



National Marine Electronics Association's

**Standards Development
POLICIES AND PROCEDURES**

2021

**Accreditation by the
American National Standards
Institute (ANSI)**



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1 General

The NMEA, which stands for National Marine Electronics Association, is committed to enhancing the technology and safety of marine electronics through installer training and interface standards. NMEA members promote professionalism within the marine electronics industry. NMEA is a 60-year-old membership driven association. The association began with marine electronic dealers collaborating to trade information, technical installation techniques and to discuss new and innovative technical products. Now, NMEA has over 600 members worldwide comprised of diverse stakeholders directly and indirectly involved in marine electronics. This diverse group includes marine electronic dealers/retailers, marine industry distributors, manufacturers, boat builders, trade, government entities and associates of the marine electronics industry.

The Policies and Procedures for the NMEA Standards Development Programs (SDP) of the National Marine Electronics Association are based on the model and procedures provided by the American National Standards Institute, (ANSI). The objectives of these procedures are to facilitate the production of technically sound standards in a method consistent with the ANSI essential requirements.

Written procedures shall govern the standard development process and shall be available to any interested person and will be in compliance with the normative policies and procedures established by the ANSI Executive Standards Council.

This manual is maintained by the NMEA Director of Standards. Corrections and suggestions are welcomed and should be addressed to the NMEA Director of Standards, 846 Ritchie Highway, Suite L4., Severna Park, MD 21146 or via email to info@nmea.org.

1.1 NMEA Mission

The National Marine Electronics Association is the unifying force behind the entire marine electronics industry worldwide, bringing together all aspects of the industry for the manufacture and operational safety of electronic devices for the boating public both recreationally and commercially with the creation, production and distribution of international communication standards and installation standards. NMEA furthers enhances the industry with educational programming for the trade and opportunities for the boating public.

1.2 NMEA Standards Development Program (SDP)

The NMEA SDP and its Committees develop voluntary industry standards recommending technical installation practices, communication protocols of marine electronic devices and educational materials which ultimately provide a high level of safety to the boating consumer in the recreational and commercial markets, worldwide. NMEA Standards are designed to establish a minimum level of quality for marine electronic devices on vessels. The International Marine Electronics Alliance (IMEA) may assist NMEA in standards development.

1.2.1 Standards Development Program Structure

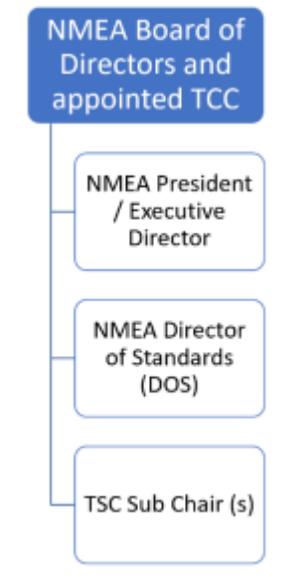
The NMEA Board of Directors governs the NMEA Standards Development Program. The Technical Committee Chair (TCC) is a NMEA board member who recommends to the board specific actions by the NMEA Standards Committees. The TCC appoints Sub C for the respective NMEA standards committees and brings this recommendation to the NMEA Board of Directors for approval.

The NMEA President & Executive Director shall oversee the NMEA Director of Standards, who is the NMEA staff member in charge of ensuring that all procedures are followed within this SOP.

Each respective NMEA Standards committee has their respective Sub Chair, who reports monthly to the Technical Committee Chair (TCC). The various NMEA Technical Standards Committees (TSCs) are as follows:

- NMEA 0400 Installation Standard
- NMEA OneNet
- NMEA 2000
- NMEA 0183

The hierarchy tree for the NMEA Standards Development Program is as follows:



1.2.2 Standards Development Program Committee's Responsibility

The highest priority for this Committee's work shall be for the safety of the boating public, recreationally and commercially. Its primary responsibility is developing standards, disseminating information, education and other services, to its members and the marine industry. The NMEA Board of Directors shall oversee all NMEA Technical Standards Committees (TSC) that create the standards by striving for consensus and by collaborating with other scientific, professional and technical organizations which may or may not be limited to other marine industry groups concerned with marine electronics.

The Committees nor the Programs nor NMEA have any regulatory authority nor will inspect vessels, nor have any liability for the installation or operation of marine electronics on vessels or the safe passage of said vessels.

1.3 Definitions

- a. **Academia** – A separate educational institution is defined as an entity that has a controlling board like a school board, or board of regents
- b. **Association** – The formal organization of people or companies for a common purpose or understanding i.e. National Marine Electronics Association
- c. **Balance** – is defined as a development process that shall have a balance of interests. Participants from diverse interest categories shall be sought with the objective of achieving balance. The interest categories may be defined as all of the affected parties within the marine electronics industry. No single interest category constitutes of more than 1/2 of the membership of the consensus body. Once balance is achieved geographic consideration may be considered.
- d. **Consensus** – is defined as substantial agreement which has been reached by the directly and materially affected interests. This signifies the concurrence of more than a simple majority, but not necessarily unanimity. Consensus requires that all views and objections be considered, and that an effort be made toward their resolution.
- e. **Consensus Body** – consists of persons responding to the call to participate (voting) in the approval process to a proposed American National Standard. The Technical Standard Committee (TSC) members is the group that votes on all proposed American National Standard related actions and all other materially affected interests that are requested.
- f. **Consultant** – is defined as an organization whose principal source of revenue is derived from providing services of expertise in a particular subject matter for other organizations.
- g. **Director of Standards (DOS)** – is an employee of the NMEA President & Executive Director responsible for overseeing all Technical Standards

Committees ensuring the policies and procedures of the organization are met. The DOS and their employees finalize all drafts before publishing of a standard.

