

2001 Microwave Symposium Technical Program Schedule

Session WE1A Mode Conversion between Dissimilar Transmission Media

8:00–9:40 am

Ballroom

Wednesday, May 23, 2001

Chair: C.P. Wen, CPW Consulting
Co-Chair: E. Godshalk, Maxim Corporation

WE1A-1	Novel Design for Coplanar Waveguide to Microstrip Transition	607
8:00 am	A.M.E. Safwat, K.A. Zaki, W. Johnson, and C.H. Lee	
WE1A-2	Microstrip Fed Coplanar Stripline Tee Junction Using Coupled Coplanar Stripline	611
8:20 am	Y.-H. Suh and K. Chang	
WE1A-3	Novel Lumped-Element Coplanar Waveguide-to-Coplanar Stripline Transitions	615
8:30 am	Y.-S. Lin and C.H. Chen	
WE1A-4	Integrated Transition of Coplanar to Rectangular Waveguides	619
8:50 am	D. Deslandes and K. Wu	
WE1A-5	A Novel Microstrip Mode to Waveguide Mode Transformer and its Applications	623
9:10 am	N. Jain and N. Kinayman	
WE1A-6	Design of HNRD Guide to E-Plane Waveguide Transitions and Directional Couplers by Transverse Resonance Technique	627
9:30 am	M. Kishihara, I. Ohta, and K. Yamane	

Session WE1B

High Power Amplifiers and Devices

8:00–9:40 am

Room Tucson 36–38

Wednesday, May 23, 2001

Chair: J. Schellenberg, Schellenberg Associates

Co-Chair: S. Patel, Northrop Grumman

WE1B-1	High-Voltage GaAs Power-HBTs for Base-Station Amplifiers	633
8:00 am	P. Kurpas, F. Brunner, R. Doerner, B. Janke, P. Heymann, A. Maasdorf, W. Doser, P. Auxemery, H. Blanck, D. Pons, J. Würfl, and W. Heinrich	
WE1B-2	A Power PHEMT Device Technology for Broadband Wireless Access	637
8:20 am	M. Miller, B. Peatman, and R. Hooper	
WE1B-3	Silicon Carbide MESFETs Performances and Application in Broadcast Power Amplifiers	641
8:30 am	F. Temcamani, P. Pouvil, O. Noblanc, C. Brylinski, P. Bannelier, B. Darges, and J.P. Prigent	
WE1B-4	A 240 W Power Heterojunction FET with High Efficiency for W-CDMA Base Stations	645
8:50 am	I. Takenaka, K. Ishikura, K. Takahashi, K. Kishi, Y. Ogasawara, K. Hasegawa, H. Takahashi, F. Emori, and N. Iwata	
WE1B-5	An Ultra Broad Band 300 W GaAs Power FET for W-CDMA Base Stations	649
9:10 am	K. Ebihara, K. Inoue, H. Haematsu, F. Yamaki, H. Takahashi, and J. Fukaya	
WE1B-6	High Power S-Band Solid-State Amplifiers for Surveillance and Traffic Control Radars	653
9:20 am	T. Murae, K. Fujii, and T. Matsuno	
WE1B-7	Ku-Band Quadri-SSPA for Stentor Satellite Transmit Active Antenna	657
9:30 am	D. Roques, H. Chane-Kee-Sheung, F. Dubos, B. Cogo, and J.-L. Cazaux	

Session WE1C

Non-Linear Device Modeling

8:00–9:40 am

Room Tucson 40–41

Wednesday, May 23, 2001

Chair: J. Hwang, Lehigh University

WE1C-1	Nonlinear III-V HBT Compact Models: Do We Have What We Need?	663
8:00 am	J. Scott	
WE1C-2	Global Electro-Thermal CAD of Complex Non Linear 3-D Systems Based on a Fully Physical Time-Dependent Compact Thermal Model	667
8:20 am	W. Batty, C.E. Christoffersen, S. David, A.J. Panks, R.G. Johnson, C.M. Snowden, and M.B. Steer	
WE1C-3	Improved Large-Signal Model and Model Extraction Procedure for InGaP/GaAs HBTs Under High-Current Operations	671
8:40 am	S.V. Cherepko, M.S. Shirokov, J.C.M. Hwang, and A. Brandstaedter	
WE1C-4	Waveform Characterization and Modeling of Dynamic Charge Behavior of InGaP-GaAs HBTs	675
9:00 am	C.-J. Wei, S. Sprinkle, J.T. Hu, H.-C. Chung, B. Mitchell, P. Dicarlo, and D. Bartle	
WE1C-5	Scalable Large-Signal Device Model for High Power-Density AlGaIn/GaN HEMTs on SiC	679
9:10 am	J.-W. Lee, S. Lee, and K.J. Webb	
WE1C-6	On the Gunn Effect in GaAs HBTs	683
9:20 am	M. Rudolph, R. Doerner, and P. Heymann	

