



MICROWAVE AND GUIDED WAVE LETTERS[®]

A PUBLICATION OF THE IEEE MICROWAVE THEORY AND TECHNIQUES SOCIETY



APRIL 1996

VOLUME 6

NUMBER 4

IMGLE3

(ISSN 1051-8207)

LETTERS

On the Derivation of the Generalized Telegraphist's Equations for Full-Wave Analysis of Chirrowaveguides	<i>J. A. Pereda, A. Vegas, and A. Prieto</i>	165
An Accurate Broadband Measurement of Substrate Dielectric Constant	<i>M.-Q. Lee and S. Nam</i>	168
CAD-Oriented Equivalent Circuit Modeling of Step Discontinuities in Rectangular Waveguides	<i>A. Weisshaar, M. Mongiardo, and V. K. Tripathi</i>	171
Modeling Dispersive Dielectrics for the 2-D TLM Method	<i>I. Barba, A. C. L. Cabeceira, J. Represa, M. Panizo, and C. Pereira</i>	174
Reflection Analysis of PML ABC's for Low-Frequency Applications	<i>J. De Moerloose and M. A. Stuchly</i>	177
A Q-Band Monolithic Linear Amplifier Using AlGaAs/GaAs HBT's	<i>Y. Kwon, W.-J. Ho, and J. A. Higgins</i>	180

ERRATUM

Comments on "Reconstruction of the S-Matrix for a 3-Port Using Measurements at Only Two Ports"	<i>J. C. Rautio and M. Davidovitz</i>	183
Comment on "A Simple Way to Model Curved Metal Boundaries in FDTD Algorithm Avoiding Staircase Approximation"	<i>T. Weiland, P. Mezzanotte, and L. Roselli</i>	183

PATENT ABSTRACTS	<i>W. H. Meise</i>	185
------------------------	--------------------	-----



The Microwave Theory and Techniques Society is an organization, within the framework of the IEEE, of members with principal professional interests in the field of microwave theory and techniques. All members of the IEEE are eligible for membership in the Society and will receive the LETTERS upon payment of the annual Society membership fee of \$8.00. Affiliate membership is available upon payment of the annual affiliate fee of \$35.00, plus an annual subscription fee of \$8.00. For information on joining, write to the IEEE at the address below. *Member copies of Transactions/Journals are for personal use only.*

ADMINISTRATIVE COMMITTEE

J. W. WASSEL, <i>President</i>	M. A. MAURY, JR., <i>Vice President</i>	R. W. BIERIG, <i>Secretary</i>	D. G. SWANSON, <i>Treasurer</i>
J. T. BARR	M. GOLIO	T. KEMERLEY	D. WEBB
R. E. BRYAN	D. HORNBuckle	R. POLLARD	E. YAMASHITA
S. J. FIEDZIUSZKO	R. H. JANSEN	E. A. REZEK	

Honorary Life Members

A. C. BECK	T. S. SAAD
S. B. COHN	K. TOMIYASU
T. ITOH	L. YOUNG
A. A. OLINER	

Distinguished Lecturers

W. CURTICE	V. RIZZOLI
P. GOLDSMITH	J. R. WHINNERY
F. IVANEK	

Past Presidents

E. J. CRESCENZI (1994)
P. W. STAECKER (1993)
R. S. KAGIWADA (1992)

S-MTT Chapter Chairmen

Albuquerque: D. T. McGRATH	Hungary: I. FRIGYES	Santa Clara Valley/San Francisco: S. CRIPPS
Atlanta: A. F. PETERSON	Huntsville: H. L. BENNETT	Schenectady: R. J. GUTMANN
Baltimore: J. A. MOELLERS	India: S. K. KOUL	Seattle: J. McCANDLESS
Beijing: W. LIN	Indonesia: S. NATANAGARA	Singapore: M.-S. LEONG
W. X. ZHANG	Israel: A. MADJAR	South Africa: D. B. DAVIDSON
Benelux: K. VAN'T KLOOSTER	Kitchener-Waterloo: Y. L. CHOW	South Australia: B. D. BATES
Buffalo: M. R. GILLETTE	A. NATHAN	South Brazil: A. O. M. ANDRADE
Central Iowa/Cedar Rapids: J. COZZIE	Korea: J. S. MYUNG	Southeastern Michigan: J. W. BURNS
Central & South Italy: O. M. BUCCI	Los Angeles: T. C. SHISHIDO	Spain: M. SALAZAR-PALMA
Central New England/Boston: P. H. CARR	Milwaukee: J. RICHIE	Springfield: K. M. LAU
Central Virginia: S. H. JONES	Montreal: G. L. YIP	St. Louis: R. W. KIEFEL
Chicago: E. G. BOGUS	New Hampshire: R. O. GEOFFROY	Sweden: J. F. JOHANSSON
Cleveland: K. B. BHASIN	New Jersey Coast: E. COLLETT	Switzerland: W. BACHTOLD
College Station: R. NEVELS	New South Wales: C. D. WILSON	Syracuse: T. SARKAR
Columbus: R. LEE	New York/Long Island:	Taipei:
Czechoslovakia: Z. SKVOR	North Italy: C. V. NALDI	Tokyo: Y. KOBAYASHI
Dallas: R. D. EPPICH	North Jersey: C. GUPTA	Toronto: T. E. VAN DEVENTER
Dayton: G. R. SIMPSON	Oregon:	Tucson: H. C. KOHLBACHER
Denver-Boulder: R. GEYER	Orlando: A. MORTAZAWI	Turkey: A. BUYUKALSOY
Egypt: I. A. SALEM	Ottawa: D. H. REEKIE	Twin Cities: M. J. GAWRONSKI
Finland: E. T. KEMPPINEN	Philadelphia: A. HOORFAR	Ukraine: N. VOITOVICH
Florida West Coast: H. W. HILL	Phoenix: C. A. GAW	United Kingdom/Ireland: T. H. OXLEY
Foothill: S. M. SAAD	Poland: J. W. MODELSKI	Venezuela: A. N. BIANCHI
France: R. ADDE	Princeton/Central Jersey: A. KATZ	Virginia Mountain: I. J. BAHL
Germany: F. ARNDT	Rio de Janeiro/Brazil: J. R. BERGMANN	Washington D.C./Northern Virginia: S. DALAL
Greece: N. K. UZUNOGLU	San Diego: K.-L. P. YU	Winnipeg: H. MOHEB
Houston: J. T. WILLIAMS	San Fernando Valley: M. RADMANESH	Yugoslavia: B. JOCANOVIC

