



Accredited Standards Committee C63®

Electromagnetic Compatibility

Subcommittee 5: Immunity Testing and Measurements

Chair: [Ed Hare](#)

Vice Chair: [Ross Carlton](#)

Secretary: [Jerry Ramie](#)

September 16, 2020; 3:00 PM – 5:00 PM - EDT
Webinar

Approved Minutes

1. **Call to Order: Chair** - The Chair called the meeting to order at 3:00PM-EDT.
 - 1.1 **Announcements: Chair's remarks** - Thanks for attending!
 - 1.2 **Meeting logistics announcements: Host**
 - 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) (~~grayed-out~~ Members were not present)

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

Name	Role within SC	Affiliation
Carlton, Ross	Vice Chair	ETS - Lindgren
Fanning, Craig	Member	Elite Electronic Engineering
Griffin, Andy	Member	Cisco Systems
Hare, Ed	Chair	ARRL
Heirman, Don (excused)	Member	Don HEIRMAN Consultants
Hoolihan, Dan (excused)	Member	Hoolihan EMC Consulting
Lombardi, Rick	Member	Visteon Corporation
Long, Randy	Member	ANSI National Accreditation Board (ANAB)
Ramie, Jerry	Secretary	ARC Technical Resources, Inc.
Schaefer, Dave	Member	Element Materials Technology
Silberberg, Jeffrey L	Member	FDA Center for Devices & Radiological Health
Zimmerman, Dave	Member	Spectrum EMC, LLC

Guests and Observers: (non-voting) Pao Thao,

- 1.4 **Quorum: (50% of roster) constitutes a quorum.** (rounding up) (12 roster members / 2 = 6 >> (therefore 6 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** - ([Approved](#) by acclamation)
 - 2.2 **Review of the [patent slides](#)** - The patent slides were shown and no patent issues were raised. All in attendance agreed to abide by the patent policy 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:

Nov 2015	May 2016	Nov-16	May-17	Nov-17	2018Jan	20180306	20180502	20181128	20190501	20191119	20200521	SCS Members
							x	x	x	x	x	Ross Carlton
		x		x	x	a					x	Craig Fanning
W	x	x				a	x	x			x	Andy Griffin
X	x	x	x	x	x		x	x	x	x	x	Ed Hare
X	x	x	x	x	x	x	x	x	x	x	a	Don Heirman
X	x	x		x			x	x	x		x	Dan Hoolihan
W	x	x	x	x		x	x	x	x			Rick Lombardi
X	x	x		x			x	x	x		x	Randy Long
X	x	x	x	x	x	x	x	x	x	x	x	Jerry Ramie
W		x				x	x		x	x	x	David Schaefer
X	x	x	x	x	x	x	x	x	x	x	x	Jeff Silberberg
W	x	x	x	x	x	x		x		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 standards for immunity testing techniques and associated instrumentation as requested by the Main Committee ANSI ASC C63®.~~

4.2 Election of Officers (as required) Ed Hare's first term ended **12/31/2019** Mr. Carlton ran this section of the meeting. Mr. Ramie moved, seconded by Mr. Long, to accept the nomination of Mr. Hare for a second term. Any objections? None were raised. Mr. Hare abstained. The motion carried by acclamation. **AI-85:** Jerry to update the Officer's page to reflect a new end-of-term date for Mr. Hare. (12/31/2022)

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.

5.1 C63.9 – Office Equipment Immunity - Evans *Mr. Ramie reported that they have just started to generate a Table of Contents. Mr. Griffin is assisting on the ToC and he authored the new Scope, which was well-received by the Working Group.*

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)**

C63.9-2014 Learn more	Laboratory immunity testing of office equipment exposed to RF sources	SC 5	Evans, Jeff	C63.9 PINS	New PINS approved 4/29/20, edits accepted 7/14/20, 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: 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: [IEEE Store](#). To purchase individual standards, go to the IEEE store and search on the standard number.

5.2 C63.15 – Immunity Measurement & Instrumentation - Heirman

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	Heirman, Don	C63.15 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: [Heirman, Don](#) (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: [IEEE Store](#). To purchase individual standards, go to the IEEE store and search on the standard number.

5.3 C63.16 – ESD Test Methodology - Worley Mr. Ramie reported that Mr. Worley has not answered emails and may have retired. **AI-86:** Jerry to inquire w/ Allen Crumm regarding replacing Mr. Worley to help with maintaining this document.

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)**

C63.16-2016 Learn more	ESD Test Methodology	SC 5	Worley, Richard Allen Crumm	No active PINS	Current. (published 5/10/16) Working group disbanded
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C63.16: C63.16-2016 American National Standard Guide for Electrostatic Discharge Test Methodologies and Criteria for Electronic Equipment

Contact: ~~Worley, Richard~~ Allen Crumm (Working Group ~~Vice-Chair~~ Contributor)

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. Working group disbanded.

Purchase: [IEEE Store](#). To purchase individual standards, go to the IEEE store and search on the standard number.

