

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

Electromagnetic Compatibility

Subcommittee 5: Immunity Testing and Measurements

Chair: [Ed Hare](#)

Vice Chair: [Tom Braxton](#)

Secretary: [Jerry Ramie](#)

May 11, 2023; 1:00 PM – 2:30 PM - EDT

Web-meeting

Approved Minutes

1. **Call to Order: Chair** - The Chair called the meeting to order at 1:04PM-EDT

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

1.2 **Meeting logistics announcements: 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

Ed Hare has resigned from ANSC-C63 and Tom Braxton has volunteered to become Chair if needed.

AI-113: Jerry to remove Ed Hare from the SC5 roster and all SC and working groups

AI-114: Jerry to provide private roster credentials to Nick

Name	Role within SC	Affiliation
Braxton, Tom	Vice Char	Elite Electronic Engineering (Expert)
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, Jason Nixon, David Chamberlain, Bill Graff, Victor Kuczynski, Henry Benitez, Zhong Chen, Aurelian Bria, Janet O'Neil

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 - [20230316](#)** 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.

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:

20200916	20201209	20210310	20210603	20210908	20220113	20220518	20221109	20230119	20230316	SC5 Members
									x	Tom Braxton
				x	x	x	x	x	x	Bob DeLisi
x	x	x	x	x	x	x	x	x	x	Craig Fanning
x				a	x	x		x	x	Andy Griffin
x	x	x	x	x	x	x	x	x	x	Ed Hare
a	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	x	a			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) See roster above

4. Approval of [Scope and Duties](#): Chair – (Spring meeting only) (Scope, Duties and Roster were approved at the last SC5 meeting)

~~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) **Ed Hare's second term ends 12/31/23.** Ed had previously appointed **Tom Braxton** as Vice Chair. **Election for Chair:** Jerry nominated Tom as our new Chair, seconded by Dan Hoolihan. Any discussion? (none) Any other nominations? (none) Tom was elected by acclamation! Tom will interview prospects for his Vice Chair.

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

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.
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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
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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](#))

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? (Yes)**

C63.16-2016 Learn more	ESD Test Methodology	SC 5	Allen Crumm	C63.16 PINS	Draft is being written.
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C63.16: C63.16-2016 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

5.4 C63.24 – In-Situ RF Immunity Evaluation of Electronic Devices and Systems - Schaefer (insert link to [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? (Yes)**

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.
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C63.24-draft: 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 may be submitted to SC3 by SC5 when it is completed. (not by the Working Group)

7. New Business: Chair

7.1 [Review of C63.9 Draft 19-1 2023 Final](#) - Evans - [Presentation](#) - This Working Group is still addressing SC5 comments from our last meeting. They will need SC5 approval after comment resolution for MEC editing

7.2 [Review C63 16 rev D03 20230301 tracked](#) - Crumm - This Working Group is still addressing use of verbs in their text.

7.3 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 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 was been deferred until this meeting. Karen is now the VP of Standards. Focus is on shielding for now. She saw no current need for additional immunity Standards. They will have a Stds. review later this year and we can revisit this topic then. Jeff S. discussed an FCC R&O on the immunity of radio receivers. Legacy products may not exhibit good immunity, like aircraft altimeters. Nick noted that [FCC 23-27A1](#) public notice (policy notification) tells stake holders that FCC policy is changing. We may see a NPRM in the future. We don't know what the requirements will be. Bob suggested contacting Jason Coder since SC7 will be monitoring this situation. (existing products may require retrofitting)

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: The Action Items from this meeting were reviewed and understood.

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 03/16/23 Meeting of SC5

Action Item #	Subject	Responsible Person(s)	Status	Delivery Date	Comments
AI-109:	Ed to contact the IEEE TC-3 regarding their needs/subjects. (Karen Burnham is Chair)	Ed Hare Jerry Ramie Tom Braxton	Closed	Next meeting	Environments - do they need immunity Stds? (email sent 3/16)
AI-110:	Jerry to add Tom Braxton to SC5 roster.	Jerry Ramie	Closed	Next meeting	Added 3/16
AI-111:	Jerry to circulate C63.9/D19-1 and a blank comment form to SC5 for 14 days	Jerry Ramie	Closed	Next meeting	Email sent 3/16
AI-112:	Jerry to add Karen Burnham to our Webex guest list for our next meeting and send her an e-mail to that effect. (copy Ed)	Jerry Ramie	Closed	Next meeting	Email sent 3/16

10. Time and place of next meeting: Chair - Oct. 2-6, 2023 @ Google, Mtn. View, CA

11. Closing remarks and Adjournment: Chair - Tom thanked the group for their support and adjourned the meeting 1:47PM-EDT.

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

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