

IEEE**ELECTROMAGNETIC COMPATIBILITY GROUP**

NEWSLETTER



ISSUE NO. 72 - Jan., 1972

EDITOR ROBERT D. GOLDBLUM

The Name's The Same-

"A ROSE BY ANY OTHER NAME - - -"

The IEEE EMC Group, as of October 19, 1971, will change the title of its two top officers from Chairman and Vice-Chairman, of the ADCOM to President and Vice-President, respectively. The name of the Group will NOT be changed in the near future as of the last AdCom Meeting. It appears that such a change would require a significant change in the Group's objectives. Also, letters to the editor have been overwhelming in favor of no change. The following are some of the letters received. Mr. Sullivan's letter to Heinz Schlieke is condensed since it was quite long and detailed.

Dear Heinz:

During the past several years we have experienced considerable discussion, suggestions and ideas about modifying or changing the name of the IEEE Group on Electromagnetic Compatibility. Since you asked me to undertake a review of the possibility of a change in the Group name, we have had a number of proposals from various individuals on this subject. We also have at issue the possibility of becoming a Society instead of a Group and are considering revising the Group objectives. I hope in writing this letter I can address these matters together since they are, I think, very closely related and interdependent.

I believe the time has come to reconsider the place of the Group, not only in its engineering and scientific aspects, but in relation to the other problems that are pressing in upon us -- the total effect of the use of electrical energy in the environment around us, and more broadly, the overall compatibility of technology and environment. As you may remember, in 1958, I addressed some of these overall problems in a luncheon address before the Group meeting in Seattle in a discussion on "Compatibility Crisis - 1958". In the succeeding three years much more has been discovered about the compatibility crisis, much more has been said and much more written. Federal and State governments have taken action, as has industry and various technical institutions. As a nation, we seem to be slowly coming to grips with this gigantic problem.

It is with these thoughts in mind that I believe we should consider a general broadening of our thinking about compatibility, about technology, and about the environment. Thus, why instead of G-EMC, should we not change our name to IEEE G-EC - IEEE Group on Environmental Compatibility - and consider in this Group the entire realm of technology and its effects on the environment. Why not indeed consider a change of name to IEEE Society for Environmental Compatibility? Objective? - The study of environmental compatibility, the furtherance of standards on environmental compatibility, the exchange of information on environment's compatibility through society transactions and through meetings, conferences, seminars and correspondence. It seems to me that the general membership of IEEE would indeed find an intense and strong interest in this type of Group or Society.

A. H. Sullivan, Jr.
Rockville, Maryland

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Dear Mr. Goldblum:

As Editor of the IEEE EMC Newsletter, you have asked for comments to the suggestion to change the G-EMC name. In order that you may have mine for the next AdCom meeting, I am sending mine now.

No! No! No! A thousand times No! I protest any change in the name of the G-EMC group. It has taken many years to come up with a name which now is accepted as being akin to a scientific definition of our work, and to change to any other would be a step backward. In addition, some of the proposed names that have been suggested are ridiculous: such as RFI (surely we now are concerned with DC to Light frequencies and even beyond) and again this is going backward as RFI is the term we got away from hopefully.

Now another subject: I would like to thank you and your staff for the fine job you are doing in bringing the Newsletter to us each time. Thanks again.

John M. Dailey
Palos Verdes Peninsula, Calif

Dear Mr. Goldblum:

The EMC Newsletter of October 1971 lists a number of new names suggested for the EMC Group. Only one of them contains the word "compatibility". All stress electromagnetic radiation, usually by means of the term "spectrum". Although compatibility is desirable for radiation it is not restricted to this field.

The EMC Group has been supporting the Symposium on Applications of Walsh Functions for two years. A special issue of the Transactions was devoted to the 1971 symposium. The rationale for advancing the use of Walsh and other non-sinusoidal functions within the EMC Group is that the problem of compatibility with equipment and rules based on sinusoidal functions is common to most applications. If the scope of the EMC Group is reduced from the general field of compatibility to the special field of compatibility of radiation a good part of this rationale is eliminated.

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If the EMC Group gets a new name it will hopefully not be a more restrictive but a more general one. "Systems Compatibility" may not strike you as an innovation, but there are few things that could not be covered by it. Following the general trend of substituting "system" for almost anything may actually be viewed as an attempt to become COMPATIBLE.

H. F. Harmuth
Glen Echo, Maryland

Dear Sir:

In accordance with your request for comments regarding a proposed change in the name of the EMC group I am using this opportunity to voice my vigorous objection to a name change at this time! Now I am not opposed to change if there is a good reason for it, but I believe that a change right now would do great harm to a number of things that have taken a long time to achieve.

For many years now, my colleagues and I have been working hard to make Managers, Contract Administrators, Purchasing Agents, Customers and others who have a say about our destinies aware of what EMC is. We have finally got their attention. They now know what it is, they know that it is desirable, and they know that it costs money.

If all of a sudden we were to tell the people that we have worked to hard to educate about EMC that EMC isn't EMC, it is something else, I dread to think what would happen. I can hear it now... You guys been telling me what EMC is all this time and you don't even know yourself!

From where I sit, I don't think a name change would be a set back. I think it would be a disaster!

Now let's think a bit about the idea of expanding the field and bringing some disciplines not presently thought of as being related to EMC into our ranks. In the first place, the term EMC has the potential of covering a much wider range of activities than those conventional ones with which we customarily associate the term. I have worked in the fields of interference prediction, design, susceptibility of ordnance to radiation, biological radiation hazards and Compatibility testing. I have no difficulty in defining all of these activities as EMC work. EMC does not specify frequency; therefore it is applicable to electronic systems, ordnance, people, frogs, the environment...you name it.

Gentlemen, we have a winner. I don't see how we could call ourselves anything more encompassing. Let's don't change it.

Wesley R. Johnson
Wichita, Kansas

Dear Bob:

This is just a quickie on the question of changing the name of our EMC Group.

I am 100% in favor of keeping the present title. That term "Compatibility" covers the heart and soul of our objectives, and is now well known outside of our group.

Let's keep it that way!

By the way, I have yet to see a paper explaining how several GHz sails merrily through a filtered power supply to affect microwave circuits.

Guy Johnson
Lincroft, New Jersey

Dear Bob:

Let me state my views at the very beginning. I believe the name should remain. The evolution in the art/trade/science/engineering from "static" to "radio noise" to "RFI" to "EMI" to the current EMC designation was not too bad, not too painful and even made some sense. It took about a half dozen years to educate and proselytize our fellow engineers, with whom we have daily contact, to begin to use the term EMC and appreciate its significance.

Of course, as an engineer frequently taken to hurling epithets at anachronistic practices and institutions, I do not consider the name "EMC" as sacrosanct; however, it is a name that has finally become recognized as one identified with a bone fide engineering discipline and indeed does accurately identify our work.

