

IEEE

NEWSLETTER



ELECTROMAGNETIC COMPATIBILITY GROUP

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EDITOR:

Robert D. Goldblum
Re-entry Systems Division
General Electric Co.
608 Gawain Rd.
Plymouth Meeting, Pa. 19462



George R. Ufen

to
THE READERS --

On behalf of the Symposium Committee, may I extend a personal invitation to the 12th Annual International Symposium on Electromagnetic Compatibility. This will be held July 14, 15 and 16, 1970, at the world's most modern Convention Center in Anaheim, California.

Theme for the event, "The Expanding Science of EMC", is one of the prime indicators of the scope of this Symposium.

Everyone seems to be climbing on the bandwagon and pointing to an old nemesis -- pollution.

We have known of this problem in our area of the electromagnetic spectrum. Therefore, we, too, will use the present-day words . . . such as "electromagnetic smog".

To carry this theme to more people, a number of unique speakers have been invited. The Keynote Speaker is Wilfrid Dean, Jr., Associate Director of Frequency Management, Office of Telecommunications Management, Executive Office of the President. He will challenge the Symposium to come up with some positive solutions.

One of the other main speakers is Ralph Nader, the Nation's leading Consumer Advocate. He is our luncheon speaker, and his topic will cover electromagnetic smog.

The general theme of the papers is to cover many sciences. Leading authorities in the medical, biological, educational, governmental and engineering areas have been invited.

The Symposium is unique in offering, for the first time, a major reward for student participation. These awards have been made possible by the allocation of part of the exhibitors' fees. We hope to have more than 60 various exhibitors from many disciplines.

Continued

TO THE READERS

Admission to these exhibits is free.

This event is being held in the "world's largest playground". Wives and children are urged to participate. There will be no charge to wives at any of the functions, other than the two planned ladies' activities.

Some of the local attractions are Disneyland, Knott's Berry Farm, the Angels' Baseball Stadium, Japanese Deer Park, Movieland Wax Museum and many others.

No planned events will take place in the evening. This will allow the family to enjoy themselves visiting these many attractions.

All of us on the Symposium Committee hope you will have the opportunity to participate in this event. For the advance program and registration cards, please write to: 1970 Symposium on Electromagnetic Compatibility, P.O. Box 1970, Anaheim, California 92803, or call 213-849-7175, and a complete package will be on its way.

Hope to see you there . . .

Sincerely,

George R. Ufen
Chairman

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SMATTERINGS

REFAC LICENSES LINDGREN RF ENCLOSURES

TO JAPANESE MANUFACTURER

REFAC Incorporated has licensed Japan Shield Room Industry Co., Ltd., Tokyo, Japan, to manufacture and sell isolated radio-frequency enclosures developed under the patents of Erik A. Lindgren & Associates, Inc., Chicago, Illinois.

According to Eugene M. Lang, REFAC president, the Japanese licensee is the largest producer of RF shielded enclosures in the Far East. "By reason of this agreement," Lang stated, "Lindgren has established a basic position in the world's most dynamic market and stands to benefit by the feedback of JSR's impressive technical resources."

Used by hospitals, industrial and laboratory research facilities, Lindgren enclosures feature a patented modular construction that permits disassembly and reassembly. Patented fittings also permit ventilation and access without impairing the integrity of shielding.

REFAC, which specializes in negotiating and administering international manufacturing licenses and joint ventures, represents Lindgren generally for overseas markets. Additional manufacturing licenses are now being negotiated in Sweden and Israel.

CHOMERICS INTRODUCES NEW CONDUCTIVE GROUNDING GROMMET

Chomerics, Inc., Woburn, Mass., has just developed a unique new system which provides RFI shielding as well as shield grounding at connector terminations. The system utilizes Chomerics' product innovation, the grounding grommet, a flexible ground plane made of Cho-Seal, Chomerics' patented highly conductive elastomer.

Individual shielded wires are forced through the preformed holes in the grounding grommet, leaving a short length of exposed shield inside the grommet. A ground is achieved by bussing the conductive grommet to the connector backshell by means of a heat-shrinkable boot. The boot has a highly conductive inside coating which provides RFI shielding as well as shield grounding. It is simply shrunk into position over the grommet and backshell, and the job is complete.

Continued....

SMATTERINGS

Significant features of the new Chomerics grounding grommet system are: lower weight because no heavy metal backshell adapter is needed to shield the connector termination; and lower installed cost because assembly time is greatly reduced--no "Daisy-Chaining" is required to tie shields together, and no pig-tailing is required to ground shields.

For further information regarding Chomerics new grounding grommet system and components, contact:

CHOMERICS, INC.
77 Dragon Court
Woburn, Massachusetts 01801
TEL: (617) 935-4850

HOPKINS ACQUIRED BY FLEXIBLE CIRCUITS

Flexible Circuits, Inc. in Warrington, Pa. has completed the acquisition of Hopkins Engineering Co., San Fernando, Calif., a subsidiary of Riker-Maxson Co. The purchase was made for an undisclosed sum of cash.

George B. Stollsteimer, president of Flexible Circuits, said the Hopkins purchase is the fourth in the past year and that the West Coast firm has annual sales of about \$1 million.

Hopkins manufactures electronic components which are marketed to the computer, electronic, and instrumentation industries, while Flexible Circuits manufactures components for the computer memory industry.

Flexible had its initial public offering last April and its total sales during the current fiscal year are projected at \$5 million.

