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IEEE Adopts Metric Policy

by Bruce B. Barrow

In 1992, IEEE President Merrill Buckley recommended that an Ad Hoc Committee on Metric Policy be established and sponsored by the IEEE Standards Board. IEEE Standards Vice President Marco Migliaro appointed Dr. Bruce Barrow to chair the Ad Hoc Committee and invited the six Institute Vice Presidents, the 10 Division Directors, and all society presidents to name members.

On November 21, 1993, the IEEE Board of Directors adopted a strong pro-metric policy by unanimous consent. This decision was based on a policy developed by the IEEE Ad Hoc Committee on Metric Policy, whose assigned mission was "to develop a policy for IEEE and to get all interested parties to buy into the recommendation."

The committee also established liaison with the Electronic Industry Association (EIA), the National Electrical Manufacturers Association (NEMA), the National Society of Professional Engineers (NSPE), and the US Government's Metric Program Office.

The committee met three times in 1993, and publicized their mission in the *IEEE Standards Bearer* and *The Institute*. These reports and others in various newsletters stimulated much corre-

spondence from individual members. Approximately 70% of the respondents advocated a pro-metric stance. The committee initially proposed a quick transition, but responded to the reservations expressed by some members and by some of the IEEE entities, and decided to recommend a more flexible approach and a transition period of up to four years.

The committee's proposed statement was discussed by the major boards of the Institute and by the Publications Council. By the time it was presented to the Board of Directors, it had the support of all "interested parties," as President Buckley had requested, and it was adopted by unanimous consent.

The Ad Hoc Committee on Metric Policy will focus its activities in 1994 on assisting the various task groups that the major boards will establish and on coordinating their efforts.

IEEE Statement of Metric Policy

All IEEE Organizational Units shall:

- A. Actively support the use of the International System of Units (Le Système International d'Unités, or SI), the modernized metric system;
- B. Follow SI-based metric practice as detailed in IEEE Standard 268, American National Standard for Metric Practice, to express measured and calculated values of quantity in all IEEE publications, including standards;
- C. Promote the understanding and use of SI in education at all levels, both within the profession and in society at large.

Plans for the implementation of this policy by January 1, 1998, at the latest, shall be developed by the major boards of the Institute and reported to the Board of Directors no later than January 1, 1995. Necessary exceptions to this policy, such as where a conflicting world industry practice exists, must be evaluated on an individual basis and approved by the responsible major board of the Institute for a specific period of time. The major board responsible for the publication or activity will be responsible for monitoring compliance.

—Adopted by the IEEE Board of Directors November 21, 1993

Bruce B. Barrow received the Distinguished Service Award from the IEEE Standards Board in December 1993 (see page 5).



Letter from the editor's desk

Dear Readers,

The primary goal of this newsletter is to let you, the users and developers of standards, know about the issues and developments in the standards world that affect you. One of the issues that extends even beyond this scope is metrication. The IEEE's adoption of a metric policy (see cover story), which includes a specific timetable for implementation, has ramifications that extend to industry, education, and consumers.

Although most IEEE standards have included SI (Système International d'Unités), or metric, measurements as well as customary inch-pound units in recent years, the issue of which takes precedence can be challenging for standards developers in areas such as safety and manufacturing. Members of the National Electrical Safety Code (NESC) Committee determined that the next edition of the NESC would put metric units first and inch-pound units in parentheses, the opposite of their current practice. This raises the issue of accuracy requirements when inch-pound units are converted to metric units. For instance, a clearance requirement of 8 ft converts to exactly 2.4284 m. The current edition of the NESC rounds this figure to 2.45 m. Since 2.45 m represents a more stringent measurement than 8 ft, the committee will have to determine the requirements for rounding to significant figures. Clearly, all such conversions will require careful review to ensure that proper safety considerations are made.

Conversion can create a different set of challenges when requirements for manufacturing are considered. For example, in distribution transformer standards, when a template of critical dimensions for protectors is converted into metric units from inchpound units, compatibility with transformers could be compromised. Fastidious care will need to be taken to ensure that when conversions to metric are made, they are coordinated among interrelated standards and acceptable tolerances are agreed upon. There may also be special cases where conversion will not be done at all, or cases where it will not be done until users and manufacturers agree that it is appropriate.

As Bruce Barrow wrote in this newsletter in 1992, "The committee has not been given a mandate to foist metric change upon an unwilling membership." Each standard should be looked at separately and evaluated for its particular needs. In the meantime, this new policy shows that IEEE has taken a firm stand on an issue that will inevitably be a vital part of assuring that the US industrial base is prepared to promote international trade and commerce.

Editor-in-Chief

Hot off the Press...

The 1994 **IEEE Standards** Catalog



The 1994 Standards Catalog provides you with a complete listing of ALL active IEEE Standards publications available from IEEE, along with the ordering information you need to place your order.

To receive your FREE copy of the Catalog, call 1 (908) 562-3824. If you prefer, fax us at 1 (908) 562-1571.

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STANDARDS



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NESC Committee Extends Revision Cycle

by Sue Vogel

The National Electrical Safety Code (NESC) Committee approved extending the revision cycle for the next edition of the NESC from three years to four years at its meeting held November 19, 1993, in Washington, D.C.

A motion was approved to adopt a revised schedule as prepared by the Revision Cycle Task Group and amended during Technical Subcommittee meetings held November 1–18, 1993. The 1997 Code will be published August 1, 1996. In addition, the NESC Main Committee will meet on or about May 15, 1996 to consider the appropriateness of changing the revision cycle to five years.

The schedule for the 1997 NESC is as follows:

May 30, 1995 to Nov. 18, 1995

Feb. 1, 1996

May 15, 1996

Aug. 1, 1996

JANUARY 1994

Nov. 1, 1993 to March, 18, 1994 NESC Subcommittees consider proposals for changes to the NESC and prepare their recommendations. Aug. 19, 1994 Preprint of Proposed Amendments for incorporation into the 1997 Edition of the NESC published for distribution to the NESC Committee and other interested parties. Aug. 19, 1994 to May 30, 1995 Period of study for proposed amendments and submittal by interested parties of recommendations concerning the proposed amendments. Submit recommendations to the Secretary, NESC Committee.

Period for NESC Subcommittee Working

Groups and NESC Subcommittees to reconsider all recommendations concerning the proposed amendments and prepare

final report.

