1984 MTT Symposium Digest

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Shizuoka University, Hamamatsu, Japan

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G Schaller
Universitaet Erlangen—Nuerberg, Erlangen, F R Germany

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SESSION 7

OPEN FORUM I

3 30 OPEN FORUM I

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D W White
MIT Lincoln Lab, Lexington, MA

7-2 3 30 LARGE SIGNAL UPPER-SIDEBAND VARACTOR UPCONVERTER LINEARIZATION
E Loeser
Technical University Braunschweig, Braunschweig, F R Germany

7-3 3 30 A SOLID STATE, X-BAND, EXCITER/LOCAL OSCILLATOR/DOWN CONVERTER SUBSYSTEM FOR AN AIRBORNE, COHERENT RADAR FIRE CONTROL SYSTEM
J B Vuong, A M Madni, L A Wan
Systron Donner Corp , Van Nuys, CA
G Keogh
Emerson Electric Company, St Louis, MO

7-4 3 30 DISTRIBUTED GaAs FET CIRCUIT MODEL FOR BROADBAND AND MILLIMETER WAVE APPLICATIONS
R LaRue, C Yuen, G Zdasiuk
Varian Associates, Palo Alto, CA

7-5 3 30 V-BAND DOUBLE-DRIFT READ SILICON IMPATTs
Y E Ma, E M Nakaji, W F Turner
Hughes Aircraft Co , Torrance, CA

7-6 3 30 FIELD ANALYSIS OF MILLIMETER-WAVE GaAs DOUBLE-DRIFT IMPATT DIODE IN THE TRAVELLING-WAVE MODE
Y Fukuoka, T Itoh
University of Texas, Austin, TX

7-7 3 30 W-BAND GaAs GUNN DIODE HARMONIC POWER COMBINER
Z Sun, S Li
Nanjing Institute of Technology, Nanjing, China

7-8 3 30 A WIDEBAND 60 GHz 16-WAY POWER DIVIDER/COMBINER NETWORK
T Hsu, M Simonutti
TRW ESG, Redondo Beach, CA

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R G Harrison, G A Kalivas
Carleton University, Ottawa, Ontario, Canada

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APS Khanna
Loral Advanced Technology Labs, Lanham, MD

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Saitama University, Urawa, Saitama, Japan

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H Moschuring, Ingo Wolff
Duisburg University, Duisburg, F R Germany

7-13 3 30 A COMPOSITE, MULTILAYERED CYLINDRICAL DIELECTRIC RESONATOR
M Dospieszalski
University of Virginia, Charlottesville, VA

7-14 3 30 COMPUTED MODAL FIELD DISTRIBUTIONS OF ISOLATED DIELECTRIC RESONATORS
D Kajfez, A W Glisson, J James
University of Mississippi, University, MS

7-15 3 30 DISC-TYPE RESONATOR MOUNT IN RECTANGULAR WAVEGUIDE
M E Bialkowski
University of Queensland, St Lucia, Brisbane, Australia

7-16 3 30 MINIATURIZED CHANNEL DROPPING FILTER USING TM_{010} MODE DIELECTRIC RESONATOR
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Murata Mfg Co Ltd , Kyoto, Japan

7-17 3 30 DIELECTRIC WAVEGUIDE GRATING DESIGN FOR BAND-STOP AND BAND-PASS FILTER APPLICATIONS
D C Park, G L Matthaei, M S Wei
University of California, Santa Barbara, CA

7-18 3 30 LOSSY HYBRID COUPLED AMPLITUDE EQUALIZERS FOR NARROW BAND FILTERS
R V Snyder
R S Microwave Co , Inc , Butler, NJ

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SESSION 8

FET AMPLIFIERS

8 30 Chairman S Temple
Raytheon Company, Bedford, MA

8-1 8 40 REFLECTIVE MATCH, LOSSY MATCH, FEEDBACK AND DISTRIBUTED AMPLIFIERS A COMPARISON OF MULTIOCTAVE PERFORMANCE CHARACTERISTICS
K B Niclas
Watkins Johnson Co , Palo Alto, CA

8-2 9 00 A 1 WATT, 8-17 GHz FET POWER AMPLIFIER
T Dao, W C Tsai, R Healy, B Liles
Raytheon Co , Northborough MA

