***TENTATIVE PROGRAM***

THE NATIONAL MEASUREMENT SYSTEM--TODAY AND TOMORROW
An NCSL Symposium
NBS Gaithersburg, October 6-8, 1976

An Anniversary Review of the National Measurement System of these United States
An NBS View of the Industrial Measurement System

Where We Stand and Where we Need to go in the Technologies

- Electrical Measurements
- Electromagnetic Measurements
- Time and Frequency (includes TV transmission)
- Electronic Technology Measurements
- Mechanical Quantities
- NCSL Response

Impact of National Voluntary Laboratory Accreditation Program
NCSL's Self Evaluation Plan

Metrocalation Impacts

- Practical Problems for the Standards Laboratory Manager
- The International Organization for Legal Metrology
- View from the Machine Tool Industry

The Measurement Trade-Off: Cost vs Confidence

- Lengthening Calibration Intervals through Better Instrument Specifications
- "Put Me on the Map!" What the Measurement Assurance Program did for Me
- MAP - Future Directions
- NCSL Round Robin Test Results

Training in the Smaller Laboratory When Budgets Are Tight

- Defining the Training Needs of a Smaller Standards Laboratory
- Self Study Manuals, Metrology Guides
- Seminars

Metrology and Regulations for Safety & Health

- Regulations Affecting the Work Environment
- Electrical, Radiation, Noise, Safety Tiredness
- Will Regulations Bring New Business to the Standards Laboratory?

Critique of the Industrial Measurements System

Graham Cameron  R. C. Sangster
General Conference Chairman  Associate Chairman
NCSL PRESIDENT'S MESSAGE

I am pleased to inform you that your Board of Directors has approved holding an NCSL Conference at NBS in Gaithersburg, Maryland, on October 6-8, 1976. Please be sure to reserve these dates - mark them on your calendar now.

Progress was the key ingredient of our Board of Directors meeting held in Orlando, Florida. Participation by a majority of the Board membership was responsible for the productivity achieved at this meeting. I am sure that the accomplishments of this organization are a reflection of the achievements of not only our officers and committee chairmen, but also YOU the member delegate. For those of you who desire to become more active, please give me a call at 713-483-4742. We presently are selecting panelists for our Conference in October, appointing committee chairmen in several areas, and are in need of additional support in such areas as education and training, laboratory accreditation, measurement assurance, regional activities, recommended practices, etc.

Highlights of our Board Meeting included presentation of a detailed progress report by Executive Vice President John Minck on our 5 year plan. An outline of long range plans and objectives has been prepared and is presently in the review process. An Advisory Panel to the President has been selected and appointed to assist on this task. I am pleased to report that this important activity, under John's direction, is progressing on schedule and I will continue to update you in the next issue of the NEWSLETTER. Our Immediate Past President Dave Mitchell reported significant progress on our NBS/NCSL Fellowship Program and the Wildhack Award. Treasurer Don Greb presented and received Board approval of our 1975-1976 Budget. Vice President Graham Cameron was appointed General Conference Chairman of our 1976 NCSL Conference. Minutes of the Board Meeting are printed in this issue.

INVolVEMENT CONTinues tO BE OUR PASSWORD. For those of us who are actively involved, progress and improved productivity are benefiting your organization. Let me encourage those who are not involved to get involved. Don't wait to be contacted. Activity can be very meaningful and directly related to your company activity with proper participation. New blood and new ideas are welcomed and encouraged.

Mike Saraci
The NCSL Board of Directors Meeting was called to order on January 29, 1976 by NCSL President, Mike Suraci. The meeting was held at Orlando, Florida.

Report of the President (Mike Suraci)

Mike reported that he met with Dr. McCoubrey of NBS on January 26th. Highlights of the meeting centered on the NBS/NCSL Fellowship Program and the possibility of a rotation plan between NBS Gaithersburg and NBS Boulder for the Sponsor’s Delegate.

Report of the Treasurer (Don Greb)

Don Greb reported that the past-treasurer's records have been received and are in good order.

Don has put an NCSL Financial Summary together, highlighting the organization's receipts, expenses and balances for the past 14 years.

Don Greb consulted a CPA about NCSL financial matters. The CPA indicated that the best way to handle the Secretariat account is to put the funds in a suspense account (capitalized) rather than an expense account. This will require a small adjustment in the accounting procedure.

The Fiscal 1975-76 budget was approved by the Board.

The need for a dues increase will be further studied by Don Greb. In particular, the financial effects of the NCSL Long Range Plan will be examined. The Board intends to review this matter at the June Board of Directors' Meeting.

Report of the Sponsor's Delegate (Joe Cameron)

Joe Cameron, Sponsor's Delegate, was unable to attend the Director's Meeting but submitted a written report via Dr. Raymond Sangster. His report indicated that 141 organizations have paid their 1976 dues. The computer file for the NCSL Directory should be complete by the first week in February. Joe requested that the Board make a decision on 300 copies of the "Proceedings of the 1974 Joint Measurement Conference." The Board wants each delegate to receive a copy and requested that the Secretariat send them to the member delegates.

It was also reported that a copy of the "NBS Annual Report" is being mailed to the NCSL delegates.

Report of the Secretary (Jim Valentino)

During the period since the last NCSL Directors Meeting (9/30/75), five organizations have joined the NCSL bringing the total of new members for 1975 to 19. One foreign organization joined during this period, specifically, the Test and Standards Laboratories, NIST, from the Philippines.

The Regional Coordinators were sent letters 10/10/75 and 12/19/75 requesting that they question their respective NCSL delegates about NCSL marketing techniques for broadening the membership base, and what about strengthening or adding services.
Report of the Vice President - Administration (Mort Angelo)

Vice President Mort Angelo could not attend the meeting because he is recuperating from a second operation and will be in a back brace for another two months.

A report from Douglas Doi, Chairman of the Awards Committee indicated that only one award has been presented since September, 1975.

Andy Woodington commented that he hopes all Regional Coordinators are receiving the minutes of every regional meeting and that recommended agenda items are being considered for discussion.

Report of the Vice President - Measurement Requirements (Graham Cameron)

The National Voluntary Laboratory Accreditation Program is still under review by the Secretary of Commerce and could possibly have additional delay.

Ron Kidd reported that ASTM-E548 "Standard Recommended Practice for General Criteria for Use in the Evaluation of Testing and/or Inspection Agencies" is being re-reviewed by the E 36 Committee. The projected acceptance consideration by the ASTM Committee on Standards is scheduled for April 1976.

The NCSL Board indicated their continued interest in and support of the NBS National Measurement System Studies. They requested that the Secretariat send copies of the studies as they are published to all NCSL delegates.

Barney Anderson, Chairman of the Bio-Medical Electrical Safety Standards Committee, reported that two new committee members have been recruited and that the committee is in the process of establishing an Intra-Committee Information Exchange Program with ASTM and ANSI.

The "Recommended Procedure for Use in the Evaluation of Standards/Calibration Laboratories." will be revised slightly in February by Graham Cameron and Ron Kidd, based on numerous comments received.

Report of the Vice President - Laboratory Management & Operations (Laurel Auxier)

Bob Willett reported that the Product Design & Specification Committee is partially formed. The Committee's first effort was to conduct a workshop in cooperation with GIDEP at Corona, California. The next meeting will be held on May 12th at Tektronix.

Bob Willett also reported that RP-3 needs revision and that he will take action to revise and submit it for Board approval. (RP-3 is the NCSL Recommended Practice for the Preparation of Calibration Procedures.)

Bob suggested that the Regions spread the word to the test equipment manufacturers that a standard format is being adopted for calibration procedures.

Walt Cassady, Chairman of the Calibration Systems Management Committee indicated that because of the Committee's article in the NCSL Newsletter the U. S. Nuclear Regulatory Commission has become interested in the Committee's activities. The Committee expects to publish a bibliography of calibration systems management documents by May, 1976. The Committee needs more inputs on problem identification and resolution for the Newsletter.

Laurel Auxier, reporting for the Calibration Laboratory Automation Committee, informed the Board that Chairman Bill Bean has resigned because he will be relocated to Europe.
Laurel Auxier nominated Dave Schneider as new chairman of the Committee. The Board approved.

Moe Corrigan, Chairman of the Measurement Assurance Committee, reported that the long awaited National Round Robin is in process. Two measurement packages are currently being circulated with program completion targeted for June, 1976.

Report of the Vice President - Communications & Marketing (Andy Woodington)

The Recommended Practice Committee is seeking a member from each NCSL region. This committee member will be the contact point for the exchange of laboratory practices.

A report by Jim Gilbert, Chairman of the Information & Directory Committee indicated that Directory information has been received from half the membership. The tentative cutoff date for Directory input data is February 27th. Target publication date is still open.

Wilbur Anson, Newsletter Editor, submitted a Newsletter publication schedule for the Board's review. Don Greb and Wilbur reported that the 15th Anniversary Issue is coming along fine and is scheduled for mid-summer publication.

NCSL Long Range Planning

John Minck submitted a lengthy first draft of the NCSL Long Range Plan. John's schedule is to send the draft to Board members and committee chairmen for comments, discuss a revised draft with the advisory panel, and present a final draft to the Board at the June meeting. The final plan should then be presented to the NCSL membership in the Fall at the time of the installation of new officers.

The advisory panel consists of Past Presidents Ralph Barra, Don Greb, Jerry Hayes, and Dave Mitchell.