- h. **Dominance** – is defined as a position or exercise of dominant authority, leadership, or influence by reason of superior leverage, strength, or representation to the exclusion of fair and equitable consideration of other viewpoints.
- i. **Lack of dominance** – means the standards development process (consensus body) shall not be dominated by any single interest category, individual or organization.
- j. **Member** – is defined as an organization or the individual representative of said organization who has an expertise that has joined the standards programs and may contribute to the standards development.
- k. **Openness** – means that participation in the standards development shall be open to all persons who are directly and materially affected by the proposed standard. There shall be no undue financial barriers to participation.
- l. **Organization** – is defined as a separate corporation or other type of business concern that is defined as a separate entity and brand and how they are recognized in the marketplace.
- m. **Resolved** – is defined as a negative vote cast by a member of the consensus body or a comment submitted as a result of public review where the negative voter agrees to change his/her vote or the negative commenter accepts the proposed resolution of his/her comment
- n. **Standard** – NMEA Standards are created for the safe operation and safe communication of electronic devices on vessels of all types which have been developed in accordance with these written procedures and in accordance with the *ANSI Essential Requirements*.
- o. **Sub Chair** – is a person recommended by the Technical Committee Chair (TCC) who is responsible for facilitating technical standards committee meetings and reporting the committee's findings to the board. There may be two sub chairs on the same committee. All sub chairs must be approved by the NMEA Board of Directors on an annual basis. In the spirit of rotation, no single person shall sub chair a NMEA Technical Standards Committee for more than 36 months.
- p. **Substantive Change** – is defined as a change that directly and materially affects the use of the publication. Examples of substantive changes are: “Shall” to “should” or “should” to “shall”; a major addition or deletion to the standard whether technical or editorial.
- q. **Subject Matter Expert (SME)** – is a person who clearly possesses an expertise that will definitely add a superior level of knowledge to a particular

issue. The SME may or may not be a member of NMEA or of a Technical Standards Committee.

- r. **Technical Committee Chair (TCC)** – is a member of the NMEA Board of Directors who oversees all committee volunteers. The Technical Committee Chair approves all sub chairs to their respective committees and takes specific recommendations to the NMEA Board of Directors for voting if necessary. The Technical Committee Chair has the authority to appoint or remove a sub chair as deemed necessary.
- s. **Technical Standards Committee (TSC)** – shall be comprised of volunteers of the respective subject matter experts and to those who are either directly or indirectly materially affected by the standards activities. Members shall have a strong working knowledge of the subject matter or standard that the committee is tasked with.
- t. **Uncooperative at Meetings** – is defined as negative behavior during a meeting where the behavior is interruptive to the meeting whereas the meeting does not continue on its regular course of business and time and resources are consumed. The Director of Standards or sub chair of the meeting may ask the person to leave the meeting. If a participant is asked to leave three times, then that may to grounds for membership termination. (See Section 5.3)
- u. **Unresolved** – is defined as either a negative vote submitted by a consensus body member or written comments submitted by a person during the public review expressing disagreement with some or all of the proposed standard, that have not been satisfied and/or withdrawn after having been addressed according to NMEA’s approved procedures.

2 Rationale

There is no other marine electronics centric organization that provides standards and education for the Marine Electronics Industry. Marine electronic dealers, manufacturers, boat builders, government and other stakeholders worldwide utilize the NMEA Standards as their reference for marine electronics, whether it is for communication protocols, installation or education in order to try to achieve harmonization in the worldwide market.

NMEA Installation Standards provide the marine industry a common technical methodology for the safe installation and operation of marine electronics.

NMEA 0183, NMEA 2000, and NMEA OneNet are the communication protocol interfaces that are used in marine electronic devices worldwide. These provide a common interface so devices on vessels have a universal language to communicate. NMEA utilizes these standards for educational purposes to the marine industry at large.

In the future, NMEA will be developing other standards whether installation or communication as new technologies emerge in the marketplace.

3 Operating Procedures

The Policies and Procedures for the NMEA Standards Development Program by the National Marine Electronics Association is consistent with procedural requirements specified in the *ANSI Essential Requirements*.

3.1 ANSI Notification of New Project

All new projects for proposed ANSs, must be initiated by submitting the *ANSI Project Initiation Notification System (PINS) Form*. ANSI will provide notice to the public via *ANSI Standards Action* when an ANS is contemplated. The PINS 30-day announcement period provides the opportunity to claim conflict or duplication with an existing American National Standard in accordance with *ANSI Essential Requirements* Section 2.5. Any comments received in response to the PINS announcement will be addressed in accordance with the *ANSI Essential Requirements* Section 2.5. There is also a formal 45-day public review period if the made available through electronic means, if not the review period is 60 days. Each commenter will be given prompt consideration. Each objector will be given notice as in accordance with *ANSI Essential Requirements* Section 2.6.

3.2 Balance and Lack of Dominance

All appropriate interests that may be directly and materially affected by the SDP activity of NMEA shall have the opportunity for fair and equitable participation without dominance by any single interest category, individual or organization. Interest categories appropriate to the development of consensus in any given standards activity are functions of the nature of the standards being developed. The standards development process shall strive to have a balance of interests that no single interest category may constitute more than half of the membership of a committee of an interest category in a respective Technical Standards Committee. Participants from diverse interest categories should be sought with the objective of achieving balance in a respective TSC. Once balance is achieved geographic consideration may be considered. In defining the interest categories appropriate to a respective standards activity, consideration should be given to the following:

- Marine Electronics Dealers/Distributors – Those who are predominantly involved with the selling, installing and troubleshooting marine electronics. This category may include service technicians, and distributors and retailers.
- Marine Electronics Manufacturer – Those who are predominantly involved with the manufacture of marine electronic products and systems
- Boat Builders and Others – Those who are predominantly involved with the construction of boats. This category may typically include boat

manufacturers, boatyards, boat dealers, marine architects, engineers, electricians, marine surveyors etc.

- Government – This category typically may include government agencies that may have an interest in maritime activities, specifically safety and design operation of marine electronics
- General Interest – This category may include trade, academia, technical editors, scientific institutions, experts and other marine trade associations

4 Organization

4.1 General

The NMEA Standards Development Program (SDP) is directed by the NMEA Director of Standards or some other person (title) as designated by the NMEA Board of Directors. The results of this work may take the form of standards, specifications, practices, bulletins, and collaboration with NMEA Education Committee and other standard developers worldwide. NMEA shall utilize these policies, procedures and practices as outlined in this document for the development of American National Standards. The Standards Development Program Committee shall abide the By-Laws of NMEA.

