Association Connecting Electronics Industries

IPC Standardization Procedures

October 21, 2015

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IPC STANDARDIZATION PROCEDURES

1 OVERVIEW

About IPC

Since 1957, IPC—Association Connecting Electronics Industries® 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 3,300 member companies, IPC represents all facets of the industry including design, printed circuit board manufacturing and electronics assembly. 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 $2.02 trillion global electronics industry. IPC maintains additional offices in Taos, N.M.; Arlington, Va.; Stockholm, Sweden; Moscow, Russia; Bangalore, India; Bangkok, Thailand; and Shanghai, Shenzhen and Beijing, 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.

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.

Right to Hold Office

Only industry representatives of IPC member companies shall hold office in Committee or Council structures either through their affiliation with a company who is a current member of the IPC, or through their participation in the Designers Council, or who have served in a previous official capacity, such as chairman, vice chairman, secretary etc. and made a significant contribution to the standard development process of the IPC.

Officers and Board of Directors

The management of affairs of IPC is vested in the Board of Directors, which shall consist of the Chair, Vice-Chair and Treasurer, who shall be Directors by virtue of their office, plus not less than seven or more than fourteen Directors. There is one board seat for an associate member from the PWB Industry and one seat for an associate member from the assembly industry.

2 TECHNICAL ACTIVITIES EXECUTIVE COMMITTEE (TAEC)

The TAEC consists of all chairs and vice-chairs of IPC general committees. It is the responsibility of the TAEC to review all questions and problems pertaining to IPC Technical Programs. In certain cases, particularly in the discussion of programs involved with expenditures of IPC funds, or involved with IPC policy, the TAEC will make recommendations to the IPC Board of Directors.

2.1 TAEC Charter

> *"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 technical programs of IPC and recommend allocation of appropriate resources to the Board of Directors."*

The following specific items are the responsibility of the TAEC:

- Review reports of general committee chairs to ensure activities undertaken by one committee are not in conflict with a similar activity of another committee.
- Review proposed technical programs and advise the IPC Board of Directors on the advisability of undertaking new programs and the ways and means of doing so.
- Prioritize technical projects, review project status and program deadlines and recommend elimination of projects as deemed necessary.
- Determine jurisdiction over technical programs and activities and determine what committee will execute a specific program or activity.
- Settle disputes and problems that arise in technical committees.
- Review suggested realignment of committees including the addition of new committees and the dissolution of existing committees.
- Review all ideas and recommendations of the Committee Chair Council (CCC).

2.2 TAEC Members

All chairs that have served five years or more are eligible for lifetime membership on the TAEC. Each lifetime member has one vote.

2.3 Election of the TAEC Chair

At the IPC Annual Meeting during each even-numbered year, a chair of the TAEC will be selected based on a list of eligible chairs developed by the IPC vice president of standards and technology. The TAEC Chair serves a two-year term, which begins at the conclusion of the IPC Annual Meeting at which he is elected. The election of the chair will be by Roman ballot. Only members of the TAEC are eligible to vote.

Those individuals who serve a two-year term as the chair of the TAEC will become ex-officio members of the TAEC and are eligible to participate in all TAEC Meetings.

2.4 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.

Prior to the semi annual meeting a preliminary agenda is circulated to members of the CCC with a request for input. The discussions and any requests or recommendation from the CCC meeting are addressed during the meeting of the TAEC which is usually held a day later.

3 TECHNICAL STRUCTURE

The general chairs of technical committees have considerable authority to participate in defining objectives and the responsibility of conducting the affairs of their committee in such a way as to accomplish the goals and objectives set forth by the IPC Mission Statement and the IPC Board of Directors.

