

# IEEE

# ELECTROMAGNETIC COMPATIBILITY GROUP

# NEWSLETTER



EDITOR: ROBERT D. GOLDBLUM

ISSUE NO. 83 FALL, 1974

## G-EMC INSTITUTIONAL LISTINGS

The IEEE EMC Newsletter will carry the same Institutional Listings as the EMC Transactions. This new policy became effective with all new listing contracts at the new rates. Minimum rates are \$75.00 for listing in one issue of the Newsletter & Transactions, and \$200 for four consecutive issues of each.

An Institutional Listing recognizes contributions to support the G-EMC publications. Larger contributions than those quoted will be welcome. Inquiries, or contributions made payable to the IEEE, plus instructions on how you wish your Institutional Listing to appear should be sent to Dr. R.M. Emberson, IEEE, 345 East 47th Street, New York, N.Y. 10017

## PAPER ON IMPULSE SPECTRAL INTENSITY

A paper entitled "Impulse Spectral Intensity - What is it" was presented at the DOD EMC Colloquium last May by M.G. Arthur. Copies were not available at that time, but the paper has since been published as an NBS report, NBSIR 74-365. Mr. Arthur, who is the author, has offered to send a copy to those who write to him.

M.G. Arthur  
Electromagnetics Division  
National Bureau of Standards  
Boulder, Colo. 80302

## THOMAS APPOINTED IEEE REPRESENTATIVE

Leonard W. Thomas, Sr. has been appointed as an IEEE Liaison Representative to CTAC Panel 5, CCIR US Study Groups', 1A, 1B and 1J, EIA G-46, SAE AE-4, NBS Law Enforcement Standards Laboratory, and the Radio Commission for Aeronautics Special Committee 123. Thomas was appointed by Sava L. Sherr, Secretary of the IEEE Standards board. These duties are in addition to those outlined for Thomas in the last issue of the Newsletter in which he was featured under EMC Personality Profiles.

## PROPOSED MIL-STD-704B CIRCULATED BY CIA

A preliminary draft of a proposed standard on "Electric Power, Aircraft, Characteristics of" which will replace MIL-STD-704A and when approved will be issued as MIL-STD-704B has been circulated by the EIA.

A meeting to review the comments received on the preliminary draft was scheduled for sometime in September. It is anticipated that the meeting will produce any change to the draft found to be necessary on the basis of technical considerations and the result will be a revised draft document which will be entered into the complete coordination cycle.

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# BOOK REVIEWS

Some readers may accuse your book review editor of going out of the field of EMC in this review. But I believe you will agree that low-noise design helps to accomplish EMC in that where noise is reduced, transmission power levels may be reduced or reliability of performance may be improved.

"Low Noise Electronic Design" by D.C. Motchenbacher (Honeywell, Inc.) and F.C. Fitchen (University of Bridgeport), John Wiley & Sons, New York, N.Y., 1973, 351 pages, \$19.95.

According to the authors' statement in the Preface, this book is intended for use by practicing engineers and students of electronics and it is suitable for self-study or as a text book for a college course. The approach is practice or design oriented.

The book is organized into two parts, Part I deals with noise mechanisms and models while Part II supplies design techniques and examples. In each chapter the discussion of the subject material is concluded with a summary which lists the main points of that chapter. This is followed by problems which emphasize these points and an adequate list of references. Answers to the problems are contained in a special section.

The treatment may be considered to be oriented toward low-and mid-frequency applications. The examples given are applicable to the instrumentation, audio, and control fields. There are some references to high-frequency communications and much of the material presented can be applied to that field of activity.

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The authors impart their practical experience in some cases by recommending certain products. A case in point is the naming of the Electroguard series of electrostatically shielded power transformers. Another case is the rather extensive noise data on bipolar transistors by type number and manufacturer. To some users of the book the most valuable part will be Appendix IV "Noise" Computer Program. This version, in the FORTRAN language program developed for a time-shared computer. The source of the original is given.

The final chapter on noise measurement provides some specific detailed procedures for various measurements concerned with the evaluation of equipment and devices from a noise standpoint. Discussions of the features of wave analyzers and noise analyzers of various manufacturers will be helpful to the laboratory neophyte.