Report of the 1975 NCSL Conference (Andy Woodington)

The Conference Proceedings (tape recordings) will be sold to any person or organization wishing them at a cost of $50/set. Inquiries should be addressed to NCSL President Mike Suraci.

Report of the Wildhack Advisory Panel

Dave Mitchell reporting for the Wildhack Advisory Panel, submitted the following timetable:

(1) The Panel should nominate candidates to the Chairman by mid-January.
(2) Panel investigation and selection should be completed by April 15, 1976.
(3) Recommendations should go to the NCSL Executive Committee by May 15, 1976.
(4) The award will be presented in the Fall of 1976.

Report of the NBS/NCSL Fellowship Program

Dave Mitchell and Mike Suraci will send a letter to the NCSL describing membership in the NBS/NCSL Fellowship Program and soliciting recommendations.

Regional Reports

Region 1

Ron Kidd reported that 16 delegates and guests attended a regional meeting on January 7, 1976. Highlights of the meeting included a report from the Board
of Directors, a discussion on instrument manufacturers' fees for service seminars, and the establishment of a central point to resolve calibration measurement problems, and a final report of the Product Measurability Committee.

Region 2

Max Unis reported that four meetings were held during the period of 9/74-12/75. Discussions at the meetings covered video tape training tapes, calibration of automatic calibration equipment, automatic calibration recall programs, in-plant education, laboratory accreditation and ethical practices, participation in a wage structure survey, and feasibility of regional biennial 2 day conferences. The next meetings are scheduled for 6/14/76.

Region 4

John Riley reported on the January 28th meeting which was attended by 16 delegates. The meeting was conducted as an informal round table session on subjects of calibration systems management, new NBS measurement programs, NCSL Long Range Goals, automation of calibration systems, NBS/NCSL interaction, GIDEP and training. The next meeting is scheduled for September.

Region 5

Bob Willett reported that Region 5 has been very inactive.

Region 6

Sam Davidson, reporting for Region 6, indicated that the new Regional Coordinator is Paul Groos. Paul plans on having a meeting during the latter part of February and a second meeting in October. The February meeting agenda will include discussion of temperature measurement, a report from the Board of Directors on the January meeting, automatic test equipment and NCSL long range planning.

Region 7

Bob DeLapp is planning a meeting for mid-February.

Region 8

Laurel Auxier reported that Region 8 held a meeting on January 19, 1976 with 54 delegates and guests in attendance. Discussion topics included laboratory accreditation/certification, total life cycle instrument costs, a report from the NCSL Board of Directors, the government-industry workshop and on-site calibration methods.

Report of the MACTAB Liaison Delegate

John Minck reported that Sam Silverman is the new MACTAB Liaison delegate. (MACTAB is the Measurement and Automatic Control Technical Advisory Board of ANSI.)

NBS Metrology Guides

Wilbur Anson indicated that the National Bureau of Standards Electromagnetics Division would like to publish two additional Metrology Guides. Wilbur requested permission to send a questionnaire to the NCSL membership asking for recommendations for topics for these two guides. After general discussion it was decided that the questionnaire should ask for topic recommendations in all measurement areas; perhaps NBS could be persuaded to produce Metrology Guides on a variety of measurement parameters.
1976 NCSL Conference

Graham Cameron as General Chairman and Ray Sangster as Associate Chairman will put together the 1976 NCSL Conference to be held in October at the NBS-Gaithersburg facilities. A workshop format is planned with a theme related to the industrial measurement system.

The Board approved a $750 award to be given for the best session at the Conference.

MIL-Q-9858

Although feelings are strong about the planned revision of MIL-Q-9858, the Board of Directors does not believe it is within the role and mission of NCSL to submit a formal input to DoD. Individual companies have adequate opportunity to voice their opinion through influential channels such as AIA, NSIA, and EIA.

Report of PMA Liaison Delegate (Laurel Auxier)

Laurel Auxier reported that after much work by many individuals and much soul searching, it was decided by the Board of Directors of the Precision Measurement Association (PMA) all efforts to publish the Journal of Applied Measurements (JAM). In lieu of JAM the PMA will publish their own News Notes on a bi-monthly basis.

Cal Poly News

Laurel Auxier reported that Cal Poly, at San Louis Obispo, has discontinued their efforts to obtain a degree measurement science program. Additionally, the school will no longer manage the Measurement Science Conference. The Conference will be managed by a conference organizational committee which includes representatives from various technical societies, the academic community, industry, and other interested parties. Dean Brungardt of Teledyne has been appointed by the President to represent NCSL on this committee.

Next NCSL Board of Directors Meeting

The next NCSL Board of Directors meeting was tentatively scheduled for June 22 & 23, 1976 with a Session Developers meeting on June 21, 1976. The meeting will be held at the NBS-Gaithersburg facility.

Attendees:

President: J. M. Suraci (Lockheed Electronics)
Executive Vice-President: J. Minck (Hewlett-Packard)
Vice Presidents: L. Auxier (Beckman Instruments)
   J. G. Cameron (Canadian Dept. of National Defence)
   A. J. Woodington (General Dynamics/Convair)
Secretary: J. A. Valentino (Sanders Associates)
Treasurer: D. J. Greb (Lockheed Missiles & Space Co.)
Delegates to the Board: S. L. Davidson (Schlumberger Well Services)
   R. E. kidd (Microwave Associates)
Immediate Past President: J. D. Mitchell (Rockwell Int'l./Autonetics)
Newsletter Editor: W. J. Anson (National Bureau of Standards)
Regional Coordinators: J. P. Riley (NASA - Kennedy Space Center)
   M. J. Unis (Gage Labs.)
   R. B. Willett (Rockwell International/Collins)
Sponsor's Delegate: R. C. Sangster (National Bureau of Standards)
   ---Substituting for Joe Cameron (National Bureau of Standards)
ATTENDEES AT THE NCSL BOARD OF DIRECTORS
L to R: Wilbur Amsom, Ron Kidd, Graham
Cameron, Jim Valentino, Dave Mitchell, Mike
Suraci, Don Greb, Ray Sengster, Max Unis,
Laurel Auxier, John Riley, Sam Davidson,
John Minck, Bob Willett, Andy Woodington.

JOHN MINCK discusses the NCSL Long Range
Plan. L to R: Mike Suraci, John Minck,
Ron Kidd.

DON GREB reports on NCSL finances.
L to R: Don Greb, Wilbur Amsom, Andy
Woodington, John Riley.
The Region 4 meeting was held on January 28, 1976, at the Court of Flags Resort Hotel in Orlando, Florida. Sixteen attendees represented three Federal Government organizations and eleven private sector organizations.

Equipment Control - A variety of approaches to TD & ME inventory control were discussed. Participants described one system wherein operational elements leased equipment from the calibration/equipment management group. The impact of equipment charges on project overhead costs served to minimize retention of nonessential units. Several variations of this approach were used by the private sector organizations represented. The experience of users indicates inventory control/equipment charge systems tend to quickly force expensive-to-maintain, obsolete, or unreliable units out of the system.

On-Site Calibration - Experiences in applying system performance verification programs to the validation of on-line production test consoles were discussed. Minimum system downtime, verification to station function, and accuracy requirement benefits (as opposed to manufacturer's specifications for complete calibration) were cited.

Calibration Intervals and Out-Of-Tolerance Conditions - Copies of the results of the Recall Period Survey recently conducted by Don Greb, Lockheed Missiles & Space Co., were distributed. A discussion of the relationship between calibration recall interval and out-of-tolerance condition followed. Some participants indicated that they found correlation between the calibration interval length and the number of units out-of-tolerance, whereas others found no such correlation. The apparently contradictory findings probably result from differences in electronic test equipment, calibration methods, conditions of use, instrument alignment/adjustment practice, recall interval assignment methods, and definitions of out-of-tolerance.

Pressure Measurement Programs (NBS) - A letter from C. R. Tilford of the NBS Pressure and Vacuum Measurements Section was read which described programs to improve pressure measurements. Copies of both the "Description of the New NBS Pressure Transducer Characterization Service" and "NBS Pressure Measurement Survey Questionnaire" were distributed to interested participants.

NCSL/GIDEF Workshop - Bob Willett, Collins Radio Group, Rhode Island, Chairman of the NCSL Product Design and Specification Committee, spoke on the NCSL/GIDEF Workshop conducted at GIDEF Operations Center on December 4, 1975.

NCSL Long Range Planning - NCSL President, Mike Suraci, Lockheed Electronics, shared insights as to the future roles of NCSL. Mike stressed the need for information feedback from member organizations through regional coordinators to the NCSL Board of Directors and to the sponsor. He emphasized the importance of developing active programs at the regional level.

***The Next Region 4 meeting will be held in September.***

John P. Riley
Region Four Coordinator
ATTENDEES AT THE REGION 4 MEETING,

IT PAYS TO ATTEND REGION MEETINGS
John Riley, Region 4 Coordinator, presents
doors prize to Hugh Starling while Sam Davidson, Delegate to the Board, presents
doors prize to Harold Warring.
The tenth regional NCSL meeting of Region 8 was held on January 19, 1976, in Los Angeles. Rolf Schumacher, Region 8 Coordinator, reports that the meeting was attended by 54 member representatives and guests; 29 attendees represented 16 NCSL member organizations, 15 attendees represented U.S. government organizations, such as DCAS, U.S. Air Force and NASA Plant Representatives, AFCMD, and the U.S. Navy GIDEP Administration; ten attendees were from five other non-member organizations.

