Organizational Processes and Procedures

Organization	Connectivity Standards Alliance
Title	Process and Procedures
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Document Owner	Governance Committee
Abstract	This document describes group, types, and processes common to all Working Groups within the organization.
Purpose	This document defines the process and operating procedures for the Alliance.
Notice	This document has been prepared to assist the Alliance. It is offered as a basis for discussion and is not binding on the contributing individual(s) or organization(s). The material in this document is subject to change in form and content after further study. The contributor(s) reserve(s) the right to add, amend or withdraw material contained herein.
Release	The contributor(s) acknowledge(s) and accept(s) that this contribution will be posted in the member area of the Zigbee web site.

Revision History

Revision	Changes	Date
7.0.3	Editorial (Formatting) updates	28 Oct. 2020
7.0.2	Incorporate more feedback from WG Chairs. Changes include: ● Removed author attribution in revision history ● Added historical revision history ● Editorial updates	22 Sept. 2020
7.0.1	Revisions based on feedback from WG Chairs Session. Changes include: ● Amended language to not limit CSG as a singleton in the WG ● Clarifying that a WG may have multiple TSGs, CSGs, MPSGs, each with a charter that defines the work area. ● Fixed the language requiring the requiring parent group to approve Secretary or VC ● Added a new section [12.1] with recommended election cycles to avoid the CHIP timing issues encountered this week ● Added Interest Group ● Clarified TT Lead assignment ● Added IPR to the acronym list ● Removed language for guest expert ● Grammatical fixes	27 Aug. 2020
7.0	Updated Technical Committee Processes and Procedures into general organizational processes and procedures, with the following major changes: ● Steering Committees formalized to act as Technical Committee for their Working Group ● Working Groups can have technical, marketing, and certification sub-groups ● Introduce a Governance Committee as steward for organizational processes and procedures ● Enhanced flexibility in language Technical PnPs to be suggestions such that WG Charters may override them ● NFR some milestone naming updates	11 June 2020
6.0	Technical Committee Processes and Procedures ● See prior revisions to document 13-0625 for more details	13 Nov 2019

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Organizational Processes and Procedures

1 Introduction - Scope & Purpose

This document describes the group structures, processes and procedures used by groups within the Alliance to develop, promote, and maintain standards. This includes, but is not limited to, technical development, marketing, testing and certification activities. Other deliverables include, but are not limited to, best practices, guidelines, tools, source code, test plans, scripts, and other material related to released standards.

This document is intended to be a companion document with the organizational structure and hierarchy to describe how teams work together within the Alliance structure. Please refer to the organizational structure alongside this document.

The document is organized as follows:

- Hierarchy of Rules
  - This document exists within a broader framework of rules. This section describes how this document fits within this broader context.
- Groups and Membership
  - Under criteria set out in this document various groups are formed from the Alliance membership for the purpose of drafting, managing, and marketing Alliance standards documents and support programs. This section defines the types of groups, how leadership is elected to drive the efforts and how decisions are made within them. Each named group within the organizational hierarchy in the companion document maps to a group type defined in this section.
- Standing Group Types
  - Groups have different lifetimes of use. Some groups last indefinitely to continue daily Alliance operation. This section describes these groups and their responsibilities.
- Group Lifecycle
  - Some groups have a finite lifetime to complete specific initiatives. This section describes their operation.
- Development Process
  - Groups must understand how they work together to deliver standards and features. This section describes the processes that these groups use to develop the standards, including checklists needed and approvals. To ensure the groups can move quickly yet ensure complexity of large efforts are taken into account, two development models are covered in this section.
- Voting and Balloting Rights and Processes
  - To gain approvals to move the development process to the next phase within the context of the defined groups, this section defines the voting process to

drive organizational alignment.

- Changes to Approved Specifications
  - Once a standard is developed, changes to the standard may be required due to, for example, errors in or omissions from the normative text. This section described the process to amend specifications based on these changes.
- Appeals Process
  - Members have the right to appeal decisions made by groups and the framework for that appeal process is defined.
- Elections
  - This section describes the election process of leadership roles.
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2 Hierarchy of Rules

This document is part of a hierarchy of rules for group members to guide standards development, and when conflicts exist, the higher document takes precedence:

1. Law of the Land where the alliance is incorporated
2. Corporate Documents: Corporate Charter, Bylaws, Membership Agreement, IPR Policy
3. Standardization Rules: Organizational Process & Procedures (this document), Certification Policy…
4. Group Charter: subject to parent group charter
5. Robert's Rules of Order

2.1 Terms, Acronyms, Abbreviations and Key Terms

The following acronyms and abbreviations are used in this document.

Acronym	Definition
AG	Advisory Group
Board	Board of Directors
CCB	Change Control board; a synonym for a change request
Corporate Documents	Corporate Charter, Bylaws, IPR Policy, Membership Agreement
IPR	Intellectual Property Rights
NFR	New Feature Request
MRD	Market Requirements Document
PICS	Protocol Implementation Conformance Statement
ScVE	Script Validation Event
SVE	Specification Validation Event
TT	Tiger Team
TRD	Technical Requirements Document
WG	Working Group as defined in the IPR Policy

The following are key terms used through this document:

Alliance: The organization called the Connectivity Standards Alliance

At-Large Member: A committee member that is elected by the members of the groups below the committee, and is not a member of a committee by virtue of being a chair of a group under the committee.

Errata: Errata is a well-defined set of changes to a document or specification. For a specification (per the IPR Policy), these are changes that are determined by the owning Working Group, to not require IPR review or a new release of the specification. Errata includes, but is not limited, to clarifications, adding details, fixing technical errors or editing mistakes, or fixing editorial errors, such as for formatting, organization, spelling or grammar in document text. Errata is not a new feature or a change that creates a new technical mechanism. It is expected that the errata will become part of a future release of the document or specification.

Working Group: This group is defined in the IPR Policy as a group of member companies with IPR obligations for adopted specifications. Within a Working Group are other groups defined in this document, which perform these processes & procedures within a Working Group.

Test Plan: A Test Plan is a document describing one or more Test Cases, each designed to implement part of a specification. A Test Case is a sequence of designed behaviors to be implemented usually in scripts, that are executed by a Test Harness. A Test Plan lists Test Cases to be implemented for one or more Test Harnesses to verify a device for Certification compliance.

3 Groups, Membership, and Charter

This section describes each major type of group: Committee, Balloting Group, Advisory Group, Tiger Team. Also described here are general rules for chartering a group.

Most of this document describes groups that operate within a Working Group as defined by the IPR Policy. When a group exists within a Working Group, all of its participating members and representatives shall be employees of a company that are members of the Working Group duly registered by the Alliance.

There are two main types of membership in a group. Committee members are individuals and vote as such (see Committee below). Other groups have members that are companies and vote as such.

Individual participants are able to attend all meetings (phone or online), be notified of upcoming meetings, send & receive group emails through a reflector, gain voting rights (if applicable) and run for electable positions within the group (if applicable).

A charter is the means, by which a group may define the scope, work, and operational rules for the group that is intended to drive towards a deliverable. The group, by omission in the charter,

uses rules already established in the Hierarchy of Rules. The group, with the parent group's approval, may define rules that are undefined, optional or recommended by documents above its charter level in the Hierarchy of Rules. If the charter does not change an established or recommended rule, then it is deemed included by default.

Each group shall have a charter which must include a statement of purpose, scope of work and such other items as determined by the forming group and potential members. Before formation of the group or if the charter is revised, a charter shall be approved by the parent group. Subsequent changes to the charter shall be approved by the parent group. A Standing Group charter requires approval by the Steering Committee for that Working Group.

The charter may define processes and procedures adopted by the applicable group. The charter shall align with the purpose of completing the parent group's charter, and not exceed the parent group's scope and work. The charter and group members must comply with the Hierarchy of Rules (see 1). Once a group is joined, individual participants may attend the meetings, and subscribe to group communications. It is incumbent on the member company representative to ensure their attendance is being properly recorded in the minutes.

A Standing Group is a group that exists as long as the charter is valid, there is work to be done, and there are enough members and participants to perform the work, and govern the group. Standing Groups follow the standard rules in this document for voting and voting rights. A committee is a Standing Group.

All major decisions, policy questions, and issues that go beyond the scope of the group will be raised to the parent group.

The most recent published version of Robert's Rules will be used as the protocol for the operation of meetings within the Hierarchy of Rules (see Section 2).