4.2 NMEA Standards Committee

4.2.1 Membership

Committee members are comprised of volunteers. Committee members shall follow the rules established in the NMEA By-Laws and the policies and procedures in this document. Committee structures shall adhere to the following:

- Committee shall strive for balance.
- Committee members may be but are not required to be members of the NMEA.
- The Committee Sub Chair could be a member of the NMEA Board of Directors.

4.2.2 Responsibilities

The Standards Committee oversees activities of the Standard Development Program and its Technical Standards Committees (TSCs). All NMEA Standards Committees operate under the authority of the NMEA Board of Directors through the NMEA President & Executive Director

4.2.2.1 Report to the Board of Directors

The Committee reports the activities of the respective Standards Committee and to assure compliance to these procedures and the *ANSI Essential Requirements*.

4.2.2.2 Establishment and/or Termination of Technical Standard Committees

This committee will make final recommendations to the Board of Directors to establish or terminate a TSC.

4.3 Technical Standard Committees (TSC)

4.3.1 General

TSCs are established by the NMEA Standards Committee. Each TSC is the consensus body within the NMEA Standards Committee and structure for the purposes of creating, publishing, and maintaining Standards within the ANSI requirements.

4.3.2 Membership

TSCs shall be comprised of volunteers of the respective subject matter experts and to those who are either directly or indirectly materially affected by the standards activities. Members shall have a strong working knowledge of the subject matter or standard that the committee is tasked with. Purchase of the standard is not required but strongly recommended. The Director of Standards or the Sub Chair may choose a SME to participate or may limit the participation of the general public based on the lack of knowledge or other criteria as in Section 5.3 of this document. Participation is not limited to members of the NMEA. Participation is on a volunteer basis. Balance in the membership as defined in these policies and procedures shall be sought. The President or the Director of Standards may appoint a Sub Chair for the respective Technical Standard Committee. The appointee may be approved by the NMEA President if it is not the NMEA Director of Standards. Each TSC may appoint a secretary who may take meeting minutes or maintain the master text while the standard is being developed. This may also be the Director of Standards.

4.3.3 Responsibilities

- Develop, maintain and publish standards within their respective scope which would be established by the NMEA Standards Committee and approved by the Board of Directors.
- Recommend to the Standards Committee for approval of standards that shall be submitted to ANSI for ANSI approval.
- Contribute to and be a liaison to recognized domestic and international organizations that may be involved in ancillary standard development

- Review and approve NMEA standards content that is proposed during Liaison participation

4.3.4 Standing Committees

4.3.4.1 General

A Standing Committee may be an ongoing Committee within a TSC. The Standing Committee shall be established by the Director of Standards or some other designee appointed by the President or by the NMEA Board of Directors. All procedures within the Standing Committee must be consistent with the procedures of this policy and procedures. The Standing Committee is comprised of subject matter experts and may be but is not required to be a member of NMEA. The Director of Standards is a member of this Committee. A leader will be appointed by the Director of Standards for each Standing Committee. The Standing Committee may enlist the services of a SME outside of the committee and NMEA but the consultant will not be allowed to vote. Standing Committee members will be volunteers.

4.3.4.2 Responsibilities

Standing Committees may be responsible for creating operational procedures and reviewing technical or policy and procedural work of an ongoing basis within a respective standard. A Standing Committee may be a permanent committee of a TSC. The Standing Committee may also be called upon to assist with a technical or procedural detail interpretation of a standard. A Working Group may present their technical tasks to the Standing Committee for review and or approval. If the Working Group is presenting technical tasks for approval, the Standing committee must follow the rules for voting as outlined Sections 6.3. of this document.

4.4 Working Groups

4.4.1 General

A Working Group may be established by the Director of Standards or Sub Chair as deemed necessary. All procedures within the Working Group shall be consistent with the procedures of this policy and procedure. The Working Group may be comprised of subject matter experts and may be but is not required to be a member of NMEA. The Working Group may enlist the services of a SME outside of the committee and NMEA but the consultant will not be allowed to vote. A leader may be appointed by the Director of Standards or the Technical Committee Sub Chair. Strong working knowledge of the subject matter or standard and the ability to positively contribute is required.

4.4.2 Responsibilities

A Working Group, in general, may be temporary group of SMEs to focus on a specific technical project within the standard. They are responsible for performing the detailed technical work in a specific area defined by the Director of Standards or the Sub Chair. They may recommend actions to the TSC. If there is a need to go to the Standing Committee, then all procedures must be followed.

4.5 Director of Standards (DOS)

NMEA may employ a Director of Standards or some other designee (title). The DOS shall report directly to the Executive Director/President of NMEA. The DOS shall be responsible for all Standard Development Programs and its activities. The Director of Standards directs the day-to-day functions of the Technical Department including but not limited to the Standard Development Program and the Technical Standards Committee and maintains all standing documents, and performs any other duties required by the NMEA Executive Director/President. The Director of Standards may appoint a Chair to a TSC.

5 Membership

5.1 General

A member may be a member of a Standards Committee, Standing Committee, TSC or Working Group. The member must have a strong working knowledge of the respective standard to participate on a TSC. Purchase of the respective standard is not required but recommended. The Director of Standards or NMEA Standards Committee determines that a member possess the technical knowledge to contribute without purchasing the standard. A TSC or Working Group member may not necessarily be a member of NMEA.

5.2 Criteria

Membership in the NMEA Standards Development Program is open to all directly and materially affected interests who have the knowledge base to participate actively and to contribute to the standards development. Application for membership shall be submitted Director of Standards and shall specify the reasons for interest, the type of membership desired. The Director of Standards will make the decision for membership to a TSC.