Laboratory Accreditation/Certification - The NCSL draft of a "Recommended Procedure for Use in the Evaluation of Standards/Calibration Laboratories" was discussed as requested by the NCSL directorate. The first discussion centered on requirements for shortening of calibration intervals of measuring instruments with a high rate of out-of-tolerance conditions as an effective means of improving the in-tolerance ratio; other methods, like repair or replacement of unreliable parts may be more cost effective. The procedure should include reference to alternatives to interval shortening as a means of improving instrument reliability.

At one point the discussion focused on the purpose and scope of the proposed procedure. Apparently it was not clear whether the draft was intended as a procedure for an agency evaluating a calibration laboratory, or for self-evaluation, or both, and whether the intent really was to ascertain the (technical) capability of a calibration laboratory.

Total Life Cycle Instrument Costs - Hartwell Keith, Ford Aeronutronics, led the discussion on this topic and gave an introduction to the topic centering around the intentions of some measuring instrument manufacturers to end the "specmanship" race and quote several tiers of specifications, like top accuracy and some lower level accuracies sustainable for longer, specified periods.

A poll of the attendees showed that nearly all of them have established their own lower tier accuracies to measuring instruments, independent of each other or the instruments' manufacturers. Opinions on the proposal for multiple specifications were divided. Some held that a manufacturer may gain in credibility when quoting, besides a top accuracy, a lower level accuracy with a specified interval; other opinions held that much depends on the engineers requesting purchase of instruments, their sophistication and the calibration laboratory's management to inform such engineers. Some attendees would find considerably more merit in being provided by instrument manufacturers with acceptance inspection methods and criteria plus reinspection criteria applicable after a given interval.

One opinion was voiced that the proposed multiple specifications would not resolve the "specmanship" problem; it may only shift the "specmanship" from accuracy claims to interval claims and eventually other claims as an expression of competition; complementary opinions held that interval assignment is a management responsibility, closely linked with instrument maintenance quality intended by management, and that an instrument manufacturer can be of limited help in this area. Overall interest in multiple specifications appeared to be modest.

Awards - Dave Mitchell presented an NCSL award to Marlyn Hed, TRW Systems Group, a nonmember organization, for developing the best session of the 1975 NCSL Conference held in Boulder, Colorado. An NCSL Award for Outstanding Service has also been presented to Hartwell Keith, member delegate of Ford Aeronutronics Division, for his continued outstanding support of Region 8 meetings.
Government-Industry Workshop - Charles Wells, DCASD-Santa Ana, opened the round table discussion workshop by discussing a contractor evaluation checklist developed locally for evaluating contractors for compliance with MIL-C-45662A. Discussions centered on detailed salient features of the checklist, like written descriptions of contractors' calibration systems, control of personally owned hand tools, lists of standards and their accuracies. The discussions brought to light not only how these requirements are being interpreted differently but also how the requirements could be met in different ways. One industry representative expressed his belief that government specifications require double calibrations, one to determine the out-of-tolerance characteristics, and one to make adjustments. A government representative expressed his belief that this was necessarily NASA's or the government's position and may have to be decided on the basis of instrument analyses.

Some government representatives challenged the practice of some instrument manufacturers or representatives who calibrate their customers' instruments of issuing statements saying only that the instrument, after calibration, meets the manufacturer's specifications, omitting important information on the incoming condition of the instrument. A debate ensued on the importance of knowing an instrument's condition before recalibration. The point was made that it is up to the customer to specify what data or information is required from the calibration subcontractor.

Government and industry representatives then shared some experiences in the surveillance of calibration subcontractors, the problems encountered therein, and possible solutions. The question of a definition of "Production Tooling Used as Media of Inspection" was discussed. Frank Crismore, APFPO - Hughes Aircraft, proposed the following definition which found general acceptance: "Production Tooling used as medium of inspection is tooling which is used both to produce and inspect an item".

On-Site Calibration Methods - Dennis Pinnecker, Autonetics, gave a slide-presentation on the on-site calibration consoles designed and built by the Autonetics Group, Rockwell International, explained their capabilities, and detailed their cost savings due to increased equipment utilization and reduced turn-around time. John Hill and Bob Butler, Douglas Aircraft Company, McDonnell-Douglas, gave a slide talk on the recently completed "McDonnell-Douglas Calibration Laboratory of the Future", a self propelled double sided equipment bay with calibration instruments and computer built in:

**ACTIVITIES AT THE REGION 8 MEETING, January 19, 1976.** Dave Mitchell presents award to Marilyn #6, TRW Systems Group for developing the best session of the 1975 NCSL Conference.
NCSL LONG RANGE PLAN UNDER DEVELOPMENT

John Minck has prepared a draft of an NCSL Long Range Plan and has mailed copies to members of the NCSL Board of Directors and to the Committee Chairmen. Comments and other inputs received by the end of April will be incorporated into a revised draft to be evaluated by an advisory group consisting of Jerry Hayes, Ralph Barra, Don Greb, and Dave Mitchell. This version will be discussed by the Board of Directors at the June meeting.

It is expected that the final plan will be published and distributed to the membership in the Fall. If member delegates wish to be involved in writing the Long Range Plan, get in touch with your Regional Coordinator.

ECONOMIC WINDFALLS FROM NCSL REGIONAL MEETINGS

NCSL Regional meetings can have unexpected additional economic windfalls for the participants and the membership at large as two incidents have shown me recently.

At one of our recent meetings, some DCAS representatives voiced their concern about calibration data provided by some instrument manufacturers; representatives of some instrument manufacturers participated in the discussion. The calibration data are often unacceptable to the government, since the subcontractor's compliance with MIL-C-45662A could not be established and traceability not proven. As a result, instruments returned to their manufacturer for repair had to be recalibrated by their owners although they had just been calibrated by the manufacturer or his representative. One of our larger NCSL members who reportedly had unsuccessfully tried to make the data provided by one instrument manufacturer acceptable to him was approached by the manufacturer's representative, following the meeting, with the offer to establish compliance with MIL-C-45662A, so that recalibrations will no longer be necessary. This step increases considerably the value of the instrument manufacturer's services and reportedly will save the customer firm considerable amounts of money and equipment down-time.

Another report has it that an NCSL member firm had tried to qualify a local instrument manufacturer as a subcontractor for specialized calibrations only to find that the manufacturer's calibration control system did not sufficiently comply with the provisions of MIL-C-45662A. The member firm learned, however, that the manufacturer was under periodic surveillance of DCAS. At an NCSL Regional meeting, a representative of the member firm took up this matter in an informal lunch conversation with the DCAS inspector who also attended the meeting. I have now learned that the DCAS inspector had subsequently visited the instrument manufacturer and guided his personnel through the establishment of a complete calibration control system meeting the provisions of MIL-C-45662A, so that the NCSL member could now qualify the local manufacturer as a subcontractor for calibrations for which capabilities are hard to find.

Regional meetings apparently promote a spirit of cooperation.

March 1976

Rolf E. F. Schumacher
CHANGES IN NCSL OFFICERS

A. J. Wooldington resigned as NCSL Vice-President as of March 1, 1976. He recently left his position with Convair.

Mort Angelo has resigned as NCSL Vice-President. He recently retired from Lockheed.

Ron Kidd has been appointed Vice-President, Administration, to replace Mort Angelo.

William Bean has resigned as Chairman of the NCSL Calibration Laboratory Automation Committee. John Fluke Manufacturing Company has relocated him to Telburg, Holland.

Dave Schneider of Lockheed Electronics Company was appointed Chairman of the NCSL Calibration Laboratory Automation Committee.

Ralph Barra has resigned as Chairman of the Education and Training Committee. The new chairman has not yet been appointed.

UPCOMING NCSL MEETINGS

5/12/76  NCSL/GIDEP Workshop at Textronics, Beaverton, Oregon
6/14/76  Region 2 meeting - Bendix Corporation, Sydney, New York
6/21/76  Conference Session Developers meeting at NBS, Gaithersburg, MD.
6/22-23/76 Board of Directors meeting at NBS, Gaithersburg, MD.
9/76     Region 4 meeting
10/6-8/76 NCSL Conference at NBS, Gaithersburg, MD.
10/76     Region 6 meeting.

MAY 3RD IS DEADLINE FOR NEXT NCSL NEWSLETTER

The deadline for submission of material (text and photos) is May 3rd, 1976.

Send material to:

Wilbur J. Anson
276.10
National Bureau of Standards
Boulder, CO 80302

Particularly appreciated are reports of regional activities and letter to the editor.
The reports of the individual "microstudies" of the National Measurement System are in the process of being published as NBS Internal Reports which are available to any interested party upon request. Requests should be directed to Dr. R. C. Sangster, National Bureau of Standards, Boulder, Colorado 80302.

"A Study of The National Humidity and Moisture Measurement System" by Arnold Wexler is now available as NBSIR 75-933. The first report published was "The National Measurement System for Cryogenics" by Thomas M. Flynn (NBSIR 75-825). All of the reports will be announced in this newsletter as they are published. In addition, copies of the overall summary report and a compilation of all the Executive Summaries (such as the one printed below) will be sent automatically to all NCSL members as soon as the reports are published.

A STUDY OF
THE NATIONAL HUMIDITY AND MOISTURE MEASUREMENT SYSTEM

Arnold Wexler
Heat Division
Institute for Basic Standards

August 1975

EXECUTIVE SUMMARY

Water in the form of vapor and liquid (moisture) is an ubiquitous substance that pervades our earth affecting almost every material, process, device, instrument and product. Life itself depends on its presence. It plays an important role in the scientific disciplines, in many branches of engineering, in medicine, meteorology, and agriculture, and in such diverse industrial fields as air-conditioning, drying, refrigeration, storage, food processing, electronics and communications. Because of the innate interaction between water and its surroundings, and the pervasive effect water has, it is essential to be able to determine or adjust the amount present, that is, to be able to measure and control its quantity in a given environment or material.

