



# INTERNATIONAL COMMITTEE *on* ELECTROMAGNETIC SAFETY

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## Annual Report: 2001 – 2002

### Executive Summary:

The membership of the International Committee on Electromagnetic Safety (ICES), SCC-28, has increased to 113. During the year, we lost one outstanding, loyal member, Dr. Ulf Bergqvist whose support and contributions will be greatly missed. We gained eight new members, 6 of whom are non-U.S. Thus, our present non-U.S. membership stands at 33. With the leadership of Dr. Tom McManus, Membership Chairman and Dr. Michael Murphy, Chairman of International Liaison, ICES SCC-28 continues to become more international. During the period covered by this report, ICES SCC-28 held two meetings outside the U.S., the first in Luxembourg in November-December 2001 and the second in Quebec City in June 2002. These meetings have greatly strengthened our international growth in accordance with the global vision expressed by the IEEE (membership trends indicating a 50% non-U.S. participation in IEEE by 2010). At the ERA meeting in Luxembourg, ICES Chairman Adair joined with the TABD Chairman, Richard Steinmetz, to provide short briefings that gave good publicity for both organizations. An additional two days of spirited scientific discussions, organized by ICES, were attended by 14 members of the European community and serve as a model for future international meetings. Attempts by the ICES EXCOM to hold a third meeting with the leadership of ICNIRP (International Commission on Non-Ionizing Radiation Protection) were unsuccessful, due to schedule conflicts. However, our mutual policy to exchange documents resulted in the receipt of review comments from ICNIRP members on the new IEEE C95-6 Standard (0 to 3 kHz). An International Workshop on Thermal Physiology with Applications to Standards for Electromagnetic Safety, proposed by ICNIRP in November 2000, was put on hold as a result of the events of 9/11. A smaller workshop, unrelated to RF standards, was held at the WHO in Geneva, Switzerland in March, 2002 with several ICES members in attendance. Plans to hold the

originally-proposed workshop in 2004 are proceeding at this time.

Our continuing activities with the WHO (World Health Organization) are aimed at exploring paths toward the international harmonization of standards for the safe use of electromagnetic energy. The increased international membership in ICES provides us with greater influence as we engage the international community.

The authorization in 2001 by the IEEE Standards Board of the proposal that SCC-28 be renamed the International Committee on Electromagnetic Safety (ICES) has proved to be a giant forward step toward an international forum for broad consensus in the setting of safety standards across the frequencies 0 to 300 GHz. During this past year, ICES, its committees, and products have become far better known around the world and we expect this trend to continue. Some action has been taken toward forming a new governing Board and the raising of funds to support ICES, but much more work needs to be done and is in the planning stages.

Other highlights during the year include:

- a) A revision of IEEE C95.3-1991 (with title change) is in the 1<sup>st</sup> recirculation ballot by the sponsor, and will be submitted to RevCom in time for consideration at the December 2002 meeting.
- b) A new recommended practice, IEEE C95.4, concerning safe distances from RF transmitting antennas when using blasting caps during explosive operations, is in the 3<sup>rd</sup> recirculation ballot by the sponsor and will be submitted to RevCom for consideration at the September 2002 meeting.
- c) A new standard, IEEE C95.6, for maximum levels of human exposure to electromagnetic fields, 0 to 3 kHz, has completed the balloting process and has been submitted to RevCom for consideration at the September 2002 meeting.
- d) Project 1460, IEEE guide for the measurement of quasi-static magnetic and electric fields, is in the process of reaffirmation.
- e) A third draft of a new standard, Project 1466, recommended practice for the safe use of electromagnetic energy sources, equipment, and systems, 3 kHz – 300 GHz, is in progress.
- f) The fourth draft of a revision of IEEE C95.1-1991 (1999 edition) was discussed at the June meeting of Subcommittee 4, is under further revision, and will be discussed in September 2002 by the Revision Working Group (RWG), which has met 3 times this past year. The goal is to complete a draft for balloting by the full Subcommittee before the end of 2002.

The Executive Committee (EXCOM) met in Luxembourg, San Antonio, Quebec City, and three times by teleconference. In addition, informal meetings are held frequently as appropriate. EXCOM plans and arranges the two main meetings per year of the parent committee, ICES/SCC-28, and its subcommittees. It approves (or rejects) applications for membership in ICES. In October 2001, the EXCOM invited Dr. Ralf Bodemann, of Siemens AG in Germany, to serve as ICES Vice Chairman, replacing Dr. Eleanor Adair who assumed the ICES Chair on 1 September 2001. Unanimously approved by EXCOM, Dr. Bodemann was introduced as Vice Chairman at the ICES meetings in Luxembourg.

The EXCOM nominated Dr. Michael Murphy as ICES liaison to the Bioelectromagnetics Society (BEMS); the BEMS Board of Directors approved this nomination in June, 2002. During the past year, the EXCOM, through its Chairman, has sent out decisions and explanations of interpretations when questions have been raised. Whenever we have been asked to comment on the documents of other organizations, we have responded in timely fashion. Our continuing hope for broader participation in our standards-setting efforts was recently aided by a technical statement prepared by the Medical Technology Policy Committee of IEEE-USA. This statement, which concerns the implementation of OMB Circular A-119, was sent to the Hon. John D. Graham, OMB Administrator, to encourage greater participation by Federal employees in voluntary standards-setting activities. The ICES Chairman drafted a letter that was sent in July 2002 to nearly 40 Government Agencies, together with the ICES brochure, the IEEE-USA statement, and a copy of the letter to Graham. Individual copies of this mailing will be distributed by Vice Chairman Bodemann to many Government Agencies throughout the EU. Although delayed by the events of 9/11, the plans for a joint Workshop on Thermal Physiology in Relation to Standards Setting are well underway for 2003 or 2004. There are still several issues that must be addressed by EXCOM. These include matters of fundraising, interaction with the media, enhancement of the international ICES image, and recruitment of new ICES members. The ICES Chairman has presented the ICES case on several occasions this past year, including the EBEA (European Bio Electro Magnetics Association) meetings in Helsinki (September), ERA (EU/EC) meeting in Luxembourg (November), and the AIHA Meetings in San Diego (July).

ICES has cooperated with other groups, e.g. TABD (Transatlantic Business Dialogue) and IEC (International Electrotechnical Commission) in our efforts to harmonize Nonionizing Electromagnetic Energy standards world wide. The EEA (Electromagnetic Energy Association) was dissolved in 2001, but ICES has received the archives and monetary assets of this association to further the ICES programs. It is hoped that the very successful Short Course, an EEA activity, will be revived in the coming year under the auspices of ICES.

A special event, organized by the Chairs of SC-4 and supported by the U.S. Air Force, took place on June 23, 2002 in Quebec City in conjunction with the 24<sup>th</sup> Annual Meeting of the Bioelectromagnetics Society. Chaired by Dr. Michael Murphy, this was a U.S. Air Force Laboratory Workshop, "Setting a Science-Based Standard for Safe Human Exposure to RF Electromagnetic Fields: A Tribute to Dr. Eleanor R. Adair. The full-day program included synopses of more than 12 White Papers prepared by members of the SC-4 Editorial Working Group as the scientific foundation for the revision of the IEEE C95.1-1991 standard. These papers will be published in a special edition of the society journal 'Bioelectromagnetics' later this year.

