

# **2006 European Microwave Conference**

**Manchester, United Kingdom  
10-15 September 2006**

**Volume 1 of 4**



**IEEE Catalog Number:**  
**ISBN:**

**06EX1409**  
**2-9600551-6-0**

**Copyright © 2006 by The Institute of Electrical and Electronics Engineers, Inc.  
All Rights Reserved**

*Copyright and Reprint Permissions:* Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republications permission, write to IEEE Copyrights Manager, IEEE Operations Center, 445 Hoes Lane, Piscataway, New Jersey USA 08854. All rights reserved.

IEEE Catalog Number:                   06EX1409

ISBN:                                       2-9600551-6-0

**Additional Copies of This Publication Are Available from:**

IEEE Service Center  
445 Hoes Lane  
Piscataway, NJ 08854  
IEEE Service Center  
445 Hoes Lane  
Piscataway, NJ 08854

Phone:           (800) 678-IEEE  
                  (732) 981-1393

Fax:             (732) 981-9667

E-mail:         customer-service@ieee.org

# Table of Contents

<b>Microwave Class-F and Inverse Class-F Power Amplifiers Designs Using GaN Technology and GaAs pHEMT</b> .....	1
<i>S. Gao, P. Butterworth, A. Sambell, C. Sanabria, H. Xu, S. Heikman, U. Mishra, R.A. York</i>	
<b>Low-Loss Microstrip Surface-Mount K-Band Package</b> .....	5
<i>Kamran Entesari, Gabriel M. Rebeiz</i>	
<b>Conformed Printed Circuit Monopole Antenna for Wireless Devices Smaller than <math>(\lambda)/8</math> in the ISM Frequency Band</b> .....	9
<i>Jose Ignacio Garate Anibarro, Jose Miguel de Diego Rodrigo</i>	
<b>A New BCB Film Zero-Level Packaging for RF Devices</b> .....	13
<i>S. Seok, Nathalie Rolland, Paul-Alain Rolland</i>	
<b>Compact K-Band Watt-Level GaAs PHEMT Power Amplifier MMIC with Integrated ESD Protection</b> .....	17
<i>A. Bessemoulin, M.G. McCulloch, A. Alexander, D. McCann, S.J. Mahon, J.T. Harvey</i>	
<b>Scalar Reflectometer Based Nondestructive Technique for Measuring Complex Permittivity and Permeability</b> .....	21
<i>Chun-Ping Chen, Zhewang Ma, Tetsuo Anada, C. Christopoulos</i>	
<b>A Load Modulated High Efficiency Power Amplifier</b> .....	25
<i>Fabien Lepine, Rik Jos, Herbert Zirath</i>	
<b>EM Simulation and Analysis on the Ground Electrode of Human Body Communication</b> .....	29
<i>J.H. Hwang, C.H. Hyoung, J.B. Sung, J.K. Kim, D.G. Park, S.W. Kang</i>	
<b>Miniaturized Suspended Stripline Filters for Integration into Extended Circuits</b> .....	31
<i>Wolfgang Menzel, Mohammad S. Tito</i>	
<b>Microwave (De)Multiplexer for Ultra-Wideband (UWB) Non-Coherent High Data Rates Transceiver</b> .....	35
<i>Stephane Mallegol, Jean-Philippe Coupez, Christian Person, Thomas Lespagnol, Stephane Paquelet, Alexis Bisiaux</i>	
<b>Design of Radio Frequency Direction Finder for Automotive Applications</b> .....	39
<i>Alexander Kravets, Christian Morhart, Erwin Biebl</i>	
<b>An Instrument to Measure the Characteristics of Single Wheat Grain Kernels</b> .....	43
<i>Hong S. Chua, Arthur D. Haigh, Graham Parkinson, A.A.P. Gibson</i>	
<b>Study of Rectangle Wave Propagation in Electromagnetic Field Using FDTD, CIP and R-CIP Methods</b> .....	47
<i>Shinya Watanabe, Youichi Kakuta, Osamu Hashimoto</i>	
<b>Design of the Dual-Band Frequency Synthesizer Using Miniatured LTCC Bandpass Filter</b> .....	50
<i>Jin-Sup Kim, Sang-Gi Byeon, Yong-Cheol Kang</i>	
<b>Passive Phase Shifter for W-Band Applications Using Liquid Crystals</b> .....	54
<i>Stefan Mueller, Felix Goelden, Patrick Scheele, Michael Wittek, Christian Hock, Rolf Jakob</i>	
<b>Influence of Curvature Radius on Radiation Patterns in Multibeam Conformal Antennas</b> .....	58
<i>Krzysztof Wincza, Slawomir Gruszczynski</i>	
<b>Design of Broadband Asymmetric Tapered-Line 3-dB Directional Couplers</b> .....	62
<i>Slawomir Gruszczynski, Krzysztof Wincza</i>	
<b>Constant Linearity Variable Gain Traveling Wave Amplifier MMIC for 1 to 26.5 GHz Applications</b> .....	66
<i>Kohei Fujii, Henrik Morkner</i>	
<b>Estimation of Characterization in MMIC Nonlinear Power Amplifier for OFDM Signal</b> .....	70
<i>Joon Hyung Kim, Jae Ho Jung, Sung Min Kim, Heon Kuk Kwon, Chul Soon Park, Gwang Cheon Lee</i>	
<b>High Isolation Internal Dual-Band Planar Inverted-F Antenna Diversity System with Band-Notched Slots for MIMO Terminals</b> .....	74
<i>Ki-Jin Kim, Won-Gyu Lim, Jong-Won Yu</i>	
<b>Novel Multi-Band Planar Monopole Antenna for Multi-Band Wireless Systems</b> .....	78
<i>Wang-Sang Lee, Dong-Zo Kim, Won-Gyu Lim, Jong-Won Yu</i>	

# Table of Contents

<b>Design of Compact Microstrip Lowpass Filters Using a U-Shaped Defected Ground Structure and Compensated Microstrip Line .....</b>	<b>81</b>
<i>Ahmed Boutejdar, A. Ramadan, M. Makkey, A.S. Omar</i>	
<b>A Composite Right/Left-Handed Transmission Line Implementing Quasi-Exponential Inductive Stubs .....</b>	<b>85</b>
<i>M. Neethling, P. Meyer, F.V. Minnaar</i>	
<b>Exact Synthesis of a Low-Pass Prototype for the Accurate Design of Single-Sided Filters.....</b>	<b>89</b>
<i>Giuseppe Macchiarella, Smain Amari, Stefano Tamiazzo</i>	
<b>Evaporation Duct Refractivity Profile Models.....</b>	<b>93</b>
<i>Iu. Levadnyi, V.K. Ivanov, V. Shalyapin</i>	
<b>44-GHz High Power and Driver Microstrip Amplifier MMICs Using 6-Inch 0.15-(<math>\mu</math>)m PHEMTs .....</b>	<b>95</b>
<i>A. Daddello, A. Fattorini, S.J. Mahon, A. Bessemoulin, J.T. Harvey</i>	
<b>Broad Band Filter for UWB Communications.....</b>	<b>99</b>
<i>D. Packiaraj, M. Ramesh, A.T. Kalghatgi</i>	
<b>Multifunction Antennas --- The Interleaved Sparse Sub-Arrays Approach .....</b>	<b>102</b>
<i>Cristian I. Coman, Ioan E. Lager, L.P. Ligthart</i>	
<b>A Compact Ultra-Wideband (UWB) Bandpass Filter with Transmission Zero .....</b>	<b>106</b>
<i>Hussein N. Shaman, Jia-Sheng Hong</i>	
<b>Comparison of MMIC Lumped and Quasi-Lumped Quadrature Coupler Performance .....</b>	<b>109</b>
<i>H.I. Cantu, Vincent F. Fusco</i>	
<b>Cost-Effective Array Antennas for Narrow-Beam, Wide-Angle Scanning Applications .....</b>	<b>112</b>
<i>Massimiliano Simeoni, Cristian I. Coman, Ioan E. Lager</i>	
<b>A Study of Ferrite Nonlinearity Evaluation from Higher Harmonic Generation Efficiency.....</b>	<b>116</b>
<i>Taro Miura, Lionel E. Davis</i>	
<b>Over-Temperature Protection by Adaptive Output Power Control .....</b>	<b>120</b>
<i>Andre van Bezooijen, Freek van Straten, Reza Mahmoudi, Arthur H.M. van Roermund</i>	
<b>Orthogonally Polarised Dipole Antenna Using Left Handed Transmission Lines.....</b>	<b>123</b>
<i>H. Iizuka, P.S. Hall</i>	
<b>Folded-Waveguide Resonator Filter with Asymmetric Frequency Response .....</b>	<b>127</b>
<i>Sultan Al-Otaibi, Jia-Sheng Hong</i>	
<b>Artificial Left-Handed Transmission Lines for Small Size Microwave Components: Application to Power Dividers.....</b>	<b>130</b>
<i>Marta Gil, J. Bonache, Ignacio Gil, Joan Garcia-Garcia, Ferran Martin</i>	
<b>Use of Nano-Grids in a Waveguide .....</b>	<b>134</b>
<i>Jan Zehentner, Jan Machac, Pavel Zabloudil</i>	
<b>Modes in Single-Negative Slab with Tensor Material Parameters.....</b>	<b>137</b>
<i>Masashi Hotta, Mitsuo Hano, Ikuo Awai</i>	
<b>Dual-Band Stepped-Impedance Band-Pass Filter.....</b>	<b>141</b>
<i>Jianpeng Wang, Y.X. Guo, Bing-Zhong Wang, Ling Chuen Ong</i>	
<b>LTCC Full-Matching Marchand Balun.....</b>	<b>144</b>
<i>Y.X. Guo, Z.Y. Zhang, Ling Chuen Ong</i>	
<b>Dielectric Lens Antenna Size Reduction Due to the Shape Optimization with Genetic Algorithm and Muller Boundary Integral Equations .....</b>	<b>147</b>
<i>Artem V. Boriskin, Ronan Sauleau</i>	
<b>Permittivity Measurement in a Small Volume of High Lossy Liquid Using Microwave Resonator Technique .....</b>	<b>151</b>
<i>Zoya E. Eremenko, El M. Ganapolskii</i>	
<b>Microwave Modeling of Active Nanoelectron System with Random Imperfections.....</b>	<b>155</b>
<i>El M. Ganapolskii, Zoya E. Eremenko, Yuriy V. Tarasov</i>	