The general chairs of the technical committees are members of the Technical Activities Executive Committee (TAEC) and are empowered to recommend approval of projects in which the committees should engage in order to further the goals of the IPC Long Range Plan as developed by the Board of Directors and IPC staff. The General Committees reporting to the TAEC are:

Packaging Categories

B-10 Packaged Electronic Components Committee
D-10 Flexible Circuits Committee
D-20 High Speed/High Frequency Committee
D-30 Rigid Printed Board Committee
D-50 Embedded Components Committee
D-60 Printed Electronics Committee

Ancillary Categories

E-10 IPC PV Module Technical Standards Committee
E-20 Intellectual Property Standard Committee
E-30 Conflict Minerals Due Diligence Committee

Packaging Functions

1-10 Printed Board Design Committee
2-10 Electronic Product Data Description Committee
2-30 Terms and Definitions Committee
2-40 Electronic Documentation Technology Committee
3-10 Printed Board Base Material Committee
4-10 Fabrication Processes Committee
4-30 Environmental Health and Safety Committee
5-20 Assembly and Joining Processes Committee
5-30 Cleaning and Coating Committee
6-10 Product Reliability Committee
7-10 Testing Committee
7-20 Process Control Management Committee
7-30 Product Assurance Committee

4 IPC COMMITTEE STRUCTURE

4.1 General Committees

IPC general committees are standing committees. Their scope of operations spans categories as functions within the technical mission of IPC.

General committees may form subcommittees and task groups to achieve their established charter. The chair and vice chair of IPC's general committees are members of the IPC's Technical Activities Executive Committee (TAEC).

4.1.1 General Committee Chairs

General committee chairs are appointed by the Chair of the IPC Board of Directors, based on recommendations from current and past chairs of the TAEC and the IPC staff. Term of service is for a period not to exceed five years. As a matter of policy, after four years of chairing, the general chair is required to have a vice-chair to serve one year as vice-chair prior to elevation to general chair. In the event the general chair cannot find a vice-chair willing to take on responsibility of the general chair or there are other extenuating circumstances (i.e., business reasons, unable to travel unless in leadership role), the general chair may petition the TAEC for a second term extending up to five years. The Board of Directors shall establish BOD liaison with the committee general chairs.

4.1.2 General Committee Vice-Chairs

The general chair of each standing technical committee will consult with the IPC vice president of standards and technology in recommending an individual to serve as vice-chair. General chair or vice chair commitments are normally reviewed and finalized at a meeting of the TAEC.

4.2 Subcommittees

Subcommittees, formed under general committees and approved by the TAEC, address more specific areas of the technology dictated by the general committee. Subcommittees are formed to develop one or more specific standards or specifications and are most often "standing," as opposed to a task group working on a specific project.

4.2.1 Subcommittee Chairs

Subcommittee chairs will be appointed by the general committee chair after consultation with the IPC staff liaison and IPC vice president of standards and technology. The subcommittee chair is encouraged to select a vice-chair to assist in conducting the meetings, taking minutes and providing leadership in the absence of the chair.

4.3 Task Groups

A task group can be formed as part of a general committee or subcommittee and is approved by the TAEC. The task group is formed to undertake a specific assignment in accordance with the charter of the general committee. This may be to develop or update a specific document or address a particular technology process or problem.

If there is any question as to whether the scope of the task group is in conformance with the general charter, the general committee chair must consult with the TAEC. Upon completion of the specific assignment, the general committee chair and vice-chair will determine additional assignments or make recommendations to the TAEC to deactivate the task group.

4.3.1 Task Group Chairs

In the case of appointments for task group chairs, there is often a need for immediate action on a short-term program. The general committee chair can make appointments of task group chairs without consultation.

4.4 Committee Chair Eligibility

Only IPC members are eligible to serve as chairs of IPC committees. Eligibility is defined as working for a member company, being a member of the Designer Council or being granted Grandfather rights by the TAEC.

4.5 Committee Member Eligibility

Membership in a standards development committee is open to any interested person (organization, company, government agency, individual, etc.) with a direct and material interest, regardless of membership in IPC or any other organization. There is no fee to participate on an IPC committee, except for committee meetings held in conjunction with IPC events (to cover administrative costs, room rental, etc.).

