

# STANDARDS

## BEARER



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IN CELEBRATION OF

## THE INDUSTRY APPLICATIONS SOCIETY'S SILVER ANNIVERSARY

Twenty-five years ago, on January 1, 1965, to be exact, a group that was to evolve into the Industry Applications Society (IAS) became an officially recognized entity within the IEEE. The IAS was then called the IEEE Industry and General Applications (IGA) Group, which combined the names of its two predecessors, the Industry Division and the General Applications Division of the American Institute of Electrical Engineers (AIEE).

The IGA Group was formed specifically to address the unique needs of engineers who were primarily interested in the application of electricity to industry, commerce, and the home. The IGA Group was heavily oriented toward practical engineering matters that were involved in applications. The technical activities of the group, therefore, were of particular interest to engineers in organizations that use electrical equipment and devices, and to those engineers concerned with applying systems and finished products to satisfy the functional needs of industry, transportation, and the home front.

One of the most unique features of the IAS during all of its 25 years is the membership's unswerving dedication to reducing the technical complexity in the papers and articles that it has sponsored. The IAS has always tried to make the concepts and terminology of electrical applications more accessible to fellow engineers and to nontechnical readers. The IAS also tries to ensure that all the papers and articles that it sponsors and publishes in *TRANSACTIONS* magazine are of broad usefulness to the overall membership of the IAS and to the engineering community at large. To further this goal, IAS develops and maintains revision work on the Color Books Series, 9 standards publications that address all aspects of industrial and commercial power systems. The IAS also continues to be dedicated to its ongoing standards development work.

Although the IAS was a new entity in 1965, its two divisions had been holding annual conferences for many years; thus the IAS had a full calendar of conferences and meetings scheduled during its very first year of existence. The IGA Group became the IAS on January 1, 1972, at the time when the larger groups of the IEEE were being converted into societies.

Currently, the IAS is composed of a Council (Society Officers, Department and Committee Chairs, etc.), an Administrative Committee (Society Officers, Standing Committee Chairs, etc.), 6 Standing Committees, and over 25 Operating Committees. And its membership continues to grow.

From its inception, the IAS has represented the interests of and served as a forum for a wide variety of engineering disciplines. What other society can claim as members, engineers who are primarily concerned with power systems support, the cement industry, the glass industry, and the production and application of light? I can't think of a more eclectic society within the IEEE or a society that is more dedicated to dissemination of application-oriented information.

When I spoke at the IAS Annual Meeting in San Diego last year, I was impressed with the vitality of the meetings and the dedication of each IAS member engineer to the present objectives and future goals of the society. I am sure that every member of the IEEE joins me in congratulating the IAS on reaching its 25th anniversary. The IAS has come a long way in 25 years; may it continue to grow and prosper in the years ahead.

*Carleton A. Bayless is the President of the Institute of Electrical and Electronics Engineers, Inc. A very special thanks to Tony Furfari, Editor of the IAS Newsletter, for furnishing the historical information featured in this article.*



THE IEEE  
**STANDARDS**  
**BEARER**

VOL. 4, NO. 3



OCTOBER 1990

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**CALENDAR**  
OF EVENTS

**OCTOBER**

**28-November 3 Fort Lauderdale, FL:** ATLAS Meeting

**29-30 Washington, DC:** NESC Technical Subcommittee SC2

**29-November 1 Washington, DC:** NESC Technical Subcommittee SC4

**29-November 2 San Diego, CA:** IEEE Software Seminars

29-31 Software Quality Assurance

29-31 Software Verification & Validation

30-31 Software Configuration Management

1-2 Software Project Management Planning

1-2 Software Requirements Specifications

1-2 Software Reviews & Audits

1-2 Software Testing

**31-November 1 Washington, DC:** NESC Technical Subcommittee SC8

**NOVEMBER**

**12-16 San Diego, CA:** IEEE P802 Meeting

**13 New York, NY:** Software Engineering Standards Subcommittee (SESS) Meeting

**13-14 Washington, DC:** NESC Technical Subcommittee SC7

**14 Washington, DC:** NESC Technical Subcommittee SC3

**14-15 Washington, DC:** NESC Technical Subcommittee SC5

**15 Washington, DC:** NESC Technical Subcommittee SC6

**15-16 Washington, DC:** NESC Technical Subcommittee SC1

**28-30 San Antonio, TX:** IEEE Power Seminar

Planning, Design, Protection, Maintenance, and Operation of Industrial and Commercial Power Systems

**DECEMBER**

**5 New York, NY:** RevCom and NesCom Meetings

**6 New York, NY:** Standards Board Meeting

**13-14 San Diego, CA:** ISO/IEC JTC1/SC7 US TAG Meeting

**JANUARY 1991**

**7-11 New Orleans, LA:** P1003 (POSIX) Meetings (including ISO/IEC JTC1/SC22/WG15 TAG)

**22-25 San Francisco Bay area:** IEEE NESC Training Program

Applying the National Electrical Safety Code (NESC) and Its Work Rules

**FEBRUARY**

**14 New York, NY:** RevCom and NesCom Meetings

**15 New York, NY:** Standards Board Meeting

**14-15 (Tentative) Dallas, TX:** SC7 TAG Meeting

**MARCH**

**11-15 Hilton Head, SC:** IEEE P802 Meetings

**11-15 Chicago, IL:** IEEE Software Seminars

11-13 Software Quality Assurance

11-13 Software Verification & Validation

12-13 Software Configuration Management

12-13 Software Project Management Planning

14-15 Software Requirements Specifications

14-15 Software Reviews & Audits

14-15 Software Testing

**APRIL**

**9-11 Washington, DC:** IEEE Power Seminar

Protection of Co-Generation Plants Paralleled with Utility Transmission Systems

**15-17 New Orleans, LA:** IEEE NESC Training Program

Applying the National Electrical Safety Code (NESC) and Its Work Rules

**15-17 Chicago, IL:** IEEE Power Seminars

15-17 Planning, Design, Protection, Maintenance, and Operation of Industrial and Commercial Power Systems

16-17 Health Care Facilities Power Systems

**22-24 Denver, CO:** IEEE Power Seminars

22-23 Electric Power Supply Systems for Nuclear Power Generating Stations

22-23 Human Factors Engineering at Nuclear Power Generating Stations

24 Large Storage Batteries for Stationary Use

**THE CHAIR'S COLUMN**

As Director of Standards for the Institute, I'm asked many questions. One of the most often asked is: "Is standards development a service or a business?" My answer is: "The IEEE Standards Program is *both* a service and a business."

