

Technical Program

Wednesday Morning, June 1, 1983

GRAND BALLROOM		CONSTITUTION ROOM		INDEPENDENCE ROOM	
WELCOME					
8:30 am	Steering Committee Chairman H. Howe, M/A-COM, Inc., Burlington, MA				
8:40 am	MTT Society Administrative Committee President C. Rucker, Georgia Inst. Tech., Atlanta, GA				
8:50 am	Technical Program Committee Chairman R. Levy, Microwave Development Labs, Inc., Natick, MA				
MONOLITHIC AMPLIFIERS Chairman: R. Decker, Lehigh University, Lehigh, PA		FILTERS & PASSIVE NETWORKS I Chairman: H.C. Bell, Wavecom, Inc., Northridge, CA		NEAR MILLIMETER WAVE TECHNIQUES Chairman: K.L. Button, National Magnet Lab., M.I.T. Cambridge, MA	
9:00 am A1	Broadband Monolithic Low-Noise Feedback Amplifiers P.N. Rigby, J.R. Suffolk and R.S. Pengelly Plessey Research (Caswell) Ltd, Caswell, Towcester, Northants, England	9:00 am B1	A 12-Channel Contiguous Band Multiplexer at Ku-Band Ming Hui Chen, TRW Electronic Systems Group One Space Park, Redondo Beach, CA 90278 (213) 535-2571	9:00 am C1	Ultrafast Optoelectronic Devices for Millimeter Waves Chi H. Lee, Aileen M. Vaucher, M.G. Li, and D. Striffler Electrical Engineering Department, University of Maryland, College Park, Maryland 20742
9:20 am A2	2-6 GHz Monolithic Microwave Amplifier W.O. Camp, Jr., S. Tiwari, D. Parsons IBM Federal Systems Division, Owego, NY	9:20 am B2	Asymmetric Canonical Dielectric Resonator Filters S.J. Fiedziuszko, Ford Aerospace and Communications Corporation, Western Development Laboratories, 3939 Fabian Way, Palo Alto, California 94303	9:20 am C2	Performance of Metal Meshes as a Function of Incidence Angle H.M. Pickett, J. Farhoomand, A.E. Chiu Microwave Observational Systems Section, Jet Propulsion Laboratory, Pasadena, CA 91109
9:40 am A3	Wideband High Gain Small Size Monolithic GaAs FET Amplifiers V. Pauker and M. Binet Laboratoires d'Electronique et de Physique Appliquee Limeil-Brevannes (France)	9:40 am B3	Triple-Mode True Elliptic-Function Filter Realization for Satellite Transponders W.C. Tang, Com. Dev. Ltd., Cambridge, Ont., Canada S.K. Chaudhuri, Dept. of Electrical Engineering, Univ. of Waterloo, Waterloo, Ontario, Canada	9:40 am C3	A Submillimeter Wave Quasi-Optical Frequency Doubler M.A. Frerking, H.M. Pickett and J. Farhoomand Microwave Observational Systems Section Jet Propulsion Laboratory, Pasadena, CA 91109
10:00 am	BREAK				
10:30 am A4	12 GHz-Band Low-Noise GaAs Monolithic Amplifiers H. Itoh, T. Sugura, T. Tsuji, K. Honjo and Y. Takayama Microelectronics Research Laboratories, NEC Corporation Miyazaki, Miyamae-ku, Kawasaki 213, Japan	10:00 am B4	A Contiguous-Band Multiplexer Design R.G. Egri and A.E. Williams, COMSAT Laboratories, Clarksburg, Maryland 20871	10:00 am C4	A Broadband Low-Noise 205 GHz Radiometer for a Satellite Receiver M.A. Frerking, J.C. Hardy, W.J. Wilson, P. Zimmermann Microwave Observational Systems Section, Jet Propulsion Laboratory, Pasadena, CA 91109
10:50 am A5	GaAs Monolithic MICs for Direct Broadcast Satellite Receivers Shigekazu Hori, Kiyohito Kamei, Kiyoyasu Shibata, Mikio Tatematsu, Katsuhiko Mishima and Susumu Okano Microwave Solid-State Dept., Electronics Equipment Div., Toshiba Corporation	10:20 am B5	A New Narrow Band Dual-Mode Bandstop Waveguide Filter Qian Jing-ren, Department of Electrical Engineering, China University of Science & Technology, Hefei, Anhui, China and Zhuang Wei-chen, Xian Institute of Radio Technology, Xian, Shanxi, China	10:20 am C5	Surface-Wave Losses of Coplanar Transmission Lines Dayalan P. Kasilingam and David B. Rutledge Department of Electrical Engineering, California Institute of Technology, Pasadena, CA 91125
11:10 am A6	Miniaturization of a Band-X Monolithic GaAs Amplifier P. Dueme, M. Le Brun, P.R. Jay, C. Rumeilhart Microwave Integrated Circuit Laboratory THOMSON-CSF/ICR, BP 10, 91401 Orsay, France	11:00 am B6	Strip-Line Resonator Filters Having Multi-Coupled Sections Mitsuo Makemoto and Sadahiko Yamashita Matsushita Research Institute Tokyo, Inc., 3-10-1 Higashimita Tama-ku Kawasaki 214, Japan	11:00 am C6	Effective Cross-Sections for Dielectric Waveguides in Substrate Environments Edward F. Kuester, Electromagnetics Laboratory, Department of Electrical Engineering, Campus Box 425 University of Colorado, Boulder, CO 80309
11:30 am A7	GaAs Monolithic Lumped Element Multistage Microwave Amplifier K.P. Weller, G.D. Robinson, A. Benavides, R.D. Fairman TRW Electronic Systems Group, Redondo Beach, California	11:20 am B7	Lumped Mode Microwave Resonant Structures Mehrdad Mehdi-zadeh and T. Koryu Ishii, Department of Electrical Engineering and Computer Science, Marquette University, 1515 W. Wisconsin Ave., Milwaukee, WI 53233	11:20 am C7	Extended Point-Matching Method Eikichi Yamashita, Yoshiki Nishino, and Kazuhiko Atsuki University of Electro-Communications, Chofu-shi, Tokyo, Japan 182
		11:40 am B8	Millimeter Wave Printed Circuit Spurline Filters C. Nguyen, C. Hsieh and D.W. Ball Hughes Aircraft Company, Electron Dynamics Division, 3100 West Lomita Boulevard, Torrance, CA 90509 (213) 517-6736	11:40 am C8	Image Formation in Circular Waveguides and Optical Fibers Ali R. Mahnad and Edward F. Kuester Electromagnetics Laboratory, Department of Electrical Engineering, Campus Box 425 University of Colorado, Boulder, CO 80309

