PROFESSIONAL GROUP ON RADIO FREQUENCY INTERFERENCE

NEWSLETTER

NUMBER 17 AUGUST 1961

PGRFI COMMITTEE CHAIRMAN FOR THE 1961-1962 TERM:

Harold E. Dinger, Chairman, PGRFI 1961-1962, has announced the following appointments:

Membership	R. W. Fairweather
Meetings	Herman Garlan
Technical Papers	A. H. Sullivan
Newsletter	Rexford Daniels
Publications	O. P. Schreiber
Chapter Activities	Z. V. Grobowski
Nominations	W. E. Pakala
Constitution and Bylaws	John J. Egli
Awards	James S. Hill
Liaison	R. W. Showers
Technical Advisory	H. A. Gauper, Jr.
Educational	C. W. North

HIGHLIGHTS OF THE 3RD NATIONAL SYMPOSIUM:

"A positive effort to reduce interference is now a reality".

"To insure safety of flight, it is mandatory that the communication electronic equipments used in the Air Traffic Control System be operated in an interference-free environment".

"In essence the interference problem today is no longer answered by simple administrative frequency scheduling and coordination, but it must be approached from the beginning of equipment design, with system concepts the basic criteria and a full knowledge of the RF environment made known to the system design engineer".

"When considering interference to electro-magnetic systems, there are no limited areas of measurement peculiar to the subject. These areas are almost as inclusive as life itself".

"The accuracy of an interference measurement is a direct function of the condition of the test equipment used".

"The principal problem in any measurement is the determination of its reliability".

"Space technology, and particularly communication via satellites, is opening a new frontier of interference coordination, with new problems and new tools for their solution".

"Satellite communication will have challenging interference problems, but the great challenge lies in trying to anticipate and avoid these problems instead of trying to fix them afterwards".

"The Modeling Procedure has been tested in controlled problems and the results lead to the conclusion that modeling is a feasible approach to measuring, predicting and controlling radio frequency interference".

"The preservation of shielding integrity is an extremely difficult problem since a shielded enclosure can seldom be constructed of a homogeneous metallic sheet."

"In order to effectively analyze interference phenomena in high-density electronic environments, a knowledge of antenna radiation in the Fresnel Region is required."

"The sun and other stars emit electromagnetic energy which is incident on the earth at a constant rate regardless of location or season. This interference is termed 'cosmic interference' and becomes predominant above approximately one megacycle".

"There is no single approach by which all radio interference problems can be predicted or evaluated".

"Any comprehensive effort to reduce electromagnetic incompatibility is inherently composed of two courses of action; improvement in equipment and system design, and improved applications of frequency management".

"It is imperative, in keeping with both the intent and planned applications of the DOD Equipment Signature Collection Plan, that some provision should be made for guaranteeing that the measurement results are within either a prescribed or definable accuracy".

"There can be no real top-level government control of man-made interference until Congress declares it a 'public nuisance.'"

Attendance 460 - local 183, out-of-town 277.

First place awards for the best overall technical papers and presentation went to Mr. Kenneth Heisler, Jansky & Bailey, for the Main Program, and Mr. O. P. Schreiber, Technical Wire Products, Inc., for the Tutorial Program.

Several hundred copies of the Digest are available from IRE Headquarters, at $4.00 each, for libraries and other interested purchasers.

The 4th National Symposium is planned for the Pacific Coast next year. Time and place will be announced.

LETTER OF APPRECIATION FROM OUR CHAIRMAN:

Mr. D. R. J. White, Don White Associates
7306 Honeywell Lane, Bethesda, Maryland

Dear Don:

On behalf of the officers and members of PGRFI, I should like to express my thanks and sincere appreciation for the effort which you personally devoted to the conduct of the 3rd National Symposium on Radio Frequency Interference. Without question this Symposium was the best of the three that were held from the point of view of not only attendance but quality and general interest.

I would also like you to extend to the other members of your committee our appreciation for their contributions. The Symposium was certainly conducted with an unusual degree of smoothness for this type of affair.

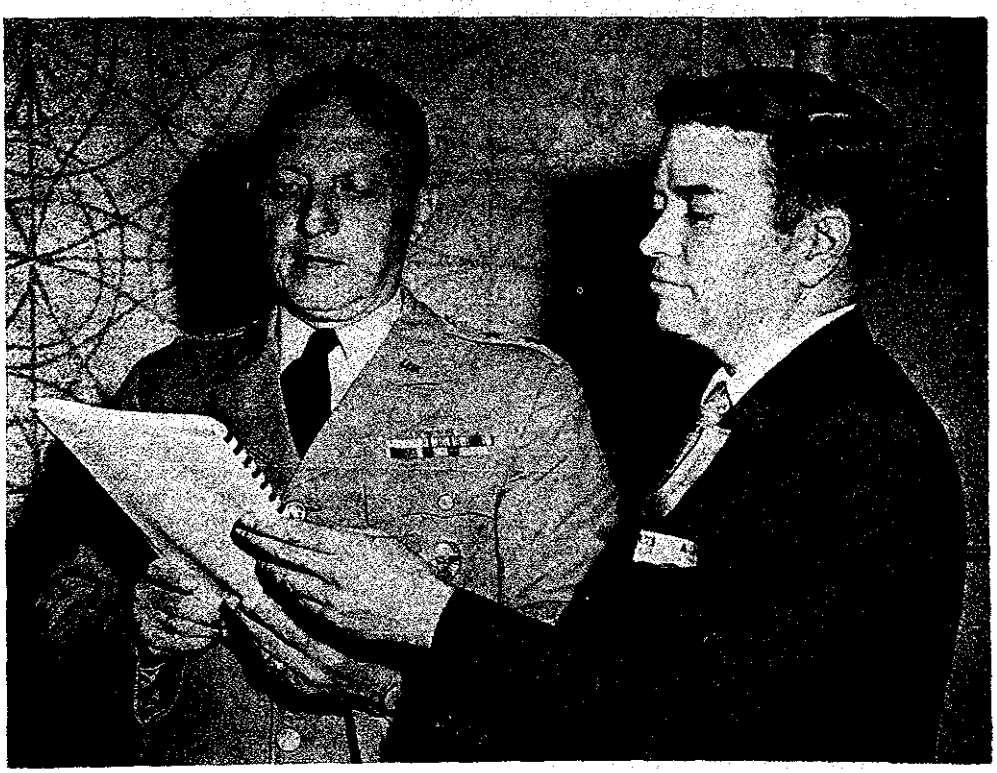
With best personal regards,

Sincerely yours,

R. M. Showers, Chairman
PGRFI, 1960-1961

PICTURES TAKEN AT THE THIRD NATIONAL SYMPOSIUM ON PGRFI

Edward F. Mischler, National Engineering Service, Public Relations; Herman Garlan, FCC, Vice-Chairman; Fred Morris, Electro-Mechanics, Inc., Speaker; Joseph Berliner, NASA, Washington, D. C., Speaker, and Jack M. Carter, Jansky & Bailey, Inc., Hospitality.



