C63® American National Standards Committee C63®

Electromagnetic Compatibility

Subcommittee 5: Immunity Testing and Measurements

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

Jan. 19, 2023; 1:00 PM – 3:00 PM - EST
Web-Meeting

Approved Minutes

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

1.1 Announcements: Chair's remarks - Thanks for attending! We'll review the C63.9 draft.

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 ANSC-C63® Secretary**

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) Jeff Evans, Nick Garinger, Tom Braxton

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 - 20221109 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:

20191119	20200521	20200916	20201209	20210310	20210603	20210908	20220113	20220518	20221109	SC5 Members
						x	x	x	x	Bob DeLisi
	x	x	x	x	x	x	x	x	x	Craig Fanning
	x	x				a	x	x		Andy Griffin
x	x	x	x	x	x	x	x	x	x	Ed Hare
	x	a	x	x	x		x	x	x	Dan Hoolihan
	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	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	x	x	a			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 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 12/31/23**. We need a Vice Chair:

Tom Braxton is working for Elite now, and they are a Member. Jeff Evans has expressed interest. AI-108: Ed Hare to contact Tom Braxton (Elite) and Jeff Evans (Intel) regarding their willingness to become Vice Chair. (fees may be waived for Jeff)
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Discussion:
Please consider taking the position! (open Action Item)

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~~ (insert 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/No)** (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

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/No)**

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 (insert link to WG report) **Slightly-changed PINS** were posted 8/23/22: Stakeholders were not changed. Any objections to this text?

Having an understanding of ESD can help manufacturers mitigate product performance issues. The document provides unique guidance on ESD test methods, test point selection, documentation, and reporting not readily available from other sources. Discussions on humidity, atmospheric pressure, simulator differences, and bleed resistors are included.

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/No)**

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/No)**

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. **(see 7.2 below)**

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. **(complete)**

7. New Business: Chair

7.1 Review C63.9 Draft 18-1 2022 (final) - Evans - The outline was shown:

C63.9 Highlights for SC5 Roll-up

1. The purpose and scope of this standard is to provide methods of evaluating the **susceptibility of components and sub-systems** used in multimedia equipment.
   a. Threats from transmitters in the frequency range of 380 MHz to 7.125 GHz.
2. Developed to achieve the purpose and scope of this standard with the resources of the common EMC lab.
3. Replacement of near field scanning or handheld probe techniques.
4. Introduces the term "Test Environment" that can be setup and contained inside a screen room, SAC or FAR Test Site.
5. Test distance is characterized to be far field (1-2 meters).
6. Utilize the Uniform Field Area (UFA) calibration and DUT immersion approach
   a. Calibration and test based on frequency lists representing global transmitters.
      i. Specifically, the center frequency of the channel(s).
   b. UFA size requirements of 20 to 50 cm^2.
   c. UFA requires all test points (16 minimum) to be within -0 to +6 dB variation.
      i. Help reduce nulls and peaks in the UFA
   d. UFA calibration process allows for obtaining lowest variation.
   e. Strongly suggest elevated UFA above and away from support structures
7. Test modulation is pulsed CW.
8. Test level table starts at 30 v/m and allows for any field strength.

Nick discussed the UFA, the use of far-field stimulus and the test level required. The lowest level of 30V/m is for testing bare circuit boards outside their chassis. We go as high as 300V/m (or lower) for completed equipment.

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Table 1—Test levels related to general purpose, multimedia equipment and other RF emitting devices

Level	Test field strength V/m
1	30
2	100
3	200
4	300
x	Special
NOTE—Level x is an open test level and the associated field strength may be any value.	

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Craig suggested an explanation of the test levels would be useful (Level 1 for boards, other levels for finished equip)

1.1 Scope

This standard specifies methods, instrumentation, facilities and test environments when applying RF immunity requirements for components and sub-systems used in multimedia equipment in the frequency range of 380 MHz to 7.125 GHz. Specific RF immunity signals (include frequency, power levels and modulation) and methods of how to apply these are defined so that their functionality can be assessed. The aim is to ensure that components, digital devices, sub-systems and multimedia equipment continues to operate as intended when exposed to the specified signals.

