

C63™ NEWSLETTER

*Accredited Standards Committee C63™
Electromagnetic Compatibility*

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Warren Kesselman, Editor

DR. RALPH SHOWERS STEPS DOWN AS CHAIR OF ASC C63™



On 29 September, Dr. Ralph Showers (left), Professor Emeritus of the University of Pennsylvania stepped down as Chair of ASC C63™ after over 4 decades of leadership. Don Heirman (right), ASC C63™'s vice chairman toasted Dr. Showers with many memories of his work on the committee.

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C63™ SEPTEMBER MEETING HIGHLIGHTS

On 29 September, Dr. Ralph Showers, professor emeritus of the University of Pennsylvania stepped down as chair of ASC C63™ (effective 31 Dec) after over 4 decades of leadership. This event was celebrated at the C63™ meeting series in Irvine, CA, at the Northwest EMC test facility.



Champagne toast honoring Dr. Showers leadership of C63™

Following the celebration, Dr. Showers chaired the meeting that included receiving subcommittees reports on:

- *Measurements and site validation above 1 GHz
- *Use of wide band TEM devices above 1 GHz
- *Automation of both emission and immunity measurements
- *Use of fully absorber lined chambers
- *Measurement uncertainty
- *Use of spectrum analyzers
- *Cellular phone compatibility with hearing aids
- *Compliance measurements of unlicensed personal communications services
- *In-situ immunity measurement of medical and business devices
- *Status of all the C63™ standards
- *Power line communication measurements

Also, an experiment was conducted in NWEMC's semi anechoic chamber to show a new technique for finding test

facility irregularities in performing site validation above 1 GHz. The technique uses time domain reflectometry which is very sensitive to "seeing" any site irregularities that do not meet proposed site validation standards in the IEC/CISPR and in C63™'s work itself.

C63™ March 2006 MEETING SERIES

The next C63™ meeting series is scheduled to be held during the second week in March 2006, at IEEE Headquarters, Piscataway NJ.

Tuesday 13 March.

1015-1200 SC2

1300-1700 SC1

Wednesday 14 March.

0800-1045 SC8

1100-1200 SC6

1300-1445 SC5

1500-1700 SC3

Thursday 15 March

0830-1630 C63™ Main Committee

C63.17 AVAILABLE AT IEEE STORE

This standard is available for downloading from the IEEE Store (<http://shop.ieee.org/ieeestore/>) as:

PC63.17 (D3.3) Draft American National Standard for Methods of Measurement of the Electromagnetic and Operational Compatibility of Unlicensed personal Communications Services (UPCS) Devices.

IEEE Product No:UE5947

IEEE Standard No:PC63.17

ISBN:0-7381-4840-7

Format:PDF Copyright: 2005

List Price: \$55.00 (\$45.00 IEEE Member Price)

2005 ANSI C63.4 WORKSHOP

The annual workshop which compares the IEC/CISPR Publication 22 on ITE measurement methods to the ANSI C63.4 measurement methods was held in Chicago just prior to the IEEE EMC Symposium. The training was given by Don Heirman, Bob Hofmann and Bill Hurst. A major part of this

workshop was team problem solving. Two teams were formed with the attendees to set up the testing scenario for two products: a scanner and a “learning mode” remote control device.



Student presenting the results of his “team” deliberations.

C63™ SUBCOMMITTEE ACTIVITY SUMMARIES

SC-1 Techniques and Development

Don Heirman Chair (Report to ASC C63™ on 28 September 2005)

Project 1-1.1 C63.15 Immunity Measurements and Project 1-1.3 C63.15 Immunity Instrumentation (combined with Project 1-1.1): Work is in C63™ addressing comments in failed ballot.

Project 1-8.1 C63.22 Guide for Automated EMI Measurements: Work is in SC1. This is an amendment of C63.22 focusing to focus on radiated and conducted immunity measurements. The WG is asking test labs to become involved in this committee’s work. SC1 is requesting members of C63™, such as ACIL, to participate in this effort. Volunteers to help on this working group are requested to be named by November 27.