Major-General James Dreyfus, J-6 Communications, DOD, Washington, Key-Note Speaker, and Donald R. J. White, Chairman, Third National Symposium.

NEW AWARD RATING SHEET USED AT 3RD NATIONAL SYMPOSIUM:

The following Award Rating Sheet was first used at the PGRFI 3rd National Symposium for the awarding of prizes for the best paper, and presentation of it, at the Symposium. Three judges judged each speaker and the Sheets were forwarded to the speaker afterwards for his edification.

Paper:	Speaker:
Title:	

AWARD RATING SHEET

PGRFI 3rd National Symposium
June 12-13, 1961
Sheraton-Park Hotel Washington, D. C.

Instructions:
1. Use separate sheet for each speaker.
2. Circle appropriate rating of each item.
3. Return this sheet to Session Chairman.

Remarks:	Fair	Good	Excellent	Scoring Column
1. PREPARATION				
a. Knowledge of subject	3	6	9	
b. Sufficient treatment of subject	3	6	9	
c. Organization of material	3	6	9	
2. PRESENTATION				
a. Posture	1	2	3	
b. Language (choice of words; structure)	2	4	6	
c. Clarity (loudness, enunciation and speed)	3	6	9	
d. Enthusiasm	1	2	3	
e. Timing	2	4	6	
f. Audience	2	4	6	
3. VISUAL AIDS				
a. Preparation (Ledgibility, comprehensibility)	2	4	6	
b. Effective Utilization	2	4	6	
c. Adequate Explanation	2	4	6	
4. OVERALL EVALUATION	3	6	9	
			TOTAL	

Detach Before Sending To Author

Judge:	Date:
Affiliation:	

CANADIAN ELECTRONICS CONFERENCE INVITES PGRFI:

In a letter to Prof. R. M. Showers, Chairman, PGRFI, the following invitation, in part, was extended to attend the Canadian Electronics Conference:

"On behalf of the Executive Committee of the IRE Canadian Electronics Conference, I wish to extend to you and your associates a cordial invitation to attend our 1961 Conference and Show being held in Toronto on October 2, 3 and 4. This is the Canadian Electronic Industry's most important technical and sales programme of the year and ranks as one of the foremost scientific events in the Commonwealth.

"The Conference theme, 'Progress Through Electronics', will be dramatically portrayed in exhibits of the latest equipment and techniques by over 170 Canadian, U.S. and overseas companies. More than 80 papers and panel discussions will deal with the most notable technical and business developments in the Industry".

$2,000,000 STUDY CONTRACT AWARDED ARMOUR RESEARCH FOUNDATION:

The following is the official news release from Headquarters, Electronic Systems Division, Air Force Systems Command, United States Air Force, Laurence G. Hanscom Field, Bedford, Mass.

"Hanscom Field, Mass. --- Award of a $2,000,000 contract to an Illinois research firm for technical support of a tri-service program called for by the Secretary of Defense to examine for possible mutual interference all military electronic devices, ranging from hand-held walkie talkies to massive radars, was announced today by the Air Force Systems Command.

"The contract calls for electronic and mathematics specialists of the Armour Research Foundation of the Illinois Institute of Technology to develop methods for analyzing the interference problem through the newly-established Electromagnetic Compatibility Analysis Facility at Annapolis, Md.

"Actual award of the contract was made by AFSC's Electronic Systems Division. Colonel Charles C. Woolwine of the Division's Detachment Eight is head of the new facility, which includes Army, Navy, and Marine Corps representatives.

"'Initial emphasis in this interference analysis', explained Colonel Woolwine, 'will be on radar or pulse-type equipment. As we refine our methods, we will extend this analysis to all equipment which produces electromagnetic energy'.

"The Analysis Facility, a key element of the Department of Defense Electromagnetic Compatibility Program, will be located at the Naval Engineering Experimental Station, Annapolis, Md. A former engine test building, it is being remodeled to accomodate offices and a computer.

"Until the remodeling is completed (about November), the Armour Research Foundation will set up a temporary analysis center in Chicago. Close to 100 military and contractor personnel will man the Annapolis analysis center.

"In operation, information on their electronic devices will be furnished by all the military services. This information will include precise location of the instruments, hours of operation, and spectrum signature, or every type of radio frequency energy emitted.

"'This latter point is especially important', stated Colonel Woolwine, 'Many of our emitters, in addition to producing the electromagnetic energy for which they were designed, also produce radiation that is incidental to its main function.

"'The incidental radiation may be in the form of a wider bandwidth, side lobes, or even 'leakage' from signal-generating equipment. The military has to make sure that these electronic devices, essential to our nation's defense, do not suffer from interference with each other'.

"The Analysis Center will examine:

"Characteristics, including spectrum signatures, of equipment under development to insure conformity with established standards.

"Spectrum signatures of equipments in particular operational environments to determine if interference problems exist.

"Operational environment conditions existing in problem areas.

"Possible development of simulators for use as frequency management or research and development tools.

"The Analysis Center will also serve as a central 'library' which can promptly answer questions on equipment compatibility.

"Should the Analysis Center uncover probable interference problems with equipment under development, remedial measures will be taken by the Department of Defense through its Radio Frequency Compatibility Program. Should problems develop among existing equipment, 'corrective action' is prescribed under the DOD program, including phase-out and replacement if necessary.

-----SIDEBARS-----

"Throughout the past decade the military services have been developing and building complex electronic systems for a variety of purposes. As the number and power levels of equipment rose sharply interference between systems became more frequent. The tendency a first was to deal with each case of incompatibility on an ad hoc basis as it was discovered, usually by time sharing or by agreeing upon a division of radio frequency bands between the conflicting systems. It was generally recognized that in the long run these arrangements would not do, and that the only sound approach was to plan each system from the beginning so that no incompatibility would ensue. It was not until 1960, however, that funds were available for a concerted effort. In July of that year the Office of the Secretary of Defense allotted emergency funds for establishment of the Joint Electromagnetic Compatibility Program which includes an Electromagnetic Compatibility Analysis Facility as a key element. The DOD has assigned executive management responsibility for initial development and implementation of the Analysis Facility to the USAF, who in turn delegated the responsibility to the Air Force Systems Command".

PRELIMINARY ANNOUNCEMENT OF SEVENTH ARMOUR CONFERENCE:

The following is the preliminary announcement of the Seventh Conference on Radio Interference Reduction and Electronic Compatibility to be held November 7, 8 and 9, 1961:

Sponsored jointly by the three military services, the Seventh Conference will be conducted by Armour Research Foundation on the campus of Illinois Institute of Technology in Chicago.

