Ch. de Blandonnet 8, CP 401, 1214 Vernier, Geneva, Switzerland | T: +41 22 749 01 11 | iso.org | central@iso.org

ISO Report to CCU: October 2019

ISO/TC 12 covers quantities and units for all fields of application; for science, education and technology.

1 ISO/TC 12 Standards under development

The ISO parts in the ISO and IEC 80000 series are currently completing a revision. Part 2: *Mathematics*, Part 4: *Mechanics*, Part 5: *Thermodynamics*, Part 7: *Light and radiation*, Part 9: *Physical chemistry and molecular physics*, Part 10: *Atomic and nuclear physics*, and Part 12: *Condensed matter physics* have been published in August. Parts 3 and 11 are expected to be published in October. Part 8: *Acoustics,* should proceed to FDIS[1] ballot soon. Part 1: *General,* has been reverted to the CD[2] stage but is expected to be circulated for the DIS[3] enquiry in the 2nd quarter of 2020.

1.1 80000-1, Quantities and units – Part 1: General

ISO/TC 12, Quantities & units, has been working with the revision of 80000 -1: *General*. Changes compared to the previous edition include more emphasis on salient aspects of quantity calculus for the harmonisation of concepts and terminology based on a system of quantities, particularly following the recent major revision of the International System of Units (SI).

1.1.1 Definition of the term "unit"

When addressing the comment received on a previous DIS version, ISO/DIS 80000- 1:2017, *General*, the issue of the definition of the term "unit" was raised: i.e. is "unit" defined as a "quantity", as per the former definition, or as a "quantity value", as given in the DIS? This led to 'tripartite' exchanges amongst the three organisations JCGM VIM, CCU and ISO/ TC12.

3.9
unit of measurement
measurement unit
unit

Quantities and units –
Part 1: General (ISO 80000-1:2009 + Cor 1:2011)

real scalar quantity, defined and adopted by convention, with which any other quantity of the same kind can be compared to express the ratio of the second quantity to the first one as a number

ISO/DIS 80000-1:2017(E)

ISO/TC 12/SC /WG

3.9
unit of measurement
measurement unit
unit

real scalar quantity value, defined and adopted by convention, with which any other quantity value of the same kind can be compared to express the ~~ratio~~ quotient of the second quantity value ~~to~~ and the first one as a number

3.9
measurement unit
unit of measurement
unit

ISO/CD 80000-1.2:2019(E)

ISO/TC 12

real scalar quantity, defined and adopted by convention, with which any other quantity of the same kind can be compared by ratio, resulting in a number

[1] FDIS = Final draft international standard
[2] CD = Committee draft
[3] DIS = Draft international standard

$$\{Q\} = \frac{Q}{[Q]}$$

Following a call for papers for discussion, ISO/TC 12 organized a teleconference on May 2018 where the members present resolved to revert back to the previous definition of unit. The decision was further confirmed by vote, – by 12 Y, 1 N, 4 Abst. At the subsequent ISO/TC 12 Plenary held in Helsinki on October 2018, - Part 1 was reverted back to the CD stage (currently under ballot) with the view to produce a consistent version addressing this change in the definition of unit, but also considering the publication of the revised SI in the meantime. It is expected to be finalized at the next TC 12 Plenary (to be tentatively held in May 2020) for a 2nd DIS circulation shortly afterwards.

1.1.2 Dimensionless quantities

Example of revised definition when revising 80000 Part 1: *General*

3.8
quantity with unit one
number quantity
dimensionless quantity
DEPRECATED: quantity of dimension one
quantity with the dimension for which all the exponents of the factors corresponding to the dimensions of the base quantities are zero

2. Task Force on Quantities and Units to be used in e-health

A joint task force (ISO/TC 215/TF 1) Quantities & units in health informatics has been set up to study existing standards on quantities and units used in e-health, identify potential market needs, perform a gap analysis and, depending on the findings, identify any need for further standards development work. Analysis performed by the TF (23 members globally) in preparing a survey report demonstrates importance of balancing representation of units of measurement for print and representation for semantic interoperability.

Specific standards identified:

- UCUM[4]
- SNOMED[5] CT and UCUM (through DICOM, HL7, IEEE 11073)
- The SI system for medical laboratory data
- IFCC-IUPAC recommendations
- Nomenclature for Properties and Unit (NPU-terminology.org)
- European Federation of Clinical Chemistry and Laboratory Medicine (EFLM)
- UN/CEFACT Recommendation No. 20

3. Concerning a subsequent meeting

The next plenary meeting of ISO/ TC12 is expected to be held in the last week in May 2020 in The Russian Federation.

[4] UCUM (http://unitsofmeasure.org/trac)
[5] SNOMED (http://www.snomed.org/)