Know Your Standards

Plus ça change...
Due to publication deadlines, I am writing before the CISPR and TC77 meetings in Ottawa in September 2013, but you are reading after the meetings, and maybe after their reports are available. Things may have changed as a result of the meetings.

CISPR developments
A second document about a full revision of CISPR 15 has been circulated, an amendment 3 to CISPR 14-2 (which will trigger a new edition) and two documents about a full revision of CISPR 14-1. It is clear that a lot more work needs to be done on these projects.

IEC 61000-4 series updates
Rather than deal with these in numerical order, I think it is more helpful to divide them by subject – low frequency (SC77A), high frequency (SC77B) and high energy (SC77C).

Low frequency
IEC 61000-4-19 Ed. 1 Electromagnetic Compatibility (EMC) Part 4-19 - Testing and measurement techniques - Test for immunity to conducted, differential mode disturbances and signalling in the frequency range from 2 kHz to 150 kHz, at a.c. ports

This project has reached the first voting (CDV) stage and if approved, the final (FDIS) vote is expected in December 2013, with publication next year. This probably means that it will become applicable in Europe in 2017.

IEC 61000-4-30 Ed. 3.0 Electromagnetic compatibility (EMC) - Part 4-30: Testing and measurement techniques - Power quality measurement methods

This is at the CD (comment) stage and a third CD was forecast for March 2013, but it does not seem to have appeared yet. The fact that a third CD is required indicates that this is a difficult project. A large number of comments were received on the 2CD, apparently 33 pages, but that is misleading because there is a lot of white space in the comment document.

IEC/TR 61000-4-37 Ed. 1.0 Electromagnetic compatibility - Calibration and verification protocol for harmonic emission compliance test systems

This is also at the CD stage, and a second CD was recently circulated. The closing date for comments is at the end of November 2013. There is some controversy over the use of certain metrological terms, possibly due to shades of meaning of cognate words in different languages.

IEC/TR 61000-4-38 Ed. 1.0 Electromagnetic Compatibility (EMC) -Testing and measurement techniques - Calibration and Verification Protocol for Flicker Compliance test systems

This is approved New Work, and the first CD was expected in July 2013, but has not yet appeared.

High frequency
IEC 61000-4-31 Ed. 1.0 Electromagnetic compatibility (EMC) - Part 4-31: Testing and measurement techniques - AC mains ports broadband conducted disturbance immunity test

A CD has been circulated and the response was such that a second CD is required and is expected to be circulated in October 2013.

IEC 61000-4-39 Ed. 1.0 Electromagnetic Compatibility (EMC) Part 4-39: Testing and measurement techniques - radiated fields in close proximity - immunity test

This is a very new project, and a CD was expected in June 2013, but it has not yet appeared. It is likely to be a difficult subject to handle in a standard, of course, because slight changes to the test configuration can produce widely different results.

IEC 61000-4-5 Ed. 3.0 Electromagnetic compatibility (EMC) - Part 4-5: Testing and measurement techniques - Surge immunity test

This has passed the first voting stage and the FDIS is forecast for November 2013. However, further delights are to come in the next edition (see below).

IEC 61000-4-6 Ed. 4.0 Electromagnetic compatibility (EMC) - Part 4-6: Testing and measurement techniques - Immunity to conducted disturbances, induced by radio-frequency fields
This is at the second voting stage and the result is expected in September 2013.

High energy
IEC 61000-4-24: Electromagnetic Compatibility (EMC) - Part 4 - 24: Testing and measurement techniques - Test methods for protective devices for HEMP conducted disturbance

This project is at the first CD stage, with a closing date for comments in September 2013.

IEC 61000-4-36: Electromagnetic Compatibility (EMC) - Part 4 - 36: Testing and measurement techniques - IEMI Immunity Test Methods for Equipment and Systems

This project is at the first CD stage, with a closing date for comments in September 2013. It is quite a long document. IEMI means Intentional Electromagnetic Interference. It isn't actually restricted to immunity to high-energy sources.

Maintenance report
A useful maintenance team report was recently circulated, dealing with the Sections of IEC 61000-4 on transient phenomena under the care of SC77B. This gives an indication of future events.

IEC 61000-4-2 2nd Edition was published in December 2008. Maintenance may begin on this standard in 2014.

IEC 61000-4-4 3rd Edition was published in April 2012. Items for future maintenance are under study and the stability date should be revised to 2018.

IEC 61000-4-5 Ed. 2 was published in November 2005. Many topics for maintenance have been identified:

- Aligning test setups The current test setup will be aligned with other standards (e.g. IEC 61000-4-2, IEC 61000-4-4, IEC 61000-4-18).
- 10/700 s surge generator (harmonization with ITU-T)

  This generator is applicable for outdoor communication lines ONLY and has been moved to a normative annex for clarification (Annex A - normative)
- Phase synchronization in 3-phase systems

  This issue is currently unclear when selecting phase angles in 3-phase systems – and is now included in this edition.
- Harmonization of CDN (high-speed CDN)

  Some CDNs did not work in the current standard when injecting surge pulses – This topic is now solved with the listed CDNs.
- Test setup for class II equipment

  More clarification is needed because this issue is not mentioned in the current standard. A rather logical decision has been made – not to test ports which are not present!
- A mathematical formula has been added in a new Annex This is related to the pulse wave shape in IEC 61000-4-5. Normative links to IEC 60060-1 and IEC 60469-1 are no longer essential and have been eliminated.
- Verification versus. calibration: A simplified verification procedure will be introduced for test laboratories.
- Measurement uncertainty: An uncertainty calculation and budget have been added as an informative annex.
- Calibration of impulse measuring systems: A new informative annex has been added to explain particular calibration issues when calibrating pulses.
- CDN for EUTs with current rating over 200 A: Particular decoupling values and difficulties with the waveform calibration for CDNs rated larger than 200 A have been addressed here. A new informative annex has been added to give more explanation when dealing with this subject.

Next time

Next time we can look at updates to the other Parts of IEC 61000, and maybe to some CISPR standards.

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