

New Bream's

# Reliability Society

NEWSLETTER

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IEEE

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Editor:  
Bruce Bream

## President's Report

**D**uring the Reliability Society Administrative Committee (AdCom) meeting of Saturday, October 2, 1993 at the University of Maryland, the AdCom voted to change the procedure for electing AdCom members.

The new procedure, approved unanimously by voting members present, establishes a nominating committee which nominates candidates for each election to the AdCom (six AdCom members are elected each year). Nomination by petition with signatures of at least 12 members of the Reliability Society (excluding student members) will automatically place a member on the slate of candidates. (The nominating petition should be accompanied by biographical information and a statement by the candidate of willingness and ability to serve, if elected.)

Nominating petitions for the AdCom Class of 1995 should reach Dr. Samuel Keene, Chairman Nominating Committee, 3081 Fifteenth Street, Boulder, Colorado 80304, by July 1, 1994.

Reliability Society members will receive a ballot in August 1994, the election will be completed by October 1, and the new AdCom members will begin their term January 1, 1995. The new AdCom members are eligible to vote for the 1995 Reliability Society officers.

The Reliability Society Bylaws were revised to permit the election of future AdCom members by the membership. The revised Bylaws were approved at the November 2nd meeting and are published in this Newsletter.

The AdCom hopes that all members will exercise their right to vote. The AdCom believes that it is important for members to select Reliability Society leadership. The election will cost the Society several thousand dollars, primarily postage and handling at headquarters. We would like to see all of our members become more active by joining one of our 18 technical committees supporting our symposia, and voting in our future elections.

**W. Thomas Weir**  
President, IEEE Reliability Society

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# IEEE Reliability Society Bylaws

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1. **Purpose:**  
These Bylaws provide detailed guidance for the supervision and management of Reliability Society affairs in accordance with the Society Constitution and the IEEE Bylaws.
2. **Membership:**  
All IEEE members, regardless of grade, may become Society members upon payment of the annual fee (see Bylaw No. 8.1).
- 2.1 **Honorary Members:**  
Honorary membership in the Society, exempt of the payment of the annual fee, may be bestowed upon any IEEE member by recommendation of the Awards Committee approved by majority vote of the Administrative Committee (AdCom). Honorary members are not eligible to hold elective office in the Society.
- 2.2 **Affiliates:**  
Members of societies that have been recognized for affiliate purposes by specific action of the AdCom and the IEEE Executive Committee are eligible for Affiliate membership upon payment of the annual fee (See Society Bylaw 8.1). A list of approved societies will be maintained by the Technical Activities Secretary of the IEEE. Further, Affiliates may join in accordance with any other provision that may be incorporated in the IEEE Bylaws, rules, and regulations.  
An Affiliate cannot serve in elective office in the Society or in a Chapter or vote for candidates for these offices. An Affiliate may serve in an appointive office in the Society or a Chapter of the Society. An Affiliate is entitled to receive notices of all meetings sent to Society members, to receive publications of the Society, to attend and participate in any function of the Society by payment of IEEE member charges, and to receive any award bestowed by the Society. An Affiliate may not receive any IEEE benefits that are derived through IEEE membership except as approved by the Executive Committee of the IEEE.
- 2.3 **Special Provisions:**  
Any special members (life or honorary, e.g.) and Affiliates of the Society on July 1, 1963, may continue even though their respective attainment of such special membership or affiliation was by a means other than as defined above.
3. **Administrative Committee (AdCom):**  
Article V, Section 1, of the Constitution provides that the AdCom shall consist of 18 elected members-at-large plus ex-officio members with and without vote. Article VII, Section 4, provides that a quorum shall be seven voting members, without distinction between the members-at-large and the ex-officio members with vote, and that all voting members shall have an equal vote. Persons under paid contract to the Society may be ex-officio members of the AdCom but shall not be voting members.
- 3.1 Each retiring Society President shall continue for a period of three years as an ex-officio member with vote. If he/she is also re-elected a member-at-large during the three-year ex-officio period, he/she shall exercise only one vote.
- 3.2 Unless otherwise provided, a majority vote of the voting members attending an AdCom meeting shall be necessary for the conduct of its business.
- 3.3 In order to assure a continuously active AdCom, elected AdCom members who miss three consecutive meetings shall be dropped from mem-
- bership, in the absence of extenuating circumstances as determined by the President. Vacancies thus or otherwise created shall be filled for the unexpired term by appointment by the President, with the consent of the AdCom.
- 3.4 Robert's Rules of Order (Revised) shall govern conduct of AdCom meetings on all matters not otherwise specified in these Bylaws or the Constitution.
4. **Nomination and Election of the AdCom:**  
The Nominating Committee shall be reconstituted by the Society President on or before April 1 of each year. The Nominating Committee shall consist of a Chairperson and four or more members of the Society, of which two shall not be members of the AdCom.
- 4.1 A slate of nominees, including biographical information, for members-at-large vacancies of the AdCom shall be prepared by the Nominating Committee. When practical, the slate should contain more candidates than vacancies to be filled. Recommendations for such nominees shall be solicited by a letter to the Chairpersons of all Sub-Societies and Standing Committees. In addition, the Chairperson of the Nominating Committee shall cause to be published and distributed to the entire society membership a call for nominations; a nominating petition carrying a minimum of 12 names of Society members, excluding students, shall automatically place that nominee on the slate to be presented for vote. Persons under paid contract to the Society shall not be eligible for election to the AdCom.
- 4.2 The election to fill forthcoming vacancies of the AdCom members-at-large shall be by mail ballot to the full membership of the Society. The deadline for the return of ballots shall be not less than 30 calendar days after the actual date of mailing the ballots. Election shall be based on the highest number of votes, taken in descending order until all vacancies are filled. Ties shall be broken by the AdCom. The Chairperson of the Nominating Committee shall send the names of such elected members to the Chairperson of the Technical Activities Board (TAB).
- 4.3 The Society President each year shall issue instructions to the Chairperson of the Nominating Committee to insure an orderly progression and completion of the election procedures prior to October 1. Terms of the new elected AdCom members shall begin on the following January 1.
- 4.4 In the preparation of the slate of nominees and in the election, proper consideration shall be given to both geographical representation and technical interests.
5. **Officers:**  
Following the election of incoming AdCom members-at-large, the Nominating Committee shall submit nominations by mail, for President and Vice-Presidents, to all who will be elected members of the AdCom for the succeeding calendar year. Nominations for President submitted by written petition of three voting members of the AdCom shall be added to the ballot if received by the Nominating Committee no later than 15 days after the notification of completion of the election of new AdCom members. The deadline for return of ballots shall be before December 1 and not less than 30 calendar days after the actual date of mailing of the ballots. A majority of returned ballots shall determine election.
- 5.1 The terms of elected officers shall be one year, commencing on January 1. The President may be re-elected to a second term of one year. If the