Session WE1D

Frequency Control Advances for Wireless Applications

8:00–9:40 am

Room Tucson 43–43

Wednesday, May 23, 2001

Chair: R. Newgard, Rockwell Collins
Co-Chair: S. Wetenkamp, Micro Lambda

WE1D-1	Nonlinear Effects in Oscillators and Synthesizers (Invited)	689
8:00 am	U.L. Rohde	
WE1D-2	RF Synthesizers: PLL Switching Speed and Speed-Up Techniques—A Short Review	693
8:20 am	B.-G. Goldberg	
WE1D-3	An Agile Stored $\Sigma\Delta$ Sequence Fractional-N Synthesiser	697
8:40 am	R. Walkington and P. Brennan	
WE1D-4	6.7 GHz Frequency Synthesizer in 0.8 μm Silicon Bipolar Production Technology	701
9:00 am	G. Ritzberger, H. Knapp, J. Böck, M. Rest, L. Treitinger, and A.L. Scholtz	
WE1D-5	GSM 900/DCS 1800 Fractional-N Frequency Synthesizer with Very Fast Settling Time	705
9:10 am	B. Neurauter, G. Märzinger, T. Lüftner, R. Weigel, M. Scholz, V. Mutlu, and J. Fenk	
WE1D-6	Phase Decrement Type Direct Frequency Synthesizer Driven by a DDS	709
9:20 am	K. Tajima, M. Tsuru, H. Ikematsu, K. Itoh, Y. Isota, and O. Ishida	

Session WE1E

Dispersion Properties of Periodic Structures and Uniform Transmission Lines

8:00–9:40 am

Room Yuma 26–29, 31–34

Wednesday, May 23, 2001

Chair: P. Lampariello, University of Rome
Co-Chair: J. Zehentner, Technical University, Prague

WE1E-1	Effect of Losses on the Spectral Transition of Modal Poles Between the Improper and the Proper Riemann Sheets	715
8:00 am	A.H. Kamel and A.S. Omar	
WE1E-2	Low-Frequency Dispersion Features of a New Complex Mode for a Periodic Strip Grating on a Grounded Dielectric Slab	719
8:20 am	P. Burghignoli, P. Baccarelli, F. Frezza, A. Galli, P. Lampariello, and A.A. Oliner	
WE1E-3	Guided-Wave Properties of Synthesized Non-Radiative Dielectric Waveguide for Substrate Integrated Circuits (SICS)	723
8:40 am	K. Wu and F. Boone	
WE1E-4	Slow-Wave Propagation of Microstrip Consisting of Electric-Magnetic-Electric (EME) Composite Metal Strips	727
9:00 am	C.-K. Wu and C.-K.C. Tzuang	
WE1E-5	TEM Properties of Shielded Homogeneous Multiconductor Transmission Lines with PEC and PMC Walls	731
9:10 am	A. Borji, S. Safavi-Naeini, and S.K. Chaudhuri	
WE1E-6	Explicit Eigenvalue Approach to the Efficient Determination of the Hybrid Spectrum of Ferrite-Loaded Circular Waveguide	735
9:20 am	L. Pierantoni, A. Camicia, and T. Rozzi	

Session WE1F

Advances in Time Domain Methods I

8:00–9:40 am

Room Yuma 21–23

Wednesday, May 23, 2001

Chair: P. Russer, Technical University of Munich

Co-Chair: W. Gwarek, Warsaw University of Tech

WE1F-1	Envelope-Finite Element (EVFE) Technique—2-D Guided Wave Examples	741
8:00 am	Y. Wang and T. Itoh	
WE1F-2	Evaluation and Enhancement of Supraconvergence Effects on Nonuniform and Conformal FDTD Meshes	745
8:20 am	M. Celuch-Marcysiak	
WE1F-3	Fundamental Gridding Related Dispersion Effects in Multiresolution Time Domain Schemes	749
8:40 am	C.D. Sarris and L.P.B. Katehi	
WE1F-4	Development and Application of an Efficient FDTD/Haar MRTD Numerical Interface	753
9:00 am	C.D. Sarris and L.P.B. Katehi	
WE1F-5	A Novel Adaptivity for EM Time Domain Methods: Scale Adaptive Time Steps (SATS)	757
9:20 am	A. Rennings, V. Toni, P. Waldow, Y. Qian, T. Itoh, and I. Wolff	

Session WE2A

Novel Transmission Lines, Properties, and Applications

10:20–11:50 am

Ballroom

Wednesday, May 23, 2001

Chair: M. Dydyk, Motorola Inc.

