

**APPROVED MINUTES**  
**ANSI ASC C63® SC1: Techniques and Development**  
**April 30, 2014**  
**ETS-Lindgren, Cedar Park, Texas**

Presiding Officer: Zhong Chen

Date Prepared: April 30, 2014

**Members Present:**

Mark Arthurs  
Dennis Camell  
Zhong Chen (Chair)  
Bob DeLisi  
Andy Griffin  
Dean Ghizzone  
Don Heirman  
Harry Hodes (Vice-Chair)  
Dan Hoolihan  
Mike Howard  
Greg Kiemel  
Victor Kuczynski  
Randy Long  
Michael O'Dwyer  
Janet O'Neil (Secretary)  
Nate Potts  
Mits Samoto  
Werner Schaefer  
Dan Sigoiun  
Jeff Silberberg  
Don Umbdenstock  
Art Wall  
Dennis Ward  
Khairul A. Zainal

**Members Absent:**

Masud Attayi  
H. R. Hofmann  
Jeff Klinger  
Tim Harrington  
Rick Lombardi  
Doug Parker  
Ghery Pettit  
Steve Whitesell

**Guests:**

Poul Andersen, PA Consultant  
Jeremiah Darden, Northwest EMC  
Chris Dilay, SPAWAR/Navy  
Mac Elliott, Motorola Solutions  
Ed Hare, ARRL  
Garth Hillman, Oaktree Consulting  
Beth Hackett, NVLAP  
Steve Jones, FCC

**Employer:**

Sony  
NIST  
ETS-Lindgren  
Underwriters Laboratories Inc. (UL)  
Cisco  
Northwest EMC  
Don HEIRMAN Consultants  
ACIL/Proficiency Testing Services  
Hoolihan EMC Consulting  
Liberty Labs  
Northwest EMC  
Vican Electronics  
L-A-B  
Apple  
ETS-Lindgren  
Liberty Labs  
Liberty Labs Asia  
Schaefer Associates  
Industry Canada  
FDA Center for Devices & Radiological Health  
Tyco Retail Solutions (by telecom)  
TCB Council  
PC Test Lab  
LS Research (by telecom)

**Employer:**

Blackberry Corp.  
Hofmann EMC Engineering  
Compatible Electronics  
FCC  
Visteon  
Liberty Labs  
Intel  
Consultant

**Guests:**

Richard Kautz, Ford Motor Co.  
Dheena Moongilan, Alcatel-Lucent  
Jeff Moser, UL  
Marcus Shellman, DISA/JSC  
Jerry Ramie, ARC Technology Services  
Pat Roder, IEEE  
Dave Southworth, URS/Navy  
David Zimmerman, Spectrum EMC

## 1.0 Call to Order—Chair

### 1.1 Opening Remarks and Announcements: Chair

### 1.2 Meeting Logistics Announcements: Host

### 1.3 Introductions: Secretary

Chair Zhong Chen called the meeting to order at 1:00 pm. A round of introductions was made.

## 2.0 Approval of the Meeting Agenda and SC 1 Scope: Chair

Zhong Chen presented the draft agenda for the April 30, 2014 meeting for review. (See Attachment A.) **Randy Long moved to approve the agenda as presented. The motion was seconded and approved.**

## 3.0 Presentation of [patent slides](#): Chair

Zhong Chen gave a presentation that reviewed the status of the meeting fees, ANSI policy related to Intellectual Property (IP), inappropriate topics for IEEE working group meetings and the working group meeting slide template. (See Attachment B.) **Mr. Chen moved to confirm everyone present agreed to abide by the procedures outlined in the patent slides. The motion was seconded. All confirmed compliance.**

## 4.0 Presentation of [meeting attendance](#) fee slides: Chair

Zhong Chen reviewed the meeting attendance fee structure and noted that Dan Hoolihan, Chair of C63®, would contact individuals present who are required to pay a meeting attendance fee.

