IPC/WHMA-A-620B

Requirements and Acceptance for Cable and Wire Harness Assemblies

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

Developed by the IPC Task Group (7-31f) of the Product Assurance Subcommittee (7-30) and the WHMA Industry Technical Guidelines Committee (ITGC)

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

Contact:

IPC
3000 Lakeside Drive, Suite 309S
Bannockburn, Illinois
60015-1219
Tel 847 615.7100
Fax 847 615.7105

Wiring Harness Manufacturers Assoc.
7500 Flying Cloud Drive, Suite 900
Eden Prairie, Minnesota
55344
Tel 952 835.4180
Fax 952 835.4774

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Foreword

The following topics are addressed in this section:

Foreword (cont.)

1.1 Scope This standard prescribes practices and requirements for the manufacture of Cable, Wire and Harness Assemblies.

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1.2 Purpose This Standard describes materials, methods, tests and acceptability criteria for producing crimped, mechanically secured, or soldered interconnections and the related assembly activities associated with cable and harness assemblies.

Any method that produces an assembly conforming to the acceptability requirements described in this standard may be used.

1.3 Approach to This Document IPC/WHMA-A-620 can be used as a stand-alone document for purchasing products; however it does not specify frequency of in-process inspection 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 statistical process control plan (see IPC-9191).

All products **shall [D1D2D3]** meet the requirements of the assembly drawing(s)/ documentation and the requirements for the applicable product class specified herein.

The illustrations in this document portray specific points noted in the title of each section. A brief description follows each illustration. The development committee recognizes that different parts of the industry have different definitions for some terms used herein. For the purposes of this document, the terms cable and wire harness are used interchangeably.

Class 3 **shall [N1N2D3]** develop and implement a documented process control system. A documented process control system, if established, **shall [N1D2D3]** define process control and corrective action limits. This may or may not be a ''statistical process control'' system (see 1.21). The use of ''statistical process control'' (SPC) is optional and should be based on factors such as design stability, lot size, production quantities, and the needs of the company.

Process control methodologies **shall [N1D2D3]** be used in the planning, implementation and evaluation of the manufacturing processes used to produce cables and wire harness assemblies. The philosophy, implementation strategies, tools and techniques may be applied in different sequences depending on the specific company, operation, or variable under consideration to relate process control and capability to end product requirements.

1.4 Measurement Units and Applications All dimensions and tolerances, as well as other forms of measurement 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 makes millimeters too cumbersome.

1.4.1 Verification of Dimensions 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 Requirements The word **"shall"** is used in the text of this document wherever there is a requirement for materials, process or acceptance of cable, wire and harness assemblies.

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.

N = No requirement has been established for this Class
A = Acceptable
P = Process Indicator
D = Defect

Examples:

[A1P2D3] : Acceptable – Class 1
Process Indicator – Class 2
Defect – Class 3

[N1D2D3] : Requirement Not Established – Class 1
Defect – Classes 2 and 3

[A1A2D3] : Acceptable – Classes 1 and 2
Defect – Class 3

[D1D2D3] : Defect – Classes 1, 2 and 3

The word ''should'' reflects recommendations and is used to reflect general industry practices and procedures for guidance only.

1.6 Uncommon or Specialized Designs IPC/WHMA-A-620, as an industry consensus document, cannot address all of the possible product design combinations. However, the standard does provide criteria for commonly used technologies. Where uncommon or specialized technologies are used, it may be necessary to develop unique acceptance criteria. The development should include User involvement. The acceptance criteria **shall [N1N2D3]** have User agreement. Requirements for specialized processes and/or technologies not specified herein **shall [N1D2D3]** be performed in accordance with documented procedures which are available for review.