



Accredited Standards Committee C63®

Electromagnetic Compatibility

Subcommittee 5: Immunity Testing and Measurements

Chair: [Ed Hare](#)

Vice Chair: **VACANT**

Secretary: [Jerry Ramie](#)

May 1, 2019; 1:00 PM – 3:00 PM - EDT
UL LLC in Research Triangle Park, NC

Approved Minutes

1. **Call to Order: Chair** - The Chair called the meeting to order at 1:12PM-EDT.

1.1 **Announcements: Chair's remarks -**

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?

Name	Role within SC	Affiliation
Berger, Stephen	Member	TEM Consulting
Carlton, Ross	Member	ETS - Lindgren
Fanning, Craig	Member	Elite Electronic Engineering
Griffin, Andy	Member	Cisco Systems
Hare, Ed	Chair	ARRL
Heirman, Don	Member	Don HEIRMAN Consultants
Hoolihan, Dan	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) Steve Jones, Jeff Evans, Marcus Shellman, Michael Duncanson, Ross Quan, John Norgard, Bill Graff, Chris Harvey, John Repella, Kenth Skoglund, William (Mac) Elliott, Deanna Zakharia, Henry Benitez, Bruce Fagley

1.4 **Quorum: (50% of roster + 1) constitutes a quorum.** (rounding down) (Calculation: 13 roster members / 2 = 6.5 + 1 = 7.5 (therefore 7 people are required for a quorum) **Was quorum achieved? (Yes)** (9 members were present) 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** - [Minutes of the previous meeting](#) 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 no potentially essential patents were identified.

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:

SC5 Members	Nov 2014	May 2015	Nov 2015	May 2016	Nov-16	May-17	Nov-17	2018Jan	20180306	20180502	20181128
Stephen Berger	X			x			x			x	x
Ross Carlton										x	x
Craig Fanning					x		x	x	a		
Andy Griffin	X	x	W	x	x				a	x	x
Ed Hare	X	X	X	x	x	x	x	x		x	x
Don Heirman	X	X	X	x	x	x	x	x	x	x	x
Dan Hoolihan	X	X	X	x	x		x			x	x
Rick Lombardi		W	W	x	x	x	x		x	x	x
Randy Long			X	x	x		x			x	x
Jerry Ramie	X	X	X	x	x	x	x	x	x	x	x
David Schaefer	X	X	W		x				x	x	
Jeff Silberberg	X	X	X	x	x	x	x	x	x	x	x
Dave Zimmerman		X	W	x	x	x	x	x	x		x

Members at risk? These members are at risk: **None**

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

3.3 Approval of Membership (Spring meeting only) Randy moved, seconded by Silberberg to accept the roster. which was approved unanimously.

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

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®.

Heirman moved, seconded by Silberberg, to approve the existing Scope, which passed unanimously.

4.1 Election of Officers (as required) **Vice Chair** position is open. **AI-67:** Jerry to remove Steve Whitesell from the Officer's page. (& change newsletter editor)

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 - Heirman ([WG report](#)) ([Cisco comments](#)) Mr. Graff suggested "commercial environment" instead of "office." Mr. Hare felt we should stay with laboratory testing driven by the field strengths encountered in commercial environments. In-situ measurements could be taken up in C63.24. Don noted that he has asked Jeff Evans to become the Chair, subject to the approval of SC5. Don moved, (no second required) to name Jeff Evans of Intel as the new C63.9 Chair. Discussion ensued. The motion carried unanimously. Mr. Hare appointed Mr. Evans as the Chair of the C63.9. Mr. Heirman indicated that he is willing to serve as the Vice Chair if appointed by the new Chair of the Working Group.

5.11 Status Matrix Review (Spring meeting only) Verify accuracy of document [status matrix](#) content and report any errors to the ASC-C63[®] Secretary. **Is this information correct? (No)** Mr. Hare noted that we would like to replace the existing PINS (below) with a PINS-C for research by the committee. **AI-68:** Jerry to modify C63.9 entry in [status matrix](#) as shown.