The reviewer found this book to be well balanced between the theory and the practical application of low-noise techniques. It should be extremely useful to the design engineer who is aware that low-noise design can be as important as proper design of shielding, filtering, and grounding in achieving system Electromagnetic compatibility.

James S. Hill



# EMC PERSONALITY PROFILES

by William G. Duff



JAMES S. HILL (JIM)

Jim Hill is well known for his many years of faithful dedication and service to the EMC community. Jim's association with the predecessor societies of the IEEE, the IRE and the AIEE, began while he was still in school at Case Western Reserve University. Following graduation, while he was with radio station WHK in Cleveland, he served in various offices in the Cleveland sections. In 1944 he moved to Akron as Chief Engineer of radio station WHKK. With wartime restrictions on travel it was not feasible to travel to Cleveland for IRE meetings so he organized the Akron subsection. Within a few years the subsection gained an independent status and became the Akron section of IRE and he served as its chairman. In Akron he was also active in the National Society of Professional Engineers and the Ohio Society of Professional Engineers.

In 1959 he moved to Washington and joined Jansky and Bailey, working in the field of radio frequency interference. Recognizing the need for a chapter of PGRFI (now G-EMC), he organized the Washington chapter and served as its first chairman. The support was so strong that the Washington chapter became host to the 1960 Symposium on Radio Frequency Interference (now the Symposium on Electromagnetic Compatibility) and Jim served as the general symposium chairman.

He was elected to the PGRFI AdCom in 1962 and served as secretary in 1964-65. In 1962 he was appointed chairman of the Awards and Fellows Committee and has served in this capacity continuously since then. It is the responsibility of the Awards and Fellows Committee to recognize outstanding contributions of members in the support of activities of the group and in the advancement of EMC technology. The committee administers an awards program which includes a broad range of awards to individuals and chapters. The members of the AdCom serve as a selection committee with the assistance of the ed-

itor of the Transactions. Recipients of awards are picked before the annual symposium so that the presentation of awards can be made at the symposium banquet or luncheon. The committee also processes and prepares nominations for candidates for Fellow grade. Any member of GEMC can make a recommendation for this nomination to the Awards and Fellows Committee.

Ascertaining a need to promote international participation in the activities of the GEMC, Jim organized the International Affairs Committee in 1967 and became its first chairman. The first activity of the committee was to solicit papers for the 1968 International Symposium held in Seattle. This resulted in a complete session of papers by authors from England, France, Italy, Sweden and Canada. The committee has worked with each symposium committee since then in soliciting papers and promoting attendance of non-USA engineers and scientists to further the interchange of the EMC technology on a worldwide basis. One of the goals of the committee has been to sponsor an EMC symposium outside of the USA to foster still greater international participation. The 1975 EMC Symposium and Exhibition of Montreux, Switzerland is a fulfillment of this goal. The success of this symposium may establish it on an alternate year basis with the symposium in the USA. A second goal of the committee is to establish chapters outside of the USA. Activities in this direction have met with some resistance from members of professional societies in Europe. It is hoped that the Montreux symposium will offer a new opportunity to recruit new members to GEMC and find support for the organization of GEMC chapters in Europe.

Jim is also associated with the Electronics Industries Association (EIA) and the Society of Automotive Engineers (SAE). His work with these groups is in the area of formulating and reviewing standards.

In addition to all of these "EMC community service projects," Jim is actively engaged in EMC work for the System Engineering Facility of the RCA Service Company. He is presently working on the EMC phase of the Maritime Satellite and other Space Satellite-oriented programs.

Apparently all of these activities are still not enough to keep Jim totally occupied; because somehow, he also finds the time to act as editor for the Electromagnetic News Report (ENR) which is published by R&B Enterprises.



# CHAPTER CHATTER



by Charlie Anderson

Pacific Area Bob Ford's G-EMC PAC Area Newsletter continues as interesting as usual. Contribute an article of up to eight pages (typewritten) relating to EMC, and become eligible for a free subscription. Recent visitors to PAC Area included the following: Emory Harrison of ECAC, who provided EMC assistance to a field survey team from CONUS; and Paul Georgi, Paul Newhouse and Tom Holliday, also of ECAC, who attended the PAFCON Frequency Managers Conference in Taipei in June.

The July issue of the G-EMC PAC also includes an excellent little article on using the HP-45 calculator to correlate paired data.

