



# THE INSTITUTE OF RADIO ENGINEERS

INCORPORATED

PROFESSIONAL GROUP CORRESPONDENCE

PLEASE ADDRESS  
REPLY TO

November 7, 1958

200 S. 33 Street  
Phila. 4, Pa.

TO : Members of Technical Papers Committee, PGRFI  
FROM : R. M. Showers, Chairman  
SUBJECT: Program for 1959 IRE National Convention

Up to the present time I have received four abstracts of papers for the 1959 IRE National Convention for evaluation for presentation under the sponsorship of PGRFI. On the attachment are given titles and copies of the abstracts for your information.

PGRFI has one complete session and a joint session with PGMIL (Military Electronics) scheduled on the program. I have written to certain other members of the Technical Papers Committee to determine if certain papers received under different Professional Group sponsorship might be made available to round out the program of PGRFI. I think it would be possible to still get other papers considered, so that if members of the Technical Papers Committee know of a source for additional papers, I should like to know about it as soon as possible.

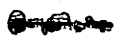
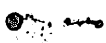
There are two matters I should like individual members of the Technical Papers Committee to consider at the present time; first, would you please advise me if you feel any of the papers listed on the enclosure are inappropriate for presentation under PGRFI sponsorship, and second, can you make a nomination for a chairman for the PGRFI session. The chairman of the Technical Papers Committee for the convention has requested that the chairmen of the technical sessions should preferably have the grade of Fellow membership in the IRE. Please let me have any additional suggestions with regard to the program.

Sincerely yours,

*R. M. Showers*

R. M. Showers, Chairman  
Technical Papers Committee  
PGRFI

Encl.



SECRET

c.c. S. Burruano  
E. Chapin  
W. Q. Crichlow  
J. Egli  
G. D. Johnson  
M. Kant  
L. Milton  
W. Pakala  
S. Skolnik  
C. S. Vasaka  
H. Schwenk (Ex-Officio)

c.c. Also to:

R. Fairweather  
B. Schenker  
J. McNaul  
A. Kall  
Z. Grobowski

## PRECIPITATION GENERATED INTERFERENCE IN JET AIRCRAFT

by

R. L. Tanner and J. E. Nanevitz  
Stanford Research Institute  
Menlo Park, California

### ABSTRACT

Precipitation charging, which is known to increase rapidly with speed, produces corona discharges at the extremities of aircraft flying through snow or high clouds. These discharges are the source of precipitation static interference. The magnitude and spectral distribution of the noise produced in aircraft radio systems depends upon the intensity to the discharges, their distribution on the aircraft, and upon the coupling between the antenna the points at which the discharges occur. By a combination of theory and laboratory experiment these factors can be separately evaluated for a particular aircraft and antenna. The noise to be expected for given charging conditions, both magnitude and spectral characteristics, can therefore be predicted.

A flight test program has been carried out in cooperation with the Boeing Airplane Co. in which precipitation generated noise was measured in the Boeing 707 jet transport. Measured noise levels are compared with predicted noise with good agreement. The flight test program also included a flight evaluation of decoupled static dischargers for use with high speed aircraft described at the 1957 National Convention.

## MAGNETIC FIELD PICKUP FOR LOW-FREQUENCY RADIO-INTERFERENCE

### MEASURING SETS

Max Epstein and Richard B. Schulz  
Armour Research Foundation  
of Illinois Institute of Technology

### ABSTRACT

Reported is the development of a device to measure low frequency magnetic field interference. It utilizes the Hall-effect in indium antimonide. The device consists of a Hall-effect probe inserted between two pole pieces of ferrite flux concentrators. The Hall-effect probe is designed to give high output potential utilizing specially shaped indium antimonide and ferrite concentrators designed to give greater flux density in the gap between the poles. The sensitivity of the device is comparable to the existing loop sensing device used with radio-interference measuring equipment in the low frequency range and its significant features are direct measurement of magnitude and waveform of the alternating magnetic field, and convenient calibration.

MEMORANDUM FOR THE DIRECTOR

The first part of the report is devoted to a description of the work done during the period from January 1, 1954, to December 31, 1954. It is divided into two main sections: a summary of the work done and a detailed description of the work done.

The second part of the report is devoted to a description of the work done during the period from January 1, 1955, to December 31, 1955. It is divided into two main sections: a summary of the work done and a detailed description of the work done.

Very truly yours,  
[Signature]

The third part of the report is devoted to a description of the work done during the period from January 1, 1956, to December 31, 1956. It is divided into two main sections: a summary of the work done and a detailed description of the work done.

TECHNICAL CONSIDERATIONS IN THE ASSIGNMENT OF OPERATING FREQUENCIES IN A  
COMMUNICATIONS SYSTEM

BY

O. M. Salati\*, Senior Member IRE, R. A. Rosien

Following a review of previously published frequency assignment techniques, a new method is described for determining the required frequency separation between transmitting carriers to avoid interference. As an illustration of the method, operating frequencies are assigned to an assumed deployment of L-band radars located at 50 mile intervals along a straight line. One other radar is located within an annular area of radii one and 20 miles centered about each of the original radars. The pulsewidths, pulse repetition rates and antenna patterns and orientations of each radar are used in the calculations. Prediction of power transfer between radars is based on line of sight, diffraction, and scatter propagation loss considerations.

