

**C63®**

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**Accredited Standards Committee C63®  
Electromagnetic Compatibility**

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Secretariat: Institute of Electrical and Electronics Engineers, Inc.

# NEWSLETTER

Issue # 27: Spring 2009

Warren Kesselman, Editor

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## **MESSAGE FROM THE CHAIR**

### **We are off and running!!**

Welcome to 2009 and our busy program in ASC C63® in predicted publication of standards. Before I give a quick preview of our standards program for 2009, I want to first welcome our new members: Northwest EMC testing laboratories and PC test laboratories. Northwest is located on the West Coast and PC test is on the East Coast. We also want to thank Hewlett Packard who has been a member for many years and has decided to step down for the moment from active membership. We hope for their return in 2010. At the subcommittee level, Marcus Shellman of the Navy Joint Spectrum Center has now assumed the chairmanship of Subcommittee 2 (Definitions) replacing Dave Southworth of the Navy SPAWAR. Dennis Camell of NIST in Boulder replaced Mike Windler of UL as chair of Subcommittee 1 (Measurement Techniques and Uncertainty). In addition all subcommittee memberships were confirmed by ASC C63®. So congratulations to our new chairs and a special thanks to our retiring chairmen and to all those that continue to serve on our subcommittees. Our web site [www.c63.org](http://www.c63.org) has the list of members now approved for 2009..

Now on to our planned publication and amendment projects for this year. You will find more details on the exact titles on the ASC C63® web site noted above .

**2009 C63® standards activity**

<b>Project/ Standard Number</b>	<b>Brief Title</b>	<b>Estimated number of pages</b>
C63.2 publication	EM Noise & Field Strength Instrumentation specification (to be published by summer)	13 pages
C63.4 recirculation	Methods of Emission Measurement (ready for publication)	142 pages
C63.5	Antenna Calibration (next edition under preparation)	75 pages
C63.9	Office equipment immunity (Current)	45 pages
C63.10	Unlicensed Wireless Devices measurements for FCC compliance (to be published by summer)	123 pages
C63.11	Immunity checklist for use by lab assessors (may not be published)	47 pages
C63.14	EMC definitions (about to be published)	52 pages
C63.15	Immunity Measurement & Instrumentation (to be published in Fall)	53 pages
C63.18	On site medical immunity testing using typical transmitters in health care facilities) (Publication by Summer)	54 pages

That totals over 600 pages that is in the process now for publication this year or by early next year. In addition to these standards, we are working on maintaining or starting the following standards:

- C63.16 ESD testing including rationale for test positions
- C63.17 Unlicensed Personal Communication System testing

- C63.19 Hearing Aid Compatibility with cellular phones
- C63.22 Guide for automatic emission measurements
- C63.23 Measurement Uncertainty for use with C63® standards
- C63.24 On site immunity testing using existing transmitter sources
- C63.25 Test site validation using time domain techniques
- C63.26 Licensed transmitter test methods for FCC compliance

All of the above list except C63.17 and C63.22 are underway projects.

There are individual Subcommittee reports in other parts of this Newsletter. Please read those inputs. I would like to highlight at least two subcommittee activities. First, Subcommittee 3 on international EMC standardization continues to increase its activity with reviewing the similarities and differences between IEC and C63® standards on the same or similar subjects. This is quite important as we continue to help the FCC in their quest for international harmonization of EMC standards that they cite in their Rules. Next Subcommittee 8 on medical device EMC continues to work on the next edition of C63.19 on hearing aid compatibility. As it turns out the FCC references C63.19 as well as C63.4 and C63.17 in their Rules which makes these projects quite important to be kept current and meeting the needs of the user community as well as the regulatory community.

As usual at our meetings, the status of the C63® website is reviewed. There continues to be the need for updates now especially after this meeting with the new membership approved and the status of standards updated. Ed Hare is the web site coordinator for all the subcommittees and Jerry Ramie is in charge for the C63® main committee. Ed has persons in each subcommittee that are responsible for their portion of the web site working with Ed to be consistent and up to date. Our web master is contracted to perform updating the web site when given inputs from those authorized to do that. We have limited those who work with the web master to avoid possible conflicting inputs. If you have a problem with the web site or find a broken link, please contact Ed on [ehare@arrl.org](mailto:ehare@arrl.org) with a copy to Jerry Ramie on [jramie@arctechanical.com](mailto:jramie@arctechanical.com).