Project 1-8.3 C63.2 to Include CISPR 16-1-1 with US Foreword: Work is in C63™ for recirculation ballot.

Project 1-13.2 C63.4 Site Acceptability above 1 GHz: Work is in SC 1. Working Group is to determine how to validate a test site above 1 GHz. The working group now is testing a time domain reflectometry method. There are three issues to discuss:

- *Repeatability using different instrumentation
- *More people required to help in making the measurements
- *Addressing considerations of the floor absorber treatment

SC1 requests C63™ to help make these measurements.

Project 1-15.5 C63.23 Measurement Uncertainty: Work is in C63™. C63.23 failed in ballot in May of 2004. The ballot failure requires a significant re-write of the standard. A draft will be e-mailed to SC1 by the end of the year.

Project 1-15.6 C63.5 Antenna Calibration: Work is in SC 1. The Chair advised that the document C63.5-2004 was released on December 20, 2004. An interpretation panel was established to deal with two requests. A PINS was written and is now requested to be approved by C63™.

Project 1-15.7 C63.4 Fully Absorber Lined Room (FAR): Work is in SC 1. There is a test artifact, which is a rack mounted router system. This test artifact is available to assess product radiated emission impact of using FARs instead of test facilities with a reflecting ground plane. A test plan for this work is to be circulated to SC 1 by mid-October.

Project 1-15.9 Maintenance of Revision to C63.4-2003: Work is in SC 1. First draft will be available by April 2006 for review by the committee and publication no earlier than late 2006. Items to be covered and person responsible are:

- *Site validation and measurement procedures > 1 GHz – Windler
- *GTEM validation and measurement procedures for intentional radiators and for frequencies >1 GHz and harmonization with IEC 61000-4-20 and related TIA standards – Berger
- *Video displays changes – Hofmann
- *Define cable loss as a function of temperature – Windler
- *Verify LISN calibration procedures – Hofmann/Moongilan
- *Provide Figure 2 (LISN impedance) equation – Hofmann
- *Change TV signal required when testing—Traver
- *Harmonize, where possible, test setups with 5th edition of CISPR 22 – Heirman
- *Cite C63.5-2004 with interpretations to replace 1988/1998 – Heirman
- *Add requirement for taking into account pulse desensitization when making pulse measurements - Berger

Project 1-15.10 C63.2 and C63.4 Use of Spectrum Analyzers for Emissions Testing: Work is in SC 1. To define criteria needed to use spectrum analyzers and then to develop procedures for compliance measurements of emissions using spectrum analyzers.

Project 1-15.11 Measurement of Broadband Emissions Associated with Digital Technology: Work is in SC 1. This is a generic agenda item on any broadband measurement issues. Tom Phillips agreed to talk with Martin Perrine and Bill Hurst at the FCC to determine what further action is required on this topic.

SC-2 Terms and Definitions

Dave Southworth Chair (Excerpts from Unapproved Draft 27 September Meeting Minutes)

Working Group Reports

WG#1 — ANSI C63.14 Update Terms/Definitions

Southworth presentation the status of the update of C63.14. This presentation was interactively changed during the meeting based upon inputs from the participants. Highlights of the discussion are:

Copyrighted terms need to be either replaced by DOD or IEEE terms otherwise letters will need to be sent to the source organization requesting approval to use the term and definition in C631.4.

Review of approved C63TM standards is nearly complete and most of those new terms have been added to the draft C63.14.

Review of military standards and handbooks is nearly complete and most of those new terms have been added to the draft C63.14. Eleven key EMC military standards, 9 handbooks and one DOD Instruction have been reviewed for new terms.

Approximately 70 new terms from C63TM and DOD documents have been added to the draft updated C63.14.

It was noted that terms with multiple definitions should have the definitions streamlined to one definition. It was noted that most of the multiple definitions were very close in wording.