TECHNICAL TOPICS

Sessions are being organized to cover such areas as electromagnetic compatibility analysis, design and measurement techniques, interference prediction techniques, data processing and display methods, practical interference control and reduction, etc. It is also planned that topics relating to the analysis requirements of the new DOD Electromagnetic Compatibility Analysis Center will be emphasized. The program will be sufficiently diversified to attract representatives from industrial and government activities, both at the practical and more technical levels.

CALL FOR PAPERS

Your cooperation is needed to plan this informative, stimulating program. If you feel your experience and work would be of interest to other people engaged in interference control and suppression work, and if you would like to present a paper at the Conference, we would be happy to review an abstract.

Submit abstracts by 1 August 1961

The abstract should be about 150 words. Approximately 40

minutes will be allotted for presentation and discussion.

CLASSIFIED SESSIONS

A one-day session for presentation of classified papers is being planned. In view of the additional processing time for confidential and secret material, it is requested that such abstracts be submitted as soon as possible, through the appropriate security agencies.

If you have any questions regarding the Conference, or desire more information, please contact Mr. H. M. Sachs of Armour Research Foundation at this hotel, or write to Mr. Sachs at Armour Research Foundation, 10 West 35th Street, Chicago 16, Illinois.

ARTICLES ON NOTCH FILTERS:

FILTERS FOR SERVO MODULATORS AND DEMODULATORS

Electromechanical Design for May 1961 carries a 7-page article under the above title by Martin Glasberg, Contributing Editor. The sub-head and introductory paragraph state:

"Notch Filters reject unwanted frequencies without influencing servo information.

"Modulators and demodulators are often an important part of a servo. Ideally, a modulator would take dc and convert it to ac, at the carrier frequency, no matter how fast the dc were changing. An ideal demodulator would be just the reverse: it would convert the amplitude or envelope of a modulated signal into a dc signal. The modulator is commonly employed in an ac servo to convert a dc error signal into a modulated signal to drive the servo motor. In the same way a demodulator is used to convert ac error signals in a dc servo. One type of ac servo uses both a modulator and demodulator to convert the normal modulated signal to dc, which can be acted upon by a dc compensation network, and then to convert the resulting dc signal back to ac."

SUPPRESSING A SINGLE INTERFERENCE FREQUENCY

Electronic Industries, May 1961, carries an article on the above subject by Dr. Theodore A. Bickart of The Johns Hopkins University. The sub-head and first paragraphs are:

"How can interference in critical points in an analog computer system be eliminated? Out of a specific problem encountered in a system came one solution - the 'Notch' filter circuit. Two such filter circuits are discussed in this article.

"The problem of suppressing a single frequency interference signal often occurs. An example is a 60 cps signal which is usually unwanted but unavoidable. An ideal solution to this problem would be to have a filter with a unity gain, except at the frequency of the undesired signal. It should have a zero gain at this frequency. This filter must have a linear phase characteristic to prevent phase distortion. A filter of this description would suppress the undesired signal and also any desired signal at the same frequency."

ITEMS OF INTEREST IN PROCEEDINGS OF THE IRE, JUNE 1961:

"A Mechanism for Direct Adjacent Channel Interference"

A letter from Clyde L. Ruthroff, Bell Telephone Labs., Inc., Holmdel, N. J., regarding the above appears on page 1092. Extracts are as follows:

"The type of crosstalk described in the title is likely to occur in systems which have closely packed FM channels such as broadband microwave systems or FM multiplex systems. The phenomenon can be described with the aid of Fig. 1 (which) Assume that the Channel 1 input is an unmodulated carrier and the Channel 2 input is a frequency modulated carrier. In these circumstances, it is possible for the modulation on Channel 2 to appear in a clear, ungarbled form in the baseband output circuit of Channel 1. This is true in spite of the fact that (ω 1 - ω 2) is much greater than the highest baseband passed by the output filter in Channel 1. The resulting interference is not, and cannot be, the result of simple beats between the Channel 1 carrier and the spectrum of the signal in Channel 2."

"Approximate Solution to Semiconductor Noise as a Queuing Problem"

A letter appears on page 1095 on this subject by Thomas L. Saaty, Department of the Navy, Office of Naval Research, Washington, D. C.

ARTICLES OF INTEREST IN ELECTRONICS, MAY 12, 1961:

Transforming Resistance-Capacitance and Resistance-Inductance Networks

The above article by H. J. Blinchikoff, Electronics Division, Westinghouse Electric Corporation, Baltimore, Md., apppears on page 82 and contains three pages of charts and tables. The sub-head and first paragraph are as follows:

"These charts for canonic-one-terminal-pair R-C and R-L circuits eliminate tedious calculations in design problems involving network transformations.

"Filters designed with low-Q elements, preemphasis and de-emphasis networks, phase and amplitude equalizers, and networks synthesized from prescribed functions all contain combinations of inductors, capacitors and resistors. Sometimes, because element values are impractical or because the quality factor (Q) of the reactance is impossible to obtain in a reasonable size, it is desirable to change the configuration of a network."

INTERFERENCE PROBLEMS OF MOBILE TWO-WAY RADIO:

David W. Land, Area Systems Engineer of the Motorola Communications and Electronics Inc., Dallas, Texas, gave a paper under the above title in Fort Worth: The paper was mostly on ambient noise as it affected the transmission and receiving of mobile two-way signals. Three paragraphs of interest are as follows:

"Another source of ambient noise is due to atmospheric conditions. The effects due to thunderstorms can sometimes completely desensitize a receiver due to the high intensity noise signals it produces. Also, dust storms, rain, and snowstorms can produce what is often called precipitation static.

"Various attempts have been made to minimize the effects of such disturbances. The problem was approached as an antenna design problem, resulting in the use of so-called grounded antennas, such as the folded dipole. The use of protective coatings, such as neoprene or fiber glass on the antenna is also sometimes used.

"Experience has indicated a marked advantage in this respect when the antenna is mounted down on the side of the tower. The protection from precipitation static due to the tower is great enough so that usable communications can be attained even though a system connected to an antenna at the top of the tower is inoperable. Reports are received from time to time of mobile units giving better performance than a base station under precipitation static conditions. Under conditions as described, such a result is to be expected."

Copies of this paper may be obtained by writing to Mr. Land at 7138 Envoy Court, Dallas 35, Texas.

A NOISE INVESTIGATION OF TUNNEL-DIODE MICROWAVE AMPLIFIERS:

Under the above title is a paper by A. Yariv and J. S. Cook in the April 1961 issue of the Proceedings of the IRE. The printed summary of the article is as follows:

"Although the tunnel diode will probably never compete with the maser or parametric amplifier as a low-noise device, its high-frequency capabilities and simple structure make it a device of great promise and widespread interest. Consequently, there is a good deal of interest in the noise behavior of tunnel diodes, which is determined in large measure by the shot noise accompanying the tunneling process. This paper provides an analysis and derivation of the noise figure in a simple manner which emphasizes the physical interpretation of the results. These results will be of both practical and theoretical interest".