The fact that a debate among our AdCom members actually occurred on a subject that frankly is trivial in these perilous days is a very sad commentary on us. When compared to the real issues of our Society and the state of engineering in the U.S., this type of activity recalls the medieval alchemist looking for magic formulations for new ways to make gold using "...eye of newt, toe of frog..., etc." having completely lost contact with the rest of his society.

To change a name because it no longer accurately reflects a true meaning is one thing, but to change a name and use a fad or gimmick that might increase our popularity, effectiveness, salaries, employment or security by a name change is self-deluding. We can achieve the aforementioned, devoutly-to-be-wished goals if we spend our energies money (dirty word) directly on the above and stop skirting the main issues. If we do not enter the political area and actively work for spectrum control, spectrum pollution control, etc. etc., then we shall not achieve it unless we expect others to do it for us. (?)

"A rose by any other name..."

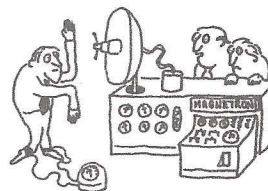
It is not as if we had a Madison Avenue advertising agency in our employ and were told that the change in the name will give us X new customers and correspondingly more business.

We have about 1500-1700 members out of about 170,000 members of IEEE or about 1% of IEEE membership, so that translated to personal terms each one of us would have to somehow communicate our new individual group, section, department name to at least 100 of our fellow electrical engineers. (not counting other types of engineers.) Incidentally a change in the national name would ultimately mean a name change in our individual EMC groups in the various companies and government agencies.

Since today's word is "communication", I will attempt to communicate. The hounds are at our heels and we are behaving as if we were members of some genteel mid-victorian religious debating society concerning itself with the accuracy of St. Augustine's angel count.

Let us stop this pointless bickering and try to define what our real goals are, at least in the short term of the present and the next few years, and work at them. I know this is a repetition of previous statements but to interact in a dynamic society requires interaction with the accent on action.

Robert H. Brook
Plainview, New York



"Moore School Record"
Univ. of Penna.

"He says you can never tell
what's gonna happen at UHF."

EMC PROBLEMS AND SOLUTIONS

The last issue of the EMC Newsletter presented a three-part problem for consideration by the readers. Responses have been received for two of the three questions, and one of them is presented in this issue. Future issues will print other responses to questions posed by the readers.

Colonel Thomas W. Doeppner, Deputy Director, Electronics, Department of the Army, submitted the following:

"In your October 1971 issue, a reader submitted a series of good questions on FCC regulations and government contractual requirements. I would like to address myself to one of them. The question was:

'On Government R&D and D&D contracts the general requirement to obtain advance approval to radiate (ASPR 7-104.61) is usually ignored. Is this a case of "Benign Neglect" or is this a DoD policy?'

I would like to address this question from the Department of the Army point of view. Actually, the Armed Services Procurement Regulations (ASPR 7-104.61) are not as positive in their requirement for advance approval as the reader implies. The regulations prescribe that all contracts which require a radio frequency authorization shall contain a specific paragraph called 'Frequency Authorization.' This paragraph specifies the method to be used to obtain frequency authorization, but does not specifically state that such authorization must be obtained in advance.

Army contracting officers, however, are bound by additional Army regulations (AR's) which are more specific. Let me quote from two pertinent AR's:

a. AR 11-13 (Army Electromagnetic Compatibility Program), paragraph 4-1b, states: 'Except for basic research and exploratory development, funds will not be released or expended for the development, purchase, production, or lease of C-E materiel until the Assistant Chief of Staff for Communications-Electronics has formally approved a request for an experimental, developmental, limited operational, or final operational allocation as described in AR 705-16.'

b. AR 105-24 (Radio Frequency and Call Sign Assignments for Army Activities Within the Continental United States), paragraph 2-1a, states; '... prior to undertaking any contractual obligation, assurance will be obtained from the Assistant Chief of Staff for Communications-Electronics that frequency assignment support is available prior to procurement or development of any site which is intended for use as a communications-electronics facility or will require radio communications.'

The Army, therefore, has very positive regulations which require advance approval to radiate. It is definitely not Army policy to ignore this requirement; if, in any particular case, there is some 'neglect' involved, it is not 'benign.'

The EMC community, civilian and government, is concerned with the efficient utilization of the spectrum; it is in the interest of all of us to assure that there is a proper space in the spectrum for all radiating devices. While we in the Army will continue our efforts to enforce the regulations to the best of our limited capabilities, we encourage industry to cooperate by insisting on obtaining from us the proper frequency authorization."

Please send your EMC Problems to:

William G. Duff
Atlantic Research
A Division of The Susquehanna Corporation
Shirley Highway at Edsall Road
Alexandria, Virginia 22314

CHAPTER CHATTER

BY IRA M. BERMAN

A few weeks ago I received a piece of mail from one of those distribution services that sends out catalogues from a variety of manufacturers. The postage meter stamp said "When you receive mail someone loves you--Bulk Rate 4.2¢" There are days when even the postman passes out "gotchas".

The postman has brought goodies this month, too--real fine stuff from some of the Chapters. Let's dive right into the mailbag.

ATLANTA

There are all new officers, with a few familiar names reappearing: Wendell Wood, Chairman; Ernest Donaldson, Vice-Chairman; Hugh Denny, Secretary; and a Program Committee consisting of all these gentlemen plus Jim Toler, the Past Chairman. There was an old meeting that never was reported, back last May 11, when Mr. Allen Hart of the Georgia Conservancy spoke on "Our Ecology Challenge" to 15 attendees. Five meetings have been scheduled for 1971-1972, in September, November, January, March and May. The first meeting of the season, on September 27, drew 17 members and 11 guests to hear Mr. Michael Toia of the FCC's Spectrum Management Task Force speak on "The FCC's New Approach to Spectrum Management". All this is very encouraging and may be--just maybe--might be a harbinger of better times.

BOSTON

Boston sends along some old information that we don't have yet, and they included the new roster of officers: Robert J. Berkovits, Chairman; James D. Gordon, Vice-Chairman; Norman W. Dixon (deceased) was Secretary-Treasurer; and James Deas, Program Secretary. The Chapter had planned four joint and three separate meetings for 1971-1972, but as of that mailing no dates were available. Boston is planning a Symposium on Diversification of Technology for later in the activity year. More info on that when I have it.

If I occasionally seem hard on some of the Chapters, it's only because they either don't send me any news at all, or it comes too late for the publication deadline. But what the Chapters send me is what I put in the column, even if it's late. So all the news gets published, eventually.

PHOENIX

Boy, am I ever jealous of Phoenix! On November 9, 1971, Albany Airport (five miles from my house) set a new low record temperature for the date of 13°. Wow! I hope the 1972 officers enjoy their climate. Those lucky folks are: Bob Lash, Chairman; Dwayne Awerkamp, Vice-Chairman; Harold Niles, Secretary-Treasurer; and Art Demlong, Program Secretary. The chapter held a meeting on October 20, 1971, and 21 fortunates heard William Zinn speak on "Intermodulation". Four more meetings are planned, in January, April, June and October (all 1972, evidently), but no firm programs as yet. Ah me, water skiing in January...