ICES continues to work closely with SCC-34 (R.C. Petersen, Chairman), especially in its work toward a Recommended Practice on certification procedures for cellular phones. ICES also works with SCC-34 in liaison with IEC TC-106, which is charged with development of standard procedures for assessment and measurement of EM fields with respect to compliance with EM safety standards. A proposal for the IEC to enter into a Co-operative Agreement with IEEE to publish double logo standards will be discussed at IEC meetings in November 2002.

The leaders of ICES are frequently asked by the IEEE to respond to inquiries from the press and others about standards and their relevance in various situations. We attempt to do this with diligence and care and sometimes refer the questioner to other IEEE groups, like COMAR (Committee on Man and Radiation) of the EMB-S, for more detailed discussions through their TIS (Technical Information Statement) documents.

The current Chairman of ICES, in office for only 1 year, readily admits to reliance on EXCOM members and other experts for much material related to the extensive work of this oversight committee and its subcommittees. We are extremely proud that the end of the year 2002 should see the approval of four new IEEE standards documents. This accomplishment is due principally to the dedication and extremely hard work of hundreds of volunteers in several Subcommittees. Most of these individuals hold full-time jobs and, to a large extent, pay in time and money for the privilege of serving on ICES subcommittees and attending our meetings. We in ICES believe that our products are the best in the world and salute our volunteers for the tremendous effort they have contributed under the aegis of the IEEE.

### **Membership and Organization:**

The leaders of ICES/SCC-28 and its Subcommittees are listed on the letterhead. Last year a new IEEE Staff Liaison, Angela Ortiz, was assigned to us and we wish for an enduring relationship with her. The key aspect in our membership growth is the emphasis on non-U.S. members. We now have members from the United Kingdom (6), Australia (4), Switzerland (4), Canada (3), Finland (2), Greece (2), Netherlands (2), Ireland (2) and 1 each from Bulgaria, China, Germany, Israel, Italy, New Zealand, Slovenia, South Africa, and Sweden. Many ICES members and others from outside the U.S. are participating members of the Subcommittees. Under the leadership of Drs. McManus and Murphy, we are confident that ICES will keep pace with the general trend of the IEEE towards global consistency.

The present roster of ICES/SCC-28 is listed in the Appendix. In terms of stakeholders, we continue to be well balanced. We note, however, a continuing lack of representation from groups aligned with the wireless industry and hope to correct this in the future. About 50% of the ICES membership are IEEE members, with a fewer number of SA members. This is to be expected and defended in view of the interdisciplinary nature of our members. We and the IEEE are grateful for their voluntary contributions to ICES under conditions where it would be an unreasonable imposition to require IEEE membership. However, we do require the leaders (e.g., Chairs) to be IEEE members.

Our total mailing list now approaches 400, including the many volunteers in the Subcommittees. A year ago, we gave up our long-standing practice of sending hard copies of our extensive documents through the Mail to our global mailing list. We now make use of electronic communication of all our documents through E-Mail and the Internet. The IEEE ICES Website contains both open and private sites, not only for ICES/SCC28, but also for ICES Subcommittees. For example, Subcommittee 4 makes all agendas, meeting minutes, white papers, RF research database, draft standard documents, and many special reports available to all, with certain proprietary or working documents available only to members of the Subcommittee on a private site. The ICES

SC-4 literature database, comprising more than 1600 titles, now appears on the WHO website and is accessible to all. Many ICES and Subcommittee members bring laptop computers, loaded with ICES files, to our meetings so they can project slides and tables, take personal minutes, edit documents, refer to vital files, etc. When traveling to ICES meetings, many members believe that shepherding a laptop through airport security beats manhandling 40 pounds of paper.

### **Activity:**

In this section, we compare the objectives (in italics), stated in the report for 2000 – 2001 with actual achievements during the year **2001 – 2002**.

#### **ICES/SCC-28 and ICES EXCOM:**

- *Continue international expansion led by Drs. McManus and Murphy. Introduce new leadership with emphasis on non-U.S. and younger members. Revise and update rosters.*
  - As reported above, international expansion continues successfully. We now have 33 non-U.S. members in the parent committee ICES/SCC28 and many more among the volunteers for the Subcommittees. Dr. Ralf Bodemann, from Germany, was added to the EXCOM as the new Vice Chairman of ICES.
- *EXCOM to prepare a policy on 100 kHz as the basic boundary between “ELF” and “RF/microwave” standards.*
  - It is clear that 3 kHz, currently used as the basic boundary between the two standards, is set at too low a frequency in terms of characteristic human responses. The Past Chairman has prepared documents supporting 100 kHz as the proper boundary. When the new ELF standard (C95.6) is approved for implementation, SC-3 will turn its attention to developing an interpretation and applications supplement to the new standard, a rationale for the basic boundary at 100 kHz, and eventually merging the SC-3 and SC-4 standards into a single document.
- *ICES Past Chairman to prepare a White Paper on the usage of the words “safe” and “safety” in ICES documents.*
  - This document is in preparation at this time.
- *Strengthen liaisons with ICNIRP, IEC, etc. Carry out closed leadership meeting with ICNIRP in late 2001 in Luxembourg. Plan joint Thermal Physiology Workshop.*
  - These activities were greatly impacted by the events of 9/11. A preliminary Thermal Workshop scheduled for October 2001 in Geneva was cancelled and rescheduled for March 2002. This placed the proposed joint ICNIRP/ICES Thermal Physiology Workshop on hold for 6 months. The semiannual meetings of ICES scheduled for Luxembourg in November 2001 were greatly reduced in scope and participation due to

heavy travel restrictions on U.S. participants. The proposed leadership meeting with ICNIRP did not occur because no ICNIRP members were available to meet at that time. Subsequent attempts to meet with ICNIRP members have been unsuccessful. The proposed Thermal Physiology Workshop may have to be delayed until 2004, but planning is currently underway. Liaisons with IEC continue to be strong.

- *Attend EU/EC (ERA) conference on EMF and arrange for presentation by ICES Chairman at that conference.*
  - Attendance by European delegates was substantial at this meeting and, as noted above, the ICES Chairman gave a short presentation describing the ICES committee structure, functions, and products. This presentation was included in the Proceedings of the conference.
- *Arrange for meetings for ICES and Subcommittees in Luxembourg following EU/EC conference, on December 1 – 3, 2001.*
  - Insufficient delegates from ICES Subcommittees in Luxembourg made this meeting plan impossible (see above). Instead, 10 U.S. members of ICES presented a two-day informative meeting for 14 participants from European countries and the resulting contributions and discussions were far-reaching and extraordinary. Topics covered included a tribute to Ulf Bergqvist, reports on activities of the ICES Subcommittees, issues in ICES standards-setting, issues related to world harmonization of standards, issues concerning public support of standards, and the impact and implications of the ERA meeting. EXCOM members held a meeting on the afternoon of the second day.
- *Arrange for second winter meeting of ICES and Subcommittees in San Antonio, January, 2002.*
  - These arrangements were made and a very successful meeting ensued.
- *Work with IEEE staff to initiate fundraising and other organizational tasks for ICES, with Board approval.*
  - On March 14, 2002 four members of ICES EXCOM met with IEEE staff at IEEE Headquarters in Piscataway. The meeting began with a brief review of the issue of litigation involving the IEEE and was followed by discussions of 6 agenda items. These included 1) Support for ICES: travel, special projects, fundraising; 2) Follow-up letter to the agencies of the IEEE-USA letter to OMB; 3) Public information and media problems; 4) Litigation/communications with new law firm; 5) Operations problems: balloting, non-SA member fees, interpretations; 6) Status of ICES, domestic and global. While some of these items have been completed, others are still in an uncertain limbo. Therefore a second meeting between ICES EXCOM members and IEEE staff has been scheduled for September 13, 2002 in Piscataway.

