

**IEEE Standards Coordinating Committee 14**  
**Quantities, Units, and Letter Symbols**  
**Annual Report for 2012**

## **1. Scope**

SCC14 studies questions regarding quantities, units, and systems of measurement, with particular emphasis on the International System of Units (SI), and it prepares recommendations and standards on those matters. It is responsible for providing current information on quantities and units to all organizations preparing IEEE standards, and for assisting all IEEE organizational units, as requested, in implementing IEEE Policy 9.16, Metric Policy.

It is also responsible for the development of standards in the areas of metric practice and letter symbols, for ensuring consistency in these areas in standards that are issued by IEEE, and for providing current information on letter symbols and metric practice to all organizations preparing IEEE standards.

SCC14 works with the committees responsible for generating IEEE standards to help them meet the requirements of the Standards Board Implementation Plan for IEEE Policy 9.16. As part of the coordination process, it reviews requests for individual exceptions and reports its recommendations to the Standards Board.

## **2. Membership**

The membership roster for SCC14 is attached.

Standards are prepared and maintained in the following six sub-committees, which are responsible for standards as indicated:

- 14.1 Metric Practice (Std 945; IEEE/ASTM SI 10)
- 14.2 Definitions (Std 270)
- 14.3 Unit Symbols (Std 260.1, Std 1541)
- 14.4 Quantity Symbols, electrical science and engineering (Std 280)
- 14.5 Quantity Symbols, acoustics (Std 260.4)
- 14.6 Mathematical Symbols (Std 260.3)

There are also three subcommittees that focus on coordination with other organizations:

14-Int Coordinates with IEC and ISO on matters of mutual interest; supports the U.S. Technical Advisory Committee for IEC TC 25 and the U.S. Advisory Group to ISO/TC 12

14-Rev Reviews proposed IEEE standards and submits comments as part of the mandatory SCC14 coordination before they are submitted to RevCom

14-Leg Follows proposed legislative and regulatory actions that affect metrication, both nationally and internationally

## **3. Activity Report**

### ***Objectives and Goals for 2011/12***

SCC14.2: Initiate process to reaffirm IEEE Std 270-2006. *Performance: Dr. Gordon Aubrecht is about to submit this package to RevCom. It has been balloted and recirculated.*

SCC14.6: Initiate process to reaffirm IEEE Std 260.3. *Performance: Dr. Gordon Aubrecht submitted this to RevCom for approval.*

SCC14-Rev: Reestablish routine and full SCC14 coordination activity by the end of 2010. *Performance: Dr. Bruce Barrow is working toward resumption of these duties.*

SCC14-Int: Develop proposed “Modified” versions of ISO 80000-3 and 80000-4 for adoption as IEEE standards. *Performance: The structure of this was changed via a revised PAR. There will be only one standard, IEEE Std 80000 which will cover the same areas as the entire ISO/IEC 80000 series (currently 14 parts). We are also keeping an eye on the ISO/IEC 80003 series, “Physiological quantities and their units”, as a candidate for future adoption (with adaptation) by IEEE.*

### **Objectives and Goals for 2012/13**

Track IEEE Std 260.3 and IEEE Std 270 reaffirmations through the RevCom approval process.

SCC14-Rev: Reestablish routine and full SCC14 coordination activity by the end of 2010. *Performance: SCC14 has been unable to muster from in its ranks sufficiently qualified volunteers to participate in this review. More than a passing familiarity with the SI and with IEEE/ASTM SI 10 are needed. A teleconference on 2012 June 26 brought together James R. Frysinger and Bruce B. Barrow of SCC14 and with Michael Kipness , David Ringle, and Patricia Gerdon of IEEE-SA staff to discuss this issue as well as two other issues. On this matter it was decided that Michael Kipness would draft a letter in consultation with J.R. Frysinger and B.B. Barrow to solicit volunteers from the IEEE-SA community to join SCC14 in order to assist with this project.*