ELECTRICALLY CONDUCTIVE PAINT

Eccoshield ES is an electrically conductive lacquer based on fine silver with excellent coatability and adherence to almost any clean, hard surface. It was developed especially for improving the radio-frequency shielding integrity of shielded rooms and other smaller electrical/electronic enclosures and cabinets. It is also very convenient for: 1) producing electrically reflective surfaces as in antennas and microwave cavities; 2) improving capacitor electrodes as in radio frequency dielectric measurements; and 3) converting a dielectric interface into a short as in electronic transmission line experiments.

One coat of Eccoshield ES develops a surface resistivity substantially less than 1 ohm/square. Successive coats can reduce this to less than 0.1 ohm/square.

For additional information, write to: Emerson & Cuming, Inc., Canton, Mass. 02021. Tel. (617) 828-3300.

INTERFERENCE TECHNOLOGY ENGINEERS MASTER-ITEM

How often have you wished there were a complete directory of all the EMC products and services available in industry? In the past few years, our technology has grown dramatically expanding daily as commercial users increase their demands on the EMC community. Yet the lack of one "where-to-find-it" source remains a continued impediment.

Now the communications gap is closed. ITEM is an Interference Technology Engineer's Master. Containing exclusively EMC-related catalogs and other material, ITEM consolidates product and service data in a single volume for convenient access. ITEM incorporates many important features. EMC product categories simplify the user's efforts to identify his needs. It also contains a product index and a sales office directory.

ITEM is available upon request to engineers, managers, technicians, and purchasing agents engaged in the specification, design or procurement of components, equipment, materials and services. For a free copy, write to:

ITEM--R & E Enterprises
P.O. Box 328
Plymouth Meeting, Pa. 19462

215 228 6237

Robert D. Goldberger

FRANK MITCHELL APPOINTED CHAIRMAN OF CHAPTER ACTIVITIES

Frank Mitchell of Atlantic Research Corp. has been named Chairman of the Chapter Activities for the East Coast. Frank has joined Ben Weinbaum, Chairman of Chapter Activities on the West Coast, in coordinating efforts in the formation of new chapters and resolving chapter problems. Chapter Chairmen and others may write to Frank at: 5520 Uppingham Street, Chevy Chase, Maryland 20015.

MEETINGS and EVENTS

TRAINING COURSE ANNOUNCEMENT

WEI/Technical Services Division has announced their training schedule for the first half of 1970. The following specialized training courses for Government and industrial personnel are being offered to cover topics of interest to those in the rapidly expanding RFI/EMI Community.

LOCATION AND DATE

Dallas, Texas, 16-17 April, 1970

COURSE TITLE

Electromagnetic Compatibility (EMC) Analysis Seminar

CLOSING DATE

17 March, 1970

LOCATION AND DATE

Los Angeles, California, 20-21 April, 1970

COURSE TITLE

Electromagnetic Compatibility (EMC) Analysis Seminar

CLOSING DATE

23 March, 1970

LOCATION AND DATE

Chicago, Illinois, 19-20 May, 1970

COURSE TITLE

Electromagnetic Compatibility (EMC) Analysis Seminar

CLOSING DATE

21 April, 1970

Should you need additional information concerning a specific course or desire to explore the possibility of having one of these or other EMC-related courses conducted at your facility, please call H. Dean McKay, Director, or Art Mann, Training Administrator, at (301) 424-2900, or mail inquiries to:

TECHNICAL SERVICES DIVISION
WHITE ELECTROMAGNETICS, INC.
656 Lofstrand Lane
Rockville, Maryland 20850
Attn: Erin Whelan, Technical Editor

ONE DAY SEMINAR ON ELECTRICAL NOISE AND ITS CONTROL
MAY 19, 1970, UNIVERSITY OF PENNSYLVANIA, PHILADELPHIA,
PENNSYLVANIA

Sponsored by the Philadelphia Section for the IEEE and the Chapter on Electromagnetic Compatibility. Full morning and afternoon sessions followed by a regular evening Chapter meeting will feature a series of presentations addressing the many aspects of electromagnetic interference, its diverse affects, and means for its effective control. Papers will be presented by renowned educators and leaders in the field of electrical noise control. The tentative program is:

Morning Session

Welcome Address:

"These conditions called electrical interference, susceptibility, and compatibility" - by Dr. O. M. Salati, University of Pennsylvania.

"Electrical Noise Reduction in Industrial Control Systems" - by W. Schmidt, Reliance Electric Company.

"Graphical Evaluation of Electrical Noise Conditions" by A. W. DiMarzio, Fairchild Electro-Metrics Corporation.

"Measurement of Electrical Noise" - Panel discussion: S. Burruano, Bur Assoc.; W. Prysner, USN/USL.

Luncheon

The luncheon address will be presented by Dr. Heinz Schlicke of Allen-Bradley Company on: "The Profession of Electrical Noise Control Engineering".

Afternoon Session

"Biomedical Electronics Installation Noise Control" - by F. Kugler, Temple University.

"The FCC Policing Function and RF Spectrum Users" - by S. Marti-Volkoff, FCC.

"The Key to Inter-Diciplinary Communication" - by Rex Daniels, Interference Consultants.

"Prevention and Treatment of Noise in Control Systems" by F. G. Willard, Westinghouse Electric Company.

Evening Session (Regular Chapter meeting)

"Electrical Noise Standards" - Panel discussion: members of industry groups: NEMA, ANSI, EIA, etc.

Place: LRSM Hall, University of Pennsylvania, 3231 Walnut St, Philadelphia, Pennsylvania

Registration:

Advance registration, IEEE members, \$10.00; non-members, \$12.00, \$2.00 additional at door. Includes luncheon and parking. Dinner reservations are optional. For advance registration form or additional information, write to Miss Helen Yonan, IEEE Office, Moore School of Electrical Engineering, 33rd & Walnut St., Phila., Pa. 19104, or phone (215) 594-8106.