- second term year exceeds his/her elected AdCom membership second term, the re-elected President shall become an ex-officio member of AdCom, with vote, for the term year. A President, having served his/her elected terms, shall not again be eligible for election to the presidency until a lapse of three years. An AdCom member may be elected to Vice Presidential office for any or all of his/her elected years on AdCom, but shall not remain in any one Vice Presidential office for more than three consecutive years. Eligibility is restored after a lapse of one year.
- 5.2 The Secretary and the Treasurer shall be appointed by the President. If they are not elected members of the AdCom, they shall be ex-officio members with vote. The Secretary and the Treasurer may be reappointed. The Secretary and the Treasurer shall be responsible for keeping the records of the AdCom in the areas commonly ascribable to their functions. They shall prepare and distribute reports, notices, or such other documents as may be required by the President and the AdCom. The Treasurer shall serve as Chairman of the Finance Committee, shall recommend annual budgets for approval by the AdCom and TAB, shall represent AdCom with TAB on financial matters, and shall monitor actual expenses in accordance with approved budgets.
- 5.3 All officers shall continue to serve until their successors take office.
- 5.4 The President shall manage the affairs of the Society and shall speak for the Society on all matters not specifically delegated to others.
- 5.5 The four Vice-Presidents shall be the following:  
 Vice-President, Technical Operation  
 Vice-President, Publications  
 Vice-President, Meetings  
 Vice-President, Membership  
 Their function shall be to manage the activities in their respective fields of endeavor, including control of funds budgeted for these activities. These are:
  - a. Vice President, Technical Operations
    1. Standards and Definitions
    2. Intersociety Technical Liaison
    3. Committees or Sub-Societies operating in specific technical sub-areas of the Reliability Society field of interest.
  - b. Vice-President, Publications
    1. Transactions
    2. Newsletter
    3. Other publications as authorized by the AdCom
  - c. Vice-President, Meetings
    1. Reliability and Maintainability Symposium
    2. International Reliability Physics Symposium
    3. AdCom Meetings
    4. Other major meetings sponsored or co-sponsored by the AdCom
  - d. Vice-President, Membership
    1. Professional Development
    2. General Membership
    3. Chapters
- 5.6 The Junior Past President shall be responsible for the following functions:
  1. Constitution and Bylaws
  2. Nominations and Awards
  3. Fellow Evaluation
6. **Sub-Societies:**  
Sub-Societies are voluntary associations of a significant portion of the total Society membership and, hence, are not equivalent to the standing committees, which are appointive.
- 6.1 **Chapters:**  
Chapters are sub-societies organized on a geographical basis. This subject is fully treated in the IEEE Bylaws, in the IEEE Group/Society Section of the Technical Activities Manual, and in the Section Manual.
- 6.2 **Technical Sub-Societies:**  
A Sub-Society may be organized to cover a specified portion of the field of interest of the Society. Each technical sub-society shall be governed by a Technical Committee. The Chairperson and Steering Committee for a technical sub-society shall be appointed by the AdCom President or appropriate Vice President with the advice and consent of the AdCom. Sub-Societies may organize sessions at a Society symposium or technical conference and may also organize separate, specialized symposia. Sub-Societies may organize special issues of the Transactions or a special section in an issue. Any service for Sub-Society members, beyond those

- provided all Society members, must be paid for by the Sub-Society members. If this takes the form of a special Sub-Society Assessment, its form and amount must be approved by the AdCom.
- 6.3 **Sub-Society Chairpersons:**  
Sub-Society Chairpersons may be either ex-officio members of the AdCom without vote or elected members of the AdCom, with vote.
7. **Publications:**  
The Society shall sponsor such publications as are approved by the AdCom, including a Transactions and a Newsletter.
- 7.1 **Term of Office:**  
Editors shall be appointed by the President for one-year terms and may be reappointed from year-to-year without limit. The compensation for an editor may be set by the Vice-President, Publications, with the advice and consent of the AdCom.
- 7.2 **Transactions:**
- 7.2.1 The Transactions editors shall be an Editor, a Managing Editor, and a Senior Associate Editor. Associate Editors may be appointed by the Editor as required.
- 7.2.2 The Editor of the Transactions shall be an ex-officio member of the AdCom, with vote, or an elected member.
- 7.2.3 Any Editor who receives compensation shall relinquish his/her vote. Authorized expense reimbursement is not considered compensation.
- 7.3. **Newsletter:**  
The Newsletter Editor(s) shall be an ex-officio member(s) of the AdCom, with one vote, or an elected member.
- 7.4 **Publications Program:**  
The Publications Program, and the duties of the editors, shall be as prescribed in the Publications Operations Manual. The Vice-President, Publications is responsible for preparation and maintenance of the Publications Operations Manual.
8. **Society Funds:**  
The Society may raise funds as specified in Article IV of the Constitution and in the IEEE Bylaws.
- 8.1 The annual Society fee shall be set by the AdCom when approving the annual budget.
- 8.2 IEEE Headquarters shall act as bursar for all Society funds except as specified hereunder. Billings and receipt of the annual fee shall be via the IEEE Membership and Fiscal Departments. All other fiscal affairs shall be handled through the office of the Technical Activities Secretary.
- 8.3 The general committee for a symposium or technical conference sponsored by the AdCom may, with the advice and consent of the AdCom, authorize the symposium Treasurer or Fiscal Officer to open an account to be used for the deposit and disbursement of funds related to the symposium. In each case, the AdCom shall be advised of the name of the bank, the anticipated size of the account, the names of the account signatories, and of arrangements of insurance and for bonding. Symposia jointly sponsored with other technical societies where a charter of operations with those societies is approved by the AdCom and the IEEE, need not seek additional authorization to open an account.
- 8.4 For other special circumstances, such as co-sponsorship of a symposium, the AdCom shall make prudent arrangements to safeguard the Society funds that may be involved.
9. **Society Business:**  
The President and officers shall conduct the Society affairs subject to the advice and consent of the AdCom, except where other authorization is specified.
- 9.1 No AdCom meetings shall be held for the purpose of transacting business unless each member shall have been sent notice of the time and place of such meeting 20 days prior to the scheduled date of the meeting; provided, however, that if less than a quorum attends a duly called meeting, tentative actions may be taken which will become effective upon subsequent ratification, either at a meeting or by mail by a sufficient number of voting members as to constitute a majority. Minutes of such meetings shall be mailed by the Secretary to each AdCom member, who shall register his disapproval of any actions taken at such meetings, within 10 days after receiving said minutes, or he shall be deemed to have ratified.
- 9.2 An appropriate order of business at meetings of the AdCom shall be:
  1. Roll Call

