



Accredited Standards Committee C63[®]
Electromagnetic Compatibility
[Subcommittee 3](#) - International Standardization

Chair: [Heirman, Don](#)
 Vice Chair: [Schaefer, Werner](#)
 Secretary: [Ramie, Jerry](#) (non-voting)
 Nov 7, 2016 - 10:00AM to 12:00PM-PST
Approved Minutes

1. **Call to Order - Chair** - The meeting was called to order at 10:05AM-PST
 - 1.1 **Opening remarks and Announcements - Chair** - We will go over our role and scope and the equivalencies between C63 work and other SDOs.
 - 1.2 **Meeting logistics announcements - Host**
 - 1.3 **Introductions (roll call) - Secretary** - Jerry Ramie, Don Heirman, Al Crumm, Harry Hodes, Mike Cibulka, Derek Walton, Henry Benitez, Andy Griffin, Ed Hare, Mits Samoto, Randy Long, Vladimir Bazhanov, Jeff Klinger, Craig Fanning, Jeremiah Darden

2. **Approval of the Agenda - Chair** - The agenda was shown and approved by acclamation.

3. **Presentation of [patent slides](#) - Secretary** - The patent slides were shown and no patent issues were raised.

4. **Approval of [previous minutes from 9/7/16](#) - Secretary** - The previous minutes were shown and [approved](#) by acclamation. Credentials required for access to the [SC3 private area](#):
[subcomite3](#)
[43sta43](#)

5. **Review of [Subcommittee Membership](#) - Chair** - current SC3 roster from our website:

Subcommittee 3 Membership Roster

Name	Role within Subcommittee 3	Affiliation
Andersen, Poul	Member SC3	Poul Andersen Consulting
Berger, Stephen	Chair Subcommittee 8	TEM Consulting
Chen, Zhong	Chair Subcommittee 1	ETS-Lindgren
Vladimir Bazhanov	Chair Subcommittee 7	Ericsson AB
Griffin, Andy	Member SC3 CISPR/H Technical Advisor	CISCO Systems
Hare, Ed	Member SC3	ARRL
Heirman, Don	Chair SC3; Chair CISPR; CISPR/A Deputy Technical Advisor	Don HEIRMAN Consultants
Hoolihan, Dan	Chair C63 [®]	Hoolihan EMC Consulting
Long, Randy	Chair Subcommittee 6	Laboratory Accreditation Bureau
Potts, Nate	Member SC3	Liberty Labs
Schaefer, Werner	Vice Chair SC3 CISPR/A Technical Advisor	Schaefer Associates
Dilay, Chris	Chair Subcommittee 2	DOD – SPAWAR
Whitesell, Steve	Chair Subcommittee 5	Whitesell Consulting
Wall, Art	Chair Subcommittee 4	Radio Regulatory Consultants

Non-Voting Members		
Arnett, Dave	Liaison Member CISPR/I Technical Advisor	Hewlett Packard
Fanning, Craig	Liaison Member CISPR/D Technical Advisor	Elite Electronic Engineering
Hofmann, H.R. (Bob)	Emeritus Member SC3	Hofmann EMC Engineering
Mahn, Terry	Liaison Member CISPR/B Technical Advisor	Fish and Richardson
Michael Cibulka	Liaison Member TC77 & SC77B Technical Advisor	Rockwell Automation
Yandek, Ed	Liaison Member CISPR/F Technical Advisor	Edward Yandek LLC

AI-33: Jerry to update Randy Long affiliation.

AI-34: Jerry to add Jeff Klinger, Mits Samoto, Horia Popovici and Harry Hodes to WebEx and membership rosters.

5.1. Review of subcommittee membership

Membership Guidelines for 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. **Non-voting members are urged to be present or on webinars but do not have to strictly adhere to the above guidelines that voting members have to follow.**

Note: Abstentions shall be treated the same as a "yes" or "no" vote regarding the requirement to respond to email votes.

5.2 Members at risk? - Victor Kuczynski was removed from the roster and webinar invitation list. Steve Berger and Zhong Chen responded to the note sent on 9/12 and will be retained.