- *Continue liaison with TABD and expand liaison to wireless industry groups.*
  - Our liaison with TABD (Dick Steinmetz) remains strong and the dual presentations at the EU/EC meeting in Luxembourg were well received. The matter of expanding the liaison with U.S. wireless industry groups in the U.S. goal has received limited attention this year. It remains a goal for 2002 – 2003.
- *Ballot the revision of C95.3.*
  - This has been done and the final recirculation ballot is in process. This standard will be submitted to RevCom for their December 2002 meeting.
- *Ballot the “extremity” amendment to C95.1 (Sense of the ICES community).*
  - This matter has been taken care of by the membership of SC-4.
- *Pursue the project on publicizing ICES and C95.1 standards in the literature (Dr. M. Meltz).*
  - As yet, Dr. Meltz has not acted on this matter. Some general white papers will be drafted by others for publication in Health Physics. These include a paper on the process by which ICES Subcommittees generate standards documents, and another paper on the special character of the new C95.6 standard recently approved by ICES. We will work closely with Karen McCabe, who has drafted a strategy for publicizing the work of ICES.
- *Reassess plans for an electronic newsletter in recognition of ICES objectives.*
  - No action has been taken on an electronic newsletter. This goal will be integrated into the plan for ICES after fundraising has been initiated. ICES financial supporters will receive special news updates on ICES matters.

#### **SC1:**

- *Help shepherd revised C95.3 through ICES SCC-28 and IEEE Standards Board.*
  - C95.3-1991 Recommended Practice for Measurements and Computations with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 100 kHz to 300 GHz has been revised (with a title change). The final revision is completing the 1<sup>st</sup> recirculation of the sponsor ballot. This document will be submitted to RevCom in time for consideration at the December 2002 meeting.
- *Consider new project for documents addressing Measurements below 100 kHz.*
  - SC-1 has already begun planning for this new effort and Chairman Howard Bassen will schedule a special meeting in Washington DC this fall to discuss the project, make assignments, and begin work on the Measurements document.

**SC-2:**

- *Complete and ballot Work Practices document.*
  - This document, which outlines a comprehensive work safety program at several levels, is still in the drafting stage. Since there will be reference in the revision of the C95.1 standard (when it is completed) to the Work Practices document, the original draft will have to be elaborated to serve the needs of C95.1 when they are clarified.
- *Establish formal record of OSHA exemption on signs.*
  - Chairman Richard Tell has written OSHA to obtain an updated confirmation of the exemption permitting industry to use the modern C95.2 warning signs instead of the obsolete signs still in the OSHA regulations.

**SC-3:**

- *Shepherd new standard through ICES SCC-28 and Standards Board.*
  - The completion of the new C95.6 standard has been the major success story of the past year. Under the able Chairmanship of Kent Jaffa, aided by the expertise of Dr. J. Patrick Reilly, SC-3 has completed and balloted a final draft of the Standard for Maximum Levels of Human Exposure to Electromagnetic Fields, 0 to 3 kHz. This standard has been submitted to RevCom for consideration at the September 2002 meeting.
- *Work with ICES EXCOM on future budgets.*
  - This will be done when the fundraising project takes place.

**SC-4:**

- *Continue literature reviews and designate cutoff date.*
  - Under the able Chairmanship of Dr. C.K. Chou and Dr. John D'Andrea, this subcommittee has made substantial progress on the revision of IEEE C95.1 this year. There are now more than 1600 titles in the RF literature database (Listing #27). At the June 2002 meeting of SC-4, 3 motions were entertained that related to the literature database. The first motion, to disallow additional papers to be added after the cutoff date, failed. The second motion established December 31, 2002 as the cutoff date for adding new papers to the database. The third motion established that the issue of Brillouin precursors would not be included in deliberations regarding the revision of C95.1 because there is no evidence in the peer reviewed scientific literature that such precursors are biologically important at RF frequencies.
- *Begin drafting standard; prepare for balloting.*
  - In special meetings of the SC-4 Editorial Working Group, a series of drafts has been prepared and critical issues discussed. At the next meeting

of this group, the 5<sup>th</sup> working draft will be discussed. The plan is that a 6<sup>th</sup> draft will be prepared for balloting by the full SC-4 before the end of the year 2002.

- *Work with ICES EXCOM on future budgets.*
  - This will be done when the fundraising project takes place.

#### **SC-5:**

- *Review plans for future activity including statement on fuel ignition hazard myth.*
  - These matters have not yet been addressed. SC-5, under the Chairmanship of John DeFrank and Drew Koban, has been fully engaged in unanticipated matters of correcting errors in the draft Recommended Practice for Determining Safe Distances from Radiofrequency Transmitting Antennas when Using Electric Blasting Caps during Explosive Operations. This new standard, in its 3<sup>rd</sup> recirculation to the sponsor, has been submitted to RevCom for consideration at the September 2002 meeting. The stated future plans will be undertaken when the standard is approved.

### **2002 – 2003 Goals:**

#### **ICES/SCC-28 (and ICES EXCOM):**

- Bring SCC-34 on board as the second Standards Coordinating Committee under the ICES umbrella.
- Initiate fundraising, with the guidance of the IEEE staff, so that critical travel, support for special projects and meetings, support for visiting scientists and experts, and other critical needs can be met.
- Continue international expansion led by Drs. McManus and Murphy. Introduce new leadership with emphasis on non- U.S. and younger members.
- Institute a new policy of annual or semi-annual citations of merit for volunteers who have made substantial contributions to ICES projects.
- EXCOM to prepare a policy on 100 kHz as the basic boundary between “ELF” and “RF/microwave” standards.
- ICES Past Chairman to prepare a White Paper on usage of “safe” and “safety” in ICES documents.
- Strengthen liaisons with ICNIRP, IEC, WHO, COST 281, etc. Attempt to carry out a third closed leadership meeting with ICNIRP, at a mutually convenient time, within the next 6 months.
- Since ICNIRP appears to no longer be interested in planning a joint Thermal Physiology Workshop with ICES, accept the offer made by WHO for such a

collaborative effort in 2004, with the possible addition of COST 281 to the process.

- Arrange for winter meetings of ICES and Subcommittees in December, 2002, either at IEEE Headquarters or in San Antonio.
- Arrange for summer meetings of ICES and Subcommittees, in conjunction with the June 2003 meetings of the Bioelectromagnetics Society in Maui, Hawaii.
- Ballot the revision of C95.1.
- Pursue the project on publicizing ICES and C95.1 standards in the literature, with the assistance of Karen McCabe of the IEEE staff.
- Reassess the plans for an electronic newsletter in recognition of ICES objectives.
- Reassess the methods of dealing with requests for interpretation of standards documents and the role of IEEE staff.

**SC-1:**

- Move forward with new project, Recommended Practice for Measurements and Computations with Respect to Human Exposure to Electric and Magnetic Fields, 0 to 100 kHz.

**SC-2:**

- Finalize the Safe Work Practices document and ballot.

**SC-3:**

- Initiate work on a Guide for the Application of the new C95.6 Standard.
- Based on the new EXCOM policy of 100 MHz as the basic boundary between “ELF” and “RF/microwave” standards, initiate the effort to harmonize the C95.6 and C95.1 standards at 100 MHz.

