

**APPROVED MINUTES - ANSI ASC C63® SC 1: Techniques and Development
ETS-Lindgren
Cedar Park, Texas
November 9, 2017**

Presiding Officer: Zhong Chen

Date Prepared: November 9, 2017

Members Present:

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

Members Absent:

Thomas Dickten
Bob Hofmann
Werner Schaefer
David Waitt
Steve Whitesell

Guests:

Vladimir Bazhanov
Henry Benitez
Al Crumm
Jeremiah Darden
Mario Guerrero
Beth Hackett
Ho Sze Khian
Sue Kim
Jerry Ramie
Jen Santulli
Sue Vogel
Bill Young
Deanna Zakjoria

Employer:

Sony
Honeywell
ETS-Lindgren
Underwriters Laboratories Inc. (UL)
TUV Sud America
Cisco
FCC
Don HEIRMAN Consultants
ACIL/Proficiency Testing Services
Hoolihan EMC Consulting
FCC
Element Materials Technology
Compatible Electronics
ETS-Lindgren
Vican Electronics
Visteon
L-A-B
ISED Canada
Apple
ETS-Lindgren
Keysight
Liberty Labs Asia
DHS
FDA Center for Devices & Radiological Health
TCB Council
PCTEST
Laird Technologies
Spectrum EMC Consulting, LLC

Employer:

GCC
Hofmann EMC Engineering
Schaefer Associates
Assessor
Consultant

Employer:

Ericsson AB
IEEE EMC Society
Consultant
Element Materials Technology
NVLAP
NVLAP
Motorola Solutions
IEEE-SA
ARC Technical Resources
IEEE-SA
IEEE-SA
NIST
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 9, 2017 meeting for review. (See Attachment A.) There was one addition to the agenda since it was last circulated. The change involved adding Item 6.5 to address the relationship between SC1 and SC 3. **Don Heirman moved to approve the agenda as amended. The motion was seconded and approved.**

Mr. Chen presented the scope of SC 1 as follows:

Subcommittee 1 provides the technical expertise and resources necessary for maintaining existing and newly proposed C63[®] approved standards documents. New or existing measurement methods, site qualification methods, calibration methods, associated instrumentation, and limits development are incorporated as assigned by the Main Committee ASC C63[®].

Dan Hoolihan advised that SC 1 needs to review and approve a list of standards under its jurisdiction. **Mr. Chen showed the list of standards. The list includes C63.2, C63.4, C63.4a, C63.5, C63.7, C63.22, C63.23 and C63.25. Don Heirman moved to approve the list of SC 1 standards 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 10, 2017 meeting held at A2LA in Maryland. **Harry Hodes moved to approve the minutes as distributed. 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 no members at risk of losing their membership in SC 1. (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 received from Mike Antola of Honeywell. **It was moved and seconded to approve the membership of Mr. Antola in SC 1.**

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 2018).**

6.0 Working Group Reports

C63.4: Emissions Measurements

Working Group Chair: Don Heirman

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

- a) C63.4 Full revision: Status: Current-2014. New PINS-C approved by WG, SC1 and C63 in Nov. 2014
- b) C63.4a - Limited Amendment Status: PINS approved in 2016 by C63 Recirculation ballot closed on April 5 – comments under review

Don Heirman presented his report on C63.4. (See Attachment E.) He held a working group meeting on November 7. 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. Don provided background information on dividing the document into three sections to be reviewed by three teams as follows:

- 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 teams have held over thirty 2-hour webinars in 2017 (over 60 hours of deliberations). The document is presently close to 90 percent completed and should be ready for review by SC 1 at the end of January 2018. See the report for a review of the key changes made to the document.

Next Don presented on C63.4a (Amendment of C63.4-2014 mainly on test site validation from 30 MHz to 1 GHz). (See Attachment F.) He noted this document was published on October 17, 2017. He thanked the working group members and noted this working group has been disbanded. You can order the document at <http://standards.ieee.org/> (enter “C63.4a” in the “Find a Standard” prompt).

Harry Hodes asked to be recorded that the C63.4a standard applies to EUTs over two meters in height. Bob DeLisi noted that C63.4a document was required to address this equipment.