8-3 9 20 A SOLID-STATE 2-10 GHz 1 WATT TWT REPLACEMENT AMPLIFIER
A M Pavio, D L Allen, S D Thompson, S J Goldman
Texas Instruments Inc , Dallas, TX

8-4 9 30 THIRD-ORDER NONLINEARITY OF GaAs MESFETs
J H Abeles, S H Wemple, W D S Schlosser, J P Beccone
Bell Laboratories, Murray Hill, NJ

8-5 9 50 A 1 5 WATT, 28 GHz BAND AMPLIFIER
T Takagi, K Seino, Y Ikeda, O Ishihara, F Takeda
Mitsubishi Electric Corp , Kamakura City Japan

SESSION 9

FILTERS

8 30 Chairman R V Snyder
R S Microwave, Butler, NJ

9-1 8 40 MILLIMETER-WAVE MULTIPLEXER WITH PRINTED CIRCUIT ELEMENTS FOR THE 88-100 GHz FREQUENCY RANGE
L D Cohen, N Worontoff, J Levy, A Harvey
Eaton Corp AIL Div, Deer Park, NY

9-2 9 00 BROADBAND MILLIMETER-WAVE E-PLANE BANDPASS FILTERS
L Q Bui, D Ball
Hughes Aircraft Co, Torrance, CA

9-3 9 10 ANALYSIS AND DESIGN OF EVANESCENT-MODE WAVEGUIDE DIELECTRIC RESONATOR FILTERS
Y C Shih, K G. Gray
Naval Postgraduate School, Monterey, CA

9-4 9 40 DIELECTRIC RESONATOR BANDPASS FILTER WITH HIGH ATTENUATION RATE
P Guillon, M P Chong
Lab de Communications Microondes et Optiques, Limoges, Frances

9-5 9 40 DESIGN OF NON-RADIATIVE DIELECTRIC WAVEGUIDE FILTER
T Yoneyama, F Kuroki, S Nishida
Tohoku University, Sendai, Japan

9-6 9 50 MINIATURE BAND REJECT FILTERS FOR SATELLITE APPLICATIONS
J Bowes, S J Fiedziuszko, J Redd, C Ziegler
Ford Aerospace & Communications Corp, Palo Alto, CA

SESSION 10

SYSTEMS

8 30 Chairman G Heiter
AT & T Bell Laboratories, North Andover, MA

10-1 8 40 24 GHz FM-CW RADAR FOR DETECTION OF INFORMATION FOR TRAFFIC PURPOSES
G Seehausen
Institut fuer Technische Elektronik der RWTH Aachen, Aachen, F R Germany

10-2 9 00 A 26 GHz HIGH PERFORMANCE MIC TRANSMITTER/RECEIVER FOR DIGITAL RADIO SUBSCRIBER SYSTEMS
H Ogawa, K Yamamoto, N Imai
Nippon Telegraph and Telephone Public Corp, Yokosuka-shi, Japan

10-3 9 20 17/12 GHz COMMUNICATION RECEIVER FOR DIRECT BROADCAST SATELLITES
S S Dhillon, P Goldgeier, R Sudarsanam, H Goldberg
RCA Astro-Electronics, Princeton, NJ

10-4 9 40 A CIRCULARLY POLARIZED ACTIVE ANTENNA ARRAY USING MINIATURE GaAs FET AMPLIFIERS
H C Johnson, R E Marx, A Sanchex, E Mykietyn
RCA Laboratories, Princeton, NJ

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SESSION 11

NOISE AND FREQUENCY STABILIZATION OF FET OSCILLATORS

10 30 Chairman F N Sechi
RCA Laboratories, Princeton, NJ

11-1 10 40 RELATION BETWEEN DEVICE LF NOISE AND OSCILLATOR PHASE NOISE FOR GaAs MESFETs
H Rohdin, C Y Su, C Stolte
Hewlett-Packard Laboratories, Palo Alto, CA

11-2 11 00 A SINGLE-RESONATOR GaAs FET OSCILLATOR WITH NOISE DEGENERATION
M J Bianchini, J B Cole, R DiBiase, Z Galani, R W Laton, R C Waterman, Jr
Raytheon Co, Bedford, MA

