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# IPC-A-610D

## Acceptability of Electronic Assemblies

**IPC-A-610D**

February 2005

A standard developed by IPC

Supersedes A-610C  
January 2000

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# Acceptability of Electronic Assemblies

Developed by the IPC Task Group (7-31b) of the Product Assurance Subcommittee (7-30) of IPC



## Supersedes:

IPC-A-610C - January 2000  
IPC-A-610B - December 1994  
IPC-A-610A - March 1990  
IPC-A-610 - August 1983

Incorporates modifications  
to noted errata

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IPC-A610, "Acceptability of Electronic Assemblies", was adopted on 12-FEB-02 for use by the Department of Defense (DoD). Proposed changes by DoD activities must be submitted to the DoD Adopting Activity: Commander, US Army Tank-Automotive and Armaments Command, ATTN: AMSTA-TR-E/IE, Warren, MI 48397-5000. Copies of this document may be purchased from the The Institute for Interconnecting and Packaging Electronic Circuits, 2215 Sanders Rd, Suite 200 South, Northbrook, IL 60062.  
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**Custodians:**

Army - AT  
Navy - AS  
Air Force - 11

**Adopting Activity:**

Army - AT  
(Project TGLD-0060)

**Reviewer Activities:**

Army - AV, MI

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## Acknowledgment

Any Standard involving a complex technology draws material from a vast number of sources. While the principal members of the IPC-A-610 Task Group (7-31b) of the Product Assurance Subcommittee (7-30) are shown below, it is not possible to include all of those who assisted in the evolution of this standard. To each of them, the members of the IPC extend their gratitude.

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Reggie Malli, Creation Technologies Incorporated  
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Jon M. Roberts, DRS Test & Energy Management  
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Richard W. Boerdner, EJE Research  
Mary Muller, Eldec Corporation  
Robert Willis, Electronic Presentation Services  
Leo P. Lambert, EPTAC Corporation  
Benny Nilsson, Ericsson AB  
Mark Cannon, ERSA Global Connections  
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Kristen K. Troxel, Hewlett-Packard Company  
Steve Radabaugh, Hewlett-Packard Company  
Phillip E. Hinton, Hinton 'PWB' Engineering

## Acknowledgment (cont.)

Robert Zak, Honeywell  
Ted S. Won, Honeywell Engines & Systems  
Dewey Whittaker, Honeywell Inc.  
Don Youngblood, Honeywell Inc.  
William A. Novak, Honeywell Inc.  
Linda Tucker, Honeywell Technologies Solutions Inc.  
Fujiang Sun, Huawei Technologies Co., Ltd.  
Rongxiang (Davis) Yang, Huawei Technologies Co., Ltd.  
James F. Maguire, Intel Corporation  
Richard Pond, Itron Electricity Metering, Inc.  
Kenneth Reid, IUPUI-Indiana/Purdue University  
Marty Rodriguez, Jabil Circuit, Inc.  
Ouyen Chu, Jabil Circuit, Inc.  
Akikazu Shibata, Ph.D., JPCA-Japan Printed Circuit Association  
David F. Scheiner, Kester  
Blen F. Talbot, L-3 Communications  
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Jeffery J. Luttkus, Lockheed Martin Space Systems Company  
Michael R. Green, Lockheed Martin Space Systems Company  
Russell H. Nowland, Lucent Technologies  
Helena Pasquito, M/A-COM Inc.  
Dennis Fritz, MacDermid, Inc.  
Gregg A. Owens, Manufacturing Technology Training Center  
James H. Moffitt, Moffitt Consulting Services  
Terry Burnette, Motorola Inc.  
Garry D. McGuire, Inc. SA  
Robert D. Compney, NASA/Goddard Space Flight Center  
Christopher Hunt, Ph.D., National Physical Laboratory  
William Faddin, Nextek, Inc.  
Stephen J. Nuppola, Nokia Networks Oyj  
Mari Paakkonen, Nokia Networks Oyj  
Neil Trelford, Nortel Networks  
Clarence W. Knapp, Northrop Grumman  
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Alan S. Cash, Northrop Grumman Corporation  
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David Pinsky, Plexus Corp.  
Kevin T. Schuid, Qualcomm Inc.  
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Gerald Frank, Raytheon Company  
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Gary Falconbury, Raytheon System Technology  
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Beverly Christian, Ph.D., Research In Motion Limited  
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David D. Hillman, Rockwell Collins  
Douglas O. Pauls, Rockwell Collins  
Bob Heller, Saline Electronics  
Donna L. Lauranzano, Sanmina-SCI Corporation  
Frank V. Grano, Sanmina-SCI Corporation  
Brent Sayer, Schlumberger Well Services  
Kelly M. Schriver, Schriver Consultants  
Klaus D. Rudolph, Siemens AG  
George Carroll, Siemens Energy & Automation  
Megan Shelton, Siemens Energy & Automation  
Mark P. Mitzen, Sierra Nevada Corporation  
Steve Garner, Sierra Nevada Corporation