Continued.....

MEETINGS & EVENTS

1970 CARNAHAN CONFERENCE ON ELECTRONIC CRIME COUNTERMEASURES

On April 16-18, 1970, the Electrical Engineering Department of the University of Kentucky will host its fourth annual Carnahan Conference on Electronic Crime Countermeasures. The 2 1/2 day program will feature the twenty papers. Evening sessions will offer opportunities for participants to discuss their special interests with experts in the areas of identification, infrared, privacy, security and organized crime. Papers of interest to the EMC community are excerpted as follows:

Electrically Small Antennas

100/1000 MHz Surveillance Transmitters

Sensors for Surveillance Systems

Low Light Level TV Surveillance Systems

Persons interested in this field and in preparing papers for next year's Carnahan Conference should indicate their interest by writing to: Dr. H. M. Schlicke, Chairman, G-EMC, 8220 N. Poplar Dr., Milwaukee, Wis. 53217. If there are sufficient potential authors, the G-EMC may participate in next year's conference.

For additional information pertaining to the 1970 conference, write to:

Professor J. S. Jackson
Dept. of Electrical Engineering
University of Kentucky
Lexington, Kentucky 40506

FUTURE EED MEETINGS SET

The following article appeared in the January 1970 issue of Explosives and Pyrotechnics, a monthly publication of The Franklin Institute Research Laboratories, Philadelphia, Pa. 19103.

Those of you who have not yet decided what to do next Saturday night may be surprised to learn that meetings are scheduled way ahead. There are several reasons for this: it permits adequate preparation, avoids conflicts, and perhaps more important, assures space when you want it. Here then are the next three meetings on Electroexplosive Devices:

7EED September 1971 - Philadelphia

8EED January 1974 - West Coast

9EED Sept. 14-17, 1976 - Benjamin
Franklin Hotel,
Philadelphia

Topics covered will be similar to those of past meetings: new developments, R&D, hazards, safety, systems design, test and instrumentation. Calls for papers will be issued about nine months before each meeting.

Exact dates for the 1971 meetings will be set and announced shortly. The intervals between the following two meetings have been lengthened from 2 to 2 1/2 years to place the 9EED symposium during the Bicentennial Fair. You will say: "But the city for our 200th anniversary has not yet been confirmed." True. The problem is when it is confirmed, it's too late. The officials may remain silent; however, the convention planners have spoken. We made our reservations 5 years ago when the calendar showed the first signs of strain. At that time we were afraid to announce it lest people thought us over-anxious. Today, the Philadelphia 1976 calendar looks just like next month's--crowded.

EMC SYSTEM COURSE OFFERED AT UCLA

A course entitled "System Integration of Large Electronic Systems" will be offered during the 1970 spring quarter by UCLA. The description of the course is:

The practical and theoretical aspects of the integration of large electronic systems are thoroughly analyzed, where the application of the various power and signal distribution systems used by industry to obtain system compatibility is stressed. Includes the effects that grounding, bonding, shielding, line filtering, line impedances, impedance matching and electromagnetic coupling have on the integration of a system. A review of circuit theory through filters, electromagnetic theory through transmission lines and mathematics through the Fourier-Laplace transform pair will be included.

The course is offered through the Engineering-Physical Sciences Extension department and will consist of 3 hour sessions given one night a week for 12 consecutive weeks, beginning Tuesday, March 31. Further information on the course can be obtained by contacting the UCLA Engineering-Physical Sciences Extension department or the course instructor:

George M. Kunkel
EMC Engineering Consultant
8402 McGroarty Street
Sunland, California 91040
Phone: (213) 352-4790

CAUSE and EFFECTS - SPECS

POOR TESTING SPECS CAUSE CIRCUIT WOES

(Excerpts from an article appearing in the January 12, 1970 issue of Electronic News).

Inadequate test specifications and not poor design practices could be the cause of in-operating filter circuits.

So said Stanley Clewell, engineering manager, Cornell-Dubilier Electronics.

He explained that many people in the industry use military standard 220A which uses a 50-ohm resistive test network. But, he said, "generally, filters should be tested under realistic impedance levels. This means values other than from 50 ohms, and impedances of an inductive and capacitive nature."

Mr. Clewell went on to explain that customers specified filters according to insertion loss, which was normally figured on the 50 ohm Mil 220A standard.

When the customer's impedance level turned out to be different from 50 ohms, insertion loss was different.

VLF LOOP SENSOR

A magnetic field antenna for RFI/EMC measurements over the frequency of 20 Hz to 50 kHz has been introduced by Fairchild Electro-Metrics Corporation, 88 Church Street, Amsterdam, New York, 12011, a subsidiary of Fairchild Camera and Instrument Corporation.

The Loop Sensor Model ELS-10 is designed to meet the Magnetic Field Radiated Emission requirements of the latest versions of the Department of Defense Specifications MIL-STD-461/462, Method RE01.

The antenna, designed for use with an Electro-Metrics Interference Analyzer Model EMC-10 or similar approved instrument, is equivalent to the AT-205/URM-6 and meets the physical design requirements of MIL-STD-461.

The Model ELS-10 has a pancake design 13.3 cm. in diameter. The 36 turns of 7-41 Litz wire are positioned exactly one centimeter from the face of the unit. By the adding of a phenolic rod, 6 cm. in length, the antenna can be positioned automatically the exact required 7 cm. from the unit being tested. A second phenolic rod is used to hold the antenna rigidly on a standard tripod.

