



ORGANISATION INTERNATIONALE
DE MÉTROLOGIE LÉGALE

BUREAU INTERNATIONAL DE MÉTROLOGIE LÉGALE

DIRECTIVES FOR THE TECHNICAL WORK

Part 2: Guide to the drafting and presentation of OIML International Recommendations and Documents

BIML note: This document is the result of converting the original electronic file to a modern format. The text is identical to the original, but there may be some minor differences in the layout.

There are also editorial changes to the equations on pages 14 and 15 (see footnotes on those pages).

April 1993

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GUIDE TO THE DRAFTING AND PRESENTATION OF OIML INTERNATIONAL RECOMMENDATIONS AND DOCUMENTS

1 Scope

The *Directives for OIML technical work* (hereafter: Directives) comprises two parts:

- Part 1: *Structures and Procedures for the Development of OIML International Recommendations and Documents*
- Part 2: *Guide to the Drafting and Presentation of OIML International Recommendations and Documents*.

Part 2 provides instructions for the drafting and presentation of OIML International Recommendations (hereafter: Recommendations) which concern given types of measuring instruments. The rules of this Guide are intended to ensure that these Recommendations are presented in as uniform a manner as practicable.

Note: Other Recommendations may be concerned with the following:

- general problems of measurement
- methods and means for control and comparison
- requirements for prepackages, etc.

For such Recommendations as well as for OIML International Documents(*), the instructions of the present Guide apply only insofar as they are relevant.

2 General principles of the drafting and presentation of a Recommendation

2.1 Objective

The objective of an OIML Recommendation concerning any given type of measuring instrument is to formulate requirements for the instrument and for its metrological control. After a translation of these requirements into the official language of a country, their aim is to serve as the basis for metrological regulation in OIML Member States.

The Recommendation shall serve also as a basis for the OIML Certificate System for Measuring Instruments.

To achieve this objective, the requirements of a Recommendation shall

- be unambiguous;
- be as complete as necessary within the limits specified by the scope of the Recommendation;
- 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 their elaboration.

2.2 Style

To facilitate understanding by all readers, the style shall be as simple and concise as possible (this is particularly important for readers whose mother tongue is not English or French).

(*) See *Directives, Part 1: Procedures for the technical work of OIML*, clause 1.2.

2.3 Homogeneity

Uniformity of structure, style, and terminology shall be maintained within each Recommendation as well as within a series of associated Recommendations. As far as possible, the structure of associated Recommendations and the numbering of their elements shall be identical.

The same term or wording shall be used throughout each Recommendation or series of Recommendations 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.

Respecting these requirements is particularly important to ensure comprehension of the Recommendation and to derive the maximum benefit available through automated text-processing techniques and computer-aided translation.

Note: The spelling of English texts shall be consistently British or American throughout one Recommendation. Words and locutions which have different significations according to British and American usages shall be avoided whenever possible; when such avoidance is not possible, a word of the same meaning in the other idiom should be given in parenthesis: for example, ground (earth), aerial (antenna). Local idiomatic expressions should also be avoided. The Longman Dictionary of the English Language (outside the United Kingdom, the Longman Webster English College Dictionary) identifies words and usages that are confined mainly to one part of the world.

New words or meanings that have not yet entered the standard dictionaries shall be avoided when possible and if they are used, they shall be defined in the text.

2.4 Coherence of Recommendations

The text of every Recommendation shall follow the relevant provisions of existing prescriptions and OIML fundamental Recommendations and those of other international organizations (especially: the Organs of the Meter Convention, ISO and IEC), so as to achieve coherence within the complete corpus of Recommendations. This relates particularly to the following:

- terminology
- quantities, units and their symbols
- expression of errors and uncertainties
- classes of accuracy
- abbreviations
- bibliographic references
- environmental conditions and associated tests
- safety

2.5 English and French versions

Recommendations are published in English and French versions. The texts in the two languages shall be technically equivalent and structurally identical. The use of bilingualism from an early stage of the drafting is of great assistance to the preparation of clear and unambiguous texts (see *Directives, Part 1*).

