

**APPROVED MINUTES - ANSI ASC C63® SC 1: Techniques and Development
A2LA, Frederick, MD
May 10, 2017**

Presiding Officer: Zhong Chen

Date Prepared: May 10, 2017

Members Present:

Mark Arthurs
Zhong Chen (Chair)
Bob DeLisi
Tim Harrington
Don Heirman
Harry Hodes (Vice-Chair)
Dan Hoolihan
Greg Kiemel
Jeff Klinger (via WebEx)
Victor Kuczynski
Rick Lombardi (via WebEx)
Jason Nixon
Janet O'Neil (Secretary)
Nate Potts
Mits Samoto (via WebEx)
Werner Schaefer
Jeff Silberberg
Dennis Ward
Khairul A. Zainal
David Zimmerman

Employer:

Sony
ETS-Lindgren
Underwriters Laboratories Inc. (UL)
FCC
Don HEIRMAN Consultants
ACIL/Proficiency Testing Services
Hoolihan EMC Consulting
Element Materials Technology
Compatible Electronics
Vican Electronics
Visteon
ISED Canada
ETS-Lindgren
Liberty Labs
Liberty Labs Asia
Schaefer Associates
FDA Center for Devices & Radiological Health
PCTEST
LS Research
Spectrum EMC Consulting, LLC

Members Absent:

Masud Attayi
Thomas Dickten
Mac Elliott
Andy Griffin
Bob Hofmann
Mike Howard
Steve Jones
Randy Long
Michael O'Dwyer
Dan Sigouin
David Waitt
Art Wall
Steve Whitesell
Deanna Zakjoria

Employer:

Blackberry Corp.
GCC
ACS Test Lab
Cisco
Hofmann EMC Engineering
Liberty Labs
FCC
L-A-B
Apple
DHS
Assessor
TCB Council
Consultant
Motorola Solutions

Guests:

Al Crumm
Beth Hackett
Ho Sze Khian
Doug Kramer
John Lichtig
Dheena Moongilan
John Norgard
Ghery Pettit (via WebEx)
Jerry Ramie
Megan Riebau

Employer:

Consultant
NVLAP
Motorola Solutions
ETS-Lindgren
Lichtig EMC Consulting
Alcatel Lucent
NASA/JSC Houston
Pettit EMC Consulting
ARC Technical Resources
A2LA

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 May 10, 2017 meeting for review. (See Attachment A.) There was one addition to the agenda since it was last circulated. The change involved adding a discussion of the C63.23 standard. **Don Heirman moved to approve the agenda as amended. The motion was seconded and approved.**

Mr. Chen presented the updated 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[®].

Mr. Chen moved to approve the updated scope of SC 1. The motion was seconded and approved.

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, C63.5, C63.23 and C63.25. Harry Hodes 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 November 9, 2016 meeting held at IEEE in Piscataway, New Jersey. **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 Attachment D for the updated membership tracking record.)

Don Heirman moved to approve the SC 1 membership list as presented with the removal of Dean Ghizzone. The motion was seconded and approved.

5.2 Consideration of Members. The secretary reported to the subcommittee that no new SC 1 membership applications were received since the last meeting on November 9, 2016.

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 E 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 (Nov 2017).**

6.0 Working Group Reports

C63.2: Specifications for Electromagnetic Noise and Field Strength Measurement Instrumentation

Working Group Chair: Werner Schaefer

Status: Published in December 2016

This standard was published in late December 2016. Dan Hoolihan, C63 Chair, presented an award to Werner Schaefer for his work on C63.2. SC 1 members gave him a round of applause. Chair Zhong Chen thanked Werner Schaefer and his working group members for their efforts on this standard. This agenda item will be removed from future agendas.

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 F.) There has been major activity since the last face-to-face meeting in November 2016. The working group reviewed many inputs on the use of “shall” and “should” to clarify normative and informative aspects of the standard in clauses 1 through 5. They discussed the need to perform NSA site validations to cover EUT heights of up to 3 meters and established three “teams” to amend, where appropriate, parts of the 2014 revision of the standard. The working groups have held monthly webinars since the November 2016 meeting to review particular areas needing discussion and team output.

