



American National Standards Committee C63[®]
Electromagnetic Compatibility
Subcommittee 1: Techniques and Developments

Chair: Andy Griffin

Vice Chair: Jason Nixon

Secretary: Janet O'Neil

Approved Meeting Agenda

Tuesday, May 6, 2025
8:30 am – 12:00 pm Eastern Time
TUV Rheinland, Boxborough, MA
([WebEx Meeting Link](#))

1. Call to Order: Chair

- 1.1 Opening remarks and announcements: Chair
- 1.2 Meeting logistics announcements: Host
- 1.3 Introductions: Secretary

2. Approval of the Consent Agenda: Secretary

The Consent Agenda consists of the **a. Agenda items below**, an acknowledgement of the **b. Acceptance of the terms in the [patent slides](#)** by all attendees and **c. Approval of the minutes of the previous meeting** (October 3, 2024).

3. Review of [Subcommittee Membership](#) and [Scope](#) Secretary – (as of October 2024). Report any errors to the Secretary.

Subcommittee 1 Membership Roster

| Name | Role within SC | Affiliation |
|------------------------|----------------|---|
| Abbondante, Nicholas | Member | Intertek |
| Antola, Mike | Member | UL LLC |
| Arthurs, Mark | Member | Sony |
| Chamberlain, David | Member | Innovation, Science and Economic Development Canada |
| Chen, Zhong | Member | ETS-Lindgren |
| DeLisi, Bob | Member | UL LLC |
| Elliott, William (Mac) | Member | TÜV SÜD America, Inc. |
| Griffin, Andy | Chair | CISCO Systems |
| Harrington, Tim | Member | FCC |
| Heckrotte, Mike | Member | UL LLC |
| Hobbs, Brandon | Member | Advanced Micro Devices |
| Hodes, Harry | Member | Consultant |
| Hoolihan, Dan | Member | Hoolihan EMC Consulting |
| Jones, Steve | Member | Member Emeritus (FCC Retired) |
| Kiemel, Greg | Member | Apple Inc. (Primary Rep) |
| Klinger, Jeff | Member | Cetecom, Inc. |
| Kramer, Doug | Member | Apple Inc. (Technical Expert) |
| Kuczynski, Victor | Member | Vican Electronics |

| | | |
|-----------------|------------|---|
| Long, Randy | Member | ANSI National Accreditation Board (ANAB) |
| Mitchell, Bob | Member | TUV Rheinland |
| Molaei, Nima | Member | Element Materials Technology Washington DC LLC |
| Nixon, Jason | Vice-Chair | Innovation, Science and Economic Development Canada |
| O'Neil, Janet | Secretary | ETS-Lindgren (non-voting) |
| Potts, Nate | Member | Keysight Technologies |
| Royer, Tim | Member | Timco Engineering, Inc. and IIA Company (Primary) |
| Schaefer, David | Member | Element Materials Technology - Primary |
| Shumakov, Denys | Member | Innovation, Science and Economic Development Canada |
| Surve, Soham | Member | Amazon Lab 126 |
| Zimmerman, Dave | Member | Spectrum EMC, LLC |

Call for new members..

3.1 Review of Membership Guidelines

Subcommittees:

For an individual to remain a voting member of a Subcommittee, active participation in Subcommittee meetings and regular responses to Subcommittee email votes are required. Should a member fail to attend at least one of three consecutive scheduled meetings (in person or remotely via web conference - when used) or respond to at least one of every two consecutive Subcommittee email votes, their membership in that Subcommittee may be at risk. Note: Abstentions shall be treated the same as a "Yes" or "No" vote regarding the requirement to respond to email votes.

Working Groups:

For an individual to remain a member of a Working Group, active participation is required. Should a member fail to attend at least one of three consecutive scheduled meetings (in person or via web conference - when used) their membership in that Working Group may be at risk. Individual Working Groups may establish additional participation criteria and/or modify this requirement.

