

IEEE Standards Coordinating Committee 14 Quantities, Units, and Letter Symbols)

2010 April 22 1330
NIST Headquarters and by Teleconference
Administration Building, Building 222/B263
Gaithersburg MD

Members in attendance and Call to Order

Gordon Aubrecht, Bruce Barrow, Jim Frysinger, Don Hilger, Howard Ressel, Terry Scott, Barry Taylor, and Ambler Thompson

The Committee was called to order by the chair at 13:33.

1. Adoption of agenda

The agenda was moved, seconded, and adopted.

2. Approval of minutes of meeting of 2009 April 23

The Secretary's minutes of the last meeting were unanimously following one correction: item 7 should say "2010" instead of "2009".

3. Secretary's report

The secretary had nothing to report since last year's meeting.

4. Chairman's report

a. IEEE Patent Policy

IEEE training presentation on patents (an annual requirement) was conducted. The matter of the IEEE patent policy was discussed.

b. Annual report

The last "Annual Report" was submitted on 2009 August 31 and a copy was provided in the meeting's materials. The next report is due 2010 September 15.

c. Financial Report

The annual financial report was submitted online, indicating that SCC 14 handles no finances. The next report is due 2011 March 31. The chair was complimented on his steadfast work on the reports.

d. Status of standards

The chair reported on the status of standards, highlighting the reaffirmations and revisions due at this time:

Std 260.1 reaffirmed

Std 280 held in abeyance during development of P80000

Std 260.3, Std 270, and SI 10 due in 2011

5. Reports of subcommittees

a. SCC14.1 – Status of revision of IEEE/ASTM SI 10-2002 — due 2011

Bruce Barrow transmitted redline copies of the proposed revision to the working group. There will be about 300 balloters on the IEEE end. Barrow had expected a ballot sooner than is now possible.

Not everyone on SCC 14 received the redline, but Barrow will send it out today. It is important that SCC 14 people get to see the working material.

The ballot has been held up due to red tape in Piscataway. All members in the working group had agreed to change the title to “Standard for metric practice.” This means that the past title was a problem, and Barrow had to amend the PAR to the new title. It may take until June, but the ballot could conceivably take place sooner.

Barrow wants SCC 14 feedback back by two or three weeks from today, but absolutely no later than 31 May 2010. Front matter will have to be added.

Members can also weigh in as part of the balloting group. But there are more than 300 people, and the real impact for changes is in the smaller group. In the balloting group, you must be part of IEEE Standards Organization or Barrow must file people as invited experts (but Bruce would prefer not to have to add them). Frysinger said that as long as a revised PAR is being submitted, why not add experts? There was discussion on this point.

b. SCC14.2 – Definitions (Std 270-2006) — due 2011; reaffirm

Gordon Aubrecht has agreed to take this effort on. Nothing has been done so far; he plans to take up the matter this summer. He said he would probably recommend reaffirmation.

Taylor points out that there is a new edition of the VIM (International Vocabulary for Metrology). It can be downloaded free from the BIPM website. Barrow suggests a careful look at the VIM, and maybe revision to include binary multiples. Scott doubts that many people look at these definitions. Frysinger will request marketing data from Piscataway. There is a reference on page 44 of Standard 270, reference b2 is the old edition of VIM. How are prefixes handled now? Should we include them by other than name, such as an ancillary table? We could add a note 1.5 on binary multiples.

Aubrecht, Barrow, and Frysinger form the working group on Standard 270.

c. SCC14.3 – Unit symbols (Std 260.1-2004) — reaffirmed; next due 2015

James Frysinger reported that the standard had been reaffirmed; it was approved 2010 March 24.

d. SCC14.4 – Quantity symbols (Std 280-1985) — PAR extended

This is on hold because it is tied to P80000. We’re waiting for Ambler Thompson to get IEEE approval. Then IEEE Standard 280 will be withdrawn.

e. SCC14.5 – Acoustics (Std 260.4-1996) — due 2013

Stan Ehrlich is in charge. No action has been taken.

f. SCC14.6 – Mathematical Symbols (Std 260.3-1993) — due 2011; reaffirm?