Wednesday Afternoon, June 1, 1983

GRAND BALLROOM		CONSTITUTION ROOM		INDEPENDENCE ROOM	
MILLIMETER WAVE SOLID-STATE DEVICES Chairman: S. Dixon, ERA/COM, Fort Monmouth, NJ		FILTERS & PASSIVE NETWORKS II Chairman P. Rizzi, Southeastern Massachusetts University, North Dartmouth, MA		MICROWAVE BIOLOGICAL EFFECTS Chairman: K. Carr, M/A-COM Burlington, MA	
1:40 pm D1	A Comparison of the Performance of Millimeter Wave Semiconductor Oscillator Devices and Circuits D.C. Smith, T. J. Simmons, M.R.B. Jones, Plessey Research (Caswell) Ltd., Caswell, Towcester, Northants, England	1:40 pm E1	Broadband Waveguide Filters with Wide Stopbands Using a Stepped-Wall Evanescent Mode Approach Richard V. Snyder, RS Microwave Company, Inc., 22 Park Place, P.O. Box 273, Butler, NJ 07405	1:40 pm F1	A 5.8 GHz Ophthalmic Microwave Applicator for Treatment of Choroidal Melanoma Paul T. Finger, Samuel Packer and Paul Svitra Medical Department, Brookhaven National Laboratory, Upton, NY 11973
2:00 pm D2	Unbiased, Sub-Harmonic Mixers for Millimeter Wave Spectrum Analyzers R. J. Matreci, F. K. David Signal Analysis Division, Hewlett-Packard Company, 1424 Fountain Grove Parkway, Santa Rosa, California 95401	2:00 pm E2	Circuit Duals on Planar Transmission Media W. J. Getsinger, COMSAT Laboratories, Clarksburg, Maryland 20871		
2:20 pm D3	MM-Wave Frequency Discriminator Aids Reduction of Oscillator Chirp Heimut Barth, AEG TELEFUNKEN, Ulm, 7900 Ulm, W. Germany, Postfach 1730	2:20 pm E3	E-Plane Filters with Finite-Thickness Septa Y.C. Sihh, U.S. Naval Postgraduate School, Electrical Engineering, Monterey, CA 93940 and T. Itoh, The University of Texas at Austin, Department of Electrical Engineering, Austin, TX 78712	2:00 pm F2	Microwave Thermotherapy for the Treatment of Human Brain Cancer A. Winter and J. Laing The Hospital Center at Orange, Orange, NJ 07051
2:40 pm D4	BREAK Ka-Band GaAs Power FETs Yong-hoon Yun, G.C. Taylor, D.S. Bechtile, S.T. Jolly, S.G. Liu and R.L. Camisa - RCA Laboratories, David Sarnoff Research Center, Microwave Technology Center, Princeton, NJ 08540	2:40 pm E4	Filter Realizations with Fin-Lines A.S. Omar, H. El Hennawy* and K. Schuenemann Institut Fur Hochfrequenztechnik, Technische Universität Braunschweig, Postfach 3329, D-3300 Braunschweig, West Germany (*Now with Ain Shams University, Cairo, Egypt)		
3:00 pm D5	Millimeter Wave IMPATT Microstrip Oscillators P. Yen, D. English, C. Ito and K. Chang TRW Electronics and Defense, One Space Park, Redondo Beach, California 90278	3:00 pm E5	AN 18 GHz 8-Way Radial Combiner I. Stones, J. Goel, G. Oransky TRW Electronic Systems Group, Redondo Beach, CA 90278	2:20 pm F3	A Multi-Element Microstrip Antenna for Local Hyperthermia E. Tanabe, A. McEuen, and C.S. Norris Radiation Division, Varian Associates, Palo Alto, CA 94303
3:40 pm D6	A Ka-Band PIN Diode Switch with Extremely Large On-Off Ratio R.D. Weglein, D.Y. Kim, R.E. Johnson, L.D. Darlington Radar Laboratory, Missile Systems Group, Hughes Aircraft Company, Canoga Park, CA 91304	3:40 pm E6	A Matched Turnstile Type 4-Way Divider/Combiner Dr. R.L. Eisenhart, N.W. Nevils, J.J. Gulick, R.C. Monzello, Hughes Aircraft Company, Canoga Park, California 91304	2:40 pm F4	Present Results and Trends in Microwave Thermography Y. Leroy, M. Chive, A. Mamouni, M. Hochedez-Robillard, J.C. Van De Velde, Centre Hyperfréquences et Semiconducteurs, Laboratoire Associe au C.N.R.S. n° 287 Bat. P4, Université des Sciences et Techniques de Lille I, 59655 Villeneuve d'Ascq Cedex - France
4:00 pm D7	A 60 GHz GaAs FET Amplifier E.T. Watkins, J.M. Schellenberg, L.H. Hackett, H. Yamasaki and M. Feng, Hughes Aircraft Company, Torrance Research Center, 3100 West Lamita Blvd., Torrance, California 90509 (213) 517 6406	4:00 pm E7	Analysis and Design of a Folded Branch Line Coupler J.P. Starski, H.B. Lunden, Division of Network Theory, Chalmers University of Technology, Gothenburg, Sweden V.K. Tripathi, Department of Electrical and Computer Engineering, Oregon State University, Corvallis, OR		BREAK
		4:20 pm E8	The Channel Waveguide Transformer- An Easily Fabricated H-Plane Transition for the Rectangular TE₁₀ Mode P.H. Siegel, Dept. of Electrical Engineering, Columbia University, New York, NY 10027 D.W. Peterson, Dept. of Astronomy, Columbia University, New York, NY 10027 A.R. Kerr, NASA/Goddard Institute for Space Studies, New York, NY 10025	3:00 pm F5	The Effect of Antenna Match on Microwave Radiometric Thermal Patterns K.L. Carr, R.J. Bielawa, J.F. Regan, M/A-COM, Inc., Burlington, Massachusetts 01803 A.M. El-Mahdi, M.D., Sc.D., and J. Shaeffer, Ph.D., Department of Radiation Oncology and Biophysics, Eastern Virginia Medical School, Norfolk, Virginia 23507
				3:40 pm F6	A Ferromagnetic Resonance Sensor for Remote Wireless Temperature Measurements in Organic Tissue P. Roschmann, K.M. Ludeke, Philips GmbH Forschungslaboratorium Hamburg, Vogt-Kolln-Str. 30, D 2000 Hamburg 54, FRG
				4:00 pm F7	Non-Perturbed Photoluminescent Thermometry (PLT) Suitable for Microwave Hyperthermia in Cancer Patients P.N. Shrivastava, T.V. Samulski, Allegheny General Hospital, Pittsburgh, PA
				4:20 pm F8	Microwave Thermotherapy of Recurrent Chest-Wall Carcinoma E. Friedenthal, J. Mendecki, C. Botstein, Albert Einstein College of Medicine, Bronx, NY F. Sterzer, R. Paglione, RCA Labs, Princeton, NJ

