



American National Standards Committee C63[®] on Electromagnetic Compatibility

May 12, 2023 – 9:00 AM to 3:00 PM-EDT
A2LA, Frederick, MD

Chair: [Bob DeLisi](#)

Vice-Chair: VACANT

Secretary: [Jerry Ramie](#)

Approved Minutes

1. **Call to Order - Chair** - The meeting was called to order at 9:00AM-EDT.

1.1. **Introductions (roll call) - Secretary** (Revised: 3/6/2023) (**Absent**)

MEMBER	PRIMARY	ALTERNATE
A2LA (American Assoc. for Laboratory Accreditation)	McConnell, Megan	Miller, Rob
ACIL (American Council of Independent Laboratories)	Cardenas, Javier	Reitz, Richard
ANAB (ANSI National Accreditation Board)	Long, Randy	Quan, Ross
Apple, Inc.	Kiemel, Greg	Cuevas, Jose
ARRL – The National Assoc. for Amateur Radio	Vacant	Anderson, Steve
CISCO Systems	Griffin, Andy	Castro, Louie
Element Materials Technology	Schaefer, David	House, Jody
Element Materials Technology Washington DC LLC	Snyder, Greg	Molaei, Nima
Elite Electronic Engineering Inc.	Fanning, Craig	Cardenas, Javier
Ericsson AB	Skoglund, Kenth	Bria, Aurelian
ETS – Lindgren	Chen, Zhong	Vacant
Federal Communications Commission	Jones, Steve	Vacant
Food and Drug Administration	Silberberg, Jeffrey L	Vacant
Google, LLC	Wong, Warwick	He, George
Hearing Industries Association	Vacant	Gjerde, Ken
IEEE – EMC Society	Norgard, John	Benitez, Henry
Information Technology Industry Council	Hirvela, John	Barrett, Stephanie
Innovation, Science & Economic Development Canada	Nixon, Jason	Popovici, Horia
Intertek	Abbondante, Nick	Vacant
Keysight Technologies	Potts, Nate	Vacant
Motorola Solutions, Inc.	Zakharia, Deanna	Ho, Sze Khian
National Institute of Standards & Technology	Coder, Jason	Vacant
Qualcomm Technologies, Inc.	Forrester, John	White, Andy
Rohde & Schwarz	Cline, Jeremy	Arceneaux, Wally
TCB Council, Inc.	Harvey, Chris	Vacant
TIMCO Engineering Inc., an IIA Company	Royer, Tim	Clavier, Bruno

TÜV Rheinland of North America	Graff, William	Fagley, Bruce
TÜV SÜD America, Inc.	Elliott, William (Mac)	Vacant
UL LLC	DeLisi, Bob	Michael Antola
US Department of Defense - Joint Spectrum Ctr.	Shellman, Marcus	Duncanson, Michael
Individual Members:		
INDIVIDUAL Member	Hoolihan, Daniel	None
INDIVIDUAL Member	Lichtig, John	None
INDIVIDUAL Member	Schaefer, Werner	None
INDIVIDUAL Member	Zimmerman, Dave	None
INDIVIDUAL Member	Berger, Stephen	None
INDIVIDUAL Member	Case, Dave	None
INDIVIDUAL Member	Hodes, Harry	None

Observers:

Quorum: 30 organizations + 7 individual members = 37 total. A quorum is 50% (rounding up); which is **19** or more members in attendance. Quorum was achieved with **28** members attending the meeting. Guests were Bill Hurst, Tim Harrington, Tom Braxton, Jennifer Santulli, Jerry Ramie, Janet O'Neil, David Chamberlain, Amanda McDonald, Janneth Marcelo, Alain Abou-Zeid,

2. Approval of the Agenda

2.1 Approval of [agenda](#) - Chair - Mr. Long moved, seconded by Mr. Hoolihan, to accept the Agenda as modified. The modified agenda was approved.

