

IEEE Standards Coordinating Committee 14
Quantities, Units, and Letter Symbols
Annual Report for 2015

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 2014/15

No standards under the auspices of this committee are due for revision due to the recently extended standards cycle. Dr. Bruce Barrow is planning to revise IEEE Std 945. Mr. James Frysinger is considering submission of a PAR for the revision of IEEE Std 1541. *This matter is still under consideration.*

Objectives and Goals for 2015/16

Select an IEEE-SA member to serve as Chair of SCC14. Reports from SASB indicate that they are working on this. Nobody who is currently a member of SCC14 would agree to serve in that position.

Dr. Bruce Barrow is chair of the 945 Working Group. He is working on a revision and we have recruited a couple of people from the Acoustical Society of America to work with him on it.

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 prepared and submitted a Policies and Procedures (P&P) document to SASB for approval, which was obtained. This turned out to be a very difficult task due to the requirement to use a template that was heavily encumbered by security controls and other macros. Lisa Weisser was of immense help in helping us bull our way through the roadblocks those set up. Another difficulty is that the P&P document is poorly designed for a committee like SCC14, which has a very small roster. Not one SCC14 member could see any useful purpose in this document from the committee's standpoint and that consensus was stated loud and long at the annual meeting this past April. An attempt was started toward preparation of a P&P document for SCC14.1, which would serves as a model for the other working groups within SCC14 once approved.

SCC14 continues to maintain its close liaison with its counterparts in ISO and IEC via the Vice Chair. The US Technical Advisor for TC 25 and representative on ISO TC 12 (Dr. Ambler Thompson, NIST) is currently serving as Vice Chair 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 was 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 was also appointed as TA

for the U.S. Technical Advisory Group to IEC/TC 1 and as an “Expert” for the U.S. on IEC/TC 1 WG 100. Additionally, he was listed as “expert” on the ISO/IEC Joint Working Group for the updating of the ISO/IEC 80000 series. His service in those capacities ended on 2015 March 31.

James R. Frysinger, past-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.

ASTM and IEEE/SCC14 are currently working on the next revision of IEEE/ASTM SI 10, American National Standard for Metric Practice, which is due in 2015. SCC14 has put forth its team of participants, who are working with a matching team from ASTM. The chair and vice chair will be ASTM members and the Secretary will be an IEEE member. On 2015 August 31, a draft was put before ASTM E43 and E43 10 and before IEEE SCC14 for balloting and comments. If there are no major problems arising from that, the processes to ballot that draft before ASTM and IEEE-SA will then begin.

Issues before SCC14

SCC14 needs a Chair. The previous Chair, James R. Frysinger, resigned that position effective at the end of the 2015 Annual meeting (2015 April 30). He continues as Chair of SCC14.1 (SI 10 Working Group) and as webmaster, in addition to being a voting member of SCC14..

The recent change to 10 year standard cycles has greatly reduced the workload for this year and the next few for SCC14. In the next few years consideration will be given to revising standards early to spread out their due dates.

An effort to rebuild a team for coordination votes on IEEE standards continues.

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 met last on 2015 April 30 primarily by telephonic and web-meeting means, with the key station at NIST Headquarters in Gaithersburg MD and funded by them. The next meeting is tentatively scheduled for late April of 2016. 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.

6. Attachments

The minutes from the last meeting and the SCC14 roster are attached.

James R. Frysinger, past-Chair

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

2015 September 01

IEEE Standards Coordinating Committee 14
(Quantities, Units, and Letter Symbols)
Agenda
2014-04-30 3:30-04:00
(30.04.2015 at 1:30 zPM EDT)
By video-teleconference

Gordon Aubrecht, Bruce Barrow, Angelo Campanella, Jim Frysinger, Elizabeth Gentry, Michael Heinsdorf, Richard Peppin, Howard Ressel, John Terry Scott, Ambler Thompson

1. Roll call, quorum check, and adoption of agenda

We met the quorum requirement. Agenda adopted.

2. Secretary's minutes of last meeting

3. Approval of minutes of meeting of 2014 April 29

Terry Scott, SCC14-Rev: Somewhere Scott said that the reviewers had no idea of ... reviewers
→IEEE copy editors

Anders Thor (fix the typo "Tor")

4. Chairman's report

IEEE training presentation on patents (annual requirement)

Ppt read. We have thoroughly studied this package.

Annual report on 2014 August 14 (copy provided); next due 2015 September

Submitted last August 2014.

Financial Report submitted; next due 2016 March 31

Submitted March 2015.

Chair reappointed 2015 January 08

Acknowledged the reappointment for a limited time. Frysinger has resigned.

