include additional conversion capabilities. A camera-ready hard paper copy shall be included with these submissions.

4.12.3 Graphics

Correctly prepared drawings, sketches, graphs, etc. shall be supplied as camera-ready hard paper copies or as clear black and white photographic reproductions (original art work is preferred). Tables may be incorporated into text processing files or provided in camera-ready hard paper copies. Space shall be provided in the document text for graphics submitted in camera-ready copies.

4.12.4 Printing

4.12.4.1 Paper size and margins

Standards proposals shall be single-spaced on paper 8-1/2 x 11 inches. All margins--top, bottom, left, and right--shall be 1 inch. Proposals shall be prepared for two-sided reproduction. A *binding width* of 1/4 inch shall be provided.

4.12.4.2 Fonts

The standards proposals should be set in Helvetica medium or similar sans serif type. Alternatively, commonly used serif type styles are acceptable. Generally, type size should be 11-point or 12-point. Depending upon the nature of the content, scalable type may be useful in special applications such as figures, notes, complex formulas, or certain superscript or subscript characters to adjust the type size for readability. Titles shall be of uniform size. All type shall be upright except as indicated in 4.12.7.

4.12.5 Headers

Headers shall include the project number (PN) flush with the outside margin of odd- and even-numbered pages. Two blank lines shall be provided below the header text within the header. TIA will replace the PN with SP when the document is distributed for review.

EXAMPLE - "TIA/EIA PN-xxxx."

4.12.6 Page numbering

Page numbers shall be centered at the bottom of each page. Preliminary elements, commonly known as *frontmatter*, shall be numbered with lower-case Roman numerals. All other pages shall be numbered with Arabic numerals beginning with 1.

4.12.7 Boldface and italics

Boldface and italic type styles shall be used only in the following instances:

-- *Boldface:* Boldface type shall be used only for:

-- titles of clauses and subclauses;

-- titles of figures and tables;

-- certain mathematical symbols (vectors) or command words in algorithms (usually in computer language standards);

-- introductory terms such as "**DANGER -**," "**WARNING -**," and "**CAUTION -**" used in hazardous warnings.

Boldface shall not be used for emphasis.

-- *Italics:* Italic type shall be used only in the following cases:

-- variables (i.e., *n* bits, *n*-1 bits, or $F = a + b$);

-- headings in lists, when needed (Only the title and the punctuation following the title shall be italicized.);

-- titles of standards, books, and journals or magazines in the text, the normative references clause, or the bibliography;

-- symbols in figures (see 4.3.6);

-- very sparingly for emphasis.

4.12.8 Warning statement

If any tests or procedures required by a standard are believed to involve potential safety hazards, the following paragraph shall be placed in the scope:

"Some of the tests or procedures specified in this Standard may involve the presence of hazardous voltages and currents or other potential dangers to personnel. Some of these hazards have been identified, and appropriate warnings have been included in the text

specifying such tests or procedures. However, appropriate safety precautions are always recommended when performing any laboratory test or procedure."

The following statement, shall be placed in the text preceding each test or procedure that may involve potential hazards. The warning statement shall be emphasized by using upper case letters, bold type, and underlining.

EXAMPLE - "**WARNING! ADEQUATE SAFETY PRECAUTIONS SHOULD BE OBSERVED!**"

5 WORKING PAPERS AND CONTRIBUTIONS BY COMMITTEE MEMBERS

5.1 Document numbers

All contributions (submissions) by committee members or other persons and all drafts of proposed standards shall be numbered by the formulating group, using the following format:

TR-45.*w*/*xx*-*yy*-*zzz*

where

w is the number of the subcommittee;

xx is the designation of the calendar year;

yy is a numerical designator for the month;

zzz is a sequential document number for the calendar year indicated.

EXAMPLE - "TR-45.3/92-04-016" (subcommittee TR-45.3; April, 1992; document 16).

5.2 Working papers

Working papers generally are drafts or partial drafts of proposed standards, or comments thereon, that are being developed in committee. Drafts shall have a cover page containing the document number, tentative title, project number, draft number (sequential beginning with 1), and date of preparation. Sidebars, or other marks, may be used to identify material changed from the previous draft or material not yet acted upon by the committee.

5.3 Contributions (submissions) to committees

Individual or company contributions to committees shall contain a cover page identifying the document number (*zzz* to be assigned by committee chairman or secretary) in the upper right corner, title of the contribution, project number (see 4.3, *TIA Engineering Manual, 1991*), date, source, distribution of the contribution, and identification of applicable patents or copyrights. In addition, the following statement shall be included:

"Contributor's company grants an irrevocable royalty-free and compensation-free license to the Telecommunications Industry Association to use any or all material contained in this contribution in any TIA publication."

