



*BUILD ELECTRONICS BETTER*

# IPC Standardization Procedures

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# IPC STANDARDIZATION PROCEDURES

## 1 Overview

### **About IPC**

Since 1957, IPC International Inc. has been guiding the electronic interconnection industry through its dramatic changes. A global trade association dedicated to the competitive excellence and financial success of its more than 3,000 member companies worldwide, IPC represents all facets of the industry including electronics design, advanced packaging, PCB manufacturing assembly and test. As a member-driven organization and leading source for industry standards, training, market research and public policy advocacy, IPC supports programs to meet the needs of an estimated \$2 trillion global electronics industry. With global headquarters based in Bannockburn, Illinois, USA, IPC maintains additional offices in; Washington, D.C.; Atlanta, Ga.; Brussels, Belgium; Bangalore and New Delhi, India; Bangkok, Thailand; Taipei, Taiwan, Ho Chi Minh City, Vietnam, and Qingdao (China headquarters), Shanghai and Shenzhen, China,

### **Our Mission**

*IPC is a global trade association dedicated to furthering the competitive excellence and financial success of its members, who are participants in the electronics industry. IPC is dedicated to helping industry build electronics better.*

*In pursuit of these objectives, IPC will devote resources to management improvement and technology enhancement programs, the creation of relevant standards, protection of the environment, and pertinent government relations.*

*IPC encourages the active participation of all its members in these activities and commits to full cooperation with all related organizations.*

## 2 Committee Governance

This section defines the primary volunteer bodies associated with standards development.

### **2.1 Technical Activities Executive Committee (TAEC) Global**

The Global Technical Activities Executive Committee (TAEC) is comprised of seven members (two each from Europe, Asia and the Americas and the TAEC Chair) to conduct administrative business (i.e., PIN status reviews, questions, etc.) on a quarterly basis. The Global TAEC also reviews activities of each general committee annually (as prepared and submitted by the general chair) and may request a leadership change if progress is not being made with a group.

### **2.2 Technical Activities Executive Committee (TAEC)**

The TAEC consists of all chairs and vice-chairs of IPC general committees. The IPC Technical Activities Executive Committee (TAEC) is responsible for the management function related to the standardization and technical activity within IPC. The TAEC will review, prioritize and approve the standards and solutions related programs of IPC and recommend allocation of appropriate resources to the Board of Directors.

### **2.3 Committee Chair Council (CCC)**

All chairs and vice-chairs of general committees, subcommittees and task groups are members of the Committee Chair Council (CCC). It is the basic function of the CCC to meet twice a year in connection with the semi-annual meetings of IPC to discuss technological developments that can affect future programming for the IPC. CCC meetings are designed to keep all committee chairs and vice-chairs up to date on technical developments that may affect the work of their committees.

## **2.4 Committee**

For the purposes of these standardization procedures, the word committee is used as a general term for the body of volunteers associated with the development of an IPC standard and/or American National Standard. IPC committees associated with the development of a standard are open to anyone for participation. Because of this, IPC does not require balanced representation from interest groups associated with the topic of a standard being developed by a committee. Balanced representation only applies to ballot groups.

## **2.5 Ballot Group**

The ballot group is the body of volunteers that provide the final consensus vote on an IPC standard and/or American National Standard. These procedures define the minimum requirements for ballot groups in 3.7.

## **3 IPC Standardization Process**

### **3.1 General Information**

IPC documents, including standards, specifications, guidelines, and test methods are developed through four major stages:

- Working Draft
- Final Draft for Industry Review
- Proposed Standard for Ballot
- Publication

This process applies to new publications, revisions, amendments, addenda and reaffirmations. The progress of a document's development can be followed through the IPC Status of Standardization, which is updated regularly online at [www.ipc.org/status](http://www.ipc.org/status).

All IPC documents under development, from working draft to ballot, must contain wording that identifies the file as a draft document. Documents may be digital rights management (DRM) protected to prevent misuse.

These procedures include requirements specific to approval of an IPC standard as an ANSI-approved standard. Each step in the process that may include an ANSI-specific requirement is provided in italics text at the end of the section.

### **3.2 Commenting and Comment Resolution**

#### **3.2.1 Review and Comment**

Reviewers are provided a method to submit comments, including a form.

