

# **ISO/IEC Directives, Part 2:2021**

## **An overview of the major changes**



**Alisdair Menzies**  
**Standards Production**  
**Manager**

**IEC Academy webinar**  
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# Overview

- **List of main changes**
- **Review of main changes**
- **Timelines**

# List of main changes compared with 2018 edition

- **3.1.8:** Addition of a new note to entry clarifying the permitted content of Technical Reports
- **6.5:** Introduction of the notion of supplementary content (files or data accessible via URL)
- **6.6:** Introduction of the notion of subdivision of the subject matter into profiles
- **7.1:** Clarification - expression of provisions shall be limited to the verbal forms defined in Table 3 to Table 7
- **7.4:** Clarification - negative permissions are no longer permitted
- **8.6:** Addition of a new subclause on inclusive terminology
- **Clause 9:** General review and reorganization of the content
- **9.2:** Permission of an alternative representation of numbers, symbols for variable quantities and numerical values for programming languages, pseudo-code and mark-up languages
- **27.3, 28.3.1 and 29.3:** Permission of an alternative system of numbering for formulae, figures and tables
- **Clause 31:** Admission of the inclusion of trademarks or trade names for reasons of public interest or public safety

# 3.1.8 Addition of a new note to entry clarifying the permitted content of Technical Reports

## 3.1.8

### Technical Report

#### TR

*document* (3.1.1) published by ISO or IEC containing collected data of a different kind from that normally published as an *International Standard* (3.1.4) or *Technical Specification* (3.1.5)

Note 1 to entry: Such data may include, for example, data obtained from a survey carried out among the national bodies, data on work in other international organizations or data on the *state of the art* (3.4) in relation to standards of national bodies on a particular subject.

Note 2 to entry: Prior to mid-1999, Technical Reports were designated as Technical Reports of type 3.

Note 3 to entry: The content of a Technical Report is not permitted to include *requirements* (3.3.3), *recommendations* (3.3.4) or *permissions* (3.3.5).

## 3.1.8 Addition of a new note to entry clarifying the permitted content of Technical Reports

### Explanation:

The intention is to reinforce the fact the TRs are a very different type of deliverable with respect to ISs, TSs and PASs.

As a reminder, see ISO/IEC Directives, Part 1:

### 3.3 Technical Reports

**3.3.1** When a technical committee or subcommittee has collected data of a different kind from that which is normally published as an International Standard (this may include, for example, data obtained from a survey carried out among the National Bodies, data on work in other international organizations or data on the "state of the art" in relation to standards of National Bodies on a particular subject), the technical committee or subcommittee may decide, by a simple majority vote of P-members voting, to request the Chief Executive Officer to publish such data in the form of a Technical Report. The document shall be entirely informative in nature and shall not contain matter implying that it is normative. [...]

# 6.5 Introduction of the notion of supplementary content (files or data accessible via URL)

## 6.5 Supplementary content

Certain documents contain supplementary material that is best provided in electronic formats, which differs from that of the main content.

EXAMPLE 1 Data sets, code components, test forms.

This supplementary material can be provided as an attached file or a hyperlink (URN or URL).

Supplementary content shall only be provided in this way if it cannot reasonably be included in the main body of the text.

Each item of supplementary content shall be explicitly referred to within the text in order to explain its context and use.

EXAMPLE 2

"The conformance bitstreams are provided at:

<http://standards.iso.org/iso-iec/23008/-8/ed-2/en>"

EXAMPLE 3

"The supplementary files associated with this document are located at:

<https://www.iec.ch/tc82/supportingdocuments>"

## 6.5 Introduction of the notion of supplementary content (files or data accessible via URL)

### Explanation:

This is not a new rule – it formalises an existing practice at IEC, supplementary content is provided either as a *software supplement* (see AC/40/2009) or as a *supporting document* (see AC/30/2018).

# 6.6 Introduction of the notion of subdivision of the subject matter into profiles

## 6.6 Subdivision of the subject matter into profiles

One of the primary objectives of standardization is to minimize variation and encourage single common standards for worldwide use. However, in some cases, it is necessary to choose sets and subsets of characteristics from a common defined framework for specific applications.

EXAMPLE 1	Application-specific variants of a standard or set of standards.
EXAMPLE 2	User profiles, which are a defined subset that is valid for a specific type of user.
EXAMPLE 3	A subset of characteristics designed for one specific function.

In such cases, subject matter may be subdivided and organized using profiles.

The number of profiles shall be limited, and profiles defined only when essential to meet technical, regional, or application needs.

Profiles shall be specified in accordance with a defined scheme.

Each profile defined by the scheme shall be identified with a unique designator to allow products conforming to differing profiles to be clearly distinguished. The designator should be constructed using a system conforming to Annex C.

