



Accredited Standards Committee C63[®]

Electromagnetic Compatibility

Subcommittee 4: Wireless and ISM Equipment

Chair: Bob Delisi

Vice Chair: Dave Case

Secretary: Jerry Ramie

November 20, 2019; 1:00 PM – 2:45 PM - PST

Keysight Technologies, Santa Rosa, CA

Approved Minutes

1. **Call to Order: Chair** - The Chair called the meeting to order at 1:00PM-PST.
 - 1.1 **Announcements: Chair's remarks** - We thanked Keysight for their hospitality.
 - 1.2 **Meeting logistics announcement: Host** - logistics were reviewed
 - 1.3 **Introductions: Secretary** – roll call (attending members with their affiliations and guests recorded separately below) **Report any roster errors to the ASC-C63[®] Secretary** ([SC4 membership roster](#) from the website is shown below) **Grayed-out names** did not attend.

Subcommittee 4 Membership Roster

| Name | Role in SC | Affiliation |
|--|------------|---|
| Antola, Mike | Member | Resideo |
| Case, David | Vice Chair | Cisco Systems |
| Chamberlain, David | Member | Innovation, Science & Economic Development Canada |
| Chen, Zhong | Member | ETS-Lindgren |
| DeLisi, Bob | Chair | UL LLC |
| Dickten, Thomas | Member | GC Consulting |
| Elliott, William (Mac) | Member | TÜV SÜD America, Inc. |
| Friden, Jonas | Member | Ericsson AB |
| Graff, William | Member | TÜV Rheinland of North America |
| Hodes, Harry | Member | Bay Area Compliance Laboratories Corp. |
| Hoolihan, Dan | Member | Hoolihan EMC Consulting |
| Jones, Steve | Member | FCC Laboratory |
| Kiemel, Greg | Member | Element Materials Technology |
| Klinger, Jeff | Member | Compatible Electronics |
| Kramer, Doug | Member | ETS-Lindgren |
| Lee, Edmund | Member | Apple Inc. |
| Mansergh, Dan | Member | Apple Inc. |
| Mendoza, Ernesto | Member | Signify |
| Nixon, Jason | Member | Innovation, Science and Economic Development Canada |
| Pino, Dan | Member | PCTEST Engineering Laboratory |
| Rapella, John | Member | Washington Laboratories, Ltd. |
| Siquin, Dan | Member | DHS-EMC |
| Skoglund, Kenth | Member | Ericsson AB |
| Terrien, Mark | Member | Keysight Technologies |
| Waitt, David | Member | Consultant |
| Ward, Dennis | Member | PCTEST Engineering Laboratory |
| Zimmerman, Dave | Member | Spectrum EMC, LLC |

Guests and Observers: (non-voting) Jerry Ramie, Randy Long, Jeremy Cline, Wally

Arceneaux, Mike Heckrotte, Deanna Zacharia, Dave Schaefer, Ed Hare, Allen Crumm, Ross Carlton, Nima Molaei, Pao Thao, Kachi Eloagu (Laird), Jason Coder, Nate Potts, Bruce Fagley, Victor Kuzcynski, Jeff Evans, Chris Dilay, Marcus Shellman, Henry Benitez, John Norgard, Dave Case,

1.4 Quorum: (50% of roster) constitutes a quorum. (rounding up) (27 roster members / 2 = 13.5 >> 14 (therefore 14 people are required for a quorum) **Was quorum achieved? (Yes) 19** members attended. If not, any actions taken are subject to confirmation by electronic ballot or at a future meeting. (Quorum is not required for Working Group meetings)

1.5 Review of the [patent slides](#) - Secretary - The patent slides were shown and no potentially essential patents were declared.

2. Approval of the Agenda: Secretary - Dave Case moved, seconded by Bill Graff, to accept the Agenda. The [Agenda](#) was approved unanimously.

2.1 Approval of the previous Minutes - [20190501](#) The previous Minutes were shown in a line-by-line manner. Mr. Terrien moved, seconded by Mr. Ward, to approve them. The previous Minutes were [approved](#) unanimously.