Measurement methods are included for Radiated Immunity in order to determine RF susceptibility levels. Definitions are provided for terms and phrases contained in the text, in which the words do not represent obvious or common usage. Measurement instrumentation, facilities and test environments are specified and characterized, including RF absorber-lined faraday chambers used for radiated immunity measurements. The requirements in this standard shall take precedence. In most cases, measurement instrumentation and calibration requirements are only generally characterized in deference to standards dedicated to these subjects, which should be used in conjunction with this standard. The requirements for operation of test samples during measurements are presented for devices in general, as well as for specific types of devices that are frequently measured. The main text is augmented by a series of annexes that provide details for certain measurement methods and facilities.

1.2 Purpose

This document is intended to standardize methods, instrumentation, facilities, and test environments to characterize multimedia equipment exposed to a wide variety of common and ubiquitous RF sources from mobile phones to licensed transceivers. The purpose of this standard is to provide methods of evaluating equipment exposed to such threats under controlled conditions to ensure they continue to operate as intended. The specified procedures are intended to be applied in controlled laboratory test environments.

Notwithstanding other possible uses, this standard is intended to be used for determining susceptibility levels of unintentional radiators (including digital devices, components, sub-systems and multimedia equipment). Regulatory compliance is not implied by use of this standard, as it is intended for components, digital devices, sub-systems and multimedia equipment. Full compliance of the multimedia end-product in which the components, digital devices or sub-systems are used, is required based on regulatory requirements in the area it is intended to be used or sold.

1.3 Word usage

The word *shall* indicates mandatory requirements strictly to be followed in order to conform to the standard and from which no deviation is permitted (*shall* equals *is required to*).[1,2]

The word *should* indicates that among several possibilities one is recommended as particularly suitable, without mentioning or excluding others; or that a certain course of action is preferred but not necessarily required (*should* equals *is recommended that*).

The word *may* is used to indicate a course of action permissible within the limits of the standard (*may* equals *is permitted to*).

The word *can* is used for statements of possibility and capability, whether material, physical, or causal (*can* equals *is able to*).

2. Normative references

The following referenced documents are indispensable for the application of this standard (i.e., they must be understood and used; therefore, each referenced document is cited in the text and its relationship to this standard is explained). For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments or corrigenda) applies. However, for undated references, unless otherwise stated by the regulatory authority or purchasing agency, a transition period of two years applies, starting from the date a new edition of such a reference is published, within which either the previous or the new edition shall apply.

Where a dated reference to a specific clause, subclause, table, figure, or annex of another document is made within this standard, it is acceptable to use a more recent edition of the referenced document provided identical text exists in both editions of that document for the referenced clause, subclause, table, figure, or annex.

NOTE—In-text references, within ANSI C63.9, to a specific clause, subclause, table, figure, or annex of another document are dated even if the corresponding document is listed as an undated normative reference below.

IEC 61000-4-3:2020-09, *Electromagnetic compatibility (EMC) – Part 4-3: Testing and measurement techniques – Radiated, radio-frequency electromagnetic field immunity test*

CISPR 35:2016, *Electromagnetic compatibility of multimedia equipment - Immunity requirements*

[1] The use of the word *must* is deprecated and cannot be used when stating mandatory requirements; *must* is used only to describe unavoidable situations.
[2] The use of *will* is deprecated and cannot be used when stating mandatory requirements; *will* is only used in statements of fact.

3.1 Definitions

For the purposes of this standard, the following terms and definitions apply. The *IEEE Standards Dictionary Online* and ANSI C63.14-2014 [B2] should be consulted for terms not defined in this clause.[3]

semi-anechoic chamber (SAC): A radio-frequency (RF) shielded enclosure in which the conductive walls and ceiling are treated with absorber material so that these surfaces have low RF reflection characteristics.

fully anechoic room (FAR): A shielded enclosure with internal walls ceiling and floor that have low-reflection characteristics.

test environment: An environment within a SAC or FAR that meets the UFA requirements of this document.