2.6 Implementation

The text of a Recommendation shall be drafted so as to permit its direct application and to facilitate its adoption as a national metrological regulation without necessitating modifications.

Formulations such as “the requirements are subject to national legislation” may present a technical barrier to international trade.

2.7 Planning

In order to ensure the timely publication of a Recommendation or series of associated Recommendations, a list of all aspects to be covered shall be made before detailed drafting begins. This aspect of the planning stage ensures the establishment of the scope and structure of the Recommendation(s) as well as the interrelationships involved.

3 Structure of a Recommendation

A Recommendation concerned with a type of measuring instrument includes, in general, the following elements:

Title page

Contents

Foreword

Introduction

Scope

Terminology

Description of the category of instrument

Units of measurement

Metrological requirements

Technical requirements

Metrological controls

Test method and model test report

Practical instructions

Mandatory annexes

Informative annexes

Footnotes

Notes integrated in the text

Notes to tables and figures

According to the nature of the instrument or its use, some Recommendations may not include all of the above-mentioned elements. Nevertheless, underlined elements are obligatory in every Recommendation, or series of Recommendations dealing with the same subject. It may be decided, for practical reasons, to draft several Recommendations which cover the different elements separately. Finally, in order to take account of the work already accomplished by other international institutions, it may be decided to refer to this work, therefore limiting the contents of a Recommendation to certain elements.

All elements, except footnotes and notes, shall follow the order indicated above.

The content of each element is described in clause 4 below.

4 Content of the individual elements of a Recommendation

In the following description of the elements, equivalent French terminology is given in parentheses.

4.1 Title page (Page de titre)

The title page shall be prepared in a standard format (see Annex A) by BIML. Similarly, the number of the Recommendation shall be allocated by BIML (e.g. in the form: R 77).

The title should be as concise as possible while permitting a comprehensible overview of the scope of the Recommendation; the title should not be so broad as to include instruments not covered by the scope.

4.2 Contents (Table des matières)

The contents shall list the elements of the Recommendation and indicate their page numbers.

4.3 Foreword (Avant-propos)

A foreword shall appear in every Recommendation; it shall include general information pertaining to OIML and its publications as well as a specific section which shall give the following information, as appropriate:

- an indication of the working group(s) that prepared the Recommendation;
- information regarding the approval of the Recommendation;
- the publications cancelled or replaced (in whole or in part) by the Recommendation;
- the relationship with other publications.

The foreword is prepared by BIML after the approval of the Recommendation. At the draft stage of a Recommendation, an explanatory note may replace the foreword but it is not intended to be published after the approval of the Recommendation.

4.4 Introduction (Introduction)

The introduction is an optional element used if it is necessary to present specific information or commentary concerning the following aspects:

- technical content of the Recommendation
- reasons leading to its preparation
- significant technical changes from the previous edition of the Recommendation, if appropriate

The introduction shall not contain requirements.

4.5 Scope (Domaine d'application)

The scope shall appear at the beginning of every Recommendation to clearly define the subject and its aspects to be covered, thereby indicating the limits of the Recommendation's application. This element shall not contain requirements.

4.6 Terminology (Terminologie)

The terminology is an optional element which provides the necessary definitions for understanding certain terms used in the Recommendation. If the terminology is informative, it shall be given in an informative annex.

Rules for the drafting and presentation of terms and definitions are given in Annex B.

The terminology may include a subclause explaining symbols and abbreviations used in the Recommendation.

4.7 Description of the instrument category (Description de la catégorie d'instrument)

This optional element provides a brief description of the design features, component parts, and function of the instrument covered by the Recommendation; Only such detail as is required for the comprehension of the Recommendation's other elements shall be used. This element shall not contain requirements and may be supplemented by informative annexes.

4.8 Measurement units (Unités de mesure)

The measurement units in which the given instruments' measurement results will be presented, as well as their symbols, shall conform with the decisions of the General Conference of Weights and Measures, the OIML International Document D 2 *Legal units of measurement*(*), and, if necessary, the detailed specifications of the ISO International Standards 31 and 1000.

(*) the present edition, 1978, is now being revised.