Instruments which measure water content in the vapor phase are classified as hygrometers; those that measure water content in the liquid phase, that is, that measure moisture in liquids and solids, are classified as moisture meters. This study delineates the infrastructure of the humidity and moisture measurement system and the interrelationships that exist between the fundamental units, the standards, the calibration procedures, the instruments, and the users. It examines the impact that this measurement system has on economic, scientific, social and industrial aspects of our national life. Finally, it identifies and analyzes certain deficiencies and needs in the National Measurement System.

The primary responsibility of NBS is to provide the central basis for the National Measurement System, to coordinate that system nationally and with those of other nations, and to furnish the essential services leading to accurate and uniform measurements throughout the USA. The study shows that the NBS base for the humidity measurement system comprises five primary elements: (1) measurements research, (2) standards development, (3) development of special instruments for specific end uses, (4) prototype development and construction of new instruments to meet the needs for secondary standards, and (5) issuance of publications, such as monographs, to provide users with information on instruments, methods of measurement, sources of accuracy, NBS capabilities, etc.

Coordination is achieved through the dissemination of information, data, techniques, methods, procedures, references
and reprints to Government, industry, colleges, universities, institutes, industrial laboratories, foreign governments and foreign organizations. One important link in the coordination chain is the presentation of tutorial lectures before professional societies, workshops, seminars, clinics and training courses. Direct services are offered through (1) calibration of plant and laboratory standards, (2) tests for compliance with government procurement specifications, (3) evaluation and testing of sensors for special government programs and (4) tests for the public when commercial, industrial or university laboratories cannot meet required needs.

This study categorizes and classifies the instrumentation in current use in terms of principles of operation, commercial sources, and end uses. At least twenty-four distinct types of humidity instruments and controls and seventeen distinct types of moisture meters and controls are known to be made in the USA. These are available from more than 100 manufacturers.

Information gathered so far indicates that the annual business volume of the identifiable instrumentation industry for humidity and moisture measurement and control is of the order of $35 to 70 million dollars. This instrumentation impacts on a great diversity of disciplines, industries and technologies, creating a second order effect that is estimated to run into the billions.

In the process industries such parameters as temperature, flow, liquid level, pressure, chemical composition, density, viscosity, humidity and moisture are monitored and regulated. It is estimated that of the total number of such measurements, humidity constitutes 3.5 percent and moisture 0.7 percent. The economic loss resulting from measurement inaccuracies is substantial. For example, the uncertainties in the determination of moisture in grain, such as corn, can result in annual dollar losses from excess moisture or excess drying of $335 to 375 million.

The amount of water in a material is of vital commercial concern—in buying, selling, shipping, etc. It greatly affects the properties of materials. The relative humidity of the environment and the moisture content of a given material must be controlled for many industrial processes and for the production of a great many products. Only through such control can such factors as product uniformity, quality, and process economy be achieved. Such control contributes to the conservation of fuel and energy in drying processes. In the testing of many materials for strength, performance, life, etc., humidity control plays a paramount role. For example, a review of American Society for Testing and Materials (ASTM) standards has identified at least 45 categories of materials that must be conditioned in cabinets or rooms prior to test and 84 categories of materials covered by procedures for the measurement of moisture content. Other organizations having standards, specifications or procedures involving humidity or moisture measurement and control include Air Conditioning and Refrigeration Institute (ARI), American National Standards Institute (ANSI), American Petroleum Institute (API), American Society for Agricultural Engineers (ASAE), American Society of Heating, Refrigerating and Air Conditioning Engineers, Inc. (ASHRAE), American Society of Mechanical Engineers (ASME), Association of Official Analytical Chemists (AOAC), Cooling Tower Institute (CTI), U. S. Department of Agriculture (USDA), U. S. Department of Defense (DOD), Technical Associations of the Pulp and Paper Industry (TAPPI), Underwriters Laboratories (UL), International Organization for Standardization (ISO), International Electrotechnical Commission (IEC), U. S. Department of Commerce—National Oceanographic and Atmospheric Administration (NOAA), and the World Meteorological Organization (WMO).

This study has disclosed several shortcomings and deficiencies in the National Measurement System. As an example, there are no national standards for moisture measurements. Various technologies have established recommended practices or specifications through voluntary documentary organizations such as The American Society for Testing and Materials. In the agricultural field, the U. S. Department of Agriculture and the Association of Official Analytical Chemists have established reference methods for determining moisture in specific materials, yet none is directly traceable to NBS.

As a result of this study, and in response to requests from state weight and measures officials, NBS has initiated a program with the broad goal of providing the central basis within the USA of a consistent measurement system for moisture in materials and to provide essential moisture measurement services throughout the Nation.
The Second Symposium on Frequency Standards and Metrology sponsored by the National Bureau of Standards and the International Union of Radio Science will be held July 5-7, 1976 at Copper Mountain, Colorado. This NBS/URSI meeting is intended to serve as a discussion forum on precision frequency standards throughout the electromagnetic spectrum such as microwave beams, storage devices, stabilized lasers, infrared and optical beams, 2-photon techniques, aspects of time and length standards, infrared and visible frequency synthesis; measurement principles and limitations; and the relation of this field to specific scientific disciplines such as relativity.

HIGH-TEMPERATURE THERMOELECTRIC REFERENCE STANDARD TO BE STUDIED

In response to an industry-wide request relayed through the ASTM Committee E-20, NBS has initiated an effort to establish a thermoelectric reference standard for high temperatures. Because of needs (such as those of jet-engine manufacturers) ranging well beyond the temperature limit of the platinum thermoelectric reference standard, PT-67, the ASTM group requested that an attempt be made to provide a reference standard which would be used for characterizing thermocouple materials to 2300°C or higher.

NBS will first examine existing high-quality refractory metal thermocouple materials in attempting to meet this request, extending the study to new materials if necessary. The central objectives of the study will be to select a suitable material for the standard, to characterize its properties, and to establish procedures for its use. The Office of Standard Reference Materials is working with the Temperature Section on this task.

ANNUAL QUALITY CONTROL CONFERENCE TO BE IN TORONTO, CANADA, DURING JUNE

The Annual Technical Conference of the American Society for Quality Control will be held in the Royal York Hotel, Toronto, Ontario, June 7, 8 & 9. This Annual Technical Conference covers a wide range of sessions relating to product and quality assurance. One session will be held in metrology, moderated by Mr. Graham Cameron of the Canadian Department of National Defence. The papers to be presented include:

1. Does Bad Test Equipment Accept Bad Product by D. J. Greb, Lockheed Missiles and Space Company.

The three papers are geared to the session theme "Measurement, Know Your Product".

For information on the conference, contact the Technical Director, American Society for Quality Control, 161 West Wisconsin Avenue, Milwaukee, Wisconsin 53203, USA.
The following question was asked by a reader in response to the December 1975 Newsletter article on Calibration Systems Management Problems.

"I have several electronic test equipment consoles which contain rack-mounted instruments, such as signal generators, oscilloscopes, etc., that are calibrated at various intervals. Since these consoles are used in a production environment, a high availability rate is important. My problem is......

a. If the different instruments on a console are calibrated at various intervals, the consoles will be "down for calibration" too often.

b. If all of the instruments are calibrated on the same date at the interval of the shortest duration, too much effort is spent calibrating some instruments too often.

c. If to minimize down-time a program was implemented of replacing calibrated instruments for ones due calibration (keeping varying intervals for different types of instruments on the consoles) I feel the continuous change-out of instruments may result in total console tolerance repeatability problems which in turn might cause loss of operator confidence, pride in workmanship, and etc.

What methods have other calibration facilities used to solve this type of problem?"

If you, the NCSL Newsletter reader, have a solution to the foregoing, please write to Walt Cassady, Rockwell International/Tulsa Division, P.O. Box 51308, Tulsa, OK 74151. Your ideas will be shared with others through the Newsletter and, if desired, you may remain anonymous.
A THOUGHT FOR TODAY Which Applies To Metrologists As Well As People.

BENJAMIN FRANKLIN'S SELF IMPROVEMENT PLAN*

Benjamin Franklin's personal improvement plan was very similar to the self-actualizing concepts outlined by Maslow. His approach is given below.

"I conceived the bold and arduous project of arriving at moral perfection. I wish'd to live without committing any fault at any time; I would conquer all that either natural inclination, custom, or company might lead me into. As I knew, or thought I knew, what was right and wrong, I did not see why I might not always do the one and avoid the other. But I soon found I had undertaken a task of more difficulty than I had imagined. While my care was employed in guarding against one fault, I was often surprised by another; habit took the advantage of inattention; inclination was sometimes too strong for reason. For this reason, I therefore contrived the following method."

"I included under thirteen names of virtues that all at that time occurr'd to me as necessary or desirable, and annexed to each a short precept, which fully express'd the extent I gave to its meaning."

"My intention being to acquire the habitude of all these virtues, I judg'd it would be well not to distract my attention by attempting the whole at once but to fix it on one of them at a time; and so on, till I should have gone thro' the thirteen. I determined to give a week's strict attention to each of the virtues successively. Thus, in the first week, my great guard was to avoid every and the least offence against TEMPERANCE, leaving the other virtues to their ordinary chance. Proceeding thus to the last, I could go thro' a course complete in thirteen weeks, and four courses in a year."