SC1 Member Attendance Log:

| Name | 5/18/2022 WebEx + In Person | 11/9/2022 WebEx + In Person | 5/11/2023 WebEx + In Person | 10/4/2023 WebEx + In Person | 5/16/2024 WebEx + In Person | 10/3/2024 WebEx + In Person |
|-------------------------------|--|--|--|--|--|--|
| Nicholas Abbondante | X | X | X | X | X | X |
| Mike Antola | | X | X | X | | X |
| Mark Arthurs | X | X | X | X | X | X |
| David Chamberlain | | X | X | X | X | X |
| Zhong Chen | X | X | X | X | X | |
| Bob DeLisi | X | | X | X | X | X |
| Mac Elliott | X | X | X | X | X | X |
| Andy Griffin | X | X | X | X | X | X |
| Tim Harrington | X | X | X | X | X | X |
| Mike Heckrotte | | | X | X | X | |
| Harry Hodes | X | | | | X | X |
| Brandon Hobbs | | | | | | X |
| Dan Hoolihan | X | X | X | X | X | X |
| Steve Jones (Member Emeritus) | X | X | X | | X | |
| Greg Kiemel | X | X | X | X | X | X |

| | | | | | | |
|------------------|---|---|---|---|---|---|
| Jeff Klinger | X | X | X | X | X | |
| Doug Kramer | X | X | X | X | X | |
| Victor Kuczynski | X | X | X | X | X | X |
| Randy Long | X | X | X | X | X | X |
| Bob Mitchell | | | | X | X | |
| Nima Molaei | X | X | | X | | |
| Jason Nixon | X | X | X | X | X | X |
| Janet O'Neil | X | X | X | X | X | X |
| Nate Potts | X | X | X | X | X | |
| Tim Royer | | X | | | X | |
| David Schaefer | X | X | | X | X | |
| Denys Shumakov | | | | | X | |
| Soham Surve | | | | | | X |
| David Zimmerman | X | X | X | | | |

3.2 Membership at risk? Consideration of new members? Memberships dropped? [Application for C63® Subcommittee Membership](#). David Zimmerman's membership is at risk since he has missed three consecutive meetings. Nima Molaei has missed two consecutive meetings. Jeff Silberberg has retired from the FDA and is no longer a member of SC1. Reuben Brown of Schweitzer Engineering in Pullman, Washington applied for membership in SC1 Working Group C63.4. His membership application was approved by SC1. He has been added to the applicable roster on the C63 website. A new membership has been received from Richard Reitz of Retlif. His application and resume were circulated to SC1 on May 1. His application will be voted up under New Business.

4.0 Working Group Reports - Chair - [More information about each standard](#) is available on the Standards Status Matrix page of the [C63® web site](#). This information will be reviewed for accuracy at each Subcommittee meeting. The following are the standards addressed by Subcommittee 1.

C63.2: C63.2-2023 American National Standard for Electromagnetic Noise and Field Strength Instrumentation, 10 Hz to 40 GHz Specifications

Contact: [Medler, Jens](#) (Working Group Chair)

Scope: This standard specifies requirements for measuring receivers [i.e., electromagnetic interference (EMI) receivers and spectrum analyzers with and without preselection] used for radiated and conducted emission measurements

Status: Published in 2023.

Purchase: [Search IEEE Standards](#) - Enter C63 Standard number then Search (Enter) - Click on the version you want - Click on Purchase

Is this information correct? (Yes/No)

At the last SC1 meeting in October 2024, Horia Popovici's proposed a new PINS with a revision to C63.2 (in the form of a new annex) that was approved. A new working group is being formed; members indicating interest include Bob DeLisi, Harry Hodes, Jeff Klinger, Victor Kuczynski, Bob Mitchell, and Nima Molaei.