NOTE—The shielded enclosure reduces RF leakage and outside interference.

3.2 Acronyms and abbreviations

AM	amplitude modulation
ANSI	American National Standards Institute
BIOS	Basic Input Output System
CW	carrier wave
dB	decibel
E-field	electric field strength
EMC	electromagnetic compatibility
EMI	electromagnetic interference
EUT	equipment under test

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FW	Firmware
LTE	Long Term Evolution
GSM	Global System for Mobile Communications (originally Groupe Spécial Mobile)
GTEM	gigahertz transverse electromagnetic
H-field	magnetic field strength
IEC	International Electrotechnical Commission
IEEE	Institute of Electrical and Electronics Engineers
P	transmitter power (Watts)
PM	pulse modulation

[3] *IEEE Standards Dictionary Online* is available at: http://dictionary.ieee.org. An IEEE Account is required for access to the dictionary, and one can be created at no charge on the dictionary sign-in page.

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There was discussion of the RF signal generator (pulsed) and the harmonic suppression called out in 4.4: (-12dB below 1 GHZ and -6 dB above 1 GHz)

4.3 RF signal generator

RF signal generators shall cover the frequency range required for the test. They shall have a bandwidth and sampling rate sufficient to recreate the recorded waveform or create it directly.

4.4 Power amplifiers

Power amplifiers shall be capable of providing modulated and unmodulated signals at the frequency and power required.

Harmonics generated by the power amplifier shall be at least 15 dB below the carrier level.

4.5 Probe positioner

To reduce the influence of field probe positioners the construction, positioning and probe mounting should be considered. Both manual and automatic field probe positioners are suitable with automatic positioners under software control offering the best solution to improve accuracy and time reduction.

The positioner construction shall be of non-reflective material and of sufficient strength to support field probe mounting away from the mast or support structures of the positioner.

The position in the test environment of the probe positioner is best when located away from the UFA. This can be accomplished by locating the positioner off axis behind absorber material

Mounting the field probe when the positioner is located away from the UFA requires extensions. Extensions shall be made of low reflection materials with sufficient strength to allow accurately securing the field probe.

Test environment could be included in 5.1:

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556 **5.2 Fully anechoic room or semi-anechoic chamber**

557 The FAR or SAC shall meet the field uniformity requirements of clause 7.2 of this document.

558 NOTE—Additional absorber may be required to damp any reflections in unlined chambers.

559 The isolation should be sufficient to separate the test environment from the external environment. Shielding
560 effectiveness should be measured per IEEE Std 299-2006 [B5].

561 IEC 61000-4-3 provides the internationally recommended test method for anechoic and semi-anechoic
562 chamber testing. An RF immunity test shall be performed to IEC 61000-4-3. This standard provides
563 additional guidance to IEC 61000-4-3, as it applies to this type of testing, describing the test facility,
564 equipment, and procedures to be used when performing these measurements in a semi-anechoic chamber
565 with antenna illumination of the EUT.

566 The method for applying radiated electromagnetic fields to an EUT shall be in accordance with IEC
567 61000-4-3. This test shall be performed inside a shielded semi-anechoic enclosure. A calibration of the
568 defined test plane shall be done before the EUT is tested. The EUT and associated cabling shall not be in
569 the electromagnetic field during calibration. Figure 2 (see 5.6) depicts the field calibration performed
570 before introducing the EUT to the test setup.

We inserted a reference to Annex B in 6.2:

652 **6.1 General**

653 The rationale for the frequency ranges selected in this standard is based on the spectrum assignment of the
654 frequency bands and how commonly the transmitters in the various services can be found operating near
655 multimedia equipment.

