

Policies and Procedures of the Interval Arithmetic Working Group

1. Preface

In today's technological environment, standards play a critical role in product development and market competitiveness. Responsibility for how a standard evolves begins in the working group. Every input, behavior, and action has both a contributory and a potential legal consequence. These procedures help protect working group participants and the IEEE by establishing the necessary framework for a sound standardization process.

2. Amendments to these procedures

These operating procedures outline the orderly transaction of business by the working group. The working group may amend these procedures with the approval of its Sponsor. The Sponsor may amend these procedures. Amending in this context means that material in these procedures may be modified as long as that clause is not indicated as one that cannot be changed. It is strongly recommended that all subjects included in these procedures be addressed by the working group or Sponsor. (See also clause 10.)

3. Hierarchy

The latest version of several documents takes precedence over these procedures in the following order:

New York State Not-For-Profit Corporation Law

IEEE Certificate of Incorporation

IEEE Constitution

IEEE Bylaws

IEEE Policies

IEEE Board of Directors Resolutions

IEEE Standards Association Operations Manual

IEEE-SA Board of Governors Resolutions

IEEE-SA Standards Board Bylaws

IEEE-SA Standards Board Operations Manual

IEEE-SA Standards Board Resolutions

Policies/Procedures of the *IEEE Computer Society*

Policies/Procedures of the *IEEE Computer Society Standards Activities Board*

Policies/Procedures of the *Microprocessor Standards Committee*

Robert's Rules of Order (Revised) is the recommended guide on questions of parliamentary procedure not addressed in these procedures.

4. Fundamental Principles of Operation

For the development of standards, openness and due process must apply, which means that any person with a direct and material interest who meets the requirements of these procedures has a right to participate by:

- a) Attending working group meetings
- b) Becoming a member of the working group
- c) Becoming an officer of the working group
- d) Expressing a position and its basis,
- e) Having that position considered, and
- f) Appealing if adversely affected.

Due process allows for equity and fair play. In addition to openness, due process requires balance, i.e., the standards development process should have a balance of interests and should not be dominated by any single interest category. IEEE due process also requires a consensus of those parties interested in the project. Consensus is defined as at least a majority agreement, but not necessarily unanimity.

5. Legal Accountability

The working group shall

- a) Abide by all intellectual property policies of the IEEE, including those for patents, trademarks, and copyright
- b) Conduct a call for patents at the start of each meeting
- c) Avoid discussions that could result in an antitrust action.

If health, safety and/or environmental issues are raised in the standards document developed by the working group, the Chair will inform IEEE Standards staff to ensure that the appropriate review of these clauses is fulfilled.

Working group participants should consider the IEEE Code of Ethics when taking action.

5.1 Copyright release

All participants in IEEE Standards working groups are required to sign and submit the Copyright License prior to active participation and/or voting in any working group meeting. Without this, the Chair shall not recognize, and restrict where known, participation by that person in working group activities.

5.2 Indemnification

IEEE Bylaw I-300.3 discusses the IEEE rules for indemnification. Participants must complete and submit a Project Registration Form to be recognized as a duly authorized participant in IEEE standards development activities.

6. Working Group Responsibilities

The working group shall

- a) Complete the project from Project Authorization Request (PAR) approval to IEEE-SA Standards Board approval within the allotted time (48 months, with a possibility for an extension)
- b) Provide a rationale for the development of the standard, explaining the needs for the standard and what the standard will fulfill for industry and the general public
- c) Submit to the Sponsor any documentation required by the Sponsor.
- d) Schedule at least one in-person meeting per year and at least one electronic meeting per year, with more scheduled as appropriate. (Development and editing of the standard is planned to be primarily through electronic collaboration tools.)
- e) Use the IEEE Standards document template format
- f) Notify the Sponsor of the draft development milestones
- g) Notify the Sponsor when the draft is ready to begin IEEE Standards Sponsor ballot

7. Officers

There shall be a Chair, a Secretary, two Vice-Chair alternates, a Vote Tabulator, one or more Technical Editors, an Archivist, and a Webmaster. A treasurer is not anticipated to be needed. The Chair and Vice-Chair alternates shall be IEEE members of any grade.