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 G.) There was a reboot of the working group with 14 attendees at the meeting held on Tuesday, November 7). A PINS for the corrigendum as a result of a recent interpretation request response will be presented for vote under “New Business” later in the meeting. The working group will address the following topics as included in the PINS for next version of C63.5 (approved by the main committee at its May 2017 meeting):

- Loop Calibration
- Alternative sites
- Time-gating
- Other topics (Uncertainty, Free-Space, CISPR coordination)

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 H.) He reviewed the activity undertaken at the working group meeting held on November 7 with 28 attendees. A proposal was made to have a stand-alone NSA site validation standard as C63.25.2 (30 – 1000 MHz). The majority of the attendees agreed to move C63.4a Annex D (NSA) into C63.25.2 (when adopted). The work on what words should be used in the merging of C63.4a Annex D (NSA) into C63.25.2 will be completed by early December 2017. The C63.25 draft (above 1 GHz) is now C63.25.1 and will be circulated to SC1 in the near future. The C63.25 WG will consider measurement uncertainty for a future draft of C63.25.1.

A PINS for C63.25.2 (moving Annex D out of C63.4a) was presented to SC1 for discussion. Several suggestions were made to revise the PINS. Bob DeLisi agreed to revise the PINS accordingly and will bring this to the committee to review later in the meeting.

Dan discussed the rationale for the upcoming motion to approve the news PINS for C63.25.2 (moving Annex D out of C63.4a) and including any relevant information from C63.4 and C63.5 which impact NSA measurements (e.g. antennas allowed to be used, geometry-specific correction factors for biconical dipoles used in normalized site attenuation measurements). He noted the CISPR technique for site validation above 1 GHz (CISPR 16-1-4:2012-07), called the Site-VSWR (sVSWR) approach, is referenced in C63.25.1.

The alternative approach to test site validation is the time domain method detailed in C63.25.1. The user will now have the ability to select the option of choosing between the two techniques. Because the time domain approach is relatively new and has yet to be adopted universally, detailed specifics of how to perform the measurement will be provided in C63.25.1.

Dan reiterated the advantages of C63.25, namely:

- TDR method is an excellent tool for troubleshooting site issues.
- The TDR method has several useful features such as:
 - Requires less time to perform the validation above 1 GHz
 - Provides an indication of where the site may be deficient and thus allowing the use of corrective measures to bring the site into compliance

To summarize, the family of C63.25 standards now includes:

- C63.25.1 (1 GHz to 18 GHz) TDR
- C63.25.2 (30 MHz to 1 GHz) NSA
- C63.25.3 Future plans for below 30 MHz measurements

The following action items were discussed for the C63.25 working group:

Bob DeLisi to present a new PINS to SC1, regarding C63.25.2 (moving Annex D out of C63.4a) 30 MHz to 1 GHz.

Don Heirman to provide what wording in C63.4a-2017 Annex D should be merged into C63.25.2 as soon as possible ~ December 4, 2017.

Greg Kiemel and Dan Sigouin to move C63.25.1-20xx (1 GHz to 18 GHz) to SC1 for comment (once Tim Harrington has reviewed).

7.0 Old Business – Chair

There was no old business to discuss.

8.0 New Business – Chair

8.1 Discussion of PINS for next edition of C63.4. The motion sent to SC1 on Oct 23 with vote deadline of Oct 27 was reviewed. The PINS was discussed, several changes were made, and the PINS was approved as amended. (See Attachment I.) **Don Heirman moved to approve the PINS as amended. The motion was seconded. Dan Hoolihan abstained from voting. Andy Griffin voted against the motion. Motion passed.**

8.2 Discussion of PINS for next edition of C63.23. Zhong Chen presented the PINS. The PINS was discussed and several changes were made. **Don Heirman moved to approve the PINS as amended.** (See Attachment J.) **The motion was seconded and approved.** Those interested in being a working group chair for this work should contact Zhong Chen, SC 1 chair.

8.3 Discussion of PINS for next edition of C63.5 Corrigendum as a result of the interpretation request response (see Item 9.d below). The PINS was discussed and a few changes were made. **Bob DeLisi moved to approve the PINS as amended.** (See Attachment K.) **The motion was seconded and approved.**

8.4 Discussion of PINS for C63.25.2. Bob DeLisi shared the revised PINS for this work. (See Attachment L.) **Bob moved to approve the amended PINS as presented. Mac Elliott seconded the motion. The motion was approved**

8.5 Relationship between SC 1 and SC 3. Don Heirman indicated that SC 3 compares C63 standards with those on the same or similar topics in the IEC (CISPR). It keeps track of the SCs that are responsible for the C63 standards, which are in these comparisons. Virtually all the SC1 standards are in these comparisons necessitating a member of SC1 to be at the SC 3 meetings to speak to these comparisons. At this time, the chairs of each C63 SCs are identified as SC 3 members, which can name a person to be at SC 3 meetings to speak to the status of the comparisons of standards, which are under the scope of SC1 with the near equivalent IEC CISPR standards. The intent is to see where there may be overlap and where there are voids in what is covered. This is meant to lead to further harmonization.