Wednesday, June 1

4:00 pm to 6:00pm

Republic Ballroom

OPEN FORUM SESSION I

Topics: Solid-State, Field Theory, Microwave Integrated Circuits, Measurements, Acoustics, Ferrites

G 1	Theory of the Varactor Frequency Halver Robert G. Harrison, Department of Electronics, Carleton University, Ottawa, Ontario, Canada K1S 5S6	G11	Convergence of Numerical Solutions of Step-Type Waveguide Discontinuity Problems by Modal Analysis Y.C. Shih and K.G. Gray, U.S. Naval Postgraduate School, Electrical Engineering Dept., Monterey, CA 93940
G 2	Statistical Analysis of Microwave Balanced Amplifiers G.V. Petrov, Department of Electronics, Moscow Engineering Physics Institute, Kashirskoe shosse 31, 115409, Moscow, USSR	G12	Simplified Analysis of Stripline, Microstripline and Coplanar Strips, With Anisotropic Substrates for MIC and SAW Applications Shiban K. Kour and Bharatai Bhat, Centre for Applied Research in Electronics, Indian Institute of Technology, New Delhi-110016, India
G 3	A Lossless Radially Symmetric TEM-Line IMPATT Diode Power Combiner R. Actis and D.F. Peterson, Electron Physics Laboratory, Department of Electrical and Computer Engineering, University of Michigan, Ann Arbor, MI 48109	G13	A New Method for Solving Potential Problems Which Contain Straight or Curved Strip Conductors Sadayuki Murashima* and Hiroshi Neda*** Dept. of Electronics, Fac. of Engineering, Kagoshima University, Koorimoto 1-21-40, Kagoshima, Japan ***Dept. of Electrical Engineering, Fac. of Engineering, Miyazaki University, Kirishima 1, Miyazaki, Japan
G 4	Equivalent Circuit of a Kurokawa-Type Waveguide Power Combiner Peter J. Allen, Peter J. Khan Department of Electrical Engineering, University of Queensland, St. Lucia, Queensland, 4607 Australia	G14	Tapered Microstrip Transmission Lines P. Pramanick and P. Bhartia, Department of Electrical Engineering, University of Ottawa, Ottawa K1N 6N5, Canada
G 5	The Switch on Characteristics and Noise of Pulsed Read IMPATTs in Ku-Band D.M. Brookbanks and B.J. Buck, Plessey Research (Casswell) Limited, Casswell, Towcester, Northants, England	G15	A New Transmission Line Approach for Designing Spiral Microstrip Inductors for Microwave Integrated Circuits David Cahana, COMSAT Laboratories, Clarksburg, Maryland 20871
G 6	Constant Voltage Biasing of IMPATT Injection-Locked Oscillators J.L. Chan, TRW Electronic Systems Group, One Space Park, Redondo Beach, CA 90278	G16	Cascading (CAS) and its Inverse (SAC) Matrix Operation Harold E. Stenheiler, Sr., Harold E. Stenheiler, Jr., Made-it Associates, Inc., 21 Daniel Drive, Burlington, MA 01803
G 7	A Theory for the Prediction of GaAs FET Load-Pull Power Contours S.C. Cripps, Watkins-Johnson Company, 3333 Hillview Avenue, Palo Alto, CA 94304	G17	A Complete and Unambiguous Solution to the Super-TSD Multiport Calibration Problem J.W. Helton, Dept. of Mathematics, University of California, San Diego, CA
G 8	Computer-Corrected Load-Pull Characterization of Power MESFETs Peter D. Bradley, Microwave Technology Development Centre, University of Queensland, St. Lucia, Qld 4067 Australia		R.A. Speciale, TRW Electronic Systems Group, Redondo Beach, California
G 9	Field Distributions in the Trapped Image Guide W.B. Zhou and T. Itoh, Dept. of Electrical Engineering, The University of Texas at Austin, Austin, Texas 78712	G18	Magnetostatic Volume Waves I.J. Weinberg and J.C. Sethares, Rome Air Development Center, Hanscom AFB, MA 01731
G10	Analysis of a Wire in a Rectangular Cavity Habibur Rahman, Jose Perini, Department of Electrical and Computer Engineering, Syracuse University, Syracuse, NY 13210	G19	A Magnetostription Insensitive Dual-Mode Phase Shifter Hideki Asao, Makoto Matsunaga and Fumio Takeda, Mitsubishi Electric Corp., Kamakura, 247 Japan
		G20	An Oblique Incidence Ion Implanted MSFVW RAF With Linear Group Delay K.W. Reed, J.M. Owens, R.L. Carter and C.V. Smith, Electronic Materials and Device Engineering Research Laboratory, The University of Texas at Arlington, Arlington, TX 76019