Co-Chair: C.-K. Tzuang, National Chiao Tung University

WE2A-1	Transmission Line Noise from Standard and Proton-Implanted Si	763
10:20 am	K.T. Chan, A. Chin, C.M. Kwei, D.T. Shien, and W.J. Lin	
WE2A-2	Dielectric Properties of Oxidized Porous Silicon in a Low Resistivity Substrate	767
10:30 am	R.L. Peterson and R.F. Drayton	
WE2A-3	A Novel CPW Structure for High-Speed Interconnects	771
10:40 am	S.-J. Yoon, S.-H. Jeong, J.-G. Yook, Y.-J. Kim, S.-G. Lee, O.-K. Seo, K.-S. Lim, and D.-S. Kim	
WE2A-4	Small-Size Delay Line Based on a Periodically Loaded Waveguide	775
11:00 am	J. Hesselbarth and R. Vahldieck	
WE2A-5	Frequency Dependence of Bloch Impedance in a Periodic Transmission Line Structure	779
11:10 am	E. Takagi	
WE2A-6	A Photonic Crystal Joint (PCJ) for Metal Waveguides	783
11:20 am	J. Hesler	

Session WE2B

Techniques to Advance Power Amplifier Linearity and Efficiency

10:20–11:50 am

Room Tucson 36–38

Wednesday, May 23, 2001

Chair: A. Katz, The College of New Jersey

Co-Chair: E.J. Crescenzi, Jr., UltraRF

WE2B-1	Efficient Baseband/RF Feedforward Linearizer through a Mirror Power Amplifier Using Software-Defined Radio and Quadrature Digital Up-Conversion	789
10:20 am	E.G. Jeckeln, F.M. Ghannouchi, M. Sawan, and F. Beaugregard	
WE2B-2	Adaptive RF Cartesian Predistorter Based on the Low Frequency Even Order IM Terms	793
10:30 am	Y. Yang, Y.Y. Woo, and B. Kim	
WE2B-3	A High Efficiency Feedforward Amplifier with a Series Diode Linearizer for Cellular Base Stations	797
10:50 am	K. Horiguchi, M. Nakayama, Y. Sakai, K. Totani, H. Senda, Y. Ikeda, and O. Ishida	
WE2B-4	A Gain/Phase Imbalance Minimization Technique for LINC Transmitter	801
11:10 am	X. Zhang, P. Nanawa, L.E. Larson, and P.M. Asbeck	
WE2B-5	A Novel DSP Architecture of Adaptive Feedforward Linearizer for RF Amplifiers	805
11:30 am	Y. Wang, J.D. Fredrick, and T. Itoh	
WE2B-6	The Novel Programmable RF Predistortion Linearizer	809
11:50 am	J. Sun, M. Yan, and W. Chia	

Session WE2C

Nonlinear FET Modeling

10:20–11:50 am

Room Tucson 40–41

Wednesday, May 23, 2001

Chair: M. Mallavarpu, Raytheon Co.

Co-Chair: M. Calcaterra, AF Research Lab

WE2C-1	A GaAs MESFET Transient Model Capable of Predicting Trap-Induced Memory Effects Under Complex Digital Modulation	815
10:20 am	F. Wang, W.D. Jemison, and J.C.M. Hwang	
WE2C-2	Intermodulation Distortion Simulation Using Physical GaAs FET Model	819
10:40 am	W. Contrata, Y. Ando, Y. Hori, and M. Kuzuhara	
WE2C-3	Full Extraction of PHEMT State Functions Using Time Domain Measurements	823
11:00 am	D.G. Morgan, G.D. Edwards, A. Phillips, and P.J. Tasker	
WE2C-4	Large-Signal Look-Up Table Model for InP HEMTs Including Non-Quasi-Static and Impact Ionisation Effects	827
11:20 am	D. Schreurs, A. Orzati, L. Pergola, H. Benedickter, O. Homan, and W. Bächtold	
WE2C-5	Nonlinear Noise Modeling of a PHEMT Device through Residual Phase Noise and Low Frequency Noise Measurements	831
11:30 am	O. Llopis, J.B. Juraver, B. Tamen, F. Danneville, M. Chaubet, A. Cappy, and J. Graffeuil	
WE2C-6	Intrinsic Noise Currents in Deep Submicron MOSFETs	835
11:50 am	C.-H. Chen, M.J. Deen, Y. Cheng, and M. Matloubian	

