Call to Order
The meeting was called to order at 09:01 EST by R. Tell. D. Haes recorded the minutes.

Welcome and Introduction
See Appendices A1 and A2 for invitees and attendees, respectively.

Approval of Agenda:
The DRAFT AGENDA circulated via e-mail by R. Tell to the members before the meeting was reviewed and approved (M. Butcher / J. Osepchuk) (See Appendix B).

Approval of the Minutes from June 11, 2020 online meeting
(https://drive.google.com/drive/folders/1IFNYZ64zk0Afs9VTGM3nEffSQnlnh15f?usp=sharing).
The Minutes from the June 11, 2020 online meeting, previously made available via e-mail (see link above), were reviewed and approved. (M. Butcher/C. Kihlstrom). (APPROVED MINUTES are posted on the ICES / SC2 website).

Meeting topics: See Appendix C for presentation by the Chairs and any ACTION ITEMS. Specific comments and / or questions were recorded under each of the associated outlined topics corresponding to the slides.
- Meeting topics:
• ICES TC95 - SC2; Subcommittee 2 on Terminology, Units of Measurement, and Hazard Communications.
  i. Consists of approximately 73 “signed up” members but many “lurkers”.

• Request for interpretation of OSHA fall protection standard.

• Status of revised PAR for revision of C95.7 approved on December 3, 2020.
  i. Coordination: An important aspect of the PAR process.
  ii. Coordination with IEEE PES – Transmission and Distribution Committee. The Chair of the committee kindly declined the offer to review the draft revision of the Recommended Practice.
    1. E. Hare mentioned that often within IEEE a SC can co-sponsor another standard.
    2. P. Roder mentioned she can check the status of P1654 IEEE Guide for RF Protection of Personnel Working in the Vicinity of Wireless Communications Antennas Attached to Electric Power Line Structures to see whether there are plans to let it expire or revise / reaffirm / withdraw. Also check to see whether SC2 could be a co-sponsor.

ACTION ITEM: P. Roder check the status of P1654 and check to see whether SC2 could be a co-sponsor.

3. B. Johnson mentioned P1654 was previously developed for making sure RF Personal Monitors met standards of RF detection when subjected to fairly high “ELF” fields. He offered the opinion that, now that modern RF Personal Monitors are less susceptible to “ELF” inference that P1654 could be allowed to be withdrawn.

4. M. Butcher mentioned the National Electrical Safety Code (NESC) also has standards which may include wireless technologies.

ACTION ITEM: SC2 to explore NESC standards which include wireless technologies.

5. J. Bushberg mentioned General Order #95 in CA mentions RF Safety Programs.

iii. Approved scope. This Standard specifies requirements and guidelines to enable the creation of effective electromagnetic energy (EME) safety programs (ESPs) to help mitigate hazards associated with human exposures above applicable EME limits in the frequency range of 0 Hz to 300 GHz including potentially hazardous exposure to EME fields, currents, and / or contact voltages or hazards associated with EME as it may interact with devices, materials, substances or structures. This document contains required elements for developing, implementing and
administering an SP. It also includes examples/illustrations that may assist in developing a site specific EME safety program.

- Revision process for C95.7-2014
  i. SC2 Editorial Working Group: (~ 300 Years of Collective Wisdom and Experience).
  ii. Editorial Working Group (EWG) selected by the chair based on willingness to update the document IEEE Std C95.7™-2014; IEEE Recommended Practice for Radio Frequency Safety Programs, 3 kHz to 300 GHz.
  iii. EWG met formally online (through WebEx”) first on 5/20/2020, and then again online nine additional occasions prior to submitting the revised document to the SC2 for vote. Each online meeting lasted several hours.
  iv. The Three Primary SC2 EWG Developments.
    1. The Elements of a Safety Program.
    2. New content.
    3. The Category 2 Special Case.
    4. The C95.7 Specification of Exposure Categories and Exposure Environments.
       a. C.K. Chou mentioned that the revised C95.7 should use language consistent with C95.1. He specifically cited the use of the phrase “safety limit”, for example as depicted in Figure 1 of the revision.
       b. P. Zollman mentioned that the choice and placement of signs may depend on the presence of any “Other Considerations”.
       c. B. Jon Klauenberg suggested omitting the “WARNING” sign and moving the “DANGER” sign down. He insisted being exposed to 10X MPE is “dangerous”.
       d. D. Haes pointed out the ANSI Z535 specifies signals words and the usage thereof, and any IEEE standard should be consistent with ANSI standards.
       e. K. Graf pointed out the signs are consistent with the IEEE Standard C95.2(2018).
  5. Table 3—Minimum elements of an SP with respect to the category number of the EME exposure environment (assumes the hazard assessment process has established the exposure environments).