There was a brief update on our support of the IEC/CISPR meeting at the IEC General Meeting in Seattle in 2010. C63® voted to support the meeting by donating \$25K to help meet the overall expense of the meeting. I then mentioned the upcoming workshops we are holding on C63® standards. <http://www.c63.org/workshops.htm> and click on the Austin link. In addition there will be a C63.10 two day workshop on 4-5 at UL in Research Triangle Park, N. C. The information on registering for that workshop will be posted on the C63® web site soon. Look for it as it is expected that this will be sold out.

Finally, our next meeting is at NIST in Boulder, CO. Please look at the arrangements and meeting times on our C63® web site under <http://www.c63.org/upcomingmeetingschedule.htm>

In closing, please read all the articles in our Newsletter. The conditions where the Newsletter material can be circulated is contained on the last page of the Newsletter. If there are any questions on that policy, please contact our Newsletter editor on [w.kesselman@ieee.org](mailto:w.kesselman@ieee.org).

Thanks for your continuing support of our many ASC C63® activities.

Best regards

Don Heirman  
Chairman, ASC C63®

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## **PROFICIENCY TESTING**

by Daniel Hoolihan

A York site source is being used by Subcommittee 6 of ANSI-ASC-C63, in conjunction with the US EMC Standards Corporation, to do inter-lab comparison testing; a number of labs have participated to date and we are soliciting additional labs to take part in the program. The York source is valid for both conducted and radiated emissions. The radiated emissions are checked from 30 MHz to 1000 MHz and the conducted emissions are checked from 150 kHz to 30 MHz. All data is held confidential and only a comparison of the participating lab versus a composite of other labs is given to the participating lab.

The cost of the program is \$800 for organizational members of ANSI-ASC-C63 and \$1200 for non-members.

A Proficiency Testing Guide, similar to ISO/IEC 17043, will be developed as a result of the Proficiency Testing Program. The document, however, will only be oriented around EMC testing.

For additional information, contact Dan Hoolihan, [danhoolihanemc@aol.com](mailto:danhoolihanemc@aol.com), Cell Phone 651-269-3569.

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## **Emission Measurements (ANSI C63.4), Antenna Calibration (ANSI C63.5) and Time Domain (TD) Workshop**

(From website [www.c63.org](http://www.c63.org) click Workshops)

This workshop is presented in three parts over a two day period: (1) Review of the 2009 edition of ANSI C63.4, (2) Review of the 2006 edition of C63.5 and the changes proposed for the 2009 edition and (3) Application of TD for test site validation and antenna calibration. These workshops are designed to increase your understanding of these standards and the TD approach. For the C63.4 workshop, there will be an analysis of the test site validation including using the CISPR SVSWR method or arranging absorber material on the ground plane. The C63.5 portion of the second workshop will lead the user through the new (or draft) document, highlighting which technique should be used based on the type of antenna being calibrated. This is essential to ensure that the right antenna factor is obtained, especially when validating semi-anechoic chambers. Application of the same TD method to validating test sites will also be presented. Attendees will get a chance to apply what they learned via problem solving and/or performing an antenna calibration in the lab and nearby OATS.

### ***In the C63.4 workshop, you will learn:***

- RF emission measurement procedures
- National and international regulatory implications
- Test facility and instrumentation requirements
- Equipment test arrangements and configurations

### ***In the C63.5 workshop, you will learn:***

- General test conditions
- Appropriate measurement geometry
- Application of standard site method
- Rationale for geometry specific correction factors for biconicals
- Measurement uncertainty guidelines
- How to take actual measurements
- Changes proposed for 2009 edition

### ***In the Time Domain workshop, you will learn:***

- Application for site validation
- Application for antenna calibration

### ***Support Material***

- A complete lecture notebook
- FCC handouts and references

### ***Who Should Attend***

Those responsible for determining compliance with FCC Rules and Regulations (and CISPR 22), including:

- Product managers and developers
- EMC engineers and test technicians
- Regulatory compliance managers

- Test instrumentation developers
- Those using and calibrating antennas in making radiated Emission compliance measurements
- Calibration technicians
- Calibration and measurement accreditation bodies
- Lab quality assessors
- Test instrumentation and chamber manufacturers

**Hotel**

The Hilton Hotel downtown Austin is the Symposium Host Hotel. For hotel info: [www.emc2009.org](http://www.emc2009.org)

**Expert Instructors**

Workshops feature leading industry experts and ANSI C63® members, including Don Heirman, Workshop Director, (Don HEIRMAN Consultants), Mike Windler (UL), Dennis Camell (NIST), Bob Hofmann (Hofmann EMC), Bill Hurst (FCC), Greg Kiemel (Northwest EMC), Michael Foegelle and Zhong Chen (ETS-Lindgren).