C63.9-2014 Learn more	Office equipment immunity	SC 5	Evans, Jeff	C63.9 PINS	PINS-C is to be developed.
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C63.9: C63.9-2014 American National Standard for RF Immunity of Audio Office Equipment to General Use Transmitting Devices with Transmitter Power Levels up to 8 Watts

Contact: [Heirman, Don](#)

Scope: This standard provides recommended test methods and limits for assuring the RF immunity of office equipment to general use transmitters with transmitter power up to 8 watts

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 report)

5.21 Status Matrix Review (Spring meeting only) 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 (no report)

5.31 Status Matrix Review (Spring meeting only) 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	Worley, Richard	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 – On-Site Generic Immunity testing - Heirman ([WG report](#))

5.41 Status Matrix Review (Spring meeting only) Verify accuracy of document [status matrix](#) content and report any errors to the ASC-C63[®] Secretary. **Is this information correct? (No)**

AI-69: Jerry to modify C63.24 entry in [status matrix](#) and "Learn more" text as shown.

C63.24-draft Learn more	On-Site Generic Immunity testing	SC 5	Heirman, Don	C63.24 PINS	New recommended practice restarted (joint task with IEEE 473); new PINS needed
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C63.24-draft: American National Standard Recommended Practice for In-Situ RF Immunity Evaluation of Products, Instrumentation, and Control Systems in High Reliability Installations

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. **PINS will need revision.**

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 the [PowerPoint template](#). Prior to the Main Committee meeting, the [SC report](#) and [approved previous 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.

6.3.1 Move some C63.15 content to SC3 for harmonization? - The document has been turned over to SC3.

7. New Business: Chair

8. [C63.org](#) website use and updates: Secretary - We normally post documents to the [SC5 protected area](#). If any SC or 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: Action Items were read to the Members, who agreed that they understood their meaning.

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

Consolidated Action Items from 11/28/18 Meeting of SC5

Action Item #	Subject	Responsible Person(s)	Status	Delivery Date	Comments
AI-60:	Jerry to place a discussion of moving some C63.15 content to SC3 for harmonization on our next SC5 meeting Agenda	Jerry Ramie	Closed	Next meeting	Placed on this agenda as item 6.3.1
AI-61:	Jerry to Remove dba L-A-B for Randy Long	Jerry Ramie	Closed	Next meeting	Removed 12/28
AI-62:	Ed Hare to suggest / interview a new Vice Chair for SC5	Ed Hare	Open	Next meeting	
AI-63:	Jerry to replace Mr. Whitesell with Mr. Worley on the status matrix page	Jerry Ramie	Closed	Next meeting	Replaced 12/28
AI-64:	Ed to forward the SC2 forms on to the respective WG chairs for C63.28.	Ed Hare	Closed	Next meeting	
AI-65:	Ed to ask Main Committee members for additional C63.9 Working Group participation	Ed Hare	Open	Next meeting	
AI-66:	Jerry to provide Xiong's e-mail address to all SC5 members>> (xiongyufei@caict.ac.cn)	Jerry Ramie	Closed	Next meeting	Provided 12/28

10. Time and place of next meeting: Chair - **November 20, 2019**

11. Closing remarks and Adjournment: The Chair adjourned the meeting at 3:00PM

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

Consolidated Action Items from 5/1/19 Meeting of SC5

Action Item #	Subject	Responsible Person(s)	Status	Delivery Date	Comments
AI-62:	Ed Hare to suggest / interview a new Vice Chair for SC5	Ed Hare	Open	Next meeting	
AI-65:	Ed to ask Main Committee members for additional C63.9 Working Group participation	Ed Hare	Open	Next meeting	
AI-67:	Jerry to remove Steve Whitesell from the Officer's page. (& change newsletter editor)	Jerry Ramie	Closed	Next meeting	All officers were corrected, Newsletter editor
AI-68:	Jerry to modify C63.9 entry in status matrix as shown	Jerry Ramie	Closed	Next meeting	Corrected 5/18
AI-69:	Jerry to modify C63.24 entry in status matrix and "Learn more" text as shown	Jerry Ramie	Closed	Next meeting	Corrected 5/18