



IPC-1071B

# Intellectual Property Protection in Printed Board Manufacturing

Developed by the PB Fab Intellectual Property Subcommittee (E-22) of  
the Intellectual Property Standard Committee (E-20) of IPC

***Supersedes:***

IPC-1071A - August 2014  
IPC-1071 - December 2010

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

Contact:

IPC

## Table of Contents

<b>1 SCOPE</b> .....	1	<b>4 PRINTED BOARD MANUFACTURER BEST PRACTICES</b> .....	3
1.1 Purpose .....	1	4.1 Corporate Policy .....	3
1.2 Levels of IP Protection .....	1	4.1.1 IPP Document .....	3
1.2.1 Definition of Requirements .....	1	4.1.2 Identification of Risks .....	3
1.3 Selection of IP Level .....	1	4.1.3 Employee Responsibilities .....	4
1.3.1 Level 1 – Basic IP Protection .....	1	4.1.4 Management Responsibilities .....	4
1.3.2 Level 2 – High IP Protection .....	1	4.2 Audits and Monitoring .....	4
1.3.3 Level 3 – Advanced Level for Military, Government and Commercial IP Protection .....	1	4.2.1 Informal (Self) Audit .....	4
<b>2 APPLICABLE DOCUMENTS</b> .....	1	4.2.2 Formal (Required) Audit .....	4
2.1 IPC .....	1	4.3 IP Security Officer .....	4
2.2 International Traffic in Arms Regulations (ITAR) .....	1	4.3.1 Level 3 Requirements .....	4
2.3 Export Administration Regulations (EAR) .....	2	4.4 Employee Training .....	5
2.4 Sarbanes-Oxley Act of 2002 .....	2	4.4.1 Social Engineering and Phishing .....	5
2.5 ISO/IEC 27002, Information technology – Security techniques – Code of practice for information security controls .....	2	4.5 New and Current Employees .....	5
2.6 AS9100, Quality Management Systems – Requirements for Aviation, Space and Defense Organizations .....	2	4.5.1 Level 2 Requirements .....	5
2.7 DFARS 252.204-7012 Safeguarding Covered Defense Information and Cyber Incident Reporting .....	2	4.5.2 Level 3 Requirements .....	5
<b>3 TERMS AND DEFINITIONS</b> .....	2	4.6 Legal Safeguards .....	5
3.1 CAGE Code (Commercial and Government Entity Code) .....	2	4.6.1 Non-disclosure Agreements .....	5
3.2 Controlled Area .....	2	4.7 Supply Chain and Vendor Management .....	6
3.3 Controlled Information .....	2	4.8 Import and Export Practices .....	6
3.4 Copyright .....	2	4.8.1 Level 1 Requirements .....	6
3.5 Dual Use .....	2	4.8.2 Level 2 and Level 3 Requirements .....	6
3.6 Intellectual Property (IP) .....	2	4.9 Facility Access .....	6
3.7 IP Incident .....	3	4.9.1 Physical Access .....	6
3.8 Know-How .....	3	4.9.2 Vendor Access .....	7
3.9 Patent .....	3	4.9.3 Security Video System .....	7
3.10 Restricted Area .....	3	4.9.4 Controlled or Excluded Electronics .....	8
3.11 Required Citizenship or Residency Status .....	3	4.10 Controlling Information Access .....	8
3.12 Trade Secrets .....	3	4.10.1 Access to Controlled Information .....	8
		4.10.2 Information System User Access Management .....	9
		4.10.3 Pre-publication Review .....	9
		4.10.4 User Responsibilities .....	9
		4.10.5 Termination of Access .....	9
		4.10.6 Data Management .....	10

---

4.10.7	Information Systems .....	10
4.11	Emergency Procedures .....	11
4.12	Documentation .....	11
4.13	Work in Progress .....	11
4.13.1	Serialization .....	11
4.13.2	Traceability Records .....	12
4.14	Phototools .....	12
4.15	Product Marking .....	12
4.15.1	Level 2 and Level 3 Requirements .....	12
4.15.2	Full Marking .....	12
4.16	Chain of Custody .....	13
4.16.1	Sample Materials .....	13
4.16.2	Destruction of Scrap Materials .....	13
4.16.3	High-Value Materials Room .....	14
4.16.4	Finished Goods .....	14
4.16.5	Inventory .....	14

# Intellectual Property Protection in Printed Board Manufacturing

## 1 SCOPE

**1.1 Purpose** The purpose of this standard is to assist printed board (PB) manufacturers in the development of requirements for the protection of intellectual property (IP) for their customers in commercial, industrial and military and other high-reliability markets. This standard focuses on protection of the inherent IP designed into the PB such that IP flows from the customer to the PB manufacturer and that IP incorporated into the PB is protected. Patent and other such “forever protection” of the manufactured product is beyond the scope of this document.

This standard is not intended to be a legal guide. Please consult an attorney for questions of a legal nature.

**1.2 Levels of IP Protection** This standard recognizes that electrical and electronic products are subject to classifications by intended end-item use. Additionally, different manufacturers and/or customers may desire different levels of IP protection. Three levels of IP protection have been established to reflect the differences in IP protection.

**1.2.1 Definition of Requirements** The words “shall” and “shall not” are used in the text of this document where there is a requirement for IP protection.

**1.3 Selection of IP Level** The user is responsible for selecting the desired level of IP protection. The procurement documentation or data package shall state the IP level and any exceptions to specific parameters, where appropriate.

Criteria defined in this document reflect three levels of protection, which are as follows in 1.3.1 through 1.3.3.

**1.3.1 Level 1 – Basic IP Protection** This level of requirements provides good IP protection and is best suited for high-volume consumer goods. Items may be manufactured globally under Level 1 IP protection.

**1.3.2 Level 2 – High IP Protection** This level of requirements provides a higher level of IP protection and is best suited for high-value goods. In most cases, items may be manufactured globally under Level 2 IP protection.

**1.3.3 Level 3 – Advanced Level for Military, Government and Commercial IP Protection** This level of requirements provides the highest IP protection and is best suited for military and other high-security systems.

- a. Level 3 activities required to be conducted in the United States (U.S.) or in a State Department- and Department of Defense- (or other appropriate government agency) approved location shall be under the strict supervision of U.S. citizens or those possessing legal U.S. residency.
- b. For Level 3 activities conducted for a different national government, the user shall adhere to all citizenship and residency requirements, regulations and laws of that national government.

## 2 APPLICABLE DOCUMENTS

### 2.1 IPC<sup>1</sup>

**IPC-T-50** Terms and Definitions for Interconnecting and Packaging Electronic Circuits

**2.2 International Traffic in Arms Regulations (ITAR)** ITAR is a set of extraterritorial U.S. government regulations that implement the provisions of The Arms Export Control Act (AECA), as prescribed in 22 CFR Parts 120-130.<sup>2</sup> ITAR regulates the permanent and temporary export, re-export and temporary import of defense articles, technical data and defense services on the U.S. Munitions List (USML). The Department of State’s Directorate of Defense Trade Controls (DDTC) interprets and enforces the ITAR. Its goal is to safeguard U.S. national security and to further U.S. foreign policy objectives.

1. <http://www.ipc.org>

2. <http://www.ecfr.gov>