Full Name	4/29/14	11/11/14	5/5/15	11/10/15	2/18/16	5/10/16	9/7/16
Andersen, Poul	x	x	x	x	a		
Berger, Stephen							
Chen, Zhong		x					
Bazhanov, Vladimir					x	x	x
Griffin, Andy	x	x		x	x	x	
Hare, Ed	x	x		x			a
Heirman, Don	x	x	x	x	x	x	x
Hoolihan, Dan	x	x	x	x		x	
Kuczynski, Victor		x					
Long, Randy			x	x		x	
Potts, Nate		x				x	
Schaefer, Werner						x	
Dilay, Chris	x	x	x	x		x	
Whitesell, Steve		x	x	x		x	
Wall, Art							

5.3 Approval of membership—SC3 members

6.0 Review of [Scope and Tasks](#) - The Scope, Duties and Tasks statement from the website are as follows. There were no comments as any further approval is at the first meeting of each new year.:

6.1 Scope:

Subcommittee 3 provides a forum for comparing international standards activities to ASC C63[®] membership standards activities and makes recommendations to the C63[®] Main Committee on possible US positions on international EMC matters, to facilitate harmonization of national and international standards, considering US regulatory as well as commercial requirements. Subcommittee 3 may make recommendations to the C63[®] Main Committee about introducing the work of C63[®] to the US National Committee Technical Advisory Groups for submission to international standards committees.

6.2 Duties:

SC 3 shall review international EMC standards for technical issues that may affect C63[®] membership standards development. These reviews may lead to recommendations for action by C63[®] to promote harmonization of C63[®] standards with international standards. Via the SC 3 liaison representatives of the USNC TAGs for international standards organizations with EMC activities (e.g., CISPR, TC77, ISO), information is shared in both directions with the following expectation

6.3 Links

- [Subcommittee 3 and Working Group Membership List](#)
- [Standards Developed by Subcommittee 3](#)
- [Approved Meeting Minutes](#)
- [Meeting Schedule](#)
- [Generic Agenda](#)

6.4 Current Status of C63 Standards – The C63 publication status is presented below documents to determine the appropriate time to review in more depth their content with that of international equivalents to lead to harmonization where possible. This list is updated at each SC/3 meeting.

Table 1: Status of C63 standards with possible input to CISPR/TC77 via US National Committee TAG

C63 Standard	Publication status
C63.4 (Heirman)	Published in 2014. Experiments to identify changes being conducted
C63.4a (Heirman)	Publish by end of 2016
C63.5 (DeLisi)	At publishing
C63.9 (Griffin)	2008 edition; PINS is approved
C63.15 (Heirman)	Last draft is going to MEC (editing) Will be discussed in SC5, then to consensus balloting
C63.23 (DeLisi)	2012 edition not under revision
C63.24 (Heirman)	New standard (joint task with IEEE 473)
C63.25 (Sigouin)	New standard under preparation re/ attenuation above 1GHz

C63.26 (Wall)	2013 edition not under revision
C63.27 (Berger)	Discuss after publication
C63.28 (Dilay)	Discuss after publication
C63.29 (Mendoza)	Discuss after publication
C63.30 (Thul)	Discuss after publication
C63.31 (Walton)	Discuss after publication

AI-35: Jerry to inquire w/ Art Wall on status and PINS for C63.26

6. Analysis of equivalencies/similarities between C63[®] and IEC and IEEE standards

The comments in the far right in red font is the status that was given at the meeting