At the end of the comment period, staff liaison will compile and organize all comments. Each comment must include the submitter's name and affiliation, paragraph/figure/table identifier, recommendation and a reason for the recommendation. The staff liaison will provide the compilation of comments to the committee members for resolution.

### 3.2.2 Comment Resolution

Resolution of comments **shall** be fully documented. Resolution of a comment **shall** indicate if it is:

Accepted

Accepted with Modification

Not Accepted

Withdrawn (by commenter)

Overcome by Events (OBE)

Deferred

Resolutions that indicate a comment is not accepted **shall** include an explanation or reason for the response. Comments marked as OBE are due to resolutions already made from a previous comment. OBE resolutions **shall** reference the comment resolution causing the OBE.

Comment resolution requires concurrence from at least 2/3 of the voting company sites/locations present at the meeting. The leaders of the committee are not eligible to vote at a committee meeting. If a 2/3 majority position cannot be reached, IPC staff will survey the entire committee following the meeting. A minimum of 50% of the voting company sites/locations on the committee must respond to the survey, and comment resolution requires concurrence from at least 2/3 of respondents.

The resolved comments will be made available to the committee, commentors from public review, and anyone requesting a copy.

### 3.3 IPC Project Initiation Notification (PIN)

A new project may be initiated by an established committee, or a new committee may be formed to work on a specific document. The first step in gaining approval to begin a project is through submission of an IPC Project Initiation Notification (PIN) form by a committee chair to the staff liaison. The PIN form is assigned a tracking number, sent to the IPC senior director of standards and technology for review, and circulated to the IPC Technical Activities Executive Global Committee (TAEC Global) for review and approval for ballot to the Technical Activities Executive Committee (TAEC). The TAEC, which also consists of TAEC Global members, will base their vote on technical soundness and possible conflicts with other committee projects within IPC as well as other standard developing organizations (SDOs). Approval of a PIN is based on 2/3 majority of returned votes following attempted resolution of any negative votes.

*For ANSI Standards: An ANSI PIN form will be submitted to ANSI for a 30-day public review for all documents proposed as new or revised ANSI standards. The decision to publish as an ANSI standard must be documented in writing (IPC PIN form, email, minutes, etc.). Any comments received within the 30-day public review will be handled in accordance with 2.5.1 (and its subsections) of the current ANSI ER.*

### 3.4 Committee Formation

IPC **shall** form a committee that will be responsible for the development of the standard and will assign a staff liaison to work with the committee to ensure its activities follow IPC's Standardization Procedures.

### 3.5 Working Draft

Following TAEC approval of a PIN, the committee will develop a working draft of the document. The staff liaison will advise availability of a draft in the IPC Status of Standardization. There may or may not be

formal circulations of working drafts to collect comments. The committee chair(s) along with the staff liaison may choose to wait until the Final Draft for Industry Review stage to open the document for review.

### 3.6 Final Draft for Industry Review

With agreement between the chair and staff liaison, the draft document will be open to industry and public review through the Final Draft for Industry Review. At the discretion of the chair and staff liaison, a document may skip Working Draft commenting and go directly to Final Draft for Industry Review for first call for comments.

The availability of the Final Draft for Industry Review is made through listing on the IPC Status of Standardization page on the IPC web site located at [www.ipc.org/status](http://www.ipc.org/status), which is open to the public.

The Final Draft for Industry Review document and information on submitting comments are provided to members of the committee, other IPC committees with an interest in the project, the TAEC and CCC, and anyone requesting copies.

The Final Draft for Industry Review circulation period is a minimum of 30 days. Comments on the Final Draft for Industry received after the deadline will be deferred for next revision or amendment.

### 3.7 Establishing the IPC Ballot Group

At the Final Draft for Industry Review stage, a request for participation on the ballot group will be included in the correspondence. Participation on the ballot group is voluntary and is not conditional upon membership in IPC. All persons requesting to join the ballot group who are not members of the committee will also be added to the committee (see 2.4).

The ballot group consists of voters who represent a specific company. IPC allows only one vote per company. If two or more individuals from the same company request to be on the ballot group, those individuals must assign a primary balloter. Alternate balloter(s) from the same company will be listed on the ballot group as an alternate balloter and must coordinate their vote with the primary balloter. Only the primary balloter will be able to cast an official vote.

