

C63®

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American National Standards

Committee C63®

Electromagnetic Compatibility

Secretariat: Institute of Electrical and Electronics Engineers, Inc.

NEWSLETTER

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MESSAGE FROM THE CHAIR

Bob DeLisi, Chairman ANSC C63®

The Main Committee met in hybrid format for the first meeting of 2023 on May 12th at A2LA in Fredrick, MD. In total, both those online and those in person, 28 members attended the meeting. There were also approximately 10 guests in attendance. The Subcommittees of C63 (SC-1 – SC-8) had met earlier in the week as well as the C63 Steering Committee.

As part of the Main Committee meeting, Dan Hoolihan, past Chair, was presented with an award for his excellent years of service to C63 as the Chair whose tenure extended throughout the pandemic. Dan was thanked by the entire Main Committee.



The Main Committee also approved Zhong Chen as the new C63 Vice Chair. Zhong was the past chair of Subcommittee 1 which is responsible for addressing new and existing measurement methods, site qualification methods, calibration methods, associated instrumentation, and limits development. The Main Committee approved a new chair of Subcommittee 1, Andy Griffin. In addition to Andy coming in as Subcommittee 1 chair, the Main Committee also approved Tom Braxton as Chair of Subcommittee 5 which is responsible for addressing standards for immunity testing techniques and associated instrumentation. The Chair would also like to recognize Ed Hare, past Subcommittee 5 Char, who has retired and stepped down from his C63 activities. We wish Ed all the best in his retirement.

The Chairman reported on FCC Report and Order, ET Docket No. 21-363 which updates references to standards related to the Commission's Equipment Authorization Program. This R&O incorporates by reference: C63.10:2020, *American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices*, C63.4a:2017, *an Amendment to ANSI C63.4-2014, American National Standard for Methods of Measurement of Radio- Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz* and C63.25.1:2018, *American National Standard Validation Methods for Radiated Emission Test Sites, 1 GHz to 18 GHz*. The Chairman also reported that there will be a two-year transition for labs to start applying C63.10:2020 and during the transition either the 2020 version or the 2013

version may be used. There will be no transition periods for use of C63.25.1:2018 or C63.4a:2017. See the Report and Order for more details on the use of these standards,

<https://www.federalregister.gov/d/2022-05190>.

C63 is developing a LinkedIn page,

<https://www.linkedin.com/groups/14275875/>.

Information related to upcoming standards in development, published standards and other C63 items of interest will be posted here. I invite you to join.

All 8 Subcommittees of C63 met during the week of May 8-12 both in-person and virtually. 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 Google in Mountain View, CA the week of October 2-6, 2022. It will be a Face-to-Face meeting.

Subcommittee 1 Techniques and Development

Andy Griffin (Cisco Systems), Chair.

Subcommittee 1 began the year with the end of Zhong Chen's term of leadership and Andy Griffin has been appointment. Work on the C63.4 has garnered a lot of input and on the work done biweekly since the beginning of 2023. The group has been reviewing the comments on the Matrix and have studied the performance of LISNs (AMNs) and in the end still basically adopted the CISPR 16 requirements, but without the statement that the LISNs must meet the requirements at any impedance. The main issue is at the very low frequency (around 9kHz). A note was added that upon first use, it is recommended to measure the insertion loss with the output open and short. Insolation/phase requirements from CISPR 16 were also added. Definitions for the requirements for the calibration / verification / characterization of passive components and preamps have yet to be determined as the group is working on the meaning of the words based on the standard expectations. It is still the intention of the subcommittee to reference C63.25.2 for NSA, understanding that some additional work on this document is required based on input based on SC 1.