CHICAGO

Ask and ye shall receive. In my last column I asked for information about the 1972 National Symposium. Sure enough--information came--but not from the Chicago Chapter, unfortunately. It will be in mid-July, 1972, in Arlington Heights, Illinois, which looks to be about five miles northwest of O'Hare Airport. There will be the usual subject categories (control, measurement, prediction) plus one on bio-medical effects, which should be a good draw. And the Symposium Secretary is none other than the Chapter Chairman, Marvin J. Frazier. Come on, Marv--don't keep us in the dark. Other newly elected officers are Steve Smandra, Vice-Chairman, and Norman Wehling, Secretary.

NEW JERSEY COAST

Welcome, Charles D. Joly, as Chapter Chairman. (Now it is official--I got a copy of the letter from New York that says so.) And that's all I have.

LOS ANGELES

LA is keeping up a tradition started some years ago. What tradition? Having the giant meeting, with great speakers, is all. Ready? On September 27, 1971, two speakers graced the podium. The regular speaker, Mr. James Lynn of the Office of the Western Area Field Coordinator presented and discussed two Navy training films, "A Review of EMC" and "Shielded and Anechoic Chambers". Joining Mr. Lynn was Mr. Henry J. L. Rechen of the Bureau of Radiological Health, Department of HEW, who discussed HEW problems in areas related to EMC. Attendance was 72. On October 27, 1971, Mr. Eugene D. Knowles, of the Boeing Company's Radio Interference Testing and Analysis Group, led a presentation center-

CHAPTER CHATTER CON'T.

ed around methods of testing shielded cables and the analysis of such testing. Attendance was down: Only 68 showed up for this meeting. The November 18th meeting, held too late for press time, had Mr. Edward Skomal of the Aerospace Corporation ("aerospace" is NOT a bad word, no matter what people say) speaking on man-made radio noise and its effect on urban wireless communication. And that's only the start; the Chapter has added a new feature: EMC Employment Opportunities. They sent me a sample listing sheet, and the seven jobs shown don't look particularly bad at all. The letter that came from the Chairman, Andy Hish, indicated their mailing list is 527 names long, with only 163 in G-EMC. That's 364 potential members, but even more important, those 364 good people are aware of EMC problems and solutions and help us to keep EMC technology alive and well. And before I forget, the new officers are: D.M. (Andy) Hish, Chairman; D. Black, Vice-Chairman; F. Motter, Secretary; L. Zynda, Treasurer; and H. Dean McKay, Program Chairman. The word is that Field Trips, Chapter Awards and a Student Function are all in the planning stage. And the final comment: membership interest level is "enthusiastic". All I can say is, who could not be "enthusiastic"?

SEATTLE

Nobody hardly send me nothin' from there no more. Headquarters tells me that Mr. F. A. Beauchamp is Chapter Chairman. Next time, maybe? Please!

HOUSTON

Yes, Virginia, there still is a Houston Chapter--or seems to be, at any rate. James Dewitt Evans is Chairman, and that's all I know.

PACIFIC AREA COMMITTEE

For those who may not recognize the name, this used to be the Pacific Chapter-at-Large, but administrative and procedural reasons required the name change. Still the same bunch of folks, though. I have received two issues of the newsletter, which would do any large flourishing, mainland chapter proud. The first page says that approval has been obtained to keep up the good work. There are proposed by-laws, and news, and the start of a section on EMI Problems/Solutions, and even a couple of quotes from this column of a few issues ago (bless them!). And (would you believe it) a full roster of officers and a meeting. Chairman is Robert Ford, in Hawaii; Vice-Chairman is Robert Kugler, in Japan; and Secretary-Treasurer is R. Donald Brough, somewhere in the wilds of APO San Francisco. The meeting was on Sept.

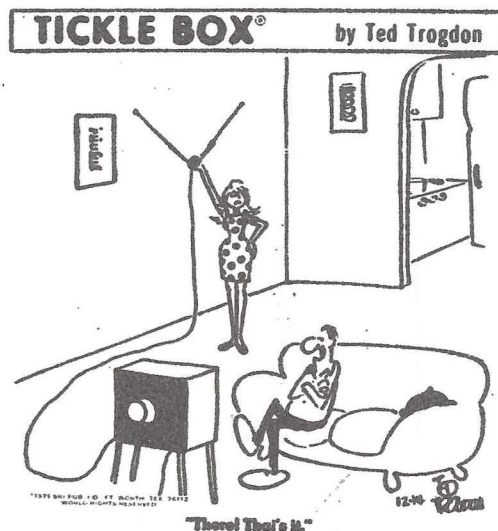
17, 1971, in Tokyo, and FORTY-SEVEN people attended to hear Bob Ford (USAF) and Mr. S. E. Probst (DCA) speak on RF Noise and the Geneva Frequency Allocation Convention. And to put the icing on the cake, the Chapter is trying to stimulate student awareness at the University of Hawaii next Spring. All this spread out over an area of 69 million square miles. Unreal--but definitely welcome!

Hey--I'm out of news. No writer's cramp--just a nagging, knowing feeling that the other Chapters don't even exist any more. Say it isn't so.

And a postscript: I received my first fan letter last month, commenting on my column in the October issue. The writer didn't sign a name, but it left me with a warm feeling inside anyway. If any of you 1700 or so potential fans would like to write me about the column, feel free. And if you make a suggestion, please sign your name, so I can give credit and acknowledge the suggester.

Season's Greetings!

Marty



PROGRESS & PRODUCTS

JOBS AVAILABLE

Is the electronics business bottoming out and about to get better? Maybe so! The editor has received several inquiries in search of experienced EMC Engineers and has been specifically requested to print the following:

"Dr. G. E. M. Ballard, USA Stratcom, Fort Hairchuca, Arizona, is interested in receiving resumes of Electrical Engineers, particularly those with EMC backgrounds".

It is also possible the GE/RESO in Philadelphia will be hiring EMC Engineers shortly depending upon the results of a major long-range contract bid. Let's all hope that these are real indicators that the engineering situation in general is moving for a major upswing again.

L. THOMAS EDITOR OF SPIKES & RIPPLES

Len W. Thomas Sr., Secretary of the IEEE G-EMC Administrative Committee, has been named as Editor of "Spikes and Ripples", the newsletter of the SAE AE-4 Committee on EMC. The announcement was made by Walter D. McHercher, Chairman of the AE-4 Committee during their November 19 71 Meeting in Dayton, Ohio.

"Spikes and Ripples" is a publication intended to provide "Happenings" and personal news about the committee members. Persons wishing to contribute information should contact Len at 1604 Buchanan St., N.E., Washington, D.C. 20017 (202-LA 6-2545).

JOHN MC DONALD FORMS REP ORGANIZATION

John McDonald, formerly of Singer Company, has formed McDonald Associates with offices at 14657 Aetna Street, Van Nuys, Calif. 91401. He is continuing his activity within the EMC community by serving several EMI/EMC oriented companies. John is the Western Regional Sales Manager for Ace Shielded Products, Div. of Ellis and Watts in Cincinnati, in addition to repping other product lines such as Andy Hish Associates and Fairchild Electrometrics Corp.