A typical Bob Ford humorous one-liner: We all love a good loser - if it isn't us.

San Francisco The Bay Areaans have recovered sufficiently from the Symposium to report (per Andy Nalbandian) that they made some money for IEEE. The Peninsula Electronic News gave some fine publicity in their July 29 issue. Featured were pictures of Symposium Chairman Vic Siegfried at the podium during his luncheon address; presentation of the Best Paper award to W. Koeritz (LTV - Dallas) by Guy Ottinger (Registration and Awards Chairman); and presentation of the Chapter-of-the-Year Award to Andy and Vic Turesin. (How to win the Chapter-of-the-Year award: increase your chapter membership by about 5-to-1!)

In addition to Andy, the two Vic's and Guy, other Lockheed MSC EMCers involved in the Symposium doings were Dick Kelkenberg (Treasurer); Al Johnson (Technical Program Chairman); Paul Bolander (Arrangements Chairman).

Andy requested that we provide ordering information for the Symposium Record, so here it is: Order from IEEE, 345 E. 47th St., New York, N.Y. 10017. Catalog number is 74CH0803-7EMC. Cost is \$12.00 to members, \$16.00 to non-members; plus mailing costs.

Central Texas Ocky Jouffray reports that the new Chapter officers are Ray Welty, Chairman; Ed Bronaugh, Secretary; and himself as Vice Chairman. Their first meeting of the Fall season will be on September 25, and will include a tour of Southwestern Bell's San Antonio facility and a talk on "Direct Dial - Operator Traffic Service Position-System". Ocky also reported that Dick Scschulz and Gene Cory attended the Symposium; and that Dick is now with ECAC.

Washington The Chapter program is firmed up through January, according to Al Paul, the Program Chairman. Meetings will be on the third Thursday of alternate months (Make a note - so you can plan to attend if you happen to be in Washington). The September 19th meeting will feature James J. Crenca of Atlantic Research speaking on "EMC in Hospital Environments". In November, Raymond E. Spence Chief Engineer of FCC will discuss "What Next in EMC?" He will be talking about several new and revitalized programs in EMC areas in FCC. The January meeting will see Delmer Ports presenting some interesting aspects of cable television EMC problems. For exact information on meeting times and places, contact Al Paul at 632-7093.

Seattle Chapter rejuvenation is in process, according to Gene Knowles. Officers for 1974-75 are:

R.F. Holtman Chairman  
J.C. Lambert Vice Chairman  
W.J. Crowley Secretary

Gene reports that the very successful Arrangements Committee activities in connection with the ICC-1973 have led to the establishment of a permanent floating Arrangements Committee which will serve all IEEE conferences to be held in Seattle. G-EMCers involved are:

Dave Dennis  
Frank Beauchamp  
Harry and Marilyn Helm



(We've known all along, haven't we, that good EMC types can do anything!) Gene suggests that this sort of activity is one good way of improving relations with the local Section.

Seattle area G-EMC representation at the San Francisco Symposium included Frank Sanchez, Don Weber, and Gene, with his wife Grace.

Philadelphia Chapter Officers for '74/'75 are: Steven C. Garcia, Chairman (Stone & Webster Engineering Corp.) Robert Bender, Vice Chairman (American Electronic Laboratories, Inc.), B.S. Joshi, Secretary (Stone & Webster Engineering Corp.). Steve Garcia reports that their September meeting will have John Kauke, of Moore Industries (Van Nuys CA) speaking on Designing EMC into Process Control Systems! The meeting will be held at the AEL facility at Colmar, PA. Meetings are scheduled for November, December, January and May. The November meeting will feature a presentation on "EMC and High-voltage Transmission" by Norman Hoglund of the GE High-voltage Labs. In December, Dr. Schlicke will address the Chapter.

Steve reported a most discouraging experience with respect to his planned trip to San Francisco for the AdCom Meeting. It seems he was on board a TWA L-1011 which taxied out to the runway at 9:30 a.m. and then returned to the terminal. At 2:00 p.m., Steve deplaned and gave up his trip, because he wouldn't have been able to get to Frisco in time for the AdCom meeting. He reported having written a firmly-worded letter to TWA's president.