A COMPARISON OF SWITCHING DEVICES - ELECTROMECHANICAL VERSUS STATIC:

In the May 1961 issue of Electrical Design News is an article with the above title by J. Sylvester, Leach Corporation, Controls Div., Azusa, Calif. The first two paragraphs are as follows:

"In the past few years there have been many advances in solid-state switching devices. Power-switching transistors, controlled rectifiers, unijunction transistors and trigistors have come into their own. Where can they be used? How can they be used? How much more do they cost in comparison to conventional relays? How much larger are they compared to conventional relays? All of these questions are facing today's design engineers.

"The most important question is whether the solid-state or static approach will ever completely replace the conventional electromechanical relay for power-switching applications. The answer can be summed up as follows: solid-state devices as such cannot and will not ever completely replace the electromechanical relay. Integration of solid-state switching into a system will continue to increase. In this case the solid-state switch loses its individual identity and cannot be regarded as a separate entity in the way a relay can. Solid-state switches do have advantages over electromechanical relays where operate time, rugged shock and vibration environment and reliability are of prime importance."

MONITORING AT FIXED MONITORING STATIONS OF RADIO TRANSMISSIONS FROM SPACE VEHICLES:

A Draft of the U.S. Study Group VIII; Document on Question No. 188 of the C.C.I.R. is available for those who are interested and will write in on their company stationery to George S. Turner, Chairman, U.S. Study Group VIII, C.C.I.R., Federal Communications Commission, Washington 25, D. C. The first paragraph of the Study states:

"The main factors influencing the choice of, or the necessity for, different techniques of monitoring observation and measurement of transmissions from vehicles in space as contrasted with observations and measurements of transmissions originating from fixed or mobile radio stations on or near the earth (considering that the latter include conventional aircraft or balloons moving at relatively much slower speeds than space vehicles) are, with reference to space vehicles: (1) the difference in received vs. transmitted frequency, and the varying nature of the received frequency, caused by the Doppler effect, (2) the generally weaker field strength at the earth receiving point due to distance and relatively low transmitter power, (3) the general necessity to "acquire" the signal and then to track the space vehicle with high-gain, highly directive receiving antennas, and (4) the relatively short time that a near-earth orbiting satellite is above the horizon for a given fixed monitoring point such that its radio transmissions are received well enough to permit good observations and measurements".

NARROW-BAND FILTER RELIES ON DEMODULATING CIRCUIT:

Under the above title, Glen W. Ashley, Senior Research Engineer, Convair, Pomona, Calif., has written an article in Electronic Design, June 21, 1961, page 150. The first two paragraphs state:

"A novel narrow-band filter was designed which operates by synchronously demodulating the input signal, filtering the resulting dc voltage and then remodulating at the desired frequency. The output signal is a square wave with zero phase shift.

"The fundamental frequency is fixed by a square-wave reference signal which helps to demodulate and remodulate the input. This reference does not affect the phase or frequency of the filtered signal."

EFFECT OF RECEIVER BANDWIDTH ON AMPLITUDE DISTRIBUT OF VLF ATMOSPHERIC NOISE:

Under the above title a paper written by Forrest F. Fulton, J: Lockheed Aircraft Corporation, Palo Alto, Calif., appeared in the Journal of Research of the National Bureau of Standards - Radio Pr pagation, Vol. 65D, No. 3, May-June 1961. The Introduction was a: follows:

"In the VLF range, atmospheric radio noise is one of the important factors in a system design. If all of the manmade interfere: is controlled by allocation procedures and good engineering, the atmospheric noise provides the ultimate background disturbance from which the desired signal must be separated (CCIR Rpt. 65, ITU, 19: Watt, Coon, Maxwell, and Plush, 1958). Studies of the noise must of a statistical nature, but there are problems which differ, for instance, from those of statistical studies of thermal noise, because atmospheric noise is a nonstationary process. Since the statistics the process change with time, the accuracy of measuring statistical parameters cannot be indefinitely increased by increasing the lengt of time of the measurements.

Experience has shown that when measuring the amplitude prot bility distribution of the noise envelope, samples of noise 10 to 20 min in length are short enough to avoid difficulties due to the nonstationary characteristics of the process, but are long enough to giv useful information for system design purposes (Hoff and Johnson, 1952; Watt and Maxwell, 1957).

"One of the problems which occurs in system design is deterr ining the percentage of time that the envelope of the noise will exce the signal level, and how this varies as the receiver bandwidth is changed. In principle this can be calculated precisely if enough is known about the statistics of the noise. An applicable procedure, a described by Widrow (1957), is to consider a sampled version of th input noise for which the joint probability distribution of the sample can be determined, and to use this to calculate the probability distr ution of a sampled version of the filter output. If the sampling rate the input is high enough, the probability distribution of the output sa ples will accurately represent the probability distribution of the cor tinuous output. The difficulty with this procedure is that the interv: between samples at the input must in general be short relative to th correlation time of the noise (Ragazzini and Franklin 1958), so that very high order joint probability density function must be calculated the filter output. The purpose of this paper is to present a techniq which requires much less computation, but gives an accuracy comn surate with the statistical knowledge of the noise.

DATA OF INTEREST IN ELECTRONIC DESIGN, JULY 5, 1961:

RFI Studies Leading to Important Design Shifts

On pages 8 and 9 mention is made of the new requirements to bar square pulse modulation for radar and to stiffen other equipmer requirements as were disclosed at the Third National Symposium o: RFI in Washington.

New Definitions of Receiver Noise Performance

On pages 142 and 143 is an abstract of a report to the 1961 National Symposium of the IRE's Professional Group on Microwave Theory and Techniques. Five authorities in the field of noise meas urement undertook to agree on a workable set of definitions of rece noise. These were William Mumford and Rudolf Engelbrecht of Bel Telephone Laboratories, Hermann Haus, Massachusetts Institute o Technology, Robert Adler, Zenith Radio Corp., and Matthew Leber baum, Airborne Instruments Laboratory. Their significant report the Symposium is abstracted in these pages.

RFI-Duplexer Tubes

Under the above title, on page 166, is a Library of Congress Report described as follows:

"An investigation was conducted on several types of TR duple tubes and a waveguide filter commonly used in systems, to determi

their effectiveness in rejecting spurious microwave radiation. The devices studied were all designed for operation in the 2.8-Gc frequency band. The low power level characteristics of these devices were checked over a frequency range of 2.6 to 35 Gc. Results of the investigation showed that neither the TR tube nor the waveguide filter can provide adequate protection against unwanted signals at frequencies higher than the system frequency. Characteristics of Microwave Duplexer Tubes Under Spurious Radiation Conditions, Irving Reingold, Army Signal Research and development Labs., Fort Monmouth, N.J., March 31, 1959, 27 pp, Microfilm $2.70, Photocopy $4.80. Order PB 147821 from Library of Congress, Washington 25, D. C.".