5.3 Termination of Membership

Membership may be terminated for the following reasons:

- Failure to attend meetings

- Uncooperative at meetings (See Section 1.3 (t))
- Non-collaborative attitude
- Stealing the standard for own commercial company profit
- Failure to return voting ballots for more than 4 consecutive voting ballots
- Resignation, which should be in writing to the Director of Standards. Membership may be reinstated by the Director of Standards

6 Operations

6.1 Meetings

6.1.1 Meeting Notice

Notice of the meeting, including date, time and location should be distributed to the appropriate email reflector at **least four weeks** before the meeting. (Note: An all-electronic meeting, in the future, may be acceptable; the “location” may be the teleconference or other electronic means). The Executive Director/President of the NMEA shall be notified via e-mail. Each TSC shall meet **at least once** a year. Other meetings are at the discretion of the Director of Standards, Sub Chair or leader of Standing Committee or Working Group. Each TSC may schedule its meetings for one year ahead. Meeting notices of the meeting will be made publicly.

6.1.2 Agenda

A draft agenda should be prepared **at least four weeks prior** to the meeting for review by members of the TSC. Information notes and action items should be included which would be helpful in consideration of agenda items. Any member of the TSC may add to the agenda **two weeks** before for the meeting.

6.1.3 Document Distribution

The Director of Standards or the TSC Sub Chair should distribute the final agenda to the appropriate email reflector **at least two weeks** before the meeting. The agenda and documents and working items may be uploaded to a secure website for that TSC. Documents created by a member for consideration for the meeting should be distributed to the appropriate email reflector **at least two weeks** before the meeting. Documents distributed later than that may be considered by the TSC only if the DOS or TSC Sub Chair approves the discussion.

6.1.4 Quorum

A quorum for each TSC will be determined by the Director of Standards. Each TSC may have its own quorum based on the number of participants in the specific TSC. If a quorum is not present, no final action may be taken in a meeting, but material for

voting action by the full TSC may be formulated and issued. A quorum is defined by ½ of the number of members of the respective TSC.

6.1.5 Remote Participation

Remote participation via teleconference, videoconference and any other new medium is permitted with the permission of the DOS. Voting members participating remotely may cast meeting votes in the same way as voting members physically present.

6.1.6 Parliamentary Procedure

Unless otherwise stated in these procedures, meetings should be conducted in accordance with Robert's Rules of Order.

6.1.7 Minutes

Minutes to the meetings shall be the property of NMEA and shall not be distributed outside of the respective TSC e-mail reflector list unless other requested to the DOS or Sub Chair. The DOS or Sub Chair (with written consent of DOS) may or may not distribute the minutes to others at their discretion.

The DOS, the TSC Sub Chair or designee is responsible for the preparation of the minutes to the meetings. At a minimum the minutes shall include the following:

- The time and place of the meeting
- A list of voting members present, and others (guests, subject matter experts) present
- Reflect all of the agenda items and other matters discussed
- Actions taken with appropriate reasons
- A record of voting if appropriate.
- A specific "Action Item List" will be generated

6.1.7.1 Distribution of the Minutes

Minutes should be distributed to the appropriate TSC email reflector or notification of the draft minutes being uploaded to a website **no later than 3 weeks** after the meeting. Members will have **3 weeks** to review the minutes for comments. If there are no comments, final minutes will be uploaded to the website and notification will be distributed **no later than 2 weeks** after the comment time. If there are comments, comments will be noted and a revised draft of the minutes will be circulated once again with the same time scales.

6.1.8 Non-Member Attendance at Meetings

Individuals who do not represent members of the standards program may attend NMEA standards meetings with the permission of the DOS or Sub Chair. The DOS or Sub Chair may, but is not required to, allow non-members to speak.

In general, members of the press are not allowed to attend meetings unless specifically invited by the DOS or Sub Chair. The DOS or Sub Chair shall notify the attendees that the press is present, and has the latitude to exclude press (and any other attendees who are not members) if he/she believes that to be in the best interest of the program. DOS and/or the Sub Chair shall request the press member to submit any articles for review of facts prior to publication.

6.1.9 Meeting Behavior Expectation

All members at a meeting shall behave in the following manner:

- All communication will be professional and respectful
- The DOS or Sub Chair will engage the members for differences of opinions, members shall listen and be respectful to the differences. A “I don’t like it” response is not acceptable. A response should include a new technical solution or alternative.
- All meeting communication and correspondence to the “public” is the responsibility of NMEA.
- No member should speak to the press or communicate negatively about the meetings outside of the meeting itself.

6.2 Development of Standards

6.2.1 General

The NMEA standards development process consists of six major phases; project initiation, project authorization, standards development, approvals, voting, appeals (if required), submission as an American National standard (if desired), and publication. All standards will have a complete revision history as part of the standard.

6.2.2 Project Initiation (including withdrawal of an existing standard)

Projects may be initiated by the submission of a project proposal from any directly and materially interested party inside or outside of the NMEA Standards Development Program. A project proposal shall be submitted to the Director of Standards and shall contain the following information:

- A title for the project which is expected to be the title of the finished standard.
- A statement of the scope of the expected work.

- An explanation of the need for the project.
- Identification of the stakeholders (e.g., operators, equipment vendors, consumers) likely to be directly impacted by the standard.
- Any supporting materials required.

6.2.3 Task Force Initiation

The DOS can initiate a task force work group as a response to industries immediate need. The task force under the direct supervision of the DOS will follow the standards development process. Volunteers are selected by the DOS according to their ability to contribute to the discussion. Any proposals generated from a task force are fast track to the approval process with a minimum of one TSC comment period achieved.

6.2.4 Project Authorization

The Director of Standards shall ask the NMEA Board of Directors for authorization of the development of a new standard. The DOS shall send all of the appropriate material to the NMEA Board of Directors. Work on the new standard shall not proceed until approval by the NMEA Board of Directors.

6.2.5 Standards Development Project Types

6.2.5.1 New and Revised Standards

The development of a new standard or a revision of a standard must have approval of the DOS and the NMEA Standards Committee and following the procedures in this document as well as the *ANSI Essential Requirements*

6.2.5.2 Specification Available to the Public (SAP)

Modifications or revisions to an existing standard that introduce technical or other substantive changes will be available as a SAP. A substantive change is one that directly and materially affects the use of the standard such as changing "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. Specification Available to the Public (SAP) are published as separate documents, without re-publication of the original standard. This SAP shall follow the policies and procedures of this document. All SAPs shall follow the voting rules in this document.