THIRTEEN VIRTUES

1. TEMPERANCE - Eat not to dullness, drink not to elevation.
2. SILENCE - Speak not but what may benefit others or yourself; avoid trifling conversation.
3. ORDER - Let all your things have their places; let each part of your business have its time.
4. RESOLUTION - Resolve to perform what you ought; perform without fail what you resolve.
5. FRUGALITY - Make no expense but to do good to others or yourself; i.e., waste nothing.
6. INDUSTRY - Lose no time; be always employ'd in something useful; cut off all unnecessary actions.
7. SINCERITY - Use no hurtful deceit; think innocently and justly, and, if you speak, speak accordingly.
8. JUSTICE - Wrong none by doing injuries, or omitting the benefits that are your duty.
9. MODERATION - Avoid extremes; forbear resenting injuries so much as you think they deserve.
10. CLEANLINESS - Tolerate no uncleanliness in body, cloths, or habituation.
11. TRANQUILLITY - Be not disturbed at trifles, or at accidents common or unavoidable.
12. CHASTITY - Rarely use venery but for health or offspring, never to dullness, weakness, or the injury of your own or another's peak or reputation.
13. HUMILITY - Imitate Jesus and Socrates.

*Benjamin Franklin, The Autobiography of Benjamin Franklin, 1940 edition
will have no major inflationary impact.

Each laboratory accreditation program initiated under these procedures to accredit testing laboratories that serve a specific product will be carefully examined and evaluated before any final findings of need regarding such program is issued to ascertain whether such program would have a major inflationary impact under the criteria described in Executive Order and Office of Management and Budget Circular No. A-107 dated January 28, 1976, and it has been determined that the promulgation of these procedures will have no major inflationary impact.

A number of substantive changes in the proposed procedures have been made in response to the public comments. Some of the more significant changes include a structuring of the program on a product-by-product basis rather than on a class of technology basis. Initially, it was presumed that there existed general and concurrent needs within various classes of technology for the accreditation of laboratories to test all or many, if not all of the various products within each class. On the basis of the comments received, it is believed that this assumption may not be valid. Accordingly, the procedures have been revised to allow the initiation of accreditation services on a product-by-product basis. To counter the potential for establishment of innumerable separate services that might result, the revised procedures will allow the Secretary of Commerce to group similar or related products, as appropriate, when initiating accreditation services.

The proposed procedures called for the establishment of a National Laboratory Accreditation Board, composed only of Federal employees, for each class of technology for which a need has been determined. This Board was to develop and recommend to the Secretary, criteria which testing laboratories desiring to be accredited would have to meet. To assist each Board that was established, there would also be established, for consultation purposes, a National Laboratory Accreditation Advisory Committee which would include representatives from the private sector. In order, however, to allow for a greater participation of the private sector in the development of criteria, the concept of separate Boards and Advisory Committees has been abandoned. The revised procedures provide for the establishment of National Laboratory Accreditation Criteria Committees which will be composed of government and private sector members. The Secretary will consider the recommendations of these Committees in promulgating accreditation criteria.

Although the proposed procedures spoke of the need for coordination in carrying out the program, they lacked any arrangement of coordination with other programs that may exist or be in development. Accordingly, in order to enable a national institutional mechanism for laboratory accreditation to serve as a focus for coordinating laboratory examination and accreditation programs that now exist or may develop in the Federal, State, and private sectors, the coordination feature has been revised and highlighted in the revised procedures. A reference to coordination with such governmental and private sector programs and its importance in this program is set out in the introductory portion of these procedures which describes the program and its goals. Also, section 4(d) of the procedures requires the Secretary to solicit the views of Federal regulatory agencies before commenting the accreditation process if he believes that the accreditation of testing laboratories to serve a specific product affects an existing or developing testing laboratory examination or accreditation program of such regulatory agencies. Objections by the head of those agencies would be sufficient cause for the Secretary to cease further actions regarding that particular accreditation program. In cases where other Federal agencies have an interest in a particular laboratory accreditation program being carried out the Secretary is required, under section 9 of the revised procedures, to consult with appropriate officials at the policy-making levels of those agencies. Moreover, those agencies would have the opportunity to designate representatives to serve on each National Laboratory Accreditation Criteria Committee established by the Secretary of Commerce in which they had an interest.

The proposed procedures emphasized a concern with the technical competence of those testing laboratories that would be accredited under this program. Many comments, however, expressed the view that laboratories equally competent on a technical basis are not of equal utility to users. It was contended that users require information of a non-technical nature concerning testing laboratories and that the kind of information needed is identified in general criteria standards developed by consensus standards groups.
7.1 Purpose.

The purpose of this part is to establish procedures under which a National Voluntary Laboratory Accreditation Program will function.

7.2 Description and goal of program.

(a) This program establishes a national voluntary system that would examine the professional and technical competence of testing laboratories that serve regulatory and non-regulatory product examination and certification needs. Laboratories that meet the qualifications established pursuant to the procedures set out below would be accredited. This program will also require those laboratories that are accredited to maintain their qualification status through periodic checks and examinations.

(b) The program will seek through coordination and consultation, to maximize benefits derived from other testing and accreditation activities. In this way, it is intended that the program will not duplicate the functions of other laboratory examination or accreditation programs conducted by the public and private sectors. To this end, the Secretary will insure that the program is compatible with the continuing examination and consultation and cooperation with governmental, professional, and ethical business practices as appropriate, in such criteria. These considerations are stated clearly in sections 2 and 7(a) of the revised procedures.

Effective date. The procedures set out below shall become effective on February 23, 1976.

Issued February 20, 1976.

BETSY ANCKER-JOHNSON,
Assistant Secretary for Science and Technology.

Part 7 is added to Title 15 CFR to read as follows:

§ 7.1 Purpose.

(a) Any person may request the Secretary to find that there is a need to accredit testing laboratories which render services regarding a specific product so that it may be determined whether such product meets the requirements of applicable standards.

(b) Such a request shall be in writing and shall include the following:

(1) Identification of the product;

(2) Text of an applicable standard;

(3) Text of a test method, if not included in the applicable standard identified in paragraph (b)(1) of this section; and

(4) Basis of need for accrediting testing laboratories that serve the product identified in paragraph (b)(1) of this section.

(c) The Secretary may ask for more information to support a request made under paragraphs (a) and (b) of this section if he feels it is necessary to do so. If on the basis of the information provided or because of the lack of resources, the Secretary is unable to justify the making of a preliminary finding of need, he will decline to act further on the request. The Secretary shall in that event notify the requester in writing within ten (10) working days after making a decision and shall state the reasons for so declining.

(d) If a request received under this section is believed to affect an existing testing or accreditation program or a specific product, the examination or accreditation program of a Federal regulatory agency, the Secretary shall seek from the head of such agency views relative to the Secretary's making a preliminary finding of need. If within thirty (30) days after receipt of the Secretary's solicitation of views, or such extension of time as may be agreed to by the Secretary, the head of the affected Federal regulatory agency explains, in writing, his objections to the Secretary's making a preliminary finding of need, the Secretary shall cease to act further on the making of such finding. In that event, the Secretary shall notify the requester of such objections and his decision to set the request pursuant to paragraph (c) of this section.

(e) If, on the basis of the information provided to him, the Secretary finds that a need exists to accredit testing laboratories that serve a specific product, he shall publish a notice in the Federal Register indicating that such finding is a preliminary finding of need. The notice shall include a statement as called for in § 7.5 as to the basis for the Secretary's finding.

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§ 7.5 Statement of the basis for a preliminary finding of need.

The statement setting forth the basis for the preliminary finding of need referred to in § 7.4(e) shall as a minimum address the following items:

(a) Whether the establishment of general or specific criteria and other conditions for accrediting testing laboratories that serve a specific product would benefit the public interest;
(b) Whether there is a national need to accredit testing laboratories for the specific product involved beyond that served by any existing laboratory accreditation programs in the public or private sector;
(c) Whether for the specific product involved, there is in existence a standard that is deemed by the Secretary as being important to commerce, consumer well-being, or the public health and safety;
(d) Whether there is in existence a valid existing standard as determined by the Secretary for certifying conformity to the standard of the specific product involved;
(e) Whether it is feasible and practical to accredit testing laboratories that serve the specific product involved.

§ 7.6 Establishment and functions of a National Laboratory Accreditation Criteria Committee.

(a) The Secretary will establish a Criteria Committee, the Secretary will appoint the Chairman and members thereto following:

(1) Publication of the separate Federal Register notice referred to in § 7.4(h)(3) that announces the Secretary's intention to form a Criteria Committee, as distinguished from an announcement of intent to utilize an existing national or international standard concerning the specific product involved;

(2) The filing of a charter setting forth the purpose and nature of the Criteria Committee.

(b) The membership of the Criteria Committee will be composed of employees of the Department of Commerce, other Federal agencies, and qualified representatives chosen from among producers, distributors, users, consumers, testing laboratories, academia, and general interest groups, including State and local governmental bodies and agencies affected by the Secretary's finding of need to accredit testing laboratories serving a specific product. The membership of each Criteria Committee shall be selected so as to provide an equitable balance that represents the interests affected by the Secretary's finding of need.

(c) Establishment and functioning of each Criteria Committee formed and utilized by the Secretary under these procedures shall be governed by the applicable provisions of the Federal Advisory Committee Act, cited earlier herein. Persons selected to serve on a Criteria Committee shall be paid travel expenses and per diem, provided authorized travel is involved.

