

APPROVED MINUTES - ANSI ASC C63® SC 1: Techniques and Development
NIST
Boulder, CO
November 29, 2018

Presiding Officer: Zhong Chen

Date Prepared: November 29, 2018

Members Present:

Mark Arthurs
Mike Antola
Zhong Chen (Chair)
Bob DeLisi
Mac Elliott
Andy Griffin
Tim Harrington (via WebEx)
Harry Hodes (Vice-Chair)
Dan Hoolihan
Steve Jones
Jeff Klinger (via WebEx)
Doug Kramer
Victor Kuczynski
Randy Long
Jason Nixon
Michael O'Dwyer
Janet O'Neil (Secretary)
Dan Sigouin
Jeff Silberberg
Dennis Ward
Khairul A. Zainal (via WebEx)
David Zimmerman

Members Absent:

Don Heirman
Bob Hofmann
Greg Kiemel
Rick Lombardi
Nate Potts
Mits Samoto
Werner Schaefer
David Schaefer

Guests:

Henry Benitez
Steve Berger
David Chamberlain
JC Chen
Jason Coder
Ed Hare
George He
Ho Sze Khaian
John Norgard
Jerry Ramie
Warwick Wong
Deanna Zakharia

Employer:

Sony
Honeywell
ETS-Lindgren
Underwriters Laboratories Inc. (UL)
TUV Sud America
Cisco
FCC
Bay Area Compliance Laboratories
Hoolihan EMC Consulting
FCC
Compatible Electronics
ETS-Lindgren
Vican Electronics
ANAB
ISED Canada
Apple
ETS-Lindgren
DHS
FDA Center for Devices & Radiological Health
PCTEST
Laird Technologies
Spectrum EMC Consulting, LLC

Employer:

Don HEIRMAN Consultants
Hofmann EMC Engineering
Element Materials Technology
Visteon
Keysight
Liberty Labs Asia
Schaefer Associates
TUV Sud America

Employer:

IEEE EMC Society
TEM
ISED
Apple
NIST
ARRL
Google
Motorola Solutions
NASA/JSC
ARC Technical Resources
Google
Motorola Solutions

1.0 Call to Order—Chair

1.1 Opening Remarks and Announcements: Chair

1.2 Meeting Logistics Announcements: Host

1.3 Introductions: Secretary

Chair Zhong Chen called the meeting to order at 3:00 pm. A round of introductions was made.

2.0 Approval of the Meeting Agenda and SC 1 Scope: Chair

Zhong Chen presented the draft agenda for the November 29, 2018 (v2) meeting for review. (See Attachment A.) **Dan Sigouin moved to approve the agenda as presented. The motion was seconded and approved.**

3.0 Presentation of [patent slides](#): Chair

Zhong Chen gave a presentation to review the status of the meeting fees, the ANSI policy related to Intellectual Property (IP), inappropriate topics for IEEE working group meetings and the working group meeting slide template. (See Attachment B.) **Mr. Chen moved to confirm everyone present agreed to abide by the procedures outlined in the patent slides. The motion was seconded. All confirmed compliance.**

4.0 Approval of Minutes of Previous Meeting: Secretary

Secretary Janet O’Neil presented the minutes of the May 3, 2018 meeting held at IEEE in Piscataway, NJ. There was one change to show the affiliation of Randy Long as ANAB. **Jeff Silberberg moved to approve the May 3 minutes with this amendment. The motion was seconded and approved.** The approved minutes are included in Attachment C.

5.0 Review of [Subcommittee Membership](#): Secretary

5.1 Review of membership – Members at risk. Janet O’Neil advised that there are two members who have missed three meetings in a row, plus they have missed this meeting: Thomas Dickten and David Waitt. They will be removed from SC 1 Membership. (See the Member Attendance Log included in Attachment A for the updated membership tracking record.)

5.2 Consideration of New Members. The secretary reported to the subcommittee that a membership application was sent to John Havrilla, however, he has not returned a completed application.

The secretary reviewed the roster of working group members as shown on the C63 website. Some revisions were made. The updated roster of working groups and the SC 1 membership roster are included in Attachment D to these minutes.