2. Reading of the minutes of the previous meeting
  3. Reading of reports on business transacted other than at the meeting
  4. Reading of Communications
  5. Reports of Officers
  6. Reports of Committees
  7. Unfinished Business
  8. New Business
  9. Adjournment
- 9.3 The organization of the Administrative Committee under the President, consists of the Junior Past President, the Secretary, the Treasurer, and four Vice-Presidents in charge of major groups of activities, with committees as indicated in Bylaw Number 10. The ad hoc committee structure may be altered by the President, with the consent of the AdCom, without modifying these Bylaws.
- 9.4 The business of the Society shall be administered by an Executive Committee that shall consist of the  
 President  
 Junior Past President  
 Four Vice-Presidents  
 Secretary  
 Treasurer
10. Committees:  
 Committees shall be designated as Standing Committees, which continue to perform their functions until terminated by the AdCom, or ad hoc committees established for delineated purposes with a specific time limit.
- 10.1 Standing Committees:  
 Standing Committees shall be appointed by the President or appropriate Vice-President, with the advice and consent of the AdCom. It will be discretionary with the appointer to appoint any part or all of any Standing Committee, or to appoint the Chairperson only of a committee and request the latter to appoint additional committee members. The terms of office of the Chairperson and members of a Standing Committee shall be for one year or until a successor is appointed. Chairpersons of Standing Committees, unless they are drawn from the elected members of the AdCom, shall be ex-officio AdCom members without vote.
- 10.2 Ad Hoc Committees:  
 Special or ad hoc committees may be established by the President or Vice-Presidents with the advice and consent of the AdCom. For each case, the purpose, objectives, number of members, how the members are to be selected, and the terms of the members shall be specified. Ad hoc committees may be continued by action of the President or appropriate Vice-President with the consent of the AdCom.
- 10.3 General Functions of Technical Committees:  
 Each technical committee shall:
- a. Receive, generate and review papers within its scope in cooperation with the Transactions Editor.
  - b. Organize and operate sessions at meetings of IEEE at all levels and at meetings of other organizations with which the Society is desirous of cooperating, in accordance with the rules in effect at such meetings.
  - c. Arrange, through appropriate editors, for publishing pertinent papers in IEEE publications in cooperation with cognizant Technical Program Committees.
  - d. Generate and develop appropriate standards in its field for processing by the IEEE Standards Committee, through the Society Standards Committee and otherwise in accordance with IEEE policies.
  - e. Monitor the technical state-of-the-art in its field, detect the need for new technical developments, and take action to stimulate interest in such development.
  - f. Foster closer relationships between this Society and other Societies, Groups and organizations with common interests.
11. Standing Committee Functions:
- 11.1 Standards and Definitions Committee:  
 The function of this Committee shall be to recommend (to the IEEE Standards Board) standards for engineering practices, including definitions, and terminology related to the field of reliability to be followed in electronics and allied industries.
- 11.2 Meetings Organization:  
 The function of the Meetings Organization shall be to work with the major meetings of interest to the Society. The committee for each meeting

- shall be headed by an Administrator or Representative appointed by the Vice-President, Meetings. The following policies govern the operation of these committees:
- a. Administrators or Representatives are appointed to serve on the governing bodies of meetings co-sponsored by the Society. They are delegated authority to make administrative decisions based on the general policies set by the AdCom and to arrange for the appointment of Society members to the various committees for the meeting. Administrators are appointed for a term of office coincident with that of the governing body of the meeting. If the meeting's governing body requires decisions that are not covered by or are in conflict with established policy, the Administrator shall refer the question to the AdCom for its action.
  - b. Representatives are appointed to serve on program, arrangements, or other meeting committees at the request of committee chairmen or the general committee for a meeting and are delegated authority to act within the scope of committee activity. Representatives are appointed to attend the Convention Record meetings to secure optimum arrangements for the publication of papers sponsored by the Society.
- 11.3 General Membership Committee:  
 The functions of the General Membership Committee shall be to:
- a. Supply information, to IEEE members and Sections, on the Society and advantages of membership in it.
  - b. Provide promotional material to the members and Sections, plan membership drives, and take other positive actions to increase membership, including membership booths at co-sponsored Society meetings.
  - c. Make recommendations to the Executive Committee or the AdCom whether to accept a new society as the basis for allowing affiliate membership.
  - d. Decide on the qualifications of applicants for Society membership, where such decision is delegated to the Society.
- 11.4 Chapters Committee:  
 The functions of this Committee shall be to:
- a. Compile data pertaining to the organization of Society Chapters and pertinent chapter activities of interest to each other, and disseminate this information to the Sections, Chapters, and the Membership Committee.
  - b. Administer selection of Chapters for the annual Chapter Awards.
  - c. Create and promote interest in the Sections for the formation of new Society Chapters.
  - d. Foster close relations between the Chapters and the AdCom and provide AdCom assistance to the Chapters wherever possible.
  - e. Monitor Chapter activity and make recommendations for termination of Chapters whose activities do not meet the standards established in the IEEE Bylaws.
- 11.5 Professional Development Committee:  
 The functions of this Committee shall be to:
- a. Provide liaison between the AdCom and the various professional activities' functions of the IEEE in regard to professional interests of Society members.
  - b. Devise standards of qualification and performance for professionals in the field.
  - c. Propose for approval by the AdCom programs for the examination and certification or citation of professionals in the field.
  - d. Promote the professional image of reliability professionals paralleling that of other engineering disciplines.
  - e. Foster interest and knowledge in the fields of electronics and reliability, particularly among educators and students, but also among those active in the profession who may desire additional professional training in reliability; develop and present training conferences as required to serve the needs of the profession, and stimulate the offering of accredited university-level courses and degree programs as appropriate to the field.
  - f. Develop guides to individual career planning based upon the outputs of the technology forecasting and assessment efforts.

- 11.6 Constitution and Bylaws Committee:  
 The functions of the Constitution and Bylaws Committee shall be to:
- a. Maintain records of the Constitution and Bylaws
  - b. Ascertain that the Constitution and Bylaws are not in conflict with any requirements or rules of IEEE.
  - c. Recommend changes in the Constitution or Bylaws as necessary to conform to the developments of the Society, its AdCom, and its membership and mode of operation.
  - d. Interpret the Constitution and Bylaws as requested by the President.
- 11.7 Nominations and Award Committee:  
 The functions of the Nominations and Awards Committee shall be to:
- a. Nominate new AdCom candidates and AdCom officers as defined in Sections 4 and 5 of the Bylaws.
  - b. Conduct and report elections as defined in Sections 4 and 5 of the Bylaws.
  - c. Propose for AdCom approval candidates for Society and IEEE awards, Fellow grade, and other honorary status, in accordance with requirements, requests, and rules and regulations of IEEE.
- 11.8 Fellow Committee:  
 The function of the Fellow Committee shall be to prepare for AdCom approval, evaluation of Fellow nominations which have been forwarded to the AdCom by the IEEE Fellow Committee.
- 11.9 Finance Committee:  
 The functions of the Finance Committee shall be to:
- a. Compile and analyze financial data and make appropriate recommendations to the AdCom on such items as budgets, publication costs, meeting expenses, fees and other revenue, etc.
  - b. Act as consultant and functional supervisor to Treasurers of various meetings held by the Society.
  - c. Make periodic reports to the Executive Committee and the AdCom on the financial status of the Society.

- d. Observe financial operations of the Society and take appropriate action to see that money is spent or invested wisely and in the best interests of the Society.
- \*11.10 Historian:  
 The functions of the Historian shall be to compile, maintain and document information pertinent to the history of the Society.
12. Ad Hoc Committee Functions:  
 The functions of these committees are to foster interest and developments in the designated areas, as described in Section 10.3 of the Bylaws and as directed by the officers and the AdCom. Typical areas may include:
- Maintainability
  - Human Performance Reliability
  - Systems Screening
  - Software Reliability
  - Advanced Reliability Techniques
  - IEEE Energy Technology Assessment
  - International Reliability
  - Mechanical Reliability
  - Nuclear System Safety & Reliability
  - Quality Assurance Management
  - Health Care Engineering Policy
13. Amendments:  
 Amendments to these Bylaws may be made as prescribed in Article IX, Section 2 of the Constitution. The required submittal for IEEE approval, and publication, shall be arranged by the Secretary of the AdCom as soon as possible following AdCom vote to adopt, and prior to implementation.
- \* This paragraph will be added for consideration when Bylaws are next updated.

