

Approved Minutes
ANSI-Accredited Standards Committee C63[®]
Electromagnetic Compatibility

SUBCOMMITTEE 2 – E3 Terminology Definitions and EMC Best Practices

Wednesday, 19 November 2019, 1300 to 1430
Keysight Technologies, Santa Rosa, CA

1. **Call to Order.** Mr. Marcus Shellman, SC2 Chairman, called the meeting to order.
 - 1.1. **Opening Remarks:** The Chairman welcomed everyone to the meeting and recognized the SC2 officers.
 - 1.2. **Meeting Logistics Announcements:** The Chairman addressed meeting arrangements for the afternoon sessions.
 - 1.3. **Introductions:** The Secretary conducted the roll call to record SC2 membership attendance and determine the establishment of a quorum. The meeting attendee list appears in Attachment 1.
 - 1.4. **Quorum:** Based on the number of SC2 member attendees, the Secretary determined that a quorum was achieved.

2. **Review and Adoption of the Agenda.** The Chairman presented the agenda, highlighting key areas of significance for the meeting. Motion to approve the agenda as written was passed by voice vote. See Attachment 2. The approved agenda will be provided to Ed Hare along with the SC2 report to the main committee. (see Action Item 20191119 -1)
 - 2.1. **Approval of the Previous Minutes:** The chairman displayed draft minutes of the SC2 meeting held on 01 May 2019 at UL-LLC, Research Triangle Park, NC. The minutes were approved as written.
 - 2.2. **Review of the Patent Slides:** The C63[®] Patent Policy slides were presented as they appear on the C63[®] public website and reviewed as required. There were no objections to the patent policy.
 - 2.3. **SC2 Scope and Duties:** The SC2 Scope and Duties were shown were presented. The motion for approval was passed by voice vote.

3. **Review of Subcommittee Membership.**

3.1. **Membership.** The chairman displayed the SC2 membership as it appeared on the agenda. It was noted that Jason Coder is now SC7 Chairman. That change needs to be made to the membership list.

Mr. Shellman will provide Jerry Ramie with the needed membership list change. (See Action Item 20191119-2)

3.2. **Members at Risk.** The Chairman displayed the Member Attendance Log, which highlights members at risk. He noted that there are no members at risk at this time.

3.3. **Consideration of new members.** The chairman addressed the consideration of new members for SC2 stating that he has not received any new applications for membership. No new members have been added to the SC2 roster at this time. The SC2 membership list appears in attachment 3.

5. **SC2 Status and Working Group Reports.**

5.1. **Working Group 1 Report.** Mr. Duncanson provided an update of WG1 activities since the last meeting and provided a revised update schedule for the five-year update period for ANSI C63.14-2014. He briefly discussed the process for inclusion of new terms and definitions and elaborated on the rules for terms and definitions inclusion in the draft update. He provided an update of the SC2 coordination process for C63[®] standards noting that since the May series of meetings terms and definitions have been coordinated from draft ANSI C63.4, C63.10, C63.15 and C63.24. He presented a table that detailed the numbers of new terms, new definitions, or modifications to definitions from all the C63 standards. He also displayed a table showing contributions of all the C63[®] standards from a historical perspective, indicating what version of the standard was used in the 2014 update of C63.14 and in the current 2019 draft. He noted this provides a method of tracking all the standards and ensuring that the proper version (publish date) is reflected in the corresponding C63.14 publish date, ensuring that no standards slip through the cracks.

He addressed the status of new military terms and definitions and noted specifically that draft MIL-STD-464D, “Electromagnetic Environmental Effects Requirements for Systems,” and draft MIL-HDBK – 240B, ”Electromagnetic Environmental Effects to Ordnance Guide,” are expected to be published before the end of the year.

