What’s in a Name?

This is an eye test. What’s different about this edition of the newsletter? For the past thirty-nine years the masthead has read “National Conference of Standards Laboratories.” Now it says NCSL International.

We are in the process of officially changing the name of the organization to express its evolving role in the world of metrology. The efforts of our International VP Ed Nemiroff, and the hard work of the region coordinators has yielded growth in our international membership. Along with this growth has come better connectivity with international metrology activities that affect our member organization’s success.

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Visit Canada and Take Home the Latest Metrology Information

The 2000 NCSL Workshop & Symposium
Westin Harbour Castle
Toronto, Canada
July 16 - 20, 2000

"Metrology, Intangible, Imbedded Support?"
Tutorials (July 15, 16, 21)

See opposite for further information.
Contact: NCSL Business Office, (303) 440-3339

EDITOR’S MESSAGE

The Etymology of Metrology

This letter speaks for itself, and I never cease to be amazed at the things I learn in this business.

Editor:
Ref: NCSL Newsletter, APRIL 2000

In your otherwise superbly-edited journal, I take exception to a statement made on page 21, in your EDITOR’S MESSAGE. You stated, “I think it was Jerry Haynes of the US Navy, in the late 1950s—early 1960s, who may have been the first to coin the name Metrologist.”

I willingly credit Jerry with many innovations in our chosen field, particularly the popularization, if not the actual creation, of the concepts of traceability (something he deniers). However, the word metrology and presumably, all of its derivations, including metrologist, predate Jerry (and even me) by several millennia.

Continued on Page 3
**National Conference of Standards Laboratories**

**ANNUAL WORKSHOP AND SYMPOSIUM • JULY 16-20, 2000 • TORONTO, CANADA**

**Metrology, Intangible, Imbedded Support?**

Metrology is like insurance. Few outsiders realize its importance until it's too late. Therefore, how do we raise the level of awareness of professional Metrology in order to fully realize the benefits of a strong Metrology program?

In order to have the ability to control, we must possess the ability to measure. This, in turn, requires the ability to verify what we are measuring.

As Metrologists, until we find a way to educate our organizations and customers about the tangible benefits of Metrology, we will continue to see this essential science treated, at the corporate level, as a necessary evil — as opposed to an integral part of business in the new millennium. Join us at the NCSL Annual Conference, where you can be an important player in facilitating this vital paradigm shift.

Attended by over one thousand Scientists, Engineers, Metrologists and Managers, the Annual Workshop and Symposium, co-sponsored with NIST — the National Institute of Standards and Technology — is NCSL's major educational activity of the year. This key Conference provides a vital forum for the exchange of ideas, techniques, and innovations among those who are proactively engaged in the exciting global Measurement Science industry. Plan now to join us in Toronto, Canada in July, 2000.

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<td>NCSL Committees are the heart of the organization. It is from these unique groups that significant industry standards and solutions to measurement science challenges are derived. We welcome your attendance at these meetings and encourage you to become proactively involved with us.</td>
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See our web-site @ www.ncsl-hq.org for Conference details, on-line registration, forms, Guest programs, and updated discount information for savings on your NCSL Conference airline, auto, and hotel reservations. Or call us at:

**National Conference of Standards Laboratories**

1800 30th Street, Suite 305B • Boulder, Colorado 80301-1026
Phone: (303) 440-3339 • Fax: (303) 440-3384

www.ncsl-hq.org
METROLOGY CALENDAR

NCSL MEETINGS
July 16-20, 2000
NCSL Workshop & Symposium
Westin Harbour Castle, Toronto, ON, Canada
CONTACT: NCSL Business Office, (303) 440-3339
FAX: (303) 440-3384
e-mail: <ncsl-staff@ncsl-hq.org>

INDUSTRY/GOVERNMENT MEETINGS
September 17-22, 2000
BERM-8: 8th Intl. Symposium on Biological and
Environmental Reference Materials
Natcher Center, NIH, Bethesda, MD
CONTACT: T.E. Gills, (301) 975-2016
e-mail: <BERM-8@nist.gov>
Website: <http://ts.nist.gov/ts/htc/docs/
230/232/berm-8/bermindex.htm>

September 25-29, 2000
Symposium on Optical Fiber Measurements
NIST, Boulder, CO
CONTACT: Paul Williams, (303) 497-3805
Fax: (303) 497-3387
e-mail: <paul.williams@boulder.nist.gov>
Website: <www.boulder.nist.gov/
div815/current.htm>

September 25-28, 2000
IMEKO 2000
16th World Congress of the International Measurement
Confederation
Contact: Secretariat
Institut fur Fertigungstechnik
Abteilung Austauschbau und Messtechnik
Karlsplatz 13/3113 1040, Wien, Austria
Website: <www imeko2000.at>

October 29 - November 3, 2000
ILAC 2000
Washington DC/USA
Contact: Robin Gildersleeve 703-690-1436
Lisa Caron 800-374-3818
Website: <www.ilac2000.com>

December 4-7, 2000
Metrologia 2000
Sao Paulo, Brazil
CONTACT: Executive Office, Brazilian Society of Metrology
Phone: 011-55-21-544-5751, ext. 211
Fax: 011-55-21-544-5527
e-mail: <sbm@redetec.com.br>
Website: <www.sbmetrologia.org.br/metrologia2000>

REGION MEETINGS

REGION 10
Japan Area, November 22, 2000
Tokyo Metropolitan Industrial Technology Research Institute
Tokyo, Japan
CONTACT: Katsumi Yokoi, 81-426-60-8444
Fax: 81-426-608445
e-mail: <katsumi_yokoi@agilent.com>

CHECK WEBSITE FOR UPDATES
<www.ncsl-hq.org>

Please send Metrology Calendar additions and corrections to the NCSL Business Office,
(303) 440-3339 FAX:(303) 440-3384, or E-mail to <ncsl-staff@ncsl-hq.org>
TRAINING COURSE REMINDERS FROM NIST

Laser Measurements Short Course
Broker Inn Hotel
Boulder, CO
August 8-11, 2000

To provide training on laser measurement theory and techniques.
Technical Contact: Thomas Scott, 303 497 3651,
<thomas.scott@nist.gov>

Symposium on Optical Fiber Measurements
NIST
Boulder, CO
September 26-28, 2000

To provide a forum for reporting results of recent measurement
research in lightwave communications.
Technical Contact: Paul Williams, 303 497 3805,
<paul.williams@boulder.nist.gov>

Precision Thermometry Workshop
NIST
Gaithersburg, MD
October 16-20, 2000

To provide advice and assistance on measurement and calibration
processes.
Technical Contact: Andrea Swiger, 301 975 4800,
<andrea.swiger@nist.gov>

Ninth Annual Meeting of the Council on Ionizing Radiation
Measurements
NIST
Gaithersburg, MD
Oct 30 - Nov 1, 2000

To provide a forum for discussion of common measurement and
standards related to ionizing radiation.
Technical Contact: Bert Coursey, 301 975 5584,
<bert.coursey@nist.gov>

Or visit the NIST registration web site:
<https://sales.nist.gov/conf/secure/CONF229/conf_register.htm>

Editor’s Message (continued from page 2)

The root word is the ancient Greek word METRON, meaning to
measure.” From this, they derived metrologia, with a dual meaning,
“the process of measurement” and “the theory of ratios.” I don’t
know what the Roman scholars and philosophers did, but the
medieval French derived their word metrologic, probably from the
Greek.

We can safely assume that after the Battle of Hastings, it migrated
into our early English. While I have no rigid etymological proof, I
find it inconceivable that during the normal delineation of our lan-
guage, the nouns metrology and metrologist, along with the com-
plementary adjective and adverb, metrological and metrologically,
respectively, did not naturally evolve. They had three millennia to
do so—plenty of time.

The earliest use of the word metrology I happen to have in my pos-
session is Lord Kelvin’s overworked quotation; stated by him on
May 6, 1886 (see below, emphasis is mine). So I believe that we
can safely say, if the noun metrology existed over a hundred years
ago, the supporting noun metrologist must have also existed.

Sincerely,
Phil Painchaud

..."THAT WHEN YOU CAN MEASURE WHAT YOU ARE
SPEAKING ABOUT, AND EXPRESS IT IN NUMBERS, YOU
KNOW SOMETHING ABOUT IT. BUT WHEN YOU CANNOT
MEASURE IT, WHEN YOU CANNOT EXPRESS IT IN NUM-
BERS, YOUR KNOWLEDGE IS OF A MEAGER AND UNSAT-
ISFACTORY KIND; IT MAY BE THE BEGINNING OF KNOWL-
EDGE, BUT YOU HAVE SCARCELY, IN YOUR THOUGHTS,
ADVANCED TO THE STAGE OF SCIENCE, WHATEVER THE
MATTER MAY BE. SO THEREFORE, IF SCIENCE IS MEA-
SUREMENT, THEN WITHOUT METROLOGY THERE CAN BE
NO SCIENCE”——

William Thompson-(LORD KELVIN, Baron of Lars)-May 6,
1886

Rampant Viruses and my Prearranged Codeword

I’ve been involved with the NCSL since about 1972. In all that
time, probably the most impressive process change I have experi-
enced is the recent rapid acceptance of the use of the Internet by our
NCSL Board and you NCSL member delegates. I was somewhat
prepared for the power of that communication technology because
in the 1960’s my employer, Hewlett-Packard, conceived and
installed a world-wide comms system, which revolutionized the
way HP did business internally. Those were the years of teletypes.
Yet, the organizational power we achieved with “electronic mail”
allowed us to guide training projects, customer seminars, trade
shows among widely-separated divisions and world-wide customer
base.

(Continued on page 8)
NCSSL GLOBAL ACTIVITIES
Ed Nemeroff - Vice President
John Ragsdale, Executive Vice President

From the great pyramids of Egypt to the ancient city of Jerusalem to the Empire of Japan, NCSSL has recently participated in symposiums, workshops and conferences that promoted international cooperation in the metrology, standards and conformity assessment as well as enhanced the reputation and visibility of NCSSL International.


John Ragsdale, NCSSL Executive Vice President, represented NCSSL at the International Symposium on Measurement Standards in Japan 2000 which was held in Tokyo, Japan on May 19, 2000. John presented a paper titled “Metrology and Conformity Assessment Trends in the United States.”

Other speakers on the program included Dr. Prayoon Shiowanana, Director of the National Measurement Institute of Thailand, Dr. Thorsten Schrader from PTB, Eiji It incarnan, Director of the Matsushita Electric Industrial Company, Dr. Kiyoto Mitsu from the National Research Laboratory of Metrology (NRLM) and Dr. Masayoshi Koike from the Japan Quality Assurance Organization (JQA). The symposium was sponsored by the Japanese Standards Association (JSA), 22 academic and industrial societies and 8 Ministries of the Japanese Government. The symposium was well attended with over 400 registered delegates.

John attended an excellent dinner and meeting hosted by Dr. Katuo Seta and Ms. Momoyo Homma from the Research Center for Measurement Standards. Dr. Seta is currently the Asia-Pacific Metrology Program (APMP) Secretariat having replaced Dr. Angela Samuel when the APMP Offices of the Chairman and Secretariat were transferred from Australia to Japan in November 1999.

Prior to the symposium, Akira Itoh, Director of the Japanese Ministry of International Trade and Industry, and Yoshikuni Wakasano from JSA hosted a welcome dinner in honor of the symposium speakers. All of those in attendance experienced a superb meal and an enjoyable evening of fellowship and hospitality.

After the Symposium, John attended a meeting hosted by Kazumi Hayakawa, President of Fluke Corporation Japan. Katsumi Yokoi, Region 10 Coordinator, and Tsutomu Tsuchiya, Chairman of the NCSSL steering committee in Japan also attended. John said on his return: “It was gratifying to receive such a warm and friendly welcome while I was in Japan. Everyone that I met went out of their way to ensure that my stay was a most enjoyable and memorable experience”.

NCSSL currently has 29 member organizations in Japan and, according to Mr. Yokoi, approximately 15 persons from Japan are planning to attend the NCSSL Workshop and Symposium in Toronto, Ontario, Canada in July. Dr. Seta, Mr. Itoh and Mr. Toshiki Aoki will present papers at the NCSSL Workshop and Symposium. The Japan Region has a meeting scheduled for November, 2000 and NCSSL.

President David Abell and NCSSL Vice President of International Affairs Mr. Ed Nemeroff have made plans to attend this meeting.

Egyptian National Needs Assessment
Workshop for Metrology, Calibration and Laboratory Accreditation
May 9-11, Giza Egypt.

The U.S. National Institute of Standards and Technology and the Egyptian National Institute for Standards co-hosted a workshop aimed at improving and developing new metrology, calibration, accreditation and other support services for use by Egyptian industry and other public sector organizations. This workshop is part of the US - Egypt Science and Technology Agreement.

Metrology, standards, laboratory accreditation and conformity assessment are interrelated and have a major role in the ever increasing globalization of economy and the removal of barriers to trade. There is an increasing demand for NIS to provide Egyptian private and public sector organizations with services and support in the development of technology needed to improve product quality and reliability, modernize manufacturing processes to facilitate rapid commercialization and international acceptance of Egyptian goods and services.

Ed Nemeroff of NCSSL was the workshop co-organizer and developed a Needs assessment Survey for Egypt; the role model for this survey was the NCSSL Measurement Requirement Survey.

International Conference on Metrology
Trends and Application in Calibration and Metrology
Jerusalem, Israel, May 16-18, 2000

The conference was co-organized by the NCSSL, the Co-operation International for Traceability in Analytical Chemistry (CITAC) and the Israeli Metrological Society. Dave Abell, NCSSL President and Ed Nemeroff NCSSL Vice President, and conference Co-chairman represented NCSSL. David gave the keynote address, “NCSSL, an Overview”.

Attendees at the Egyptian meeting: Mr. Reno Harnish, Deputy U.S. Ambassador to Egypt, Vicki Alexander, U.S. Science & Technology Program Coordinator, Ed Nemeroff and Prof. M. Shalaan, President of the Egyptian National Institute of Science.
The conference attracted over 200 participants from 35 nations. Topics included Theoretical metrology, Legal Metrology, ISO Guide 17025, Measurement methods and their validation, New measuring instruments and standards, Reference materials, Interlaboratory Comparisons, Proficiency Testing, Measurement uncertainty analysis, LIMS, Metrology Education, Traceability, Metrology and Trade, Accreditation of calibration and testing laboratories, Metrology for Petrochemicals, Utilities, Chemistry and Pharmaceuticals.

The conference played host for a meeting of the members of MENAMET, the Cooperation of Middle East and Northern African Countries in Metrology. This is the newest of the international regional metrology cooperation’s.

Prior to the conference, Ray Krammer, Director of NIST, Dr. Stephen Carpenter, Director of OIAA of NIST, Dr. Avinoam Shenhar, Director of INPL Israel and Ed NemerofC were invited guests at a reception celebrating National Quality Week in Israel. This event was hosted by the President of Israel at his official residence.

NCSL President Dave Abell presents the keynote address at the Israel Conference.

Latin America

Brazil - Metrology 2000 - October 22-26, 2000 - Sao Paulo, NCSL is one of the sponsors of this conference. I have accepted a position on the conference advisory board. I plan to be in attendance. This conference will be a major event in South America. See the meeting promotion on page 28.

Jamaica W1 SIM will be holding their annual General Assembly meeting in September this year. The Jamaican Bureau of Standards will be the meeting host; NCSL is directly involved. Tony Anderson has been assisting Roosevelt DaCosta, NCSL Regional Coordinator and SIM Representative to the Board, with arrangements there. This will be a major event for SIM and NCSL. I plan to be in attendance and present the NCSL International story.

Chile 2001 - There will be a metrology conference held in conjunction with the Brazilian Metrology society. NCSL has been invited to participate. I have accepted.

Looks like we really have an international organization.

CENAM REPORT
Salvador Echeverria-Villagomez

International Activities

International activities have continued, mostly within the framework of NORAMET (NRC, NIST and CENAM) and the Inter-American Metrology System (SIM), aimed at completing the requirements of the CIPM Arrangement for mutual recognition of national measurement standards and of calibration and measurement certificates issued by NMIs (CIPM-MRA).

Some of these activities are the following:

- Participation in the meeting of the SIM Technical Committee on January 19, 2000, in Anaheim, CA, to prepare the submission of Calibration and Measurement Capabilities (CMC) of the SIM member NMIs to the Joint Committee of the Regional Metrology Organizations and the BIPM (JCRB). In this process, CENAM is responsible for the Metrology Working Groups of Mass and Related Quantities, as well as Photometry and Radiometry.