Finish the IEEE/ASTM SI 10 tutorial. *Performance: This was one of the three action items coming out of the above-mentioned teleconference of 2012 June 26. The goal is to resurrect the production of a tutorial to be made freely available on the IEEE website. The work was funded by an IEEE grant. J.R. Frysinger produced the main body of textual material and IEEE staff was converting that to web-ready format. A small portion of input material was to be submitted but IEEE directed J.R. Frysinger to hold off on that until the web-formatting team caught up. The project seemed to go into hibernation. As a result of that teleconference, on that day J.R. Frysinger produced a zip-compacted package of all submitted materials to P. Gerdon, who will take the follow-up for action. J.R. Frysinger will continue to support the project by proofreading, emending, and commenting on the web-formatted materials and will produce the small remaining material (e.g., self-test quizzes) at the appropriate time.*

Pushing of IEEE/ASTM SI 10 to standards developers and standards revisers. *Performance: This also was one of the three issues discussed in the teleconference, At the present time, IEEE-SA working group chairs are told that SI 10 is available to them in PDF format at no cost if they feel they need it. This offer is subtle (not visible on any IEEE-SA web page or in any IEEE-SA document that can be found) and thus usually overlooked. The IEEE-SA Standards Style Manual (13.3) requires adherence to SI 10 but does not indicate copies can be had other than by purchase. Hence, working group (WG) authors probably rely on what they learned in college about the metric system along with any changes that they might have noticed along the way. In the above-mentioned teleconference, P. Gerdon, D. Ringle, and M. Kipness agreed to work with IEEE-SA management towards making it clear that SI 10 is available to WG chairs at no cost in PDF format. Optimally, they will see if a PDF copy of SI 10 can be pushed (provided without a request) to the WG as part of the approval process of a PAR.*

NOTE: The above three objectives and goals are all part and parcel of the work needed to help standards developers comply with Standards Association implementation of the IEEE Metric Policy. For the sake of adherence and as quality control on the products produced under that policy a multi-pronged approach is more likely to succeed than a single-pronged effort. SCC14 Coordination reviews of standards is a very tedious, labor-intensive, and time-consuming task – especially when the standard under review is sadly lacking in compliance. Hopefully these three goals working in parallel will improve the quality of standards produced within the IEEE-SA.

SCC14-Int: Develop proposed “Modified” versions of ISO/IEC 80000 series for adoption as an IEEE standard. *Performance: The new PAR has been approved, moving this project from one of producing 14 related standards to producing one combined standard. Work has been done on the main body text. Some of the tables are available in rough draft. This is to be submitted for approval by the end of 2013.*

### ***IEEE Staff Support Requirements***

Michael Kipness provides administrative support to ensure that SCC14 standards development work conforms with approved IEEE standards practice, and serves as staff liaison between the Standards Board and SCC14.

Don Messina is principal liaison concerning standards publication.

Sue Vogel provides staff liaison with ASTM as required by the joint sponsorship of IEEE/ASTM SI 10.

### ***Summary of Other Activities***

SCC14 continues to maintain its close liaison with its counterparts in ISO and IEC. The US Technical Advisor for TC 25 and representative on ISO TC 12 (Dr. Ambler Thompson, NIST), and the US Technical Advisor for IEC/TC 1 (Prof. Ralph Showers) are members of SCC14. Dr. Thompson is also a member of the Consultative Committee on Units of the General Conference of Weights and Measures.

Mr. James R. Frysinger has been appointed as Deputy Technical Advisor for the U.S. Technical Advisory Groups to ISO/TC 12 and to IEC/TC 25, and as "Expert" for the U.S. to all working groups (WGs) within the latter. He has also been appointed as an "Expert" for the U.S. on IEC/TC 1 WG 100. He attended joint working group meetings of ISO/TC 12 and IEC/TC 25 and a working group meeting of IEC/TC 1 (on the International Electrotechnical Vocabulary) in St. Maurice CH in April of 2012. He might be attending the 76<sup>th</sup> General Assembly of IEC in Milano IT in October; that decision is under review.

James R. Frysinger, Chair of SCC14, maintains two websites for the committee -- (<http://grouper.ieee.org/groups/si10/index.html>, and <http://grouper.ieee.org/groups/260/1/>) with a portion of each that is open to the public. The former site includes the ASTM members of the IEEE/ASTM Committee for Maintaining SI 10.