Text is currently on hold while the Cylindrical Mode Filtered demos/RRT are ongoing as demos of CMF sVSWR continue, which in some cases contribute to the round robin. Completion is likely two years away, CATR and Reverb look to be back on track to be included in first edition. Doug Kramer has stepped down as the Working Group chair for C63.5 and Nate Potts agreed to serve. The group is waiting on C63.25.2 and will be ready to go to ballot soon after it is ready. In other standards, the working group on C63.25.1 (1 GHz to 18 GHz) determined that antenna calibration requirement is unnecessary. This may be resolved through interpretation request rather than a new PINS. As for the next steps, the WG is to work through comments with an expanded editing group. The update on the ANSI C63.25.3 Draft -- American National Standard for Validation Methods for Radiated Emissions Test Sites, 18 GHz to 40 GHz focuses on current site validation methods which 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. The working group will continue to explore these ranges in sight of AC/OATS/FAR/FSOATS – exploring use of sVSWR, Time DomainsVSWR, and Mode Filtered sVSWR techniques, CATR, and reverberation chambers. The SAC's task group chair will be Martin Wiles as the group finishes work on CMF, which demonstrates the need for validation as not all chambers 'pass'. It has also been documented that some challenges related to turntables and antenna nulls specifically for horizontal measurements. sVSWR and TD-sVSWR are on hold, however, the TG continues to explore antenna options. Past pre-RRT testing used the prototype ETS 3185. Different members of the WG have been working with alternative options. 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 like the ones used in CTIA). Elsewhere is SC 1, CATR is currently being chaired by Robert Paxman. The group has met several times since the last full subcommittee meetings to discuss presentations on CTIA and IEEE49. Text is being originated by one of the new TG members for future review. The task group on Reverberation Chambers is now being chaired by Phil Miller. There has been a lot of membership interest and input and Garth D'Abreu provided text which was reviewed and commented on by Jason Coder and John

Ladbury, this text is now the focus of discussions within the TG itself. In other actions, Jack McFadden presented ideas of using statistical processes in applying MU, and possible inclusion in C63.23. Jack will look into proposing PINS at the next SC1 meeting. The submission of BSR-9 was held up until the negative ballot either replied to the secretariat or the 30-day waiting period expired. Jennifer Santulli indicated at the steering committee meeting that C63.2 has just entered the BSR-9 process.

Subcommittee 2 **Definitions**

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

SC2 held its subcommittee meeting on May 10, 2023. SC2 Working Group 1 is currently preparing for the final phases of balloting for C63.14 with publication anticipated before the end of 2023. The draft document is ready for a recirculation ballot based on the resolution of new definitions from draft C63.4. WG1 also conducted pre-ballot reviews of draft C63 standards to ensure integrity of new C63® terms and definitions. WG1 completed reviews for draft standards C63.4, C63.26, C63.9 and C63.16. WG1 also reviewed the IEEE policy for definition development that provides the foundation and rationale for SC2 WG1 coordination review and comments. SC2 WG2 voted to table the PINS for development of C63.28, ‘Guidance for EMC Best Practices’ until a new WG2 chair is identified.

Subcommittee 3 **International Harmonization**

Ross Carlton (Gibbs & Cox), Chair

Subcommittee 3 met May 10 focusing on harmonization of standards, in particular C63.16 which is in cooperation with SC5. The proposals were as follow:

- Proposed Annex H is C63.16-2016 Clause 7
- Proposed Annex I subclause I.2 contains material from the fourth paragraph of C63.16-2016 Clause 9 and an excerpt from Figure 11.
- Proposed Annex I subclause I.3 is C63.16-2016 subclause 6.4.5.2.
- Proposed Annex I subclause I.4 is

adapted from C63.16-2016 Annex A
and includes Table A.2 and Table A.3.

The standard as written had been rejected by TC77 in January. Real-world field failures sometimes cannot be duplicated using IEC 61000-4-2, so C63.16 has unusual methods that may use lower humidity during the testing. Adoption by TC77 remains unlikely. AI-159 reported that Ross, Jerry, and Jeff S. are to review SC5 and C63.16WG Minutes for a record of their contact with TC77 and store in the SC3 folder and the Harmonization Summary table. C63.12 will be allowed to expire in 2025 since the need for such a standard has been overcome by events. Action items from the previous meeting were all dealt with per the following: Jerry Ramie planned to add Doug Kramer to SC3 Webex list and Randy Long. Ross Carlton was going to mark up the flow-chart and have Bob DeLisi address the changes requested to be reviewed at the next meeting. The action items on the agenda for meetings in conjunction with the IEEE EMC Symposium in Michigan in August require Ross, Jerry, and Jeff S. to review SC5 and the C63.16WG Minutes for a record of their contact with TC77 and store in the SC3 folder and the Harmonization Summary table.