**SC-4:**

- Complete the literature review and prepare a final draft of the revision of C95.1 for ballot by SC-4 and SCC-28.
- Work with members of SC-3 toward the harmonization of the two exposure standards.

**SC-5:**

- Review plans for future activity including statement on fuel ignition hazard myth.

**IEEE Staff:**

We are pleased to have the support of the staff of IEEE Standards Activities, especially through Judy Gorman, Sue Vogel, Linda Gargiulo, Karen McCabe, Jerry Walker, and our new staff liaison, Angela Ortiz. We appreciate the input from the staff during a meeting

held at IEEE Headquarters in March 2002. We hope for another similar meeting in the near future. The ICES EXCOM is pleased to have interacted with IEEE legal counsel Ralph Taylor and look forward to meeting with him on September 9 in his Washington offices.

### **Other Activities:**

Members of ICES/SCC-28 are continually involved in a wide spectrum of activities that relate to standards setting including research, education, and drafting of regulations. Members participate in the governmental activities in many nations, as well. These include the FCC and FDA in the U.S. and the EU/EC in Europe. We participate in the broad activities of the WHO and its EMF Project as well as the European EBEA, with various meetings around the world. In the future, international meetings are scheduled in Russia (September 2000), Rhodes (October 2002), China (WHO - April 2003), Dublin (COST 281-May 2003), Thailand (November 2003), Hungary (EBEA- November 2003), and Geneva (WHO – December 2003). We interact with professional societies especially the IEEE Societies (EMB-S, MTT-S), the Health Physics Society, and the Bioelectromagnetics Society (BEMS). We try to arrange our semi-annual meetings in coordination with the BEMS meetings and in the fall with other groups.

### **Meeting Schedule:**

#### Meetings of ICES/SCC-28 with Subcommittees:

- January 2002, San Antonio, Texas
- June 2002, Quebec City (BEMS)
- December 2002, IEEE Headquarters or San Antonio, Texas
- June 2003, Maui, Hawaii (BEMS)
- Fall 2003, site to be determined
- May 2004, proposed ICES/WHO Thermal Physiology Workshop, Zurich?

This report was prepared and submitted by:

Eleanor R. Adair, Ph.D.  
Chairman, ICES/SCC-28  
August 16, 2002

## ICES Membership (August, 2002)

	LAST NAME	FIRST NAME	MI	AFFILIATION	COUNTRY
1.	Adair	Eleanor	R.	Independent Consultant	US
2.	Altman	Melvyn	R.	FDA/CDRH	US
3.	Anderson	Vitas		EME Australia Pty Ltd.	AU
4.	Ashley	J. Robert		University of South Florida	US
5.	Aslan	Edward		NARDA Microwave Corp.	US
6.	Balzano	Quirino		Independent Consultant	US
7.	Bassen	Howard		FDA/CDRH	US
8.	Bavin	John		Consumers Energy	US
9.	Bergeron	John	A.	Independent Consultant	US
10.	Black	David	R	IT Medicine Associates Ltd	NZ
11.	Blick	Dennis	W.	AFRL/HEDR (Veridian)	US
12.	Bodemann	Ralf		Siemens AG	DE
13.	Brecher	Aviva		DOT/RSPA Volpe Ctr.	US
14.	Bushberg	Jerrold	T.	Dir. Health Physics	US
15.	Chadwick	Philip		MCL	UK
16.	Chesnick	Scott		National Heart Lung Blood Institute	US
17.	Chiang	Huai		Zhejiang Medical University	CN
18.	Chiusano	Stephen		Lawrence Livermore Nat'l Lab.	US
19.	Chou	C.K.		Motorola, Inc.	US
20.	Cleveland	Robert	F.	FCC, Office of Eng. & Technology	US
21.	Coghill	Roger	W.	Coghill Research Labs	UK
22.	Cohen	Jules		Jules Cohen P.E.	US
23.	Curtis	Robert	A.	OSHA - US Dept. of Labor	US
24.	D'Andrea	John	A.	Naval Health Research Ctr.	US
25.	Daly	James	M.	General Cable	US
26.	de jager	Linda		School of Health Technology	ZA
27.	DeFrank	John	J.	US Army – CHPPM	US
28.	DeLorge	John	O.	Independent Consultant	US
29.	Dini	David		Underwriters Laboratory	US
30.	Dovan	Thanh		SPI PowerNet Pty. Ltd.	AU
31.	Durrenberger	Gregor		ETH	CH
32.	Erdreich	Linda	S.	Exponent	US

	<b>LAST NAME</b>	<b>FIRST NAME</b>	<b>MI</b>	<b>AFFILIATION</b>	<b>COUNTRY</b>
33.	Fastman	Stewart	M.	American Insurers	US
34.	Feero	William	E.	Independent Consultant	US
35.	Foster	Kenneth	R.	Univ. of Pennsylvania	US
36.	Gajsek	Peter		Institute of Public Health	SI
37.	Gandhi	Prof. Om	P.	Univ. of Utah, Dept. of Elec. Eng.	US
38.	Gardner	Robert	C.	MOD D S&F Pol	UK
39.	George	David	L.	Unisys Corp.	US
40.	Grandolfo	Martino		Laboratorio di Fisica	IT
41.	Guy	Arthur	W.	Bioelectromagnetics Consulting	US
42.	Hadlock	Dr. Dennis	E.	Geo Centers Inc.	US
43.	Haes, Jr.	Donald	L.	Consultant	US
44.	Halkiotis	Konstantinos		Greek Atomic Energy Commission	GR
45.	Hare	Ed		American Radio Relay League	US
46.	Hatfield	James	B	Hatfield & Dawson	US
47.	Heirman	Donald	N.	Don HEIRMAN Consultants	US
48.	Heroux	Paul		McGill University	CA
49.	Heynick	Louis	N.	Independent Consultant	US
50.	Israel	Michel		National Centre of Hygiene	BL
51.	Ivans	Veronica		Medtronic Inc.	US
52.	Jaffa	Kent	C.	Pacificorp	US
53.	Johnston	Sheila		Independent Consultant	UK
54.	Joyner	Ken	H.	Motorola Australia, Ltd.	AU
55.	Justus	Ralph		Electronic Industries Assoc.	US
56.	Kandel	Shaiela		SOREQ NRC	IL
57.	King	James	J.	Department of the Navy	US
58.	Klaenberg	B. Jon		USAF	US
59.	Koban	George	A.	Naval Surface Warfare Center	US
60.	Koepfinger	Joseph	L.	Consultant	US
61.	Kuster	Niels		IT'IS	CH
62.	LaMastra	Anthony		American Iron & Steel Inst.	US
63.	Lang	Sakari		Nokia Research Ctr.	FI
64.	Leonowich	John	A.	Battelle Pacific NW Nat. Lab	US
65.	Lin	James	C.	University of Illinois	US
66.	Maletskos	C.J.		National Council for Rad.	US