Proposed revision of the NESC, Accredited Standards Committee C2. submitted to NESC Committee for letter ballot and to the American National

Standards Institute for concurrent public

NESC Committeeapproved revisions of the NESC submitted to the American

National Standards Institute for recognition as an ANSI standard.

Publication of the 1997 Edition of the National Electrical Safety Code.

Sue Vogel is Secretary to the National Electrical Safety Code Committee.

Korea Adapts IEEE Nuclear Standards

In October of this year, IEEE staff was visited by key representatives from Korea's nuclear power engineering industry. Acting on behalf of Korea's Committee for the Development of Nuclear Industry Codes & Standards, the delegation signed an Adaptation Agreement with IEEE Standards, allowing the committee to utilize portions of existing IEEE standards in their development of Korean national standards.

Clapp's Service to NESC Honored



Allen Clapp (left) receives award from Chuck Amrhyn

Allen L. Clapp was presented with a plaque honoring his 10 years of dedicated service (1984 to 1993) as Chair of the National Electrical Safety Code Committee at the November 19, 1993 meeting. The plaque was presented to him by Mr. O. C. (Chuck) Amrhyn, new Chair of the NESC Committee. •

Call for Help

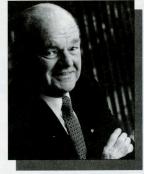


IEEE Std 167A-1987, Facsimile Test Chart, is subject to being withdrawn at the end of 1994. This standard, which has been in use since 1966, no longer has a committee to sponsor it or to provide technical reviews of the photographically produced test chart.

The Standards Review Committee (RevCom) of the IEEE Standards Board requests that anyone who is interested in providing technical review of its photographic reproduction contact Karen Rupp of the IEEE Standards Department at 1 (908) 562-3822 (k.rupp@ieee.org) or Don Heirman at 1 (908) 834-1830. Alternatively, if anyone can identify an equivalent standard from another source, please contact one of the persons named above.

Because of the unique requirements posed by this standard, it will not be made available as an archive after it is withdrawn if a suitable technical reviewer cannot be found. •

MESSAGE FROM THE CHAIR



by Wallace S. Read

How Big is the Sandbox?

an you recall those carefree days of your childhood when your sphere of influence was limited by the walls of a sandbox? Yet within those confines, there still seemed to be lots of room to maneuver even when your friends showed up unexpectedly. Oh, for sure, there was the odd tiff. Someone with a burst of selfishness wanted to stake out a section of the box as

his or her territory and the sand started to fly. Were they serious about their claim or did they just want to challenge your right to be there? The answer was not always clear. Generally the spat was short-lived and both parties soon learned that playing together was a lot more exciting and fun than playing apart.

Later your horizon expanded. You realized you were only one sandbox in a whole section full of sandboxes, which in turn was a part of a bigger playground with swings and slides and many, many, different players. "Hey!," you thought, "This could be really exciting." With growing confidence and under the watchful eye of your parents you moved out into that larger and more complex world. But you were never alone. There was always someone in control, some rules to be followed.

Of course that was all child's play. In the adult world, there are no sandbox walls. There are no playground fences. There are no attendants or parents to tell us what to do or what not to do. We have, as we like to say, matured. We understand fairness and have developed a keen sense of right and wrong. We know when we are stepping out of bounds and we correct ourselves voluntarily. At least that's the behavioral pattern to which we are asked to subscribe and most times we do.

Let's apply the "sandbox/playground" analogy to the world of standards. The IEEE Standards sandbox is big and it needs to be big. We are talking about an international effort by a lot of players, including the International Organization for Standardization (ISO), the International Electrotechnical Commission (IEC), and many others. Our members, in fact, dabble in many other sandboxes in that corner of the standards world playground.

For the most part I believe we build our castles well and behave in a very responsible way, but as we move out of the confines of our sandbox into the bigger playground, we find the rules of association are blurred. Strong, clear linkages are a must if we are going to get the job done and frankly, the country-specific, small "p" political structure of the guardians of the playground (the ISO's and IEC's of this world) make that a difficult task.

Those of you who have a deep interest in bureaucratic processes might wish to make a case study the complex interaction of the committees involved. Me? I'm of a simpler nature and am willing to watch them toss and churn the projects to completion. And God bless them, somehow they do.

The wisdom of Solomon and patience of Job would not be sufficient to change the process or the structure that supports it; so difficult and complex as it may be, it is incumbent on us to work within the system and adapt to it. That means all of us, IEEE, ISO, IEC, and their national committees must use every technique available to expedite the development and delivery of top quality standards to those who need them. That includes everything from parallel processes to automated systems. The IEEE is on that path and we look forward to working closely with everyone interested in putting the necessary pieces in place.

Here at home, wherever home is for you, it is important that you support and strengthen your national standards program and the body that is responsible for its implementation, be it SAA in Australia, JSA in Japan, ANSI in the United States, or BSI in the United Kingdom. We at the IEEE, because of the international thrust of our operation, must work with each of them.

It is important to us that the national bodies are strong and have in place very clear rules for the standards developers under their jurisdiction. They should ensure there is minimum duplicative effort taking place and their own activities should not detrimentally affect the operation of those entities to whom they have delegated responsibility. They also need to encourage the move toward internationally acceptable standards and permit the expeditious advancement of standards developed under their jurisdictions to the international level where appropriate.

Whether you are in the sandboxes or on the slides and swings, whether you are one of the ones slugging it out on committees or a guardian setting the rules, remember, the user of our product and the public are our prime reason for being. Our job is no different than any other in industry—to produce for them a quality product through as efficient a process as possible. •

Awards Spotlight

Distinguished Service Awards

Marco Migliaro, Bruce Barrow, and Don Heirman were presented with Distinguished Service Awards at the December 1993 IEEE Standards Board meeting by Vice President of Standards Wally Read. The Distinguished Service Award is made annually to member(s) of the Standards Board, to recognize distinguished service to the Board based on major contributions to the standards-development process, including participation on major action committees; leadership in improvement of the Standards Board precedures; interaction on behalf of the Board to promote national and international growth of standards; and representation of the Board at various levels with societies, committees, and other institutes.

* * * *

The IEEE Standards Board formally congratulates the Chairs, Vice Chairs, Cochairs, and Technical Editors listed below as well as their working groups on the publication of their standard or collection.