3. Review of [Subcommittee Membership](#): Secretary - Report any errors to the ASC-C63[®] Secretary

3.1 Review of Membership Guidelines –

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.

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

Member Attendance Log: Any errors in the log?

| SC4 Roster: | 20160511 | 20161109 | 20170510 | 20171108 | 20180502 | 20181128 | 20190501 |
|--|----------|----------|----------|----------|----------|----------|----------|
| Antola, Mike | | | | X | X | X | X |
| Case, David | X | | | X | X | X | X |
| Chamberlain, David | | | | | X | X | X |
| Chen, Zhong | | X | X | X | | | X |
| DeLisi, Bob | X | X | X | X | X | X | X |
| Dickten, Thomas | | X | X | | | | |
| Elliott, William (Mac) | X | X | X | X | | X | X |
| Friden, Jonas | | | | | | | X |
| Graff, William | | | | | X | X | X |
| Hodes, Harry | X | X | X | | X | | |
| Hoolihan, Dan | X | X | X | X | X | X | X |
| Jones, Steve | X | X | X | X | X | X | X |
| Kiemel, Greg | | | | X | X | | |
| Klinger, Jeff | | X | X | X | X | | X |
| Kramer, Doug | | | | X | X | X | X |
| Lee, Edmund | | | | | | | X |
| Mansergh, Dan | | | | | | | X |
| Mendoza, Ernesto | | | | | a | X | |
| Nixon, Jason | X | X | X | X | X | X | X |
| Pino, Dan | | | | | p | | X |
| Rapella, John | | | | | | | X |
| Sigouin, Dan | X | X | X | X | X | X | |
| Skoglund, Kenth | | | | | X | X | X |
| Terrien, Mark | | | | | | X | X |
| Waitt, David | | X | X | | | | |
| Ward, Dennis | X | | | X | X | X | X |
| Zimmerman, Dave | X | | | X | X | | |

Any members at risk? These members are at risk: **Thomas Dickten & David Waitt** AI-21: Jerry to remove Mr. Dickton and Mr. Waitt from the SC4 roster page & WebEx list.

3.2 Consideration of new members? [Application for C63® Subcommittee Membership](#)

1. **Nima Molaei - [SC4 Application](#) - [Resume \(Bio\)](#)** The application and resume of Mr. Molaei were shown. Graff moved, seconded by Hodes, to accept his membership in SC4. The motion carried unanimously. AI-22: Jerry to add Nima Molaei to the SC4 roster and WebEx list.
2. **Terry Mahn – [SC4 Application](#), [C63.26 Application](#), [Resume \(Bio\)](#)** The application and resume of Mr. Mahn were shown. Ward moved, seconded by Graff to accept his membership in SC4. The motion carried unanimously. AI-23: Jerry to notify Mr. Mahn of his acceptance in SC4 and C63.26 and place his name on their rosters and WebEx lists.
3. **Nick Abbondante - [SC4 Application](#), [Resume \(Bio\)](#)** The application and resume of Mr. Abbondante was shown. Hodes moved, seconded by Kramer, to accept his membership in SC4. The motion carried unanimously. AI-24: Jerry to notify Mr. Abbondante of his acceptance in SC4 and place his name on the SC4 roster & WebEx list.

4. **Working Group reviews - Chair - [More information about each standard](#)** is available on the Standards Status Matrix page of the [C63® web site](#). This information will be reviewed for accuracy at each Spring Subcommittee meeting.

4.1 C63.10 – Unlicensed transmitters - Nixon (link to [WG report](#)) Jason pointed out that IEEE will not publish in color and that all diagrams/drawings are Normative. Harry thought that we should insist that IEEE publish our color diagrams, as they have in the past, and that we wish to have our figures/drawings be Informative, not Normative. We will discuss this further at the Steering Committee meeting.