For in-person meetings, the Chair will publish a draft agenda to the group electronic mail list at least two (2) calendar days in advance of the meeting. For conference call meetings, the Chair will publish a draft agenda to the group electronic mail list at least one (1) day in advance of the meeting.

The Chair shall provide a reminder of the Alliance Policy Notices at the beginning of each meeting.

Standing Groups require published minutes. It is the Standing Group Secretary's responsibility to take and publish minutes for a group meeting. If no Secretary is available, the chair may designate other group members or the Vice Chair, to take minutes. The minutes for each group meeting shall include the Alliance Policy notice, attendance, agenda, main discussion points, action items, motions and voting results.

3.1 Committee

A committee is an oversight group. A committee member is an individual, not a company. Each committee member has a responsibility to vote in the best interest of the group for which it has oversight, and not vote only to further the interests of the member's company.

The chair of the committee only votes to break ties. It is recommended that the Vice Chair be chosen by the chair. The Vice Chair is only able to vote if the Chair is absent, unless the Vice Chair is already a voting member of the committee.

A committee usually includes the Chairs of the active standing groups below it. A committee may also have At-Large members as defined in the committee charter.

The Chair of a committee and the At-Large members are elected and serve terms as defined in the committee charter. If the Chair or an At-Large member resigns, or is removed from the committee, then a new election will be held to replace the member and complete the current term.

The committee charter shall define limits on membership from a single company. It is recommended a single member company cannot have more than 1 voting member in a committee.

At-Large members must attend 50% of committee meetings and 1 of the previous 2 all member meetings or they will be removed as At-Large members. The Chair can initiate a new election to replace the removed At-Large member.

All members of a committee shall require approval of the board. Further rules for particular committees are detailed in Section 3.

3.2 Balloting Group (BG)

A Balloting Group is composed of member company representatives that vote, comment, and approve deliverables including documents and specifications through the ballot process described in this document (Balloting). Company membership is gained and maintained through attendance as defined in this document (see Voting Rights).

The Balloting Group charter may define the minimum number of voting members for it to remain a standing group.

3.3 Tiger Team (TT)

Any group (except a TT) may form one or more TTs based on a particular scope and charter. A TT is not a Standing Group, and exists for a limited time as defined in its charter. The TT charter must include a specific scope of work, expected duration, reference to the appropriate documents detailing the requirements for the work, any impact on other groups, and requirements for interoperability and backward compatibility. Normally the deliverables from a TT are approved by the parent group that formed the TT. If there are any other groups that need to approve deliverables then the charter must also include what group(s) will ballot and/or approve deliverables of the TT.

A TT may be formed for a particular issue of narrow scope that does not fit within an existing group or spans multiple groups. If the timeline in the charter expires, the TT will require reapproval of the charter. The TT parent group should regularly review the scope and charter of

existing TT's and if they should continue the work.

Any decisions that cannot be resolved via general agreement shall be raised to and resolved in the parent group. TTs cannot conduct letter ballots on specifications. The TT cannot hold formal votes, but may conduct straw polls. The parent group can recommend, if attendance at that TT counts toward voting rights of the parent group. If a TT is elevated to a BG, or folded under an existing BG, the parent group shall consider the attendance of the members from the TT at the time the TT is changed.

3.4 Advisory Group (AG)

Standing Groups may also be formed for areas of particular expertise such as security or IEEE 802.15.4. These Standing Groups must still be based on a particular scope and charter. Advisory Groups do not develop or ballot specifications. These groups may meet based on the work required and may only provide recommendations to other groups.

3.5 Leadership Positions

When a group is first formed, the parent group appoints initial officer positions through election or parent group vote. It is recommended the elected Chair select a Vice Chair and Secretary for the group but these positions may be selected via election or parent group vote as well. If and when a Chair steps down, a new election shall be held by the group. The group charter defines the leadership term in office. It is recommended that Chairs of any Standing Committees will serve up to a two-year term.

The Vice-Chair is responsible for performing leadership duties in the absence of the Chair.

The Secretary is responsible for recording the minutes of all meetings and maintaining attendance and voting rights. It is acceptable for the Chair or Vice-Chair to also act as the Secretary.

A group may choose and approve one or more Technical Editors to manage the groups working documents.

Changes to the Secretary and Vice-Chair may be made by the Chair and should be communicated to the parent group or committee.

In the unlikely event that a Chair is not meeting his or her responsibilities, the parent group or board may vote to remove the Chair, install a new temporary Chair, and call for the election of a new Chair by the group. The removal of a Chair shall be strictly limited to situations in which the Chair is neglecting his or her duties (ie. conflict of interest, unethical behavior or behavior unbecoming of the office), not responding to requests, and/or not calling nor attending meetings. A Chair shall not be removed for political reasons or matters of disagreements regarding policy. Removal of a Chair is seen as a serious action and should be taken only in extreme circumstances after other actions have failed to remedy the situation. Any complaints against a Chair can be reported to the Chair of the parent Group or the Chair of the Alliance. If there are complaints against a Chair outside the normal conduct of the group and reflecting conflict of interest or other

concerns these should be investigated by the Alliance staff privately in a timely manner and reported to the Chair of the Alliance for a recommendation.

TTs do not generally follow the Chair election process since they are not Standing Groups. Lead(s) are typically appointed by the Chair of the parent group to drive the delivery of the Charter with outcomes provided back to the parent group for decision making.

4 Standing Group Types

This section defines particular types of Standing Committees and Balloting Groups.

4.1 Governance Committee (GC)

This committee is intended to ensure WGs share best practices in the ways of working within and across the WGs, by acting as stewards of the organization's processes and procedures (ie. this document) and promoting collaboration tools that improve the organization's efficiency.

This committee is not part of a WG and does not develop or approve specifications. It is a committee where decisions are appealed providing the issue is related to the processes & procedures.

Deliverables include:

1. Maintenance and updates to the common Process & Procedures (this document) to propose to the board for final approval.
2. Coordination, if needed, of shared resources, including:
    a. time slots in weekly or all member meetings
    b. collaboration tool requirements and use to coordinate with the staff or recommend to the board
    c. a common forum to discuss and recommend shared tools and resources
3. Providing, if requested by the Board, for new chartered work:
    a. Technical feedback on feasibility, suitability and technical issues raised
    b. Recommendation to the board on a new or existing operational structure and leadership for the work
4. Making recommendations to the Board when such issues (ie. operational gaps) are not resolved within a Working Group in an Ombudsman role
5. Resolving operational Working Group conflicts or recommending a resolution to the board. Conflicts may include:
    a. Resource sharing: time slots, collaboration tools, etc.

b. Policy conflicts: which may result in an update to the P & P

6. Regular reports on the above activity to the board.

This Committee needs to be seen as fair and unbiased to any single project in any Working Group. The GC shall be made up of a single Chair from each Working Group and one At-Large member from each Working Group. Each Working Group holds a separate election for the WG Chair member and At-Large member. The GC Chair is appointed by the board.

4.2 Working Group (WG)

A Working Group is defined in the IPR Policy as a pool of member companies with IPR obligations for Adopted Specifications that are developed and approved by the Working Group. The Working Group organization is where technical groups exist that develop the Alliance standards, and supporting certification programs, with associated branding.

The Board creates a Working Group, and approves WG charters. A Working Group is composed of Balloting Group(s) and voting rights are established by participation as defined in this document (see Voting Rights).

Alliance member companies must follow the procedures established to register their company as a Working Group member and all individuals representing their company in the Working Group.

4.3 Steering Committee (SC)

A Steering Committee is created by the Board to drive and manage projects & deliverables within a Working Group. The SC is the highest oversight group within a Working Group. The SC has the following responsibilities:

- Publish the organizational structure of their Work Group
- Implementing the roadmap approved by the Board
- Develop and manage project schedules and budget
- Being the IPR Policy defined Technical Committee to the Working Group
- Managing the schedule of events, such as for testing, education, marketing, etc.
- Making regular status reports and requests to the Board
- Forming, disbanding and managing of groups under its responsibility
- Approving charter and procedures for operation of groups under it
- Approving specifications, test plans, and other conformance documents
- Informing the group Chairs, below the SC, about decisions and other information from the Board and other committees

4.4 Technical Sub-Group (TSG)

A TSG is a standing Balloting Group to work on a particular problem, project or functional area within a WG. A WG may have more than one TSG.