- Participation in the SIM Council on January 27, 2000, in Caracas, Venezuela, to discuss among other aspects the general criteria for evaluation of calibration and measurement services to be included in the CIPM-MRA.

- Participation in the JCRB meeting on March 20-21, 2000, in Gaithersburg, MD, to analyze the evaluation criteria of each Regional Metrology Organization (RMO). A resolution was taken to allow for a new deadline to submit CMCs, set for May 31, 2000. On the first week of June, the CCPR allowed an extra period of 15 days for submission of CMCs in this field.

The preparation process of the SIM submission for the CIPM Appendix C has been long and tortuous, but finally a first SIM version in the most important fields is expected for June 2000.

International Comparisons

- CENAM completed its participation in three international comparisons within the framework of SIM: standard blocks by interferometry, pressure balance with quartz transducer and chlorate pesticides in hexane.

- CENAM coordinated a NACC round robin of gauge blocks calibrated by mechanical comparison. Four Mexican laboratories, one from Canada and four from the US have recently completed their measurements. The final report is expected in the next few months.

- The SIM Time and Frequency working group is in the process of defining a SIM comparison of frequency standards. In the mean time, CENAM atomic clocks continue contributing to the construction of UTC.

International Cooperation

- The Time and Frequency Division of CENAM received the visit of Dr. Marc A. Weiss, expert from NIST, who gave an open course on GPS communications, from 17 to 21 February. Dr. Weiss gave also technical assistance on 'common view' and its application to optimum positioning of antennas.
Global News

- Dr. John Ancsin from NRC gave a lecture on June 7, 2000, on measurements of the silver fixed point.

New Laboratories and Standards

- The Area of Metrology of Materials put in operation a new laboratory which is a clean area for sample preparation of isotopic dilutions. This will allow elemental trace analysis of concentrations at the level of ng/g. It will be the basis for traceability via reference materials and measurement assurance to a laboratory network of chemical measurements.

- The full characterization and documentation of the national standard for alternating current intensity was completed and started operation in April.

- Three new reference materials have been recently developed and certified: spectrometric solutions of Fe, K and Mg, as well as a reference solution for the determination of total suspended solids for water analysis.

Activities in Support of the National Metrological System:

- The activities to widen and strengthen the capabilities of the National Metrology System have continued. In this period, CENAM collaborated with the Mexican Entity of Accreditation (EMA) in the evaluation of the technical capability and quality assurance systems of 45 secondary metrology laboratories:
  - 11 mass
  - 10 thermometry
  - 5 length
  - 3 pressure; 1 torque
  - 2 hardness
  - 2 flow
  - 1 time and frequency
  - 1 acoustic pressure
  - 1 optical transmittance
  - Plus 9 test laboratories in the area of analytical chemistry

- A national comparison in Shore Hardness, coordinated by CENAM, was successfully completed with the participation of 4 secondary laboratories.

- Work on standardization continued with the participation of CENAM in 12 sub-committees of the National Technical Committee on Standardization in Metrology.

Editor's Message (Continued from page 5)

Once the power of the Internet was harnessed for inter-company communications, many of our NCSL board members were ready for leveraging our communications for the good of NCSL, and the organizational advantages it offered. Certainly, for newsletter work which involves massive text transfers, the fact that I could get electronic files and didn't have to pay someone to keyboard hard copy text was a Godsend.

It probably took a total of 5 years to get everyone on board, but now there are so many ways that NCSL has streamlined the availability of materials for you, the members. The web site is full of committee and organizational news and reference materials. Our committees and regions and liaison organizations all know what is going on because of the cascade of email reports flying about.

But now, with all these wonderful process enhancers, emerges a real threat. Our worst nightmare shows up when some misfit computer jerk, somewhere in the world, creates a computer virus or "worm" that masquerades as an attached file on some of our hundreds of email messages. Once opened in one of our member's computers, the virus creates a variation of the attractive message, and sends itself to the entire list of email directory addresses in the target computer. And then, depending on the viciousness of the hacker, it might also delete ALL your files.

It wasn't so bad when the virus travelled only in .vbs extensions to files, because most of us didn't use them anyway. But, now, the virus can come in through a .doc file (MS Word) which is the word processor of choice, and which virtually everyone uses. And the fact that one of our friend's name is on the message just disarms us. These are nasty, nasty people who can project this world-wide damage without any misgivings, just so they can achieve bragging pleasure with their hacker peers.

What to do? At this point, I will ask that everyone (mostly board members) who sends me attached files, to please start using a simple pre-arranged codeword in the subject line of the message, which would be extremely unlikely to be known to any computer hacker. When it appears in the subject line of a message to me, I will know I am safe in double-clicking and launching the attached file. I hope you understand why this simple step will give us all just that little additional level of confidence in our communications. It only needs to be used when transferring and attaching files.

John Minck
NCSL Editor

Ed Nemeroff seems to spend a lot of time by the pyramids. Are his ancestors here?
The spring meeting of NCSL Region 1 was held with a receptive group on Wednesday, April 19, 2000 at Genzyme Corporation, Framingham, Massachusetts. Three speakers enlightened the audience with timely information.

The calibration of pipettes is a big thing at the large number of biotech companies in Region 1. Our first speaker was Leora Schiff of Simco Electronics. The title of her presentation was "Calibrating Pipettes - making them work for you instead of against you." She is well versed in the subject and included information about sources of error, methods of correction or compensation, proper technique, and calibration and maintenance issues.

The second presentation was made by Nobuo Suga, VP of the Mitutoyo Institute of Metrology, Mitutoyo America Corporation. He did a great job of presenting a very technical topic in a clear and understandable way. He discussed the international traceability of length and described the history of their experiments in making low uncertainty length measurements. Mitutoyo can make length measurements with uncertainty in femtometers. He showed pictures of the test setup used in the measurements as well as the data collected to prove the reliability of their measurements.

The final speaker was Jeff Plugis, VP of Edgetech Moisture and Humidity Systems. Jeff discussed chilled mirror hygrometers for accurate humidity measurements. He described the various methods of making humidity measurements and their pros and cons. Jeff passed around the physical chambers and sensors where measurements are made.

Special thanks to Mark Edlinger of BASF Bioresearch Corporation and Dick Gaudet of Lasertron for their assistance and Mel Brown of Genzyme for being the perfect host.

Plans for a fall meeting are under consideration. Several suggestions were made about topics for the next meeting. They included infrared temperature measurements, optical and fiberoptic calibration, technician training issues and the new FDA guidelines for calibration. Any thoughts or suggestions should be sent to steve.griffin@fluke.com.

Leora Schiff of Simco Electronics discusses Pipette Calibration.
Jeff Plugis of Edgetech considers the theory and practice of humidity and moisture measurements.

The meeting room at Genzyme is right at the overflow point.

Steve decided not to use the stairway for the traditional group shot this time because there wasn’t a big enough stairway.
The Spring 2000 meeting of NCSL Region 3 was held at The National Institute of Standards and Technology, Gaithersburg, MD on April 26, 2000. A special thanks to Sharrill Dittmann for arranging the meeting accommodations and Pat McHale. AgileTech Technologies, for supplying the refreshments.

Sharrill Dittman opened the meeting by introducing Dr. Richard Kayser, who welcomed the attendees to NIST and gave a brief overview of the NIST/NCCL Board of Directors meeting. The new NCCL video, "What is NCCL International?", was shown. Sharrill provided logistic information and additional information on the last NCCL Board meeting.

The first speaker of the day was Doug Faison, NIST's NVLAP Program, who provided an excellent overview of the differences between ISO/IEC Guide 25 and ISO/IEC Standard 17025. He reviewed each section of 17025 and discussed new requirements, similarities with Guide 25 and suggestions for implementation. Some major differences are: more prescriptive and user friendly, broader scope, meeting its requirements meets all of the requirements of ISO 9001 and client-focused.

The second speaker was Jim Erickson, Blue Mountain Quality Resources, Inc., who gave a presentation on "Software Validation, ISO & FDA Requirements." Jim began with background on the benefits and types of calibration management software. He introduced validation issues, FDA and ISO 9000 requirements and key aspects of the validation process. Jim described in detail the three main aspects of software validation: User requirement specifications, Software vendor qualification and End user validation.

After a group photo and lunch, Wayne Seemungal, General Eastern Instruments, offered a presentation on "The Fundamentals of Humidity Measurement." He started with a brief discussion of the physics of dew point measurements and the formula to calculate relative humidity. Wayne discussed the methods of making dew point measurements, their measurement ranges and accuracies and the advantages and disadvantages of each type. He also discussed the use of resistive, capacitive and oxide humidity sensors and closed with a brief discussion of calibration methods for humidity measuring instruments and sensors.

The last speaker of the day was Dr. Raghu Kacker, NIST, who led a very interesting and lively discussion on "An Interpretation of Guide to Expression of Uncertainty in Measurement." He attempted to clear up the apparent ambiguity of the Guide to Expression of Uncertainty in Measurement (GUM) due to the mixing of the frequentist and the Bayesian concepts. Dr. Kacker expressed an interest in working with individuals and companies to develop simple examples to supplement the GUM. He can be reached at 301-975-2109.

Again I would like to thank all of the speakers for their excellent presentations and Sharrill Dittmann and Pat McHale for their support in setting up the meeting.
The Region 4 Central Florida Section of the NCSL held their Spring meeting on April 13, 2000 at Seminole Community College in Sanford, Florida. The meeting was sponsored by the college and hosted by Paul Dilts, an Instructor with the Electronics Engineering Technology Department.

Woody Tramel, Metrologist with Wyle Labs and NCSL Southeast Division Vice President, asked for inputs and comments from the group which he will present at the next board meeting scheduled for early May. He also spoke on the ratification of ISO 17025 and the upcoming International Conference scheduled for July 16 - July 20 in Toronto, Canada.

Ben Bartholomew, National Sales Manager with Fluke Corporation, gave us an update on the Fluke/Wavelek merger. He spoke on many issues that seemed to concern the group related to future support of products that might be affected by this merger. Additionally, Ben introduced the group to the Fluke 7000 DC Voltage Maintenance System. This unit is an “all in one” design using the latest Zener technology to fully automate a lab’s DC Voltage maintenance program.

Matthew Sell, Programmer with On Time Support, presented a discussion on Metrology and the Web. He spoke about Metrology Xplorer, a software based program developed by On Time Support used in conjunction with Fluke Mettrack. This software package allows users of test equipment, via a web browser, to access the metrology database in real time. They can run their own reports and check on status or overdue equipment over the web.

David Hall, Metrologist with Lockheed Martin, presented the video entitled, “What is NCSL International?” This video will be debuted to the entire NCSL membership at the annual Workshop and Symposium in Toronto, Canada in July. This video was well received by everyone.

Michael Johnson, Western Regional Sales Manager with NAI, Inc., gave a presentation on the latest in Synchro/Resolver technologies. He gave a technical explanation of their design and many examples of motion control applications.

David Hall, Metrologist with Lockheed Martin, presented a brief discussion on the NCSL United States Measurement Requirements Committee Survey (USMRC). It was explained that the USMRC is asking for member support in preparing their next report. The survey is looking for three types of information. First, the USMRC is looking for unmet or inadequate test and measurement requirements that limit our ability to design, manufacture, test or evaluate new products. Second, we are looking for your present or projected calibration laboratory support requirements for calibrating test equipment, standards or systems. Third, the USMRC is looking for requirements for present or future calibration services from NIST. For information regarding the survey, contact Chester Franklin at 909-898-3144.
Paul Reese, Metrologist with Wyle Labs, presented on broadband optical detector calibration. He discussed subjects in radiometry and photometry. He also explained the different calibration curve characteristics of differing light sources and detectors. Paul talked about some of the common mistakes you can make with respect to data interruption and calibration of detectors.

Ray Gil, Senior Metrologist with Ametek Test and Calibration Instruments, gave a presentation on ISO 17025. Ray gave an in-depth discussion on the technical requirements of the document. He discussed the many facets of the document, such as personnel, environmental conditions, test and calibration methods, equipment/standards and traceability. All of these factors can affect the integrity and reliability of measurements.

Paul Dilsner, instructor in the Electrical Engineering Department with Seminole Community College, gave the group an update on the school's metrology program and federal grant. Paul took the group on a tour of the Engineering Technology classrooms as well as the metrology laboratory. The school is looking to partner with local industry through co-ops for their metrology students.

Additionally, the school is in need of test equipment from companies willing to donate to the schools metrology program. If you are interested in supporting either of these efforts, contact Paul Dilsner at Seminole Community College at 407-328-2341.

Several door prizes were handed out at this meeting. Jack Steger of Hi-Stat corporation won a Fluke 77 Digital Multimeter that was donated by Ben Bartholomew, National Sales Manager with Fluke Corporation. Also, Bill Hood of Hi-Stat corporation won a blue NCSL briefing case. Congratulations to Jack Steger and Bill Hood.

In appreciation to Seminole Community College and their representative, Paul Dilsner, NCSL was pleased to present a blue NCSL briefing case and NCSL mousepad. On behalf of NCSL, I want to personally thank Paul Dilsner and the Seminole Community College team that helped make our meeting a success.

Additionally, I would like to thank Seminole Community College for covering all the costs associated with this meeting. Their generous donation was very much appreciated by all.

Jeff Gust of GTE Electronic Service, followed by detailing the certainty of what we are uncertain about. Jeff continued the increasingly detailed focus on measurement uncertainty with an in-depth talk on the GUM, and the ISO 9001 1994 measurement uncertainty tie-in. Jeff gently but thoroughly explained the nuances of the Type A and Type B measurement equations, with and without correlation. He finished with a general Q&A session where different distributions and applied measurement uncertainty issues were discussed.

Following lunch, the NCSL International video and a group photograph, Debbie Nazimiec of Certified Measurements Inc., defined proficiency testing and outlined benefits and the underlying rationale. She addressed topics that should be considered, and different methods of evaluating results. Her examples gave some interesting, almost unsettling perspectives on the performance of a number of labs. This real world tie-in to the application of measurement uncertainty helped the audience really understand the good and the bad of proficiency testing. Debbie additionally provided several examples of error budgeting and referenced resources.

Bill Wightman of Fluke/Wavetek-Datron continued in the technical vein, and explained another way of calculating uncertainty through
Regional Reports

software. He detailed the treatment of eleven variables, both system-derived and user-supplied, in MetCal 6.01. Bill's presentation led into several worked examples and an audience-panel Q&A session. Door prizes followed with gifts donated by exhibitors, and planning committee sponsor firms.

It will be a hard act to follow for our fall meeting, which for several years was held with a sister section. This year's fall meeting is currently being planned and will be held in the Atlanta area.

Attendees:

Ron Matthews  Silver Associates
Randy Fosler  Parker Hannifin
Karl Hayner  Electro Rent Corp
Mike Lansbor  Georgia Power
Jeff Venman  Quantum Measurements
Jay Romack  Southern Marketing Associates
David Paul Kelly  C.J. Welding Solutions
Brent D. Thomas  Parker Hannifin
Doug Reynolds  Delta Air Lines
Terry L. Sparks  Boeing Scientific Tech
JP Cooper  National Toy
Jeremy Hill  Instrument Calibration Serv
Dwayne White  Lockheed Martin
Wayne Harris  Lunar Technologies
Anthony Andrews  Solaray Pharmaceuticals Inc
Kevin Keilmann  TRGAM
Drew Plong  Lunar Technologies
Robert D. Edgerton  Northern Government Corp
Ardis McConnell  Eastman
Anne Sullivan  Enwave
Terry Nichols  Delta Aerospace
John Connaway  Technical Maintenance Inc
Dave Miens  Power Vic
Leo Szlazik  Certified Measurements, Inc
Ed Pritchard  Lockheed Martin Energy Systems
Gino Jordan  GTE ERS
Lance Knoke  GTE ERS
James A. Luce  C.J. Welding Solutions
Richard Nollens  Delta Airlines
Ray Lewis  Delta Airlines
John Fondacaro  WA Brown
Donnie McGhee  WA Brown
Greg Smithhoff  CryoTech Inc
Bruce Carson  CryoTech Inc
Kim Dickman  Parker Aerospace
Darrell Runoldge  Parker Aerospace
Greg Willard  Parker Aerospace
Joe Brown  Siemens Westinghouse
Shirwood Pierce  Siemens Westinghouse
Douglas Podder  Siemens Westinghouse
Philip Reid  Menzies
Ben Center  Menzies
Peter Leavens  Menzies
Greg Caster  Fluke Wave/Servo
Debbie Nadwodny  Certified Measurements Inc
Jeff Grant  GTE
John Ragsdale  TVA
Bill Wightman  Fluke Wave/Seaton
Jennifer Zuckerman  Certified Measurements Inc
Daniele Feller  Electro Rent Corp
Mike Rogers  Electro Rent Corp
Ken Rivers  Electro Rent Corp
Jerome Smidt  Electro Rent Corp
Ted Lane  Georgia Tech Research Inst
Tim Weaver  Georgia Tech Research Inst
Rick Moser  Georgia Tech Research Inst
Melissa Blaschke  Georgia Tech Research Inst
Deryk Bouck  Scientific-Atlanta
John O'Toole  Scientific-Atlanta
Steve Brodsky  Scientific-Atlanta
Ken Myers  Scientific Atlanta
Wayne Malin  Scientific Atlanta
Tracy Floyd  Scientific Atlanta
Mike Dimaggio  Scientific Atlanta
Richard Glasson  Scientific Atlanta
Tom Williamson  Scientific Atlanta
Terry Harris  Scientific Atlanta
Jack Shuler  Scientific Atlanta

These attendees at the Atlanta Section Spring Meeting on Uncertainty Analysis don't look very uncertain about whether lunch comes next.