Robert Esperti, Chair: 260.3-1993 American National Standard Mathematical Signs and Symbols for Use in Physical Sciences and Technology

Lawrence J. Kelly, Chair: 532-1993 IEEE Guide for Selecting and Testing Jackets for Underground Cables

Anne K. Geraci, Computer Languages Subgroup Leader: 610.13 IEEE Standard Glossary of Computer Languages

Dale Douglass, Chair; John Torok, Vice Chair: 664-1993 IEEE Guide for Laboratory Measurement of the Power Dissipation Characteristics of Aeolian Vibration Dampers for Single Conductors

William P. Lidinsky, Chair; Tony Jeffree, Task Group Chair; John Pickens, Editor: 802.1F-1993 IEEE Standards for Local and Metropolitan Area Networks: Common Definitions and Procedures for **IEEE 802 Management Information**

Samuel H. Duncan, Chair: 896.1a-1993 Standard for Futurebus+ Logical Layer— Errata, Corrections and Clarifications (incorporated into ISO/IEC 10857:1994

systems—Futurebus+—Logical protocol specification)

Ralph Lachenmaier, Chair: 896.5-1993 IEEE Standard for Futurebus+, Profile M (Military)

Doug Sherman, Chair: 1025-1993 IEEE Guide to the Assembly and Erection of Concrete Pole Structures

Stan Krolikoski, Chair; Moe Shadad, Steering Committee Chair; Jacques Rouillard, Requirements Definition Leader; Paul Menchini, Language Documentation Leader; Doug Dunlop, Language Design Leader: 1076-1993 IEEE Standard VHDL Language Reference Manual



Najmi Jarwala, Chair; John Andrews, Vice Chair-N. America; Dirk van de Lagemaat, Past Vice Chair-Europe; Colin Maunder and Rodham E. Tulloss. Past Chairs: Colin Maunder, Technical Editor: 1149.1a-1993 IEEE Standard Test Access Port and Boundary-Scan Architecture

Bill Maciejewski and Marlyn Miner, Co-chairs; Greg Hill, Technical Editor: 1155-1992 IEEE Standard for VMEbus Extensions for Instrumentation: VXIbus

Samuel H. Duncan, Chair; Mike Wenzel, Technical Editor: 1212.1-1993 IEEE Standard for Communicating Among Processors and Peripherals Using Shared Memory (Direct Memory Access—DMA)

Tor Orbeck, Chair: 1221-1993 IEEE Guide for Fire Hazard Assessment of Electrical Insulating Materials in Electrical Power Systems

Information technology—Microprocessor Mark G. Hazzard, Chair; Donna Fisher, Vice Chair/Secretary; Chris Harding, Technical Editor; and Alec Tashjian and Greg Bussiere, Technical Reviewers for the following standards:

> 1224.2-1993 IEEE Standard for Information Technology—Directory Services— Application Program Interface (API) [Language Independent]

> 1326.2-1993 IEEE Standard for Information Technology-Test Methods for Measuring Conformance to Directory Services Application Program Interface (API) [Language Independent]

> 1327.2-1993 IEEE Standard for Information Technology—Directory Services C Language Interfaces—Binding for Application Program Interface (API)

1328.2-1993 IEEE Standard for Information Technology-Test Methods for Measuring Conformance to Directory Services C Language Interfaces—Binding for Application Program Interface (API)

Jehuda Ziegler, John M. Goddard, William A. Whitaker, Co-Chairs: 1226.1-1993 IEEE ABBETTM Trial-Use Standard for Common Ada Packages for A Broad-Based Environment for Test (ABBET)

Alexander Dixon, Chair: C37.37a-1992 Supplement to IEEE Loading Guide for AC High-Voltage Air Switches (in excess of 1000 volts)

John N. Davis, Chair: C57.13-1993 IEEE Standard Requirements for Instrument Transformers

Hal Jespersen, Chair and Technical Editor: 9945-2: 1993 ISO/IEC Information technology—Portable Operating System Interface (POSIX)—Part 2: Shell and utilities

Samuel H. Duncan, Technical Editor: ISO/IEC 10857:1994 (see 896.1a-1993)

The following persons were inadvertently omitted from the October Issue:

W. R. Henning, J.R. Rossetti, A. M. **Teplityzky**: C57.12.90-1993 IEEE Standard Test Code for Liquid Immersed Distribution, Power, and Regulating Transformers and IEEE Guide for Short Circuit Testing of Distribution and Power Transformers

STANDARDS Profiles



SAMUEL H. DUNCAN

Samuel H. Duncan is Chair of the working group for Futurebus+ projects P896.1a and P896.2a. He is a Consulting Engineer at Digital Equipment Corporation in Maynard, MA.

Q: What was the first standards project you ever worked on?

A: The 1149 test standard [IEEE Std 1149.1-1990, *IEEE Standard Test Access Port and Boundary-Scan Architecture*]. A colleague at work let me know about the project, which he was active in. I thought his view was kind of an "ivory tower" approach and the project needed more limits to be practical for hardware designers. They needed something like profiles so I contributed as an individual and commented on the draft. I knew that in IEEE I could do that. I still keep track of that sponsor's projects through its joint Technical Advisory Group (TAG).

Q: What is your most dog-eared standard?

A: Definitely IEEE Std 896.1-1991, Futurebus+ — Logical Layer Specifications. I chaired the errata committee, which just revised the standard.

Q: What do you like to do when you're not working on standards?

A: Play with my kids! I have one in kindergarten, a three-year-old, and a teenager who turned 13 on Halloween.

Q: What do you like to do when you are working on standards?

A: Figure out how to get someone else to come up with my ideas.

Q: What motivates you to work on standards development?

A: I'm doing this almost entirely for business reasons. As an engineer I try to work on things that will generate revenue for my employer. I chaired three projects this year, all related to revenue-producing products. The interesting side of working on standards is the working group, which provides a forum for technical exchanges with people who sometimes have a very different technical perspective about things. I also think more marketing people should be sent to standards meetings once in a while.

Q: What is the main lesson you've learned from your standards work?

A: During the development process, if you see that compromise will add complexity to the specifications, or cost to implement it, or even just time to complete the standard, DON'T COMPROMISE! Many contributors who pushed for things that add cost and complexity aren't using the standard today.



WILLIAM C. McKAY

William C. McKay is a Staff Engineer with Square D Company in Smyrna, TN. A participant in standards-development activities since 1960, Bill is a member of the IEEE Switchgear Assemblies Subcommittee and Chair of the National Electrical Manufacturers Association (NEMA) working group SG4.

Q: What is the first standards project you ever worked on?