He also addressed the status of the .14 update effort reporting that the International Harmonization review with SC3, mandatory for balloting, was initiated on 18 July 2019. Additionally, C63.14 draft version 1.06 was

distributed to SC2 members for a 30-day review on 17 September 2019. Following discussion of the fact that no SC review comments had been received to date, the motion was made that the SC take a vote to move draft .14 forward into the formal balloting process. The motion passed by voice vote.

Mr. Duncanson addressed open WG1 actions from the previous meeting. They included the terms: “office equipment,” associated with draft C63.9; and “vehicle,” associated with draft C63.30. It was reported that development of these definitions has been completed, making the actions overtaken by events.

He displayed the schedule for completion of the C63.14 update stating that the projected date for publishing of the document will be around the end of the May timeframe 2020.

- 5.2. **Working Group 2 Report.** Mr. Dilay provided a status update for draft ANSI C63.28-20XX,” Best Practice Methodologies, Processes, and Procedures for Electromagnetic Compatibility (EMC).” He displayed the “Purpose” and “Scope” of the document, noting that verbiage was recently added in consideration of the DoD and the military perspective. He displayed the SC2 WG2 roster as it appears on the C63[®] website and addressed members at risk. He identified two members at risk, Dan Hoolihan and Richard Worley. They will be notified about their standing in the working group. Regarding new membership he acknowledged that Dave Shaefer has requested to join the working group. The WG roster will accordingly be updated to include the new membership. (See Action Items 20191119-3 and 20191119-4)

He provided an update on the WebEx meetings held monthly since the Spring series of C63[®] meetings held in May. He introduced the latest draft of C63.28, version 1.361 providing an overview of how the current content is taking shape and noting that the document currently consists of 11 clauses, 9 in progress with initial drafts that are included in the latest revision, and 2 that still require initial drafts or significant input prior to inclusion in the document. He discussed the need for assistance with development of the section addressing “test instrumentation,” in particular. He also noted that this guide will assist in the recommended use of C63[®] standards by providing an overview, applications, lessons learned, and comparisons with other major national and international EMC standards. Mr. Ramie noted, with respect to test instrumentation, that Rohde & Schwarz has just become a C63[®] member and should be consulted for assistance. During discussion Mr. Hodes brought up the subject of competence for EMC professionals and a recommendation that .28 address personnel qualifications, such as iNarte certification. There was agreement that this area should be considered for inclusion in the document. Mr. Dilay took an action to reach out to Rohde & Schwarz. (See Action Items 20191119-5)

He went over the status of the document and displayed the current table of contents. He reemphasized the need for feedback from the subcommittee chairs to return the completed questionnaires on information about their standards. He revisited the requested information and addressed the critical role the questionnaires will play in providing relevant content, such as lessons learned or conformity to other standards, etc., to augment the description, purpose and intended use of individual C63[®] standards. He concluded the report with a summary that addressed the focus of the project and WG needs in terms of writing assistance.

5.3. **SC2 Coordination with C63[®] Subcommittees.** Mr. Shellman addressed the responsibility of all subcommittee chairs to coordinate with SC2 on preparation of their terms and definitions prior to seeking a ballot decision. Mr. Delisi noted that SC4 would soon be submitting definitions from draft C63.30.

6. **Other Old Business.** None.

7. **New Business.** None.

8. **C63[®] SC2 Website Status.** Mr. Dilay stated that the SC2 member website would be brought up to date following this meeting.

9. **Action Item Review.**

9.1. **Newly assigned actions appear below:**

| Action Item # | Subject | Responsible Person(s) | Status | Delivery Date | Comments |
|---------------|--|-----------------------|--------|---------------|----------|
| 20191119-1 | Provide Ed Hare with the approved SC2 agenda from today's meeting along with the SC2 report for the C63 [®] Main Committee. | Mr. Shellman | | ASAP | |
| 20191119-2 | Provide Jerry Ramie with SC2 membership list change that Jason Coder is now SC7 Chairman | Mr. Shellman | | 06/24/2020 | |
| 20191119-3 | Contact Dan Hoolihan and Richard Worley that their SC2 WG2 membership is at risk. | Mr. Dilay | | 06/24/2020 | |
| 20191119-4 | Provide Jerry Ramie with SC2 WG2 membership list change to add Dave Shaefer to the roster. | Mr. Dilay | | 06/24/2020 | |
| 20191119-5 | Reach out to Rohde & Schwarz ANSI C63 [®] members for assistance in development of the C63.28 clause addressing "test instrumentation." | Mr. Dilay | | 06/24/2020 | |