(d) Upon formation of the Criteria Committee, the Secretary will request it to develop and recommend general and specific criteria to accredit testing laboratories that serve a specific product. The Secretary, in a written communication to the Chairman of the Committee, shall designate a time period for the development of general and specific criteria.

(e) When developing general or specific criteria, the Criteria Committee may, where it deems such action to be appropriate, consult with other interested public and private parties, including Federal, State and local agencies and private standards bodies. Exchanges of correspondence, memorandums and other evidence of such consultation will be made a matter of public record.

§ 7.7 Development and recommendation of criteria for accrediting testing laboratories.

(a) The Secretary, and the Criteria Committee acting at the request of the Secretary, in developing general and specific criteria to accredit testing laboratories that serve a specific product shall consider factors such as:

(i) For general criteria pertaining to testing laboratories:

(1) Organization;

(ii) Staff;

(iii) Physical plant;

(iv) Operational processes;

(v) Control procedures;

(vi) Quality assurance;

(vii) Professional and ethical business practices, as appropriate.

(b) For specific criteria pertaining to testing laboratories:

(i) Personnel and equipment qualifications required of the testing laboratory function;

(ii) Requirements applicable to proficiency sample programs;

(iii) Application requirements;

(iv) Initial and periodic examination and audit procedures;

(v) Professional and technical qualifications of personnel who examine testing laboratories.

(b) The general and specific criteria developed under this section for accrediting testing laboratories will be based upon criteria found in existing standards where such existing criteria are deemed appropriate. Where appropriate existing criteria cannot be found, the Criteria Committee will, at the request of the Secretary, undertake to develop and recommend to him such specific general and specific criteria as may be needed.

(c) The criteria shall contain instructions for making application by testing laboratories serving the product involved and shall require that each testing laboratory that desires to participate in this program must agree to conditions that include but are not limited to the following:

(1) Be examined and audited, initially and on a continuing basis.
(2) Pay accreditation fees and charges; and
(3) Avoid reference by itself and forbids the use of such criteria and its implementation has
being held at two locations, one of
which shall be near at the Mississippi
River and the other within the belt.
Notice of any such hearings shall be published in the
Federal Register at least twenty (20)
days in advance thereof. A transcript will be kept of any oral presentation.
(d) The criteria shall contain a statement
that compliance by testing laboratories
with the general and specific criteria
shall be examined and published in the
Register and which are accredited by
him under these procedures shall be no
way relieve such laboratories from the
necessity of also observing and being in
compliance with any existing Federal,
State and local statutes, ordinances, and
regulations that may be applicable to
the operation of such laboratories, in
cluding consumer protection and antitrust
laws.
(e) In carrying out the activities
authorized by this section:
(1) No action will be taken or criteria
developed that would prohibit the
accreditation of a testing laboratory solely
on the basis of that laboratory's associa-
tion with marketing, distributing or vending
organizations, or because the testing laboratory
is a foreign firm;
(2) No action will be taken under this
program to develop a product standard
or test method standard;
(3) No action will be taken under this
program to modify a product standard or
a test method standard where such
a standard is in existence;
(4) No general or specific criteria
will be promulgated unless compliance with
such criteria and its implementation has
defined by the Secretary to be
feasible and practical and not contrary to
the public interest; and
(5) The Secretary, under this program,
will not ask for or accept confidential
business data, trade secrets or other
proprietary information.
§ 7.8 Publication of proposed criteria.
(a) Upon its development of the
general and specific criteria for accrediting
testing laboratories under § 7.7, the Cric-
tera Committee shall forward its rec-
ommendations for such criteria to the
Secretary for his consideration. The Sec-
retary, after consideration of such cri-
tera will publish in the Federal Register
a notice giving the complete text of the
proposed general and specific criteria,
and inviting any interested persons to
submit written comments on such proposed
criteria within forty-five (45) days after
its publication in the Federal Re-
Source, unless another time limit is
provided for the same.
(b) Interested persons wanting to ex-
press their views in an informal hearing
shall notify the Secretary of that desire
within fifteen (15) days after such pro-
posed criteria are published in the Fed-
eral Register. Upon receipt by the Sec-
tary of such request, informal public
hearings shall be held as to give all
interested persons an opportunity for the
oral presentation of data, views, or argu-
ments, in addition to the opportunity to
make written submissions. If deemed ap-
propriate by the Secretary, such hear-
ings shall be held at two locations, one of
which shall be near at the Mississippi
River and the other within the belt.
Notice of such hearings shall be published in the
Federal Register at least twenty (20) days in advance thereof. A transcript will be kept of any oral presentation.
(1) All written and oral comments will be
filed in the Federal Reference and
Records Inspection Facility, Room 708B,
Commercial Service Building, 14th Street
between F and G Streets, N.W.,
Washington, D.C. 20230, and will be
available for public inspection at that
location.
(c) The Secretary upon receipt of all
written and oral comments will request the
Committee to conduct and
return to him in writing, within a time
period specified by the Secretary, its
evaluation and recommendations with
respect to such comments. After consi-
dering the Committee's evaluation and
recommendations, the Secretary will
prepare his evaluation and publish
in the Federal Register a notice:
(1) Announcing the final general and
specific criteria which laboratories
shall meet in order to be accredited and
the date when such final criteria shall
be in effect. Such notice shall be
published at least thirty (30) days after
publication of such notice;
(2) Stating that the proposed general
and specific criteria will be further de-
voted to in the finalization of
such standards;
(3) Withdrawing the proposed gen-
eral and specific criteria from further
consideration.
§ 7.9 Coordination with Federal agen-
cies.
As a means of ensuring effective
and meaningful cooperation, input, and par-
ticipation through Federal agencies that
have an interest in and may be
impacted by the laboratory accreditation
program carried out under these proc-
deres, the Secretary shall take steps to
communicate and consult with appro-
rate officials at policy making levels
within those agencies. These coordina-
tions efforts will include opportunities for
representatives designated by those
agencies to serve on criteria committees
and organization.
§ 7.10 Establishment of fees and charges.
(a) The Secretary in conjunction with
the use of the Working Capital Fund of
the National Bureau of Standards, as
authorized by section 12 of the Act
of March 3, 1901, as amended (15 U.S.C.
260a), for this program shall establish
fees and charges for examining, ac-
crediting, and auditing testing labora-
tories. The fees and charges established
shall be revised if deemed necessary by
him when he deems it appropriate to
do so, and shall be in amounts calculated to
maximize the self-sufficiency of this pro-
cedure. The fees and charges shall be
published in the Federal Register simul-
taneously with the notice of proposed
general and specific criteria referred to in
§ 7.8(a). Such notice will set out a sched-
ule of estimated fees and charges the
Secretary proposes to establish. The
notice will be furnished for informational
purposes only. The Secretary shall
the public may evaluate the proposed
criteria in light of the expected fees to
be charged.
(b) Such time as the Secretary pub-
nishes the notice announcing the final
general and specific criteria referred to in
§ 7.8(c)(1), he shall simultaneously
publish a schedule of fees that will be charged
testing laboratories that serve a specific
product. The effective date of such final
schedule of fees shall be the same as the
date on which the final general and spe-
cific criteria are to take effect.
(c) Revisions, if any, to the fees and
criteria established under paragraph (b)
of this section shall be published in subsequent
Federal Register notices and shall take effect
thereafter. The Secretary may, at any time
before the effective date of the final
schedule of fees, publish a revision to be
in the appropriate quarterly report.
§ 7.11 Participation of testing labora-
tories.
(a) Each testing laboratory serving a
product for which final general and specific
criteria have been promulgated under
§ 7.7(a), and desiring to be accredited under this program, will notify the Secretary of his desire
pursuant to the provisions of such criteria.
(b) After receipt and evaluation of
the testing laboratory's application and
information contained therein, the Sec-
retary shall, upon the acceptance thereof,
notify the applicant testing laboratory
and the National Bureau of Standards
writing of the specific applicable examina-
tion requirements for accreditation
and the fees and charges for such
examination and accreditation. If the
application is not accepted, the Sec-
retary shall notify the applicant testing
laboratory of the reasons for rejection
of its application, and such testing
laboratory may request under § 7.13(d)
after correcting the deficiencies set out
in the Secretary's notification of rejection.
Alternatively, the applicant testing
laboratory shall have thirty (30) days
after receipt of the Secretary's notification of
rejection or hearing within that thirty (30)
day period the Secretary's rejection shall be
withheld until the hearing held pursuant
to 5 U.S.C. 558. In the event, however, that
the applicant testing laboratory requests
a hearing within that thirty (30) day period
the Secretary's rejection shall be
withheld until the hearing held pursuant
to 5 U.S.C. 558.
(c) A testing laboratory desiring to be
accredited under this program to serve
the product identified by the Secretary
in his final finding of need under § 7.4(g)
in accordance with the standards and
criteria promulgated by the Secretary
in that finding must meet the general
and specific criteria promulgated by him.
(d) Upon receipt by the National Bu-
reau of Standards of the applicant test-
ning laboratory's request for exami-
nation and of the fees and charges
specified in paragraph (b) of this sec-
tion, the National Bureau of Standards, on behalf of the Secretary, will arrange for by contract or will itself conduct, the examination in accordance with the examination requirements of the Secretary. In all cases where testing laboratories are examined, the National Bureau of Standards will assure that the personnel used by the contractor or by the National Bureau of Standards possesses the professional and technical qualifications set out in the specific criteria promulgated under this section. If the National Bureau of Standards conducts the examination, the resultant examination report will be forwarded to the Secretary. In cases where the examination report was prepared by a contractor, the National Bureau of Standards, before making payment thereunder or forwarding the report to the Secretary, will review the report to ensure that the contract terms have been fulfilled.