Session WE2D

The NBS/NIST Centennial: One Hundred Years of RF Metrology and Standards

10:20–11:50 am **Room Tucson 42–43** **Wednesday, May 23, 2001**
Chair: K. Remley, NIST Boulder, CO
Co-Chair: C. Weil, NIST Boulder, CO

WE2D-1	NIST: Responding to Basic Needs, Responding to Special Needs	841
10:20 am	L. Greenhouse	
WE2D-2	Radio-Frequency Metrology from NBS to NIST: The Legacy	845
10:40 am	D.S. Friday	
WE2D-3	Primary Frequency Standards at NIST	849
11:00 am	D.B. Sullivan	
WE2D-4	Broadband Josephson Voltage Standards	853
11:20 am	C.A. Hamilton and S.P. Benz	
WE2D-5	The Electronic Kilogram	857
11:40 am	M.H. Kelley	

Session WE2E

Leaky-Wave Excitation and Guidance in Printed Transmission Lines

10:20–11:50 am **Room Yuma 26–29, 31–34** **Wednesday, May 23, 2001**
Chair: N.K. Das, Polytechnic University
Co-Chair: A.S. Omar, University of Magdeburg, Germany

WE2E-1	Behavioral Feature of Fast-Wave Modes on Printed-Circuit Transmission Lines of Open and Packaged Types	863
10:20 am	M. Tsuji and H. Shigesawa	
WE2E-2	Structural Conditions for Offering High-Performance Printed-Circuit Devices in Millimeter-Wave Range	867
10:40 am	H. Shigesawa and M. Tsuji	
WE2E-3	High Frequency Leaky-Mode Excitation on Microstrip Line	871
11:00 am	F. Mesa, D.R. Jackson, and M. Freire	
WE2E-4	Spurious Radiation from a Practical Source on a Leaky Covered Microstrip Line	875
11:20 am	W.L. Langston, J.T. Williams, D.R. Jackson, and F. Mesa	
WE2E-5	Proper Definition of Voltage for a Leaky Two-Layer Stripline Consistent with its Characteristic Impedance	879
11:40 am	N.K. Das	

Session WE2F

Advances in Time-Domain Methods II

10:20–11:50 am

Room Yuma 21–23

Wednesday, May 23, 2001

Chair: A. Beyer, University of Duisburg

Co-Chair: V. Fouad-Hanna

WE2F-1	A Generalized Approach to Wide-Band S-Parameter Extraction from FD-TD Simulations	
10:20 am	Applicable to Evanescent Modes in Inhomogeneous Guides	885
	W.K. Gwarek and M. Celuch-Marcysiak	
WE2F-2	Modified Yee's Cell for Finite-Difference Time-Domain Modeling of Periodic Boundary	
10:40 am	Guiding Structure	889
	H. Lee and J. Kim	
WE2F-3	A New Multiresolution Near-Field to Near-Field Transform Suitable for Multi-Region	
11:00 am	FDTD Schemes	893
	A. Laisné, R. Gillard, and G. Piton	
WE2F-4	A Global Modeling Approach Using Interpolating Wavelets	897
11:10 am	S. Goasguen, M.M. Tomeh, and S.M. El-Ghazaly	
WE2F-5	Performance of Three-Dimensional Graded ADI-FDTD Algorithm	901
11:30 am	E. Hu and W.J.R. Hoefer	
WE2F-6	Reconstruction of Microwave Structures Using Two-Dimensional Inverse TLM	
11:40 am	(Transmission Line Matrix) Method	905
	W.A. de Souza and L.R.A.X. de Menezes	

Session WE3A

Power Amplifiers for Wireless Applications

1:20–2:50 pm

Ballroom

Wednesday, May 23, 2001

Chair: D. Teeter, RF Micro Devices

Co-Chair: A. Platzker, Raytheon RF Components

WE3A-1	A 1W CMOS Power Amplifier for GSM-1800 with 55% PAE	911
1:20 pm	C. Fallesen and P. Asbeck	
WE3A-2	A High Efficiency 0.25-μm CMOS PA with LTCC Multi-Layer High-Q Integrated	
1:40 pm	Passives for 2.4 GHz ISM Band	915
	D. Heo, A. Sutono, E. Chen, E. Gebara, S. Yoo, Y. Suh, J. Laskar, E. Dalton, and E.M. Tentzeris	
WE3A-3	Variable Gain Power Amplifier for Mobile WCDMA Applications	919
1:50 pm	V. Vintola, M. Matilainen, S. Kalajo, and E. Järvinen	
WE3A-4	A Single Supply High Performance PA MMIC for GSM Handsets Using	
2:10 pm	Quasi-Enhancement Mode PHEMT	923
	W. Abey, T. Moriuchi, R. Hajji, T. Nakamura, Y. Nonaka, E. Mitani, W. Kennan, and H. Dang	
WE3A-5	E-PHEMT, Single Supply, High Efficient Power Amplifiers for GSM and	
2:20 pm	DCS Applications	927
	S. Zhang, J. Cao, and R. Mcmorrow	
WE3A-6	An Extended Doherty Amplifier with High Efficiency Over a Wide Power Range	931
2:30 pm	M. Iwamoto, A. Williams, P.-F. Chen, A. Metzger, C. Wang, L.E. Larson, and P.M. Asbeck	
WE3A-7	Analysis and Experimental Study of an L-Band New Topology Doherty Amplifier	935
2:40 pm	S. Bousnina and F.M. Ghannouchi	
WE3A-8	Current Mode Class-D Power Amplifiers for High Efficiency RF Applications	939
2:50 pm	H. Kobayashi, J. Hinrichs, and P.M. Asbeck	