	<b>LAST NAME</b>	<b>FIRST NAME</b>	<b>MI</b>	<b>AFFILIATION</b>	<b>COUNTRY</b>
67.	Mason	Patrick	A.	USAF/AFRL/HEDR	US
68.	Maurer	Stewart		RF & ELF Consultant	US
69.	McCourt	Robert	W.	PSE&G	US
70.	McManus	Tom		Dept of Comm, Marine and Nat Res	IE
71.	McNamee	James	P.	Health Canada	CA
72.	Meltz	Martin	L.	Ctr. for Env. Rad. Tox.	US
73.	Monahan	John	C.	FDA/CDRH	US
74.	Montgomery	Noel	D.	Joint Nonlethal Weapons Directorate	US
75.	Moore	Michael	R.	Oak Ridge National Lab	US
76.	Mukhopadhyay	Amitabha		Con Edison	US
77.	Murphy	Michael	R.	AFRL/HEDR	US
78.	Orr	John	L.	Toxicology Consultant	US
79.	Osepchuk	John	M.	Full Spectrum Consulting	US
80.	Owen	Russell	D.	USEPA	US
81.	Pakhomov	Andrei	G.	McKesson Bio Services	US
82.	Paul	William	F.	Int. Brotherhood of Elect. Workers	US
83.	Persson	Bertil	R.	Lund University	SE
84.	Petersen	Ronald	C.	R C Petersen Associates LLC	US
85.	Reilly	J. Patrick		Metatec Associates	US
86.	Repacholi	Michael	H.	World Health Organization	CH
87.	Roberts	Brad	J.	US Army CHPPM	US
88.	Root	Ervin	D.	Alliant Energy	US
89.	Rybak	Terence		General Motors Proving Ground.	US
90.	Samaras	Theodoros		Aristotle University of Thessaloniki	Greece
91.	Santomaa	Veli	A	Independent Consultant	FI
92.	Scanlon	William	G.	Queens University of Belfast	UK
93.	Schwan	Herman	P.	Independent Consultant	US
94.	Sheppard	Asher	R.	Asher Sheppard Consulting	US
95.	Sirugo	Jon	H	Southern California Edison	US
96.	Stolwijk	Jan A.	J.	Yale University	US
97.	Storm, MD	K.	F.	Univ. of Wisconsin, Clin. Sci. Ctr.	US
98.	Sutton, MD	Carl	H.	Independent Consultant	US
99.	Swicord	Mays	L.	Motorola	US
100.	Tang, MD	Rosa	M	NASA	US

	<b>LAST NAME</b>	<b>FIRST NAME</b>	<b>MI</b>	<b>AFFILIATION</b>	<b>COUNTRY</b>
101.	Tattersall	John		DSTL	UK
102.	Tell	Richard	A.	Richard Tell Assoc. Inc.	US
103.	Tenforde	Thomas	S.	Battelle Pacific NW Lab.	US
104.	Thansandote	Art		Health Canada	CA
105.	Utteridge	Tammy		Inst. of Med. & Veterinary Science	AU
106.	van Rongen	Eric		Health Council of the Netherlands	NL
107.	Varanelli	Arthur	G.	Raytheon Company	US
108.	Wagenaar	Femme-Michelle		KPN Netherlands	NL
109.	Watkins	Robert	T.	Mass Dept of Public Health	US
110.	Wenger	Christian	B.	U.S.Army Res. Inst.of Environ. Med.	US
111.	Williams, Jr.	Louis	A.	Louis A. Williams Jr. & Associates	US
112.	Zipse	Donald	W.	Zipse Electrical Eng., Inc.	US
113.	Ziskin, MD	Marvin	C.	Temple Univ. Medical School	US

## Status of Active Projects

	<b>Project</b>	<b>Status of Project</b>
1.	<b>C95.1-1991 (1999 ed.)</b> – IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz	Revision of IEEE C95.1-1991. 5 <sup>th</sup> Working Group Discussion Draft preparation – Expect WG balloting draft 4 <sup>th</sup> Q 2002
2.	<b>C95.2 –1999</b> – IEEE Standard for Radio Frequency Energy and Current Flow Symbols	Revision of ANSI C95.2-1982. Approved – September 1999
3.	<b>C95.3-1991</b> – Recommended Practice for Measurements and Computations with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 100 kHz to 300 GHz	Revision of IEEE C95.1-1991 (with title change). In sponsor ballot (1 <sup>st</sup> recirculation) – Will be submitted to RevCom in time for consideration at December 2002 meeting.
4.	<b>C95.4</b> – Recommended Practice for Determining Safe Distances From Radio-frequency Transmitting Antennas When Using Electric Blasting Caps During Explosive Operations	New standard. In 3 <sup>rd</sup> recirculation – submitted to RevCom for consideration at September 2002 meeting.
5.	<b>C95.6</b> – Standard for Maximum Levels of Human Exposure to Electromagnetic Fields, 0 to 3 kHz	New Standard. Balloting complete – submitted to RevCom for consideration at September 2002 meeting.
6.	<b>1460</b> - IEEE Guide for the Measurement of Quasi-Static Magnetic and Electric Fields	Reaffirmation in progress
7.	<b>1466</b> - Recommended Practice for the Safe Use of Electromagnetic Energy Sources, Equipment and Systems Operating Between 3 kHz and 300 GHz	New Standard. 3 <sup>rd</sup> Working Group Discussion Draft in progress.

## Projects Under Consideration

	<b>Project</b>	<b>Status of Project</b>
	Guide for the Application of C95.6	Under Consideration
	Recommended Practice for Measurements and Computations with Respect to Human Exposure to Electric and Magnetic Fields – 0 to 100 kHz	Under Consideration

## ICES Balance Sheet

	<b>DATE</b>	<b>DESCRIPTION</b>	<b>DEBIT US\$</b>	<b>CREDIT US\$</b>	<b>BALANCE US\$</b>
1.	11/01/2000	Balance			11,154.78
2.	12/04/2000	San Antonio Receipts		2,865.00	14,019.78
3.	01/25/2001	San Antonio Expenses	1142.05		12,877.73
4.	06/15/2001	Minneapolis Receipts		3,840	16,717.73
5.	06/15/2001	Munich Expenses (LATE)	5482.64		11,235.09
6.	09/25/2001	Minneapolis Expenses	3719.63		7,515.46
7.	11/27/2001	Luxembourg Receipts		1760	9,275.46
8.	11/27/2001	Luxembourg Expenses	2020		7,255.46
9.	01/18/2002	San Antonio Receipts		3610	10,865.46
10.	01/20/2002	San Antonio Expenses	6372.17		4,493.29
11.	05/15/2002	San Antonio COMAR Receipts		313.98	4,807.27
12.	06/21/2002	EEA Donation to ICES		2785.14	7,592.41
13.	06/30/2002	Quebec Receipts		7540	15,132.41
14.	PENDING	Quebec Expenses	Have not been rec'd.		

Submitted 30 July, 2002 by A. Varanelli, Treasurer

## International Liaison Committee Report

### Goals of the International Liaison Committee

- Assure that ICES is represented at international meetings that impact EMF Standards
  - Participation by ICES officers and members
  - Special symposia/workshops organized by on for ICES
  - Platform presentations on ICES
  - Distribute ICES Brochures
- Personally solicit ICES participation from non-US scientists
- Inform ICES membership of upcoming meetings that impact EMF Standards
- Arrange presentations on International Standards issues at ICES Meetings
- Work with the Membership Committee to increase the number and breath of international participation in ICES