Jay Romack of Southern Marketing Associates and Jack Shuler of Scientific Atlanta distribute door prizes and gifts to attendees.

John Ragsdale, NCSL Executive Vice President and Ed Pritchard, NCSL Region 4 Coordinator, discuss NCSL business and upcoming events.
On February 29, 2000, the Region 6 Boulder/Denver Section Meeting was held at Agilent Technologies, located in Englewood, Colorado. The meeting was hosted by Greg Burnett and John Wineman, both of Agilent Technologies.

The speakers and presentations were:

1. Craig Gulka, NCSL Business Manager, unveiled the name-change plans for the NCSL and other NCSL business trends and changes. Craig also discussed NCSL’s new and evolving web-based services, and our need to grow and update the NCSL mailing lists.

2. Bill Sorrells, NCSL VP, gave the NCSL Board of Directors Report.

3. Terrelle Wilson, Director of Metrology at the Community College of Aurora, presented an update on the metrology program at CCA. As President of the Association of Measurement Professionals, Terrelle also presented an update on the programs at AMP.

4. Howard Castrup, President of Integrated Sciences Group, presented his new paper: “A Critique of the Uniform Distribution.” If you’ve ever questioned whether it really makes sense to “blindly” assume “uniform” as the default distribution for instrument specifications, then you might just find Howard’s new paper to be what you’ve been looking for. Contact Howard if you’d like a copy.


6. Thomas E. Parker, of the National Institute of Standards and Technology, gave a presentation on “The New Cesium Fountain Primary Frequency Standard at NIST.” For more information see NIST’s Time and Frequency Section on their web site.

7. Sherman Barney, of Agilent Technologies’ Loveland Standards Lab, presented his paper, “Measuring Low-Q Standard Inductors.” The appendices of Sherman’s paper contain program code listings (in HPBasic for Windows) for effective inductance, stray capacitance, inductor interpolation, and effective inductance and Q using a notch bridge. You may obtain Sherman’s paper by purchasing the “2000 NCSL International Proceedings.”

The meeting was started with two discussions focusing on NCSL. Dick Pettit, Sandia National Laboratories & NCSL/VP, Measurement Science & Technology delivered a Board Update and Hank Daneman, retired, presented the forum with a Recollections presentation. Hank Daneman was on the original board of directors for NCSL in the early '60s. We heard his perspective on many experiences that he has had in his professional career. In particular, Hank discussed his participation in the development of the Thomas 1-Ohm design manufactured by Leeds & Northrup, and his participation in the initial design and construction of several NMIs (most notably, that of the Brazilian government).

The rest of the morning was filled with information from Phil Rivera, Sandia National Laboratories, who provided an introductory explanation of the ISO 9000 registration process, shared his experiences, and answered questions. Ken Manicki, New Mexico Office of Science and Technology, described the programs available for New Mexico ISO Compliance for Small Businesses. Ken described a State of New Mexico program that can bring ISO 9000 registration costs down from $40,000-$60,000 down to $1,000-$6,000 for NM small businesses.

Lunch was followed by an NCSL Update on Region 6 delivered by Tom Wunsch, Sandia National Laboratories, NCSL/Region 6 Coordinator.

Wayne Cummings, a Fluke Corporation representative, presented information about the Fluke/Navetek Merger. Wayne answered questions on how the Fluke/Navetek merger will affect a lab. Otis Solomon, Sandia National Laboratories, presented "Status of Standard on Pulse Terminology and Analysis" and provided an overview of this important IEEE standard.

The meeting ended with a one-hour discussion. Participants were asked to submit topics for future meetings. Tom Wunsch fielded questions and provided answers. This section is interested in forming a Met/Cal users group in Albuquerque to promote automated calibrations in the Albuquerque area. Door prizes were handed out to the attendees at the end of the meeting.

The NCSL Region 6 Albuquerque Section Spring 2000 meeting was hosted by Sandia National Laboratories. The meeting took place on April 27, 2000, at the Coronado Club on Kirtland Air Force Base. Michele Monsam, Intel Corporation, gave the welcoming statement and made introductory remarks.

April 27, 2000
Sandia National Lab.
Albuquerque, NM
Michele Monsam
Albuquerque Section Coordinator

Boulder’s metrologists gather in the afternoon sun for a posterity shot by Bill Sorrells.
On April 26, 2000, the NCSL region 7 meeting was held in the heart of Silicon Valley at the Lockheed Martin metrology lab. This meeting was the first held for this region for about three years. The attendance was approximately 40 people and was a welcomed success. The meeting was hosted and conducted by Guy Fleming, of Lockheed Martin, the newly selected Region 7 coordinator.

Opening comments were made by Guy to welcome each member and guest and to thank them for taking time away from their busy schedule. After attendees had their coffee and muffins a brief introduction was done. This meeting was focused on accreditation and with the help and support of Harry Moody was a success. Harry had put a team of experts together to address three areas of accreditation. Ken Staub from A2LA, Carrol Brickenkamp from NIST and Dave Agy from Fluke.

The first presenter was Ken Staub who is an A2LA Assessor and Trainer and is on the board of directors for A2LA. He gave an excellent hour presentation on how the process works to get an A2LA accreditation, also noting that there is a healthy backlog for A2LA at this point.

Next presenter was Dr. Carrol Brickenkamp, who currently is a scientific advisor at NIST. Carroll's presentation covered the issues revolving around the National Cooperation for Laboratory Accreditation (NACLA). This non-profit organization's goal is to improve the US laboratory accreditation system.

The third presenter was Dave Agy from Fluke who gave some very specific details on what their company has gone through to get accreditation implemented into their company. This included the cost, training and preparations just to name a few. All three presenters were well versed in their topics and provided a very lively and educational workshop.

After the presentations, we all went over for a no-host lunch at the cafeteria that is located adjacent to our lab. This luncheon also allowed a forum for continued discussions on all the aspects that affect the metrology industry today.

After lunch we went back to watch the NCSL video entitled "What is NCSL International?", a very entertaining video lasting about 15 minutes. We then went out for our picture and back for more discussions. Harry Moody gave us some updates on the goings on at NCSL and reminded everyone of the upcoming conference to be held in July in Toronto, Canada. After Harry, Guy requested input for topics and perhaps a location for the fall meeting. Upon closure of the meeting a tour of the lab was given to approximately 25 attendees.

In summary, I would like to thank the presenters for making this meeting a great success and very enjoyable for all. Also, thanks to the audience for taking time from their busy schedules to attend this meeting.
Regional Reports

April 25, 2000
Southern California Edison
Westminster, CA
Miguel Cerezo
Los Angeles Section Coordinator

NCSL Workshop on Accreditation

The Los Angeles/San Fernando Valley Section of NCSL Region 8 met on April 25, 2000 at the Southern California Edison facility in Westminster, California. The day began with a continental breakfast and gathering time at 8:00 AM. Doris Abbott, of Amgen, welcomed attendees and processed registrations in an efficient and friendly manner. Section Coordinator Miguel Cerezo, then led the introductions and announced the topics of the day.

Following the welcoming comments that were provided by Mike Magin (SCE), the opening session was a presentation by Ken Staub, A2LA. Ken covered several topics relating to A2LA accreditation activities and the processes involved. It was interesting to hear about the wide variety of industries and organizations that use A2LA's services. A lively question and answer session followed his presentation.

Dr. Carroll Brickenkamp (NIST) followed Ken's presentation. This informative and very professional presentation consisted of a discussion of her organization's new role in "coordinating the accreditors." Topics included the difficulties in establishing mutual recognition agreements and other subjects of interest.

After a brief break, Dave Agy (Fluke) described his company's experiences in becoming accredited by both NVNAL and PTB/DKD. The contrasts and comparisons between the two accrediting bodies where quite fascinating as was Dave's description of how the Fluke metrologists responded to the process.

Just before noon, the attendees enjoyed a wonderful BBQ buffet style luncheon. In addition, a group of attendees participated in an abbreviated tour of the SCE calibration facilities.

After the luncheon and tour, the group reconvened for Harry Moody's presentation on "What is NCSL International?" and heard an update on various other NCSL Board activities. The presentation included viewing the new NCSL video, which was quite entertaining and enthusiastically received.

Planning for the Fall session was completed following Harry's presentation and a discussion was held regarding starting up a series of measurement comparison projects in the local area. The meeting was wrapped up with the awarding of a very impressive lot of door prizes. Steve Meza (Endevco) took home the big prize this time.

Way to go Steve! The meeting was then adjourned and a tour of the SCE Quality Inspection facility was provided for those who were interested.

Overall, the workshop and seminar was quite successful and it was extremely interesting to hear about the laboratory accreditation topic from the perspective of the NIST, the accreditor and the accreditors. Once again, I'd like to thank our hosts at SCE for providing us with such excellent accommodations and hospitality.

Please come join us for more fun and information at our next seminar and workshop to be held at the GTE ERS facility in Ontario, CA sometime in October.

Editor's Note to Region Coordinators: One interesting fact about this panel of skilled presenters was that by judicious planning, guy Fleming in his Region 7 meeting at Lockheed Martin, Sunnyvale was able get the same speakers to fly up for the following day in the Bay Area. The Boston and Seattle regions have done the same.

Attendees:
Ken Staub
Ron Fitzgerald
James Carroll
Chuck Harkey
Miguel Cerezo
Robert Beitel
Dori Abbott
Harry Moody
Marge Horak
Jim Smith
Joseph Rohleder
Bill Richett
Chester Franklin
Art Packard
Steve Meza
Ammon Gagnon
Dave Agy
Rich Schmader
Roh Johnson
Lori Reiner
Wayne Limbe
David Atkins
Brian Walker
Eddie Hazan
Brian Curley
Kevin Dodds
Dr. Carroll Brickenkamp
Tohle Eberil
Bennie Hollins
Richard Lindsay
Ken Racan
Larry Nielsen
Kevin Davis
John Stork
Lee Rice
Bill Thompson
Stu Gibson
Peter Lyon
AZLA
Accurate Instrument Company
Aerospase Corporation
Aerospase Corporation
Amgen
Amgen
Amgen
Boeing
Boeing
CA Dept. of Food and Agriculture
Dos Richett Co.
Dye Corp.
Elmore Rien Corp.
Endevco
Endevco
Fluke
GTE Supply
GTE Supply
GTE Supply
GTE Supply
ICC Instrumentation Company
ICC Instrumentation Company
ICC Instrumentation Company
Kyoceco Wireless Corp.
Kyoceco Wireless Corp.
Kyoceco Wireless Corp.
L.A. Dept. Weights and Measures
Litos Guidance and Control
Nessar Pharmaceuticals
NIST
Ohio Metrology
Parker Aerospase Corp.
SAMCO
SCE
SCE
Solar Turbines
Temperature Standards Lab Inc.
USN
USN
USN
Ward Davis Co.
Ward Davis Co.

REGION 9

March 21, 2000
Mountain Home AFB,
Mountain Home, ID
Larry Warner, Region 9 Coordinator

The Spring meeting of NCSL Region 9 was held on March 21, 2000 at Mountain Home Air Force Base in Idaho. Ken Kaae of Boise Calibration Service worked with Senator Larry Craig and his staff to arrange our meeting site. We were hosted by Col. Larry Butler, 366th Wing, and his staff. Col. Butler briefed our members on the Wing's capabilities, mission and support functions.

After the briefing we toured the base by bus with our first stop on the flight line to tour a B1B Bomber. Our tour included the opportunity to sit on the flight deck and dream about a flight (maybe next year we can fly one??). Everyone was very impressed with the B1B, its capabilities, and the Air Force crew that shared their experiences with us. AIC Photographer Charity Barrett, provided us with a great photographic record of our visit.
After our tour of the base flight facilities, MSgt. Gale Holmes and his staff provided us a detailed tour of the PMEL facility. We received a detailed briefing on how they support the Wing and other Air Force Facilities around the U.S. We learned about their quality system, both how they monitor the quality and improve it. After the briefing we were taken on a tour of the many sections of the lab. Everyone we met in the lab was very knowledgeable about their area and eager to tell us about it. Many of the members remarked what a pleasure it was to find so many people enthused about metrology.

Then back on the bus for the Officer’s Club and lunch. After lunch we conducted a short meeting before our return home. We watched the new NCSL video tape which received favorable comments from most members. The video will be nice to show our colleagues when they inquire about what we do.

Mike Suraci gave us an update from the last board meeting and talked about the plans for the Conference in Toronto. Volunteers are still needed in a number of areas and Mike encouraged our members to participate.

Del Knapp, Tektronix, briefed us on the last meeting of the ANSI/NCSL Writing Committee meeting. Del’s brief turned into a discussion of ISO 17025 and the implications it has for the calibration lab.

Larry Warner, Fluke, announced he is leaving the Region 9 Coordinator position after 2 years because of new work responsibilities. Derek Porter, Boeing, has agreed to accept appointment to this position. Thank you, Derek, for volunteering to help our Region 9. Many of you already know Derek from his work on various NCSL Committees over the years.

Attendees:

William Jame Allred
Larry W. Deming
Derek Porter
Ken Tiso
Don Larsen
John A. Aitken
Wallace W. Miller
Larry Warner
Charles S. Alston
Fred Grant
Michael Abrams
Linda Blazik
Mike L. Cowell
Martin V. Duvall
David Ham
Kevin Merritt
Mike Sansuri
Malcolm Smith
Chuck Zelick
Albion Cawtowe
Del Knapp
David Burke
Gale Holmes
John Jude
Richard Merker
Mike Whipple

How many NCSL members will fit into a B1B Bomb Bay??
Photos courtesy Charity Barret, AIC, USAF

Mike Suraci, Derek Porter, Larry Warner. Mike isn’t sure all those wheels will fit in the bay!

You guys are too old to enlist!
April 13, 2000  
Canada Centre for Inland Waters (CCIW)  
Burlington, Ontario,  
Wayne Sampson  
Canadian Section Coordinator

The year 2000 Spring Meeting of the Canadian Region of the National Conference of Standards Laboratories was hosted by Environment Canada’s National Water Research Institute (NWRI) at the Canada Centre for Inland Waters (CCIW) in Burlington, Ontario, on April 13, 2000.

This is indeed a beautiful facility and once again on behalf of NCSL, I would like to formally thank the CCIW Institute for providing the space necessary for our meeting.

Without the cooperation of facilities such as CCIW it would be difficult for NCSL to continue the important work of fostering metrology in Canada.

Our one-day spring meeting was very successful with over 35 people attending. Morning presentations were made by Gary Hysert of NRC, who discussed the CLAS program. Steve Chapman of the Fluke Corporation talked about “Fluke Accreditation Practices.” Jim Mullins of Pylon Electronics held a panel discussion on “before and after data.” Panel members included Kevin McClure of Fluke, George Parker of Litton Systems, and Steve Gerassimou of Cal Matrix. Graham Cameron of the Standards Council of Canada brought us up to date on NCSL 2000 to be held in July in Toronto.