11-3 11 20 A NEW METHOD OF REDUCING PHASE NOISE IN GaAs FET OSCILLATORS
A N Riddle, R J Trew
North Carolina State University, Raleigh, NC

11-4 11 40 DIGITAL AND ANALOG FREQUENCY-TEMPERATURE COMPENSATION OF DIELECTRIC RESONATOR OSCILLATORS
J Lee, J E Andrews, K. W. Lee, W. R Day
Varian Associates, Santa Clara, CA

SESSION 12

COMMUNICATIONS FILTERS

10 30 Chairman H C Bell
Wavecom Div of Loral Corp, Northridge, CA

12-1 10 40 "ENGINE-BLOCK" DUAL MODE DIELECTRIC RESONATOR LOADED CAVITY FILTER WITH NONADJACENT CAVITY COUPLINGS
S J Fiedziuszko
Ford Aerospace & Communications Corp, Palo Alto, CA

12-2 11 00 NARROW BANDPASS FILTERS USING THE HIGH Q CYLINDRICAL TE_{0ml} RESONATOR MODES
R R Bonetti, A E Williams
Comsat Laboratories, Clarksburg, MD

12-3 11 10 PREDISTORTION TECHNIQUES FOR MULTIPLE-COUPLED RESONATOR FILTERS
A E Williams, W G Bush, R R Bonetti
Comsat Laboratories, Clarksburg, MD

12-4 11 20 NOVEL LOWPASS HARMONIC FILTERS FOR SATELLITE APPLICATION
A M K Saad
Com Dev Limited, Cambridge, Ontario, Canada

12-5 11 40 A 12 GHz 12 CHANNEL CONTIGUOUS MULTIPLEXER FOR SATELLITE APPLICATIONS
S C Holme
Ford Aerospace & Communications Corp, Palo Alto, CA

12-6 11 50 A 12-CHANNEL CONTIGUOUS BAND MULTIPLEXER FOR SATELLITE APPLICATION
R Tong, D Smith
Com Dev Limited, Cambridge, Ontario, Canada

SESSION 13

SYSTEMS TOPICS

10 30 Chairman J B Horton
TRW, Redondo Beach, CA

13-1 10 40 A PLANAR 4.0 GHz REACTIVELY STEERED ADAPTIVE ARRAY
R J Dinger
Naval Weapons Center, China Lake, CA

13-2 11 00 THERMAL NOISE AND RF SPECTRUM OF A MICROWAVE CAVITY-OSCILLATOR
B Villeneuve, P Tremblay, M Tetu
Laval University, Quebec, Canada

13-3 11 20 TWTA LINEARIZER USING DUAL-GATE MESFETs
M Kumar, J C Whartenby
RCA Laboratories, Princeton, NJ

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SESSION 14

OPEN FORUM II

1 30 OPEN FORUM II

14-1 1.30 SCATTERING BY DIELECTRIC OBSTACLES INSIDE GUIDING STRUCTURES
A S Omar, K. Schuenemann
Technische Universitaet Hamburg-Harburg, Hamburg, F R. Germany

14-2 1:30 A USEFUL EQUIVALENCE FOR THE INPUT REACTANCE SEEN BY THE COAXIAL LINE IN A BROADWALL COAXIAL-MICROSTRIP LAUNCHER
C. D. Gupta, R S Tomar
Indian Institute of Technology, Kanpur, India

14-3 1:30 GENERALIZED SPECTRAL DOMAIN ANALYSIS OF PLANAR STRUCTURES HAVING SEMI-INFINITE GROUND PLANES
H Lee, V. K. Tripathi
Oregon State University, Corvallis, OR

14-4 1:30 AN IMPROVED MODEL FOR SHORT- AND OPEN-CIRCUITED SERIES STUB IN FIN-LINES
M Burton, W J R Hoefer
University of Ottawa, Ottawa, Ontario, Canada

14-5 1.30 ACCURATE AND SIMPLE FORMULAS FOR DISPERSION IN FIN-LINES
J K Piotrowski
Technical University of Warsaw, Warsaw, Poland