FCC NOTICE OF PROPOSED RULE MAKING:

In Docket No. 14178 notice is hereby given of proposed rule making in Part 15 of the Rules of the Federal Communications Commission to amend Section 15.66 as shown in the attached APPENDIX to specify the details of certifying seals placed on receivers.

In its program for regulating receivers, the Commission is directing public attention to the interference potential of radio and television receivers, and has cautioned consumers about the purchase of sets which do not bear a seal certifying compliance with the Commission's radiation limitations.

The Commission has noted that in some instances certifying seals have been placed inside the cabinet or on the bottom panel where access is difficult; in other cases, the seals have been inconspicuous and apt to be overlooked. In addition, these seals have been encountered in all sizes and shapes. In some, the wording has been vague and the meaning not too clear.

This proposed rule amendment is made to promote uniformity in appearance, location, and wording of receiver certifying seals so that purchasers may easily determine when a receiver has been certificated.

This proposal to amend the Commission's Rules is issued under the Authority of Sections 4(i), 301, and 303(r) of the Communications Act of 1934, as amended.

Any interested person who is of the opinion that the proposed amendment should not be adopted in the form set forth herein, may file with the Commission on or before August 7, 1961, written data, views, or arguments setting forth his comments. Comments in support of these proposals also may be filed on or before the same date. Comments or briefs in reply to the original comments may be filed within 10 days from the last day for filing said original comments or briefs. No additional comments may be filed unless specifically requested by the Commission or good cause for the filing of such comments is established.

In accordance with the provisions of Section 1.54 of the Commission's Rules, an original and 14 copies of all statements, briefs, or comments, filed shall be furnished the Federal Communications Commission.

APPENDIX

Section 15.66 is revised to read as follows:

§ 15.66 Identification of certificated receivers.

(a) Each certificated receiver shall have a distinctive seal permanently affixed to its back panel for ready visibility.

(b) The seal shall be 1 x 3 inches in size.

(c) The color of the seal shall be in contrast with the color of the cabinet finish, and the lettering on the seal shall be in contrast with the background.

(d) The seal shall carry the following inscription:

(Name of company) certifies that this receiver complies with FCC radiation limits as of date of manufacture

(e) The certifying seal may not be attached to a receiver until a certificate has been filed with the Commission pursuant to § 15.65.

EVALUATING RADIO RECEIVER SUSCEPTIBILITY TO INTERFERENCE:

ELECTRONICS, April 14, 1961, carried an article by B. T. Newman, General Electronic Laboratories, Inc., Cambridge, Mass. and H. Cahn and R. Keyes, U.S. Army Signal Research and Development Laboratory, Fort Monmouth, N. J. under the above heading. The sub-title and the first paragraph are as follows:

"Test procedures and equipment show how to compare the abilities of radio receivers to function in a crowded or artificially jammed spectrum.

"The ever-increasing dependence upon radio communication and the ever-mounting crowding of the radio spectrum have accelerated the demand for high-performance receivers that can operate with maximum resistance to interference. Thus, there is a need for testing specifications, methods and standards by which a receiver can be graded. This paper describes methods for testing voice-communication receivers - a-m, f-m and single sideband (ssb) - and for objectively grading receiver performance in interference."

FILTERS CLEAR AIRWAYS OF HARMONICS:

ELECTRONICS, April 14, 1961, on page 86 and 88, carries an article under the above title, The first paragraph states:

"Interference problems in radio signals extend all across the spectrum. A look at microwaves indicates the magnitude of these problems. Troubles occur between high-power radars, which produce as many as a dozen harmonic frequencies in addition to their fundamentals, and sensitive microwave links. Increasing difficulties will be caused by the increase in number and power of today's 12,000-plus radar transmitters, and an estimated doubling of the current 7,000 microwave relay stations in the next five years."

MEASUREMENT OF RECEIVER NOISE:

The Proceedings of the I.R.E. Australia for October 1960 contains a 6-page article under the above title by F. F. Gardner, C.S.-I.R.O., Division of Radiophysics. The summary of the article is as follows:

"Methods for measuring radio receiver noise, either in terms of 'noise factor' or 'noise temperature' are reviewed. The various types of noise generator are described and their limitations discussed. The factors affecting the overall accuracy of noise measurement are considered in detail."

RFI PROBLEMS (USSR):

Page 18 of Current Review of the Soviet Technical Press, 21 April 1961, contains the following statement on RFI problems in the USSR:

"The Board of the Ministry of Communications USSR in a statement on the 'extreme importance' of the problem of preventing radio-frequency interference, terms work being performed on the detection and control of radio-interference sources 'completely unsatisfactory'. Industrial RFI in the cities remains at a very high level and seriously hampers broadcasting, television, and high-frequency communications. Considerable interference is caused also by harmonics radiated by transmitters, including those belonging to the Ministry of Communications. (Vestnik svyazi, no. 1, 1961, 14)S/111/61/000/001."

FEDERAL AVIATION AGENCY REPORTS ON AIRCRAFT PASSENGER RFI:

The Federal Aviation Agency prepared the following Status Report in answer to an FCC letter of January 18, 1961 concerning passenger-operated recording and dictating machines aboard aircraft. Mr. C. C. Trout presented the Status Report at a Radio Technical Commission for Aeronautics meeting.

"STATUS REPORT ON MEASUREMENTS OF INTERFERENCE OF PORTABLE ELECTRONIC DEVICES TO AIRBORNE NAV/COM EQUIPMENT

"Measurements and frequency tests with several portable devices and various VOR receivers in an number of aircraft have been conducted. It was found that two out of four types of portable FM receivers introduced interference into the Aircraft navigation equipment. Tests on four types of electric razors and three types of portable recorders did not produce any interference.

"Both of the types of FM receivers which did produce the interference had local oscillators operating on a frequency of 10.7 megacycles above the desired signal. Interference occurred only when the local oscillator frequency of the FM portable receiver coincided with the desired VOR or localizer frequency. The severity of the interference varied with the aircraft installation for any particular test and with the location of the FM receiver within the aircraft. Interference was found only when the signal strength of the desired station to which the VOR equipment was tuned was below a level of approximately 40 microvolts.

"In most cases the interference was evidenced by the flag alarm appearing and simultaneously desensitizing the receiver. In some cases the interference caused full-scale cross pointer fluctuation.

"Laboratory tests are continuing on 15 additional types of airborne electronic navigation and communication equipment, and these are scheduled for completion by August 15, 1961."

