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**Sectional Design Standard for
Rigid Organic Printed Boards**

Supersedes IPC-2222A

December 2010

An international standard developed by IPC



BUILD ELECTRONICS BETTER

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Sectional Design Standard for Rigid Organic Printed Boards

Developed by the IPC-2221/2222 Task Group (D-31b) of the Rigid
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Users of this publication are encouraged to participate in the
development of future revisions.

Contact:

IPC
3000 Lakeside Drive, Suite 105N
Bannockburn, Illinois
60015-1249
Tel 847 615.7100
Fax 847 615.7105

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Rigid Printed Board Committee

Chair
Cliff Maddox
Boeing Company

IPC-2221/2222 Task Group

Chair
Michael Creeden
EPTAC Corporation

Vice-Chair
Allen Holl
TTM Technologies

Technical Liaison of the IPC Board of Directors

Bob Neves
Microtek (Changzhou) Laboratories

IPC-2221/2222 Task Group

Norman Armendariz, Raytheon Company
Filbert Arzola, Raytheon Company
Lance A. Auer, Conductor Analysis Technologies, Inc.
Jimmy Baccam, Lockheed Martin Missiles & Fire Control
John A. Bauer, Collins Aerospace
Gerald Leslie Bogert, Bechtel Plant Machinery, Inc.
Scott A. Bowles, Lockheed Martin Corporation
Steven A. Bowles, DuPont SVTC
Mark Buechner, BAE Systems
Denise Charest, Amphenol Printed Circuits, Inc.
Stephen V. Chavez, UTC Aerospace Systems
Patrice Chetanneau, Sagem
Michael A. Collier, Teledyne Leeman Labs
Don Dupriest, Lockheed Martin Missiles & Fire Control
Gary F. Erickson, Sanmina Corporation
Timothy A. Estes, Conductor Analysis Technologies, Inc.
Gary M. Ferrari, EPTAC Corporation
Mark Finstad, Flexible Circuit Technologies, Inc.
Mahendra S. Gandhi, Northrop Grumman Space Systems

Pierre-Emmanuel Goutorbe, Airbus Defence & Space
Vicka Hammill, Honeywell Inc. Air Transport Systems
Philip M. Henault, Raytheon
Joe Hughes, Hughes Circuits, Inc.
Joseph E. Kane, BAE Systems
Allen Keeney, Johns Hopkins University
Kelly Kovalovsky, BAE Systems
Kevin Kusiak, Lockheed Martin Corporation
Jeremy Lakoskey, Honeywell International
Jeff Lewis, Holaday Circuits Inc.
Dan Loew, L3Harris
Chris Mahanna, Robisan Laboratory Inc.
Laura Martin, Lockheed Martin Missile & Fire Control
Anthony Martinelli, Raytheon Company
Rene R. Martinez, Northrop Grumman Space Systems
Karen E. McConnell, Northrop Grumman Corporation
Melissa Meagher, Raytheon Missile Defense
Nicholas J. Meeker, Conductor Analysis Technologies, Inc.
Peter B. Menez, L3Harris Technologies, Inc.

Michael P. Miller, NSWC Crane
Kristopher Moyer, California State University - Sacramento
Steven Murray, Northrop Grumman Corporation
Kathy Nargi-Toth, Bowhead
Thi V. Nguyen, Lockheed Martin Missile & Fire Control
Gerard A. O'Brien, Solderability Testing & Solutions, Inc.
James Parke, The Aerospace Corporation
Stephen Pierce, SGP Ventures, Inc.
David Rafson, Collins Aerospace
Randy R. Reed, R. Reed Consultancy LLC
Jose A. Rios, Raytheon
Thomas Romont, IFTEC
Joseph C. Schmidt, Raytheon Missile Defense
Douglas R. Schueller, AbelConn, LLC
Tony R. Senese, Panasonic Industrial Devices Sales Company of America (PIDSA)
Gilbert Shelby, Raytheon Systems Company
Russell S. Shepherd, NTS - Anaheim
Jeff Sonnenberg, Extreme Engineering Solutions, Inc.
Bhanu Sood, NASA Goddard Space Flight Center

Brian Stevens, Collins Aerospace
Marshall Hamilton Stolstrom, TTM
Technologies, Inc.
Bradley E. Toone, L3Harris
Communications
Todd R. Tosi, Sanmina Corporation
Crystal E. Vanderpan, UL LLC
Pietro Vergine, Advanced Rework
Technology-A.R.T
Schuyler C. Williams, Lockheed
Martin Missile & Fire Control

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Sectional Design Standard for Rigid Organic Printed Boards

1 SCOPE

This standard establishes the specific requirements for the design of rigid organic printed boards.

The following overview describes what are the core knowledge and competencies to best serve in the role of *Printed Board Design Layout* as a stand-alone professional, or as the engineer performing this responsibility. Today's printed board designer needs to address numerous perspectives for success within a given schedule, with the goal of making the first design iteration work as intended, summarized as:

- Layout Solvability – Complex Packaging Skillset
- Electrical Integrity – Signal & Power Performance on all Layers
- Manufacturability – Design for Excellence (DfX) Considerations for High Yield and Lower Cost
- Application considerations – Environmental, Performance, Shelf life, etc.

The result provides for optimal component placement, routing density and electrical performance to achieve an efficient design with high yield and defect-free manufacturability.

1.1 Purpose The requirements contained herein are intended to establish specific design details that **shall** be used in conjunction with IPC-2221 to produce printed boards that perform as an integral part of functional electronic hardware.

The organic materials may be homogeneous, reinforced, or used in combination with inorganic materials; the interconnections may be single, double, or multilayered. They may be any combination able to perform the physical, thermal, environmental, and electronic function.

1.2 Document Hierarchy Document hierarchy **shall** be in accordance with the generic standard IPC-2221.

1.3 Presentation Presentation **shall** be in accordance with the generic standard IPC-2221.

1.4 Interpretation Interpretation **shall** be in accordance with the generic standard IPC-2221.

1.5 Definition of Terms The definition of all terms used herein **shall** be in accordance with IPC-T-50 and as defined in 1.5.1.

1.5.1 As Agreed Between User and Supplier (AABUS) A bilateral agreement which indicates additional or alternate requirements to be decided between the user and the supplier in the procurement documentation. Examples include contractual requirements, modifications to purchase documentation and information on the drawing. Agreements can be used to define test methods, conditions, frequencies, categories or acceptance criteria within a test, if not already established.

1.6 Classification of Products Classification of products **shall** be in accordance with the generic standard IPC-2221 and as defined in 1.6.1.

1.6.1 Printed Board Type This standard provides design information for different printed board types. Printed board types are classified as:

Type 1 – Single-Sided Printed Board

Type 2 – Double-Sided Printed Board

Type 3 – Multilayer Printed Board without blind or buried vias

Type 4 – Multilayer Printed Board with blind and/or buried vias

Type 5 – Multilayer Metal Core Printed Board without blind or buried vias

Type 6 – Multilayer Metal Core Printed Board with blind and/or buried vias

1.7 Applicability The contents of this standard may not apply to certain leading-edge technologies. Refer to IPC-2221 for additional information.