4.11 Status Matrix Review (Spring meeting only) Verify accuracy of document [status matrix](#) content and report any errors to the ASC-C63[®] Secretary. **Is this information correct? (No)** "[Currently in balloting](#)" instead of "~~Current. (published 9/25/2013)~~" in right column below. **AI-25:** Jerry to correct [status matrix](#) & [Learn more](#) text for C63.10 as shown.

| | | | | | |
|---|--|----------------------|------------------------------|-----------------------------|---|
| C63.10-2013 Learn more | Procedures for compliance testing of unlicensed wireless devices | SC 4 | Nixon, Jason | C63.10 PINS | Current. (published 9/15/2013) Currently in balloting |
|---|--|----------------------|------------------------------|-----------------------------|---|

C63.10: C63.10-2013 American National Standard for Testing Unlicensed Wireless Devices

Contact: [Nixon, Jason](#) (Working Group Chair)

Scope: This standard is intended to cover procedures for testing the compliance of a wide variety of unlicensed wireless devices (also called unlicensed intentional radiators) including but not limited to: remote control and security unlicensed wireless devices, frequency hopping and direct sequence spread spectrum devices, anti-pilferage devices, cordless telephones, wireless medical unlicensed wireless devices, Unlicensed National Information Infrastructure devices, intrusion detectors, unlicensed wireless devices operating on frequencies below 30 MHz, automatic vehicle identification systems, and other unlicensed wireless devices authorized by a radio regulatory authority.

Status: ~~Current.~~ [Currently in balloting](#)

Purchase: [IEEE Store](#). To purchase individual standards, go to the IEEE store and search on the standard number. Draft revisions are not yet available for sale.

4.2 C63.26 – Licensed transmitters - Jones (link to [WG report](#)) Terry Mahn has been approved by the Working Group for membership in C63.26WG. He was also approved by SC4 in Agenda Item 3.2 above and will be added to the C63.26 and SC4 rosters.

4.21 Status Matrix Review (Spring meeting only) Verify accuracy of document [status matrix](#) content and report any errors to the ASC-C63[®] Secretary. **Is this information correct? (Yes)**

| | | | | | |
|---|--|----------------------|------------------------------|-----------------------------|-----------------------------|
| C63.26-2015 Learn more | Procedures for compliance testing of licensed transmitters | SC 4 | Jones, Steve | C63.26 PINS | 2015 edition under revision |
|---|--|----------------------|------------------------------|-----------------------------|-----------------------------|

C63.26-2015: American National Standard of procedures for compliance testing of transmitters used in licensed radio services

Contact: [Jones, Steve](#) (Working Group Chair)

Scope: This standard covers 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 also addresses specific topics; e.g., ERP/EIRP, average power measurements and instrumentation requirements.

Status: New Standard published 1/15/16. New work is pending.

Purchase: [IEEE Store](#). To purchase individual standards, go to the IEEE store and search on the standard number.

4.3 C63.29 – Lighting equipment - Mendoza (link to [WG report](#))

4.31 Status Matrix Review (Spring meeting only) Verify accuracy of document [status matrix](#) content and report any errors to the ASC-C63[®] Secretary. **Is this information correct? (Yes)**

| | | | | | |
|--|-------------------|----------------------|----------------------------------|-----------------------------|------------------------------------|
| C63.29-draft Learn more | Lighting products | SC 4 | Mendoza, Ernesto | C63.29 PINS | New standard. Draft being written. |
|--|-------------------|----------------------|----------------------------------|-----------------------------|------------------------------------|

C63.29-draft: American National Standard of procedures for compliance testing of lighting products

Contact: [Mendoza, Ernesto](#) (Working Group Chair)

Scope: This standard is intended to include procedures for compliance testing of general illumination lighting products with applicable radio regulatory requirements. This standard encompasses various technologies, from traditional lighting like fluorescent or HID, as well as novel technologies like LED and others. Related national and international standards (e.g., CISPR 15, ANSI C63.4) will be reviewed and used to the extent possible.

Status: New standard. Draft being written.