The IEEE, as part of its charter, is committed to the development of standards. To characterize these standards, they are technology-driven in the fields of electrical and electronics engineering, and computer science. These documents are developed by volunteers, with program administration and product delivery supported by IEEE staff members. This is the "service" part of the program in that the volunteers provide a service to the industry, while the staff provides support services to the volunteers.

Now for the "business" side of standards development. Unlike many other services provided by the IEEE, the Standards Program does not receive funding from member dues. It is, by design, self-supporting, based upon the sale of standards to members (at a dis-

count), nonmembers, corporations, and so forth. The dual objectives of this approach are to provide reasonably priced standards to anywhere in the world, while generating enough revenue to provide the high quality staff services that are necessary to ensure that the IEEE remains one of the world's most respected standards developers. As the Director of Standards for the Institute, one of my major responsibilities is to ensure the fiscal integrity of its Standards Program.

It should be clear that, in order to continue to provide high quality services, we must pay attention to the business end of standards development. Neglecting one side causes the other to flounder and, if neglected long enough, to fail. But the Institute must also be responsive to the needs of both the volunteers and industry as each is related to standards.

Finally, we must be innovative in standards development and delivery, and in the services provided by staff. We must all have a shared vision of the direction

the Standards Program must take today and into tomorrow. But, along with this vision, there must be a planned business strategy that will make this vision become a reality.

Over the last few years, IEEE has been rebuilding its Standards Program. This rebuilding, for the most part, was necessary because too little attention was being paid to the business end of standards development. Like the mythic Phoenix, the Standards Program has risen from its own ashes. Today, many new high quality services are available including project editors and standards balloting administration by staff. New, innovative standards products include at least a half-dozen standards collections.

What will the future of standards development hold? Read this column in the December edition of the *IEEE Standards Bearer*.

*Marco W. Migliaro*  
**Marco W. Migliaro, Chair**  
**IEEE Standards Board**

**The 5-Year Review Cycle of Published Standards**

BY KAREN DECHINO

You just found out that you have to ground the instrumentation and control (I&C) equipment at your plant using an existing IEEE Standard as your guide. This standard was last approved in 1975 and has not been revised or reaffirmed since then. Is it still a valid standard?

Standards need to be reviewed periodically in order to ensure that they continue to reflect current industry practice. Many working groups begin to revise a standard shortly after it has been published. This is especially true of newly developed standards because it may take several revisions of the standard to address all of the issues that impinge upon the technical data in the standard. Standards that cover rapidly developing technology are especially subject to frequent revisions in order to reflect state-of-the-art practices.

IEEE Standards are approved by the Standards Board for a period of 5 years. If a revision is not developed within 5 years, the standard must either be reaffirmed or withdrawn. If 5 years have already elapsed but a revision is in progress, an extension of the revision process of up to 2 years may be granted.

A revision, if the sponsor of the standard feels that it is necessary, follows the same procedures as a new standard: A Project Authorization Request (PAR) form is sent to the Standards Board

by the sponsor to begin the project and then, upon completion of the document, a ballot is conducted to reflect at least a 75% affirmative consensus on the validity of the existing standard.

Reaffirmation occurs when the sponsor believes a revision is not necessary, and the document is still valid. Reaffirmation requires a ballot conducted by the sponsor to achieve at least 75% affirmative responses with no negatives.

If a standard is not revised, extended, or reaffirmed, then the Standards Board will consider it for withdrawal. Withdrawal of a standard means that the Standards Board no longer endorses the standard. It is not listed in the product catalog; it is formally withdrawn from other standards organizations, such as ANSI; it is available for sale only through the Standards Department and is labeled as an "archival" copy.

The Standards Department is presently reviewing the status of all IEEE Standards. Letters have been issued to all interested parties requesting status reports on any standards that have passed the 5-year review mark. Those standards that are not being revised or reaffirmed will be considered for withdrawal. Later this year, the reviews of 4- and 5-year-old standards will be considered.

*Karen DeChino is the Manager of Business and Administration in the IEEE Standards Department.*

## How the Japanese Enact Electrical Equipment Standards

BY PROFESSOR EISUKE MASADA

The industrial standards system in Japan consists of the national standard and the body standards in the field of electrical and electronic engineering. Widely used products, such as screws, batteries, and electronic parts, are standardized in the national standard. Products like motors, power converters, and switchgear are covered by the body standards.

### Japanese Standards Development

National standards are called Japanese Industrial Standards (JIS). The enactment or amendment of a JIS on a product or a related item is proposed by an interested group, such as an academic society or a manufacturer's association. This group prepares a draft for the new JIS or its amendment with the help of a committee of specialists in the particular technical field that the JIS addresses. The Japanese Industry Standards Committee (JISC), which is affiliated with the Agency of Industrial Science and Technology of the Ministry of International Trade and Industry, examines the new or revised JIS and submits a report to the Minister in charge if the JIS is to be approved. The in-depth examination of the JIS is conducted by a special committee of the JISC, which consists of specialists from academic institutions and manufacturers' and users' associations. Technical terms that are used in the JIS are also defined and standardized as part of this process.

For electrical machinery and apparatus, a large number of body standards already exist that correspond to specific products. The Japanese Electric Commission (JEC) standard is the most representative one. The JEC belongs to the Institute of Electrical Engineers Japan (IEEJ), and has many standing committees for each product or special subject, such as voltage systems. Each committee is responsible for the systematic establishment of standards in its field and has the power to systematically develop a draft for a new JEC standard or to amend an existing JEC standard.

The committee consists of members from universities, research institutions, manufacturers, and users. Its Chair is often chosen from neutral organizations, such as universities and governmental research institutes. Its Secretariat is composed of specialists from various industries on a rotating basis. Other members of the committee are chosen by the Chair and the Secretariat.

The committee meets once every few months to make plans, to examine drafts for new standards or revisions of existing standards, and to discuss related matters. The draft is developed by the Secretariat. Other members of the committee might be asked to prepare a part of the draft according to their fields of interest. Revisions of the draft may be made by the committee as a result of the discussions held within it. This procedure usually takes a few years of work. Usually after the completion of one or two standards, the composition of the Secretariat is rotated to the specialists of another firm.

The draft is discussed and approved by a committee composed of the Chairs of the standing committees. It is then formally approved by the board of directors of the JEC. More than 200

JEC standards have been established and practically utilized. Some of them even have English versions.

Manufacturers' associations can establish their own standards. As an example, the Japanese Electric Machinery (JEM) standard is published by the Japanese Electric Machinery Association (JEMA). All the work relating to the development and approval of the standard took place within the JEMA. The JEM standard covers more specific products as compared to the JEC standard.