## USAF TECH CONNECT

The United States Air Force Technology Transition Office (TTO) recently opened a technology information "hot line" called the Technology Connection (TECH CONNECT) Team. TECH CONNECT's mission is to enhance the flow of all kinds of technology information from its source to wherever it is needed. TECH CONNECT can help you with these and other related issues:

- Search for technologies that may help you solve your problem
- Find more information regarding a particular technology
- Put you in touch with technology experts
- Accelerate transition of technology by improving communications and awareness

Under Air Force Materiel Command (AFMC) lead center concept, the TTO, located at Aeronautical Systems Center, Wright-Patterson Air Force Base, supports the Command's Science and Technology mission as the Air Force focal point for technology transition activities. In addition to facilitating the use of integrated Technology Applications/Insertion Programs, the TTO serves as the Technology Information Broker for the Air Force and the AFMC coordinator for the Air Force Technology Transfer Program.

The single point of entry for information into the TTO on these and other Air Force technologies is TECH CONNECT. Although established to serve the Air Force, TECH CONNECT also:

- Fields requests from other government agencies trying to make the right Air Force technology connections
- Helps the commercial sector learn about potential technology transfer opportunities

For more information about TECH CONNECT or to place a request, contact: Technology Connections Team, TECH CONNECT, DSN 785-5940, Commercial (513)255-5940, Fax: (513)476-4580 (Attn: TECH CONNECT)

## Wanted! A Few Good People to Serve on the RAMS Management Committee

A few energetic volunteers are needed to fill openings on the management committee of the Reliability Symposium. It's a great group of people, its educational and it can be career enhancing.

The management of the symposium is accomplished by sponsor member volunteers, with the concurrence and support of their corporate, government or academic employers. The Advisory Board, which is composed primarily of senior corporate and military management individuals, provides guidance on management of the symposium.

This is an opportunity to work with other professionals in the reliability (and associated) fields and meet senior management from both military and corporate sectors that are concerned with the analytic and practical techniques necessary to improve the reliability/competitiveness of our products.

If you can secure the necessary support to attend 3 or 4 one day meetings a year, attend the symposium in January each year, are a member of IEEE Reliability Society and are interested in further details on how to join this select group on the management committee, please contact: V. R. Monshaw, 1768 Lark Lane, Cherry Hill, NJ 08003, (609)428-2342.

## ROME LABS Qualified Manufacturer's List (QML) Update

In order to become a viable customer for commercial vendors, the military has developed the Qualified Manufacturer List (QML) System which adopts the best commercial practices of qualified vendors as the single qualification system for military microcircuits.

Formerly, a significant number of military microcircuits were acquired under the Qualified Parts List (QPL) Program. Part qualification required testing large sample sizes to stringent, nonflexible requirements. The QPL Program also required extensive end-of-line testing to screen out defective devices. These end-of-line screens provide a standard series of reliability tests for the industry. Although manufacturers continue to use these screens today, most of the screens are impractical or need modifications for new technologies, and add little or no value for mature technologies. Also, the high cost and low volumes of complex microcircuits being used by the military today prohibit testing large sample sizes required by the QPL system. With the defense budget/market declining, the DOD cannot afford costly test requirements that add little value to product quality or can be met in other ways. Many manufacturers have developed various alternative ways of assuring the reliability of devices. The most important of these are Statistical Process Control (SPC) and in-line process monitoring. Although these alternative methods may address the same reliability concerns as the screens, they are not pertinent to the QPL system. This inflexibility in the QPL system resulted in the merger of the QPL, MIL-M-38510, into the Qualified Manufacturer's List (QML), MIL-I-38535. The QPL product in existence today will be supported, but all new product must be qualified under the QML system. Existing QPL product will be listed in a separate QPL section of the QML 38535 listing.

The QML Program assesses a manufacturer's commitment to quality and reliability. It provides assurance to the DOD user that the manufacturer has control of the entire manufacturing process, from design through final test, and is committed to a high level of quality. QML endorses use of best commercial practices while still ensuring a product is capable of performing in harsh military environments. Use of in-line monitoring and elimination of non value-added tests is encouraged.

In the QML approach, the manufacturer demonstrates to a government-industry validation team sufficient competence to generate effective tests to assure product quality and reliability for their baseline technology. After this validation, the manufacturer's test approach is documented in his Quality

Manual (QM) and concurrent government approval of manufacturing and/or test changes is not required. This approach, in effect, is based upon the manufacturer's "best commercial practice."

MIL-I-38535, "General Specification for Integrated Circuits (Microcircuits) Manufacturing", and the proposed Option 4 of MIL-H-38534, "General Specification for Hybrid Microcircuits", have been created to define the criteria for this QML approach. These specifications will also be merged within the

year resulting in a single approach for qualifying everything from bare chips through multichip modules. Rome Laboratory is, also, working with the Electronic Industry Association (EIA) in the development of a National Specification based on the QML approach. The validation team is led by the Defense Electronics Supply Center (DESC) with support from other Government agencies and industry. Periodic verification of the QML operation is accomplished through review of the minutes and actions of the manufacturer's Technology Review Board which controls the technical operations. There is also a yearly, one day technical review with the QML manufacturer to discuss the status of his technology. Presently, more than 50 manufacturers' processes (both hybrid and monolithic) are qualified under the QML program.

In addition to this, the QML Program now allows offshore assembly and test of fully qualified military microcircuits. Several of the major manufacturers supplying military product announced that they were moving substantially all of their assembly and test sites offshore. They are drawn offshore by the increasing pull of the global market, cheaper offshore labor rates, and foreign country incentives. Manufacturers are investing heavily in these offshore sites to ensure that state of the art equipment is used to assemble and test the high volume commercial product supplied by these lines. Faced with the reality that our shrinking defense market can no longer be isolated from the commercial market, and that the defense market no longer influences manufacturer's business decisions, the DOD endorsed certification of offshore assembly and test operations. This decision leads military microcircuit manufacturing closer to and benefits from the advances in commercial line practices.

The QML Program has provisions for plastic encapsulated devices as well as Gallium Arsenide (GaAs) microcircuits. With the recent allowances for offshore assembly and test, the DOD expects several major monolithic microcircuit manufacturers to qualify their plastic encapsulated device processes. The GaAs requirements were developed in conjunction with the ARPA MIMIC Program. MIMIC vendors are expected to start their certification process in 1994.

The QML approach fits in efficiently with the ISO-9000 series requirements since QML evaluates and assesses a manufacturer's management commitment to their quality programs. Whereas ISO-9000 provides generic requirements to be met to assure product quality, QML provides technology specific guidelines to achieve quality and reliability for monolithic and hybrid microcircuits. Rome Laboratory envisions ISO-9000 and QML working together to provide the DOD and commercial industry with the highest quality microcircuits. With this in mind, Rome Laboratory endorses the dual role of the Defense Electronics Supply Center (DESC) in granting ISO-9000 series certification in concert with QML certification.

For further information, please contact Mark Gorniak, Rome Laboratory, 525 Brooks Rd, Griffiss AFB NY 13441-4505, tele: 315 330-2047, DSN 587-2047, FAX 315 330 3709.

## The IEEE Gets Connected

E-mail is a wonderful thing, combining the civility of letters and the convenience of telephones. The IEEE is in the midst of an ambitious effort to utilize e-mail technology to the maximum.

A large part of the program is already in place. Although some of the services advertised are not yet completely on line, the directories are not complete, and there is sometimes a delay in response, but on the whole it is working very well.