Impedance of the Model ELS-10 is 10 K ohms. The Magnetic Field Emission Loop Chart in Specification MIL-STD-461 is used for conversion factors.

A LOOK AT RFI/EMI SPECS

An article with the above title appeared in the December 1969 issue of Explosives and Pyrotechnics. Paragraphs of interest are excerpted as follows:

Department of Defense has established a group of military standards and specifications concerned with the effects of a radio frequency interference - electromagnetic interference (RFI/EMI) environment on electric and electronic equipment. When designing weapon systems containing EED's, one must ascertain whether the electromagnetic energy can effect the EED's or their electric circuits.

Note that the specs were written for the control of RFI/EMI and not as a means of determining the vulnerability of EED circuits. The maximum field intensity for RFI/EMI tests is 10 V/m while vulnerability tests could require the use of several hundred V/m as a survivability standard. Pick the specs applicable to your problems from the following listing. Several commercial services furnish the latest issue (see Microcatalogs, Vol. 1, No. 10, October 1968).

MIL-STD-449C
Radio Frequency
Spectrum
Characteristics,
Measurement Of

Establishes uniform measurement techniques applicable to the determination of the spectral characteristics of radio-frequency transmitters and receivers.

MIL-STD-461
Electromagnetic
Interference
Characteristics,
Requirements For

Establishes the requirements for the measurement and determination of electromagnetic interference characteristics (emission and susceptibility) of equipment, systems, and subsystems.

Continued.....

MIL-STD-833
Minimization of
Hazards of
Electromagnetic
Radiation to
Electroexplosive Devices

Delineates criteria to be applied to the design of electroexplosive devices (EED's) and their application in systems. Its purpose is to minimize the hazards of electromagnetic radiation to EED's. It will apply to the design selection and application of EED's and their firing circuits for all new development programs of systems that use EED's.

MIL-B-5087B
Bonding, Electrical, and Lightning
Protection, for
Aerospace Systems

Covers the characteristics, application, and testing of electrical bonding for aerospace systems, as well as bonding for the installation and interconnection of electrical and electronic equipment therein, and lightning protection.

MIL-P-24014
Preclusion of
Hazards from
Electromagnetic
Radiation to
Ordnance, General
Requirements for

Establishes general requirements for weapon systems to preclude hazards from environmental electromagnetic fields in the frequency range of 10 Hz to 40 Hz. These requirements apply to all Navy weapon systems, including safety and emergency devices and other ancillary equipment, which contain electrically initiated, explosive or pyrotechnic components.

The following are superseded by MIL-STD's 461 and 462:

MIL-STD-826	MIL-1-6181D
MIL-E-6051C	MIL-1-11683B
MIL-E-55301	MIL-1-11748B
MIL-1-16910C	MIL-S-10379A
MIL-1-17623A	MIL-S-12348A
MIL-1-26600	MIL-S-13237A

These cover screen rooms for test purposes:

MIL-STD-285	MIL-E-8881A
MIL-E-4957A	MIL-E-18639A

Insertion loss of RF filters: MIL-STD-220A
Requirements for current-carrying filters: MIL-P-15733D
Shielding for engine electrical systems: MIL-1-16155D
Interference limits for aircraft: MIL-1-25171
RF noise suppression : MIL-S-5786

R.F. Wood, Franklin Institute Res. Labs.

AIR WAVES and REGULATIONS

FCC SETS PANEL ON TV TUNING

The Federal Communications Commission has set up a three-man panel to handle questions on its recently adopted rule requiring comparable tuning for VHF and UHF television channels.

The FCC panel is also expected to consider the request by the EIA Consumer Products division to delay the May 31, 1971 target date for implementation of the rule. The request for reconsideration will be filed March 9.

The panel organized to provide for consistency and efficient administration of the rules, is headed by Arnold G. Skrivseth, Asst. Chief Engineer in charge of the Research division. Other members are W.K. Roberts, Asst. Chief of the laboratory division, and HERMAN GARLAN, Chief of the RF Devices branch.

Manufacturers and others with questions about the regulations may contact the panel with inquiries and requests for consultation. Inquiries should be in writing and should be addressed to the Television Tuning Panel, Federal Communications Commission, Washington, D. C. 20554, Attn: Upton Guthery, Secretary.

TV CHANNELS FOR 3 OHIO CITIES INTERCHANGED TO AVOID INTERFERENCE

The following has been excerpted from the FCC News, Report #5693, January 14, 1970:

Rule amendments to interchange the television channels assigned to three Ohio cities, Columbus, Mansfield, and Newark, to avoid interference between proposed commercial broadcast station WNCI-TV, Channel 47, Columbus, and the Ohio State University Radio Observatory in Columbus, have been adopted by the Commission, effective February 24, 1970 (Docket 18687). The action amends Section 73.606(b) of the Rules, the Table of Assignments for Television Broadcast Stations.

Nationwide Communications, Inc. received a construction permit for WNCI-TV on May 19, 1967, and filed an application on January 5, 1968, to modify its permit to change transmitter site and increase antenna height and effective radiated power. Ohio State University (OSU) opposed the application on the basis of anticipated interference to its Radio Observatory from the fourth harmonic of the WNCI-TV frequency. The joint petition by Nationwide, OSU and Newark Board of Education resulted from an agreement to resolve the interference problems.

Continued.....

AIR WAVES & REGULATIONS

The Commission directed that Nationwide's permit for WNCI-TV be modified to specify operation on Channel 28 instead of Channel 47 at Columbus, and that BENO's license for WGSF-TV be modified to specify operation on Channel *31 in place of Channel *28 in Newark.