- SC2 Voting Results
i. Invitations sent out to all SC2 members to join “ballot review group”. 46 members accepted invitation. 43 votes were returned within the 30-day voting period (93%).

ii. 35 out of 43 voted to APPROVE (both with and without comments). **81% APPROVE**.

iii. 7 out of 43 voted to DISAPPROVE (both with and without comments). **16% DISAPPROVE**.

iv. 1 out of 43 voted to ABSTAIN. **2% ABSTAIN**.

- Key issues for EWG to address.
  i. C.K. Chou again mentioned that the revised C95.7 should use language consistent with C95.1.

- SC2 Plans Going Forward.
  i. B. Jon Klauenberg suggested adding a footnote for the IEEE “Get Program” in the revision.

6. New business
   - None mentioned.

7. Time and Place of Next Meeting
   - C.K. Chou mentioned that the original plans for BEMS to meet summer 2021 in HI have been cancelled due to travel restrictions associated with the pandemic. The next ICES meetings will likely be June 2021 online once again.

8. Adjourn
   The meeting was adjourned at 11:04 (M. Ziskin / J. Bushberg).

**ATTACHED APPENDICIES**

- **APPENDICIES A1 & A2**: Invitees and Attendees SC2 Meeting online via WebEx 12/16/2020.
- **APPENDIX B**: Approved agenda SC2 Meeting online via WebEx 12/16/2020.
- **APPENDIX C**: R. Tell SC2 Meeting presentation 12/16/2020.
APPENDIX A1
SC2 Online Meeting Invitees

Bob@emesafety.com,  
Brett.Moule@kordia.com.au,  
HubbarKR@eskom.co.za,  
JOSEE.PAQUIN@forces.gc.ca,  
James.Futch@fhihealth.gov,  
Kevin.Graf@fcc.gov,  
Kevin@smithandfisher.com,  
Lodwick.Jeffrey@dol.gov,  
Martin.Doczkat@fcc.gov,  
alth858@gmail.com,  
antonio.faraone@motorolasolutions.com,  
artnarongwork@gmail.com,  
bob@rfssafetycompliance.com,  
boyer2@lnln.gov,  
brad.roberts@us.army.mil,  
cifra@ufe.cz,  
cory.kihlstrom@verizonwireless.com,  
d.baron@ieee.org,  
darang@dttech.com,  
david.cotton@ieee.org,  
david@isotrope.im,  
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eric@wavepointresearch.com,  
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Jafar.kesvari@aalto.fi,  
jbushberg@hampc.com,  
jmosepchuk@comcast.net,  
john.defrank@us.army.mil,  
john.moore@dcmnr.gov.ie,  
jonklauenberg@satx.rr.com,  
josephineca74@gmail.com,  
jpreilly@ieee.org,  
julk235@LNI.WA.GOV,  
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kk2672@att.com,  
kuster@itis.ethz.ch,  
kyle@smithandfisher.com,  
lawilliams@alum.mit.edu,  
luke.mccormick@dhs.gov,  
martin.gledhill@emfservices.co.nz,  
mavr@grfs.net,  
matt@sublight.net,  
mberkholtz@starry.com,  
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mpacker@harris.com,  
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nisakorn@health.moph.go.th,  
Peter.Zollman@mac.com,  
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ralf.bodemann@siemens.com,  
ray.mckenzie@bigpond.com,  
rfcleveland@gmail.com,  
rmathur@h-e.com,  
robandjacob@comcast.net,  
roel.escobar@us.af.mil,  
rtell@radhaz.com,  
sajohnston5@gmail.com,  
nelson.watson@att.net,  
sirley.bonham.civ@mail.mil,  
steve.iskra@team.telstra.com,  
tamera.hay@navy.mil,  
tharrington@fcc.gov,  
vitas@ieee.org,  
w1rfi@arrl.org,  
walter.rogers.civ@mail.mil,  
wata@nict.go.jp,  
xun.zhao@forces.gc.ca,  
zijun.tong@nema.org,  
zkpin@temple.edu,  
bsensada_aymen@ieee.org
APPENDIX A2
SC2 Online Meeting Online Attendees

