

APPROVED MINUTES
ANSI ASC C63® SC 1: Techniques and Development
IEEE
Piscataway, NJ
May 11, 2016

Presiding Officer: Zhong Chen

Date Prepared: May 11, 2016

Members Present:

Mark Arthurs
Zhong Chen (Chair)
Bob DeLisi
Mac Elliott
Andy Griffin (via telecom)
Don Heirman
Harry Hodes (Vice-Chair)
Bob Hofmann (via telecom)
Dan Hoolihan
Steve Jones
Rick Lombardi (via telecom)
Randy Long
Jason Nixon
Michael O'Dwyer
Janet O'Neil (Secretary)
Ghery Pettit (via telecom)
Nate Potts
Mits Samoto
Werner Schaefer
Dan Sigouin
Jeff Silberberg
Art Wall
Dennis Ward
Steve Whitesell
Khairul A. Zainal
David Zimmerman

Members Absent:

Masud Attayi
Dean Ghizzone
Tim Harrington
Mike Howard
Greg Kiemel
Jeff Klinger
Victor Kuczynski
Don Umbdenstock

Guests:

Vladimir Bazhanov
Steve Berger
Mark Briggs
Dave Case
Chris Dilay
Ed Hare
Beth Hackett
Doug Kramer
Megan McConnell
Dheena Moongilan
John Norgard
Jerry Ramie
Sue Vogel
Deana Zakharia

Employer:

Sony
ETS-Lindgren
Underwriters Laboratories Inc. (UL)
ACS Test Lab
Cisco
Don HEIRMAN Consultants
ACIL/Proficiency Testing Services
Hofmann EMC Engineering
Hoolihan EMC Consulting
FCC
Visteon
L-A-B
ISED Canada
Apple
ETS-Lindgren
Pettit EMC Consulting
Liberty Labs
Liberty Labs Asia
Schaefer Associates
DHS
FDA Center for Devices & Radiological Health
TCB Council
PC Test Lab
Consultant
LS Research
Spectrum EMC Consulting, LLC (via telecom)

Employer:

Blackberry Corp.
Northwest EMC
FCC
Liberty Labs
Northwest EMC
Compatible Electronics
Vican Electronics
Tyco Retail Solutions

Employer:

Ericsson AB
TCM
Intel
Cisco
SPAWAR
ARRL
NVLAP
ETS-Lindgren
A2LA
Alcatel Lucent
NASA/JSC Houston
ARC Technical Resources
IEEE
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 1:00 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 11, 2016 meeting for review. (See Attachment A.) **Don Heirman 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 that reviewed the status of the meeting fees, 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 Presentation of [meeting attendance](#) fee slides: Chair

Zhong Chen reviewed the meeting attendance fee structure and noted that Dan Hoolihan, Chair of C63[®], would contact individuals present who are required to pay a meeting attendance fee.

5.0 Approval of Minutes of Previous Meeting: Secretary

Secretary Janet O'Neil presented the minutes of the November 11, 2015 meeting held at UL in Research Triangle Park, NC. The meetings were hosted by UL. **Don Heirman moved to approve the minutes as distributed. The motion was seconded and approved.** The approved minutes are included in Attachment C.

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

6.1 Review of membership – Members at risk. Janet O'Neil advised that Doug Parker was at risk of losing membership in SC 1, meaning by not attending the meeting today, he has missed three consecutive meetings. (See Attachment D for the updated membership tracking record.)

6.2 Consideration of Members. The secretary reported to the subcommittee that a new SC 1 membership application was received from Jason Nixon of Innovation, Science and Economic Development Canada (formerly Industry Canada). His application and resume were distributed to members of SC 1. His membership application was endorsed by Art Wall, Bob DeLisi, and Andy Griffin. **Dan Sigouin moved to approve the membership application of Jason Nixon. The motion was seconded and approved. Mac Elliott noted he had sent in a membership application to SC 1 in December 2015. He resent the membership application to Zhong Chen who in turn distributed it to the members for review and discussion later in the meeting (see item 8 below for further information).**

ACTION: O'Neil to add Jason Nixon and Mac Elliott to the SC 1 membership roster.

