



**INTERNATIONAL
COMMITTEE *on*
ELECTROMAGNETIC
SAFETY**

**TECHNICAL COMMITTEE 95
SUBCOMMITTEE 3
SAFETY LEVELS WITH RESPECT TO HUMAN EXPOSURE, 0 to 3 kHz**

**28th Meeting
Dublin Castle
Ireland
Sunday, June 26th, 2005**

MEETING MINUTES

Members Present

Eleanor Adair
David Baron
David Black
Ralf Bodemann
Philip Chadwick
Robert Curtis
John D'Andrea
John DeFrank

Donald Haes, Jr
Roy Hubbard
Kent Jaffa
Dr. Sheila Johnston
Jolanta Karpowicz
W. G. Lotz
Tom McManus
Robert Needy

John Osepchuk
Ronald Petersen
J. Patrick Reilly
Brad Roberts
Richard Tell
Arthur Varanelli
Jamaal Whitmore

Members – Excused Absences

Bill Ash
William H. Bailey
Dan Bracken
Martin Hernandez
Aviva Brecher
John DeFrank
Veronica Ivans

Charles Kim
Thanh Dovan
A. Y. Duvdevany
Ken Gettman
D. A. Nelson
Ervin Root

Theodorus Samaras
Asher Sheppard
Don Umbdenstock
Eric van Rongen
Jeff Vollin
Jamal Whitrone
Marvin Ziskin

Members Absent (consecutive unexcused absences)

Franz Adlkofer (1)	Ken Gettman (1)	Dr. Michael Murphy (5)
Richard Barker (1)	Georges Goldberg (6)	Robert Needy (1)
Howard Bassen (1)	Daniel Goulet (1)	William Paul (3)
Pascale Bellier (2)	Bob Hanna (2)	Steve Pittman (1)
John Bergeron (6)	Martin Hernandez (1)	Ken Proctor (1)
Charles Boeggeman (6)	Michael Herz (6)	Robert Podhrasky (2)
Robert Carberry (5)	Louis Heynick (2)	Paolo Ravazzani (2)
Kazuhiko Chikamoto (4)	Daniel Hicks (2)	Walter Rogers (4)
Roger Coghill (2)	E. Karabetsos (3)	Jon Sirugo (5)
Steinar Dale (7)	Kathy Khalil (2)	David Sliney (5)
Abiy Desta (1)	Joe Koepfinger (1)	Mays Swicord (3)
Thanh Dovan (1)	Niels Kuster (6)	Art Thansandote (3)
A. Y. Duvdevany (3)	Janet Lathrop (3)	György Thuróczy (4)
Guglielmo d’Inzeo (3)	John Leonowich (2)	Femme-Michelle Wagenaar (2)
Linda de Jager (2)	Patrick Mason (5)	Louis Williams, Jr. (2)
David Fichtenberg (5)	Robert McCourt (6)	Done-Sik Yoo (2)
Om Gandhi (6)	Dr. James McNamee (2)	Donald Zipse (3)
David George (2)	James Merritt (6)	

Guests Present

Ian Brooker (Tyco Safety Products, Ireland)
Masateru Ikehata (Railway Technical Research Institute, Japan)
Hideo Ishii (Tokyo Electric Power Company, Japan)
Yukio Mizuno (Nagoya Institute of Technology, Japan)
Kaori Nakao (Kansai Electric Power Company, Japan)
Cassandra Willyard (Gateway Information Services, USA)
John Ziriak (Navy, USA)

1. CALL TO ORDER

Co-Chair Philip Chadwick called the meeting to order at 09:25 AM. Tom McManus provided some organizational and meeting safety information.

2. SELF INTRODUCTIONS & ATTENDANCE ROSTER

The Chair requested that all attendees introduce themselves and state their affiliation.

An attendance list was circulated for members present to initial to indicate attendance at the meeting. Members were invited to also update their e-mail address and telephone number on the list. Guests were also requested to provide information on the attendance sheet.

Previously received apologies had been indicated on the attendance list. Additional apologies were received from Aviva Brecher, Jeff Vollin and Eric von Rongen.

3. OPENING REMARKS

The Chair provided some general information to the attendees.

4. APPROVAL OF AGENDA

A motion to approve the Agenda was made and seconded (Bodemann, Adair). The Agenda was unanimously approved, see Attachment #1.

Note: Attachment #1 contains some minor typographical corrections identified during the meeting and has had the sub-committee references changed according to the agreed action from Item 8.

5. APPROVAL OF THE MINUTES OF THE PREVIOUS MEETING

A motion to approve the Minutes of the December 2004 meeting was made and seconded (Baron, D'Andrea). The Minutes were unanimously approved without change.

6. CHAIRMAN'S REPORT

The Chair reported. There were no significant changes since the last meeting. It was noted that the SC still did not have a permanent secretary and volunteers were requested. The chair thanked the temporary secretary for his assistance for the meeting.

7. SECRETARY'S REPORT

There was no Secretary's report.

A document was made available for members, whose details had changed, to update their full contact details.

Note: The ICES EXCOM approved one new member of ICES and SC3, Prof. Dr. Ng, at its meeting 2 days previously. The details were unavailable at the time of the SC3 meeting so the new member will be welcomed at the next meeting.

(i) **ICES SCC-28 EXCOM REPORT**

Ron Peterson reported on the changes to ICES since March 2005. SCC34 is now ICES Technical Committee 34, and SCC28 is now ICES Technical Committee 95. This sub-committee is now ICES TC95 SC3.

ACTION: Update the Agenda, Minutes and other documents to take account of the change
- Secretary

An overview of the current balloting status in ICES was also provided.

