



Accredited Standards Committee C63®

Electromagnetic Compatibility

Subcommittee 4: Wireless and ISM Equipment

Chair: Art Wall

Vice Chair: Bob Delisi
May 10, 2017; 8:00 AM – 10:00 AM - EDT

Secretary: Jerry Ramie

A2LA
Frederick, MD.

Draft Meeting Minutes

1. **Call to Order: Chair** - The meeting was called to order at 8:11AM-EDT
 - 1.1 **Announcements: Chair**
 - 1.2 **Meeting logistics announcements: Host**
 - 1.3 **Introductions: (roll call) Secretary** – Jerry Ramie, Art Wall, Jason Nixon, Harry Hodes, Jeff Klinger, Vladimir Bazhanov, Marcus Shellman, Deanna Zakharia, Aurelia Bria, David Wait, Mac Elliott, Thomas Dickten, Xiong Yufei, Dheena Moongilan, John Forester, Zhong Chen, Ed Hare, Mits Samoto, Bob DeLisi, Steve Jones, Travis Thul, Jeff Silberberg, Dan Hoolihan, Bob Spehalski, Dan Sigouin
2. **Approval of the [Agenda](#): Secretary** - The agenda was shown and approved by acclamation
3. **Presentation of [patent slides](#): Secretary** - The patent slides were shown and all agreed to abide by their terms.
4. **Approval of [minutes of previous meeting](#): Secretary 20161109** The minutes were [approved](#) by acclamation.
5. **Review of [Subcommittee Membership](#): Chair**

Subcommittee 4 Membership Roster

Name	Role in SC	Affiliation
Case, David	Member	Cisco Systems
Chen, Zhong	Member	ETS-Lindgren
DeLisi, Bob	Vice Chair	UL LLC
Dickten, Thomas	Member	GC Consulting
Elliott, William (Mac)	Member	TÜV SÜD America, Inc.
Hodes, Harry	Member	Bay Area Compliance Laboratories Corp.
Hoolihan, Dan	Member	Hoolihan EMC Consulting
Howard, Mike	Member	Liberty Labs
Jones, Steve	Member	FCC Laboratory
Kiemel, Greg	Member	Element Materials Technology
Klinger, Jeff	Member	Compatible Electronics
Mendoza, Ernesto	Member	Philips Lighting Electronics NA
Moongilan, Dheena	Member	Nokia Bell Labs
Nixon, Jason	Member	Innovation, Science and Economic Development Canada
Pino, Dan	Member	PCTEST Engineering Laboratory, Inc.
Schaefer, Werner	Member	Schaefer Associates

Sigouin, Dan	Member	DHS-EMC
Waite, David	Member	Consultant
Wall, Art	Chair	Radio Regulatory Consultants
Ward, Dennis	Member	PCTEST Engineering Laboratory
Whitesell, Steve	Member	Whitesell Consulting, LLC

5.1 Review of Membership Guidelines – members at risk? (none)

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.

5.2 Consideration of new members - none

5.3 Review of scope - The scope was slightly modified by acclamation. (add e.g. to beginning of (lighting wireless, etc.) **AI-5:** Jerry to send edited SC4 Scope to Shannon for posting.

5.4 Duties - List of Standards being covered -See items 6.1 thru 6.4 below.

6. Working Group reports - Chair [More information about each standard](#) is available on the Standards Status section of the [C63® web site](#).

Each WG chair shall present a written report at the Subcommittee meeting. Written reports of the Subcommittee meeting shall be presented by the Subcommittee Chair ([Art Wall](#)) at the Main Committee meeting. These reports shall be made using the [PowerPoint template](#). Credentials required:

| [c63main](#) | [C63access](#) | <http://www.c63.org/pw/c63> |

Prior to the Main Committee meeting, the Subcommittee reports shall be provided to the projectionist ([Ed Hare](#)) for showing on the projector screen at the Main meeting. The SC reports will be added as an attachment to the meeting minutes. The presentation and any written reports shall also be sent by the Subcommittee Chair ([Art Wall](#)) to the C63® [Newsletter](#) editor, [Dave Zimmerman](#).