(c) The Secretary, after reviewing the examination report furnished under paragraph (b) of this section, will either terminate or proceed with the determination granting or proposing to deny accreditation to the applicant testing laboratory, not later than twenty (20) days following the date on which the report is received by him. If the determination is not made within such time limit, the Secretary shall notify the testing laboratorv in writing of the reasons for the delay. Upon making his determination, the Secretary will notify the testing laboratory in writing of its accreditation status. If the Secretary proposes to deny accreditation to an applicant testing laboratory, the notification will state the reasons for such proposed denial.

(b) Upon receipt of a notice from the Secretary of the proposed revocation, which notice shall set forth the reasons for such proposed revocation, the accredited testing laboratory shall have thirty (30) days from the date of receipt of such notification to request a hearing under the provisions of 5 U.S.C. 556. The Secretary's proposed revocation shall become final through the issuance of a written decision to the testing laboratory in the event that such testing laboratory does not appeal the proposed revocation within that thirty (30) day period. In the event, however, that the accredited testing laboratory requests a hearing within that thirty (30) day period, the Secretary's proposed revocation shall be stayed until the hearing held pursuant to 5 U.S.C. 556.

(c) A testing laboratory may at any time terminate its participation and responsibilities under this program or withdraw its application for accreditation by giving written notice to the Secretary. Upon receipt by the Secretary of such notice, he shall terminate further processing of the testing laboratory's application for accreditation. If such testing laboratory has been accredited, the Secretary shall terminate that testing laboratory's accreditation. The Secretary shall notify the testing laboratory that its accreditation has been terminated pursuant to its request.

(d) A testing laboratory whose application has been rejected or whose accreditation has been denied, revoked, or terminated or which has withdrawn its application prior to being accredited my reaply for and be accredited if it meets the applicable general and specific criteria promulgated by the Secretary under §7.6(c) and also to meet the conditions set out under §7.7(c) and the provisions of §7.12.

§ 7.14 Cessation of accreditation.

(a) The Secretary may cease the accreditation of a testing laboratory if he finds that there is no longer a need to accredit such laboratories. An action to cease such accreditations shall commence with the issuance of a preliminary finding which shall be published in the Federal Register. Such notice shall set forth the Secretary's reasons for his preliminary finding and shall, as a minimum, address those matters identified in §7.3 with relevant references in §7.3 which formed the basis for his original finding of need to accredit testing laboratories serving a specific product.

(b) The notice published under paragraph (a) of this section shall provide at least a sixty (60) day period for the submission of written comments on the Secretary's preliminary finding. In the event that is no hearing is held on this preliminary finding as authorized under paragraph (c) of this section, the period allowed for the submission of written comments shall be extended to the date on which such hearing or hearings are held.

(c) Interested persons wanting to express their views in an informal hearing shall notify the Secretary of that desire within twenty (20) days after the notice is published in the Federal Register. Upon receipt by the Secretary of such request, informal public hearings shall be held so as to give all interested persons an opportunity to present presentation of data, views, or arguments, in addition to the opportunity to make written submissions. If deemed appropriate by the Secretary, such hearings may be held at two locations, one of which shall be east of the Mississippi River and the other west thereof. Notice of such hearings shall be published in the Federal Register at least twenty (20) days in advance thereof. A transcript shall be kept of any oral presentation.

(d) All written and oral comments will be filed in the Central Reference and Records Inspection Facility, Room 7688, Commerce Building, 14th Street between F and G Sts. N.W., Washington, D.C. 20230, and will be available for public inspection at that location.

(e) After evaluating the comments received, the Secretary shall publish a notice in the Federal Register making a final finding, or withdrawing his preliminary finding, that there is no longer a need to accredit testing laboratories that serve a specific product. The notice shall state the basis for the Secretary's final finding or for the withdrawal of his preliminary finding. If the notice sets forth the Secretary's final finding that there is no longer a need to accredit testing laboratories that serve a specific product, the notice shall also set forth the effective date of such final finding which shall not be less than sixty (60) days after the publication of the notice.

(f) If the Secretary ceases the accreditation of testing laboratories that serve a specific product as provided for in this section, he shall withdraw the accreditation previously issued to all testing laboratories serving the same specific product. Any testing laboratory whose accreditation to serve a specific product has been withdrawn by the Secretary under this subsection may seek to be accredited to serve a different specific product under these procedures, and may be so accredited if it meets the general and specific criteria promulgated by the Secretary under §7.6(c)(1) that are applicable to that different specific product and if it agrees also to meet the conditions set out under §7.7(c) and the provisions of §7.12.

§ 7.15 Refund of fees and charges.

(a) If a testing laboratory withdraws its application for accreditation after it has submitted the required examination...
fees and provides written notice to the Secretary of such withdrawal prior to the issuance of an accreditation of the denial thereof, the testing laboratory will be refunded such fees except for the application fee, if any, and for any other costs that have been incurred relative to its application.

(b) If a testing laboratory terminates its participation and responsibilities under this program at any time after it has been accredited or after it has been notified by the Secretary that it is not being accredited, no part of the fees and charges paid by the testing laboratory will be refunded.

(c) If the accreditation of a testing laboratory is revoked by the Secretary under § 7.13, no part of the fees and charges paid by the testing laboratory will be refunded.

(d) If the Secretary ceases the accreditation of testing laboratories that serve a specific product under § 7.14 and withdraws the accreditation of a testing laboratory to test a specific product under that section, such testing laboratory will be refunded the unexpended part of the examination fees or charges paid by such testing laboratory to maintain its accredited status under this program. Provided, however, That no such testing laboratory will be refunded its original application fee, if any, to be accredited to serve a specific product.

§ 7.16 Amendment or revision of criteria.

The Secretary, or a Criteria Committee acting at the request of the Secretary, may undertake the development of amendments or revisions of any applicable general or specific criteria previously promulgated by the Secretary by following the same procedures pertaining to the original development of such criteria.

§ 7.17 User education and reports.

(a) For each specific product for which the Secretary has made a final finding under these procedures that a need exists to accredit testing laboratories that serve such product, he will publish a quarterly report noting all action taken by him regarding such matters as accreditations, revocations, the establishment of fees and charges, the promulgation of general and specific criteria and any amendments or revisions to such criteria. Such publications shall clearly state that testing laboratories accredited by the Secretary under these procedures are in no manner immune from the necessity of being in compliance with all legal obligations and responsibilities imposed by existing Federal, State, and local laws, ordinances, and regulations, including those related to consumer protection and antitrust prohibitions.

(b) The Secretary will also prepare an annual report summarizing all activities carried out under these procedures which shall include a listing of all testing laboratories accredited by the Secretary during the year to which the annual report relates.

(c) As a means of giving prompt notice to the public of accreditation actions taken by the Secretary, he shall, in addition to the reports called for under this section, publish in the Federal Register all actions taken by him during the preceding month which grant, revoke, terminate or result in the withdrawal of the accreditation of a testing laboratory. Such notice shall include the name and address of the testing laboratory concerned, and a brief explanation of the action taken by the Secretary with respect to that laboratory.

§ 7.18 Support function.

The Secretary shall make provisions for administrative and technical support and staff services as may be needed to carry out this program.
NEW MEMBERS OF NCSL

Atlantic Richfield Hanford Company
Standards Laboratory
202-S, 200 West Area
Richland, WA 99352
Delegate: Larry P. McRae

Comsat Laboratories
P. O. Box 115
M&S Center
Clarksburg, MD 20734
Delegate: C. J. Franklin

Conrac Corporation
330 Madison Avenue
New York, N.Y. 10017
Delegate: John Attansio

Cubic Corporation
9233 Balboa Avenue
San Diego, CA 92133
Delegate: T. L. Davidson

GTE Lenkurt
1105 County Road
San Carlos, CA 94070
Delegate: John Christensen

Hewlett Packard Company
Dimensional Metrology Laboratory
1501 Page Mill Road
Palo Alto, CA 94304
Delegate: Glenn Herreman

HLD Associates
Box 176
North Wales, PA 19454
Delegate: H. L. Daneman

National Institute of Science & Tech.
Tests & Standards Laboratories
Gen. Santos Avenue
Bicutan, Rizal, Philippines
Delegate: Jose P. Planas

Naval Electronic Engineering Center
Room 507, Federal Building
334 Meeting Street
Charleston, SC 29403
Delegate: Charles G. Hill

Northrop Corporation
Defense Systems Department
600 Hicks Road
Rolling Meadows, IL 60008
Delegate: William M. McDill

Reliance Electric Company
Instrument Service Laboratory
24703 Euclid Avenue
Euclid, OH 44127
Delegate: L. J. Pugsley

Rhodes-Groos Laboratories
3409 Andtree Boulevard
Austin, TX 78724
Delegate: Paul J. Groos

Rothe Development Laboratories
4614 Sinclair Road
San Antonio, TX 78222
Delegate: R. L. Trollinger

SAI Comsystems Corporation
Measurement Research Division
300 S. Park Avenue, Suite 222
Pomona, CA 91766
Delegate: William J. Frederick

Stein Engineering Services, Inc.
5602 East Monte Road
Phoenix, AZ 85018
Delegate: Peter K. Stein