14-6 1 30 ANALYSIS AND SYNTHESIS OF TAPERED FIN-LINES
P Pramanick
University of Ottawa, Ottawa, Canada
P Bhartia
Defence Research Establishment Ottawa, Ottawa, Canada

14-7 1 30 TRANSMISSION-MATRIX REPRESENTATION OF FIN-LINE DISCONTINUITIES
A S Omar, K Schuenemann
Technische Universitaet Hamburg-Harburg, Hamburg, F R Germany

14-8 POWER DENSITY DISTRIBUTION ANALYSIS OF FERRITE LOADED FIN-LINES
1 30 FOR THE DEVELOPMENT OF INTEGRATED NONRECIPROCAL MILLIMETER-WAVE ELEMENTS
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Duisburg University, Duisburg, F R Germany

14-9 AN AUTOMATIC MATERIAL PARAMETER MEASUREMENT SYSTEM
1 30 A Beyer, W Mueller-Gronau, I Wolff
Duisburg University, Duisburg, F R Germany

14-10 THE METHOD OF LINES FOR THE ANALYSIS OF PLANAR WAVEGUIDES WITH
1 30 MAGNETIZED FERRITE SUBSTRATE
R Pregla
Fern Universitaet, Hagen, F R Germany

14-11 MAGNETOSTATIC WAVE DELAY LINES USING THE NON-UNIFORMLY
1 30 MAGNETIZED YIG FILMS
M Tsutsumi, T Sakurai, N Kumagai
Osaka University, Osaka, Japan

14-12 EDGE-GUIDED MAGNETOPLASMONS ON CURVED INTERFACES IN
1 30 SUBMILLIMETER-WAVE DEVICES
D M Bolle, J F Wagen
Lehigh University, Bethlehem, PA

14-13 COHERENT TRANSMITTER CONSIDERATIONS UTILIZING INJECTION LOCKED
1 30 MAGNETRONS
W S Best
Naval Weapons Center, China Lake, CA
R W Laton
Raytheon Co , Bedford, MA
V H Smith
M-O Valve Co , Ltd , London, England, U K

14-14 HIGH-HARMONIC GYROTRON OSCILLATORS AND GYRO-KLYSTRON AMPLIFIERS
1 30 D B McDermott, D S Furuno, N C Luhmann, Jr
University of California, Los Angeles, CA

14-15 A FEASIBILITY STUDY TO MONITOR SOIL MOISTURE CONTENT USING
1 30 MICROWAVE SIGNALS
E Bahar, J. D Saylor
University of Nebraska, Lincoln, NE

14-16 PERFORMANCE CHARACTERSISTICS OF THE THIN-FILM, ETCHED-CIRCUIT
1 30 RECTENNA
W C Brown
Raytheon Co , Waltham, MA

14-17 A STABILIZED BROADBAND CORRELATOR FOR MEDICAL MICROWAVE
1 30 THERMOGRAPHY
J C Hill
Enon Microwave Inc , Topsfield, MA
R Goldner
Tufts University, Medford, MA

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SESSION 15

SEMICONDUCTOR CONTROL AND FREQUENCY CONVERSION

8 30 Chairman J F White
MACOM Inc , Burlington, MA

15-1 OCTAVE-BAND HIGH PRECISION BALANCED MODULATOR
8 40 Z Adler, B Smilowitz
General Microwave Corp , Farmingdale, NY

15-2 MULTI-OCTAVE PHASE MODULATORS
9 00 T Tadeusz, J Zborowska, P Miazga
Technical University of Warsaw, Warsaw, Poland

15-3 NOVEL GaAs FET PHASE DETECTOR OPERABLE TO Ka BAND
9 20 T Takano, Y Tozawa, T Shima, T Kato, H Komizo, H Yatsuka
Fujitsu Ltd , Kawasaki, Japan

15-4 A FET L BAND PHASE/AMPLITUDE CONTROL MODULE
9 40 A Presser
RCA Laboratories, Princeton, NJ

SESSION 16

MILLIMETER-WAVE APPLICATIONS

8 30 Chairman J E Raue
TRW, Redondo Beach, CA

16-1 FUNDAMENTAL WAVE INJECTION LOCKED SECOND HARMONIC GUNN
8 40 OSCILLATORS
H Barth
AEG-Telefunken, Ulm, F R Germany

