C63® American National Standards Committee C63®

Electromagnetic Compatibility

Subcommittee 5: Immunity Testing and Measurements

Chair: Ed Hare **Vice Chair:** VACANT **Secretary:** Jerry Ramie

May 18, 2022; 1:15 PM – 2:45 PM - CDT
ETS-Lindgren, Round Rock, TX

Approved Minutes

1. Call to Order: Chair - The Chair called the meeting to order at 1:15PM-CDT.

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.** Rick Lombardi was removed as SAE is no longer a Member.

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) Steven Frierson, Jon Kanter, John Norgard, Harry Hodes, Zhong Chen, Nick Abbondante, Aurelian Bria, Jeremiah Darden, Ken Gjerde, Pao Thao, Megan McConnell, Jeremy Cline, Jens Medler

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 - 20220113 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 therein.

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.

Member Attendance Log:

20180502	20181128	20190501	20191119	20200521	20200916	20201209	20210310	20210603	20210908	20220113	SC5 Members
									x	x	Bob DeLisi
				x	x	x	x	x	x	x	Craig Fanning
x	x			x	x				a	x	Andy Griffin
x	x	x	x	x	x	x	x	x	x	x	Ed Hare
x	x	x		x	a	x	x	x		x	Dan Hoolihan
x	x	x			x	x		x	x		Rick Lombardi
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	x	a	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 none

3.3 Approval of Membership (Spring meeting only) - Motion to approve from Jerry / Seconded by Bob D. to approve the roster. No discussion. The motion to approve the Roster carried.

4. Approval of Scope and Duties: Chair - (Spring meeting only) (Report approval or any changes to the Main Committee) Motion to approve from Jerry, Seconded by Bob D. to approve Scope & Duties. No discussion. No opposition. The Scope and Duties were approved by acclamation.

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 12/31/22. We need a Vice Chair.
AI-105: Jerry to set up meeting with Ed, Craig and Dan to discuss candidates for SC5 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.

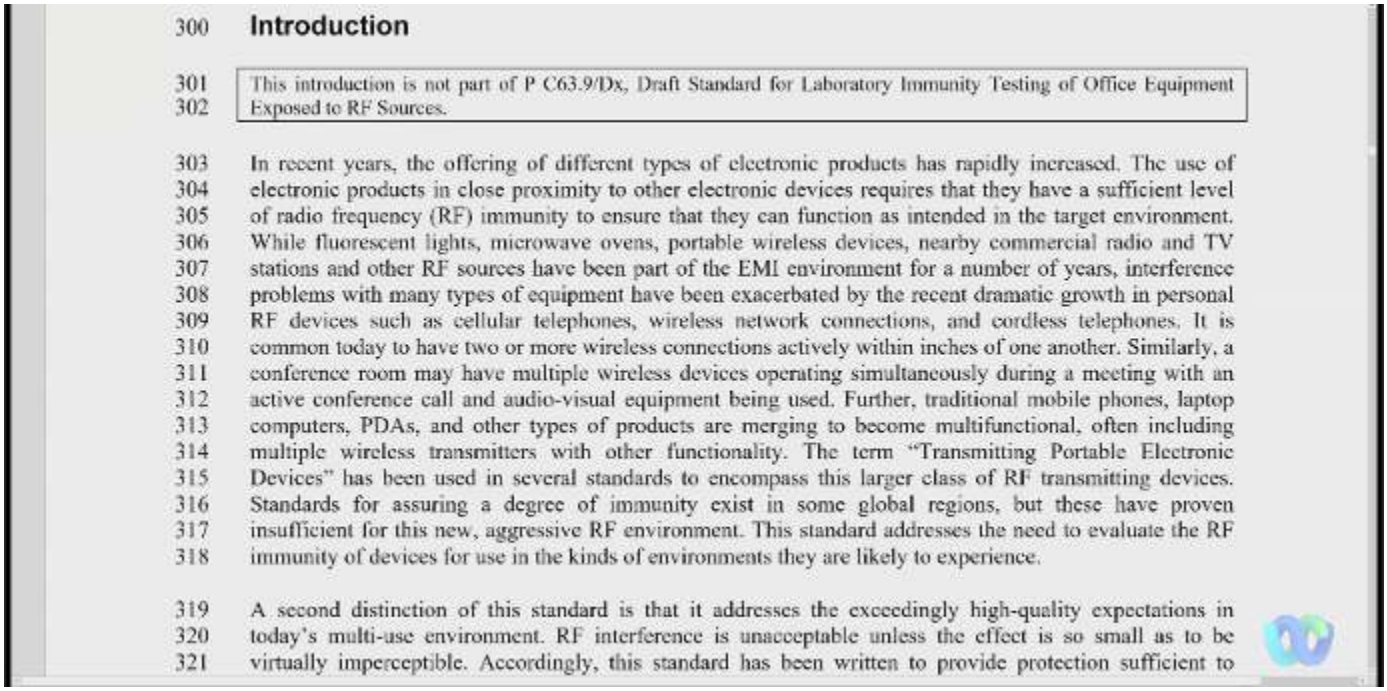
5.1 C63.9 – Office Equipment Immunity - Evans (link to WG report)

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? (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.