4.9 Metrological requirements (Exigences métrologiques)

This element shall include the metrological requirements with which measuring instruments shall comply during tests and while in service, for example, maximum permissible errors and influence quantities.

4.10 Technical requirements (Exigences techniques)

Technical requirements given in this element shall be confined to the necessary minimum and shall be specified so as to ensure compliance with the metrological requirements, e.g. requirements for construction, security of operation, protection against fraud, ease of reading, and descriptive markings.

4.11 Metrological controls (Contrôles métrologiques)

This element shall specify the requirements concerning the following:

- pattern approval (submission procedure, descriptive documents, tests to be conducted, etc.)
- appropriate initial and subsequent verifications (control methods and equipment to be used, tests to be conducted, etc.)
- appropriate metrological supervision

4.12 Test methods and model test report (Méthodes d'essai et modèle de rapport d'essai)

This element shall give instructions concerning the test procedure for checking compliance with the stated metrological and technical requirements with a view to ensuring the reproducibility of the test results; it shall also describe how to state the test results in an internationally harmonized manner (model test report).

This element may be subdivided in the following order (where appropriate):

- 1) Principles
- 2) Test equipment
- 3) Preparation for tests
- 4) Test procedure
- 5) Presentation of results, including the method of calculation and the uncertainty of the test method
- 6) Model test report

This element applies to pattern evaluation (and is therefore essential for the OIML Certificate System for Measuring Instruments) and verification.

Test methods and model test report may be presented in mandatory annexes.

4.13 Practical instructions (Instructions pratiques)

In this optional element, provisions that are applicable to the instrument after its manufacture may be given (e.g. instructions for installation, use or maintenance).

4.14 Mandatory annexes (Annexes obligatoires)

Mandatory annexes are integral parts of the Recommendation. The fact that an annex is mandatory (as opposed to informative) shall be made clear by its reference in the text and by an indication at the head of the annex itself. Annexes shall appear in the Recommendation in the order in which they are referred to in the text.

4.15 Informative annexes (Annexes informatives)

Informative annexes give additional information, and are placed after the mandatory elements of a Recommendation. They shall not contain requirements. The fact that an annex is informative (as opposed to mandatory) shall be made clear by its reference in the text and by an indication at the head of the annex itself.

A bibliography is a type of informative annex and should be placed first among informative annexes.

4.16 Footnotes (Notes de bas de page)

Footnotes give additional information; their use shall be kept to a minimum; they shall not contain requirements. According to linguistic necessities, it is possible that a footnote appear only in the English version, or vice versa, of the Recommendation.

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 lower left side of the page.

Footnotes shall normally be distinguished by arabic numerals followed by a parenthesis: 1), 2), 3), etc. starting afresh on each page or forming a continuous numerical sequence throughout 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, for example in order to avoid confusion with superscript numbers, one or more asterisks followed by a parenthesis may be used instead: ^{*) **) ***)}, etc.

4.17 Notes integrated in the text (Notes insérées dans le texte)

Notes integrated in the text of a Recommendation may be used only for giving information that is essential to the comprehension of the document. They shall not contain requirements. They may be part of any element except the title page and footnotes.

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

A single note shall be preceded by the title "Note", placed at the beginning of the first line of the text of the note. When 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 shall then 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.).

When isolated notes occur at separate places within the same numbered subdivision of text, they shall be designated as "Note 1", "Note 2", "Note 3", etc.

Alternatively, all notes integrated in the text may be numbered in a continuous sequence throughout the document.

In typewritten texts, all lines of a note shall be inset from the margin of the main text by at least five characters so that the extent of the note can be correctly understood for printing purposes.

4.18 Notes to tables and figures (Notes des tableaux et des figures)

Notes to tables and figures shall be treated independently from footnotes and notes integrated in the text. 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 figure. Such notes may contain requirements.

5 Divisions and subdivisions

The terms that shall be used to designate the divisions and subdivisions that a Recommendation may have are shown in Table 1 in English and French. An example of numbering is given in Annex C.