Session WE3B

Wideband Communication Systems

1:20–2:50 pm

Room Tucson 36–38

Wednesday, May 23, 2001

Chair: H.C. Huang, AMCOM Communications, Inc.

Co-Chair: L. Raffaelli, LYNX, Inc.

WE3B-1 1:20 pm	A Compact LTCC Ku-Band Transmitter Module with Integrated Filter for Satellite Communication Applications C.-H. Lee, A. Sutono, S. Han, and J. Laskar	945
WE3B-2 1:40 pm	A Microwave Frequency Generation Unit for Space Applications L. Dayaratna, L.G. Ramos, and M. Hirokawa	949
WE3B-3 2:00 pm	Low Cost Ka Band Transmitter Modules for LMDS Equipment Mass Production G. Torregrosa-Penalva, A. Asensio-López, F.J. Ortega-González, and J. Lluch-Ladrón-de-Guevara	953
WE3B-4 2:20 pm	A Complete Integrated TX/RX Front-End Combining 3D Topologies and Global Synthesis T. Le Nadan, C. Person, and J.P. Coupez	957
WE3B-5 2:30 pm	Design and Characterization of a Low Cost ISM-Band Sub Carrier Multiplexed Broadband Digital Microwave Radio Link N. Toledo, C.G. Santos, A. Manlapat, B. Galang Jr., A.A. Chio, I. Wong, R. Guevarra, and D.J. Sabido IX	961

Session WE3C

Nonlinear Modeling of Silicon Devices and Power Amplifiers

1:20–2:50 pm

Room Tucson 40–41

Wednesday, May 23, 2001

Chair: S. Goodnick, Arizona State University

WE3C-1 1:20 pm	RF LDMOS Characterization and its Compact Modeling J. Jang, O. Tornblad, T. Arnborg, Q. Chen, K. Banerjee, Z. Yu, and R.W. Dutton	967
WE3C-2 1:40 pm	Direct Extraction and Modeling Method for Temperature Dependent Large Signal CAD Model of Si-BJT Y. Suh, D. Heo, A. Raghavan, E. Gebara, S. Nuttnick, K. Lim, and J. Laskar	971
WE3C-3 2:00 pm	An Accurate Large-Signal Model for a High-Efficient Si Bipolar GSM Power Transistor R.M. Heeres, H.A. Visser, and M.P.J.G. Versleijen	975
WE3C-4 2:20 pm	Analysis of Low Frequency Memory and Influence on Solid State HPA Intermodulation Characteristics N. Le Gallou, J.M. Nebus, E. Ngoya, and H. Buret	979
WE3C-5 2:40 pm	An Improved Behavioral Modeling Technique for High Power Amplifiers with Memory N. Le Gallou, E. Ngoya, H. Buret, D. Barataud, and J.M. Nebus	983

Session WE3D

Microwave and Optical Broadband Internet Access

1:20–2:50 pm

Room Tucson 42–43

Wednesday, May 23, 2001

Chair: C. Cox, MIT and Photonic Systems Inc.

WE3D-1	(Invited) Broadband Access Networks: Evolution and Convergence Implications for Equipment Providers	989
1:20 pm	T.J. Brophy	
WE3D-2	(Invited) Wireless Aspects of Broadband Access	993
1:40 pm	K. Warble, J. Locke, and B. Bishop	
WE3D-3	A Combined Optical-Wireless Broadband Internet Access: Transmission Challenges	997
2:00 pm	T. Marozsák, E. Udvary, and T. Berceli	
WE3D-4	In-Band Optical Crosstalk in Fiber-Radio WDM Networks	1001
2:20 pm	D. Castleford, A. Nirmalathas, D. Novak, and R. Tucker	