Subcommittee 4 Wireless and ISM **Equipment Measurements**

Bob DeLisi (UL), Chair

Subcommittee 4 welcomed two new members in May with the installation of Mike Heckrotte and Tom Eikert. Mr. Heckrotte was added to SC4 while Mr. Eikert was added to the C63.10 Amd. roster. C63.10-2020 American National Standard for Testing Unlicensed Wireless Devices was published in January, as the Chair reported at the Main Committee meeting, thus the working group has been disbanded. The standard is intended to cover procedures for testing the compliance of a wide variety of unlicensed wireless devices (also called unlicensed intentional radiators) including but not limited to: remote control and security unlicensed wireless devices, frequency hopping and direct sequence spread spectrum devices, anti-pilferage devices, cordless telephones, wireless medical

unlicensed wireless devices, Unlicensed National Information Infrastructure devices, intrusion detectors, unlicensed wireless devices operating on frequencies below 30 MHz, automatic vehicle identification systems, and other unlicensed wireless devices authorized by a radio regulatory authority. For more information, refer to the link that the Chair provided in his report.

C63.10: C63.10 CORR-1 202X American National Standard for Testing Unlicensed Wireless Devices will be corrected for an error in the UWB -10 dB bandwidth as well as an error in the pulsed desensitization formula. The language is also being clarified for a new draft for circulation regarding WPT devices tested to ASC C63.30 for the WPT functions and to harmonize clause 6.2.2 related to the use of an extension cord between the EUT and the LISN. Other working groups discussed at the May meeting covered: C63.26-2015: American National Standard of procedures for compliance testing of transmitters used in licensed radio services which is under review as well as C63.26-2015: American National Standard of procedures for compliance testing of transmitters used in licensed radio services, a new standard, which was sent to IEEE for review. C63.30-2021: American National Standard of procedures for compliance testing of Wireless Power Transfer products was published and the working group disbanded while the new standard C63.31-draft: American National Standard for compliance testing of Industrial, Scientific, and Medical (ISM) Equipment is being drafted. A white paper is being submitted for C63.xx regarding Massive MIMO Test Distance Study. David Case will serve as the Working Group Chair which will study how to provide guidance in measurements when the required separation distance is larger than that available due to the minimum wavelength as determined by the antenna design. Additionally, Chairman DeLisi shared the FCC Updates on equipment authorization rules to incorporate new and revised industry standards that are integral to equipment testing. The remaining action item upon adjournment of the meeting was for Chairman DeLisi, Travis Thul, and Horia Popovici to complete a comparison report on C63.30 to SC3.

Subcommittee 5 Immunity Testing

Ed Hare (ARRL), Chair

Subcommittee 5 opened its meeting with the election of a chair to replace Ed Hare upon completion of his second term at the end of 2023. Newly elected Chair Tom Braxton will interview candidates to fill the Vice Chair position under his term in office of Chair.

Working groups reported upon completed work since the last C63 meeting. C63.9: C63.9-2014 American National Standard for laboratory Immunity testing of Office Equipment is working on a new draft incorporating PINS published in September of 2021. A draft is also being written for C63.16: C63.16-2016 American National Standard Guide for Electrostatic Discharge Test Methodologies and Criteria for Electronic Equipment. The working group on C63.15: C63.15-2017 American National Standard Recommended Practice for the Immunity Measurement of Electrical and Electronic Equipment was formally disbanded since the standard was published in 2017. The working group on C63.24-draft: American National Standard Recommended Practice for In-Situ RF Immunity Evaluation of Electronic Devices and Systems as the official standard was published in 2021. Discussion regarding the Old Business of the direction of SC 5 in the future was opened from the previous meeting. The group was created to address TV tuner immunity, which was voluntary. Mr. Hare thought that the committee could discuss CISPR 25 immunity for on-board receivers. Studies may be useful. Other products may require immunity beyond multimedia products. Jeff Silberberg. noted that there was an IEEE group on environments. (TC in the EMC Society). Dan Hoolihan noted that Standards always lag technology. Jason Nixon noted that if the Standards lead technology, it may stifle innovation. Karen Burnham is now the VP of Standards, and the focus of the subcommittee is on shielding for now. She saw no current need for additional Immunity Standards. After a Standards review later this year the topic will be revisited. Mr. Silberberg also discussed the immunity of radio receivers and how legacy products may not exhibit good immunity, like aircraft altimeters. Nick Abbondante noted that FCC 23-27A1 public notice (policy notification) tells stakeholders that FCC policy is changing. We may see a NPRM in the future, but it is