656 **6.2 Justification**

657 The list of test frequencies shown in Table B.1 and Table B.2 in Annex B are examples specific to radio
658 technology transmitting (Tx) devices operating in the range from 380 MHz to 7.125 GHz. Annex B
659 frequencies are defined as the center channel of the widest & narrowest channel frequency widths
660 respectively, for global transmitters.

661 The required test frequencies are list based and are the center frequencies of the smallest band channel of
662 each transmitter technology. The channels are based on published global band channels assigned for (GSM,
663 LTE, WiFi, WiFi 6E, Bluetooth, PRS, etc.) common to handheld radios.

664 For purposes of calibration, additional characterization frequencies can be included as part of the overall
665 frequency list as desired by the manufacturer.

UFA requirements were reviewed:

644 **7.2 UFA requirements**

645 The calibration method is per IEC 61000-4-3 with the exceptions of the following:

646 — UFA variation shall be calculated based on lowest measured field strength and UFA position;
647 — Best UFA performance is achieved with multiple iterations;
648 — An area up to 50 cm² but no smaller than 20 cm²;

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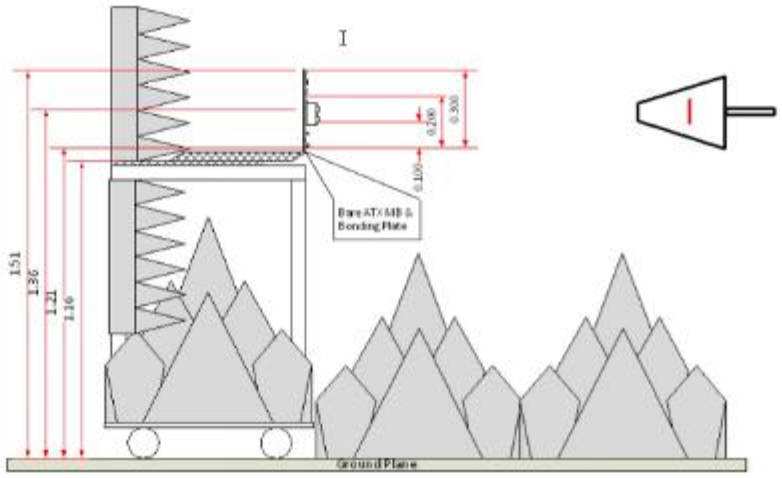
649 — Due to the angle of incidence of the transmitted singal the bottom of the UFA should be elevated
650 above the EUT table surface by 5 cm;
651 — All points must be measured and included in the UFA (minimum of 16) calculation;
652 — All calibration points shall be within -0 to +6 dB of the desired field strength.
653 — Addition of absorbers may be needed to minimize multi-path reflection around the UFA (not just the
654 ground plane);
655 — Reflection reduction of the support equipment (no reflective materials introduced into the UFA).

Product placement was shown:



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753 NOTE— Dimensions are not normative.

Performance Criteria A was shown:

767 **9.5.1 General**

768 The EUT shall not reset, lose data, change LED state, blank or change its display (which makes information
769 unreadable or loses information), disconnect a call, or display any ongoing disruption of its operation
770 during the test.

771 The EUT may display momentary, self-correcting, transient events during the test. Document in the report
772 how the port was monitored and method to do so.

773 **9.5.2 Performance criteria**

774 Continuous RF Electromagnetic Field Disturbances (Radiated Immunity tests) have performance criteria
775 (Performance Criteria A) described by the following:

776 "The equipment shall continue to operate as intended without operator intervention. No degradation of
777 performance, loss of function or change of operating state is allowed below a performance level
778 specified by the manufacturer when the equipment is used as intended. The performance level may be
779 replaced by a permissible loss of performance. If the minimum performance level or the permissible
780 performance loss is not specified by the manufacturer, then either of these may be derived from the
781 product description and documentation, and by what the user may reasonably expect from the
782 equipment if used as intended."