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 (November 2016).

7.0 Working Group Reports

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

Working Group Chair: Werner Schaefer

Status: PINS submitted to IEEE on May 8, 2013. Next edition in progress C63.2

Werner Schaefer presented his report. (See Attachment F.) He advised that the ballot closed on Tuesday, April 21, 2015. There were 19 people in the ballot pool. There were three negative votes, four no responses, zero abstentions, six approvals and six approvals with comments. The ballot passed as there was 63% Approval (Majority Test - entire ballot body) and 80% Approval (Two-thirds Test: returned votes, excluding abstentions).

The reasons for the negative votes included:

- Change of the lower frequency from 10 Hz to 9 kHz
- Existence of Table 2 in new revision (concern was that test instrumentation acceptable under CISPR 16-1-1 would be unacceptable under C63.2)

In response to the limitation of the frequency range to 9 kHz an inquiry was made to the Tri-Services committee with an extended deadline for response and no input was received. Based on this situation, the two negative votes were withdrawn in writing.

On the concern related to harmonization of test equipment, Werner noted C63.2-2016 clause 1.2 clearly states that the standard does harmonize the requirements in CISPR 16-1-1. However, it was agreed that additional wording would be added to clause 3 to indicate harmonization. This still needs to be addressed.

He followed up on his action items from the last SC 1 meeting to spell out the acronyms in the standard (VSWR, CISPR, CW, EMI, IF, and LISN). On the definitions, it was proposed to defer this to C63.14. He also added standards such as CISPR 16-2-1/2/3 to the bibliography of the standard, not the normative reference section.

Following is the planned timeline to finalize the document:

- Text to be completed by June 15, 2016
- Submission to IEEE (Sue Vogel) by June 30, 2016

C63.4: Emissions Measurements

Working Group Chair: Don Heirman

Status: Current-2014. Next edition planned (2018?)

Don Heirman presented his report on C63.4. (See Attachment G.) He presented his roster of working group members and noted that they represent varied organizations, including government and industry. The working group met on May 9, 2016.

He noted the PINS-C was approved by the working group, SC 1 and C63 in November 2014. Over 21 topics were addressed as being included in the next edition of the standard. Of these 21 topics, the working group narrowed this down to nine, including:

1. Measurement methods above 1 GHz
2. Use of multiple antenna masts/antennas in SAC
3. Remove absorber “patch” option above 1 GHz
4. Way forward with 2 dB “rule”
5. Tolerances for dimensional requirements
6. Adding phase requirements for line impedance stabilization networks (LISNs)
7. Harmonizing visual displays with CISPR 32
8. Revisiting antenna bore citing
9. Handling approved interpretations

On the nine topics to consider, Harry Hodes asked about adding a tenth item to address additional antennas, and not just hybrid antennas. The working group will consider this.

On the next steps for C63.4, Don showed the following activity planned for the working group:

- Continue research work on proposed major changes in standard
- Form PINS for SC 1 to move it to C63 for approval by email in third quarter 2016
- Draft changes for review by first quarter 2017
- Ready for balloting process by mid-2017
- Publish by early 2018

On the amendment to C63.4a related to test site validation for accurate emissions measurements, Don said this would apply as a stand-alone amendment to C63.4-2014. (See Attachment H.)

For reference, the PINS was approved by the working group, SC 1, and the parent C63 committee (2016). It is the first amendment to be processed in C63. Only Annex D on NSA site validation is being modified as a consequence of questions asked by many via the interpretation process. Equations in Annex D as well as other places in text are being corrected. This activity is on a fast track. The working group met on May 9, 2016.