Action by the Commission January 14, 1970, by Report and Order. Commissioners Burch (Chairman), Bartley, Robert E. Lee, Cox, Johnson, H. Rex Lee, and Wells.

HEW Rules on Electronic Product Radiation

The full text of the HEW rules on electronic product radiation were published in the Federal Register, January 22, 1970. Excerpts are as follows:

TITLE 42---PUBLIC HEALTH

Chapter 1--Public Health Service, Department of Health, Education and Welfare

Subchapter F--Quarantine, Inspection, Licensing

PART 78--REGULATIONS FOR THE ADMINISTRATION AND ENFORCEMENT OF THE RADIATION CONTROL FOR HEALTH AND SAFETY ACT OF 1968

Control of Electronic Product Radiation

Due to the immediate need for the procedural regulations relating to the manufacture, sale, and importation of electronic products subject to the Act, it is considered necessary that these regulations become effective immediately upon republication. Accordingly the amendments to Part 78, as set forth below, are hereby adopted effective on the date of publication.

Definitions and interpretations.

As used in Part 78:

(a) "Electronic product radiation" means--

(1) Any ionizing or nonionizing electromagnetic or particulate radiation, or

(2) Any sonic, infrasonic, or ultrasonic wave, which is emitted from an electronic product as the result of the operation of an electronic circuit in such product.

(b) "Electromagnetic radiation" includes the entire electromagnetic spectrum of radiation of any wavelength. The electromagnetic spectrum illustrated in Figure 1 includes, but is not limited to, gamma rays, x-rays, ultraviolet, visible, infrared, micro wave, radiowave, and low frequency radiations.

(c) "Electronic product" means (1) any manufactured or assembled product which, when in operation, (i) contains or acts as part of an electronic circuit and (ii) emits (or in the absence of effective shielding or other controls would emit) electronic product radiation, or (2) any manufactured or assembled article which is intended for use as a component, part, or accessory of a product described in subparagraph (1) and which when in operation emits (or in the absence

of effective shielding or other controls would emit) such radiation.

#78.501 Defect in an electronic product.

For the purpose of this subpart, an electronic product shall be considered to have a defect which relates to the safety of use by reason of the emission of electronic product radiation if:

(a) It is a product which does not utilize the emission of electronic product radiation in order to accomplish its purpose, and from such emissions are unintended, and as a result of its design, production or assembly (1) it emits electronic product radiation which creates a risk of injury, including genetic injury, to any person, or (2) it fails to conform to its design specifications relating to electronic radiation emissions; or

(b) It is a product which utilizes electronic product radiation to accomplish its primary purpose and from which such emissions are intended, and as a result of its design, production or assembly it (1) fails to conform to its design specifications relating to the emission of electronic product radiation; or (2) without regard to the design specifications of the product, emits electronic product radiation unnecessary to the accomplishment of its primary purpose which creates a risk of injury, including genetic injury to any person; or (3) fails to accomplish the intended purpose.

#78.502 Discovery of defect or failure of compliance by manufacturer; notice requirements.

Any manufacturer who discovers that any electronic product produced, assembled, or imported by him, which product has left its place of manufacture, has a defect or fails to comply with an applicable Federal standard shall:

(a) Immediately notify the Secretary in accordance with #78.503, and

(b) Except as authorized by #78.506, furnish notification with reasonable promptness to the following persons:

(1) The dealers or distributors to whom such product was delivered by the manufacturer; and

(2) The first purchaser of such product for purposes other than resale, and to any subsequent transferee of such product (where known to the manufacturer or where the manufacturer upon reasonable inquiry to dealers, distributors, or first purchasers can identify the present user).

#78.509 Manufacturer's obligation to repair, replace, or refund cost of electronic products.

Continued....

CHAPTER CHATTER

by Ira M. Berman

The wind-driven sleet beats a fierce tattoo on the window. Outside in the night visibility is down to inches. A coat of ice is rapidly building on streets, sidewalks, trees, power lines. The weight of ice and the pounding of the wind is snapping wire after wire, with huge blue flashes lighting up the scene like an eerie discotheque. Radio stations (those still on the air) are pleading with everyone to stay home, and keep a portable radio and candles at hand.

But what's this? The door swings open, admitting a hurricane of wet, frigid air and a group of men. Their collars are up and their hat brims pulled down. Someone slams the door shut, and all stamp their feet and shake the ice and water from their clothes. Who are these brave souls? Why, G-EMC members, of course. Who ever said that weather stopped a chapter meeting?

Just so the folks at Canaveral and New Orleans and Los Angeles know what winter is really like, I have included the above. It must be weird to go to a chapter meeting in February with the convertible top down.

Enough of this shilly-shallying. Down to business! Meetings, meetings, meetings. And a new Chapter! Let's look in on Arizona first.

TUCSON

The first I heard of the new activity in the Southwest was by a copy of a letter from Dr. Schlicke to Mr. A. F. Rashid, of Bell Aerosystems in Tucson. Later contact showed that indeed a Chapter was being formed, waiting (at the time of this writing) for approval of IEEE Headquarters. Mr. Rashid says there are about 30 engineers quite interested in EMC and in forming a Chapter in the Tucson area. Their primary interest is in Mobile Communications. This follows the latest trend in EMC: that of understanding and trying to solve the problems Spectrum Pollution. In fact, the entire Section seems quite interested, so their first meeting will be a joint effort with G-ASP, G-MTT, and the Tucson Section.