## 5.0 Approval of Minutes of Previous Meeting: Secretary

Secretary Janet O'Neil presented the minutes of the November 13, 2013 meeting held at UL in Northbrook, IL. **Dan Hoolihan moved to approve the minutes as distributed. The motion was seconded and approved.** The approved minutes are included in Attachment C.

## 6.0 Review of [Subcommittee Membership](#): Secretary

**6.1 Review of membership – Members at risk.** Janet O'Neil advised that there are no members whose membership is at risk, meaning no members have missed three consecutive meetings. (See Attachment D for the updated membership tracking record.)

**6.2 Consideration of Members.** The chair advised there is one new SC 1 membership application to review from Michael O'Dwyer of Apple. Mr. Chen received his membership application and resume. This was distributed to the committee to review on April 22, 2014. Dan Hoolihan, Zhong Chen and Andy Griffin noted they endorsed this membership application. **Harry Hodes moved to approve the membership application of Michael O'Dwyer. The motion was seconded and approved.**

The Chair reviewed the roster of working group members as shown on the C63 website. Some revisions were made. The updated rosters of working groups and the SC 1 membership roster are included in Attachment E.

**ACTION ITEM: All working group Chairs need to complete their rosters and indicate their officers (Vice-Chair and Secretary) and submit to Chair prior to the next meeting (November 2014).**

## 7.0 Working Group Reports

### **C63.2: Specifications for Electromagnetic Noise and Field Strength Measurement Instrumentation**

Working Group Chair: Werner Schaefer

Status: PINS submitted to IEEE on May 8, 2013 Next edition in progress C63.2

Werner Schaefer presented his report. (See Attachment F.) He advised a working group meeting was held on April 30 with Harry Hodes and Dan Sigouin. Marcus Shellman was added as a working group member so there is representation by the tri-services/military on the working group. The main changes include:

- Establishing CISPR 16-1-1 as the relevant document for measuring equipment in the frequency range 9 kHz to 18 GHz (with some additions like frequency accuracy)
- Establishing key specifications for the frequency range 18 GHz to 40 GHz using the same approach as in CISPR (independent of the specific implementation)

Werner emphasized that the document includes specifications to address the frequency range from 18 GHz to 40 GHz to support testing requirements in accordance with FCC rules using ANSI C63.4. Harry Hodes suggested including a reference to lower frequencies.

**ACTION: Werner Schaefer to verify the PINS for this work is up to date and matches the scope of the current effort.**

### **C63.4: Emissions Measurements**

Working Group Chair: [Don Heirman](#)

Status: Current-2014. Next edition planned (2018?)

Don Heirman presented his report. (See Attachment G.) He noted the editing is completed and the ANSI Public Review comment has been resolved. BSR-9 was forwarded to ANSI for release of the document for publication; it should be published by mid-June at the latest. Don will alert the FCC to reference the 2014 edition and drop referencing the 2003 and 2009 editions.

The new edition includes the following items:

- Hybrid antenna (validation of use at specific test sites)
- Visual display setup requirements
- Test setup for tablet PCs
- Test site validation interval in the frequency range above 1 GHz
- Modified “absorber patch” dimensions
- Use of the term “aiming” instead of the term “staying within the cone of radiation”
- Measurement uncertainty requirements
- Application of the standard for Canada and US
- Suggested material to use for setup tables that does not affect measurements
- Clarified how to test rack mounted equipment
- Accredited antenna calibration lab to be used for antenna calibration for compliance measurements

In addition, the clause on transmitter testing was removed from C63.4 and added to C63.10.

The working group met on Monday, April 28 to prioritize what should be investigated for inclusion in next edition (expected in 2018). The working group output will be entered into PINS-C for approval by C63 once C63.4-2014 is published.

Zhong Chen thanked Don Heirman and his working group for their efforts in moving this standard towards publication. He asked the committee to consider being involved in a future revision to this standard.