Yellow Springs Instrument Company
P. O. Box 279
Yellow Springs, OH 45387
Delegate: Geron E. Smith
<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
<th>Location</th>
<th>Contact Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apr. 14-16</td>
<td>IEEE Region V Annual Conf.</td>
<td>Joe C. Thompson Conference</td>
<td>Contact: A. Bruce Buckman, Dept. of Electrical Engineering, Eng. Science Bldg., 103, University of Texas at Austin, Austin TX 78712</td>
</tr>
<tr>
<td>Apr. 20-22</td>
<td>Shielding &amp; Grounding</td>
<td>Paris France</td>
<td>Contact: Don White Consultants, Inc., International Training Institute, 14600 Springfield Road, Germantown, MD 20767, Phone: 301/968-0028</td>
</tr>
<tr>
<td>Apr. 26-27</td>
<td>Seventh Annual Pittsburgh Conference on Modeling</td>
<td>Univ. of Pittsburgh, PA 15261</td>
<td>Contact: William G. Vogt or Martin H. Micklos, Modeling and Simulation Conference, 231 Benedum Engineering Hall, University of Pittsburgh, Pittsburgh, PA 15261</td>
</tr>
<tr>
<td>Apr. 26-28</td>
<td>Electronic Components Conference</td>
<td>Jack Tar Hotel, San Francisco, CA</td>
<td>Contact: Director, Continuing Engineering Education, George Washington University, Washington, DC 20052, Phone: 202/676-6106</td>
</tr>
<tr>
<td>April 26-30</td>
<td>The Second Annual Reliability Testing Inst.</td>
<td>University of Arizona</td>
<td>Contact: FAA Chairperson, School of EE, Georgia Tech, Atlanta, GA 30332</td>
</tr>
<tr>
<td>Apr. 26-30</td>
<td>Technology Trends in Communications</td>
<td>The George Washington University, Wash., DC Room 641, University Library</td>
<td>Contact: FAA Chairperson, School of EE, Georgia Tech, Atlanta, GA 30332</td>
</tr>
<tr>
<td>Apr. 27-29</td>
<td>Third FAA/Georgia Tech Workshop &amp; Grounding of Electronic Systems</td>
<td>Georgia Inst. Tech, Atlanta, GA</td>
<td>Contact: FAA Chairperson, School of EE, Georgia Tech, Atlanta, GA 30332</td>
</tr>
<tr>
<td>May 3-4</td>
<td>Into Europe</td>
<td>Hotel Roosevelt, Madison Ave. at 45th St., NY 10017</td>
<td>Contact: National Technical Information Service, U.S. Department of Commerce, 5200 Port Royal Road, Springfield, VA 22161, Attn: George Kradzews</td>
</tr>
<tr>
<td>May 9-12</td>
<td>1976 ISA Joint Power &amp; Analysis Instrumentation Symposium</td>
<td>Hilton Hotel, San Francisco, CA</td>
<td>Contact: Fred Martin, The Dow Chemical Co. Freport, TX 77551, Phone: 713/238-4591</td>
</tr>
<tr>
<td>May 10-14</td>
<td>Electromagnetic Compatibility</td>
<td>The George Washington University, Wash., DC Room 641, University Library</td>
<td>Contact: Director, Continuing Engineering Education, George Washington University, Washington, DC 20052, Phone: 202/676-6106</td>
</tr>
<tr>
<td>May 11-13</td>
<td>EMP - Design &amp; Measurement For Control of Susceptibility</td>
<td>Washington, DC</td>
<td>Contact: FAA Chairperson, School of EE, Georgia Tech, Atlanta, GA 30332</td>
</tr>
<tr>
<td>May 11-12</td>
<td>Grounding of Electronic Systems</td>
<td>Georgia Inst. Tech, Atlanta, GA</td>
<td>Contact: Director, Dept. Continuing Education, Georgia Inst. of Tech., Atlanta, GA 30332</td>
</tr>
<tr>
<td>May 11-14</td>
<td>Electro/76 (The IEEE Show in Bicentennial Boston)</td>
<td>Hyatt Auditorium and Sheraton Boston Hotel, Boston, MA</td>
<td>Contact: William G. Weber, Jr., General Manager, Electro/76, 3600 Wilshire Blvd., Los Angeles, CA 90010</td>
</tr>
<tr>
<td>May 17-21</td>
<td>The Design of Optical Systems</td>
<td>Dept. of Engineering, Univ. of Wisconsin-Extension</td>
<td>Contact: University of Wisconsin-Extension, Dept. of Engineering, 422 North Lake Street, Madison, WI 53706</td>
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<tr>
<td>Date</td>
<td>Course/Conference</td>
<td>Location</td>
<td>Further Information</td>
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<tr>
<td>May 18-20</td>
<td>Aerospace Electronics Conference (NAECON)</td>
<td>Dayton Conv. Ctr., Dayton, OH</td>
<td>Contact: J.E. Singer, NAECON 76, 140 E. Monument Ave., Dayton, OH 45402</td>
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<tr>
<td>May 18-20</td>
<td>Radar Systems For Remote Sensing</td>
<td>Univ. of Kansas Lawrence, KS</td>
<td>Contact: Conferences and Institutes, Continuing Education Building, Univ. of Kansas, Lawrence, KS 66045</td>
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<tr>
<td>May 24-26</td>
<td>Hybrid Microelectronics</td>
<td>University of Pittsburgh</td>
<td>Contact: Office of Continuing Education 231 Denesum Engineering Hall University of Pittsburgh, Pittsburgh, PA 15261</td>
</tr>
<tr>
<td>May 25-27</td>
<td>Conference on Laser and Electro-Optical Systems</td>
<td>San Diego, CA Town &amp; Country Hotel</td>
<td>Contact: Ms. Leslie Hill, Hughes Aircraft Company, Electron Dynamics Division, 3100 West Losati Blvd., Torrance, CA 90509</td>
</tr>
<tr>
<td>June 1</td>
<td>30th Annual Frequency Control Symposium</td>
<td>Howard Johnson's Hotel Atlantic City, NJ</td>
<td>Contact: Commander: U.S. Army Electronics Command, APIT: AMSEI-TL-MF (US. J. R. Vig) Fort Monmouth, NJ 07703</td>
</tr>
<tr>
<td>June 6-11</td>
<td>The Management of Technology: Effective Management of Engineers and Scientists</td>
<td>University of Colorado Boulder, CO</td>
<td>Contact: Center for Management &amp; Technical Programs, P. O. Box 80303 Boulder, CO 80303</td>
</tr>
<tr>
<td>June 6-9</td>
<td>Physical Electronics Conference (AP6)</td>
<td>Madison, Wisconsin</td>
<td>Contact: Technical Director, American Society for Quality Control, 1101 West Wisconsin Ave., Milwaukee, WI 53203</td>
</tr>
<tr>
<td>June 7-9</td>
<td>Annual Quality Control Conference</td>
<td>Royal York Hotel Toronto, Ontario</td>
<td>Contact: Dr. Karl Hammer, Director of Computer Sciences, Sperry-Univac Washington, DC</td>
</tr>
<tr>
<td>June 7-10</td>
<td>AFTMS National Computer Conference</td>
<td>Coliseum, New York City</td>
<td>Contact: Technical Director, American Society for Quality Control, 1101 West Wisconsin Ave., Milwaukee, WI 53203</td>
</tr>
<tr>
<td>June 7-11</td>
<td>Digital &amp; Optical Image Processing</td>
<td>The Inst., of Optics &amp; Dept., of EE, Univ. of Rochester</td>
<td>Contact: IMAG Processing Course The Institute of Optics, Univ. of Rochester, Rochester, NY 14627 Phone: 716/275-3232</td>
</tr>
<tr>
<td>June 14-16</td>
<td>Int'l Microwave Symposium</td>
<td>Cherry Hill, NJ Cherry Hill Inn</td>
<td>Contact: Bernard DeMarinis,ITT, WCD, 492 River Road, Nutley, NJ 07110</td>
</tr>
<tr>
<td>June 14-18</td>
<td>Quantum Electronics Int'l Conference</td>
<td>RAI Congress Ctr., Amsterdam, The Netherlands</td>
<td>Contact: Wolfgang Kaiser, Physik-Dept. EII, Tech. Univ., 8 Munich 2, Arcistrasse 21, Germany</td>
</tr>
<tr>
<td>June 21-24</td>
<td>IEEE Int'l., Symposium on Information Theory</td>
<td>Ronneby, Sweden</td>
<td>Contact: IBM, 945 Hook Lane, Piscataway, NJ</td>
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<tr>
<td>July 1</td>
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<td>Contact: L. Kenneth Armstrong, NASA Boulder, CO 80302</td>
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<tr>
<td>July 1</td>
<td></td>
<td>Univ. of Lancaster, Lancaster, England</td>
<td>Contact: Don White Consultants, Inc., International Training Institute, 14000 Springfield Road, Germantown, MD 20747, Phone: 301/948-0626</td>
</tr>
<tr>
<td>July 11</td>
<td>RF Electrical Measurements</td>
<td>Washington, DC</td>
<td>Contact: IBM, Savoy Place, London, W.C. 2R OBL England</td>
</tr>
<tr>
<td>July 12-13</td>
<td>Grounding</td>
<td></td>
<td>Contact: Don White Consultants, Inc., International Training Institute, 14000 Springfield Road, Germantown, MD 20747, Phone: 301/948-0626</td>
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