Each group has the following responsibilities:

- Completing work according to the scope and schedule provided by its charter
- Managing letter ballots.
- Responding to requests from the parent groups
- Making requests to parent groups, for instance:
  - Raising important decisions (e.g. release of a new development or extension)
  - Requesting a change of scope
  - Requesting a change in schedule or deliverables
- Making regular status reports to the parent group
- Delivering its accepted meeting minutes to the parent group

In general, each group will work to a defined set of deliverables and schedule provided at the creation of the group and updated as necessary by the committee that formed it. Deliverables would typically be a new version of a specification, an extension of a specification, a document related to the specification (such as compliance and interoperability requirements), or an activity.

4.5 Certification Sub-Group (CSG)

A standing Balloting Group, within a Working Group, working on certification documents, tools and test suites for a particular area. This group also coordinates with any external labs for certification testing.

A WG can choose to merge the CSG and TSG functions within the same Balloting Group; this needs to be reflected in the BG's charter.

The CSG coordinates with the Board's Testing and Certification Oversight Committee on testing policies and procedures

4.6 Marketing and Product Sub-Group (MPSG)

A standing Balloting Group, within a Working Group working on product requirements, marketing playbooks, branding and other product/marketing activities for particular area. Usually a Working Group has only one MPSG.

4.7 Security Advisory Group

Due to the ongoing importance of security in all specifications developed by the Alliance, the Security Advisory Group is a standing committee under the Board. This group is responsible for providing recommendations for device, network and application layer security throughout the specification development process. The security group does not develop specifications, but they are chartered with reviewing the security of any existing or new efforts. Specifically, the group must review and sign off on:

1. Any new feature for security implications
2. Any 0.7, 0.9 or 1.0 specification
3. Any reported security incident in accordance with the Zigbee Security Policy

The security AG provides formal comments that must be addressed by the appropriate BG prior to proceeding with the milestone. The BG may address via spec modifications, justification documents or another artifact.

4.8 Interest Group

Interest Groups (IG) may be formed, restructured and/or terminated at any time by resolution of the Board of Directors for the purpose of, among other things, analyzing, monitoring and collaboration on specific subject areas. Each IG shall report directly to the Board of Directors. Example is region based groups which focus on region based regulations and market requirements. An IG can also act as a bridge between Working Groups and members which are time zone limited, to participate in meetings. An IG can also work to support marketing in different areas. Members may appoint any number of its employees or duly authorized representatives to an IG.

The scope and charter of IGs shall be developed by the IG and provided to the Board of Directors for approval. If there is a possibility that the IG will include any topics which could be considered to be Intellectual Property (IP) then its participating members must be registered with the appropriate Working Groups to comply with the Alliance IPR policies.

From time to time the Interest Group may require additional funding to carry out specific marketing initiatives above and beyond normal Alliance activities. The IG is authorized to conduct internal fundraising to support these initiatives.

4.9 General WG Structure

Unless modified by the WG charter, WGs shall have one SC. WGs may also have one or more TSG, MPSG and CSG.

5 Group Communication

5.1 Mailing Lists

All groups and committees may do business on-line using their mailing lists. Each group or committee may have a mailing list.

5.2 Alternate Communication Tools (Chat, et al.)

All groups and committees may use additional tools based on their preference. These tools should be managed by Alliance staff, meet security/privacy policies and be widely available to those participating in the specific group or committee.

5.3 Meetings

All groups and committees may call phone meetings at the discretion of the Chair. Normally weekly or biweekly meetings are held at a standing time and dial-in number for the convenience of the member companies. These meetings may rotate times for the convenience of different time zones.

All meetings or phone calls should start with showing the Alliance Policy reminder.

Phone meetings should have notice and an agenda sent 24 hours in advance to the group mailing list. Minutes and attendance at the meeting must be published.

All groups and committees normally meet during the week of All Member Meetings. These meetings have an overall agenda published by the Alliance to try to minimize meeting conflicts. Chairs are still required to publish agendas for these meetings, maintain attendance, and publish opening and closing reports of the meetings.

6 Group Lifecycle

6.1 Creating New BGs and TTs

A new WG is only formed by the Board. A new BG is only formed by a SC of a WG, or the Board. A TT may be formed at any time by a parent group.

6.2 Dissolving an Existing Group

A WG is only dissolved by the Board. A BG may be dissolved based on any of the following criteria, or at the discretion of the forming committee:

- The group has completed its assigned goals, and no new goals are to be assigned
- It does not have enough support to complete its goals, as judged by the Chair of the appropriate parent group.
- Due to changes in the current situation, its goals are no longer valid, as judged by the board

If at any time the Chair of a group or member of the parent group feels that a group should be dissolved, based on the above criteria, that person may present their request to the Chair of the parent group. The parent group Chair will then take a vote to dissolve the group in question. If approved, the parent group Chair will make a formal request to the Board to dissolve the group. If approved, the parent group Chair will notify the group Chair, who will notify all registered members of the group of the decision to dissolve.

If the voting membership is under five quorum members, the parent group must be notified so a decision can be made whether to continue the group. This is the responsibility of the Chair of the group.

If the parent group votes against dissolving the group, the parent group Chair may recommend an action to the group Chair to remedy the situation. The parent group may elect to put a group into

hibernation until the parent group revives it for given purposes (such as maintenance). A hibernating group will not have a seat on the parent group.

Dissolving a TT does not require such a process, as these groups are intended to form and finish quickly. TT dissolve upon any of the following:

- The end date in their charter is reached and the charter has not been extended
- The work in their charter has been completed and either agreed upon or rejected
- The TT itself or parent group decides to dissolve it

7 Development Process

Working Groups only work on developing new features based on an approved scope and charter. There are two processes for initiating a new feature:

1. New Feature Request (NFR) – This is a shorter process for developing smaller new features or extensions to existing specifications. This process is defined below.
2. Market Requirements Document (MRD) – This is a more complete process for large new work areas that would result in the development of new markets and longer-term work within a group. This process is defined below.

These two processes can be used in conjunction with each other. In either case, completion of a new feature results in a new or revised specification and supporting documentation. The document development and approval process is the same between these two processes and must be followed by all groups and committees. It is up to the Steering Committee of the Working Group to adjudicate whether a feature may use the NFR process or must use the MRD process.

Note that release cycles, and planning cadences (ie. annual, quarterly, et al.) processes and procedures should be captured in a WG's charter to align with members' expectations on continuous improvement.

Work Groups in their Charter should define who has decision ownership of the following topics:

- Technical: It is recommended that the SC or a TSG owns these decisions
- Marketing: It is recommended that the SC or MPSG owns these decisions
- Certification: It is recommended that the SC or CSG owns these decisions

7.1 New Feature Request (NFR) Process

This process is used for small additions or new feature requests to existing specifications. It is not used for entire new specifications or stacks, as these larger efforts require completion of the Market Requirements Process detail below. However, the MRD process allows work to be split and done by individual NFR's using the process below.

The NFR process is intended to be lightweight and quick, to allow rapid member development of extensions and features while still ensuring marketing oversight, a check on technical feasibility, and for feature conflict or overlap. The SC may specify that if the scope of an approved NFR is not completed within 18 months, it must be reauthorized or it expires.

The NFR contains a summary for each step in the approval process. The NFR is completed and updated throughout the lifetime of the development, is described below:

Step 1 – Propose: An NFR may be proposed by one or more members of a WG. The NFR is sent to the MPSG if it exists, otherwise to the appropriate Technical BG for evaluation depending on the charter. The NFR should not get into details about the technical solution proposed.

Step 2.1 – Feature Review: SC verifies that there are enough Member companies that are interested, will participate in the effort, and will end up implementing the resulting specifications. Unless the WG Charter defines an alternative requirement, a minimum 5 companies must express interest in the NFR and 3 must express interest in implementing the NFR features. The SC can vote to lower these company requirements for simple NFRs.

The SC verifies that the NFR is aligned with the WG charter. If the NFR is complex, addresses a new application area, or involves multiple BGs, it may:

- Decide that an MRD process is required (and this process ends)
- Decide to get Board Strategy Committee approval. The Board Strategy Committee will decide if the NFR describes a whole new market, which may require an MRD and/or updates to the WG Charter. The Board Strategy Committee may reject the NFR if it conflicts or overlaps with existing WG Charter. This step may be done in parallel with Technical Review.

Step 2.3 – Technical Review: The SC will designate the appropriate BG to determine if the proposed feature is new, feasible and technically sound (at a high level). As NFRs may involve significant changes to multiple specifications, requiring coordination of work for multiple BGs, the SC may require a Technical Requirements Document (TRD specified in the next section) as part of their Charter.