**ACTION: SC 1 committee to contact Don if they are interested in this effort moving forward.**

**ACTION: Don Heirman to contact FCC to request they reference the C63.4-2014 edition and drop referencing the 2003 and 2009 editions.**

### **C63.5: Antenna Calibration**

Working Group Chair: [Dennis Camell](#)

Status: Current-2006. Next edition in progress

Dennis Camell presented his report. (See Attachment H.) The working group held a meeting on Tuesday, April 29. The first ballot on the new revision of the standard ended on November 8, 2013 and failed. The comments received were compiled into a matrix. This shows 45 out of 173 comments were classified as 'technical' by those commenting and 35 accepted comments are left to be included into the next draft. The working group disagreed with 11 of the comments. The committee plans to address the remaining technical comments and have a new draft ready for review in June 2014.

**ACTION: Dennis Camell to circulate new draft of C63.5 to committee in June 2014.**

### **C63.7: Construction of Test Sites**

Working Group Chair: [Don Heirman](#)

Status: Current 2005. Next edition in progress

Don Heirman presented his report. (See Attachment I.) The working group met on Monday, April 28 to review further contributions and comments. They prepared a new PINS to present to SC1 for recommending approval by C63. For reference, C63.7 was published in 2005 and covered only the construction of an OATS for use in the frequency range below 1 GHz. The project is now extended to include test sites for use in the frequency range above 1 GHz. The first draft of C63.7 was circulated to SC1 for initial comment on April 25. The draft was revised such that each existing clause has two parts describing the construction below 1 GHz and above 1 GHz. New material was added for construction of test sites without ground planes, including:

- OATS and covered (weather-protected) OATS
- Semi-anechoic chamber (SAC)
- Fully anechoic room (FAR)

Grounding considerations of test sites, expanded bibliography/references, listing of URLs to find additional background information, and a citation of the term “test sites” in C63.4, C63.5, C63.10, and C63.17 are also newly added.

The plan is to send the “final” draft to SC1 by July for email ballot, then to request from C63 formation of a ballot group and ballot in C63 by September. Ballot comments can be resolved in October for publication in late 2014 or early 2015. The working group will ask for any revisions needed prior to the next C63 meeting series in November.

**Don Heirman moved to send the PINS and project title shown to the parent committee for approval in order to move forward with this scope of work. Harry Hodes seconded the motion. The motion was approved.**

#### **C63.25: Test Site Validation**

Working Group Chair: [Dennis Camell](#)

Status: New Standard. Draft being written.

Dennis Camell presented his report. (See Attachment J). The PINS for this standard is on the C63 website; it is dated Oct 2007. The working group met on April 29. There were 16 people present, plus one person participating via WebEx. The working group membership was reviewed and a new chair was selected, Dan Sigouin. The working group has taken many time domain (TD) and SVSWR measurements (four locations and at two heights) to 12 GHz in several labs, including Northwest EMC and UL. Because of equipment limitations and dynamic range considerations, most measurements were performed up to 12 GHz only (12.4 GHz to account for the gating). The measurements were made using the model 3183 mini-bicon antenna, though some labs also used PODS. Model 3183 covers the entire range of 1 to 18 GHz. The PODS antenna set consists of two biconical antennas to cover the frequency range from 1 to 18 GHz.

Zhong Chen mentioned his presentation on this topic given at the November 2013 SC 1 meeting. This was distributed to SC 1 members as an attachment to the November 2013 meeting minutes. It included information on the working group’s measurements using time domain SVSWR and the SVSWR method per CISPR 16-1-4, including correlation between the two methods.

Future activity includes addressing the use of PODS/small (or mini) biconicals as the TD antenna, measuring the TD ring down signature, studying the modeling of antennas, and comparing different antennas. Dan Sigouin will revise the current draft to update with IEEE formatting.

**ACTION ITEM: Dan Sigouin to revise current draft of C63.25 to update according to IEEE format.**

#### **C63.26: Licensed Transmitter Testing**

Working Group Chair: [Art Wall](#)

Status: New Standard. Draft being written.