This does not need to have NMEA Standards Committee approval. A SAP may be approved for voting by the DOS or TSC Sub Chair. SAPs are interim documents between revisions of an American National Standard. SAP documents will not be submitted separately for approval as American National Standards, but will be incorporated into the American National Standard when the next revision is developed for publication.

6.2.5.3 Appendix Changes

If an Appendix or Appendices directly or materially affect the interests, a new Edition of the standard will be generated and the procedures in this document will be followed including but limited to notification, communication of the proposed change, comments taken and comments replied to and voting along with the other processes as recorded in this document. The Appendix change will be noted and the public will be notified in accordance with these procedures. If the Appendix change is just an editorial change or an informative change (i.e., editorial change to an ISO document), the standard as a whole may not need to be republished.

6.2.5.4 Reaffirmations

Confirmation to an existing standard should be retained without change for no more than five years. Reaffirmations shall follow the policies and procedures of this document. Reaffirmation shall follow the voting rules in this document. Reaffirmation must have the approval of the NMEA Standards Committee. Standards must be revised, reaffirmed or withdrawn **no later than the 5th anniversary** of their approval of the respective TSC. Standards may be revised earlier. An appendix to a standard may be revised without the re-publication of the entire standard.

6.2.5.5 Withdrawals

Withdrawals shall follow the policies and procedures of this document. Withdrawal must have the approval of the NMEA Standards Committee.

6.2.5.6 Interpretations

An interpretation is a clarifying comment on a standard that does not introduce a technical change or a change in what it means to conform to the standard. Interpretations are only issued in response to a specific request, which may come from inside or outside of the NMEA standards process. These may or may not be sent to the TSC if interpretation may materially affect the Standard. The Director of Standards or Sub Chair of the TSC will make the determination if the interpretation needs to go to the NMEA TCC. An interpretation will be posted to the respective TSC web folder and a notice will be emailed to the TSC.

6.2.5.7 Editorial Changes/Errata/Technical Corrigendum

These changes to a standard of an editorial nature do not introduce any normative change. Editorial changes can be handled by the Director of Standards without formal approval. This includes minor changes to wording or drawings that do not materially affect the technical utilization or understanding of the standard. These editorial changes will be noted and have a specific numbering system and dated so they can be published into the next version of the standard. All editorial changes will be posted on the website and the parties that are directly or materially affected shall be notified. The editorial change will be noted in the revision cycle of the respective standard. If

the DOS makes a determination that an editorial change will materially affect the technical utilization or the understanding of the standard, the DOS may go to the By-Laws Standing Committee for guidance. The change may become a SAP.

6.3 Approval Process

6.3.1 General

NMEA Standard Development Program is meant to be a consensus process; that is, when substantial agreement is reached. Substantial agreement is defined as more than a simple majority, but not necessarily unanimity. Consensus requires that all views and objections be considered, and a solid effort be made toward their resolution. This section defines the process. Changes to a standard are determined based upon the voting process, the changes to the standard will be documented via electronic means and will be re-circulated within a reasonable time on the website and a notice will be sent to the e-mail reflector list. A new version of the document will be annotated and members will be given the opportunity to change their votes.

6.3.1.1 The Absent Stakeholder

A group not directly involved in the stakeholder meetings. However, the group is materially affected by the results of the committee's decisions. The DOS determines who the Absent Stakeholder Group consists of during the upcoming vote.

6.3.2 Comments

Before standards are distributed for voting, technical and/or editorial comments shall be asked of the respective TSC for any substantial changes in a standard. If comments are necessary, a comment sheet will be generated and a notice to the e-mail list be sent that a comment sheet is available on the website. All technical comments will be considered. Only comments that include an alternative solution will be considered. A good faith effort shall be made to resolve all expressed objections. Each comment will be responded to. The Director of Standards shall establish a resolution process; this may be an existing group, a group established for this purpose, or any other mechanism that the DOS selects. Comments may be reviewed at a TSC meeting or via another electronic medium.

Records of the resolution's responses will be recorded and shall be provided to the commenter and will be made available to the TSC.

Each unresolved objection and attempt at resolution, and any substantive change made in a proposed standard shall be reported to the consensus body in order to afford all members of the consensus body an opportunity to respond, reaffirm, or change their vote.

Each commenter will receive a copy of the response or comment sheets no later than 60 days prior to voting.

6.3.2.1 Comment Distribution

Comment sheets shall be distributed to the TSC e-mail list or website. Comment sheets should be distributed **for no less than 60 days prior** to a TSC meeting. Return comments will be accepted from e-mail date or posted on the website. The DOS may extend the time for comments, but will be **no longer than 90** days from date of original distribution. Comments received after the ballot closes need not be considered; such comments will, however, be retained for consideration in the next normal cycle for that standard.

6.4 Voting

All votes shall be of one of the following.

- **Affirmative.** On ballots, the vote may be accompanied by comments suggesting corrections or improvements.
- **Negative.** On ballots, the vote should be accompanied by specific reasons for the vote, in sufficient detail so that the wording provided, if incorporated, would cause the voter to change the vote to affirmative. Negative votes on letter ballots without reasons shall be counted, but no attempt at resolving the negative is required.
- **Abstain.** Abstentions may be cast because of conflict of interest, lack of expertise, insufficient time for review, or other reasons. A reason should be given for abstaining.
- **Absent Stakeholder voting:** NMEA Staff can vote on behalf of an absent stakeholder. The Absent stakeholder does not need to attend meetings. The DOS may distribute a survey to the absent stakeholder group for voting purposes.

6.4.1 Types of votes

6.4.1.1 Meeting votes

Votes may be taken at meetings if a quorum is present. If voting is to take place at a meeting, the Sub Chair or DOS will notify members at the time of the meeting notice as per Section 6.1.1 of this document. Each voting member present, including voting members present remotely, shall have one vote. Voting members who are unable to participate in a meeting may submit votes by physical or electronic means as long as the vote is received by the DOS or Sub Chair prior to the beginning of the meeting. The method of counting votes is at the discretion of the Sub Chair (voice, show of hands, etc.).