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9:00 IMPATT-DIODE POWER AMPLIFIERS
D F Peterson
Steinbrecher Corp , Woburn, MA

16-3 ACTIVE PHASE SHIFTERS FOR THE MILLIMETER AND MICROWAVE BANDS
9 20 L D Cohen
Eaton Corp , AIL Div , Deer Park, NY

16-4 HIGH POWER BROADBAND 35 GHz WAVEGUIDE SWITCH USING A
9 40 MONOLITHIC DIODE ARRAY
A L Armstrong, D E Wheeler, J Goodrich
M/A-COM Millimeter Co , Burlington, MA

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9 50 M B Steer, P J Khan
North Carolina State University, Raleigh, NC

SESSION 17

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8 30 Chairman R L Camisa
RCA Laboratories, Princeton NJ

17-1 QUASI LUMPED-ELEMENT 3- AND 4-PORT NETWORKS FOR MIC AND
8 40 MMIC APPLICATIONS
R Gupta, W J Getsinger
COMSAT Laboratories, Clarksburg, MD

17-2 AN MMIC/MIC-TO-WAVEGUIDE TRANSITION FOR SINGLE- AND
9 00 DUAL-POLARIZATION SYSTEMS
B D Geller, A I Zaghloul
COMSAT Laboratories, Clarksburg, MD

17-3 TRANSVERSE RESONANCE ANALYSIS OF FIN-LINE DISCONTINUITIES
9 10 R Sorrentino, T Itoh
University of Texas, Austin, TX

17-4 QUARTER WAVE TRANSFORMERS FOR MATCHING TRANSITIONS BETWEEN
9 30 WAVEGUIDES AND FIN-LINES
C J Verver
Communications Research Center, Ottawa, Ontario, Canada
W J R Hoefer
University of Ottawa, Ottawa, Ontario, Canada

17-5 SYNTHESIS OF OPTIMUM FIN-LINE TAPERS
9 50 C Schieblich, J H Hinken
Technische Universitaet Hamburg-Harburg, Hamburg, F R Germany

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SESSION 18

FET MODELING AND NOVEL STRUCTURES

10 30 Chairman M Kumar
RCA Laboratories, Princeton, NJ

18-1 SELF-CONSISTENT FET MODELS FOR AMPLIFIER DESIGN AND
10 40 DEVICE DIAGNOSTICS
W R Curtice, R L Camisa
RCA Laboratories, Princeton, NJ

18-2 MODELING OF NONLINEAR DISTORTION IN GaAs MESFETs
11 00 R J Gilmore, F J Rosenbaum
Central Microwave Co , St Louis, MO

18-3 ANALYSIS AND DESIGN OF GaAs MESFET MIXERS
11 10 S A Maas
University of California, Los Angeles, CA

18-4 A LOW NOISE AlGaAs/GaAs FET WITH P$^+$ GATE AND
11 20 SELECTIVELY DOPED STRUCTURE
K Ohata, H Hida, H Miyamoto
NEC Corp , Kawasaki, Japan

18-5 A 6 WATT 6 GHz GaAs FET POWER MODULE WITH GaAs MATCHING
11 40 CIRCUITS
F M Magalhaes, J P Beccone, J C Irvin, S J Perelli, W O Schlosser
Bell Laboratories, Murray Hill, NJ

18-6 A C-BAND 10 WATT GaAs POWER FET
11 50 J Fukaya, M Ishii, M Matsumoto, Y Hirano
Fujitsu Ltd , Kawasaki, Japan

SESSION 19

MILLIMETER-WAVE TECHNIQUES

8 30 Chairman, M. Dydyk
Motorola Inc, Scottsdale, AZ

19-1 60 GHz INTEGRATED CIRCUIT QUADRIPHASE EXCITER AND MODULATOR
10 40 A Grote, K Chang
TRW ESG, Redondo Beach, CA

19-2 SILICON MILLIMETER-WAVE INTEGRATED CIRCUITS TECHNOLOGY
11 00 P J Stabile, A. Rosen, W M. Janton, A. Gombar, B S Yarman, M Kolan
RCA Laboratories, Princeton, NJ