# Table of Contents

<b>Inverted-F and Whip Antenna Combination for Terrestrial Digital Multimedia Broadcasting (T-DMB) Communication with Notebook Computer.....</b>	<b>159</b>
<i>Yongjin Kim, Ick-Jae Yoon, Young-Eil Kim</i>	
<b>Compact Stopband-Extended Microstrip Bandpass Filters with Folded Quarter-Wavelength Resonators.....</b>	<b>162</b>
<i>Tsung-Nan Kuo, Pu-Hua Deng, Yo-Shen Lin, Chi-Hsueh Wang, Chun Hsiung Chen</i>	
<b>Effect of Anisotropy on Effective Dielectric Constant and Characteristic Impedance of Multi-Port Fin-Lines.....</b>	<b>166</b>
<i>Kumar Vaibhav Srivastava, Seema Awasthi, Animesh Biswas</i>	
<b>Implementation of Reduced-Size Dual-Mode Ring Filters in LTCC and MMIC Processes at Millimeter Wave Frequencies .....</b>	<b>170</b>
<i>Ming-Fong Lei, Huei Wang</i>	
<b>90 Degree Tandem Hybrid with Tolerance to Displacement Error and Thickness Variation in Multi-Layered Substrate.....</b>	<b>174</b>
<i>Takeshi Yuasa, Yukihiro Tahara, Hideyuki Oh-hashi</i>	
<b>Super Compact (&lt;math&gt;1\text{cm}^2&lt;/math&gt;) Band Pass Filters with Wide Bandwidth and High Selectivity at C-Band.....</b>	<b>177</b>
<i>J. Bonache, J. Martel, Ignacio Gil, Marta Gil, Joan Garcia-Garcia, Ferran Martin, I. Cairo, M. Ikeda</i>	
<b>Frequency Variations Improvement of a Bandwidth and Central Frequency Reconfigurable DBR Filter.....</b>	<b>181</b>
<i>E. Fourn, Eric Rius, Gerard Tanne, Alexandre Manchec, Cedric Quendo</i>	
<b>CMOS Compatible Switched MEMS Capacitors up to 220 GHz Applications .....</b>	<b>185</b>
<i>Tauno Vaha-Heikkila, Mari Ylonen</i>	
<b>Dual-Path Dual-Polarized Antenna System for SDARS Application.....</b>	<b>189</b>
<i>Young-Pyo(1) Hong, Jung-Min Kim, Mun-Ho Choi, Yongshik Lee, Jong-Gwan Yook</i>	
<b>A Compact Microstrip Multi-Layer Lowpass Filter Using Triangle Slots Etched in the Ground Plane.....</b>	<b>193</b>
<i>Ahmed Boutejdar, Adel Elsherbini, A.S. Omar</i>	
<b>A RF Approach for the Implementation of the LINC Technique .....</b>	<b>197</b>
<i>Paolo Colantonio, Franco Giannini, Massimiliano Rossi</i>	
<b>Focussing by Negative-Index Effect in Two-Dimensional Photonic Crystals in a High-Index-Contrast Material System .....</b>	<b>201</b>
<i>A. Rumberg, E. Dorner, M. Berroth</i>	
<b>Cross-Coupled Microstrip Dual Behavior Resonator (DBR) Filter .....</b>	<b>205</b>
<i>Alexandre Manchec, Yann Clavet, Cedric Quendo, Eric Rius, Jean Francois Favennec, Christian Person</i>	
<b>Novel Formulations of the Cauchy Method Suitable for the Synthesis of Microwave Filters and Duplexers.....</b>	<b>209</b>
<i>Daniele Traina, Giuseppe Macchiarella</i>	
<b>Preliminary MW and MMW Reflection and Transmission Measurements of a Silicon Wafer Under Illumination of Light for Reflected Phased Array Antennas.....</b>	<b>213</b>
<i>M. Hajian, L.P. Ligthart</i>	
<b>High-Q Micromachined Inductors for 10-to-30-GHz RFIC Applications on Low Resistivity Si-Substrate .....</b>	<b>217</b>
<i>To-Po Wang, Huei Wang</i>	
<b>Butterfly-Shape Folding of a Ferrite Coupled Line.....</b>	<b>221</b>
<i>Cham Kiong Queck, Lionel E. Davis</i>	
<b>Compact Microstrip Parallel-Coupled Bandpass Filters with Multiple Transmission Zeros.....</b>	<b>225</b>
<i>Chao-Huang Wu, Yo-Shen Lin, Chi-Hsueh Wang, Chun Hsiung Chen</i>	
<b>Novel Methods for Phase Noise Reduction and Harmonic Suppression in a Planar Oscillator Circuit Based on Planar Helical Resonators.....</b>	<b>229</b>
<i>Cheol Gyu Hwang, Noh Hoon Myung</i>	
<b>A Millimeter-Wave Highly Linear VCO MMIC with Compact Tuning Voltage Converter.....</b>	<b>233</b>
<i>Hiroyuki Mizutani, Masaomi Tsuru, Takayuki Matsuzuka, Kenichiro Choumei, Kenji Kawakami, Moriyasu Miyazaki</i>	