Mr. Rashid is a most prolific author, too. He has authored one paper that will have been published by the time this news hits the street: "Quasi-Near-Zone Field of a Monopole Antenna and the Current Distribution of an Antenna on a Finite Conductive Earth." This should be appearing in the January 1970 issue of the IEEE Antennas and Propagation Transactions. His paper "A Cosite Antenna and Propagation Model for Mobile Communication Systems" is in the hands of the EMC Transactions' Editor, and there are hints that he has more goodies on antenna and propagation image parameters on the way. How busy can the man get? Lots of luck, Tucson! And you too, Mr. Rashid. But leave some room in the journals for the rest of us, please.

PHILADELPHIA

The Philadelphia Chapter started publishing their own Newsletter a few years ago, and the tradition seems to have been established quite firmly by now. The latest issue (No.10) lists such interesting things as: notice of nominations for the 1970-1971 year, mention of the previous and next future meetings, a pitch to the members to come out and support the efforts to win the Chapter-of-the-Year Award, mention of current legislation affecting EMC, notice of courses in EMC awareness given throughout the country, and additional information on their one-day seminar May 19, on the subject "Everyone's Meaningful Communication." This will be held at the University of Pennsylvania, and with firms such as GE, Univac, RCA, Philco-Ford, and the Franklin Institute in the area, it should be a really good, informative, educational experience.

Date:	April 21, 1970
Place:	Tucson, Arizona
Speaker:	Mr. R. D. Larson
Affiliation:	Bell Aerosystems Company
Topic:	EMC (general discussion)

Continued.....

CHAPTER CHATTER

Date: March 4, 1970
 Place: Univac, Blue Bell, Pa.
 Speaker: William Swift
 Affiliation: Hewlett-Packard
 Topic: Spectrum Analysis

Date: May 19, 1970 (evening seminar)
 Place: University of Pennsylvania
 Speaker: 4 Panel Members
 Topic: Noise Control Standards

The Chairman reports that W. F. Boral is the new appointed secretary, as the elected man changed employment and moved from the area. He also states that planning is in full swing for the 1971 Symposium. Busy, busy, busy. It's good to see a Chapter with such enthusiasm.

SAN FRANCISCO

Lots of news from San Francisco. Their info arrived too late last time, but I will give the full coverage now, fellows. Yours was the first received for this issue.

Date: October 20, 1969
 Place: Hewlett-Packard, Palo Alto, Calif.
 Speaker: R. J. Widlar
 Affiliation: National Semi-Conductor
 Topic: Integrated Circuits for Digital Data Transmission
 Attendance: 40

Date: November 17, 1969
 Place: Hewlett-Packard, Palo Alto, Calif.
 Speaker: Al Parker
 Affiliation: Solar Electronics
 Topic: The Role of Impedance in Measurement and Suppression of Conducted EMI
 Attendance: 40

Date: January 19, 1970
 Place: Hewlett-Packard, Palo Alto, Calif.
 Speaker: Dr. William Walters
 Affiliation: Philco-Ford Western Development Laboratory

EMP Effects on Ground Communi-

Attendance: 40

More meetings are coming, on topics just as interesting.

Date: February 16, 1970
 Place: Hewlett-Packard, Palo Alto, Calif.
 Speaker: Jim Spagon
 Affiliation: TRW
 Topic: Intra-System Electromagnetic Compatibility Using Computer Analysis Techniques

Date: April 20, 1970
 Place: Hewlett-Packard, Palo Alto, Calif.
 Speaker: H. A. Mendez
 Affiliation: IBM, San Jose, Calif.
 Topic: Meaningful EMC Measurements in Shielded Rooms
 Date: May 18, 1970
 Place: Hewlett-Packard, Palo Alto, Calif.
 Speaker: William Swift
 Affiliation: Hewlett-Packard
 Topic: Using Spectrum Analysis of EMI Measurements

Now, there are six subjects that are almost guaranteed to hold the members' interest, and since I've heard several of the speakers, I know they are excellent.

The slate of officers for the 1969-1970 year is:

Chairman: Richard H. Kelkenberg,
 Lockheed MSC

Vice-Chairman: Paul Gagner, EMF Company

Secretary-Treasurer: Ray Magnuson,
 Hewlett-Packard

I understand the Chairman has lined up the speakers for this year, and it looks like he's done a fine job!

The 1973 Symposium will be at San Francisco, in July. To those who remember the fine weather and finer papers--and that ridiculous airline strike--in 1966, it looks like another banner year out there.

Continued....

BOSTON

The folks in bean-town (how they must hate that name!) have sent some information. First, this year's slate of officers:

Chairman: Mr. Saul Birnbach,
AVCO Corporation Systems
Division

Vice-
Chairman: Mr. Robert Berkovits,
TRW System

Secretary-
Treasurer: Mr. Ted Twarog, Jr.
Carlson-Twarog, Inc.

Their first meeting of this year (69-70) was very well attended.

Date: September 23, 1969

Place: EG & G

Speaker: R. Morey and J. Finnell

Affiliation: EG & G and AVCO, respectively

Topic: EMP:Sources, Sensing and
Simulation

Attendance: 31 members and 33 guests

The following meeting information is sort of sketchy, according to my data:

Date: November 11, 1969

Place: Sylvania

Speaker: William Duff

Affiliation: Atlantic Research

Topic: Receiver Testing Techniques
per MIL-STD-449

A meeting was scheduled on Dec. 10, 1969, where ideas would be exchanged with the Bio-Medical Engineering Group. And another was planned for Jan. 21, 1970, on the Bio-Medical Aspects of EMC. That's another hot topic today, and one to which we can really make a positive contribution. For example, would you like a neighbor's pacemaker to stop when you opened your garage door?