9.2. **Action Items from the previous meeting appear below:**

| AI # | <u>ACTION ITEM</u> | <u>Disposition</u> |
|-------------|--|---------------------------|
| 20180502-7 | SC2 WG1 to review draft ANSI C63.9, coordinate with SC5 on development of a definition for the term, “office equipment.” | CLOSED |
| 20181128-6 | Mr. Dilay to reestablish contact with the IEEE database POC to follow-up on IEEE database status and revisit the feasibility of an ANSI C63.14 database. | CLOSED |
| 20190501-1 | Mr. Shellman to provide Ed Hare with the approved SC2 agenda from today’s meeting along with the SC2 report for the C63® Main Committee. | CLOSED |
| 20190501-2 | Mr. Shellman to provide Jerry Ramie with SC2 membership list change that Vladimir Bazhanov should be removed as SC7 Chairman | CLOSED |
| 20190501-3 | Obtain ANSI C63.15-2017, incorporate terms and definitions into draft C63.14-20XX. | CLOSED |
| 20190501-4 | Review SC3 standards comparison reports received to date, for format and content alignment with draft C63.28-20XX. Propose change recommendations for submission to the SC3 Chair. | CLOSED |
| 20190501-5 | Implement identified corrections to the SC2 agenda item 5.3; list of C63® Subcommittees and their active standards. | CLOSED |

9.3. **C63® Newsletter Input.** Mr. Shellman stated that preparation of the newsletter input is pending but would be provided to Mr. Zimmerman.

10. **Time and place of next meeting.** The next SC2 meeting is scheduled for 24 June 2020 to be held via WebEx.

11. **Adjournment.** The SC2 meeting was successfully completed as scheduled. The chairman adjourned the meeting at 1700.

Attachment 1

**SC2 Meeting Attendance List (19 November 2019)
Keysight Technologies, Santa Rosa, CA**

| NAME | TITLE | EMAIL |
|-------------------|-----------------------------|--|
| Marcus Shellman | Chair, SC2 | marcus.shellman.civ@mail.mil |
| Chris Dilay | Vice Chair, SC2 | chris.dilay@navy.mil |
| Michael Duncanson | Secretary, SC2 | michael.duncanson@amentum.com |
| Dan Hoolihan | Chair, C63 [®] | danhoolihanemc@aol.com |
| Jerry Ramie | Secretary, C63 [®] | jramie@arctechnical.com |
| Doug Kramer | Chair, SC1 (proxy) | douglas.kramer@ets-lindgren.com |
| Don Heirman | Chair, SC3 | d.heirman@ieee.org |
| Bob Delisi | Chair, SC4 | bob.delisi@ul.com |
| Ed Hare | Chair, SC5 | WIRFI@arrl.org |
| Randy Long | Chair, SC6 | rlong@anab.org |
| Janet O'Neil | Member | j.n.oneil@ieee.org |
| Harry Hodes | Member | harry.hodes@baclcorp.com |
| Pao Thao | Guest | pao_thao@Starkey.com |
| Wally Arceneaux | Guest | wally.arceneaux@csa.rohde-schwartz.com |
| Jeff Evans | Guest | jeff.l.evans@intel.com |
| Ernesto Mendoza | Guest | ernesto.mendoza@signity.com |

Attachment 2

C63[®] Accredited Standards Committee C63[®]