### Meetings During the Past Year:

- European Bioelectromagnetics (EBEA) Meeting, Helsinki, Sept. 01
- Excellent talk emphasizing ICES standards by Dr. David Black
- WHO EMF Regional Meeting, Seoul, South Korea, Oct. 01
- ICES represented by Dr. Patrick Mason (30 min talk)
- European Commission EMF Meeting, Luxembourg, Dec. 01
- ICES represented by Dr. Eleanor Adair
- WHO EMF Regional Meeting, Cape Town, South Africa, Dec 01
- ICES represented by Dr. Vitas Anderson (45 min talk)
- WHO EMF Project International Advisory Committee, Geneva, Jun 02
- ICES represented by Dr. Tom McManus
- U. S. Air Force Laboratory Workshop , Quebec City, Canada – Jun ‘02
  - “Setting a Science-Based Standard for Safe Human Exposure to RF Electromagnetic Fields: *A Tribute to Dr. Eleanor R. Adair*
  - Organized by the ICES International Liaison, this full day workshop featured 14 talks on the scientific foundation of the ICES standard C95.1

### Upcoming Meetings:

- WHO EMF & Human Health. Researches & Standards

- 3rd Int. Conference. Moscow & St. Petersburg, 23-27 Sept 2002
- Standards roundtable – C. K. Chou to represent ICES

- WHO Regional Meeting on EMF Health and Standards Harmonization
  - Guilin, China, April 2002 <http://www.who.int/peh-emf/>
  - International Standards Harmonization will be a main topic
  - Finalize a “Framework for Standards Harmonization”
  - Expect ICES representation by Dr. C. K. Chou
- WHO EMF Project International Advisory Committee, Geneva, Jun 02
  - ICES to be represented by Dr. Tom McManus
- BEMS – Maui, Hawaii - 22-26 June 2003
- WHO and U.S. Air Force Asia Pacific EMF Conference, Bangkok Thailand – 6-12 Nov ‘03
  - EMF Standards will be a main topic
  - ICES representation not yet identified
- European Bioelectromagnetics Association (EBEA), Budapest, Hungary – 13-15 Nov 2003
  - No specific plans for ICES representation as of yet

**International Contacts for RFR Standards Reinforced in the Last Year:**

- Dr. Sheila Johnson (UK)
- Dr. Phil Chadwick (UK)
- Dr. E. Van Rongen (Netherlands)
- Dr. Rene de Seze (France)
- Dr. Peter Gajsek (Slovenia)
- Dr. Leeka Kheifets (Switzerland) New Head of WHO EMF Program
- Dr. Art Thansandote (Canada)
- Dr. Gyorgy Thuroczy Hungary

**From Mason’s trip report to Korea WHO Meeting:**

This meeting attracted scientists and government officials from several Asian countries (e.g., Indonesia, Malaysia, Mongolia, Nepal, Vietnam) that have not sent participants to previous bioelectromagnetics meeting or standards harmonization meetings. One of the primary concerns of these countries is whether to adopt the ICNIRP or IEEE standards. Due to the relatively small size of these countries and limited number of scientists with expertise in the biological effects of exposure to electromagnetic fields, it is not feasible

for them to develop their own standards. However, they wanted to understand the science and/or political processes behind the existing international standards.

**International Standards Projects Organized by ICES International Liaison:**

1. Basic Materials for EMF Standards in Former Soviet Union
  - Chaired by Yuri Grigoriev, Russia (ICES Member)
2. Criteria for Standards in the Field of Radio Frequency Radiation in Some East European Countries
  - Chaired by Michel Israel, Bulgaria (ICES Member?)
3. Other Topics
  - The Revision of NATO STANAG 23451 is expected again to be based on the ICES standard C95.1

# **IEEE INTERNATIONAL COMMITTEE ON ELECTROMAGNETIC SAFETY (ICES)**

**(Standards Coordinating Committee 28 )**

## **COMMITTEE OPERATING PROCEDURES**

The *Committee Operating Procedures* outline the orderly transaction of business of the International Committee on Electromagnetic Safety (ICES), which shall act as sponsor for individual standards projects. Although these procedures are approved by the IEEE-SA Standards Board, several documents take precedence when necessary in the following order:

- New York State Corporation Not-for-Profit law
- IEEE Certificate of Incorporation
- IEEE Constitution
- IEEE Bylaws (Includes IEEE Standards Association Bylaws)
- IEEE Policy & Procedures Manual
- IEEE Board of Directors Resolutions
- IEEE-SA Standards Association Operations Manual
- IEEE-SA Board of Governors Resolutions
- IEEE-SA Standards Board Bylaws
- IEEE-SA Standards Board Operations Manual
- IEEE ICES Operating Procedures
- Robert's Rules of Order (Revised)

### **IEEE ICES Scope**

IEEE SCC28 was approved by the IEEE Standards Board December 1990; the title ICES was approved by the IEEE Standards Board June 2001. The scope of ICES is:

“Development of standards for the safe use of electromagnetic energy in the range of 0 Hz to 300 GHz relative to the potential hazards of exposure to man, volatile materials, and explosive devices to such energy. It is not intended to include infrared, visible, ultraviolet, or ionizing radiation. The committee will coordinate with other committees whose scopes are contiguous with ICES.”

### **1. Organization of the Main Committee**

The Main Committee shall consist of a Chair, Vice-Chair, Secretary and its members. It shall have a title, scope, and an interest classification system for its members.

When staff resources permit, ICES shall be supported by a staff liaison from the IEEE Standards Association.

## **2. Responsibilities of the Committee**

The Committee shall be responsible for the following:

- (1) Developing proposed IEEE Standards within the scope of the Committee
- (2) Voting on approval of proposed IEEE Standards within its scope
- (3) Maintaining the standards developed by the Committee in accordance with the *IEEE-SA Standards Board Operations Manual*
- (4) Responding to requests for interpretations of the standard(s) developed by the Committee
- (5) Acting on other matters requiring committee action as provided in these procedures
- (6) Cooperating with other appropriate standards developing organizations
- (7) Protecting against actions taken in the name of the committee without Committee authorization
- (8) Reporting annually to the IEEE-SA Standards Board
- (9) Communicating with the IEEE-SA Standards Board on specific ICES activities as needed

**2.1 Secretariat.** The secretariat shall consist of an Executive Secretary and others, as deemed necessary, who shall:

- (1) Maintain a roster of the Committee and a list of standards for which the Committee is responsible
- (2) Perform administrative work, including secretarial services; meeting notices and arrangements; preparation and distribution of meeting agendas, minutes, ballots, and draft standards; and maintenance of adequate records.

**2.2 Executive Committee (EXCOM).** The EXCOM shall consist of the Chair, Vice-Chair and Executive Secretary of the Committee, and the Membership Committee Chair, the International Liaison Committee Chair and the Treasurer who shall:

- (1) Direct the activities of ICES and its Subcommittees.
- (2) Review all applications for membership.
- (3) Interact with the IEEE on general matters such as fund raising, publication, education, and policy and procedure.
- (4) Aid the Chair in submitting proposed standards documents, after approval by the Committee, with supporting documentation, to the IEEE- SA Standards Board for review and approval as IEEE Standards documents.
- (5) Develop policies and activities to enhance the international harmonization of standards in the field of non-ionizing radiation, develop appropriate liaison and collaboration with other international and national organizations

and work towards improved broad international consensus on such standards.

- (6) Maintain and authorize for presentation and content public access web sites and private member only access web sites hosted on the IEEE computer.

The ICES Past Chair and IEEE-SA Standards Staff Liaison shall be ex-officio members of the EXCOM.

### **3. Officers**

There shall be a Chair, a Vice-Chair and an Executive Secretary, each appointed on an annual basis by the IEEE-SA Standards Board. The term of appointment of officers shall be one year, and this term can be renewed annually. The IEEE-SA Standards Board Chair has the authority to remove an officer. The Chair shall be a member of the IEEE-SA and shall organize the committee, oversee the committee's compliance with these procedures, and submit proposed documents approved by the committee, with supporting documentation, for appropriate review and approval by the IEEE-SA Standards Board. The Chair has the authority to appoint subcommittee chairs necessary

The Vice-Chair shall carry out the Chair's duties if the Chair is temporarily unable to do so and shall carry out other functions as designated by the Chair. The Vice-Chair shall be a member of IEEE-SA.

