

IEEE TRANSACTIONS ON MICROWAVE THEORY AND TECHNIQUES

A PUBLICATION OF THE IEEE MICROWAVE THEORY AND TECHNIQUES SOCIETY



MAY 2016

VOLUME 64

NUMBER 5

IETMAB

(ISSN 0018-9480)

MINI-SPECIAL ISSUE ON 2015 INTERNATIONAL WORKSHOP ON INTEGRATED NONLINEAR MICROWAVE
AND MILLIMETRE-WAVE CIRCUITS (INMMiC 2015)

Guest Editorial	<i>G. Crupi and P. Colantonio</i>	1349
-----------------------	-----------------------------------	------

MINI-SPECIAL ISSUE PAPERS

Characterization of Parasitic Resistances of AlN/GaN/AlGaN HEMTs Through TCAD-Based Device Simulations and On-Wafer Measurements	<i>N. K. Subramani, A. K. Sahoo, J.-C. Nallatamby, R. Sommet, N. Rolland, F. Medjdoub, and R. Quéré</i>	1351
Frequency Analysis and Multiline Implementation of Compensated Impedance Inverter for Wideband Doherty High-Power Amplifier Design	<i>A. Cidronali, S. Maddio, N. Giovannelli, and G. Collodi</i>	1359
Low-Complexity Stochastic Optimization-Based Model Extraction for Digital Predistortion of RF Power Amplifiers	<i>N. Kelly and A. Zhu</i>	1373
Passive Intermodulation of Analog and Digital Signals on Transmission Lines With Distributed Nonlinearities: Modelling and Characterization	<i>D. S. Kozlov, A. P. Shitov, A. G. Schuchinsky, and M. B. Steer</i>	1383

REGULAR PAPERS

EM Theory and Analysis Techniques

FE-BI Formulations for Characteristic Modes	<i>F.-G. Hu and C.-F. Wang</i>	1396
Quantitative Theory for Probe-Sample Interaction With Inhomogeneous Perturbation in Near-Field Scanning Microwave Microscopy	<i>Z. Wei, Y.-T. Cui, E. Y. Ma, S. Johnston, Y. Yang, R. Chen, M. Kelly, Z.-X. Shen, and X. Chen</i>	1402

Devices and Modeling

Avalanche Microwave Noise Sources in Commercial 90-nm CMOS Technology	<i>F. Alimenti, G. Tasselli, C. Botteron, P.-A. Farine, and C. Enz</i>	1409
Lumped-Element Equivalent-Circuit Modeling of Millimeter-Wave HEMT Parasitics Through Full-Wave Electromagnetic Analysis	<i>Y. Karisan, C. Caglayan, G. C. Trichopoulos, and K. Sertel</i>	1419
An Accurate Empirical Model Based on Volterra Series for FET Power Detectors	<i>M. A. Andersson and J. Stake</i>	1431

(Contents Continued on Back Cover)



(Contents Continued from Front Cover)