Anyone who wishes to participate on an IPC committee is encouraged to advise the IPC office. A participant should be capable of making a contribution to the development of the document based on technical expertise, but others may also participate.

4.6 Committee Objectives and Charters

A technical committee of the IPC is formed to undertake projects in a specific area of technology. In some cases it may cover a specific type of product e.g., multilayer boards. The committee may analyze a process or a particular aspect of technology such as soldering and joining techniques.

The charter of a committee is rather broad and, in essence, can work on its segment of the technology in the following areas:

- Provide an exchange of technical information
- Prepare guideline documents and technical reports that are of value to the membership and the industry
- Develop detailed standards and specifications
- Develop a round robin volunteer testing program

Sources of ideas come from several places:

- TAEC meetings
- Spin-off of other committee activities
- Suggestions submitted by e-mail (member/nonmember)
- Strategy meetings related to the subject

The IPC Board of Directors has requested all IPC committees to focus its energies and benchmark every program and activity against the following metrics:

- Does it improve time-to-market?
- Does it enhance the members' and industry's global competitiveness?
- Does it enhance the members' and industry's profitability?
- Does it improve the communication throughout the supply chain?
- Does it avoid ambiguity between customers and suppliers?

The chair should review each new idea for a program or activity against these objectives. If the activity meets one or more of the objectives, an IPC Project Initiation Form (PIN) is prepared by the chair in conjunction with the staff liaison. The PIN is then sent to the IPC vice president of standards and technology for review prior to submission to the TAEC for approval.

4.6.1 Participation as an Active committee member

Participation in any or all of the following events can be considered as active participation:

- contribution to standard content

- attendance at face-to-face meetings
- participation in teleconference and/or web meetings
- comments on drafts of standards

Individuals who do not meet the criteria for active participation can be considered for removal from the committee, subcommittee or task group roster.

4.6.2 Participation as an Observer

Individuals who wish to be kept informed of a committee's activities may join as an "observer." An observer will receive notice of updates to drafts, notification of meetings/teleconferences, etc., but will only be able to download drafts made available to the General public. An observer may change their status to an active committee member by notifying the IPC staff liaison of the project.

4.7 Limitations

Participation on IPC committees will not be limited to a specific number of participants. However, the committee chair or IPC vice president of standards and technology may consider reasonable limits on size if additional members would make the committee's operation cumbersome and impede the attainment of the committee's objectives.

In the event that a limitation action is being considered, every effort will be made to establish methods for continued contributions to the committee, subcommittee or task group work through circulation of minutes, request for comments, website posting or other forms of communication.

4.8 Meetings

IPC technical committee, subcommittee and task group meetings present an opportunity for the industry to meet and discuss their assigned project. IPC provides the opportunity for the committees to hold face-to-face meetings at least two times a year: in the Spring at IPC APEX EXPO and at the IPC Fall meetings. Other meetings may be held as many times as deemed necessary by the chair of each group. Web conferences and teleconferences are also utilized by committees to conduct their business.

5 IPC STANDARDIZATION PROCESS

5.1 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, revised publications and amendments to publications. 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.

All IPC documents under development, from working draft to ballot, must contain wording that identifies the file as a Draft Document, to prevent anyone from mistaking the document for a published standard.

In the following sections, the term "committee" is used generically to mean committee, subcommittee, or task group, except when a specific identification is required.

5.2 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 IPC staff liaison. The PIN form is assigned a tracking number, sent to the IPC vice president of standards and technology for review, and circulated to the TAEC for final approval. The TAEC will review the proposed project for technical soundness and possible conflicts with other committee projects within IPC as well as other standard developing organizations (SDOs), and ballot for approval. Approval of a PIN is based on 2/3 majority of returned ballots following attempted resolution of any negative votes.

5.3 Working Draft

Following TAEC approval of a PIN, the committee will develop a Working Draft of the document. The initiators of the project typically will already have prepared an outline. The committee chair will coordinate with IPC staff to set up a meeting. An announcement of the project with an invitation to participate is provided to industry through press releases, posting to IPC website, or via notification through social media channels. IPC staff 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 or input. The committee chair(s) or IPC staff liaison may choose to wait until the Final Draft for Industry Review stage to open the document for public review.