Verify accuracy of document [status matrix](#) content and report any errors to the ANSC C63® Secretary.

| | | | | | |
|--------|--|----------------------|---------------------|-------------------|---|
| C63.2- | Electromagnetic Interference and Field | SC 1 | Working Group Chair | New PINS approved | Latest version published in January 2024. |
|--------|--|----------------------|---------------------|-------------------|---|

| | | | | | |
|------------------------------------|---|--|-----|-------------|--|
| 2023 Learn more | Strength Measuring Instrumentation in the Frequency Range 9 kHz to 40 GHz | | TBD | in Oct 2024 | |
|------------------------------------|---|--|-----|-------------|--|

PINS

C63.4: 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

Contact: Andy Griffin, Working Group Chair; Horia Popovici, Working Group Vice-Chair

Scope: U. S. consensus standard methods, instrumentation, and facilities for measurement of radio-frequency (RF) signals and noise emitted from electrical and electronic devices in the frequency range 9 kHz to 40 GHz are specified in this standard. This standard does not include generic nor product-specific emission limits. Where possible, the specifications herein are harmonized with other national and international standards used for similar purposes.

Status: Vote to approve ended on Feb. 21, 2020, and passed (14 yes, 10 no, 3 abstain); eight members submitted a total of 122 comments. These were addressed with latest draft circulated to SC1 in mid-2021, publication timing will be dependent upon publication of C63.25.2 to harmonize these documents. We currently developing an informative annex to explain the decision for the above 1GHz test process.

Purchase: [IEEE Store](#). It is recommended not to purchase the 2014 edition and to wait until the newer edition is published in 2025. If there is a need for the 2014 edition, however, go to the IEEE store and search on the standard number, i.e. C63.4. Comment matrix being reviewed.

Is this information correct? (Yes/No)

| | | | | | |
|--|-----------------------|---------------------|--|----------------------------|---|
| C63.4R-2014-202X Learn more | Emission measurements | SC1 | Andy Griffin , Working Group Chair | C63.4 PINS | Published in 2014. High priority items in PINS Vote Approved PINS for Reaffirmation Ballot of ANSI C63.4 in February 2024. |
|--|-----------------------|---------------------|--|----------------------------|---|

C63.5: C63.5-2017 Electromagnetic Compatibility - Radiated Emission Measurements in Electromagnetic Interference (EMI) Control - Calibration and Qualification of Antennas

Contact: Potts, Nate (Working Group Chair)

Scope: Revision of ANSI C63.5-2017 Methods for determining antenna factors of antennas used for radiated emission measurements of electromagnetic interference (EMI). Antennas included are linearly polarized antennas such as loops, rods (monopoles), tuned dipoles, biconical dipoles, log-periodic dipole arrays, hybrid linearly polarized arrays, broadband horns, etc., which are used in measurements governed by ANSI C63.4. The methods include standard site (i.e., 3-antenna), reference antenna, equivalent capacitance substitution, standard transmitting loop, standard antenna, and standard field methods.

Status: Current. New revision is being developed.

Is this information correct? (Yes/No)

| | | | | | |
|--|---------------------|---------------------|-----------------------------|----------------------------|---|
| C63.5-2017 Learn more | Antenna Calibration | SC1 | Potts, Nate | C63.5 PINS | 2017 edition published - site requirements as in CISPR 16-1-5 |
|--|---------------------|---------------------|-----------------------------|----------------------------|---|

C63.7: C63.7-2015 American National Standard Guide for Construction of Open-Area Test Sites for Performing Radiated Emission Measurements

Contact: [Chen, Zhong](#)

Scope: This guide provides information on construction of radiated emission test facilities in the frequency range of 30 MHz to 40 GHz. Standardized site validation methods above 18 GHz remain unavailable at present, however the changes in this edition are considered appropriate guidance for use up to 40 GHz. In general, the construction techniques described apply either below 1 GHz, or for 1 GHz and above.

