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Digest of ISO/IEC Directives, Part 3

" Rules for the structure and drafting of International Standards"

1. DIVISIONS AND SUBDIVISIONS (GENERAL NAMES IN TECHNICAL SPECIFICATION)

English term	French term	Example of numbering
clause	article	1
sub-clause	paragraphe	1.1
sub-clause	paragraphe	1.1.1
paragraph	alinéa	(no number)
annex	annexe	A (+ number)

2. COMMON RULES AND ELEMENTS (ALL CLAUSES OF TECHNICAL SPECIFICATION)

2.1 Verbal forms for the expression of provisions

The verbal forms shown in Table 1 shall be used to indicate requirements strictly to be followed in order to conform to the technical specification and from which no deviation is permitted.

Table 1 - Requirement (Exigence)

Verbal form	Equivalent expressions for use in exceptional cases
shall (doit)	is to is required to it is required that has to only ... is permitted it is necessary
shall not (ne doit pas)	is not allowed (permitted) (acceptable) (permissible) is required to be not is required that ... be not is not to be

Do not use "must" as an alternative for "shall". (This will avoid any confusion between the requirements of a standard and external statutory obligations).

Do not use "may not" instead of "shall not" to express a prohibition.

To express a direct instruction, for example referring to steps to be taken in a test method, use the imperative mood in English.

EXAMPLE: "Switch on the recorder".

The verbal forms shown in Table 2 shall be used to indicate that among several possibilities one is recommended as particularly suitable, without mentioning or excluding others, or that a certain course of action is preferred but not necessarily required, or that (in the negative form) a certain possibility or course of action is deprecated but not prohibited.

Table 2 - Recommendation

Verbal form	Equivalent expressions for use in exceptional cases
should (il convient de)	It is recommended that ought to
should not (il convient de ne pas)	It is recommended that ought not to

In French, do not use “devrait” in this context.

The verbal forms shown in Table 3 are used to indicate a course of action permissible within the limits of the technical specification.

Table 3 - Permission (Autorisation)

Verbal form	Equivalent expressions for use in exceptional cases
may (peut)	is permitted is allowed is permissible
need not (peut ne pas être)	it is not required that no ... is required
Do not use “possible” or “impossible” in this context. Do not use “can” instead of “may” in this context. NOTE 1: “May” signifies permission expressed by the technical specification, whereas “can” refers to the ability of a user of the technical specification or to a possibility open to him. NOTE 2: 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.	

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

Table 4 - Possibility and capability (Possibilité et éventualité)

Verbal form	Equivalent expressions for use in exceptional cases
can (peut)	be able to there is a possibility of it is possible to
cannot (ne peut pas)	be unable to there is no possibility of it is not possible to
NOTE: See note 1 to Table 3	

2.2 Spelling and abbreviation of names

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

Examples:
International Organization for Standardisation or ISO;
International Electrotechnical Commission or IEC.

Abbreviated terms in general shall be used with care. The first time that an abbreviated term is used, the full term shall be given with the abbreviated term following in parentheses.

The general rule is that abbreviated terms expressed in :

- lower-case letters are followed by full-stops after each letter (for example, ”a.c.” for “alternating current”);
- capital letters need no full-stops after each letter. (for example ISO, IEC).

2.3 Use of trade names

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

If, exceptionally, trade names cannot be avoided, their nature shall be indicated, e.g. by the symbol ® for a registered trade mark. Example:

Instead of “Teflon ®”, write “ polytetrafluoroethlylene (PTFE)”.

2.4 Figures and tables - Numbering and layout of title

Figures and tables shall be numbered with arabic numerals.
A single figure/table shall be designated “Figure 1” / “Table 1”.

The title of a figure shall be centred horizontally below the figure. Example:

Figure 1 - Details of apparatus

The title of a table shall be centred horizontally above the table. Example:

Table 1 - Mechanical properties

2.5 References

All the documents referred to shall be listed under clause 4 “ Applicable Documents” of the Technical Specification. This avoids repetition of the original source material in the text, with its inherent risk of error or inconsistency and increase in length of the technical specification.

Generally, the form “ this International Standard ...”, “this Technical Report ... “ should be used as appropriate when referring to the document as a whole.

For publications in separate parts the following form is recommended : “part 21of ISO 128” .