The Executive Secretary shall record and have published minutes of each meeting. The Executive Secretary shall be a member of IEEE-SA.

The other officers of EXCOM are appointed by the Chair as needed.

IEEE-SA Standards Staff Liaison may provide administrative work including the maintenance of adequate records including the committee roster.

### **4. Membership**

- (1) With the approval of the IEEE-SA Standards Board Chair, the ICES Chair, with the approval of the EXCOM, shall appoint members to the Committee.
- (2) Members may be terminated at the request of the Chair.
- (3) An interested Society of the IEEE may designate voting members to the Committee who will serve as the official representative of the Society upon approval of the Chair.
- (4) The IEEE-SA may designate official representatives of outside organizations to the Committee. A representative may have an alternate serve in his/her absence.
- (5) Members of the Committee are encouraged to be IEEE-SA members.
- (6) Members of the Committee shall have voting rights on Committee issues relevant to standards setting. Only IEEE-SA members have full voting rights for all Committee business. The Membership Committee and the Executive Committee shall process all applications for Committee membership.

**4.1 Application.** A request for membership, accompanied by CV or biography, shall be addressed to the Membership Committee Chair indicating the applicant's direct and material interest in the Committee's work and qualifications and willingness to participate actively. If the applicant is an organization, it shall identify a representative.

**4.2 Diverse Interests.** If distinct divisions of an organization can demonstrate independent interests and authority to make independent decisions in the area of the activity of the Committee, each may apply for organizational membership.

**4.3 Review of Membership.** The Executive Committee shall review the membership list annually. Members are expected to fulfill obligations of active participation. Where a member is found in habitual default of these obligations<sup>1</sup> the Executive Committee shall take appropriate action, which may include termination of membership.

**4.4 Observers and Individual Experts.** Individuals and organizations having an interest in the Committee's work may request listing as observers. Observers shall be advised of the Committee activities, may attend meetings, and may submit comments for consideration, but shall have no vote. The Committee may also select individual experts to assist it. Individual experts shall be subject to approval by vote of the Executive Committee and shall have all rights and privileges of Committee member.

**4.5 Interest Categories.** All appropriate interests that might be directly and materially affected by the standards activity of the Committee shall have the opportunity for fair and equitable participation without dominance by a single interest. Each member shall propose his/her own interest category as appropriate and in accordance with the Committee's established categories. The interest categories shall be established or revised by a vote of the Committee upon recommendation by the Executive Committee. It is recommended that the categories of producer, user, and general interest be used when determining balance. The Chair shall address any issues of balance on Balloting Groups.

The membership shall be sufficiently diverse to ensure reasonable balance without dominance by a single interest category. No classification may consist of 50% or more of the balloting group membership. Care shall be taken to ensure all interest categories are represented to the extent possible (see Clause 7).

**4.6 Membership Roster.** The secretariat shall maintain a current and accurate Committee roster and shall distribute it to the members and their Committee representatives at least annually and otherwise upon request. All changes to the roster shall be forwarded to the Chair immediately.

The roster shall include the following:

- (1) Title of the Committee and its designation
- (2) Scope of the Committee
- (3) Secretariat – name of organization, Executive Secretary and address

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<sup>1</sup> As defined by attendance at meetings, or participation through other communications, with no period of inactivity equal or greater than the period encompassing three consecutive meetings.

- (4) Officers – Chair, Vice-Chair, Executive Secretary, Membership Committee Chair, International Liaison Committee Chair, Treasurer and IEEE-SA Standards Staff Liaison
- (5) Members – For all individual members: name address, and business affiliation; for society or organizational members the name of organization/society, the designated representative and alternate (as applicable), address, and business affiliation.
- (6) Interest category of each member
- (7) Tally of interest categories total of voting members and subtotals for each interest category
- (8) For each subcommittee, the chair and names and addresses of all members

### **5. Subcommittees and Working Groups Created by the Main Committee**

When one or more subcommittees are formed to expedite the work of the committee, their formation (and later disbandment) requires recommendation by the Executive Committee, approval by a majority of the voting members of the Committee and approval of the IEEE-SA Standards Board. The formation and disbandment of other subgroups (working groups, technical subcommittees, editorial committees, writing groups, etc.) requires approval by the majority of the voting members of the Committee or subcommittee (as applicable). The chair of a subcommittee shall be appointed by the Committee Chair, with the approval of the EXCOM.

The subgroups shall follow rules, including those on balloting, as specified by the Committee. In matters not covered in these Operating Procedures, the subgroup is free to vote upon appropriate rules.

The membership on subcommittees and subcommittee working groups is voluntary and subject only to approval and acceptance of the subcommittee chair. Subcommittees should aim to achieve a broad and balanced distribution of members among disciplines and interest categories. Biological and medical sciences should be represented as well as engineering and physical sciences. It is desirable to have representatives from industry, government agencies, health agencies, research communities, the general public, and those residing outside the U.S.

The scope and duties delegated to the subcommittee shall be approved at the time it is formed and subsequent changes in scope or duties shall also require approval. The scope, duties and membership of all subcommittees shall be reviewed by the Executive Committee annually. The charge to the subcommittee shall clearly state which of the following complementary activities is appropriate:

- (1) The subcommittee is responsible for the definitive content of one or more standards and for responding to views and objections thereon. Such subcommittees shall maintain a membership roster and shall comply with the provisions for voting on the standard(s).
- (2) The subcommittee is responsible for assisting the Committee (for example, drafting all or a portion of a standard, drafting responses to comments, drafting positions on international standards, or other purely advisory functions).

**5.1 Approval of Standards.** Draft Standards and any substantive change in the content of a standard proposed by a subcommittee shall be referred to the Committee for approval. The Committee may form and delegate approval authority to a balloting group.

## **6. Meetings**

Committee meetings shall be held, as decided upon by the Committee, the Executive Committee, or by petition of ten or more members, to conduct business, such as making assignments, receiving reports of work, considering draft standards, resolving differences among subgroups, and considering views and objections from any source. A 30-day notice, including an agenda, shall be distributed to all members, observers and experts.

Meetings of subcommittees may be held as decided upon by the members or chair of the subcommittee. The Committee may charge a meeting fee to cover services (room, audio-visual, and refreshments) needed for the conduct of the meeting. The fee shall not be used to restrict participation by any interested party.

**6.1 Quorum.** There shall be a quorum for conducting business at a meeting. If a quorum is not present, actions may be taken subject to confirmations by letter ballot, as detailed in 7.2. (See latest edition of *Robert's Rules of Order*.) A quorum is considered to be a majority of the voting members of the Committee. If a quorum is not present at a meeting, the Chair may choose to conduct certain business of the meeting via e-mail, fax or letter ballot, as appropriate.

## **7. Voting**

The Committee acts as the balloting body for ICES standards. In order to vote on a document at the Sponsor level, each voting member shall be a member of IEEE-SA or an invited expert approved by the IEEE-SA Standards Board.