## Acknowledgment (cont.)

Marsha Hall, Simclar, Inc.  
Bjorn Kullman, Sincotron Sverige AB  
Finn Skaanning, Skaanning Quality & Certification -SQC  
Daniel L. Foster, Soldering Technology International  
Mel Parrish, Soldering Technology International  
Patricia A. Scott, Soldering Technology International  
Jasbir Bath, Solectron Corporation  
Charles D. Fieselman, Solectron Technology Inc.  
Fortunata Freeman, Solectron Technology Inc.  
Sue Spath, Solectron Technology Inc.  
Paul B. Hanson, Surface Mount Technology Corporation  
Keith Sweatman  
David Reilly, Synergetics  
John Mastorides, Sypris Electronics, LLC  
Raymond E. Dawson, Teamsource Technical Services  
Vern Solberg, Tessera Technologies, Inc.

Les Hymes, The Complete Connection  
Susan Roder, Thomas Electronics  
Leroy Boone, Thomson Consumer Electronics  
William Lee Vroom, Thomson Consumer Electronics  
Debora L. Obitz, Trace Laboratories - East  
Renee J. Michalkiewicz, Trace Laboratories - East  
Nick Vinardi, TRW/Automotive Electronics Group  
Martha Schuster, U.S. Army Aviation & Missile Command  
Sharon T. Ventress, U.S. Army Aviation & Missile Command  
Constantin Hudon, Varitron Technologies, Inc.  
Gregg B. Stearns, Vitel Technologies, Inc.  
Denis Barbini, Ph.D., Vitronics Soltec  
David Zueck, Western Digital  
Lionel Fullwood, WKK Distribution Ltd.  
John S. Norton, Xerox Corporation  
Steven T. Sauer, Xerox Corp.

### SPECIAL ACKNOWLEDGEMENT

We would like to provide special acknowledgement to the following members for providing pictures and illustrations that are used in this revision.

Constantino J. Gonzalez, ACME Training & Consulting  
Jennifer Day, Current Circuits  
Robert Willis, Electronic Presentation Services  
Mark Cannon, ERSA Global Connections  
Steve Radabaugh, Hewlett-Packard Company  
Marty Rodriguez, Jabil Circuit, Inc.  
Quyen Chu, Jabil Circuit, Inc.  
Blen F. Talbot, L-3 Communications  
Linda Woody, Lockheed Martin Electronics & Missiles  
James H. Moffitt, Moffitt Consulting Services  
Mari Paakkonen, Nokia Networks Oy  
Neil Trelford, Nortel Networks

Peggy J. Blakley, NSWC - Crane  
Ken A. Moore, Omni Training<sup>1</sup>  
Guy M. Ramsey, R & D Assembly  
Bryan James, Rockwell Collins  
Frank V. Grano, Sanmina-SCI Corporation  
Norine Wilson, SED Systems Inc.  
Daniel L. Foster, Soldering Technology International  
Mel Parrish, Soldering Technology International  
Jasbir Bath, Solectron Corporation  
Vern Solberg, Tessera Technologies, Inc.  
Bob Heller, Saline Electronics