IPC reserves the right to refuse ballot group volunteers due to ballot group abuse or other irregularities. The abuse or irregularities will be reported to the senior director of standards and technology and the TAEC Global for final decision on refusal to be added to the ballot group.

Once the ballot is distributed, there **shall** be no additions or removals of voting companies to/from the ballot group and there **shall** be no changes made to interest categories.

*For ANSI Standards: IPC will solicit for balloters outside of the IPC committees. These communications must be documented.*

#### 3.7.1 Determining Balance

In forming the ballot group, IPC will strive to achieve balance among the following interest categories. The voting member will select their category for that particular document. In cases in which ballot group balance is not met, IPC will solicit additional ballot group members and/or contact individuals from the existing ballot group who might represent more than one interest category to request voluntary interest category change based on their product or service.

**User:** Members of this category are users of the product or service covered by the document.

**Supplier:** Members of this category are suppliers of the product or service covered by the document.

**General Interest:** Members of this category are those with a relationship to or interest in the product or service covered by the document.

IPC considers balance to be at least two voting companies in each of the aforementioned interest categories with a goal to have no single category constituting more than 50% of the ballot group. It is

recognized that there may be instances where a document appeals only to a specific category making it difficult to achieve balance, in which case the ballot group may not necessarily be in balance.

### **3.8 Proposed Standard for Ballot**

Once all comments, if any, from the Final Draft for Industry Review or subsequent call(s) for comments are resolved, the document may move to Proposed Standard for Ballot. The decision to move to Proposed Standard for Ballot may be made during a committee meeting or agreement between the committee leader(s) and staff liaison.

#### **3.8.1 Proposed Standard for Ballot Package**

The Proposed Standard for Ballot package includes:

1. Proposed Standard for Ballot document
2. Information on submitting comments
3. Ballot group roster
4. Comment resolution from the previous circulation (if comments were submitted)

The Proposed Standard for Ballot package will be circulated to the ballot group and non-voting committee members for a period with the closing date no less than 30 days from the date of the correspondence. Individuals wishing to review a copy of the ballot document may request a copy from the staff liaison. Anyone reviewing the document may submit comments.

If during the ballot period, there is low return or lack of response from the ballot group, the staff liaison may contact the ballot group to encourage return of votes.

*For ANSI Standards: At the same time the Proposed Standard for Ballot is being distributed to the committee, an ANSI BSR-8 form is completed and sent to ANSI. This is so ANSI can provide a 45-day public review period for the document in Standards Action. Any comments received from the filing of the ANSI BSR-8 form and announcement in the ANSI Standards Action are handled in the same manner as those received from the Proposed Standard for Ballot circulation to the committee. If subsequent ballots are required as a result of substantive changes, IPC will submit a new BSR-8 to affect an additional public review cycle.*

#### **3.8.2 Determining Consensus**

Consensus requires that all views and objections be considered, and that an effort be made toward their resolution.

The numerical requirements for ballot group consensus are:

- At least 65% of the total returned ballots (not including abstentions or negative votes without comments) must be affirmative
- No more than 20% can be negative

IPC **shall** communicate the detailed voting results to the ballot group and committee.

### 3.8.3 Negative Vote and Substantive Change Reballots

IPC requires those submitting negative votes to include comments so the developing committee can resolve the issues. Negative votes submitted without comments related to the standard will be recorded as negative without comments and not counted in the final results. IPC will not conduct a recirculation of the negative vote without comments related to the standard.

The committee will resolve all comments in accordance with 3.2.2.

Voters who submit a negative vote with comments will be given the chance to change or maintain their vote during the rebalot to the ballot group (see 3.8.5).

### 3.8.4 Editorial and Substantive Changes to Ballot Document Due to Comment Resolutions

Comments not accompanied by a negative vote that are editorial in nature may be incorporated without recirculation of the ballot.

Substantive comments are ones that directly affect the use of the standard. Examples of substantive changes are:

- “Shall” to “should” or “should” to “shall”
- Addition, deletion or revision of requirements

### 3.8.5 Ballot Recirculation Due Negative Vote and/or Substantive Changes

A recirculation of a document to the ballot group is required whenever there is a negative vote with comments or when any substantive change(s) have been made to the ballot standard, regardless of the number of changes. Recirculation of a negative vote resolution and/or substantive change ballot are for a period of not less than 10 days.