At the first organizational meeting, the working group shall nominate and elect its operating officers in accordance with the procedures of its Sponsor. The officers so elected will be ratified by a 2/3 majority of those on the stds-1788@listserv.ieee.org mailing list that have registered for the working group with IEEE. For anonymity with respect to the candidates for Chair, Secretary, Vice Chair, Technical Editor, Archivist, and Webmaster, these votes will be addressed to and tabulated by the Vote Tabulator.

7.1 Election of Officers

The Chair shall, as necessary, appoint a new Vote Tabulator, whose function is as above. The Vote Tabulator shall not be a nominee in the election and shall not vote in the election. An election will seek to fill offices that are either vacant or have an official in temporary appointment.

The working group members shall nominate to the Vote Tabulator one or more members for each office to be filled at the election. The response period for nominations shall be at

least 21 calendar days. If no nomination is received for an office, a temporary appointment shall be made in accordance with 7.2.

The Vote Tabulator shall conduct the election by electronic ballot (email or web interface). Voting will conclude after exactly 28 calendar days. Voting shall be by “approval”, whereby each balloter may cast one approval vote for each of any number of nominees for an office. The nominee with the greatest number of approval votes shall win the election, provided ballots are returned by a majority of the eligible voters for that election. Any tie votes will be broken by a runoff ballot, where eligible voters may cast only one vote in the election.

If there is only one nominee or volunteer for a position, that volunteer will become the official office holder upon approval of a 2/3 majority of those on the stds-1788@listserv.ieee.org mailing list who have registered for the working group with IEEE.

The Sponsor shall confirm the election of the Chair and Vice-Chair.

7.2 Temporary Appointments to Vacancies

If an office becomes vacant due to resignation, removal, lack of nomination at an election or for another reason, a temporary appointment shall be made for a period of up to six months. In the case of Chair or Vice-Chair, the Sponsor shall make the temporary appointment, with input from the working group. In the case of Secretary, the Chair shall make the temporary appointment. An appointment or election for the vacated office shall be conducted at the earliest practical time.

7.3 Removal of officers

An officer may be removed by approval of two-thirds of the members of the working group. Removal of the Chair and Vice-Chair requires confirmation by the Sponsor. Grounds for removal shall be included in any motion to remove an officer of the working group. The officer suggested for removal shall be given an opportunity to make a rebuttal prior to the vote on the motion for removal.

7.4 Responsibilities of Working Group Officers

7.4.1 Chair

The Chair shall

- a) Conduct a “Call for Patents” at each meeting by displaying the IEEE-SA required presentation
- b) Solicit “letters of assurance” from potential essential patent holders
- c) Ensure coordination with other IEEE Standards Sponsors as appropriate
- d) Regularly attend working group meetings (including face-to-face, teleconference, or other electronic means)

- e) Notify Sponsor when document is ready for balloting
- f) Ensure completion of ballot resolution
- g) Participate as needed in meetings of the Sponsor to represent the working group
- h) Ensure that new participants are aware of the policies and procedures
- i) Fulfill any financial reporting requirements of the IEEE

The Chair also shall

- j) Be objective
- k) Entertain motions, and suggest motions be made as necessary to make reasonable progress towards completion of the document.
- l) Not bias discussions
- m) Delegate necessary functions
- n) Ensure that all parties have the opportunity to express their views
- o) Set goals and deadlines
- p) Be knowledgeable in IEEE standards processes and parliamentary procedures and ensure that the processes and procedures are followed
- q) Be familiar with training materials available through IEEE Standards Development Online
- r) Seek consensus of the working group as a means of resolving all issues
- s) Recuse him- or herself to speak for or against an agenda item
- t) Vote only where that vote will change the outcome of a motion
- u) Monitor balance within the working group, solicit additional membership should such membership be required to maintain balance, and discuss issues of balance with the Sponsor, should the need arise

7.4.2 Vice-Chair

The Vice-Chair shall

- a) Carry out the Chair's duties if the Chair is temporarily unable to do so or chooses to recuse himself or herself (i.e., to give a technical opinion)
- b) Be familiar with training materials available through IEEE Standards Development Online