AFSC DH1-4, EMC

Revision No. 5 dated 10 July 71 to the First Edition, has been issued. In this revision, the design information on lightning in Chapter 7 has been updated and an Index has been added.

Your comments on this handbook are desired. All comments may not be incorporated in the handbook, but each will be given careful consideration. You are encouraged to use the "Reader's Service Letter" (Pageix) for making recommendations. Guidelines for making comments are contained in Design Note 1A2, Para. 14. Direct all correspondence pertaining to this handbook to:

4950/TZH
Wright-Patterson AFB, OH 45433

The Second Edition will be published early in 1972. When published, the current mailing list will be discarded and a new list will be established. Persons and companies presently on the distribution list should have received a form in November through which to renew their subscription. Persons who no longer need this handbook should destroy the contents and return the binder to

ASD/DAP
Wright-Patterson AFB, OH 45433

1 KW AMPLIFIER IS FLAT FROM 10 kHz to 220 MHz

One kilowatt of continuous power over the 15-Octave frequency range of 10 kHz to 220 MHz without tuning or bandswitching is among the features of the new Model M406L broadband power amplifier recently placed in production by Instruments For Industry, Inc., 151 Toledo Street, Farmingdale, L.I., New York. The new amplifier system has 60 db power gain and thus can be driven to its full 1 kw output by standard sweepers, synthesizers and signal generators. Gain variations across the 15-octave passband are less than ± 1.5 db.

Of special benefit in many applications is the fact that the amplifier is linear throughout its operating range so modulation on the input signal is preserved at the output. Rise and fall times of 7 nsec are featured.

In rfi susceptibility applications, the M406L can be used to generate 200 volts/meter fields in parallel plate systems and 20 volt/meter and higher fields with dipole, monopole and long-wire systems.

100 WATT AMPLIFIER FROM 10 kHz to 200 MHz

The Model ARC-618 Amplifier, a self-contained broadband unit designed for laboratory applications where instantaneous bandwidth is required, is now available, according to Amplifier Research Corporation, P.O. Box 7, New Britain, Pa. 18901. Typical applications include antenna and component testing, wattmeter calibration, EMI susceptibility testing and use as a driver for frequency multiplier and higher power amplifiers.

The combination of solid-state technology and vacuum tubes offers a significant advantage in reliability and cost. When used with a frequency swept signal source, the Model ARC-618 amplifier will provide 100 watts of swept power output from 10 kHz to 200 MHz. It also has protective circuitry which enables operation without damage under any magnitude or phase of sources and load VSWR, and will reproduce AM or FM modulation.

NEW EMI TEST EQUIPMENT ANNOUNCED

An Impulse Calibration Unit, Model IC7010 and Broadband EMI Detector, Model BD 3637A, have been introduced into the EMI market by Andy Hish Associates, 14657 Aetna St., Van Nuys, Calif. 91401.

The Impulse Calibration Unit (ICU) is designed to insure precision and simplicity in the calibration of Impulse Generators used for EMI tests from 10 MHz to 1 GHz. When used in conjunction with a sine-wave generator and field intensity meter, it provides an absolute measurement of the EIRP output spectrum amplitude.

The Broadband EMI Detector is a 2 3/4 pound battery operated solid state receiver with a sensitivity better than 0 dBmV/MHz. Together with its accessories, it can measure broadband EMI within the frequency range of 3 MHz to 30 MHz in two bands.

ABERDEEN AND EDGEWOOD COMBINE

The July 1971 merger of Edgewood Arsenal with Aberdeen Proving Ground has created the most diversified military installation in the nation. Recognized for more than half a century as being one of the foremost U.S. Army testing and research facilities, Aberdeen has also continued to sustain its position as a leader in the broad field of military vehicle, weaponry, and ammunition testing.

Aberdeen was opened in 1918. Its main departments are the Material Testing Directorate (formerly called Development and Proof Services) engaged in the test and evaluation of Army material and the Ballistic Research Laboratories engaged in the design and analysis of weapon systems. Aberdeen also houses the Ordnance School, Packaging Training Center, and Land Warfare Laboratories.

SIPED TIRES NO ADVANTAGE ON WET ROADS

Siping automobile tires does not improve their stopping ability and resistance to lateral breakaway on wet surfaces. This finding was made at the Office of Vehicle Systems Research by Arthur Neill, Jr., in work for the Department of Transportation. In tests of siped and unsiped tires on four types of wet road surface there was in general no significant difference between their stopping ability or resistance to lateral breakaway.

SIPING

Siping, or tractionizing, tires consists of making a series of slices across the tread face all the way around the tire without removing any rubber. The process is said by some to improve stopping ability and lateral breakaway on wet surfaces. DOT's National Highway Traffic Safety Administration asked the NBS Office of Vehicle Systems Research to measure and report on the effectiveness of siping.

NBS PERFORMANCE TESTS

NBS tested new and worn tires that were siped by two representative methods against identical unsiped tires. The road tests were run on test roadways of the Texas Transportation Institute (an affiliate of Texas Agricultural and Mechanical University) at Bryan, Texas. The stopping distance tests were run on asphalts consisting of bitumen with crushed silicious gravel and bitumen with slag and limestone screenings, as well as on polished concrete made from rounded silicious gravel. Before each run a watering truck coated the road surface with water to a depth of approximately 0.05 inch. For the actual run only diagonally opposite brakes were applied, to maintain lateral stability of the vehicle. The skidding distance traveled from point of lock-up was measured by a "fifth wheel" behind the car, which produced 1 pulse per foot of travel.

Stopping distance tests were carried out on the three courses at speeds of 20, 30, 40, and 50 miles per hour. No truly significant differences were found between siped and unsiped tires, new or old, on these courses and at these speeds. On only one surface, the highly abrasive crushed gravel asphalt, was there a slight improvement in stopping distance for siped tires.

APPLIED ELECTROMAGNETIC TECHNOLOGY

New government rules, regulations and programs in the field of electromagnetics will affect nearly all industrial organizations. In an effort to eliminate confusion and to bring about the most effective use of electromagnetic waves, Southwest Research Institute has established a cooperative research program in applied electromagnetic technology.

Dr. Carl L. Frederick, Sr., who heads the venture, explains that the program covers four areas--spectrum utilization; standards for message transfer systems using electromagnetic waves; standards for non-message transfer systems using electromagnetic waves; and research on directional propagation and radiolocation of electromagnetic emitters.

The thrust of the program is the development of the proper use of electromagnetic waves. It seeks new concepts and innovations and will evaluate and improve the technical quality and cost effectiveness of products, techniques, and services performed.

Members in the program will obtain specialized consulting services; critical review of the pertinent literature; all information on cooperative sponsored projects; and nonexclusive, royalty-free license for products or processes developed.