Changes proposed to date include:

- Added phase requirement for LISNs
- Proper use of shall/should aggressively pursued
- Added new Clause 1.4 (dimensional tolerances)
- Measurement uncertainty now applies to the entire document
- Revised definitions (bin size, arrangements, configurations, auxiliary, peripheral, test setup, etc.)
- New sub-clause for preamps
- Clarified average detection 4.2.4.2
- Reformatted tables 1, 2 and 3 on antenna use
- Active loop, monopole and horn antenna overload addressed
- Calibration of measuring equipment was updated to cover all ancillary equipment
- Use 2017 version of C63.5 and new version of C63.2
- Continue to use undated ANSI references
- Clarified turntable below and above 1 GHz (metallic, non-metallic)
- Moved text around to where it belongs without changing requirements
- Vertical coupling plane was clarified for table, floor, combination equipment
- Test site below 30 MHz to use ground plane without NSA needed
- Annex D not addressed as it is handled the in C63.4a Amendment

- Removed patch of absorber on ground plan; all >1 GHz must meet SVSWR to 18 GHz (applicable to 40 GHz)
- In-situ testing is aligned with C63.10 content

At the working group's meeting on May 9, they discussed the draft to date and discussed further changes as needed. They included consideration of all interpretations and reviewed topics to be postponed until after the present one in preparation is published. Then, they will prepare a draft to ballot probably by the end of 2017. A PINS will be sent to SC 1 for review in September. Publication is expected in late 2018 or early 2019.

Discussion was held on measurements below 30 MHz.

ACTION ITEM: The C63.4 working group should coordinate where appropriate with the work in (for example) the C63.31 working group on measurements below 30 MHz made in various test chambers including those which are semi-anechoic chambers that are NOT lined with ferrite tiles.

Don Heirman next talked about the amendment C63.4a and provided the history. (See Attachment G.) The working group met on May 9, 2017. The ballot closed on April 6, 2017. There were two negative ballots and two approvals with comments. The working group reviewed all comments and developed resolutions to amend the draft. The next step is to circulate the ballot comment resolutions to SC1 for approval. Approval will allow a recirculation ballot to occur with changes based on the comment resolutions. An amended draft will be sent to the secretariat along with the comment resolution for a recirculation ballot in May. If the ballot is successful, Don expects publication by August 2017. This is the first amendment to a C63 standard to be published/processed.

SC 1 Chair Zhong Chen noted that a motion was approved in the C63 steering committee to correct the far field equation in C63.4-2014. The correction is intended to be included in C63.4a.

C63.5: Antenna Calibration

Working Group Chair: Bob DeLisi

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

Bob DeLisi presented his report. The standard C63.5-2017 was published last week. Zhong Chen acknowledged the efforts of Bob DeLisi and his working group in finishing this standard. He also acknowledged the efforts of past chair Dennis Camell of NIST who is now retired. A new working group is being formed to address the next edition of C63.5.

C63.25: Test Site Validation

Working Group Chair: Dan Sigouin

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

Working Group member Greg Kiemel reported in the absence of Chair Dan Sigouin. They had a good meeting yesterday. They addressed measurement uncertainty (MU) and including this in an informative annex. He expects the document to be ready to review by SC 1 at the November 2017 meeting. Harry Hodes asked why MU was included in C63.25. Werner Schaefer replied that there are calibration labs that perform this site validation service. It is helpful for them to have MU included so the measurements are made correctly. Zhong Chen confirmed that this MU text addresses the measurement process only, not other factors such as the chamber reflections, etc.

Zhong Chen provided some background on this standard. In February 2016 it was decided and approved by the SC1 Chair that the C63.4 working group chaired by Don Heirman will continue addressing the site

validation requirements below 1 GHz. The document C63.25 is only addressing the frequency range 1 GHz to 18 GHz regarding site validation. The time domain SVSWR method in the current draft of C63.25 is for all intent and purposes complete. Again, the plan is to circulate a draft of the standard to SC1 at the November meeting, or certainly by the end of 2017.