### International Cooperation

Japan has been a member of the International Electrotechnical Commission (IEC) since 1910, and has been a member of the International Organization for Standardization (ISO) since 1952. The JISC represents Japan's domestic interests in both organizations. Through our memberships in these international organizations, we have made every effort to ensure that domestically developed standards are compatible with their related international standards. The examination of IEC and ISO standards is conducted by a national committee that corresponds to the composition of the IEC's or ISO's technical committee. These national committees belong to standards bodies that develop domestic standards. For example, the standing committee of the JEC acts as the national committee for the IEC technical committee. As a way to ease language barriers, the Japanese electrical or electronic term will be included in the International Electrotechnical Vocabulary (IEV) of the IEC as an additional language.

As you can see, the Japanese standards development process is different from US and international processes. Only through cooperation and mutual understanding, can we hope to achieve the compatibility of all standards throughout the world.

*Professor Eisuke Masada is a Professor of the Department of Electrical Engineering at the University of Tokyo and is actively involved in standards development in Japan.*

### Just Published—ANSI/IEEE 770X3.160-1989 Programming Language Extended Pascal

List Price: \$55.00 IEEE Member Price: \$38.50

Product Number: SH13243

The IEEE is proud to announce the publication of ANSI/IEEE 770X3.160-1989, IEEE Standard for the Programming Language Extended Pascal. This standard specifies the semantics and syntax of the computer programming language Extended Pascal by specifying requirements for a processor and for a conforming program. Two levels of compliance are defined in the document.

This standard provides an unambiguous and machine independent definition of the Extended Pascal language. Its purpose is to facilitate portability of Extended Pascal programs for use on a wide variety of data processing systems.

This standard is the companion document to ANSI/IEEE 770X.97-1983, IEEE Pascal Computer Programming Language.

## VASG, A Truly International Standards Developing Project

BY ROBERT L. PRITCHARD

At the recent meeting of the Design Automation Standards Subcommittee (DASS) in Orlando, Florida, the VHDL [VHSIC (very high speed integrated circuit) hardware development language] Analysis and Standardization Working Group (VASG) outlined a plan for developing the next revision of IEEE Std 1076-1987, IEEE Standard VHDL Language Reference Manual (ANSI). In accordance with the IEEE Transnational Standards Program, this plan demonstrates what IEEE can uniquely do through its worldwide membership.

The 1076 Standard, approved by the IEEE Standards Board in 1987, is very popular and is used worldwide, but is due for a revision by 1992. In the plan developed by the VASG in Orlando, individual tasks will be assigned to three separate regional Chapters, one for Europe, one for the Asia-Pacific Rim, and one for North America, each under the direction of a Chapter Chair. Tasks will be worked on separately by volunteers meeting in each of the three regions of the world, with overall coordination by a Steering/Coordination Committee, and with occasional meetings of the Chapter Chairs, as necessary, to ensure a well integrated final revision. One Chapter Chair was appointed at the Orlando meeting (Victor Berman from North America), and candidates are under consideration for the other Chapter Chairs. The present timetable calls for the overall VASG Working Group to deliver an approved Working Group draft by the end of 1991, after which the project will move into the normal IEEE standards approval process, i.e., a sponsor letter ballot by the parent committee DASS, followed by submission to RevCom and the IEEE Standards Board.

International participation in IEEE Standards work is not new, of course, and in fact has been increasing in recent years. Many IEEE Standards Working Groups have between 25% to 30% of their membership from outside North America. The recently approved IEEE Std 1149.1, Standard Test Access Port and Boundary Scan Architecture, was developed by a Working Group that had US and European Co-Chairs, and met frequently in Europe. In addition, numerous IEEE Working Groups have met in locations outside of North America. For example, POSIX P1003 met in Brussels in October 1989, the P1073 (Medical Information Bus) Working Group met in Dublin in August 1990; ATLAS (SCC 20) Committee plans to meet in Germany in 1991, to name just a few. What is unusual about the VASG activity is the creation of local chapters, which are semiautonomous, that develop their own agendas, but are under the direction and coordination of the VASG. This permits the VASG to take advantage of local expertise and to encourage work on what those experts deem important to them.

We would like to see more of this type of activity, in accordance with the position that IEEE Standards are truly transnational. If we can be of help to other Working Groups, or answer any questions, please contact Andrew G. Salem, Director of Standards, telephone 908-562-3803.

For more information about the specific VASG, IEEE Std 1076 revision activity, please contact Stanley Krolikosky, VASG Chair, telephone 507-253-7200.

*Robert L. Pritchard is a Staff Engineer in the IEEE Standards Department.*

## Standards Week '90—Building on Success

BY ADDY ZENI AND  
SUSAN BRIGGS

STANDARDS WEEK '90 has become the place to be for anyone who is involved in the standards development process. Throughout the week of September 24 in Pittsburgh, PA, standards developers attended meetings and discussed their areas of interest with a diverse group of professionals from both the national and international standards scene.

Besides the working group meetings, there were two other events at Standards Week that drew the attention of many attendees:

- Research in Standards Development presentations

were given by University of Pittsburgh and Carnegie Mellon University faculty members and University of Pittsburgh graduate students.

- A special session dedicated to a discussion of the ramifications of EC 92 on both the national and international standards development process.

The EC 92 forum, which was moderated by Donald Fleckenstein, Past Chair of the IEEE Standards Board, focused on major issues in standards development and accreditation/certification that affect the standards environment worldwide. The prominent speakers at the session included Marco Migliaro, Chair of the IEEE Standards

Board; Ronald Reimer, President of the US National Committee/IEC; Stanley Warsaw, Director of the Office of Standards Services/NIST; and Rudolf Winckler, Immediate Past President of the Executive Committee of CENELEC. A paper featuring the highlights of this lively discussion will be available from the Standards Department by November 1990.

IEEE staff members were in evidence at almost every meeting, helping to disseminate information and to give much needed support to the various groups who met there. One of the many benefits of Standards Week is that staff and attendees are able to dis-

cuss the standards development process in a more detailed and personal way. Sharing their thoughts in a more relaxed setting helps to make the process better understood by everyone involved.

STANDARDS WEEK '91 will be held in the Fall of next year. If you would like to receive pertinent mailings, please contact Addy Zeni at 212-705-7304 or write to Standards Week, IEEE Standards Department, 445 Hoes Lane, PO Box 1331, Piscataway, NJ 08855-1331, USA.