Thursday Morning, June 2, 1983

GRAND BALLROOM		CONSTITUTION ROOM		INDEPENDENCE ROOM	
GaAs FET AMPLIFIERS AND OSCILLATORS Chairman: Y. Ayasli, Raytheon, Co., Lexington, MA		MILLIMETER WAVE INTEGRATED CIRCUITS Chairman: E. C. Nienhenke, Westinghouse D.E.S.C., Baltimore, MD		ACOUSTICS AND FERRITES Chairman: R. Kagiwada, TRW Inc., Redondo Beach, CA	
8:40 am H1	X- and Ku-Band High Efficiency Power GaAs FETs A. Saito, Y. Kojima, Y. Kaneko and S. Aihara* *Microwave and Satellite Communication Division, Nippon Electric Co., Ltd., 1753 Shimonumabe, Nakahara- ku, Kawasaki, 211 Japan	8:40 am I1	Dielectric Guide W-Band (75-110 GHz) Receiver with Partially Integrated Oscillator T.H. Oxley, J. Ondria*, P.L. Lowbridge, Marconi Electronic Devices Ltd., Lincoln, England	8:40 am J1	The Role of SAW Oscillators in Military Radar Systems Paul Padi, John Loan and Eugene McManus Raytheon Company, Missile System Division, Bedford, Massachusetts 01730
9:00 am H2	K-Band Via-Hole Grounding π -Gate FET with Monolithic On-Chip Matching Network Paul Saunier and Steve Nelson, Texas Instruments Incorporated, P.O. Box 225936, M/S 134 Dallas, Texas 75265 (214) 995-2512	9:00 am I2	W-Band Low-Noise Integrated Circuit Crossbar and Inline Mixers With Over 20 GHz Instantaneous RF Bandwidth R.S. Tahim, T. Pham and K. Chang, TRW Electronics and Defense, One Space Park, Redondo Beach, California 90278	9:05 am J2	A Review of Surface Acoustic Wave Devices and Their Current Applications Ronald C. Rosenfeld and Ronald M. Hays, Jr., Sawtek Inc., P.O. Box 18000, Orlando, Florida 32860
9:20 am H3	Design and Performance of K-Band Power GaAs FETs on Matched Carriers Leonard Rosenheck and Samuel Dow Microwave Semiconductor Corporation, Somerset, New Jersey 08873 Carl Berglund and Mark Stevens Massachusetts Institute of Technology, Lincoln Laboratory, Lexington, Massachusetts 02173	9:20 am I3	Direct Experimental Confirmation of New Leakage Effects on Open Dielectric Strip Waveguides H. Shigesawa and M. Tsuji, Department of Electronics, Doshisha University, Kamikyo-ku, Kyoto 602, Japan	9:30 am J3	New SAW Oscillators for Land Mobile Telephone Radio Unit Shuichi Urabe, Shigeki Saito and Noboru Kamhuri Yokosuka Electrical Communication Laboratory, Nippon Telegraph and Telephone Public Corporation, 1-2356 Take, Yokosuka-shi, 238-03 Japan
9:40 am H4	An 8.0 Watt K-Band FET Amplifier for Satellite Downlink J. Goel, G. Oransky, P. O'Sullivan, S. Yuan TRW Electronic Systems Group, Redondo Beach, CA 90278	9:40 am I4	Wave-guiding Characteristics of Partially Corrugated Dielectric Waveguides M. Tsuji, H. Shigesawa and K. Takiyama, Department of Electronics, Doshisha University, Kamiko-ku, Kyoto 602, Japan	9:50 am J4	A Tunable Magnetostatic Volume Wave Oscillator J.P. Castera, P. Hartemann and J.M. DuPont, Thompson-CSF, Research Center, Domaine de Corbeville, 91401 Orsay, France
10:00 am H5	BREAK A 6-GHz 80W GaAs FET Amplifier with TM-Mode Cavity Power Combiner Naofumi Okubo, Yoshiaki Kaneko, Toshiyuki Saito and Yasuyuki Tokumitsu, Fujitsu Laboratories Ltd., Kawasaki, Japan	10:00 am I5	BREAK	10:30 am J5	A Hybrid GaAs MIC Oscillator Using a Magnetostatic Wave Resonator J.M. Owens, R.L. Carter and Y.W. Sam, Department of Electrical Engineering, The University of Texas at Arlington, Arlington, TX 76019
10:20 am H5	GaAs MESFET Oscillator Design Using Large-Signal S-Parameters R.J. Gilmore and F.J. Rosenbaum Department of Electrical Engineering, Washington University, St. Louis, MO 63130	10:20 am I6	Some Dielectric-Waveguide Filter Structures G.L. Matthaei, D.C. Park, Y.M. Kim and D.L. Johnson, Department of Electrical and Computer Engineering, University of California, Santa Barbara, CA 93106	10:50 am J6	A Multi-Octave Frequency Selective Limiter Steven N. Sitzer and Harry Goldie, Westinghouse Electric Corporation, Microwave Operations, Baltimore, Maryland
10:40 am H6	Near-Carrier Noise in FET Oscillators R.A. Pucel and J. Curtis, Research Division, Raytheon Company, 131 Spring Street, Lexington, MA 02173	10:40 am I7	Insulated Nonradiative Dielectric Waveguide for Millimeter Wave Integrated Circuits Tsukasa Yoneyama, Sadao Fujita and Shigeo Nishida, Research Institute of Electrical Communication, Tohoku University, Katahira 2-1-1, Sendai 980, Japan	11:10 am J7	YIG Filter Recovery After Exposure to High Power and X-Band Frequency-Stepped YIG Filter E. Schloemann and R.E. Blight Raytheon Research Division, Lexington, MA 02173
11:00 am H7		11:00 am I8	Suspended H-Waveguide and its Millimeter Wave Applications T.N. Trinh and R. Mittra, Electrical Engineering Department, University of Illinois, Urbana, Illinois 61801	11:40 am J8	Low Loss Electronically Controlled EHF Variable Power Dividers David S. Besse, Lincoln Laboratory, Massachusetts Institute of Technology, Lexington, Massachusetts 02173-0073 Thomas E. Sharon, Electromagnetic Sciences, Inc., 125 Technology Park/Atlanta, Norcross, Georgia 30092

