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JOINT INDUSTRY STANDARD

Requirements for Soldered Electrical and Electronic Assemblies

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IPC J-STD-001J

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

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Figure 7-13 Image Credit: NASA

In memory of Jim Blanche, NASA Marshall Space Flight Center and Kathy L. Johnston, Raytheon Missile Systems (retired)

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IPC J-STD-001J
Requirements for Soldered Electrical and Electronic Assemblies

1.0 GENERAL

1.1 Scope This standard describes materials, methods and acceptance criteria for producing soldered electrical and electronic assemblies. The intent of this document is to rely on process control methodology to ensure consistent quality levels during the manufacture of products. It is not the intent of this standard to exclude any procedure, such as for component placement or for applying flux and solder used to make the electrical connection.

The soldering operations, equipment, and conditions described in this document are based on electrical/electronic circuits designed and fabricated in accordance with the specifications listed in Table 1-1.

Table 1-1 Design, Fabrication and Acceptability Specifications

Board Type	Design	Fabrication/Acceptability Specification
Generic Requirements	IPC-2221	IPC-6011
Rigid Printed Boards	IPC-2222	IPC-6012, IPC-A-600
Flexible Circuits	IPC-2223	IPC-6013
Rigid Flex Board	IPC-2222 IPC-2223	IPC-6013

1.2 Purpose This standard prescribes material requirements, process requirements and acceptability requirements for the manufacture of soldered electrical and electronic assemblies. For a more complete understanding of this document's recommendations and requirements, one may use this document in conjunction with IPC-HDBK-001, IPC-AJ-820 and IPC-A-610. Standards may be updated at any time, including with the addition of amendments. The use of an amendment or a newer revision is not automatically required.

Note: See 1.7 Order of Precedence.

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 manufacturability, complexity, functional performance requirements and verification (inspection/test) frequency.

Use of this standard requires agreement on the class to which the product belongs. The User has the responsibility for identifying the class to which the assembly is produced. If the User does not establish and document the acceptance class, the Manufacturer may 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/Harsh Environment 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 must function when required, such as life support or other critical systems.

1.4 Measurement Units and Applications This standard uses The International System of Units (SI) units per ASTM SI10, IEEE/ASTM SI 10, Section 3 [Imperial English equivalent units are in brackets for convenience]. The SI units used in this standard are millimeters (mm) inches [in] for dimensions and dimensional tolerances, Celsius (°C) Fahrenheit [°F] for temperature and temperature tolerances, grams (g) ounces [oz] for weight and lux (lx) foot-candles [foot-candles] for illumination.

Note: This standard uses other SI prefixes (ASTM SI10, Section 3.2) to eliminate leading zeros (for example, 0.0012 mm becomes 1.2 µm) or as alternative to powers-of-ten (3.6×10^3 mm becomes 3.6 m).