

C63[®] American National Standards Committee C63[®]

Electromagnetic Compatibility

Subcommittee 5: Immunity Testing and Measurements

Chair: [Tom Braxton](#)

Vice Chair: VACANT

Secretary: [Jerry Ramie](#)

Oct. 4, 2023; 1:00 PM – 2:30 PM - PDT

Google, Inc. - Web-meeting

Approved Minutes

1. **Call to Order: Chair** - The Chair called the meeting to order at 1:00PM-PDT

1.1 **Announcements: Chair's remarks** - Thanks for attending!

1.2 **Meeting logistics announcements: Host: N/A**

1.3 **Introductions: Secretary – roll call** (record attending members with their affiliations and guests separately below) ([SC5 membership roster](#) from the website is shown below) Absences, **excused absences** and **errors** are shown below;

Subcommittee 5 Membership Roster Report any roster errors to the ASC-C63[®] Secretary

Name	Role within SC	Affiliation
Braxton, Tom	Chair	ARRL (Expert)
DeLisi, Bob	Member	UL LLC / Primary
Fanning, Craig	Member	Elite Electronic Engineering
Griffin, Andy	Member	Cisco Systems / Primary
Hoolihan, Dan	Member	Hoolihan EMC Consulting
Long, Randy	Member	ANSI National Accreditation Board (ANAB) / Primary
Ramie, Jerry	Secretary	ARC Technical Resources / ARRL Technical Expert
Schaefer, Dave	Member	Element Materials Technology / Primary
Silberberg, Jeffrey L	Member	FDA - CDRH / Primary
Zimmerman, Dave	Member	Spectrum EMC, LLC

Guests and Observers: (non-voting) Nick Garinger, Jason Nixon, Jeff Evans, David Chamberlain, Stephen Anderson, Zhong Chen, Janet O'Neil, Wally Arceneau, Henry Benitez, Bill Graff, John Norgard, Ken Gjerde, Victor Kuczynski, Warwick Wong, Janneth Marcelo, Amanda McDonald, George He, Deanna Zakharia, William Elliott, Mark Arthurs

1.4 **Quorum: (50% of roster) constitutes a quorum.** (rounding up) (10 roster members / 2 = 5 >> (therefore **5 people are required** for a quorum) **Was quorum achieved? (Yes)** If not, any actions taken are subject to confirmation by electronic ballot or at a future meeting. (Quorum is not required for Working Group meetings)

2. **Approval of the Consent Agenda (includes [Agenda](#) & [Previous Minutes](#)): Secretary** - The Consent Agenda was approved by acclamation. ([Previous Approved Minutes](#))

2.1 **Review of the [patent slides](#)** - The patent slides were shown and all in attendance agreed to be bound by the policies.

3. **Review of [Subcommittee Membership](#): Secretary** - Report any errors in Item 1.3 above to the ASC-C63[®] Secretary

3.1 Review of Membership Guidelines – any members at risk?

Subcommittees:

For an individual to remain a voting member of a Subcommittee, active participation in Subcommittee meetings and regular responses to Subcommittee email votes is 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.

Member Attendance Log:

20201209	20210310	20210603	20210908	20220113	20220518	20221109	20230119	20230316	20230511	SC5 Members
			x	x	x	x	x	x	x	Tom Braxton
			x	x	x	x	x	x	x	Bob DeLisi
x	x	x	a	x	x		x	x		Craig Fanning
				x	x	x			x	Andy Griffin
x	x	x		x	x	x				Dan Hoolihan
x	x	x	x		x	x	x	x	x	Randy Long
x	x	x	x	x	x	x	x	x	x	Jerry Ramie
x	x	x	a	x	x	x				David Schaefer
x	x	x	x	x	x	x	x	x	x	Jeff Silberberg
x	x	x	x	a			x		x	Dave Zimmerman

Members at risk? None are at risk:

3.2 Consideration of new members? [Application for C63® Subcommittee Membership](#)

3.3 Approval of Membership (Spring meeting only)

4. ~~Approval of [Scope and Duties](#): Chair – (Spring meeting only)~~ (Report approval or any changes to the Main Committee)

~~4.1 **Scope** - Subcommittee 5 is responsible for developing and maintaining new and existing ANSC C63® standards for immunity testing techniques and associated instrumentation as requested by the Main Committee ANSC C63®.~~

~~Duties - C63.9; C63.15, C63.16, C63.24~~

~~4.2 **Election of Officers** (as required) Tom Braxton was elected SC5 Chair at our last meeting.~~

5. 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 Spring Subcommittee meeting. WG reports shall be made using either the [C63 PowerPoint template](#) or the [C63 PowerPoint template wide](#).