DISCUSSION OF WIDE-BAND COMMUNICATIONS:

The Management Newsletter from the Hayden Publishing Company, of April 24, 1961, contained a discussion of wide-band communications. The first two paragraphs are as follows and a further discussion can be found in the April 26, 1961 issue of Electronic Design:

"Wide-Band Communications, several approaches to which are in design and evaluation, could well prove to be a solution to some of the spectrum congestion that plagues mobile civilian radio services and is of grave concern to those responsible for the military's tactical communications. The challenge to the traditional narrow-band, assigned-frequency systems obviously has far-reaching marketing implications.

"Defense planners have considerable doubt that standard equipment can effectively cope with the congestion and interference anticipated under actual warfare conditions. Thus communications officials are anxiously watching wide-band development programs, several of which are in response to a Signal Corps invitation for proposals."

CALCULATING RECEIVER SPURIOUS RESPONSES:

ELECTRONICS, July 7, 1961 on page 62, carries a nomograph with the above title by H. H. Jenkins, Sr., Engr., Radiation Inc., Melbourne, Fla. Part of the first paragraph states:

"A superheterodyne receiver may respond to signals at frequencies other than the tuned frequency. One common spurious response is that of a single signal being converted in the r-f stages to an i-f signal. These spurious responses are caused primarily by the fundamental or harmonics of the off-channel signal mixing with the fundamental or harmonics of the first local oscillator to produce a signal at the first i-f."

ITEMS OF INTEREST FROM ELECTRONIC NEWS:

In the April 10, 1961 issue is a news item covering the Annual Meeting of the Institute of Environmental Sciences in the Sheraton Park Hotel, in Washington, in which several discrepancies in MIL-I-26600 covering radio frequency interference tests were cited. Details of these discrepancies are discussed in the article.

Claim New Circuit Cuts Ignition Noise

In the June 5, 1961 issue is a news item describing circuitry designed to suppress ignition noise in two-way radio systems being made available by Motorola Communications & Electronics, Inc., Chicago, Illinois.

Cosmic Radio Noise Studied at WSO

In the June 5, 1961 issue is a news item describing a grant from the National Science Foundation to Washington State University for a study of cosmic radio noise emissions. It is a three-year program under the supervision of L. B. Craine, an associate electronics engineer in the university's industrial research division.

Clear Channel Satellite Protection Held Unneeded

In the June 19, 1961 issue is an article describing a paper given before the joint Institute of Aerospace Sciences and the American Rocket Society meeting by S. G. Lutz, Hughes Aircraft Company, Malibu, California. Details of the paper are given in the news item.

RFI ODDITIES:

The following appeared in the May, 1961, issue of Electronic Industries:

"The Denver field Office of the FCC and a local power company were both deluged with telephone calls from a particular section of the city complaining of TV interference. An FCC engineer located the place where the disturbance was strongest. With the help of a linema of the utility company, power line connections to various buildings were opened one at a time until the interference stopped. The culprit proved to be an unused neon sign at a gasoline service station. Bare output wires from the transformer were touching a brick wall which served as a conductor because it was covered with aluminum paint."

"When a government satellite tracking station in Alabama, complained of difficulty to radio reception from a space object, the FCC monitoring net pinned the blame on spurious signals from a point-to-point station in the Netherlands. Contact with the latter brought elimination of the intruder, also a letter of thanks from the tracking station".

"Long-distance trace was made for a West German station. It asked that the origin of a certain call be located. FCC bearings showed it came from the vicinity of Ceylon, which helped to further determine that it emanated from the nearby Maldive Islands."

"Interference to transmission from California to Japan was found due to a faulty transmitter of a station in Hawaii."

"An AM Station in Tennessee sent the FCC Atlanta field office a handbill announcing the opening of a 'new broadcast station' in the same town. The latter did not appear on the Commission's records so an FCC engineer visited the scene. He found a 14-year-old boy who had advertised a low-power device to communicate with playmates in the immediate neighborhood during certain hours."

"Crystal-controlled Transmitter was operated by two Wisconsin youths in the middle of the broadcast band to transmit 'boogie', 'bop' and 'roll' recorded music to teenagers within a radius of 20 miles. The younsters proudly told the FCC engineer that they had spent eight months planning and constructing their equipment; and had even built the control console and installed a modulation monitor. They used call letters not on regular broadcast station lists."

"Some interference complaints boomerang:

"Interference to high-flying jet planes was traced to a receiver used at the complaining airfield. Somebody had forgotten to replace the protective cover shield."

"A Tucson airport interference complaint was determined to be caused by the strips of neon lights which outline its control tower."

"Interference involving manual radiotelegraph is now rare. However, one concerned complaint by an Army camp of undecipherable telegraph signals on a military frequency. Though the keying was poor, FCC monitors were able to fix them as coming from another Army post, presumably from a class studying telegraphy."

RF INTERONICS, Inc. Organized:

A new company, under the above name, has been organized to design and manufacture a complete line of R. F. interference filters, custom-engineered capacitors, and feed-thru capacitors. Mervin H. First is president; Fred Rubin is vice-president in charge of engineering and Seymour Rubin, vice-president of marketing. The plant is located at 15 Neil Court, Oceanside, Long Island, New York. The filter line will stress miniaturization and the screen room filters will utilize welded case construction for leak-free operation.

A. H. SULLIVAN, JR., JOINS FREDERICK RESEARCH CORPORATION:

H. A. Sullivan, Jr., formerly Vice-President of Engleman & Company, Inc., and Project Director of C-E-I-R, Inc., has been named Director of Advanced Systems Development at Frederick Research Corporation, 2601 University Boulevard, West, Wheaton, Maryland. In his new position with the Corporation, Mr. Sullivan will direct activities pertaining to advanced aspects of information transfer, communications, intellectronics, and cybernetics. Mr. Sullivan also has been appointed Chairman of the Technical Papers Committee of PGRFI for 1961-62 and Vice-Chairman of the Washington Chapter of RFI.

NEW PUBLICATIONS:

ELECTRONIC PACKAGING AND PRODUCTION

A new technical publication, under the above name, will appear by the first of August, 1961, and will be directed to electronic circuit packaging engineers, product designers and production engineers. It will provide these specialists with editorial information specifically tailored to their needs. Every aspect of circuit packaging and production will be covered showing what is new and what is being done by different companies.

Circulated without charge only to qualified electronic packaging engineers, product designers, and production engineers working in all branches of industry in the United States, including government installations. Qualified individuals may receive this publication by sending their request on company letterhead, stating position and nature of firm's business. Subscription continental United States $10.00 per year, single copy $1.00. Foreign countries $20.00 per year and single copies $2.00. Send inquiries to Milton S. Kiver - Publications, Inc., 222 West Adams Street, Chicago 6, Illinois.

ELECTRONIC/ELECTROMECHANICAL PRODUCTION

The above is a new technical publication which will appear monthly beginning in September 1961. It is to be published by the Benwill Publishing Corp., 167 Corey Rd. Brookline 46, Mass., publishers of ELECTRO-MECHANICAL DESIGN. Subscription price $10.00 per year, single copy $1.00. Paid subscriptions are not solicited and are only accepted from readers who do not meet qualifications of controlled circulation. Circulated without cost to properly qualified production industrial engineers within the Original Equipment Market.