6.1 C63.10 – [Unlicensed transmitters](#) - Nixon

Meeting Attendance**Meeting attendees**

29 attendees

WebEx attendees

6 attendees

Review of Draft and comments

- Checked for newly published FCC KDBs
- Reviewed the VBW averaging issue, bandedge testing at reduced power levels and test report requirements:
 - VBW averaging text was recommended and inserted into the draft to address Mark Briggs comment
 - The text added for bandedge testing when the edge channel is operating at reduced power was discussed and modified in the draft
 - Reporting requirements were reviewed and draft text was recommended for the test report task group to expand on

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- Horia Popovici presented a contribution on measurements below 30 MHz. There are some edits required to C63.10 to accommodate developments in other subcommittee 4 working groups
- Dheena Moongilan presented some results for MIMO devices and the near field implications on testing

Conclusions**Action Items**

- Dave Case to review with the DTS and UNII task groups the new FCC KDBs
- Test Report task group to use the suggested text to update the reporting requirements in C63.10
- Jason Nixon to review the use of should/shall/may/can within C63.10
- Create a task group with Horia and Ed Hare and any others interested, to review the content of the below 30 MHz test procedures

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A November draft is expected. The PINS shown on the Status Matrix is old. The [new PINS](#) was shown:

[An online version of this form is available here at PSA WebForms.](#)
Date 2015-10-15

This form may be submitted via E-mail to mweldon@ansi.org
PINS: PROJECT INITIATION NOTIFICATION SYSTEM FORM *(Effective 1/07/05)*
*NOTE: Adoptions of an ISO or IEC standards require compliance with ANSI's Sales & Exploitation Policy.

1. Designation of Proposed Standard:	ANSI C63.25 – Second Edition – Licensed transmitters
2. Title of Standard:	American National Standard of procedures for compliance testing of licensed transmitters
3. Project Intent: (Check the applicable box below)	3a. Supersedes or Affects: (Specify designation of approved ANS standard(s) to be superseded and/or ISO or IEC standard(s) to be adopted)
Create new standard	<input type="checkbox"/>
*Adopt ISO or IEC standard (3.0 Expedited Procedures for the Identical Adoption of an ISO or IEC standard as an ANS)	<input type="checkbox"/>
*Adopt modified ISO or IEC standard (2.0 Requirements Associated with the Identical or Modified Adoption of an ISO or IEC Standard as an ANS)	<input type="checkbox"/>
*AND this adoption revises this current ANS	<input type="checkbox"/>
Revise current standard	<input checked="" type="checkbox"/> Update current standard for compliance testing of
8. Description of Contents of Standard: (Provide a one paragraph description, not to exceed 500 characters.)	The following topics were deferred to the 2nd Edition of the standard: (1) channel aggregation; (2) handling of unused ports; (3) number of channels to be tested. The following items will also be considered: (4) instrumentation guidance for emissions close to the limit; (5) symmetrical and asymmetrical carrier BW and power in channel aggregation; (6) antenna conducted spurious emissions for disabled transmit antenna ports; (7) channel aggregation using multi-technology or heterogeneous modulations (e.g., CDMA, LTE FDD, LTE TDD etc.); (8) minimum parameters that should be monitored during or before and after radiated and antenna conducted emissions for verifying correct operation EUT; (9) signal substitution method above 1 GHz -- consideration of maximum field intensity slant distance; (10) consideration of detector function other than peak (Reference: According to FCC 27.53 (a) (7), The measurements of emission power can be expressed in peak or average values, provided they are expressed in the same parameters as the transmitter power); (11) frequency range, carrier BW and Number carriers/Aggregated carriers for testing; (12) radiated emissions measurements above 40GHz; (13) radiated measurements for transmitters with down tilted antennas (most small cells on the poles could use down-tilted antennas)
9. Canvass Developers: (This request must include a statement of how to obtain a copy of the canvass list.)	<input type="checkbox"/> Check here to request Canvass Initiation Announcement.

Harry moved to add an agenda item for reviewing the PINS on the Status Matrix at each SC meeting. The motion was seconded by Mr. Ward. Discussion ensued. Mr. Schaefer felt that the Secretary should ensure that SC4 content is current. Mr. Schaefer objected. The motion carried with one objection. **AI-6:** Jerry to add PINS and Status Matrix review to the next SC4 generic agenda.