7.0 Old Business – Chair

7.1 Discussion on Far-Field Criteria for Antenna Measurements – Zhong

(Reference Clause 4.5 Horn Antenna Aperture Interpretation Request) Since there was significant email traffic on this interpretation request, Zhong Chen thought it best to discuss this topic face-to-face. There is no documentation to determine why the 2D squared over lamda equation was changed in C63.4 in 2003. Zhong noted Tim Harrington provided an alternative interpretation request response. (See Attachment H.) The committee discussed this response. Zhong noted he would distribute this to SC 1 for review and approval.

ACTION ITEM: Zhong to distribute a new response to the interpretation request using Tim Harrington’s suggestion and including a reference to the recently published C63.5 (2017) to SC 1 for review and approval.

8.0 New Business – Chair

8.1 Call for new members for C63.5 Working Group – Zhong Chen noted he has received a PINS from Doug Kramer on work required for the next edition of C63.5. He showed the PINS to the committee and invited comments. Comments received were incorporated into the PINS. (See Attachment I.) **Harry Hodes moved to approve the PINS for the next edition of C63.25. The motion was seconded and approved.** The PINS will be presented to the parent committee at the meeting tomorrow.

8.2 Standard C63.23 is at the five year mark. Jason Nixon noted there are updates needed to reflect measurements called out in C63.10 and C63.26.

ACTION ITEM: Jason Nixon to provide a PINS for work required to update the next revision of C63.23.

ACTION ITEM: Zhong Chen to circulate the PINS for revision to C63.23 to SC 1 for approval by electronic vote.

8.3 Review of Interpretation Requests: Zhong Chen advised there have been several interpretation requests received shortly before or after the last SC 1 meeting on November 9, 2016. Items a-b below are closed with response available via hyperlink. Items c-d are open.

- a) [C63.4 \(2014\) Annex D.3 Horizontal Polarization](#)” from Charles Wang, request dated 5-7-16
Subgroup members include Heirman (Chair), Zainal, and Hodes
- b) C63.4 (2014) [“Clause 5.5.1 \(a\) \(1\) and Figure 6”](#) from Larry Stillings, request dated 11/18/2016; Subgroup members include Sigouin (Chair), Chen, Heirman, DeLisi, Schaefer, Zimmerman, Waitt, Dickten, Hodes, and Pettit
- c) C63.5 (2006) **“Annex H Antennas for NSA”** from Charles Wang, request dated 5-7-16; Subgroup members identified at the May 10, 2017 meeting include Hodes (subgroup chair), DeLisi and Potts
- d) 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 Main Committee on June 15, 2016; rejected on July 5, 2016; revised and resent to SC 1 on April 12, 2017

[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.

11.0 [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.

12.0 Review of the Action Items from Previous Meetings: Secretary

Secretary O'Neil advised that an updated action item list will be distributed to the SC 1 members along with the draft minutes from this meeting. (See Attachment J for the Action Items list.)

ACTION ITEM: O'Neil to distribute the updated consolidated action items and draft minutes from the May 10, 2017 meeting to the committee.

13.0 Time and Place of Next Meeting: Chair

Zhong Chen noted the next series of C63[®] meetings would be November at ETS-Lindgren in Cedar Park, Texas. The SC 1 meeting will be held on Wednesday, November 8, 2017.

14.0 Closing Remarks and Adjournment: Chair

With no further business, Zhong Chen adjourned the meeting at 4:00 pm. He thanked everyone for attending the meeting.

Minutes submitted by:



Janet O'Neil, Secretary, SC 1

ATTACHMENTS

- Attachment A: Agenda for May 10, 2017 SC 1 Meeting
- Attachment B: Patent Slides Required Meeting Template Slides for ASC C63[®], IP Info
- Attachment C: Approved Minutes from November 9, 2016 SC 1 Meeting
- Attachment D: Meeting Attendance/Tracking List
- Attachment E: SC 1 Membership Roster and Working Group Roster
- Attachment F: Heirman Report on C63.4
- Attachment G: Heirman Report on C63.4a – Status Report
- Attachment H: Tim Harrington Interpretation Response on Clause 4.5 Horn Antenna Aperture
- Attachment I: PINS for Next Edition of C63.5
- Attachment J: Consolidated Action Item List