| DH | Don Haes
| AT | Art Thansandote
| AB | Aymen Bensaada
| BK | B Jon Klauenberg
| BM | Brett Moule
|   | Call-in User_3 (John Osepchuck)
| CC | C-K Chou
| CK | Cory Kihlstrom
| D  | Darang
| ES | EMC VP Standards (Ed Hare)
| FC | Frank C.
| GV | Giuseppe Vecchi
| JF | James Futch
| JB | Jerrold Bushberg
| JD | John DeFrank

| KG | Kevin Graf
| KK | Kim Kantner
| KF | Kyle Fisher
| MW | Marv Wessel
| MZ | Marv Ziskin
| MB | Matt Butcher
| PR | Patricia Roder
| PK | Paul Krebs
| PT | Paul Testagrossa
| PZ | Peter Zollman
| RM | Rajat Mathur
| RJ | Robert Johnson
| RK | Robert Kavet
| RJ | Rod Julian
| RE | Roel Escobar
| RG | Romeo Gallamanza

| RH | Roy Hubbard
| SJ | Sheila Johnston
| TM | Tim Mikulski
| XZ | Xun Zhao
| ZT | Zijun Tong
APPENDIX B
Approved Agenda

Draft Agenda

IEEE/ICES TC95 Subcommittee 2
Terminology, Units of Measurements, and Hazard Communications
0900 – 1100 h EST (US East Coast time) see times below
Wednesday, 16 December 2020

To be held On-line via Webex (details for connecting sent in Webex invitation)

1. Call to Order
2. Welcome and Introduction
3. Approval of Agenda
4. Approval of the Minutes from June 11, 2020 online meeting
   https://drive.google.com/drive/folders/1jFNYz6dZk0A4hY4YfG33L6f10SOqlhI?usp=sharing
5. Meeting topics:
   - OSHA interpretation request
   - Revised PAR for revision of C95.7 approved on December 3, 2020
   - Revision process for C95.7-2014
   - Discussion
6. New business
7. Time and place of next meeting
8. Adjourn

Participants have a duty to inform the IEEE of holders of essential patent claims if they or their
affiliations hold such claims. Check the web link at: https://standards.ieee.org/content/dam/ieee-
standards/standards/web/documents/other-patents.pdf for more details. If anyone in this meeting
is personally aware of any patent claims that are potentially essential to implementation of the
proposed standard(s) under consideration by this group and that are not already the subject of an
Accepted Letter of Assurance, please speak to the committee chair today.

Los Angeles 06:00-08:00
Salt Lake, Denver 07:00-09:00
Chicago 08:00-10:00
New York 09:00-11:00
London 14:00-16:00
Geneva 15:00-17:00
Prague 15:00-17:00
Munich 15:00-17:00
Johannesburg 16:00-18:00
Helsinki 16:00-18:00
Athens 16:00-18:00
Helsinki 16:00-18:00
Bangkok 21:00-23:00
Tokyo 23:00-01:00
Christchurch 03:00-05:00 next day
Welcome
You have logged onto the ICES SC2 On-line Meeting
The meeting will begin at 0900 EST (1500 UTC)
Please stand by

Ric Yell, Chair
Don Haes, Vice Chair

ICES TC95 - SC2
Subcommittee 2 on Terminology, Units of Measurement, and Hazard Communications
Consists of approximately 73 “signed up” members but many “lurkers”
SC2 is the Working Group for development of

- IEEE Std C95.7-2014 IEEE Recommended Practice for Radio Frequency Safety Programs, 3 kHz to 300 GHz [currently being revised].
Draft Agenda

IEEE/ICES TC95 Subcommittee 2
Terminology, Units of Measurements, and Hazard Communications
0900 – 1100 h EDT (US East Coast time) see times below

Wednesday, 16 December 2020
To be held On-line via Webex (details for connecting sent in Webex invitation)

1. Call to Order
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5. Meeting topics:
   • OSHA interpretation request
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   • Revision process for C95.7-2014
   • Discussion
6. New business
7. Time and place of next meeting
8. Adjourn

Participants have a duty to inform the IEEE of holders of essential patent claims if they or their affiliations hold such claims. More at: https://standards.ieee.org/content/dam/ieee-standards/standards/web/documents/ether/patents.pdf. For more details, if anyone in this meeting is personally aware of any patent claims that are potentially essential to implementation of the proposed standard(s) under consideration by this group and that are not already the subject of an Accepted Letter of Assurance, please speak to the committee chair today.

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Request for interpretation of OSHA fall protection standard

- On January 3, 2019, I wrote to the head of the OSHA Directorate of Construction requesting an interpretation of the fall protection standard OSHA 1926.500(a)(1).

