

APPROVED MINUTES

ANSC C63® SC1: Techniques and Development WebEx Meeting

Friday, March 18, 2022

Members Present:

Nicholas Abbondante
Mike Antola
Mark Arthurs
David Chamberlain
Zhong Chen (Chair)
Bob DeLisi
Andy Griffin
Tim Harrington
Dan Hoolihan
Steve Jones
Greg Kiemel
Jeff Klinger
Doug Kramer
Victor Kuczynski
Janet O'Neil (Secretary)
Nate Potts
David Schaefer
Jeff Silberberg
Dennis Ward
David Zimmerman

Members Absent:

Mac Elliott
Rick Lombardi
Randy Long
Nima Molaei
Jason Nixon (Vice Chair)
Dan Sigouin

Guests:

Jens Medler

Employer:

Intertek
UL
Sony
ISED Canada
ETS-Lindgren
Underwriters Laboratories Inc. (UL)
Cisco
FCC
Hoolihan EMC Consulting
FCC
Apple
Cetecom
ETS-Lindgren
Vican Electronics
ETS-Lindgren
Keysight
Element Materials Technology
FDA Center for Devices & Radiological Health
Element Materials Technology
Spectrum EMC, LLC

Employer:

TUV Sud America
Visteon
ANAB
Element Materials Technology
ISED Canada
Timco

Employer:

Rohde & Schwarz

1.0 Call to Order: Chair

Chair Zhong Chen called the meeting to order at 8:00 am PDT.

2.0 Approval of the Consent Agenda: Secretary

Secretary O'Neil presented the consent agenda. This includes the draft meeting agenda for March 18, 2022, the acceptance of the terms contained in the [patent slides](#) by all attendees, and approval of the minutes from the last meeting held on December 17, 2021. The consent agenda was approved as presented. (See Attachment A for the approved agenda. See Attachment B for the Approved Minutes of the December 17, 2021 meeting.)

3.0 Review of [Subcommittee Membership](#) and Scope: Secretary

3.1 Review of Membership – Members at Risk. Secretary Janet O'Neil reviewed the Member Attendance Log included in the agenda. (See Attachment A). Dan Sigouin's membership is at risk since he has missed three consecutive meetings. A

3.2 Consideration of New Members – Working Group Rosters

A new membership application was reviewed and approved for Noel Lim.

The current Working Group Roster is shown [here](#).

ACTION ITEM: All Working Group (WG) Chairs need to complete their rosters and indicate their officers (Vice-Chair and Secretary) and submit to SC1 Chair prior to the next meeting.

3.3 The SC1 Scope was confirmed as follows:

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

4.0 Working Group Reports

C63.2: Field Strength Measuring Instrumentation – 9 kHz to 40 GHz

Working Group (WG) Chair Jens Medler presented his report. (See Attachment C.) His Working Group has 19 members as listed in his report. A new membership request was received from Deniz Demirci (with NTS in Silicon Valley, CA).

On the revision of ANSI C63.2:2016, the last meeting of the WG was held on December 8, 2021. The New Draft (Rev 6) was reviewed, it addresses the comments from SC1 members; all comments were addressed to the satisfaction of SC1. Draft (Rev6) passed the C63 Main Committee ballot. A form that compares C63.2 (new draft) to CISPR 16 1 1:2019 has been sent to SC3 for review. The Final

Draft C63.2 (Rev7) has been sent to IEEE, Jennifer Santulli will start the ballot invitation for C63.2 after the IEEE MEC Process is completed. The parent C63 committee received the invitation from IEEE to join the balloting group with responses due April 4. Once the balloting group is formed, the standard will be sent out for voting. The C63.2 document is basically finished!

ACTION: Jens Medler to create a form that compares C63.2 (new draft) to CISPR 16-1-1.

C63.4: Emissions Measurements

Working Group Chair: Andy Griffin

Status: C63.4: Current-2014. New PINS approved by WG, SC1 and C63 in Nov. 2017. The draft was considerably revised in late 2020; latest draft circulated to SC 1 in mid-2021. Publication timing will be dependent upon publication of C63.25.2 to make sure these documents are harmonized.

Andy Griffin presented his report. (See Attachment D.) He expects to have made significant progress by the next meeting in SC1 May so he'll feel more comfortable on the status of the review by SC1.

Following is a summary of the next steps:

a) Site/Antenna Calibration - We are making good progress with C63.25-2, and we will then remove the relevant parts from C63.4 if the progress is complete. We still have a dated reference to C63.5, so that will remain. C63.25-2 only includes the process for site attenuation; there are no normative requirements for the size of the ground plane, minimum size of the ellipse (or circle) defining the obstruction-free area, etc. If we need some normative requirements then we need to include them in C63.4.

b) Above 1GHz Test Method - We agreed to align the requirements with the current version of CISPR 16 but with modifications based upon the beamwidth and the size of the EUT. Details still need to be defined. There will be no bore-sighting or mandatory scanning from 1m to 4m. Defining the correct turntable rotational requirements is one of the biggest challenges along with the number of slices (turntable rotations) at given antenna heights.

c) Document Review/Misc Activity - We still need to do a full review of the document as much has changed. There is also some misc text that need to fixed.