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

Jeff showed some content from the draft:

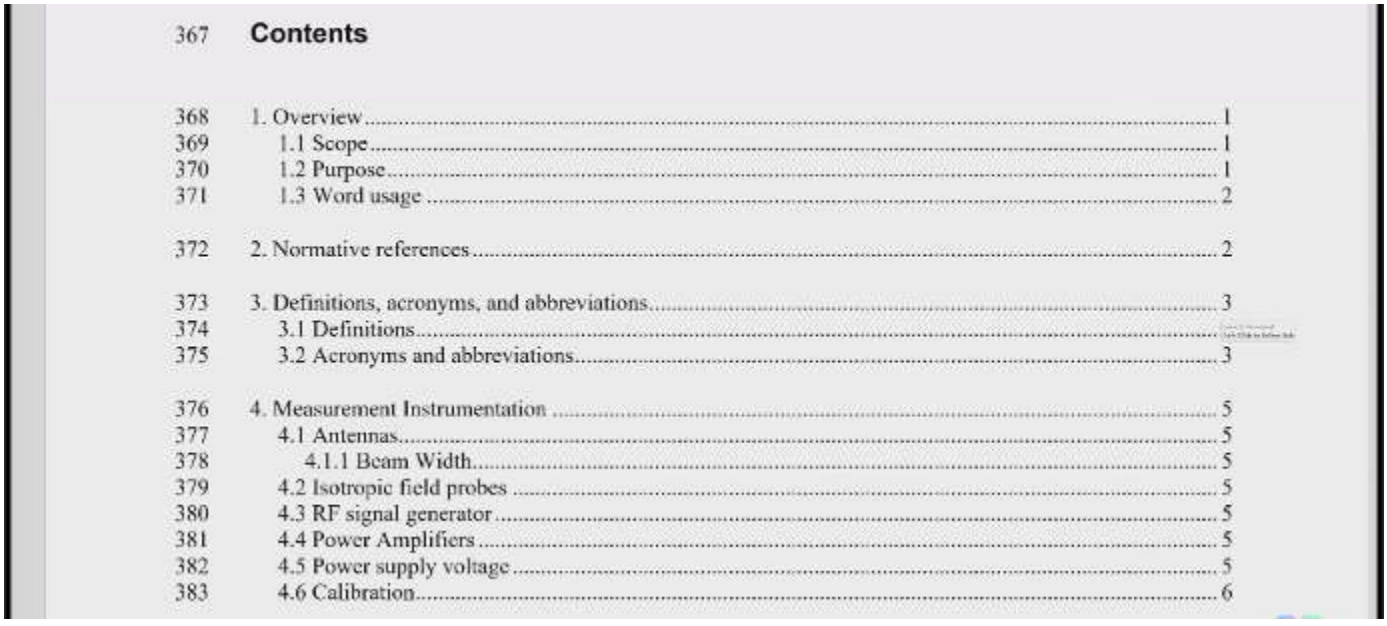


300 **Introduction**

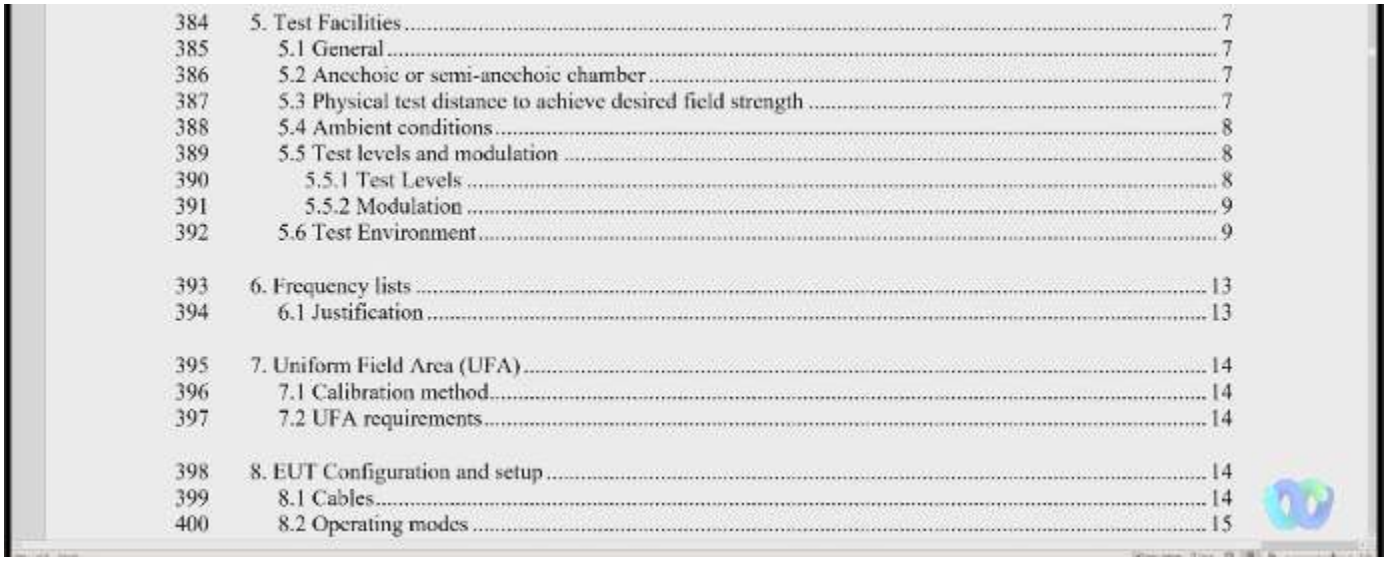
301 This introduction is not part of P C63.9/Dx, Draft Standard for Laboratory Immunity Testing of Office Equipment
302 Exposed to RF Sources.

303 In recent years, the offering of different types of electronic products has rapidly increased. The use of
304 electronic products in close proximity to other electronic devices requires that they have a sufficient level
305 of radio frequency (RF) immunity to ensure that they can function as intended in the target environment.
306 While fluorescent lights, microwave ovens, portable wireless devices, nearby commercial radio and TV
307 stations and other RF sources have been part of the EMI environment for a number of years, interference
308 problems with many types of equipment have been exacerbated by the recent dramatic growth in personal
309 RF devices such as cellular telephones, wireless network connections, and cordless telephones. It is
310 common today to have two or more wireless connections actively within inches of one another. Similarly, a
311 conference room may have multiple wireless devices operating simultaneously during a meeting with an
312 active conference call and audio-visual equipment being used. Further, traditional mobile phones, laptop
313 computers, PDAs, and other types of products are merging to become multifunctional, often including
314 multiple wireless transmitters with other functionality. The term "Transmitting Portable Electronic
315 Devices" has been used in several standards to encompass this larger class of RF transmitting devices.
316 Standards for assuring a degree of immunity exist in some global regions, but these have proven
317 insufficient for this new, aggressive RF environment. This standard addresses the need to evaluate the RF
318 immunity of devices for use in the kinds of environments they are likely to experience.

