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New ESD standard and influence on test equipment requirements

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Abstract: The IEC61000-4 series of standards form a basic framework for the immunity and emissions testing of electrical and electronic equipment. They are the basis for EN standards used to test CE compliance of electrical and electronic products sold within the European Union. After a period of relative stability, changes are being introduced, designed to improve reliable application of the basic standards and ensure that the same results are obtained no matter where the tests are performed. Many changes relate to the calibration procedures for the test equipment. The surge standard, IEC61000-4-5, was revised at Edition 2 to amend impulse performance when applied through Coupling Decoupling Networks (CDNs) of varying current ratings. The Electric Fast Transient (EFT) standard, IEC61000-4-4, is also currently being studied with a view to changing the calibration requirements when used with CDNs and the Electrostatic Discharge (ESD) standard, IEC61000-4-2, is spearheading the application of measurement uncertainties and reviewing failure criteria. While these changes do not directly influence the test procedure or methodology, the test equipment used is being subjected to much tighter scrutiny. ESD phenomenon is possibly the most complex EMC event to characterise or model. The IEC has accumulated experience over many years with ESD and is now updating the standard to reflect current technology. In the process of these changes, one aim is to improve the reliability of ESD tests. A result of these improvements is an increase in generator calibration and test time.

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