Only the resolution of comments included with negative votes and/or substantive changes are subject to the rebalot. Any other parts of the original ballot standard and all other comments **shall** not be subject to rebalot.

During this voting period, all ballot group members, including any who submitted negative votes with comments, or who did not previously vote, will be given the opportunity to submit, change or maintain their vote.

Consensus **shall** be in accordance with 3.8.2.

If the rebalot meets consensus with any negative votes, the standard **shall** move to publication and all negative voters and commenters **shall** be informed in writing of their right to appeal. If the rebalot does not meet consensus, IPC **shall** conduct subsequent rebalot(s) in attempt to achieve consensus. IPC **shall** communicate the detailed rebalot voting results to the ballot group and committee.

*For ANSI Standards: A BSR-8 form will be submitted to ANSI for any circulation related to substantive changes. Any comments received from the filing of the ANSI BSR-8 form and announcement in the ANSI Standards Action are handled in the same manner as those received from the ballot. (See 3.8.1)*

## 4 Publication

*For ANSI standards: a BSR-9 will be submitted to ANSI to provide the final documentation that ANSI requirements have been met. Once IPC receives approval by ANSI via the “Official Notification of Final Action,” the document will be published within 6 months of approval as an American National Standard. The ANSI logo will be printed on the inside title page of the document; the logo will include the ANSI approval date.*

## 5 Reaffirmation

IPC standards that have not been revised or amended for a period of five years may be subject to reaffirmation according to the following process.

IPC will form a reaffirmation ballot group for the standard to be reaffirmed.

IPC **shall** solicit reaffirmation ballot group members from one or more of the following groups:

- Originating task group roster for the standard to be reaffirmed
- Chairs of the general committee, subcommittee and task groups from the general committee for that originating task group
- Other subcommittees and task groups responsible for products and services similar to those in the standard for reaffirmation
- TAEC and CCC

The ballot group will also be open to any other IPC committee members with an interest in the standard as well as the public through notification on the IPC Status of Standardization.

Solicitation for ballot group members will be a minimum of 30 days following notification. The ballot group **shall** meet the balance requirements of 3.7.1, and IPC **shall** allow only one vote per company.

Once formed, the ballot group will be given 10 days to review the standard and to provide one of the following voting options:

- Reaffirm
- Revise or Withdraw (explanation required)
- Abstain

To be reaffirmed, 65% of the ballot group must vote to reaffirm, not counting abstentions.

If reaffirmed, the reaffirmed standard **shall** clearly indicate on the cover and title page that it is a reaffirmation with the month and year of reaffirmation.

If the standard in question is a joint standard with another standards developer(s), this process will also adhere to any additional requirements from the memorandum of understanding (MoU) between IPC and the other standards developer(s).

*For ANSI Standards: At the same time IPC begins solicitation for the reaffirmation ballot group, an ANSI BSR-8 form is completed and sent to ANSI. This is so ANSI can provide a 45-day public review period for the document in Standards Action. Any comments received from the filing of the ANSI BSR-8 form and announcement in the ANSI Standards Action are handled in the same manner as those received from the reaffirmation ballot. Commenters from public review who submit a comment will receive the resolution of comments in writing from IPC.*

## **6 Right to Appeal**

Parties who are directly and materially interested in and who have been or will be adversely affected by any procedural action or inaction by IPC have the right to appeal.

Appeals **shall** be submitted in writing to the IPC senior director of standards and technology within fifteen (15) working days of the original notification of appeal. The appeal **shall** state the subject being appealed, reason for the appeal, evidence and materials to support the appeal.

The IPC senior director of standards and technology **shall** submit the appeal to the TAEC Global for determining the outcome. The TAEC Global will consider all evidence and documentation from the appellant and IPC staff and provide a decision on the appeal not more than 90 days following receipt of the original appeal. The IPC senior director of standards and technology **shall** communicate the TAEC Global's decision on the appeal to the appellant.

If a conflict of interest exists with a member of the TAEC Global, the Sr. Director will remove or replace the TAEC Global member with a member of the Sr. Director's choosing from the TAEC to address the appeal.

