

IEEE Guide on Electrostatic Discharge (ESD): ESD Withstand Capability Evaluation Methods (for Electronic Equipment Subassemblies)

Sponsor

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Abstract: This guide establishes test methods for the evaluation of ESD withstand capability for electronic equipment subassemblies. It includes information about test conditions, test equipment, and test procedures for ESD tests of printed circuit boards and other subassemblies.

Keywords: electronic equipment subassemblies, electrostatic discharge, ESD, subassemblies, withstand capability

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Introduction

[This introduction is not a part of IEEE Std C62.38-1994, IEEE Guide on Electrostatic Discharge (ESD): ESD Withstand Capability Evaluation Methods (for Electronic Equipment Subassemblies).]

Electrostatic discharge (ESD) is one of the prime causes of failure for electronic products. To reduce the level of failures caused by ESD, a two-step design cycle has evolved. The first step is to design the product in a manner that will tend to result in acceptable ESD immunity. The second step involves the use of simulated ESD to test whether the resulting product actually has acceptable ESD immunity for its intended application.

Standardized tests already exist to assess the sensitivity of components, such as integrated circuits (ICs), for ESD. Tests also exist to determine the level of ESD immunity that may be expected for completed equipment. Using such tests, IC designers and equipment designers are able to determine the ESD immunity.

However, a product does not exist only as a collection of separate components or as completed and functioning equipment. Likewise, the ESD threat is not limited to these two states. For example, electronic subassemblies, such as printed-circuit-board (PCB) assemblies, are subjected to ESD during handling by humans, just like ICs.

Since no generic standard ESD tests have existed for subassemblies, designers have had no method to indicate whether their subassembly designs can successfully survive the ESD events to which they are subjected. This guide was developed to provide standardized ESD tests covering subassemblies.

It is not the intent of this guide to imply or require that all electronic equipment subassemblies should be tested for ESD withstand capability.

At the time this standard was written, the following people were members of working group 3.6.8:

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