

# C63<sup>®</sup>

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Accredited Standards Committee C63<sup>®</sup>

Electromagnetic Compatibility

Accredited by the American National Standards Institute, Inc.

Secretariat: Institute of Electrical and Electronics Engineers, Inc.

# NEWSLETTER

Issue 38 February 2015

## MESSAGE FROM THE CHAIR

**Daniel D. Hoolihan, Chairman ANSI-ASC C63<sup>®</sup>**

The latest series of meetings for the American National Standards Institute Accredited Standards Committee C63<sup>®</sup> on Electromagnetic Compatibility were held the week of November 10-13, 2014.

The meetings were hosted by Compliance Testing, LLC in Mesa, Arizona.

The weather was warm and the hospitality of Compliance Testing was outstanding. The meeting rooms were located on the second floor of a new building and were excellent. The lunches and break- refreshments were outstanding and included some home-made food! The staff of Compliance Testing were thanked a number of times for their positive contributions to the success of the meetings.

The meetings were well-attended starting with the Working Groups on Monday and Tuesday (led by Art Wall's wireless working group) and continuing with the Subcommittee meetings on Tuesday and Wednesday and the Main Committee Meeting on Thursday (November 13th).



C63<sup>®</sup> Main Committee meeting November 13, 2014, hosted by Compliance Testing at their facility in Mesa, AZ, Chairman Dan Hoolihan presiding.

I extend my sincere thanks to those who attended the meetings and to all other individuals who participate in the activities of our unique electrical engineering standards development organization.

There were several C63<sup>®</sup> standards released since the last meeting of the Committee in May of 2014. This included the publication of new Versions of C63.4 and C63.18 as well as the reaffirmation of C63.9. Details on the status of other Committee standards can be found in later sections of this newsletter.

Our next series of meetings will be held in Minneapolis, Minnesota starting on Monday, May 4th and concluding with the Main Committee meeting on Thursday, May 7th. The meetings will be held at the Embassy Suites at: 6300 Earle Brown Drive, Minneapolis, MN.

Northwest EMC will be the local host-EMC Lab providing both financial support for the meetings and additional meeting rooms and laboratory space for experimentation and demonstrations.

The meetings will follow our usual format of Working Groups on Monday and Tuesday, followed by Subcommittee Meetings on Tuesday and Wednesday, and the Main Committee meeting on Thursday.

I hope to see all of you at the "Minnesota in May" meetings.

## IEEE Standards Association News

In case you were not already aware, the IEEE Standards Association is marketing our standards through the IEEE Standards Association News site. At the site, they announce the publication of our standards and how to get them directly. In the July issue, C63.4-2014 was one of them highlighted, and it can be seen at <http://standards.ieee.org/news/swire/jul14.html>. If you go on the news site <http://standards.ieee.org/news/swire/> you can sign up to receive these monthly news items as to not miss such C63<sup>®</sup> announcements. It is expected that there will be an announcement of C63.14 soon.

## FCC ACCEPTS C63.4-2014 STANDARD

### **Don Heirman, Immediate past C63<sup>®</sup> chairman**

Last year ASC-C63<sup>®</sup> completed and published its latest edition of the popular standard C63.4: Methods of Measurement of Radio- Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz.



10 Meter Anechoic Chamber at Northwest EMC - Irvine, CA ©Jerry Ramie

This edition is to replace all previous editions of C63.4—most notably the 2003 and 2009 editions. At the present time, the FCC allows the use of both the 2003 and 2009 editions of C63.4 which has led to confusion in the marketplace as there are significant differences in these editions. The 2014 edition has removed the significant differences and consolidated the approaches using modern measurement instrumentation, calibration techniques, and testing above 1 GHz. Late last year the FCC issued a report and order (R&O in ET Docket No. 13-44) incorporating the 2014 version into its Rules. There is a one year transition after the rules go into effect where either the 2003, 2009, or 2014 editions can be used to show compliance with FCC rules. It should be noted that the standard also is referenced by Industry Canada ICES-003 requirements. (Information Technology Equipment (ITE) — Limits and Methods of Measurement)

This multiyear effort involved many C63<sup>®</sup> members who served and provided major contributions in the C63<sup>®</sup>.4 working group chaired by Don Heirman, immediate past chair of C63<sup>®</sup>. The WG names are in the published document. They are to be congratulated. You can purchase the standard via this link: <http://standards.ieee.org/findstds/standard/C63.4-2014.html>