783 Specific performance criteria is described below.{… incomplete …?}

784 Reference number needed for the performance criteria {placeholder ? needs amend ?}

We wanted to include test distance and accreditation to ISO-17025 in this table:

No.	Item	Additional Detail
1	Name (Type)	
2	Description of equipment	Both test equipment and EUT
3	Serial number(s)	
4	BIOS/FW/SW description	
5	Sample quantity	Rationale for choosing quantity
6	Reason for test	
7	Ambient temperature	
8	Port(s) description	
9	Cable type/construction details	
10	Exercising software (worklet)	
11	Frequency dwell time	
12	EUT surfaces illuminated	
13	Observed effect description	What type of failure occured and how they pertain to the failure criteria
14	EUT photos	
15	Setup photos	
16	EUT modifications	
17	Frequency list	
18	UFA dimensions	

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Annex A should be informative. (different modulations are discussed but not required)
Annex B was shown. (informative)

7.2 Review / modify definition of "test environment" - Evans -

SC2 comments:

The definition for “test environment,” however, does not meet the requirements of the 2021 IEEE Style Manual for

definitions development and needs to be modified or removed. The definition:

> **"test environment:** An environment within a semi-anechoic chamber (SAC) or fully anechoic room (FAR) that meets the uniform field area (UFA) requirements of this document.
> ~~NOTE 1 The shielded enclosure reduces RF leakage and outside interference~~."

The definition is problematic for several reasons:

1) The term has a recognized general meaning (for example an OATS, any test lab or in-situ site) that makes the definition too specific for the term.

2) Acronyms used in a definition should be spelled out. (see amended definition above)

3) The Style Manual, Annex A.2 states: "Needless customization should be avoided so that definitions have as broad an application as appropriate. Definitions that are too specific should be avoided." This definition is extremely specific.

4) The Style Manual, Annex A.2 states, "Definitions should not include references to other clauses/subclauses in the standard." In addition to this, the IEEE MEC review will not allow a requirement to be part of the definition.

This definition would be slated to appear in the IEEE Standards Dictionary Online and ANSI C63.14. General users of those media would not have a way to understand or use this definition as it is way too specific to users of C63.9. SC2 non-concurs with use of this definition as it appears.

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Discussion:
We modified the definition above to address SC2 concerns. **We can use section 5.6 with an introduction** instead of a definition.

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 an IEEE group on environments. (TC in the EMC Society) AI-109: Ed to contact the IEEE TC-3 regarding their needs/subjects. (Karen Burnham is Chair) Dan H. noted that Standards always lag the technology. Jason Nixon noted that if Standards lead the technology it may stifle innovation.

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Discussion:
This has been deferred until the next meeting.

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: none

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 11/09/22 Meeting of SC5

Action Item #	Subject	Responsible Person(s)	Status	Delivery Date	Comments
AI-108:	Ed Hare to contact Tom Braxton and Jeff Evans regarding their willingness to become Vice Chair	Ed Hare	Open	Next meeting	Fees may be waived for Jeff
AI-109:	Ed to contact the IEEE TC-3 regarding their needs/subjects.	Ed Hare	Open	Next meeting	Environments - do they need

	(Karen Burnham is Chair)				immunity Stds?

10. Time and place of next meeting: Chair - March 16, 2023 @ 1:00PM-EDT (2 hours)
(to review C63.16 draft) (meeting set 1/19)

11. Closing remarks and Adjournment: Chair - The Chair thanked Jeff for his leadership and the attendees for their consideration. The meeting was adjourned at 3:02PM-EST.

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

Consolidated Action Items from 01/19/23 Meeting of SC5

Action Item #	Subject	Responsible Person(s)	Status	Delivery Date	Comments
AI-108:	Ed Hare to contact Tom Braxton and Jeff Evans regarding their willingness to become Vice Chair	Ed Hare	Open	Next meeting	Fees may be waived for Jeff
AI-109:	Ed to contact the IEEE TC-3 regarding their needs/subjects. (Karen Burnham is Chair)	Ed Hare	Open	Next meeting	Environments - do they need immunity Stds?