SCC14 Policies and Procedures document (copy provided) submitted and approved on 2015

March 26. It will expire on 2020 December 31.

Summary Status of standards – These will be discussed as needed in the subcommittee reports.

See the provided spreadsheet (SASB-SCC14, 2013) for details.

– IEEE expiration dates

2018: 260.3, 260.4, 270, 280, 945, 1541

2020: 260.1, SI 10

– ANSI expiration dates in 2013
260.4, 945, 1541

5. Reports of subcommittees

SCC14.1 – Frysinger — Revision due 2020 by IEEE rules; PAR submitted; WG P&P drafted

Revision due SI-10 by 2020. ASTM is 2017. PAR was submitted and approved. By the end of June, we should hear if the PAR is approved. We are required to have a Policies and Procedures (P&P) document, so Frysinger has drafted one.

SCC14.2 – IEEE Std 270-2006): Aubrecht — reaffirmed 2012 December 05, expires 2022
Nothing new to report.

SCC14.3 – IEEE Std 260.1-2004: Frysinger — expires 2020; ANSI expiration in 2015
– IEEE Std 1541: Frysinger — expires 2018; ANSI expiration in 2013

Frysinger will submit PARs and begin work within the coming year.

SCC14.4 – Quantity symbols (Std 280-1985): Barrow — PAR extended through 2013; tied to P80000; std expires 2018. Now that P80000 has been withdrawn, what shall we do?
–IEEE Recommended Practice for Preferred Metric Units for Use in Electrical and Electronics Science and Technology (Std 945): Barrow — Revision in progress.
Barrow has asked for a few minutes here for a presentation.

We put in a PAR to develop an IEEE 80000, the PAR for 280 had its deadline extended (2018 is current expiration). Another part of IEEE signed an agreement prevented us from doing what we intended, so we withdrew the PAR. We have several years. Barrow missed this part of the discussion, and added in the end.

We talked about reaffirmation. All members will receive copies. We need to ID members to IEEE. We have a working group for 945, but does not have one for 280. We need volunteers. Bruce will notify us by email as to the membership. Campanella volunteered for 280. Barrow asked about the status of the 80000, but we don't have them available. Barrow agreed to move on both of these. We need a PAR to work; Barrow thinks we have a 945 PAR (Frysinger checked, we do), but not a 280 PAR. Frysinger and Ressel will be working with Barrow. There will be a revision of 945. There is controversy. Barrow asked: How does one settle if there are negative issues that cannot be resolved? Thompson thinks there is a 2/3 vote required. The weight-mass controversy erupts again!

SCC14.5 – Acoustics (Std 260.4-1996, reaff. 2008): New Chair needed — expires 2018; ANSI expiration in 2013

To be discussed under new business.

SCC14.6 – IEEE Std 260.3-1993): Aubrecht — reaffirmed 2012 August 30, expires 2022

Nothing new to report.

SCC14.7 – International System of Quantities: Thompson. This subcommittee should be withdrawn, according to Thompson. Moved and seconded. SCC14 has approved disbandment of SCC14.7 unanimously.

SCC14-Int – International report: Thompson
BIPM/CCU

- Redefinition of SI appears to be a go, final adjustments underway, 2018 CGPM. There are three different realizations of the Planck constant within the specified uncertainties. In June 2016, progress will be
- IPK comparison with BIPM working standard showed 35.0×10^{-9} error, in favor of US Took from the “safe” and found disagreement of 35 parts per billion twice the size of the uncertainty (wanted 20 parts per billion for the kilogram).
- New SI Logo

This new logo was described.



- SI Brochure 2014 minor Supplement to 8th edition (2006)

This was a short supplement. There will be nothing further until the 9th edition is approved.

- CCU Working Group on Angles and Dimensionless Quantities in the SI (radian, steradian, s-1)
ISO TC12/IEC TC25

Physicists started a working group to restore the radian and steradian to the SI. Metrologia has a paper from the working group, which Thompson asked us to read; he will send us an email with the link.

- Revision of ISO/IEC 80000 Series

All are currently under revision. On 26 June there will be an ISO TC12 meeting at NIST. Most changes seem to be small.

- ISO TC12 Plenary meeting and TC12/WG19 on 80000 series at NIST June 24-26, 2015

On 26 June there will be an ISO TC12 meeting at NIST. Most changes seem to be small and editorial. The effort is mainly to increase consistency and harmonization in the 13 parts of the standards. There were some errors in acoustics, which are being corrected.