Don summarized the main changes in the draft sent to SC 1 for review:

- Transmit antennas no longer moved
- Test volume key in antenna placement
- Transmit antenna distance to absorbers reduced to 25 cm from 1 m
- Added NSA up to 3 meters above ground plane when testing EUTs that are up to that height
- Added NSA validation for 5-meter test sites
- Figures improved to show clearly the layout of transmit antennas distance to the receive antenna
- Frequency step size for discrete frequency NSA measurements set
- Corrected equations as identified

A few changes in the draft that was sent to SC 1 included:

- Clarify where attenuator pads are placed
- Allow tuned dipole *and* broad band antennas for discrete frequency NSA
- Time to lower antenna **shall** be much longer than spectrum analyzer sweep time
- Refer more to C63.7 for types of problems causing site to not meet NSA
- NSA theoretical tables are for geometries shown; other geometries allowed
- Annex N differential values returned to original values

Steps for C63.4a project:

- Presented to SC 1 for review and approval
- Resolve any comments from SC 1
- Ask at SC 1 meeting to forward to C63 for balloting if all major comments are resolved during SC 1 review
- C63 ballot in August (short document to review)
- Resolve any C63 balloter's comments in September
- Get mandatory editorial coordination (MEC)
- Publish by next C63 meeting in November
- Time for amendment - less than 9 months

Don took the action item to confirm the title of the limited amendment.

Although IEEE assigned a PINS for C63.4a to this work, the PINS was not approved by SC 1. Don will distribute it to the SC 1 committee. Zhong will add a discussion on the PINS to new business for discussion later today with the view to get C63 approval.

C63.5: Antenna Calibration

Working Group Chair: Bob DeLisi

Status: Current-2006. Next edition in progress

Working Group Chair Bob DeLisi presented a report. (See Attachment I.) The PINS (dated October 2012) is on the website. Bob thanked Doug Kramer and Tim Harrington for their editorial review of the document. The last working group meeting was held on Monday, May 9. Twelve people attended, including eight working group members and four guests.

The second recirculation ballot closed on April 22, 2016. The standard was approved. The ballot responses are summarized in his report. There were two negative responses and six commenters. There were a total of 88 comments, the majority of which were editorial in nature. The working group decided to change the symmetry requirement as follows:

- Currently 30-1000 MHz for biconical, LPDA and hybrid
- Changed in this meeting to 30-300 MHz for bicons and hybrids

Bob noted both negative ballot comments were directly related to undated references in C63 standards.

Mits Samoto gave a presentation on antenna VSWR during the working group meeting. The presentation provided an overview of matching pad values at the output of the receive antenna to meet VSWR requirements (2.5:1). The report includes a few slides from Mits Samoto's presentation.

The report concluded with a list of the working group members.

C63.25: Test Site Validation

Working Group Chair: Dan Sigouin

Status: New Standard. Draft being written. PINS Current.

Dan Sigouin presented his report. (See Attachment J.) He confirmed the scope of the standard: This standard provides methods of measurement requirements for the validation of radiated emission test sites in the frequency range of 30 MHz to 18 GHz. These requirements are applicable to open area test sites (OATS), fully and partially covered OATS, semi-anechoic chambers (SAC), and fully anechoic rooms (FAR).

Dan thanked Zhong Chen, Tim Harrington, Greg Kiemel, and Werner Schaefer for their work getting this document ready to review. In February 2016 it was decided and approved by the SC 1 Chair that the C63.4 working group (chaired by Don Heirman) will continue addressing the site validation requirements below 1 GHz. C63.25 is only addressing the frequency range 1 GHz to 18 GHz regarding site validation.

On the new standard, the plan is to circulate a draft to SC 1 in the second quarter of 2016. The time domain method in the current draft of C63.25 is for complete. The PINS is current (see website). Following is the scope of the standard:

This standard provides methods of measurement requirements for the validation of radiated emission test sites in the frequency range of 1 GHz to 18 GHz. These requirements are applicable to fully anechoic rooms (FAR) and when spectrally treated on the floor open-area test sites (OATS), fully- and partially-covered OATS, semi-anechoic chambers (SAC).

The SVSWR method in CISPR 16-1-4 for site validation above 1 GHz is referenced in C63.25. An alternative approach to test site validation is the time domain method detailed in C63.25.

The TDR method has several useful features:

- Requires less time to perform the validation
- Gives an indication of where the site or chamber may be deficient and allowing use of corrective measures to bring it into compliance

The user of the standard will now have the ability to select the option of choosing among the two techniques. Because the time domain approach is relatively new and has yet to be adopted universally, detailed instructions of how to perform the test will be provided in C63.25.