5.4 C63.24 – In-Situ RF Immunity Evaluation of Electronic Devices and Systems -

Heirman (insert link to [WG report](#)) Consensus ballot of C63.24/D-2.6 at the Main Committee closed 11/7/19. A [new draft PINS](#) has been proposed by Don Heirman and Jeff Silberberg.

Report from David Schaefer: *It went out for re-circulation due to a minor technical comment that had to be resolved. I don't know if it's because Don is out, but the comments we received back for resolution never made it to me, and unfortunately I didn't chase it. I have since made the editorial changes to the draft which should mean it is ready for publication. I'm waiting to hear back from Jennifer Santulli on getting it published. There was a technical comment back in June that got resolved, and we did a recirculation. From that recirculation, we got a handful of editorial comments. I took care of them last week, so we're waiting on the next step.*

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 Learn more	In-Situ RF Immunity Evaluation of Electronic Devices and Systems	SC 5	Heirman, Don	C63.24 PINS	Approved. Draft is being sent to publication by IEEE
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C63.24-draft: American National Standard Recommended Practice for In-Situ RF Immunity Evaluation of Electronic Devices and Systems

Contact: [Heirman, Don](#) (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: **Approved. Draft is being sent to publication by IEEE**

Purchase: Not yet available for sale.

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. **AI-87:** David Schaefer to send draft C63.24 to SC2 Chair for coordination.

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. **AI-88:** David Schaefer to send draft C63.24 to SC3 Vice-Chair for harmonization.

7. New Business: Chair

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 were shown to the Members, who agreed that they understood their meaning.

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

Consolidated Action Items from 5/21/20 Meeting of SC5

Action Item #	Subject	Responsible Person(s)	Status	Delivery Date	Comments
AI-77:	Jerry to remove Mr. Berger from the SC5 roster but retain his email in the SC5 webinar invitation list.	Jerry Ramie	Closed	Next meeting	Removed 5/21/20
AI-78:	Jeff Evans to acquire the voting comment matrix from Jennifer on the C63.9 PINS re-ballot. There was no indication given during the meeting that Dave Zimmerman's comments were considered. These comments will be considered at the next C63.9WG meeting.	Jeff Evans	Closed	Next meeting	Mr. Zimmerman's comments were accepted and the PINS was modified and posted.
AI-79:	Jeff E. & Jerry R. to solicit Allen Crumm to join the C63.9WG.	Jerry Ramie Jeff Evans	Closed	Next meeting	Solicited 5/21
AI-80:	Jerry to add Ed Hare to C63.9 Webex invitation list.	Jerry Ramie	Closed	Next meeting	Added 5/21/20
AI-81:	Jerry to replace old C63.9 PINS with C63_9 new PINS 20200313.doc and implement the other Status Matrix changes as indicated	Jerry Ramie	Closed	Next meeting	Posted 3/13/20
AI-82:	Ed Hare to inquire with previous C63.15 & C63.16 WG Chairs to see if re-affirmation is OK, or if more work is needed	Ed Hare Don Heirman Richard Worley Allen Crumm Jerry Ramie	Open	Next meeting	C63.15 should include transients C63.16 needs a Chair, Jerry to inquire w/ Allen
AI-83:	Jerry to run a Doodle poll in mid-August 2020 to select a SC5 meeting date in late Sept.	Jerry Ramie	Closed	Next meeting	Poll closed 6/15
AI-84:	Jerry to post and announce the draft SC5 meeting Minutes from today and then ask SC5 for approval within 2 weeks.	Jerry Ramie	Closed	Next meeting	Posted 5/22

10. Time and place of next meeting: Chair -TBD (internet connection was lost) [AI-89:](#) Jerry to run a Doodle Poll to determine our next meeting date this year.

11. Closing remarks and Adjournment: Chair - The Chair thanked the Members for their contributions and adjourned the meeting at 3:37PM-EDT.

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

Consolidated Action Items from 9/16/20 Meeting of SC5

Action Item #	Subject	Responsible Person(s)	Status	Delivery Date	Comments
AI-82:	Ed Hare to inquire with previous C63.15 & C63.16 WG Chairs to see if re-affirmation is OK, or if more work is needed	Ed Hare Don Heirman Richard Worley Allen Crumm Jerry Ramie	Open	Next meeting	C63.15 should include transients; Allen will Chair C63.16, update refs, review text.
AI-85:	Jerry to update the Officer's page to	Jerry Ramie	Closed	Next	Updated 9/16

	reflect a new end-of-term date for Mr. Hare. (12/31/2022)			meeting	
AI-86:	Jerry to inquire w/ Allen regarding replacing Mr. Worley to help with maintaining this document.	Jerry Ramie	Closed	Next meeting	Richard cannot attend but may review docs. Allen can Chair
AI-87:	David Schaefer to send draft C63.24 to SC2 Chair for coordination	David Schaefer	Open	Next meeting	
AI-88:	David Schaefer to send draft C63.24 to SC3 Vice-Chair for harmonization	David Schaefer	Open	Next meeting	
AI-89:	Jerry to run a Doodle Poll to determine our next meeting date this year	Jerry Ramie	Closed	Next meeting	Meeting set to 12/9/20 on 9/21