319 A second distinction of this standard is that it addresses the exceedingly high-quality expectations in
320 today's multi-use environment. RF interference is unacceptable unless the effect is so small as to be
321 virtually imperceptible. Accordingly, this standard has been written to provide protection sufficient to



367 **Contents**



Harry pointed out that this should probably be a "Recommended Practice" instead of a Standard. Ed wanted to let the working group consider making the document a Recommended Practice and invite Harry to the meeting.

AI-106: Jerry to send Harry and John Hirvela the credentials to attend our next C63.9 WG meeting.

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

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	Current. (published 5/10/16) Draft is being written.

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: 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

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-draft 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.

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. AI-107: Jeff E. to forward existing C63.9 definitions to SC2 (through Jerry)

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 None

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 1/13/22 Meeting of SC5

Action Item #	Subject	Responsible Person(s)	Status	Delivery Date	Comments
AI-103:	Jerry to instruct Shannon to change Scope text to read ANSC C63®	Jerry Ramie	Closed	Next meeting	Instructions sent 1/13
AI-104:	Jerry to change C63.16 matrix content as shown	Jerry Ramie	Closed	Next meeting	Content changed 1/13

10. Time and place of next meeting: Chair - C63 meetings in Santa Rosa, CA Nov. 7-11, 2022

11. Closing remarks and Adjournment: Chair - The Chair thanked the attendees and adjourned the meeting at 2:10PM-CDT

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

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	Open	Next meeting	Poll sent 5/18
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	Open	Next meeting	