For references to elements of text the following forms may be used :

- “in accordance with clause 3”;
- “according to 3.1” (it is unnecessary to use the term “sub-clause”);
- “as specified in 3.1 b)”
- “details as given in 3.1.1”;
- “see annex B”
- “the requirements given in B.2”;
- “see the note in Table 2”;
- “see example 2 in 6.6.3”
- “shown in Figure 6”;
- “(see Figure 6)”;
- “as specified in IEC 4321-4, Table 1”;
- “in accordance with ISO 1234, clause 3”

2.6 Representation of numerical values and numbers

Although the ISO/IEC recommends the use of the comma as decimal sign, the use of dot instead is tolerated for documents in English language.

Accordingly, for all the LHC Project documents, the **decimal sign** shall be a **dot**

- If a value is less than 1 written in decimal form, the decimal sign shall be preceded by a zero.
  Example: 0.001

- Each group of three digits reading to the left or to the right of a decimal sign shall be separated by a space from preceding digits or following digits respectively. Exception: four-digit year number.

Example: 23 456 2 345 2.345 2.235 6 2.345 67 but the year 1998

- The symbol x rather than a point shall be used to indicate multiplication of numerical values.
  Example: write 1.8×10^{-3} (not $1.8 . 10^{-3}$)

- To express numbers of items (as opposed to numerical values of physical quantities), the numerals one to nine shall be spelt out in full.
  Example 1: "carry out the test on five tubes, each 5 m long"
  Example 2: " select a further 15 tubes for the pressure test"

2.7 Units and symbols

The International System of units (SI) as set out in ISO 31 shall be used. The following additional units used with the SI shall be written as:

- second (s) Do not use: (sec)
- minute (min) Do not use: (mins)
- hour (h) Do not use: (hrs)
- day (d)
- degree (°)
- minute (')
- second ('')
- litre (l) Do not use: (lit)
- tonne (t)
- electronvolt (eV)
- unified atomic mass (u)
- neper (Np)
- bel (B)
- baud (Bd)
- bit (bit)

Recommendations;

- Do not mix symbols and names of units.
  Write "kilometre per hour" or "km/h"
  Do not write: "km per hour" or "kilometre/hour"
- Combine numerical values written in figures with unit symbols.
  Write: " 5 m "
  Do not write: " five m " or "5 metres"
- Do not use non-standardized abbreviated terms for units.
  Write: "cm^3" for cubic centimetres, "A" for amperes
  Do not write: "cc" for cubic centimetres, "amps" for amperes
- Unit symbols shall not be modified by adding subscripts or other information.
  Write: "U_{max}= 500 V" , "a volume fraction of 7 %", "the water content is 20 ml/kg"
  Do not write: "U = 500 V_{max}" , "7% (*V/V*)" , "20 ml H_2O/kg" or "20 ml of water/kg"
- Do not use language dependent abbreviated terms. (Examples: "ppm", "pphm", "ppb")
  Write: "the mass fraction is 4.2 μg/g" or "the mass fraction is 4.2×10^{-6}"
  Do not write : "the mass fraction is 4.2 ppm"
- Unit symbols shall always be in roman type. Quantity symbols shall always be in italic type.

Write: "U_{max}= 500 V"

Do not write: "U_{max}= 500 *V* "

- Quotient quantities shall not contain the word "unit" in the denominator.
  Write: "mass per length"
  Do not write: "mass per unit length"
- Distinguish between an object and any quantity describing the object.
  Object: "surface", "body", "resistor", "coil"
  Quantity: "area" , "mass", "resistance", "inductance"

2.8 Indication of dimensions and tolerances

Dimensions and tolerances shall be indicated in an unambiguous manner.
Write, for example,

- "10 mm to 12 mm" (not "10 to 12 mm")
- " 0 °C to 10 °C" (not "0 to 10°C")
- "24 mm x 36 mm x 48 mm" (not "24 x 36 x 48 mm)
- "23 °C ± 2 °C" or "(23 ± 2) °C" (not "23 ± 2 °C")
- " 80 µF ± 2 µF" or "(80 ± 2) µF" (not "80 ± 2 µF")
- "(63 ± 3) %" ; to express a centre value with tolerance
- "from 60 % to 66 %" ; to express a range