**Date and Location**

August 14-15, 2009  
ETS-Lindgren, Cedar Park, TX  
(Transportation will be provided to/from ETS-Lindgren and the Hilton Hotel.)

**Fee Includes:** Complete lecture notebook, continental breakfast, lunch, breaks, and completion certificate. Fee does NOT include copies of the draft or published standards.

**Agenda**

**ANSI C63.4:** Aug. 14 8:30 am Registration, Class: 9:00 am to 5:00 pm  
**ANSI C63.5/Time Domain:** Aug. 15 8:30 am Registration, Class: 9:00 am to 5:00 pm

**Registration Form Contact: Janet O’Neil**

**Telephone: 425-868-2558**

**E-mail: [j.n.oneil@ieee.org](mailto:j.n.oneil@ieee.org)**

Ms./Mr. \_\_\_\_\_

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ExpirationDate: \_\_\_\_\_

Signature: \_\_\_\_\_

**Check or Credit Card Number must accompany registration.** Make check payable to **U.S. EMC Standards Corporation** in U.S. dollars drawn on a U.S. bank. Mail to:  
Janet O’Neil  
ETS-Lindgren  
22117 Northeast 10th Place  
Sammamish, WA 98074

**C63.4 workshop only – August 14**

By June 15\*: \$500 USD \_\_\_\_\_

C63® & S/C Members (by June 15) \$425 USD \_\_\_\_\_

**C63.5/TD workshops only – August 15**

By June 15\*: \$500 USD \_\_\_\_\_

C63® & S/C Members (by June 15) \$425 USD \_\_\_\_\_

**Both workshops**

By June 15\*: \$900 USD \_\_\_\_\_

C63® & S/C Members (by June 15) \$825 USD \_\_\_\_\_

Add \$200 if after June 15 or at the door for either workshop or both workshops\*\* \$200 USD \_\_\_\_\_

Add 1 copy of notebooks\*\*\* \$100 USD each \_\_\_\_\_

Total USD \$ \_\_\_\_\_

NOTE: You are not registered until you receive confirmation.

\*Please do not mail after July 10.

\*\*With prior telephone or fax registration only.

\*\*\*Order by June 15 for pickup at the workshop.

The organizing committee reserves the right to substitute speakers, modify the program (or lecture notes), restrict attendance or to cancel the workshop(s). In the event the workshop(s) is/are canceled, registration fees will be refunded. No refunds will be made to individuals who cancel after July 10. Substitutions are allowed.

*Workshops without a minimum of 15 attendees signed up by 1 July 2009 will be cancelled and registration fees returned. It is suggested that you book refundable travel arrangements as appropriate if workshop(s) is/(are) cancelled*

**OCTOBER 2009 ANSI ASC C63® MEETING SERIES**

The October 2009 meeting series is scheduled to be held during the week of the 19<sup>th</sup> at NIST in Boulder, CO.

Tentative schedule is:

Meeting	Monday 19 Oct	Tuesday 20 Oct	Wednesday 21 Oct	Thursday 22 Oct
WG meeting(s)	1300-1700*	1300-1700**	0830-Noon**	--
SC2 Definitions			1300-1400	
SC3 International		1300-1500	1000-Noon	--
SC1 Technical			1415-1615	--
SC8 Medical		0830-1045		--
SC5 Immunity		1100-noon		--
SC6 Lab Accreditation		1515-1700		--
C63® Parent Committee				0830-1500
C63® Steering Committee *		1715-1900***	1630-1900***	
US EMC Standards Corp Board of Directors	1715-1900***			

\* Tentatively C63.19 Working Group Meeting; others may be planned—contact your WG chairman for details.

\*\* Tentatively C63.10 Working Group meeting--Invited members only

\*\*\* Members only of the Steering Committee and US EMC Standards Corp Board, respectively.