It is also part of the EMC VuSpec<sup>®</sup> along with all other C63<sup>®</sup> standards as of March 2014 and that of the IEEE EMC Society and ASC-C95<sup>®</sup> on human exposure. Here is that link: <http://www.techstreet.com/ieee/products/1879193>

## Criteria for Continuation of Membership

Recommendations for continuation of membership criteria proposed by an ad hoc committee consisting of Steve Whitesell (SC5 Chair) and Poul Andersen (SC3 Chair) have been approved by the Main Committee. They allow remote attendance via web conference at the Subcommittee and Working Group level and are based on the principle of needing to participate in at least one out of three consecutive meetings to retain membership status. The requirements at the Main Committee level are somewhat different and require in-person attendance. The approved criteria for each level of participation are as follows:

### **Main Committee:**

For an Organization or Individual to remain a member of the Main Committee, in-person attendance by the Primary (or Alternate) Representative at Main Committee meetings and voting on procedural votes are required. Failure to attend at least one meeting per year or respond to two consecutive remote administrative/procedural votes may place membership at risk. Failure to participate in at least some of the technical document balloting groups indicates a lack of interest in the activities of C63<sup>®</sup> and may place membership 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.

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## MEETING PHOTOGRAPHS

All photos below were provided by Jerry Ramie



Meeting Site - Compliance Testing, LLC in Mesa, AZ.



From left to right Brett Gassaway and Michael Schafer, President of Compliance Testing, Janet O'Neil, SC1 Secretary, and Dan Hoolihan



Ed Hare, does the "buzz" have to do with chasing power-line noise?



## Subcommittee 1 Techniques and Development

Zhong Chen, Chair



November meeting

SC1 held its biannual meetings in November 12, 2014 in Mesa, Arizona. The committee confirmed two new members, David Zimmerman of Spectrum EMC Consulting, and Mike Howard of Liberty Labs. We look forward to working with him in SC1.

Below is the status of the current working groups. Any interested parties wishing to join a working group are encouraged to contact the SC1 chair or the appropriate working group chair as shown below.

### **Project C63.2 EM Noise & Field Strength Instrumentation**

**Chair: Werner Schaefer**

Suggested changes were introduced in October 2012 at the ANSI C63<sup>®</sup> SC1 meeting, and PINS were prepared and approved by the main committee during that meeting. The PINS was submitted to IEEE on May 8, 2013. The major changes in C63.2 (details about this standard can be found at [http://www.c63.org/documents/misc/matrix/c63\\_standards.htm](http://www.c63.org/documents/misc/matrix/c63_standards.htm)) include establishing CISPR 16-1-1 as the relevant document for measuring equipment in the frequency range of 9 kHz to 18 GHz, and establishing key specifications for the frequency range of 18 GHz to 40 GHz using the same approach as in CISPR. A draft document was completed and circulated since the last subcommittee 1 meeting. Circulation closes soon.

## Subcommittee 1 continued...

### **Project on Emissions Measurements, C63.4**

**Chair: Don Heirman**

The C63.4-2014 standard was officially published in June 2014. Congratulations to Don and all the working group members! As stipulated by the C63<sup>®</sup> operating procedure, the C63.4 working group was dissolved after the publication. SC1 Chair appointed Don Heirman to continue his role as the new working group chair. Working group met during the meeting in Mesa. PINS-C enters a project into the ANSI ASC C63 committee work. With the support of the SC1, this path was taken by the working group. It studies what should initially be studied for a revision of an existing standard or a new standard; this then is quantified by issuing a PINS which is a public record cited by ANSI to alert all that this is a project that might be of interest to others. In summary, the next activities after the publication of the 2014 standards include:

- C63.4 WG developed a PINS-C to capture what should be considered for the next edition of C63.4
- PINS-C successfully approved by WG, SC1 and C63
  - One comment from responsive ballot
  - 21 proposals for work narrowed down initially to 9; those not of high priority were identified and reasons given in C63 voting document.

### **Project on Antenna Calibration, C63.5**

**Chair: Bob DeLisi**

The PINS is an active document from October 2012. Working group meeting was held on November 11, 2014. Eight people were present during the meeting, with 4 participated on WebEx. Former chair Dennis Camel stepped down from the working group, as he has retired from NIST, and Bob DeLisi of Underwriters Laboratory assumed the chair position. Doug Kramer of ETS-Lindgren became the vice chair. Bob attended the meeting via WebEx, and Doug chaired the meeting in person in Mesa, AZ.