Electromagnetic Compatibility

Subcommittee 2: E3 Terminology Definitions and Best Practices

Chair: Marcus Shellman Vice Chair: Chris Dilay Secretary: Michael Duncanson

November 19, 2019; 1:00 PM - 2:30 PM - EST

Keysight Technologies
12 Laboratory Drive
Santa Rosa, CA 27709-3995

Meeting Agenda

1. Call to Order: Chair

1.1 Announcements: Chair's remarks -

1.2 Meeting logistics announcements: Host

1.3 Introductions: Secretary – roll call (record attending members with their affiliations and guests separately below) **Report any roster errors to the ASC-C63[®] Secretary** (insert [SC2 membership roster](#) from the website as shown below)

Subcommittee 2 Membership Roster

| Name | Role in SC | Affiliation |
|-------------------|---------------------------|--|
| Marcus Shellman | Chair Subcommittee 2 | DoD-Joint Spectrum Center (JSC) |
| Chris Dilay | Vice Chair Subcommittee 2 | Naval Information Warfare Center (NIWC), Pacific |
| Michael Duncanson | Secretary Subcommittee 2 | DoD-Joint Spectrum Center (JSC) |
| Dan Hoolihan | C63 [®] Chair | Hoolihan EMC Consulting |
| Zhong Chen | Chair Subcommittee 1 | ETS - Lindgren |
| Don Heirman | Chair Subcommittee 3 | Don HEIRMAN Consultants |
| Bob DeLisi | Chair Subcommittee 4 | Underwriters Laboratories |
| Ed Hare | Chair Subcommittee 5 | ARRL |
| Randy Long | Chair Subcommittee 6 | ANSI-ASQ National Accreditation Board |
| Vacant | Chair Subcommittee 7 | |
| Stephen Berger | Chair Subcommittee 8 | TEM Consulting |
| Harry Hodes | Member | Bay Area Compliance Laboratories Corp. |
| Janet O'Neil | Member | ETS - Lindgren |

Guests and Observers: (non-voting)

1.4 Quorum: (50% of roster + 1) constitutes a quorum. (rounding down) (Example: 9 roster members / 2 = 4.5 + 1 = 5.5 (therefore 5 people are required for a quorum) **Was quorum**

| Name | Role | 11/08/2016 | 05/09/2017 | 11/08/2017 | 05/02/2018 | 11/28/2018 | 05/01/2019 |
|-----------------------------------|----------------|------------|------------|------------|------------|------------|------------|
| Marcus Shellman | SC2 Chair | x | x | x | x | x | x |
| Chris Dilay | SC2 Vice Chair | x | x | x | x | x | x |
| Michael Duncanson | SC2 Secretary | x | x | x | x | x | x |
| Dan Hoolihan | C63 Chair | x | | x | x | x | x |
| Zhong Chen | SC1 Chair | | | | x | x | |
| Don Heirman | SC3 Chair | | x | x | x | x | x |
| Bob DeLisi | SC4 Chair | | | x | x | x | |
| Ed Hare | SC5 Chair | | x | x | x | x | x |
| Randy Long | SC6 Chair | x | | x | | x | x |
| Vacant | SC7 Chair | | | | | x | |
| Stephen Berger | SC8 Chair | | | | x | x | |
| Janet O'Neil | Member | x | | x | x | x | x |
| Harry Hodes | Member | | | | x | x | |

achieved? (Yes/No) If not, any actions taken are subject to confirmation by electronic ballot or at a future meeting. (Quorum is not required for Working Group meetings)

2. Approval of the Agenda: Secretary

2.1 Approval of the previous Minutes - [Minutes of the previous meeting](#)

2.2 Review of the [patent slides](#) -

3. Review of [Subcommittee Membership](#) - Report any errors to the ASC-C63[®] Secretary

3.1 Review of Membership Guidelines –

Subcommittees:

For an individual to remain a voting member of a Subcommittee, active participation in Subcommittee meetings and regular responses to Subcommittee email votes is required. Should a member fail to attend at least one of three consecutive scheduled meetings (in person or remotely via web conference (when used)) or respond to at least one of every two consecutive Subcommittee email votes, their membership in that Subcommittee may be at risk.

