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IPC J-STD-001JS

Space and Military Applications Electronic Hardware Addendum to IPC J-STD-001J Requirements for Soldered Electrical and Electronic Assemblies

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

Developed by the J-STD-001 Space and Military Electronic Assemblies Task Group (5-22AS) of the Assembly & Joining Committee (5-20) of IPC

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Space and Military Applications

Electronic Hardware Addendum to IPC J-STD-001J

Requirements for Soldered Electrical and Electronic Assemblies

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0.1 Scope This Addendum provides requirements to be used in addition to, and in some cases, in place of, those published in J-STD-001J to ensure the reliability of soldered electrical and electronic assemblies that must survive the vibration and thermal cyclic environments in space and military applications.

0.1.1 Purpose When required by procurement documentation/engineering documentation, this Addendum supplements or replaces specifically identified requirements of J-STD-001J.

0.1.2 Precedence The contract takes precedence over this Addendum, referenced standards and User-approved drawings. In the event of a conflict between this Addendum and the applicable documents cited herein, this Addendum takes precedence. Where referenced criteria of this Addendum differ from the published J-STD-001J, this Addendum takes precedence. In the event of conflict between the requirements of this Addendum and the applicable assembly drawing(s)/documentation, the applicable User approved assembly drawing(s)/documentation take precedence. See 1.7 Order of Precedence of this Addendum.

0.1.3 Existing or Previously Approved Designs This Addendum **shall not** constitute the sole cause for the redesign of previously approved designs. When drawings for existing or previously approved designs undergo revision, they should be reviewed and changes made that allow for conformance with the requirements of this Addendum.

0.1.4 Use This Addendum is not to be used as a stand-alone document.

Where criteria are not modified through change or addition, the Class 3 requirements of J-STD-001J **shall** apply. Where J-STD-001J criteria are altered or new criteria are added by this Addendum, the clause is listed in J-STD-001JS, Table 1, Space and Military Applications Requirements, and the entire J-STD-001J clause is replaced by this Addendum except as specifically noted. Clauses found only in this Addendum will have “[NEW]” after the clause number in the table.

Clauses, Tables, Figures, etc., in J-STD-001J that are not listed in this Addendum **shall** be used as-published.

0.1.5 Red Plague (Cuprous Oxide Corrosion) Red Plague can develop in silver-coated soft or annealed copper conductors (component leads, single and multistranded wires and printed board conductors) when a galvanic cell forms between the copper base metal and the silver coating in the presence of moisture (H_2O) and oxygen (O_2). Once initiated, the sacrificial corrosion of the copper base conductor can continue indefinitely in the presence of oxygen. The color of the corrosion by-product (cuprous oxide crystals) may vary depending on the different levels of oxygen available, but is commonly noted as a red/reddish-brown discoloration on the silver coating surface.

The use of silver coating over any form of copper, e.g., component leads, printed board traces, wire/cable **shall** require the implementation of a User-approved Red Plague Control Plan (RPCP). See IPC-WP-113, Guidance for the Development and Implementation of a Red Plague Control Plan (RPCP), for technical guidance and a generic RPCP template.

0.1.6 Materials and Processes Traceability When required, the traceability of materials and processes used in the manufacture of electrical/electronic hardware **shall** be in compliance with IPC-1782, Standard for Manufacturing and Supply Chain Traceability of Electronic Products. Traceability Level **shall** be determined between the Manufacturer and the User.