Each voting committee member shall vote one of the following positions:

- (1) Affirmative without comments
- (2) Affirmative with comments
- (3) Negative with reasons (the reasons for a negative vote shall be given and should include specific wording or actions that would resolve the objection)
- (4) Negative without comments
- (5) Abstain

### **7.1 Vote of Alternate**

An alternate's vote is only counted if the designated representative of an organization or society fails to vote.

### **7.2 Ballot of the Committee Membership**

The Committee shall be allowed to conduct Committee business between meetings at the discretion of the Chair by use of a ballot.

### **7.3 Actions Requiring Approval by a Majority of the Committee Membership**

The following actions require approval by a majority of the membership of the Committee (excluding observers) either at a meeting or by letter or electronic ballot:

- (1) Formation of a subcommittee, including its procedures, scope, and duties
- (2) Disbandment of subcommittees
- (3) Approval of minutes
- (4) Authorization of a mail ballot

#### **7.4 Actions Requiring Approval by Two-Thirds of Those Voting of the Committee Membership**

The following Actions require a letter ballot or an equivalent<sup>2</sup> formal recorded vote with approval by at least a majority of the membership and at least two-thirds of those voting, excluding abstentions:

- (1) Adoption of Committee procedures, interest categories, or revisions thereof
- (2) Position Statements for Standards
- (3) Approval of change of Committee scope
- (4) Approval of termination of the Committee

Final action on items (3) and (4) above requires approval by the IEEE-SA Standards Board.

#### **7.5 Actions Requiring Approval by Seventy-five Percent of the Voting members of a subcommittee and the Committee**

The following action requires receipt of a letter ballot from at least 75% of the voting members of a subcommittee and the Committee with approval by at least 75% of those voting affirmative or negative. All negative ballots shall be recorded and an attempt made for their resolution.

- (1) Approval of a new or revised standards project
- (2) Reaffirmation of an existing standard

### **8. Termination of Committee**

A proposal to terminate the Committee may be made by a directly and materially affected interest. The proposal shall be submitted in writing to the secretariat and to the IEEE-SA Standards Board and shall include at least the following:

- (1) Reasons why the Committee should be terminated
- (2) The name of the organization(s) that will assume responsibility for maintenance of any existing IEEE Standard(s) that are the responsibility of the Committee

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<sup>2</sup> "Equivalent" refers to some identifiable method of tallying the votes and addressing the comments.

## **9. Communications**

All Committee officers should use their Committee letterhead, or e-mail notification, when corresponding on behalf of Committee activities. Official electronic communications by public access web sites and private member only access web sites hosted on the IEEE computer system shall be under the exclusive control of the EXCOM for authorization, presentation and content.

### **9.1 Formal Internal Communication.**

If correspondence between subcommittees or between working groups of different subcommittees involves issues or decisions (that is, non-routine matters) affecting other subcommittees, copies shall be sent to all affected subcommittee chair's, the secretariat, and the Committee officers.

### **9.2 External Communication.**

Inquiries relating to the Committee should be directed to the Chair, and members should so inform individuals who raise such questions. All replies to inquiries shall be made through the Chair.

### **9.3 Requests for Interpretation of Standards.**

The Vice-Chair of ICES shall serve as the Committee designee for receipt of requests for interpretation submitted to the IEEE-SA Standards Board Secretary. Copies of each request shall be distributed to the members of the ICES Executive Committee by the Vice Chair, together with a form to indicate the adjudged nature of the request (explanation only, bona fide interpretation, other). Requests judged to be for explanation only shall be directed to an appropriate member of the Committee or its subcommittees for a response to the requester in the name of ICES.

Categories of requests, such as for modification of an existing standards document, consultation, etc., shall be listed as agenda items for the next meeting of the ICES Executive Committee. The discussion of such agenda items and the preparation of a response shall be the responsibility of the ICES Vice-Chair with the concurrence of the full Executive Committee.

Written inquiries judged to be bona fide interpretations shall be forwarded to the chair of the appropriate interpretations working group for processing.

Each subcommittee of ICES that develops an IEEE standard shall create an Interpretations Working Group following publication of the standard. Each Interpretations Working Group shall consist of a Chair and approximately 10 (5-10) subcommittee volunteers whose areas of expertise or affiliation are representative of the subcommittee. Membership on the Interpretations Working Group shall be for a term of 5 years, renewable once at the request of the member.

The working group chair shall be the designee for receipt of requests for interpretation forwarded by the Committee Vice-Chair. Upon receipt of such a request, this designee shall select a working group member (or members) to be responsible for the preparation of a draft response. Upon completion, the draft shall be circulated to the full Interpretations Working Group by the chair with comments and/or revisions to be returned in a timely fashion. The resolution of comments and/or suggested revisions shall be by the drafters of the response in

consultation with the chair of the Interpretations Working Group, and a final draft for ballot prepared. The final draft response shall be approved by the full working group in accordance with the standard IEEE-SA consensus process, which shall include attempts to reconcile negative ballots.

Following approval, the Chair of the Interpretations Working Group shall forward the response to the individual who made the original request for interpretation. Copies of the response, together with the roster of the Interpretations Working Group, shall be sent to the Secretary of the IEEE-SA Standards Board, the IEEE Standards Staff Liaison and the Committee Vice-Chair.

Revisions to the standard resulting from requests for interpretations shall be processed in accordance with the procedures of the IEEE-SA Standards Board and of ICES.

## **10. Appeals**

The Committee recognizes the right of appeal. Technical appeals are referred back to the Committee or appropriate subcommittee. Every effort should be made to ensure that impartial handling of complaints regarding any action or inaction of the Committee is performed in an identifiable manner. Technical appeals will be heard and decided by the appropriate subcommittee or the Committee. Procedural appeals will be referred to the IEEE Standards Board. See Clause 5.8 of the *IEEE Standards Operations Manual* for further details.

## **11.0 Position Statements for Standards**

All communications shall comply with subclause 5.1.4 of the IEEE-SA Standards Board Operations Manual. These procedures apply to communications with government and intergovernment bodies.

### **11.1 Committee Position Statements**

Committee position statements shall not be released without prior approval by the Committee which requires two-thirds vote per Clause 7.4 of these procedures.

### **11.2 Subgroup Position Statements**

Subgroup position statements shall not be released without prior approval by 75% vote of the subgroup. Such position statements may proceed unless blocked by a Committee vote at a Committee meeting. For position statements not presented for review at a Committee meeting, members shall be provided a review period of at least five (5) days. If, during that time, a motion to block the position statement is made, release of the position statement will be withheld [pending failure of the blocking motion].

Subgroup position statements shall be identified in the first paragraph of the position statement as being specifically the position of the subgroup. These statements shall be issued by the subgroup chair and shall include the Committee Chairman in the distribution. Such statements shall bear neither the IEEE nor the IEEE Sponsor logos.

### **11.3 Informal Communications**

Informal communications shall not imply that they are a formal position of the Committee, subcommittee, nor the working group.

### **11.4 Position Statements to be Issued by Other Entities**

If the Committee wishes to go to another IEEE entity (as defined in Clause 15 of the IEEE Policy and Procedures) to have that entity offer a position statement on a standards matter, they shall do so after agreement from the IEEE-SA Standards Board and after informing the IEEE-SA Board of Governors. Upon Committee approval, proposed position statements that need to be issued by other IEEE entities shall be forwarded to the IEEE-SA Standards Board Secretary for further action.

## **12. Standards Publicity**

The Committee is encouraged to prepare press releases and other forms of publicity to promote their activities. See subclause 5.1.5 of the *IEEE-SA Standards Board Operations Manual* for further instructions.