ACTION ITEM: All working group Chairs need to complete their rosters and indicate their officers (Vice-Chair and Secretary) and submit to Chair prior to the next meeting (May 2019).

6.0 Working Group Reports

C63.4: Emissions Measurements

Working Group Chair: Don Heirman

Status: C63.4: Current-2014. New PINS approved by WG, SC1 and C63 in Nov. 2017

Status: C63.4a: Published-2017. C63.4a amendment to C63.4-2014

Harry Hodes presented this report in the absence of Don Heirman. (See Attachment E.) He advised there were 36 attendees at their five hour working group meeting on November 27, 2018.

As a bit of background, at the November 2016 WG meeting, three teams were formed for amending certain clauses in C63.4-2014:

- Team 1 (Clauses 1 to 5) - Heirman leader
- Team 2 (Clauses 6 to 11) - Popovici leader
- Team 3 (Clauses 12 & annexes) - Harrington leader

The working group reviewed the standard to make sure that “shall” applied to requirements and that “should” is only for informative statements. This clarified the normative and informative aspects of the standard in all clauses in the standard now and being amended. The PINS was approved in November 2017.

The working group will continue its aggressive schedule and work by holding monthly webinars. In addition, teams will hold webinars approximately monthly. They have maintained a sequence of team and full working group webinars (roughly one week apart). A “master” document has been created so that all teams see the entire document in case changes also apply to other parts of the work. Presently they are close to 95 percent completed. The working group approved sending the present draft to SC1 to get additional inputs/review – note this has nothing to do with an “approval” vote.

At its meeting held on November 27, 2019, the working group reviewed inputs presented. They focused on items that needed further resolution and action items. Qualitative terms such as “small”, “large”, etc were removed to be sure that requirements are clear. They discussed the need for and size of a vertical coupling plane for conductive emission testing in a laboratory environment and at open area test site. The “loop back” cable arrangement was discussed in reference to various applications including vertical rack drawers/shelves with multiple plug-in with cabling to another unit, overhead cabling, and cabling between units in a single drawer. The working group will coordinate with similar requirements in other C63 standards such as C63.5.

Highlights of the meeting included revision of the antenna positioning requirements for final radiated emission measurements at 1 GHz and above to better describe aiming the antenna as its height above the ground plane varies (8.3.2.2). They added an option of positioning the receiving antenna horizontal to the ground plane as it is scanned in height when measuring radiated emission measurements in the frequency range 1 GHz to 40 GHz (8.3.2.2).

In summary, the working group updated the full “master” draft and discussed further changes as needed. They agreed upon a tentative schedule and will continue to seek SC1 input. Two webinars planned for January and February 2019. Target publication is in 2019.

Harry noted he will circulate the latest version of the document within a few days to SC1. Any SC1 comments are requested to be sent to Don Heirman by the end of December 2018. Harry asked that if anyone has information on boresight test techniques to contact him. Zhong Chen asked about the calibration and test site validation content being part of C63.4 as well as C63.5 and C63.25. Harry replied that they will create an “order of precedence” text to address this content.

ACTION ITEM: Send the current draft of C63.4 to SC 1 for review with comments due to Don Heirman by December 31, 2018.

C63.5: Antenna Calibration

Working Group Chair: Doug Kramer

Status: Current-2006. Public notice appeared in ANSI Standards Action; publication delayed, expected by end of May 2017

Doug Kramer presented his report. (See Attachment F.) He advised the Corrigendum document is in the BSR-9 stage of final review. It should be published soon. It is expected that a completely new document on C63.5. will be published at the end of 2020.

The working group held a meeting on Tuesday, November 27. They addressed the following items:

- Loop and ECSM clean up
- NSA clarifications
- Site-requirements (Annex J)
- Uncertainty
- General clean-up consideration
- Rearrangement under consideration – If this occurs, a new PINS would be needed

Regarding the timeline, if a new PINS is not created, a draft will be ready for consideration by the fall 2019 meeting with a ballot being issued for voting in 2020. If a new PINS is created, the PINS would be submitted for voting electronically with all timelines delayed by 6-12 months.