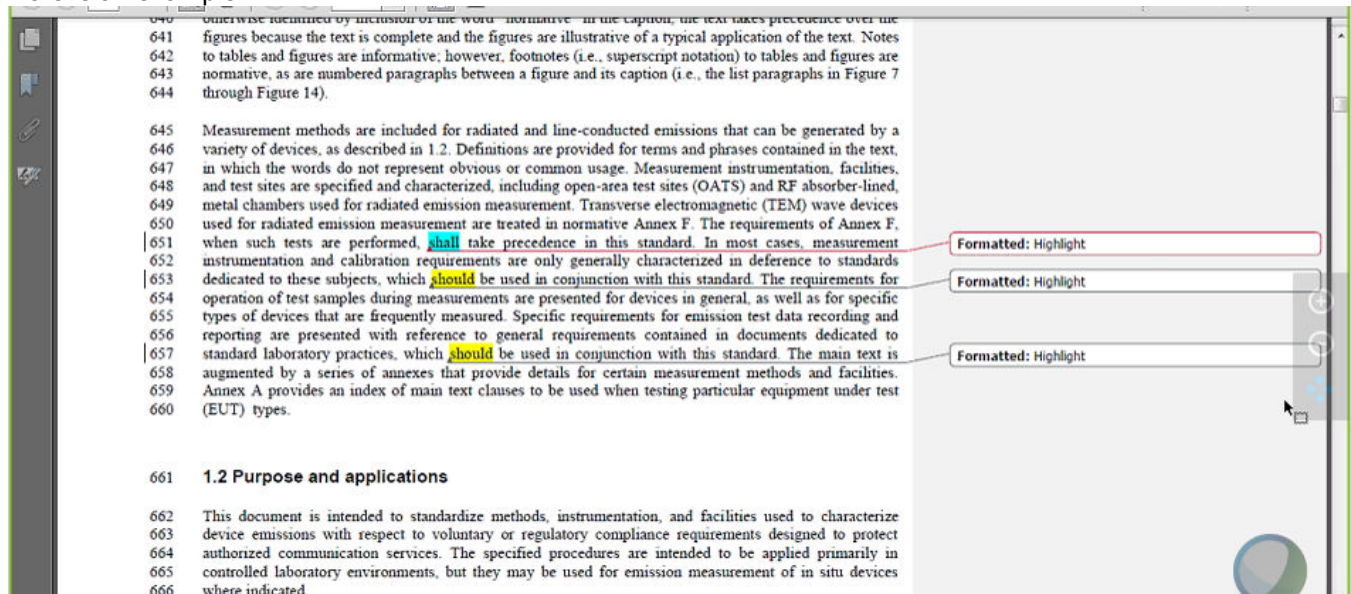
Table 2: Status of standards reviews

C63[®] Document	SC	Subject	International Document	Review Leader (WG Chair) and status
C63.4	SC1	Measurements	CISPR 16-2-X CISPR 32	Heirman In progress
C63.5-draft	SC1	Antenna Calibration	CISPR 16-1-6	DeLisi after C63.5 is published
C63.9	SC5	Office Equipment Immunity	IEC 61000-4-3	Griffin - type of modulation may be sent to IEC for consideration, AI-36: Griffin to supply note on progress of IEC 61000-4-3
C63.15-draft	SC5	Immunity	IEC 61000-4-X CISPR 35	Heirman -draft is mature, ready to move up to SC5 and consensus at Main
C63.16	SC5	ESD	IEC 61000-4-2	Whitesell & Worley to contribute a report to TC77B via US-TAG AI-37: Cibulka to submit a document on ESD to the Chair
C63.23	SC1	Uncertainty	16-4-2	DeLisi - AI-38: Bob to contribute statistical method of uncertainty to CISPR-16-4-2
C63.24-draft	SC5	Generic On-Site Meas.	IEEE 473	Heirman-- Joint work on test setup is underway
C63.25	SC1	Test Site Validation Antenna calibration site	CISPR 16-1-4 CISPR 16-1-5	Sigouin - no input. SC/3 agreed to focus on what's new, i.e. the time domain on site validation
C63.10	SC1	Unlicensed Transmitters	ETSI wireless requirements	Nixon - anything coming from ETSI or vice-versa.

C63.26	SC1	Licensed Transmitters	ETSI wireless requirements	Jones - anything coming from ETSI or vice-versa.
C63.27-draft	SC7	Co-existence	IEC 62657-2	Berger - describe the difference between these two Stds. (how they compliment each other)
C63.28-draft	SC2	Best Practices	No equivalent	Dilay - to confirm there are no equivalencies
C63.29-draft Learn more	SC4	Lighting products	CISPR 15	Mendoza - AI-39: Ernesto to provide scope of C63.29 and how it differs from CISPR15.
C63.30-draft Learn more	SC4	Wireless Power Transfer Products	CISPR 11	Thul—awaiting what will be the use of CISPR 11
C63.31-draft Learn more	SC4	ISM equipment (FCC MP-5)	CISPR 11	Walton - opinion is divided, some want only CISPR11, some want other content. Comparison is beginning.