6.4.1.2 Electronic ballots

Electronic ballot periods shall be for a **period no more than 90 days** from the issuance of the ballot and all accompanying materials. The DOS or TSC Committee Sub Chair

may extend this period at their discretion. The results of the ballot shall be reported as soon as possible on completion of the letter ballot action and again after any reconsideration **no later than 4 weeks** after the ballots have been received. During the ballot period, all voting shall be a matter of confidence between the DOS and the TSC Sub Chair.

6.4.1.3 Definition of Voting Criteria

6.4.1.3.1 Majority vote

A majority is defined as approval by more than half of those voting, excluding abstentions.

6.4.1.3.2 Two-thirds vote

Two-thirds is defined as approval where a majority of the voting membership voted, including abstentions, AND at least 67% of those voting, excluding abstentions, voted to approve

6.4.2 Working Group Approvals

From time to time, a Working Group may need to vote in a meeting or other medium such as teleconference or web meeting. Approval shall be by majority vote when a technical resolution may be required that was previously tasked by the DOS or Sub Chair. The purpose of voting shall be on substantial issues that will materially affect the standard. Voting may be by voice, show of hands or electronic communication.

6.4.3 Standing Committee Approvals

Standing Committee may vote on the following questions in a meeting; approval is by **two thirds vote**. Voting may be by voice, show of hands or electronic communication

- Technical interpretation of the standard or a rule within the standard that materially effects the standard
- Technical issue from a working group before addressing the TSC
- Termination of an existing project
- Technical issue or procedural question from the Director of Standards or TSC Sub Chair

6.4.4 Technical Standards Committee Approvals

The TSC Committee shall vote on the following questions:

- All approvals forwarded from Working Groups that are technical in nature and will be added to the standard which will directly and materially affect the utilization of the standard

- Major new versions or editions of the standards
- Appendix changes in editions of a standard
- TSC Committee votes may be meeting votes or electronic ballots and require a two-thirds approval from the e-mail reflector list
- From time to time, the DOS or TSC Sub Chair may ask for votes at meetings to move topics forward. The DOS or Sub Chair will ask at their discretion.

6.5 Appeals Process

6.5.1 General

Persons who have directly and materially affected interests and who believe that they have been or will be adversely affected by a standard approved by the NMEA TSC shall have the right to appeal. The appellant shall file a written complaint with the NMEA Director of Standards **no less than thirty (30) days** after the date of publication. All actions and inactions of the NMEA TSC regarding the documentation of consensus on American National Standards will be addressed in accordance with this policy. Appeals must be based on procedural error; **the technical content of a standard cannot be appealed. If the appellant believes that the technical issue was not given due process, the appellant may state that in their appeal notice.**

6.5.2 Procedures

The complaint shall state the nature of the objection(s) as thoroughly as possible, including any adverse effects, the clause(s) of these procedures, actions or inactions that are at issue, and the specific remedial action(s) that would satisfy the appellant's concerns. Previous efforts to resolve the objection(s) and the outcome of each shall be recorded.

Within thirty (30) calendar days after receipt of the complaint, the NMEA Director of Standards will respond in writing to the appellant, specifically addressing each allegation with facts.

6.5.3 Appeals Panel

The appellant and the NMEA Director of Standards are unable to resolve the written complaint informally in a manner consistent with these procedures within **fifteen (15) calendar days**, the NMEA Director of Standards shall schedule a hearing with an appeals panel on a date and in a place agreeable to all parties.

The appeals panel shall consist of three (3) individuals who have not been directly involved in the matter in dispute. The panel members shall be a member of the By-Laws Committee of the TSC and 2 members of the NMEA Standards Committee. At least two panel members shall be acceptable to the appellant. One shall be selected by the appellant and one by the NMEA Director of Standards. In the event that the appellant

does not wish to select a panelist or a third panelist cannot be agreed on, the NMEA Director of Standards shall appoint these individuals to the panel in order to hold a hearing.

6.5.4 Resolution

The appellant has the burden of demonstrating adverse effects or improper actions or inaction and if that burden is met, The NMEA Director of Standards or TSC Sub Chair has the burden of demonstrating that all actions were in compliance with these procedures and that the requested remedial action would be ineffective or detrimental. The appeals panel shall render its decision in writing within thirty (30) calendar days, stating finding of fact and conclusions. The Standards Committee shall take action based on this decision as it deems appropriate.

6.6 Submission to ANSI for Approval as an American National Standard

6.6.1 General

When standards are to be submitted to ANSI for approval as American National Standards (ANS), all ANSI procedures shall be followed. These include at least the following:

- Copies of all unresolved objections shall be included in the submission
- Written notice of the right to appeal shall be provided to any objector whose comments cannot be resolved by NMEA
- Requests for extensions when approaching the fifth anniversary of ANSI approval shall be provided based on the requirement.

Note:

It should be noted that all standards submitted to ANSI shall undergo a public review consistent with ANSI procedures. If comments are received, those who voted on the original action will be given the opportunity to reconsider their vote and those who did not vote will be given the opportunity to cast a vote. The comment resolution process described in this document shall be followed for all public comments. Each commenter will receive a copy of their response within a reasonable time, and in the case of substantive changes the standards shall be re-listed with ANSI for public comment following successful re-balloting.

6.6.2 Commercial Terms and Conditions

NMEA fully intends to comply with ANSI's commercial terms and conditions policy as in Section 3.2 of the ANSI Essential Requirements.

7 Policy Statements

7.1 The Use of Normative and Informative References

NMEA standards may include normative and informative references to other documents which are reasonably available to the public.

7.2 Metric

Units of the International System of Units (SI), the modernized metric system, are the preferred units of measurement in American National Standards. NMEA standards shall use SI where that use is consistent with the technology being standardized and in the best interest of the members. NMEA Standards shall strive to incorporate the use of these units.