*Addy Zeni is the Manager of Meetings and Special Events for the IEEE.*

## Awards Spotlight

BY JAY FORSTER AND  
TERRY DECOURCELLE

The Standards Medallion is awarded for outstanding achievement in the development and implementation of electrotechnology standards. Recipients are selected solely on the basis of their accomplishments in standards work. They do not have to be members of the IEEE, and their contributions may be to other standards developing organizations, provided that such standards constitute a significant contribution to the profession and are in the technical fields covered by the scope of the IEEE. Recent recipients of IEEE Standards medallions and HP calculators (donated by Hewlett-Packard's Corvallis Division) are:

•**T.R. Whittemore**, for his contributions as a Chair or member of several standards developing groups within the Energy Development and Power Generation (ED&PG) Committee of the IEEE Power Engineering Society, and his participation in outside standards organizations.

•**Harry Bleeker, Frans Beenker, Lee Whetsel, and Tom Williams**, for their significant contributions in the development of IEEE Std 1149.1-1990, IEEE Standard Test Access Port and Boundary-Scan Architecture.

•**Malcolm V. Thaden**, for his contribu-

tion to IEEE Std 1050-1989, IEEE Guide for Instrumentation and Control Equipment Grounding in Generating Stations, and IEEE Std 665-1987, IEEE Guide for Generating Station Grounding, as well as for his contributions to various technical groups in the areas of substation design and electrical equipment.

•**Edward J. Vallario**, for his achievements in the Health Physics Society covering the development of standards concerning radiation protection and environmental monitoring.

•**Azriel Rosenfeld**, for his assistance in the development of IEEE Std 610.4-1990, IEEE Standard Glossary of Image Processing and Pattern Recognition.

•**E. W. Schmunk**, for his contributions as the Chair of the working group for IEEE C37.41-1988, IEEE Standard Design Tests for High-Voltage Fuses, Distribution Enclosed Single-Pole Air Switches, Fuse Disconnecting Switches, and Accessories, and for IEEE C37.48-1987, IEEE Guide for Application, Operation, and Maintenance of High-Voltage Fuses, Distribution Enclosed Single-Pole Air Switches, Fuse Disconnecting Switches, and Accessories.

•**Robert D. Ball**, for his significant contributions to the advancement of IEEE C62 (ANSI) standards as Vice Chair and Standards Coordinator of the Surge

Protective Devices Committee (SPDC).

•**John B. Posey**, for his significant contributions as the Chair of SPDC Working Group 3.3.12, and to the continuous revision of IEEE C62.1-1989, IEEE Standard for Gapped Silicon-Carbide Surge Arresters for AC Power Circuits.

•**Steve A. Potocny**, for his significant contributions as the Chair of SPDC Working Group 3.6.3, IEEE C62.42-1987, IEEE Guide for the Application of Gas Tube Arrester Low-Voltage Surge-Protective Devices.

•**Edward J. Yasuda**, for significant contributions to the SPDC Application Guides IEEE C62.2-1987, IEEE Guide for the Application of Gapped Silicon-Carbide Surge Arresters for AC Systems, and IEEE PC62.22, Guide for the Application of Metal Oxide Surge Arresters for AC Systems.

If you need any further information or assistance with awards or recognition for contributions to standards development, please contact Jay Forster, Quadrex Corporation, phone 408-370-4202 or FAX 408-370-4391.

*Jay Forster is a Member Emeritus of the IEEE Standards Board and the Chair of the Awards and Recognition Committee. Terry deCourcelle is the Manager, IEEE Standards Board Technical Support.*

### New Backlist Ordering Service

As a new service to our customers, the backlist of IEEE Standards is available for purchase. Our backlist consists of IEEE Standards that have been superseded or withdrawn. Please note that the archive standards included in the IEEE Nuclear Power Standards Archive Collection, Fall 1990 Edition, cannot be purchased individually through our backlist ordering service. For more information, please call 908-562-3800.

### Just Published

**IEEE Nuclear Power Standards Archive Collection, Fall 1990 Edition (ISBN 1-55937-010-6) List Price \$165.00 IEEE Member Price \$115.50 Product Number SH13516**

The IEEE has just published the Fall 1990 Edition of the Nuclear Power Standards Archive Collection. This collection contains 50 archive guides and standards (that is, the specific issue of a standard that the nuclear power generating station owner committed to use in its licensing application) on nuclear power. These guides and standards will only be available as part of this collection; they will not be available on an individual basis.

### NEW NESC DOCUMENT IS AVAILABLE FREE OF CHARGE



We are pleased to announce that a document, which combines both the tentative interim amendment 90-1 and the second correction sheet (July 15, 1990) for the National Electrical Safety Code (NESC), is available free of charge from the IEEE Standards Department.

**Please write to:**

IEEE Standards Department,  
Attention: Information Assistant, c/o NESC Correction Sheet, 445  
Hoes Lane, PO Box 1331, Piscataway, NJ 08855-1331.

# CONGRATULATIONS!

The IEEE Standards Board formally congratulates the Chairs, Co-Chairs or designated Vice-Chairs, and Special Editors listed below on the publication of their new or revised standards publications. We also extend our hearty congratulations to their working groups.

For their important contributions toward getting these standards published, and for their participation in the standards development process, each individual will receive an award of recognition from the IEEE Standards Board. All of our standards writers are volunteers, and IEEE published standards are developed by these volunteers acting in their fields of interest. We thank them for their continuing participation in the IEEE Standards program.

**Jim Maw, Chair: 140-1990** IEEE Recommended Practice for Minimization of Interference from Radio-Frequency Heating Equipment [140 Working Group: Standards Committee/Electromagnetic Compatibility Society]

**B.D. Thackwray, Chair: 389-1990** IEEE Recommended Practice for Testing Electronic Transformers and Inductors [Working Group on Transformer Tests of the Test Codes Subcommittee: Electronics Transformer Technical Committee/Power Electronics Society]

**T. R. Whittemore, Chair: 421.2-1990** IEEE Guide for Identification, Testing, and Evaluation of the Dynamic Performance of Excitation Control Systems [Excitation Systems Subcommittee: Power Generation Committee/IEEE Power Engineering Society]

**Anne K. Geraci, Leader, Data Management Subgroup: 610.5-1990** IEEE Standard Glossary of Data Management Terminology [Computer Dictionary Working Group: Standards Coordinating Committee/Computer Society]

**R.V. Rebbapragada, Chair: 741-1990** IEEE Standard Criteria for the Protection of Class 1E Power Systems and Equipment in Nuclear Power Generating Stations [SC4.7 Working Group: Nuclear Power Engineering Committee/Power Engineering Society]

**P.C.S. Krishnayya, Chair: 857-1990** IEEE Guide for Test Procedures for HVDC Thyristor Valves [Task Force of the DC Transmission Subcommittee and DC Converter Stations Subcommittee: Transmission and Distribution Committee and Substations Committee/Power Engineering Society]

**Theodore J. Kolenda, Chair: 1109-1990** IEEE Guide for the Interconnection of User-Owned Substations to Electric Utilities [D-6 Working Group: Distribution Substations Subcommittee: Substations Committee/Power Engineering Society]

**Geoff Thompson, Task Force Leader: 8802-3 : 1990/ADD 2 (E) (ISO/IEC) (ANSI/IEEE Std 802.3-1990 Edition)** Information Processing Systems—Local Area Networks—Part 3: Carrier Sense Multiple Access with Collision Detection (CSMA/CD) Access Method and Physical Layer Specifications [802.3 Working Group: Technical Committee on Computer Communications/Computer Society]

**IMPORTANT:** This standard supersedes ANSI/IEEE Std 802.3-1985 and the first edition of ISO 8802-3 : 1989. It now includes the ISO-approved versions of ANSI/IEEE Std 802.3c-1985 and ANSI/IEEE Std 802.3d-1987.