Potential incompatibilities and non-interoperability of profiles should be addressed.



## 3.5 Terminological entry for "profile"

### 3.5

#### **profile**

named combination of options, chosen according to a specified framework, that are necessary to accomplish a particular function

Note 1 to entry: The options can be chosen from one or several documents or subdivisions of documents.

# 6.6 Introduction of the notion of subdivision of the subject matter into profiles

**Explanation:** This codifies a practise which already exists in certain TCs and series.

## 6.6 Subdivision of the subject matter into profiles

One of the primary objectives of standardization is to minimize variation and encourage single common standards for worldwide use. However, in some cases, it is necessary to choose sets and subsets of characteristics from a common defined framework for specific applications.

EXAMPLE: Specific variants of a standard or set of standards

What are the elements of a profile?  
How are profiles constructed?

How are profiles identified or named?

Are the profiles intercompatible or interoperable?

In... may be subdivided and organ...  
The number of profiles... be limited, and profiles defined only... to meet technical needs.

Profiles shall be specified in accordance with a defined scheme.

Each profile defined by the scheme shall be identified with a unique designator to allow profiles conforming to differing profiles to be clearly distinguished. The designator should be constructed using a system conforming to Annex C.

Potential incompatibilities and non-interoperability of profiles should be addressed.

## 6.6 Introduction of the notion of subdivision of the subject matter into profiles

**Example:** IEC 61784-1 (all parts) defines CP's (Communication Profiles), grouped into CPF's (Communication Profile Families), based on IEC 61158 (all parts) and other standards/specifications.

What are the elements of a profile?  
How are profiles constructed?

IEC 61784-1-0: Industrial networks – Profiles – Part 1-0: Fieldbus profiles – General concepts and terminology

IEC 61784-1-X: Industrial networks – Profiles – Part 1-X: Fieldbus profiles – Communication Profile Family X

# 7.1 Clarification: expression of provisions shall be limited to the verbal forms defined in Table 3 to Table 7

## 7. Verbal forms for expressions of provisions

### 7.1 General

The user of the document shall be able to identify the requirements he/she is obliged to satisfy in order to claim conformance to a document. The user shall also be able to distinguish these requirements from other types of provision (recommendations, permissions, possibilities and capabilities).

It is essential to follow rules for the use of verbal forms so that a clear distinction can be made between requirements, recommendations, permissions, possibilities and capabilities. [To avoid risk of misinterpretation, verbal forms that are not defined in Table 3 to Table 7 shall not be used for the expression of provisions.](#)

The first column in Table 3 to Table 7 shows the preferred verbal form to be used to express each type of provision. The equivalent expressions given in the second column shall be used only in certain cases when the form given in the first column cannot be used for linguistic reasons.

Only singular forms are shown in Table 3 to Table 7.

# 7.1 Clarification: expression of provisions shall be limited to the verbal forms defined in Table 3 to Table 7

## Explanation:

In order to remove any doubt regarding the intent of an International Standard, the only expressions which can be interpreted to be requirements, recommendations, permissions or possibilities are those which use the verbal forms defined in Table 3 to Table 7.

## 7.4 Clarification: negative permissions are no longer permitted

Preferred verbal form	Equivalent phrases or expressions for use in certain cases
may	is permitted is allowed is permissible
(—)	(—)
<p>EXAMPLE 1</p> <p>IEC 60512-26-100 may be used as an alternative to IEC 60512-27-100 for connecting hardware that has been previously qualified to IEC 60603-7-3:2010.</p> <p>EXAMPLE 2</p> <p>Within an EPB document, if the quantity is not passed to other EPB documents, one or more of the subscripts may be omitted provided that the meaning is clear from the context.</p>	
<p>Do not use "possible" or "impossible" in this context.</p> <p>Do not use "can" instead of "may" in this context.</p> <p>Do not use "might" instead of "may" in this context.</p> <p>"May" signifies permission expressed by the document, whereas "can" refers to the ability of a user of the document or to a possibility open to him/her.</p> <p>The French verb "pouvoir" can indicate both a permission and a possibility. If there is a risk of misunderstanding, the use of other expressions is advisable.</p> <p>Negative permissions are ambiguous and should not be used. Rather than using negative permissions, either rewrite the sentence to state what is permitted, or rewrite as a requirement/recommendation not to do something.</p>	

## 7.4 Clarification: negative permissions are no longer permitted

### Explanation:

It is very difficult to write a negative permission, without overlapping into the domain of requirements or possibilities.

“You may not do this”

... a simple search for “may not” in existing IEC and ISO standards demonstrates that most cases encountered are either ambiguous...or wrong:

“Transactions of a lower priority flow may not pass transactions of a higher priority flow.” → Permission? Possibility?