(Please double check on C63®’s website [www.c63.org](http://www.c63.org) , “C63® main committee”, “Upcoming meeting schedule & logistics”.)

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**Subcommittee 1 – Techniques and Development**

**Mike Windler Past Chair**

Dennis Camell was appointed as chair since current chair’s term has reached an end. His term will run for three years.

**Project on Site Requirements C63.25**

**Chair: Mike Windler**

This project was approved for the development of site requirements for both above and below 1 GHz. The working group is copying the requirements below 1 GHz (NSA) from C63.4 and adding requirements above 1 GHz. Interested parties are encouraged to contact the working group chair. The expected completion date is the spring of 2010.

**Project on Measurement Uncertainty C63.23**

**Chair: Bob DeLisi**

The first edition of this new standard is nearing completion and will focus on practical instruction on how to determine the actual measurement uncertainty contributor values from calibration data and other sources. In addition the standard will provide guidance on the means to use type A assessments of contributors and overall systems, including nested studies. The draft is expected to be completed for voting this summer.

**Project on Antenna Calibration C63.5**

**Chair: Dennis Camell**

This revision will include suggested editorial changes:

- \*Re-arrangement of sections to handle additional text
- \*Improved harmonization with IEC and VCCI with reworded/additional text
- \*Finalize frequency step size requirements across bands
- \*Finalize reference antenna changes
- \*Resolution of WG member’s feedback from second draft
- \*Check equations for accuracy and consistency.

Under consideration for the next edition are several other issues including:

- \*Adding the time domain method for free space antenna calibrations
- \*Add an annex on the complex fit NSA method.

**Project on Standard for Testing Unlicensed Wireless Devices C63.10**

**Chair: Art Wall**

The first edition of this standard has passed the balloting in ASC C63®. The first draft is expected to be published within the next 3 months.



A PINS has been proposed for the second edition to this standard which will address:

- (a) Instrumentation requirements (dynamic range, signal conditioning) and procedures (distance correction, reporting requirements and antenna pointing) above 1 GHz;
- (b) MIMO – to reduce testing requirements;
- (c) Band edge measurements – to distinguish between wideband and narrow band modulation and develop suitable techniques for each class;
- (d) Broadband system measurements;
- (e) Dynamic Frequency Selection testing – to update and document current procedures;
- (f) ERP/EIRP – to clarify, improve and document current procedures.
- (g) Polar plots and antenna characteristics
- (h) Maintenance of Edition 1
- (i) FM modulators – document current procedure and develop an equivalency procedure
- (j) Emission measurements below 30 MHz
- (k) Multiple antennas
- (l) Antenna arrays

The project is to be completed in twelve to eighteen months.

### **Project on Standard for Testing Licensed Wireless Devices C63.26**

**Chair: Art Wall**

The new standard is intended to cover the procedures for testing a wide variety of licensed transmitters; including but not limited to transmitters operating under Parts 22, 24, 25, 27, 90, 95 and 101 of the FCC Rules, transmitters subject to the general procedures in Part 2 of the FCC Rules and procedures for transmitters not covered in the FCC Rules. The standard will also address specific topics; e.g., ERP/EIRP, Adjacent Channel Power Measurements, Modulation Characteristics including I&Q, average power measurements and instrumentation requirements.

The project is to be completed in eighteen to twenty-four months.

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### **Subcommittee 2 – E3 Terms and Definitions**

**Marcus Shellman, Chair**

The draft ANSI C63.14-2009, “Dictionary of Electromagnetic Compatibility including E3,” is currently undergoing Public Review (BSR8). After successful Public Review, the draft will be subjected to ANSI Review (BSR9), which requires approximately 30 days. Publication is anticipated during the August/September 2009 timeframe.