# Table of Contents

<b>H-Plane Crossed-Waveguide Hybrids .....</b>	<b>237</b>
<i>Katsunori Toda, Isao Ohta, Mitsuyoshi Kishihara</i>	
<b>A Monolithic 24 GHz, 20 dBm, 14% PAE SiGe HBT Power Amplifier .....</b>	<b>241</b>
<i>Jonathan P. Comeau, Joel M. Andrews, John D. Cressler</i>	
<b>Efficient CAD Tool for RF/Microwave Transistor Modeling.....</b>	<b>245</b>
<i>Mustapha C.E. Yagoub, F.A. Mohammadi</i>	
<b>Single-Chip RF Front-End with T/R Switch on Standard Silicon Technology for 5-GHz WLANs.....</b>	<b>249</b>
<i>D. Zito, B. Neri</i>	
<b>Low Cost DC to 6 GHz Electronic Step Attenuator SMT MCMs with Gate Lag Elimination by Use of High Intensity LEDs .....</b>	<b>252</b>
<i>Dean Nicholson</i>	
<b>Design, Simulation, and Fabrication of an On-Chip Antenna Fabricated Using Silicon Micromachining for Broad-Band Millimeter-Wave Wireless Communications.....</b>	<b>256</b>
<i>Hojr Sedaghat-Pisheh, Mahmoud Shahabadi, Shamsodin Mohajerzadeh</i>	
<b>Non Linear Bandstop Filters --- A New Method of Frequency Selective Limiting .....</b>	<b>259</b>
<i>Padisan Phudpong, Ian C. Hunter</i>	
<b>Contactless Dielectric Charging Mechanisms in RF-MEMS Capacitive Switches .....</b>	<b>263</b>
<i>G.J. Papaioannou, G. Wang, D. Bessas, John Papapolymerou</i>	
<b>Compact Dual-Band Antenna Using an Anisotropic Metamaterial.....</b>	<b>267</b>
<i>Cheng-Jung Lee, Kevin M.K.H. Leong, Tatsuo Itoh</i>	
<b>Wideband VGAs Using a CMOS Transconductor in Triode Region.....</b>	<b>271</b>
<i>Hui Dong Lee, Kyung Ai Lee, Songcheol Hong</i>	
<b>A Small Monopole Antenna with Novel Impedance Matching Structure.....</b>	<b>275</b>
<i>Dong-Jin Kim, Young-Min Moon, Se-Hyun Park, Young-Eil Kim, Kyeong-Sik Min</i>	
<b>In-Plane Electrostatically-Actuated RF MEMS Switch Suspended on a Low-Resistivity Substrate.....</b>	<b>279</b>
<i>David Girbau, Lluís Pradell, A. Lazaro, Alvar Nebot</i>	
<b>Steerable Composite Right/Left-Handed Leaky Wave Antenna for Automotive Radar Applications.....</b>	<b>283</b>
<i>Shin-ichiro Matsuzawa, Kazuo Sato, Yoshinori Inoe, Tsuyoshi Nomura</i>	
<b>Compact Vertical Bias Networks for LTCC Millimeter Wave Circuits.....</b>	<b>287</b>
<i>Torben Baras, Arne F. Jacob</i>	
<b>Quasi-Lumped--Open-Loop Suspended Stripline Bandpass Filters .....</b>	<b>291</b>
<i>Atallah Balalem, Wolfgang Menzel, A.S. Omar</i>	
<b>Material Scanner Using mmW-Radiation .....</b>	<b>295</b>
<i>Christian Krebs, Dirk Nussler, Sven Heinen, Daniel Zeru, Thorsten M. Buzug</i>	
<b>A Mismatch Detector for Adaptive Antenna Impedance Matching.....</b>	<b>299</b>
<i>Fanfan Meng, Andre van Bezooijen, Reza Mahmoudi</i>	
<b>Equivalent Circuit Parameter Extraction Techniques for a PCS Ceramic Filter, Using Commercial Electromagnetic Software .....</b>	<b>303</b>
<i>P. Kyriazidis, S. Tsitsos, A. Kouroukidis, A.A.P. Gibson</i>	
<b>Fractal Monopole Antenna for Dual-ISM-Bands Applications.....</b>	<b>307</b>
<i>Wojciech J. Krzysztofik</i>	
<b>An Integrated 5 GHz Wideband Quadrature Modem in SiGe:C BiCMOS Technology .....</b>	<b>311</b>
<i>K. Schmalz, Frank Herzel, M. Piz</i>	
<b>MEMS Single-Chip Microswitch Array for Re-Configuration of Telecommunication Networks .....</b>	<b>315</b>
<i>Stefan Braun, Joachim Oberhammer, Goran Stemme</i>	

# Table of Contents

<b>Thermal Characterisation of LTCC Frontend Modules with Integrated Power Amplifiers for Wireless LAN Application .....</b>	<b>319</b>
<i>Kostyantyn Markov, Torsten Keiler, Alexander Chernyakov, Ciaran Curtin, Patric Heide</i>	
<b>Efficient CAD of Generalized Coaxial Probes in Rectangular Waveguide Using the 3D BI-RME Method.....</b>	<b>323</b>
<i>A.A. San Blas, F. Mira, Vicente E. Boria Esbert, B. Gimeno, G. Conciauro, M. Bressan, P. Arcioni</i>	
<b>Analogue Phase Shifter Based on Stacked CBCPW .....</b>	<b>327</b>
<i>Hongyan Tang, Robert Donnan, Clive G. Parini</i>	
<b>Measuring Autonomous Systems Using the Large Signal Network Analyser .....</b>	<b>330</b>
<i>Y. Rolain, W. Van Moer, J. Schoukens, R. Pintelon</i>	
<b>Complex Dielectric Permittivity Measurements of Glasses at Millimeter Waves and Terahertz Frequencies .....</b>	<b>334</b>
<i>Shu Chen, Kim N. Nguyen, Mohammed N. Afsar</i>	
<b>Optimization of a Multi-Port Amplifier Using a Least Squares Evolutionary Relaxation Method .....</b>	<b>338</b>
<i>P. James</i>	
<b>The Microwave Distributed Informative-Control System for High-Speed Maglev Transportation.....</b>	<b>342</b>
<i>Sergey V. Plaksin, Ivan I. Sokolovskiy</i>	
<b>Scale Changing Technique for MEMS-Controlled Phase-Shifters .....</b>	<b>345</b>
<i>E. Perret, N. Raveu, H. Aubert, H. Legay</i>	
<b>Thin Radar Absorber Using an Artificial Magnetic Ground Plane.....</b>	<b>349</b>
<i>Stephen W. Simms, Vincent F. Fusco</i>	
<b>IP3 Measurements of Liquid Crystals at Microwave Frequencies.....</b>	<b>352</b>
<i>Felix Goelden, Stefan Mueller, Patrick Scheele, Michael Wittek, Rolf Jakob</i>	
<b>Wideband Microstrip Bandpass Filters for Radio Astronomy Applications.....</b>	<b>356</b>
<i>Guoyong Zhang, Michael J. Lancaster, Frederick Huang, Yejie Pan, Neil Roddis</i>	
<b>Stripline Band-Stop and Band-Pass Filters Using Spatially Modulated Transmission Line .....</b>	<b>359</b>
<i>Barry D. Hunt</i>	
<b>Possible Efficient Generation of Sub-MM Wave Signals by Heterodyning Two Optical Signals in a UTC-TW Photo Detector .....</b>	<b>362</b>
<i>Asher Madjar, T.S. Liao, Paul Yu</i>	
<b>A Novel Antenna Design for Passive RFID Transponders on Metal Surfaces .....</b>	<b>366</b>
<i>Sergio Bovelli, Frank Neubauer, Christoph Heller</i>	
<b>GaN HEMT Performance --- Measurements and Simulations of a 3.6 mm Device from Cree .....</b>	<b>369</b>
<i>Asher Madjar, Zygmund Turcki, Yifei Li</i>	
<b>Time-Domain Modelling of Phase Noise in an Oscillator.....</b>	<b>372</b>
<i>Nikhil M. Kriplani, Alan Victor, Michael B. Steer</i>	
<b>Design of Compact Dual-Polarized Printed-Circuit Antenna for Ultra-Wideband Applications .....</b>	<b>376</b>
<i>K. Rambabu, M.Z. Alam, J. Bornemann</i>	
<b>A Quad-Band Internal Antenna Having Independent Controllability of Low/High Resonant Frequencies .....</b>	<b>380</b>
<i>Ho-Seon Lee, Kyung-Hak Lee, Min-Seok Han, Jeong-Kwan Lee, Jung-Ho Yoon, Hong-Teuk Kim</i>	
<b>A G-Band 160 GHz T/R Module Concept for Planetary Landing Radar.....</b>	<b>384</b>
<i>Lorene Samoska, Pekka Kangaslahti, David Pukala, Greg Sadowy, Brian Pollard, Richard Hodges</i>	
<b>Composite Right/Left-Handed Transmission Lines Based on Conductor-Backed Coplanar Strips for Antenna Application.....</b>	<b>388</b>
<i>Rei Goto, Hiroyuki Deguchi, Mikio Tsuji</i>	
<b>Negative Refraction in a Cut-Off Parallel-Plate Waveguide Loaded with Two-Dimensional Lattice of Dielectric Resonators .....</b>	<b>392</b>
<i>Tetsuya Ueda, Anthony Lai, Tatsuo Itoh</i>	