A: In 1960, I participated in the Low-Voltage Switchgear Devices Subcommittee on

integral circuit breaker fuse combination standards work.

Q What is the most difficult aspect of standards development work? A: Remembering the interconnections and relationships between each of the switchgear standards.

Q: What is the most pleasant aspect of standards development work?

A: Wednesday night at the switchgear semi-annual meetings, which is the social evening. At the Phoenix meeting, we had a barbecue on a ranch. For our upcoming Nashville meeting, we are planning on a riverboat dinner trip. This time [in New Orleans, October 1993] we had a magic show.

Q: What are some of your hobbies?

A: I'm a "river rat." That is, I canoe on the Hiwassee River near Chattanooga, Tennessee. I also teach both flat-water and white-water canoeing safety to members of the Red Cross. Auto mechanics is another one of my hobbies. Right now I'm rebuilding a '69 Porsche.

Q: What personal computer and software do you use most often?

A: A 386 PC and spreadsheets and graphics. I try not to get bogged down in computer details. The younger engineers know the details of computer systems. We need more of them in the switchgear field!

Q: Why don't you think the switchgear field attracts young engineers?

A: Of all the power engineering fields, switchgear doesn't have the glamour of radar or computer electronics. Academically, there is no emphasis on switchgear. Companies may not stress this field to young people since there are virtually no training programs for switchgear.

Q: What was the most memorable standards meeting you ever participated in?

A: A past Switchgear Assembly meeting. We spent four hours on one word. It was ludicrous! ◆

Standards Profiles are interviews of volunteers conducted by IEEE Standards staff. They will appear as a regular feature of this newsletter.

Recent IEEE Standards Publications

Computer

610.13-1993 IEEE Standard Glossary of Computer Languages (ISBN 1-55937-296-6) [SH16063-NVY] \$48.50

802.1F-1993 IEEE Standards for Local and Metropolitan Area Networks: Common Definitions and Procedures for IEEE 802 Management Information (ISBN 1-55937-340-7) [SH16527-NVY] \$33.00

896.1a-1993 Standard for Futurebus+ Logical Layer—Errata, Corrections and Clarifications (see ISO/IEC 10857:1994)

896.5-1993 IEEE Standard for Futurebus+, Profile M (Military) (ISBN 1-55937-347-4) [SH16592-NVY] \$55.00

1076-1993 IEEE Standard VHDL Language Reference Manual (ISBN 1-55937-376-8) [SH16840-NVY] \$56.00

1149.1a-1993 IEEE Standard Test Access Port and Boundary-Scan Architecture (ISBN 1-55937-350-4) [SH16626-NVY] \$59.00

1155-1992 IEEE Standard for VMEbus Extensions for Instrumentation: VXIbus (ISBN 1-55937-260-5) [SH15677-NVY] \$63.00

1212.1-1993 IEEE Standard for Communicating Among Processors and Peripherals Using Shared Memory (Direct Memory Access—DMA) (ISBN 1-55937-352-0) [SH16642-NVY] \$59.50

1224.2 IEEE Standard for Information Technology— Directory Services—Application Program Interface (API) [Language Independent] (ISBN 1-55937-303-2) [SH16139-NVY] \$52.00 1326.2-1993 IEEE Standard for Information Technology—Test Methods for Measuring Conformance to Directory Services Application Program Interface (API) [Language Independent] (ISBN 1-55937-310-5) [SH16204-NVY] \$55.00

1327.2 IEEE Standard for Information Technology— Directory Services C Language Interfaces—Binding for Application Program Interface (API) (ISBN 1-55937-313-X) [SH16238-NVY] \$49.00

1328.2-1993 IEEE Standard for Information Technology—Test Methods for Measuring Conformance to Directory Services C Language Interfaces—Binding for Application Program Interface (API) (ISBN 1-55937-316-4) [SH16261-NVY] \$43.00

9945-2: 1993 (ISO/IEC) Information technology— Portable Operating System Interface (POSIX)— Part 2: Shell and utilities (ISBN 1-55937-255-9) [SH15628-NVY] \$168.50

10857:1994 (ISO/IEC) Information technology— Microprocessor systems—Futurebus+ — Logical protocol specification (ISBN 1-55937-373-3) [SH16816-NVY] \$80.00

Dielectrics & Electrical Insulation

1221-1993 IEEE Guide for Fire Hazard Assessment of Electrical Insulating Materials in Electrical Power Systems (ISBN 1-55937-377-6) [SH16857-NVY] \$45.00

Power Engineering

532-1993 IEEE Guide for Selecting and Testing Jackets for Underground Cables (ISBN 1-55937-337-7) [SH16493-NVY] \$44.50

664-1993 IEEE Guide for Laboratory Measurement of the Power Dissipation Characteristics of Aeolian Vibration Dampers for Single Conductors (ISBN 1-55937-366-0) [SH16741-NVY] \$45.00

1025-1993 IEEE Guide to the Assembly and Erection of Concrete Pole Structures (ISBN 1-55937-367-9) [SH16758-NVY] \$47.00

C37.37a-1992 Supplement to IEEE Loading Guide for AC High-Voltage Air Switches (in excess of 1000 volts) (ISBN 1-55937-285-0) [SH15925-NVY] \$15.00

C57.13-1993 IEEE Standard Requirements for Instrument Transformers (ISBN 1-55937-356-3) [SH16683-NVY] \$52.00

SCC14: Quantities, Units, & Letter Symbols

260.3-1993 American National Standard Mathematical Signs and Symbols for Use in Physical Sciences and Technology (ISBN 1-55937-318-0) [SH16287-NVY] \$46.50

SCC20: ATLAS

1226.1-1993 IEEE ABBET™ Trial-Use Standard for Common Ada Packages for A Broad-Based Environment for Test (ABBET) (ISBN 1-55937-360-1) [SH16709-NVY] \$53.00

Standards Seminars for 1994

The IEEE Standards Seminar Program is off and running into 1994! The program, which has been reshaped to better suit the needs of IEEE members, now offers an IEEE Section/Chapter Rebate; presents seminars in conjunction with IEEE conferences, symposiums, or Section meetings; and provides an on-site program that can be tailored to the customer's exact specifications—allowing a much more focused training session related to each customer's projects and concerns.