If the appellant does not concur with the TAEC Global's decision, the appellant can request to have their appeal heard by IPC legal counsel. This appeal **shall** be accompanied by a USD 15,000 appeal processing fee. Any requests for fee waivers or reductions **shall** be directed to the IPC Senior Director of Standards & Technology.

The IPC senior director of standards and technology **shall** notify the appellant of the outcome by IPC legal counsel, which **shall** constitute the final decision on the appeal.

*For ANSI standards: Persons who have directly and materially affected interests and who have been or will be adversely affected by any procedural action or inaction by a standards developer with regard to the development of a proposed American National Standard or the revision, reaffirmation, or withdrawal of an existing American National Standard, have the right to appeal.*

## **7 American National Standards Institute (ANSI)**

The IPC standardization procedures are written and maintained in accordance with ANSI Essential Requirements. IPC standards that will be American National Standards (ANS) **shall** comply with ANSI's requirements for due process.

## **8 Joint Standards with other Standards Developing Organizations (SDOs)**

IPC will engage with other standards development organizations (SDOs). The collaborative effort will be documented through a memorandum of understanding (MOU).

## **9 IPC Standardization Policy Statements**

### **9.1 Document Interpretation**

When someone asks for an official interpretation of an IPC standard, the responsible staff liaison will ask the chairs or subject matter experts to assist in the interpretation. The official interpretation **shall** be provided to the person requesting the information and will become part of IPC's historical files.

### **9.2 Withdrawal of IPC Standards**

IPC may withdraw an IPC standard without a vote of a relevant ballot group.

*For ANSI standards: If IPC withdraws an American National Standard, IPC shall notify ANSI immediately.*

### 9.3 IPC Standards Records Retention Policy

Records **shall** be retained for one standard's cycle, until a standard is revised. IPC standards' documentation is accessible and maintained at IPC.

Records relating to withdrawn standards **shall** be maintained for at least five years from the date of withdrawal.

### 9.4 Metric Policy

All IPC documents will use the International System of Units (SI). When requested by the committee, a parenthetical expression of a "soft English" equivalent measurement may be included for linear dimensions only.

### 9.5 Patent Policy

IPC's Patent Policy **shall** comply with the current version of the ANSI Patent Policy.

### 9.6 Antitrust and Export Control Policy

IPC standards **shall** be developed in accordance with applicable antitrust and competition laws, and meetings amongst competitors to develop IPC standards are to be conducted in accordance with these laws.

It is a practical impossibility to delineate the permissible limits of discussion at an IPC meeting, because so much is dependent upon the context in which any particular subject is to be raised. Nevertheless, a prudent rule, which is to be followed at all IPC meetings, is that no commercial topics be acted upon or even considered.

To avoid the most sensitive areas, there should never be a discussion of the following at IPC meetings:

1. Price or any elements of price or pricing policies, including costs, discounts, etc.
2. Sales or production quotas, territories, allocations, boycotts or market shares.
3. Identified individual company statistics, inventories or merchandising methods.
4. Particular competitors or customers.
5. Commercial liabilities, warranties, guarantees or the particular terms and conditions of sales, including credit, shipping and transportation arrangements.
6. Anything dealing with "arm-twisting," trade abuses or excluding or controlling competition.

IPC standards **shall** be developed, and meetings conducted in accordance with all applicable export, reexport, retransfer controls, sanctions, and antiboycott restrictions.

Meetings of IPC standards committees are generally accessible to the interested public through advanced notice of the meetings to the public, unlimited access to meetings by any interested person, and unlimited distribution of meeting minutes at no cost afterwards. No matters **shall** therefore be discussed that do not qualify as in the "public domain" or as "published." Participants are advised to familiarize themselves with the definitions for these terms in all applicable export control regulations.

Participants are specifically cautioned that these definitions may not apply to discussions occurring between or among two or more committee participants outside formal committee proceedings. Such exchanges that are not generally accessible to the interested public may therefore be subject to deemed export or deemed reexport licensing requirements.

### **9.7 Commercial Terms and Conditions Policy**

IPC's Commercial Terms and Conditions policy **shall** comply with the current version of the ANSI Commercial Terms and Conditions Policy.