- James Frysinger resigned as DTA for US ISO TC 12 and TC 25, 3/31/2015

SCC14-Rev – Review: Barrow

Volunteers needed!!! Otherwise, he won't be able to proceed. Scott was disgusted with the process, because the people involved at IEEE have no knowledge of SI-10 and because of bureaucratic pettiness instead of the tutorials we used to write. Scott reminded us we should write a document for the IEEE copy editors explaining SI-10. We are not making much progress, which is frustrating. Barrow hasn't made it to Piscataway as was a possibility. Thompson volunteered the WERB from NIST as an example. Thompson will distribute this sheet.

The problem is that SI-10 is not like the other IEEE standards. The standards review board is part of the problem. Ressel was still interested in helping.

Frysinger wondered if we could put something like that in SI-10.

SCC14-Leg – Legislative

Elizabeth Gentry Highlights

Publications:

- SI Superheroes Trading Cards (new)

The project aligns with a Public Affairs office YouTube video. Now there are 8 cards in the pack plus an introductory card plus a nemesis, Major Uncertainty. They would like to develop activities for middle school.

- SP 1181, Unit Pricing Guide - A Best Practice Approach to Unit Pricing (new)
-

The labels should help consumers make decisions, and this helps make a user-friendly label. Also, the guide shows the best practices. NIST will be doing testing.

Walmart, Pier 1 and others are interested.

- SP 365, Metric Conversion Card (updated)

Last updated in 1991. Two digits beyond the decimal place, made more calculator-friendly. SP811 is now exclusively online.

NCWM Animal Bedding Method of Sale Proposal

OWM has been working with leading U.S. compressed animal bedding manufacturers to amend the NIST HB 130 Method of Sale Regulation to require these products to be sold only by the expanded volume, which is the amount of bedding that the customer can expect to recover after the package is opened and the product is loosened and spread in a cage or stall. Animal bedding products are not subject to FPLA.

Under the proposal, packers may choose to exclusively label packages with only metric units, such as the milliliter, liter or cubic meter. It allows packers to include U.S. Customary units on an optional basis. This method of sale could be used as model to further encourage voluntary metric labeling on products not regulated under the FPLA. The proposal specifies that if retailers provide Unit Pricing, it must be presented in terms of price per liter (<http://www.ncwm.net/resources/dyn/files/1452597z58d3aec1/fn/3-LR-Master.pdf>). This is because the industry thinks Americans are familiar with that unit.

This proposal was developed in collaboration with some packers who would prefer to see one system of measurement used in unit pricing. This proposal might serve as a model for the future if it is adopted by the National Conference on Weights and Measures (NCWM). At this time, the proposal has been endorsed by the NCWM Laws and Regulations Committee and the full NCWM will consider for adoption at the upcoming Annual Meeting, Philadelphia, PA in July 2105.

Proposed State Metrication Legislation (Oregon, Hawaii)

- Oregon SB 166 – Introduced during the 2015 regular session and is described to establish the International System of Units (SI) as state's official system of measurement (<https://olis.leg.state.or.us/liz/2015R1/Measures/Overview/SB166>).
- Hawaii HB 36 – Originally introduced in January 2013 and is described as a law to make the metric system the official system of measurement in the State by 01/01/18 (http://www.capitol.hawaii.gov/measure_indiv.aspx?billtype=HB&billnumber=36).

— USMA report: Young

6. Other old business

Roster has been updated with tremendous help from Howard Ressel. Members now classified as “Voting” or “Voice only” to comply with new P&P document. Mail list has been updated to match roster.

7. New business

Fryinger: Working Group Policy and Procedures documents need to be prepared and submitted for approval.

— "... IEEE-SA Standards Board maintains a baseline WG P & P, and may occasionally request to review a Sponsor's WG P & P for alignment." Unanimous

Frysinger: Vote on approval of WG SCC14.1 Policies and Procedures Unanimous

Frysinger: New chair for 14.5, start work on Std 260.4

Peppin approved unanimously as chair.

Frysinger: Who will be the next Chair of SCC14?

— Must be a member of IEEE and also a member of IEEE-SA.

IEEE-SA must approve and actually appoints the Chair.

There were no volunteers, so Thompson as vice chair takes over until the last meeting. Frysinger will help him.

— Our operations are guided by the IEEE-SA Standards Board Operations Manual is available at:

<http://standards.ieee.org/develop/policies/opman/index.html> (HTML version)

http://standards.ieee.org/develop/policies/opman/sb_om.pdf (PDF version)

— Nominations

— Election

Frysinger: I am willing to remain on duty as the SCC14 webmaster for the time being, if the committee agrees to that. The duties include maintaining our website (which is woefully out of date) and our mail list.

8. Review of action items: Aubrecht

A 280 PAR will be submitted by Barrow.