7.3 Records Retention

Records shall be prepared and maintained to provide evidence of compliance with these procedures for a minimum of 5 years or one complete standards cycle, whichever is longer. Records concerning new, revised or reaffirmed standards shall be retained perpetually or until the Standards Committee determines otherwise but no less than the five-year minimum. Records concerning withdrawn standards shall be archived perpetually or until the Standards Committee determines otherwise but no less than the five-year minimum. Each revision or Patent declarations shall be maintained and /or archived for the life of the standard or the patent, whichever is longer. A revision history shall be maintained and documented in each standard. All related records should be maintained in accordance with ANSI's requirements.

7.4 External Distribution of Documents

Published NMEA standards documents must be purchased are the intellectual property of NMEA and are protected by international copyright laws and its licensing agreements and may not be redistributed without the written permission of the Director of Standards or the President of NMEA.

7.5 Intellectual Property

If NMEA is to submit a standard for approval as an American National Standard ("ANS"), such ANS will comply with the latest version of the ANSI Patent Policy found in Section 3.1 of the ANSI Essential Requirements.

For all other standards, the Intellectual Property policy set forth in this Section 7.5 of the NMEA Standards Development Policies and Procedures will be followed.

7.5.1 Patents

To facilitate the development, adoption, and implementation of its standards, National Marine Electronics Association (“NMEA”) has adopted this Intellectual Property Policy (“IP Policy”).

7.5.1.1 Application

This IP Policy applies to all persons who participate in NMEA standards development.

7.5.1.2 Definitions

The following defined terms are used in this IP Policy.

- a. **“Affiliate”** means any entity that, directly or indirectly, owns, is owned by, or is under common ownership with, the member, as indicated by ownership of more than 50% of the shares, stock or other equity interests entitled to vote for the election of directors or an equivalent governing body of the relevant entity.
- b. **“Contribution”** means any work of authorship (including without limitation suggestions, written materials, software and documentation), provided to NMEA for potential or actual inclusion in a draft or final NMEA Standard, whether provided orally or in electronic or written form.
- c. **“Contributor”** means any entity or individual that makes a Contribution to an NMEA Standard, whether or not the Contributor is an NMEA Member or is otherwise a participant in NMEA standards development.
- d. **“Essential Patent Claim”** means any Patent Claim the practice of which was necessary to implement either a mandatory or optional portion of a normative clause of the NMEA Standard when, at the time of the NMEA Standard’s approval by the NMEA Board of Directors, there was no commercially and technically feasible non-infringing alternative implementation method for such mandatory or optional portion of the normative clause. A party asserting a patent against a product or process using a NMEA Standard shall bear the burden of proving that its asserted claims are not Essential Patent Claims.
- e. **“NMEA Standard”** means any standard that the NMEA Board of Directors approves as final for release and sale to the general public.
- f. **“Opt-Out Essential Patent Claims”** means Patent Claims for which an NMEA member has complied with procedures for excluding that Patent Claim from its licensing obligations under this Policy.
- g. **“Participant”** means any organization or other person that participates in any NMEA Standards Committee, Standing Committee, TSC or Working Group. A Participant may, but need not, be a member of NMEA.
- h. **“Patent Claim”** means one or more claims in issued patent(s) or pending patent application(s).

- i. **“Withdrawal Date”** means the date, as determined by the NMEA Board of Directors, as of which a Participant’s withdrawal from a NMEA standards project becomes effective.

7.5.1.3 Licensing Obligations for Essential Patent Claims

- a. **License Obligation as to Participants.** Each Participant in an NMEA standards project must make available to every willing implementer of a Standard a worldwide, non-exclusive, royalty-free license for its Essential Patent Claims for use in implementing all or any portion of the Standard. The license must be made available on reasonable and nondiscriminatory terms and must permit the licensee to make, have made, use, import, offer to sell, lease, sell, have sold, promote and otherwise distribute the portions of the implementer’s products and services that comply with the normative portions of the Standard.
- b. **License Obligation as to Non-Participants.** An implementer of a Standard who is not a Participant in a NMEA standards development project or otherwise bound under this IP Policy will be treated the same under Section 7.5.1.3(a) of this IP Policy if, but only if, the implementer commits to substantially the same licensing obligation as determined by the NMEA Board of Directors. If a non-Participant implementer has not made such a commitment, no Participant shall be obligated to license any such non-Participant under Section 4(a), but nothing in this Policy will prevent a Participant from licensing its Essential Patent Claims to a non-Participant on such terms as it chooses.
- c. **Scope of Obligation.** Each Participant’s obligation to make licenses available shall apply to all Essential Patent Claims that the Participant or its Affiliates at any time own or otherwise have the right (without additional consideration other than to employees or Affiliates) to license.
- d. **Assignees.** The obligation to make licenses available for Essential Patent Claims to all willing implementers is binding upon any and all assignees and transferees of any Essential Patent Claims. Each Participant must (1) promptly notify in writing its assignee or transferee of such obligation; and (2) require its assignee or transferee to agree to similarly provide such prompt, written notice to its assignees or transferees of this obligation. The obligation to license Essential Patent Claims in accordance with this IP Policy will bind all successors-in-interest whether or not notice has been given or other action has been taken.
- e. **Reciprocity; Defensive Suspension.** Nothing in this Policy will prevent a licensor from suspending a license made available under this Policy (or suspending the grant of such a license) if the licensee or its Affiliate initiates any litigation or seeks an exclusion order alleging that the licensor or its Affiliates are infringing an Essential Patent Claim for the same NMEA Standard. A license made available under this Policy may (but need not) require reciprocity from the licensee and its Affiliates for Essential Patent Claims on the same NMEA Standard.