A new chair is needed. Barrow said it was a major effort, working with Asperti to write this standard. Will we put this in limbo to be superseded by 80000? There must be an examination of the confluence between these.

All fourteen pieces of 80000 have been published according to Ambler Thompson. Volunteers are needed to look at individual chapters. The ACS is being solicited to look at the chemistry. Pissalo is looking at the mathematics.

g. SCC14.7 — PAR80000 approved 2009 March (copy provided)

Ambler Thompson reported that PAR80000-3 has been superseded and PAR80000-4 has been withdrawn. The superseding document is PAR80000. A sample based on ISO 80000-3 has been drafted.

h. SCC14-Int – International

(1) IEC TC25 and ISO TC12

Ambler Thompson said that ISO met, their first meeting in 32 years, and decided that there would need to be a major revision. The GUM committee has complained about the mathematics section. Taylor said that there is a joint committee of BIPM and ISO, IUPAC, IUPAP, etc., that is looking at the VIM (*International Vocabulary of Metrology – Basic and General Concepts and Associated Terms*) and the GUM (*Guide to the Expression of Uncertainty in Measurement*). They were originally written by TAG 4 of ISO. Now it has been moved to a new organization, the Joint Committee on Guides to Metrology (JCGM) that's now in charge. There's one subcommittee on the full committee for each of the two publications. The GUM subcommittee has prepared a supplement to the GUM and is preparing others. Mathematicians have been unhappy, and this needs to be dealt with. The boilerplate in the new edition of VIM describes all this. These Guides (VIM, GUM, and GUM Supplement 1) can be downloaded at no cost from <http://www.bipm.org/en/publications/guides/>. One zip file is provided there to download these three and others as a group, thus enabling interactive linking among the documents.

At least three of the standards will include special relativity, Thompson said. Volunteers are needed. They also want to put Unicode glyphs and symbols as an annex (specifying fonts). Aubrecht expressed satisfaction and interest.

There will be an IEC meeting in October in Seattle. Thompson can add people to the delegation if people are interested in attending.

Thompson wants to transfer the US TAGs to IEEE. He is putting together a five-year financial package so people can attend meetings. It is contingent on an interagency agreement on Thompson's nuclear activities. He expects this to be done prior to the October Seattle meeting.

Will this affect NIST's membership in IEC? Thompson said he technically represents ANSI at the meetings.

Frysjinger has not heard much from chemists; it is intended to involve several of them in our committee.

Conversion factors will be included. DIN (Deutsche Industrie Norm) is putting a database of measurement units used across the world to give conversions. Another crew is reportedly worrying about the ontology of units.

NIST has charge of healthcare informatics on coding across computer systems. UCOM-Uniform Code for Units of Measure—is being used by the healthcare people to transport medical records. The concern is how to communicate from human to machine, machine to machine, and machine ultimately back to human. Thompson is monitoring the situation.

(2) Consultative Committee on Units

The CCU has a meeting in September. There is no measurement that will complement the NIST redefinition of the units so far: kg, A, K, mol, according to Barry Taylor. The second will probably also be redefined in the near future.

Taylor said that one needs adequate data to go ahead with these units. There needs to be confirmation of NIST results to proceed. There's an ongoing twenty-year program at NIST. The watt balance gives the Planck constant, another project would give the Avogadro constant, but this project has unresolved problems.

The other issue is the definitions themselves. Taylor wants specific constant definitions. Members of CIPM are not enthusiastic about this view. Currently, units are specified as actions. The form is not particularly important, the data are. The CGPM meets in 2011, but it does not look like the measurements will be ready by then. Perhaps the new definitions could be adopted in principle, to be implemented when data allow. Possibly, a special meeting of CGPM could be called. There is concern that momentum will be lost if there is a wait until 2015. There is a consultative committee for mass,

and they are developing guidelines for accepting the values at $\sim 2 \times 10^{-8}$ level. This will be difficult to achieve, Taylor said.