5.3.1 Review and Comment

Working drafts may be distributed to the entire committee for review and comment; typically the circulation period is 30 days. Reviewers are provided a method to submit comments; either a comment form with each document circulation or information on submitting comments using an online commenting tool.

At the end of the comment period, IPC staff 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. Compiled comments will be made available to committee members prior to the next scheduled meeting/teleconference. If a comment is confusing or unclear, IPC staff will contact the commenter for clarification.

Resolution of comments shall be fully documented. Resolution of a comment could be to 'Accept,' 'Accept as Modified,' or 'Not Accept'; or the submitter may withdraw the comment. Resolutions that indicate a comment is not accepted or accept as modified will include an explanation or reason for the response.

Some comments will be overcome by events (OBE) due to changes already made as the result of a previous comment. When OBE is used, it must include the rationale with a reference to the original comment causing the OBE.

Comment resolution requires concurrence from at least 2/3 of the committee members present at the meeting or teleconference. If there is insufficient representation at a meeting or teleconference or a 2/3 majority position cannot be reached, IPC staff will ballot the entire committee following the meeting or teleconference. A minimum of 50% of the entire committee must respond to the ballot, and comment resolution is required from at least 2/3 of respondents.

Resolved comments are circulated to the full committee and to all individuals submitting comments. The resolved comments are also available to anyone requesting a copy.

5.4 Final Draft for Industry Review

At some point the committee will determine the document is at or near completion and ready to open it up to industry for review and comment. This next stage is called the "Final Draft for Industry Review.

The availability of the Final Draft for Industry Review is made through listing on the 'Status of Standardization' page on the IPC web site located at www.ipc.org/status.

The Final Draft 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 circulation period is a minimum of 30 days from the date of circulation as determined by the committee chairs and IPC staff liaison. Any variations to circulation period must be reviewed and approved by the IPC VP of standards and technology.

5.4.1 Establishing the IPC Consensus Ballot Group

At the "Final Draft for Industry Review" stage of the document development, a request for participation on the consensus ballot group will be included in the correspondence. Participation on the consensus ballet group is not conditional upon membership in IPC.

The ballot group will be made up of committee members who have participated in the development of the document. Participation in the form of committee meeting attendance, comment submission or content submission (see 4.6.1) is required to be selected as part of the balloting group. The committee chairperson and IPC staff liaison will review the request for ballot in accordance with participation requirements and determine who is eligible to vote.

In cases where a voting member of the consensus ballot group is unable to fulfill their commitment to ballot, another person from the voting member's company site may be designated to vote in proxy. The

voting member or other company representative must contact IPC in writing to authorize the change. Without authorization, a vote received from anyone other than the voting member will not be counted in the tally.

5.4.1.1 Determining Balance

In forming the consensus ballot group, IPC will strive to achieve balance among the following interest categories:

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

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

General Interest: This category covers all other companies that may have a relationship to the product or service covered by the document (e.g., trade association, consultant, academia, training site, laboratory, governmental agency, etc.).

IPC considers balance to be at least two voting sites in each of the aforementioned interest categories with a goal to have no single category constituting more than 50% of the consensus ballot group. IPC will attempt to achieve balance by soliciting additional consensus ballot members in cases where balance is an issue. 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 consensus ballot group may not necessarily be in balance.

It should also be noted that, depending on the scope and purpose of a document, a company may be identified as a user or supplier of the subject document. The voting member should select the most correct category for that particular document.

IPC allows one vote per company location. If two or more individuals from the same company location request to be a balloting member, they are contacted and advised to coordinate their votes and assign a primary balloter to participate on the consensus ballot group. An alternate balloter (proxy) may be designated if the primary balloter is unable to vote for any reason, i.e., the voting member is no longer with the company.