The Chair asked that the committee harmonize their wording with the wording in the international standards such as CISPR, i.e. replace site method with “three antenna method”, for example. Free space antenna calibration is written together with reference site method calibration; these topics are very different and should be separated in the document.

C63.22-2004: Guide for Automated EMI Measurements

This document is current and there are no plans for maintenance at this time. It was suggested that IEEE confirm the status of this document.

ACTION ITEM: Don Heirman to check with Jennifer Santulli of IEEE to confirm the status of this document.

C63.23-2012: Guide for Computations and Treatment of Measurement Uncertainty

Working Group Chair: Jason Nixon

Harry Hodes noted that this document was reaffirmed at the May 2018 meeting. No further action is required at this time.

C63.25: Time Domain Applications for Test Site Validation

Working Group Chair: Dan Sigouin

Status: New Standard. Draft being written. PINS approved by SC 1 on October 27, 2014

Dan Sigouin presented his report. (See Attachment G.)

The working group met on Tuesday, November 27, 2018; 16 people attended. They addressed the C63.25 standard series, including:

- C63.25.1 (1 GHz to 18 GHz) TDR
- C63.25.2 (30 MHz to 1000 MHz) NSA
- Future plan for above 18 GHz

He noted the C63.25.2 (30 MHz to 1000 MHz) PINS is current. Work on C63.25.2 will begin once C63.25.1 is published. The C63.25.1 draft (above 1 GHz) is still at the BSR8/BSR9 stage. The C63.25.2 (30 MHz to 1000 MHz) PINS is current.

Regarding the draft C63.25.1 (1 GHz to 18 GHz), in November 2017 the C63.25.1 working group submitted the draft to SC1. Subsequently all comments received were resolved by the working group. In early December 2017, SC1 approved sending the draft C63.25.1 to the parent C63 main committee. The draft was circulated twice after two rounds of comments. The draft C63.25.1 (20171114) was approved by the C63 main committee on March 22, 2018. In April, IEEE formed a ballot group for C63.25.1. All comments received were addressed by the working group by July 27, 2018. The revised draft "C63.25.1/D1.01, August 2018" was submitted to IEEE. The BSR-8 was submitted on August 10, 2018. At the end of October 26, 2018, IEEE received an enquiry regarding the process. This put the BSR-9 process on hold. After receiving no further correspondence, the BSR-9 was forwarded in early November 2, 2018. On November 6, 2018 ANSI rejected the BSR-9 C63.25.1, specifically citing the section 2.6 of the ANSI essential requirements. On November 8, IEEE initiated a 10-day re-circulation of the draft C63.25.1. The re-circulation closed on November 19, 2018.

Unfortunately, three C63 members provided 'new' comments and **NOT** on existing comments as per the rules of re-circulation. On Tuesday, November 27, 2018 during the working group meeting, the group discussed and provided a response for each comment. Afterwards, a vote was taken on two options in order to move forward as follows:

Option 1: *Proceed to re-circulate a revised draft on only the comments provided during the BSR8 process.*

Option 2: *Move to "reject" all the comments, however, provide the response to the comments and consider for the next issue.*

The majority of the working group voted for option 2. The results have been forwarded to IEEE. It is expected the BSR-9 C63.25.1 process will commence once again. The working group expects publication by the end of 2018.

7.0 Old Business – Chair - There was no old business to discuss.

8.0 New Business – Chair

8.1 Boresighting Requirements for Testing above 1 GHz (C63.4) – The Chair noted there is a new proposal in the C63.4 working group to provide two options where one can measure with and without boresighting > 1 GHz. After discussion, the working group was asked to decide what the consensus would be on the decision and report at the next meeting.