Purchase: Not yet available for sale.

4.4 C63.30 – Wireless Power Transfer equipment - Thul (link to [WG report](#))

AI-26: DeLisi to discuss measurement uncertainty for LLAS method at the next C63.30 WG meeting.

4.41 Status Matrix Review (Spring meeting only) Verify accuracy of document [status matrix](#) content and report any errors to the ASC-C63[®] Secretary. **Is this information correct? (Yes)**

| | | | | | |
|--|----------------------------------|----------------------|------------------------------|-----------------------------|------------------------------------|
| C63.30-draft Learn more | Wireless Power Transfer Products | SC 4 | Thul, Travis | C63.30 PINS | New standard. Draft being written. |
|--|----------------------------------|----------------------|------------------------------|-----------------------------|------------------------------------|

C63.30-draft: American National Standard of procedures for compliance testing of Wireless Power Transfer products

Contact: [Thul, Travis](#) (Working Group Chair)

Scope: This standard is intended to include procedures for compliance testing of several different types of Wireless Power Transfer (WPT) products with applicable electromagnetic compatibility (EMC) and radio regulatory requirements. Test procedures will focus on radiated field and conducted measurements and may reference established standards. WPT RF exposure compliance procedures will not be included, although standards pertaining to laboratory EMF safety may be referenced. WPT testing methods may consider, but are not limited to, large in-situ installations, charging systems for electric vehicles (including impact of host on electromagnetic fields), house-hold appliances, and desktop chargers. Consideration will also be given to appropriate testing distances and test locations (such as Semi-Anechoic Chambers, Open Area Test Sites, ground plane, and earth sites). Related national and international standards (e.g., CISPR, SAE, etc.) will be reviewed and used to the extent possible.

Status: New standard. Draft being written.

Purchase: Not yet available for sale.

4.5 C63.31 – ISM equipment - Walton (link to [WG report](#))

4.51 Status Matrix Review (Spring meeting only) Verify accuracy of document [status matrix](#) content and report any errors to the ASC-C63[®] Secretary. **Is this information correct? (No)** Replace [Walton, Derek](#) with [Abbondante, Nick](#). **AI-27:** Jerry to correct [status matrix](#) & [Learn more](#) text for C63.31 as shown.

| | | | | | |
|--|----------------------|----------------------|--|-----------------------------|------------------------------------|
| C63.31-draft Learn more | ISM equipment (MP-5) | SC 4 | Walton, Derek Abbondante, N. | C63.31 PINS | New standard. Draft being written. |
|--|----------------------|----------------------|--|-----------------------------|------------------------------------|

C63.31-draft: American National Standard for compliance testing of Industrial, Scientific and Medical (ISM) Equipment

Contact: ~~[Walton, Derek](#)~~ (Working Group Chair)

Scope: This standard is intended to include procedures for compliance testing of traditional ISM equipment (industrial heaters, dielectric heaters, food tempering equipment, microwave ovens, medical diathermy equipment, etc.) with applicable EMC and radio regulatory requirements. Related national (FCC/OET MP-5) and international standards (e.g., CISPR, IEEE) will be reviewed and used to the extent possible.

Status: New standard. Draft being written.

Purchase: Not yet available for sale.

5. Old Business: Chair

5.1 Coordination with SC2 for definitions - Before any Working Group draft can be submitted to Subcommittee for approval, the document must be provided to the SC2 Chair for evaluation and coordination of the definitions used.

5.2 Coordination with SC3 for harmonization - Before any Working Group draft can be submitted to the to Subcommittee for approval, the document must be provided to the SC3 Chair for evaluation and coordination of any harmonization effort.

6. New Business: Chair

6.1 Moving C63.17, UPCS, from SC7 to SC4 - This is mainly a wireless Standard with spectrum sharing and "seems" more applicable under SC4 for wireless Standards. SC4 needs to agree to this change. The SC7 Chair (Mr. Berger) felt that it should stay in SC7, as it contains spectrum etiquette content and RF content. Discussion ensued. Both views were acknowledged. Mr. Kiemel suggested that we form a joint working group and leave the Standard under SC7. We can incorporate references to C63.10. Mr. Heckrotte felt we should just re-affirm this document since it still uses "old" technology. The consensus was that the document stays in SC7 for now.

