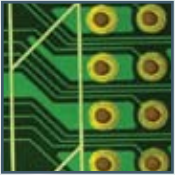
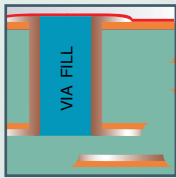




## THE RULES FOR PRINTED BOARD MANUFACTURING HAVE CHANGED!

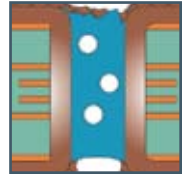


*As original equipment manufacturers move closer to zero-defect levels, how will you keep up with ever-tightening requirements?*

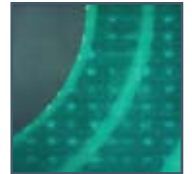


*Has via planarization of your filled holes reduced your surface copper plating to an unacceptable level?*

*Do filled holes in your bare printed boards have sufficient copper cap plating?*



*Have measles in printed boards shown to be a catalyst for conductive anodic filament (CAF) growth?*



**Get the answers to these questions and learn how to improve the quality of your boards with:**

### **IPC-A-600H, Acceptability of Printed Boards**

The definitive illustrated guide to PCB acceptability worldwide, this four-color document provides photographs and illustrations of the target, acceptable and nonconforming conditions that are either internally or externally observable on bare printed boards, helping inspectors understand the difference between anomalies that can impact performance and lifetimes and those that are merely cosmetic blemishes.

### **IPC-6012C, Qualification and Performance Specification for Rigid Printed Boards**

Recognized worldwide as the sole industry-consensus specification for the qualification and performance of rigid printed boards, IPC-6012 provides the requirements for single-sided, double-sided, with or without plated-through holes, multilayer with or without blind/buried vias and metal core boards. It addresses final finish and surface plating coating requirements, conductors, holes/vias, frequency of acceptance testing and quality conformance as well as electrical, mechanical and environmental requirements.

Engineers who specify parts and shop floor inspectors who ensure that boards destined for end systems live up to the requirements established by those engineers will find these documents critical in improving board quality as well as enhancing company operations, reputation and profitability.

**Don't leave your company in the dark ... get your copies today!**

# IPC-A-600H and IPC-6012C — Five Years of New Board Technologies and Processes Bring Significant Changes to Specifications!

## IPC-A-600 provides guidance on visual acceptance criteria of boards:

### Externally and internally observable characteristics

- Base materials and subsurfaces
- Solder coating and fused tin lead
- Printed contacts
- Marking
- Solder mask
- Pattern definition (dimensional)
- Flatness
- Conductive patterns
- Plated-through holes (general, drilled and punched)

### Other acceptability issues

- Flexible and rigid-flex printed boards
- Metal core printed boards
- Flush printed boards

## IPC-6012 provides performance requirements for printed boards:

### Requirements

- Hole and surface plating
- Materials
- Visual examination
- Annular ring
- Conductor definition
- Plated-hole structural integrity
- Solder mask requirements
- Electrical requirements
- Cleanliness
- Repair
- Rework

### Quality Assurance

- General
- Acceptance tests / sampling frequencies
- Quality conformance testing

## What's new?

- Measles criteria are now aligned between IPC-6012C, IPC-A-600H, J-STD-001E and IPC-A-610E.
- Cap plating of filled vias, including required plating thickness and allowances for protrusions (bumps) and depressions (dimples).
- Updated requirements for material fill of blind and buried vias.
- Copper wrap plating in plated holes, including allowances for reduction of “wrap” copper at the knee of plated holes as a result of planarization processes.
- Updated surface laminate criteria, including weave exposure, disrupted fibers and haloing.
- Updated cross-section requirements, including laminate voids/cracks, etchback and barrel separation.
- Significant changes from previous versions are identified by shaded text.

## Changes specific to IPC-6012C

- New criteria for surface finishes such as ENIG, ENEPIG, immersion silver, immersion tin and OSP.
- New criteria for thermal stress testing, including assembly reflow simulation methods.
- Updated acceptance testing and frequency requirements based on end product class.
- Updated requirements for selection for procurement.

## Changes specific to IPC-A-600H

- New flex circuitry criteria for stiffener bonding, solder wicking, laminate voids/cracks and fold/bend marks.
- New or updated pictures and illustrations for more than 40 separate sections.

**Translations of the documents are underway. New certification training programs are in development.**