**Alexander Dixon, Chair: C37.36b-1990** IEEE Guide to Current Interruption with Horn-Gap Air Switches [Working Group on Air Switches of the High-Voltage Switches Subcommittee: Switchgear Committee/Power Engineering Society]

**C.W. Barnett, Vice Chair/Secretary: C37.103-1990** IEEE Guide for Differential and Polarizing Relay Circuit Testing [Relay Practices Subcommittee: Power System Relaying Committee/Power Engineering Society]

**S.K. Oklu, Chair: C57.114-1990** IEEE Seismic Guide for Power Transformers and Reactors [Seismic Guide Working Group of the West Coast Subcommittee: Transformers Committee/Power Engineering Society]

**F.X. Masse, Chair; Yutaka Kobayashi, Project Leader: N42.15-1990** Performance Verification of Liquid-Scintillation Counting Systems, American National Standard [N42.2 Writing Group: N42.2 Subcommittee/N42 Accredited Standards Committee on Radiation Instrumentation]

**Marco W. Migliaro and Newell S. Porter, Special Editors: IEEE Nuclear Power Standards Archive Collection, Fall 1990 Edition**

**Frank Myers and Keith Lindsey, Special Editors: IEEE Guides and Standards for Engineering in Safety, Maintenance, and Operation of Lines (ESMOL), Fall 1990 Edition**

**Brad Radimer, Special Editor: IEEE Stationary Battery Standards Collection, Fall 1990 Edition**

### IEEE Std 802.4-1990 (ISO/IEC 8802-4 : 1990) Revision

At its September 28, 1990, meeting, the IEEE Standards Board approved a revision to the previously published IEEE Std 802.4-1990 (ISO/IEC 8802-4 : 1990) that brings the IEEE Standard into complete alignment with the International Standard.

The revision changes the status of the Appendix sections 16.10 and 17.9 from normative to informative.

## Standards Actions of the IEEE Standards Board, September 28, 1990

### ■ Approved New Project Authorization Requests (PARs)

### ■ Approved New Standards

### ■ Approved Standards Revisions, Reaffirmations, and Withdrawals

#### ■ APPROVED PARs FOR NEW STANDARDS

- P1003.16** (C/OS) Standard for Information Technology—POSIX Language Bindings—Part 1: C Language Binding to System API  
**P1029.1** (SCC 20) Standard for Waveform and Vector Exchange (WAVES)  
**P1029.2** (SCC 20) Standard for Automatic Test Program Generation Information  
**P1156.2** (C/MM) Standard for Environmental Specifications for Computer Systems  
**P1156.3** (C/MM) Standard for Power Supply Specifications for Computer Systems  
**P1202.1** (IA/PSE) Standard for Measuring Smoke Obscuration of Cables for Use in Cable Tray in Industrial and Commercial Occupancies  
**P1242** (IA/PC) Guide for Selecting and Specifying Cables for Petrochemical Plant Applications  
**P1243** (PE/T&D) Design Guide for Improving the Lightning Performance of Transmission Lines  
**P1244** (C/MSSTC) Guide for Storage System Design  
**P1245** (PE/SUB) Guide for Permanent, Non-grounding, Power Connection Systems Used in Substations  
**P1246** (PE/SUB) Guide for Temporary Grounding Systems Used in Substations  
**P1301.1** (C/MM) Standard for a Metric Equipment Practice for Microcomputers—2 mm Connector—IEC (number to be decided)  
**P1754** (C/MM) Standard for an Open Microprocessor Architecture  
**PC37.11** (PE/SWG) Standard Requirements for Electrical Control for AC High-Voltage Circuit Breakers Rated on a Symmetrical Current Basis or a Total Current Basis  
**PC37.59** (PE/SWG) Standard for Requirements for Conversions of Power Switchgear Equipment

#### ■ APPROVED PARs FOR STANDARDS REVISIONS

- P62** (PE/PSIM) Guide for Diagnostic Field Testing of Power Apparatus  
**P94** (PE/PSE) Recommended Practice for Definitions of Terms for Automatic Generation Control on Electric Power Systems  
**P177** (UFFC/SA) Standard Definitions and Methods of Measurement for Piezoelectric Vibrators  
**P356** (AP/P) Recommended Practices for Radio Methods of Measurement of Earth Macroscopic Electromagnetic Properties  
**P429** (PE/EM) Recommended Practice for Thermal Evaluation of Sealed Insulation Systems for AC Electric Machinery Employing Form-Wound Pre-Insulated Stator Coils, Machines Rated 6900 V and Below  
**P516** (PE/T&D) Guide for Maintenance Methods on Energized Power Lines  
**P610.1** (C/SCC) Standard for Glossary of Mathematics of Computing Terminology  
**P944** (PE/ED&PG) Recommended Practice for the Application and Testing of Uninterruptible Power Supplies for Power Generating Stations  
**P993** (SCC 20) Trial-Use Standard for Test Equipment Description Language (TEDL)  
**P1003.1** (C/OS) Standard for Information Technology—Portable Operating System Interface (POSIX)—Part 1: System Application Program Interface (API)  
**P1101.1** (C/MM) Standard for a Mechanical Core Specification for Microcomputers—IEC 603.2 Form Factor  
**PC37.04f** (PE/SWG) Standard for Operating Mechanism Requirements  
**PC37.04h** (PE/SWG) Standard for Mechanical Loading Requirements of Circuit Breaker Terminals