“A different processing element may not contain a processor at all, but may be a memory-only device.” → Permission? Possibility?

“The unit and the control module levels may not be omitted from the physical model..” → Requirement? Permission? Possibility?

“A DataBlock may or may not have a relationship to PhysicalBlocks.” → Permission? Possibility?



# 8.6 Addition of a new subclause on inclusive terminology

## 8.6 Inclusive terminology

Whenever possible, inclusive terminology shall be used to describe technical capabilities and relationships. Insensitive, archaic and non-inclusive terms shall be avoided. For the purposes of this principle, "inclusive terminology" means terminology perceived or likely to be perceived as welcoming by everyone, regardless of their sex, gender, race, colour, religion, etc.

New documents shall be developed using inclusive terminology. As feasible, existing and legacy documents shall be updated to identify and replace non-inclusive terms with alternatives that are more descriptive and tailored to the technical capability or relationship.



## 8.6 Addition of a new subclause on inclusive terminology

### Explanation:

- Some cases are easy to address, for example: inadvertently limiting the scope of a sentence by referring to only one gender:

The operator shall check that **he has** securely attached the cables ...



The operator shall check that the cables are securely attached...



...standardization requires precision: such cases shouldn't exist in the first place!

- Other cases are more complex, subject to cultural interpretation, evolve over time, etc. More detailed guidance documentation will be drafted.
- Situations arising in existing standards will need to be assessed on an individual basis.

# Clause 9 General review and reorganization of the content

## 9 Numbers, quantities, units and values

### 9.1 Representation of numbers and numerical values

### 9.2 Representation of numbers, symbols for variable quantities and numerical values for programming languages, pseudo-code and mark-up languages

### 9.3 Quantities, units, symbols and signs

#### 9.3.1 Quantities

#### 9.3.2 Units

### 9.4 Values, intervals and tolerances

#### 9.4.1 General

#### 9.4.2 Limiting values

#### 9.4.3 Selected values

## 9.2 Permission of an alternative representation of numbers, symbols for variable quantities and numerical values for programming languages, pseudo-code and mark-up languages

### 9.2 Representation of numbers, symbols for variable quantities and numerical values for programming languages, pseudo-code and mark-up languages

Where the document defines, describes, refers to or contains programming language, pseudo-code or mark-up language text, the representation of the numbers, symbols for variable quantities and numerical values shall follow the syntax of the appropriate programming language, pseudo-code or mark-up language.

## 9.2 Permission of an alternative representation of numbers, symbols for variable quantities and numerical values for programming languages, pseudo-code and mark-up languages

### Explanation:

The conventions and syntax which exist for programming languages, pseudo-code and mark-up languages are often different to those laid out in ISO/IEC Directives, Part 2.

If it is necessary to include text which follows differing conventions, add a note to the Foreword explaining the conventions used.

# 27.3 Permission of an alternative system of numbering for formulae

## 27.3 Numbering and subdivision

Mathematical formulae can be numbered in a document, for example for cross-referencing purposes. Arabic numbers in parentheses shall be used, starting with 1.

[...]

By default, the numbering shall be continuous and independent of the numbering of clauses, tables and figures. However, mathematical formulae may be numbered with a prefix and a number, where the prefix denotes the clause number, and the second number denotes the sequence of the formulae in the clause. The numbering system chosen shall be consistent within any given series. Subdivision of mathematical formulae [e.g. (2a), (2b), ...] is not permitted.

When mathematical formulae in annexes are numbered, the numbering restarts and is preceded by the annex letter.

# 28.3.1 Permission of an alternative system of numbering for figures

## 28.3.1 Figure designation

Figures shall be designated "Figure" and numbered. By default, figures are numbered with Arabic numerals, beginning with 1, and the numbering shall be continuous and independent of the numbering of the clauses and of any tables. A single figure shall be designated "Figure 1". However, figures may be numbered with a prefix, where the prefix denotes the clause number, and the second number denotes the sequence of figures in the clause. The numbering system chosen shall be consistent within any given series.

In annexes, the figure numbering restarts and the number is preceded by the annex letter (e.g. Figure A.1, Figure A.2, ...).

# 29.3 Permission of an alternative system of numbering for tables

## 29.3 Numbering and subdivision

Tables shall be designated "Table" and numbered. By default, tables are numbered with Arabic numerals, beginning with 1, and the numbering shall be continuous and independent of the numbering of the clauses and of any figures. A single table shall be designated "Table 1". However, tables may be numbered with a prefix where the prefix denotes the clause number, and the second number denotes the sequence of tables in the clause. The numbering system chosen shall be consistent within any given series.

