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**Acceptability Standard for
Manufacture, Inspection and
Testing of Electronic Enclosures**

A standard developed by IPC

Association Connecting Electronics Industries



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Acceptability Standard for Manufacture, Inspection and Testing of Electronic Enclosures

Developed by the Requirements for Structural Enclosure Task Group
(7-31j) of the Product Assurance Committee (7-30) of IPC

Users of this publication are encouraged to participate in the
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Acceptability Standard for Manufacture, Inspection and Testing of Electronic Enclosures

1 GENERAL

1.1 Scope This standard provides the requirements for the manufacture, inspection and test for electronic enclosures.

1.2 Purpose This standard has been written to direct the manufacturers and end users of electronic enclosures of electrical and electronic equipment to understand the best practices to meet requirements, ensuring the reliability and function of the end item assembly for its intended design life.

An electronic enclosure, for the purpose of this document, is defined as a chassis, box, top level assembly, high level assembly (HLA), functional unit, drawer, cabinet, or other designation, forming a top level system assembly. An enclosure typically consists of a combination of printed board assemblies (PBAs), cable and wire harness assemblies and other electronics and/or mechanical components, and is typically tested as a functional unit. The enclosure includes the necessary mechanical and structural elements to protect and integrate the assembly into a finished system. Enclosures are often modular components or sub-systems of larger systems, designed for quick replacement in the enclosure environment.

1.3 Classification This standard recognizes that electrical and electronic assemblies are subject to classifications by intended end-item use. Three general end-product Classes have been established to reflect differences in producibility, complexity, functional performance requirements and verification (inspection/test) frequency. It should be recognized that there may be overlaps of equipment between Classes. The user (customer) is responsible for defining the product Class. If the user and manufacturer do not establish and document the acceptance Class, the manufacturer may do so. Accept and/or reject decisions **shall** [D1D2D3] be based on applicable documentation such as contracts, drawings, specifications, standards and reference documents.

The Class of product specified for the enclosure assembly shall [D1D2D3] apply to all subassemblies unless as agreed between user and supplier (AABUS).

Class 1 General Electronic Products

Includes products suitable for applications where the major requirement is function of the completed assembly.

Class 2 Dedicated Service Electronic Products

Includes products where continued performance and extended life is required, and for which uninterrupted service is desired but not critical. Typically the end-use environment would not cause failures.

Class 3 High Performance Electronic Products

Includes products where continued high performance or performance-on-demand is critical, equipment downtime cannot be tolerated, end-use environment may be uncommonly harsh, and the equipment should function when required such as life support or other critical systems.

1.4 Measurement Units and Applications All dimensions and tolerances, as well as other forms of measurement (temperature, weight, etc.) in this standard are expressed in SI (System International) units with Imperial English equivalent dimensions provided in brackets. Dimensions and tolerances use millimeters as the main form of dimensional expression; Micrometers are used when the precision required make millimeters too cumbersome. Celsius is used to express temperature. Weight is expressed in grams. Unless specifically required herein, actual measurement of specific part mounting and determination of percentages are not required except for referee purposes. For the purposes of determining conformance to this specification, all specified limits in this standard are absolute limits as defined in ASTM E29.

1.5 Definition of Requirements The word **shall** is used in the text of this document wherever there is a requirement for materials, process control, or acceptance of an electronic enclosure assembly.

Where the word **shall** leads to a hardware defect for at least one Class, the requirements for each Class are in brackets next to the **shall** requirement.