8.2 Coordination with SC3 for Harmonization – The Chair noted that before any working group draft may be submitted to the SC1 for approval, the document must be provided to the SC3 Chair for evaluation and coordination of any harmonization effort. Doug Kramer requested that anyone who has comments on these CISPR document comparisons to the ANSI C63 equivalents to contact him. See table for recent activity:

Reviewer Actions from 9/19/18 Meeting of SC3

RA #	Task	Responsible party	Due Date	Status
RA-1	Compare C63.2 to CISPR 16-1-1	Harry Hodes	11/29/18	Open
RA-2	Compare C63.4 to CISPR 16-2-X	Doug Kramer	11/29/18	Open
RA-3	Compare C63.4 to CISPR 16-1-4	Doug Kramer	11/29/18	Open
RA-5	Compare C63.5 to CISPR 16-1-6	Doug Kramer	11/29/18	Open
RA-6	Compare C63.5 to SAE ARP 958	Doug Kramer	11/29/18	Open
RA-7	Compare C63.5 to CISPR 16-1-4	Doug Kramer	11/29/18	Open
RA-14	Compare C63.23 to CISPR 16-4-2	Bob DeLisi	11/29/18	Open
RA-15	Compare C63.25.1 to CISPR 16-1-4?	Bob DeLisi	11/29/18	Open

ACTION ITEM: SC 1 members to contact Doug Kramer with comments on these CISPR document comparisons to the ANSI C63 equivalent documents.

9.0 Review of Interpretation Requests: Zhong Chen reviewed the following open interpretation requests (Items a-d) since the last meeting on May 3, 2018. Note Interpretation Requests have been suspended by the parent committee; however, it was requested these requests below remain on the agenda for now.

- a) **C63.4 (2014) “D3 NSA Vertical 3 Meters”** from Charles Wang, request dated 8-29-17. Subgroup members confirmed at the meeting included Don Heirman (chair) and Khairul Zainal.
- b) **C63.4 (2014) Annex N.1 Antenna Symmetry** from Alexander Kriz, request dated 11-14-2017. Subgroup members include Zimmerman (chair), Heirman, Sigouin, DeLisi, Dickten, Potts, Waitt, Schaefer, Kuczynski, Hodes, and Chen. Response being addressed by subgroup.
- c) **C63.4 (2014) “Clauses 5.5.1 & 8.2.4 sVSWR”** from David Schaefer, request dated 12-22-17. Subgroup members include M. Elliott (chair), Hodes, Heirman, DeLisi, Pott, and Kuczynski. *Subgroup’s response approved on May 3 for sending on to parent committee.*
- d) **C63.4 (2014) Annex N vs. C63.5 re/ Symmetry** from Nate Potts, request dated 3-7-2018. Subgroup members include DeLisi (chair), Harrington, Heirman, Hodes, Potts, W. Schaefer, and Zimmerman. Response being addressed by subgroup.

[Click here for more information about interpretation request procedures](#) (see pages 12-14).

Dan Hoolihan reminded the committee that responses to interpretation requests are informative, NOT normative, in nature.

10.0 [C63.org](#) Website Use and Updates

Jerry Ramie requested members be specific with any requests for postings to the website. He asked members to be sure to update or confirm they are correctly listed on the website.

11.0 Review of the Action Items from Previous Meetings: Secretary

Secretary O'Neil advised that an updated action item list would be distributed to the SC 1 members along with the draft minutes from this meeting.

ACTION ITEM: O'Neil to distribute the updated consolidated action items and draft minutes from the November 29, 2018 meeting to the committee.

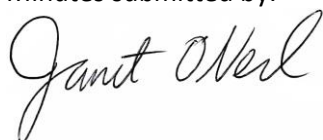
12.0 Time and Place of Next Meeting: Chair

Zhong Chen noted the next series of C63® meetings would be held over April 29 to May 3, 2019 at UL in Raleigh, NC. The SC 1 meeting will be held on Thursday, May 2, 2019.

13.0 Closing Remarks and Adjournment: Chair

With no further business, Zhong Chen adjourned the meeting at 5:30 pm. He thanked everyone for attending the meeting.

Minutes submitted by:



Janet O'Neil
Secretary, SC 1

ATTACHMENTS

- Attachment A: Agenda for November 29, 2018 SC 1 Meeting
- Attachment B: Patent Slides Required Meeting Template Slides for ASC C63®, IP Info
- Attachment C: Approved Minutes from May 3, 2018 SC 1 Meeting
- Attachment D: SC 1 Working Group Roster
- Attachment E: Heirman Report on C63.4 and C63.4a
- Attachment F: Kramer Report on C63.5
- Attachment G: Sigouin Report on C63.25 standards series