- PC37.20.1** (PE/SWG) Standard for Metal-Enclosed Low-Voltage Power Circuit-Breaker Switchgear  
**PC37.20.2** (PE/SWG) Standard for Metal-Clad and Station-Type Cubicle Switchgear  
**PC37.20.3** (PE/SWG) Standard for Metal-Enclosed Interrupter Switchgear  
**PC37.36b** (PE/SWG) Guide to Current Interruption with Horn-Gap Air Switches  
**PC37.63** (PE/SWG) Standard Requirements for Overhead, Pad-Mounted, Dry-Vault and Submersible Automatic Line Sectionalizers for AC Systems  
**PC37.71** (PE/SWG) Standard for Three Phase Manually Operated Subsurface Load Interrupting Switches for Alternating Current Systems  
**PC57.12.90d** (PE/TR) Standard Test Code for Liquid Immersed Distribution, Power and Regulating Transformers  
**PC95.1** (SCC 28) Standard Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz  
**PC95.3** (SCC 28) Recommended Practice for the Measurement of Potentially Hazardous Electromagnetic Fields—RF and Microwave

#### ■ REVISED PARs

- P610.6** (C/SCC) Standard for Glossary of Computer Graphics Terminology  
**P610.7** (C/SCC) Standard for Glossary of Computer Networking Terminology  
**P610.8** (C/SCC) Standard for Glossary of Artificial Intelligence and Robotics Applications  
**P610.9** (C/SCC) Standard for Glossary of Computer Security and Privacy Terminology  
**P610.10** (C/SCC) Standard for Glossary of Computer Hardware Terminology  
**P610.11** (C/SCC) Standard for Glossary of Theory of Computation Theory  
**P610.13** (C/SCC) Standard for Glossary of Computer Languages Terminology  
**P828** (C/SE) Standard for Software Configuration Management Plans  
**P1158** (PE/SUB) Recommended Practice for Determination of Power Losses in HVDC Converter Stations  
**P1180** (CAS/SC) Standard Specification for the Implementations of 8x8 Inverse Discrete Cosine Transform  
**P1301** (C/MM) Standard for a Metric Equipment Practice for Microcomputers—Coordinating Document

#### ■ WITHDRAWN PARs

- P1071** (Com/Transyscom) Telecommunications Dictionary  
**P1097** (Com/Transyscom) Standard for Classification and Delineation of Responsibility for Carrier User Protective Interface  
**P1099** (Com/Transyscom) Standard for Grounding Communications and Signaling Systems, Facilities, and Equipment  
**P1101.2** (C/MM) Standard for a Mechanical Core Specification for Microcomputers—2 mm Connector, Convection Cooled Form Factor

#### ■ APPROVAL OF NEW STANDARDS

- 802.3h** (C/TCCC) Supplement to IEEE 802.3-1988, CSMA/CD Access Method and Physical Layer Specifications, Layer Management  
**802.3i** (C/TCCC) Supplement to IEEE 802.3-1988, CSMA/CD Access Method and Physical Layer Specifications, Systems Considerations for Multi-Segment 10 MB/S Baseband Networks and Medium Attachment Unit and Baseband Medium Specification, Type 10Base-T  
**1120** (PE/IC) Guide to the Factors to be Considered in Planning, Design, and Installation of Submarine Power and Communication Cable  
**\*1127** (PE/SUB) Guide for the Design, Construction, and Operation of Safe and Reliable Substations for Environmental Acceptance  
**\*1180** (CAS/SC) Standard Specification for the Implementations of 8x8 Inverse Discrete Cosine Transform  
**\*C37.11** (PE/SWG) Requirements for Electrical Control for AC High-Voltage Circuit Breakers on a Symmetrical Current Basis or a Total Current Basis

\*Final approval date subject to all Standards Board conditions being met.

#### ■ APPROVAL OF REVISED STANDARDS

- \*400** (PE/IC) Guide for Making Direct Voltage Tests on Power Cables in the Field  
**\*436** (MAG/ETTC) Guide for Making Corona (Partial Discharge) Measurements on Electronics Transformers  
**493** (IA/PSE) Recommended Practice for the Design of Reliable Industrial and Commercial Power Systems  
**\*539** (PE/T&D) Standard Definitions of Terms Relating to Corona and Field Effects of Overhead Power Lines  
**610.12** (C/SCC) Standard Glossary of Software Engineering Terminology  
**\*625** (IA/CI) Recommended Practices to Improve Electrical Maintenance and Safety in the Cement Industry  
**802.4** (C/TCCC) Local Area Networks: Token-Passing Bus Access Method and Physical Layer Specifications  
**828** (C/SESS) Standard for Software Configuration Management Plans  
**1003.1** (C/OS) Standard for Information Technology—Portable Operating System Interface (POSIX)—Part 1: System Application Program Interface (API)  
**\*C37.13** (PE/SWG) Standard for Low-Voltage AC Power Circuit Breakers Used in Enclosures  
**C37.99** (PE/PSR) Guide for Protection of Shunt Capacitor Banks

#### ■ REAFFIRMED STANDARDS

- 32** (PE/SPD) Standard Requirements, Terminology, and Test Procedures for Neutral Grounding Devices  
**\*155** (CAS/SC) Standard Definitions of Terms for Linear Signal Flow Graphs  
**\*156** (CAS/SC) Standard Definitions of Terms for Linear Passive Reciprocal Time Invariant Networks  
**309** (NPS/NI&D) Standard Test Procedures for Geiger Mueller Counters  
**323** (PE/NPE) Standard for Qualifying Class 1E Equipment for Nuclear Power Generating Stations  
**398** (NPS/NI&D) Test Procedures for Photomultipliers for Scintillation Counting and Glossary for the Scintillation Counting Field  
**759** (NPS/NI&D) Test Procedures for Semiconductor X-ray Energy Spectrometers  
**C37.26** (PE/SWG) Standard Guide for Methods of Power-Factor Measurement for Low-Voltage Inductive Test Circuits

\*Final approval date subject to all Standards Board conditions being met.