9. IEEE C95.6 SHORT COURSE

Kent Jaffa reported on the course held in Dublin the previous week. The course went well with 21 students from Ireland, Japan, Poland and the USA. Some good discussions had resulted. The Chair remarked that the feedback on the course was very good and he thanked the presenters.

10. PUBLISHED PAPERS

Kent Jaffa identified some new published papers, which were relevant to SC3.

Pat Reilly provided a brief overview of his recent paper analyzing the differences between the C95.6 and the ICNIRP Guidelines at low frequencies.

ACTION: Provide references for the papers to the Chair/Secretary for circulation to SC3
- Jaffa

The Chair reported that there were now some occupational exposure requirements that included references to pregnant women. There was limited research on the subject and the known work was still preliminary. There had been a statement by the European Commission that no special limits were envisioned for pregnant workers, however it also cited a Directive for the protection of pregnant workers which requires some care to be taken.

The subject was discussed further. It was agreed that there was not currently sufficient knowledge on the possible effects to be considered, or on any mitigating physiological effects.

ACTION: Identify papers/work on the subject for future discussion in SC3
- SC3 Members

11. TOPICS FOR INCLUSION IN THE APPLICATION GUIDE

There has been no activity on the Applications Guide since the last meeting.

The secretary made a request for some modeling applications information to be included. It was noted that there were differences in the LF model philosophy for limbs between C95.1 and C95.6, which can cause difficulties, especially at the 3kHz boundary. It was also noted that the C95.1 was the most recent of the standards and it was likely that C95.6 would use the newer philosophy for its next update. The point should be addressed formally to the Applications Group.

A “frequently asked questions” section in the guide or on the website was requested.

The current tasks and schedule for the group need to be clarified.

***ACTION: Review task list for circulation and provide schedule
- Adair***

12. IEEE C95.6 INTERPRETATIONS WORKING GROUP

Ron Peterson reported.

The rules for an Interpretations Working Group are formal and set out by the IEEE. It should consist of 10-12 people, each having expertise on aspects of the Standard concerned. The requests for interpretation are sent to the Secretary of the IEEE SA who will forward it to the appropriate Interpretations Group.

The Chair will decide if it is a real interpretation task or if it is just a request for guidance. If it does require an interpretation, this will be made and formally responded back via the IEEE SA. If it is not necessary to provide an interpretation, the task can be handled as an applications question for the guide.

It was noted that SC4 have set up such a group according to these rules. The Co-Chairs will set up such a group for SC3. Thanh Doan will take the lead.

***ACTION: Provide information on the SC4 WG to the Chair
- Adair***

***ACTION: Set up the Interpretations Group in a similar way to SC4
- Co-Chairs***

14. UPDATE ON INTERNATIONAL STANDARDS ACTIVITY

The Chair reported on the new EU Directive on occupational exposure to EMF. CENELEC TC106X is creating new Standards for occupational starting with a new simple standard for employers to assess the exposure in the workplace. Work has also commenced on Standards for assessing indirect effects of EMF on implanted medical devices. A brief overview of these was provided.

ARPANSA is working on EMF effects, but has not yet finished. There are some differences between ARPANSA, ICNIRP and IEEE

Bodemann reported that ICNIRP was in progress with an update to the EMF Guidelines. Also the WHO has produced environmental health criteria for ELF. This is 345 pages in size and comments are welcome until 30th June.

***ACTION: Provide copy of the WHO document to the Chair
- Bodeman***

An EU advisory committee on health working party on EMF exposure in the workplace is being created.

Based on this discussion it was proposed (Curtis) that SC3 create an ELF Safety Program similar to the one created for RF. This was discussed further. It was generally agreed that something was needed and several options resulted:

- (i) Have a 0-100kHz safety guide (covering the Lf effects and issues)
- (ii) As above but included in Applications Guide
- (iii) Add it into the RF Safety Program

It was agreed to continue this discussion at the next meeting and plan to make a decision at that time. Bob Curtis agreed to be the Rapporteur to lead this.

15. OTHER OLD BUSINESS

There was no old business

16. NEW BUSINESS

There was no new business

17. NEXT MEETING

The proposed date for the next meeting will be during the period 9th to 11th December in San Antonio. The exact date/time will be announced once the schedule of the ICES meeting is defined.

18. ADJOURNMENT

The meeting was adjourned at 11:55 AM.

Respectfully submitted,

Ian Brooker,
Temporary Secretary
ICES TC95 SC3



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TECHNICAL COMMITTEE 95
SUBCOMMITTEE 3

SAFETY LEVELS WITH RESPECT TO HUMAN EXPOSURE, 0 to 3 kHz

26th Meeting

Dublin Castle, Dublin, Ireland

Sunday, June 26, 2005 (9:00am – 12 :00 Noon)

AGENDA

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|---|---|
| 1. Call to Order | Chair |
| 2. Self Introductions & Attendance Roster | Chair |
| 3. Opening Remarks | Chair |
| 4. Approval of Agenda | Chair |
| 5. Approval of the December 2004 Meeting Minutes | Chair |
| 6. Chairman's Report | Chair |
| 7. Secretary's Report | Secretary |
| 8. ICES SCC 28 ExCom Report | Ron Petersen |
| 9. IEEE Short Course on C95.6 | Kent Jaffa |
| 10. Publish Papers Related to IEEE C95.6 | Chadwick/Pat Reilly |
| 11. Topics to be Included in the Application Guide | Chadwick |
| 12. C95.6 Interpretations WG | Chadwick |
| 14. Update on International Standards Activities | Tom McManus, Ralf Bodemann, Philip Chadwick |
| 15. Other Old Business | Chair |
| 16. New Business | Chair |
| 17. Next Meeting – SC 3 and IEEE/ICES SCC 28 Main Committee | Ron Petersen |
| 18. Adjournment | Chair |