A 945 vote will occur, and the matter will be forwarded to SCC14.

Frysinger will submit 14.1 if and when approved.

Rich Peppin is new chair for 14.5, must now form a working group, and notify Frysinger and Thompson.

There was discussion about ASTM's role. They have thousands of standards. What do they have to do with 14.5? ASTM has an E-33 committee and ANSI a committee 1.1. Is there an interrelationship between 14.5 and 33? The working group could reach out to the ASTM and ANSI committees to try to make them comparable. Campanella and Ressel are both in position to do this. Can we write a standard acceptable to the other organizations? That's a worthwhile goal. There is a procedure to initiate a dual logo agreement. There can be an entity representative under IEEE rules. For now, there was a consensus that the 14.5 working group should draft a standard as compatible as possible with those of other organizations.

9. Date for 2016 meeting — April in Gaithersburg? Video-teleconference?

The meeting date will be in the last two weeks of April to be decided in a doodle poll.

SCC 14 includes several subcommittees. Those are:

Designation	Name	Duties
SCC 14.1	SI 10	Working Group Oversight of IEEE/ASTM SI 10 within IEEE Note: SI 10 JC indicates SCC14 member on IEEE/ASTM Joint Committee.
SCC 14.2	Definitions Working Group	Std 270
SCC 14.3	Unit Symbols Working Group	Std 260.1, Std 1541
SCC 14.4	Quantity Symbols Working Group	Std 280, Std 945
SCC 14.5	Acoustics Working Group	Std 260.4
SCC 14.6	Mathematical Symbols Working Group	Std 260.3
SCC 14.7	International System of Quantities Working Group	Develop IEEE standard parallel to ISO/IEC 80000
SCC 14-Int	International	Report on CGPM, CIPM, BIPM, CCU
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

**14 voting, 12 with voice only
9 members of IEEE, 8 members of IEEE-SA
5 of the IEEE-SA members are voting members**

Gordon J. Aubrecht Ohio State University, Physics Department [REDACTED] [REDACTED] Home: Work: [REDACTED] Cell: Fax: 6 [REDACTED]	Email: [REDACTED] Participation: Vote Classification: Academic Committees: Secretary-SCC14; 14.1, Chair 14.2, Chair 14.6, 14.7, 14-Int, SI 10 JC IEEE Member #: 40283880 SA Member: Y
Bruce B. Barrow Retired [REDACTED] [REDACTED] Home: [REDACTED] Work: Cell: Fax:	Email: [REDACTED] Participation: Vote Classification: General Interest Committees: 14.1, Chair 14.4, Chair 14-Rev, SI 10 JC IEEE Member #: 00601054 SA Member: Y
Susan Blaeser Acoustical Society of America Standards Secretariat 1305 Walt Whitman Road, Suite 300 Melville NY 11747 Home: Work: [REDACTED] Cell: Fax: [REDACTED]	Email: [REDACTED] Email: [REDACTED] Participation: Voice only Classification: General Interest Committees: IEEE Member #: SA Member: N
Dennis Brownridge [REDACTED] [REDACTED] Home: [REDACTED] Work: Cell: Fax:	Email: [REDACTED] Participation: Voice only Classification: Academic Committees: IEEE Member #: SA Member: N

Angelo Campanella

Acculab/Campanella Assocs.

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[Redacted]

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Cell:

Fax: [Redacted]

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Participation: **Vote**Interest: **User**Committees: **14.5**

IEEE Member #:

SA Member: **N****Albert Censullo**

Professor Emeritus

California Polytechnic State University

Dept. of Chemistry

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Home:

Work:

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Fax: [Redacted]

Email: [Redacted]

Participation: **Voice only**Interest: **Academic**

Committees:

IEEE Member #:

SA Member: **N****Kenneth G. Foote**

Woods Hole Oceanographic Institution

[Redacted]
[Redacted]
[Redacted]

Home:

Work: [Redacted]

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Fax: [Redacted]

Email: [Redacted]

Participation: **Voice only**Interest: **Academic**

Committees: 14.5

IEEE Member #:

SA Member: **N****James R. Frysinger, LCAMS**

LCDR, USN-Ret.

College of Charleston,

Dept. of Physics-Ret.