#### ACRONYMS USED ON THESE PAGES

**AP/P**—Antennas and Propagation/Propagation, **CAS/SC**—Circuits and Systems/Standards Committee, **C/MSSTC**—Computer/Mass Storage Systems and Technology Technical Committee, **Com/Transyscom**—Transmission Systems Committee of the IEEE Communications Society, **C/OS**—Computer/Operating Systems, **C/MM**—Computer/Microprocessor and Microcomputer, **C/SCC**—Computer/Standards Coordinating Committee of the Computer Society, **C/SESS**—Computer/Software Engineering Standards Subcommittee, **C/TCCC**—Computer/Technical Committee on Computer Communications, **IA/CI**—Industry Applications/Cement Industry, **IA/PCI**—Industry Applications/Petroleum and Chemical Industry, **IA/PSE**—Industry Applications/Power Systems Engineering, **MAG/ETTC**—Magnetics/Electronics Transformers Technical Committee, **NPS/NI&D**—Nuclear and Plasma Sciences/Nuclear Instruments and Detectors, **PE/ED&PG**—Power Engineering/Energy Development and Power Generation, **PE/EM**—Power Engineering/Electric Machinery, **PE/IC**—Power Engineering/Insulated Conductors, **PE/PSIM**—Power Engineering/Power System Instrumentation and Measurements, **PE/PSR**—Power Engineering/Power Systems Relaying, **PE/SPD**—Power Engineering/Surge Protective Devices, **PE/SUB**—Power Engineering/Substations, **PE/SWG**—Power Engineering/Switchgear, **PE/T&D**—Power Engineering/Transmission & Distribution, **PE/TR**—Power Engineering/Transformers, **SCC 20**—Standards Coordinating Committee 20 (ATLAS), **SCC 28**—Standards Coordinating Committee 28 (Non-Ionizing Radiation)

## The IEEE Standards Press Is Off and Running!



The Institute is launching a new book publishing program for the industry, the IEEE Standards Press. The press, which will be run within the IEEE Standards Department, will encompass a wide range of publications closely related to stan-

dards and their use in all areas of electrical, electronics, and computer engineering technology.

By publishing these books, the IEEE will broaden the range of electrotechnical information that is available to members and will give interested professionals the opportunity to develop related works of their own. All selected works will be reviewed and endorsed by the relevant technical committees and/or working groups.

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Deborah A. Czyz is the Managing Editor of the IEEE Standards Press, and, as such, will be responsible for administration, acquisition, negotiation of fees, organizing reviews and editorial development, and will work closely with marketing and production efforts.

The Institute is actively seeking interested authors and their works for submission to the IEEE Standards Press, and would also like to hear from anyone who is interested in reviewing these works. Please contact: Deborah A. Czyz, Managing Editor, IEEE Standards Press, IEEE Standards Department, 445 Hoes Lane, Piscataway, NJ 08855-1331, USA, 908-562-3829.

#### Just Published by the IEEE—ISO/IEC Standards on Local Area Networks (LAN's)

**ISO/IEC 8802-3 : 1990/ADD 2 (E) (ANSI/IEEE Std 802.3-1990 Edition) Information Processing Systems—Local Area Networks—Part 3: Carrier Sense Multiple Access with Collision Detection (CSMA/CD) Access Method and Physical Layer Specifications.**

This publication specifies the Ethernet-like LAN medium, the Physical Layer, and Medium Access Control (MAC) protocols. Section 9 is now comprised of the ISO/IEC approved versions of ANSI/IEEE Std 802.3c-1985 and ANSI/IEEE Std 802.3d-1987. This standard supersedes ANSI/IEEE Std 802.3-1985 and the first edition of ISO 8802-3 : 1989.

List Price: \$70.00 IEEE Member Price: \$49.00

Product Number: SH13482 (ISBN 1-55937-049-1)

**ISO/IEC 8802-4 : 1990 (E) (ANSI/IEEE Std 802.4-1990) Information Processing Systems—Local Area Networks—Part 4: Token-Passing Bus Access Method and Physical Layer Specifications**

This publication deals with all elements of the Token-Passing Bus Access Method and its associated physical signaling and media technologies. It specifies baseband and broadband media; cites the electrical and/or optical and physical characteristics of the transmission medium; and specifies the electrical or optical signaling methods used.

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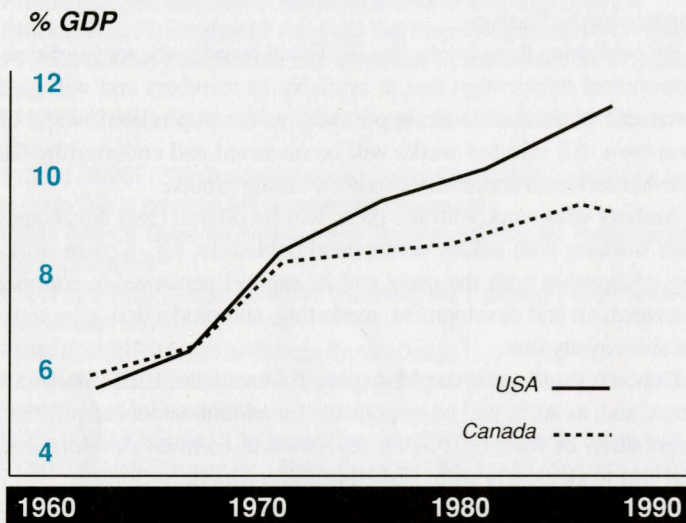
Product Number: SH12948 (ISBN 1-55937-027-0)

# P1157 Medical Data Interchange (MEDIX) Committee

BY JOHN J. HARRINGTON

Healthcare costs have risen to the level where significant social decisions regarding access to healthcare are being debated internationally. For example, the US is currently spending about 11.2% of the gross domestic product (GDP) on healthcare.

## The Increasing Cost of Healthcare



Total Health Care Expenditure as % GDP

(Source: George J. Schieber, Health Affairs, Vol. B #3, Fall 1)

Yet information technology (IT), which promises efficient utilization of available resources, has been slow in diffusing into the healthcare sector. Estimates of expenditures on IT indicate that the healthcare sector spends about one-eighth as much as do other sectors, such as banking and electronics.

A primary factor in the slow rate of diffusion of IT into healthcare is the high cost of integration of heterogeneous systems in the absence of standards. With the advent of open systems solutions, this situation is changing. Catalyzed by the efforts of various groups working in the development of standards for open systems in the healthcare environment, a significant groundswell of activity related to the effective application of IT to healthcare is beginning to occur internationally.

Working under the auspices of the IEEE's Engineering in Medicine and Biology Society (EMBS), the P1157 Medical Data Interchange (MEDIX) Committee has been chartered with developing an international standard for communication of medical information between heterogeneous healthcare information systems. The P1157 standard will be based upon and conform to the International Organization for Standardization (ISO) reference model for Open Systems Interconnection (OSI).<sup>1</sup>

<sup>1</sup> ISO 7498, Information Processing Systems—Open Systems Interconnection—Basic Reference Model, 1984.

The membership of P1157 is international. Currently, 75% of the P1157 Committee resides in North America, while 25% resides elsewhere, primarily in Europe. The committee is taking active steps to further increase its international membership.