Status: Published update on 9 March 2015; working group disbanded. Reaffirm standard as requested by Dan Hoolihan, parent committee chair. New PINS submitted and approved by SC1 to prepare for reaffirmation in early 2021. PINS sent to steering committee for review in February 2021; parent committee requested new PINS to revise document to include chamber guidelines. **Working Group chair needed.**

Purchase: [Search IEEE Standards](#) - Enter C63 Standard number then Search (Enter) - Click on the version you want - Click on Purchase

Is this information correct? (Yes/No)

| | | | | | |
|--|--|----------------------|-----------------------------|----------------|--------------------------|
| C63.7-2015 Learn more | Guide for Construction of Test Sites for Performing Radiated Emission Measurements | SC 1 | Chen, Zhong | No active PINS | Published update in 2015 |
|--|--|----------------------|-----------------------------|----------------|--------------------------|

C63.23: C63.23-2020: Guide for Computations and Treatment of Measurement Uncertainty

Contact: TBD (Working Group Chair)

Scope: This application guide provides methods for determining the uncertainty of measurement for electromagnetic interference (EMI) measurement results. This guide provides information on the application of Type A statistical evaluations. For Type B applications, this guide also provides information on where to obtain specified published information that can lead to an evaluation of uncertainty.

Status: Reaffirmed at May 2018 meeting by the parent committee. IEEE reaffirmed C63.23 on August 10, 2020; it was posted to IEEE Xplore in October 2020. ***Future work needed to revise standard or refer users to the CISPR equivalent?***

Purchase: [Search IEEE Standards](#) - Enter C63 Standard number then Search (Enter) - Click on the version you want - Click on Purchase

Is this information correct? (Yes/No)

| | | | | | |
|---|-------------------------|----------------------|-----|----------------|---|
| C63.23-2020 Learn more | Measurement Uncertainty | SC 1 | TBD | No active PINS | Reaffirmed 2020 New PINS |
|---|-------------------------|----------------------|-----|----------------|---|

C63.25.1-2018: Validation Methods for Radiated Emission Test Sites, 1 GHz to 18 GHz

Contact: [Chen, Zhong](#) (Working Group Chair)

Scope: 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 open area test sites (OATS), fully and partially covered OATS, semi-anechoic chambers (SAC), and fully anechoic rooms (FAR).

Status: New standard. NPRM issued by FCC in February 2022. Update of document in process with new, approved PINS (Oct 2024). SC1 members indicating interest in the new working group include Bob DeLisi, Andy Griffin, Greg Kiemel, Victor Kuczynski, Bob Mitchell, Nima Molaei, Nate Potts, and David Zimmerman.

Purchase: Published in March of 2019 and now available for sale.

C63.25.2: Validation Methods for Radiated Emission Test Sites, 30 MHz to 1 GHz

Contact: [DeLisi, Bob](#) (Working Group Chair)

Scope: This standard contains the methods to conduct Normalized Site Attenuation from 30 MHz – 1 GHz.

Status: New standard. Published April 2024

Purchase: [Search IEEE Standards](#) - Enter C63 Standard number then Search (Enter) - Click on the version you want - Click on Purchase

C63.25.3-draft: American National Standard for Validation Methods for Radiated Emission Test Sites, 18 GHz to 40 GHz

Contact: [Abbondante, Nick](#) (Working Group Chair)

Scope: This standard will contain a list of acceptable types of test sites and their corresponding site validation methods and recommended criteria. The frequency range for reverb and CATR will not be limited.

Status: New standard. PINS v2 approved by parent committee in February 2021.

Purchase: Not yet available for sale.

Is this information correct? (Updated...)

| | | | | | |
|---|--|---------------------|----------------------------------|---------------------------------|---|
| C63.25.1-2018 Learn more | Validation Methods for Radiated Emission Test Sites, 1 GHz to 18 GHz | SC1 | Chen, Zhong | New PINS circulated in May 2024 | Published in March 2019; new PINS approved at Oct 2024 meeting. |
| C63.25.2 Learn more | Validation Methods for Radiated Emission Test Sites, 30 MHz to 1 GHz | SC1 | DeLisi, Bob | C63.25.2 PINS | Published April 2024 |
| C63.25.3-draft | American National Standard for Validation Methods for Radiated Emission Test Sites, 18 GHz to 40 GHz | SC1 | Abbondante, Nick | C63.25.3 PINS | PINS dated Dec. 11, 2020 approved by SC1. Parent committee approved PINS v2 in February 2021. |

5.0 Old Business: Chair**6.0 New Business: Chair**

6.1 Vote to approve membership application of Richard Reitz in SC1

6.2 Record Keeping

7.0 Review of Interpretation Requests: Chair

Below are the interpretation requests open or received since the last meeting on October 3, 2024.