Andy noted the timing is important to align with the related C63 documents (C63.25.2 and C63.5) to make sure they are published in concert.

C63.5: Antenna Calibration

Working Group Chair: Doug Kramer

Status: Current-2017

Doug advised the WG hasn't met since the last SC1 meeting. There will be no real activity until C63.25.2 is ready. There was one interpretation request that the committee has addressed. On March 18, it was sent to SC1 for a one week comment period, then a vote will be taken in SC1 to approve sending the response to the parent committee. Doug thanked the interpretation request task group members for their assistance in developing the interpretation response. He said there were some great discussions and research done to create the response.

Doug noted Amendment 2 of CISPR 16-1-6 Ed.1.0 was published on March 3, 2022. It includes content on loop antennas and discusses site validation. It adds four additional calibration methods for loop antennas: Three Antenna Method (TAM), Current Probe Method (CPM), Standard Antenna Method (SAM) and Two Antenna Method (TWOAM). TWOAM to be used for the site validation procedure (NSA). We will need to do some comparison work to evaluate their procedure and ours. Jens provided a link for more info - see IEC: <https://webstore.iec.ch/publication/74687>

Nick advised that some of the loop calibration methods in the recently published CISPR 16-1-6 are associated with the new NSIL Normalized Site Insertion Loss site validation measurement method being developed in the latest version of CISPR 16-1-4, which is at the FDIS stage and therefore can only have editorial changes before its publication sometime this year. So not only should C63.5 consider this but SC1 also needs to consider adopting the NSIL method once it is published.

Tim Harrington expressed his viewpoint. Based on the concept that a new measurement methods SC was created a few years back, separate from the historical SC1 scope that covered intentional and unintentional radiators, similarly then SC4 could have its own project to make an uncertainty document. Such SC4 output could even be a relatively “concise” document containing only aspects specific to transmitters and intentional radiators, with cross-references to C63.23 for basic methods where applicable. Considering that CISPR has basic uncertainty document 16-4-2 for only unintentional radiators, and in spirit that SC1 covers only unintentional radiators, thus uncertainties for intentional radiator and transmitter testing should be solely an SC4 project (e.g. C63.23.1).

C63.7: Construction of Test Sites

Status: Published update on March 9, 2015; working group disbanded. Nothing new to report.
Working Group Chair: None – Candidate Requested

Nick noted C63.25.3 will involve different test sites such as CATRs, reverb chambers, etc. Zhong suggested this discussion and wording on test sites for C63.25.3 could be moved to C63.7 at some point. The committee supported the idea of keeping C63.7 as a separate standalone document.

ACTION ITEM: Anyone interested in Chairing the WG and drafting a new PINS for revision of C63.7 should contact Zhong Chen.

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

Status: Reaffirmed on August 10, 2020; posted to IEEE Xplore in October 2020
Working Group Chair: None

SC1 wants to see this standard get updated, but people aren’t willing to work on it. Bob suggested that new SC1 members be required to actively participate on a working group. Jens noted the activity on measurement uncertainty (MU) is picking up in CISPR. He expects new basic standards to include measurement uncertainty contributions. There is nothing about radio measurements in the CISPR documents so Zhong suggests this C63.23 is needed to address this work. Tim asked if we need a separate document on MU for intentional radiators and one for unintentional radiators. Tim also noted the C63.4 overlap on this work. SC1 should recommend that SC4 initiate their own work on MU. Janet suggested asking Carlo Carobbi for assistance in moving this forward.

Bob DeLisi noted that he would like to have a revision made of this document to address wireless measurements.

ACTION ITEM: Bob DeLisi to see if a member of the C63.26 WG is interested in being the Chair of a new C63.23 WG.

C63.25: Time Domain Applications for Test Site Validation

Working Group Chair: Dan Sigouin

Status: New Standard. Draft being written. PINS approved by SC1 on October 27, 2014

Zhong Chen presented on behalf of Dan Sigouin. This work addresses the family of C63.25 standards:

- o C63.25.1 (1 GHz to 18 GHz) TDR – Published Dec 2018 – WG Chair: Dan Sigouin
- o C63.25.2 (30 MHz to 1000 MHz) NSA – Work began in January 2019 – WG Chair: Dan Sigouin
- o C63.25.3 (Above 18 GHz) – Future plan to address NSA above 18 GHz – WG Chair: Nick Abbondante

Dan Hoolihan noted C63.25.1 passed the NPRM stage so it will become part of the FCC rulemaking.

Zhong noted the C63.25.2 WG has been very active. Some comments were received as a result of the recent vote. Comments will be reviewed and addressed. If the comments can be easily addressed, then they will send the document along to the parent committee. Andy commented on the improvement of the new standard since the last version.

On C63.25.3, WG Chair Nick Abbondante presented his report. (See Attachment E.) Current site validation methods only extend up to 18 GHz; however, testing is being performed at frequencies as high as 231 GHz. This standard will develop a list of acceptable types of test sites and their corresponding site validation methods and recommended criteria for frequencies from 18-40 GHz. Existing site validation methods will be leveraged where possible.