### Objectives of the P1157 Committee

In an organizational meeting held in conjunction with the Society for Computer Applications in Medical Care (SCAMC) in November 1987, the P1157 Committee defined its charter as follows: "[To] specify and establish a robust and flexible communications standard for the exchange of data between heterogeneous healthcare information systems."<sup>2</sup>

The following objectives were also defined in 1987:

- (1) Support both inter- and intra-medical center communications, among patient care settings and ancillary services.
- (2) Do not assume a particular decomposition of the healthcare system to subsystems.
- (3) Structure the standard in a flexible manner, so that multiple subsets of features are allowed.
- (4) Provide a framework allowing the migration of applicable healthcare standards into a common reference model.
- (5) Define a standard set of interface transactions that allow healthcare information systems to exchange data.
- (6) Specify standard representations of transaction data items, while allowing for domain-specific variations.
- (7) Ensure data integrity, consistency, security, reliability, and ownership.
- (8) Ensure compatibility of multiple-vendor systems at the applications interface level through the use of ISO/OSI application service element (ASE) standard protocols.
- (9) Ensure that successive protocol versions are compatible.

### Conclusions

The committee has adopted a phased approach and is working toward a 1990 balloting of the first version of P1157, which applies to communications between a patient care system (PCS) and selected ancillaries in the medical center setting.

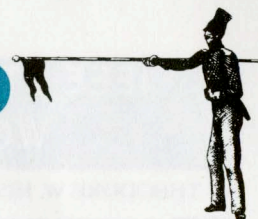
The P1157 standard is being developed by a process of open participation under the auspices of the IEEE EMBS, to strictly conform to the ISO/OSI standards. Eventually, the P1157 standard will encompass all healthcare communications: in the medical center, between medical centers, and between individual providers and medical centers. A healthcare IT standard of this scope and universality is needed to integrate the heterogeneous systems that are now in use. We have identified a communications problem within the healthcare community. I believe that the P1157 standard will be part of the solution.

<sup>2</sup> Rutt, Thomas E. "Work of the P1157 Medical Data Interchange Committee," *International Journal of Clinical Monitoring and Computing*, vol. 6, 1989, pp. 45-57.

John J. Harrington is the Chair of the P1157 Working Group.



# RECENTLY PUBLISHED IEEE STANDARDS



### COMPUTER SOCIETY

**610.5-1990** IEEE Standard Glossary of Data Management Terminology (ISBN 1-55937-046-7) [SH13458-NQY] \$45.00

**8802-3:1990/ADD 2 (E) (ISO/IEC) (ANSI/IEEE Std 802.3-1990 Edition)** Information Processing Systems—Local Area Networks—Part 3: Carrier Sense Multiple Access with Collision Detection (CSMA/CD) Access Method and Physical Layer Specifications (ISBN 1-55937-049-1) [SH13482-NQY] \$70.00

**IMPORTANT:** This standard supersedes ANSI/IEEE Std 802.3-1985 and ISO 8802-3:1989. It now includes the ISO/IEC approved versions of ANSI/IEEE Std 802.3c-1985 and ANSI/IEEE Std 802.3d-1987.

### ELECTROMAGNETIC COMPATIBILITY SOCIETY

**140-1990** IEEE Recommended Practice for Minimization of Interference from Radio-Frequency Heating Equipment (ISBN 1-55937-043-2) [SH13581-NQY] \$35.00

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**857-1990** IEEE Guide for Test Procedures for HVDC Thyristor Valves (ANSI) (ISBN 1-55937-045-9) [SH13441-NQY] \$38.00

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\*IEEE Nuclear Power Standards Archive Collection, Fall 1990 Edition (ISBN 1-55937-010-6) [SH13516-NQY] \$165.00

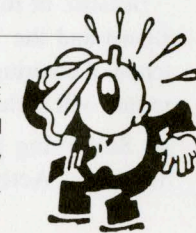
\*IEEE Guides and Standards for Engineering in Safety, Maintenance, and Operation of Lines (ESMOL), Fall 1990 Edition (ISBN 1-55937-060-2) [SH13656-NQY] \$78.50

\*IEEE Stationary Battery Standards Collection, Fall 1990 Edition (ISBN 1-55937-059-9) [SH13664-NQY] \$65.00

\*These standards do not carry a numerical designation (5-digit number preceded by SH) to place an order.

### ERRATA

The price of ANSI/IEEE 770X3.160-1989, IEEE Standard for the Programming Language Extended Pascal, was incorrectly stated as \$49.00 in the July Standards Bearer. The actual price is \$55.00. We apologize for any inconvenience this may have caused.



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## IEEE STANDARDS BOARD / IEEE TECHNICAL ACTIVITIES BOARD— WORKING TOGETHER IN THE SPIRIT OF COOPERATION

BY THEODORE W. HISSEY, JR.

**I**n a concerted effort to improve the cooperation and coordination between the IEEE Standards Board and the IEEE Technical Activities Board (TAB) in the promotion of global standards development, a joint ad hoc committee with members from both organizations has been formed.

To set the ground rules for achieving this very important goal, the following action was ratified at the June 1990 TAB meeting, which was held in Seattle, Washington:

“In recognition of the importance the IEEE membership attaches to the Institute’s standards activities, the changes taking place in the global institutional arrangements for standard setting and the interest of the Societies and Councils in these matters, it is moved that:

“A joint ad hoc committee be formed and comprised of representatives of the Technical Activities and Standards Boards to promote global standards development. It is recommended that TAB representatives include at least one member each from the Power Engineering, Computer, Industry Applications, and Communications Societies with equal membership from the Standards Board. It shall be the mission of the Committee to improve the interface and cooperation among the two Boards and to encourage and simplify IEEE Standards development and promotion.”

Because of my experience in working with both the Standards Board and the Technical Activities Board, I accepted the challenge of chairing this committee. The initial activities of the committee will include, but will not be limited to:

➤ Surveying active and/or interested Standards Board and Technical Activities Board members and former members to

obtain ideas for activities and programs that will improve the cooperation between the two boards.

- Identifying and documenting ideas that will encourage standards promotion globally.
- Identifying and documenting ideas and procedures to simplify standards development globally.
- Defining activities and programs that will promote global standards development.

If you have any ideas that would help to facilitate this process, please write to me at the following address: Theodore W. Hissey, Jr., Leeds & Northrup Co., Sumneytown Pike, North Wales, PA 19454, Telephone: 215-699-2000 X3376, FAX: 215-699-5245.

I am sure that, through this cooperative effort, the IEEE will be able to move confidently forward into the global standards development environment and will continue to grow and prosper. Thank you for your support in achieving this important goal.

*Theodore W. Hissey, Jr., is a member of the IEEE Standards Board and is the present Chair of the TAB Strategic Planning Committee.*

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For more information, please contact Mary Zwiebel, IEEE Standards Seminar Manager, at 908-562-3804.

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