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Discussion

Review and Update of Roster

[C63.26 WG Membership Roster](#)

Review of PINS Topics

[C63.26 PINS](#)

Creation of TG to Review Scope Expansion
Opportunities

**Announcement and discussion of draft FCC KDB
publications permitting the use of C63.26**

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Task Group Leaders Reports

mmWave JTG – Robert Paxman

First draft of proposed new text
TRP procedures still developing

Radiated Emissions TG - Ryan McGann

Proposed draft new text offered
Round robin testing still being pursued

Signal Booster TG – Eddie Wong

Potential new booster technologies being considered for possible
inclusion

MIMO JTG – Deehna Moongilan

Presentation made in C63.10 WG Meeting

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Future Work

Several action items assigned and recorded

WG members to review draft new text from TGs

TGs continue work progress

New TG created to examine "Scope Expansion" PINS topic

Proposed Schedule

Intention to go to ballot prior to May 2018 meeting (Jan-Feb 2018)

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6.3 C63.29 – [Lighting equipment](#) - Mendoza**Slide Title****Meeting Attendance**

As noted

Meeting Highlights**Review starting Draft Document**

The WG work to develop ANSI C63.29 lighting devices test methods continue. This standard is based in ANSI C63.4 and supplemented with other documents (like ANSI C82, CISPR 15, and other) when it make sense, as described in the PINS and agreed by the working group

The first draft comments resolution calls ended in October 2016. A second draft has been prepared using the IEEE template. This second draft has been revised and organized by the editorial ad hoc before circulation. Special thanks to Horia Popovici, Bob Spehalski, and Bob Delisi for their editorial contributions to the new draft.

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Slide Title

Meeting Highlights-

- As agreed at the C63.29 last face to face meeting (November 7, 2016), the second draft became a self-contained document; thus, the second draft includes test methods described in ANSI C63.4 when applicable to lighting. RF lighting devices
- ANSI C82 setups and lighting devices stabilization information will be added to ensure harmonized testing practices among users.
- The working group faced some controversy about below 30 MHz radiated emissions test methods. In order to avoid additional conflict, and to facilitate progress, we have decide to adopt the below 30 MHz radiated emissions test methods as agreed in the C63.4 committee.
- The Working group is now focusing on chapter 7th, lighting devices setups. I will expect the second drat work to be completed in another quarter; circulated for working group members comments and to be ready to discuss next steps late August 2017. This plan assumes that the C63.29 WG members can support regular conference calls over the summer.

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The [C63.29 PINS](#) was shown:

This form may be submitted via E-mail to mweldon@ansi.org

PINS: PROJECT INITIATION NOTIFICATION SYSTEM FORM *(Effective 1/07/05)*

*NOTE: Adoptions of an ISO or IEC standards require compliance with ANSI's Sales & Exploitation Policy.

1. Designation of Proposed Standard:	ANSI C63.29 xx
2. Title of Standard:	American National Standard for compliance testing of Lighting Products
3. Project Intent: (Check the applicable box below)	3a. Supersedes or Affects: (Specify designation of approved ANS standard(s) to be superseded and/or ISO or IEC standard(s)* to be adopted)
Create new standard	<input checked="" type="checkbox"/>
<small>*Adopt ISO or IEC standard (3.0 Expedited Procedures for the Identical Adoption of an ISO or IEC standard as an ANS)</small>	<input type="checkbox"/>
<small>*Adopt modified ISO or IEC standard (2.0 Requirements Associated with the Identical or Modified Adoption of an ISO or IEC Standard as an ANS)</small>	<input type="checkbox"/>
*AND this adoption revises this current ANS	<input type="checkbox"/>
Revise current standard	<input type="checkbox"/>
Revise and Redesignate current standard	<input type="checkbox"/>
Revise, Redesignate and Consolidate current standard	<input type="checkbox"/>
Revise and Partition current standard	<input type="checkbox"/>
Reaffirm current standard	<input type="checkbox"/>
Reaffirm and Redesignate current standard	<input type="checkbox"/>
<small>Addenda to a current standard under Continuous Maintenance: (this document relates to/updates the following base document that is registered under Continuous Maintenance)</small>	<input type="checkbox"/>