The afternoon was equally as active with presentations from Peter Detmers of Mitutoyo, whose topic was “Gauge Block Calibration Machines.” Rose Creamer and Mike Lee of 3M Canada gave a presentation on “Static Electricity.” A video was also shown on “Infrared Temperature Measurement.”

Following the meeting, host Les Peer conducted a tour of the C.S.S. Limnos, NWRI’s capital research vessel. C.S.S. Limnos, with a length of 45 metres, was constructed in 1968 at the Pt. Weller Dry Docks in St. Catharines, Ontario, as a steel-hulled limnological research vessel for use on the fresh waters of the Great Lakes and connecting rivers. For those unfamiliar with the term, Limnology is the study of fresh water whereas oceanography is the study of salt water.

Editor’s Note: I’m glad Wayne explained that word, since I wasn’t sure the dictionary would cover it.

Attendees were shown the instrumentation on board the vessel which is used to make water quality measurements in support of the Canada/USA Great Lakes Water Quality Agreement and various scientific studies. Information from these studies is used in identifying areas of concern having significantly high water pollution levels. Resulting data is used to formulate Remedial Action Plans (RAP) involving local users and all levels of government in order to address these concerns.

The tour concluded in the NWRI Calibration Laboratory where the calibration procedures for this limnological instrumentation and the laboratory’s working standards were demonstrated. Many thanks to our host, Les Peer, for a very informative tour.
STANDARDS POLICY
Anthony Anderson, V.P.

NATIONAL COOPERATION FOR LABORATORY ACCREDITATION (NACLA) ACTIVITIES

I attended the NACLA second Annual General Meeting (AGM) on April 10, at the headquarters of NIST in Gaithersburg, MD. Principal speakers included Dr. Rich Kayser, NIST Director of Technology Services; John Donaldson, Vice President of ANSI; Donald Heirman, Lucent Technologies, NACLA President; Veronica de Solorzano, EMA (Mexican accreditation body); and Don Wilson, Standards Council of Canada.

Dr. Kayser told the nearly 100 attendees at the AGM that NIST shares the same goal as NACLA: elimination of duplication and inefficiencies by creation of a coordinated and efficient U.S. system for the many organizations that accredit testing and calibration laboratories. The NACLA approach of recognizing accreditation bodies that comply with appropriate international standards is consonant with the conformity assessment responsibilities assigned to NIST in the National Technology Transfer and Advancement Act, as well as with the systems of other international accreditation cooperations.

Members of the Board and a number of the NACLA committee chairs presented an overview of NACLA's progress over the past year. I reported as NACLA Treasurer and Chair of the Administrative Guidelines and By Laws Committee. It was reported that NACLA evaluation teams have already evaluated two of the first four applicant accreditors and that the other two would be evaluated in the near future. When the Recognition Committee has processed these four evaluation reports, it is expected that the first NACLA recognitions will be announced. There are already four other accrediting bodies in various stages of the NACLA application process.

Following the close of the half-day AGM, attendees were given the opportunity to witness the activities of several NACLA standing committees: International Affairs, Recognition, Technical Requirements, and Membership and Marketing. On the next day, NACLA held an ISO/IEC 17025 Workshop at which there were 90 attendees. Further details of the AGM and the Workshop are described in the News Release attached to this report.

After the AGM and Workshop, I attended the NACLA Board of Directors meeting which continued into the following day. The Board discussed a review of the AGM and Workshop and some suggested improvements for the future were considered. Reports on the committee meetings were presented and several actions were agreed upon. In particular, the initiative began last fall by the International Affairs Committee to take NACLA to the next step, which is the achieving of regional status and application to ILAC as a Regional Accreditation Cooperation, took another step forward.

It was agreed at the meeting of the committee and endorsed by the Board, that NACLA and the North American Calibration Cooperation (NACC) would be pursuing the preparation of an MOU between the two organizations with the intent of forming one North American Laboratory Accreditation Cooperation, and at the same time also keeping and strengthening cooperation and involvement with the Inter America Accreditation Cooperation (IAAC).

SIM Report
Sistema Interamericano de Metrologia (SIM) Annual General Meeting and Seminar.

I have been working with Ed Nemeroff and Roosevelt DaCosta of the Jamaican Bureau of Standards, to assist in the planning of the upcoming SIM meeting in Jamaica on September 28 & 29, 2000. Currently I am working on negotiating a contract with the Renaissance Jamaica Grande Hotel, which will be hosting the event.

Committee Activities:
U.S. GOVERNMENT AFFAIRS
Mike Suraci

Mike attended the board meeting and presented his report.

INTERNATIONAL MEASUREMENTS COORDINATION
Graham Cameron

Graham's report was presented at the board meeting.

* * * * * * *

MEASUREMENT SCIENCE AND TECHNOLOGY
Richard B. Petitt, V.P.

Activities:


Committee Activities:

AUTOMATIC TEST & CALIBRATION SYSTEMS
Jun Bautista, Jr.

Cesar (Jun) Bautista, SIMCO, has agreed to chair this committee. The initial meeting of the committee is scheduled for the 2000 NCSL Workshop and Symposium. I also provided to Jun a list of four potential committee members.

MEASUREMENT COMPARISON PROGRAMS
Committee News

Jim Wheeler

Jim Wheeler has prepared an E-Track session on NCSL Interlaboratory Comparisons. The three presentations include (1) results of the Thomas 1-ohm artifact (Jeff Gust, GTE Electronic Repair Services), (2) Josephson Array Standards (William B. Miller, Lockheed Martin Astronautics) and (3) pressure transducer artifact (James Schmidt, NIST).

The Committee received information from Rich Kayser, NIST, that the internal process NIST will use to support NCSL round robins has changed. In the new process, the four NIST Labs involved in calibration will decide what NCSL round robin activities they will participate in and provide internal support for the activity. This change in the process is based solely on improving the internal NIST roles and responsibilities between the NIST Labs and Technology Services.

Report:

NCSL 2000 in Toronto will feature an E-Track session devoted to the results of three interlaboratory comparisons. The session will provide reports on Thomas 1-Ohm Resistance ILC, the Pressure ILC and the Josephson Junction ILC.

The Thomas 1-Ohm ILC has been completed according to Jeff Gust jeff.gust@supply.gte.com. The final draft of the paper has been submitted, and it will be published in this summer’s proceedings.

There is an interest in starting a NCSL Mass ILC. The last NCSL sponsored ILC was in 1994/1995 timeframe. There are about 5 interested labs so far. Jim Ross (Quality Control Services) would like to hear from you if you are interested in participating in a Mass ILC. His e-mail is Lab@qc-services.com. Jim’s phone number is (503) 236-2712.

I received an e-mail from Pat Abbott (NIST) patrick.abbott@nist.gov regarding interest in a Helium Leak Inter-comparison. Pat reports that one or more Helium Permeation leaks would be the comparison artifacts. NIST would be the pilot lab and the ILC would be limited to 10 participants. A “star pattern” would be the best way to go as the artifact(s) are fragile, and NIST would want to know ASAP if there is a problem. Pat wants to limit the timeframe to about one year. Contact him for more information or attend the NCSL MCP Committee Meeting to set up an initial side meeting. The meeting is scheduled for 4:15 to 6 PM, July 18 Tuesday, in Room Dockside I.

Brian Conroy, Litton Guidance and Control, is interested in starting a round robin in Vibration. Brian’s email address is conroyb@littoncs.com. His phone number is 818-886-6872.

Brian Foltz <Brian75983@aol.com> is the technical manager at Rockford Calibration Service. He is looking for round robin gage studies covering physical dimensions (plugs, threads, rings, gage blocks) to participate in.

Dr. Dick Pettit (Sandia National Laboratories) and I will present a paper for NCSL Toronto entitled “NCSL National Measurement Interlaboratory Comparison Database Requirements.” The paper will be given during session E4 and hosted by Dr. Bob Waters (NIST). Dr. Waters helped to develop the International ILC Database that can be seen at: http://icdb.nist.gov. Dr. Waters is interested in developing a national Internet database for the purpose of compiling ILC data on U. S. inter-comparisons.

Minutes from NCSL 99 indicated an interest in meeting with representatives from accreditation bodies at the next NCSL MCP Committee meeting. Can accreditation bodies use ILCs to aid in proficiency testing? I have asked for input from A2LA and NAVL on this subject. Another topic is how the proposed NIST ILC database could help with proficiency testing. These will be discussion topics for the MCP committee meeting. The meeting is scheduled for 4:15 to 6 PM, Tuesday July 18, in Room Dockside I.

John Cable, Allied Signal, jcable@kc.p.com, coordinates the IEEE Microwave Theory and Techniques AJFTG round robins in support of automatic network analyzers. The following connector types are supported in the round robin effort. Thanks to John Cable for providing this information.

The 2.92 mm K connector kit coordinator is Ron Guzman, Anritsu. Ron can be reached at (408) 778-2000 ext. 4403, FAX (408) 778-4010 or e-mail <guzmannamg.us.anritsu.com>.

The Type N connector kit coordinator is John Cable, Allied Signal. Phone (816) 997-4361 or FAX. (816) 997-3856 or e-mail <jcable@kc.p.com>.

The GPC-7 coordinator is You-Keun (Brian) Lee at Agilent Technologies Golden Gate Standards Lab. His phone is (650) 694-2296, FAX (650) 694-2669 and e-mail brian-ys.lee@agilent.com.

The two 2.4-mm kits are coordinated by Ken Wong, Agilent Technologies. Ken’s phone is (707) 577-2616, FAX (707) 577-5484 and e-mail <ken_wong@am.exch.agilent.com>.

The 3.5-mm kit coordinator is Phil Yates, JPL. Phil can be contacted by phone at (818) 393-3705 and e-mail <pyates@jpl.nasa.gov>.

National Association of Proficiency Testing (NAPT) has a measurement forum page at <http://www.proficiency.org/forums.htm>.

Let me know what you would like to see from the MCP committee on the webpage www.ncsl-hq.org. One suggestion would be to have examples of ILCs available. Craig Gulkia helped me put a MCP Committee database of past committee articles on the server. It can be sorted by measurement area. It can be found under Highlights on the left-hand menu screen.

For more information about the committee contact me at (619) 545-9705, FAX (619) 545-9861 or wheelerjc@navair.navy.mil.

INTRINSIC & DERIVED STANDARDS

John Ball

Working Group Reports:

{ Triple Point of Argon WG is still stalled.

{ Two-Temperature Two-Pressure Humidity WG, under the leadership of Bob Hardy (RH Systems), has a draft; Recommended Intrinsic/Derived Standards Practice (RISP) that is in circulation to the committee for review. The draft includes an appendix and
uncertainty calculations. It is expected that the final draft document will be ready for review and approval by the NCSL Board of Directors at the July 2000 NCSL meeting in Toronto.

(Deadweight Pressure Gage Committee, under the leadership of Ruben Salazar (Boeing Co.), is in the process of developing an uncertainty analysis for cross-floating of piston gages.)

John Ball is in the process of identifying members of a new Working Group to develop an RISP on Gold-Platinum Thermocouples.

Charles Ehrlich, NIST, has agreed to accept the IDSC position that became available with the retirement of Norm Belecki.

**CONSENSUS STANDARDS**

Open

The chairmanship of this committee remains open. R. Pettit will work with Rick Rios of JTI on identifying a chairman and working group for this committee.

**U.S. MEASUREMENT REQUIREMENTS**

*Jeff Walden*

The U.S. Measurement Requirements Committee is in the process of developing a draft report. Additional responses have been solicited through section meetings and additional mailings to NIST customer lists. The next step is to form a team to review the input information associated with specific categories of responses. The team may need to contact each respondent to clarify and validate their or her input, as necessary. Next, the team will summarize all the responses for their category and write a section of the final report. After committee review, the goal is to submit a draft final report to the VP by June 1, 2000.

**CANADIAN MEASUREMENT REQUIREMENTS**

*Les Peer and Lorraine Yeomans*

The purpose of this committee is to determine both our member's current and future needs for measurement services from the Institute for National Measurement Standards (INMS) at the Canadian National Research Council. The member survey has been completed and the committee is currently writing the final report. When completed sometime in May, the draft report will be sent to R. Pettit for initial review, as well as the NRC. If the NRC is amenable to developing a response to the survey, it will be included in the final report, which will then be submitted to the NCSL Board of Directors for review and approval.

**CHEMICAL METROLOGY**

*Tom Ouimet*

The committee has developed a Charter and Long Range Plan that were included in the NCSL 2000 plans. The committee now is in the process of identifying and prioritizing current and future projects in chemical metrology. It was decided that the committee would meet twice a year: at the NCSL 2000 Conference and the PITTCON Conference. Finally, a technical session with papers presenting Chemical Metrology issues is planned for the NCSL 2000 Conference.
Committee News

now in my court to provide papers and other documentation pertaining to methodology development. Karl will then organize and distill this source material for an RP first draft.

SPC Methods

Subcommittee chair Ricardo Nicholas of Boeing Defense & Space Group is continuing to manage development of a Metrology SPC RP.

Decision Support

The subcommittee chair, Derek Porter of Boeing Commercial Airplane Group, has been continuing his efforts to identify decision support guidance in existing NCSL RPs. References to this guidance will be included in a draft RP for Metrology Decision Support.

The Committee will meet in conjunction with the 2000 Workshop and Symposium to discuss progress and to plan future activities.

Editor’s note: See Committee News section of January 2000 for sub-committee tasks and appointments.

ANSI/NCSL WRITING COMMITTEE

John Wehrmeyer

The 174 Committee met on Thursday morning, at 07:30 AM, January 20, 2000, in the Pacific Room of the Disneyland Hotel in Anaheim California. There was record attendance at the meeting due to the interest in the ISO International Standard, ISO/IEC 17025 and its impact on the ANSI/NCSL Z540-1-1994, Calibration Laboratories and Measurement and Test Equipment - General Requirements.

The ISO/IEC 17025 is now a published standard, so it is important that the 174 Committee move forward to take the appropriate action on the Z540-1-1994 Standard. As you may recall, the 174 committee conducted a Straw Vote to poll the opinions of all concerned parties to decide what action should be taken toward revising the ANSI/NCSL Z540-1-1994 Standard. This Straw Vote had no official force, but was helpful to evaluate the opinions and ideas of the general metrology community. There were a number of different ideas expressed during the Straw Vote. The single largest group of the respondents indicated that they think the Z540 Standard should be withdrawn in favor of the ISO 17025, but no simple majority became evident. On the other hand, several other noteworthy alternatives were offered for consideration.

During the January committee meeting, the expectation was to call for an official vote on the action to be taken on Z540-1-1994. However, a few committee members expressed the opinion that we were not knowledgeable enough about the new ISO/IEC 17025 to make the decision at this point in time. Other committee members expressed the same concern at the meeting. Consequently the committee formed an Ad Hoc Working Group under the leadership of Bill Quigley, Past NCSL President, to develop a cross comparison between 17025 and Z540-1. The comparison will be sent to the committee members for examination. Armed with this additional knowledge, it is expected that the vote on the revision of the Z540-1-1994 will occur on July 17, 2000 at the NCSL workshop and Symposium in Toronto.

As a side issue, I wish to take this opportunity to point out the dual roles of the 174 committee so that we all can better understand the committee’s actions. The 174 committee has two related but distinctly different roles and serves two different groups of our members. Should the committee become involved in authoring an international standard, its mission is to serve all the members of NCSL around the world. On the other hand, when the committee is serving as a conduit for input to a US Technical Advisory Group (TAG) to the ISO or involved in some other activity focused within the United States, the customer base becomes equally focused. This distinction became very clear to me as we conducted the Straw Vote mentioned above.

As I had said, the single largest component of the respondents recommended that the NCSL should withdraw the Z540-1 in favor of the ISO 17025 Standard. Yet the magnitude of this component significantly diminished when only the US respondents’ votes were considered. With this distinction on mind, I suppose it would have made more sense to restrict the Straw Vote on the action to be taken on a US National Standard such as Z540-1 to US voters only. However, as the vote was unofficial and since the purpose was to feel the pulse of our NCSL membership, I am glad we proceeded as we did. It is my expectation that the committee will continue to work by consensus and for the purpose of serving all of our members as is appropriate.