This publication will function as an up-to-the-minute sourcebook of production ideas in the electronic and electromechanical industries. The editorial material shows how manufacturing engineers in these industries are applying techniques and concepts of industrial engineering in their plants. Product areas are consumer, industrial and military.

Six issues of a Newsletter are planned before publication date. The first four may be obtained, while they last, by writing to the above address and stating your qualifications.

HITACHI REVIEW

Hitachi, Ltd., Tokyo, Japan, announces a periodical, in English, under the above name. It will be a highly-technical bi-monthly journal (illustrated) which has wide interest to engineers and executives of industry and public utilities. It will be made available to a limited international audience on a complimentary basis. For those who might like to qualify, the address is COSMA PR CORP. Token Building, 6, Ginza Nishi 7-chrome, Chuo-ku, Tokyo, Japan.

NEW BOOKS:

Handbook 77 - Precision Measurement and Calibration

The National Bureau of Standards, U.S. Department of Commerce, has published three volumes of selected publications by NBS staff members. Volume I, Electricity and Electronics, 845 pages, $6.00 has the following Table of Contents dealing with electronics:

High-frequency standards of the Electronic Calibration Center, NBSBL
National standards of time and frequency in the United States
Standard frequencies and time signals, WWV and WWVH
Adjustment of high-precision frequency and time standards
Accurate microwave wavemeters with convenient calibration tables
Short time stability of a quartz-crystal oscillator as measured with an ammonia maser
An evaluation of a cesium beam frequency standard
Precise time synchronization of widely-separated clocks
A UHF and microwave matching termination
High-frequency voltage measurement
RF voltmeter calibrating consoles
A bolometer bridge for standardizing radio-frequency voltmeters
Application of RF micropotentiometers for calibration of signal generators to 1,000 Mc
Accurate radio-frequency microvoltages
Development of very-high-frequency field-intensity standards
Influence of the ground on the calibration and use of VHF field-intensity meters
Calibration of commercial radio field-strength meters at the NBS
High-frequency impedance standards at the NBS
Recently developed microwave impedance standards and methods of measurement
Coaxial radio-frequency connectors and their electrical quality
Tables of frequency, VSWR, and $|\Gamma|$ for selected half-round inductive obstacle impedance standards in WR-90 (X-band) rectangular waveguide
Tables of frequency, VSWR, and $|\Gamma|$ for selected half-round inductive obstacles impedance standards in WR-280 (S-band) rectangular waveguide
Tables of frequency, VSWR, and $|\Gamma|$ for selected half-round inductive obstacle impedance standards in WR-187 rectangular waveguide
Half-round inductive obstacles in rectangular waveguide
An adjustable sliding termination for rectangular waveguide
A new technique for the measurement of microwave standing-wave ratios
Magnified and squared VSWR responses for microwave reflection coefficient measurement
Microwave reflectometer techniques

Precision millimeter wave interferometry at the U.S. National Bureau of Standards
A standard of attenuation for microwave measurements
Determination of attenuation from impedance measurements
Microwave attenuation of measurements with accuracies from 0.001 to 0.06 decibel over a range of 0.01 to 50 decibels
Mismatch errors in the measurement of ultrahigh-frequency and microwave variable attenuators
Mismatch errors in cascade-connected variable attenuators
A method for measuring the directivity of directional couplers
Recent developments in the field of microwave power measurements at the NBS
A dry, static calorimeter for RF power measurements
A self-balancing direct-current bridge for accurate bolometric power
A refined X-band microwave microcalorimeter
High frequency power measuring bridge circuit
A technique for reducing errors in permeability measurements with coils
Supplementary references

Electronic Equipment Reliability, by G. W. A. Dummer and N. Griffin, John Wiley & Sons, Inc., has only three full pages on interference, however, there are some pertinent quotes:

"The equipment designer has a twofold problem: he must design equipment so that it works properly and effectively with other directly-related equipment and, at the same time, he must so design his equipment that it does not interfere mutually with other equipment with which it has no direct relation".

"Although it is possible to modify an existing transmitter that is creating interference, it is much easier to modify it in the design stage".

"It is also surprising how much trouble small defects in design can produce."

Electrical Noise
The McGraw-Hill Book Co., Inc., 330 West 42nd St., New York 36, New York, has brought out a book under the above title by William R. Bennett, Data Communications Consultant, Bell Telephone Labs., Inc., The book is 270 pages with 105 illustrations at $10.00.

The Contents is listed as follows:

1. General Properties of Noise
2. Thermal Noise
3. Distribution of Magnitudes in Noise Sources
4. Noise in Vacuum Tubes
5. Noise in Semiconductors
6. Noise in Electromagnetic Radiation
7. Noise-generating Equipment
8. Noise Measurements and Techniques
9. Design of Low-noise Equipment
10. Application of Fourier Analysis To Noise Problems
11. Noise in Communication Systems

The Magic of Rays - by Johannes Dogigli. Translated from the German "Magie der Strahlen" and edited by Charles Fullman. Illustrated 264 pp. New York: Alfred A. Knopf, $5.75. An excerpt from a book review is as follows:

"The author of the 'Magic of Rays' is not, however, primarily concerned with quantum theory, relativity, or atomic structure. As an electrical and radio engineer, he has attempted to describe how these different rays may be produced and to tell the non-scientific reader what practical applications are made of each group of rays. The original quality of the presentation is that the author has not produced merely another popular account of quantum theory or atomic physics, but has collected together a mass of information usually not juxtaposed."

Report on URSI London General Assembly - September 1960
"A Report to the National Academy of Sciences--National Research Council from the USA National Committee on the International Scientific Radio Union on the Thirteenth General Assembly, September 5-15, 1960, London, England. NAS-NRC Publication 880; 595 pp., illus., paper; $5.00.

"This volume is a summary report of the triennial General Assembly of the Union which met at London in 1960. The report covers the broad field of radio science; some of the topics reported and discussed in the seven commissions follow:

"I. Radio Standards and Methods of Measurement; frequency including atomic, time signals, physical quantities by radio.

"II. Tropospheric Propagation: physical characteristics and the troposphere and radio meteorology.

"III. Ionosphere: F_2ionozation, sporadic E, rocket and satellite work, hydromagnetic waves, aurorae, scattering and drifts.

"IV. Terrestrial Noise: lighting, man-made noise, whistlers, and exosphere.

"V. Radio Astronomy: discrete sources, galactic emission, receivers and parametric amplifiers, solar emission, planets and meteors.

"VI. Radio Waves and Circuits: scattering, surface waves, antennas, solid state circuit theory.

"VII. Radio Electronics: molecular and paramagnetic amplifiers, ferrites, energy conversion and plasma phenomena."