As reported in April 2014, C63.5 (details about this standard can be found at [http://www.c63.org/documents/misc/matrix/c63\\_standards.htm](http://www.c63.org/documents/misc/matrix/c63_standards.htm)) failed the first ballot ended in November 2013. A recirculation was issued and closed in July 2014. The ballot responses include 4 negative responses and 14 commenters. More than 150 comments were received in total, with 41 technical comments. The working group plan on addressing the comments before the next C63 meetings in May. Since there likely will be changes from addressing these comments, the working group plans on submitting the document for recirculation to C63.

### **Project Test Site Construction, C63.7**

**Chair: Don Heirman**



November meeting

C63.7 (details about this standard can be found at [http://www.c63.org/documents/misc/matrix/c63\\_standards.htm](http://www.c63.org/documents/misc/matrix/c63_standards.htm)) went to official ballot since the last C63 meetings, and the ballot closed on November 12, 2014. The general approach used include adding above 1 GHz clauses, and also reconstructing the document such that each existing clause contains two parts, i.e., below 1 GHz and above 1 GHz. The document covers facilities including OATS and covered OATS, semi-anechoic chamber and fully anechoic chamber. Two comments were received from the ballot. Working group met on November 10 to resolve the one set of editorial comments. The second set of comments appeared at the day of the meeting. The WG submitted the comment resolution and the slightly edited document to the secretariat to circulate to balloting group, and inform them of the comment resolution and the view of the document. The WG did not receive further comments, and hence there was no need for recirculation. The document was then sent to ANSI for their review. Since there were no changes made, ANSI approved the release and publication is expected in early 2015.

### **Project on Validation Methods for EMC**

#### **Radiated Emissions Test Sites, C63.25**

**Chair: Dan Sigouin**

An ad hoc meeting was held during the week of C63<sup>®</sup> meetings in Mesa. The WG chair Dan Sigouin of Industry Canada could not attend the meetings in person. Zhong Chen gave an update on the time domain sVSWR development work at the ad hoc meeting. Measurement results have shown good correlations between the TD sVSWR and the CISPR sVSWR methods. Chair Dan Sigouin plans to conduct working group meetings via WebEx. The working group is developing an outline for the new draft, which includes:

- Below 1 GHz: NSA and site comparison method (RSM)
- Above 1 GHz: TD sVSWR, and sVSWR

(details about this standard can be found at [http://www.c63.org/documents/misc/matrix/c63\\_standards.htm](http://www.c63.org/documents/misc/matrix/c63_standards.htm))

## Subcommittee 1 continued...

### **Project on Standard for Testing Wireless Devices, C63.10/26**

**Chair: Art Wall**



November meeting

The working group met on November 10-11, 2014 in Mesa, AZ, with 36 attendees (12 via WebEx), in addition 10 observers were present. C63.10-2013 is awaiting acceptance by the FCC and Industry Canada. Draft document C63.26D11 was circulated in January 2014 to subcommittee 1 and the wireless working group. Draft document C63.26D12 was circulated to the wireless working group in September 9, 2014. A summary of comments was discussed and resolved during the week of the C63 meetings in Mesa. After the edits, C63.25 will be ready for balloting by the end of year 2014. SC1 approved a motion from the working group to recommend to the main committee to request the balloting of the final draft and immediate formation of a ballot group for approval of C63.26-201x.

#### **Old Business:**

Richard Kautz from Ford presented "Low Frequency (<30MHz) Radiated Emission Measurement: Investigations Regarding Current and Potential New FCC & ANSI Procedures" to the subcommittee in the April meetings in Texas. However, he expressed that he no longer plans on pursue a PIN study project through C63.