5.1 C63.9 – Office Equipment Immunity - Evans ([WG report](#))

5.1.1 Status Matrix Review: Verify accuracy of document [status matrix](#) content and report any errors to the ASC-C63[®] Secretary. **Is this information correct? (Yes)** (repeat this verification for all Standards covered by this Subcommittee)

C63.9-2014 Learn more	Laboratory immunity testing of office equipment exposed to RF sources	SC 5	Evans, Jeff	C63.9 PINS	New PINS posted 9/2/21, draft is being written.
--	---	----------------------	-----------------------------	----------------------------	---

C63.9: C63.9-2014 American National Standard for laboratory Immunity testing of Office Equipment exposed to RF sources

Contact: [Evans, Jeff](#)

Scope: This standard provides recommended test methods and limits for assuring the RF immunity of office equipment to a wide variety of common and ubiquitous RF sources from mobile phones to licensed transmitters.

Status: Revision currently underway to update references, add coverage for interference threats from newer technologies such as LTE, consider latest test instrumentation and techniques, and clarify alternative test methods.

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

5.2 C63.15 – Immunity Measurement & Instrumentation - None (no WG report)

5.2.1 Status Matrix Review: Verify accuracy of document [status matrix](#) content and report any errors to the ASC-C63[®] Secretary. **Is this information correct? (Yes)**

C63.15-2017 Learn more	Immunity Measurement & Instrumentation	SC 5	None	No active PINS	Published 2017 Working group disbanded
---	--	----------------------	------	----------------	---

C63.15: C63.15-2017 American National Standard Recommended Practice for the Immunity Measurement of Electrical and Electronic Equipment

Contact: None (Working Group Chair)

Scope: This immunity measurement and measurement instrumentation recommended practice document complements the emission measurement procedures specified in ANSI C63.4 noting that C63.15 is a recommendation while C63.4 is a standard. The immunity methods are of use to manufacturers who want to produce a reliable product working in the customer location RF environment to reduce customer complaints. This document generally covers the frequency range of 30 Hz to 10 GHz. The test instrumentation needed to replicate the RF environment is also identified that will support the immunity testing.

Status: Published in 2017. Working group disbanded.

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

5.3 C63.16 – ESD Test Methodology - Crumm (no WG report)

5.3.1 Status Matrix Review: Verify accuracy of document [status matrix](#) content and report any errors to the ASC-C63[®] Secretary. **Is this information correct? (No)** (matrix edited 10/16)

C63.16-202X Learn more	ESD Test Methodology	SC 5	Allen Crumm	C63.16 PINS	Draft is being written.
---	----------------------	----------------------	-----------------------------	-----------------------------	-------------------------

C63.16: C63.16-202X American National Standard Guide for Electrostatic Discharge Test Methodologies and Criteria for Electronic Equipment

Contact: [Allen Crumm](#) (Working Group Chair)

Scope: This guide provides electrostatic discharge (ESD) test considerations that a manufacturer should use in assessing the expected ESD effects on products in a wide range of environments and customer use. The focus is well beyond that used to simply show that a product complies with a local, regional, or international standard or regulation. The guide includes unique new material on testing of charged peripherals being connected to a system and system components being placed in a docking station. It also includes information on the use of preliminary investigatory testing to identify test points, methods for visually documenting the location of those test points, and the use of a stepped approach in ratcheting up the test voltage to determine failure thresholds. The annexes include test plan and data sheet examples along with more background on air and contact

discharge for those who want to further understand the differences in these methods.

Status: Draft is being written.

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

5.4 C63.24 – In-Situ RF Immunity Evaluation of Electronic Devices and Systems - Schaefer (no WG report) The C63.24 roster is de-populated. (disbanded)

5.4.1 Status Matrix Review: Verify accuracy of document [status matrix](#) content and report any errors to the ASC-C63[®] Secretary. **Is this information correct? (No)** (matrix edited 10/16)

C63.24-2021 Learn more	In-Situ RF Immunity Evaluation of Electronic Devices and Systems	SC 5	Schaefer, Dave	C63.24 PINS	Published 3/31/2021. Working group disbanded.
---	--	----------------------	--------------------------------	-----------------------------	---

C63.24-2021: American National Standard Recommended Practice for In-Situ RF Immunity Evaluation of Electronic Devices and Systems

Contact: [Schaefer, Dave](#) (Working Group Chair)

Scope: This recommended practice provides an in-situ EMC immunity qualification test for products, instrumentation, and control systems in their installed environment. The recommended practice will focus on installation environments that require a high level of confidence that these products and systems have a high level of EMC immunity. This project will provide a generic method for evaluating the RF immunity of electronic products, instrumentation, and control systems, as and where installed or operated. A particular focus is on immunity to RF sources that may enter the environment, intentionally or unintentionally or be integrated into the operating environment. The characteristics of RF sources in the environment will be used to establish the levels and test methods.

