C63®

www.C63.org

American National Standards

Committee C63®

Electromagnetic Compatibility

Secretariat: Institute of Electrical and Electronics Engineers, Inc.

NEWSLETTER

Issue 48 Summer 2024

MESSAGE FROM THE CHAIR

Bob DeLisi, Chairman ANSC C63®

The Main Committee met in hybrid format for the first meeting of 2024 on May 17th at UL Solutions in Research Triangle Park, NC. In total, both those online and those in person, 28 members attended the meeting. There were also approximately seven guests in attendance. The Subcommittees of C63 (SC-1 – SC-8) had met earlier in the week as well as the C63 Steering Committee.

C63 has a new Treasurer. The past pro-bono Treasurer, Mike Windler of UL Solutions, stepped down and Brenda Schmidt has accepted the position. C63 thanks Mike for the more than 10 years of service he provided as the treasurer and welcomes Brenda to the team.

C63 operating procedures are being revised. The new operating procedures are currently under review with the IEEE and ANSI. Once approved they will be available on the C63 website.

The Vice Chairman, Zhong Chen, reported the education opportunities offered in 2023 and upcoming in 2024. C63 presentations were given at IEEE EMCS Standards and Coordination Committee (SACCom) by Zhong Chen and at EMC Europe 2023 (special session on C63) by Zhong Chen and Nicholas Abbondante. C63 also held a two-day workshop prior to the 2023 EMC Symposium on July 28-29 with topics covering C63.4 and the C63.25 series (C63.25.1, C63.25.2 and C63.25.3 (draft in progress)). The workshop instructors were Zhong Chen and Andy Griffin. The workshop was held at Grand Valley State University. The same workshop will be held at Compliance Testing in Mesa, AZ August 2-3, 2024, just prior to the EMC symposium in Phoenix, AZ.

The chairman reported on some of the C63 standards that have been recently published. ANSI has approved the following standards:

- C63.14:2024 - American National Standard Dictionary of Electromagnetic Compatibility (EMC) including Electromagnetic Environmental Effects (E3) published on June 4, 2024
- C63.25.2:2024 - American National Standard for Validation Methods for Radiated Emission Test Sites, 30 MHz to 1 GHz was published July 22, 2024.

The following standards are nearing publication in 2024:

- C63.9 - Laboratory immunity testing of multimedia equipment exposed to RF sources
- C63.10:2020 Amendment 1 - American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices

The FCC has recognized C63.30:2021 through FCC KDB 680106 which states, when applicable, for all the testing required to show compliance of WPT systems, adherence to the ANSI C63.30-2021 (American National Standard for Methods of Measurement of Radio-Frequency Emissions from Wireless Power Transfer Equipment) is encouraged. This allows labs to use a standard that is specific to Wireless Power Transfer (WPT) by utilizing product specific modern test methods.

C63 now has a live LinkedIn page, https://www.linkedin.com/groups/14275875/. Information related to upcoming standards in development, published standards and other C63 items of interest are posted here. I invite you to join and share with your colleagues.

Seven of the 8 Subcommittees of C63 met during the week of May 8-12 both in-person and virtually. One Subcommittee met virtually the week prior. Working Groups of the Subcommittees continue to meet virtually, as needed, as they develop and/or revise the approximately 20 active standards in the C63 portfolio of EMC standards.

The next Main Committee meeting of C63 will be held at Rohde and Schwarz in Coppell, TX the week of September 30, 2024. The goal will be a face-to-face meeting but based on circumstances it may be hybrid, once again.

Subcommittee 1 Techniques and Development

Andy Griffin (Cisco Systems), Chair.

As of the October meeting, SC 1 agreed to approve Bob Mitchell as a new member of the subcommittee. This vote followed the discussion that the current SC1 approved list of standards does not meet the description of their duty. Andy Griffin will ensure that the C63 website aligned the committee's standards with the committee's duty.

C63.4 was set to expire at the end of 2024, it was decided by the body to reaffirm C63.4 by taking it to the main committee. Nate Potts is the new Working Group chair of the C63.5 working group, having taken over for Doug Kramer. David Knight of NPL in the UK has agreed to be Vice Chair. Nate presented his report.