Feature and Technical Reviews should occur in a timely fashion, generally 30 days within NFR submission. SCs may change this time constraint in their Charters.

Step 5 - Feature Commit: The proposers, under the guidance of the ownership group(s) will fill in the NFR section where milestones are listed, and report this to the SC for approval. Knowing the proposed scope of work, the SC should use its defined release process in their Charter to decide if the work fits in with their strategy, its relative priority and release target in their roadmap.

Step 7 – Feature Development: The feature is developed, specified and approved with the WG's ballot and approval process. If, during the development process, there are delays, resource constraints, bottlenecks, marketing questions, non-technical issues, or other issues not readily solvable, the BG(s) developing the feature should raise the issues to the SC for action.

Step 8 – Final Review: This is a final check to make sure the work was what was originally described in both feature and scope.

At any time during the process, information can be requested from the submitters. In fact, it is best if the submitters participate in the process and are at the review meetings, when questions can be raised.

This process does not stop anyone from developing the feature during the process. A complete (though not approved) specification may be written before the NFR is submitted.

If any review step rejects the NFR, it may be modified to pass the

review. The NFR form is document 14-0184.

7.2 Market Requirements Development (MRD) Process

The MRD process is used for larger features opening new work areas or stacks. The MRD process includes the following steps.

Milestone 1: MRD Developed and Approved

- An MRD is proposed by interested member companies and approved in a WG's MPSG if it exists, otherwise to the appropriate Technical BG. The MRD should articulate the problem statement, market opportunity, different solution and use cases the Alliance can bring forward to address the problem as well as a requested time-to-market.
- The Board is ultimately responsible for approving the MRD due to the general scope and complexity of these initiatives. SC may define the marketing and technical review processes within the WG before SC approval for Board review.
- If approved, the appropriate BG will define a TRD or specification based on the requirements detailed. The SC shall determine if a TRD is required due to the scope and complexity of the MRD and to further define the requirements and use cases.
- The SC determines what Balloting Groups the work will be conducted in. If necessary new Balloting Groups are created for the work.
- If the next step is to create one or more NFRs, use the NFR process; else, continue to the TRD process.

Milestone 2: Technical Requirements Document (TRD) Completed (if required)

- The TRD is created by the group assigned the work from the original SC review.
- The TRD takes the marketing requirements from the MRD and creates a set of technical requirements and details that must be met in the final specification.
- The TRD is balloted within the Balloting Group that created it and then approved by the SC.
- If the TRD will result in different scopes of work done under individual NFR's, the NFR process should be followed.

Milestone 3: 0.7 Specification Package Completed

- The 0.7 Specification is the first feature complete version suitable for implementation. The 0.7 specification should include all expected features and functions in enough detail to allow implementations to proceed.
- Proof of concept test events may be held during the specification development but they are

not official test events until a 0.7 document is approved.
- See below for the requirements of a 0.7 package.

Milestone 4: 0.9 Specification Package Completed

- The 0.9 Specification is the version for formal certification testing.
- Approval of the 0.9 document package is done by Letter Ballot within the BG doing the work.
- See below for the requirements of a 0.9 package.

Milestone 5: 1.0 Specification Package Completed

- Certification is complete and all documents are ready for SC approval to send to the Board.
- This is the final approved document package for release.

7.3 Specification Development Processes

The milestones for approval of new specifications are detailed in below. These steps are intended to ensure adequate development and feedback on a specification during development and appropriate testing before full release. These steps can be modified via the WG's Charter. SC approval is required at each of these milestones. The lists below are to provide guidance during the review but are not either comprehensive nor meant to limit the SC review.

When a specification is completed there may be sections of specification text that were completed but have not been certified. These sections are marked as provisional prior to publishing the specification. If a specification validation event is held within a year these features can simply be certified at that time. After one year as provisional, an NFR is required to reopen these areas of specification text.

All specifications must have successfully completed a letter ballot at the 0.7 milestone and 0.9 milestones. A letter ballot is conducted by a BG.

1. A 0.7 document package must successfully complete a letter ballot before submission for approval. The BG is responsible for resolving comments from the 0.7 letter ballot before submission of the 0.9 letter ballot.
2. A 0.9 document package must also complete a letter ballot before submission. This letter ballot is of different content because comments can only be submitted on those items that have changed since the 0.7 version or on comments to the 0.7 letter ballot. The group conducting the ballot is responsible for resolution of comments from the 0.9 letter ballot.
3. The Chair is responsible for rejecting comments in letter ballots that are considered out of scope or not specific enough to resolve. The Chair is also responsible for rejecting comments from the
   0.9 version letter ballot that are out of scope based on the 0.7 ballot. In either case, if a comment is rejected the voter should be notified.
4. A 1.0 document package does not require a letter ballot and may be approved by a straight confirmation vote (or ballot). A confirmation vote is required if there are technical changes to the documents based on letter ballot comments or test event feedback. The Group or Committee may choose to conduct a letter ballot if so desired by the Chair or by a majority of the voting members.
5. Voting rights for any of these ballots are based on the voting members of the group or

committee at the time of the particular ballot.
6. At any time, a voting member who believes their comments have not been suitably resolved can appeal as described in the Appeals Process.

Specifications at the 0.7 or 0.9 approval process should not be changed without letter ballot comments or comments from test event participants. Letter ballot comments are tracked in a comment resolution spreadsheet or the online comment system by the BG. Test events should also initiate and track comments in a comment resolution worksheet or online database so these comments and their resolution are available for BG review as part of the next ballot process. Changes to 0.7 or 0.9 documents do not require the review for backward compatibility and consistency that is necessary for released specifications. However, they are still tracked in comment resolution worksheets or databases for review and approval of the BG.

7.4 Checklists for Document Approval

This section details recommended checklists used by the SC for review of document packages for approval. These details can be amended via a WG's Charter.

Milestone 1: MRD or NFR Completed

1. Does the MRD describe a user problem, the market opportunity, use cases and the value proposition of the new specification or major feature**?**
2. Are there sufficient details to create a technical work group to develop a TRD (if required)?
3. Does the MRD or NFR provide guidance for the TRD development (or specification development in the case of an NFR) in selection of technical choices or tradeoffs and how these decisions can be guided?
4. Is the schedule in the MRD or NFR practical for the work group?
5. Are there areas that conflict with base practices or interoperability?
6. Are there conflicts or overlaps with other work groups or existing specifications?
7. The MRD or NFR must be aligned with the published board strategy.

Milestone 2: TRD Completed (for MRD developments only)

1. Does the TRD address the MRD requirements?
2. Does the TRD resolve the technical approach to allow development of the specification?
3. Are there open technical questions on the approach or solution required?
4. A SC review is required and comments on the document prior to voting.
5. Has the security group reviewed and provided comments?

Milestone 3: 0.7 Specification Package Completed

1. Fully implementable specification draft is complete.
2. Letter ballot completed by BG and comments resolved or rejected.
3. Device IDs assigned
4. Cluster IDs assigned
5. Specification alignment with MRD and TRD
6. No conflicts with other developments – check items like attribute IDs or Command IDs
7. Interoperability with other solutions as defined in the requirements
8. Security review completed and comments addressed.

9. Mandatory versus optional features are clearly defined?
10. Backward compatibility with other versions of the specification (if applicable)
11. Suitable draft test plan in place
12. Suitable draft PICS in place
13. Review and feedback on SC comments from TRD and MRD or NFR
14. A SC review is required and comments on the documents prior to voting.

Milestone 4: 0.9 Specification Package Completed

1. Verify profile ID, device IDs and cluster IDs from 0.7 spec.
2. Specification complete and ready for certification
3. Letter ballot completed by BG and comments resolved or rejected.
4. Test plan complete and ready for certification and reviewed by the certifying authority.
5. PICS complete and ready for certification and reviewed by the certifying authority.
6. PICs to test plan mapping completed
7. Testing template complete for certification
8. Preliminary interoperability testing has validated test plan
9. Draft test scripts are available for testing.
10. Check SC comments from 0.7 review
11. Security review completed and comments addressed.
12. Procedure for establishing Golden Units declared (if applicable)
13. Specification references, PICS, test plan and errata
14. A SC review is required and comments on the documents prior to voting.