C63.4 (2014) Gaps in Ground Plane received from Charles Wang, request dated October 20, 2023. Call for task group chair/members sent to members of SC1 on May 16 with follow-up sent on August 12. Task group members include David Zimmerman, Victor Kuczynski and Harry Hodes. Draft response prepared by Victor with edits from David Zimmerman; formal vote on response due at the May 6, 2025, SC1 meeting.

C63.4 (2014) Annex F Insulating Ground Plane received from Brandon Hobbs, December 13, 2023. Call for task group chair/members sent to members of SC1 on May 16 with follow-up sent on August 12. Task group members include Victor Kuczynski and Harry Hodes. Brandon Hobbs provided a draft response; Andy to advise status at the May 6, 2025, SC1 meeting.

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

8.0 [C63.org](#) website use and updates: Secretary - We normally post documents to the [SC1 protected area](#). If any SC or WG needs help with this posting, please contact Jerry Ramie.

9.0 Review of the Action Items from Previous Meeting: Secretary

See the following table for the action items.

10.0 Time and place of next meeting: Chair

11.0 Closing Remarks and Adjournment: Chair

| Action Item # | Subject | Responsible Person(s) | Status | Comments |
|---------------|---|--|--|---|
| 1. | Complete working group rosters, indicate their officers (Vice-Chair and Secretary), and submit to Chair Griffin by the next meeting. | Working Group Chairs | Ongoing | |
| 2. | Update the list of standards currently on the C63 website so it aligns with the committee's duty. | Andy Griffin (SC1 Chair) | Ongoing | |
| 3. | Seek WG Chair for C63.7 and C63.23. | SC1 Members | Ongoing | |
| 4. | Create an informative annex for C63.5 to address comments by Andy Griffin. | Andy Griffin/Bob DeLisi/Nate Potts/Doug Kramer | Ongoing | Andy will determine if his comments work best in C63.4. |
| 5. | Send the working group approved draft of C63.4 to SC1 for review. | Andy Griffin | Open | |
| 6. | Create new PINS for SOW on plans to revise C63.23 | Jack McFadden | Open | Zhong to assist Jack with writing PINS |
| 7. | Send Jack expired/withdrawn PINS on C63.23 | Jason Nixon | Open | Possibly incorporate this old PINS content into new PINS |
| 8. | Direct C63.5 WG towards publishing C63.5 before the updated version of C63.4 is published. | Nate Potts | Open | |
| 9. | Research additional information on high voltage devices and issues with stabilized mains and report back to the SC1 committee. | Andy Griffin | Open | |
| 10. | Send the list of what has changed in the C63.5 document to SC1 for review. | Bob DeLisi | Open | |
| 11. | Nick to contact Raymond EMC and Harry to contact Harry Osgood to see if they are interested in creating a new PINS to initiate work on the next edition of C63.7. | Nick Abbondante and Harry Hodes | Open | |
| 12. | Send the simplified response on the original interpretation request form to SC1 for review and approval to send to the parent committee. | Victor Kuczynski | Open | This refers to C63.4 (2014) Gaps in Ground Plane interpretation request. |
| 13. | Send the revised response on the original interpretation request form to SC1 for review and approval to send to the parent committee. | Brandon Hobbs | Closed, but response still needs approval by SC1 | This refers to C63.4 (2014) Annex F Insulating Ground Plane interpretation request. |