Session WE3E

CAD with Neural Networks and EM Techniques

1:20–2:50 pm

Room Yuma 26–29, 31–34

Wednesday, May 23, 2001

Chair: A Sharma, TRW

Co-Chair: R. Biernacki, Aglient EEs of EDA

WE3E-1	Neural Inverse Space Mapping EM-Optimization	1007
1:20 pm	J.W. Bandler, M.A. Ismail, J.E. Rayas-Sánchez, and Q.J. Zhang	
WE3E-2	An Approach for Knowledge-Aided-Design (KAD) of Microwave Circuits Using Artificial Neural Networks	1011
1:40 pm	R. Zingg and K.C. Gupta	
WE3E-3	Exact Adjoint Sensitivity Analysis for Neural Based Microwave Modeling and Design	1015
2:00 pm	J. Xu, M.C.E. Yagoub, R. Ding, and Q.-J. Zhang	
WE3E-4	New Technique Using Poles and Modes Derivatives for Frequency and Geometry Parameterization of Microwave Structures	1019
2:20 pm	A. Gati, M.F. Wong, and V.F. Hanna	
WE3E-5	Extending Spice-Like Analog Simulator with a Time-Domain Full-Wave Field Solver	1023
2:40 pm	T. Li and W. Sui	

Session WE3F

Applications of Time Domain Methods

1:20–2:50 pm

Room Yuma 21–23

Wednesday, May 23, 2001

Chair: R. Vahldieck, ETH Zurich

Co-Chair: L. Roselli, University of Perugia

WE3F-1	Efficient FDTD Modeling of Irises/Slots in Microwave Structures	1029
1:20 pm	A.S. Rong, H. Yang, and A. Cangellaris	
WE3F-2	Time Domain Characterization of Multichip Module Elements	1033
1:40 pm	W. Dressel, T. Mangold, L. Vietzorreck, and P. Russer	
WE3F-3	Full-Wave Analysis and Model-Based Parameter Estimation Approaches for Y-Matrix Computation of Microwave Distributed RF Circuits	1037
2:00 pm	V. Chitchekatourov, F. Coccetti, and P. Russer	
WE3F-4	Analysis of Signal Integrity in High-Speed Digital IC's, by Combining MOSFET Modeling and the LE-FDTD Method	1041
2:10 pm	F. Alimenti, G. Stopponi, P. Placidi, P. Ciampolini, L. Roselli, and R. Sorrentino	
WE3F-5	Interpolating Wavelet Galerkin Model of Time Dependent Inhomogeneous Electrically-Large Optical Waveguide Problems	1045
2:30 pm	M. Fujii and W.J.R. Hoefer	
WE3F-6	Time Domain Optical Response of Electro-Optic Modulator Using FDTD	1049
2:50 pm	M.M. Tomeh, S. Goasguen, and S.M. El-Ghazaly	

Session WE4A

Next Generation Power Amplifier Techniques

3:30–5:00 pm

Ballroom

Wednesday, May 23, 2001

Chair: J. Heaton, BAE Systems

Co-Chair: P. Asbeck, UCSD

WE4A-1	A 6 GHz, 50 Watt Low Distortion Push-Pull GaAs Power FET Optimized for 12V Class A-B Operation	1055
3:30 pm	T. Yamamoto, S. Sano, K. Naito, T. Igarashi, and J. Fukaya	
WE4A-2	High-Power Broadband AlGaIn/GaN HEMT MMIC's on SiC Substrates	1059
3:50 pm	B.M. Green, V. Tilak, S. Lee, H. Kim, J.A. Smart, K.J. Webb, J.R. Shealy, and L.F. Eastman	
WE4A-3	New Design Method of Non-Uniform Distributed Power Amplifiers: Application to a Single Stage 1 W PHEMT MMIC	1063
4:10 pm	C. Duperrier, M. Campovecchio, L. Roussel, M. Lajugie, and R. Quere	
WE4A-4	20–30 GHz Broadband MMIC Power Amplifiers with Compact Flat Gain pHEMT Cells	1067
4:30 pm	Y. Sasaki, H. Kurusu, H. Hoshi, T. Hisaka, and Y. Mitsui	
WE4A-5	X-Band MMIC Power Amplifier with an On-Chip Temperature Compensation Circuit	1071
4:40 pm	K. Yamauchi, Y. Iyama, M. Yamaguchi, Y. Ikeda, and T. Takagi	
WE4A-6	A Novel Base Feed Design for High Power, High Frequency Heterojunction Bipolar Transistors	1075
4:50 pm	M. Salib, H.-K. Hahn, J. Kositz, J. Zingaro, A. Ezis, and A. Gupta	
WE4A-7	High Efficiency S-Band Class AB Push-Pull Power Amplifier with Wide Band Harmonic Suppression	1079
5:00 pm	C.Y. Hang, Y. Qian, and T. Itoh	