2.2 Presentation of [Patent slides](#) – Chair - The patent slides were shown and no patent issues were raised.

2.3 Consideration of new members - Chair – none

3. Chairman’s Report – DeLisi

3.1 - General – See [Chairman's Report PowerPoint slides](#) -

4. Vice-Chairman’s Report - VACANT - none

5. Secretary’s Report – Ramie

5.1 Minutes of the last Meeting ([20221110 Main Mins 2.doc](#)) – Ramie - The minutes were [approved](#) by acclamation.

5.2 Disposition of [Interpretation Requests](#) since last meeting – Ramie -

Date	Requestor	e-mail address	Project name	SC #	Rec by Sec	Sent to SC	Back fm SC
12/21/2021	Jeong Hwan Kim	jeonghwankim54@gmail.com	C63.5 (2017) Clause M.4 Uncertainty contributors	SC1	12/21/2021	12/26/2021	11/10/2022

5.3 Open Interpretation requests - Ramie ([Interpretations Log 20221201](#)) Open item is in **red**:

Date	Requestor	e-mail address	Project name	SC #	Rc'vd by Sec	Sent to SC	Back fm SC
11/18/2022	Henrik Nielsen	HEGN@foss.dk	C63.4 2014 Conducted Emissions LISN choke	SC1	11/18/2022	11/18/2022	open

5.4 [Electronic Motions](#) since last meeting - Ramie ([electronic motions log](#))

Date	Main Committee motion or action	Source	Result	Comments
12/1/2022	Voting on addition of W. Hurst to Members Emeritus roster	D. Hoolihan	passed 12/16	Yes=23; No=0; Abstain=1

5.5 Membership Changes since last meeting - Ramie

Date	Membership changes	Source	Result	Comments
10/31/2022	Added T. Royer to C63.4 roster	T. Royer	added 10/31	to C63.4 roster
11/9/2022	Removed J. Becker from SC8 rosters	J. Becker	removed 11/14	from SC8 & C63.19 rosters
11/23/2022	Changed Royer & Sigouin to Timco Engineering Inc, an IIA Co.	D. Sigouin	changed 11/23	on SC1, 4 & 6, Officers & Members
12/16/2022	W. Hurst accepted as Member Emeritus	J. Ramie	added 12/19	to Members Emeritus roster only
1/3/2023	Replaced K. Carlson w/ Steve Anderson as ARRL Alternate	E. Hare	replaced 1/3	on Main, Pub & Private rosters only
1/9/2023	Added Royer & Sigouin to C63.31 roster	A. Crumm	added 1/9	to C63.31 roster only
1/11/2023	Added Steve Jones to C63.10 Amend. Roster	B. DeLisi	added 1/12	to C63.10 roster & Webex list
2/9/2023	Removed E. Chikando from C63.4 Roster	J. Ramie	removed 2/9	from C63.4 roster only
2/9/2023	Added S. Behm to C63.4 Roster	J. Ramie	added 2/9	to C63.4 roster only
2/16/2023	Changed J. Evans affiliation to Consultant	J. Evans	changed 2/17	on C63.9 roster & Webex list
2/17/2023	Added J. Wilhelm to the C63.31 Working Group roster	J. Ramie	added 2/17	to C63.31 roster & Webex list
3/3/2023	Removed J. Kanter from Main Roster (Apple, Inc - Alternate)	J. Kanter	removed 3/6	fm Main, Pub, Priv & vmc rosters
3/3/2023	Added J. Cuevas to Main Roster (Apple, Inc - Alternate)	J. Kanter	added 3/6	to Main, Pub, Priv & vmc rosters
3/7/2023	Removed J. Kanter from C63.4 roster	J. Kanter	removed 3/7	Main, Pub, Priv, vmc & C63.4 roster
3/14/2023	Added J. Cuevas to C63.4 Roster (Apple, Inc - Alternate)	A. Griffin	added 3/14	to C63.4 roster only
3/16/2023	Added T. Braxton to SC5 Roster (Vice Chair)	E. Hare	added 3/16	to SC5 roster only
4/21/2023	Added M. Heckrotte to SC4 roster	J. Ramie	added 4/21	to SC4 roster only
4/28/2023	Added M. Heckrotte to C63.4 WG roster	J. Ramie	added 4/28	to C63.4 roster only

5.5.1 - Membership Dues - Please check your email and pay our invoices!