New Edition of Test Equipment Data Handbooks:
A new edition of the Electrical & Electronic Test Equipment Data Handbooks has been announced by the Frederick Research Corp., 2601 University Blvd., West, Wheaton, Md. It is in 19 volumes bound into 11 books and describes over 1,600 military and commercia equipments. The cost is $200.00.

NEW PRODUCTS:

Induction Motor Given Two Speeds

In Electronics, May 12, 1961, a new induction motor, which is the type motor often substituted for brush type motors to minimize interference, is described as follows:

"In the past, speed changing of the squirrel-cage induction motor was possible only by winding two separate windings in one frame, and using only one winding at a time. This was wasteful and resulted in a much larger, heavier and more expensive machine.

"Now, over half a century after the invention of this motor by Tesla, a British engineer has devised a technique that makes it possi to obtain speed changing, in any ratio, from a single-winding inductic motor.

"The two-speed motor looks exactly like a standard motor. No new process is involved. But an analytical method was devised for grouping and connecting the coils. And any manufacturer who is equi ed to make normal induction motors is equipped to make two-speed induction motors.

"The basic designs for each speed combination have to be done by an engineer of high technical competence, and it is desirable to have such designs available for each speed combination. But thereafter, particular machines for different voltages and output powers can be designed according to a routine, as for a standard machine.

"The new method of speed changing is called pole-amplitude modulation, because of the logic on which it depends. In a conventional three phase induction motor, the waveform for each phase has

ı approximate sinusoidal distribution around the stator assembly. If .e amplitude of this waveform is modulated in space by suitable coil ɔconnections, the resultant waveform around the stator will have a fferent spatial distribution. This effect is similar to that obtained, . time, by modulating a radio carrier and considering the resultant .debands. If, for example, the resultant waveform of one phase-inding of a pole-amplitude modulated 8-pole machine is examined, it ill be found to contain waveforms corresponding to 6 and 10-pole .achines, mixed.

"Under certain conditions and by correct relative displacements ɛtween the three separate phase-windings, it is possible to eliminate ıe pole number from the resultant three-phase field and to obtain a ıre three-phase field corresponding to a single speed. In the case re-ɔrred to above, speeds correspond to either 6-pole or 10-pole ma-ıines.

"Uniform acceleration is obtained for full speeds backwards and ɔrward. Two-speed motors have been developed from 1 1/2 hp by 50 hp, but there are no limitations. So far British manufacturers ıve shown more interest for the larger, high-voltage machines.

"The sponsors involved in developing these motors offer licens-ıg patent rights to American manufacturers."

High Frequency Filter Incorporated in Magnetron Housing

The McMillan Industrial Corporation, Brownville Avenue, Ips-ich, Massachusetts, has been able to incorporate filters directly ıto the shielded housing of magnetrons. Among the claims in effective ɛtenuation are: 100 db from 50 MC to 45 KMC; negligible voltage drop; ɛgligible reactive current; no standing wave reflections, and equip-ıent compliance with FCC regulations. Manufacture is only on special ɔrder at the present time.

Portable Shield Chamber for Work-Bench Testing

Topaz Transformer Products, Inc., 4995 Weeks Ave., San iego, California, has come out with a portable shield chamber for ɜe in noise-free measurement on work-benches. An isolation trans-ɔrmer unit provides ac power to circuitry in the chamber and magnetic .loy construction provides 40 db shielding at power-line frequencies.

Fuzz Buttons

Technical Wire Products, Inc., has recently announced the ɣailability of an electrical contact called the "Fuzz Button". The uzz Button is made of fine knitted wire mesh, and compressed in a ıanner so that a probe contacting the Fuzz Button contacts the same ire at many spots. Its design is based on the similarity of problems ɛtween a reliable electrical contact and the problems involved in ıaking a good RF gasket. A matching probe at the other side of the ıtton would make the same type of contact. There being several ıarallel circuits through the button, redundancy of both contact and ıth through the material results. This gives the Fuzz Button an un-ɜually high degree of contact reliability in connector applications.

The compression curve of a Fuzz Button does not match its re-ɛase curve. In other words, the button has internal mechanical ɔiction or hysteresis. This is claimed to make it ideal for suppress-ıg bounce in switches, relays and similar devices. Further informa-on can be obtained from Technical Wire Products, Inc., 48 Brown venue, Springfield, New Jersey.

Stoddart Brings Out New 1-10 KMC RFI Measuring Equipment

Under the nomenclature Stoddart NM-62A (AN/URM-138), ɔoddart Aircraft Radio Co., Inc., 6644 Santa Monica Boulevard, ollywood 38, California, has brought out a Radio Interference-Field tensity Measuring Equipment covering the spectrum of 1 to 10 kmc. he NM-62A was designed and developed to rigid Military Equipment ɔecifications to fulfill the requirements of and meet the approval of LL military services. Delivery: April 15, 1962, dependent upon prior commitment at time of receipt of order. Price: $17,750 - less antennas.

Conductive Caulking Compound Developed

Emerson & Cuming, Inc., Canton, Massachusetts, has developed a conductive caulking compound which can be used as a permanently non-hardening conductive sealant for the enhancement of the radio-frequency shielding capabilities of the joints in metallic enclosures. Insertion loss measurements, according to the procedures of MIL-STD-285, showed improvements of 20 db at 200 kc to 33 db at 400 mc, with results beyond the range of instrumentation at 10 mc when used in joints in metallic enclosures. The compound is known as ECCOSHIELD VX as described in Technical Bulletin 11-2-3.

FCC ISSUES FIRST INTERFERENCE CURB ON 2 TV OWNERS:

A news item appearing in the papers of June 12, 1961 was as follows:

"Washington. - The Federal Communications Commission has for the first time in its history ordered two TV set owners in Maysville, W.Va., to show cause why they should not cease and desist from causing interference to a shut-in's radio reception and to appear at a hearing there on July 12.

"The commission has taken action against users of electronic equipment which disrupts radio communications on many occasions but has never before resorted to formal proceedings against a private set owner.

"Miss Nellie Feaster complained that three neighbors' TV sets were disrupting her radio reception. This was verified and FCC asked them to correct it. One set owner did, but the other two did not reply and the interference continued."

NOTE FROM THE EDITOR:

Your editor is learning things the hard way. Not only did he get no response to his request for information on negative ions but he got several inquiries for his own bibliography - with no accompanying postage.

IRE Headquarters informs your editor that no special lists can be made up to receive just the Newsletter. Newsletters can be sent only to members of PGRFI but members can give the address of librarians, etc., to receive all PGRFI notices and publications. In other words, if company librarians want just PGRFI publications, they can give a member of IRE two dollars to join PGRFI and have all correspondence sent to the librarians.

Rexford Daniels, Editor
PGRFI Newsletter
Monument Street
Concord, Massachusetts