It was noted by Southworth that the NATO working groups that deal with EMC have decided to draft their own E3 terminology standard rather than use the ANSI C63.14 as an official reference. Work has started and terms and definitions have been submitted by the US and several other countries.

Southworth noted that the key stakeholders for C63.14 are ANSI C63, US industry, and US DOD. At this time IEC and NATO are not considered key drivers of the terms and definitions.

Heirman noted that there are discussions underway with IEC to have a common E3 vocabulary document which will have impact to the SC/2 at a future date.

Southworth suggested the revised schedule indicates that the past C63TM and DOD document review will be wrapped up this year and then the first draft C63.14 will be emailed out to the SC Chairs with a request for inputs from their current draft documents and comments on the draft C63.14. The C63.14 will be consensus reviewed by the main body during the two meetings in 2006 with the goal of publication in 2007.

It was asked how many terms would fall into this copyrighted category. It was not known during the meeting however after the meeting the current terms from the original document from copyrighted sources were tallied up and included in the viewgraphs. Of those terms, some may be replaced by equivalent terms from DOD or IEEE.

Action Item Review:

Email out rough draft ANSI C63.14 by end of 2005 to SC chairs and request their review and addition of any new terms in their draft documents

Address copyrighted terms that remain in ANSI C631.4 after update of terms with letter to specific organizations addressing those terms that will be used

Complete update of ANSI C63.14 (new terms, reduce multiple definitions, address copyrights) by end of 2006 so that the document can enter the publication process in 2007

SC-5 Immunity

Ed Hare, Chair (Extract from September 27, 2004 Meeting report)

Membership:

Ed Hare, Chair	Joe Morrissey, Secretary
Steve Berger	Jon Casamento,
Chrys Chrysanthou	Don Heirman
Bob Hofmann	Dan Hoolihan
Victor Kuczynski	Herb Mertel
Werner Schaefer	Jeff Silberberg

WG 1 -- Immunity of Office Equipment:

Steve Berger, Chair

This WG was initiated at the October 2004 SC/5 meeting. A PINS to initiate the development of a document to cover immunity levels and test methods of audio-based office equipment and accessories used with wireless devices commonly used in office environments has been provided to the C63TM Secretary for ballot within C63TM. At the C63 Steering Committee meeting, C63.9 was assigned to the standard being developed by WG1. The WG membership is a good mix of the users of office equipment and manufacturers.

The WG met last in Toronto and completed an update of the draft. This document defines test methods and conditions. It also sets limits of 30 V/m for immunity from nearby transmitters operating in the 800-MHz cellular-telephone band and the 1900-MHz Personal Communications Service. A general immunity of 10 V/m is set for protection from generic transmitting devices operating near office equipment.

The members of the WG are going to use it to obtain practical experience using the standard in their own laboratories over

the next 30 days. When that is complete, the draft will be circulated to the entire SC/5 for an additional round of review and comments. It will then be sent to the C63™ parent committee for ballot. It is expected that this will occur by the end of 2005 unless significant issues with the draft are identified by the members of SC/5.

Vivek Talwar has offered to serve as the Vice Chair of WG1. He works for Goldman Sachs. Mr. Hare approved recommending Mr Talwar for this position.

SC/5 Contribution to the Development of C63.18.

SC/5 will continue to provide help to SC/8 on the development of C63.18, a standard on ad-hoc, in-situ immunity testing of medical devices. Mr. Hare is the liaison to SC/8, working with Mr. Silberberg on document text. SC/5 will, however, also resume work on C63.24, a standard on ad-hoc, in-situ immunity testing of generic, non-medical devices. A working group will be established to begin work on this document by the next series of C63™ meetings. A prime focus of this group will be to work with Mr. Silberberg to resolve some of the consensus issues that have delayed the completion of C63.18.