Stability Analysis and Design Criteria of Paralleled-Device Power Amplifiers Under Large-Signal Regime	L. Pantoli, G. Leuzzi, A. Santarelli, and F. Filicori	1442
Power-Scalable Wideband Linearization of Power Amplifiers	Y. Hu and S. Boumaiza	1456
Passive Circuits		
Multilayered Coupled Interdigital Resonator Filters for General Chebyshev Filtering Functions	A. Périgaud, S. Bila, S. Verdeyme, D. Baillargeat, and D. Kaminsky	1465
Analysis and Design of Balanced Dielectric Resonator Bandpass Filters	J.-X. Chen, Y. Zhan, W. Qin, Z.-H. Bao, and Q. Xue	1476
Direct Synthesis and Design of a General Sequentially Coupled Wideband Bandpass Filter With N -Transmission Zeros	Z. Li and K.-L. Wu	1484
Novel Dual-Band Bandpass Filter and Reconfigurable Filters Using Lumped-Element Dual-Resonance Resonators	J. Xu, W. Wu, and G. Wei	1496
12-GHz Rotary Joint With Substrate Integrated Waveguide Feeder	Y. J. Cheng and Z. J. Xuan	1508
Hybrid and Monolithic RF Integrated Circuits		
Highly Efficient Broadband Continuous Inverse Class-F Power Amplifier Design Using Modified Elliptic Low-Pass Filtering Matching Network	M. Yang, J. Xia, Y. Guo, and A. Zhu	1515
A Broadband Almost-Digital RF Transmitter With an Efficient Power Amplifier	W. Jang, R. Cordeiro, A. Oliveira, and N. Borges Carvalho	1526
A 102–129-GHz 39-dB Gain 8.4-dB Noise Figure I/Q Receiver Frontend in 28-nm CMOS	T. Heller, E. Cohen, and E. Socher	1535
Low-Loss Integrated Passive CMOS Electrical Balance Duplexers With Single-Ended LNA	M. Elkholy, M. Mikhemar, H. Darabi, and K. Entesari	1544
Millimeter-Wave Sources at 60 and 140 GHz by Magnetic-Plasmon-Waveguide-Based In-Phase Coupled Oscillator Network in 65-nm CMOS	Y. Shang, H. Yu, Y. Liang, X. Bi, and M. Annamalai	1560
A 60-GHz 19.8-mW Current-Reuse Active Phase Shifter With Tunable Current-Splitting Technique in 90-nm CMOS	Y. Yu, K. Kang, C. Zhao, Q. Zheng, H. Liu, S. He, Y. Ban, L.-L. Sun, and W. Hong	1572
Instrumentation and Measurement Techniques		
A W-Band Micromachined On-Wafer Probe With Integrated Balun for Characterization of Differential Circuits	C. Zhang, M. Bauwens, N. S. Barker, R. M. Weikle, and A. W. Lichtenberger	1585
Formulation for Propagation Factor Extractions in Thru-Reflect-Line/Line-Reflect-Line Calibrations and Related Applications	K.-F. Fuh	1594
Forming Nanosecond Microwave Pulses by Transformation of Resonant Cavity Mode	V. A. Avgustinovich, S. N. Artemenko, V. S. Igumnov, S. A. Novikov, and Y. G. Yushkov	1607
RF Systems and Applications		
SATCOM Retrodirective Array	N. B. Buchanan, V. F. Fusco, and M. van der Vorst	1614
Experimental Investigation of Adaptive Impedance Matching for a MIMO Terminal With CMOS-SOI Tuners	I. Vasilev, J. Lindstrand, V. Plicanic, H. Sjöland, and B. K. Lau	1622
A UHF Near-Field Link for Passive Sensing in Industrial Wireless Power Transfer Systems	R. Trevisan and A. Costanzo	1634
Compact Low-Frequency Metamaterial Design for Wireless Power Transfer Efficiency Enhancement	E. S. Gámez Rodríguez, A. K. RamRakhyani, D. Schurig, and G. Lazzi	1644
A 2.4-GHz CMOS Class-E Synchronous Rectifier	S. Dehghani and T. Johnson	1655
A Proximity Coupling RF Sensor for Wrist Pulse Detection Based on Injection-Locked PLL	B.-H. Kim, Y. Hong, Y.-J. An, S.-G. Kim, H.-J. Lee, S.-W. Kim, S.-B. Hong, G.-H. Yun, and J.-G. Yook	1667
LETTERS		
Corrections to “Incident Electric Field Effect and Numerical Dosimetry for a Wireless Power Transfer System Using Magnetically Coupled Resonances”	S. W. Park, K. Wake, and S. Watanabe	1677
Comments on “Design of Highly Efficient Broadband Class-E Power Amplifier Using Synthesized Low-Pass Matching Networks”	Q.-F. Cheng, H.-P. Fu, S.-K. Zhu, and C. Liu	1678
Authors’ Reply to “Comments on ‘Design of Highly Efficient Broadband Class-E Power Amplifier Using Synthesized Low-Pass Matching Networks’”	K. Chen and D. Peroulis	1679