C63.4 (2014) was shown to see the use of “shall” and “should” verbs which stand for requirements and recommendations, respectively.

Tim Harrington used colored highlighting to show where “shall” and “should” are in the C63.4-2014 document. Here is an example.



The Chair indicated that there has been inconsistent usage of these verbs, so the study of their use has begun.

IEEE-473 test setup content was shown by Heirman.

From P473

1.1 Documentation of Site Characteristics

Any massive object can affect an electromagnetic field. Conductive material such as metal or salt water has the greatest effect. The degree of the effect is dependent upon the frequency of radiation and the size of the object. Reflection, scattering, and diffraction are primary mechanisms by which field measurements are upset. It is important to document any site feature likely to affect the data. A scaled map should be used to record such features; scale factors should be shown to relate all features to the actual terrain. Such a map should be based, if possible, on existing geological or civil survey maps, and on blueprints or architectural drawings where applicable and available. Major reflecting surfaces and conductors, both above and below ground level, at least 100 m (or up to one wavelength, whichever is greater), from the site should be shown.

In such a map, obstacles shown should include

- 1) Above ground structures, such as buildings (note type of construction), metallic fences, and broadcast antennas
- 2) Suspended cables, such as power, telephone, and those used for cable television (note the number of cables, routing, location of drop wires, power-line ratings, and the type, number, and location of supporting structures)

Content of C63.24 on test setups was also shown:

The test area should be selected so as to maximize the effectiveness of the test. Ideally the TOE will be testing in its actual location where it will be installed. If this is not feasible then the test location should come as close as possible to recreating the installation location.

The test area should allow for access to all areas of the TOE to be exposed to the RF.

The potential for interference with other equipment in the area must be carefully considered. Steps must be taken to either perform the test at a time when other systems can be powered down or otherwise safeguarded from the possibility of being adversely affected.

If the test area will not be the actual installation location, then the area in which in-situ testing is to be performed should be located away from critical areas. It should be selected such that there are no critical devices in use in adjacent rooms or on the floors above and below that would be adversely affected by the test. During the test, no other RF transmitters should be operating in the test room or in adjacent rooms or on the floors above or below that could affect the testing. See 5.1 for precautions regarding electronic devices in use in nearby areas.

The test should be performed in an area that is as free as possible of structures and metallic objects. Approximately 6 m x 6 m of clear area is recommended. Ideally there should be at least 1.5 m between the device (including its cables) and the nearest wall or structure, as well as sufficient available room to back away from the device if an

As can be seen there is a similar view of test setups. There is a concerted effort for the IEEE EMC Society 473 WG and the C63.24 WG to work together to have common clauses in each document. The candidate for this commonality is the test setup sections of both as described above.

C63.10 & C63.26: Art Wall noted that new equipment is easier to write equivalencies for, while older technology is harder for us to find equivalencies. There were no other presentations of equivalencies or similarities.

8. Review of the action items from previous meetings - Chair

Consolidated Action Items from 9/7/16 Webinar Meeting of SC3

Note that some of the actions showing Heirman as part of an action with another will be the ultimate responsibility of the others as Heirman moves to chair duties after initial help with the action items.