Two types of memberships, sustaining and participating, are available. For further details, write Dr. Frederick at Southwest Research Institute, 8500 Culebra Road, San Antonio, Texas 78284.

LETTER to the EDITOR

Gentlemen:

Regarding the article on MRC recommendations for personal exposure to radio frequency radiation, which appears in your October issue of the EMC Group Newsletter, I believe an error was made in the interpretation of this requirement in your Airwaves section. The recommendation is stated as 10 mw/cm^2 for continuous exposure and 1 mw/cm^2 for discontinuous. This appears to be reversed in my estimation. Several companies have established 1 mw/cm^2 as the recommended safety level for continuous exposure. I believe the recommendation should read 10 mwh/cm^2 for discontinuous and 1 mw/cm^2 for continuous exposure as this represents a safer level for radiation exposure of human beings.

Glenn G. Sundberg
Covina, Calif.

Comment

The levels as quoted were extracted from the March 1971 issue of Non-ionizing Radiation. Readers are invited to comment on the subject.

Editor

EDITOR'S NOTE BOOK

The April 1971 issue of this Newsletter contained a solicitation of IEEE Membership signatures for an amendment to the IEEE Constitution. This amendment would change the purpose of the IEEE from a purely scientific and educational institution to an organization to advance standards, ideals and the welfare of electrical/electronic engineers. Sufficient signatures were obtained and the question was presented recently to the membership for a vote.

The question was included in the ballot for regional directors. Of the approximately 129,000 qualified members, 52,000 returned their ballots. The results were as follows:

49.6% for change
50.4% against change

These results had a far greater impact on IEEE Management than expected. It should be recalled that IEEE presented its negative position on the ballot card and encouraged the members to vote no. Perhaps, had the affirmative position also been presented, the outcome may have been different since many of the voters were not fully aware or did not remember both sides of the argument.

It would be interesting to see a better break-down of how the members voted. For instance, what were the results on a regional basis; how did G-EMC vote and what was the break-down by job categories?

There is one fact that you should remember. A 67% majority vote is required in order to change the constitution. Thus, the results were not as close to a change as one might first assume. Nevertheless, when 49.6% of the members are seeking significant change in our constitution, we all should be concerned. IEEE Headquarters is now on notice that at least half of its members are not happy. As this question receives more publicity and discussion, another similar petition may turn the tide in 1972.

Bob Goldblum
Editor

AIRWAVES

IMPROVED TWO-WAY RADIO COMMUNICATIONS INITIATED BY FCC IN CHICAGO

The first of a series of regional programs aimed at providing more effective two-way radio communications will be initiated today in Chicago by the Federal Communications Commission. The new program, which is technically called radio frequency management, will operate within a 175-mile radius of Chicago, Illinois.

The purpose of the program is to help the FCC make more efficient use of the radio frequency spectrum. It will start by improving frequency assignment methods in the mobile radio services which have been plagued by overcrowding and frequency shortages. While the program is national in scope, it is being administered on a regional basis, and Chicago area has been the first chosen to get the program under way. Headquarters for the program will be a new FCC Regional Spectrum Management Center in Chicago, which will be staffed by professionals specializing in frequency management.

At the same time, a special FCC mobile monitoring van will be used to gather accurate information on occupancy of mobile channels in the Chicago area and the patterns of radio traffic on these channels. The Center's professionals will then analyze this information and utilize it to assist them in making the best possible frequency assignments to applicants for mobile radio systems.

To get it started, the FCC is contacting approximately 25,000 mobile radio licensees in the area in order to collect information about their radio operations.

FCC RAD HAZ GUIDELINES

Report No. 7104 dated July 19, 1971 entitled "VHF-UHF Radiation Hazards and Safety Guidelines" has been issued by the FCC. Prepared by J. Damelin, the three page report discusses limits in terms of Radiation Protection Guide Numbers (RPGN) and provides a set of curves for minimum distances from VHF-UHF radiators at which specified RPGN's are not exceeded versus effective radiated power.

PART 15 OF FCC REGULATIONS AMENDED

Effective October 5, 1971, Parts 1 and 15 of the FCC Regulations were amended to include FIELD DISTURBANCE SENSORS. The general definition of such sensors is as follows: "A restricted radiation device which establishes a radio frequency field in its vicinity and detects changes in that field resulting from movement of persons or objects within the RF field".

A field disturbance sensor may be operated on any frequency (including frequencies above 900 MHz) subject to the requirement that the field strength of emissions on the fundamental or on a harmonic or on other spurious frequencies shall not exceed 15 uV/m at a distance of $\lambda/2$ from the sensor. However, this requirement is relaxed in the following frequency bands as shown:

| Frequency (MHz) | Field Strength |
|---------------------------|-------------------------------------------|
| 915 } 2450 } 2800 } | 50,000 $\mu\text{V}/\text{m}$ at 100 ft. |
| 10,525 } 22,125 } | 250,000 $\mu\text{V}/\text{m}$ at 100 ft. |

TEST PROCEDURE FOR RF DOOR OPENER

The FCC has issued a report (No. T-7001) dated Oct. 1, 1970 entitled "Procedure for Measurement of the Level of RF Energy Emitted by a Radio Control for a Door Opener". The five page report specifies that the measuring instrument be operated in its "AVERAGE" or "FIELD INTENSITY" mode rather than "QUASI - PEAK" or "PEAK". This is considered desirable in the case of super-regenerative receiver radiation, since it tends to give better agreement in comparisons of measurements with instruments of differing bandwidths. Moreover, measurements of energy from super-regenerative receivers using the "average" mode give a reasonable weight to both the duty cycle and the peak value, both of which contribute significantly to the interfering effect. On the other hand, the "peak" and "quasi peak" indications may give excessive weight to the peak value and inadequate weight to the duty cycle.

Radiated measurements are to be made at a distance of 30 feet with the results extrapolated to 100 feet to determine compliance to Part 15. The equivalent field at 100 feet is taken to be 0.3 times the field strength measured at 30 feet (or -10.5dB).

Conducted measurements from 450 KHz to 25 MHz are required when the device may be connected to power lines of public utility systems. Conducted measurements may be made in accordance with IEEE Standard 213.

AGENCIES REACT TO EM RADIATION RISKS

Standards limiting the exposure of the general population to non-ionizing radiation will be established within three years, predicts a ranking radiation official at the Environmental Protection Agency. "The only question now is one of degree, a question to be answered by further EPA studies." Although EPA isn't even hinting at the radiation limits it will seek, the young agency's action may set off a string of regulations from agencies that have the power to specify standards more directly impacting the electronics industries' products.

Officials in those other Federal agencies charged with screening the public from the hazards of microwave and other non-ionizing radiation say that their current studies are aimed less at promulgating standards than at estimating what rank should be given to electromagnetic radiation in the agencies priorities.

And in fact the responsibility for standards-setting is diffused through all levels of government: On the Federal level, besides the Environmental Protection Agency, the newly created National Institute for Occupational Safety and Health can establish standards to protect employees in their work environments., and the Bureau of Radiological Health is responsible for radiation emissions from electronic products.