There was considerable discussion on all these points. New definitions are on shaky ground as of now. It is important to keep the relevant groups working on the problems.

i. SCC14-Rev – Review

Barrow reported that some people are needed to look over IEEE standards and assure that they meet the SI. It's a lot of work, and volunteers are needed. Barrow, Frysinger, and Scott have in the past tried to make sure SCC 14 standards are used in other IEEE standards. Barrow expressed a desire to get back to doing this. He plans to go to Piscataway and wants editors who understand SI-10 to do most of the work.

Taylor suggested that a one- or two-page checklist be generated for the editors. Scott suggested that the editors would ignore such a checklist. It is appealing as an idea, he said, but unlikely to work in practice.

A consensus was found that we should probably wait until the new version of SI-10 is approved. There was considerable discussion of the various points.

j. SCC14-Leg – Legislative

Lorelle Young and Elizabeth Gentry are unable to attend. They produced reports ahead of the meeting, which are reproduced below.

(1) Report of the U.S. Metric Association report submitted by Lorelle Young, President, 2010 April 22

In the absence of any metric legislation in the hopper or any highly publicized metric activity in the country, there are encouraging events taking place. The U.S. Metric Association is receiving a greatly increased number of inquiries from persons seeking technical and general information regarding metric usage and from persons concerned that the U.S. is not moving quickly enough with national metric transition and seeking suggestions as to how they can help. Requests for information and assistance come from people in all walks of life including the business community, from educators, students and general consumers.

We continue with our normal routines which include the bi-monthly publication of our newsletter, *Metric Today*. Maintaining and expanding our Web site is ongoing and last year we opened a Twitter page. Discussions by members of our Listserver are brisk and sometimes contentious when disagreements arise, but this vehicle provides a useful place where information can be exchanged and differences aired. We are in our twentieth year of giving awards to students who demonstrate excellent command of the metric system in their national Science Fair projects. We have reciprocal communication with the directors of the NIST Metric Program and assist them in any way that we can. At their request we recently participated in a WERB review of their publication *Marketplace Assessment --- Metric Labeling on Packages in Retail Stores*.

There are prominent and promising actions in the U.S. that signal the U.S. may be taking formidable steps to accelerate this nation's transition to the metric system in some sectors. Two of these are briefly summarized below.

The report just released on 29 March 2010 from NASA's Office of Inspector General (OIG) following their review of the Constellation's Program request to use non-metric units is encouraging. The report concludes that "The Constellation Program's request for an exception to using the metric system as its standard system of measurement does not clearly meet NASA criteria for granting such an exception. In addition, the request does not adequately consider the long term impact of the decision on future NASA projects." The OIG notes that NASA is the nation's most visible science and technology agency and in a world that almost exclusively uses the metric system, ". . . the Agency

should reassess its conversion to the metric system and determine the most appropriate approach for the Agency to successfully transition to SI."

In the marketplace, the number and variety of products packaged in rounded metric units is increasing. This may be taken as a sign that resistance to the amendment to the Fair Packaging & Labeling Act which would permit labeling in metric-units only is weakening. These changes are taking place in the consumer sector, one might say under the radar. Perhaps the groundwork is being laid for the ultimate passage of the amendment.

On the negative side, the status of metric education in the national curriculum is feeble and alarming, and it is not improving. Avoidance of teaching the metric system is initiated by organizations that write major math curriculum guides. They must have a blind eye to the metric system or why else do they write guides devoid of teaching the metric system or with deficient instruction guidelines. Results from the National Assessment of Educational Progress indicate that U.S. students' understanding of measurement lags behind all other mathematics topics. That's alarming enough, but despite the decades of efforts to improve the teaching of math and science, when compared on international tests, for example the 2006 Program for the International Student Assessment (PISA), in math, American 15-year-olds ranked 25th of the 30 countries participating, and their scores are no better on other international tests.

President Bush established the National Math Advisory Panel to seek suggestions for improving the teaching of math. Thirty USMA members, including scientists, engineers, businessmen and educators, wrote letters to express their views, and several of us, including Jim Frysinger and myself addressed the Panel in person. We were completely ignored. Not a word about metric education appeared in the Panel's final report.