You can use the IEEE e-mail system to contact other IEEE members and staff, to obtain information, and to request services such as ordering publications.

A new service, ASKIEEE, enables members to order copies of individual articles published by the IEEE and others. Orders are delivered by mail or fax.

The IEEE e-mail system has been in operation since 1990. Most IEEE staff members in New York, Washington and Piscataway, and about 2000 volunteers have been assigned mailboxes. There are also special service mailboxes which members can query to order publications, get help with delivery problems, and obtain information. The aliases follow the format: [i].[name]@ieee.org. This format has the advantage that if you know someone's name and nothing more, you have a good shot at successfully sending email! (If you're sending "blind", increase your odds by trying the alias addresses with one and two (or more initials, e.g. r.snyder@ieee.org and r.g.snyder@ieee.org)).

Mail received at the IEEE mailbox is immediately forwarded to the addressee's "home" e-mail address at his/her business or institution as long as it is part of an email system that has an Internet gateway. The forwarding system is so smooth that recipients are often unaware that the mail was sent via ieee.org.

Volunteers can update their addresses by email, and everyone is sent update forms annually so that the forwarding addresses can be kept as accurate as possible. This can be a great help when your system supervisor assigns new email addresses to everyone the week after you have attended a conference and distrib-

uted two hundred business cards with the old address. Active volunteers especially are encouraged to apply for IEEE aliases, but any IEEE member may request an alias and be included in the directory. The response has been "very positive", according to the auto-response message I received, so it may require more than the promised 24 hours to receive your alias and directory listing, so be patient. You will receive a test message with your alias.

To receive an electronic directory of individuals on the system, mail *info.directory@ieee.org*. Many volunteers without Internet access can get on the system through Compmail. Compmail is a contract between the IEEE Computer Society and U.S. Sprint. Users may also access e-mail through MCI Mail or Compuserve or any commercial vendor with a gateway to the Internet. The volunteer needs a personal computer, modem and some software. There are no guest accounts.

### UseNet IEEE Newsgroups

There is as yet no general IEEE bulletin board. However, if you have access to UseNet newsgroups, there are 17 "newsgroups" which have information on specific topics. A single information item could be added to the directory of a number of these "newsgroups." The IEEE-related newsgroups are:

ieeenet.news.newusers	ieee.rab.announce	ieeenet.netlog
ieee.rab.general	comp.org.ieee	ieee.config
ieee.pcnfs	ieee.tab.general	ieeenet.tcos
ieee.announce	ieee.usab.general	ieeenet.logs.zeus
ieee.tab.announce	ieee.usab.announce	ieee.general
ieee.regional	ieeenet.test	

### Try it, yourself!

To be listed on the IEEE e-mail directory and obtain an IEEE alias, send a message with the following information to *aliases@ieee.org*.

- |                                |  |
|--------------------------------|--|
| (a) your e-mail address        | (e) your FAX number  |
| (b) your LAST name             | (f) your IEEE member number                                |
| (c) your FIRST name            | (g) your current major IEEE volunteer activity involvement |
| (d) your day-time phone number |  |

*info.info@ieee.org* — Mail to this alias gets you a list of about 71 auto-response text files. If an e-mail message (not really a message, but a request using a message format) is sent to an alias that begins with "info", the message content is discarded and a prewritten text file is automatically returned to the sender.

For example a message to *email.guide@ieee.org* responds with the latest version of the IEEE E-mail guide.

*info.service@ieee.org* — Mail to this alias prompts a list of the services provided by e-mail. For instance, if your renewal check was cashed and you received a second bill, send mail to *membership.inquiry@ieee.org*, and it will be forwarded to a person who can help you straighten it out! The list includes the 5 directory aliases for volunteers, staff, sections, branches, and societies.

### FREE PROCEEDINGS

Your Reliability Society has a large number (over 300) of surplus copies of the 1992 IRPS and the 1993 RAMS proceedings on hand. We also have a small number (less than 30) of 1992 RAMS Proceedings.

Reliability Society members who did not get a copy of any of these and want one, may request a copy by writing the following address. Requests should identify the proceedings desired and confirm that the requester is a member of the Reliability Society. Requests will be filled only so long as supplies last. We have only the proceedings listed. Send to: Anthony Coppola, IITRI, 201 Mill Street, Rome, NY 13440-6916.

The Reliability Society will also honor requests by Academic Institutions for multiple copies of any of these proceedings for educational purposes, so long as supplies last. (e.g. We would be happy to provide a copy of a proceedings for every member of a class on reliability, if we have enough.) Individual Reliability Society member requests will have priority.



## 1994 INTERNATIONAL RELIABILITY PHYSICS SYMPOSIUM

April 11-14, 1994 ■ Fairmont Hotel ■ San Jose, California

Building-in Reliability continues to be the cornerstone of the Symposium's Program. Papers are solicited that illustrate the incorporation of reliability physics, reliability engineering, design for maximum performance margin, fabrication, assembly, and manufacturing process control to improve system reliability. The identification of new microelectronic failure mechanisms, improved insights into existing failure mechanisms, and new or innovative analytical techniques continue to be the mainstay of the 1994 Symposium. Papers dealing with the reliability of advanced packaging techniques for multichip modules are also requested.

### ■ BUILDING-IN RELIABILITY FOR Si, GaAs, AND OPTOELECTRONIC DEVICES, especially:

- Integration of reliability engineering with all elements of design
- Establishing effects of input parameters on product reliability & control
- Physical basis for design rules & concepts for minimizing jeopardy with experimental validation
- Particulate control and its effects on reliability
- Improved manufacturing techniques for wafer fabrication through assembly

### ■ TESTING METHODOLOGIES FOR RELIABILITY, including:

- In-process wafer fabrication control and assembly, monitors, and sensors
- Novel test structures and materials
- Evaluation at wafer level or after partial processing
- Reliability modeling & field failure rate prediction

### ■ ANALYZING FOR RELIABILITY:

- VLSI failure mechanisms and models applied to:
  - dielectric integrity
  - electromigration
  - hot-carriers
  - low power/low voltage issues
  - corrosion
  - latchup/ESD/EOS
- Optoelectronic failure mechanisms and models applied to:
  - LED/laser degradation
  - lithographic wave guide
  - burn-in/aging/wearout
  - passive element degradation
  - optical fiber issues
  - ESD/EOS
- Assembly related failure mechanisms and models applied to:
  - bonding
  - surface mount issues
  - multichip packages
  - package integrity
  - thermomechanical stress
  - die overcoats
- SYSTEM related failure mechanisms, including:
  - automotive
  - consumer
  - military & aerospace
- Failure analysis techniques: new, advanced, & simplified
- Analytical instruments & techniques
- Computer-Aided Reliability (CAR) applications & simulation with experimental validation

#### For information contact:

Paul J. Boudreau, Technical Program Chairman, 1994 IRPS  
Laboratory for Physical Sciences  
8050 Greenmead Drive  
College Park, MD 20740 USA  
Tel. 301-935-6547  
FAX 301-935-6723  
e-mail: boudreau@eng.umd.edu

## Conference Calendar

### DATE & PLACE CONFERENCE

#### CALL FOR PAPERS

##### 1994

1-6 October 1994 International Joint  
Phoenix, AZ Power Generation Conference  
USA

