



American National Standards Committee C63®

Electromagnetic Compatibility

Subcommittee 5: Immunity Testing and Measurements

Chair: [Ed Hare](#)

Vice Chair: **VACANT**

Secretary: [Jerry Ramie](#)

Nov. 9, 2022; 1:00 PM – 2:30 PM - PST
Keysight Technologies, Santa Rosa, CA

Approved Minutes

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

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
DeLisi, Bob	Member	UL LLC / Primary
Fanning, Craig	Member	Elite Electronic Engineering
Griffin, Andy	Member	Cisco Systems / Primary
Hare, Ed	Chair	ARRL / 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 Abbondante, Janet O'Neil, Bob DeLisi, Ken Gjerde, Pao Thao, Megan McConnell, Jeremy Cline, Dan Hoolihan, Henry Benitez, Steve Anderson, William (Mac) Elliott, David Chamberlain, Jason Nixon, Nick Abbondante, Nate Potts, Craig Fanning, David Schaefer, Jeff Evans, Ross Carlton, Nick Garinger

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 Agenda: Secretary** - The [Agenda](#) was approved by acclamation.

2.1 **Approval of the previous Minutes - [20220518](#)** The previous Minutes were shown in a line-by-line manner and [approved](#) by acclamation.

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

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:

20181128	20190501	20191119	20200521	20200916	20201209	20210310	20210603	20210908	20220113	20220518	SC5 Members
			x	x	x	x	x	x	x	x	Bob DeLisi
			x	x	x	x	x	x	x	x	Craig Fanning
x			x	x				a	x	x	Andy Griffin
x	x	x	x	x	x	x	x	x	x	x	Ed Hare
x	x		x	a	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	x	Jerry Ramie
	x	x	x		x	x	x	a	x	x	David Schaefer
x	x	x	x	x	x	x	x	x	x	x	Jeff Silberberg
x		x	x	x	x	x	x	x	a		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®.

4.2 Election of Officers (as required) Ed Hare's second term ends 12/31/23. We need a Vice Chair now. Anyone interested? This was discussed in item 7.1

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 – Multimedia 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? (No)** (repeat this verification for all Standards covered by this Subcommittee)

C63.9-202x	Laboratory immunity testing of office multimedia equipment	SC 5	Evans, Jeff	C63.9 PINS	New PINS posted 9/2/21, draft is being written.
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Learn more	exposed to RF sources				
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C63.9: C63.9-202x American National Standard for laboratory Immunity testing of Office Multimedia Equipment exposed to RF sources

Contact: [Evans, Jeff](#)

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

Status: **Reaffirmed in 2014.** 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

NOTE: The working group will forward the completed draft to SC5 for approval early in 2023. A web-meeting will then be set up in SC5 to allow the Working Group to present the document for SC5 review.

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
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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](#)) **Slightly-changed PINS** were posted 8/23/22: **(New text is highlighted)** Stakeholders were not changed. Any objections to this text? (None)

Having an understanding of ESD can help manufacturers mitigate product performance issues. The document provides unique guidance on ESD test methods, test point selection, documentation, and reporting not readily available from other sources. Discussions on humidity, atmospheric pressure, simulator differences, and bleed resistors are included.

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)**

C63.16-202x Learn more	ESD Test Methodology	SC 5	Allen Crumm	C63.16 PINS	Current. (published 5/10/16) Draft is being written.
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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: ~~Current. Guide was published 10 May 2016.~~ Draft is being written.

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

NOTE: IEC 61000-4-2 Working Group is considering using our charged peripheral content. They have received written permission from the IEEE. The working group will forward the completed draft to SC2, SC3 & SC5 for approval early in 2023. A web-meeting will then be set up in SC5 to allow the Working Group to present the document for SC5 review.

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. (working group 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)**

C63.24- draft 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.
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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.

6.3 Coordination with SC3 for harmonization - Before any Working Group draft can be submitted to a Subcommittee for approval, the document must be provided to the SC3 Chair for evaluation and coordination of any harmonization effort.

7. New Business: Chair

7.1 SC5 Officer opening - Tom Braxton is working for Elite now, and they are a Member. Jeff Evans has expressed interest. **AI-108:** Ed Hare to contact Tom Braxton (Elite) and Jeff Evans (Intel) regarding their willingness to become Vice Chair. (fees may be waived for Jeff)

7.2 Where is SC5 going? - We were created to address TV tuner immunity, which was voluntary. Ed thought that we can address CISPR 25 immunity for on-board receivers. Studies may be useful. Other products may require immunity beyond multimedia products. Jeff S. noted an IEEE group on environments. (TC in the EMC Society) **AI-109:** Ed to contact the IEEE TC-3 regarding their needs/subjects. (Karen Burnham is Chair) Dan H. noted that Standards always lag the technology. Jason Nixon noted that if Standards lead the technology it may stifle innovation.

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: (read Action Items to Members, who must agree that they understand their meaning)

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 5/18/22 Meeting of SC5

Action Item #	Subject	Responsible Person(s)	Status	Delivery Date	Comments
AI-105:	Jerry to set up meeting with Ed, Craig and Dan to discuss candidates for SC5 Vice Chair	Jerry Ramie	Closed	Next meeting	Poll sent 5/18 (lost) See new AI-108
AI-106:	Jerry to send Harry and John Hirvela the credentials to attend our next C63.9 WG meeting	Jerry Ramie	Closed	Next meeting	Sent 5/18
AI-107:	Jeff E. to forward existing C63.9 definitions to SC2 (through Jerry)	Jeff Evans Jerry Ramie	Closed	Next meeting	Sent 10/4

10. Time and place of next meeting: Chair - **Early next year (2023) to review C63.9 draft & C63.16 draft (TBD)**

11. Closing remarks and Adjournment: Chair - The Chair thanked Dan for his leadership and the attendees and adjourned the meeting at 2:25PM-PST.

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

Consolidated Action Items from 11/09/22 Meeting of SC5

Action Item #	Subject	Responsible Person(s)	Status	Delivery Date	Comments
AI-108:	Ed Hare to contact Tom Braxton and Jeff Evans regarding their willingness to become Vice Chair	Ed Hare	Open	Next meeting	Fees may be waived for Jeff
AI-109:	Ed to contact the IEEE TC-3 regarding their needs/subjects. (Karen Burnham is Chair)	Ed Hare	Open	Next meeting	Environments - do they need immunity Stds?