Session WE4B

New Technologies for Wireless Communications Systems

3:30–5:00 pm

Room Tucson 36–38

Wednesday, May 23, 2001

Chair: H. Ogawa, Communications Research Lab., MPT

Co-Chair: J.K. McKinney, Dura Sales

WE4B-1	A Flexible Multiband Frontend for Software Radios Using High IF and Active Interference Cancellation	1085
3:30 pm	W. Schacherbauer, A. Springer, T. Ostertag, C.C.W. Ruppel, and R. Weigel	
WE4B-2	A Highly-Integrated Low-Power Direct Conversion Receiver MMIC for Broadband Wireless Applications	1089
3:50 pm	B. Matinpour, S. Yoo, and J. Laskar	
WE4B-3	High-Speed Low-Cost Direct Conversion Digital Receiver	1093
4:10 pm	J.-F. Gagné, J. Gauthier, K. Wu, and R.G. Bosisio	
WE4B-4	A 156 Mbps Compact FSK Modulator Module for 38 GHz Wireless LANs	1097
4:30 pm	Z. Wen, M. Akiyama, and Y. Hase	
WE4B-5	An Electromagnetic Characterization of Indoor Radio Environment in Microwave WLAN Systems	1101
4:50 pm	P. Bernardi, R. Cicchetti, and O. Testa	

Session WE4C

Wireless Sensors for Automotive, RFID and Communications Systems

3:30–5:00 pm

Room Tucson 40–41

Wednesday, May 23, 2001

Chair: H. Kondoh, Hitachi, Central Research Laboratory

Co-Chair: R. Camisa, Sarnoff Corp.

WE4C-1	A Low Profile 77 GHz Three Beam Antenna for Automotive Radar	1107
3:30 pm	F. Kolak and C. Eswarappa	
WE4C-2	Proposal of Millimeter-Wave Holographic Radar with Antenna Switching	1111
3:50 pm	Y. Asano, S. Ohshima, T. Harada, M. Ogawa, and K. Nishikawa	
WE4C-3	Fully Integrated Automotive Radar Sensor with Versatile Resolution	1115
4:00 pm	C. Metz, J. Grubert, J. Heyen, A.F. Jacob, S. Janot, E. Lissel, G. Oberschmidt, and L.C. Stange	
WE4C-4	A Reconfigurable Active Retrodirective/Direct Conversion Receiver Array for Wireless Sensor Systems	1119
4:20 pm	R.Y. Miyamoto, Y. Qian, and T. Itoh	
WE4C-5	A Novel Card-Type Transponder Designed Using Retrodirective Antenna Array	1123
4:50 pm	S.-J. Chung, T.-C. Chou, and Y.-N. Chiu	

Session WE4D

Internet Via Satellites

3:30–5:00 pm

Room Tucson 42–43

Wednesday, May 23, 2001

Chair: R.K. Gupta, Lockheed Martin Global Telecommunications

Co-Chair: B. Geller, Mitsubishi Electric & Electronics

WE4D-1	Satellite Systems for Multimedia and Internet Traffic	1129
3:30 pm	P. Chitre and R. Gupta	
WE4D-2	Ka Band Satellite System Architecture for Local Loop Internet Access	1133
3:50 pm	A.E. Atia	
WE4D-3	User Equipment Antennas for Broadband NGSO Satellite Communications Systems	1137
4:10 pm	R.W. Kreutel	
WE4D-4	Outdoor Units for Ka/Ku-Band Satellite Interactive Terminals	1141
4:30 pm	J.L. Fikart	
WE4D-5	Multi-Carrier 16QAM Over a Linearized TWTA	1145
4:50 pm	A. Katz	

Session WE4E

CAD Procedures and Optimization

3:30–5:00 pm

Room Yuma 26–29, 31–34

Wednesday, May 23, 2001

Chair: K.C. Gupta, University of Colorado

Co-Chair: M. Mongiardo, University of Perugia, Italy

WE4E-1	Expanded Space Mapping Design Framework Exploiting Preassigned Parameters	1151
3:30 pm	J.W. Bandler, M.A. Ismail, and J.E. Rayas-Sánchez	
WE4E-2	Multi-Level Passive Order Reduction of Interconnect Networks	1155
3:50 pm	R. Khazaka and M. Nakhla	
WE4E-3	Fast Analysis and Optimization of Compline Filters Using FEM	1159
4:10 pm	D.G. Swanson, Jr. and R.J. Wenzel	
WE4E-4	Integrated CAD Procedure for Iris Design in a Multi-Mode Waveguide Environment	1163
4:30 pm	W. Steyn, R. Lehmensiek, and P. Meyer	
WE4E-5	Decomposition Synthesis Approach to Design of RF and Microwave Active Circuits	1167
4:50 pm	L.I. Babak	