The Reliability and Availability Committee (R&A) of the American Society of Mechanical Engineers (ASME) Power Division is requesting technical paper abstracts on the following suggested (but not inclusive) topics:

- Availability of Various Facilities
  - Repowering older power plant units and their resulting availability
  - Operating availability of independent power producers and cogeneration facilities
  - Impact of the Clean Air Act on availability
- Availability Evaluation
  - Economic benefits of improved availability
  - Data for availability modeling analysis
  - Determining availability of emerging technologies
  - Predicting, tracking or optimizing availability on a unit component level
  - Equipment reliability and availability specifications
- Reliability, Maintainability
  - Plant betterment programs and their impact on reliability
  - Reliability and availability aspects of on-line equipment performance monitoring
  - Practical application of statistical methods for reliability-related decision making
  - Practical applications of reliability centered maintenance concepts
  - Spare parts optimization

Abstracts of 20 to 30 typed lines must be submitted by January 31, 1994. Please include a brief statement of how your paper is unique and will make a contribution to the advancement of reliability in the power industry. The authors name must be included with the proper abstract. Official acceptance will be issued in March 1994. The technical paper, itself, will be due in early May 1994. It will then be reviewed by ASME before printing.

Send all abstracts to: Margaret A. Johnson, P.E., Paper Review Coordinator, ASME Reliability and Availability Committee, Houston Lighting & Power Company, 12301 Kurland Drive, Houston, TX 77034, Tel: (713)945-7783.

#### CONFERENCES

##### 1994

16-18 March International Society of Science and  
Seattle, Applied Technologies (ISSAT)  
Washington Conference on Reliability and Quality  
USA in Design

The ISSAT Conference is an international forum for presentation of new results, research development, and applications in reliability and quality in design. Papers may address any aspect of reliability and quality in design. Papers dealing with case studies, experimental results, or applications of new or well known theory to the solution of actual reliability and quality problems in engineering design are of particular interest. Suggested topics are:

- Modeling, Analysis and Simulation

- Fault Tolerance
- Software Reliability and Testing
- Quality Cost
- Maintainability and Availability
- Data Collection and Analysis
- Human Factors and Reliability
- Concurrent Engineering and Design
- Experimental Design for Quality Control
- Software Algorithms
- Safety-Critical Systems
- Risk Assessment Modeling
- Network Reliability
- Design Issues in Manufacturing
- Process Control and Management
- Quality Planning and Measurement
- Quality Engineering
- Total Quality Management Techniques

For information contact: Program Chairman: Dr. Hoang Pham, Dept. of Industrial Engineering, Rutgers University, P.O. Box 909, Piscataway, NJ 08855 USA, Tel: (908)932-5471, Fax: (908) 932-5467, Email: hopham@princess.rutgers.edu

20-25 March PSAM-II International Conference  
Hilton Beach & Devoted to the Advancement of System-  
Tennis Resort based Methods for the Design and  
San Diego, CA Operation of Technical Systems and  
USA Processes

The purpose of PSAM is to provide a forum for the presentation of scientific papers covering both methodology and applications of system-based approaches to the design and effective, safe operation of technological systems and processes. These include nuclear plants, chemical and petroleum facilities, defense systems, aerospace systems, and the treatment and disposal of hazardous wastes. The objective is to share experience to the benefit of all industries.

The following is a list of topics within the scope of the meeting:

- Risk management and decision making
- Risk-based regulation
- Reliability-base design
- Probabilistic and deterministic models for process safety management
- Uncertainty and sensitivity analysis
- Uncertainties in physical and chemical phenomenology
- Exper judgement in assessment studies
- Cognitive models of human behavior
- Design and evaluation of man-machine systems
- Human factors and human reliability
- Risk-based methods for improving operator performance
- Computerized control systems and operator aids
- Organizational factors and safety culture
- Automatic fault detection and diagnosis
- Redundancy Management
- Artificial intelligence in support of process safety management
- Software dependability
- Earthquakes, fires, tornadoes, and other natural phenomena
- Survivability and vulnerability

- Safeguards analysis
- Aging of systems, structures, and components
- Communicating the results of risk assessment and management to peers, decision makers, and the public

**Technical Program Chairman:** Professor George Apostolakis, Mechanical, Aerospace and Nuclear Engineering Department, 38-137 Engineering IV, University of California, Los Angeles, CA 90024-1597 USA, Tel: (310)825-1300, Fax: (310)206-2302

22-24 March  
Catamaran  
Resort Hotel  
San Diego, CA  
USA

**IEEE INTERNATIONAL CONFERENCE ON MICROELECTRONICS TEST STRUCTURES**

The conference, sponsored by the IEEE Electron Devices Society, will bring together designers and users of test structures to discuss recent development and future directions. The conference will be preceded by a one-day Tutorial Short Course on Microelectronic Test Structures on 21 March. There will be an equipment exhibition relating to test structure measurements. Original papers presenting new developments in both silicon and gallium arsenide microelectronic test structure research, implementation, and application are solicited. A Best Paper Award will be presented by the Technical Program Committee. Suggested topics include:

- Test Structures for Material & Process Characteristics
- Dimensional & Electrical Integrity of Replicated Features
- Test Structures for Device & Circuit Modeling
- Product Failure Analysis from Test Structure Data
- Test Structures for Reliability Analysis
- Wafer Fabrication Process Control Test Structures
- Test Structure Measurement Utilization Strategy

For information contact: Robert A. Ashton, AT&T Bell Laboratories, 9333 S. John Young Parkway, Orlando, FL 32819 USA, Tel: (407)345-7531, Fax: (407)345-6904, Email: raa@aluxpo.att.com

21-24 March  
Jupiter Beach  
Resort  
Jupiter Beach, FL  
USA

**CARTS 94 14th Capacitor and Resistor Technology Symposium**

The Capacitor and Resistor Technology Symposium is an annual forum for the presentation of information on new components, improved applications and solutions to current problems. The Conference is designed to exchange information between manufacturers, users and academia on the following components:

- Capacitors
- Magnetics
- Filters
- Resistors

This year there will be the usual technical and product sessions and a special session is planned on International Standards. Papers will be presented in the technical session on the following subjects:

- Applications Experience
- Quality Assessment Programs
- Problems and Solutions
- Failure Analysis Procedures
- Failure Experience
- Test Techniques
- Reliability Performance
- High Reliability Practices

- Derating Practices
- Usage Experience
- Screening Methods
- Future Trends and Projections

**Product Session:** manufacturers will have the opportunity to present descriptions of their products and capabilities with an emphasis on new products, improved capabilities and new applications. This session will be separate from the technical papers and is designed to help component engineers keep abreast of the available components and new capabilities of the suppliers.

Sponsored by Components Technology Institute Inc, in cooperation with IEEE CHMT. For more information contact: CARTS, 904 Bob Wallace Ave., Suite 117, Huntsville, AL 35801, USA, Tel: 205-536-1304 Fax: 205-539-8477

11-14 April  
Fairmont Hotel  
San Jose, CA  
USA

**International Reliability Physics Symposium**

*See the advertisement for this conference elsewhere in this issue.*

2-4 May  
Loews Anatole  
Hotel  
Dallas, TX

**6th Annual Society for Automotive Engineers (SAE) International Reliability, Maintainability & Supportability (RMS) Workshop & Exposition**

**Overall Theme** — "RMS in a Changing Global Environment" ... We are moving from a defense-dominated environment to multi-national military and commercial industries and customers. The defense customer base is shrinking, the new commercial markets are demanding and growing, and development funding is disappearing. In this environment we must be customer focused and responsive, able to work efficiently with multi-national task teams, and capable of producing world-class products the first time. Reliability and supportability of commercial products must become such that they can be applied to military requirements. This workshop addresses the methodologies, techniques and tools that are available to RMS practitioners.