NOTE - This grant of license covers only the text of the contribution, which ultimately may be incorporated in a TIA publication.

Identification of applicable intellectual property rights (patents or copyrights) required for compliance with the proposed standard shall be indicated by one or more of the following statements:

-- "Contributor knows of no patents or copyrights applicable to the information contained in this contribution."

-- "Contributor believes that some of the information contained in this contribution is covered by one or more patents/copyrights (*indicate which*) held by ___(holder)___."

-- "Contributor's company holds one or more patents/copyrights (*indicate which*) and agrees that a license under those rights on reasonable and nondiscriminatory terms and conditions will be made available."

-- "Contributor's company has not made a determination as to whether it holds one or more patents or copyrights that cover information contained in this contribution but agrees that a license under those rights on reasonable and nondiscriminatory terms and conditions will be made available if such patents or copyrights are later found to exist.

These items may be followed by an abstract of the submission, disclaimer of liability and any other notice believed to be relevant. A sample cover sheet is shown in annex D (informative).

The document number shall be placed in the upper right corner of at least the first page following the cover page.

Annex A (normative)

Drafting of titles

A.1 Elements of the title

As specified in 2.3.1, up to three elements may be included in a title:

a) an introductory element;

b) a main element;

c) a complementary element,

When the title is cited in a text, these elements shall be separated by dashes.

A.1.1 The introductory element

The introductory element is necessary if, without it, the subject indicated in the main element is not well defined.

EXAMPLE 1

RIGHT	**WRONG**
a) Telecommunications	a) ---
b) Carrier-to-customer installation	b) Carrier-to-customer installation
c) DS1 metallic interface	c) DS1 metallic interface

If the main element together with the complementary element of the title unequivocally covers the subject treated in the standard, the introductory element shall be omitted.

EXAMPLE 2

RIGHT	**WRONG**

a) ---	a) Telecommunications
b) Fiber optic cable	b) Fiber optic cable
c) Buffered fiber bend test	c) Buffered fiber bend test

A.1.2 The main element

The main element shall always be included.

A.1.3 The complementary element

The complementary element is necessary if the standard covers only one or a few aspects of the subject indicated in the main element or if it is necessary to distinguish it from another standard.

When a standard is published as a series of separate parts, the complementary element serves to distinguish and identify the parts (the introductory element, if used, and the main element remaining the same for each part).

EXAMPLE 1

ANSI/TIA 999-1-1999	Telecommunications	(element a)
	Private branch exchange	(element b)
	Part 1: Interface specifications	(element c)
ANSI/TIA 999-2-1999	Telecommunications	(element a)
	Private branch exchange	(element b)
	Part 2: Impedance specifications	(element c)

If the standard covers several aspects of the subject indicated in the main element, the aspects covered shall be referred to by a general term such as "specification" or "test methods" rather than be enumerated one by one.
The complementary element shall be omitted if the standard both

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

-- is (and is intended to remain) the only standard relating to this subject.

EXAMPLE 2

RIGHT	**WRONG**
a) ---	a) ---
b) Dry reed switches	b) Dry reed switches
c) ---	c) Terminology, symbols, material, dimensions, test methods, packaging

A.2 Avoidance of unintentional limitation of the scope

The title shall not contain details which might risk implying an unintentional limitation of the scope of the standard. However, if the standard pertains to a specific type of product, this fact shall be reflected in the title.

EXAMPLE - "Digital processing of audio signals -- algorithm for 15-kHz audio at 384 kb/s using 14/11-bit coding."

A.3 Wording

Uniformity shall be maintained in the terminology used in the titles of standards for indicating the same concept.

For standards dealing with test methods, one of the following expressions shall be used whenever possible: "Test method" or "Determination of ...." Expressions such as "Method of testing," "Method for the determination of...," "Test on ...," and the use of the word "standard" in the title shall be avoided.

Annex B (normative)

Drafting and presentation of terms and definitions

B.1 GENERAL PRINCIPLES

B.1.1 Types of standard

Terminology may take the form of an independent terminology standard (a vocabulary, nomenclature, or list of equivalent terms) or be included in a "Definitions" clause in a standard that also deals with other aspects. See B.3.1 for layout.

B.1.2 Choice of concepts to be defined

Any term that is not self-explanatory or commonly known, or which may 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 and archaic and colloquial terms shall be avoided.

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

B.1.3 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 standard.

If the concept is used in several standards, it is preferable that it should be defined in the most general of those standards or in an independent terminology standard. The other standards should then refer to that standard without repeating the definition of the concept.