Thursday Afternoon, June 2, 1983

GRAND BALLROOM		CONSTITUTION ROOM		INDEPENDENCE ROOM	
SYSTEMS APPLICATIONS OF GaAs FETs Chairman: D.J. Hoff, M/A-COM, Burlington, MA		MICROWAVE MEASUREMENTS Chairman: S. Adam, Hewlett-Packard Co., San Jose, CA		NEW EFFECTS IN GUIDED WAVE STRUCTURES Chairman: J.W. Mink, Army Research Office, Research Triangle Park, NC	
1:40 pm K1	N-Bit L-Band Phase Shifter for Phased Arrays J.K. Smith, Naval Air Development Center Warminster, PA	1:40 pm L1	Comparison of Single Diode vs. Dual Diode Detectors for Microwave Power Detection Dr. Scott Welenkamp, Pacific Measurements, Inc., 488 Tasman Dr., Sunnyvale, CA 94086	1:40 pm M1	Solution of Fin-Line Discontinuities Through the Identification of its First Four Higher Order Modes M. Helard, J. Citerne, Laboratoire "Structures Rayonnantes," E.R.A. au C.N.R.S. n° 1015, I.N.S.A.-35043 Rennes Cedex-France
2:00 pm K2	GaAs FET Linear Power Amplifier for 16 QAM Signals at 6 and 11 GHz A. Barzaghi, F. Oggioni, G. Pratesi, Microwave Communication Labs., Telettra SpA-Vimercate (MI), Italy	2:00 pm L2	Conversion Loss and Noise Temperature of Mixers from Noise Measurements R. Trambartolo and H.S. Berger, Bell Laboratories, Crawford Hill Laboratory, Holmdel, New Jersey 07733		O. Picon, V. Fouad Hanna, Centre National d'Etudes des Telecommunications (CNET), Centre PAB-Division ETR, 92131 Issy-Les-Moulineaux-France
2:20 pm K3	Sources of Non-Linearity in GaAs MESFET Frequency Multipliers E. Camargo, Laboratorio de Microelectronica-Universidade de Sao Paulo/Caixa Postal, 8174/Sao Paulo-Brasil R. Soares, R.A. Perichon, M. Goloubkoff LAB/IMER/MLS, Centre National d' Etudes des Telecommunications, BP 40 22301 Lannion Cedex, France	2:20 pm L3	A New Measurement Method of the Noise Parameters of Two-Port Devices Nicola Fanelli, CISE SpA-Via Reggio Emilia, 39-20090 Segrate (MI) PO Box 12081-20134 Milano (Italy)	2:00 pm M2	Leaky Modes of Symmetrical Groove Guide A.A. Oliner, Polytechnic Institute of New York, Brooklyn, New York 11201
2:40 pm K4	A Frequency Translator Using Dual Gate GaAs FETs S.R. Mazumder, T.L. Tsai, W.C. Tsai Raytheon Company, Special Microwave Devices Operation, Bearfoot Road, Northborough, MA 01532	2:40 pm L4	A Unified Analysis of Transmission Line Discriminators for FM Noise Measurements Roy S. Brozovich, Sperry Electronic Systems, 13133 34th Street North M/S 246, Clearwater, Florida 33520	2:20 pm M3	Mode Propagation in Laterally Bounded Conductor-Backed Coplanar Waveguides Giorgio Leuzzi*, Agnes Silbermann** and Roberto Sorrentino*
3:00 pm K5	BREAK	3:00 pm L5	BREAK	2:40 pm M4	BREAK
3:20 pm K6	A 16 GHz GaAs FET Frequency Divider Christen Rauscher, Electronics Technology Division, Naval Research Laboratory, Washington, DC 20375	3:20 pm L6	An E-Plane Coupled Matched Waveguide 5-Port for Making 6-Port Measurements Over a Full Waveguide Band Gordon P. Riblet, Microwave Development Labs, Inc., Development of Broadband Coaxial Components for 0.01 to 40 GHz Measurement System William Oldfield, Wiltron Company, 805 East Middlefield Road, Mountain View, CA 94042	3:00 pm M5	Analysis of M.I.S. or Schottky Contact Coplanar Lines Using the F.E.M. and the S.D.A. M. Aubourg, J.P. Villotte, F. Godon, Y. Garault, Laboratoire d'Electronique des Microondes (L.A. CNRS N° 356), U.E.R. des Sciences - Universite de Limoges, 123 rue Albert Thomas, 87060 Limoges Cedex-France
4:00 pm K7	Dual-Gate GaAs FET Analog Frequency Divider D. Kaminsky, P. Goussu, R. Funck, A.G. Bert THOMSON C.S.F.-D.M.H., Domaine de Corbeville-BP 10 91401 Orsay, France	4:00 pm L7	IMPATT Diodes C. Horvitz, R. Laton, L. Olsen, D. Porterfield, Raytheon Company, Missile Systems Division, Bedford, Massachusetts 01730	3:20 pm M6	Slow Wave Coplanar W/G on Periodically-Doped Semiconductor Substrate Y. Fukuoka and T. Itoh, Department of Electrical Engineering, University of Texas at Austin, Austin, Texas 78712
	Wideband Agile Transversal Filter C. Ryan*, C. Weitzel**, D. Gottman*, J. Frary** Motorola Inc., *Government Electronics Group, Communications Research Facility, 75 W. Olive St., Gilbert, AZ 85234 **Semiconductor Research and Development Laboratory, 5005 E McDowell Road, Phoenix, AZ 85008	4:20 pm L8	Automated Measurement System for Characterizing Power Amplifier Performance E.R. Carlson, Bell Laboratories, Holmdel, New Jersey 07733	3:40 pm M7	Slow Wave Propagation in Generalized Cylindrical Waveguides Loaded with a Semiconductor C.M. Krowne, Electronics Technology Division, Naval Research Laboratory, Washington, DC 20375
				4:00 pm M7	Smith-Purcell Radiation from a Charge Moving Above a Penetrable Grating S.L. Chuang, J.A. Kong, Department of Electrical Engineering and Computer Science and Research Laboratory of Electronics, Massachusetts Institute of Technology, Cambridge, Massachusetts 02139