SC/5 to Assume Responsibility for C63.15

C63.15, is presently in SC/1, under a WG led by Mike Windler. This document had failed at ballot, with substantial negative comments. When the resolution of comments is completed by SC/1, C63.15 will be sent to C63™ for rebaloting. At that point, as per negotiations between Mr. Hare and SC/1 Chair Don Heirman, the responsibility for C63.15 will be turned over to SC/5, for resolution of any additional comments and the completion of the balloting process.

Immunity Testing Using Stirred-Mode and Stepped-Mode Reverberation-Chamber Techniques

Poul Andersen gave a verbal presentation and discussion on the use of reverberation chambers for immunity testing by the automotive industry. Although no specific projects were initiated by this presentation, the information was of strong general interest to the members of SC/5. SC5 and the automotive industry could serve as resources for each other as future work unfolds.

SC-6 Accreditation/Conformity Assessment

Dan Hoolihan, Chair (Report to the Main Committee September 28, 2005)

A meeting of Subcommittee 6 was held on Wednesday, September 28th at Northwest EMC in Irvine, California. Nineteen attendees were present at the meeting. The meeting was run as per the published agenda.

The membership was reviewed and Dave Zimmerman from TUV America will be added to the membership for the balance of 2005.

The checklists for lab assessors were discussed briefly. Colin Brench has found a volunteer in Hewlett Packard who has started to review the checklists. Victor Kuczynski stated he had some comments on the checklist which he will transmit to Colin Brench and Dan Hoolihan.

Proficiency testing was discussed. A proposed plan and procedure was circulated to the subcommittee members for their review. Both Dean Ghizzone and Werner Schaefer had comments on the proposed procedure.

Reports were received from both NIST/NVLAP and A2LA indicating that they continue to accredit EMC labs around the world.

Comments were made on the FCC Checklist; changes were sent to Bill Hurst of the FCC. Ken Hall indicated he had additional comments that he would forward to the subcommittee.

A report was given on the National Cooperation for Laboratory Accreditation (NACLA). Eight Accreditation Bodies have been recognized by NACLA in the USA. Most recently, AClass was recognized. People may consult the NACLA web site (www.nacla.net) for further details on other aspects of NACLA.

SC-8 Medical Device EMC Test Methods

Dan Hoolihan, Chair (Report to the Main Committee September 28, 2005)

A meeting of Subcommittee 8 was held on Wednesday, September 28th at Northwest EMC in Irvine, California. Twenty-three attendees were present at the meeting. The meeting was run as per the published agenda.

The minutes of the previous meeting were reviewed; Jeff Silberberg had several comments on the DRAFT Minutes. The minutes were approved with Silberberg's comments.

The membership of SC8 was reviewed and Dave Zimmerman from TUV America was added to the subcommittee list.

C63.18 - Work is continuing on the second edition of C63.18. Jeff Silberberg, the working group chair, reported that progress is slower than expected. Discussions occurred between Silberberg and Ed Hare (chair of SC5) on cooperation between SC8 and SC5. It was decided that Ed would go forward with some of the work in SC5 without waiting for C63.18's completion.

C63.21 –Bob DeLisi from UL is chairing this group and looking for new members. He has completed a new PINS for

the project. Bob Jenkins volunteered to join the working group. Bob DeLisi accepted an action item to check with Don Witters on potential members from the FDA.

C63.19 – Steve Berger reported on the progress of this working group. He stated that the proposed standard underwent a 45-day public review as required by ANSI and it received four comments from the public review process. These comments have been addressed, however, three out of the four commenters filed counter-comments to our replies. As a result of numerous telephone conversations and a meeting of the Working Group on Tuesday (September 27th) as part of the C63TM meetings, a new version of the standard (Version 3.8) has been developed.

A protracted discussion took place about Version 3.8 and what to do about it. Concerns were expressed about a 10 dB relaxation in the 850 MHz band, the peak versus average measurements, the complexity of the transmission waveform, measurements in the frequency range 15 Hz to 20 kHz, use of a wide-band probe, RMS readings over a period of 120 ms (plus or minus 30 ms), square law detectors, post-detection analysis, Articulation Weighting Factors, and additional technical issues.