The new year begins with the Emerald Book Seminar, instructed by Tom Key (Past Chair of P1100) and Tom Gruzs (Present Chair of P1100). This seminar will be held Sunday, January 30, 1994 in conjunction with the Power Engineering Society Winter Meeting in New York City. The popular Industrial and Commercial Power Systems Seminar (IEEE Color Books), will be also be held in May, September, and October. Each participant in this seminar receives a complete set of IEEE Color Books, now including the *IEEE Emerald Book*. This course provides the most comprehensive set of

guidelines used throughout the commercial power industry today.

In August another popular seminar, Measurement of Radio-Noise Emissions, based on ANSI C63.4-1992, will be held in conjunction with the IEEE Electromagnetic Compatibility (EMC) Society International Symposium in Chicago. This seminar is directed at product developers, test engineers and technicians, product managers, regulatory compliance managers, and test instrumentation developers—any professionals responsible for determining compliance with FCC Rules and Regulations.

IEEE Standards is continuing its effort to expand the 1994 seminar schedule and is presently working to coordinate and develop program details for several seminar programs in Region 10 (Asia and the Pacific) with IEEE Sections and Chapters of the Computer and EMC Societies.

For more seminar information or to register, contact Cathy Downer at IEEE Standards Seminars, 1 (908) 562-3825, fax 1 (908) 562-1571, or via the Internet at c.downer@ieee.org.

IEEE STANDARDS BEARER

IEEE STANDARDS BOARD ACTIONS

APPROVED PARS FOR NEW STANDARDS

P299 (EMC/TC4) Standard for Measuring the Effectiveness of Electromagnetic Shielding Enclosures

P482 (EMC/SC) Recommended Practice for Testing of Cable, Cable Assemblies, and Connector Shielding Properties in the Frequency Range from DC to 40 GHz

P487a (PE/PSC &COM/TRANSACC) Supplement to IEEE Recommended Practice for Protection of Wire-Line Communication Facilities Serving Electric Power Stations

P576 (EMC/TC4) Recommended Practice for Installation, Termination and Testing of Insulated Power Cable as Used in the Petroleum and Chemical Industry

P1226.7 (SCC20) Trial-Use Standard Product Description Interface for A Broad-Based Environment for Test (ABBET)

P1226.8 (SCC20) Trial-Use Standard Test Strategy and Requirements Interface for A Broad Based Environment for Test (ABBET)

P1244.6 (C/SS) Standard for Information Technology for Virtual Storage Services

P1284.1 (C/MM) Standard for Information Technology for Transport Independent Printer/Scanner Interface (TIP/SI)

P1373 (SCC21) Recommended Practice for Field Test Methods and Procedures for Grid-Connected Photovoltaic Systems

P1374 (SCC21) Guide for Terrestrial Photovoltaic Power System Safety

P1375 (SCC29) Guide for Protection of Stationary Battery Systems

P1376 (PE/PSC) Standard Protocol for Electric Utility Intercontrol Center Data Communications

P1377 (SCC31) Standard for Utility End Device Applications Layer Communications Protocol

P1378 (PE/SUB) Guide for Commissioning High-Voltage Direct-Current Converter Stations and Associated Transmission Systems

P1379 (PE/SUB) Recommended Practice for Data Communications Between Intelligent Electronics Devices and Remote Terminal Units in a Substation

P1380 (BT/RFT) Standard Test Methods for Measuring the Spectrum Characteristics of Digitally Modulated Television Signals

P1381 (BT/RFT) Standard Test Methods for Measuring the Power of Digitally Modulated Television Signals

P1382 (BT/RFT) Standard Test Methods for Measuring Transmission System Performance of Digitally Modulated Television Signals

P1383 (redesignated P1278.1) (C/IS) Standard for Interactive Simulation—Exercise Control and Feedback Requirements for Distributed Interactive Simulation

P1384 (redesignated P1278.2) (C/IS) Standard for Interactive Simulation—Communication Architecture for Distributed Interactive Simulation

P1385 (EMC/SC) Recommended Practice for Measurement of Radio Disturbances in the Range of 800 MHz to 40 GHz Capable of Interfacing with PCS (Personal Communication Service) Systems

PC37.20.2b (PE/SWG) Supplement to Standard for Metal-Clad and Station-Type Cubicle Switchgear Current Transformers Accuracies

REVISED PARS

P802.3u (replaces P802.30) (C/LM) Supplement to Carrier Sense Multiple Access with Collision Detection (CSMA/CD) Access Method and Physical Layer Specifications: MAC Parameters, Physical Layer, Medium Attachment Units and Repeater for 100 Mb/s Operation

P1174 (IM/TC-8) Standard for Point-to-Point Serial Interface for Programmable Instruments

P1301.4 (C/BA) Standard for a Metric Equipment Practice for Microcomputers—Coordination Document for Mezzanine Cards

PARS FOR STANDARDS REVISIONS

P100 (SCC10) Standard Dictionary of Electrical and Electronics Terms

P111 (PEL/ET) Standard for Wide Band (Greater Than 1 Decade) Transformers

P388 (PEL/ET) Standard for Transformers and Inductors in Electronic Power Conversion Equipment

P449 (PEL/ET) Standard for Ferroresonant Voltage Regulators

P450 (PE/ED&PG) Recommended Practice for Maintenance, Testing, and Replacement of Vented Lead-Acid Batteries for Stationary Applications

P493 (IA/PSE) Recommended Practice for the Design of Reliable Industrial and Commercial Power Systems

**P1226 (SCC20) Standard for A Broad-Based Environment for Test (ABBET), Overview and Architecture P1278 (C/IS) Standard for Interactive Simulation—Pro-

tocols for Distributed Interactive Simulation Applications **PC37.96** (PE/PSR) Guide for AC Motor Protection

PC62.22 (PE/SPD) Guide for the Application of Metal-Oxide Surge Arresters for Alternating Current Systems

WITHDRAWN PARS

P1101 (C/MM) Guide for Mechanical Core Specifications for Inch-Based Microprocessor Standards

P1296.1 (C/MM) Interfacing Between IEEE 1296 (MULTIBUS) and IEEE 896 (Futurebus+)

CHANGES TO PAR NUMBERS

Please note that the following standards designations in the 1003 families have been changed to bring the 1003.n series of standards into conformance with approved IEEE numbering taxonomy:

1003.15a is now 1003.2d; 1003.7 is now 1387.1; 1003.7.1 is now 1387.4; 1003.7.2 is now 1387.2; 1003.7.3 is now 1387.3; 1003.5 remains the same; 1003.5 Amendments is now 1003.5a; and 1003.20 is now 1003.5b.