Thursday, June 2

4:00 pm to 6:00pm

Republic Ballroom

OPEN FORUM SESSION II

Topics: Filters and Passive Networks, Systems, Low-Noise Technology, Biological Effects

N 1	Evaluation of Modes in Dielectric Resonators Using a Surface Integral Equation Formulation D. Kajfez, A.W. Glisson, J. James, University of Mississippi, University, MS 38677	N12	Millimeter Wavelength Solid-State Oscillator AM and FM Noise J. Robert Ashley, Frank M. Palka, Paul E. Pages and John C. Rolfs Sperry Electronic Systems, 13133 34th Street North, Clearwater, FL 33518
N 2	Passive Components in Inverted Microstrip and Suspended Microstrip Configuration Shiban K. Koul, Bharathi Bhat and M.C. Krishnaswamy, Centre for Applied Research in Electronics, Indian Institute of Technology, New Delhi, India 110016	N13	Design and Performance of Dual-Gate GaAs MESFET Up-Converter A.A. de Sales, CETUC-Universidade Catolica, Rua Marques de Sao Vicente 209, Rio de Janeiro, 22453 RJ-Brasil
N 3	Integrated Approach to Microwave Postproduction Tuning J.W. Bandler and A.E. Salama, Group on Simulation, Optimization and Control, Faculty of Engineering, McMaster University, Hamilton, Canada L8S 4L7	N14	Modeling and Evaluation of Dual Gate MESFETs as Low-Noise, Self-Oscillating and Image-Rejection Mixers Christos Tsironis*, Rainer Stahlmann**, and Roman Meierer*, *Laboratoires d'Electronique et de Physique Appliquee 3, avenue Descartes, 94450 Limeil-Brevannes (France) **Institute of Semiconductor Electronics, T.U. Aachen (FRG)
N 4	Automatic Measurement of Filter Coupling Parameters A.E. Williams, R.G. Egri and R. Johnson, COMSAT Laboratories, Clarksburg, Maryland 20871	N15	Spurious Product Zone Chart: A Practical Approach to Frequency Conversion Synthesis A.D. Vincze, Ford Aerospace & Communications Corporation, Palo Alto, California
N 5	Resonant Frequencies of Dielectric Loaded Waveguide Cavities K.A. Zaki, Electrical Engineering Department, University of Maryland, College Park, Maryland 20742	N16	Investigation of a Single-Sideband Mixer Anomaly Ben R. Halford, Rockwell International, Collins Transmission Systems Division, P.O. Box 10462, Dallas, Texas 75207
N 6	Modal Analysis of a Coaxial-Line Waveguide Junction Marek E. Blakowski, Peter J. Khan, Electrical Engineering Department, University of Queensland, St. Lucia, Qld, 4067 Australia	N17	Detection of VX2 Carcinoma in Rabbits by Passive Microwave Radiometry J. Shaeffer, Ph.D., P.E. Parker, Ph.D. and A.M. El-Mahdi, M.D., Sc.D., Department of Radiation Oncology and Biophysics (J.S., A.M.E.), Department of Physiology (P.E.P.), Eastern Virginia Medical School, Norfolk, Virginia 23507
N 7	Design of an Overlay Directional Coupler by a Full-Wave Analysis L. Su, T. Itoh and J. Rivera, Department of Electrical Engineering, University of Texas, Austin, TX 78731	N18	Effect of 330 MHz Radiofrequency Radiation of the Human Erythrocyte Ghosts V.L. Shnyrov, G.G. Zhadan, I.G. Akoev, USSR Academy of Sciences, Institute of Biological Physics, Moscow, USSR
N 8 N 9	Paper Withdrawn Rectangular Cavity High Harmonic Gyrotron Amplifier Altan M. Ferendeci, EEAP Department, Case Western Reserve University, Cleveland, Ohio 44106		
N10	An Eight-Phase Broadband Serrrodyne Modulator M. Topi, Electronica SpA, Rome, Italy	N19	The Performance of Inductive Shortwave Diathermy Applicators G. Kantor, and C.Y. Moon*, National Center for Devices and Radiological Health, 5600 Fishers Lane, Rockville, MD 20857
N11	A Broadband 16 Port Modelformer System Using Computer Aided Design G.R. Branier, E.A. Coia, T.J. Minasi	N20	The Design of Low-Noise Broadband Microwave FET Amplifiers Yong-shi Wu, Herbert J. Carlini, Tianjin University, China, and Cornell University, Ithaca, New York 14853