Metric MethodsSM[Redacted]
[Redacted]

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Email: JimF@metricmethods.com

Email: [Redacted]

Participation: **Vote**Classification: **Academic**Committees: **Chair 14.1, 14.2, Chair 14.3, 14.4, 14.5, 14-Rev, SI 10 JC**

IEEE Member #: 41248257

SA Member: **Y**

Elizabeth Gentry

Metric Coordinator,
Laws and Metric Group
Weights and Measures Division, NIST

Home:

Work:

Cell:

Fax:

Email:

Participation: **Voice only**Classification: **Government**Committees: **14-Leg**

IEEE Member #:

SA Member: **N****Randall Groves**

Grant Power Utility District
Hydro Maintenance Engineering

Home:

Work:

Cell:

Fax:

Email:

Participation: **Vote**Classification: **Industry**Committees: **14.4**

IEEE Member #:

SA Member: **Y****Michael A. Heinsdorf, P.E.,
LEED AP, CDT**

Engineering Specification Writer
ARCOM

Home:

Work:

Cell:

Fax:

Email:

Participation: **Vote**Classification: **General**

Committees:

IEEE Member #:

SA Member: **N****Donald W. Hillger**

CIRA
Colorado State University

Home:

Work:

Cell:

Fax:

Email:

Participation: **Voice only**Classification: **Government**Committees: **SI 10 JC**

IEEE Member #:

SA Member: **N**

Stan I. Jakuba

SIJ Associates

Home:

Work:

Cell:

Fax:

Email:

Participation: **Vote**

Classification: **User**

Committees: **SI 10 (for ASTM)**

IEEE Member #:

SA Member: **N**

B. P. Leonard

Dept. of Mechanical Engineering

The University of Akron

Home:

Work:

Cell:

Fax:

Email:

Participation: **Voice only**

Classification: **Academic**

Committees:

IEEE Member #:

SA Member: **N**

Jack M. Loudon

Home:

Work:

Cell:

Fax:

Email:

Participation: **Voice only**

Classification: **General Interest**

Committees:

IEEE Member #: 03274644

SA Member: **Y**

David Martinsen

Senior Scientist

American Chemical Society

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Cell:

Fax:

Email:

Participation: **Voice only**

Classification: **User**

Committees:

IEEE Member #: 03274644

SA Member: **N**

John Nichols, Asst. Prof.

Email: [REDACTED]

Dept. of Construction Sciences

Participation: **Vote**

[REDACTED]

Classification: **Academic**

Texas A&M University [REDACTED]

Committees: **14.1, SI 10 JC**

[REDACTED]

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SA Member: **N**

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Cell:

Fax: [REDACTED]

Richard Peppin

Email: [REDACTED]

[REDACTED]

Participation: **Vote**

[REDACTED]

Classification: **User**

Committees: **14.5, SI 10 JC**

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Work: [REDACTED]

SA Member: **N**

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Fax:

Bill Potts, FBSC, CMS

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[REDACTED]

Participation: **Vote**

[REDACTED]

Classification: **User**

Committees: **14.1**

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Work:

SA Member: **N**

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Fax:

Howard Ressel, P.E.

Email: [REDACTED]

NY State Dept. of Transportation, Region 4

Participation: **Vote**

[REDACTED]

Classification: **General Interest**

[REDACTED]

Committees: **SI 10 JC**

Home:

IEEE Member #:

Work: [REDACTED]

SA Member: **N**

Cell:

Fax:

John T. Scott
Retired

Email: [REDACTED]

[REDACTED]
[REDACTED]

Participation: **Vote**
Classification: **General Interest**
Committees: **14.1, 14.7, 14-Int, 14-Rev, SI 10 JC**

Home: [REDACTED]
Work:
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Fax:

IEEE Member #:
SA Member: **N**

Barry N. Taylor
NIST

Email: [REDACTED]

[REDACTED]
[REDACTED]
[REDACTED]

Participation: **Voice only**
Classification: **Government**
Committees: **14.7, 14-Int**

Home:
Work: [REDACTED]
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Fax: [REDACTED]

IEEE Member #: 06187983
SA Member: **Y**

Ambler Thompson
NIST Div. 215

Email: [REDACTED]

[REDACTED]
[REDACTED]

Participation: **Vote**
Classification: **Government**
Committees: **Vice Chair-SCC14; 14.1, 14.4, Chair 14.7, Chair 14-Int**

Home:
Work: 3 [REDACTED]
Cell:
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IEEE Member #:
SA Member: **Y**

Paul Trusten, R.Ph.
Vice President and PR Director

Email: [REDACTED]

U.S. Metric Association, Inc.
[REDACTED]
[REDACTED]

Participation: **Vote**
Classification: **User**
Committees: **14.1**

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Work:
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Fax:

IEEE Member #:
SA Member: **N**

Lorelle Young
President, USMA

Email: [REDACTED]

Participation: **Voice only**
Classification: **General Interest**
Committees: **Chair 14-Leg**

Home: [REDACTED]
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IEEE Member #: 41446153
SA Member: **Y**

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to whom corrections and updates should be sent

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