HOUSTON

Gene Haywood, the Chairman of the Houston Chapter, reports that four of his most active members have transferred to new locations. We join with Gene in wishing Tom Herring, B. Baldrige, Frank Ball, and Wayne Flickinger the best of luck in their new locations. The activities there, as well as in the Canaveral Chapter, seem to be shrinking as the Space Program is de-emphasized. As Bronson says, "Hang in there."

Houston reports one meeting just before Christmas:

Date: December 13, 1969

Place: Vernon's Pizza Inn

Speaker: Mr. C. M. (Mike) Brennan

Affiliation: The Electro-Mechanics Company

Topic: Magnetic Shielding Measurement
Techniques in the VLF Range

Attendance: 13 members

The program for the balance of the activity year is still pending in Houston. A meeting was scheduled for February.

WASHINGTON, D.C.

The District sends news of several meetings, and since there has been little word this activity year, it's good to hear from them.

Date: September 18, 1969

Place: Blackie's House of Beef

Speaker: Earl Freeman

Affiliation: IITRI, ECAC

Topic: Air Traffic Control Radar
Beacon Systems Performance
Prediction

Attendance: 24 members, 7 guests

Date: November 20, 1969

Place: Blackie's House of Beef

Speaker: Walter Hirschmann

Affiliation: ESSA

Topic: Definition, Use, and Management of the
Radio Resource (Electrospace)

Date: January 15, 1970

Place: Blackie's House of Beef

Speaker: Ernest C. Wood

Affiliation: DDR&E

Topic: Defence and EMC

Two more meetings are scheduled before June: March 19, and May 21. Topics and speakers have not been announced.

I see Jack Carter has replaced Clarence Saunders as Chapter Chairman, but I have no further details. Can anyone in Washington tell us who are the new officers, and what's happening down there?

Continued.....

NEW JERSEY COAST

Now here's a group that has a meeting once a month (almost), has interesting speakers on current topics, and has greater attendance at a technical meeting than at the Christmas Party!

Date: December 16, 1969
 Place: Fort Monmouth Officers Club
 Topic: Christmas Party
 Attendance: 44

Date: January 16, 1970
 Place: Playboy Club, N.Y. (again!)
 Speaker: Mr. Paul Krueger
 Affiliation: Pickatinny Arsenal
 Topic: RF Hazards Simulation Chamber
 Attendance: 28 (from New Jersey)

The speaker for the January meeting was scheduled to be Mr. Abraham Grinoch, of the Arsenal, but he became ill, and Mr. Krueger filled in.

Plans for the future include a March meeting where Fred Nichols, President of IMI, will speak; a meeting in mid-April, and election of officers in May. Attendance has been holding up well, too: an average of 30 members and 14 guests per meeting since September 1969.

METROPOLITAN NEW YORK

Such a paucity of news from New York. The only word was about the joint meeting with New Jersey Coast. Some 50 - odd members from New York (some with their wives) attended the joint meeting.

Let's go, New York! Let's have the old pepper! Send news!

CHICAGO

Chicago has held a meeting, and sponsored a Session at NEC, and is doing all kinds of interesting things.

Date: January 21, 1970
 Place: Chicago
 Speaker: Mr. Chris Kendall
 Affiliation: Genisco Technology Corp.
 Topic: The Essence of EMC Control Plans
 Attendance: 22

Members of the Chicago Chapter arranged for and put on Session #28 at the 1969 NEC. The Chairman was Joseph Nasca, of Licon; organizers were Jim Beall, Teletype, and Jim Krstansky, IITRI. Herman Garland (FCC) and Fred Nichols were the speakers, and the following members made up the ensuing panel discussion: Dr. H. Schlicke, Allen-Bradley; Richard Schulz, Boeing; Jim Klouda, Elite Electronics; and Howard Wolfman, Teletype.

I am told Messrs. Wolfman and Parke of Teletype are preparing some kind of presentation for the 1970 Symposium. Howard Wolfman is also the Chairman of the 1972 EMC Symposium. Chicago is really picking up!

MOHAWK VALLEY

This is one of our smaller Chapters, but they have some pretty interesting meetings. I attended the one last November (of course, my boss was the speaker, so it was a fine evening). The latest meeting had a mind-bending topic.

Date: January 29, 1970
 Place: Rome, N.Y.
 Speaker: Dr. Arlon T. Adams, Associate Professor
 Affiliation: Syracuse University
 Topic: Modern Matrix Methods in the Design of Antennas
 Attendance: 22

Another meeting is being considered before June 1970. The speaker and topic have not been selected as yet.

For a small Chapter, these folks do well at their meetings; average attendance since last September is 20 members and 10 guests per meeting. As I said, snow and ice don't stop EMC meetings!

LOS ANGELES

These folks seem to change their name -- the last I heard, it was Southern California. But they never change their desire to get good speakers on good topics -- and they get good attendance as the result.

Date: December 6, 1969
 Place: Knotts Berry Farm, Anaheim, Cal.
 Topic: Pre-Christmas Family Get-Together
 Attendance: 29

Continued.....

Date: January 22, 1970
 Place: Fox and Hounds Restaurant,
 Santa Monica, Calif.
 Speaker: Dr. W. Ross Adey
 Affiliation: UCLA Space Biology Labs
 Topic: Interference and Artifacts in
 Biological and Medical Data
 Acquisition
 Attendance: 71 (Wow!)

