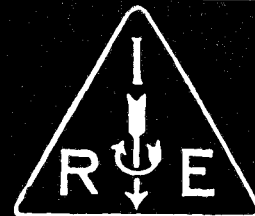


# IRE Transactions



on Microwave Theory and Techniques

Volume MTT-10

**MARCH, 1962**

Number 2

*Published Bimonthly*

## In This Issue

**Ferrite Single-Sideband Modulator**

**Traveling-Wave Parametric Amplifier**

**Millimeter-Wave Resonance Isolators**

**Balanced Modulators**

**Strip Transmission Line Tee Junction**

**Use of Exponential Transmission Lines**

**Eigenvalues for a Cylindrical Cavity**

**Graphical Method for Transforming Impedances**

**PUBLISHED BY THE  
Professional Group on Microwave Theory and Techniques**

## IRE PROFESSIONAL GROUP ON MICROWAVE THEORY AND TECHNIQUES

The Professional Group on Microwave Theory and Techniques is an association of IRE members with professional interest in the field of Microwave Theory and Techniques. All IRE members are eligible for membership and will receive all Group publications upon payment of the prescribed annual fee of \$3.00. Members of the American Physical Society and the Institution of Electrical Engineers of Great Britain may become affiliated with PGMTT and receive all Group publications upon payment of the Affiliate fee of \$7.50 per year.

### Administrative Committee

#### Chairman

T. N. ANDERSON

#### Vice Chairman

S. B. COHN

#### Secretary-Treasurer

M. WIND

B. D. AARON	W. W. MUMFORD	R. F. SCHWARTZ
H. M. ALTSCHULER	A. A. OLINER	G. SHAPIRO
R. W. BEATTY	R. A. RIVERS	M. C. THOMPSON
A. C. BECK	S. W. ROSENTHAL	K. TOMIYASU
R. C. HANSEN	T. S. SAAD	R. D. WENGENROTH
	J. L. YEN	

#### *Honorary Life Members*

G. C. SOUTHWORTH      A. G. CLAVIER

#### Editor

DONALD D. KING

#### PGMTT Chapters

Albuquerque-Los Alamos	R. A. Lincoln	Omaha-Lincoln	R. K. Chormley
Baltimore	Kenneth Claborn	Orange Belt	J. R. Lindquist
Boston	P. A. Rizzi	Orlando	E. O. Houseman, Jr
Buffalo-Niagara	E. L. Price, Jr.	Philadelphia	Frank Klawnsnik
Chicago	R. D. Standley	San Diego	Harley Babbitt
Columbus	G. J. Falkenbach	San Francisco	P. H. Vartanian, Jr
Denver-Boulder	J. L. Dalke	Santa Ana	N. Yaru
Florida-W. Coast	J. E. Pippin	Seattle	A. Ishimara
Long Island	Marc Chomet	Schenectady	J. J. Hamilton
Los Angeles	W. G. Perry	Syracuse	H. C. Rothenberg
New York	Adolph Brenner	Tokyo, Japan	Kiyoshi Morita
Northern N. J.	H. A. French	Washington, D.C.	Frank Reggia

#### IRE TRANSACTIONS®

##### on Microwave Theory and Techniques

Published by The Institute of Radio Engineers, Inc., for the Professional Group on Microwave Theory and Techniques, at 1 East 79 Street, New York 21, N.Y. Responsibility for the contents rests upon the authors, and not upon the IRE, the Group, or its members. Individual copies of this issue may be purchased at the following prices: IRE members (one copy) \$2.25, libraries and colleges \$3.25, all others \$4.50. Annual subscription price: non-members, \$17.00; college and public libraries, \$12.75.

Address all manuscripts to Donald D. King, PGMTT Editor, Electronic Communications, Inc., 1830 York Road, Timonium, Md. Submission of three copies of manuscripts, including figures, will expedite the review.

COPYRIGHT ©1962—THE INSTITUTE OF RADIO ENGINEERS, INC.

Printed in U.S.A.

All rights, including translations, are reserved by the IRE. Requests for republication privileges should be addressed to the Institute of Radio Engineers, 1 E. 79 St., New York 21, N.Y.