Table 1 - Names of divisions and subdivisions

English term	French term	Example of numbering
part	partie	76-1
<i>section</i>	<i>section</i>	<i>I, II...</i>
clause	article	1, 2...
subclause (primary)	paragraphe (principal)	1.1, 1.2...
subclause (secondary)	paragraphe (secondaire)	1.1.1, 1.1.2...
paragraph	alinéa	[no number]
annex	annexe	Annex A, Annex B...

5.1 Part (Partie)

A part is one document belonging to a series of documents published separately under the same Recommendation number.

The number of a part shall be indicated by an arabic numeral following the Recommendation number and preceded by a hyphen; for example

OIML R 76-1.

The title page of a part shall be composed in the same manner as that of a normal Recommendation, as described in 4.1.

If a Recommendation is published in the form of a numerous separate parts, the first part shall include in its foreword a description of the intended structure of the entire Recommendation.

5.2 Section (Section)

For practical reasons, it may be desirable to subdivide a lengthy Recommendation into sections. In such cases, the sections shall be numbered using Roman numerals. The numbering of sections shall not prevent the numbering of clauses in an uninterrupted series throughout the Recommendation.

5.3 Clause (Article)

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

The clauses in each Recommendation or in its parts shall be numbered with arabic numerals, beginning with 1. The numbering shall be continuous up to but excluding any annexes. Each clause shall have a title which appears immediately after its number and on a separate line from the text which follows.

5.4 Subclause (Paragraphe)

A subclause is a numbered subdivision of a clause. A primary subclause may be further subdivided into numbered secondary subclauses; this process of extended subdivision may be continued if necessary. Excessive division should, however, be avoided.

Subclauses shall be numbered with arabic numerals (see example in Annex C).

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 is also a subclause 1.2.

Each primary subclause may be given a title, which shall be placed immediately after its number, on a separate line from the text which follows. Secondary subclauses may be treated in the same manner. However, the use of titles shall be uniform, i.e. all subclauses within one clause 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.

5.5 Paragraph (Alinéa)

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

5.6 Annex (Annexe)

For the description of the two types of annex, see 4.14 and 4.15.

Annexes shall be designated by the capital letters of the alphabet, beginning with A but omitting I and O. The word "Annex" shall be followed by the letter designating its position in the serial order and by the word "mandatory" or "informative" in parentheses, and by the title on a separate line. Numbers given to the clauses, subclauses, tables, figures and equations of an annex shall be preceded by the letter assigned to that annex. Each annex shall be numbered independently. When a Recommendation contains only one annex, it shall be designated "Annex A".

6 Editorial details

6.1 Text of the Recommendation

6.1.1 Verbal forms for the expression of requirements

It is necessary for the user of the Recommendation to be able to identify mandatory requirements and to distinguish these requirements from other provisions for which there is a certain freedom of choice. Therefore, it is essential to establish clear rules for the use of verbal forms (including modal auxiliaries).

In annex D, the verbal form that shall be used to express each kind of provision is given in the first column of each table. The equivalent expressions which are given in the second column shall only be used in exceptional cases when, due to linguistic reasons, it is impossible to use the first form.

6.1.2 Lists

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

Examples:

- 1) The Recommendation gives the requirements that are specific to the following measuring assemblies:
 - fuel dispensers for motor vehicles
 - measuring assemblies for unloading ships' tanks
 - measuring assemblies for milk
- 2) An automatic zero-setting device shall operate only when
 - the instrument is in stable equilibrium; or
 - the indication has remained stable below zero for at least 5 seconds.

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 further subdivide an item in such a list, arabic numerals followed by one parenthesis shall be used.

Example:

- a)
- b)
 - 1)
 - 2)
- c)

6.1.3 Spelling and abbreviation of names of organizations

The spelling of the names of organizations, as well as their abbreviations, shall be in accordance with the usage of the organizations in question, in English or French (e.g. IEC, CEI).

The only official abbreviations of the organs of OIML and of the Metre Convention are those based on the French names (e.g. CIML, never ICLM; or CGPM, and never GCWM).

6.2 Tables

6.2.1 Usage

Tables should be used whenever 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 Recommendation is made clear.