Note also that P1383 and P1384 have been redesignated P1278.1 and P1278.2, respectively. P1295.1 has been redesignated P1295. PC57.98a has been redesignated PC57.98, and PC57.132 has been redesignated P1388.

APPROVAL OF NEW STANDARDS

1044 (C/SE) IEEE Standard for Classification of Software Anomalies

1059 (C/SE) IEEE Guide for Software Verification and Validation Plans

1062 (C/SE) IEEE Recommended Practice for Software Acquisition

1125 (PE/IC) IEEE Guide for Moisture Measurement and Control in SF₆ Gas-Insulated Equipment

1226.2 (SCC20) IEEE Trial-Use Standard ATLAS-Level Test Procedure Interface for A Broad-Based Environment for Test (ABBET)

1295.1 (redesignated 1295) (C/SCC) IEEE Standard for Information Technology—X Window System—Modular Toolkit Environment

C37.015 (PE/SWG) IEEE Application Guide for Shunt Reactor Switching for AC High Voltage Circuit Breakers

C62.92.3 (PE/SPD) IEEE Application Guide for Neutral Grounding of Generator Auxiliary Systems

REVISED STANDARDS

*141 (IA/PSE) IEEE Recommended Practice for Electric Power Distribution for Industrial Plants

404 (PE/IC) IEEE Standard for Cable Joints for Use with Extruded Dielectric Cable Rated 5 000 V through 138 000 V and Cable Joints for Use with Laminated Dielectric Cable Rated 2 500 V through 500 000 V

463 (IA/P&CI) IEEE Standard for Electrical Safety Practices in Electrolytic Cell Line Working Zones

524a (PE/T&D) IEEE Guide to Grounding During the Installation of Overhead Transmission Line Conductors

802.2a (C/CC) IEEE Supplement to 802.2, Flow Control Techniques for Bridged Local Area Networks

802.2b (C/CC) IEEE Supplement to 802.2, Acknowledged Connectionless-Mode Service and Protocol (Type 3 Operation)

802.2d (C/CC) IEEE Supplement to 802.2, Information Processing Systems—Local Area Networks—Part 2: Logical Link Control

802.2e (C/CC) IEEE Supplement to 802.2, Information Processing Systems—Local Area Networks—Part 2: Logical Link Control—Bit Referencing

802.5j (C/CC) IEEE Trial-Use Standard for Local Area Networks—Part 5: Token Ring Access Method and Physical Layer Specification—Fiber Optic Media Station Attachment

Accelerometer Panel

Frequency Techniques

Computer/LAN MAN

Microcomputer

Committee

(now C/LM)

Computer/Bus Architecture

Aerospace & Electronic Systems/Gyro

Computer/Computer Communications

Broadcast & Technology/Radio

Computer/Interactive Simulation

Computer/Standards Coordinating

Computer/Software Engineering

Dielectrics & Electrical Insulation

Dielectrics & Electrical Insulation/

Statistical Technical Committee

Electromagnetic Compatibility

Electromagnetic Compatibility/

Technical Committee 4. EMI Control

Industry Applications/Glass Industry

Industry Applications/Industrial Drives

Industry Applications/Power Systems

Instrumentation and Measurement/

Technical Committee 4, Automated

Industry Applications/Petroleum &

Computer/Storage Systems

COM/TRAN Communications/Transmission and

Standards Committee

Chemical Industry

Engineering

Instrumentation

NPS/NI&D Nuclear & Plasma Sciences/ Nuclear

Instruments & Detectors

Access Systems

Computer/Microprocessor &

AES/GAP

BT/RFT

C/BA

C/CC

C/IS

C/LM

C/MM

C/SCC

C/SE

C/SS

SACC

DEI/STC

EMC/SC

EMC/TC4

IA/GI

IA/ID

IA/P&CI

IA/PSE

IM/TC-8

ABBREVIATIONS

PE/IC

PE/NPE

PE/PSR

PE/SPD

PE/SUB

PE/SWG

PE/T&D

PEL/ET

SCC10

SCC11

SCC20

SCC21

802.10e (C/CC) IEEE Recommended Practice for Secure Data Exchange on Ethernet Version 2.0 in IEEE 802.3 Local Area Networks (supplement to 802.10b)

802.10f (C/CC) IEEE Standard for Secure Data Exchange Sublayer Management

830 (C/SE) IEEE Recommended Practice for Software Requirements Specifications

**960 (NPS/NI&D) IEEE Standard for FASTBUS Modular High-Speed Data Acquisition and Control System

1177 (NPS/NI&D) IEEE FASTBUS Standard Routines
C37.122 (PE/SUB) IEEE Standard for Gas-Insulated
Substations

C37.122.1 (PE/SUB) IEEE Guide for Gas-Insulated Substations

C57.12.40 (PE/TR) IEEE Standard Requirements for Secondary Transformers—Subway and Vault Types (Liquid-Immersed)

C57.98 (PE/TR) IEEE Guide for Transformer Impulse Tests

Project Authorization Request

Power Engineering/Insulated

Development & Power Generation

Power Engineering/Nuclear Power

Power Engineering/Power Systems

Power Engineering/Power System

Instrumentation & Measurements

Power Engineering/Power System

Power Engineering/Surge-Protective

Power Engineering/Substations

Power Engineering/Switchgear

Power Engineering/Transmission &

Power Engineering/Transformers

Standards Coordinating Committee 10

Standards Coordinating Committee 11

Standards Coordinating Committee 20

Standards Coordinating Committee 21

Standards Coordinating Committee 29

Standards Coordinating Committee 31

(Automatic Meter Reading and Energy

(Graphic Symbols & Designations)

Power Electronics/Electronics

(Terms and Definitions)

PE/ED&PG Power Engineering/Energy

Conductors

Engineering

Devices

Distribution

Transformers

(ATLAS)

(Photovoltaics)

Management)

(Stationary Batteries)

Communications

REAFFIRMED STANDARDS

**91 (SCC11) IEEE Standard Graphic Symbols for Logic Functions

**91a (SCC11) Supplement to Standard Graphic Symbols for Logic Functions

295 (PEL/ET) IEEE Standard for Electronics Power Transformers

300 (NPS/NI&D) IEEE Standard Test Procedures for Semiconductor Charged-Particle Detectors

301 (NPS/NI&D) IEEE Standard Test Procedures for Amplifiers and Preamplifiers Used With Detectors of Ionizing Radiation