It was agreed to make two editorial changes to Version 3.8; Footnote 13 relative to “further study” will be made a Note to address the fact that more work needs to be done in that area. Also, Footnote 14 will be placed in Annex C3.1.

Steve Berger proposed a Motion to “Recommend to the Main C63TM Committee to re-circulate C63.19 Version 3.8 to the main C63TM committee and the ANSI public review in parallel.” The Motion was seconded and a long discussion ensued.

Martin Perrine moved to amend the Motion by replacing “in parallel” with “in series.” That is, execute the Main C63TM review first and follow that with the formal ANSI public review. The proposed Amendment was seconded and discussed in length. A vote on the Amendment indicated it passed in a split vote, nine votes in favor and six votes opposed.

The Amended Motion was then voted on; and it was passed unanimously by the Subcommittee.

Further discussion ensued on the C63.19 standard. Martin Perrine outlined FCC concerns relative to C63.19 including “dual-band” limits, “peak” readings, increased immunity of hearing aids, a lack of T-coil data, and handset manufacturing issues. Jim Turner indicated that, in general, higher frequencies contribute more to hearing aid interference than lower frequencies (for example, 1900 MHz is more interfering than 850 MHz). George Hirvela discussed his carrier perspective; carriers are interested in the interface between the hearing aids and the cell phones; they want the consumer to be able to use handsets with hearing aids.

Under New Business, a discussion was held on the PINS and the PINS-C in existence on C63.19. A report from Steve Berger on the PINS-C activities, dated June 24th – 2005, was reviewed and discussed. Part of the discussions was a presentation by Matt Bakke of Gallaudet University of the work being done by him relative to the PINS-S. Replying to an Action Item from the previous Minutes, Steve’s recommendation to the Subcommittee was that a PINS would not be appropriate at this time. Al Wieczorek and Steve Berger agreed to begin to draft a PINS that would formalize the changes needed in the next full Revision of C63.19. The DRAFT PINS is scheduled to be completed in 30 days.

Liaison reports were given by Jeff Silberberg on IEC SC62A Maintenance Team 23 activities relative to IEC 60601-1-2, the AAMI/EMC Committee, and the FDA EMC activities.

No liaison report was given on IEEE 1073/ISO TC 215 Working Group on Wireless in Health Care (Status of the ISO TC 215 Technical Report # 21730 – First Edition - 2005[Health Informatics – Use of Mobile Wireless Communication and Computing Technology in Healthcare Facilities – Recommendations for the Management of Unintentional Electromagnetic Interference with Medical Devices]).

STANDARDS/PROJECTS SUMMARY

STD/PROJECT	ABBREVIATED TITLE	STATUS
C63.2 - 1996	Instrumentation	Recirculation ballot
C63.4 – R2	Measurement Methods	Work ongoing-2006 target
C63.5 - 2004	Antenna Calibration	Minor revisions in process
C63.6 – 1996	Guide, Computation Errors in OAT Meas.	Reaffirmation ballot
C63.7 - 1992	OATS, Construction of	ANSI approval on hold pending audit
C63.12 - 2000	EMC Limit Setting	Reaffirmation ballot
C63.14 - 1998	EMC Definitions	Reaffirmation ballot, complete update in 2007
C63.15	Immunity Measurements & Instrumentation	Recirculation of ballot required
C63.16 - 1993	ESD Test Methodologies	Future activity in review
C63.17 - 2005	Unlicensed Personal Comm. Serv. Devices	Draft available from IEEE Store
C63.18 - 1997	Medical Devices; Radiated Immunity Test	Reaffirmation ballot
C63.19 - 2001	Hearing Aids and Wireless Comm Devices	Reaffirmation ballot
C63.22 - 2004	Guide for Automated EMI Measurements	Published December 2004
C63.23	Measurement Uncertainty	New draft in preparation

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