5.5 Proposed Standard for Ballot

Upon agreement by IPC staff and the committee chair(s) that the document is ready to advance, IPC staff will prepare the document for circulation as Proposed Standard for Ballot.

5.5.1 Proposed Standard for Ballot Package

The Proposed Standard for Ballot package typically includes:

1. Proposed Standard for Ballot document
2. Information on submitting comments
3. Consensus ballot roster
4. Comment resolution from the previous circulation

The Proposed Standard for Ballot package will be circulated to the consensus ballot group for a 30-day period with the closing date no less than 30 days from the date of the correspondence. Certain situations may necessitate a shorter ballot period (i.e., in order to have comments available at a meeting scheduled during one of IPC's major conferences). A shorter ballot period of no less than 25 days must be approved by the IPC VP of standards and technology.

Members of the developing committee who are not members of the consensus ballot group may submit comments. Other individuals wishing to review a copy of the ballot document and submit comments may request a copy from the IPC staff liaison.

5.5.2 Determining Consensus

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

The numerical requirements for consensus are:

> *At least 65% of the designated ballot group must cast a vote. At least 65% of the total returned ballots (including abstentions) must be affirmative; no more than 20% can be negative.*

5.5.3 Negative Votes

IPC encourages those submitting negative votes to include substantiation so the developing committee can resolve the issues.

IPC will record and consider all negative votes accompanied by any comments that are related to the proposal under consideration, as well as negative votes accompanied by comments concerning potential conflict or duplication of an existing standard, or comments of a procedural nature.

Negative votes unaccompanied by such comments will be recorded as “negative without comments” without further notice to the voter. Such votes (i.e., negative vote without comment or negative vote accompanied by comments not related to the proposal) shall not be factored into the numerical requirements for consensus. IPC will not solicit any comments from the negative voter nor conduct a recirculation of the negative vote.

All negative votes require a response from IPC staff with the decisions made by the committee and documented in the resolution of comments.

A balloter who wishes to change their negative vote to affirmative must do so in writing. IPC must receive written confirmation that the voter agrees to the vote change.

The committee will be notified of any maintained negative votes including the reason for their concern and where to submit appeals.

5.5.4 Comments – Editorial and Substantive

Comments that are editorial in nature may be incorporated without recirculation of ballot.

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

- “Shall” to ”should” or “should” to “shall”;
- Addition, deletion or revision of requirements, regardless of the number of changes;
- Addition of mandatory compliance with referenced standards

A submitter may withdraw or modify a comment or may agree to hold for the next revision.

If it is determined that the resolution of a comment would require a substantive change to the document, the substantive change must be recirculated to the consensus ballot group for reballot.

5.5.5 Ballot recirculation due to substantive changes

A recirculation of a document to the consensus ballot group is required whenever there is a substantive change, regardless of the number of changes. Recirculations of a ballot may be for a shorter circulation period as determined by the amount of substantive changes, but no less than 10 days. **Only the substantive changes are subject to the reballot.**

Consensus ballot group members are given the option to reaffirm or change their vote. If a consensus ballot group member votes during the Proposed Standard for Ballot circulation but fails to vote during subsequent recirculations, their vote from the previous circulation will be carried over and included in the tally for the next circulation(s).

6 IPC Appeals Procedure

Persons who have directly and materially affected interests and who have been or will be adversely affected by any substantive or procedural action or inaction by IPC with regard to the development of a proposed IPC standard or revision, reaffirmation, or withdrawal of an existing IPC standard, have the right to appeal.

Appeals must be submitted in writing and directed to the IPC vice president of standards and technology. There will be an informal attempt to resolve an appeal before proceeding to a hearing. A response to the appeal will be made within 30 days from the date the appeal was submitted.

6.1.1 Significant Nature of Problem

Where possible, every effort will be made to process a conflict or a problem through the IPC Technical Committee comment resolution process. All appeals must be submitted to the IPC vice president of standards and technology, who will establish an IPC Appeals Committee.