315 (SCC11) IEEE Standard Graphic Symbols for Electrical and Electronics Diagrams

315A (SCC11) IEEE Supplement to Standard Graphic Symbols for Electrical and Electronics Diagrams

344 (PE/NPE) IEEE Recommended Practice for Seismic Qualification of Class 1E Equipment for Nuclear Power Generating Stations

352 (PE/NPE) IEEE Guide for General Principles of Reliability Analysis of Nuclear Power Generating Station Safety Systems

390 (PEL/ET) IEEE Standard for Pulse Transformers

813 (AES/GAP) IEEE Specification Format Guide and Test Procedure for Two-Degree-of-Freedom Dynamically Tuned Gyros

1008 (C/SE) IEEE Standard for Software Unit Testing1016 (C/SE) IEEE Recommended Practice for Software Design Descriptions

1028 (C/SE) IEEE Standard Software Reviews and Audits

1042 (C/SE) IEEE Guide to Software Configuration Management

1058.1 (C/SE) IEEE Standard for Software Project Management Plans

1063 (C/SE) IEEE Standard for Software User Documentation

C37.109 (PE/PSR) IEEE Guide for the Protection of Shunt Reactors

C62.32 (PE/SPD) IEEE Standard Test Specifications for Low-Voltage Air Gap Surge Protective Devices (Excluding Valve and Expulsion Type Devices)

C62.35 (PE/SPD) IEEE Standard Test Specifications for Avalanche Junction Semiconductor Surge Protective Devices

WITHDRAWN STANDARDS

101 (DEI) IEEE Guide for the Statistical Analysis of Thermal Life Test Data

125 (PE/ED&PG) IEEE Recommended Practice for Preparation of Equipment Specifications for Speed-Governing of Hydraulic Turbines Intended to Drive Electric Generators

IEEE STANDARDS BEARER

(Continued on next page)

8 IEEE STANDARDS BEARER JANUARY 1994

^{*} Approval was given to the the final 4 chapters submitted (12 chapters were approved in June 1993).

^{*} Final approval date subject to all Standards Board Conditions being met.

^{**} Final approval date subject to all Standards Board Conditions being met.

281 (PE/PSC) IEEE Standard Service Conditions for Power System Communication Equipment

421.1 (PE/ED&PG) IEEE Standard Definitions for Excitation Systems for Synchronous Machines

460 (PE/PSIM) IEEE Standard for Electrical Measuring Transducer for Converting AC Electrical Quantities into DC Electrical Quantities

516 (PE/T&D) IEEE Guide for Maintenance Methods on Energized Power-Lines

605 (PE/SUB) IEEE Guide for Design of Substation Rigid-Bus Structures

665 (PE/ED&PG) IEEE Guide for Generating Station Grounding

668 (IA/GI) IEEE Recommended Practice for Electrical Heating Applications to Melting Furnaces and Forehearths in the Glass Industry

806 (PE/ED&PG) IEEE Recommended Practice for System Identification in Fossil-Fueled Power Plants and Related Facilities

839 (IA/ID) IEEE Guide on Procedures for Testing Single-Phase and Polyphase Induction Motors for Use in Hermetic Compressors

930 (DEI/STC) IEEE Guide for the Statistical Analysis of Electrical Insulation Voltage Endurance Data

1024 (PE/T&D) IEEE Recommended Practice for Specifying Distribution Composite Insulators (Suspension Type)

1101 (C/MM) IEEE Standard for Mechanical Core Specifications for Microprocessors

1133 (DEI) IEEE Application Guide for Evaluating Nonceramic Materials for High-Voltage Outdoor Applications

CONDITIONS MET

The following standards, which were approved with conditions in June 1993, have met all conditions and are thus fully approved IEEE Standards:

802.1F (C/CC) IEEE Standard for Common Definitions and Procedures for IEEE 802 Management Information

802.1m (C/CC) IEEE Standard for System Load Protocol Supplement: Managed Object Definitions and Protocol Implementation Conformance Statement (PICS) Proforma (supplement to 802.1E)

802.6c (C/CC) IEEE Standard for DS1 Physical Layer Convergence Procedures for 802.6 MAN

802.6d (C/CC) IEEE Standard for SONET (SDH) Based Physical Layer Convergence Procedures for 802.6 MAN

802.6f (C/CC) IEEE Standard for Conformance Statement for the 802.6 Base Standard

C37.101 (PE/PSR) IEEE Guide for Generator Ground Protection

Sergio Mazza Named President of ANSI

Sergio Mazza was named President-elect of the American National Standards Institute (ANSI) by its Board of Directors, effective November 1, 1993, and became President on November 12th. Mr. Mazza

has extensive senior executive experience in industry. In accepting the position, Mazza said, "ANSI is an organization that adds value to the national and international standards-setting process. I view this



as a very important activity and organization, and I welcome the challenges ahead." He succeeds Manual Peralta, who will retire after serving as President of the Institute since 1988.

With the development of a global economy, Mr. Mazza foresees ANSI continuing a period of profound change and opportunity. "The standards-setting process is crucial to the competitiveness of US industry and essential to the development of new markets and the establishment of new technologies. Many new markets simply will not develop without broadly accepted national standards," according to Mazza. He also noted, "Since we are competing in an increasingly global economy, a US leadership role in setting global standards can significantly benefit our manufacturing infrastructure, particularly in emerging

markets. Key to this US leadership will be the cooperative effort by industry, government, and US Standards Developing Organizations in promoting US technology and standards on an international scale."

Mr. Mazza is currently President of DS Group, Inc., a software company specializing in the distribution of decision support software tools. Most recently he was the Managing Partner

of ATD Sri, an Italian microcomputer hardware and software distributor and publisher. Mr. Mazza's corporate career included the position of President of Memorex Computer Supplies, an autonomous worldwide division of Memorex Telex, with \$200 million in annual revenues and 1100 employees, where he also served on the boards of Memorex Technologies, Inc., and Memorex Copal Corp., Japan. Prior to that he was President of Memorex USA, where he managed the sales and service activities of Memorex in the US with \$300 million in revenues and 1400 employees.

Mr. Mazza speaks four languages fluently, has lived in seven different countries, and holds a BS in Economics with a dual major in Finance and Multinational Enterprises from the University of Pennsylvania, Wharton School.