# Table of Contents

<b>Transmitting System Using Alias Harmonic Components of Output Signal of DAC.....</b>	<b>396</b>
<i>Takafumi Nakabayashi, Masahiro Shinozawa, Hiroyuki Arai</i>	
<b>Low Loss Microwave Piezo-Tunable Devices.....</b>	<b>400</b>
<i>Y. Poplavko, Y. Prokopenko, V. Pashkov, V. Molchanov, I. Golubeva, V. Kazmirenko, D. Smigin</i>	
<b>A Dual-Band Planar Inverted-F Antenna with Periodic Grooves.....</b>	<b>404</b>
<i>Kyung-Kyun Kang, Jae W. Lee, Choon Sik Cho, Taek-Kyung Lee</i>	
<b>A Novel Resonant Window Having Dual-Behavior Resonance for Pseudo-Elliptic Waveguide Filter.....</b>	<b>408</b>
<i>Masataka Ohira, Hiroyuki Deguchi, Mikio Tsuji</i>	
<b>Space Qualification of W-Band Devices for the CloudSat Cloud Profiling Radar .....</b>	<b>412</b>
<i>Remi LaBelle</i>	
<b>Performance Evaluations of Microwave Power Amplifiers for Complex Digital Communication Systems .....</b>	<b>416</b>
<i>Chien-Chang Huang, Kuan-Yu Chen</i>	
<b>Dynamic Nonlinear Model of a Cancellation Loop with Application to the Feedforward Linearization Technique .....</b>	<b>420</b>
<i>Michael E. Gadringer, Daniel D. Silveira, Gottfried Magerl</i>	
<b>Study of Temperature Distribution of (<math>\lambda</math>)/4 Type EM-Absorber Using Resistive Film Under High Power Injection .....</b>	<b>424</b>
<i>Shinya Watanabe, Kota Saito, Akitoshi Taniguchi, Osamu Hashimoto, Toshifumi Saito, Hiroshi Kurihara</i>	
<b>Distortion Analysis of RF Links by Means of Circuit-Level Nonlinear/EM Front-End Simulation and Realistic Channel Description.....</b>	<b>428</b>
<i>Vittorio Rizzoli, Diego Masotti, Paolo Spadoni, Alessandra Costanzo, Franco Fuschini</i>	
<b>3D Micro-Cooled HPA Package for RADAR Application.....</b>	<b>432</b>
<i>Antonio Lanciano, Stefano Casano, Roberta Buttiglione, Anna Maria Fiorello</i>	
<b>LDMOS Power Amplifiers with CRLH Combiners for LINC Transmitters.....</b>	<b>436</b>
<i>Helias Koulouzis, Djuradj Budimir</i>	
<b>850nm Radio-Over-Fiber EVM Measurements for IEEE 802.11g WLAN and Cellular Signal Distribution.....</b>	<b>440</b>
<i>M.L. Yee, H.L. Chung, P.K. Tang, Ling Chuen Ong, B. Luo, M.T. Zhou, Z. Shao, M. Fujise</i>	
<b>A Compact 90-Degree Twist Using Novel Ridged Waveguide for Integrated Waveguide Subsystems .....</b>	<b>444</b>
<i>Hideki Asao, Go Hiraiwa, Akiko Katayama</i>	
<b>A 850/900/1800/1900MHz Quad-Band CMOS Medium Power Amplifier .....</b>	<b>448</b>
<i>Huseyin Aniktar, Henrik Sjolund, Jan H. Mikkelsen, Torben Larsen</i>	
<b>Rigorous Investigation of Interactions Between Passive RFID Tags by Means of Nonlinear/Electromagnetic Co-Simulation .....</b>	<b>452</b>
<i>Vittorio Rizzoli, Alessandra Costanzo, Matteo Rubini, Diego Masotti</i>	
<b>Microwave Radiation of Nonrelativistic Electron Bunches Passing Through Diaphragms.....</b>	<b>456</b>
<i>V.N. Bolotov, V.D. Fedorchenko, S.I. Kononenko, V.I. Muratov</i>	
<b>Accurate Substrate-Related Packaged Transistor Modeling for 24GHz Circuit Design .....</b>	<b>459</b>
<i>Veljko Napijalo, Vicentiu Cojocar, Takeshi Yokoyama, Thomas Young</i>	
<b>A Microstrip Bandpass Filter with an Electronically Reconfigurable Transmission Zero.....</b>	<b>463</b>
<i>Hualiang Zhang, Kevin J. Chen</i>	
<b>Synthesis of High-Power Broadside-Coupled Thick Striplines Including Narrow Lateral Shielding .....</b>	<b>467</b>
<i>Ingo Schmale</i>	
<b>Design of Self-Equalised Elliptic Filter Channels in Ka-Band Implemented in Rectangular H-Plane Waveguide .....</b>	<b>471</b>
<i>Jose R. Montejo-Garai, Jorge A. Ruiz-Cruz, Jesus M. Rebollar, Antonio Onoro-Navarro, Isidro Hidalgo-Carpintero, Manuel J. Padilla-Cruz</i>	



# Table of Contents

<b>Magnetic Field Driven Waveguide with Metallic Nanostructure</b> .....	475
<i>A.B. Rinkevich, L.N. Romashev, V.V. Ustinov, E.A. Kuznetsov</i>	
<b>Diakoptic Approach to Analysis of Microwave Transmission Lines</b> .....	479
<i>Dragan I. Olcan, Ivica M. Stevanovic, Juan R. Mosig, Antonije R. Djordjevic</i>	
<b>Open Loop Filter Duplexer with Internal Stubs for GSM Cellular Base Station</b> .....	483
<i>M.T. de Melo, A.L. Bezerra, P.N.S. Filho, A.J. Belfort</i>	
<b>Design of Three-Pole Single-to-Balanced Bandpass Filters</b> .....	487
<i>Chia-Cheng Chuang, Chin-Li Wang</i>	
<b>Fully Automated Laser-Adjustable Compact Microwave Transceivers with Integrated Local Oscillator</b> .....	491
<i>Martin Schallner, Dirk Sommer, Martin Kirsch, Ralf Kroner, Joachim Schwarzhorn</i>	
<b>A Polar Transmitter Using a Linear-Assisted Delta-Modulation Envelope-Amplifier for WCDMA Applications</b> .....	495
<i>Kazuaki Kunihiro, Kiyohiko Takahashi, Shingo Yamanouchi, Tomohisa Hirayama, Hikaru Hida, Shin-ichi Tanaka</i>	
<b>Optical Packet Switching Utilizing Microwave Subcarriers</b> .....	499
<i>G. Kovacs, A. Martinez, D. Pastor</i>	
<b>An Implicit Space Mapping Technique for Component Modeling</b> .....	503
<i>Qingsha S. Cheng, John W. Bandler</i>	
<b>Design of Low-Cost Non-Radiative SMA-SIW Launchers</b> .....	507
<i>Antonio Morini, Marco Farina, Cristian Cellini, Tullio Rozzi, Giuseppe Venanzoni</i>	
<b>Narrow Ka Bandpass Filters Made of High Permittivity Ceramic by Layer-by-Layer Polymer Stereolithography</b> .....	511
<i>N. Delhote, Dominique Baillargeat, Serge Verdeyme, C. Delage, C. Chaput</i>	
<b>Sub-Lithographic Atomic-Build Nanowire Gate Structure for Improved FET Performance</b> .....	515
<i>Deon M. Glajchen, Christopher J. Hanson</i>	
<b>Next Generation L-Band Switching Matrices</b> .....	519
<i>Esen Bayar, Jonathan H. Morrish</i>	
<b>Technical Equipment for Research of Biological Effects of EM Field</b> .....	522
<i>Jan Vrba, Luca Vannucci, Peter Peschke, Tomas Drizd'al, Radim Zajicek</i>	
<b>Multi-Frequency Measurements of Complex Permittivity of Dielectric Plates Using Higher-Order Modes of a Balanced-Type Circular Disk Resonator</b> .....	526
<i>Hirokazu Kawabata, Ken-ichi Hasuike, Yoshio Kobayashi, Zhewang Ma</i>	
<b>Efficient Analysis of Inductive Multiport Waveguide Circuits Using a Surface Integral Equation Formulation</b> .....	530
<i>F.D. Quesada Pereira, F. Perez Soler, B. Gimeno Martinez, Vicente E. Boria Esbert, D. Canete Rebenaque, Jose Luis Gomez Tornero, A. Alvarez Melcon</i>	
<b>60-GHz Retrodirective Array System with Efficient Power Management</b> .....	534
<i>Sungjoon Lim, Tatsuo Itoh</i>	
<b>Open-Loop Folded Ring Mimics Photonic Band-Gap Device</b> .....	538
<i>B.S. Virdee, Avtar S. Virdee</i>	
<b>Application of the Stability Criterion to the Passive Electromagnetic Structures Modeling</b> .....	542
<i>Yury Kuznetsov, Andrey Baev, Timophej Shevgunov, Petr Lorenz, Peter Russer</i>	
<b>Semi-Analytical Diffraction Synthesis of Cylindrical Reflector Beam Splitters</b> .....	546
<i>Andrey A. Nosich, Thore Magath</i>	
<b>A Novel Vector Microwave Phase Interferometer</b> .....	550
<i>Jan Zela, Karel Hoffmann, Premysl Hudec</i>	
<b>A Novel Parasitic-Aware Synthesis and Verification Flow for RFIC Design</b> .....	553
<i>Xuejin Wang, Stephen McCracken, Aykut Dengi, Koji Takinami, Takayuki Tsukizawa, Yasunori Miyahara</i>	