When the repetition of a definition is necessary, an informative reference shall be made to the standard from which it is reproduced.

EXAMPLE - "**cross-connect:** A group of connection points, wall or rack mounted, used to mechanically terminate and administer building wiring. [3.1 of ANSI/EIA/TIA-568-1991]"

If a term is defined in one standard, the introduction in another standard of a different term (synonym) for the defined concept is strongly discouraged.

B.1.4 Drafting of definitions

B.1.4.1 A definition shall contain all necessary and sufficient elements to enable the concept considered to be well understood and its boundaries to be determined.

B.1.4.2 A definition shall be adequate for its intended purpose. It shall be theoretically correct with the precision needed in the relevant context.

B.1.4.3 The preferred structure of a definition is: a basic part stating the class to which the concept belongs and another part enumerating the characteristics that distinguish the concept from other members of the class. The narrowest well-defined or well-known class shall be chosen.

EXAMPLE - "**hybrid computer:** Computer using both analog representations and discrete representations of data."

B.1.4.4 If it is difficult or not applicable to structure a definition in the way indicated in B.1.4.3, the definition may be drawn up by enumerating the important parts of the concept.

EXAMPLE - "The concept ›aircraft' comprises balloons and airships, kites and gliders, and other flying machines."

B.1.4.5 If it is difficult or not applicable to structure a definition according to either of the ways indicated in B.1.4.3 and B.1.4.4, the definition may be replaced by examples or by some explanation.

B.1.4.6 All terms used in a definition shall be unambiguous or shall be separately defined.

B.1.4.7 Definitions in which one concept is defined by a second concept, and the second by the first, shall be avoided.

B.1.4.8 A drawing may be used to clarify the content of a definition, but the text of the definition shall be complete in itself without the drawing.

B.1.4.9 A definition shall not take the form of, or contain, a requirement.

B.1.4.10 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 a suitable qualification or complementary expression (see B.3.4).

EXAMPLES

1 "**index** (of a file or of a document): List of the contents of a file or of a document, together with keys or references for locating the contents."

2 "**index** (of a measuring instrument): Fixed or movable part of the indicating device (pointer, luminous spot, liquid surface, recording pen, point, etc.), whose position with reference to the scale marks enables the results of the measurement to be determined."

B.2 Arrangement of terms in independent terminology standards

An independent terminology standard containing terms and definitions preferably should be 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. Each term defined shall be given a reference number.

B.3 Presentation

The following rules apply to the presentation of both independent terminology standards and the "Definitions" clause of other standards.

B.3.1 Layout

Each term defined (set in **bold type** in the printed publication) shall be placed at the beginning of the line, after its reference number, starting with a lower-case letter, and followed by a colon (:) unless the definition starts on a new line. The definition shall have the form of a dictionary definition, not repeating the term and without any intervening words.

EXAMPLE - "**3.3.14 plasticity:** Tendency of a material to remain deformed after reduction of the deforming stress to or below its yield point."

B.3.2 Synonyms

Synonyms shall be separated by a semicolon.

EXAMPLE - "**snap ring; retaining ring:** Split ring whose diameter can be made larger or smaller by elastic deformation."

B.3.3 Grammatical form of terms

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

B.3.4 Multiple meanings

If a term is used to represent several concepts, all meanings shall be qualified (see B.1.4.10). If this is not possible, the different meanings may be distinguished by adding arabic numerals so that separate entries are formed.

EXAMPLE

"**film speed**

(1) Index number specifying the sensitivity of a photographic emulsion.

(2) Frame rate of linear speed of film passing through equipment."

B.3.5 Parentheses and brackets

B.3.5.1 Parentheses ( ) enclosing a part of a term indicate that the part of the term placed between them may be omitted if, in the context in which the term is used, no confusion can arise.

EXAMPLE - "**compound (word)**"
The parentheses indicate that the term "compound" can be used alone, in the field of terminology, as having the same meaning as "compound word."

B.3.7.2 Square brackets [ ] enclosing a part of a term indicate that the words placed between them may replace all or some of the preceding words. This convention should be used

only when it is necessary to economize on space or to show at first sight the construction of synonyms.

EXAMPLE - "**bending load; flexural load; transverse load**"
may also be presented as
"**bending [flexural] [transverse] load**."