ACCREDITATION RESOURCES

Larry E. Nielsen

The most recent meeting was held on Wed. January 19 at the Disneyland Hotel as part of the 2000 Measurement Science Conference in Anaheim, CA. There were 13 in attendance. 6 being first-time attendees. Topics of discussion included the four projects identified by the committee as near- and longer-term deliverables to the general membership.

Practical Guide to Achieving Laboratory Accreditation

Per our last meeting, work has begun on a draft RP on the practical aspects of laboratory accreditation. The rough draft is approximately 35 percent complete, with the remaining material in outline or as-imported form. Contributions have been received from the writing group in the form of related papers, presentations and original writing. The scope, content and status of the document will be topics of discussion at the next meeting. Goals are to have the rough draft completed by next winter’s meeting, and a smooth copy ready to submit to the board of directors by this time next year.

Web Site Development

Development of our web site has been stymied due to the lack of availability of the committee forums area on the NCSL server for the past several months. To a certain extent this has affected the writing effort of the draft RP as well. Jim Alfred is monitoring this situation for us with the business office and will report on status and progress at the next meeting.

Seminars & Tutorials

Ken Parson will be presenting two tutorials on laboratory accreditation; "Preparing for Laboratory Accreditation" and "How to Prepare
a Quality Manual," at the national conference in Toronto. We hope
to have a status report and to learn about plans for any follow-on
presentations from Ken at the next meeting.

Laboratory Capabilities

Updating RP-9 on laboratory capability documentation guidelines
was assigned to this committee by the board of directors last fall.
As a prelude to this task, Jim Jenkins has prepared a technical paper
for presentation at the national conference in Toronto. Jim's paper
will solicit comments from the general membership to be used for
guidance and input to the RP-9 revision effort.

Our next meeting will be held in conjunction with the 2000 NCSL
Workshop & Symposium, July 16-20 - Toronto, ON, Canada.
Please find us in the Dockside II banquet room from 4:30 to 6:00
pm on Tues. July 18.

* * * * * * * * *

INDUSTRIAL PROGRAMS
Steven Stuhley V.P.

HEALTHCARE METROLOGY
Charles Lord

No reported activity for this quarter.

UTILITIES
Ken Ralston

The Utilities Committee has reviewed 17025 and has compared its
requirements to IEC FR50 Appendix B which they are required to
follow by the NRC. They have determined differences but do not
believe the additional requirements that would be placed on them if
they were to adopt 17025 are cost justified. The committee feels
that they would be better served in the short term to revise RP10
which is on the agenda for the Toronto meeting.

- The Utilities Committee meeting was held on January 18, 2000 at
  the MSC with 13 in attendance including attendees from 9 utilities,
  manufacturers and NIST.

- Gregory Centker (Fluke) gave a presentation on "Measurement
  Uncertainty" during which there was a general discussion of soft-
  ware used to calculate measurement uncertainty.

- Ernest Garner reported on the Power Metrology Conference held
  in December of last year in Arlington, VA. Ernest also indicated that
  NIST has instituted many changes in an attempt to improve their
  turn-around time and solicited candid feedback from the group.

BENCHMARKING PROGRAM
John Wade Keith III

No reported activity this quarter.

EQUIPMENT MANAGEMENT FORUM
Jim Tavernier

- Jim Tavernier reviewed an e-mail from Gary Davidson and Ken
  Wibbenmayer requesting info on EMF sessions at this year's con-
  ference. Jim indicated that he had others that would also like to give
  papers, but did not receive a response from Gary or Ken and has
  now run out of time to set up a session.

- Rob Parchuiski for Boeing Space in Huntington Beach, CA will
  accept the new Chairmanship of the EM Forum. An appointment
  letter will be sent out this week.

AIRLINE INDUSTRY METROLOGY
Ray Lewis

The Airline Metrology Committee met on May 10th, 2000.
Committee member Bob McClurg hosted the meeting at the
Continental Airlines facility in Houston, Texas. Special thanks go to
Bob, Chad Carney, and the other kind folks at Continental who
shuttled us to and from our planes and provided a Texas-sized bar-
becue lunch. Thank you for your fine hospitality!

The following proposals had been submitted for final review at the
previous meeting and were presented for discussion, changes, and
final approval.

Membership Proposal: accepted with no changes

Committee Mission Statement: accepted with one word change for
clarification

Committee Year 2000 Goals: accepted with one addition

Proposal concerning Z540: The committee chose to go through the
whole proposal for the benefit of new representatives on the com-
mittee. Several minor changes were incorporated into the proposal
to clarify, correct typographical errors, and for consistency in word-
ing. The most significant change was to include the cover letter as
page one of the proposal rather than as a separate document and to
number the pages accordingly. The proposal was accepted as modi-

All proposals were accepted with no dissent.

After lunch, the committee took up the following old and new busi-
ness:

The committee had put several projects on hold in order to com-
plete the Z540 proposal. The items on hold were discussed, new
items added, and then the committee prioritized (in the sense of
order, not necessarily importance) the list as follows, with "1" being
the first priority:

1. MAP (interlab comparison)
2. Approach CASE
3. Approach ATA
4. OEM/supplier calibration criteria, paperwork they provide, specs
5. Exchange (among the committee) company and lab organization-
al structures
6. Bring in various subject matter experts
7. Pursue metrology training information and opportunities
8. Explore standard calibration procedures from the committee

25
Another item, further organization of the committee, will be developed at the closed meeting at NCSL in July.

Mike Thilges proposed that the chairman of the committee send a letter to the committee members outlining our Z540 proposal and including the membership statement, mission statement, goals, and current participants. The letter would be forwarded to appropriate company managers/executives to bring greater awareness of the committee. The proposal was approved with no dissent.

Carl Closonore had been developing a round robin for the committee members and led a discussion of the process, costs, timing, controls, suggested artifacts to date, etc. The committee members will provide Carl with a suggested artifact before the end of the month. Carl will be our representative to decide on artifact(s) for the first round and be the point of contact. As soon as the artifact is decided, the committee will proceed.

Mike Thilges and Victor Cleland will pursue the committee business with CASE and update the committee at the next meeting on CASE’s checklist and their desire for our involvement.

The committee will have an open meeting at the NCSL conference on Wednesday, July 19th, at location and time as listed on the NCSL web site. The committee would like to meet for a short time in closed session on Monday, July 17th. The chairman will contact NCSL officials to determine time and location for that meeting.

After formal conclusion of the meeting and a hearty “thanks” to our hosts at Continental, committee members toured the calibration facility at Continental.

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<td>Michael Napoli</td>
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**Membership Proposal for the Airline Metrology Committee**

Membership of the committee is open to the United States passenger airlines which maintain a calibration lab for in-house calibrations.

The committee will, during the course of the year, encourage and invite participation of other parties interested in the calibration of airline test equipment and welcomes their expertise, advice, and encouragement during the open meetings.

Membership will be listed by both the name of the airline and the name(s) of the current, active participants of each airline.

**Mission Statement for the Airline Metrology Committee**

The committee will serve as a forum for members to focus on measurement concerns of the airline industry. We will promote quality improvements in the airline calibration labs. The committee will work with NCSL to continuously improve airline measurement integrity and to be sure that future NCSL Recommended Practices accommodate the specific needs of the airline industry. The committee will provide a point of contact for related organizations such as test equipment manufacturers; NIST; airframe, powerplant, and component manufacturers; FAA; third party calibration labs; and others in order to communicate the specific needs for airline calibrations. We will work closely with passenger airlines based outside the United States to further our common interests.

**Year 2000 Goals for the Airline Metrology Committee**

Present a guide to NCSL as requested to be passed on to NIST as a training resource.

Once the guide is complete, establish a priority list for the committee’s attention.

Hold quarterly meetings, at least one at a member facility in order to visit their lab.

Set a schedule and a specified parameter on which to begin interlab comparisons.

Examine the need for further committee organization and implement as needed.

Approach CASE, offer support, and establish a liaison if appropriate.

Approach ATA to solicit support for the committee.

**AUTOMOTIVE INDUSTRY**

* Lori Jester

The Automotive Committee met in conjunction with the SAE Congress held in Detroit at the COBO Hall, and was chaired by Lori Jester.

- The meeting was well-attended with 25 people present, including representatives from each of the big three and several major tier suppliers.

- The main topic of discussion was interpretation of QS-9000 by registrar auditors. Several concerns were raised by committee members as to the resources needed to comply with these new requirements. A sub-group was tasked to better understand how to proceed. Several options were presented including a letter to the SQRTF or publication of a white paper describing the issues.

- The committee will meet again at the 2000 conference to review the subcommittee’s recommendation.

**TESTING LABORATORIES**

*Lynn Newman*

No activity since MSC. Lynn Newman is developing the committee’s charter and long-range plan and will plan to review with the committee at the 2000 conference.

**DIMENSIONAL METROLOGY**

*TBD*
The Dimensional Metrology Committee met in conjunction with the international Dimensional Metrology Workshop at Oak Ridge NL, May 8-11th. The committee met to discuss their charter and long range plan.

At the Toronto Conference, Ed Pritchard has developed an E-Track on dimensional Metrology. Papers being presented include:

1. Dimensional Metrology in the Twenty-First Century: A View from NIST, Dr. Dennis Swyt, NIST
2. Dimensional Metrology into the Millennium, Dr. Graham Peggs, NPL
3. UNC Charlotte Research in Precision Metrology, Dr. Robert Hocken, UNC@Charlotte

**PRESIDENT’S MESSAGE (Continued from cover)**

NCSL has participated in a whirlwind of activity around international metrology activities over the past few years. Recent additions of board representatives from CENAM (Mexico), SIM (Americas), and an increased international presence at meetings and symposia by members of the board have accelerated the need for us to reconsider the traditional U.S. centric focus of NCSL. The board thought the proper way to represent NCSL’s willingness — eagerness I should say — to contribute to the advancement of international metrology is to change our name to NCSL International. Consider it a self-fulfilling prophecy. If we think of ourselves as internationally aware, we will act more that way.

The name, NCSL International, was chosen to both honor the past – NCSL – and to point to the future – International. We will no longer spell out the acronym of NCSL in normal use, but rely on the phrase “NCSL International” naming the organization.

I just returned from an Agilent Technologies funded trip to speak, as President of NCSL, at a metrology symposium in Jerusalem, Israel. Dr. Avinoam Shenhar of the National Physics Laboratory of Israel was a gracious host, and it was exciting to see the enthusiasm around Israel’s first international metrology symposium. This was the first conference of its kind in the region and drew attendance from thirty different countries. Our Executive Vice President, John Ragsdale, was speaking at the same time at the “2nd International Symposium on Measurement Standards in Japan.” Myself, John and Klaus Jaeger are also scheduled to visit INMS (Canada) and CENAM (Mexico) headquarters later this year and participate in management to management discussions like those we recently had with NIST in Washington, D.C.

On another topic, there is an opportunity for you the participate more fully in NCSLI activities. Take a moment to look at the list of committee chairs at the back of this newsletter. You will notice there are a few TBIS (to be determined). This is an opportunity for you to step forward and become more involved. Our chairman for the Membership Committee (125) had to resign leaving a critical activity without leadership. We would like to have someone take that role who is experienced in marketing techniques. If you are interested, or know someone who is, please contact Charlie Mozko. There are several other positions that are vacant, just waiting for you to volunteer. The pay isn’t great — nothing — but the opportunity for increased networking, and self development is huge!

If you know of others who are not members of NCSLI International, take a moment to share this newsletter with them and talk about the personal gain you’ve received from being a member.

Why should you join NCSLI International? Here are some of the benefits:

- You receive advance notice of key developments in metrology and standards
- Your industry exposure and visibility increase
- You’ll discover what leading laboratories are doing first
- Your networking opportunities are unparalleled
- You have direct access to key publications and training resources
- Your professional and leadership development can soar

New documentary Standards have made it essential for companies to remain informed and competent in meeting established requirements for calibration in order to do business in the domestic and global marketplace. NCSLI International Membership benefits the Member Company by providing ongoing information on changing requirements of Standards, regulatory and accreditation compliance, as well as recommended laboratory practices. NCSLI provides an extraordinary opportunity to stay on top of the latest developments and access to resources that will help your organization continue to excel and successfully compete anywhere in the world.

In addition, NCSLI International participates in international efforts for development of laboratory competence and accreditation, laboratory safety, inter-laboratory comparisons, and metrology education in developing countries. This participation allows NCSLI International members to have input on development of international standards.

What’s in a name? It’s the power to change the way you view the world. Welcome to the new world of NCSLI International!

Dave Abell
NCSLI International President
HEWLETT-PACKARD'S METROLOGY WEBSITE HAS NEW ADDRESS

Agilent Technologies would like to announce that their "Metrology Forum" website, originally the brain-child of Mike Hutchins (NCSL's Great Britain area co-ordinator), has moved to a new, easier-to-remember, web location <metrologyforum.tm.agilent.com>.

Browser "favorites" and hot-links on other websites will need to be changed as the previous server will be turned-off as a result of the Agilent Technologies' split from former parent Hewlett-Packard Co.

METROLOGIA—2000
San Paulo, SP, Brazil
December 4-7, 2000

To further its mission of promoting the development of Brazilian Metrology, encouraging the adoption of modern practices and international tendencies, bringing people and institutions together and instigating the interchange of national and international specialists and experiences, the Brazilian Society of Metrology (SBM) has great satisfaction in announcing METROLOGIA-2000, an international version of the II Brazilian Congress of Metrology, to be held in the city of Sao Paulo (Brazil) from 4 to 7 December 2000.

METROLOGIA-2000 is being organized in the context of important celebrations related to the 500th anniversary of the discovery of Brazil. It also marks 100 years of the Quanta Max Plank Theory, announced in 1900, allowing [one century later] the genesis of today's technology, based on the fundamental constants of physics. This is the theme under which METROLOGIA-2000 will take place, "promoting metrology in the light of great discoveries."

Structure
(i) General Congress
(ii) Exhibitors
(iii) Technical Sessions
(iv) Seminar and Discussion Sessions
(v) Education and Training Module
(vi) Associated Events

Associated Events
- METROCHEM-2000 (II Inter-American Congress on Metrology in Chemistry)
- SEMETRO-2000 (IV International Seminar on Electrical Metrology)
- SML (International Seminar on Legal Metrology)
- MetroTelecom-2000 (II Seminar on Metrology in Telecommunication)
- MetroOpt-2000 (Advances in the Application of Optical Metrology)
- ENLAB-2000 (II National Encounter of Accredited Laboratories)

Call for technical papers
Summaries: 17 July 2000

General Information can be obtained from:
Brazilian Society of Metrology
Web site: <www.sbmetrologia.org.br>

Guilherme Haquet
Executive Secretary, SBM
(55) 21 544-5751, ext 211
F(55) 21 544-5527
<sbm@redetec.org.br>
Mauricio Frota
Past President Klaus Jaeger, President Dave Abell, and Exec VP John Ragsdale show off their nifty, new NCSL shirts as they listen to SIM Representative Roosevelt DaCosta (r). Looks like he hadn't received his shirt yet.

Elizabeth Baker (r) from the Automotive Industry Action Group (AIAG), gave the board an overview of QS9000 as it relates to their industry. She described the Automotive Industry efforts, with strong leadership from the “BIG 3,” to pursue what NCSL calls “accreditation.”

Bill Anderson of NIST reviews some recent activities at his organization.

Dave Abell recognizes Roosevelt DaCosta from Jamaica. This snow-covered mountain country must be quite a time warp for Roosevelt.

This bean counter Treasurer Leon Barnes, isn’t looking for lost beans, but instead looking to find a hot tap for his Internet connection.

Craig Gulko, Mike Suraci and Woody Tramel inspect some text files on the laptop. Or maybe they’re checking their stock prices.

Some of the group gathers outside at the New York City Deli before lunch.

Steve Stahley, Sharon Huttemann, Jim Crane (GIDEP), Woody Tramel and Tom Huttemann before dinner. Looks like magnificent weather.

Jackson Hole is a pretty cosmopolitan place, considering its remoteness, so this group of NCSL ex-presidents, Suraci, Anderson and Jaeger, has to run a quality check on the wine offerings.

Here is the shot you expected of the Grand Tetons. Mike Suraci and Woody Tramel are looking the wrong way.

And finally, the NCSL Board attendees on the steps.
NIST CENTENNIAL STORIES

The National Institute of Standards and Technology's 100th year of service to America began on March 3, 2000, and will culminate with their centennial anniversary one year later. During this period, NIST NEWS will honor the rich history of the agency by recalling some significant events or accomplishments that occurred during the past century.