AI #	Task	Responsible party	Due Date	Status
AI-18:	Heirman and Arnett to review anything that can be moved between C63.4 and CISPR32.	Don Heirman Dave Arnett Werner Schaefer	10/20/16	OPEN

	Update Tolerance Table in CISPR 32 to take advantage of the work in the C63.4 working group. Consider the that EUTs greater than 2 meters in height must have NSA up to that height			
AI-19:	DeLisi to notify us when C63.5 is published and how it relates to CISPR 16-1-6	Bob DeLisi	10/30/16	OPEN
AI-20:	Griffin will look at modulation in C63.9 with potential for introduction into SC77B through the US National Committee.	Andy Griffin	10/30/16	OPEN Unique test, possible in 61000-4-3? Modulation is not AM but more varied.
AI-21:	Heirman and Arnett to review anything that can be moved between C63.15 and CISPR35. Still to determine if there is any input from C63.15 that will assist in doing immunity measurements in CISPR 35. The use of information on instrumentation suggestions in C63.15 might be helpful in selecting adequate signal sources for radiated, conducted, ESD, etc.	Don Heirman Dave Arnett	10/30/16	OPEN
AI-22:	Whitesell / Cibulka / Worley to develop a proposal for TC77B US TAG to present special tests in C63.16 for the next edition of IEC 61000-4-2.	Steve Whitesell Mike Cibulka Rich Worley	10/30/16	OPEN
AI-23:	Heirman / DeLisi to prepare for the CISPR-A TAG adding statistical way of measurement uncertainty Bob should excerpt information from C63.23 on statistical method of finding MU to enter into CISPR 16-4-2.	Don Heirman Bob DeLisi	10/30/16	OPEN
AI-24:	Mr. Berger to provide a report on C63.27 at our next meeting	Steve Berger	10/30/16	OPEN
AI-25:	Heirman / Mendoza to go over CISPR14-1 & 15-1 for consideration for use in C63.29 Ernesto to review what is in CISPR 14-1 and 15-1 on lighting. Note that the latest edition of 15-1 has a complete test for emissions from LED lighting used to replace incandescent lights in incandescent fixtures.	Don Heirman Ernesto Mendoza	10/30/16	OPEN
AI-26:	Heirman / Thul to go over CISPR 11, 14-1 & 15-1 for consideration for use in C63.30. Travis to see what is in CISPR 11, 14-1 and 15-1 on WPT for use as reference or in the opposite direction what is in these CISPR documents that can be used in C63.30.	Don Heirman Travis Thul	10/30/16	OPEN
AI-27:	Heirman / Walton to go over CISPR 11, 14-1 & 15-1 for consideration for use in C63.31. CISPR 11 totally addresses Industrial, Scientific, and Medical device emission tests, both radiated and conducted. Maybe Derek can list what is covered and not covered in CISPR 11 and in C63.31 so it is clear where we are and where the FCC MP-5 can be bolstered with the info from at least CISPR 11 and possibly 14-1 and 14-2 (if anything)	Don Heirman Derek Walton	10/30/16	OPEN

AI-28:	Fanning / Thul / Heirman to schedule 3-way CISPR / SAE task group telecon/webinar to discuss getting more inputs from CISPR and SAE Suggest a webinar on 19 September at 3 pm EDT for 90 minutes to discuss all that is happening and what can be in C63.30	Craig Fanning Travis Thul Don Heirman AI-32: Jerry to set webinar for 9/19 @ 3PM. (add Rick Lombardi)	10/30/16	CLOSED
AI-29:	Dave now works for HP (not Hewlett Packard), Jerry to edit roster	Jerry Ramie	11/8/16	CLOSED Edited 9/7
AI-30:	All members to identify other equivalencies/similarities to be added to Section 8 column 4 above	All members	10/30/16	OPEN
AI-31:	Jerry to send a note to Berger, Chen & Kuczynski	Jerry Ramie	10/30/16	CLOSED sent 9/12
AI-32:	Jerry to set CISPR/SAE webinar for 9/19 @ 3PM.	Jerry Ramie	11/8/16	CLOSED set 9/7

9. Further Standards Analysis

9.1 ASC-C63[®] member standards that need possible SC3 analysis – All

There were no standards identified

9.2 Issues from IEC (incl. CISPR & TC77), ISO and other international standards activity potentially affecting US standards development: Chair - None were presented.

10. Old Business and discussions - There were no issues raised

11. New Business

11.1 Status of [website](#) – Suggestions are being accepted! Send them to the secretary.

11.2 Action Items from this meeting - They were shown and captured below

12. Time and place of next meetings - Chair - January webinar is being planned.

13. Closing remarks and Adjournment - Chair – The Chair thanked the group for their participation and adjourned the meeting at 12:14PM-PST.

