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by Global Electronics Association

IPC-A-630A

Requirements and Acceptance for Electronic Box Assemblies

If a conflict occurs between the English language and translated versions of this document, the English version will take precedence.

Developed by the 7-31J Electronic Box Assemblies Task Group of the 7-30 Product Assurance Committee of IPC

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Users of this publication are encouraged to participate in the development of future revisions.

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Table of Contents

Table of Contents (cont.)

Table of Contents (cont.)

Table of Contents (cont.)

Tables

1.0 GENERAL

1.1 Scope This standard provides the requirements and acceptance criteria for electronic box assemblies.

1.2 Purpose This standard has been written to direct the Manufacturers and end Users of electronic box assemblies 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 box is also known as a top level assembly, higher level assembly (HLA), functional unit, drawer, cabinet, housing, line replaceable unit (LRU) or other designation. An electronic box typically consists of a combination of assemblies, cable and wire harness assemblies, and other electronics and/or mechanical components, and is typically tested as a functional unit. The box includes the necessary mechanical and structural elements to protect and integrate the assembly into a finished system.

1.3 Classification This standard recognizes that electrical and electronic assemblies are subject to classification by intended end-item use. Three general end-product Classes have been established to reflect differences in manufacturability, complexity, functional performance requirements and verification (inspection/test) frequency.

Use of this standard requires establishing the Class to which the product belongs. The User has the responsibility to identify the Product Class. If the User does not establish and document the Product Class, it is acceptable for the Manufacturer to do so.

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. Conductor sizes are expressed in American Wire Gauge (AWG).

1.4.1 Verification of Dimensions 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.

1.4.2 Relationship of AWG and Wire Size AWG numbers increase as the conductor diameter decreases. For example, 22 AWG has a conductor with a smaller diameter than 11 AWG. In this standard, when “smaller than” or “larger than” is used in reference to wire size, it is referencing the wire diameter and not the wire gauge.

1.5 Definition of Requirements The words **shall** and **shall not** are used in the text of this document wherever there is a requirement for materials, process control, or acceptance of an electronic box assembly.

Where the words **shall** or **shall not** lead to a hardware defect for at least one Class, the requirements for each Class are in brackets next to the requirement.

N = No requirement has been established for this Class

A = Acceptable

P = Process Indicator

D = Defect