Further subdivision [e.g. Table 1 a)] is not permitted. A table within a table is not permitted. Subdivision of a table into subsidiary sections with new column headings is not permitted.

It is often better to create several tables rather than trying to consolidate too much information into one table. The simpler the presentation, the better. [Complex graphical representations within tables should be avoided.](#)

If a very complex table is necessary, it can be better to include it as a software supplement to the document.

In annexes, the table numbering restarts and the number is preceded by the annex letter (e.g. Table A.1).

# 27.3, 28.3, 29.3 Alternative system of numbering for formulae, figures and tables

**Explanation:** If the alternative numbering system is used, it shall be used consistently, within the document and within the series of documents. Contact IEC CO if you wish to apply the alternative numbering system.

## 6 Calibration

Maximum lengths of 7 cm reference cables are connected to the terminals of the two baluns (see Figure 7). The total length of these cables shall be equal to the length of the reference cable used for transmission calibrations.

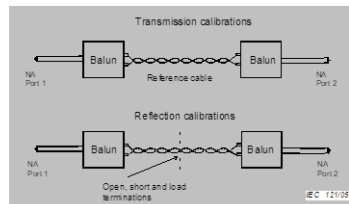


Figure 7 – Calibration

## 7 Accuracy

The accuracy (uncertainty band) is given in Table 2.

Table 2 – Uncertainty band of return loss measurement at frequencies below 100 MHz

Measured RL	10	12	15	18	20	22	25	28	30
Lower uncertainty limit	-0,3	-0,3	-0,5	-0,7	-0,8	-1,0	-1,4	-1,9	-2,4
Higher uncertainty limit	+0,3	+0,4	+0,5	+0,7	+0,9	+1,2	+1,7	+2,5	+3,3

## 8 Coupling length

The maximum allowed coupling length depends on the highest frequency to be measured:

$$L_{c,max} \leq \frac{50 \times 10^6}{\sqrt{\epsilon_{r1}} \times f_{max}}$$

(5)

where

$L_{c,max}$  is the maximum coupling length;

$f_{max}$  is the highest frequency;

$\epsilon_{r1}$  is the resulting relative permittivity of the dielectric of the connecting cable.

## 6 Calibration

Maximum lengths of 7 cm reference cables are connected to the terminals of the two baluns (see Figure 6-1). The total length of these cables shall be equal to the length of the reference cable used for transmission calibrations.

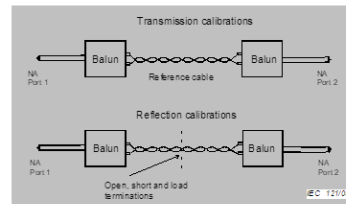


Figure 6-1 – Calibration

## 7 Accuracy

The accuracy (uncertainty band) is given in Table 7-1.

Table 7-1 – Uncertainty band of return loss measurement at frequencies below 100 MHz

Measured RL	10	12	15	18	20	22	25	28	30
Lower uncertainty limit	-0,3	-0,3	-0,5	-0,7	-0,8	-1,0	-1,4	-1,9	-2,4
Higher uncertainty limit	+0,3	+0,4	+0,5	+0,7	+0,9	+1,2	+1,7	+2,5	+3,3

## 8 Coupling length

The maximum allowed coupling length depends on the highest frequency to be measured:

$$L_{c,max} \leq \frac{50 \times 10^6}{\sqrt{\epsilon_{r1}} \times f_{max}}$$

(8-1)

where

$L_{c,max}$  is the maximum coupling length;

$f_{max}$  is the highest frequency;

$\epsilon_{r1}$  is the resulting relative permittivity of the dielectric of the connecting cable.



# Clause 31 Admission of the inclusion of trademarks or trade names for reasons of public interest or public safety

## 31 Use of trade names and trademarks

[...]

If it is considered essential for reasons of public interest or public safety to refer to commercially available products, trade names or trademarks may be provided, with a footnote as shown in Example 4.

### EXAMPLE 4

This (these) [trade name(s) or trademark(s)] is (are) provided for reasons of public interest or public safety. This information is given for the convenience of users of this document and does not constitute an endorsement by ... [ISO or IEC].

# Clause 31 Admission of the inclusion of trademarks or trade names for reasons of public interest or public safety

**Example:** A TC which develops a hazardous substances database might consider that it is essential for reasons of public safety to list common trade names of certain hazardous substances.

# Timelines

- **Publication of ninth edition: May 2021**
- **New rules applicable to all CDVs and to all FDISs registered after October 2021**



# Thank you!

**Alisdair Menzies**  
**Standards Production**  
**Manager**

**IEC Academy webinar**  
**2021-06-24**



**International  
Electrotechnical  
Commission**