6.2 C63.31 Leadership change - Update - This working group has moved slowly in development of their document as the Chair had health issues. Mr. Abbondante was asked to assume the Chair in this working group. Mr. Walton agreed and will become Vice Chair.

7. C63.org website use and updates: Secretary - We normally post documents to the [SC4 protected area](#). If any SC or WG needs help with this posting, a Technical Secretary is available to assist.

8. Review of the Action Items: Secretary

8.1 Review of Action Items from this meeting: The Action Items were read to the Members, who agreed that they understand their meaning.

8.2 Review of Action Items from previous meeting: (see consolidated Action Item table from the previous Minutes below)

Consolidated Action Items from 5/1/19 Meeting of SC4

| Action Item # | Subject | Responsible Person(s) | Status | Delivery Date | Comments |
|---------------|---|--|--------|---------------|--------------------------------|
| AI-16: | Remove Art Wall & Werner Schaefer from the roster. Dickten and Waitt to receive letter notifications. | Jerry Ramie | Closed | 11/20/19 | Removed 5/18 Note sent 5/18 |
| AI-17: | Jerry to add Bruce Fagley, John Repella and Guangqui Zhu to the appropriate rosters | Jerry Ramie | Closed | 11/20/19 | Added 5/18 |
| AI-18: | DeLisi & Case to review and discuss C63.17 to see if it fits under SC4 | Bob DeLisi Dave Case | Closed | 11/20/19 | |
| AI-19: | Jerry to correct C63.26 status matrix text as shown | Jerry Ramie | Closed | 11/20/19 | Corrected 5/18 |
| AI-20: | ISED, Chamberlain to generate vector waveforms representing wireless modulations and record their variance with QP detection in radiated only. Hare will evaluate products with Peak, Avg. and QP detection and report the differences. | Jason Nixon D. Chamberlain Ed Hare | Closed | 11/20/19 | |

9. Time and place of next meeting: Chair - Week of 5/4/20 at ETS-Lindgren in Cedar Park, TX.

10. Closing remarks and Adjournment: Chair - The Chair thanked the group for their attendance and adjourned the meeting at 2:22PM-PST.

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

Consolidated Action Items from 11/20/19 Meeting of SC4

| Action Item # | Subject | Responsible Person(s) | Status | Delivery Date | Comments |
|----------------------|--|------------------------------|---------------|----------------------|-----------------------------|
| AI-21: | Jerry to remove Mr. Dicton and Mr. Waitt from the SC4 roster page & WebEx list | Jerry Ramie | Closed | Next meeting | Removed 1/27/20 |
| AI-22: | Jerry to add Nima Molaei to the SC4 roster and WebEx list | Jerry Ramie | Closed | Next meeting | Added 1/27/20 |
| AI-23: | Jerry to notify Mr. Mahn of his acceptance in SC4 and C63.26 and place his name on their rosters and WebEx lists | Jerry Ramie | Closed | Next meeting | Added 1/27/20 notified 1/27 |
| AI-24: | Jerry to notify Mr. Abbondante of his acceptance in SC4 and place his name on the SC4 roster & WebEx list | Jerry Ramie | Closed | Next meeting | Added 1/27/20 notified 1/27 |
| AI-25: | Jerry to correct status matrix & Learn more text for C63.10 as shown | Jerry Ramie | Closed | Next meeting | Corrected 1/27 |
| AI-26: | DeLisi to discuss measurement uncertainty for LLAS method at the next C63.30 WG meeting | Bob DeLisi | Open | Next meeting | |
| AI-27: | Jerry to correct status matrix & Learn more text for C63.31 as shown | Jerry Ramie | Closed | Next meeting | Corrected 1/27 |