



IEEE TRANSACTIONS ON

MICROWAVE THEORY AND TECHNIQUES

SEPTEMBER 1966

VOLUME MTT-14

NUMBER 9

Published Monthly

CONTRIBUTIONS

- Microwave Measurement of High-Dielectric-Constant Materials *S. B. Cohn and K. C. Kelly* 406
- The Measurement of Phase at UHF and Microwave Frequencies *John D. Dyson* 410
- A Compact, Wide-Tuning Range, Dual TE_{111} Mode Preselector *Roger L. Fjerstad* 424
- An Approximate Wave Equation for an Axially Symmetric Periodic Waveguide *C. R. James and G. B. Walker* 428
- A Simple and Rugged Wide-Band Gas Discharge Detector for Millimeter Waves *P. J. W. Severin and A. G. van Nie* 431
- Corrections to
- "A Nonresonant Perturbation Theory" *C. W. Steele* 436
- "Band-Pass Spurline Resonators" *E. G. Cristal* 436

CORRESPONDENCE

- A Note on Bolometer Mount Efficiency Measurement Technique by Impedance Method in Japan *T. Tamaru* 437
- Pickup Antennas for Waveguide Motors *R. W. Steinhoff and T. K. Ishii* 438
- On the Solution and Field Pattern of Cylindrical Dielectric Resonators *K. K. Chow* 439

CONTRIBUTORS 440

ANNOUNCEMENT

- 1966 International Electron Devices Meeting 442

WHY JOIN G-MTT? 443

INFORMATION FOR AUTHORS 444



IEEE MICROWAVE THEORY AND TECHNIQUES GROUP

The Microwave Theory and Techniques Group is an organization, within the framework of the IEEE, of members with principal professional interest in the field of microwave theory and techniques. All members of the IEEE are eligible for membership in the Group and will receive these TRANSACTIONS upon payment of the annual Group membership fee of \$5.00. For information on joining, write to IEEE headquarters, Group Servicing Department, at the address below. Members of the American Physical Society and the Institution of Electrical Engineers of Great Britain may become affiliated and receive these TRANSACTIONS upon payment of the Affiliate fee of \$9.50 per year.

ADMINISTRATIVE COMMITTEE

S. W. ROSENTHAL, <i>Chairman</i>		R. W. BEATTY, <i>Vice Chairman</i>		F. R. ARAMS, <i>Secretary-Treasurer</i>	
H. M. ALTSCHULER*	M. COHN	I. KAUFMAN	P. A. RIZZI	E. N. TORGOW*	
H. M. BARLOW	S. B. COHN	D. D. KING*	T. S. SAAD	F. G. R. WARREN	
J. H. BRYANT	R. C. HANSEN	A. A. OLINER	G. SHAPIRO	L. YOUNG	
	R. E. HENNING	R. A. RIVERS	K. TOMIYASU		

* Ex officio (past chairmen)

Honorary Life Members

A. C. BECK	A. G. CLAVIER	W. W. MUMFORD	G. C. SOUTHWORTH
------------	---------------	---------------	------------------

G-MTT Chapters

Baltimore	R. J. Bauer	Kansas City	W. P. Waite	Philadelphia	W. K. Kinkmead
Boston	R. Damon	Long Island	V. Mazzola	San Diego	E. P. Augustin
Buffalo	T. Schiller	Los Angeles	G. Kasai	San Francisco	H. C. Poulter
Chicago	R. Yang	Milwaukee	J. H. Battocletti	Schenectady	J. P. Quine
Columbus	J. D. Leonard	Montreal	T. J. F. Pavlasek	Seattle	R. A. Sigelmann
Connecticut	A. J. Moltz	New Hampshire	A. R. Stratoti	S.E. Michigan	R. E. Hiatt
Dallas	A. J. Geia	New York	M. Rabinowitz	Syracuse	E. G. Schwarz
Denver	C. L. Trembath	North Carolina	P. G. Smith	Tokyo, Japan	Hideo Iwakata
Florida-W. Coast	R. E. Greenwood	North Jersey	M. J. Thompson	Toronto	R. P. Matthews
Foothill	J. Benson	Orange Co.	G. D. Carey	Tucson	D. C. Stinson
Huntsville	T. Cubbins	Orlando	J. R. Ashwell	Washington, D. C.	R. V. Garver

IEEE TRANSACTIONS® ON MICROWAVE THEORY AND TECHNIQUES

Editor	Associate Editors		
S. OKWIT	R. W. BEATTY	F. G. R. WARREN (<i>Microwave Abstracts</i>)	J. H. BRYANT (<i>Advertising</i>)

Address all manuscripts to S. Okwit, Editor, Airborne Instruments Laboratory, Melville, Long Island, N. Y. Submission of three copies of manuscripts, including figures, will expedite the review.

PUBLISHED BY THE INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS, INC.

345 East 47 Street, New York, N. Y. 10017

Officers

W. G. SHEPHERD, <i>President</i>	F. K. WILLENBROCK, <i>Vice President, Publications Activities</i>
W. R. MACADAM, <i>Vice President</i>	C. H. LINDER, <i>Secretary</i>
HENDLEY BLACKMON, <i>Vice President, Technical Activities</i>	S. W. HERWALD, <i>Treasurer</i>

Headquarters Staff

DONALD G. FINK, <i>General Manager</i>	
JOHN L. CALLAHAN, <i>Staff Consultant</i>	NELSON S. HIBSHMAN, <i>Executive Consultant</i>
RICHARD M. EMBERSON, <i>Director, Technical Services</i>	WILLIAM J. KEYES, <i>Director, Administrative Services</i>
RALPH H. FLYNN, <i>Director, Publishing Services</i>	JOHN M. KINN, <i>Director, Educational Services</i>
ELWOOD K. GANNETT, <i>Director, Editorial Services</i>	BETTY J. STILLMAN, <i>Administrative Assistant to the General Manager</i>

Editorial Department

ELWOOD K. GANNETT, <i>Director, Editorial Services</i>
HELENE FRISCHAUER, <i>Administrative Editor</i>

Assistant Editors: LINDA S. AVELAR, HELEN GOLDMAN, BONNIE KRAMER

Responsibility for the contents rests upon the authors and not upon the IEEE, the Group, or its members. Individual copies may be purchased at the following prices: IEEE members (one copy) \$2.25; public libraries and colleges \$3.25, all others \$4.50 (outside U. S. and Canada \$3.50 and \$4.75). Annual subscription price: public libraries and colleges \$12.75, nonmembers \$17.00 (outside U. S. and Canada \$13.25 and \$17.50). Abstracting is permitted with mention of source. All rights including translation, are reserved by the IEEE. Requests for republication permission should be addressed to the IEEE Editorial Department, 345 East 47 Street, New York, N. Y. 10017. Copyright © 1966 by The Institute of Electrical and Electronics Engineers, Inc. Printed in U.S.A.