(2) Report of the NIST Metric Program Office submitted by Elizabeth Gentry, 2010 April 19

NIST Management and Realignment

Since the April 2009 meeting, Congress has confirmed a new NIST Director, Patrick Gallagher (<http://www.nist.gov/director/bios/gallagher.html>). NIST is currently undergoing an organizational realignment that is designed to strengthen ties to unique NIST mission activities, not to reduce personnel. The Weights and Measures Division (WMD), including the Metric Program, is expected to move to the new Physical Measurement Laboratory operational unit. Nothing is final until the proposal is submitted and approved by Congress.

Contact Management System

The new interactive database allows WMD customers to create and manage contact information, submit comments on draft publications, and request training on a range of weights and measures subjects as listed in the course index. Customers can also request WMD documents and training CDs online and then view the status of your request. In order to use the database, you will need to register by going to the link (<https://tsapps.nist.gov/WMD/default.aspx>) and following the instructions for requesting a password. Your request will be processed in about 1 - 2 business days, and then you can begin to use the system. You may be interested in selecting one of the following categories: the FPLA, Metric System (SI), and Weights & Measures Connection (the new electronic newsletter).

Packaging and Labeling Act (FPLA)

The NIST Metric Program will soon release an updated whitepaper "Voluntary Metric Labeling" that contains an updated proposed to amend the Fair Packaging and Labeling Act (FPLA) to permit metric labeling, including new language which focuses on specific limitations to address grocery industry concerns. The process to submit proposed FPLA legislation is lengthy and complex. Currently, NIST is focused on the major realignment efforts. We do not know when the FPLA proposed amendment might be introduced.

Uniform Packaging and Labeling Regulation (UPLR)

NIST continues to encourage the two remaining States, Alabama and New York, to allow metric labeling on consumer packages. Currently 48 states permit the use of only metric units on packages, subject to their jurisdiction. The state of New York is engaged in the long regulatory process to seek adoption of the Uniform Packaging and Labeling Regulation (UPLR, NIST HB 130) metric labeling provisions.

Marketplace Assessment

NIST Metric Program will soon release a report describing a market place assessment that was conducted to characterize current U.S. marketplace labeling practices. During the assessment, the net quantity of contents statement labeling of over 1100 packages were examined in 19 retail stores, including those that sell food, home and personal care products, hobby and arts and crafts products, automotive, hardware, office products and pet supplies. The assessment found that retailers across the United States are selling both domestically packaged and imported products labeled with only metric units in the net quantity of content statement. Of those packages examined, 17 % declared the net quantity of contents in only metric units. Almost 57.5 % of those metric packages were found to be noncompliant with current FPLA dual labeling requirements. The majority of the parties responsible for manufacturing or distributing 61 % of the metric products were U.S. companies. Metric packages are present in the U.S. marketplace and consumer exposure to metric packaging is growing as demonstrated by their availability in a broad range of retail stores.

Packaging and Labeling Training

WMD is offering specialized training on Packaging and Labeling, which is focused on the Uniform Packaging and Labeling Regulations (UPLR, NIST HB 130) for consumer and non-consumer packaging requirements, FDA and FTC requirements, and other various federal laws and regulations governing packaging and labeling as it pertains to the declaration of identify, responsibility, and quantity. Voluntary metric labeling, unit conversions, and units and symbol style for labeling applications is covered in the course, which is offered to U.S. regulatory officials and industry. Interested participants can register for this training through the NIST Management System Database (<https://tsapps.nist.gov/WMD/default.aspx>) or contact Lisa Warfield (lisa.warfield@nist.gov, 301-975-3308) or David Sefcik (david.sefcik@nist.gov, 301-975-4868).

Website

The Metric Program website began migration to a new platform on April 16, 2010. There will be many modifications over the next several weeks as we continue to migrate pages, fine tune content, confirm URL links, and trouble shoot. We look forward to receiving feedback on the new look!

6. Other old business

No other old business was brought up.

7. New business

No new business was brought up.

8. Next meeting

The date was set for the next meeting, on 2011 April 21. This will be held by electronic means (tele-conference, video-conference, web-conference) key-controlled in Gaithersburg. This is subject of revision if events warrant.

Adjournment

The meeting adjourned at 14:58.