6.2.2 Numbering

Tables shall be numbered with arabic numerals, beginning with 1. This numbering shall be independent of the numbering of the clauses and of any figures. When there is only one table in a Recommendation, it shall be designated as "Table 1".

6.2.3 Layout of title

The title shall be placed above the table and its layout shall conform to the following example:

Table 1 - Metrological requirements

6.2.4 Headings

The first word in the heading of each column shall begin with a capital letter and the units used in a column shall be indicated at the bottom of the column heading, as in the following example:

Example:

Type	Nominal capacity cm ³	Inside diameter mm	Maximum permissible errors cm ³

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:

Dimensions in millimeters			
Type	Length	Inside diameter	Outside diameter

6.2.5 Continuation of tables

When a table is continued over two or more pages, the number of the table shall be repeated followed by the appropriate indication, 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 each page where the table appears.

6.3 Figures

6.3.1 Usage

Figures shall be used whenever they permit an easily comprehensible presentation of the information. Each figure shall be referred to explicitly in the text so that the provisions of the Recommendation are clear.

6.3.2 Form

Figures shall be presented in the form of line drawings. Drawings, sketches, graphs, etc. shall be prepared correctly.

6.3.3 Numbering

Figures shall be numbered with arabic numerals, beginning with 1. This numbering shall be independent of the numbering of the clauses and of any tables. When there is only one figure in a Recommendation, it shall be designated as "Figure 1".

6.3.4 Lay-out of title

The title shall be centered below the figure and its layout shall conform to the following example:

Figure 1 - Details of apparatus

6.3.5 Choice of symbols

Symbols used in figures to represent general cases of angular and linear quantities shall be in accordance with ISO 31-1, subscripts being used when 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.

6.3.6 Style of lettering

Lettering used for drawings shall conform to ISO 3098-1. Inclined (italic) letters shall be used for the following:

- symbols for quantities
- subscripts representing symbols for quantities
- letter symbols representing numbers

The vertical (upright) style shall be used in all other cases.

6.3.7 Units

The units in which values are expressed shall be indicated.

6.4 References

When possible, references shall be made to specific elements of texts already published rather than copying long passages of the original source material due to the fact that such repetition entails the risk of error or inconsistency and increases the length of the document. If it is not possible to avoid repetition of such material, the source of copied material shall be identified precisely.

References to Recommendations shall be made in the forms indicated below; no reference shall be made to page numbers.

6.4.1 References to the Recommendation as a whole and in its own text

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

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

- "this part of R 76" (reference to one part);
- "R 76" (reference to a whole series of parts).

6.4.2 References to elements of text

Use, for example, the following forms:

- "in accordance with clause 3"
- "according to 3.1"
- "details as given in 3.1.1"
- "see Annex B"

It is unnecessary to use the term "subclause".

6.4.3 References to tables and figures

Every table and figure included in the Recommendation shall be referred to in the text.

Use, for example, the following forms:

- “given in Table 2”
- “(see Table 2)”
- “shown in Figure 3”
- “(see Figure 3)”

6.4.4 References to other Recommendations or International Standards

References to other Recommendations or International Standards shall be indicated by reference numbers and publication dates. Full details of all references shall be given in an annex, in accordance with 6.4.5.

Example: “ISO 1000:1981” and “IEC 68-1”.

References to particular elements of other Recommendations shall be made using the forms given in 6.4.2 and 6.4.3, together with the date of publication.

Example: “according to 3.1.1 of R 76-1:1988”.

6.4.5 Bibliographic references

The rules contained in ISO 690 shall be followed.

6.5 Mathematical style

6.5.1 Presentation

Equations shall be presented in a mathematically correct form with the various quantities being represented by letter symbols; the meanings of these symbols shall be explained below the equation. Descriptive terms, names of quantities or measurement units shall not be presented in the form of an equation.

The following style shall be used:

$$\frac{p_2}{p_1} = 1 + \eta \left[\frac{T_2 - T_1}{T_1} \right]^{\mu / (\mu - 1)} \quad 1$$

where

- p_1 is the intake pressure, in pascals;
- p_2 is the delivery pressure, in pascals;
- η is the isentropic efficiency;
- T_1 is the inlet temperature, in kelvins;
- T_2 is the outlet temperature, in kelvins;
- μ is the ratio of specific heat capacities.

