

Group of Competent Bodies under the EMC

ECACB

Technical Guidance Note 8

Inconsistencies between levels in the Generic Immunity Standards and Basic Standards.

Announcement of the issue

In IEC/EN 61000-4-2, IEC/EN 61000-4-4 and IEC/EN 61000-4-5 there are tables of test levels 1, 2, 3, 4 and X. The Generic Immunity Standards EN 50082-1 and EN 50082-2 do not refer to these levels but give the actual level of the phenomenon to be applied.

Guidelines

In both EN 50082-1 and EN 50082-2, in paragraph 10 – Immunity test requirements, there is the statement “The description of the test, the test generator, the test methods, and the test set-up are given in the basic standards referred to in the tables.

The contents of these basic standards are not repeated here, however modifications or additional information needed for the practical application of the tests are given in this standard.”

This implies that the user must refer to the basic standard for instructions on the application of the particular phenomenon.

In the case of IEC/EN 61000-4-2, in clause 8.3.1 there is an instruction “The test voltage shall be increased from the minimum to the selected test level, in order to determine any threshold of failure.” This is a clear instruction to ‘step’ through the levels from 2kV. up to the level specified in the generic standard.

In the case of IEC/EN 61000-4-5, in clause 8.2 there are two instructions on the application of the surge – “If not otherwise specified the surges have to be applied synchronised to the voltage phase at the zero crossing and the peak value of the a.c. voltage wave (positive and negative).” and “All lower levels including the selected test level shall be satisfied.”

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This is a clear instruction to 'step' through the levels from 0.5kV. up to the level specified in the generic standard and apply the surge at the 0, 90, 180 and 270 degree phase angles.

Where relevant the primary protection of the EUT should be analysed to ascertain the level of primary protection and the test levels should be determined accordingly. The recommended procedures for testing below the compliance level (CL) are

- a. 0.5kV below the primary protection level or
- b. The test level can be increased from 0kV in steps up to and including the test level set in the product plan or test plan.

In the case of IEC/EN 61000-4-4, there is no similar statement to those in IEC/EN 61000-4-2 and IEC/EN 61000-4-5, however, it would be prudent to 'step' through the levels from 0.5kV. up to the level specified in the generic standard.

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