### **Subcommittee 3 International Standardization**

**Poul Andersen, Chair**

Subcommittee 3: International Standardization

SC3’s role was redefined in April of 2008 and its current scope is as follows: “Provide a forum for comparing international standards activities to ANSI ASC C63® (hereafter C63®) membership standards activities”. The subcommittee’s Main Activities, General Tasks, and Membership Criteria as well as the Scope, can be found on the SC3 main page of the ASC C63® website. The membership consists mainly of the C63® Chairman, Subcommittee Chairmen, and the CISPR and TC77 Technical Advisors or their designated representatives. The role of the subcommittee is to provide an open conduit for bilateral information flow between the international EMC and the US EMC standards activities and to look for opportunities for harmonization of standards. At the April 2008 meeting, the list of C63® standards was reviewed for documents that potentially should be analyzed in detail for possible harmonization. Initially, four C63® documents were selected for this analysis. In addition to the C63® documents, three IEEE EMC documents were also identified. At this point in time, the analysis on three documents has been completed with the conclusion that there are no relevant opportunities for harmonization. Also at this last meeting, three additional standards were flagged as candidates with harmonization potential. Presently, nine C63® documents are identified for review. Identification of additional standards for review is a perpetual agenda item.

The subcommittee is open to receiving applications for additional members that have relevant qualifications and interests in EMC harmonization. Likewise companies or organizations that see potential benefit in having their EMC standards eligible for review by SC3 should consider becoming a member of C63®.

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### **Subcommittee 6 – Laboratory Accreditation/Conformity Assessment**

**Kurt B. Fischer, Chair**

SC6 met on April 21, 2009 and was led by Victor Kuczynski, Secretary and Webmaster in the absence of Kurt Fischer, Chair.

A nomination was made to the Main Committee for Victor Kuczynski to become the Vice Chairman and remain the Web Master for SC6 and David Zimmerman to become the Secretary for SC6.

Presentations were given to the SC-6 members:

Bill Hurst, FCC presented a report on MRA Status (Phase I and Phase II) for laboratories and TCBs and provided a submission for SC6.

Don Heirman, NACLA presented and provided a submission entitled "NACLA's Support of the US Accreditation Community" authored by Tony Anderson, NACLA Executive Director

A2LA submitted a report concerning the number of laboratories accredited in different sectors such as EMC, Telecommunications, BLUETOOTH Wireless Technology, Automotive EMC, SAR as well as accreditation of TCBs. A2LA is seeking qualified technical experts in EMC to join the A2LA Accreditation Council. If interested in volunteering to perform these activities, please contact Mr. Trace McInturff at [tmcinturff@a2la.org](mailto:tmcinturff@a2la.org)

Brad Moore, NVLAP gave a report on NVLAP status. NVLAP is revising several of the Handbooks including NIST Handbook 150-11 and the FCC Checklist. Future training primarily focused on the assessors was discussed; however interested laboratories may also participate. If interested, please contact Mr. Brad Moore at [brad.moore@nist.gov](mailto:brad.moore@nist.gov)

The working group reports were as follows:

#### WG#1 Checklist for Lab Assessors

Dan Hoolihan reported that the checklists cover the IEC commercial immunity standards IEC 61000-4-X (X= 2, 3, 4, 5, 6, 8, and 11). There are some negotiations with ANSI concerning the licensing of the IEC standards.

#### WG#2 Method to allow Accreditation Bodies to consolidate standards to simplify test laboratories' Scope of Accreditation

Brad Moore, NVLAP discussed the status of this method and discussions within WG#2.

#### WG#3 Proficiency Testing

Dan Hoolihan reported that this working group is submitting a PINS for developing a Proficiency Testing Guide similar to IEC 17043; however the PINS would be focused only on EMC proficiency test artifacts. As part of this development, a York site source is being used by the US EMC Standards Corporation to do inter-lab comparison testing; two labs have participated to date and we are soliciting additional labs to take part in the program.

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### **STANDARDS STATUS MATRIX**

The current status of all active ANSI ASC C63® Standards Projects may be found on C63®'s web page [www.c63.org](http://www.c63.org). Click on "C63 Main Committee" and then on "Standards Status Matrix".

### **ANSI ASC C63® 2009 OFFICERS' DIRECTORY**

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Poul Andersen, Chair SC-3 International Standardization (anderpoul@COMCAST.NET)

Edward F. Hare, Chair SC-5 Immunity Testing and Measurements (ehare@arrrl.org)

Kurt B. Fischer, Chair SC-6 Accreditation/Conformity Assessment (kurt.fischer@nist.gov)

Stephen Berger, Chair SC-7 Unlicensed Personal Communications Services Devices (stephen.berger@ieee.org)

Joseph Morrissey, Chair SC-8 Medical Device EMC Test Methods (JMORRISS@broward.edu)

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