Note that names of units (pascal and kelvin in the above example) are written out in full when they are not preceded by a numerical value.

¹ *BIML Note:* This equation has been slightly modified from that shown in the original printed version of these *Directives*, since it was not coherent with the text and did not respect the ISO standard used as a reference by these *Directives*.

6.5.2 Symbols having subscripts which themselves bear subscripts shall be avoided as far as possible, as shall any symbols and equations that would require the printing of an extra line of type.

Examples:

1) $D_{1,\max}$ is preferable to $D_{1_{\max}}$

2) In the text, a/b is preferable to $\frac{a}{b}$

3) In a displayed formula, it would be better to use:

$$\frac{\sin[(N+1)\theta/2] \times \sin(N\theta/2)}{\sin(\theta/2)} \quad \text{or} \quad [\sin[(N+1)\theta/2] \times \sin(N\theta/2)] / \sin(\theta/2)$$

than $\frac{\sin \frac{(N+1)\theta}{2} \bullet \sin \frac{N\theta}{2}}{\sin \frac{\theta}{2}}$ ²

6.5.3 If it is necessary to number some or all of the equations in a Recommendation in order to facilitate cross-reference, arabic numbers in parentheses shall be used, as in the following example:

$$x^2 + y^2 = z^2$$

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

6.6 Representation of numerical values

6.6.1 The decimal sign shall be designated as a comma on the line in the French version of a Recommendation and as a point on the line in the English version.

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

Example: 0.001

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

Examples: 23 456 2 345 2.345 2.345 67 *but* the year 1989

6.6.4 A multiplication sign (\times), rather than a point, shall be used to indicate multiplication of numerical values.

Examples: Write 1.8×10^{-3} (not $1.8 \cdot 10^{-3}$ or $1.8 \cdot 10^{-3}$)

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

Examples:

1) "Test five tubes, each 5 m long."

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

To express numerical values of physical quantities, arabic numerals accompanied by the international symbol for the unit shall be used.

² *BIML Note:* These equations have been slightly modified from those shown in the original printed version of these *Directives*, since they were not coherent with the text and did not respect the ISO standard used as a reference by these *Directives*.

6.7 Abbreviations

Abbreviations shall be used with precaution and only in cases where there can be no confusion.

If a list of abbreviations is not given in the Recommendation, the complete term followed by its abbreviation in parentheses shall be given when the abbreviation first appears in the text.

The general rule follows that abbreviations consisting of the initial letters of words be printed in lower-case letters (for example, "a.c." for "alternating current") and that a period be placed after each letter.

6.8 Indication of dimensions and tolerances

Dimensions and tolerances shall be indicated in an unambiguous manner.

Examples:

- 1) 80 mm × 25 mm × 50 mm (not 80 × 25 × 50 mm)
- 2) 80 mm ± 2 mm
- 3) 80_{0}^{+2} mm (not 80_{-0}^{+2} mm)

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

Examples:

- 4) Write "from 63 % to 67 %" to express a range.
- 5) Write "(65 ± 2) %" to express a center value with tolerance.

In neither case shall the form "65 ± 2 %" be used.

ANNEX A

ORGANISATION INTERNATIONALE DE MÉTROLOGIE LÉGALE



INTERNATIONAL RECOMMENDATION

Automatic rail-weighbridges

Ponts-bascules ferroviaires à fonctionnement automatique

OIML R 106
Edition 1993 (E)

ANNEX B

Drafting and presentation of terms and definitions

B.1 General principles

B.1.1 Choice of concepts to be defined

Any term that is not self-explanatory, commonly known, or which may be interpreted differently according to the context shall be defined by specifying the relevant concept.

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

Trade-names as well as archaic and colloquial terms shall be avoided.

Unrecommended terms may be included but they shall be clearly indicated by "(unrecommended: ...)". The preferred term shall then be shown.

Only the concepts that are used in the Recommendation shall be defined, with the exception of any additional concepts and terms judged necessary for understanding these definitions.