# Table of Contents

<b>Linearity Improvement of Doherty Amplifier with Analog Predistorter for WCDMA Applications .....</b>	<b>557</b>
<i>Yong-Sub Lee, Seung-Yup Lee, Yoon-Ha Jeong</i>	
<b>A Predistortion Linearizer with Controlling Individual Order IMD Signals .....</b>	<b>561</b>
<i>Ki-Kyung Jeon, Ell-Kou Kim, Young Kim, Moon-Soo Hwang, Byung-Chul Kim</i>	
<b>Low-Rate Chaotic UWB Transceiver System Based on IEEE 802.15.4a.....</b>	<b>565</b>
<i>Sang-Min Han, Mi-Hyun Son, Yong-Hwan Kim, Seong-Soo Lee</i>	
<b>A Switched-Beam Element Phased Array Antenna for CMA Initialization .....</b>	<b>569</b>
<i>Akkarat Boonpoonga, Phaophak Sirisuk, Monai Krairiksh</i>	
<b>Quarter Wavelength Resonator Partial H-plane Filter.....</b>	<b>573</b>
<i>Dong-Jin Kim, Jae-Gon Lee, Ki-Don Kim, Jeong-Hae Lee</i>	
<b>Performance of 32 GHz Portable Broadband Wireless Access System Employing Adaptive Modulation and Forward Error Correction.....</b>	<b>577</b>
<i>Kiyoshi Hamaguchi, Hiroyo Ogawa</i>	
<b>A New Design Approach for Circular Polarize Antenna with DGS Under the Unbalanced Feed-Lines.....</b>	<b>581</b>
<i>Jay Prakash Thakur, Jun-Seok Park</i>	
<b>Center Frequency and Bandwidth Tunable Filter Employing Tunable Comb-Shaped Transmission Line Resonators and J-Inverters.....</b>	<b>584</b>
<i>Kunihiro Kawai, Hiroshi Okazaki, Shoichi Narahashi</i>	
<b>A Fully Integrated Broadband Power Amplifier with Two-Dimensional Linearization.....</b>	<b>588</b>
<i>Chao Lu, Anh-Vu Pham, Michael Shaw, Christopher Saint</i>	
<b>Triple-Mode Five-Band Power Amplifier LTCC Module for WLAN/GPRS/WCDMA Applications.....</b>	<b>592</b>
<i>Chung-Chi Lai, Yu-Cheng Hsu, Cheng-Chung Chen</i>	
<b>Solution of the Canonical Problem of an Elementary Dipole on a Finite Substrate Using Volume Integral Equations and Volume Physical Optics .....</b>	<b>596</b>
<i>Yves Schols, Vladimir Volski, Guy A.E. Vandenbosch</i>	
<b>MEMS-Based MCM VCO for Space Applications.....</b>	<b>599</b>
<i>M. Paillard, G. Puyatier, Th.G.S.M. Rijks, A. Jourdain, P.G. Steeneken, J.T.M. van Beek, J. De Coster, C. Drevon, H.A.C. Tilmans, J.L. Cazaux</i>	
<b>Wideband Stacked Patch Antenna Using Inverted-F Feed for PCS, WCDMA, and WIBRO Services .....</b>	<b>603</b>
<i>Jongin Choi, Bomson Lee</i>	
<b>Shape Reconstruction of Uniformly Moving Body by its Scattering Patterns .....</b>	<b>606</b>
<i>Oleg V. Kusyi, Nikolai N. Voitovich</i>	
<b>Full Wave Analysis of Composite Absorbing Layers .....</b>	<b>610</b>
<i>Christian Meiners, Arne F. Jacob</i>	
<b>Hybrid Integrated Oscillator Circuit for a 76-77 GHz Vehicle Radar .....</b>	<b>614</b>
<i>A.V. Zorenko, Mykola S. Boltovets, V.V. Basanets, A.E. Belyaev, T.V. Krytskaya, Yu.V. Marunenko</i>	
<b>Particle Swarm Optimization for Antenna Far-Field Radiation Pattern Reconstruction .....</b>	<b>617</b>
<i>J.R. Perez, J. Basterrechea</i>	
<b>A Novel Method for the Design and Optimization of Microstrip Multi-Section Bandpass Compline Filters .....</b>	<b>621</b>
<i>Homayoon Oraizi, Nima Azadi-Tinat</i>	
<b>A Subharmonically Pumped Mixer in the Submillimeter Wave Range Using Single Diode Mixers and a Quasi-Optical LO Feeding Network .....</b>	<b>625</b>
<i>V. Mullerwiebus, K. Schunemann</i>	
<b>Experimental Investigation of an External Calibration Scheme for 30 GHz Circularly Polarized DBF Transmit Antenna Arrays.....</b>	<b>629</b>
<i>Holger Pawlak, Adisak Charaspreedalarp, Arne F. Jacob</i>	

# Table of Contents

<b>A Novel K-Band Push-Push Oscillator Using Gunn Diodes .....</b>	<b>633</b>
<i>Takayuki Tanaka, Masayoshi Aikawa</i>	
<b>Development of a Low-Cost Microwave Radiometer for the Early Detection of Fire in Forest Environments.....</b>	<b>637</b>
<i>F. Alimenti, S. Bonafoni, S. Leone, V. Mattioli, V. Palazzari, G. Tasselli, M. Strappini, P. Basili, L. Roselli</i>	
<b>Higher Order Modes of the Ridged Coaxial Waveguide.....</b>	<b>641</b>
<i>M'Angeles Ruiz-Bernal, Maria Valverde-Navarro, George Goussetis, Jose Luis Gomez Tornero, Alexandros P. Feresidis</i>	
<b>Tolerance Optimization of an LTCC via Transition by a Simple Method for Determining Shape Sensitivities of Slightly Shifted Metallic Surfaces .....</b>	<b>645</b>
<i>Ivo Knittel, Andreas Zirotf</i>	
<b>A Source-Pull/Load-Pull Measurement System Including Power Amplifier Linearization Using Simple Instantaneous Memoryless Polynomial Base-Band Predistortion .....</b>	<b>649</b>
<i>G.I. Abib, S. Bensmida, E. Bergeault, Bernard Huyart</i>	
<b>Design of Microwave Components Using Topology Gradient Optimization.....</b>	<b>652</b>
<i>A. Assadihaghi, S. Bila, C. Duroiseau, Dominique Baillargeat, M. Aubourg, Serge Verdeyme, M. Rochette, J. Puech, L. Lapierre</i>	
<b>Effective Bandwidth Improvement Technique Based on Mismatch Analysis.....</b>	<b>656</b>
<i>Beatriz Aja, Eduardo Artal, M. Luisa de la Fuente, Juan Pablo Pascual</i>	
<b>Measurements of Thickness of Metal Films in Sandwich Structures by the Microwave Reflection Spectrum .....</b>	<b>660</b>
<i>D.A. Usanov, Al.V. Skripal, A.V. Abramov, A.S. Bogolyubov, N.V. Kalinina</i>	
<b>High Efficiency LDMOS Current Mode Class-D Power Amplifier at 1 GHz.....</b>	<b>664</b>
<i>Hossein Mashad Nemati, Christian Fager, Herbert Zirath</i>	
<b>A Distributed Linearization Technique for Multistage High Power Amplifiers.....</b>	<b>668</b>
<i>Jordan Sveshtarov</i>	
<b>Analysis of an Electronically Adaptive Antenna Using an EBG Metallic Structure with Inserted Localized Elements .....</b>	<b>672</b>
<i>H. Talleb, D. Lautru, V. Fouad Hanna</i>	
<b>Extremely Small, Wide-Band Mobile Phone Antennas by Inductive Chassis Mode Coupling .....</b>	<b>676</b>
<i>Werner L. Schroeder, Arturo Acuna Vila, Christian Thome</i>	
<b>Miniature Microwave Bandpass Filter Based on EBG Structures.....</b>	<b>680</b>
<i>Vitaliy Zhurbenko, Viktor Krozer, Peter Meincke</i>	
<b>Simplified RF-MEMS Switches Using Implanted Conductors and Thermal Oxide.....</b>	<b>683</b>
<i>Christian Siegel, Volker Ziegler, Bernhard Schonlinner, Ulrich Prechtel, Hermann Schumacher</i>	
<b>Microwave Sensor for Accurate Material Density Measurements of Gas/Solid Flows in Pipelines.....</b>	<b>687</b>
<i>Andreas Penirschke, Rolf Jakoby</i>	
<b>An Improved Active Load-Pull Setup for Transistors Large Signal Characterization in the Ka Band .....</b>	<b>691</b>
<i>Ismail Yattoun, Alain Peden</i>	
<b>Efficient Coupling Impedance Formulas for the Right-Angled Isosceles Triangular Patch for Use in Segmentation Analysis.....</b>	<b>695</b>
<i>S.K. Lee, S.F. Ooi, E.G. Lim, E. Korolkiewicz, A. Sambell</i>	
<b>Synthesis of Double-Negative Materials by Using Dielectric-Loaded Rectangular Waveguides.....</b>	<b>699</b>
<i>Marco Briasco, Giacomo Oliveri, Mirco Raffetto</i>	
<b>Phase-Retrieval from Magnitude-Data in Microstrip Electromagnetic Crystals .....</b>	<b>703</b>
<i>M.J. Erro, I. Arnedo, M.A.G. Laso, M.A. Muriel</i>	
<b>Folded Monopole Antenna with Parasitic Element for T-DMB (Terrestrial Digital Multimedia Broadcasting) Service.....</b>	<b>707</b>
<i>K.W. Han, H.S. Na, M.H. Kim, Jongin Choi, Bomson Lee</i>	