7.4.3 Secretary

The Secretary shall

- a) Distribute agendas at least 14 calendar days before a meeting
- b) Record and have published minutes of each meeting within 60 calendar days of the end of the meeting
- c) Create and maintain the participant roster
- d) Record participant attendance at each meeting
- e) Schedule meetings in coordination with the Chair with at least 21 calendar days notice
- f) Be responsible for the management and distribution of working group documentation
- g) Maintain lists of unresolved issues, action items, and assignments

- h) Be familiar with training material available through IEEE Standards Development Online
- i) Share the Vote Tabulator's responsibility, when the Vote Tabulator cannot fulfill it or when impartiality so dictates.

7.4.4 Treasurer

If needed, a Treasurer shall

- a) Maintain a budget
- b) Control all funds into and out of the working group's bank account and report to the Sponsor if such funds are audited
- c) Follow IEEE policies concerning standards meetings and finances
- d) Be familiar with training material available through IEEE Standards Development Online
- e) Be familiar with the *IEEE Financial Operations Manual*

Note: Need for a treasurer is not foreseen in the 1788 working group.

8. Working Group

8.1 Overview

Working group membership is by individual. Participants shall pay any required fees, if established, and shall fulfill the requirements to gain and maintain membership in the working group.

The members and participants within a working group should have an affected interest in the project scope.

8.2 Working group membership status

Voting membership shall be granted automatically to those participants on the official roster provided they fulfill the requirements of clauses 4 and 5. The official roster consists of those who have officially registered with the "Working Group for Interval Arithmetic" through the IEEE "MyProject" web interface.

Each member is expected to remain informed of working group business, either through attending meetings or through electronic means, and to participate in votes. The Secretary (or Vote Tabulator, as appropriate) records who votes. Those who fail to vote on two consecutive issues will be dropped from the roster. These persons can have their voting privileges reinstated by again officially placing themselves on the roster.

Upon a motion by the Chair or acting Chair, a person may be permanently dropped from the roster, provided $\frac{3}{4}$ of the members vote in favor of doing so. That person may be reinstated by a vote of $\frac{1}{2}$ of the members.

8.3 Subgroups of the Working Group

The working group may, from time to time, form subgroups for the conduct of its business. Only working group members appointed to the subgroup shall vote on questions within such subgroups. Such formation shall be explicitly noted in an official record, such as meeting minutes. At the time of formation, the working group shall determine the scope and duties delegated to the subgroup. Any changes to its scope and duties will require the approval of the working group. Any resolution of a subgroup shall be subject to confirmation by the working group.

The Chair of the working group shall appoint the Chair of the subgroup.

9. Working Group Member Roster

A working group member roster is a vital aspect of standards development. It serves as a record of members in the working group and is an initial tool if an issue of indemnification arises during the process of standards development. The Secretary shall maintain a current and accurate roster of members in the working group and shall distribute it to the members upon request. All changes to the roster shall be forwarded to the Chair immediately. The roster shall include the following at a minimum:

- a) Title of the Sponsor and its designation
- b) Title of the working group and its designation
- c) Officers--Chair, Vice-Chair, Secretary, Treasurer
- d) Members (including names and email addresses at a minimum)

All working group members are required to sign off against the roster at each face-to-face meeting they attend, ensuring they are maintaining current membership, expressing their awareness of IEEE Standards policies, and verifying the accuracy of their membership listing. If a working group meets only virtually, it shall determine a schedule to check the roster accuracy periodically.

A copy of the working group member roster shall be supplied to the IEEE Standards Department at least annually by the Secretary and will be made available upon request.

10. Voting

10.1 Action Requiring Approval by a Majority of the Working Group Membership

Approval of an action requires an approval vote from a majority of those votes cast from those entitled to vote at the time of a vote (either at a meeting or by letter or electronic ballot), provided a quorum is present. Notification of the potential for action shall be included on any distributed agendas for meetings.

These actions include

- a) Adoption of working group procedures or revisions thereof
- b) Formation of a subgroup, including its procedures, scope, and duties
- c) Disbandment of subgroups
- d) Approval of minutes
- e) Approval of position papers according to subclauses 10.5 and 11.2.