Friday Morning, June 3, 1983

GRAND BALLROOM		CONSTITUTION ROOM		INDEPENDENCE ROOM	
MICROWAVE SYSTEMS		IMPACT DIODE POWER COMBINERS		MICROWAVE MEASUREMENTS FOR MIC	
Chairman: J. Osepchuk, Raytheon Company, Lexington, MA		Chairman: M. Hines, M/A-COM, Inc., Burlington, MA		Chairman: H. Stuehler, Sr., Made-It Associates, Burlington, MA	
8:40 am 01	Microwave Technology — Key to AWACs Success W.A. Skillman, Westinghouse Electric Corp., Baltimore, MD Paper Withdrawn	8:40 am P1	3W, Q-Band Solid-State Amplifier G. Jenic, J. Fines, M. Schindler*, Raytheon Company, Research Division (*Equipment Division), Lexington, Massachusetts 02173	8:40 am Q1	Measurement and Computer-Aided Modeling of Microstrip Discontinuities by an Improved Resonator Method M. Kirschning*, R.H. Jansen, N.H.L. Koster University of Duisburg, Department of Electrical Engineering, FB9/ATE Rismarckstrabe 81, D-4100 Duisburg 1, W. Germany *On the leave to Honeywell GmbH, Dept. VV, PO 1081, D-6457 Maintal 1, W. Germany
9:20 am 02	Wideband ESM Receiver Utilizing Integrated Acousto-Optic Technology A. Grasso, D. Mergerian, Systems Development Division, Westinghouse Electric Corporation, Baltimore, MD	9:00 am P2	A 16.5 Watt, 20 GHz IMPATT Diode Power Combiner James McClymonds, Raytheon Company, Research Division, Lexington, Massachusetts 02173		The Calibration of a Universal Test Fixture Roger D. Pollard, Department of Electrical and Electronic Engineering, University of Leeds, Leeds LS2 9JT, U.K.
9:20 am 03	BREAK	9:20 am P3	20 GHz High Power IMPATT Transmitter Y.C. Ngan, J. Chan, C. Sun TRW Electronic Systems Group, One Space Park, Redondo Beach, CA 90278	9:00 am Q2	Richard Q. Lane, California Eastern Laboratories, Inc., 3005 Democracy Way, Santa Clara, CA 95050
10:00 am 04	A High-Resolution Total-Power Radiometer Using SAW Compressive Receivers R.D. Towns, J.J. Chambers, R.F. Humphries, Signal Technology, Ltd., Cheney Manor, Swindon, Wiltshire, England SN2 2PJ	9:40 am P4	The Effect of Dissimilar IMPATT Diodes on Power Combining Efficiency L. Wagner and R. Laton, Raytheon Company, Missile Systems Division, Bedford, MA 01730	9:20 am Q3	Direct Measurement of the Non-Linear M.I.C. Oscillator Characteristics Using Injection Locking Polar Diagram A.P.S. Khanna, Giga Instrumentation, Immeuble Atlas-Av. Baltique, Z.A. Courtaboeuf Les Ulis, 91941 France
10:20 am	A Doppler Radar Sensor in Integrated Fin-Line Technique L. Szabo, Standard Elektrik Lorenz AG, Hellmuth-Hirth-Str. 42, D-7000 Stuttgart 40 Germany E. Jensen, Institut für Hochfrequenztechnik, Technische Universität Braunschweig, D-3300 Braunschweig, Germany	10:00 am	BREAK	9:40 am	J. Obregon, Laboratoire Electronique Microondes, Université de Limoges, 123, rue A. Thomas 97060, Limoges, France BREAK
10:40 am 06	The Heterodyne VCO Robert G. Winch, Teledyne Microwave, 1290 Terra Bella, Mountain View, CA 94043	10:20 am R1	New GaAs PIN Diodes with Lower Dissipation Loss, Faster Switching Speed at Lower Drive Power C. Barrett*, A. Christou**, N. Jansen*, R.E. Neident**, M.L. Ruess, Jr.**, G.W. Young** **M/A-COM, Inc., Burlington, MA 01803		MICROWAVE INTEGRATED CIRCUITS Chairman: S. March, COMSAT General Integrated Systems, Austin, TX
11:00 am 07	A Lightweight Active Antenna Array Using Miniature Beryllia Amplifiers H.C. Johnson, M. Oz, R.E. Marx, J. Rosen, E. Mykietyn RCA Laboratories, David Sarnoff Research Center, Princeton, NJ 08540	10:40 am R2	Broadband Reflection-Type Phase Modulators Ch. Schieblich, U. Goebel, V. Beres, Institut für Hochfrequenztechnik, Technische Universität Braunschweig, Postfach 3329, D-3300 Braunschweig, W. Germany	10:00 am S1	Parameter Insensitive Matching Circuits for Low-Cost Integrated Circuits A.N. Riddle and R.J. Trew, Electrical Engineering Department, North Carolina State University, Raleigh, North Carolina 27650 (919) 737-2336
		11:00 am R3	An E-Plane Broadband Bi-Phase Balanced Modulator for Ka-Band W. Thorpe, British Telecom Research Laboratories, Martlesham Heath, Ipswich IP5 7RE, England	10:20 am S2	A Contour Formula for Compensated Microstrip Steps and Open Ends Wolfgang J.R. Hoeler, Department of Electrical Engineering, University of Ottawa, Ottawa, Ontario, Canada K1N 6N5
		11:20 am R4	The Design of a New Slotline-Type Frequency Divider Grigorios A. Kalivas, Robert C. Harrison, Department of Electronics, Carleton University, Ottawa, Ontario, Canada K1S 5B6	10:40 am S3	Dielectric Resonator HE _{11δ} + 1 Mode Coupling to a Shielded Microstrip Line A.P.S. Khanna, Giga Instrumentation, Immeuble Atlas-Av. Baltique, Z.A. Courtaboeuf, Les Ulis 91941, France
					Y. Garaut and M. Guedira, Lab. Electronique des Microondes - L.A. n° 356 du CNRS, 123, rue Albert Thomas 87060 Limoges Cedex, France
				11:00 am S4	Miniature Beryllia Circuits for Ku-Band Power Amplifiers F. Sechi, R. Brown, P. Jozwiak, G. Rollard, J. Brown E. Mykietyn, RCA Laboratories, Princeton, NJ 08540
				11:20 am S5	An Overload Protected Low-Noise X-Band FET Amplifier E.C. Niehenke, T.E. Siegerwald, Westinghouse Defense and Electronics Center, Systems Development Divisions, P.O. Box 746, Baltimore, Maryland 21203