9.0 Review of Interpretation Requests: Zhong Chen reviewed the following open interpretation requests (Items a-e) and closed interpretation request (Item f) activity since the last meeting on May 10, 2017. A link to the response for the closed interpretation request is provided below.

- a) C63.5 (2006) **“Annex H Antennas for NSA”** from Charles Wang, request dated 5-7-16; Subgroup members include DeLisi (Chair), Hodes and Potts. *Note subsequent to the meeting the response was approved by SC 1 and sent to the parent committee on December 11, 2017.*
- b) C63.4 (2014) **“Clause 4.5 Horn Antenna Aperture”** from Charles Wang, request dated

5-7-16; Subgroup members include Samoto (Chair), Zainal, Heirman, Pettit, Chen, DeLisi, and Potts. Sent to parent committee on June 15, 2016; rejected on July 5, 2016; revised and resent to SC 1 on April 12, 2017. Tim Harrington's response distributed to SC1 following 5-10-17 SC 1 meeting. Circulated in SC-1 June 9, 2017, closed June 16, 2017. Editorial comments were incorporated, including mention of Oct. 13, 2017 publication date of ANSI C63.4a; final version for parent committee circulation sent to SC-1 Chair on Nov. 8, 2017. Finalization and web-posting remains needed because C63.4a has a citation in a footnote to this document and the C63 interpretations webpage. C63.4a-2017 Introduction: "Based on a recently issued interpretation, ^b the measurement distance criterion for electric field strength measurements (1 GHz to 40 GHz) with horn antennas in 4.5.5 (and in table footnotes in 4.5.1) of ANSI C63.4-2014 is modified to as it was in the 1992 edition of ANSI C63.4, and consistent with CISPR 16-1-4 and CISPR 16-2-3 [B14]. ^b Clause 4.5 Horn antenna aperture, June 2017 (http://c63.org/documents/misc/posting/new_interpretations.htm)

- c) C63.4 (2014) "**Annex N 1b2 Antenna Symmetry**" and C63.5 (2006) "**Section 4.4.1**" from Scott Drysdale, request dated 5-11-17; Subgroup members include Zimmerman (Chair) Heirman, Chen, Hodes, Waitt, Schaefer, Potts, DeLisi, and Zainal. Response sent to SC 1 on 10-30-17. **A motion was made to approve the response for sending to the parent committee. The motion was seconded and approved.**
- d) C63.5 (2017) "**Clause 5.1.1e Attenuator Selection**" from David Knight, request dated 5-19-17; Subgroup members include DeLisi (chair), Waitt, Zainal, Potts, Hodes, Chen, and Kuczynski. Response sent to C63 secretary on 8-29-17 for review and approval by parent committee. A new PINS was approved to address this response (see Item 8.5 above).
- e) C63.4 (2014) "**D3 NSA Vertical 3 Meters**" from Charles Wang, request dated 8-29-17. Call for subgroup members email sent on 10-31-17. Subgroup members confirmed at the meeting included Don Heirman (chair) and Khairul Zainal.
- f) C63.5 (2017) "**Clause 4.4.3 Rx Antenna Height Scan**" from David Knight, request dated 5-19-17; Subgroup members include DeLisi (chair), Samoto, Potts, and Kuczynski. Response sent to C63 secretary on 10-9-2017 for review and approval by parent committee. Closed.

[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. (See Attachment M for the Action Items list.)

ACTION ITEM: O'Neil to distribute the updated consolidated action items and draft minutes from the November 9, 2017 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 30 – May 4, 2018 at IEEE Headquarters in Piscataway, New Jersey. The SC 1 meeting will be held on Thursday, May 3, 2018.

14.0 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 9, 2017 SC 1 Meeting
- Attachment B: Patent Slides Required Meeting Template Slides for ASC C63®, IP Info
- Attachment C: Approved Minutes from May 10, 2017 SC 1 Meeting
- Attachment D: SC 1 Membership Roster and Working Group Roster
- Attachment E: Heirman Report on C63.4
- Attachment F: Heirman Report on C63.4a – Status Report
- Attachment G: Kramer Report on C63.5
- Attachment H: Sigouin Report on C63.25
- Attachment I: PINS for Next Edition of C63.4
- Attachment J: PINS for Next Edition of C63.23
- Attachment K: PINS for Next Edition of C63.5 Corrigendum
- Attachment L: PINS for Next Edition of C63.25.2
- Attachment M: Consolidated Action Item List