- On June 17, 2020, OSHA requested a telecon to better understand the request for interpretation. Don Haes and I held a Skype conference with two OSHA technical staff and two OSHA attorneys. OSHA promised to follow up with letter.

- Reminder e-mail to OSHA on December 12, but letter from OSHA has still not been received.
The interpretation request

How does the OSHA fall protection standard at 29CFR1926.500(a)(1) apply to persons conducting RF surveys on unprotected rooftops?

Such personnel are conducting “inspections” but these inspections are not to determine the condition of the roof and personnel routinely need to be at the edge of the roof.

These personnel must use personal fall protection equipment such as a safety line if they get closer than 10 feet of the roof edge.

PC95.7 PAR Status

On 03 Dec 2020 the IEEE SA Standards Board approved the revision project:

PC95.7 Standard for Electromagnetic Energy Safety Programs, 0 Hz to 300 GHz.

Effective until 31 Dec 2024.
Coordination: An important aspect of the PAR process

Coordination with IEEE PES – Transmission and Distribution Committee

SC2 has interacted with the PES committee in connection with their P1654 IEEE Guide for RF Protection of Personnel Working in the Vicinity of Wireless Communications Antennas Attached to Electric Power Line Structures (30 Jun 2009).

The Chair of the committee kindly declined the offer to review the draft revision of the Recommended Practice.

Approved scope

1.1 Scope

This Standard specifies requirements and guidelines to enable the creation of effective electromagnetic energy (EME) safety programs (ESPs) to help mitigate hazards associated with human exposures above applicable EME limits in the frequency range of 0 Hz to 300 GHz including potentially hazardous exposure to EME fields, currents, and/or contact voltages or hazards associated with EME as it may interact with devices, materials, substances or structures. This document contains required elements for developing, implementing and administering an ESP. It also includes examples/illustrations that may assist in developing a site specific EME safety program.
SC2 Editorial Working Group
(~300 Years of Collective Wisdom and Experience)

- Editorial Working Group (EWG) selected by the chair based on willingness to update the document IEEE Std C95.7™-2014: IEEE Recommended Practice for Radio Frequency Safety Programs, 3 kHz to 300 GHz.
- EWG met formally online (through WebEx®) first on 5/20/2020, and then again online nine additional occasions prior to submitting the revised document to the SC2 for vote. Each online meeting lasted several hours.

The Three Primary SC2 EWG Developments

- Determine what elements shall be a part of an EME safety program; change from Recommended Practice to a Standard.

- Includes a process for developing the safety program.

- Substantial annexes that provide guidance and examples for developing a safety program.
The Elements of a Safety Program

- Organizational policy statement on compliance
- Hazard assessment
- Description of controls
- Training requirements
- Assigned responsibility and accountability
- Incident reporting and resolution
- Program feedback, monitoring and maintenance

New content

- Category 2 Special Case
- Human Exposure Categories and Environments
- Expanded hazard assessment
- Includes expanded frequency range down to 0 Hz
- Safety program development process shall consider concomitant EME safety issues (“other considerations”)

ICES SCZ on-line meeting (12-16-2020)
The Category 2 Special Case

- An exposure situation in which an individual cannot be exposed above the IEEE upper tier exposure limit.

- Such exposure environments are safe environments and EME safety training is not required to control exposure since exposures cannot exceed the exposure limit.

- NOTE: EME awareness education is always required when one can be exposed above the EME Safety Program Initiation Level (SPIL).

The C95.7 Specification of Exposure Categories and Exposure Environments

Figure 1—Graphical representation of range of potential exposure by category, with recommended signage formats.
The C95.7 Specification of Exposure Categories and Exposure Environments

Table 3—Minimum elements of an SP with respect to the category number of the EME exposure environment (assumes the hazard assessment process has established the exposure environments)

More required controls for higher exposure categories

“Conditional” means that the element might be required under certain conditions.
Key issues for EWG to address

- Make it look more like a standard:
  - Put the “shall” up front
- Not tailored to FCC/ICNIRP
  - The elements of the safety program apply to all standards/ regulations
  - Does not need to be tailored; this is the industry consensus
  - Regulators pick and choose
- Designations of when to use NOTICE, CAUTION, etc.
  - Consistent with C95.2-2018 requirements
SC2 Plans Going Forward

- Continue work within the SC2 EWG to resolve comments and create revised draft of C95.7.
- Conduct recirculation of revised draft in SC2.
- Submit for balloting by TC95 (follow IEEE process).

Thanks for your attention.
Do you have any questions?