Jersey Shore Officers for the '74/'75 season are: Joseph H. Chislow, Chairman (Bell Labs - Holmdel), Paul Major, Vice Chairman (UAAECOM), Philip Lipman, Secretary/Treasurer (Honeywell, Inc., Eatontown), John O'Neil, Program Chairman (USAECOM).

Don Heirman of Bell Labs - Whippany, has assumed editorship of the Chapter Newsletter from Warren Thiers, who has moved to Florida to teach at Brevard Community College.

Meetings are planned for October, November, December and into '75. Only firmed speaker so far is Dr. Heinz Schlicke for the December meeting.

At a recent meeting of the local AdCom, preliminary planning discussions were held on a colloquium to be sponsored in conjunction with the other two Chapters in the area, New York/Long Island and Philadelphia. Topic would be: FCC Rules and Regulations for electronic equipments.

AMERICAN RADIO RELAY LEAGUE ESTABLISHES RFI TASK GROUP. The American Radio Relay League (ARRL), the radio amateurs' organization, has established an RFI Task Group under the leadership of Victor C. Clark, W4KFC, First Vice President of the League. Other members of the Group are Lewis G. McCoy, W1ICP, of the ARRL Headquarters Staff; and Dr. Theodore Cohen, W4UMF. This Task Group is charged with providing liaison with consumer groups, EIA, FCC and other organizations in matters relating to electronic interference, particularly to home entertainment equipment. It will also have the responsibility of keeping abreast of legislation in areas relating to electronic interference, particularly in the Congress. Charlie Anderson, who is an active amateur operator (WB2CMO), has been designated by Gene Cory to act as liaison between the ARRL Task Group and G-EMC. Anyone interested in learning more about the activities of the Task Group can obtain an information packet by sending a self-addressed 9x12 envelope with 40¢ postage attached to Dr. Cohen at the following address: Dr. Theodore Cohen, 8603 Conover Place, Alexandria, VA 22308.

Dr. Cohen reported some encouraging actions on the part of some of the home entertainment industry companies in terms of providing suitable filters for vulnerable equipments and in cooperating in devising fixes for susceptibility problems. (We will have more to report on this in the Winter issue of the Newsletter).

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ANYBODY HAVE ANY EMC/EMI PROGRAMS AND ALGORITHMS FOR SMALL CALCULATORS?

Gene Knowles, AdCom Vice-President, requests that anyone who has a program or an algorithm for any of the small scientific calculators (HP, TI, etc.) which they have found useful for working with EMC or EMI problems get in touch with him. His concept is to collect a library of such information and make it available to those who might be able to use it. Gene's thoughts are in terms of providing G-EMC members with, say, three freebies. Non-G-EMC members would have to pay a nominal fee, and non-IEEE members would have to pay higher fees. Authors of submitted programs would be compensated. Anyone having interest in this development is requested to write Gene at the address below:

Mr. Eugene D. Knowles  
2566 128th Ave. S.E.  
Bellevue, WA 98005



## REPORT ON ADCOM MEETING

The G-EMC Administrative Committee held its second of three annual meetings on July 15th at the San Francisco Hilton Hotel immediately prior to the EMC Symposium. Len Thomas, AdCom Secretary, provided the following summary of the meeting events:

The most impressive happening was the division of the actions of the AdCom meeting into the categories outlined in the agenda for the meeting, ie: important things first, then the reports, divided into the four categories under the guidance of the four Vice Presidents.

Of specific substance was the treasurer's report indicating that the Group was continuing in the "black", with an anticipated surplus of funds at the end of this calendar year of approximately half of our annual operating budget. This is anticipated in spite of rising costs of all of our publications, and the establishment of a \$500.00 secretarial annual expense fund to be used, under the direction of the President when needed.

Another important action was the forthcoming technical liaison between the SAE (AE-4) Committee on EMC in matters of common interest, including education, dates of meetings, EMC Standards, etc. Such liaison will be within the IEEE rules and regulations pertaining to such liaison, with the objective of better utilization of manpower. For want of a better name, and before formalization of any committee, the effort was named "Electromagnetic Action Coordinating Council" or EMAC. One of the many recommended actions was to make the acquaintance of the younger and new EMC engineers, and bring them into the mainstream of the EMC Community that these two groups represent. In the furtherance of such liaison, minutes of SAE (AE-4) meetings would be sent to members of the IEEE G-EMC AdCom, and likewise, minutes of the IEEE G-EMC AdCom would be sent to the executive Committee of the SAE (AE-4). In view of the fact that there is already much common membership between these two organizations, the additional effort would be minimal with maximum benefits to both.