6.1.2 Function of IPC Appeals Committee

The IPC Appeals Committee will provide an opportunity for open discussion via written (i.e., a draft proposal from the appellant) and oral arguments by any parties involved in the appeal.

The appellate review and development of a specific recommendation shall not exceed 60 days following the date the appeal was submitted to the IPC vice president of standards and technology.

6.1.2.1 Request for Candidates

IPC staff will contact the TAEC and Board of Directors to explain the problem and request recommendations for individuals to serve on the IPC Appeals Committee.

All recommended names of candidates to serve on the IPC Appeals Committee shall be reviewed and the following action taken:

- IPC staff, in cooperation with the appropriate committee chair(s), TAEC chair, and IPC vice president of standards and technology, shall develop a list of proposed candidates.
- IPC staff will contact the individual or representative from a company who has made the appeal to review the proposed list of candidates. The appellant, IPC staff, and IPC vice president of

standards and technology will resolve any objection by the appellant to a specific individual serving on the IPC Appeals Committee.

6.1.2.2 Appointment of Appeals Committee

Following the review for candidates, an IPC Appeals Committee will be appointed by the IPC Vice president of standards and technology consisting of a minimum of three individuals. The total number of individuals to serve on any given IPC Appeals Committee will be determined by the nature of the problem. In cases where a conflict is between two or more IPC committees, appropriate representatives from each committee will be included on the IPC Appeals Committee. In cases where the objection comes from an individual, to maximize open discussion, the appellant may be invited to participate in the IPC Appeals Committee. This decision will be exercised at the discretion of the IPC Appeals Committee.

6.1.2.3 Appeals Decisions

Appeals decisions will be issued in writing to the appellant.

7 American National Standards Institute (ANSI)

The IPC standardization procedures are written in accordance with the current version of ANSI Essential Requirements. IPC shall be in compliance with their requirements for due process.

A copy of the ANSI ER is available at http://www.ansi.org/essentialrequirements/

If a decision is made to initiate a project to develop a new ANS or revise an existing one, the IPC ANSI staff liaison will complete and submit an ANSI PINS form to ANSI. The decision is generally made by the committee at the Final Draft for Industry Review stage, but may occur at any time during the development stage.

8 Joint Standards with other Standards Developing Organizations (SDOs)

IPC will engage with other standards development organizations (SDOs). The purpose of the engagement will be to remove redundancy of standards. The collaborative effort will be documented through an MOU (Memo of Understanding) with other SDOs. As part of the MOU, requirements for the following will be specified:

a) Balloting procedure
b) Patents procedure
c) Distribution rights
d) Future revisions policy
e) Selection of chairperson
f) Meetings and legal requirements
g) Lead organization, if ANSI protocol is required

9 IPC STANDARDIZATION POLICY STATEMENTS

9.1 Document Interpretation

The following procedure shall be used when an “Official IPC Interpretation” of a standard is requested:

1. Liaison will request the enquirer to submit the request in writing via e-mail, fax, or paper format.
2. The request shall identify the subject content within the document to be reviewed, the current understanding by the requestor and supporting information regarding the request.
3. The IPC liaison will contact the committee chairman to render an opinion regarding the interpretation of the standard. If committee chairman is not available for comment, the IPC liaison will circulate to a group of subject matter experts for that standard, collate the responses and provide the requestor with an “Official IPC Interpretation” for the request.
4. “Official IPC Interpretation” will be kept on file for a period of 5 years.

9.2 IPC Standards Records Retention Policy

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

If IPC wishes to withdraw approval of one or more of its standards, it may do so without a vote of the relevant consensus ballot group. Records relating to withdrawn standards shall be maintained for at least five years from the date of withdrawal.

9.3 Metric Policy

The TAEC has stated that 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.

9.4 Patent Policy

IPC’s Patent Policy shall be in compliance with the current version of the ANSI Patent Policy. See Appendix A for additional information.

9.5 Antitrust Statement

IPC standards shall be developed in accordance with applicable antitrust and competition 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.