B.1.2 Avoidance of duplications and contradictions

Before specifying a term and definition for a concept, it should be ascertained that no other term or definition for that concept exist in an international vocabulary (VIM, VML, IEV, etc.).

When it is necessary to repeat a definition, an informative reference shall be made to the international vocabulary from which it is reproduced.

Example: **scale range:** For a given scale, the range of scale values between the extreme scale marks [VIM 4.21].

If a term is defined in an international vocabulary, the introduction in a Recommendation of a different term (synonym) for the defined concept or of a modified definition of the term, is only acceptable in exceptional cases. A justification shall be given in a note.

B.1.3 Drafting of definitions

B.1.3.1 A definition shall contain all necessary and sufficient elements to enable easy comprehension of the concept and a clear determination of its limits.

B.1.3.2 A definition shall be adequate for its intended purpose. It shall be theoretically correct with the precision needed for its relevant context.

B.1.3.3 The preferred structure of a definition is as follows: a basic part stating the class to which the concept belongs, followed by another part enumerating the characteristics that distinguish the concept from other elements of the class. The narrowest well-defined or well-known class shall be chosen.

Example: **cryogenic liquid:** A fluid of which the boiling point is less than 120 K and which has been liquefied by refrigeration.

B.1.3.4 If it is difficult or impossible to structure a definition as indicated in B.1.3.3, it may be drawn up by enumerating the important parts of the concept.

Example: **measuring system:** A complete set of measuring instruments and other equipment assembled to carry out a specified measurement task.

B.1.3.5 If it is difficult or impossible to structure a definition according to either of the examples indicated in B.1.3.3 and B.1.3.4, it may be replaced by examples or explanations.

- B.1.3.6 Terms used in a definition shall be unambiguous or shall be defined separately.
- B.1.3.7 Definitions in which one concept is defined by a second concept, and the second by the first, shall be avoided.
- B.1.3.8 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.1.3.9 A definition shall not take the form of a requirement nor shall it contain one.
- B.2 Presentation
The following rules apply to the presentation of the element “terminology” of Recommendations.
- B.2.1 Layout
Each defined term (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 is given on the following line. The definition shall be presented in the form of a dictionary definition; the term to be defined shall not be repeated nor shall other words be placed before the definition.
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.2.2 Synonyms
Synonyms shall be separated by a semicolon (;).
Example:
3.3.15 **snap ring; retaining ring**: Split ring whose diameter can be made larger or smaller by elastic deformation.
- B.2.3 Grammatical form of terms
Terms shall be presented in their basic grammatical form, i.e. generally, nouns in the singular, verbs in the infinitive.
- B.2.4 Symbols for missing terms
If, for a defined concept, no equivalent term exists in one of the languages, the absence of the term shall be indicated by a symbol consisting of five points (.....).
- B.2.5 Parentheses and brackets
- B.2.5.1 Parentheses () enclosing a part of a term indicate that that part of the term may be omitted provided that no confusion can arise in the context in which the term is employed.
Example: compound (word)
The parentheses indicate that the term “compound” may be used alone, in the field of the terminology, as having the same meaning as “compound word”.
- B.2.5.2 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 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] [transversal] load.