Additional bits of information are that: Don Clark has assumed a Vice-Chairmanship of the G-EMC Standards Committee and is responsible for the review and revision of existing IEEE Standards pertaining to EMC, and responsibility for which has been assigned to our Group.

## SAN FRANCISCO EMC SYMPOSIUM REPORT

The following report has been forwarded by Fred Nichols, President of LMI, Inc. for publication in the Newsletter.

The publicity and press coverage was good. Electronic News has some two pages of articles and pictures of various items at the Symposium. The total attendance was in the 300-350 category, by my estimate, and there was some 250-300 paid attendance. This was a slightly smaller number of attendees than expected. The number of exhibitors was also down. On the other hand, the number of co-sponsors was up by a good factor. This seems to be following a trend of other Symposiums/Conferences in that more and more companies will co-sponsor and thereby send less people rather than putting out the expense of the cost of the booth and the personnel to man it.

Most notable technical papers were the new techniques on computer usage for EMC work, including programs etc. utilizing mini, hand held computers like the H-P 65. Also, there were papers on the commercial sector of business such as FCC, computers, UL etc. There were three days of technical papers on a parallel session, two at a time basis.

What impressed me the most was the number of key people at this symposium. Many key engineers and managers who haven't been at one of these in some time were present in good numbers and there were key people from the EMP community. There was also a good number of key Government personnel who were high level policy type technical personnel. In fact, this was probably the largest number of these people who have attended in some number of years.

One other side of the attendance that I noted is that many companies sent their key man, as above, and did not send some 2-6 of the engineers in various EMC sections of large companies. I also think this follows other Symposiums in that the number of attendees from one company is now limited so one of the top men is the one who attends.

In all, I was very pleased with the Symposium. We are making plans to be more active in the 1975 Symposium which will be in San Antonio in October of 1975.



## NOTES FROM THE SEQUENCY UNION

by Dr. G.R. Redinbo

The newly-formed Sequency Union, a working group within the EMC group, is establishing a periodic item in this quarterly newsletter intended to be of interest not only to the members of the working group, but also to the larger audience of the EMC group. The Sequency Union is an outgrowth of the field of Walsh Functions and Sequency Theory and is basically concerned with general nonsinusoidal sets of functions, e.g., Walsh Functions, Haar Functions, Piecewise-Linear (PL) Functions, Slant Transforms and Mersenne Transforms. The purpose of this group is not to usurp any of the practical or theoretical uses of sinusoidal functions but to explore and extend the uses of more general functions to problems which have not yet been solved. Sinusoidal functions have been very useful to engineers and scientists for over a century and are certainly well suited to their present uses. However, there are many problem areas in which natural phenomena may be better modeled by other classes of functions. The internal circuits of a digital computer are not adequately analyzed by sinusoids and there are biological systems which appear to operate in a nonsinusoidal fashion.

The EMC group, with its emphasis on the interrelationship and compatibility of various dynamic systems, is a natural home for this new work with generalized functions. For example, many members of the EMC group would be very interested in the interference effects from the radiation of electromagnetic Walsh functions. Currently the Transactions has an associate edition assigned for "Walsh Functions and EMC Applications" and several articles in this area have appeared in the last two years.

The usefulness of and the response to the news items which this newsletter will carry depend solely upon the support and contributions of the readership. We hope to print not only news items and announcements of major developments in the use of nonsinusoidal functions, but also comments, criticisms, controversies, cartoons, etc. Also we hope to present short but general tutorial articles on the newer sets of functions. News of any of these items should be sent to: Dr. G.R. Redinbo, 153 Stoney Ridge Drive, Longwood, Florida 32750.

IEEE members may join the Sequency Union by joining the EMC group for a nominal \$7.00 fee. This entitles one to the Transactions and the Newsletter, both of which are printed on a quarterly schedule. Nonmembers of IEEE may join the EMC group if they belong to an "Affiliated" society. Many organizations of engineers and physicists are affiliated. For further information on affiliation contact IEEE headquarters directly.