19-3 MONOLITHIC ANTENNAS FOR MILLIMETER-WAVE GaAS INTEGRATED
11.20 CIRCUITS
F C Jain
University of Connecticut, Storrs, CT
R Bansal
Harvard University, Cambridge, MA

19-4 REDUCTION OF PROPAGATION LOSSES IN COPLANAR WAVEGUIDE
11 30 D F Williams, S E Schwarz
University of California, Berkeley, CA

19-5 NONRECIPROCAL EFFECTS IN SEMICONDUCTOR LOADED WAVEGUIDE AT
11.40 MILLIMETER-WAVELENGTHS
E M. Godshalk, F J Rosenbaum
Washington University, St Louis, MO

19-6 W-BAND BROADBAND INTEGRATED CIRCUIT RECEIVER
11 50 K Chang,G M Hayashibara, R S Tahim, A Grote, T Pham, C Sun
TRW ESG, Redondo Beach, CA

SESSION 20

PLANAR TRANSMISSION LINE STRUCTURES

10 30 Chairman J M Owens
University of Texas at Arlington, Arlington, TX

20-1 SPECTRAL ITERATIVE TECHNIQUE FOR ANALYZING MULTICONDUCTOR
10 30 MICROSTRIP LINES
C Chan, R Mittra
University of Illinois, Urbana, IL

20-2 A SPECTRAL DOMAIN HYBRID FIELD ANALYSIS OF PERIODICALLY
10 50 INHOMOGENEOUS MICROSTRIP LINES
F -J Glandorf, I Wolff
Duisburg University, Duisburg, F R Germany

20-3 THEORETICAL AND EXPERIMENTAL INVESTIGATION OF ASYMMETRIC
11 10 COPLANAR WAVEGUIDES
V Foud Hanna, D Thebault
Centre National d'Etudes des Télecommunications, Issy Les Moulineaux, France

20-4 OPTIMIZED MICROSTRIP RING-STAR 5-PORTS FOR BROADBAND 6-PORT
11 30 MEASUREMENT APPLICATION
M Malkomes, G Kadisch, H J Schmitt
Rheinisch-Westfaelische Technische Hochschule Aachen, Aachen, F R Germany

20-5 FUNDAMENTAL SUPERSTRATE EFFECTS ON PRINTED CIRCUIT ANTENNA
11 50 EFFICIENCY
N G Alexopoulos, D R Jackson
University of California Los Angeles, Los Angeles, CA

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SESSION 21

IMPATT AND BIPOLAR OSCILLATORS

1 30 Chairman N W Cox
Georgia Institute of Technology, Atlanta, GA

21-1 GaAS IMPATT DIODES PULSED AT 40 GHz
1 40 M. G Adlerstein, S L G Chu
Raytheon Research Division, Lexington, MA

21-2 ANALYSIS OF A J-BAND PULSED READ IMPATT OSCILLATOR
2 00 J E Curran, J P Bridge, J L B Walker
GEC Research Laboratories, Wembley, UK

21-3 BROADBAND INJECTION-LOCKED OR STABLE IMPATT AMPLIFIER
2 20 C S Ward, R W Laton, J A Spada
Raytheon Missile Systems Division, Bedord, MA

21-4 8 GHz LOW NOISE BIAS TUNED VCO
2 40 M E Znojkiewicz
Northern Telecom, Montreal, Canada

SESSION 22

DIELECTRIC WAVEGUIDES

1 30 Chairman D Kajfez
University of Mississippi, University, MS

22-1 POWDER CORE DIELECTRIC WAVEGUIDES
1 40 W M Bruno, W B Bridges
California Institute of Technology, Pasadena, CA

22-2 DIRECTLY-CONNECTED IMAGE GUIDE 3dB COUPLERS WITH VERY FLAT
2 00 COUPLINGS
D E Kim, D Kawab, K Araki, Y Naito
Tokyo Institute of Technology, Tokyo, Japan

22-3 PHASE-MATCHED WAVEGUIDE USING THE ARTIFICIAL ANISOTROPIC
2 20 STRUCTURE AND ITS APPLICATION TO MODE CONVERTER
T Mizumoto, H Yamazaki, Y Naito
Toyko Institute of Technology, Tokyo, Japan