unknown what the requirements will be. Mr. DeLisi suggested contacting Jason Coder since SC7 will be monitoring this situation as existing products may require retrofitting.

Subcommittee 6 Laboratory Accreditation/ Conformity Assessment
Doug Kramer (Apple Inc.) Chair

SC 6 received reports from all three accrediting bodies at the recent meeting in May as well as reports from ISED, FDA, FCC, and NIST. ANAB has 24 CABs accredited for testing to C63 standards while A2LA reported on the following standards: C63.4 – 277, C63.4a – REMOVED FROM SCOPES, C63.5 – 16 , C63.10 – 207, C63.19 – 26, C63.26 – 144, C63.17 – 65. The final report from NVLAP was regarding the standards C63.4 (2014) – 56, C63.10 (2013) – 32, C63.10 (2020) – 10, C63.17 (2013) – 9 abs, C63.19 (2011) – 3, C63.26 (2015) – 22. The WG on C63.34 reported that they are in the comment resolution phase and will be ramping up meeting frequency to, perhaps, every two weeks, but at least monthly. It is the group’s intent to use VIM definitions where available. As it stands, they are researching the term “characterization” and will either find or develop a suitable definition for this standard. The subcommittee wishes to explore if this guide can be made available to the measurement community free of charge.

Subcommittee 7 Spectrum Etiquette
Jason Coder, (NIST) Chair

Working groups from SC 7 updated the SC7 body during the Spring Meeting. C63.17 expects to have the DECT NR+ chips by late 2023 or early 2024, with products shortly after. Test labs will need guidance on how to apply C63.17 to new products. Currently there

are two known “issues”: measurement of OFDM power (new modulation) and how to handle low data rate sensors. As they move forward, Steve Berger will continue to interact with the DECT community as the subcommittee looks at options for providing timely guidance (e.g., interpretation request) to test labs while also considering a full revision of C63.17 C63.27 was recognized by the FDA in December of 2022. Currently the aim of the working group is to continue to engage and educate stakeholders. They also discussed the use of AI/ML in measurements, and the use of it in systems under test. The SC has strong interest in making contribution to receiver measurement standards moving forward. The project they reviewed from the National Institute of Occupational Health and Safety on mining standards during the spring meeting presents new challenges to coexistence measurement, however, it may be an opportunity to develop a best practices using C63.27 as a starting point.

Subcommittee 8 Medical Equipment Testing

Stephen Berger (TEM Consulting, LP), Chair

Subcommittee 8 is responsible for C63.18 that was reaffirmed in July of 2019. They currently do have a working group on C63.19 - Hearing Aid Compatibility. The latest published version is from November 2019. C63.33 -Immunity to Electronic Article Surveillance is meeting every two weeks by Webex as they continue to work on the draft.

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Main Committee Meeting - Thursday-afternoon cake break celebrating Art Wall's 80th birthday.

First row - left to right - Henry Benitez, Randy Long, Janet O'Neil, Dan Hoolihan, Victor Kuczynski, Zhong Chen

Second Row -left to right - Aurelian Bria, Alain Abou-Zeid, Jason Nixon, Bill Graff, Mark Arthurs, Nick Abbondante, and Bob Delisi.

ANSI ASC C63[®] 2023 OFFICERS

Bob DeLisi, Chairman (b.delisi@ieee.org)

Zhong Chen, Vice Chair (zhong.chen@ets-lindgren.com)

Jerry Ramie, Secretary (jramie@arctechical.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)

Ross Carlton, Chair SC3 International Standardization (d.heirman@ieee.org)

Bob DeLisi, Chair SC4 Wireless and ISM Equipment Measurements (b.delisi@ieee.org)

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)