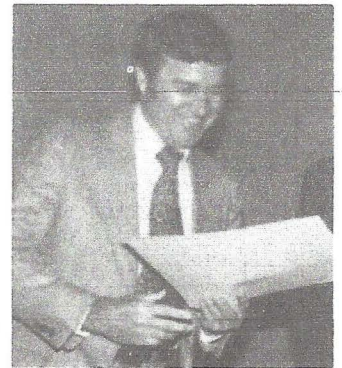
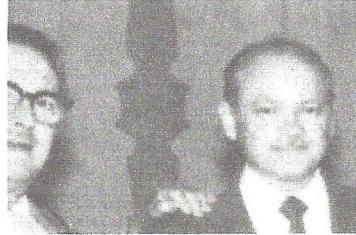
For those who wish to delve deeper into this area of nonsinusoidal functions, we list the following sources:

1. J.N. Bramhall, An Annotated Bibliography on Walsh and Walsh Related Functions, 1972, 1973, 1974. The 1974 issue contains about 800 entries. A free copy may be obtained from: Director, Johns Hopkins University, Applied Physics Lab., 8621 Georgia Ave., Silver Spring, Md. 20910.
2. Proceedings of the symposiums on Applications of Walsh Functions in Washington, D.C. may be obtained from the National Technical Information Service, Springfield, Virginia 22151, under the following order numbers: 1970 Proceedings AD 707 431 (274 pages, \$3.00); 1971 Proceedings AD 727 000 (218 pages, \$3.00); 1972 Proceedings AD 744 650 (401 pages, \$6.00); 1973 Proceedings AD 763 000 (298 pages), \$6.00.
3. The Proceedings of the 1974 Symposium in Washington, D.C., Applications of Walsh Functions and Sequency Theory, will be published as hard cover book late in 1974 by IEEE, order No. 74CH0861-5EMC. The price will be \$10.00.
4. Proceedings of the 1971 and 1973 Symposiums on Walsh Functions in Hatfield can be obtained from the Department of Electrical Engineering and Physics, The Hatfield Polytechnic, Hatfield, Hertfordshire, England.



1974

# SYMPOSIUM SNAP SHOTS





1974 SYMPOSIUM





# MEETINGS & EVENTS

## 1975 EMC SYMPOSIUM RESCHEDULED

The IEEE G-EMC International Symposium to be held in San Antonio, Texas, has been rescheduled from August 26-28 to October 7-9, 1975. This decision was based upon the possible conflict with an EMC Symposium scheduled in May 1975 in Montreux, Switzerland. Although the Group is a co-sponsor of the Montreux event, there is no financial association. Our annual symposium typically provides a significant financial surplus for the Group which helps to maintain the Newsletter, Transactions, and other Group functions. This, the date has been changed to assure that an appropriate amount of exhibitors will participate in domestic meeting.

According to the Symposium Chairman, William E. Cory of Southwest Research Institute, the planned diversified technical program will include tutorial, applications and theoretical papers on such topics as: Components, Measurement and testing, operations, interference, and environmental Noise and Pollution. Persons interested in participating in the Symposium as an exhibitor or co-sponsor should contact Mr. Jack Howard, Data Marketing Associates, Inc., 8622 Crownhill, Suite 105, San Antonio, Texas 78209. Phone (512) 828-0937.

## RADAR CONFERENCE CALL FOR PAPERS

Papers are being solicited on all aspects of radar systems and technology for presentations at the IEEE International Radar Conference to be held at Stouffer's National Center Inn in Arlington, Va., on April 21-23, 1975.

Papers should be submitted by 15 November 1974 for review by the Papers Committee. Accepted papers should be in final form, typed on special mats (to be provided) and in the hands of the committee by 1 February 1975 in order to appear in the published conference record. Published papers must not exceed 3000 words and may contain up to six illustrations.

Authors should submit three copies of the complete paper to:

Dr. Merrill I. Skolnik  
Chairman, Papers Committee  
Code 5305  
Naval Research Laboratory  
Washington, D. C. 20375

## SAE AE-4 EMC COMMITTEE TO MEET

The SAE AE-4 EMC Committee will hold its next meeting at the Grand Hotel, Anaheim, CA. on October 10,11, 1974.