PES Funds Engineer Support for Its International Program

Anne O'Neill, a Staff Engineer in the IEEE Standards Department, has been promoted to International Program Engineer for the IEEE Power Engineering Society (PES). This job is funded by the PES for the purpose of increasing interaction between PES standards developers and other standards-developing organizations, especially the International Electrotechnical Commission (IEC). PES, under the leadership of John Pope, has been pursuing the goal to become more international through its standards programs, part of an approach detailed in a PES Task Force report entitled "A Vision for the Future."

Anne will work to establish formal relationships between committees in IEEE PES and IEC. Part of the task will be to identify standards of interest to both PES and other standards-developing organizations. Anne will also focus on educating members of PES about IEC, its procedures, and methods of participation, and vice versa. PES hopes to establish cooperative, mutually beneficial relationships and activities that eliminate duplication of effort.

CALENDAR

OF EVENTS

January

30 Emerald Book Seminar
(in conjunction with Power Engineering Society Winter Meeting)
New York, NY
contact—Cathy Downer
1 (908) 562-3825

February

4 Deadline for draft and PAR submission for March Standards Board meeting

13–17 APEC '94 (IEEE Applied Power Electronics Conference and Exposition)
Orlando, FL
contact—Pamela Wagner,
Courtesy Associates,
1 (202) 639-4990

17–18 US TAG for ISO/IEC JTC 1/SC7

Torrance, CA contact—Leonard Tripp, Chair, US TAG for SC7, Boeing Commercial Airplane, MS 6H-TW, P.O. Box 3707, Seattle, WA 98124 tel. 1 (206) 237-5240

March

7–11 LAN/MAN Standards Committee (LMSC) (P802) meeting (Computer Society)
Vancouver, BC, Canada contact—Classic Consulting 1 (604) 931-7600

14 Computer Society Standards
Activity Board meeting
IEEE, Piscataway, NJ
contact—Dierdre Bagley
1 (202) 371-0101

15–16 IEEE Standards Board Committee meetings Piscataway, NJ contact—Terry deCourcelle 1 (908) 562-3807

7 IEEE Standards Board meeting Piscataway, NJ contact—Terry deCourcelle 1 (908) 562-3807 20–23 Transformers Committee meeting (Power Engineering Society) Dallas–Ft. Worth, TX contact—J. D. Borst 1 (314) 634-2111

April

5-8 SCC29 (Stationary Batteries) & Battery Working Group Gulf Shores, AL contact—Joseph Dudor 1 (714) 898-3731

12 Microprocessor Standards
Committee video conference
Mountain View, CA and
Dallas, TX
contact—Fritz Whittington
1 (214) 995-0397

11-13 US TAG for ISO/IEC JTC 1/SC7

Naperville, IL contact—Leonard Tripp, Chair, US TAG for SC7, Boeing Commercial Airplane, MS 6H-TW, P.O. Box 3707, Seattle, WA 98124 tel, 1 (206) 237-5240

11–14 Bus Architecture Standards
Committee (BASC) meeting
(Computer Society)

(Computer Society) Munich, Germany contact—Harrison Beasley 1 (214) 997-3431

17, 21 US TAG for ISO/IEC & 22 JTC 1/SC22/WG15

Lake Tahoe, NV contact—Lorraine Kevra, Chair, US TAG for SC22/WG15, AT&T. 5A-210, Rts. 202/206N, Bedminster, NJ 07921 tel. 1 (908) 234-6423

18–22 Portable Applications Standards
Committee (PASC) (POSIX)
meeting (Computer Society)
Lake Tahoe, NV
contact—Anne Marie Kelly
1 (202) 371-0101

21–22 Nuclear Power Engineering
Committee meeting
(Power Engineering Society)
Savannah River, GA
contact—J. E. Thomas

1 (803) 831-4011

25–29 Surge-Protective Devices Committee meeting
(Power Engineering Society)

Norfolk, VA contact—S. G. Whisenant 1 (704) 373-6608

May

4-6 C136 Roadway Lighting Equipment committee meeting (location not available at press time) contact—Nancy Blair 1 (908) 562-3801

6 Deadline for draft and PAR submission for June Standards Board meeting

8–12 Substations Committee meeting
(Power Engineering Society)
Los Angeles, CA
contact—M. L. Holm
1 (503) 230-3063

16–19 Switchgear Committee meeting
(Power Engineering Society)
Boston, MA
contact—J. H. Brunke
1 (503) 230-4435

20–25 Insulated Conductors
Committee meeting
(Power Engineering Society)
Reno, NV
contact—C. A. White
1 (803) 748-3518

US TAG Disbanded

The US TAG for ISO/IEC JTC 1/SC25/WG2, Fiber Optic Connections for Information Technology Equipment, has been disbanded. The international-level Working Group 2 of ISO/IEC JTC 1/SC25 was disbanded by JTC 1/SC25 last year so there is no longer a need for a corresponding US TAG.

11

Thirteen Ways to Kill the Voluntary Standards Industry

by Clyde R. Camp



- Never respond to anything until the fourth reminder—then turn it in late and follow through with a complaint about how the process takes soooooooooo long.
- Complain about the process but refuse to participate on committees that are trying to improve it.
- 3) Keep in mind that it is much easier to find reasons why something can't or shouldn't be done than to find innovative solutions to the real problem.

- 4) Be amazed and vociferous when people don't recognize that your document (which you've been working on for five *years*!) simply must be given the highest priority by staff for balloting or publishing. An additional week's delay could be disastrous!
- 5) Never volunteer for officer positions—they're too much work. The management of the process is far too boring and only of interest when it obstructs your desires. Besides, someone else will do it.
- 6) Ignore policy and do what you want to do. You can justify any procedural violations that might occur on the basis that they were restrictive or unfair.
- Never read your correspondence, but be sure to complain when things happen around you.
- Only attend meetings that are held in interesting places—like Vail or Sydney.
- Go to meetings just long enough to get your name on the attendance list—then leave to take in the sights.

- Quickly accept responsibility and then forget about it—somebody else will eventually do it and maybe you can claim credit for it.
- 11) Hold firm in your belief that it will get done without you—after all, what difference does one person make?
- 12) Remember that your way is the only way to really do it right—people with other viewpoints obviously don't understand all the issues.
- 13) If you can't be in charge or win all the time, then quit—hey, it's only volunteer work! ◆

Clyde R. Camp is chair of the New Standards Committee (NesCom) of the IEEE Standards Board, and admits to possibly having committed one or two of the above.





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