Standards that may arise from the bureau's studies would directly affect electronics companies: its microwave oven standard, for example, which went into effect Oct. 6, stimulated the redesign of microwave ovens. The bureau is now looking at small boat radars and medical diathermy devices.

Except for the Bureau of Radiological Health, however, Federal agencies appeared disinterested until industry and public concern was aroused recently by rumors of brain damage in engineers working on a classified defense electronics project. Government investigators decided the rumors probably are untrue, but the White House will soon fuel public concern with a report of its Office Of Telecommunications Policy detailing federal involvement in electromagnetic radiation research.

from ELECTRONICS/Aug. 16, 1971

UTTER DISASTER

One cool morning last spring a farmer called us from New Jersey. He was concerned: some kind of radiation kept his cows from releasing their milk. Trouble with his TV set was further evidence of the radiation. The problem was serious. A cow is worth \$450. Two of his neighbors were forced out of business when their cows died.

Radiation? We wondered. But problems are our business, so we dispatched an engineer the following day. On the site we learned another symptom, namely severe corrosion of plumbing in the ground. The farmer had cleverly solved the corrosion problem by using plastic couplings on the pipes where they entered the ground.

Our engineer proceeded to make electrical measurements in the barn. Surprisingly, all metal fitting were at several volts with respect to the ground. Closer inspection showed that the telephone was grounded through the barn water pipe. This connection had been broken when the farmer installed the plastic coupling to solve his corrosion problem. As a result of this set of circumstances, the entire barn was slightly electrified.

The problem of the cows and their milk was solved. When the cows were attached to their electric milking machine, they were grounded through the milkers to the udders. However, their feeders and stanchions were electrified. As each cow ate, or even moved, she was jolted through her milking machine. The result was utter disaster.

The solution was then simple and straightforward. The Telephone Company was called in to reground their lines in the barn. And the cows lived happily ever after. By the way, the same lack of grounding in the farmer's home was the cause of trouble in his TV set. Cost to client: \$250. (Reprinted from "Small Business is our Business," Laboratories Highlights, Vol. 19, No. 3, August 197. The Franklin Institute Research Laboratories, Philadelphia, Pa. 19103.)

BOOK REVIEW

ELECTROMAGNETIC INTERFERENCE AND COMPATIBILITY, Vol. 4, EMI TEST INSTRUMENTS AND SYSTEMS by D. R. J. White, Don White Consultants, Germantown, Maryland 1971, 400 pages, illustrations. \$35

This is the fourth volume in the new five volume set on electromagnetic interference (EMI) and electromagnetic compatibility (EMC). Volume one was published in May 1971 and volumes two, three, and five are scheduled for issue in late 1971 and early 1972.

In this book the author has drawn heavily on his experience at White Electromagnetics, Incorporated in developing and manufacturing automated EMI measuring systems and susceptibility testers. Don White was founder and president of White Electromagnetics, the pioneer in the field of automated test systems for the EMC community. His treatment of test instruments and systems demonstrates an awareness that comes from a first hand knowledge of the problems and solutions associated with EMI test procedures.

The first chapter deals with the EMI test environment; open-field testing and the influence of the outside world. Outside world influence includes not only the interference radiated into the test area but also the interference brought in on power lines. This discussion goes into the various types of power sources, their advantages and disadvantages. Power line filters are described and a list of manufacturers is included. There is also a listing of power line filters with typical sizes, ratings and prices.

Shielded enclosures is the subject of the second chapter which includes a brief coverage of shielded enclosure theory for electric and magnetic fields as well as plane waves. This is followed by a description of the practical construction of shielded enclosures used for EMI testing. In using the shielded enclosure as a test cell certain problems are evident. The balance of the chapter is devoted to a discussion of these problems and methods of solution.

The following two chapters deal with test antennas used for EMI measurement and for susceptibility testing. Antenna factors, gains and aperture areas are derived for the types of test antennas covering the range of 20 Hz to 40 GHz. The antenna measurement procedure of SAE ARP-958 is described as a standard method of determining antenna factor.

The economic problems involved in radiated field susceptibility testing are always of interest to the test engineer. The ability to generate a 1 to 100 v/m field and vary the frequency over a range of DC to 1 GHz is a challenge to his pocketbook as well as to his ingenuity. There is a fine treatment of this whole area with an evaluation of the various methods that are described in detail. Construction details are given for several types of field generating antennas.

Conducted interference and susceptibility measurements and tests require sensors and injectors to interface the instrumentation and the equipment under test. The theory of these devices is discussed and the various commercially available current probes, line impedance stabilization networks, injection devices, and associated devices are described. There is a tabulation of characteristics with current pricing.

Interference and susceptibility measurements require signal sources either for calibration of measuring instruments such as receivers or as signal sources for susceptibility testing. Both broadband and narrowband types are discussed in the chapter on signal and susceptibility testing sources. Several tabulations of commercially available sources are included which list pertinent characteristics and pricing information.

The chapters on receivers, spectrum analyzers, and automatic EMI measuring systems are the most outstanding part of this book. The author has drawn from his experience in designing automated measuring systems. He has made a careful evaluation of the receivers on the market to select the most suitable for the automated system. All of these receivers are described in full and tabulated for the convenience of the reader. The automated systems developed by White as well as others are described in detail.

These automated systems can scan and measure up to 30 octaves of continuous coverage. They can simultaneously measure and record both narrowband and broadband signals. The latest system to be developed is an automated susceptibility test set which automatically scans the range of 15 Hz to 1 GHz with a power signal source. Malfunctions of the equipment under test are recorded with signal level and frequency information. The saving in time spent on measurement must be balanced against investment dollars. Semi-automated systems of more modest cost are also described.

Each chapter contains numerous illustrations including useful graphs and tables. There is also a bibliography for additional sources of information on the chapter subject. The appendix contains EMI/EMC terms and definitions used in this book. This is in addition to an eight page listing of abbreviations and symbols. The index is complete enough to allow ready reference to any subject covered in this book. The author has achieved his purpose in underscoring the tutorial treatment of the subject and emphasizing fundamentals wherever possible so that the reader can understand the rationale. The book is suitable as a reference work on EMI test instrumentation and systems and should prove to be very helpful to the test plan writer and test engineer! The reviewer also recommends this book to the director of engineering who is concerned with the planning of EMI test facilities.

James S. Hill
RCA Service Company
Springfield, Virginia

NEWS and VIEWS

RESULTS OF THE ADCOM ELECTION BALLOT

A ballot for the election of six Electromagnetic Compatibility Group AdCom members was issued on August 3, 1971. The ballots returned have been counted, and the following six members have been elected for a three year term beginning on January 1, 1972:

R. B. Crowdell
J. F. Fischer, Jr.
W. A. Kesselman
E. D. Knowles
F. J. Nichols
R. M. Showers

We wish to thank all nominees for their willingness to serve and for permitting their names to be included on this ballot.

