IPC/WHMA-A-620C-R

Rail Transit Addendum to IPC/WHMA-A-620C

Developed by the IPC/WHMA-A-620 Addendum for High Speed Railway Task Group (7-31fr) of the Product Assurance Committee (7-30) of IPC

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

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1 General

For the purpose of this Addendum, the following topics are addressed in this section.

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1.18.1 Contamination

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1 General (Cont.)

1.1 Scope This Addendum provides additional requirements specified for rail transit applications over those published in IPC/WHMA-A-620C. It prescribes the practices and requirements for the manufacture of cable, wire and harness assemblies in rail transit industry, and it applies to Class 3 to ensure industry-specific high reliability and environmental adaptability.

This Addendum is used in conjunction with IPC/WHMA-A-620C.

For the purpose of this Addendum, if a conflict occurs between the English version and other versions of this document, the English version will take precedence.

This Addendum particularly supplements or replaces Class 3 requirements in IPC/WHMA-A-620C. Clauses not involved and requirements not mentioned, i.e., Class 1, 2 requirements, are subject to the corresponding provisions of IPC/WHMA-A-620C.

The clauses modified by this Addendum do not include subordinate clauses unless specifically stated, i.e., changes made to 1.7 do not affect 1.7.1, unless 1.7.1 is also addressed in this Addendum.

When a paragraph, e.g., the first paragraph in 15.1 of this Addendum, refers to an entire section, i.e., section 15, it's the Responsibility of the Addendum users to determine which clauses from that section are used from IPC/WHMA-A-620C and which clauses are covered by this Addendum.

Tables/Figures, including newly added as well as original or modified from IPC/WHMA-A-620C, in a section in this Addendum are numbered from "1R", e.g., Figure 3-1R, 3-2R, Table 3-1R, 3-2R in section 3.

This Addendum does not specify frequency of in-process or frequency of end-product inspection. No limit is placed on the number of Process Indicators or the number of allowable repair/rework of defects. Such information should be developed with a SPC plan (see IPC-9191). Whenever special process is involved, e.g. soldering, crimp, ISO/TS 22163 and relevant documents **shall** apply.

1.3 Classification Use of this Addendum applies to Class 3 by default. See IPC/WHMA-A-620C 1.3 for product classification and the definition of Class 3. In general, the criteria in this Addendum are more stringent or applicable to Rail Transit than the criteria for Class 3 in IPC/WHMA-A-620C.

Determination of Class relates to manufacturability, complexity, function and performance requirements, and the frequency of validation (inspection/test). The User or the Designer has the ultimate responsibility for identifying the Class to which the assembly is evaluated. If the User does not establish and document the acceptance Class, the Manufacturer may do so.

1.7 Order of Precedence

In the event of conflict, the following order of precedence applies:

1) Procurement as agreed between User and Manufacturer.

2) Engineering documentation reflecting the User's detailed requirement or end-use requirement.

3) When invoked by the User or per contractual agreement, this Addendum.

In case a conflict between this Addendum and the referenced documents, this Addendum takes precedence. If a referenced document or its version in this Addendum differs from that in IPC/WHMA-A-620C, the one in this Addendum takes precedence.

The User has the opportunity to specify alternate acceptance criteria.

1.12.2.2 Magnification Aids Magnification power for assembly inspection **shall** be at least the minimum inspection power specified in Table 1-1R and Table 1-2R. Other magnification powers within the inspection range may be used. The magnification power requirement is based on the gauge of the wire being inspected. For assemblies with mixed wire sizes, the greater magnification may be used for the entire assembly. If the presence of a defect cannot be determined at the inspection power, the item is acceptable. The referee magnification power is intended for use only after a defect has been determined but is not completely identifiable at the inspection power.

The tolerance for magnification aids is ± 15% of the selected magnification power. Magnification aids should be maintained and calibrated as appropriate.