Milestone 5: 1.0 Specification Package Completed

1. Check interoperability testing and completeness
2. Golden units available at test houses (if applicable)
3. Successful SVE Test logs available and reviewed
4. Check any SC comments from 0.9 review
5. Security review completed and comments addressed.
6. Final test scripts are available.
7. Items not certifiable are noted in specification.
8. A separate review team is not required prior to a SC vote on the document package.
9. A letter ballot of a 1.0 specification is not required but can be done if the Chair or BG believes it is necessary.
10. Grace period for any previous versions of the specification is recommended by the Working Group.

8 Voting and Balloting Rights and Processes

From time to time the BG creates TTs for specific items. If these groups develop specifications or test plans, these must be passed by letter ballot from an appropriate balloting group before a BG or SC vote.

8.1 Voting Rights, Quorum and Voting

Voting Rights and Quorum are maintained by the Secretary of a group and shall be used to establish the eligible voting members for a particular letter ballot or other voting.

Non-committee group voting rights are established and tracked by company and not by individual. In a given ballot or vote a company is given a single vote. In the case multiple votes are received from a company, only the vote of the primary representative will be counted, if one has been designated. If not, the Secretary shall request clarification from the member company on their vote.

Deliverables are developed and allowed to be passed to the parent group at the discretion of the chair. The parent group actually votes and approves such deliverables. Unless noted in the charter, as approved by the SC, attendance at TT meetings do not count as attendance for the parent group.

Voting rights for a balloting group are based on the following:

- Promoter members are eligible voters for any ballot but do not count as quorum members unless they have established such rights based on attendance.
- Participant members gain and maintain voting rights based on attendance on conference calls and meetings.
- Non-promoter and non-Participant members are not eligible to vote.

8.2 Acquiring Balloting Group Voting Rights

Active participation is necessary to acquire voting rights within a particular balloting group.

Voting rights are acquired in a specific balloting group. To acquire voting rights across multiple groups the same process must be followed for each balloting group. Attendance at Member Meetings counts for any of the balloting groups. Attendance at a Member Meeting is defined as having representation in at least 2/3rds of the total sessions, not counting the opening and closing plenary sessions.

A member company that wishes to acquire voting rights must attend two of three consecutive Member Meetings and have been in attendance for at least two-thirds of the conference calls for the particular group between the last two member's meetings. The member company attains voting rights at the close of the second attended Member Meeting. For groups that have multiple calls scheduled in a week, attendance is counted if a member company attends any of the calls.

- Example 1 – A member company attends two consecutive Member Meetings and attends at least two-thirds of the BG calls between these meetings. The company acquires voting rights at the close of the second Member Meeting.
- Example 2 – A member company attends one Member Meeting, misses one, but then attends the third meeting. The company attends at least two thirds of the BG calls between these meetings. The company acquires voting rights at the close of the third meeting.

Attendance at a Member Meeting is defined as having representation in at least two-thirds of all daily sessions (i.e. AM1, AM2, PM1 and PM2) counting from the first session after the opening plenary to the last session before the final meeting. Attendance at extra technical sessions such as an evening session (PM3) can be substituted for non-attendance at a daily session, up to and not exceeding the total number of daily sessions.

As an example, the Barcelona Member meeting had 14 daily sessions, three evening sessions, and one meeting outside the normal sessions. To qualify for attendance at this meeting, a company must attend 10 or more of the 14 daily sessions with the opportunity to substitute up to four extra sessions, as appropriate. As such, if a company attends only eight daily sessions but also attends three extra sessions, they are counted as attending 11 out of 14 sessions. Similarly, a company that attends 12 daily sessions and all four extra sessions are counted as attending 14 of 14 sessions (not 16 of 14).

When a new group is formed it may hold a kickoff meeting. Those members that attend this initial kickoff meeting can substitute this for a Member Meeting in terms of gaining voting rights. For example, a new BG is formed and holds a kickoff meeting that a member attends. The member attends more than two-thirds of the BG's conference calls and then attends the next Member Meeting. The member then has voting rights in that BG.

8.3 Maintaining Balloting Group Voting Rights

To maintain voting rights a company must attend two of three consecutive Member Meetings and at least one half of the balloting group's regular conference calls. Voting rights are re-assessed at the close of a Member Meeting, and hence the two-out-of-three requirement will include the current closing Member Meeting and the two immediately preceding Member Meetings. Attendance on regular conference calls is based on the time period between the last two Member Meetings. For groups that have multiple calls scheduled in a week, attendance is counted if a member company attends any of the calls.

In addition to attendance, a member company must respond to two out of the last three consecutive letter ballots with an acceptable response. An acceptable response to a letter ballot is a vote of "Yes", "No" or "Abstain". Failure to respond to two out of the last three consecutive letter ballots will cause that member company to immediately lose their voting rights.

The Secretary for a group is responsible for tracking attendance, ballot returns and voting rights. The voting rights should be published periodically and it is the responsibility of member companies to ensure they check their attendance and report any problems to the Secretary for both Member Meetings and conference calls. If there are problems or questions that cannot be resolved by the Chair, the Alliance should be asked to clarify.

8.4 Acquisition of Voting Rights by Exception

If a balloting group Chair believes that it is in the BG best interest to give voting rights to a company that is currently without voting rights, it is the prerogative of that Chair to request that

the SC gives voting rights to that company. The SC will rule on this request at its next meeting following the request.

8.5 Quorum for Meetings

The groups and committees follow the same basic voting rules as defined for Member Meetings.:

- Participating member companies that maintain voting rights may cast votes within the group. The group Secretary will maintain a list of registered companies and voting rights.
- A quorum for a meeting (by phone or face-to-face) requires 50% participation of the voting member companies. A meeting without a quorum may continue if 2/3 of those voting member companies in attendance decide to do so. However, voting has the normal quorum requirements.
- For face-to-face meetings at Member Meetings, quorum to conduct business is automatic. Voting has the normal quorum requirements.

8.6 General Voting Rules

Active membership is required to maintain voting rights.

A consensus model of decision-making is preferred, and is the normal mode of operation. However, groups can settle direction on issues or proposals by conducting a vote of the members of the group.

There are two classes of votes, procedural and technical. The Chair determines what is technical and what is procedural.

Groups vote on a variety of other issues outside of the letter ballot of specifications. These other votes do not follow the rules for letter ballot. Instead the following applies:

1. The Chair is responsible for determining if a vote is technical or procedural.
2. Votes may be conducted at meetings, on calls, or by e-mail.
3. The membership should be clearly notified that a vote is occurring to allow member participation. At Member Meetings votes may be taken by agreement of the group; outside of Member Meetings one week's notice of the vote should be provided.
4. A quorum is required to hold a vote.
5. Members may vote "YES", "NO" or "ABSTAIN". Abstain votes count for quorum but are not included in determining if the motion passes or fails. Only "YES" and "NO" votes are counted for the motion.
6. Procedural votes require 50% or greater and technical votes require 2/3rd or greater. The vote tally is "YES" over "YES plus NO".
7. A vote is valid only if the abstention rate is less than 30%.

A confirmation vote is for approval of a technical specification or documentation to pass a milestone based on a previous successful letter ballot. In the process of comment resolution and testing, various changes may have been made to the document. In this case, the work group can conduct a confirmation vote to ensure these changes have been reviewed and companies have not changed their vote. These confirmation votes should follow the above rules.

8.7 Raising Issues

Contentious issues within a group that cannot be resolved by consensus can be resolved by a vote of the group. If this is not successful, the issue should be referred to the next level committee or group by the Chair.

In the case of the oversight committee directive to take a vote on a group issue, the vote shall be binding.

8.8 Voting Rights for a Committee

Committee voting rights where there are elected or appointed members are based on this election or membership and not on attendance.

Each committee member may cast one vote in decisions. Each vote can be made only by that committee representative or alternate representative. If a committee member is an automatic member because he/she is a chair one level down in the organization, then the member may designate his/her vice-chair as an alternate representative. At-Large Members do not have alternate representatives. A committee follows the same rules regarding the definition of majority and the issues concerning a meeting quorum as are defined for Member Meetings.

Committee votes are up or down votes without comments. A committee may review the specification to make a recommendation on the vote, including changes if necessary. If changes are recommended, these changes are also approved by an up or down vote.

To allow full participation, committee votes will normally be conducted by e-mail after discussion on a call or in a normal meeting.

8.9 Multiple Group Ballot Pools

For items that may impact multiple BGs, a BG or SC may decide that a larger ballot pool be formed. Each BG evaluates if the proposed changes impact the group such that a letter ballot is required. The voting members from each group participating in the letter ballot then form a single ballot pool for that letter ballot. Each voting member company from the appropriate BG has a single vote in the larger ballot pool.