### ***Issues before SCC14***

SCC14 continues to seek sales data of the standards it is responsible for, including SI 10. The timing of this sales data would be most convenient for us if reported by calendar year, by standard, and by format. Receipt of this report by the end of February each year would be useful to this committee for review and deliberations in its annual meeting shortly afterwards. To date, sales of IEEE/ASTM SI 10 have been disappointing, numbering less than 10 per year at last report, even after a new edition was published. This indicates that virtually no IEEE-SA working group is using it, despite the IEEE-SA Standards Style Manual requirement (Section 13.3).

For a while it seemed possible for the free distribution of SI 10 in PDF format to be possible if funded, with SCC14 tasked to find the funding. But the figure that was quoted was enormous and not commensurate with existing sales. Even if all sales subsequently fell to zero, IEEE-SA would lose less than a tenth of the necessary funding that was quoted. Thus, SCC14 declined the offer.

## **4. Budget and expenses**

IEEE/SCC14 has no budget, no funds, nor expenses not covered by out-of-pocket funds from its volunteer members. Those expenses relate to travel, meals, internet services needed for participation, and similar personal expenses. NIST has, in the past, kindly funded use of mass-telephonic means (*e.g.*, Adobe's Connect) of holding remote meetings with participants who have not physically attended meetings. NIST and IEEE-USA have provided meeting space in the past, when physical meetings were the norm.

## **5. Meeting Schedule**

The committee meets annually. In the past, this has largely been a physical meeting in the Washington, DC area, but telephonic participation has grown recently. In light of that and for the convenience of the members it met last on 2012 March 15 primarily by telephonic means, with the key station at NIST Headquarters in Gaithersburg MD and funded by them. The next meeting is tentatively scheduled for mid-March of 2013. This will also likely be a teleconference or perhaps a video conference or web conference. Between meetings the committee and its subcommittees work by means of electronic and telephonic correspondence.

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2012 August 10

## Roster for IEEE/SCC14

SCC 14 includes several subcommittees. Those are:

<b>Designation</b>	<b>Name</b>	<b>Duties</b>
SCC 14.1	Maintenance of SI 10	Represent IEEE on the Joint IEEE/ASTM Committee for Maintaining SI 10
SCC 14.2	Definitions	Std 270
SCC 14.3	Unit Symbols	Std 260.1, Std 1541
SCC 14.4	Quantity Symbols	Std 280
SCC 14.5	Acoustics	Std 260.4
SCC 14.6	Mathematical Symbols	Std 260.3
SCC 14.7	International System of Quantities	P80000
SCC 14-Int	International	Sit on US TAG to ISO TC12/IEC TC25
SCC 14-Rev	Review	Cast Coordination ballots on new and revised standards
SCC 14-Leg	Legislative	Monitor and report on legislative matters of interest

### SCC 14 members, with subcommittee memberships, are:

*Roster of SCC 14 members*

<b>William W. Aird, P.E., CEM</b>	Classification: <b>User</b> SA Member: <b>Y</b>
<b>Gordon J. Aubrecht</b> Ohio State University, Physics Department	Classification: <b>Academic</b> <b>SA Member: Y</b> <b>14.7; 14-Int</b>
<b>Bruce B. Barrow</b> Retired	Classification: <b>General Interest</b> <b>SA Member: Y</b> <b>Chair 14.1; 14.7; 14-Int; Chair 14-Rev</b>
<b>William Brenner</b> NIBS	Classification: <b>User</b> <b>SA Member: N</b>
<b>Dennis Brownridge</b> The Orme School	Classification: <b>Academic</b> <b>SA Member: N</b>