# Table of Contents

<b>Wideband Large-Signal RF Measurements Applied to Behavioral Model Extraction .....</b>	<b>710</b>
<i>Maciej Myslinski, Dominique Schreurs, Kate A. Remley, Bart Nauwelaers</i>	
<b>Q Band Duplexer Design Based on LTCC Technology .....</b>	<b>714</b>
<i>Rosine Valois, Dominique Baillargeat, Serge Verdeyme</i>	
<b>A Compact, Ka-Band Magnetron Based T/R Module.....</b>	<b>718</b>
<i>V.A. Volkov, D.M. Vavriv, R.V. Kozhin, D.I. Zaikin, Yong-Hoon Kim, Hoon Lee</i>	
<b>Microwave Doppler Radar Sensor for Solid Flow Measurements .....</b>	<b>721</b>
<i>M. Isa, Z. Wu</i>	
<b>Low Cost, Low Delay UMTS Power Amplifier Using Digital-Controlled Adaptive Analog Predistortion .....</b>	<b>724</b>
<i>R. Neil Braithwaite</i>	
<b>A Self-Generating Coefficient List for Machine Learning in RF Power Amplifiers Using Adaptive Predistortion.....</b>	<b>728</b>
<i>R. Neil Braithwaite</i>	
<b>Mount-on-Metal RFID Transponders for Automatic Identification of Containers.....</b>	<b>732</b>
<i>Sergio Bovelli, Frank Neubauer, Christoph Heller</i>	
<b>Smart Antenna Based on RF MEMS Switches and Printed Yagi-Uda Antennas for 60 GHz ad hoc WPAN.....</b>	<b>735</b>
<i>A. Boe, M. Fryziel, Nicolas Deparis, Christophe Loyez, Nathalie Rolland, Paul-Alain Rolland</i>	
<b>Suggestion for a New Formula to Calculate Group-Delay from Frequency Domain Measurements .....</b>	<b>739</b>
<i>Itzhak Shapir</i>	
<b>H-Infinity Robust Design Methodology Approach to RF PA Linearization .....</b>	<b>743</b>
<i>Gayle Collins, Long Nguyen, Stephen Phillips, Bertan Bakkaloglu, David Runton</i>	
<b>A 3-5 GHz RF Receiver Front-End for UWB Wireless System.....</b>	<b>747</b>
<i>Jiseon Paek, Bonghyuk Park, Songcheol Hong</i>	
<b>A Switch-Type Power Amplifier and its Application to a CDMA Cellphone.....</b>	<b>751</b>
<i>K. Kawakami, S. Kusunoki, T. Kobayashi, M. Hashizume, M. Shimada, T. Hatsugai, T. Koimori, O. Kozakai</i>	
<b>A Novel Compact Eight-Pole HTS Bandpass Filter Employing CPW Quarter-Wavelength Symmetric Diverging Resonators .....</b>	<b>755</b>
<i>Daisuke Koizumi, Kei Satoh, Shoichi Narahashi</i>	
<b>Compact Spline-Profile Horn with Coaxial Cavities for Wideband Use .....</b>	<b>759</b>
<i>Hiroyuki Deguchi, Hiroaki Watanabe, Mikio Tsuji</i>	
<b>TLMIE Modeling of the TM-Passing Property of Integrated Waveguide with Laminated Cladding.....</b>	<b>763</b>
<i>A. Massaro, L. Pierantoni, Tullio Rozzi</i>	
<b>A Multi-Aperture Iris in a Circular Waveguide as a Tool for the Frequency Response Control .....</b>	<b>766</b>
<i>Nataliya G. Don, Anatoliy A. Kyrylenko, Lyudmila P. Mospan</i>	
<b>Design and Measurements of 60 GHz Probe-Fed Patch Antennas on Low-Temperature Co-Fired Ceramic Substrates .....</b>	<b>770</b>
<i>Antti Vimpari, Antti Lamminen, Jussi Saily</i>	
<b>Theoretical and Numerical Investigations of TE and TM Modes in a Coaxial Cavity Gyrotron.....</b>	<b>774</b>
<i>Oleksiy S. Kononenko, Yuriy V. Gandel</i>	
<b>A First Dual-Mode RF Fully Digitally Controlled Oscillator in 0.13(<math>\mu</math>)m CMOS.....</b>	<b>778</b>
<i>Tindaro Pittorino, Yangjian Chen, Volker Neubauer, Ulrich Vollenbruch, Thomas Mayer, Linus Maurer</i>	
<b>Broadband Limiting Amplifier for Instantaneous Frequency Measurement System .....</b>	<b>782</b>
<i>Avtar S. Virdee, B.S. Virdee</i>	
<b>Electrical Characterization of LTCC Coplanar Lines up to 110 GHz.....</b>	<b>786</b>
<i>M. Henry, C.E. Free, Q. Reynolds, S. Malkmus, James L. Wood</i>	
<b>Measurement of Broadband Dielectric Constant Using Substrate Integrated Waveguide.....</b>	<b>790</b>
<i>Chao-Hsiung Tseng, Tah-Hsiung Chu</i>	

# Table of Contents

<b>On the Design of MMIC Multi-Harmonic Load Terminations for Class-F Amplifiers .....</b>	<b>793</b>
<i>Renato Negra, Fadhel M. Ghannouchi, Werner Bachtold</i>	
<b>A CMOS Receiver Front-End for 3.1-10.6 GHz Ultra-Wideband Radio .....</b>	<b>797</b>
<i>Bo Shi, Michael Yan Wah Chia</i>	
<b>A Novel Compact Reconfigurable Quad-Band Power Amplifier Employing RF-MEMS Switches.....</b>	<b>801</b>
<i>Atsushi Fukuda, Hiroshi Okazaki, Shoichi Narahashi</i>	
<b>Higher-Order Eigenmode Analysis by Imaginary-Distance Propagation Method .....</b>	<b>805</b>
<i>Hiroaki Yasuda, Iwao Hosako, Norihiko Sekine, Yasuharu Kohyama, Masatomo Nakazato, Shingo Ohtsuka</i>	
<b>Fan Beam-Type CP-MCT with Microstrip Dipole Array Receiving Antenna.....</b>	<b>807</b>
<i>Michio Miyakawa, Toshiyuki Takahashi, Naoyuki Iwata, Nozomu Ishii, Mario Bertero</i>	
<b>Microwave Frequency Set-On Oscillators .....</b>	<b>811</b>
<i>Steve Middleditch, Ian C. Hunter, Roger D. Pollard</i>	
<b>A New Microwave Amplifier Nonlinearity Measurement Method .....</b>	<b>815</b>
<i>T. Berceci, T. Marozsak</i>	
<b>Compact Antenna for WLAN on Body Applications .....</b>	<b>819</b>
<i>B. Sanz-Izquierdo, F. Huang, John C. Batchelor, Mohamed I. Sobhy</i>	
<b>Image Restoration of CP-MCT for Sugar Distribution Imaging Inside a Fruit .....</b>	<b>823</b>
<i>Masakazu Watanabe, Michio Miyakawa, Yasuaki Miyazaki, Nozomu Ishii, Mario Bertero</i>	
<b>30-Watt Power Amplifier for 3.5GHz WiMAX Base Station Application.....</b>	<b>827</b>
<i>M. Sarfraz, M. Akkul</i>	
<b>CAD of Dual-Mode Elliptic Filters Exploiting Segmentation.....</b>	<b>830</b>
<i>Amir Hossein Yamini, Vijaya Kumar Devabhaktuni</i>	
<b>Voltage Controlled GaN-on-Si HFET Power Oscillator Using Thin-Film Ferroelectric Varactor Tuning .....</b>	<b>834</b>
<i>Alan Victor, Jayesh Nath, Dipankar Ghosh, Seymen Aygun, Walter Nagy, Jon-Paul Maria, Angus I. Kingon, Michael B. Steer</i>	
<b>On the Application of a Novel Laser-Based Rapid Prototyping Process for Planar Antenna Elements .....</b>	<b>838</b>
<i>Oliver Klemp, Marc Hueske, Ilona Rolfes, Hermann Eul</i>	
<b>Analysis of Cavity Losses in Antenna Efficiency Measurements.....</b>	<b>842</b>
<i>Ronald H. Johnston</i>	
<b>Inverse Class-F Power Amplifier Using Composite Right/Left-Handed Transmission Lines as a Harmonic Trap .....</b>	<b>846</b>
<i>Alexandre Dupuy, Kevin M.K.H. Leong, Robert Staraj, Gilles Jacquemod, Tatsuo Itoh</i>	
<b>Doherty Amplifier Using Load Modulation and Phase Compensation DGS Microstrip Line .....</b>	<b>850</b>
<i>Heung-Jae Choi, Jong-Sik Lim, Yong-Chae Jeong, Chul-Dong Kim</i>	
<b>RFID Tag Reading Effects of Cylindrical Conductive Packages.....</b>	<b>854</b>
<i>Chih-Chuan Yen, Dharmaraj Veeramani, Alfonso Gutierrez, Daniel van der Weide</i>	
<b>Analysis and Design of Wideband Dielectric Resonator Antenna Arrays for Waveguide-Based Spatial Power Combining .....</b>	<b>858</b>
<i>Yizhe Zhang, Ahmed A. Kishk, Alexander B. Yakovlev, Allen W. Glisson</i>	
<b>Design of Compact Bandpass Filters with <math>(\lambda/4)</math> Short Stubs Using Transmission Zero .....</b>	<b>862</b>
<i>Hee Nam, Tae-Soon Yun, Ki-Cheol Yoon, Jong-Chul Lee</i>	
<b>U-Shaped Microstrip Structure to Decrease DGS Resonance Frequency .....</b>	<b>866</b>
<i>Mrinal Kanti Mandal, Subrata Sanyal</i>	
<b>A Novel Design of Frequency Multiplier Using Feedforward Technique and Defected Ground Structure.....</b>	<b>870</b>
<i>Sang-Keun Park, Nam-Sik Ryu, Heung-Jae Choi, Yong-Chae Jeong, Chul-Dong Kim</i>	
<b>A Design of Co-Channel Feedback Interference Cancellation System Using Analog Control .....</b>	<b>874</b>
<i>Jin-Kuk Lee, Sang-Keun Park, Heung-Jae Choi, Yong-Chae Jeong, Jae-Hun Yun</i>	