SIX MILLION POUNDS OF QUARTZ HELP KEEP AMERICA MIGHTY

By April 1940, World War II had engulfed Europe and threatened to soon involve the United States. The American armed forces already had begun preparing for a possible war effort, and among the tasks was the stockpiling of quartz crystal from Brazil.

Military experts knew that tremendous amounts of quartz crystal oscillator plates would be needed for radio equipment, naval communications systems, radar and electronic precision instruments. At the time, Brazil held the world's only reserve of usable quartz for oscillator production, and Great Britain, Germany and Japan were taking 94 percent of the South American country's output. To meet its needs for quartz, the United States determined that it had to acquire 4 percent or 45.4 metric tons (100,000 pounds) right away.

The National Bureau of Standards (the predecessor of NIST) was asked to formulate specifications for radio-grade crystals and to test the Brazilian quartz purchased by the government to determine which pieces met the standards. By the summer of 1942, the project involved 63 inspectors and 13 laborers, required three work shifts and was evaluating 45.4 metric tons (100,000 pounds) of quartz a month.

When the quartz evaluation project ended in April 1946, the staff numbered 166 and over 2,721.6 metric tons (6 million pounds) of rock had been processed—60 times the original plan.

MORE HISTORY

- During the Project Mercury orbital flights of Wally Schirra and Gordon Cooper in 1962 and 1963, NIST's Central Radio Propagation Laboratory provided NASA with hourly forecasts of ionospheric conditions to ensure radio communications reliability for obtaining telemetry data from the astronauts and the spacecraft equipment.

- In 1948, a sundial of unusual design and extremely high accuracy was erected at the NIST facility located in the city of Washington, D.C. Eighteen years later, the sundial's creator warned that moving the device to NIST's new headquarters in Gaithersburg, Md, would introduce an error of 0.006 centimeters (0.002 inches). A slight realignment at installation corrected the aberration caused by the latitude change.

- In 1918, NIST was handed the task of examining existing aircraft in order to set standards for constructing future Army and Navy planes. A wind tunnel, dynamometer laboratory and altitude simulation chamber were built for the project. Among the results were the first quantitative data on gasoline, the selection of aluminum as a replacement for spruce wood frames and parts, and a better type of porcelain for spark plugs.

- Following the September 1925 crash of the 207-meter (680-foot) long Navy dirigible ZR-1 (the Shenandoah), structural specimens from the wreckage were sent to NIST for analysis. An alloy, duralumin, was found to have become corroded and brittle with time. NIST also determined that a layer of aluminum would correct the problem; however, the remaining two U.S. airships did not survive long enough to prove the coating's success.

- NIST's organics plastics section was only six years old when the United States entered World War II in 1941, but it already was considered the ultimate authority on testing of plastic products. Among the military items sent to NIST for evaluation were helmet liners, resinous coatings for steel hardware, bayonet handles, binocular housings, bugles, canteens, compass dials, raincoats, goggles, insect screening, shaving brushes and aircraft housings.

- Because the impartiality of the December 1969 draft lottery—the first since World War II—was suspect, the Selective Service System asked NIST to devise a unquestionably random method for drawing dates and rankings for its July 1, 1970, draft. Twenty-five calendars and 25 priority permutations were developed. The first selection using the unbiased mixing system was number 259 (September 16) and ranking 139.

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2000 BALDRIGE CRITERIA NOW AVAILABLE

Whether or not your organization applies for the 2000 Malcolm Baldrige National Quality Award, it should have a copy of the newly updated Baldrige Criteria for Performance Excellence. One of the nation’s most popular and influential organizational improvement publications, the criteria are tailored for three different audiences: for-profit businesses, health care providers and education organizations.

The 2000 criteria booklet is easy to use and includes a series of questions covering seven key areas: leadership, strategic planning, customer and market focus, information and analysis, human resource focus, process management, and results. Over the years, NIST has revised and streamlined the criteria to focus more sharply on overall performance excellence and results as integral parts of today’s management practice.

Thousands of U.S. organizations use the criteria to assess and improve their overall performance. Since 1988, almost 2 million copies of the Baldrige Criteria for Performance Excellence have been distributed, and wide-scale reproduction by companies and electronic access add to that number significantly.
In 1999, 52 organizations applied for the award. Four were honored in the manufacturing, service and small business categories. Organizations may apply for the 2000 award in these categories, as well as in health care and education.

Even organizations that do not win receive valuable benefits by going through the application process. Every applicant receives a detailed feedback report based on the independent, external assessment conducted by a panel of specially trained experts.

Contact: Jan Kosko, (301) 975-2767, <janice.kosko@nist.gov>.

LARGE SCALE COORDINATE METROLOGY GROUP HAS MAJOR EFFECT ON ISO MEETINGS

Steven D. Phillips, an NIST Manufacturing Engineering Laboratory (MEL) scientist, participated in the ISO Technical Committee 213 (TC213) Dimensional & Geometrical Product Specifications, Working Group 10 (WG10) Coordinate Measuring Machines (CMMs) meetings from January 12-17, 2000, in Clearwater, FL. This group is attempting to define calculational techniques and methodologies affecting CMM uncertainty.

As the U.S. subject matter expert, Phillips presented the position that successfully delayed the adoption of the flawed concepts in ISO WD 17450-2 from infecting WG10. Additionally, the United States was assigned the important job of chairing the long-term revision of 10360-2, a project that the United States has been trying to organize for five years. Assignments for completing the 15530 series were allotted; the United States picks up three of the six sections of this series. Finally, the United States was assigned the task of developing the “metrological characteristics” of CMMs as assigned by TC213.

Contact: Steven D. Phillips, (301) 975-3565, <steven.phillips@nist.gov>.

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NIST MEASUREMENT METHOD ADAPTED TO INDUSTRIAL PROCESS

In collaboration with Dow Chemical, an NIST-developed method for non-contact measurement of temperature has been adapted to processing reactive polymer resins. The measurements, conducted at Dow’s Freeport, Texas, facility, showed the resin temperature variation across the exit die of a reactive extruder that revealed new information about the process. The non-contact temperature measurements made on the Dow reactive extruder revealed that the temperature of the resin at certain locations was much higher than that measured by conventional thermometry.

Temperature is a critical processing parameter that in reactive extrusion is affected not only by shear heating, common to other extrusion processes, but also by the exothermic chemical reactions. The temperature must be maintained in a certain range to optimize processing without degrading the polymer by exposure to excessive temperatures.

The non-contact temperature method was developed in the Polymers Division to address industry’s need for a way to measure temperature of a hot resin as a function of its position in the processing equipment. The method is based on fluorescence measurements of a fluorescent dye that is added to the resin in minute amounts. The spectral characteristics of the fluorescence changes with temperature in a manner that can be determined in separate experiments.

Another advantage of the temperature sensor is that no special modifications of the processing equipment are required. The confocal optical device threads into existing extruder ports that accommodate other types of sensors.

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COMMON TIME SCALE ESTABLISHED FOR ALL OF NORTH AMERICA

The official time scales of North America are coordinated through regular comparisons among the Canadian National Research Council (NRC), the Mexican Centro Nacional de Metrologia (CENAM), and the U.S. National Institute of Standards and Technology (NIST). After several years of international comparisons and negotiations, NRC, CENAM and NIST recently have declared that their respective versions of Coordinated Universal Time (known as UTC) are equivalent to within five millionths of a second for time measurements and within one part in a trillion for frequency measurements.

The common time scale defined by the declaration is known as UTC North America, and within the stated uncertainties, the time supplied by any of the three national laboratories - UTC (NRC), UTC (CENAM) or UTC (NIST) - can be used as UTC North America without corrections or conversions.

This declaration supports trade and technology across the region, especially through such things as time tags for financial transactions and scientific observations. The three institutions hope that a common time eventually can be extended to include all members of the Interamerican Metrology System (abbreviated SIM for the Spanish translation, Sistema Interamericano de Metrología). SIM is set up to harmonize measurement standards among its members, including nearly all of the nations in North, Central and South America, as well as the Caribbean.

To access the official time in any U.S. time zone, go to www.time.gov on the World Wide Web. For times outside the United States, the site offers links to a UTC display and an international time zone web site (via the “About This Service” page).

Contact: Collier Smith (303) 497-3198, <smithcn@boulder.nist.gov>.

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OPTICAL APERTURE AREA MEASUREMENT FACILITY

Knowledge of the area of apertures for optical radiation measurements is one of the critical factors needed for accurate flux measurements. The Optical Temperature and Source Group in Optical Technology Division has developed an optical aperture area measurement facility for measuring apertures with mean diameters in the range of 3.5 mm to 25 mm.
The facility was built to measure apertures used to limit the optical flux in radiometers and consists of two instruments. The first instrument is a microscope-based absolute device utilizing a two-pass dual-wavelength laser-interferometer in which the aperture is positioned on an air-bearing supported stage that eliminates any hard physical contact. The instrument is capable of high-accuracy measurements of aperture areas with maximum total relative uncertainty of 0.0013 percent for round knife-edge apertures having a smooth profile.

The second instrument uses flux transfer techniques to measure the effective area under specific conditions. This relative instrument is capable of measuring the effective area to 0.01 percent total relative uncertainty for 25 mm diameter apertures and 0.15 percent total relative uncertainty for 3.5 mm diameter apertures. The edge quality of the aperture affects the area measurement and can degrade the uncertainty; a correction can be applied that compensates for the degradation. The relative instrument is used to measure large groups of similar apertures.

The aperture-measurement facility at NIST is the pilot laboratory, and the instruments are presently being used to measure aperture areas for the Consultative Committee for Photometry and Radiometry Supplementary International Intercomparison CCPR-S2.

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COMPARISON OF ADAPTER CHARACTERIZATION METHODS

Precision adapters are in widespread use throughout the microwave measurement community. They greatly increase the versatility of equipment by enabling connections between equipment and devices having different connectors. The use of adapters, however, requires that they be characterized to enable the user to correct for their effect. Failure to properly account for adapter effects can lead to measurement errors in microwave measurements by as much as 6 to 7 percent.

James Randa, Robert Billinger, and Guest Researcher W. Wiatr (Warsaw University of Technology), of the Noise Metrology Project in Radio-Frequency Electronics Group have reviewed and compared three different methods for characterizing precision microwave adapters. The intrinsic efficiencies of several different adapters, both coaxial-to-waveguide and coaxial-to-coaxial, were measured with each technique, and the results were compared. The results usually agreed within about 0.005 for efficiencies near one.

In all cases, the differences were consistent with the estimated uncertainties of the techniques, which range from about 0.002 to about 0.012 depending on the method, the connectors, and the frequency. The work was presented at the 1999 IEEE MTT-S International Microwave Symposium (Anaheim, 6/99), as well as in a paper to be published in IEEE Transaction on MTT (Microwave Theory and Techniques).

Contact: Jim Randa (303) 497-3150, <randa@boulder.nist.gov>.

2.4-mm COAXIAL NOISE-TEMPERATURE MEASUREMENT SERVICE

The Noise Metrology Project of the Radio-Frequency Electronics Group has developed a new measurement service for the noise temperature of sources with 2.4-mm coaxial connectors. The new measurement service offers continuous frequency coverage from 8 GHz to 40 GHz, with the exception of two small gaps, and is capable of measuring sources with noise temperatures over a range from approximately 50 K to 15000 K.

Typical expanded (2 sigma) uncertainties are expected to be between 1 percent and 1.4 percent up to 26 GHz and between 1.5 percent and 1.7 percent from 26.5 GHz to 40 GHz, for sources with a noise temperature of about 5000 K to 10,000 K and a reflection coefficient of less than about 0.1. The 2.4-mm coaxial connector and transmission line can be used up to 50 GHz, and it is the most common coaxial size for the 26.5 - 50 GHz frequency range. This connector geometry also is used extensively in measurement and test equipment, high-speed digital logic, and components such as switches, amplifiers, and mixers.

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MULTIPORT ON-WAFTER SCATTERING PARAMETER MEASUREMENTS

Microwave measurements previously made in coaxial or other waveguides are now made directly on-wafer whenever possible. However, implementation of some of the more complex multiprot measurements required to characterize complex electrical packages, multiconductor transmission lines, and multifunction circuits in the on-wafer environment has been hampered by limitations of available probing systems, which do not allow direct connections between orthogonal probes during the calibration step.

In response to these difficulties, Dylan Williams and Dave Walker of the Radio-Frequency Technology Division developed a four-port test set and software for measuring fully corrected four-port on-wafer scattering and impedance parameters. The software is unique as it only requires two in-line calibrations, resolving an important difficulty with existing four-port calibration schemes. The additional hardware required to implement this method is inexpensive and easy to construct.

This new procedure allows calibrations for multiprot measurements to be performed using well-understood conventional in-line calibrations and provides the first solution to this long-standing problem. The method not only is well-suited to industrial environments but also can be used to evaluate ad hoc methods commonly used in the industry to address this important measurement problem.

This software will primarily impact the electronics packaging industry, which often must characterize multiport circuits. The method also may find application in the characterization of multiport wireless circuits and digital transistors.

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SMILE! NEW AMALGAM MATERIAL CONTAINS NO MERCURY

If you have a metallic dental filling, you probably have a small amount of mercury in your mouth. For decades, U.S. dentists have used alloys containing copper, tin, silver, zinc and mercury in amalgams. Such alloys are ideally suited to the job. They're long-lasting, strong, corrosion-resistant and bond easily to tooth enamel. However, concern over the toxicity of mercury has prompted discussion about restricting their use.

Until now, there were no replacement materials that worked as well. Metallurgists at the National Institute of Standards and Technology have perfected a method for making silver powder that, when properly consolidated, has properties that equal or exceed those of mercury-containing alloys. The powder is precipitated from a solution and then treated with a dilute acid to remove silver oxide from the surface of the very small silver particles. These particles then can be compacted carefully with normal dental tools into a tooth cavity where they consolidate through cold welding. Fillings made this way are 80 percent dense and are at least as strong as mercury-alloy amalgams.

NIST is inviting companies to apply to license the patented process by contacting Terry Lynch at (301) 975-2691.

Contact: Linda Joy (301) 975-4403, linda.joy@nist.gov.

A SILICON TUNNEL-TRAP TRANSFER STANDARD FOR SPECTRAL POWER AND IRRADIANCE RESPONSIVITY DEVELOPED

Physicists in the Optical Technology Division have developed a high-accuracy light-trap radiometer in cooperation with Keyer Corp. This new six-element device will be used as a high-level transfer standard to reduce NIST's measurement uncertainties for spectral irradiance and spectral responsivities. The heart of the device contains two medium- and four large-size silicon photodiodes that were packed tightly to obtain a minimum field-of-view of 6 degrees.

The device features a precision input aperture whose area was measured with high accuracy in NIST's Optical Area Measurement Facility. The radiometer can be calibrated for spectral power responsivity against the primary standard high accuracy cryogenic radiometer when both measure the same total power in stabilized laser beams. A second light trap is attached to the output of the device to collect the transmitted light and to minimize pickup of ambient light. The expected combined standard uncertainties of the radiometer in the power measurement mode and irradiance measurement mode are 0.03 percent and 0.05 percent, respectively.

Contact: George Eppeldauer (301) 975-2338, <george.eppeldauer@nist.gov>.

INSTITUTE TO PROTECT AMERICA'S CYBER-SPACE PROPOSED FOR NIST

President Clinton announced on January 7, 2000, that he is proposing the creation of the Institute for Information Infrastructure Protection to fund research and technology development to protect America's cyberspace from attack or other failures. The I3P would fill research gaps that neither the private sector nor the government is addressing.

The President announced that he would seek $50 million for the institute in the proposed fiscal 2001 federal budget for NIST to be submitted to Congress in February.

NIST's Information Technology Laboratory is involved in planning for the I3P, which would work directly with private-sector information technology suppliers and consumers to define research priorities. If the I3P is approved, cybersecurity research would be performed at existing institutions, including corporations, universities and non-profit research organizations. While it is anticipated that NIST would coordinate this research, the bulk of the work would be done outside of the agency.

Contact: Philip Bulman (301) 975-5661, <philip.bulman@nist.gov>.