8.10 Major and Non-Major Decisions

A decision that results in publishing new materials or information to the general public is considered a major decision. As an example, new material that would be defined in the MRD process or NFRs extending beyond the scope of the WG Charter would be considered major decisions that would need Board approval.

Decisions that affect the scope or structure of the technical groups are also considered major. All major decisions must be raised to the Board. Examples of major decisions are to release a new specification or extension to the specification, or to start or suspend a BG. Approved

errata to specifications are non-major decisions and done by the BG.

8.11 Letter Ballot Process and Procedure

■ Voting by Letter Ballots – Overview

The decision to submit a draft standard or a revised standard to the Steering Committee (SC) must be ratified by a letter ballot. Other matters may also be decided by a letter ballot at the discretion of the balloting group chair. The chair may vote for his/her Member Company in letter ballots.

The ballot shall contain three choices:

1. Approve (may attach non-binding comments)
2. Do Not Approve (must attach specific comments on what must be done to the draft to change the vote to "Approve")
3. Abstain (may include reasons for abstention)

A two-thirds approval of the letter ballot is necessary with at least 75 percent of the submitted ballots coming from quorum members voting. The two-thirds figure is computed only from the "Approve" and "Do Not Approve" votes. Promoter members do not count in the 75% quorum requirement if they have not achieved voting rights through attendance. However, Promoter member votes do count for the two-thirds approval required to pass a ballot.

It is in the interest of the participating members that the voting process be as open and clear as possible. The Chair is responsible for widely distributing a clear and concise ballot on the subject of the vote, who is eligible to vote, and the closing date for the ballot. Those not eligible to vote are still encouraged to submit comments on the ballot.

The Chair determines how negative votes in an otherwise affirmative letter ballot are to be resolved. Normally, the balloting group meets to resolve the negatives.

The letter ballot shall be conducted by electronic means. The length of the letter ballot is up to the group. The response time typically is 30 days for a large or complex new specification. However, for recirculation ballots, and for less complex specification changes, the response time is at least 10 days. There is a recirculation requirement following comment resolution if technical changes have been made or there are unresolved negative comments.

The letter ballot shall run for the exact time as indicated in the ballot invite and shall not be extended. At the end of the ballot period of the original ballot (i.e. not of any recirculation ballots), any quorum company who has not voted shall be removed from the voting pool for this ballot. If a quorum company notifies the chair before the end of the letter ballot with an explanation as to why they cannot cast a vote, it is at the discretion of the chair whether this is treated as a non-returned ballot.
Note that the consequences of not returning a ballot are explained in 8.1.2 Maintaining Voting Rights. The final tally shall be comprised of only those votes that have been returned within the period of the ballot.

Submission of a draft standard or a revised standard to the SC must be accompanied by a comment resolution spreadsheet or online comment tracking tool results that include unresolved or rejected comments.

■ Who May Vote

Only member companies that are voting members of the BG conducting the ballot may vote. These companies should submit a single ballot response through the company's primary representative (if identified) in the group. At the Chair's discretion, comments can be received from other Alliance entities or individuals, but these comments are non-binding and not part of the official vote tally.

Only companies that voted in an initial ballot may participate in any recirculation of that ballot. This group is called the Balloting Group. Should a member of the Balloting Group lose voting rights before recirculation of the ballot, that company will be removed from the Balloting Group.

■ Standards Letter Ballot

The ballot shall provide three choices:

1. **Approve (Affirmative).** This vote may be accompanied by comments suggesting corrections and improvements. Action on such comments is left to the discretion of the group.
2. **Do Not Approve (Negative).** This vote must be accompanied by comments in sufficient detail so that the wording of the changes that will cause the negative voting company to change its vote to "approve" can readily be determined. Those comments requiring a change shall be marked "Technical Required" by the submitting company.
3. **Abstain.** A reason may be given for this vote.

For a Standards ballot to be effective, at least 75% of the submitted ballots must be returned from quorum members by the closing date and time indicated on the ballot. In the event that at least 75% of the submitted ballots are not returned from quorum members or the number of votes submitted by quorum members is less than 50% of the total quorum members at the start of the ballot, the balloting process has failed. Further disposition of the document is the responsibility of the BG. A minimum of 66% of those voting affirmative or negative must approve the draft in order to submit the ballot result. In the event that 30% or more of the returned ballots are abstentions, the ballot is considered invalid.

The BG Chair is responsible for publishing the ballot results of total votes (approve, do not approve or abstain) and the consolidated comment spreadsheet. The vote by each individual member company is not published.

In the event that a voting company leaves the Alliance before or on the closing date for the initial ballot, that company shall be administratively removed from the balloting group. In the event a company leaves the Alliance following the closing date for the initial ballot, the company shall be deemed unavailable for balloting purposes and should not be sent any further balloting material. Negative comments received before the company became unavailable are to be treated

normally, but confirmation of resolution is not expected. However, no previous result should be recalculated with the company removed, including ballots, abstention rate, return, or approval rate.

If a ballot fails, the ballot will be done again when the group agrees sufficient comment resolution has occurred. This new ballot is not a recirculation since the original ballot did not pass.

■ Resolution of Comments, Objections, and Negative Votes

The group is only obligated to consider comments that are received with ballots, along with other comments from non-voting members that are received by the close of the ballot. The group should make every attempt to resolve comments, objections, and negative votes. Comments pointing out obvious mistakes, typographical errors, and improvements in punctuation, grammar, and composition that do not change the technical meaning may be accepted, revised, or rejected. Comments accompanying affirmative votes that advocate changes in the technical meaning of the document may be accepted, revised, or rejected.

Changes may be made in the document to resolve negative votes or because of other comments. The group is responsible for comment resolution. This may include email confirmation from each eligible company indicating concurrence with the changes made to the document based on their comments. If the negative vote is not satisfied, either entirely or in part, the negative voter shall be informed of the reasons for the rejection. New ballots from a previous failed ballot or recirculated ballots shall include associated comment resolutions and the updated specification text.

Ballot comments shall be designated by the voter as editorial (E), technical (T) or Technical Required (TR). The submission of at least one TR comment shall always be accompanied by a NO vote. A TR comment means that the comment must be addressed in order to change a NO vote to a YES. If a YES ballot is received with a TR comment, the comment will be treated as a T.

If a ballot has passed, the following shall be provided to the members of the balloting group:

- All substantive technical changes made in the final draft to resolve comments, objections, and negative votes
- All unresolved negative votes, together with the reasons given by the negative voter and the rebuttal by the members conducting the resolution of the ballots

This provides each member an opportunity to change their vote as part of a recirculation ballot. Further resolution efforts may be required if additional negative votes result. However, once a ballot approval has been achieved, the group has an obligation to the majority to review and publish the standard quickly. Therefore, once 66% approval has been achieved on a ballot, the group requirements for consensus have been met.

Copies of all comment resolutions, including rejected comments and the reasons from the group, shall be included with the specification submitted to the SC.

■ Recirculation Process

Once the BG has examined and dealt with all comments, it must recirculate the ballot for either of the following two reasons:

1. New technical changes have been introduced in the document.
2. There are unresolved negative comments. An unresolved negative comment is a comment from the original ballot indicating a substantive technical change is required but that has been rejected during the comment resolution process.

The recirculation ballot is of the members from the original ballot.

The full balloting group has the right to examine these, along with any revisions to the document, and determine whether they want to maintain their vote. For instance, there may be an unresolved negative ballot on a major technical point. While the ballot review group may have felt that making this change would severely reduce consensus, they may discover the exact opposite through the ballot recirculation process. In other words, enough of their voters agree with the unresolved negative that they change their "yes" votes to "no" votes. However, voters can only change their vote based on the *changed* portions of the standard, or on the unresolved negatives. Voters cannot change their votes based on a clause they have previously seen and approved (unless that clause is affected by the new material).

Re-circulations normally do not take the time that regular ballots do—most allow for only about five days' response time. If the document is large and the number of ballot comments and changes commensurately dense, the group may choose to make the recirculation ballot period longer—even up to the length of the original ballot period. However, the group should aim for a rapid completion of recirculation. Voters are not required to respond to recirculation ballots if they have already voted. Unless they want to change their votes, their previous votes or abstentions still stand.