# Table of Contents

<b>Electromechanical Modelling and Reduction of the Electroacoustic Losses in Parallel-Plate Ferroelectric Varactors .....</b>	<b>878</b>
<i>S. Gevorgian, A. Vorobiev, J. Berge</i>	
<b>High Directivity Quarter-Wave Microstrip Couplers with Periodic Floating-Conductors on Coupled Edges.....</b>	<b>881</b>
<i>Takao Fujii, Yoshihiro Kokubo, Isao Ohta</i>	
<b>Design of Broadband CPW Branch-Line 3-dB Couplers.....</b>	<b>885</b>
<i>Shinya Johnosono, Takao Fujii, Isao Ohta</i>	
<b>60 GHz Linearly and Circularly Polarized Antenna Arrays on Liquid Crystal Polymer Substrate .....</b>	<b>889</b>
<i>Stephane Pinel, Il Kwon Kim, Kiseok Yang, Joy Laskar</i>	
<b>Miniaturized Antenna Using a Planar Mobius Strip Bisected Along the Circumferential Direction .....</b>	<b>893</b>
<i>Mi Jung Kim, Choon Sik Cho, Jaeheung Kim</i>	
<b>Six-Port Complex Permittivity Measurements .....</b>	<b>897</b>
<i>A.L. de Souza Rolim, A.J. Belfort de Oliveira, M.T. de Melo</i>	
<b>A Finite Element Formulation for Transversely Magnetised Plasma Waveguides .....</b>	<b>900</b>
<i>A.M.T. Abuelma'atti, A.A.P. Gibson, B.M. Dillon, Lionel E. Davis</i>	
<b>A Circular Triple-Mode Cavity Filter with Two Independently Controlled Transmission Zeros .....</b>	<b>903</b>
<i>Smain Amari, Uwe Rosenberg</i>	
<b>Compact Diplexer Design Using Different E-Plane Triplets to Serve Contiguous Passbands with High Interband Selectivity .....</b>	<b>907</b>
<i>Uwe Rosenberg, Michael Knipp, Smain Amari</i>	
<b>Sub-10 ps Pulse Generator with Biphasic Modulation Function in 0.13-(<math>\mu</math>)m InP HEMT .....</b>	<b>911</b>
<i>Yoichi Kawano, Yasuhiro Nakasha, Toshihide Suzuki, Toshihiro Ohki, Tsuyoshi Takahashi, Kozo Makiyama, Tatsuya Hirose, Kazukiyo Joshin</i>	
<b>Direct Polarisability Extraction Method.....</b>	<b>915</b>
<i>L. Jelinek, J.D. Baena, Ricardo Marques, Jan Zehentner</i>	
<b>Wideband Slot Antenna for Low-Profile Hand-Held Terminal Applications.....</b>	<b>919</b>
<i>Peter Lindberg, Erik Ojefors, Anders Rydberg</i>	
<b>Ultra-Wideband (UWB) Filter with WLAN Notch.....</b>	<b>923</b>
<i>Wolfgang Menzel, Peter Feil</i>	
<b>X-Band Left Handed Phase Shifter Using Thin Film Baprotect LY1.extunderscore 0.25Srprotect LY1.extunderscore 0.75TiOprotect LY1.extunderscore 3 Ferroelectric Varactors .....</b>	<b>927</b>
<i>Dan Kuylenstierna, Eric Ash, A. Vorobiev, Tatsuo Itoh, S. Gevorgian</i>	
<b>Early Stage Breast Cancer Detection Using Indirect Microwave Holography .....</b>	<b>931</b>
<i>M. Elsdon, M. Leach, M.J. Fdo, S.J. Foti, David Smith</i>	
<b>Predistortion Power Amplifier for Base-Station Using a Feedforward Loop Linearizer .....</b>	<b>935</b>
<i>Ildu Kim, Jeonghyeon Cha, Sungchul Hong, Young Yun Woo, Jangheon Kim, Bumman Kim</i>	
<b>Radical Shorted Transmission Lines on Silicon Based Upon Periodic Metamaterial Structures .....</b>	<b>939</b>
<i>Samir El Rai, Ralf Tempel, Dieter Jager</i>	
<b>Thin Film Baprotect LY1.extunderscore 0.25Srprotect LY1.extunderscore 0.75TiOprotect LY1.extunderscore 3 Varactors on Au Bottom Electrode for Microwave Applications .....</b>	<b>943</b>
<i>A. Vorobiev, J. Berge, S. Gevorgian</i>	
<b>Realization of Broadband Matched Filter Structures for the Use in Electrical Pulse Generators.....</b>	<b>947</b>
<i>M. Gerding, Burkhard Schiek</i>	
<b>A 1:6 Unequal Wilkinson Power Divider.....</b>	<b>951</b>
<i>Jong-Sik Lim, Gil-Young Lee, Yong-Chae Jeong, Dal Ahn, Kwan-Sun Choi</i>	
<b>Evaluation of the Isotropic Coverage of an Antenna in a Multipath Environment.....</b>	<b>955</b>
<i>M. Huchard, C. Delaveaud, Smail Tedjini</i>	