Session WE4F

Ferrite and Ferroelectric Devices

3:30–5:00 pm

Room Yuma 21–23

Wednesday, May 23, 2001

Chair: D. Webb, Naval Research Laboratory
Co-Chair: B. Elsharawy, Arizona State University

WE4F-1	UHF Frequency Selective Limiters	1173
3:30 pm	J.D. Adam, S.N. Stitzer, and R.M. Young	
WE4F-2	Very Low Loss Wideband Isolators for mm-Wavelengths	1175
3:50 pm	N.R. Erickson	
WE4F-3	A Novel Nonreciprocal Ferrite Image Guide	1179
4:10 pm	A.S. Akyol and L.E. Davis	
WE4F-4	An Ultra Miniature Isolator with Broadband Isolation Using Ferrite Gyrotator	1183
4:20 pm	T. Okada, T. Makino, S. Shinmura, S. Hino, T. Nakada, and H. Asai	
WE4F-5	A Method of Effective Use of Ferrite for Microwave Absorber	1187
4:30 pm	Y. Kotsuka and M. Amano	
WE4F-6	Phase Shifters Using (Ba,Sr)TiO₃ Thin Films on Sapphire and Glass Substrates	1191
4:40 pm	B. Acikel, Y. Liu, A.S. Nagra, T.R. Taylor, P.J. Hansen, J.S. Speck, and R.A. York	
WE4F-7	MOS Varactors with Ferroelectric Films	1195
5:00 pm	S. Gevorgian, S. Abadei, H. Berg, and H. Jacobsson	

Session WEIF

Interactive Forum

2:30–5:00 pm

Room Phoenix 11, 12, 16–20

Wednesday, May 23, 2001

Chair: E. Johnson, Motorola
Co-Chair: P. Okrah, Motorola

WEIF-1	Waveguiding Properties of a Line of Periodically Arranged Passive Dipole Scatterers	1201
2:30 pm	S.A. Tretyakov and A.J. Viitanen	
WEIF-2	New Type of Millimeter Wave Antenna by Using the High Permittivity LSE NRD Guide	1205
2:30 pm	F. Kuroki, M. Yamaguchi, Y. Minamitani, and T. Yoneyama	
WEIF-3	An Efficient Method for Solving 3D Dielectric Planar Circuit with Parabolic Equation	1209
2:30 pm	T. Anada, R. Sawada, T. Hiraoka, H. Jui-Pang, T.M. Benson, and P. Sewell	
WEIF-4	Design of Surface-Wave Band-Gaps for Planar Integrated Circuits Using Multiple Periodic Metallic Patch Arrays	1213
2:30 pm	R. Leone and H.Y.D. Yang	
WEIF-5	Space Leakage of Power from the Slotline	1217
2:30 pm	J. Zehentner, J. Machac, and P. Lorenz	
WEIF-6	Derivation of Analytical Dyadic Green's Function Modifications for Microstrip Attenuation in Transmission Layered Structures	1221
2:30 pm	C.M. Krowne	
WEIF-7	On the Penetration of the Longitudinal Component of EM Fields into Metals	1225
2:30 pm	R.I. Tzontchev, A.E. Chubykalo, J.M. Rivera-Juarez, and V. Onoichin	
WEIF-8	Modal Cutoff in Coaxial Transmission Lines of Conical and Cylindrical Geometries	1229
2:30 pm	C.M. Weil, B.F. Riddle, D.R. Novotny, and R.T. Johnk	
WEIF-9	Fullwave Analysis of Transverse and Longitudinal Couplings in Silicon RFIC: Effect of Buried Diffusions	1233
2:30 pm	S. Wane, D. Bajon, H. Baudrand, and P. Gamand	

WEIF-10 2:30 pm	Frequency/Time-Domain Modeling of Microstrip Circuits by a Modified Spectral Domain Approach P. Arcioni, M. Bressan, and G. Conciauro	1237
WEIF-11 2:30 pm	Efficient Analysis of Waveguide-to-Microstrip and Waveguide-to-Coplanar Line Transitions Ł. Gręda and R. Pregla	1241
WEIF-12 2:30 pm	A 3-D Method of Moments for the Analysis of Real Life MMICs M. Farina and T. Rozzi	1245
WEIF-13 2:30 pm	Generalized Polygonal Basis Functions for the Electromagnetic Simulation of Complex Geometrical Planar Structures L. Knockaert, J. Sercu, and D. De Zutter	1249
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