<p><b>Albert Censullo</b>  ACS Nomenclature, Terminology and  Symbols Committee  Prof. Emeritus, Dept.of Chemistry and  Biochemistry  California Polytechnical State University</p>	<p>Classification: <b>Academic</b>  <b>SA Member: N</b></p>
<p><b>Stanley L. Ehrlich</b>  Stan Ehrlich Associates</p>	<p>Classification: <b>User</b>  <b>SA Member: Y</b>  <b>Chair 14.5</b></p>
<p><b>James R. Frysinger, LCAMS</b>  LCDR, USN-Ret.  College of Charleston,  Dept. of Physics-Ret.  Metric Methods<sup>SM</sup></p>	<p>Classification: <b>Academic</b>  <b>SA Member: Y</b>  <b>14.1; Chair 14.3; 14.7; 14-Int; 14-Rev</b></p>
<p><b>Elizabeth Gentry</b>  Metric Coordinator,  Laws and Metric Group  Weights and Measures Division, NIST</p>	<p>Classification: <b>Government</b>  <b>SA Member: N</b></p>
<p><b>Louis A. Herstein</b></p>	<p>Classification: <b>User</b>  <b>SA Member: N</b></p>
<p><b>Donald W. Hillger</b>  CIRA</p>	<p>Classification: <b>Government</b>  <b>SA Member: N</b></p>
<p><b>Stan I. Jakuba</b>  SIJ Associates</p>	<p>Classification: <b>User User</b>  <b>SA Member: N</b></p>
<p><b>B. P. Leonard</b>  Dept. of Mechanical Engineering</p>	<p>Classification: <b>Academic</b>  <b>SA Member: N</b></p>
<p><b>Jack M. Loudon</b></p>	<p>Classification: <b>General Interest</b>  <b>SA Member: Y</b></p>
<p><b>David Martinsen</b>  Senior Scientist  American Chemical Society</p>	<p>Classification: <b>User</b>  <b>SA Member:</b></p>

<b>Arthur O. McCoubrey</b>	Classification: <b>General Interest</b> <b>SA Member: Y</b>
<b>Edward F. Mikowski, Jr.</b> Vice President, Technology Strategy and Standard Electronic Industries Alliance	Classification: <b>User</b> <b>SA Member: N</b>
<b>Daleep Mohla</b> DCM Electrical Consulting Services, Inc	Classification: <b>General Interest</b> <b>SA Member: Y</b>
<b>John Nichols</b> Asst. Prof., Dept. of Construction Sciences Texas A&M University	Classification: <b>Academic</b> <b>SA Member: N</b>
<b>Allan D. Pierce</b> ASA	Classification: <b>Academic</b> <b>SA Member: N</b>
<b>Bill Potts, FBCS, CMS</b> WFP Consulting	Classification: <b>User</b> <b>SA Member: N</b> <b>14.1</b>
<b>Howard Ressel, P.E.</b> NY State Dept. of Transportation, Region 4	Classification: <b>General Interest</b> <b>SA Member: N</b> <b>14.1; 14-Int</b>
<b>Anne-Marie Sahazizian</b> Hydro One Inc	Classification: <b>General Interest</b> <b>SA Member: Y</b> <b>14.7</b>
<b>John T. Scott</b> Retired	Classification: <b>General Interest</b> <b>SA Member: N</b> <b>14.1; 14.7; 14-Int; 14-Rev</b>
<b>Ralph M. Showers</b> Dept. of Electrical Engineering University of Pennsylvania	Classification: <b>User</b> <b>SA Member: Y</b> <b>14-Int</b>
<b>Barry N. Taylor</b> NIST	Classification: <b>Government</b> <b>SA Member: Y</b> <b>14.7; 14-Int</b>

<p><b>Ambler Thompson</b> NIST Div. 215</p>	<p>Classification: <b>Government</b> SA Member: <b>Y</b> <b>14.1; Chair 14.4; Chair 14.7; Chair 14-Int</b></p>
<p><b>Paul Trusten, R.Ph.</b> Vice President and Public Relations Director U.S. Metric Association, Inc.</p>	<p>Classification: <b>User</b> SA Member: <b>N</b> <b>14.1</b></p>
<p><b>Sue Vogel</b> Manager, IEEE-SA Committee Services; National Electrical Safety Code</p>	<p>Classification: <b>SA Member:</b></p>
<p><b>Lorelle Young</b> President, USMA</p>	<p>Classification: <b>General Interest</b> SA Member: <b>Y</b> <b>Chair 14-Leg</b></p>
<p><b>Matthew Zotter</b></p>	<p>Classification: <b>SA Member: N</b></p>
<p><b>Allen J. Zuckerwar</b> NASA Langley Research Center</p>	<p>Classification: <b>Government</b> SA Member: <b>Y</b></p>