Status: Published 3/31/2021 Working group disbanded.

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

6. Other Old Business: Chair

6.1 Written reports - Written reports of this Subcommittee meeting shall be presented by the Subcommittee Chair at the Main Committee meeting. These reports shall be made using either the [C63 PowerPoint template](#) or the [C63 PowerPoint template wide](#). Prior to the Main Committee meeting, the [SC report](#) and approved previous SC meeting minutes shall be provided to the projectionist for showing on the screen at the Main meeting. The Presentation and any written report shall also be sent by the Subcommittee Chair to the ASC-C63[®] [Newsletter editor](#).

6.2 Coordination with SC2 for definitions - Before any Working Group draft can be submitted to a Subcommittee for approval, the document must be provided to the SC2 Chair for evaluation and coordination of the definitions used. C63.9 draft has been reviewed by SC2. C63.16 draft was just submitted to SC2.

6.3 Coordination with SC3 for harmonization - Only a Subcommittee can submit a Working Group draft for evaluation and coordination of any harmonization effort. C63.9 draft has been reviewed by SC3 and did not warrant harmonization. C63.16 draft was submitted to SC3 by SC5 and the harmonization goals were rejected by TC77 on 1/24/23.

7. New Business: Chair

7.1 Review of [C63.9 Draft 20-2 2023](#) - Evans - This Working Group has addressed SC5 comments from our last meeting. ([C63.9 SC5 comment resolution file](#)) SC2 has previously reviewed the definitions and they were approved. They still need Main Committee approval and MEC editing concurrent with voting at the Main Committee. **The draft is ready for submittal** to the Main & IEEE.

7.2 Review [C63 16 rev D03 20230912](#) - Crumm - This Working Group has finished addressing use of verbs in their text. It was sent out for SC5 comments last month. ([C63 16 SC5 comment resolution file](#)) It was recently submitted to SC2 for review of definitions. (in progress) After that, it will be ready for submittal to the Main Committee for approval concurrently with MEC-editing by the IEEE.

7.3 Where is SC5 going? - We were created to address TV tuner immunity, which was voluntary. Ed thought that we could address CISPR 25 immunity for on-board receivers. Studies may be useful. Other products

may require immunity beyond multimedia products. Jeff S. noted that there was an IEEE group on environments. (TC in the EMC Society) See [AI-109](#); Dan H. noted that Standards always lag the technology. Jason Nixon noted that if Standards lead the technology it may stifle innovation.

Discussion:

Discussion has been deferred until [this meeting](#). Dave Schaefer thought SC5 could support C63.33 immunity testing of metal detectors, etc. It's in SC8 now. Nick thought the group was making good progress. The current chair may not be happy for personal reasons. Nick is the Vice Chair of the C63.33 Working Group. He has a plan for moving it forward. Dave was happy to hear this! The outline was reviewed and one clause was eliminated. The annex needs writing, but we know what to say. Nick thought it was flushed-out and progress has been made. Rev1 & Rev2 have been discussed and we have decided where to draw the line for the two versions. It covers medical device immunity to electronic article surveillance (EAS) and metal detectors. Test cases and methods and performance criteria are decided. The document is a Guide, not a Standard.

8. [C63.org](#) website use and updates: Secretary - We normally post documents to the [SC5 protected area](#). If any WG needs help with this posting, a **Technical Secretary** is available to assist.

9. Review of the Action Items: Secretary

9.1 Review of Action Items from this meeting: there were no Action Items from this meeting.

9.2 Review of Action Items from previous meeting: The consolidated Action Items table from the previous meeting Minutes is shown below:

Consolidated Action Items from 05/11/23 Meeting of SC5

Action Item #	Subject	Responsible Person(s)	Status	Delivery Date	Comments
AI-113 :	Jerry to remove Ed Hare from the SC5 roster and all SC and working groups	Jerry Ramie	Closed	Next meeting	Removed 5/11
AI-114 :	Jerry to provide private roster credentials to Nick	Jerry Ramie	Closed	Next meeting	Provided 5/11
AI-115 :					

10. Time and place of next meeting: Chair - TBD (week of May 12, 2024 in RTP)

11. Closing remarks and Adjournment: Chair - We need a Vice Chair! Tom thanked the group for their support and adjourned the meeting 1:33PM-PDT.

***** End of Meeting *****

Consolidated Action Items from 10/04/23 Meeting of SC5

Action Item #	Subject	Responsible Person(s)	Status	Delivery Date	Comments
AI-115 :					