The main changes in the document include:

• No GSCF's tables for bicons or LPA's will be used apart from G1 table to convert bicon ACF to free space.

• VSWR, return loss, impedance section for general S-parameters measurements of antennas.

• Added SCM procedure to obtain Site Insertion Loss (SIL) similar to RSM in CISPR16-1-6

• More details in separating SSM over a ground plane below 1GHz and TAM in free space above 1GHz.

• RAM not only for calculable dipoles, but other antennas can also be "standards" if calibrated to SSM or TAM. All other antennas besides dipoles will have a new section for SAM (Standard Antenna Method).

• Added Annex for 1m antenna calibrations used for automotive testing, mirrored new edition of SAE ARP 958 2021.

• Section added for connector care specific to Type N connectors typically used for antennas 30MHz to 18GHz. Construction of Type N connectors causes more issues than other connectors due to the "shoulder" on the male pin that can bind against the female pin and damage one or both connectors.

The WG activity has essentially been on hold pending resolution of C63.25.2 and C63.4. However, the WG could move forward with incorporating C63.25.2 into the C63.5 draft since C63.25.2 has been balloted. Nate Potts acknowledged that the WG has already incorporated the necessary updating to reflect the changes in C63.25.2. Potts also suggested, and SC 1 Chair Andy Griffin agreed, to have C63.5 published before the updated version of C63.4. SC 1 agreed as a body as well.

As to C63.7 on the Construction of Test Sites, the committee acknowledged that revisions needed to be added requiring grounded planes on OATS. They are currently looking for someone to chair the working group on these revisions.

C63.23 Measurement Uncertainty, is also seeking a chair to rework the PINS after it was reaffirmed in August.

C63.25 work is continuing on the following standards:

o C63.25.1 (1 GHz to 18 GHz) TDR – Published

March 2019 – WG Chair: Andy Griffin

o C63.25.2 (30 MHz to 1000 MHz) NSA – Work began in January 2019 – WG Chair: Bob DeLisi.

o C63.25.3 (18 GHz – 40 GHz) – Future plan to address NSA above 18 GHz – WG Chair: Nick Abbondante

On C63.25.1, Andy Griffin volunteered to be the chair of this working group. Zhong Chen noted he heard comments from others that there are ways to get around this test method to make a chamber pass. He suggested clearer wording on the test method so people could not abuse the process. Andy Griffin will create a new PINs for the updates to the document.

While providing updates on C63.25.2, Bob DeLisi noted that the ballot closed with a 55% response rate and an 86% approval rating, with over 275 comments received. Bob has reconvened the Working Group and invited those with the most comments to join the WG so their comments can be resolved in real time. Andy will edit the document before it is sent to the SC1 committee to review. The WG is meeting weekly to address the comments and expand its editing group.

Working Group chair on C63.25.3, Nick Abbondante, presented his report. 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 GHz - 40 GHz.

Existing site validation methods will be leveraged where possible.

The test environments include:

- SAC/OATS/FAR/FSOATS
- Compact Antenna Test Range (CATR)
- Reverberation Chamber

The task group has so far completed the following tasks addressing the standard:

SAC/OATS/FAR/FSOATS: Martin Wiles is the task group chair. They are exploring the use of sVSWR both Time Domain sVSWR and Mode Filtered sVSWR techniques. CMF Pre-RRT is largely complete and demonstrates the need for validation as not all chambers 'pass'. Also documented were some challenges related to turntables and antenna nulls specifically for horizontal measurements. sVSWR and TD-sVSWR work is on hold. The TG continues to explore antenna options – past pre-RRT testing used the prototype ETS 3185. NIST has obtained an antenna from A-Info, Phil Miller has acquired an antenna, and Zhong Chen is designing an Alford Dipole (biconical magnetic loop similar to the ones used in CTIA).

Phil Miller is the task group chair for reverberation chambers. Multiple new members have joined the group via NIST as well as through recruiting at the EMC Symposium and EMC Europe, including convenors from JTF REV that maintains IEC 61000-4-21. Ongoing meetings are being held with active discussions. Garth D'Abreu provided text which was reviewed and commented on by Jason Coder and John Ladbury of NIST. This text is now the focus of discussions within the TG. Nick noted the main working group is meeting every 2-3 months. The task groups are meeting monthly, some are meeting every two weeks to develop validation text for the standard as well as to develop round robins to validate the methods and cross correlate results across chamber types.