On Thursday, October 10th, the second joint A-2/AE-4 meeting will be presented. It is designed to promote a better understanding of the technical concerns relative to power characteristics in the Electrical/Electronics engineering endeavors. The Chairmen readily admit further future joint technical meetings are required. This activity emulates the popular, long standing SAE endorsements for Cooperative Engineering Programs between technical communities.

Also of special interest will be a DOD program on related activity and interest as follows:

"704B - a Scientific Position in the Future Electrical and Electronics Requirements for Advanced Aircraft for the DoD" - B. J. Wilson, Member AE-4 (Department of Defense).

An overview of conformity in the U.S. Air Force - C.E. Seth, Member AE-4 (Aeronautical Systems Division - Wright Patterson Air Force Base).

An overview of conformity in the U.S. Army - M.J. McCarty, (Army Aviation Systems Command).

An overview of conformity in the U.S. Navy - J.J. Fisher, Member AE-4 (Naval Air Systems Command).

Meetings are open to all interested parties and there is no registration fee.

## CHANGES FOR IEEE INTERCON

The international convention and exposition of the Institute of Electrical and Electronics Engineers--IEEE Intercon--drops a day, adds an evening, and moves into a new month in 1975. The show and convention has traditionally occupied the last week of March, and has been a four-day event.

For 1975, however, Intercon will be held April 8,9, and 10, and the exhibition at the New York Coliseum will remain open until 9 p.m. on Wednesday, April 9. The technical convention program will be presented on the same dates in the Hotel Americana.



The IEEE Conference Board voted to adopt the new days and hours in a meeting in New York May 29. The decision followed recommendations of the 1974 volunteer Exhibitors Committee and results of a survey of all 1974 exhibitor-companies. Consensus is that the "late evening" makes Intercon more accessible for more hours to many engineers who commute from distant suburbs. A Thursday show-closing also allows greater "move-out" flexibility for exhibitors by minimizing the need for weekend labor.

Exhibit hours for next Spring will be: 9:30 to 6 p.m. on Tuesday, April 8 and Thursday, April 10, and 9:30 a.m. to 9 p.m. on Wednesday, April 9.

#### EERC '74 CONDUCTS SESSION ON EMC

The 1974 Earth Environment and Resources Conference, to be held on September 10-12, at the Philadelphia Marriott Motor Hotel has scheduled a technical session on EMC from 9 to 12 a.m. on Thursday, September 12th. Four papers have been scheduled by the session chairman, John J. O'Neil of the Army Electronics Command as follows:

"Electromagnetic Compatibility" presented by John O'Neil (USAEC) and Rex Daniels, Interference Consultants, Inc. The programs of the U.S. Government, technical societies and international organizations to combat the problems of health, safety and annoyance resulting from the radiation of RF energy from the increasing use of communication-electronic material will be discussed.

"Adapting to More Interference" presented by Heinz Schlicke, Allen-Bradley Co. This interdisciplinary paper will discuss noise as an important but heretofore somewhat neglected aspect of the limits of growth, citing impulsive interference as the most critical, but rectifiable interference, and stress interference as the worst noise caused by an expected excessive automation and information flow.

"Control of an Essential Resource: The Electromagnetic Spectrum", presented by D. Dowling & G. Gauthier (ECAC). A discussion of the electromagnetic spectrum as a resource will be presented. Efforts to control the use of the spectrum have been in effect for many years. The role of ECAC in assuring the effective use of this resource will be described.

"Environmental Health Effects Caused by Non-ionizing Electromagnetic Energy" presented by W.E. Cory and C.L. Frederick, Southwest Research Institute. This paper will discuss the sources, propagation, absorption, biological effects, and methods of controlling nonionizing electromagnetic energy to achieve maximum environmental health and avoid potentially hazardous conditions, problems being solved by achieving electromagnetic compatibility.

#### SEMINAR ON THE APPLICATION OF CALCULATORS TO EMC ANALYSES

During the past decade the Department of Defense Electromagnetic Compatibility Analysis Center, (ECAC), Annapolis, Md. has developed a large assortment of mathematical models, or procedures, for performing EMC analyses.

Computers are normally used to perform the computations for making logic decisions. The processing involved, however, can be done manually. A computer, costing thousands of dollars, is not absolutely necessary. The ECAC mathematical models could be employed by the entire EMC community.