9.6 Commercial Terms and Conditions Policy

IPC's Commercial Terms and Conditions policy shall be in compliance with the current version of the ANSI Commercial Terms and Conditions Policy. See Appendix B for additional information.

Annex A

ANSI Patent Policy

The ANSI patent policy is specified in clause 3.1 of ANSI *Essential Requirements,* which is current as of the date of this document and is being provided below for your reference. Please note that the ANSI patent policy is subject to revision. A copy of ANSI *Essential Requirements* is available from ANSI at www.ansi.org.

3.1 ANSI patent policy - Inclusion of Patents in American National Standards
There is no objection in principle to drafting an American National Standard (ANS) in terms that include the use of an essential patent claim (one whose use would be required for compliance with that standard) if it is considered that technical reasons justify this approach.

If an ANSI-Accredited Standards Developer (ASD) receives a notice that a proposed ANS or an approved ANS_may require the use of such a patent claim, the procedures in this clause shall be followed.

3.1.1 Statement from patent holder

The ASD shall receive from the patent holder or a party authorized to make assurances on its behalf, in written or electronic form, either:

a) assurance in the form of a general disclaimer to the effect that such party does not hold and does not currently intend holding any essential patent claim(s); or
b) assurance that a license to such essential patent claim(s) will be made available to applicants desiring to utilize the license for the purpose of implementing the standard either:
   i) under reasonable terms and conditions that are demonstrably free of any unfair discrimination; or
   ii) without compensation and under reasonable terms and conditions that are demonstrably free of any unfair discrimination.

Such assurance shall indicate that the patent holder (or third party authorized to make assurances on its behalf) will include in any documents transferring ownership of patents subject to the assurance, provisions sufficient to ensure that the commitments in the assurance are binding on the transferee, and that the transferee will similarly include appropriate provisions in the event of future transfers with the goal of binding each successor-in-interest.

The assurance shall also indicate that it is intended to be binding on successors-in-interest regardless of whether such provisions are included in the relevant transfer documents.

3.1.2 Record of statement
A record of the patent holder's statement shall be retained in the files of both the ASD and ANSI.

3.1.3 Notice
When the ASD receives from a patent holder the assurance set forth in 3.1.1.b above, the standard shall include a note substantially as follows:

NOTE – The user's attention is called to the possibility that compliance with this standard may require use of an invention covered by patent rights.

By publication of this standard, no position is taken with respect to the validity of any such claim(s) or of any patent rights in connection therewith. If a patent holder has filed a statement of willingness to grant a license under these rights on reasonable and nondiscriminatory terms and conditions to applicants desiring to obtain such a license, then details may be obtained from the standards developer.

3.1.4 Responsibility for identifying patents
Neither the ASD nor ANSI is responsible for identifying patents for which a license may be required by an American National Standard or for conducting inquiries into the legal validity or scope of those patents that are brought to their attention.

Annex B

ANSI Commercial Terms and Conditions Policy

The ANSI Commercial Terms and Conditions Policy is specified in clause 3.2 of ANSI *Essential Requirements* which is current as of the date of this document and is being provided for your reference. Please note that the ANSI commercial terms and conditions policy is subject to revision. A copy of the most recent ANSI *Essential Requirements* is available from ANSI at www.ansi.org.

3.2 Commercial terms and conditions

Provisions involving business relations between buyer and seller such as guarantees, warranties, and other commercial terms and conditions shall not be included in an American National Standard. The appearance that a standard endorses any particular products, services or companies must be avoided. Therefore, it generally is not acceptable to include manufacturer lists, service provider lists, or similar material in the text of a standard or in an annex (or the equivalent). Where a sole source exists for essential equipment, materials or services necessary to comply with or to determine compliance with the standard, it is permissible to supply the name and address of the source in a footnote or informative annex as long as the words “or the equivalent” are added to the reference. In connection with standards that relate to the determination of whether products or services conform to one or more standards, the process or criteria for determining conformity can be standardized as long as the description of the process or criteria is limited to technical and engineering concerns and does not include what would otherwise be a commercial term.