See 10.5 and 11 for additional actions requiring majority approval.

10.2 Actions Requiring Approval by Two-Thirds of the Working Group Membership

The following actions require an electronic ballot or an equivalent formal recorded vote with approval by at least two-thirds of the members of the working group, (provided that notification of the action has been included on the distributed agenda for the meeting):

- a) Approval of change of the working group scope
- b) Approval of termination of the working group (subject to approval by the Sponsor)
- c) Establishment of whether fees will be charged
- d) Approval to move the draft standards project to the Sponsor for IEEE Standards Sponsor ballot
- e) Changes to the standing document according to subclauses 10.6 and 11.1.

These actions are subject to confirmation by the Sponsor.

10.3 Voting between meetings

The working group shall be allowed to conduct business between meetings at the discretion of the Chair by use of a letter or electronic ballot. If such actions are to be taken, they shall follow the rules of IEEE Bylaw I-300.4(4).

10.4 Quorum

A working group quorum must be identified before the initiation of working group business. Unless otherwise approved by the Sponsor, a quorum shall be defined as a simple majority of the members of the working group. If a quorum is not present, actions may be taken subsequent to confirmation by a letter or electronic ballot, as detailed in 10.3.

A quorum shall consist of half of the official members, where the official members are those who have officially registered with IEEE via the “MyProject” web interface, to the “Working Group for Interval Arithmetic,” and who have not been removed through the mechanisms specified in 8.2.

There is a separate “in-person” or “electronic meeting” quorum, which will consist of all of the members present at the in-person or electronic meeting. See clause 11 for those motions that can be passed via an in-person or electronic meeting quorum.

10.5 Agreed Positions of the Working group

Wording of the actual standards document is generally guided by overall positions explained by documents in the archive. (See subclause 13.1.) For example, the position arguing that infinity should not be considered to be an actual element of an interval (or the negation of that position) should be argued in a document to be placed in the archive. Before deciding upon actual wording related to such positions, the position itself should be decided. This is done by a motion to adopt the position in the archive document, followed by a second. The position is then adopted by a majority vote of a quorum through email ballot or web interface ballot, according to subclause 11.2. The title of a motion to approve a position put forward in such a document, the mover and seconder, the count of the ballot, the dates of the motion and recording the ballot result, and a reference to that document, shall be recorded in the minutes .

10.6 Changes to the standing document

An outline of the standard shall be kept available to all (e.g. by web access). Individual paragraphs of the standard shall be approved in sequence as follows: (a) a motion to approve is tendered; (b) the motion is seconded; (c) the motion is put to a vote according to the rules in this clause and clause 11. Such motions may be made and seconded at in-person meetings, electronic meetings, or via other electronic means (e.g. email or wiki), but voting must be done to include all officially registered members. (Normally this will mean that voting is through the email procedure.) The standing document shall be clearly marked to indicate which sections have been approved according to this procedure and which sections are up for a vote. For those sections up for a vote, the deadline for submitting the vote should be clearly marked in the standing document.

Previously nonexistent paragraphs and sentences may be added to the document by a motion and a second. These are then subject to discussion. The typical procedure for this will be:

1. Text is produced (e.g. by a working group) and sent to one of the Technical Editors to check for consistency.
2. After the check and possible modification, it is made available over the stds-1788@listserv.ieee.org and the web site as a motion from the originating person and seconded by the technical editor.
3. The text is then added to the standing document, marked as “under discussion.”
4. The text is moved forward to “under vote” status either by a motion to move it forward to a vote and a second, or by expiration of the three-week discussion period described in clause 11. When this is done, this paragraph in the standing document is marked “under vote,” and the deadline for submitting is clearly marked.

5. If the originator(s) of the text feel the technical editor is not impartially forwarding the proffered text, a motion for direct inclusion, followed by a second, may be made. Such motions are subject to approval according to the majority vote rule in this clause.
6. Final approval of paragraphs and clauses of the standard is according to a 2/3 vote described in clause 11.1 of this document.

