

New ESD Standards

New ESD Standards. The work of several Standard committees during the last few years comes to an end. The result is the recent and near to come publications of the two most important ESD standards. Attached some information about the changes and their consequences.

ISO 10605: 2008 published July 2008

Text from ISO Website:

“ISO 10605:2008 specifies the electrostatic discharge (ESD) test methods necessary to evaluate electronic modules intended for vehicle use. It applies to discharges in the following cases:

- ESD in assembly
- ESD caused by service staff
- ESD caused by occupants

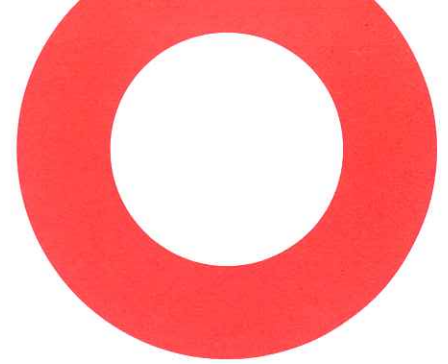
“ESD applied to the device under test (DUT) can directly influence the DUT. ESD applied to neighbouring parts can couple into supply and signal lines of the DUT in the vehicle and/ or directly into the DUT.”

“ISO 10605:2008 describes test procedures for evaluating both electronic modules on the bench and complete vehicles. It also describes a test procedure that classifies the ESD sensitivity of modules for packaging and handling. ISO 10605:2008 applies to all types of road vehicles regardless of the propulsion system (e.g. spark-ignition engine, diesel engine, electric motor).”

“ISO 10605:2008 is based in part on IEC 61000-4-2 and describes vehicle-specific requirements.”

“ISO 10605:2008 does not apply to pyrotechnic modules (Air bag).”





Changes in the new ISO 10605 revisions compared to the earlier one:

ISO 10605 is now nearly full in line with IEC 61000-4-2:

- Same pulse specification
- Same calibration method and setup
- No more air discharge calibration method
- Generator holding time >5 s

ISO 10605 contents which exceed IEC 61000-4-2 specifications:

- Higher test levels (25 kV)
- 3 more networks (330 pF/330 Ohm, 150 pF/2000 Ohm, 330 pF/2000 Ohm)
- Specific test setups, methods and processes for Automotive modules, sub assemblies, complete cars
- Packaging and handling test

Other information links:

<http://www.tridatacom.co.uk/Downloads/papers/Papers/AutoEMC2007.pdf>

http://www.conformity.com/artman/publish/printer_feature242.shtml

One important point to note is the removal of the Air discharge calibration specification, replaced in this standard by a quite long text about the problems, the uncertainties, and the reasons not to specify air discharge calibrations. Engineers having faced air discharge calibration will welcome this change which will save them from some trouble.

IEC 61000-4-2 Ed2.0:2009

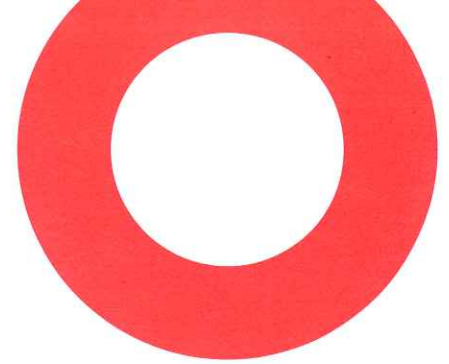
Forecast publication date: January 2009

Changes in the new IEC 61000-4-2 revision compared to the earlier one:

During the last 3 years of maintenance cycle several ways have been investigated in order to try to find a solution to the main difficulty in ESD testing: the reproducibility of the test of some types of equipment. The main contributors to that are known since longer time: the radiated E+H fields associated to an ESD discharge. However, the investigations showed that getting these under control

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today into a generator specification would still be with quite high tolerances (30 to 50 %) and also would have as a consequence to exchange all actual simulators on the market. As only a minority of EUTs actually show sensibility to these fields, it has been decided NOT to penalise all those who do not face these problems, and not to implement any specification about ESD associated E+H fields to this revision of the standard. However, an informative annex (D) has been edited which gives information about the nature and effects of these fields and may help out users facing problems associated with ESD fields.

Also, some specialists thought that cleaning up the current wave shape delivered by the generator would improve reproducibility. Round robin tests run worldwide showed this is not the case; therefore, here also, no change to the generator specification has been implemented for this.

Both of these issues are explained in more details in § A.8 of new standard release.

One of the main change in this new standard release, which might contribute to improve reproducibility, is the extension of the calibration specification to a bandwidth >2 GHz. This might reveal some characteristics of some generators which were filtered out by a 1 GHz bandwidth.

Some would notice a relaxation in the pulse parameter tolerances, especially the rise time and the first peak. The reason for this is, taking in account measurement uncertainties which occur in ESD calibration (ca 7% for first peak and ca 120 psec for the rise time), the tolerances given in the precedent standard edition were too tight to properly meet pass fail criteria as required in modern calibration standards and guides.

Teseq is proud to announce, thanks to using >2 GHz calibration bandwidth in engineering and production since 1995, that all engineered, produced and delivered ESD simulators since (NSG 435, NSG 437, NSG 438, NSG 439) fully comply to the specifications of these new revisions of IEC 61000-4-2: Ed 2.0 and ISO 10605 (2008).

Additional networks are available as option to meet the new ISO 10605 requirements.

Our calibration services have been extended to meet the new requirements.

Eric Dudenhoeffer / November 2008



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