ROBERT H. TANNER IS NEW PRESIDENT OF IEEE

Mr. Robert H. Tanner, Director of Information, Bell-Northern Research, Ottawa, Ontario, Canada, has been elected President of the Institute of Electrical and Electronics Engineers for 1972. His election, by ballot of the voting members, was announced by the IEEE's Board of Directors. Mr. Tanner succeeds Dr. James H. Mulligan, Jr., Executive Secretary of the National Academy of Engineering, Washington, D. C.

Mr. Tanner was born and educated in England, graduating from the University of London (Imperial College of Science and Technology) with the degree of B. Sc. in Engineering with first class honours. After a post-graduate year at the university devoted to research in Architectural Acoustics, leading to an M. Sc. degree, he joined the engineering staff of the British Broadcasting Corporation. During World War II, he served in the British Army for seven years and rose to the rank of Major. In 1946, he returned to the BBC Research Department to work on Architectural Acoustics.

In the following year, he brought his family to Canada and joined the Northern Electric Company. He spent thirteen years in Belleville, Ontario, and was one of the first appointments to the Research and Development Laboratories staff when it was formed in 1958. He has been responsible for developments in several communications fields, and is now Manager of Scientific Information, handling the technical public relations and library services of the Laboratories.

Mr. Tanner is a Fellow of the Institute of Electrical and Electronics Engineers, the

Engineering Institute of Canada, and the Institute of Canada, and the Institution of Electrical Engineers (of Great Britain). He is also a member of the Association of Professional Engineers of Ontario and the Acoustical Society of America. He has had articles published in England, Canada, the U.S. and South America, and has addressed technical meetings in most of the large cities of Canada as well as in New York, Boston, Philadelphia and Chicago.

INFORMATION EXCHANGE PROPOSED WITH POWER GROUP

In a letter to G-EMC Chairman, Dr. Heinz Schlicke, Professor W. Janischewskyj, Chairman of the IEEE Power Engineering Society, Radio Noise Subcommittee proposed an exchange of information and experiences related to areas of mutual concern. In describing his committee, the Professor said, "As one of its tasks, our Working Group deals with the effects of transmission lines upon radio reception. At present I am interested in determining whether there might be within the EMC Group an entity which works on questions related to signal strengths of broadcast stations. Our specific concern is directed to the effects by which the physical presence of a transmission line may affect the local strength of station signals. In this respect we have in mind, among other things, the possible improvement in the local strength of station signals as the consequence of reradiation from transmission line conductors.

PERRY NOW PRESIDENT OF ALL-TRONICS

Mr. Sam Perry has been appointed to the position of President of All-Tronics, Inc., 45 Bond Street, Westbury, New York 11590, according to Mr. Harold P. Westman, Jr. All-Tronics is a manufacturer of EMI filters. Mr. Perry's experience in the interference filter field extends 25 years, having formerly been Sales Manager for the Tobe Deutschmann Corp. and more recently, President of the Filtron Company.

MEETINGS AND EVENTS

ELF EARTH RETURN CURRENTS

CALL FOR PAPERS

The November 1972 issue of the Transactions on Electromagnetic Compatibility will be devoted to the subject of the influence of ELF earth return currents. Theoretical and experimental papers are solicited in the areas of: Measurement of earth resistivity, grounding, coupling of earth return currents to systems, earth return coupling theory, existing earth return environment and elimination of the influence of earth return currents. Papers should present the results of current research and should be addressed to:

IIT Research Institute
10 West 35th Street
Chicago, Illinois 60616

Attention: Dr. D. A. Miller
Division E

To allow sufficient time for review, papers should be received no later than 15 March 1972.

INTERNATIONAL WORKSHOP OF SAE/AE-4 COMMITTEE ON EMC

The AE-4 Committee on Electromagnetic Compatibility (EMC) sponsored a Workshop in Munich, West Germany on 17-19 August 1971.

The AE-4 Committee has been performing international liaison activities since 1965. During the past year the technical inquiries arriving at AE-4 increased significantly since the European Aerospace industry is adopting U.S. specifications, standards, Aerospace Information Reports and Aerospace Recommended Practices. From these inquiries it was realized that some confusion existed how the engineers in the U.S. plan and perform EMC engineering. Since letters are not very effective in communicating engineering know-how the AE-4 Committee concluded that an EMC Workshop in Europe would help all interests concerned.

The Workshop was led by AE-4 members, W. D. McKerchar, Chairman AE-4, (Breeze-Illinois), H. K. Mertel (General Dynamics, Electro Dynamic Div.), and Dr. C. B. Pearlston (Aerospace Corp.). The Workshop was attended by 25 engineers and managers from the aerospace industry and government agencies in England, Italy, and West Germany. The technical discussions and exchange of ideas were lively and appreciated by all attendees.

ANNOUNCEMENT AND CALL FOR PAPERS PURDUE 1972 SYMPOSIUM

ELECTROMAGNETIC HAZARDS, POLLUTION AND ENVIRONMENTAL QUALITY

May 8-9, 1972
Purdue University
Lafayette, Indiana 47907

This Symposium is the fourth in a series of symposiums organized by the SCHOOL OF ELECTRICAL ENGINEERING, PURDUE UNIVERSITY. The Theme of the Symposium is to explore the effects and new application areas of electromagnetic fields. Specific topics to be examined include:

- 1) Hazards of, and effects of, exposure to electromagnetic radiation.
- 2) Noise and interference due to power lines and other high power equipment.
- 3) Interactions of electromagnetic radiation and our environment, and pollution monitoring by electromagnetic means.

Two types of contributing papers are being solicited:

1) Regular Papers: The regular papers are to describe complete work in detail. The complete manuscript for a regular paper is to be limited to ten (10) typed pages, including text, footnotes, references, figures and photographs. Deadline for regular papers is January 15, 1972.

2) Short Papers. The short papers are to report recent and perhaps preliminary work. The summary for a short paper should be two (2) typed pages in length, including figures and photographs and must clearly reflect the content of the papers. Deadline for short papers is February 15, 1972.

To complement the contributing papers mentioned above, leading authorities will be invited to give review and tutorial papers. All papers presented at the Symposium will be published in the Symposium Proceedings.

Prospective authors are invited to submit manuscripts or summaries for review to:
Professor Chin-Lin Chen
School of Electrical Engineering
Purdue University
Lafayette, Indiana 47907

WALSH FUNCTIONS TRANSACTIONS & SYMPOSIUM

The EMC Group is cooperating with the Naval Research Laboratory and the Catholic University of America in organizing the 1972 Symposium on APPLICATIONS OF WALSH FUNCTIONS. Don Thomas is the IEEE G-EMC member of the Symposium Steering Committee.

The Symposium will be held at Catholic University, 620 Michigan Avenue, NE, Washington, DC on March 27-29, 1972.