Chair Art Wall presented his report. (See Attachment K.) His working group met on April 28-29, 2014. There were 34 attendees (seven via webinar) plus nine observers. They discussed the status of C63.10-2013. Furthermore, they reviewed a draft of C63.26-201X circulated in April 2014 to SC 1 and the wireless working group members; nine comments were received from the working group members. Major issues discussed during meeting included: scope, definitions, instrumentation, conducted and

radiated emissions, RF power and booster amplifier measurement procedures. A new draft of the document is expected to be ready for circulation in August 2014.

**ACTION ITEM: Art Wall to send C63.26-201X to Subcommittee 1 in August 2014 for review and comments to be addressed at the November 2014 working group meeting.**

## **8.0 Old Business - Chair**

No old business was addressed.

## **9.0 New Business – Chair**

**9.1. “Low Frequency (<30 MHz) Radiated Emission Measurement: Investigations Regarding Current & Potential New FCC & ANSI C63 Procedures”.** Richard Kautz with Ford and the SAE J2954 EMC/EMF Task Force gave a presentation on this topic. (See Attachment L.) Werner advised that this is being addressed by CISPR A and CISPR B. This information was driven by the Smart Grid community (CISPR A) and the wireless community (CISPR B). Werner suggested Richard follow the work in CISPR on this topic. Ed Hare complimented Richard on the excellent work presented.

**ACTION ITEM: Zhong Chen and Richard Kautz to write a PINS on this activity in order to determine interest in moving forward. Ed Hare offered to help with this effort.**

## **10.0 Review of Interpretation Requests: Chair**

Zhong Chen advised there was one interpretation request received. This came from Takashi Maruyama with LAB Support Ltd. in Japan regarding C63.5-2006.

Werner Schaefer noted Clause 11 of our interpretation request form needs to be updated. Dan Hoolihan advised the policy document is being updated and a progress report will be made on this at the parent committee tomorrow.

## **11.0 [C63.org](http://C63.org) Website Use and Updates**

Jerry Ramie noted that he asked people to be specific with any requests for postings to the website.

## **12.0 Review of the Action Items from Previous Meetings: Secretary**

Secretary O’Neil advised that there are no outstanding action items from the last meeting. An updated action item list will be distributed to the SC 1 members along with the draft minutes from this meeting. (See Attachment M for the Action Items list.)

**ACTION ITEM: O’Neil to distribute the updated consolidated action items and draft minutes from the April 30, 2014 meeting to the committee.**

**ACTION ITEM: O’Neil to send the password to the SC 1 committee so they can access the SC 1 “members only” section of the website. NOTE: This user and pass code is for access to the SC 1 page ONLY. Working groups under other SCs will have different user codes and passwords.**

### **13.0 Time and Place of Next Meeting: Chair**

Zhong Chen noted the next series of C63® meetings is tentatively scheduled for November 10-13, 2014 at Compliance Testing LLC in Mesa, AZ. This will be confirmed by the steering committee at its meeting on May 1, 2014.

### **14.0 Closing Remarks and Adjournment: Chair**

With no further business, Zhong Chen adjourned the meeting at 4:00 pm. He thanked everyone for attending the meeting.

Minutes submitted by:



Janet O'Neil, Secretary, SC 1

### **ATTACHMENTS**

- Attachment A: Agenda for April 30, 2014 SC 1 Meeting
- Attachment B: Patent Slides Required Meeting Template Slides for ASC C63®, IP Info
- Attachment C: Approved Minutes from November 13, 2013 SC 1 Meeting
- Attachment D: Meeting Attendance/Tracking List
- Attachment E: SC 1 Membership Roster and Working Group Roster
- Attachment F: Schaefer Report on C63.2
- Attachment G: Heirman Report on C63.4
- Attachment H: Camell Report on C63.5
- Attachment I: Heirman Report on C63.7
- Attachment J: Camell Report on C63.25
- Attachment K: Wall Report on C63.26
- Attachment L: Kautz Presentation on Low Frequency (<30 MHz) Radiated Emission Measurement
- Attachment M: Consolidated Action Items List