Heretofore the use of the models outside of ECAC has been limited because of the time required to acquire an understanding of a model and to perform the computations by hand. With the advent of programmable desk-top calculators, however, the use of the models have become much less restricted. Various EMC calculations can now be conveniently performed on the calculators by frequency managers, program managers and engineers, as well as by EMC analysts.

To aid industry become familiar with calculators and the ECAC mathematical models, the SAE-AE-4 committee on EMC and the Naval Air Systems Command will co-sponsor an Electromagnetic Compatibility Seminar on the application of calculators to EMC analyses on Friday, 11 October 1974 at the Grand Hotel, Anaheim, California.

The objectives of this seminar are to demonstrate the analytical capability of desk top calculators; how ECAC can provide a service to the EMC community; and, to offer a plan for implementing that service. For further information call Mr. John Merrell, Glenair Inc., 1211 Airway, Glendale, California 91207, Area code (213) 247-6000.

#### CALL FOR PAPERS - ICC '75

The 1975 IEEE International Conference on Communications (ICC'75) will be held at the Fairmont Hotel in San Francisco, June 16-18, 1975. Sponsored by the Communications Society of the IEEE, Inc., the Conference will focus on "International Understanding Through Communications". Original papers in the field of Telecommunications are invited in, but not limited to, the following technical areas:

- Wire Transmission
- Radio Transmission
- Satellite Communications
- Digital Carrier Systems
- Data and Computer Communications
- Error Control Techniques
- System Economics
- Communication Theory
- Radio Interference
- Communication Electronics



Prospective authors are requested to send five (5) clear copies, in English, of both the paper and a one-page summary of the paper to:

Dr. Philip Fire, ICC'75  
P.O. Box 77191  
San Francisco, CA. 94107

Copies must be received by December 16, 1974.

All authors whose papers are accepted will be required to submit preliminary versions of the visual aid material to be used at the presentation and to prepare a camera-ready manuscript based on a five-page maximum length, double-column format, similar to that used in the ICC'74 Conference Record.

The author's name, complete return address and telephone number should appear on the summary and the first page of the paper. Additional pages, illustrations or photographs should bear the author's name and the title of the paper.

#### FCC REORGANIZATION

The office of Chief Engineer of the FCC has been reorganized and moved to another building. They are now on the seventh floor or 2025 M Street N.W. - one block west of their former location at 1919 M Street N.W. However, there is no change in mailing address which is still FCC, Washington, D.C. 20554.

New division chiefs are as follows:

Harry Fine, Acting Deputy Chief Engineer  
Edwin J. Schafer, Acting Chief, Planning and Coordinating Staff  
E. Merle Glunt, Acting Chief, International and Operations Division  
William R. Torak, Acting Assistant Chief, International and Operations Division  
Julian T. Dixon, Acting Chief, Research and Technical Division  
Robert L. Cutts, Acting Assistant Chief, Research and Technical Division

Herman Garlan is now Chief of the RF Devices and Experimental Branch, formally just RF Devices. This branch was enlarged to include experimental licensing and is placed in the International & Operations Division.

#### 1973 EMC RECORDS SURPLUS

The 1973 IEEE International Symposium on EMC which was conducted in New York City has closed its books recording a surplus of \$8022.92. This money has been deposited in the Group treasury for use in activities servicing the total group membership. Our congratulations are extended to the Symposium Chairman, Sam Perry of All-Tronics, Inc., Tony Zimbalatti of Grumman Aerospace, Sol Rubin of RF Interonics, and all of the other hard workers for making this event a financial success.

#### UHF "TABOOS" LABORATORY REPORT RELEASED BY FCC

The Federal Communications Commission, through its Office of Chief Engineer, released its Laboratory report on "A Study of the Characteristics of Typical Television Receivers Relative to the UHF Taboos." This report details the study and measurements made on 47 contemporary television receivers with respect to their susceptibility to interference on UHF created by the signals from certain combinations of undesired UHF channels. Protection against this type of interference is provided for by the FCC in the allocation of UHF channels, making use of mileage separation restraints that have become known as "UHF Taboos." The Research and Technical Division of the Office of Chief Engineer is now analyzing the data from this report to determine its impact on those mileage restraints.

Television Allocations Study Organization (TASO) picture gradings at UHF as a function of input signal level when receiver noise ("snow") was the only source of interference included.

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