6. Secretariat Report – IEEE –

6.1 - Status of C63® published standards

6.1.1 Fourth Anniversary standards

6.1.2 Eight-years or older standards

6.2 – Status of PINS and PINS-C ([currently posted status list](#))

7. **Subcommittee reports** (Brief written reports to include actions needed by C63®, and items of particular interest during SC meetings). **Note:** A short report from each Subcommittee using either the [C63 PowerPoint template](#) or the [C63 PowerPoint template wide](#). (no password required)
NOTE – EACH COMMITTEE REPORT WILL BE LIMITED TO A MAXIMUM OF 15 MINUTES.

7.1. **SC1: Measurement and Instrumentation - Chen**

AI-92: Bob to discuss reaffirmation of C63.4 w/ [Andy Griffin](#) (the new SC1 Chair)
 Scope, Duties & Membership were approved unanimously.

7.2. **SC2: Definitions – Shellman** - Scope, Duties & Membership were approved unanimously.

***** BREAK *****

7.3. **SC3: International Standardization – Carlton**

Scope, Duties & Membership was approved unanimously.

7.4. **SC4: Wireless and ISM Equipment Measurements - DeLisi** Scope, Duties & Membership was approved unanimously. New [PINS for C63.10 Ed. 4](#) (below)

1. Designation of Proposed Standard:	ANSI C63.10 Edition 4	
2. Title of Standard:	American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices	
3. Project Intent: (Check the applicable box below)		
Create new American National Standard (ANS)		
*Adopt identical ISO or EC standard		
*Adopt modified ISO or EC standard		
*AND this adoption revises this current ANS		
Revise current ANS	X	ANSI C63.10-2020 (Edition 3)
Revise and Redesignate current ANS		
Revise, Redesignate and Consolidate current ANS		
Revise and Partition current ANS		
Reaffirm current ANS		
Reaffirm and Redesignate current ANS		
Addenda to a current ANS under Continuous Maintenance: (this document replaces or updates the following base document that is registered under Continuous Maintenance)		
Supplement to current ANS		
Withdraw current ANS		
Maintain ANS under stabilized maintenance		
4. This standard contains excerpted text from an ISO or EC standard, but is not an ISO or EC adoption.	Check here if this standard includes excerpted text from an ISO or EC standard but is not an identical or modified adoption of an ISO or EC standard.	
5. Provide a brief explanation of the need for the project (see 2.5 of the ANSI Essential Requirements):	The amended standard will provide guidance for compliance testing of unlicensed transmitters and is expected to be used by manufacturers, radio and EMC test laboratories and regulatory authorities. Edition 4 of C63.10 will address the items mentioned in item 9, below, as well as any other topics the Working Group deems appropriate.	
6. Identify the stakeholders (e.g., telecom, consumer, medical, environmental, etc.) likely to be directly impacted by the standard (see 2.5 of the ANSI Essential Requirements):	EMC and radio test laboratories and equipment manufacturers (software designers), laboratory accreditation bodies, government agencies, manufacturers of unlicensed devices, Telecommunication Certification Bodies and TCB Council	
7. Unit of Measure: Non Applicable, US, Metric, or Both		
8. This PNS revises a previous PNS submitted (see 2.5 of the ANSI Essential Requirements):	Note: A revised PNS is only required if the previously identified stakeholders have changed substantively (see item 6 on this form.).	
9. Description of Contents of Standard: Provide a one paragraph description, not to exceed 500 characters. Please note in the scope if this standard is intended to be submitted for consideration as an ISO or ISO/IEC JTC-1 standard.)	<p>This PNS is intended to address the following topics to be incorporated into Edition 4:</p> <ul style="list-style-type: none"> (a) editorial corrections, including clarification of terms and removal of subclauses no longer deemed necessary, updating the FCC cross reference matrix and review any standards references; (b) review and clarify as necessary the administrative procedures in Clause 5 of C63.10; (c) Test reduction methods based on emerging technologies (d) Add bandwidth correction methods for when a RBW less than reference BW is used (See C63.26 4.2.3) (e) review and change as necessary Clause 5.6.3 for testing band edge requirements as power levels change 	

The new [PINS for C63.10 Ed. 4](#) (above) was adopted unanimously. (Mr. Jones abstained) SC4 Scope, Duties & Membership was approved unanimously.