On February 19 a meeting has been planned at the Jet Propulsion Laboratories, where D. T. Frankos of JPL will make a presentation on Mariner, followed by a tour of the JPL Facilities.

Future meetings are as yet unannounced. The Chapter is earlobes deep in planning for the July Symposium. And the members are still active in Student Activities, so you can see why they haven't planned any more meetings--as yet.

ATLANTA

Atlanta also has a new Chairman -- at least an acting one -- as the present Chairman, R. W. Smith, has moved to Tampa, Florida, to start his own data-processing business, "Computer Utilities of Tampa." We also wish you the best.

Atlanta's meetings keep rolling along, too.

Date: November 11, 1969
 Place: Georgia Tech Engineering Experiment Station, Atlanta, Ga.
 Speaker: D. W. Matthias
 Affiliation: Lockheed
 Topic: Lockheed Georgia Testing Capabilities
 Attendance: 10
 Date: January 6, 1970
 Place: The Steaks Restaurant, Atlanta
 Speaker: Dr. W. W. Everett
 Affiliation: RADC, Rome, N.Y.
 Topic: Algorithms in EMC
 Attendance: 22 members, 2 guests

Two more meetings are scheduled prior to June 1970:

Date: March, 1970
 Place: Racquet Club (Joint Meeting with Section)
 Speaker: Dr. Perlin
 Affiliation: Georgia Tech.
 Topic: Frequency Management Considerations
 Date: May 12, 1970
 (Election of Officers)

The 1969 IEEE Southeastern EMC Symposium was conducted late in October, 1969, and the Chapter as well as the 126 attendees considered it quite successful. A Symposium Record is available from IEEE Headquarters as Volume 69C 66-ATSEC.

NEW ORLEANS

I guess I shouldn't expect a Chapter in New Orleans to think much about G-EMC at Mardi Gras time. I understand the entire city's work comes to a screeching parade rest for the festivities. Look for you next issue, fellows.

SEATTLE

To quote the words of Dick Donahue, the Chairman "Because of the Boeing work force reduction, interest in IEEE activities has not been overwhelming. However, G-EMC activity interest has been relatively good." There's one meeting completed and two to report on this issue.

Date: January 21, 1970
 Place: Boeing Scientific Research Lab
 Speaker: Dr. H. M. Schlicke
 Affiliation: Allen-Bradley Co.
 Topic: EMC in Perspective
 Attendance: 22

Continued.....

Date: March 18, 1970
 Place: Boeing Scientific Research Lab
 Speaker: Dr. William Cooley
 Affiliation: Seattle University
 Topic: Standing Wave Influences on
 Measurement Accuracy in
 Shielded Enclosures

Remember the article written in 1967 by the Editor on Shielded Room Resonances? I'd say this topic needs considerable exploring as the specifications become more sophisticated.

Date: May 20, 1970
 Place: Boeing Scientific Research Lab

Seattle is also preparing some papers for the July Symposium. There may not be enough time to get to Disneyland!

CENTRAL TEXAS

Last, but far from least, are the folks from Old San Antonio! We could no more forget them than the Alamo. (Does anyone realize how many issues I've been itching to tell that one?)

No, don't applaud. Just read the Chapter's accomplishments.

Date: November 5, 1969
 Place: Southwest Research Institute,
 San Antonio, Texas
 Speaker: Merle Converse
 Affiliation: SWRI
 Topic: Time Domain Filters
 Attendance: 18

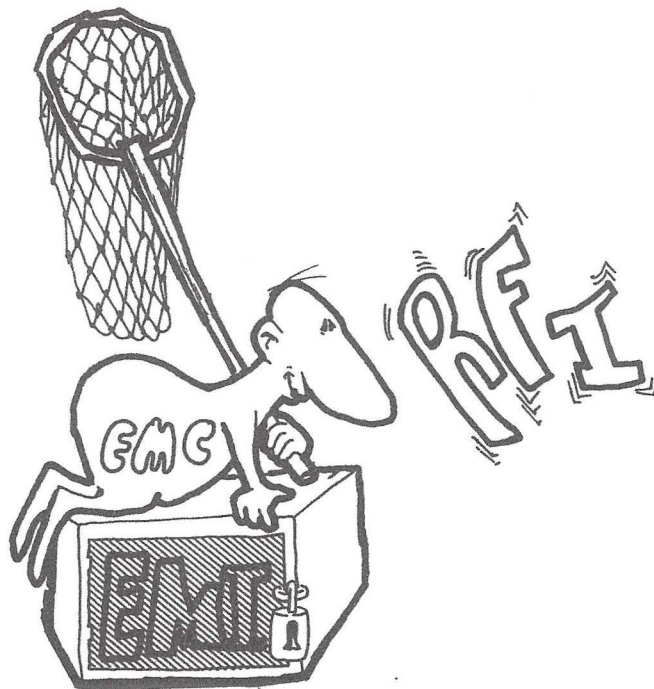
Mike Brennan, the most popular speaker on the 1969-1970 circuit, will address the group in March.

Date: March 18, 1970
 Place: Electro-Mechanics Co.,
 Austin, Texas
 Speaker: C. Mike Brennan
 Affiliation: Electro-Mechanics Company
 Topic: Magnetic Shield Measurement
 Techniques

Walter C. Dolle is preparing a paper or two, hopefully for Anaheim.

This is another small Chapter, with good attendance: an average of 18 since last September.

That looks like the news for this issue. Looks like there will be one more issue until the big get-together. I haven't been to Anaheim for 14 years, and I'm really looking forward to going. Boy, oh, boy! Anaheim in July must be better than Schenectady in February!



CONTEMPORARY TERMINOLOGY

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