Any “no” votes on portions of the document shall be accompanied by proposed changes that would cause the “no”-voting party to vote “yes.” These changes become a motion to amend the paragraph or clause, and require a second. Such changes are then approved or rejected according to the above procedure.

The Secretary shall record all motions, seconds, and vote results, whether at an in-person meeting, electronic meeting, or email or wiki submission, in a separate “minutes” standing document to be made available along with the standing document representing the draft of the standard.

All votes in 10.5 may be public, unless the originator explicitly requests the services of the Vote Tabulator. In the case of public votes, the Secretary may record the vote totals and motions for amendment directly in the standing minutes document, and a Technical Editor may also record the change of status and amendments in the standing document for the standard.

11. Meetings

In-person working group meetings shall be held, as decided by the working group, the Chair, or by petition of 15% or more of the members, to conduct business, such as making assignments, receiving reports of work, considering draft standards, and considering views and objections from any source. At least one in-person meeting per year and at least one electronic meeting per year shall be called.

An in-person working group meeting shall be announced no later than 3 months in advance to all participants, while a formal electronic meeting shall be announced no later than one month in advance. An agenda shall be distributed at least 14 calendar days in advance of a meeting.

It is planned to solicit sponsorship of in-person working group meetings, to avoid requiring a meeting fee. However, should a fee be required, the fee shall not be used to restrict participation by any interested parties.

11.1 Ratification of the Actual Standards Text

Additions and changes to the actual text of the standard as described in 10.6, be they made at in-person meetings or at official electronic meetings, shall be ratified by a quorum through email ballot or web interface ballot. Such ratifications shall require approval by the 2/3 rule. Persons voting against wording of a clause or paragraph of the standards document shall propose alternate wording, which automatically becomes a motion to amend.

11.2 Other Decisions of the Working Group

Other motions providing direction for the standards document may be passed by a 50% quorum of an in-person meeting, electronic meeting, or email or wiki vote.

The order for email or web interface business is as follows:

1. A motion is made according to 10.5 and this clause.
2. Three weeks are allowed for discussion.
3. If modifications are made, another three weeks are allowed.
4. A three week period is allowed for a vote, or until a quorum is obtained, whichever comes first. (The Vote Tabulator, or Secretary if acting as Vote Tabulator, will solicit votes from additional members, as necessary, only after the three week period, to obtain a quorum.)
5. The Vote Tabulator or Secretary will announce the result electronically.

More than one item may be considered simultaneously with the above process, provided there are no objections and the items are non-conflicting and independent. Otherwise, Robert's Rules shall apply. For instance, voting will cease if an amendment is proposed and seconded, and voting on the amended item will begin anew.

The Secretary (or alternate appointed by the Secretary) shall take minutes of all in-person and electronic meetings. These minutes shall then be made public (over the P1788 email list and web site) for approval by email (or web interface). A 50% quorum of all working group members is required for approval of the minutes.

11.3 Conduct

It is expected that participants in the working group behave in a professional manner at all times. Participants shall demonstrate respect and courtesy towards officers and each other, while allowing participants a fair and equal opportunity to contribute to the meeting, in accordance with the IEEE Code of Ethics.

12. Appeals

The working group recognizes the right of appeal. If technical or procedural appeals are referred back to the working group, every effort should be made to ensure that impartial handling of complaints regarding any action or inaction on the part of the committee is performed in an identifiable manner.

If the working group must conduct an appeal, it shall model its appeals process based on the appeals processes of the IEEE-SA Standards Board.

13. Communications

13.1 Document Archive of the Working Group

In addition to documents stipulated in subclause 10.5, supporting papers and documents may be submitted any time without formal approval. However, such supporting documents (and also documents stipulated in subclause 10.5) must be clearly marked as such, and should be categorized according to which clauses or paragraphs of the standing document they support. The archivist and webmaster shall catalogue these documents according to an unambiguous numbering scheme (to allow easy referencing in discussion), and shall make them publicly available over the P1788 web site.

13.2 Informal Communications

Inquiries relating to the working group should be directed to the Chair and recorded by the Secretary. All replies to such inquiries shall be made through the Chair. These informal communications shall not imply that they are a formal position of the working group, the Sponsor, or of the IEEE Standards Association.