**Workshops** — The workshops are unique in that the emphasis is on interaction among facilitators and the participants. The facilitators will solicit comments from the participants and provide the atmosphere for dialogue. The annual workshop is sponsored by the SAE G-11 Committee and the SAE Engineering Meetings Division as a major initiative for improving product effectiveness and quality. The goal is a more competitive product. Technical interchange sessions are focused on:

- Reliability
- Maintainability
- Supportability
- RMS Integration
- Systems Engineering

**Tools & Resources Exposition** — This expanded feature of the workshop will highlight the latest RMS software tools and resources that are available to the RMS engineers. RMS specialty software and CAD vendors will be on hand to demonstrate their latest software tools and to show how these tools could simplify RMS tasks.

**Registration** — The fee for the RMS Workshop is \$675; SAE Members \$595. The fee includes admission to the Keynote Address, Technical Interchange Sessions with handout materials, reception and exposition, luncheons on May 2 and May 4, and

morning and afternoon refreshment breaks. For additional information, please contact Elizabeth Demoratz, SAE Engineering Meetings Division, (412) 776-4841, X391. Registration is limited.

6-8 June  
Wichita, KS  
USA

**Second Applied Statistics in Industry Conference**

The conference will have paper presentations and workshops on the application of statistics toward solving industry related problems. Topics include:

- Robust design for producibility
- Personnel selection, hiring, and motivation
- Productivity measurement
- Equipment capability assessment
- Response surface methodology
- Time series analysis
- Optimal product-mix determination
- Facility location and layout
- Readiness assessment for JIT
- Process improvement
- Industrial experimentation
- Risk assessment
- Market forecasting
- ISO-9000, Quality
- Reliability

Keynote speakers will be Dr. George Box and Dr. J. Stuart Hunter. For more information contact, Brad Brown, (316)777-4425.

14-17 June  
Philadelphia Hilton  
and Towers  
Philadelphia, PA  
USA

**19th Inter-RAMQ Conference**  
**Theme: Reliability, Availability And Quality Issues In The Power Industry From Now Until The 21st Century**

The Inter-RAMQ Conference is an international forum which has served the power industry for the past 21 years. The conference specializes in promoting the concepts of reliability, availability, and quality. Exhibitor displays enable the participants to explore the latest available technologies in the field. This conference provides a meeting ground for professionals in the power industry to discuss operations improvement methodologies.

The conference provides a forum for papers covering reliability, availability, and quality issues applied to present and future applications in fossil and nuclear power generation, transmission, distribution, and other industry topics, such as:

- RAM for Independent Power Producers
- Maintenance of Standby Power Plants
- Transmission RAM
- Distribution RAM
- Substation RAM
- Computer Reliability
- Software Reliability
- RCM and Predictive Maintenance
- NRC Maintenance Rules
- Partnering between Utilities and Suppliers
- ISO 9000 Requirements
- Total Quality Management (TQM)
- System Engineering
- Transmission Access
- GADSRAM
- Reliability Analysis Tools

For more information contact: Dev Raheja, Technology Management, Inc., 9811 Mallard Drive - Suite 213, Laurel, MD 20708, Tel: (410)792-0710

4-6 October  
Berlin, Germany

**EDCC-1 First European Dependable Computing Conference**

**Organized By:**

- Joint Technical Interest Group "Fault-Tolerant Computing Systems" of the GI, ITG and GMA, Germany
- AFCET Working Group "Dependable Computing", France
- AICA Working Group "Dependability in Computer Systems", Italy

Under the auspices of the Council of European Professional Informatics Societies (CEPIS)

**In Cooperation With:**

- GI Technical Interest Group "Dependable IT Systems"
- GI Technical Interest Group "Test and Reliability of Circuits and Systems"
- IFIP Working Group 10.4 "Dependable Computing and Fault-Tolerance"
- IEEE TC on Fault-Tolerant Computing
- EC-ESPRIT CaberNet Network of Excellence on Distributed Computing System Architecture
- EWICS Technical Committee on Safety, Reliability and Security (TC7)

Organizations and individuals are becoming increasingly dependent on sophisticated computing systems. In differing circumstances, this dependency might for example center on the continuity of the service delivered by the computing system, the overall performance level achieved, the real-time response rate provided, the extent to which catastrophic failures are avoided, or confidentiality violations prevented. These various concerns can be subsumed into the single conceptual framework of dependability, for which reliability, availability, safety and security, for example, can be considered as particular attributes.

This, the first European Dependable Computing Conference, aims to provide a venue for researchers and practitioners to present and discuss their latest research results and developments. Papers will be presented on theory, techniques and tools for the design, validation, operation and evaluation of dependable computing systems such as:

- Fault-Tolerant Systems and Components
- Safety Critical Systems
- Validation and Verification
- Secure Systems
- Test and Evaluation
- Dependable Software

EDCC-1 is the successor of two European conference series on fault tolerance and dependability as well as on aspects of testing and diagnosis. The first series, known as the "International Conference on Fault-Tolerant Computing Systems" was organized (from 1982 up to 1991) by the German Technical Interest Group "Fault-Tolerant Computing Systems". The other series, known as the "International Conference on Fault-Tolerant Systems and Diagnostics", was annually organized (from 1975 up to 1990) by Universities and academic research institutions in the former Czechoslovakia, Poland, Bulgaria and the former GDR. EDCC will be organized every two or three years in different European countries.

For more information contact: Dr. David Powell, LAAS-CNRS, 7 Avenue du Colonel Roche, 31077 Toulouse, France, Tel: +(33) 61 33 62 87, Fax: +(33) 61 33 64 11, E-mail: David.Powell@laas.fr

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★ MIL-HDBK-338  
Industrial Reliability ★ Bellcore TR-NWT-000332  
Mechanical Reliability ★ DTRC-90/010  
Maintainability Prediction ★ MIL-HDBK-472  
Automotive Reliability ★ SAE Paper 870050

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## TQM Toolkit Available from RAC

A broad range of tools, from simple charting techniques to esoteric statistical processes, have been adopted for use in Total Quality Management (TQM). The most useful of these have been compiled by the Reliability Analysis Center (RAC) into a single publication, the TQM Toolkit, with sufficient discussion to permit the reader to make practical use of every tool. Covered are the "Seven Basic Tools," other simple tools, the "Seven Management and Planning Tools," the Statistical Design of Experiments, team tools and action plans. The tools can be used collectively in an integrated TQM approach, or individually to solve a variety of problems. 115 user-friendly pages.

Copies are available to U.S. customers for \$75 each plus \$3 shipping and handling (\$4 for first class mail). Checks should be made out to IITRI/RAC; major credit cards accepted. Call (800) 526-4802, fax order to (315) 337-9932 or mail to Reliability Analysis Center, Dept. RS, PO Box 4700, Rome, NY 13442-4700. Quantity discounts are available.