IEEE MICROWAVE AND GUIDED WAVE LETTERS**Editor-in-Chief**

R. SORRENTINO

Editorial Assistants

C. MASSINI

M. STOVALL

Associate EditorsM. KOSHIBA (*Asia-Pacific Abstracts*)**Sub-Associate Editor**

S. XU

W. H. MEISE (*Patent Abstracts*)**THE INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS, INC.****Officers**

WALLACE S. READ, *President*
 CHARLES K. ALEXANDER, *President-Elect*
 TSUNEO NAKAHARA, *Secretary*
 HOWARD L. WOLFMAN, *Treasurer*
 JERRY R. YEARGAN, *Vice President, Educational Activities*

JOEL B. SNYDER, *Vice President, Professional Activities*
 W. KENNETH DAWSON, *Vice President, Publication Activities*
 RAYMOND D. FINDLAY, *Vice President, Regional Activities*
 DONALD C. LOUGHRY, *Vice President, Standards Activities*
 BRUCE A. EISENSTEIN, *Vice President, Technical Activities*

THEODORE W. HISSEY, JR., *Executive Director*
 ROLF H. JANSEN, *Director, Division IV—Electromagnetics and Radiation*

Executive Staff

DANIEL J. SENESE, *General Manager*
 RICHARD D. SCHWARTZ, *Staff Executive, Business Administration*
 ANTHONY J. FERRARO, *Staff Executive, Publications*

IRVING ENGELSON, *Managing Director, Corporate Activities*
 PETER A. LEWIS, *Managing Director, Educational Activities*
 CECELIA JANKOWSKI, *Managing Director, Regional Activities*

ANDREW G. SALEM, *Managing Director, Standards Activities*
 W. THOMAS SUTTLE, *Managing Director, Professional Activities*
 ROBERT T. WANGEMANN, *Managing Director, Technical Activities*

IEEE Periodicals**Transactions/Journals Department**

Staff Director: FRAN ZAPPULLA

Transactions Manager: GAIL S. FERENC

Electronic Production Manager: JERI L. UZZO

Editorial Manager: VALERIE CAMMARATA

Managing Editor: GERALDINE E. KROLIN

Senior Editor: ROBERT W. DAVIDSON

Associate Editors: DAWN SPETH WHITE, RUTH KASTRUD

IEEE MICROWAVE AND GUIDED WAVE LETTERS is published monthly by The Institute of Electrical and Electronics Engineers, Inc. Responsibility for the contents rests upon the authors and not upon the IEEE, the Society/Council, or its members. **IEEE Corporate Office:** 345 East 47th Street, New York, NY 10017-2394. **IEEE Operations Center:** 445 Hoes Lane, P.O. Box 1331, Piscataway, NJ 08855-1331. **NJ Telephone:** 908-981-0060. **Price/Publication Information:** Individual copies: IEEE Members \$10.00 (first copy only), nonmembers \$20.00 per copy. (Note: Add \$4.00 postage and handling charge to any order from \$1.00 to \$50.00, including prepaid orders.) Member and nonmember subscription prices available on request. Available in microfiche and microfilm. **Copyright and Reprint Permissions:** Abstracting is permitted with credit to the source. Libraries are permitted to photocopy for private use of patrons, provided the per-copy fee indicated in the code at the bottom of the first page is paid through the Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923. For all other copying, reprint, or republication permission, write to Copyrights and Permissions Department, IEEE Publications Administration, 445 Hoes Lane, P.O. Box 1331, Piscataway, NJ 08855-1331. Copyright © 1996 by The Institute of Electrical and Electronics Engineers, Inc. All rights reserved. Second-class postage paid at New York, NY, and at additional mailing offices. **Postmaster:** Send address changes to IEEE MICROWAVE AND GUIDED WAVE LETTERS, IEEE, 445 Hoes Lane, P.O. Box 1331, Piscataway, NJ 08855-1331. GST Registration No. 125634188. Printed in U.S.A.