Friday Afternoon, June 3, 1983

GRAND BALLROOM		CONSTITUTION ROOM		INDEPENDENCE ROOM	
MICROWAVE COMMUNICATIONS SYSTEMS		LOW-NOISE RECEIVER TECHNOLOGY		FIELD THEORY	
Chairman: J.B. Horton, TRW Inc., Redondo Beach, CA		Chairman: J.J. Taub, Eaton Corporation, AIL Division, Melville, NY		Chairman: C.M. Krowne, Naval Research Laboratory, Washington, DC	
1:40 pm T1	A Bipolar Oscillator for the 6 GHz Communications Band K.R. Varian, Rockwell International, Dallas, Texas Cavity Stabilized Oscillators for Advanced Analog and Digital Radio Links G. Corbetta, D. Arosio, A. Marconcin Microwave Communication Labs, Telettra SpA, Vimercate (MI), Italy	1:40 pm U1	Current Status of Receiver Low-Noise Technology James J. Whelan, Jr., Eaton Corporation, AIL Division Image-Optimized, Frequency-Scalable Mixers for Millimeter Wave Applications D.F. Peterson, and D.H. Steinbrecher	1:40 pm V1	New Perspectives on the Green's Function for Quasi-TEM Planar Structures H. Lee and V.K. Tripathi, Department of Electrical and Computer Engineering, Oregon State University, Corvallis, Oregon 97331
2:00 pm T2		2:10 pm U2			
2:20 pm T3	Highly Linear Solid-State Power Amplifiers for Single-Sideband Via Satellite Applications R.G. Gels, R.D. Standley and D.L. Wilson Bell Telephone Laboratories, Holmdel, New Jersey 07733 R. Trambarulo, Bell Telephone Laboratories, Crawford Hill Laboratory, Holmdel, New Jersey 07733	2:30 pm U3	Experimental Investigation of Subharmonically-Pumped Balanced Mixer Performance Ross G. Hicks and Peter J. Khan, Electrical Engineering Department, University of Queensland, St. Lucia, Qld. 4067 Australia	2:00 pm V2	Planar-Type Transmission-Line Circuits Hsu, Jui-Pang and Tetsuo Anada, Faculty of Engineering, Kanagawa University, 221 Yokohama-shi, Japan
2:40 pm T4		2:50 pm U4		2:20 pm V3	
	Direct Microwave Modulation and Demodulation Zhuang Kuan-Jie and Lin Fu-Hua, Department of Radio Engineering, Nanjing Institute of Technology, Nanjing, China	3:10 pm U5	Low-Noise 50-58 GHz Mixers for Spacecraft Radiometers W.J. Wilson and A.L. Riley, Jet Propulsion Laboratory, 4800 Oak Grove Drive, Pasadena, CA 91109 BREAK Impact of Receiver Noise on Microwave and Millimeter Wave Communications Link Performance H.C. Okean, LNR Communications Inc., 180 Marcus Blvd., Hauppauge, NY 11788		Asymptotic Evaluation of Resonant Frequencies for Two Coupled Circular Microstrip Disk Resonators T.M. Habashy and J.A. Kong Department of Electrical Engineering and Computer Science and Research Laboratory of Electronics, Massachusetts Institute of Technology, Cambridge, Massachusetts 02139
		3:30 pm U6		2:40 pm V4	
		4:00 pm U7	Noise Performance of Microwave HEMT K. Joshi, T. Mimura, M. Niori, Y. Yamashita K. Kosemura and J. Saito, Fujitsu Laboratories Ltd., 1677, Ono, Atsugi, 243-01 Japan Cryogenic All Solid-State Millimeter Wave Receivers for Airborne Radiometry B. Vowinkel, 1. Physikalisches Institut der Universitat Koin, Universitätsstrasse 14, D-5000 Koin 41, F.R.G. K. Gruner, H. Suss, Institut für HF-Technik, DFVLR, D-8031 Oberpfaffenhofen, F.R.G. W. Reinert, Institut für Angewandte Festkörperphysik, Eckerstrasse 4, D-7800 Freiburg, F.R.G.		Modal Analysis of a Leaky Feeder Cable Modeled by Sheath Helix With a Conducting Core C.V. Valerio and R. Bansal Department of Electrical Engineering and Computer Science, University of Connecticut, Storrs, Connecticut 06268 (203) 486-4816