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Poisson Exponential, Mil-Std-781,  
Mil-Std-105D, Series/Parallel/Complex System  
Analysis, Warranty Program/Life Cycle Cost Planning

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Official Newsletter of The Technology Leader - SEA, Inc.

Volume 1, Number 1

## FMECA for Windows™ Simplifies Failure Modes Analysis

FMECA™, our first Windows-based program performs failure modes and effects analysis (FMEA), failure modes effects and criticality analysis (FMECA), and test effectiveness analysis. It reduces the time needed to perform failure and effectiveness analysis by combining the latest in database management techniques with the user-friendliness of the Windows environment.

We developed FMECA to aid both design and support engineers. It is very intuitive and easy to use, and operates on any PC with a Windows environment. FMECA is a powerful CAE tool that establishes a database of failure modes and effects for printed circuit board designs. Criticality and test effectiveness can be analyzed from the database of failure modes. "Now, within minutes, an engineer can understand how each of the components in his design affects overall product reliability. I'm really excited about the implications of our new FMECA software," says SEA President Peter Bachant. Call 617-762-9252 now for more details.

## REAP™ 217F Notice 1 (N1)

### The Most Advanced Failure Prediction Software You Can Buy

At the request of some of our consulting clients, we've developed our REAP 217F N1 so that it can incorporate much of the available manufacturer's data into 217F Notice 1 predictions. This gives users the ability to integrate manufacturer's test data, increasing the accuracy of their reliability predictions for estimating maintenance call rates. The primary barrier to the integration of this data was the manufacturer's divergent use of activation energies to translate their High Temperature Life (HTL) test results to operational temperatures. Using "217F" activation energies, we looked at a Microprocessor, a 4 Meg DRAM, a PLA, and an ASIC. We were able to suggest improvements on the predicted 217F reliability of between 4 and 5 for these devices. Yes, they're really that much better. Call 617-762-9252 for more information.

## REAP 217F N1 Can be Integrated to Perform Thermal Analysis

REAP reliability prediction software can be integrated with our SEA THERMAL™ analysis software to further increase the accuracy of your reliability predictions. THERMAL contains all of the leading-edge methodologies for input data handling contained in REAP, performs a full 3D analysis of each circuit card, and can be linked with popular CAE/CAD/CAM systems, using our SEA RAMCAD software option.

## The Consultant's Choice:

Reliability - Better, Faster, Cheaper  
Consultant Gene Bridgers, RESULTS, MA says, "I get a lot of clients because I can do analysis better, faster, and cheaper with REAP 217F. It's quick and consistent. I can typically complete commercial predictive analysis on an average circuit board in 4 hours, including my final report. With that kind of high productivity software, it's difficult for other consultants to compete with me." Gene continues, "REAP 217F N1 produces a very, very consistent analysis. SEA is very dedicated to good quality assurance. And SEA software developers are practitioners. That's what makes their products so valuable in the field." Thanks, Gene.

## Multi-Platform Versatility

Our SEA reliability analysis software is designed to run on microcomputers, engineering workstations, and computer systems that support MS-DOS, PC-DOS, HP/Apollo DOMAIN, Digital VMS, SUN O/S and other Unix operating systems. REAP license fees begin at \$995. FMECA begins at \$1995. We offer a complete line of SEA predictive analysis software, covering FMECA, reliability, maintainability, and life-cycle cost analysis. Our programmable RAMCAD interface software permits SEA predictive analysis packages to be integrated with existing CAE/CAD/CAM systems.

## Developer Joins SEA

Welcome aboard to Tom Lucas, who brings us a strong background in CAD/CAE, database development and graphical user interfaces (GUI's).

## User Accolades:

"Very, very simple to use. I've freely recommended it to a number of my customers." Dom Grieco, VP Product Support, Stratus Computer

"REAP 217F is very, very good. I originally purchased it at Hewlett Packard, for an Apollo workstation, and now I've bought a PC version for PictureTel. It's very reliable, and extremely useful for 217F predictions. I can't say enough about it. SEA has treated us well for many years." Chuck Carelis, Manager of Reliability, PictureTel Corp.

## SEA Speaks at NEPCON

Peter Bachant, president of SEA, spoke at the NEPCON CAD/CAM/CAE Integration technical program, presenting information on what the integration of reliability can mean to the design function. Peter discussed how the application of reliability analysis in the design process has a major effect on the bottom line, i.e. the achievable impact on product serviceability, and its residual impact on the overall profitability of a design. If you want to learn more about how reliability effects your bottom line, call us today.

## Marketing Department Expands

Welcome to Grace Cohen, who brings us over 20 years of sales and marketing experience within the consumer electronics industry.

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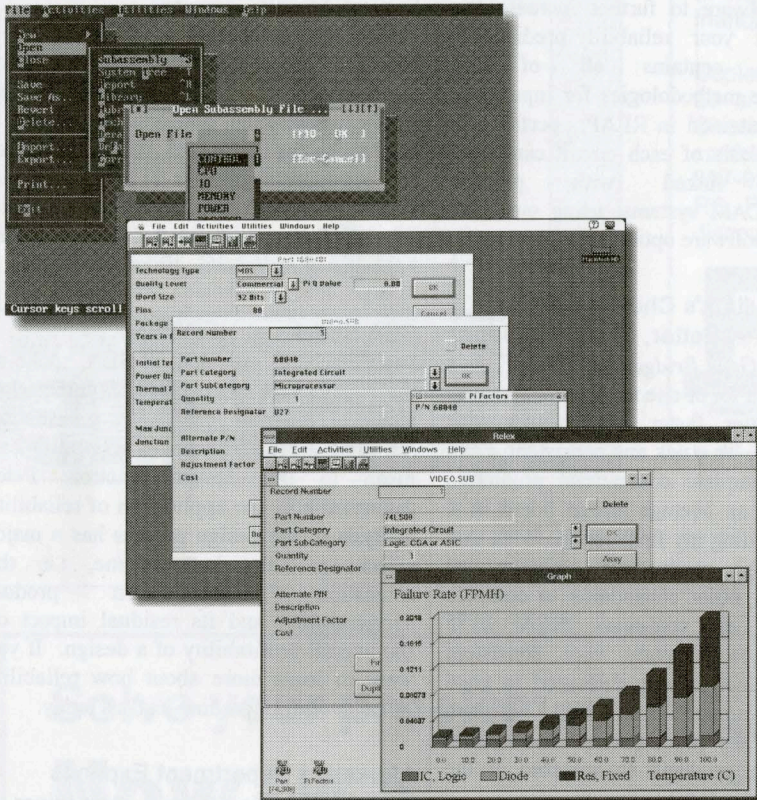
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**ANNOUNCING!**

# Relex

## Reliability Software



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You Asked! We Delivered! Innovative Software Designs proudly announces the **new** Relex, complete with an all new GUI interface. Now available for Windows, Macintosh and MS-DOS!

Relex has long been known for its uncompromising quality, its unsurpassed flexibility, and its power. Well, we've added even more to make your reliability analysis faster, more productive, and maybe just fun! Just a **few** of the improvements include the enhanced CAD interface, expanded part libraries, extremely flexible report generation, visual system modeling, and stunning graphics! That's not to mention the new user interface

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Currently Relex 217, Relex Bellcore, Relex Mechanical, Relex Parts Count, and Relex CNET are all shipping. New versions of Relex FMECA and Relex Maintainability are in development, and will be shipping soon!

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