1. Figures 3-4, 3-5, 5-22, 5-23, 5-24, 5-25, 5-39, 5-58, 6-51, 6-54, 6-57, 6-58, 6-60, 6-61, 6-70, 6-73, 6-75, 6-90, 6-91, 6-92, 6-93, 6-95, 6-96, 6-102, 6-103, 6-104, 6-105, 6-106, 6-107, 6-108, 6-109, 6-110, 6-111, 6-112, 6-113, 6-114, 6-115, 6-116, 6-117, 7-120, 7-16, 7-27, 7-31, 7-104, 7-112, 7-115, 7-116, 8-148, 8-149 are (c) Omni Training, used by permission.

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# 1 Acceptability of Electronic Assemblies

## Foreword

The following topics are addressed in this section:

### 1.1 Scope

### 1.2 Purpose

### 1.3 Specialized Designs

### 1.4 Terms & Definitions

- 1.4.1 Classification
  - Class 1 – General Electronic Products
  - Class 2 – Dedicated Service Electronic Products
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- 1.4.2 Acceptance Criteria
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### 1.5 Examples and Illustrations

### 1.6 Inspection Methodology

### 1.7 Verification of Dimensions

### 1.8 Magnification Aids and Lighting

## Foreword

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

### 1.1 Scope

This standard is a collection of visual quality acceptability requirements for electronic assemblies.

This document presents acceptance requirements for the manufacture of electrical and electronic assemblies. Historically, electronic assembly standards contained a more comprehensive tutorial addressing principles and techniques. For a more complete understanding of this document's recommendations and requirements, one may use this document in conjunction with IPC-HDBK-001, IPC-HDBK-610, and IPC J-STD-001.

The criteria in this standard are not intended to define processes to accomplish assembly operations nor is it intended to authorize repair/modification or change of the customer's product. For instance, the presence of criteria for adhesive bonding of components does not imply/authorize/require the use of adhesive bonding, and the depiction of a lead wrapped clockwise around a terminal does not imply/authorize/require that all leads/wires be wrapped in the clockwise direction.

IPC-A-610 has criteria outside the scope of IPC J-STD-001 defining handling, mechanical and other workmanship requirements. Table 1-1 is a summary of related documents.

**Table 1-1 Summary of Related Documents**

Document Purpose	Spec.#	Definition
Design Standard	IPC-2220 (Series) IPC-SM-782 IPC-CM-770	Design requirements reflecting three levels of complexity (Levels A, B, and C) indicating finer geometries, greater densities, more process steps to produce the product.  Component and Assembly Process Guidelines to assist in the design of the bare board and the assembly where the bare board processes concentrate on land patterns for surface mount and the assembly concentrates on surface mount and through-hole principles which are usually incorporated into the design process and the documentation.
End Item Documentation	IPC-D-325	Documentation depicting bare board specific end product requirements designed by the customer or end item assembly requirements. Details may or may not reference industry specifications or workmanship standards as well as customer's own preferences or internal standard requirements.
End Item Standards	IPC J-STD-001	Requirements for soldered electrical and electronic assemblies depicting minimum end product acceptable characteristics as well as methods for evaluation (test methods), frequency of testing and applicable ability of process control requirements.
Acceptability Standard	IPC-A-610	Pictorial interpretive document indicating various characteristics of the board and/or assembly as appropriate relating to desirable conditions that exceed the minimum acceptable characteristics indicated by the end item performance standard and reflect various out-of-control (process indicator or defect) conditions to assist the shop process evaluators in judging need for corrective action.
Training Programs (Optional)		Documented training requirements for teaching and learning process procedures and techniques for implementing acceptance requirements of either end item standards, acceptability standards, or requirements detailed on the customer documentation.
Rework and Repair	IPC-7711A/ IPC-7721A	Documentation providing the procedures to accomplish conformal coating and component removal and replacement, solder resist repair, and modification/repair of laminate material, conductors, and plated-through holes.