- 7.5. **SC5: Immunity testing – Braxton** - Mr. Braxton was accepted unanimously as the new SC5 Chair. Scope, Duties & Membership was approved unanimously.
- 7.6. **SC6: Laboratory Accreditation – Kramer** - Scope, Duties & Membership was approved unanimously.
- 7.7. **SC7: Wireless Coexistence – Coder** - Mr. Berger gave the report. The Scope, Duties & Membership were approved unanimously.
- 7.8. **SC8: Medical Equipment Testing – Berger** - Scope, Duties & Membership was approved unanimously.

8. New Business

- 8.1. **Election of officers** - We need a Vice Chair, with one person interested in the position. Any Members have an interest? Nominations were opened: Dan Hoolihan nominated Zhong Chen, seconded by Randy Long. Discussion ensued. The motion to accept Zhong Chen as Vice Chair carried unanimously.
- 8.2. **New draft Procedures** - (2nd draft) Steering Committee comments were gathered and will be addressed by Dan Hoolihan. The next edited draft will be ready by July 1, 2023.
- 8.3. **Discussion of formation of an Editorial Committee** - Jason Nixon suggested the formation of an editorial committee. This would be post-MEC. Bob liked the idea. Which members and how many? (not determined yet) Nick discussed the CISPR A editorial committee. (small team, split responsibilities) Jason had no structure in mind. Is there a manager? (yes) If we want this Committee, it will need to be in the new procedures. (work done before Main review) It was agreed to implement an Editorial Committee in our next version of the new Procedures. (editorial only - not technical) (Vice Chair as Manager of a standing Editorial Committee)

***** LUNCH BREAK *****

9. Other Administrative Matters

9.1. Web Page – Ramie

9.1.1 - The **Generic Agendas for Subcommittees** include a review of the Membership roster, a Quorum check, review of Membership Guidelines, Attendance Log and "Members at Risk" at each meeting. The first Spring meeting requires approval of the SC Membership, Duties. Also at the first Spring meeting, a review is conducted for all PINS content, the **Status Matrix** text and the "Learn more" text for each Standard covered by that SC.

9.1.2 - The **shared meeting calendar** was implemented late last year.

9.1.3 - **Box and C63 Standards** - IEEE had a "box" that allowed viewing of our Stds. This will not be updated. You can request any of our documents for use by a working group. **AI-93:** Jennifer to check with IEEE for access to C63.14 for use by our working groups.

9.2. Administrative matters from the Steering Committee - Chair

9.2.1 - **History Committee** - Dan Hoolihan noted that we have no History Committee, unlike the IEEE History Center. Dan moved to form a C63 History Committee. Some of our Standards have a History section in their front matter. Nick seconded the motion. Discussion: (none) No opposition, no abstentions. The motion carried unanimously.

Randy Long noted that Don Heirman's museum opened Nov. 11:
(<https://mishawakamuseum.org/>)



9.2.2 - Social Media - Bob proposed a LinkedIn page for our committee. We'd like to attract new contributors. Janet and Wally Arceneaux have agreed to help manage this effort.

9.2.3 - Maintenance Groups (for published Stds.) - After we finish a Standard, the working group gets disbanded. Maybe we can make the rosters smaller and keep them on the roster. They can help with Interpretation Requests as well. We can ask prominent Members of the Working Group to stay on for Maintenance. (call them "Inactive" rather than "De-populated")

9.2.4 - SC4 White Paper ([Massive MIMO Meas. distance](#)) - This white paper was written under a PINS-C as a Task Group. We want to place this paper on our site or publish it in some way. We want to retain our IP. **AI-94:** Bob to circulate the MIMO white paper to the Main Committee.