The August 1971 issue of the IEEE G-EMC Transactions was a record of the 1971 Symposium on Applications of Walsh Functions. However, in view of a planned schedule of 1972 G-EMC Transactions, the status of the "Group Treasury, and the current economic situation, it is not planned to publish the 1972 Symposium record as an issue of the IEEE G-EMC Transactions.

It is realized that this will disappoint many Transactions readers who have found the August 1971 issue of the Transactions most informative and useful in addition to directing the Group's attention to this new concept in filter design. In an effort to provide as wide a distribution of the Record of the 1972 Symposium, the sponsors have proposed that those IEEE G-EMC members who desire a copy of the Symposium

Record, without charge, may request one from:

Mr. Robert W. Zeek

Code 5431

U.S. Naval Research Laboratory

Washington, DC 20390

Requests should be received before May 1, 1972.

A "NEW" SCIENCE/TECHNOLOGY CENTER TO BE FEATURED AT IEEE '72 INTERCON

A dynamic innovation for '72 will transform the entire fourth floor of the New York Coliseum into a mecca for electrical/electronics engineers at the annual IEEE Convention and Exhibition, March 20-23. The IEEE has incorporated the convention theme "New Horizons for Engineering" into the technical program, the science film theater and the advanced research exhibits, all of which will be highlighted in a fourth floor Science/Technology Center.

Featured will be a 24-session "how to do it" engineering and management program, a science film theater and participation by leading companies and government agencies in displays of advanced engineering and research concepts. Companies such as General Electric, Westinghouse, Grumman, United Aircraft, Ford Motor Company, Magnavox and Nippon Electric will present challenging and thought-provoking exhibits to demonstrate the solutions of current and future problems through the application of electronics and electrical technology. Special emphasis will be placed on transportation, medicine and other pressing socio/technological areas.

NASA, the Naval Research Laboratories, the Army Electronics Command, the Department of Commerce and other government agencies will present their latest technological achievements as well as discuss problems in need of solution.

The Science/Technology Center will present engineers with the unique and unprecedented opportunity to see and talk to other engineers involved with the future of the electronics industry, its problems and its tremendous potential for future growth.

More detailed information concerning the Science/Technology Center may be obtained from J. H. Schumacher, Jr., IEEE Convention Department, 345 East 47th Street, New York, New York 10017.

JOINT MEASUREMENT CONFERENCE

A Joint Measurement Conference, the first in a potential series, will be held June 21-23, 1972, at Boulder, Colorado. The keynote of the Conference - THE ROLE AND VALUE OF MEASUREMENT - is also the theme of the opening address, to be presented by Lewis M. Branscomb, Director of the National Bureau of Standards, U.S. Department of Commerce.

* * * * *

The purpose of the meeting is to promote the interdisciplinary exchange of technical and managerial measurement concepts. The underlying theme is that, ideally, Technical personnel should utilize the Measurement science concepts in all phases of product evolution - research, design, development, manufacturing, maintenance, and quality control. The techniques of a systems approach to accurate, meaningful measurements will be emphasized as a powerful tool for both Management and Technical personnel. The sessions will stress that many, if not all, measurement disciplines are required in the solution of software/hardware oriented measurement problems.

Attendees of the Joint Measurement Conference have the opportunity to take in a "conference doubleheader," as the Conference on Precision Electromagnetic Measurements meets in Boulder June 26-29.

For further information, contact:

George Goulette

Director, Bureau of Conferences
and Institutes

University of Colorado

130 Academy Bldg.

970 Aurora Ave.

Boulder, Colorado 90302

Phone: (303)443-2211 Ext. 6485

* * * * *

CARNAHAN CONFERENCE ON ELECTRONIC CRIME COUNTERMEASURES

April 19-21, 1972 at the

Carnahan House

University of Kentucky

Lexington, Kentucky

A session of invited papers on the subject of identification will be a feature of the 1972 Conference. Other areas include: ALARM SYSTEMS AND DEVICES; SECURITY AND PRIVACY OF INFORMATION; VOICE AND DIGITAL COMMUNICATION; COMMAND, CONTROL AND LOCATION TECHNIQUES; LOW LIGHT LEVEL SURVEILLANCE.

This Conference provides a forum for the discussion of current state-of-the-art developments in this field of engineering. Users as well as producers of this technology are encouraged to participate actively. A permanent record, the Conference Proceedings, is published each year and is distributed to selected engineering libraries and law enforcement agencies throughout the world. Copies may be obtained from the Office of Research and Engineering Services, College of Engineering, or from the National Clearinghouse for Scientific Information, Springfield, Virginia.



1972 IEEE INTERNATIONAL SYMPOSIUM
ON
ELECTROMAGNETIC COMPATIBILITY

ARLINGTON HEIGHTS, ILLINOIS

JULY 18-20, 1972

"EMC AT THE CROSSROADS"

LAST CALL FOR PAPERS

The 1972 EMC Symposium is to be held in the Chicago suburb of Arlington Heights, Illinois, July 18-20, 1972. Sessions are planned in the categories listed below and relevant papers concerning new results in these and related areas are solicited.

- Interference control - circuit design, grounding, bonding, shielding, filtering and standards.
- Measurement and instrumentation - specification testing, special designs.
- Interference effects - circuit upset, component burnout.
- Interference prediction - electromagnetic propagation, coupling, effects of linear and nonlinear networks.
- Control of sources of interference.
- Spectrum conservation, frequency allocation, time sharing.
- Systems analysis - design analysis, case histories, mathematical methods, specification limits, digital systems.
- Management - allocation of resources for interference control.
- Bio-medical effects - biological hazards - medical instrumentation interference/susceptibility

Summaries of approximately 300 words in 3 copies are to be sent for review to:

J.J. Krstansky
Chairman, Program Comm.
IIT Research Institute
10 West 35th Street
Chicago, Illinois 60616

by February 14, 1972. Authors will be notified by March 15, 1972 and completed papers, which will be published in the Symposium Record, will be due by May 1, 1972.

As you may have heard, the Chicago Chapter of the IEEE Group on Electromagnetic Compatibility will host the 1972 International Symposium on EMC. It will be held on July 18, 19 and 20, 1972 at the Arlington Park Towers in Arlington Heights, Illinois. It is a new hotel with excellent facilities and is located approximately 30 miles from downtown Chicago and 10 miles from O'Hare Airport.

Since the down-turn of Government business, much more interest and involvement in EMC has been obtained from commercial applications than ever before. For this reason, the theme of the Symposium is "EMC at the Crossroads".

Featured as the banquet speaker will be Dr. R. L. Elder, Bureau of Radiological Health, Public Health Service, H.E.W. Dr. Elder has been in the headlines lately, primarily in the area of biological hazards of RF radiation and side effects.

The FCC will also be well represented again with, hopefully, several invited papers and with their Chicago Task Force Van on display. (Other session topics will be relative to the subjects per the call for papers).

ACKNOWLEDGEMENTS

The editor would like to thank the following individuals and their employers for their contributions to this issue of the Newsletter:

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J. Klouda

IITRI
RCA Service Corp
FCC
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quence Theory (FAST)
Elite Electronics