4. This standard contains excerpted text from an ISO or IEC standard, but is not an ISO or IEC adoption.	X Check here if this standard includes excerpted text from an ISO or IEC standard but is not an identical or modified adoption of an ISO or IEC standard.
5. Provide a brief explanation of the need for the project:	A new standard is needed to test compliance of lighting products with applicable radio regulatory requirements.
6. Identify the stakeholders (e.g., telecom, consumer, medical, environmental, etc.) likely to be directly impacted by the standard:	Telecom, consumer, government, test laboratories, certification bodies, lighting manufacturers, trade associations.
7. This PINS revises a previous PINS submittal:	Note: A revised PINS is only required if the previously identified stakeholders have changed substantively (see item 6 on this form.)
8. Description of Contents of Standard: (Provide a one paragraph description, not to exceed 500 characters.)	This standard is intended to include procedures for compliance testing (radiated and conducted emissions) of general illumination lighting products with applicable radio regulatory requirements. This standard encompasses various technologies, from traditional lighting (e.g., fluorescent and High Intensity Discharge) as well as other technologies (e.g., LED and other). Related national and international standards (e.g., CISPR 15, ANSI C63.4) will be reviewed and used to the extent possible.

6.4 C63.30 – Wireless Power Transfer equipment - Thul (no report)

Art noted that this group has held numerous meetings twice per month. Below 30MHz and the FCC note to Travis are open issues. The Commission needed correlation data below 30 MHz between the traditional procedure and the VanVeen loop method. Bob DeLisi reported that all methods will require correlation if they are to be considered by the Commission. Vehicle testing is part of the group and SAE has done work in this area, with data available for our use.

6.5 C63.31 – [ISM equipment](#) - Walton

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Slide Title

Meeting Attendance

On-site Attendees: 17
WebEx Attendees: 2

Meeting Highlights

Review starting Draft Document

A starting draft document has been prepared that utilized the format of current C63.* documents.

MP-5 was converted to word and integrated into the new structure, a first pass update to MP-5 was made and made available for review at the meeting.

The draft document was broken into smaller sections and small groups tasked with working on each section prior to the next webinar.

The development of a test procedure for determining the site behavior for a small loop antenna was discussed: the outcome is a small group to prepare a draft test procedure for review by the C63.31 subgroup, then forward to the C63.30 task group

Conclusions

Action Items:

- Review of the draft document by multiple subgroups by the next WebEx
- Review of the document structure for format ASAP
- Development of a loop antenna test procedure ASAP for group circulation prior to next WebEx
- A discussion on the testing of devices incorporating Lasers specifically for part 18

Harry noted that this effort has been contentious with differences in methods and scope still present. Below 30MHz was an area of contention. The issue is test sites and alternative test methods. The [PINS](#) were shown:

adoption.	signature.
5. Provide a brief explanation of the need for the project:	A new standard is needed to test compliance of ISM products with applicable radio regulatory requirements.
6. Identify the stakeholders (e.g., telecom, consumer, medical, environmental, etc.) likely to be directly impacted by the standard:	Telecom, consumer, government, test laboratories, certification bodies, ISM manufacturers, trade associations.
7. This PINS revises a previous PINS submittal:	Note: A revised PINS is only required if the previously identified stakeholders have changed substantively (see item 6 on this form).
8. Description of Contents of Standard: (Provide a one paragraph description, not to exceed 500 characters.)	This standard is intended to include procedures for compliance testing of traditional ISM, with applicable radio regulatory requirements. Related national and international standards (e.g., CISPR, IEEE) will be reviewed and used to the extent possible.
9. D Canvass Developers: (This request must include a statement of how to obtain a copy of the canvass list.)	Check here to request Canvass Initiation Announcement

7. Other Old Business: Chair - none

8. New Business: Chair

8.1 [Discussion](#) of Notes, Footnotes and Annexes

1.1 Stating requirements and recommendations

For clarity in what is meant by the use of certain verbs in this standard, the following defines what each verb shown means:

- The word *shall* in this standard indicates a mandatory requirement that must be met to satisfy this standard. The word *shall* used in an informative annex indicates a mandatory requirement for the use of that annex (i.e. while the annex is not normative, if the user chooses to use it, then the mandatory requirements stated therein using the word *shall* must be observed).
- The word *should* is used to indicate recommendations.
- The word *may* is used to indicate that an action is permitted.
- The word *can* is used to express possibility.

