



ASSOCIATION CONNECTING
ELECTRONICS INDUSTRIES®

IPC-A-610D

Amendment 1

Acceptability of Electronic Assemblies

IPC-A-610D
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April 2008

A standard developed by IPC

The Principles of Standardization

In May 1995 the IPC's Technical Activities Executive Committee (TAEC) adopted Principles of Standardization as a guiding principle of IPC's standardization efforts.

Standards Should:

- Show relationship to Design for Manufacturability (DFM) and Design for the Environment (DFE)
- Minimize time to market
- Contain simple (simplified) language
- Just include spec information
- Focus on end product performance
- Include a feedback system on use and problems for future improvement

Standards Should Not:

- Inhibit innovation
- Increase time-to-market
- Keep people out
- Increase cycle time
- Tell you how to make something
- Contain anything that cannot be defended with data

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10.2.1 Laminate Conditions – Measling and Crazing

This is an inherent condition in the laminate caused during processing the board or assembly.

Measling or crazing that occurs as a result of an assembly process (e.g., use of press fit pins, reflow soldering, etc.) will usually not increase.

Where measles are present that violate minimum electrical clearance, additional performance testing or dielectric resistance measurements may be required considering the product performance envelope; e.g., moisture environments, low atmosphere.

Where the substrate includes embedded components additional criteria may need to be defined.

Measling - An internal condition occurring in laminated base material in which the glass fibers are separated from the resin at the weave intersection. This condition manifests itself in the form of discrete white spots or crosses below the surface of the base material, and is usually related to thermally induced stress.

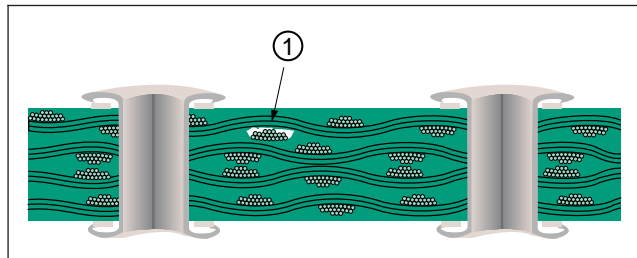


Figure 10-5
1. Measling



Figure 10-6

Target - Class 1,2,3

- No evidence of measling.

Acceptable - Class 1,2

- The criteria for measling is that the assembly is functional.

Process Indicator - Class 3

- Measled areas in laminate substrates exceed 50% of the physical spacing between noncommon conductors.

Note: There are no defect criteria for measles. Measling is an internal condition which may not propagate under thermal stress and has not been conclusively shown to be a catalyst for CAF growth. Delamination is an internal condition which may propagate under thermal stress and may be a catalyst for CAF growth. The IPC-9691 user's guide for CAF resistance testing and IPC-TM-650, Method 2.6.25, provide additional information for determining laminate performance regarding CAF growth. Users who wish to incorporate additional criteria for measle conditions may consider incorporating the provisions of the Performance Specification Sheet for Space and Military Electronics in IPC-6012B.