- f. **Opt-Out; Review Period.** Each Participant may exercise an opt-out right for Patent Claims that may be Essential Patent Claims for an NMEA Standard developed after effective date of this IP Policy. The licensing obligations in Section 4(a) and 4(b) will not apply to such Opt-Out Patent Claims if the Participant has complied with this paragraph.
- (i) NMEA will use commercially reasonable efforts to provide notice and a substantially complete draft version of each NMEA Standard to all Participants in any NMEA SDP for review no less than thirty (30) days before formal approval of the NMEA Standard by the NMEA Board of Directors.
 - (ii) A Participant may exclude an identified Patent Claim from its licensing obligations under this policy by specifically identifying the claim and the portion of the relevant draft NMEA Standard on which the Patent Claim may read. The notice must be delivered in writing to NMEA no later than the end of the review period for that draft NMEA Standard.
 - (iii) The Participant should provide written notification promptly upon becoming aware that its Patent Claim may become an Essential Patent Claim for which the member is unwilling to make licenses available under this Policy (but must provide it no event later than the end of the review period).
 - (iv) A Participant cannot opt out of claims that read directly on Contributions made by the Participant or its employees.
 - (v) If a Participant provides an opt-out notification to NMEA, the NMEA Board, before approving the relevant draft NMEA Standard, will appoint a committee to evaluate the notification and make a recommendation to the NMEA Board, and the NMEA Board will decide on appropriate next steps. An NMEA Standard approved after receipt of one or more opt-out notifications will include a statement of this fact.
- g. **Non-Participant Patents.** Any Participant who is or becomes aware of a potential Essential Patent Claim held by a person who is not a Participant in the standards development project and is not otherwise bound under this IP Policy should provide written notification to NMEA promptly upon becoming aware of that Patent Claim. The notification should include the name of the patent holder. The NMEA Technical Director will attempt to determine whether the identified holder is already bound under this IP Policy and if not, then (b) ask the identified holder to agree to be bound by this IP Policy. If the identified holder does not agree, then the NMEA will inform the NMEA Board and the Sub Chair of the TSC.
- h. **Notice in NMEA Standard.** Every NMEA Standard must contain the following notice: “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 that statement may be obtained from NMEA. NMEA has no responsibility for determining the reasonableness²⁵ of any such terms or conditions.”

- i. **Effect of Withdrawal from NMEA Standards Development.** A former Participant remains obligated to make licenses available as required under Sections 4(a) and 4(b) after the Participant’s withdrawal from the project. This obligation applies to:
 - (i) Those claims that became Essential Patent Claims before the Withdrawal Date,
 - (ii) Claims directly embodied in a Contribution made by the former Participant or its representatives that become Essential Patent Claims even if the NMEA Standard that includes the Contribution is approved after the Withdrawal Date,
 - (iii) Essential Patent Claims that read on future versions of a NMEA Standard, limited to those portions of the future version where the use of the process or technology claimed in the Essential Patent Claim is substantially the same as in the NMEA Standard that was approved before the Withdrawal Date, and
 - (iv) Essential Patent Claims in any patent filed by the former Participant after the Withdrawal Date if such claims have a priority date that comes before the Withdrawal Date.

7.5.1.4 A record of any patent holder’s participation statement

A record of any patent holder’s participation statement, opt-out notification or statement of commitment or submitted under this IP Policy shall be retained in NMEA’s files and shall be made publicly available on NMEA’s website

7.5.2 Copyright

7.5.2.1 Assignment of Contributions

By making a Contribution, the Contributor irrevocably assigns to NMEA all of the Contributor’s right, title, and interest in and to the Contribution, including all copyright, moral and other intellectual property and proprietary rights in that Contribution. The Contributor must also sign and deliver to NMEA an Assignment in favor of NMEA with regard to its Contributions, but the assignment to NMEA is effective whether or not the Assignment is signed and delivered.

7.5.2.2 Collective Work

NMEA is the sole and exclusive owner of the copyright in any collective works, compilations, joint works or derivative works created in connection with NMEA activities and shall own the copyright in any works created by NMEA Affiliates, employees, officers, directors, contractors, advisors, agents, and other representatives.

7.5.2.3 Attribution; Moral Rights

Each Contributor, and each individual making a Contribution, waives any moral rights (or similar rights) for the Contribution to the maximum extent permitted under applicable law.

7.5.3 Trademarks

7.5.3.1 Member Trademarks and Non-Product Use of NMEA Trademark

NMEA may use the name and corporate logo (or similar mark) of members on the NMEA website and in connection with communications about NMEA membership, subject to commercially reasonable trademark use policies communicated in writing by the member to NMEA. NMEA members may use the NMEA name and membership logo solely to communicate their membership in NMEA, subject to trademark use policies as determined by the NMEA Board in its sole discretion.

7.5.3.2 Use of NMEA Trademarks for Products

The NMEA name and trademarks may not be used to communicate compliance or conformance with any NMEA Standard and may not otherwise be used in connection with any member product or service, except as permitted by an applicable written NMEA license agreement or NMEA Board-approved policy.

7.5.3.3 Termination of Rights

A party permitting another party's use of its trademark under this Policy can terminate the usage right if it reasonably believes that the party using its trademark is misusing that mark.

7.5.4 Miscellaneous

7.5.4.1 Time Period Covered

The obligations of a Participant or licensor under this IP Policy apply to the entire period of its participation, both before and after the effective date of this IP Policy.

7.5.4.2 Assent to Terms

Participation in NMEA standards development constitutes irrevocable agreement to the terms of this IP Policy. Any person that does not want to be bound by this IP Policy should discontinue or refrain from participation.

7.5.4.3 Amendments

The NMEA Board of Directors may amend this IP Policy at any time in its sole discretion. No amendment to this IP Policy will be effective until at least 30 calendar days from the date that written notice of the amendment is provided to Participants.

7.5.4.4 No Duty

Neither NMEA nor ANSI is responsible for identifying patents for which a license may be required for an implementation of an NMEA Standard. Neither NMEA nor ANSI is responsible for conducting inquiries into (a) the legal validity, essentiality, or scope of any patents that are brought to their attention or (b) or the reasonableness of any license terms or conditions.

7.5.4.5 Antitrust Policy

American National Standards shall be developed in accordance with applicable antitrust and competition laws and meetings amongst competitors to develop American National Standards are to be conducted in accordance with these laws.

8 References (Informative)

- *ANSI Essential Requirements* at <http://www.ansi.org>, the American National Standards Institute, Washington, DC.
- *Robert's Rules of Order Newly Revised (10th Edition)*, Perseus Book Group.