NOTE—Use of these verbs follows the requirements in ISO/IEC Directives, Part 2: Principles and rules for the structure and drafting of ISO and IEC documents, Seventh Edition, 2016.

In addition, notes in this document are informative and are not part of the requirements. Notes are used in the text for emphasis or to offer informative suggestions about the technical content of the standard, and these notes provide additional information to assist the reader with a particular passage but do not include mandatory requirements.

Footnotes in text are included only for information, clarification, and/or as an aid applicable to the use of the standard, but mandatory requirements are not included in text footnotes.

In this standard, unless otherwise identified by inclusion of the word “normative” in the figure caption, the text takes precedence over the figures because the text is complete and the figures are illustrative of a typical application of the text.

Notes to tables and figures are informative; however, footnotes (i.e., superscript notation) to tables and figures are normative, as are numbered paragraphs between a figure and its caption (i.e., the list paragraphs in Figure 7 through Figure 14).

Art felt that Annexes should be informative unless there is good reason to make them Normative. Don H. noted that in the C63.4WG the view was that if you choose to use the Annex, it then becomes Normative. Greg K. asked if it was reasonable to vote against a Standard if you don't agree with everything in an Annex? If it's "benign," why have it in the document? Art thought that an annex provides additional information to those less familiar with the work, which is their purpose. Harry discussed Annex F in the C63.4 draft. It's not part of the draft Standard, but you need to know this material to use the document. Dielectric tables were offered as an example. He suggested that reviewers not ignore the annexes and that they are never "benign."

8.2 Below 30MHz Joint Task Group

Bob DeLisi noted that C63.29, 30 and 31 all need test methods in their documents. They want to compare methods with one another, including the VanVeen loop. They will focus initially on WPT using their standard transmit antenna. They will look at measurements over ground planes, soil, etc. Werner asked what the expectations were for these comparisons? Since the methods are different, why do we expect similar results? He proposed use of CISPR 16-4-5, with the use of different methods requiring the use of an algorithm to determine if correlation is possible. "It's not easy," Werner noted. Harry suggested that we use earlier NTIA propagation studies to find median cases of wet and dry grounds for this work.

9. C63.org website use and updates: Allen Crumm has been retained as an additional Technical Secretary. Our Working Group Chairs have been offered "back-office" Secretarial help with scheduling webinars, taking Minutes, preparing Agendas and posting their working drafts and support documents to the [SC4 protected area](#). Let Jerry or Allen know if you want or need any help in these areas.

10. Review of the action items from previous meeting: Secretary

Consolidated Action Items from 11/09/16 Meeting of SC4

Action Item #	Subject	Responsible Person(s)	Status	Delivery Date	Comments
AI-3:	Jerry to add Jeff Klinger to the roster & WebEx for SC4	Jerry Ramie	Closed	11/31/16	Added 11/20
AI-4:	Jerry to set up training webinar on file uploading with FileZilla & WebEx hosting. (Zakharia, Wall, Crumm)	Jerry Ramie	Closed	11/31/16	Training offered 12/16/15

11. Time and place of next meeting: Chair - ETS-Lindgren from Nov 6-9, 2017

12. Closing remarks and Adjournment: Chair - The meeting was adjourned at 10:02AM-EDT

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

Consolidated Action Items from 05/10/17 Meeting of SC4

Action Item #	Subject	Responsible Person(s)	Status	Delivery Date	Comments
AI-5:	Send edited SC4 Scope to Shannon for posting.	Jerry Ramie	Closed	11/8/17	Sent 5/24
AI-6:	Add PINS and Status Matrix review to the next SC4 generic agenda	Jerry Ramie	Closed	11/8/17	