In summary, the SAC task group is currently focusing on transmit antennas. The Reverb and CATR task groups are making good progress on their respective text. Completion of the standard is likely two years away; the CATR and Reverb text is on track to be included in the first edition.

Subcommittee 1 also received two different interpretation requests. C63.4 (2014) is currently being updated by Dave Zimmerman in response to the discussion for final approval by the Subcommittee. C63.5 and Nate Potts is heading up a task group to address concerns. Dan Hoolihan also reminded the committee that responses to interpretation requests are

informative and NOT normative in nature.

Subcommittee 2 Definitions

Marcus Shellman, Jr., (DOD – JSC) Chair.

SC2 held its subcommittee meeting on May 15, 2024. Mr. Marcus Shellman was reconfirmed as chairman for a consecutive term. SC2 Working Group 1 (WG1) reported that ANSI approved the Draft ANSC C63.14-2023, "American National Standard Committee, Dictionary of Electromagnetic Compatibility (EMC) including Electromagnetic Environmental Effects (E3)" and publication occurred June 4, 2024. WG1 conducted pre-ballot reviews of draft C63 standards including C63.4, C63.26, C63.9 and C63.16. WG1 also prepared procedures for C63 subcommittees and working groups to standardize the processes for developing definitions and requesting copyright approval when permission is required to use definitions from other standardization bodies. SC2 Working Group 2 efforts to develop ANSC C63.28, 'Guidance for EMC Best Practices," remains tabled.

Subcommittee 3 International Harmonization

Ernesto Mendoza (Signify), Chair.

During the old business for SC 3 meeting in May, there were discussions by the committee about needed liasons. Jason Coder proposed a liaison to ETSI for coexistence and unlicensed personal communication services (C63.17 & C63.27). There was discussion about meeting with SC 7 the following day. The current status of the SC 3 standards are as follows: C63.16 was rejected in January of 2023. C63.9 is awaiting comment from the Working Group Chair and Ernesto Mendoza will be able to update C63.29 after October. In new business, member elections were discussed as Ross Carlton's term as Chair ended at the end of 2023. Ernesto Mendoza was nominated by Bob DeLisi. Jason Coder seconded the nomination. With no opposition the motion was carried. The action items that were left to be worked on were the following:

- AI-161: Ross Carlton is going to write the liaisons to make them of SC3 efforts.
- AI-162: Chair will request links from liaisons to various dashboards as needed.
- AI-164: Ernesto Mendoza will prepare a three-paragraph letter of new work for circulation to SC3 Members.
- AI-165: Jerry Ramie & Bob DeLisi plan to provide the spreadsheet and explanatory text for posting on SC3 landing page to Shannon

Subcommittee 4 Wireless and ISM Equipment Measurements

Nicholas Abbondante (Intertek), Chair

In Subcommittee 4 working groups, the C63.10 Amendment 1for American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices is nearing publication. C63.29 is completed and published. Ernesto Mendoza is creating a new PINS for the next version which will include items such as multi-channel lamps, grow lamps and luminaires, and tunable lamps. There is also generic text from C63.4 to be removed so it simply cites the standard. Two years ago, C63.30 was petitioned to the FCC and it was finally recognized. Nick Abbondante was going to reach out to Travis Thul regarding the next edition of C63.30 and to discuss a new PINS. The C63.10 new PINS has been posted and David Chamberlain is Chair and Nick Abbondante is the new Vice Chair for the 4th edition of C63.10.

Subcommittee 5 Immunity Testing

Tom Braxton (SBC Global), Chair

The SC5 Subcommittee on Immunity Testing and Measurements met on May 16, 2024. After confirming that a quorum was present, the agenda was approved without objection. No members were found to be at risk based on meeting-attendance records. David Schaefer was appointed to vice-chair, filling the vacancy left by the appointment of former Vice-Chair, Tom Braxton, to chair. After the review of the scope and duties, working groups offered their reports, which the chair noted had more information available on the Standards Status

Matrix page on the C63 website. C63.9 Working Group Chair Jeff Evans reported that the standard dealing with office equipment is currently out for ballot. C63.15 on immunity testing recommended practices is currently without a WG chair and there was no activity to report. C63.16 (ESD Test Methodology) Chair, Allen Crumm ,reported that the completed text, pictures, and diagrams have been provided to Jennifer Santulli at IEEE, and is currently out for ballot. The subcommittee's next meeting is planned to be held in the fourth quarter of 2024.