Note: Abstentions shall be treated the same as a “yes” or “no” vote regarding the requirement to respond to email votes.

Working Groups:

For an individual to remain a member of a Working Group, active participation is required. Should a member fail to attend at least one of three consecutive scheduled meetings (in person or via web conference (when used)) their membership in that Working Group may be at risk. Individual Working Groups may establish additional participation criteria and/or modify this requirement. (insert Member Attendance Log as below)

Member Attendance Log:

Any members at risk? These members are at risk: (send letter to each member at risk)

3.2 Consideration of new members? [Application for C63® Subcommittee Membership](#)

4. Approval of [Scope and Duties](#) (Spring meeting only) (Report approval or any changes to the Main Committee)

Scope: E3 Terminology, Definitions, and Best Practices

Subcommittee 2 (SC2) is responsible for developing electromagnetic environmental effects (E3) terminology for C63® publications, and harmonizing the use of E3 terms with U.S. military and international standardization bodies. SC2 is also responsible for developing guidelines and best practices for application of C63®, other commercial, and U.S. military E3 standards.

Duties:

- (1) ANSI C63.14, "American National Standard, Dictionary of Electromagnetic Compatibility (EMC) including Electromagnetic Environmental Effects (E3)"
- (2) ANSI C63.28, "American National Standard, Guide for Best Practices for EMC."

4.1 Election of Officers (as required)

5. Working Group reports - Chair - [More information about each standard](#) is available on the Standards Status Matrix page of the [C63® web site](#). This information will be reviewed for accuracy at each Subcommittee meeting.

5.1 C63.14 – Definitions - Duncanson (insert link to [WG report](#).) Verify accuracy of document [status matrix](#) content and report any errors to the ASC-C63® Secretary.

Is this information correct? (Yes/No) (repeat this verification for all Standards covered by this Subcommittee)

5.2 C63.28 – Best Practices for Electromagnetic Compatibility - Dilay (insert link to [WG report](#)) Verify accuracy of document [status matrix](#) content and report any errors to the ASC-C63® Secretary.

Is this information correct? (Yes/No) (repeat this verification for all Standards covered by this Subcommittee)

5.3 Coordination with other ASC-C63® Subcommittees on terms/definitions

- SC1:** C63.2, C63.4, C63.5, C63.7, C63.22, C63.23, C63.25, C63.25.1, C63.25.2
- SC3:** C63.12
- SC4:** C63.10, C63.26, C63.29, C63.30, C63.31
- SC5:** C63.9, C63.15, C63.16, C63.24
- SC6:** C63.8, C63.11

SC7: C63.17, C63.27

SC8: C63.18, C63.19

6. Other Old Business: Chair

6.1 Written reports - Written reports of this Subcommittee meeting shall be presented by the Subcommittee Chair at the Main Committee meeting. These reports shall be made using the [PowerPoint template](#). Prior to the Main Committee meeting, the [SC report](#) and [approved previous meeting minutes](#) shall be provided to the projectionist for showing on the screen at the Main meeting. The Presentation and any written report shall also be sent by the Subcommittee Chair to the ASC-C63® [Newsletter editor](#).

6.2 Coordination with SC2 prior to standard balloting – Process change for standards publication to include draft submission to SC2 for review of definitions prior to the balloting process.

6.3 Coordination with SC3 for harmonization - Before any Working Group draft can be submitted to the Subcommittee for approval, the document must be provided to the SC3 Chair for evaluation and coordination of any harmonization effort.

7. New Business: Chair

8. [C63.org](#) website use and updates: Secretary - We normally post documents to the [SC2 protected area](#). If any SC or WG needs help with this posting, a Technical Secretary is available to assist.