#### **Interpretations:**

Four interpretation requests were received since last meeting. A new procedure has been put in place for interpretation requests. The subcommittee discussed and addressed the new procedures. The following list the status of the four interpretation requests:

- C63.4-2014, (NSA 30-1000MHz w/Schwarzbeck) request dated 7-31-14, Subgroup Chair Schaefer - Closed
- C63.4-2009, (Text takes precedence over figures) request dated 9-10-14, Subgroup Chair Heirman - Open
- C63.4-2009, (Conducted Emissions w/ vertical plane) request dated 10-28-14, Subgroup Chair TBD - Open
- C63.4-2009 and -2014, (NSA phase center of antenna) request dated 11-6-14, Subgroup Chair TBD - Open

Details can be found at the web page:

[http://www.c63.org/documents/misc/posting/new\\_interpretations.htm](http://www.c63.org/documents/misc/posting/new_interpretations.htm)

## Subcommittee 2 Definitions

**Marcus Shellman, Vice-Chair.**



November meeting

New SC2 leadership was voted-in during the Fall 2014 meeting. Mr. Chris Dilay was approved as the next SC2 chairman, Mr. Marcus Shellman, was approved as the new vice-chair, and Mr. Michael Duncanson was approved to continue as the SC2 secretariat. SC2 Working Group 1 expects publication of ANSI C63.14-201X by 31 December 2014. Upon publication, WG1 will immediately develop a new PINS to begin work on the next 5-year update. Working under a recently approved PINS, SC2 established WG2 for drafting the new ANSI C63.28 "American National Standard, Guide for Best Practices for EMC Compliance."

## Subcommittee 3 International Standardization

**Poul Andersen, Chair**



November meeting

The main activity with SC3 has been the WG1 work to rewrite and update ANSI C63.12. After many WebEx meetings and contributions from quite a few people, the draft document went to ballot. The draft document was overwhelmingly approved, but there were a substantial number of comments, mostly grammar and word choices. The WG has met three times to address the comments and another WebEx is scheduled to address the remaining comments. The plan is to complete the review of comments soon and move the document on to public review. As chairman of SC3 and the WG1, I want to extend my thanks to those who have participated on the working group for their effort. I also want to thank the people, who although are not formally part of the WG, provided valuable assistance in developing the document,

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## Subcommittee 5 Immunity Testing

**Steve Whitesell, Chair**

Subcommittee 5 met on November 11th with 11 of its 14 members and 8 observers in attendance. Chair Steve Whitesell indicated there has been no change in membership since the previous meeting.

The C63.9 Standard on Immunity of Audio Office Equipment, originally published in 2008, has been reaffirmed. However, several comments were received during the reaffirmation ballot and were retained for consideration in a future revision. Discussion during the meeting suggested that such a revision project be kicked off, and Andy Griffin volunteered to lead the effort. He will begin by forming a Working Group and developing a PINS for the project.

Don Heirman prepared a PINS-C identifying possible items to be addressed in a revision of the C63.15 Recommended Practice on Immunity of Electrical and Electronic Equipment, which is now up for its five-year review. They include updating of references, adding a test report template, reviewing the acceptance/performance degradation criteria checking if the test equipment and TEM information is still adequate, reviewing the tutorial information in Annex A, and consideration for adding guidance on reverberation testing. Don has agreed to lead the effort by forming a Working Group to review which of the above items should actually be included in a PINS to revise the document.

The Working Group revising the C63.16 ESD Testing Guide is nearing completion of its effort on this project. Chair Steve Whitesell noted that the revised Guide will include several unique testing methods not covered by current ESD testing standards. Work on the project is expected to wrap up in the next month or two and then proceed via an email process for recommendation to the Main Committee that the document be submitted for ballot. Although the content of the document will differ considerably from that which was envisioned when the project was initiated and its PINS created, we have learned that ANSI does not require a revised PINS be submitted unless the list of identified stakeholders is substantially changed, which is not the case. This information has been passed on to the Steering Committee for its consideration in adopting uniform procedures for C63<sup>®</sup> regarding PINS revision.

Work on the C63.24 Recommended Practice for In Situ Immunity Evaluation remains stalled. At least one Working Group member feels the document still needs "significant work," but he has been unable to devote time to revising the text to address his concerns. The latest draft of the document (D1.7) and the comments received on it will be circulated to the C63 membership to determine if there is a real need for the document, if the current draft is addressing that need, and if there are volunteers will to work on further refining the document. If such volunteers are found, they will be expected to move forward in completing the task. If not, the project will be cancelled.

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**Subcommittee 6 Laboratory Accreditation/Conformity Assessment**

**Randy Long, Chair**



The Subcommittee met on 12 November 2014

ANSI ASC C63<sup>®</sup> Subcommittee 6 (SC6) on “Accreditation/Conformity Assessment” met on the morning of Wednesday, November 12, 2014 from 8:00 am to 10:00am, at the Compliance Testing facility in Mesa, AZ. The meeting was led by SC6 Vice-Chair, Mr. Randy Long.