10. Other Business

10.1 Future Seminars and Workshops – IEEE Symposium in Grand Rapids, MI (Seminar on C63.4 & C63.25) We asked Members to promote this event at their employer. We also have a tutorial during the Symposium on Monday morning. We can obtain a room if we want to speak about membership. SACCOM has a Friday event.

10.2 Newsletter report – Chair – latest Newsletter was August of 2022. Available [here](#). We will have a new Newsletter printed for the Symposium. **AI-95:** All SC Chairs to provide text for the next newsletter to Dan Hoolihan.

10.3 Next meeting – Chair - Google / Mtn. View from Oct. 2-6, 2023

11. Old Business

11.1 Action item review on items not covered elsewhere on Agenda – (as time permits) - **Secretary**

Consolidated Action Items from Main Committee Meeting 11/10/22¹

Action Item #	Subject	Responsible Person	Status	Delivery Date	Comments
AI-84:	Harry to write a PINS-C for incorporating EMC procurement guidance for Government	Harry Hodes	Open	Next meeting	Working with Marshall and Goddard re/

¹ Consolidated (re-numbered) action items are included here for reference, but are not a part of the minutes.

	purchases of COTS equipment PINS-C form				requirements
AI-85:	Investigate recognition of a corrigendum by the FCC & ISED	Steve Jones Jason Nixon	Open	Next meeting	Reminder sent 5/27 All Stds. are voluntary so recognition is also voluntary. Corr. is a stand-alone document(s) and must be recognized together with the base document. KDB is most likely
AI-88:	Harry to contact NASA components to see if there is interest in developing a design guide for anechoic chambers suitable for use in testing commercial payloads and spacecraft radars and communications equipment	Harry Hodes	Open	Next meeting	
AI-89:	Jerry to add Harry as an observer to the SC5 webinar invitation list.	Jerry Ramie	Closed	Next meeting	(added 11/23)
AI-90:	Jerry to place <u>shared meeting calendar</u> link on the Home Page near the Upcoming Meeting Schedule link. Change name of Upcoming Meeting Schedule to Bi-annual Meeting Schedule.	Jerry Ramie	Closed	Next meeting	Posting order sent 11/28/22
AI-91:	Jerry & Megan to modify the generic agendas to show "newsletter editor" instead of Dave Zimmerman, with a link to the Officers page.	Jerry Ramie Megan McConnell	Closed	Next meeting	Modified all generic agendas 11/28/22

12. Adjournment - Chair - Steve Jones tells us there is a GS-15 slot available as [FCC lab director](#). The Chair thanked A2LA and Megan McConnell and the Members for their efforts and adjourned the meeting at 1:37PM-EDT.

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

Consolidated Action Items from Main Committee Meeting 05/12/23²

Action Item #	Subject	Responsible Person	Status	Delivery Date	Comments
AI-84:	Harry to write a PINS-C for incorporating EMC procurement guidance for Government purchases of COTS equipment PINS-C form	Harry Hodes	Open	Next meeting	Working with Marshall and Goddard re/ requirements
AI-85:	Investigate recognition of a corrigendum by the FCC & ISED	Steve Jones Jason Nixon	Open	Next meeting	Reminder sent 5/27 All Stds. are voluntary so recognition is also voluntary. Corr. is a stand-alone document(s) and must be recognized together with the

² Consolidated (re-numbered) action items are included here for reference, but are not a part of the minutes.

					base document. KDB is most likely
AI-88:	Harry to contact NASA components to see if there is interest in developing a design guide for anechoic chambers suitable for use in testing commercial payloads and spacecraft radars and communications equipment	Harry Hodes	Open	Next meeting	
AI-92:	Bob to discuss reaffirmation of C63.4 w/ Andy (new SC1 Chair)	Bob DeLisi Andy Griffin	Open	Next meeting	
AI-93:	Jennifer to check with IEEE for access to C63.14 for use by our working groups.	Jennifer Santulli	Open	Next meeting	
AI-94:	Bob to circulate the MIMO white paper to the Main Committee	Bob DeLisi	Open	Next meeting	
AI-95:	All SC Chairs to provide text for the next newsletter to Dan Hoolihan	All SC Chairs	Open	7/1/23	