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

Consolidated Action Items from 11/7/16 Meeting of SC3

AI #	Task	Responsible party	Due Date	Status
AI-18:	Review anything that can be moved between C63.4 and CISPR32. Update Tolerance Table in CISPR 32 to take advantage of the work in the C63.4 working group. Consider the that EUTs greater than 2 meters in height must have NSA up to that height	Don Heirman Dave Arnett Werner Schaefer	January webinar	OPEN
AI-19:	Notify SC/3 when C63.5 is published and how it relates to CISPR 16-1-6	Bob DeLisi	January webinar	OPEN
AI-20:	Look at modulation in C63.9 with potential for introduction into SC77B through the US National Committee.	Andy Griffin	January webinar	OPEN Unique test, possible in 61000-4-3?

				Modulation is not AM but more varied.
AI-21:	Review anything that can be moved between C63.15 and CISPR35. Still to determine if there is any input from C63.15 that will assist in doing immunity measurements in CISPR 35. The use of information on instrumentation suggestions in C63.15 might be helpful in selecting adequate signal sources for radiated, conducted, ESD, etc.	Don Heirman Dave Arnett	January webinar	OPEN
AI-22:	Develop a proposal for the US TAG for IEC/TC77B on adding new test techniques in C63.16 to update IEC 61000-4-2	Steve Whitesell Mike Cibulka Rich Worley	January webinar	OPEN
AI-23:	Prepare for the CISPR-A TAG adding statistical way of measurement uncertainty Bob should excerpt information from C63.23 on statistical method of finding MU to enter into CISPR 16-4-2.	Don Heirman Bob DeLisi	January webinar	OPEN
AI-24:	Provide a report on C63.27 at our next meeting	Steve Berger	January webinar	OPEN
AI-25:	Review CISPR14-1 & 15-1 for consideration for use in C63.29 Ernesto to review what is in CISPR 14-1 and 15-1 on lighting. Note that the latest edition of 15-1 has a complete test for emissions from LED lighting used to replace incandescent lights in incandescent fixtures.	Don Heirman Ernesto Mendoza	January webinar	OPEN
AI-26:	Review CISPR 11, 14-1 & 15-1 for consideration for use in C63.30. Travis to see what is in CISPR 11, 14-1 and 15-1 on WPT for use as reference or in the opposite direction what is in these CISPR documents that can be used in C63.30.	Don Heirman Travis Thul	January webinar	OPEN
AI-27:	Review CISPR 11, 14-1 & 15-1 for consideration for use in C63.31. CISPR 11 totally addresses Industrial, Scientific, and Medical device emission tests, both radiated and conducted. Maybe Derek can list what is covered and not covered in CISPR 11 and in C63.31 so it is clear where we are and where the FCC MP-5 can be bolstered with the info from at least CISPR 11 and possibly 14-1 and 14-2 (if anything)	Don Heirman Derek Walton	January webinar	OPEN
AI-30:	Identify other equivalencies to be added to Section 8 column 4 above	All members	January webinar	OPEN
AI-33:	Update Randy Long affiliation.	Jerry Ramie	January webinar	CLOSED on 11/16
AI-34:	Add Jeff Klinger, Mits Samoto, Horia Popovici and Harry Hodes to WebEx and membership rosters	Jerry Ramie	January webinar	CLOSED added 11/16
AI-35:	Inquire w/ Art Wall on status and PINS for C63.26	Art Wall Jerry Ramie	January webinar	OPEN Sent 11/16
AI-36:	Supply note on progress of IEC 61000-4-3	Andy Griffin	January webinar	OPEN
AI-37:	Submit a document on ESD to the Chair	Mike Cibulka	January	OPEN

	(See AI-22 on similar action)		webinar	
AI-38:	Contribute statistical method of uncertainty to CISPR-16-4-2	Bob DeLisi	January webinar	OPEN
AI-39:	Provide scope of C63.29 and how it differs from CISPR15.	Ernesto Mendoza	January webinar	OPEN