ANNEX C

Example of numbering of divisions and subdivisions

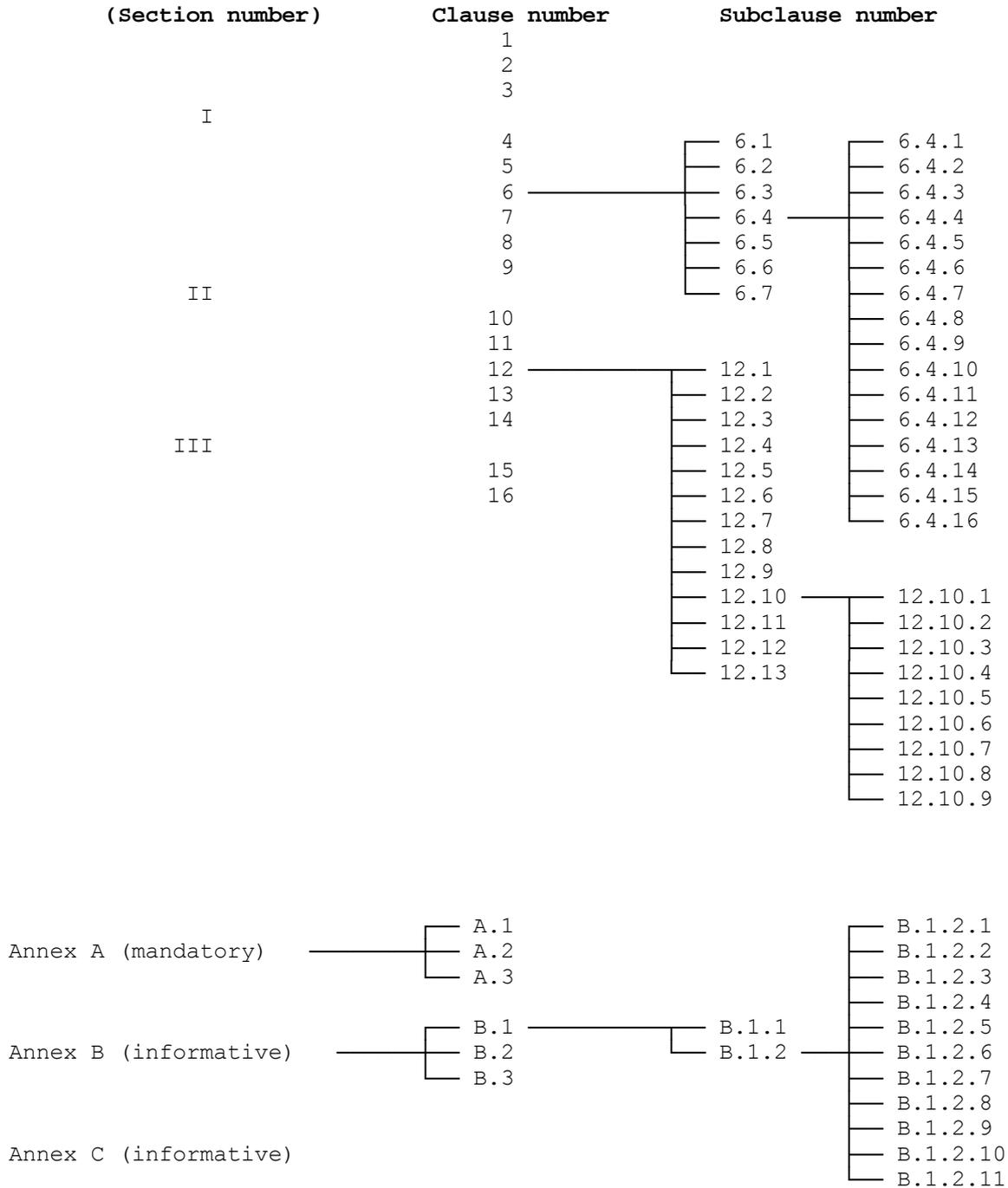


Table D.2 - Recommendation

The verbal forms shown in this table are 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 unrecommended but not prohibited.

Verbal form	Equivalent expressions (see 6.1.1.)
should il convient de	it is recommended that ... ought to ... il est recommandé de ... il est bon de ...
should not il convient de ne pas	it is recommended that ... not ought not to ... il est recommandé de ne pas ... il n'y a généralement pas lieu ...
<i>Note:</i> In French do not use “devrait” in this context.	

Table D.3 - Permission

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

Verbal form	Equivalent expressions (see 6.1.1.)
may peut	is permitted is allowed is permissible il est admis de ... il est permis de ... n'est pas exclu ...
need not peut ne pas être	it is not required that ... no ... is required il n'est pas nécessaire de ... il est inutile de ...
<p><i>Notes</i></p> <ol style="list-style-type: none"> 1 See also the note under table D.4. 2 Do not use “can” instead of “may” in this context. 3 The French verb “pouvoir” can indicate both permission and possibility. For clarity, the use of other expressions is advisable if otherwise there is a risk of misunderstanding. 4 Do not use “possible” or “impossible” in this context. 	