Annex C (normative)

Verbal forms
(Only singular forms are shown)

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

Table C.1 - Requirement

Verbal form	**equivalent expressions** (see 4.1.2)
shall	is to... is required to... it is required that... has to... only...is permitted it is necessary...
shall not	it is not allowed [permitted][acceptable][permissible] is required to be not... is required that...be not is not to be...
NOTES 1 Do not use "must" except to describe "unavoidable" situations. 2 Do not use "may not" instead of "shall not" to express a prohibition. 3 To express a direct instruction, such as referring to steps in a procedure, use the imperative mood. EXAMPLE - "Switch on the recorder."	

C.2 The verbal forms shown in table C.2 are used to indicate that one of several possibilities is recommended as particularly suitable, without mentioning or excluding others; 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 discouraged but not prohibited.

Table C.2 - Recommendation

Verbal form	**Equivalent expressions** (see 4.1.2)
should	it is recommended that... ought to...
should not	it is recommended that...not ought not to...

C.3 The verbal forms shown in this table are used to indicate a course of action permissible within the limits of the standard.

Table C.3 - Permission

Verbal form	**Equivalent expressions** (see 4.1.2)
may	is permitted is allowed is permissible
need not	it is not required that... no...is required
NOTES 1 See also the note under table C.4. 2 Do not use "can" instead of "may" in this context. 3 Do not use "possible" or "impossible" in this context.	

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

Table C.4 - Possibility

Verbal form	**Equivalent expressions** (see 4.1.2)
can	to be able to... to be in a position to... there is a possibility of... it is possible to...
cannot	to be unable to... to be not in a position to... there is no possibility of... it is impossible to...
NOTE - "May signifies permission expressed by the standard, whereas "can" refers to the ability of a user of the standard or to a possibility open to him.	

Annex D (informative)

Example of contribution cover sheet

(top of page)

TR-45.x/92-yy-zzz

TITLE: Proposed revision of TIA/EIA-xxx, clause 4.3, Test methods

PROJECT: PN-xxxx

DATE: (Month, day, year)

SOURCE: XYZ Company, 1000 Main Street, Anytown, (state & zip code)

PATENT/COPYRIGHT: Contributor knows of no patents or copyrights applicable to the information contained in this contribution. (*For other options, see 5.3*.)

GRANT OF LICENSE: "Contributor's company grants an irrevocable royalty-free and compensation-free license to the Telecommunications Industry Association to use any or all material contained in this contribution in any TIA publication."

DISTRIBUTION: TR-xx.x

Annex E (informative)

Example of numbering of divisions and subdivisions

		Clause number	Subclause number
General normative elements	Scope	1	
	Normative references	2	
		3	
		4	
		5	
		6	
Technical normative elements		7	
		8	*6.4.4.1* *6.4.4.2* *6.4.4.3* *6.4.4.4*
		9	
		10	*6.1* *6.2* *6.3* *6.4* *6.5* *6.6* *6.7*

$$\begin{cases} 6.4.1 \\ 6.4.2 \\ 6.4.3 \\ 6.4.4 \\ 6.4.5 \\ 6.4.6 \\ 6.4.7 \\ 6.4.8 \\ 6.4.9 \end{cases}$$

11

12

Annex A (normative)

$$\begin{cases} A.1 \\ A.2 \\ A.3 \end{cases}$$

Supplementary elements

Annex B (informative)

$$\begin{cases} B.2.1 \\ B.2.2 \end{cases}$$

$$\begin{cases} B.1 \\ B.2 \\ B.3 \\ B.4 \\ B.5 \end{cases}$$

Annex F (informative)

Sample layout of divisions and subdivisions

1 SCOPE

Text text text
text text text
text text text

2 NORMATIVE REFERENCES

Text text text
text text text

3 (TITLE)

3.1 (Title)

3.1.1 Text text text
text text text

3.1.2 Text text text
text text text

NOTE - Text text text
text text text

3.1.3 Text text text
text text text

3.2 (Title)

Text text text

text text text

a) Text text text
text text text
text text text

b) Text text text
text text text

Text text text
text text text
text text text

3.3 (Title)[1)]

Text text text
text text text
text text text

4 (TITLE)

4.1 (Title)[2)]

4.1.1 (Title)

Text text text
text text text
text text text

4.1.2 (Title)

Text text text
text text text
text text text

NOTE 1 - Text text text
text text text

Text text text
text text text

NOTE 2 - Text text text
text text text
text text text

---

1) Text text text

2) Text text text

4.2 (Title)

4.2.1 Text text text
text text text

4.2.2 Text text text
text text text

NOTES

1 Text text text
text text text

2 Text text text
text text text

4.2.3 (Title)

Text text text
text text text
text text text

Annex G (informative)

Bibliography

The following is a list of some generally applicable basic standards and guides, which are relevant to the requirements of this manual. Other American National Standards also may be relevant.

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