Attachments from Main Committee Meeting 05/12/23³

Item	Description	URL
2.1	Draft agenda	http://www.c63.org/documents/misc/minutes/2023_May/20230512_Main_Agenda_2.doc
2.2	Patent slides	http://www.c63.org/documents/misc/patents/C63_Patent_Call_slideset_final_1.pdf
3.0	Chairman's Report	http://www.c63.org/documents/misc/minutes/2023_May/C63_Main%20Committee%20-%20Chairman's%20Report%20May%202023.ppt
5.1	Approved previous Minutes	http://www.c63.org/documents/misc/minutes/2023_May/20221110_Aproved_Main_Mins.pdf
5.3	Interpretation log	http://www.c63.org/documents/misc/minutes/2023_May/Interpretations_log_20221201.xls
5.4	Electronic motions	http://www.c63.org/documents/misc/minutes/2023_May/Electronic_motions_2023_2Q.xls
6.0	Secretariat Report	http://www.c63.org/documents/misc/minutes/2023_May/Secretariat%20report%20q1%202023.ppt
6.2	Status of PINS & PINS-C	https://www.c63.org/documents/misc/matrix/c63_standards.htm
7.0	Slide Template (4:3)	http://www.c63.org/documents/misc/temp/C63_PowerPoint_template.ppt
7.0	Slide Template (16:9)	http://www.c63.org/documents/misc/temp/C63_PowerPoint_template_wide.ppt
7.1	SC1 Report	http://www.c63.org/documents/misc/minutes/2023_May/SC1%20update.ppt
7.2	SC2 Report	http://www.c63.org/documents/misc/minutes/2023_May/SC2_Committee%20Report_20230512%20Rev%202.pptx
7.3	SC3 Report	http://www.c63.org/documents/misc/minutes/2023_May/SC3_Report_to_Steering_2023_05.ppt
7.4	SC4 Report	http://www.c63.org/documents/misc/minutes/2023_May/Main%20Committee%20Report%20-%20SC4.pptx
7.4	PINS for C63.10 Ed. 4	http://www.c63.org/documents/misc/minutes/2023_May/C63%2010%20PINS%20form2.doc
7.5	SC5 Report	http://www.c63.org/documents/misc/minutes/2023_May/C63_SC5_Report_20230512.ppt
7.6	SC6 Report	http://www.c63.org/documents/misc/minutes/2023_May/20230511%20SC6%20report%20to%20Main%20Committee.ppt
7.7	SC7 Report	http://www.c63.org/documents/misc/minutes/2023_May/SC7%20Steering%20Committee%20Meeting%20-%20May2023.ppt
7.8	SC8 Report	http://www.c63.org/documents/misc/minutes/2023_May/Main%20Committee%20Report%20-%20SC8%20-%20230509%20-%20v1.pptx
8.2	New draft procedures	http://www.c63.org/documents/misc/minutes/2023_May/20230502%20-%20C63%20Committee%20-%20P&Ps%20-%20SECOND%20DRAFT%20for%20review%20by%20Steering%20Committee.rtf
9.1.2	Shared meeting calendar	https://calendar.google.com/calendar/u/0/embed?src=qcmimf2hufermg8qu8vd2bvs@group.calendar.google.com&ctz=America/Los_Angeles
9.2.4	Massive MIMO white paper	https://www.c63.org/pw/c63/Archived%20Draft%20Minutes/2023/May_2023/Massive%20MIMO%20workgroup%20output.doc
10.2	Newsletters page	https://www.c63.org/documents/c63/list_of_newsletters.htm

³ Attachments are included here for reference, but are not a part of the Minutes