Subcommittee 6 Laboratory Accreditation/ Conformity Assessment

Doug Kramer (Apple Inc.) Chair

The Subcommittee (SC) 6 received reports from three participating US accreditation bodies at the recent meeting in May as well as a reports from ISED. ANAB has 26 CABs accredited for testing to C63 standards while A2LA reported on the following standards: C63.4 – 325, C63.4a – 40 (using a footnote), C63.5 – 18, C63.10 – 250, C63.19 – 23, C63.26 – 184. The final report from NVLAP was regarding the standards C63.4 (2014) – 61, C63.10 (2013) – 39, C63.10 (2020) – 18, C63.17 (2013) – 14, C63.19 (2011) – 1, C63.26 (2015) – 28.

The C63.34 Guide Calibration of EMC Test Equipment Working Group (WG) has finalized a new definition for "characterization" and will forward this to SC2 for their review.

The WG held a 4-hour meeting in June to resolve the remaining comments and plan to forward the document to the subcommittee later this summer.

Subcommittee 7 Spectrum Etiquette

Jason Coder, (NIST) Chair

SC 7 discussed publishing a comparison document between C63.27 and another standard through SC3. In addition, they discussed forming a task group to develop a publication on the difference between "coexistence" and "interference." The steering committee is working through conversations with about another revision to C63.27 to support new applications and whether or not they need a new standard, a guide, or recommended practice. The group addressed that C63.33/SC8 needs to work in coordination of standards to ensure the end user has a cohesive picture of standards compliance. There was an update on the need for awareness of IEEE Dyspan work. This could include an EMC magazine article, possible YouTube videos, and links to recorded talks on our website. Jason Coder is going to gather links to resources for posting on our website. Stephen Berger assumed chair of the IEEE ComSoc DySPAN-SC. Mr. Berger sees opportunities for cooperation.

Subcommittee 8 Medical Equipment Testing

Stephen Berger (TEM Consulting, LP), Chair

At the May 17th meeting Yasaman Ardeshirpour of the FDA was recommended for membership to the parent committee after SC8 Email approval. In other reports, Steve Liu updated the body on recent FCC activity relevant to HAC and ANSI C63.19 Stephen Berger also shared that the WG of C63.33 failed to achieve its plan of sending a proposed draft for ballot to the SC in the 30-60 days following the May meeting and is worried about the future success of the project. The subcommittee recommended that the WG introduce the draft to ballot and see what comments come during that ballot process. Other action items for SC8 include the reaffirmation of ANSI C63.18 and C63.19

ANSI ASC C63® 2024 OFFICERS

Bob DeLisi, Chairman (b.delisi@ieee.org)
Dan Hoolihan, Immediate Past Chair (danhoolihanemc@aol.com)
Zhong Chen, Vice Chair (zhong.chen@ets-lindgren.com)
Jerry Ramie, Secretary (jramie@arctechnical.com)
Jennifer Santulli, Secretariat (j.santulli@ieee.org)
Andy Griffin, Chair SC1 Techniques and Development (agriffin@cisco.com)
Marcus Shellman, Chair SC2 Terms and Definitions (marcus.shellman@ieee.org)
Ernesto Mendoza, Chair SC3 International Standardization (ernesto.mendoza@signify.com)
Nicholas Abbondante, Chair SC4 Wireless and ISM Equipment Measurements (nicholas.abbondante@intertek.com)
Tom Braxton, Chair SC5 Immunity Testing and Measurements (tbraxton@sbcglobal.net)
Doug Kramer, Chair SC6 Accreditation/Conformity Assessment (dkramer2@apple.com)
Jason Coder, Chair SC7 Unlicensed Personal Communications Services Devices (j.coder@ieee.org)
Stephen Berger, Chair SC8 Medical Device EMC Test Methods (stephen.berger@ieee.org)