9. Review of the Action Items: Secretary

9.1 Review of Action Items from this meeting: Secretary - (read Action Items to Members, who must agree that they understand their meaning)

9.2 Review of Action Items from previous meeting: (insert consolidated Action Item table from the previous meeting Minutes as shown below)

Consolidated Action Items from previous Meeting of SC2

| # | <u>ACTION ITEM</u> | <u>Disposition</u> |
|------------|--|--------------------|
| 20180502-7 | SC2 WG1 to review draft ANSI C63.9, coordinate with SC5 on development of a definition for the term, “office equipment.” | 11/19/2019 |
| 20181128-6 | Mr. Dilay to reestablish contact with the IEEE database POC to follow-up on IEEE database status and revisit the feasibility of an ANSI C63.14 database. | 11/19/2019 |
| 20190501-1 | Mr. Shellman to provide Ed Hare with the approved SC2 agenda from today’s meeting along with the SC2 report for the C63® Main Committee. | 11/19/2019 |
| 20190501-2 | Mr. Shellman to provide Jerry Ramie with SC2 membership list change to remove Vladimir Bazhonov. | 11/19/2019 |
| 20190501-3 | Obtain ANSI C63.15-2017, incorporate terms and definitions into draft C63.14-20XX. | 11/19/2019 |
| 20190501-4 | SC2 WG2 to review SC3 standards comparison reports received to date, | 11/19/2019 |

| # | <u>ACTION ITEM</u> | <u>Disposition</u> |
|------------|--|--------------------|
| | for format and content alignment with draft C63.28-20XX. Propose change recommendations for submission to the SC3 Chair. | |
| 20190501-5 | Mr. Duncanson to implement identified corrections to the SC2 agenda item 5.3; list of C63® Subcommittees and their active standards. | 11/19/2019 |

9.3 Review Newsletter input: The SC Presentation and any written report shall also be sent by the Subcommittee Chair to the ASC-C63® [Newsletter editor](#).

10. Time and place of next meeting: Chair

11. Closing remarks and Adjournment: Chair

***** End of Meeting

Consolidated Action Items from today's Meeting of SC2

| Action Item # | Subject | Responsible Person(s) | Status | Delivery Date | Comments |
|---------------|---------|-----------------------|--------|---------------|----------|
| 20191119-1 | | | | | |
| | | | | | |

Attachment 3

SC2 Membership List

Chairman – Marcus Shellman
ASC C63[®] / SC2 Membership Roster

| NAME | TITLE | EMAIL |
|-----------------------|-------------------------------|--|
| Mr. Marcus Shellman | Chair, SC2 (WG1/WG2) | marcus.shellman.civ@mail.mil |
| Mr. Chris Dilay | Vice Chair, SC2 (WG1/WG2) | chris.dilay@navy.mil |
| Mr. Michael Duncanson | Secretary, SC2 (WG1/WG2) | michael.duncanson@aecom.com |
| Mr. Dan Hoolihan | Chair, C63 [®] (WG2) | danhoolihanemc@aol.com |
| Mr. Zhong Chen | Chair, SC1 | zhong.chen@ets-lindgren.com |
| Mr. Don Heirman | Chair, SC3 (WG2) | d.heirman@ieee.org |
| Mr. Bob Delisi | Chair, SC4 | bob.delisi@ul.com |
| Mr. Ed Hare | Chair, SC5 | WIRFI@arri.org |
| Mr. Randy Long | Chair, SC6 | rlong@anab.org |
| Vacant | Chair, SC7 | |
| Mr. Stephen Berger | Chair, SC8 | stephen.berger@ieee.org |
| Mr. Harry Hodes | Member (WG1/2) | harry.hodes@baclcorp.com |
| Mr. Victor Kuczynski | Member | vican@on.aibn.com |
| Ms. Janet O'Neil | Member | j.n.oneil@ieee.org |