NEW MEASUREMENT SYSTEM WILL IMPROVE RADIOMETRIC SCALES

Metrologists in the Optical Technology Division have developed a new laser-based calibration facility designed to reduce the uncertainties in measurement of power, irradiance, and radiance responsivity for optical detectors. The facility for Spectral Irradiance and Radiance Responsivity Calibrations using Uniform Sources (SIRCUS) was used, for example, to reduce the uncertainty in radiance responsivity from 0.5 percent to 0.1 percent in the visible wavelength range.

As NIST continues to move from source-based to detector-based radiometry and photometry, reducing the uncertainties in the responsivities of filter radiometers will directly impact NIST's radiometric and photometric scales.

Recently, these metrologists used SIRCUS to calibrate a photoelectric pyrometer (PEP). The PEP is used to determine radiance temperatures of blackbodies and tungsten filament lamps by comparison against the gold fixed-point blackbody. Smaller wavelength uncertainties and the larger dynamic range of measurements on SIRCUS contribute to a reduction in the combined standard uncertainty in the relative response of the PEP.

In addition, because measurements on SIRCUS are inherently "narrow-band," de-convolution of the responsivity to eliminate finite-bandwidth effects associated with conventional lamp-monochromator systems is no longer necessary. Such measurements will reduce the uncertainty in NIST radiance temperature measurements and will similarly impact other detector-based radiometric and photometric scales maintained at NIST.

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WORKSHOP ON MEASUREMENT AND STANDARDS NEEDS OF A DEREGULATED ELECTRIC POWER INDUSTRY

Researchers from the Electronics and Electrical Engineering Laboratory (EEEL) organized and hosted the “Workshop on Challenges for Measurements and Standards in a Deregulated Electric Power Industry” in Arlington, VA, on December 7-8, 1999. The purpose of the workshop was to bring together world experts to discuss the impact of deregulation on the electric power industry’s measurement and standards infrastructure.

The workshop was opened by Gary Bachula, Deputy Undersecretary for Technology, U.S. Department of Commerce, who presented a call to industry members to become involved in the international standards-making process. The workshop enjoyed significant industrial support with technical co-sponsorship by the Electric Power Research Institute, the National Electrical Manufacturers Association Power Equipment Division, the IEEE Power Engineering Society, the National Science Foundation, and the U.S. Department of Energy.

Significant conclusions from the workshop included:
- that new standards are needed for nearly every aspect of the industry (control, pricing, access, security, distribution, generation, brokering, etc.) as multiple players become involved in the production, distribution, and selling of power;
- that there is a significant risk that emerging international standards will not reflect the needs or situation of the U.S. electric power industry;
- that additional low-uncertainty measurements are needed to ensure the accurate sale of power;
- that the electric power industry may become, in the near future, the largest e-commerce industry in the world.

A report of the impact of these conclusions on research programs at NIST is forthcoming. Many of the speaker’s presentations are available on the workshop web site (www.eeel.nist.gov/deregulation-workshop).

Contact: James K. Othoff (301) 975-2431, <james.othoff@nist.gov>

WEIGHTS AND MEASURES LAB IN NEW MEASURENET

Consumers and businesses can look forward to improved accuracy in the system of weights and measures thanks to MEASUREnet, a new effort at the National Institute of Standards and Technology. MEASUREnet is an Internet-enabled, interactive system intended to support training and collaborative work between NIST and state weights and measures laboratories.

U.S. industry relies on the state weights and measures laboratories to calibrate standards for a variety of processes from manufacturing pharmaceuticals to filling cereal boxes. State laboratories provide more than 340,000 calibrations to more than 19,400 customers each year. Ninety percent of those calibrations are for mass measurements.

The NIST Office of Weights and Measures completed initial MEASUREnet training for weights and measures experts and computer support staff from 10 states and Puerto Rico on January 20, 2000. Weights and measures experts from California, Idaho, Minnesota, Michigan, Oklahoma, Arizona, Maine, Connecticut, North Carolina, Georgia and Puerto Rico attended the training workshop.

MEASUREnet will take advantage of the Internet to allow conferencing between NIST and the state metrology laboratories. NIST weights and measures experts will be able to provide technical training more frequently and efficiently, develop standards in partnership with states and provide real-time technical assistance as they monitor measurements via video cameras sending live images over the Internet.

MEASUREnet is designed so that the entire state and federal weights and measures system eventually could be linked via the Internet. Starting with 11 state labs and mass measurements, it will leverage the Internet to improve and harmonize measurements made in state and local weights and measures laboratories.

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WEIGHTS AND MEASURES DOCUMENTS NOW AVAILABLE ON THE INTERNET

The codes and specifications that form the basis of the U.S. system of weights and measures are now available from NIST on the Internet. Manufacturers, as well as international weights and measures organizations, can now easily access accepted specifications and tolerances for scales and other measuring devices in NIST Handbook 44. They also can view model weights and measures laws and regulations, which have been adopted by most states, in NIST Handbook 130. NIST’s Office of Weights and Measures posted these documents to increase their dissemination and availability, thereby promoting uniformity of weights and measures in the marketplace. Uniformity protects consumers and benefits businesses by ensuring fair competition.

Handbook 44, Specifications, Tolerances, and Other Technical Requirements for Weighing and Measuring Devices, contains information needed to design or test weighing and measuring devices for use in commerce. Its codes cover a wide variety of devices such as those used to dispense home heating oil and gasoline, food store scales, taxi meters, odometers and fabric measuring devices.

Handbook 130, Uniform Laws and Regulations in the Areas of Legal Metrology and Engine Fuel Quality, encourages standardization in weights and measures laws within the United States. The handbook contains 10 different model laws and regulations, plus the recommended procedure for verifying the accuracy of retail pricing. It includes regulations prescribing the method of sale for commodities and packaging and labeling requirements.

Both NIST Handbook 44 and NIST Handbook 130 are published by NIST and have been adopted by the National Conference on Weights and Measures, a voluntary standards organization that works closely with NIST to ensure uniform weights and measures in the United States.

Contact: Joy Linda, (301) 975-4403, <linda.joy@nist.gov>.
1998 NTTAA ANNUAL REPORT NOW ON WEB SITE

NIST is required to collect data on standards and conformity assessment activities from federal agencies and submit an annual report to Congress through the Office of Management and Budget. The 1998 Annual Report on fulfillment of responsibilities under OMB Circular A-119 and the National Technology Transfer and Advancement Act (Public Law 104-113) is now available on the TS Office of Standards Services web site at <http://ts.nist.gov/kscp>. The report includes information on the progress that federal agencies have made toward using voluntary standards instead of agency-unique standards. It also discusses NIST efforts to coordinate agencies’ use of voluntary standards and their participation in voluntary standards activities. This report shows a continuing decline in the number of agency personnel participating in standards activities. Several possible explanations for the decline include retirements of key technical staff, increased strategic planning and management of standards activities, and improved reporting accuracy.

Contact: Belinda Collins, (301) 975-4000, <belinda.collins@nist.gov>.

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STRAUB SLATED TO BE NEXT CHAIRMAN OF THE NCWM

Louis E. Straub, Chief of the Weights and Measures Section of the Maryland Department of Agriculture, will become Chairman of the National Conference on Weights and Measures at its 85th annual meeting in Richmond, Va., on July 16-20, 2000. Straub will be the second Maryland resident to hold this position. NCWM is a standards-writing organization of more than 3,500 state, county and city weights and measures officials and representatives of industry, federal agencies, many foreign government agencies and consumer groups. The organization is sponsored, in part, by the NIST Office of Weights and Measures.

Straub is a member of the NCWM Board of Directors and the National Type Evaluation Program Committee. He has served as a member of the Laws and Regulations Committee and Nominating Committee. Straub also has served on numerous NCWM working groups.

For information on the NCWM, contact the National Conference on Weights and Measures Inc., 15245 Shady Grove Rd., Suite 130, Rockville, Md. 20850; (240) 632-9454; fax: (301) 990-9771, <www.nist.gov/ncwm>.

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LOOKING FOR CERAMICS INFO? CLICK OPEN THE NIST CERAMICS WEBBOOK

The Ceramics WebBook has a link to three NIST-developed materials databases: the NIST High Temperature Superconducting Materials Database, the NIST Structural Ceramics Database and the NIST Property Data Summaries for Advanced Materials. The superconducting materials database offers evaluated thermal, mechanical, structural and superconducting property data for oxide and borocarbide superconductors.

The structural ceramics database contains evaluated thermal, mechanical, structural and chemical properties for a wide range of engineering ceramics. The property data summaries contain topical collections of materials property data, each focused on a particular material or a particular property.

In addition to the NIST databases, the Ceramics WebBook links to 22 other government and academic data centers and web resources devoted to biomaterials, ceramics, metals and composites, as well as chemical and physical data. Another page of tools and resources provides links to software tools, a ceramics virtual library, a discussion forum and educational sites.

For more on ceramics research at NIST, visit the Ceramics Division homepage at <www.ceramics.nist.gov>.

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CHARPY MACHINE OPERATION AND MAINTENANCE IS EASIER BY THE BOOK

A new publication from NIST will be of interest to the more than 1,000 owners worldwide of Charpy impact testing machines. These machines, based on the swing of a pendulum, are used to determine the temperature at which structural materials go through a ductile-to-brittle transition. Charpy impact testing is often specified as an acceptance test for materials used in critical structures such as bridges and pressure vessels.

The latest NIST document describes recommended practices for installing, maintaining, and verifying Charpy impact machines. In great detail, NIST explains how to prepare the foundation for the machine to rest on, the type of bolts to use to secure it to the foundation, and the type of grout to use to interface between the machine and the foundation. The publication also describes direct and indirect means of verifying that the machine is in good operating condition and is functioning as closely as possible to a simple pendulum with only small losses due to friction and windage.

The indirect verification method, which uses carefully characterized test specimens to stress the machine components to levels similar to those experienced during routine usage, serves as an important supplemental test of machine performance. The publication comes in two sizes, 8 1/2 x 11 inches or 5 1/2 x 8 1/2 inches; the latter is a handy size to keep near the test machine.

For a free copy of NIST Technical Note 1500-8, "Recommended Practice: Installing, Maintaining and Verifying Your Charpy Impact Machine," contact Sarabeth Harris, MC 103, NIST, Boulder, CO 80303-3337; (303) 497-3237; <sarah@boulder.nist.gov>. Please specify the size you wish to order.
GIDEP METROLOGY
Jim Carlson, Liaison Delegate

GIDEP & NCSL Collaborate on Calibration Procedures Data Base

During a meeting at the Measurement Science Conference, groundwork was laid for collaboration and partnering between GIDEP and NCSL on Calibration Procedure databases. This meeting affirmed that NCSL and GIDEP have some common goals and are committed to exploring the sharing of Calibration Procedures and Metrology documents throughout the worldwide metrology community. Thu Ngo will be taking the lead for GIDEP in the collaborative effort and has joined the NCSL Calibration/Certification Procedures Committee.

GIDEP Metrology Center of Excellence Action Items from Management Meeting

The GIDEP Data and Information Systems Committee suggested that the following areas be investigated:

- The rewrite of the Office of Management & Budget letter, which recommends that GIDEP be used for nonconforming parts data (consideration should be given to recommending GIDEP as a database resource for Metrology Data);

- Adding GIDEP Metrology data references to the Defense Acquisition Deskbook

- More involvement with NASA Metrology Workshops; and

- Providing public rather than “members only” access to NIST Metrology documents in the GIDEP database.

GIDEP Metrology Data DVD & CD-ROMs

Since January 1999, four “.pdf” document file CDs have been produced and distributed. These CDs work with the Windows 98 operating system. The previous CD system was NOT Windows 98 compatible.

The new GIDEP DVD has been sent to production and will be distributed in May 2000. This DVD will contain all the data to date (in “.pdf” format) on a single disk!

In addition to the DVD and “.pdf” files, a “History Tracking” feature has been added. “History Tracking” will keep a log of documents usage for easy reference and reporting needs.

Metrology Data Award Winners

Each year the top metrology data submitters for government and industry are recognized at the GIDEP Workshop. The top submitters this year are as follows:

- Government: Air Force Metrology & Calibration Program, Newark, OH
  GIDEP Representative: Tom Swackhammer

- Industry: Boeing, Huntington Beach, CA
  GIDEP Representatives: Joe Kimes & Lana Schlemmer-Buckley

A2LA
Ramona J. Saar, Liaison Delegate

Status of A2LA’s Calibration Program

114 calibration laboratories were accredited by A2LA as of April 18, 2000. In addition, more than 184 calibration laboratories are in the process of seeking A2LA accreditation.

Many calibration applicants applied at the end of 1999 with the expectation that the accreditation process would be completed by the end of 2000. However, on-site assessments for about two-thirds of the new labs cannot be arranged yet because the application information is incomplete. Key issues holding up the accreditation process for many of these labs include lack of measurement uncertainty budgets and incomplete quality system documentation. While A2LA assessors may be able to review the principles of measurement uncertainty with laboratories during a pre-assessment, laboratory personnel should have a working knowledge of measurement uncertainty principles prior to the final assessment.

A2LA Assessors To Get Additional Training

The concept of measurement uncertainty is becoming more widely accepted in the calibration industry, but it is still a relatively new concept for testing laboratories. Clause 5.4.6.2 of ISO/IEC 17025 requires that testing laboratories have and apply procedures for estimating uncertainty of measurement. This clause is expected to have a major impact on testing laboratories.

To prepare our assessors, A2LA is hosting a full day of training on measurement uncertainty for testing during our May 2000 Assessor Conclave. One of the aims of this training is to ensure that assessors are uniformly assessing laboratory compliance with the new clause on measurement uncertainty once ISO/IEC 17025 is implemented. The training session will consist of a plenary session to review the general principles of measurement uncertainty, followed by discipline-specific sessions.

Every year, A2LA hosts the Assessor Conclave. We bring together all our assessors, accreditation council and criteria council members and all others involved in A2LA for the purpose of exchanging technical information, reviewing new and revised requirements documents, discussing new A2LA policies and procedures, and obtaining training. This year, A2LA will also be hosting mandatory assessor training on ISO/IEC 17025.
ILAC—INTERNATIONAL LABORATORY ACCREDITATION COOPERATION
Anthony Anderson, Liaison Delegate

Activities in ILAC are currently focused on preparations for ILAC 2000, in Washington DC, this coming fall. It promises to be an exciting technical program with seminars on ISO/IEC 17025, stakeholder requirements, proficiency testing, and traceability, as well as special seminars on uncertainty analysis, development of accreditation bodies, and the role of accreditation in supporting world trade.

The Planning Committee is also planning several social events in the Washington, D.C. area that should be enjoyable for ILAC members and accompanying persons. The dates for the Washington DC ILAC 2000 Conference and General Assembly are October 29 to November 3, 2000.

I was unable to attend the ILAC Laboratory Liaison Committee (LLC) meeting in Brussels in March, however, one item of interest from the meeting pertains to the transition period for the implementation of ISO/IEC 17025.

The Chairman of the LLC reports that he has informed all members of the ILAC Executive Committee of the LLC’s concern regarding some ambiguities and inaccuracies in the section of the Technical Accreditation Committee (TAIC) report. Specifically, the impression that at ILAC’99 in Rio De Janeiro, ILAC agreed to a 2-year transition period for the implementation of ISO/IEC 17025:1999. The LLC will be drafting a position ASAP (invoking text from Peter van de Leemput’s paper presented at ILAC’99) and after circulation to the LLC members for comment/correction it will be presented at the next Executive Committee meeting.

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NAPT—NATIONAL ASSOCIATION FOR PROFICIENCY TESTING
Gaylord DeGroot, Liaison Delegate

Since NAPT’s last liaison report the level of activity at the association has been fast-paced. Currently NAPT has conducted 183 tests, with an additional 168 tests pending. The participants enrolled in these tests are from a wide section of the test and measurement community.

NAPT has implemented its database application on our website, <www.proficiency.org>. This was done in anticipation of a large increase in the level of participation due to the number of laboratories in the process of ISO Guide 25 accreditation. This Internet application is capable of providing the test and measurement communities with a new resource/tool that can assist laboratories in complying with international quality standards. NAPT participants can use the application to enter their results, track their progress, and get meaningful and immediate feedback. This was identified as major quality improvement opportunity as we listened to our customers. Those of you that will attend the Toronto NSCL conference will have an opportunity to see this in action.

Not only do we have the ability to do the administration of the proficiency testing on the Internet, we now have the ability to facilitate organizations conducting their own proficiency tests using our proven database. The application is capable of allowing organizations to have their own domain on the site enabling each organization to manage and conduct their own proficiency tests in accordance with international guidelines, thus complying with required quality standards. For more information on how to make this a reality at your organization we would ask your readers to contact the NAPT business office.