22-4 A TRANSITION TO NON-RADIATING DIELECTRIC WAVEGUIDE
2 40 J A G Malherbe, J H Cloete, I E Loesch
University of Pretoria, Pretoria, South Africa

SESSION 23

MICROWAVE AND MILLIMETER-WAVE MEASUREMENTS

1 30 Chairman B S Perlman
RCA, Princeton, NJ

23-1 AN ANALYSIS OF THE A C BANDWIDTH OF TRANSMISSION LINE
1 30 DISCRIMINATORS FOR FM NOISE MEASUREMENT
R S Brozovich, J R Ashley
Sperry Defense Systems, Clearwater, Florida

23-2 OPTIMISING AN ELECTROMAGNETIC FIELD SENSOR FOR MICROWAVE
1 40 AMPLITUDE AND PHASE DETECTION VIA FIBER OPTIC TRANSMISSION LINK
M T Avalos, R M Sega
University of Colorado, Colorado Springs, CO

23-3 LARGE SIGNAL PULSED NETWORK ANALYZER OPERATION
1 50 T R Apel
Acrian, Inc , Cupertino, CA
R J Weber
Rockwell-Collins Cedar Rapids, IA

23-4 MEASUREMENT OF THE COMPLEX DIELECTRIC CONSTANT AT MILLIMETER
2 10 WAVELENGTHS
F I Shimabukuro, S Lazar
The Aerospace Corp , El Segundo, CA

23-5 DIELECTRIC PROPERTIES OF MILLIMETER WAVE MATERIALS
2 20 M N Afsar, K J Button
Massachusetts Institute of Technology, Cambridge, MA

23-6 APPLICATION OF A DIELECTRIC RESONATOR ON MICROSTRIP LINE
2 40 FOR A MEASUREMENT OF COMPLEX PERMITTIVITY
S Maj, J Modelski
Warsaw Technical University, Warszawa, Poland

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SESSION 24

OPTICAL AND SUBMILLIMETER WAVE TECHNOLOGY

3 30 Chairman W S C Chang
University of California at San Diego, La Jolla, CA

24-1 ANALOG MICROWAVE FIBER OPTIC COMMUNICATION LINKS
3 40 W E Stephens, T R Joseph, B U Chen
TRW, Redondo Beach, CA

24-2 A NEW METHOD FOR MODAL ANALYSIS OF OPTICAL FIBERS HAVING
3 50 SYMMETRICALLY DISTRIBUTED MULTIPLE CORES
E Yamashita, S Ozeki, K Atsuki
University of Electro-Communications, Tokyo, Japan

24-3 2 24 Gb/s DIRECT MODULATION OF INJECTION LASER BY MONOLITHIC
4 00 SILICON MULTIPLEXER
B G Bosch, V Langmann, D Daniel
Ruhr-Universitaet Bochum, Bochum, F R Germany

24-4 4 20 DIRECT DC TO RF CONVERSION BY PICOSECOND OPTOELECTRONIC SWITCHING
C S Chang, M Jeng, M J Rhee, C H Lee
University of Maryland, College Park, MD
A Rosen, H Davis
RCA Laboratories, Princeton, NJ

24-5 4 30 POLARIZATION-SENSITIVE IMAGING ARRAYS
P P Tong, D B Rutledge
California Institute of Technology, Pasadena, CA
D P Neikirk
University of Texas, Austin, TX

SESSION 25

MILLIMETER-WAVE MIXERS

3 30 Chairman S Dixon, Jr
ERADCOM, Fort Monmouth, NJ

25-1 3 40 A COMPARISON OF THE MEASURED AND THEORETICAL PERFORMANCE OF A 140-220 GHz SCHOTTKY DIODE MIXER
P H Siegel, A R Kerr
NASA Goddard Institute for Space Studies, New York, NY
R J Mattauch
University of Virginia, Charlottesville, VA

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AT&T Bell Lab., Holmdel, NJ
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J. W Archer, M T Faber
National Radio Astronomy Observatory, Charlottesville, VA

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National Bureau of Standards, Boulder, CO

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Sperry Defense Electronics, Waltham, MA

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