Regarding SAC, OATS, and FAR test sites, the committee is exploring use of sVSWR, Time Domain sVSWR, and Mode Filtered sVSWR techniques. Compact Antenna Test Range (CATR) and Reverberation Chamber are also being explored.

At the recent WG meeting, they updated the abstract and discussed handling of measurement uncertainty. Task group reports were received on SAC/OATS/FAR/FSOATS (from Martin Wiles), CATRs from (Nicholas Abbondante), and Reverberation Chambers (from Phil Miller). The SAC group has performed some preliminary measurements and is developing the basis for a round robin. Results so far indicate that a validation method may be relevant rather than assuming the site is acceptable to 40 GHz if it is validated to 18 GHz. On the reverberation chamber task group, Garth d'Abreu of ETS Lindgren has volunteered to draft some text for this test site type. On the CATR task group, Asad Bajwa from Keysight has volunteered to draft some CATR validation text.

Regarding future work, the main working group is meeting every 2-3 months. Task groups are meeting monthly. The goal is to develop validation text for the standard while developing round robins to validate the test methods.

In summary, Nick advised Draft 0.3 is developed and several task groups are currently developing text. Measurements are being performed and a call for a round robin will be made within at least the working group, possibly within ANSI. Completion of this effort is still a year or two away.

Zhong reminded SC1 of the continued coordination needed among the three standards C63.25.2, C63.5, and C63.4 regarding site validation requirements. The C63.25 standards will have the sole responsibility for site validation. New versions of C63.4 and C63.5 are supporting documents on this topic and will defer to C63.25.2 for site related requirements.

5.0 Old Business – Chair

There was no old business to discuss.

6.0 New Business – Chair

6.1 SC1 New Member: Dan Hoolihan moved to approve membership application of Noel Lim in SC1. The motion was seconded and approved. Janet to ask Noel to send a separate application for C63.4 working group membership.

6.2 Coordination with SC3 for Harmonization: In the past, before any working group draft was submitted to the subcommittee for approval, the document must have been provided to the SC3 chair [Ross Carlton](#) for evaluation and coordination of any harmonization effort. This requirement may change. The activities of SC 3 will be reviewed at a Steering Committee meeting at the May 2022 C63 meeting series in order to adapt to current needs.

RA #	Task	Responsible party	Due Date	Status
RA-5	Compare C63.5 to CISPR 16-1-6	Nate Potts	2/1/20	Open
RA-17	Compare C63.25 to CISPR 16-1-4 (two freq. ranges under C63.25.1 and C63.25.2)	Dan Sigouin	5/1/19	Open

ACTION ITEM: Dan Hoolihan agreed to put a discussion of SC3 on the agenda for the next steering committee meeting in May 2022.

7.0 Review of Interpretation Requests: Zhong Chen reviewed the following interpretation requests:

C63.4 (2014) Clause 8.3.2.2 Measurement Distance from David Waitt, request dated July 26, 2021. Task group members include Andy Griffin (Chair), N. Potts, V. Kuczynski, B. DeLisi, and N. Abbondante. Draft response sent to SC1 for approval on August 27. Votes were due Sept 10 with 13 votes received. David Zimmerman had comments on this response; Andy and task group addressed his comments. NOW CLOSED.

C63.5 (2017) Clause M.4 Uncertainty Contributors from Jeong Hwan Kim, request dated Dec 21, 2021. Task group members included Doug Kramer (Chair), Dennis Ward, Victor Kuczynski, and Nate Potts. Response prepared by task group and sent to SC1 on March 18 for a one week comment period. A vote will then be taken in SC1 to approve sending the response to the parent committee.

[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.

8.0 [C63.org](https://www.c63.org) Website Use and Updates

Zhong requested on behalf of Jerry Ramie that SC1 members be specific with any requests for postings to the website. Zhong asked SC1 members to be sure to update or confirm with Jerry directly that they are correctly listed on the website.

9.0 Review of Action Items from Previous Meetings: Secretary

Secretary O'Neil advised that an updated action item list would be distributed to the SC1 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 March 17, 2021 meeting to the committee.

10.0 Time and Place of Next Meeting: Chair

Zhong Chen advised that SC1 would meet via on May 18, 2022 from 3:00 – 5:00 pm at ETS-Lindgren in Cedar Park, Texas.

11.0 Closing Remarks and Adjournment: Chair

With no further business, Zhong Chen adjourned the meeting at 9:35 am PDT. He thanked everyone for attending the meeting.

Minutes submitted by:



Janet O'Neil
Secretary, SC1

ATTACHMENTS

- Attachment A: Approved Agenda for March 18, 2022 SC1 Meeting
- Attachment B: Approved Minutes from December 17, 2021 SC1 Meeting
- Attachment C: Medler Report on C63.2
- Attachment D: Griffin Report on C63.4
- Attachment E: Abbondante Report on C63.25.3