We have added an online chat room for use by our members with both audio and text capability. In the upcoming months we plan to add additional resources and options for use by the test and measurement community. We invite all of your members to stop by and look at the exciting things we have done with our website.

As our customer requirements increase so does the need for additional artifacts. Also there is an increasing need for laboratories to characterize these test artifacts. Test artifacts and/or technical assistance are welcomed and appreciated by the Board of Directors at NAPT. Contact us if you can help.

The board of directors, technical advisors, and additional volunteers are working very hard to assist the association in its endeavor to become accredited under the new A2LA accreditation program for providers of proficiency testing. We feel that by becoming accredited it will allow us to better serve our membership and our member’s needs in the administration of proficiency testing.

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CORM
John Wehrmeyer, Liaison Delegate

Contacts for CORM 2000 Conference

The CORM 2000 conference was held in Rochester, NY from May 8-10, 2000. The theme was “Optical Radiation Accreditation and Standards.” Speakers from organizations such as NACLA, NVLAP, and A2LA were featured. Contact the co-chairs Ann Laidlaw (Shelyn) at <ann@shelyn.com> or Phil Wychorski (Kodak) at <phil.wychorski@kodak.com> for technical information or proceedings.

As the Liaison Delegate to CORM from NCSL International, I had an opportunity to attend the last CORM conference. Several CORM committee meetings were held at that time.

CORM CR-7: Measurement of LEDs

MISSION STATEMENT:

The purpose of the existence for this new sub-committee is to reduce the confusion existing at present within the industry concerning LEDs in many new applications.

1. Summarize all the lighting applications of LEDs or clusters of LEDs

2. Find all the available standards for the applications

3. Define measurement conditions needed for the specific applications where standards are available

4. Create links to those organizations which are responsible for the standardization of the applications.
MEASUREMENT SCIENCE CONFERENCE
Chet Crane, Liaison Delegate

The 2001 Measurement Science Conference will be held next January at the Disneyland Hotel in Anaheim California. You are all invited to register on the internet at <www.msc-conf.com>. Registration cost and extensive information will be available at the NCSL Conference in Toronto.

The New MSC President and Conference Chairman is Mike Magin of Edision. Executive Vice President is Doug Sugg of the Naval Warfare Assessment Station. Other members of the board are Alan Ho, John Schulz (secretary), Dave Lorenzen (treasurer), John Bowman, and Mark Kaufman (directors).

The 2000 “Algie Lance Best Paper Award” was won by Gisela Lin and Russell A. Lawton of the Jet Propulsion Laboratory for their paper “3D MEMS in Standard Processes: Fabrication, Quality Assurance and Novel Measurement Microstructures.”

The “Joe Simmons Best Session Award” went to Paul Williams of NIST for his Session “Fiber Optics.”

The 2001 program is beginning to take shape. Mass, DC/Low Frequency, Dimensional, RF/Microwave, Optics and other topics that measurements-interested people are interested in will be offered. Although the published date for submission of abstracts on the Call for Papers has passed, please contact Mark Kaufman at (909) 273-5725 if you are interested in presenting.

In my contacts with Mark he has indicated that authors of papers that he accepts will be eligible for a free registration to the Conference. Some additional topics he would like to have papers for are: Best Practices, Calibration and Automation, Measurement System Modernization, Accreditation, Military Metrology, Biomedical, Virtual Instruments, Intrinsic Standards, Sensors, and Metrology for the Tele-Communications industry.

The usual “New Products” sessions will be replaced by a Hands-On-The-Instrument track. This will explore presentations of how to obtain greater value from your equipment through innovative uses of its little known capabilities.

Suggestions are welcomed, please contact Mark at the number shown.

Several Tutorial Workshops for the Wednesday Workshop program are in process and are good probabilities; Mass Measurement, Temperature, Microwave Power and Attenuation, Measurement Uncertainty, Preparing for ISO 17025, FDA GMP requirements. Suggestions for other courses that can be presented in the format are solicited. Please contact Dave Lorenzen at (714) 896-4574 if you would like to present or to obtain more information regarding the Tutorial Programs.

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IEEE INSTRUMENTATION & MEASUREMENTS
David Braudaway, Liaison Delegate

The 17th IEEE IMTC (Instrumentation and Measurement Technology Conference) was held May 1-4 in Baltimore, MD. It was preceded on April 30-31 by VIMS’2000, an international work-

shop on “Virtual and Intelligent Measurement Systems” in Annapolis, MD. IMTC proper was preceded by tutorials and some career-directed sessions on May 1; the conference had 5 parallel tracks.

Sensors, testing, measurement and control are all topics featured. Afternoons end with poster sessions to further expand coverage. Of interest to all involved in measurement and calibration are the problems posed by instruments embedded in complex systems. This means an identifiable instrument can not be removed for conventional calibration.

A problem this year was the time overlap of the IEEE CPEM conference, the IMTC and the International Conference on Metrology in Jerusalem.

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JOINT LOGISTICS COMMAND/CALIBRATION COORDINATION GROUP
J. V. Fishell, Liaison Delegate

1. Joint Technical Coordinating Group for Calibration and Measurement Technology (JTCG-CMT) Calibration Coordination Group (CCG). The Navy hosted a CCG Calibration Requirements Planning Working Group meeting at NWAS Corona, California on 8-10 February 2000. At this meeting, comments from each of the Services were discussed and incorporated in the update of MIL-STD-1839, Standard Practice for Measurement and Calibration Requirements.

The Working Group decided that the draft MIL-HDBK should mirror the MIL-STD and include interpretive guidance for each requirement. The Working Group also decided to add appendices with frequently asked questions and a sample Calibration and Measurement Requirements Summary (CMRS). The Navy took the action to collate all inputs from the meeting and to prepare a draft MIL-HDBK for the Working Group. The draft MIL-HDBK was completed by the Navy and e-mailed to the Working Group members. The Working Group members will review this draft in preparation for the next meeting to be hosted by the Army on April 18-20, 2000.

2. Joint Technical Coordinating Group for Calibration and Measurement Technology (JTCG-CMT). The JTCG-CMT met on 18-19 January 2000 during the Measurement Science Conference in Anaheim, California. Topics of discussion included the transfer of the JTCG-CMT chair position to the Marine Corps, the proposed implementation of ISO/IEC 17025 - General Requirements for the Competence of Testing and Calibration Laboratories, commercially available calibration and metrology training, and outsourcing. The JTCG-CMT Chair position rotates between the Services every two years.

3. Navy Gage and Standards Laboratory Construction at Naval Warfare Assessment Station, Corona, CA. Construction of this unique precision measurement facility within the Navy is expected to begin in March 2001 and should be completed by March 2002. The state-of-the-art laboratory will provide the capability to calibrate and certify critical interface gage components used to produce and maintain Navy and other DoD weapons systems and to calibrate precision dimensional and high-capacity force instruments. In addition the facility will house Laser, Infrared, Photometry, and
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Fiber Optic Research and Development laboratories. The R&D will focus on calibration of the respective instruments and utilization of those instruments for calibration.

4. NACLA Support. The Navy hosted a National Cooperation for Laboratory Accreditation (NACLA) Meeting on 17-18 January 2000 at the Naval Warfare Assessment Station in Corona, California. The Navy chairs the Technical Requirements Committee which is currently tasked to determine if there are specific business sector (Calibration, Food, Construction, etc.) accreditation requirements beyond those identified in ISO/IEC 17025.

5. Air Force Industry Day. On 18-19 April 2000, the Air Force hosted a conference on automation at AFMETCAL in Heath, Ohio. The conference was intended to provide the four Services and Industry an opportunity to see what direction each is heading with respect to automation in the calibration community, and to investigate potential future teaming efforts between the DoD and Industry.

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INSTRUMENT SOCIETY OF AMERICA (ISA)
Mike Suraci, Liaison Delegate

I am pleased to report on continued outstanding interactions with the ISA.

I was able to coordinate a visit on April 21, 2000 for Klaus Jaeger with the ISA’s new Executive Director, Jim Pearson and Jim Converse. He also met with Fred Grabowski on the subject of organizational “Name Change”.

While there, Klaus had an excellent meeting with Training and Conference personnel.

I also once again obtained a copy of the ISA contract that they use with Hotels for their Meetings and Conferences, for possible use in NCSL activities.

I continue my interfaces with ISA conference contacts and particularly Kathy Frater, who I met via an ISA referral. Kathy has provided valuable insight to me for the work I have done on the NCSL Ad Hoc Conference Committee.

I believe there continues to be significant opportunities for our organizations to cooperate together for the BEST of both organizations.

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NACC—NORTH AMERICAN CALIBRATION COOPERATION
Doug Faison, Liaison Delegate

The North American Calibration Cooperation (NACC) Committee last met on January 18, 2000, in Anaheim, CA. Members reported on progress in activities related to inter-laboratory comparisons (ILC), proficiency testing schemes, quality system documentation, accreditation body assessment activities, NACC documentation, and other ongoing activities. Of note were discussions on the implementation of ISO/IEC 17025, the results of the recently completed NACC ILC, and negotiations with the National Cooperation for Laboratory Accreditation (NACLA).

All members have indicated that ISO/IEC 17025 will be adopted, with minor additions in some cases, and implemented within the timeframe suggested by ILAC. All expect to have their version of the new standard in effect for new laboratories sometime during the summer of 2000. Existing laboratories will be given an appropriate amount of time to update their quality systems accordingly. ILAC recommends that all laboratories be compliant with the new standard by December of 2001, two years after its publication date.

NACC is proud to report the successful completion of an ILC in resistance. Three or four laboratories from each country participated in measuring two 10 KOhm resistance standards. Much was learned from this experience and results were considered to be excellent. Our thanks to all participants and, in particular, to Frank Doucet of NRC/CLAS, who was primarily responsible for the development of this ILC and its logistics. Other ILCs are planned or are in progress in areas such as AC/DC difference and AC voltage, mass, gage blocks, and temperature.

Negotiations have opened between NACC and NACLA on the formation of a true North American Region which would represent the interests of all participating accreditation bodies from each country and would include both testing and calibration laboratories. Current thinking is to rewrite the NACC MOU to include testing and to replace NVLAP with NACLA as the U.S. representative to NACC. Discussions continue and we expect more formal proposals to be put forth at our next meeting in Toronto this July.

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NORAMET
Doug Faison, Liaison Delegate

Report by Dr. Ismael Castelazo, CENAM, Chair of NORAMET.

A “Memorandum of Arrangement on Calibration and Measurement Certificates of National Metrology Institutes” for NORAMET was signed by the Directors of INMS/NRC, NIST and CENAM, in September 1999. This Arrangement sets forth the conditions under which the calibration and measurement certificates issued by the three North American NMI’s will be mutually accepted. Each metrological area will be evaluated separately and annexes to the Arrangement will be added when the technical contacts agree on a bilateral or a trilateral equivalence. Presently, the areas of length, mass, as well as time & frequency, have agreed on the equivalence of their standards and calibration services. The NORAMET Committee is reviewing these provisional declarations to include them formally as annexes to the Arrangement.

The NORAMET Committee met on January 20, 2000, in Anaheim, CA. There was a discussion on the usefulness of the NORAMET Arrangement, considering the CIPM and 38 NMI’s are involved in a global MRA. The Committee felt that it is in our best interest to continue with a separate Arrangement because we are more advanced in the process and, due to our small numbers, can achieve confidence through a more expedient method than the one established by the CIPM. It was noted the EUROMET also has a separate agreement.

In the context of the CIPM Mutual Recognition Arrangement (CIPM-MRA), NORAMET has participated as a SIM subregion in proposing procedures for evaluation of calibration and measurement capabilities (crms) of NMI’s. These crms will form Appendix C of the CIPM-MRA and will be published in the BIPM web page.
Considering the time it will take to evaluate the capabilities of all participants, a provisional Appendix C will be published for the first few years, until the first round of CIPM key comparisons is finished.

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OIML
Charles D. Ehrlich, Liaison Delegate

Background on OIML

Metrology is the science given to the science of measurement. Legal metrology is the name given to the legal application of metrology, corresponding to the implementation of regulations for measuring instruments used by and for the public in areas such as commodity exchange, human health and safety, and environmental monitoring. Several international institutions have been established to address metrological subjects in various disciplines, and among such institutions, the International Organization of Legal Metrology (OIML) is the leader for legal metrology. The administrative and technical operations of OIML are coordinated by a central secretariat: the International Bureau of Legal Metrology (BIML), located in Paris, France.

The main task of OIML is to furnish its members with models for establishing harmonized legal metrology requirements and practices. OIML international Recommendations and Documents are published for this purpose, providing the judicial, metrological and technical foundations necessary for uniformly establishing and operating legal metrology structures. International Recommendations (IRs) are intended for implementation by metrology services as national regulations to ensure the proper design, verification and use of measuring instruments subject to legal requirements. International Documents (IDs) provide guidelines and references for general aspects of legal metrology, including basic laws, units, metrological control, verification processes and personnel training.

OIML technical committees and subcommittees are responsible for the development of IRs and IDs. Composed of experts from OIML Member States and liaison international and regional bodies, these committees provide a means for exchanging technical knowledge and developing harmonized metrological requirements and testing procedures.

The International Conference of Legal Metrology, meeting every four years, defines general policies for OIML, sanctions OIML IRs and allocates the OIML budget. The International Committee of Legal Metrology (CIML) meets annually to prepare and implement Conference decisions, supervises technical committees and subcommittees and BIML operations, and approves draft IRs and IDs for publication.

Report

There will be a U.S. National Working Group Meeting at the National Conference on Weights and Measures Annual Meeting in Richmond, Virginia, on July 16, 2000, from 9 a.m. to 10 a.m. to take comments on and discuss any of the items below.

Editor’s Note: There followed several pages of detailed committee activities. For a full copy of the report, contact Liaison Delegate Charles Ehrlich.

C. OIML CONFERENCE AND COMMITTEE

1. International Conference of Legal Metrology

OIML Member State delegations and observers from Corresponding Members and liaison international and regional institutions assemble every four years to define general policy and budgetary lines for the Organization, and to promote national implementation of OIML metrological guidelines.

Update: 11th International Conference of Legal Metrology will be held in London, 9-13 October 2000. Dr. Charles Ehrlich, Chief of the NIST Technical Standards Activities Program (TSAP) will attend this meeting.

2. International Committee of Legal Metrology (CIML)

As the steering committee for OIML, the CIML meets annually to review the Organization’s technical progress and administrative operations. The Committee is composed of appointed representatives of OIML Member States. The 34th meeting of the CIML was held in Tunis, Tunisia in October 5-8, 1999.

Update: The 35th Meeting of CIML will be held in London, England, October 9-13, 2000, during the 11th International Conference of Legal Metrology. Dr. Charles Ehrlich, NIST/TSAP will attend this meeting.

D. ASIA-PACIFIC LEGAL METROLOGY FORUM (APLMF)

Background: The Asia-Pacific Legal Metrology Forum (APLMF) was established at a meeting convened by the Australian National Standards Commission in Sydney in November 1994. Legal metrology authorities in fourteen APEC countries are members of the forum. For additional information see the APLMF web site at <http://www.aplfm.org>.

The 6th APLMF meeting was held September 7-9, 1999, at Hotel Putri Bali, Nusa Dua, Bali, Indonesia, hosted by Direktorat Metrologi, Indonesia. Dr. Sam Chappell, Chief of the NIST/TSAP attended the 6th meeting of the APLMF. Aves Thompson of Alaska represented the National Conference on Weights and Measures.

The 7th APLMF meeting will be held October 2-4, 2000 in Taipei, Taiwan, and will be hosted by the Bureau of Standards, Metrology and Inspection (BSMI), Ministry of Economic Affairs. Dr. Charles Ehrlich, NIST/TSAP will attend this meeting on behalf of the United States.

There are presently APLMF intercomparisons in process in the areas of Nonautomatic Weighing Instruments, Mass, and Load Cells. Details are available upon request.

For more information about any of this OIML Liaison Delegate Report, please contact Charles Ehrlich, (301)975-4834, fax (301)975-5414, or e-mail <charles.ehrlich@nist.gov>.
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<td>Lloyd Baker</td>
<td>Visteon Automotive Systems</td>
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<td>Global Tech. Ctr., Raysoftville Plant</td>
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