There was one new request for membership on SC6 received from Megan McConnell of A2LA. She has since been approved as a new member by SC6 and the Main Committee following an electronic balloting process. SC6 welcomes Megan and looks forward to working with her in this capacity.

SC6 is currently working on two documents concerning accreditation and conformity assessment.

WG3 is developing C63.11 to help laboratories to develop or evaluate PT/ILC activities.

WG4 is developing C63.8 to assist laboratories in effectively purchasing appropriate calibration services. An annex has been suggested with sample purchasing language for laboratories to adopt, any suggestions or lessons learned would be helpful.

The next SC6 meeting is tentatively scheduled for Wednesday, May 6, 2015, to be held at the Embassy Suites Hotel in Brooklyn Center, MN.

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**Subcommittee 7 Spectrum Etiquette**

**Stephen Berger, Chair**



November 2014 - C63.27 – Wireless Coexistence Working Group

No article was submitted for this edition of the newsletter.

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## Subcommittee 8

### Medical Equipment Testing

**Bob DeLisi, Chair**



The Subcommittee met on 12 November 2014

C63.18:2014 On-site immunity testing of medical equipment was published in June. The Chair of SC8 thanked Jeff Silberberg and his working group for the efforts that were put in place to get C63.18:2014 published.

WG-2 Chair reported that the leading consumer group Hearing Loss Association of America, HLAA, is doing an annual survey on HAC satisfaction. Results have been negative thus far. The Hearing Industries Association, HIA, has gotten involved and they have reached out to WG-2 Chair for assistance in trying to figure out what the issues are. At this time no action is required by C63 but C63.19 may need to change in the future to address the issues once they are uncovered.

#### FDA Liaison Report

The FDA is currently participating on the following working groups; C63.12, C63.16 and C63.27. They continue work with the Association for Automatic Identification and Mobility (AIM Global) RFID Experts Group (REG) to draft and validate protocols for testing immunity of medical devices to RFID systems. They are currently working on IEC 61000-4-39: Radiated fields in close proximity immunity test (77B/717/CD) which was removed from IEC 60601-1-2.

The FDA has recognized IEC and AAMI versions of 60601-1-2:2014 (4th edition). Recognition was published on the web in mid-2014. The transition from IEC 60601-1-2:2007 (3rd Edition) to IEC 60601-1-2:2014 must be done by April 1, 2017. The FDA has adopted the standard in full except Table 8, 61000-4-6 row, exemption of I/O cables less than 3 meters in length. Testing of I/O cables less than 3 meters will be required by the FDA.

AAMI activities within the FDA include acting as Co-chair of wireless coexistence TIR working group, Co-chair of working group – EMC test protocols for cardiac rhythm management and working on EMC section of a standard for cochlear implants. The FDA is also looking at specifications for humidity in the operating room (for equipment).

ISO activities within the FDA including working on the second edition of ISO/TS 10974, Assessment of the safety of magnetic resonance imaging for patients with an active implantable medical device.

The FDA has Released Final Guidance: Design

Considerations for Devices Intended for Home Use Announced on August 5, 2014. It is harmonized with IEC 60601-1-11 and references ANSI/AAMI/IEC 60601-1-2:2014 for EMC. This will also be revised with immunity test levels that are recommended for use with 60601-1-2:2014.

The FDA continues work on C63.27 as well as work with AAMI and OU Tulsa with regards to Wireless Coexistence and they are having ongoing meetings with FCC and SAE with regards to wireless chargers for automobiles and medical devices.

#### IEC SC62A MT 23 Liaison Report

SC62A MT 23 is already working on the first amendment to IEC 60601-1-2 4th Edition Amendment 1.

IEC/TR 60601-4-2: Medical electrical equipment – Part 4-2: Guidance and interpretation – Electromagnetic immunity; performance of medical electrical equipment and medical electrical systems was circulated for comment on October 24 as 62A/971/CD

IEC 61000-4-39: Electromagnetic compatibility (EMC) – Part 4-39: Testing and measurement techniques – Radiated fields in close proximity immunity test (77B/717/CD) was circulated for comments and those comments were due by 10-10-2014.

#### AAMI Liaison Report

It was noted that AAMI TIR18 Ed. 2 - Publication 2013: References C63.18 and this document is used by clinical and biomedical engineers. Also, AAMI has recognized the 4th edition of IEC 60601-1-2:2014

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