



# Accredited Standards Committee C63®

## Electromagnetic Compatibility

### Subcommittee 5: Immunity Testing and Measurements

Chair: [Ed Hare](#)

Vice Chair: [Ross Carlton](#)

Secretary: [Jerry Ramie](#)

May 21, 2020; 2:00 PM – 4:00 PM - EDT

Webinar

#### Approved Minutes

1. **Call to Order: Chair** - The Chair called the meeting to order at 2:01PM-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) **Report any roster errors to the ASC-C63® Secretary** ([SC5 membership roster](#) from the website is shown below) (grayed-out Members were not present)

**Subcommittee 5 Membership Roster** Any errors? Mr. Berger resigned 4/17 but wishes to observe our meetings by webinar. (He will be kept on the SC3 webinar invitation list) **AI-77:** Jerry to remove Mr. Berger from the SC5 roster but retain his email in the SC5 webinar invitation list.

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

Guests and Observers: (non-voting) Jeff Evans

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** - [20191119](#) ([approved](#) by acclamation on 4/16)

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<sup>®</sup> 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:

May 2015	Nov 2015	May 2016	Nov-16	May-17	Nov-17	2018Jan	20180306	20180502	20181128	20190501	20191119	SC5 Members
		x			x			x	x			Stephen Berger
								x	x	x	x	Ross Carlton
			x		x	x	a					Craig Fanning
x	W	x	x				a	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	x	Don Heirman
X	X	x	x		x			x	x	x		Dan Hoolihan
W	W	x	x	x	x		x	x	x	x		Rick Lombardi
	X	x	x		x			x	x	x		Randy Long
X	X	x	x	x	x	x	x	x	x	x	x	Jerry Ramie
X	W		x				x	x		x		David Schaefer
X	X	x	x	x	x	x	x	x	x	x	x	Jeff Silberberg
X	W	x	x	x	x	x	x		x		x	Dave Zimmerman

**Members at risk?** These members are at risk: **Craig Fanning** Craig attended and is no longer at risk.

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

**3.3 Approval of Membership (Spring meeting only)** Jeff Silberberg moved, seconded by Randy Long, to approve the Membership roster. No discussion. The motion was approved unanimously.

### Subcommittee 5 Membership Roster

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

**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®.**

Jeff Silberberg moved, seconded by Dan Hoolihan, to accept the Scope (above) as shown. No discussion, the Scope was approved unanimously.

Dan Hoolihan moved to maintain the Duties of SC5 to oversee these four Standards:

C63.9  
C63.15  
C63.16  
C63.24

Ross Carlton seconded, there was no discussion. The Duties were approved unanimously.

**4.2 Election of Officers** (as required) N/A

**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** (WG report) **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. **AI-79:** Jeff Evans & Jerry Ramie to solicit Allen Crumm to join the C63.9WG. **AI-80:** Jerry to add Ed Hare to C63.9 Webex invitation list.

**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) **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.

C63.9-2014 <a href="#">Learn more</a>	Laboratory immunity testing of office equipment exposed to RF sources	<a href="#">SC 5</a>	<a href="#">Evans, Jeff</a>	<u>C63.9 PINS</u>	New PINS approved 4/29/20, 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** (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 <a href="#">Learn more</a>	Immunity Measurement & Instrumentation	<a href="#">SC 5</a>	<a href="#">Heirman, Don</a>	<u>C63.15 PINS</u>	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** (no [WG report](#))

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

C63.16-2016 <a href="#">Learn more</a>	ESD Test Methodology	<a href="#">SC 5</a>	<a href="#">Worley, Richard</a>	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](#) (Working Group Vice 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. 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** (no [WG report](#)) Consensus vote of C63.24/D-2.6 at the Main Committee closed 11/7/19. The draft is in formal IEEE balloting, which closes 5/27. There are eight positive votes so far. Dave Schaefer reports that it should be published soon.

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

C63.24-draft <a href="#">Learn more</a>	In-Situ RF Immunity Evaluation of Electronic Devices and Systems	<a href="#">SC 5</a>	<a href="#">Heirman, Don</a>	<a href="#">C63.24 PINS</a>	New recommended practice restarted (joint task with IEEE 473)
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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:** New recommended practice. Consideration being given to working as a joint project with the revision of EMC Society

standard IEEE 473 on RF site survey measurement.

**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 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 the Subcommittee for approval, the document must be provided to the SC3 Chair for evaluation and coordination of any harmonization effort.

## 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 11/19/19 Meeting of SC5**

Action Item #	Subject	Responsible Person(s)	Status	Delivery Date	Comments
AI-70:	Jerry to send a "membership at risk" warning letter to Mr. Fanning	Jerry Ramie	Closed	2/12/20	Note sent 1/8/20
AI-71:	Jerry to remove Vladimir Bazhanov as SC7 Chair on officers roster. Jason Coder to be added as SC7 Chair	Jerry Ramie	Closed	2/12/20	Posted 11/28
AI-72:	Jerry to add Ross Carlton as SC5 Vice Chair to officers roster	Jerry Ramie	Closed	2/12/20	Posted 11/28
AI-73:	Ed to discuss the status of IEEE-473 with Chad Kiger and how to get it back on track with personal contact.	Ed Hare	Closed	2/12/20	Overtaken by events. C63.24 is in ballot now.
AI-74:	Jerry to post the <a href="#">new draft C63.24 PINS</a> to the <a href="#">status matrix page</a> .	Jerry Ramie	Closed	2/12/20	Posted <a href="#">C63.24 PINS</a> 1/8/19
AI-75:	Don will provide the <a href="#">C63.24 draft</a> to SC3 for harmonization	Don Heirman	Closed	2/12/20	<a href="#">Posted</a> 2/5 posted in SC3
AI-76:	Jerry to run Doodle Poll for choosing SC5 meeting dates/times in mid-February 2020	Jerry Ramie	Closed	2/12/20	Set 1/22 to 2/12/20

**10. Time and place of next meeting: Chair - TBD in the Fall of 2020** Consider another SC5 meeting in the third week in September? **AI-83:** Jerry to run a Doodle poll in mid-August 2020 to select a meeting date in late Sept. **AI-84:** Jerry to post and announce the draft SC5 meeting Minutes from today and then ask SC5 for approval within 2 weeks.

**11. Closing remarks and Adjournment:** **Chair** - The Chair thanked the Members for their contributions and adjourned the meeting at 3:17PM-EDT.

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

**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:	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 <a href="#">Dave Zimmerman's comments</a> were considered. These comments will be considered at the next C63.9WG meeting.	Jeff Evans	Open	Next meeting	
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 <a href="#">C63.9 PINS</a> with <a href="#">C63 9 new PINS 20200313.doc</a> 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	Open	Next meeting	
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 <a href="#">draft SC5 meeting Minutes</a> from today and then ask SC5 for approval within 2 weeks.	Jerry Ramie	Closed	Next meeting	Posted 5/22