■ Ballot Comment Review Guidelines

After a letter ballot is complete, the balloting group should be assembled to review and respond to the comments. Membership is open to those members of the group willing to attend.

Regardless of how it is formed, the balloting group is responsible for responding to the comments made by the voters. Although only a 66% approval is required for a successful standard, the balloting group should attempt to resolve all ballot comments.

The following rules for addressing comments formally apply only to eligible voters. It is, however, desirable to make no distinction between eligible and ineligible voters in terms of trying to develop consensus and respond to comments—the only distinction comes at the official vote tally for the ballot. All comments must be addressed as follows:

Affirmative votes with technical comments: Since this is an affirmative vote, it is not necessary to accommodate formally or reply to such comments. Consider incorporating them if they can be implemented without raising objections from other voters. Such changes, if made, constitute technical changes to the document and must be clearly identified in the required recirculation ballot draft.

Affirmative votes with editorial comments: Since this is an affirmative vote, it is not necessary to accommodate formally or reply to such comments. Consider incorporating them if they can be implemented without raising objections from other voters. Such changes, if made, do not constitute technical changes to the document and need not be recirculated.

Negative votes with specific comments: If possible, all negative voters should be contacted to discuss their rationale and possible solutions. The final result must be communicated in writing.

- If the voter's proposed change is acceptable as is, then the objection is considered resolved. The editing team should re-state the change in an e-mail to the voter, so that there is no confusion.
- If the editing team does not accept the change as is, the team should try to negotiate an acceptable change with the voter. Any resolution should be confirmed by e-mail.
- If a negative comment cannot be resolved positively, the voter should receive an e-mailed rationale for the rejection of their comment.

Negative votes with unspecific comments: The Alliance requires that negative votes must be accompanied by specific reasons in sufficient detail that the voter's desired wording change can be readily determined. If the comment is not sufficiently clear, the voter should be contacted by phone or e-mail. If the reason for the negative vote is still unspecified after the follow-up inquiry, the ballot can be reclassified as "no response." The voter should be contacted in writing telling them why the objection is being downgraded to no response.

Ballots with combinations of all of the above: It is often the case that a single ballot contains instances of all of the above. These should be handled on an item-by-item basis in the fashion indicated, treating each specific objection as a "mini-ballot."

Once all comments are resolved, the document may be sent for a recirculation, giving everyone who voted on the original draft the opportunity to review the changes and alter their vote if they wish.

The balloting group will send the following documentation as part of the recirculation ballot:

- A clean and change bar copy of the final revised draft, a detailed list of the changes, and the number of voters.
- A spreadsheet or database of the individual comments and proposed resolution by the group.

If there are any new comments as a result of the recirculation, the editing team must be reconvened and the cycle must be repeated. In this context, *new* refers to new objections made as a result of the revised text. While additional negatives or comments to unchanged (and unaffected) material need not be formally addressed, they should be addressed if at all possible.

There is no need to keep iterating until 100% approval is reached. The decision as to when a point of diminishing returns has been achieved is left to the group once 66% approval and consensus has been reached. Remember, there is an obligation to the majority who have voted in favor of the standard to approve it quickly. Assuming that there are no new negatives or that at least 66% of the "yes/no" ballots are "yes," the group will then submit the following documentation to the SC:

- A clean copy of the final revised draft and a list of the changes and the number of voters.
- The comment resolution worksheet or database that details the responses to comments and indicates changes made to the draft.

9 Changes to Approved Specifications

Defined in this document are processes and procedures for development and approval of new specifications. These processes are appropriate for completion of new specifications or new features to an existing specification. However, corrections to specifications are also done using the Change Control Process. These smaller modifications are processed through the Change Control Board (CCB) tool and handled by the appropriate SC. The CCB process is only intended for corrections to specifications that are at 1.0 approval. A SC shall appoint an Errata Committee (EC) to oversee CCBs or designate the role to an existing group.

The process is initiated by a member entering a change request (known as a "CCB") in the online CCB tool (https://zigbeecertifiedproducts.knack.com/zigbee-alliance-ccb-tool). The CCB must describe the location and nature of the issue as well as a suggestion on how to resolve the issue. A CCB can be designated according to its perceived type, namely Editorial, Technical or Clarification. A fourth type, Urgent CCB, is exclusively reserved for issues such as holding up the completion of a current certification attempt, a field interoperability or critical security issue; this type should not be used under any other circumstances. Urgent CCBs are tracked to a timely completion throughout the process.

During the next available meeting, the appropriate EC reviews the submitted new CCB and considers its viability, impact and accuracy in terms of affected BGs or CCB type; the purpose of this review is not to attempt to solve the CCB but rather to make an initial high level assessment. If the appropriate EC considers the CCB to be valid, it sends it to the most relevant BG for further processing.

BGs discuss CCBs directed to them, assign editors to create errata and then review the errata within the group. If the group gives preliminary approval of the errata (this can be done by a vote on a call), the CCB is passed to the next stage. For non-Urgent CCB types, the errata queued for the next release of the appropriate specification, as and when the group decides it should be released.

For Urgent CCBs, the BG creates a Test House Notification document, which gives guidance to test houses in order to unblock the issue raised by the CCB during certification, and passes the CCB to the EC. The resolution to the Urgent CCB is then reviewed by the EC and, if approved, the CCB is passed to the Director of Certification who distributes the associated Test House

Notification documents to all test houses. There is also a process below for provisional resolution of Urgent CCB's if the responsible EC determines a provisional solution is required. Finally, as for non-Urgent CCBs, the associated errata is queued for the next release of the appropriate specification, as and when the group decides it should be released. When the specification is released, the associated CCBs are closed.

The process and guidelines for changes done using CCBs are below. These guidelines are to be used for revisions to specifications where the issues around backward compatibility must be considered. Note these guidelines only apply to version 1.0-approved specifications. By definition, those specifications that have reached 1.0 status have field-deployed product and therefore changes must be more carefully reviewed and considered.

Changes to approved specifications that impact backward compatibility or known field issues should be corrected with errata as soon as practical. The errata should identify the specification or test changes and instructions to test houses. The errata must be approved by the appropriate BG, the EC and then issued as an advisory to members and the test houses.

9.1 Process and Guidelines for Changes to Approved Specifications

This describes the Change Control Process for corrections to approved specifications.

There are several types of changes that can be made to specifications. They will be discussed as follows:

1. Editorial changes to clarify the meaning of the specification that do not change behavior or operation of the golden units, approved test harness/scripts or fielded products.
2. Changes where the specification is unclear and further definition is necessary but the golden unit or test harness/script behavior is consistent with the change.
3. Changes where the specification is unclear and further definition is necessary but the golden unit or test harness/script behavior varies and is not consistent with the change (either one or several of the golden units or the test harness/script).
4. Changes where the specification is unclear and further definition is necessary but none of the golden units or test harness/scripts are consistent with the change.

For those changes under category 1 or 2 above, the change can be processed as normal and considerations for backward compatibility are not specifically needed.

For those changes in Category 3 or 4, further consideration is necessary before a change can be processed. It should be noted that in these situations speed may be of the essence, since devices from different suppliers may have different behaviors. The Alliance may choose to issue a Mandatory Advisory if changes are required, to provide guidance before all documents and test plans are updated. The following guidelines should be used:

1. A change impacting the behavior or interoperability of devices in the field should be highlighted to the CCB and BG involved, and expedited processing should occur if at all

possible to minimize the impact of the interoperability issue. In particular, the CCB should note that it is a field interoperability issue and it should be raised to the appropriate BG Chairs or the Alliance by e-mail.

2. No assumption can be made as to the upgradeability of fielded devices, and therefore any changes must specifically consider the behavior of fielded devices with such a change. Field upgrade of devices may not be required as part of the specification change without agreement of the appropriate BG, and SC.
3. Since the behavior of fielded device(s) is known to vary, any suggested change should consider accommodating behavior both before and after the upgrade, if at all possible. For example, if a cluster must be modified to no longer be backward compatible, a new cluster can be created with the new behavior and new devices must still support the old cluster behavior for compatibility. Another example is stack behavior where new devices can send two types of messages to ensure compatibility (one for each type of behavior). Every effort should be made to ensure backward compatibility of any such change of this nature.
4. Response to a CCB by a BG for a change must address how the backward compatibility is addressed to ensure it is highlighted.
5. It may not always be possible to make a change that accommodates both behaviors. In such a case the BG should recommend the change considered least disruptive to fielded devices. It is up to the appropriate BG to determine what this means, including resolving it by vote if unanimous agreement cannot be reached. The MPSG (if exists) should also be notified and they should consider the change proposed and its impact.
6. Changes impacting backward compatibility must be agreed upon by the MPSG if exists and the SC.
7. The change should be processed as quickly as possible and a test house notification issued to correct the behavior as quickly as possible. This can be done with an errata to the appropriate documents affected. Such a notification should also be sent to those companies that have certified product impacted by the change. This is done based on certification records by the Alliance.
8. Stack or Cluster Library changes can impact multiple BGs; the group is responsible for coordinating with the other BGs affected. If golden unit or test harness behavior must be changed, every effort should be made to update it as quickly as practical. The Alliance may issue a Mandatory Advisory to the Test Houses to note the changes expected to specifications or test plans, so that changes can be implemented more quickly.
9. If considered necessary by the BG, old and new devices should be tested to validate the change before release. Specific tests to validate the behavior should be created if necessary.