STANDARD MEASUREMENT PARAMETERS

FOR

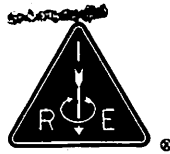
PHENOMENA DISTRIBUTED IN TIME AND FREQUENCY

by

E. W. Chapin

In order that measurements made by various investigators may readily be compared, it is proposed that certain measurement parameters be standardized and that, whenever possible, all data be taken with one or more of the standardized parameters. The standard parameters would cover:  
(1) The bandwidth; (2) The type of detector, such as average, semi-peak or peak; and (3) The integration time.

The use of the standardized units with respect to the measurement of both desired and interfering signals is discussed.



# THE INSTITUTE OF RADIO ENGINEERS

INCORPORATED

1 EAST 79 STREET  
NEW YORK 21, N.Y.

LEHIGH 5-5100

December 3, 1958

TO: Administrative Committees & Chapter Chairmen  
All Professional Groups

FROM: L.G. Cumming, Technical Secretary

For your information and guidance we are enclosing herewith a summary of the actions taken by the IRE Board of Directors at its meeting held in Atlanta on November 19th with regard to Professional Groups.

Also enclosed is a statement of IRE policy on the restrictions of the use of PG funds.

If you have any questions regarding these documents, please direct your inquiries to me.

IGC:cb  
Encs.

THE INSTITUTE OF RADIO ENGINEERS, INC.  
1 EAST 79 STREET, NEW YORK 21, N. Y.

December 1, 1958

Actions taken by the Board of Directors on Professional Groups -  
November 18 and 19, 1958 Meeting.

1. There shall be no arbitrary change in the present structure of Professional Groups, but a strong recommendation suggests that Groups consolidate as areas of interests overlap or become generally compatible. New Professional Groups will not be activated without critical examination of all relevant factors.

As new fields of technology open up, consideration shall be given to meeting the needs in these fields by appropriate enlargement of the scopes of existing Groups or by the establishment of sub-Groups, to allow for experimental additions to the Professional Group structure. The Professional Groups Committee is requested to study the development of a flexible mechanism for the establishment of such sub-Groups.

2. The Professional Groups Committee shall: (a) direct activities within the established pattern of policy; and (b) work with the IRE Board of Directors to extend policy and to enunciate new policy.

3. The Professional Groups Committee shall evaluate all proposals for the formation of new Groups and recommend appropriate action to the Board of Directors. Petitioners for new Groups shall be invited to attend the meetings of the Professional Groups Committee at which their petitions are to be considered, to be heard and their views recorded.

4. Effective January 1, 1959, the present method of Professional Group financing shall be discontinued, and there shall be substituted a subsidy equal to one-third of the cost to the Professional Groups of printing and mailing all TRANSACTIONS, Newsletters, and any other types of publications which are distributed to all paid members of a Group free-of-charge; and further there shall be provided for new Professional Groups, in addition to the preceding, matching funds of \$1.00 for each dollar of income derived by the Group from membership fees during the first two years.

Extraordinary financial assistance may be given to Professional Groups where the generic importance and quantity of the papers is considered to be greater than the ability of the Group to finance publication. Such grants shall be made on a "professional statesmanship" basis and may be originated by the IRE Board of Directors or be considered as a recommendation from the Professional Groups Committee.



December 1, 1958

Actions taken by the Board of Directors on Professional Groups -  
November 18 and 19, 1958 Meeting, PAGE 2

5. In order that there shall be continuity of experience, appointed members of the Professional Groups Committee shall serve for two-year terms, half of these members being appointed in any one year.

6. A Professional Groups Coordinator shall be a permanent member of the Executive Committee.

7. Publication of the IRE National Convention Record shall be continued with the provision that free distribution to members of Professional Groups shall be discontinued, and Professional Group members shall be given special rates to purchase IRE National Convention Record Parts. Since the Board of Directors decided that the IRE National Convention Record and the IRE WESCON Convention Record should be considered on the same basis, consultation with the WESCON Board of Directors is required, and accordingly, the above action of the Board of Directors with reference to the IRE National Convention Record was made contingent upon such consultation.

Three other matters were discussed, but it was considered that these were operational and did not require action by the Board of Directors:

1. The IRE policy on use of Section funds shall be circulated to the Professional Groups, as it applies to them as well.

2. Letters of thanks signed by the President shall be sent to all outgoing Professional Group Chairmen.

3. When a Professional Group appropriates funds for a Chapter, the funds shall be sent to the Section, earmarked for the Chapter. The Section may not divert any part of such funds to any other Group Chapter or to the Section.

IRE Policy on the Use of Professional Group Funds. Money on hand in the Professional Groups treasuries is the property of the National IRE. Any IRE funds, wherever held, may not be used for:

Payments of any kind for preparation or presentation of papers, whether to an individual or author of paper, with the exception of reasonable travel expenses as determined by the Administrative Committee of the Professional Group.

Monetary, or equivalent, prizes or awards over \$250.00 for any one individual.

Electioneering of any kind for any IRE National or Section office, or Professional Group office.

Electioneering of any kind for any municipal, county, state or federal office.

Donations of a philanthropic nature.

Loans of any kind, except as outlined in the Professional Groups Manual.

Purchase of real estate.

Investment of surplus funds, without prior authorization from the Professional Groups Committee and the National IRE Executive Committee.

Commercial promotional activities not directly connected with official Professional Group operations.

Should a reasonable and urgent need arise for a waiver of any of the prohibitions listed above, a request for such waiver may be submitted by the Professional Group Administrative Committee to the National Professional Groups Committee. Final decision, upon recommendation by the Professional Groups Committee, would be taken by the National IRE Executive Committee on the request for waiver. No action contrary to the policy stated above may be taken by the Professional Group Administrative Committee.

10/21/58