The working group had a face-to-face meeting on May 10, 2016. There were nine attendees. The working group also held two webinar meetings in 2016. There are some action items still to be addressed, including editorial changes and the addition of definitions. On the reporting requirements, an informative checklist will be developed. A flowchart will replace the script used for the VNA necessary for the TDR method in C63.25 which is currently included in the document. However, scripts for the automation of measurement and the processing of data will be made available for download from the public IEEE web site. See <http://standards.ieee.org/downloads/C63/>

8.0 Old Business – Chair

Zhong Chen discussed the SC 1 membership application of Mac Elliott. His application to SC 1 was endorsed by Dan Sigouin, Dave Case and Harry Hodes. It was moved and approved to accept the membership application of Mac Elliott.

9.0 New Business – Chair

Don shared the PINS with SC 1. (See Attachment K.) He noted they will add an “a” after C63.4 on the PINS, i.e. C63.4a. **Don moved to approve the PINS as presented with the addition of an “a” after C63.4a-2014. Ghery Pettit seconded the motion. The motion was approved.**

There was no objection to the PINS so SC 1 will send it on to the parent committee.

10.0 Review of Interpretation Requests: Chair

Zhong Chen advised there have been several interpretation requests received after the last SC 1 meeting on November 11, 2015. Items 1-4 are closed with response available via hyperlink. Items 5 and 6 are open. He reviewed these requests below and asked each subgroup chair to provide a brief summary on the response provided.

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

1. C63.4 (2014) “[CISPR or ANSI Antenna Calibration](#)” from Werner Schaefer, request dated 11-20-15; Subgroup members include Heirman (Chair), Sigouin, Kuczynski, Zainal, Pettit, Ward, Hodes, Samoto, Zimmerman, and Harrington
2. C63.4 (2014) “[Clause 5.5.1 Absorber Height](#)” from Yujiro Seki, request dated 12-16-15; Subgroup members include Heirman (Chair), Chen, DeLisi, Sigouin, Samoto, W. Schaefer, Pettit, and Klinger
3. C63.5 (2006) “[Annex A.A.1 Formula](#)” from Luis Carrion, request dated 1-20-16; Subgroup members include Harrington (Chair), Chen, and DeLisi
4. C63.4 (2014) “[Double Ridge Horn Aperture](#)” (Footnote G) from Dietmar Leugnern, request dated 2-2-16; Subgroup members include DeLisi (Chair) Heirman, Chen, Hodes, Kuczynski, Schaefer, Ward and Zainal
5. C63.4 (2014) “[Annex N.4.3 Use of Attenuators](#)” from Doug Schlam, request dated 3-2-16; Subgroup members include DeLisi (chair), Heirman, Hodes, Kuczynski, Pettit, Samoto, Schaefer, and Sigouin. *Subgroup response sent to Jerry Ramie on May 2, 2016 to forward to the parent committee.*
6. C63.4 (2014) “[Clause 4.4 & 5.6 In-situ LISN Use](#)” from Ehav Ever, request dated 3-24-16; Subgroup members include Heirman (Chair), Harrington and Kuczynski

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

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 L for the Action Items list.)

ACTION ITEM: O’Neil to distribute the updated consolidated action items and draft minutes from the May 11, 2015 meeting to the committee.

13.0 Time and Place of Next Meeting: Chair

Zhong Chen noted the next series of C63[®] meetings will be the week of November 7 in Irvine, California. The SC 1 meeting will be held on Wednesday, November 9.

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 11, 2016 SC 1 Meeting
- Attachment B: Patent Slides Required Meeting Template Slides for ASC C63[®], IP Info
- Attachment C: Approved Minutes from November 11, 2015 SC 1 Meeting
- Attachment D: Meeting Attendance/Tracking List
- Attachment E: SC 1 Membership Roster and Working Group Roster
- Attachment F: Schaefer Report on C63.2
- Attachment G: Heirman Report on C63.4
- Attachment H: Heirman Report on C63.4a
- Attachment I: DeLisi Report on C63.5
- Attachment J: Sigouin Report on C63.25
- Attachment K: PINS on C63.4a
- Attachment L: Consolidated Action Item List