9.2 Urgent CCB Processing and Provisional Resolution

This process addresses the time constraints imposed by urgent CCBs. Urgent CCBs can only be raised against approved specifications and are **exclusively** reserved for issues which are holding up the completion of a current certification attempt or represent a field interoperability and/or security issue.

The following process is meant to address the scenario where one or more implementers, that are undergoing certification testing, file an urgent CCB and the affected work group(s), on review of

the CCB by the relevant EC, indicate(s) that resolution of the CCB will take more time than is reasonable for such an implementing member company to wait for a permanent resolution. The purpose of this process is to issue a provisional resolution to provide interim respite to the member companies undergoing certification testing, and to give the work group(s) time to specify and approve a permanent resolution.

A work group may temporarily suspend parts of a test script or step(s) in a test case while a provisional resolution is determined. The following steps describe the process once a provisional resolution has been proposed that requires changes to a test script and/or test case specification.

Presuming the urgent CCB is accepted by the work group, the policy is:

1. **Work Group Specifies the Provisional Resolution:**
    a. If test scripts are used, the work group may provide a revised test script and/or test case specification;
    b. If golden units are used, the test case may be amended or modified by the work group;
    c. The test script or test case steps shall be marked as provisional;
2. **Urgent Change Notification:** The work group shall provide a test house notification detailing the changes, and the alliance shall send out the notification. If an urgent CCB is resolved with a provisional resolution, then on issuance of the test house notification the urgent CCB shall be closed.
3. **Permanent Resolution Option**: It is the responsibility of the affected work group(s) to determine if a permanent resolution is required and to open a new non-urgent CCB to track the permanent resolution, which may require an SVE or ScVE for validation.
4. **DUT Provisional Testing:** While the provisional resolution is in effect, all affected implementations undergoing certification testing shall attempt to execute the testing specified in the provisional resolution.
5. **DUT Provisional Success:** If an implementing device under test passes the provisional resolution then it shall be deemed as having passed the attendant test script and/or test case changes. Publicly accessible reports shall not note any part of test cases or scripts as provisional;
6. **DUT Provisional Fail:** If the implementing device under test fails a provisional test case and/or test script then
    a. A CCB shall be raised by the vendor or the test house; and
    b. The failing parts of the test that were provisional shall not apply to the device, i.e. failing a provisional test step does not count as a fail unless a review by the Director of Certification or, in lieu of the Director, the responsible work group determines that the failure was due to the behavior of the device under test and not the provisional solution.
7. **Provisional to Permanent:** If the provisional resolution is tested on three independent

implementations during certification testing or SVE/ScVE, then the provisional solution may become the permanent solution, with work group approval. A device under test for certification may count as an independent implementation, regardless of the member type. It is up to the alliance certification authority to track the number of times a provisional resolution has been run during certification.

8. **Provisional to Permanent Notification:** When a provisional resolution becomes a permanent resolution, the alliance certification authority shall generate a test house notification indicating that the associated tests have graduated from being provisional to permanent and notify the responsible EC of same; associated documents then need to be updated.

10 Appeals Process

As part of any group's decision, vote, approval, ballot process, recirculation or comment resolution, any member has the right to appeal a vote or comment resolution. This includes appeals based on voting rights or other process or procedural issues.

The appeals path is as follows and starts at the closest standing group above the group where the appeal originated:

1. Chair of Balloting Group under which appeal is raised
2. Parent Steering Committee under which appeal is raised
3. Governing Committee: only if the appeal relates to governance rules
4. Board of Directors

The appellant member shall be invited to all proceedings of the appeal, and may be required to sign an NDA, if confidential information is disclosed during the proceedings. If there are conflicts of interest or other legal considerations not solved by an NDA, then the appeal shall escalate directly to the board and the appellant shall only participate in the parts of the proceedings without legal conflict.

If a decision is made at any point in the path, and it is acceptable by the appellant member, the process is done. At each level, the appellant shall be invited to the proceedings. The reviewing group shall then either 1) decide to proceed to review the appeal, 2) if the group is not the board, it may decide to remain neutral and pass the appeal up to the next level, or 3) stop the process and accept the previous level's decision. The appeal, outcome and process shall be documented, including the appellant's acceptance (or lack of it) and the outcome published to the Alliance membership.

11 Elections

Many technical group leadership positions are elected positions. Some are single leadership positions, such as the Chair of a group. Other positions require more than one person, such as the At-Large Member position of a group or committee.

The process to elect one or more people to a position is as follows:

1. The voting pool represents the member or member companies with voting rights in the group holding the election.
2. The quorum and minimal approval are based on the standard procedural voting requirements.
3. The nomination and voting time window is established by the group holding the election.
4. Neither the candidate, nor the nominator is required to be part of the voting pool.
5. The group holding the election is responsible for designating someone as the responsible party to collect the nominations, publish the ballot, collect the votes, and publish the results. To reduce the chance and/or perception of partiality, the responsible party shall not be someone from a company that employs a person that may be nominated for a position in the election. A designated person working for the Alliance can be used as the responsible party. The Alliance shall be the responsible party for elections for chairs and At-Large positions.
6. When a call for nominations is issued, the following should be included:
   - Date for closure of nominations
   - Designated person to collect nominations
   - Timing of the vote and closure of the voting window.

   It is recommended that the election be announced at least one month before the start of the nomination period, and that the nomination and voting period be at least 2 weeks each.

   Only after the nomination period, shall the nominee names be released by the responsible party, and not before. The nominee names shall be released to the entire voting pool at the same time. If some positions do not have a nominee, another nomination and voting period shall be opened for those positions.
7. Each candidate may send an e-mail to the voting pool describing their intentions and capabilities for the position or these may be collected by the designated person collecting nominations to include when the vote is issued.
8. At the close of the nomination process, the call for a vote is issued, including the following:
   - Description of the position and voting pool
   - The deadline for voting
   - The quorum and minimum approval for the vote
   - The name of each candidate
   - Instructions on how to vote
   - Where to return a vote

Each voting member may vote for one or more candidates listed in the ballot. Votes are tallied for each candidate and the candidates with the highest number of votes are given the one or more positions. This is called Approval Voting and allows a greater voter approval of a candidate that may not be a first choice for many voters. For example, half the voters may choose candidate A as a first choice, and the other half choose candidate B. However, if a large majority also votes for candidate C then candidate C will then have the highest number of votes for the position. This type of voting helps to eliminate extremes and runoffs by settling on a candidate accepted by the majority.

The vote is returned to the person designated by the group holding the vote. The voting totals are

not published; only the results are published to the membership.

If there is a tie that would approve of more candidates than there are positions, then either a new position is created (for example, another At-Large Member), a co-position is established (for example, Co-Chairs), or a run-off election is held. This is up to the group holding the vote.

When this voting is done for a singular position (such as Chair), the winning candidate must have more than 50% of the participating voters or a runoff election will be held by the group. For the runoff, candidates shall have the option to drop out. If no one drops out, the candidates with a number of votes below a threshold established by the group will be dropped for the runoff election.

When voting is done where there are more than one position open, the positions are filled by those receiving the most votes. When there are 3 positions the top 3 candidates receiving votes are elected plus any other candidates receiving more than 50% of the participating voters up to the maximum number of positions to be filled.

11.1 Recommended Election Cycles

Unless otherwise defined in WG Charter, elections of leadership roles, including the Chair roles, At-Large Members and SC Members should begin one month before the third AMM of the calendar year with the winning candidates announced at the third AMM.

All elections for a WG should be done in the same calendar year, every other year.