# Table of Contents

<b>Split and Unsplit Finite-Volume Absorbers: Formulation and Performance Comparison .....</b>	<b>959</b>
<i>Krishnaswamy Sankaran, Christophe Fumeaux, Rudiger Vahldieck</i>	
<b>5 GHz Low Noise Amplifier with On-Chip Transformer-Balun .....</b>	<b>963</b>
<i>Ouaïl El-Gharniti, Eric Kerherve, Jean-Baptiste Begueret</i>	
<b>Characterization Accuracy of High-Q Reactors Using Broadband Reflection/Transmission Measurement Techniques.....</b>	<b>967</b>
<i>A. Deleniv, S. Gevorgian</i>	
<b>Combined Surface Integral Equation Technique with RWG Basis Functions for the Analysis of a Class of Coax-Fed Dielectric Resonator Filters.....</b>	<b>971</b>
<i>V. Catina, F. Arndt, J. Brandt</i>	
<b>Reduced-Size Broadband CRLH-ATL Rat-Race Coupler .....</b>	<b>975</b>
<i>Giuseppina Monti, Luciano Tarricone</i>	
<b>A 400(<math>\mu</math>)W Tx/380(<math>\mu</math>)W Rx 2.4GHz Super-Regenerative GaAs Transceiver .....</b>	<b>979</b>
<i>I. McGregor, G. Whyte, K. Elgaid, Edward Wasige, I.G. Thayne</i>	
<b>Design of a Distributed Oscillator in 130 nm SOI MOS Technology .....</b>	<b>982</b>
<i>M. Si Moussa, C. Pavageau, L. Picheta, F. Danneville, J. Russat, Nicolas Fel, Jean-Pierre Raskin, D. Vanhoenacker-Janvier</i>	
<b>Original Approach for Extracting the Exact Noise Factor of Differential Microwave Circuits Using Mixed-Mode and Noise-Wave Formalisms.....</b>	<b>986</b>
<i>J. Lintignat, S. Darfeuille, Z. Sassi, B. Barelaud, L. Billonnet, B. Jarry</i>	
<b>Design of a Miniaturized Ultra Wideband Bandpass Filter Based on a Hybrid Lumped Capacitors - Distributed Transmission Lines Topology.....</b>	<b>990</b>
<i>Darine Kaddour, Jean-Daniel Arnould, Philippe Ferrari</i>	
<b>Estimation of Maximum Attainable Antenna Bandwidth in Electrically Small Mobile Terminals.....</b>	<b>993</b>
<i>Libo Huang, Werner L. Schroeder, Peter Russer</i>	
<b>Extracting the HBT Series Parasitics Under Active Bias Conditions .....</b>	<b>997</b>
<i>Edward Wasige</i>	
<b>Wideband Optical Single Sideband Generation .....</b>	<b>1001</b>
<i>W. Zhang, J.A.R. Williams, I. Bennion</i>	
<b>Flexible Ka-Band Low Noise Amplifier Sub-System for Oncoming Satellite Payloads .....</b>	<b>1003</b>
<i>C. Miquel, J.C. Cayrou, J.L. Cazaux</i>	
<b>Study on Short-Range Transmission of UWB Signals.....</b>	<b>1007</b>
<i>Alexander Vorobyov, Alexander G. Yarovoy, L.P. Ligthart</i>	
<b>Realization of an Amplifier in Slotline Technique .....</b>	<b>1011</b>
<i>G. Tagne Saha, G. Zimmer</i>	
<b>Thermal Characterization of Compact Inductors and Capacitors for 3D MMICs.....</b>	<b>1014</b>
<i>L. Krishnamurthy, V.T. Vo, A.A. Rezazadeh</i>	
<b>A Capacitively-Loaded Quasi-Planar Ka-Band Resonator .....</b>	<b>1018</b>
<i>Kenneth Vanhille, Daniel Fontaine, Christopher Nichols, Zoya Popovic, Dejan Filipovic</i>	
<b>Advanced 3D Packaging Using Novel Liquid Crystalline Polymer Based Substrates.....</b>	<b>1021</b>
<i>Camil-Daniel Ghiu, Sidharth Dalmia, Jack Vickers, Larry Carastro, Winston Czakon, Venky Sundaram, George White</i>	
<b>Silicon Micromachined W-Band Bandpass Filter Using DRIE Technique .....</b>	<b>1024</b>
<i>Yuan Li, Pete L. Kirby, John Papapolymerou</i>	
<b>A Novel Wideband GaAs FET Source Injected Distributed Mixer .....</b>	<b>1027</b>
<i>Prasad N. Shastry, Edward W. Cullerton</i>	
<b>Design Guidelines for a Novel Tapered Drain Line Distributed Power Amplifier .....</b>	<b>1031</b>
<i>Prasad N. Shastry, Amir S. Ibrahim</i>	

# Table of Contents

<b>Ground Stations of Arrays to Increase the LEO Download Capacity .....</b>	<b>1035</b>
<i>Sebastien Rondineau, Charles R. Dietlein, Zoya Popovic, Richard Q. Lee, Felix A. Miranda, Robert R. Romanofsky, Mary Ann Ingram, William C. Barott, John Langley, Daniel Mandl</i>	
<b>A Dual-Band VCO Integrated with RF-MEMS Switches and Inductors .....</b>	<b>1039</b>
<i>Munenari Kawashima, Yo Yamaguchi, Kei Kuwabara, Norio Sato, Katsuyuki Machida, Kazuhiro Uehara</i>	
<b>LTCC Front-End Modules for Multi-Band Applications .....</b>	<b>1043</b>
<i>Dongsu Kim, Hyun Min Cho, Nam-Kee Kang, Jong Chul Park, Jun Chul Kim</i>	
<b>A 2.4-GHz Low-Power Superregenerative RF Front-End for High Data Rate Applications.....</b>	<b>1047</b>
<i>F. Xavier Moncunill-Geniz, Catherine Dehollain, Norbert Joehl, Michel Declercq, Pere Pala-Schonwalder</i>	
<b>A Method to Improve Isolation Between Tx and Rx Paths in TDD Systems .....</b>	<b>1051</b>
<i>Sanggee Kang, Taehong Kim, Bongkyem Kim</i>	
<b>High-Efficiency Class-F Amplifier Design in the Presence of Internal Parasitic Components of Transistors.....</b>	<b>1055</b>
<i>Hyun-chul Park, Gunhyun Ahn, Sung-chan Jung, Cheon-seok Park, Wan-soo Nah, Byung-sung Kim, Youngoo Yang</i>	
<b>Low Profile Broadband Transformer Baluns in Organic Substrate for Direct Broadcasting Satellite Transceivers .....</b>	<b>1059</b>
<i>P. Monajemi, Sidharth Dalmia, V. Govind, Camil-Daniel Ghiu, Winston Czakon, Venky Sundaram, George White</i>	
<b>Development of High-Performance Band Pass Filter in the V-Frequency Band Using Multilayer MCM-D Technology .....</b>	<b>1062</b>
<i>Chan-Sei Yoo, Sang-Sub Song, Dong-Hwan Kim, Woo-Sung Lee, Nam-Kee Kang, Jong Chul Park, Kwang-Seok Seo</i>	
<b>Compact Antenna for Prospective RFID and Wireless Sensor Transponders.....</b>	<b>1066</b>
<i>Yuri Tikhov, Yongjin Kim, Young-Eil Kim</i>	
<b>Preamplifier Design for Fiber-Optic mm-Wave Wireless System.....</b>	<b>1070</b>
<i>S. Hong, J. Lim, H. Ahn, D. Kim, Y. Chong, H. Kim, Hyun-Kyu Yu, Jeong-Ki Park</i>	
<b>On-Chip Active Gate Bias Circuit for MMIC Amplifier Applications with 100% Threshold Voltage Variation Compensation .....</b>	<b>1073</b>
<i>A.P. de Hek, E.B. Busking</i>	
<b>900 MHz Passive RFID Reader Transceiver IC.....</b>	<b>1077</b>
<i>Kyung H. Park, Tae Y. Kang, Yoon H. Choi, Byoung Gun Choi, Seok Bong Hyun, Seong-Su Park, Sang H. Cho, Jin H. Ko</i>	
<b>A High Performance 20–42 GHz MMIC Frequency Multiplier with Low Input Drive Power and High Output Power.....</b>	<b>1081</b>
<i>Sushil Kumar, Henrik Morkner</i>	
<b>Newly Developed High Q FBAR with Mesa-Shaped Membrane.....</b>	<b>1085</b>
<i>Hae-Seok Park, Jooho Lee, Jeashik Shin, Jongoh Kwon, Sangchul Sul, Duck-Hwan Kim, Kwang-Jae Shin, Myeong-Kwon Gu, Insang Song</i>	
<b>Low Phase-Delay Reflection-Type CRLH Band-Pass-Filter .....</b>	<b>1088</b>
<i>Tamotsu Nishino, Masaomi Tsuru, Moriyasu Miyazaki</i>	
<b>Coaxial Probe Excitation of Evanescent Waveguides Loaded with Split Ring Resonators .....</b>	<b>1092</b>
<i>Jorge Carbonell, Luis J. Rogla, Vicente E. Boria Esbert, Ricardo Marques</i>	
<b>Organic SIP Based CDMA FEM with LC Resonant Tank Circuit.....</b>	<b>1096</b>
<i>Hwan H. Lee, Seong J. Cheon, Jeong H. Cho, Jae Y. Park</i>	
<b>Novel Instability-Probing Simulation for Power Amplifiers.....</b>	<b>1100</b>
<i>Shinya Mizuno, Kohei Naito, Yasunori Tateno, Seigo Sano, Tsuneo Tokumitsu</i>	
<b>60GHz Monolithic LTCC Module for Wireless Communication Systems .....</b>	<b>1104</b>
<i>Tomohiro Seki, Kenjiro Nishikawa, Yasuo Suzuki, Ichihiko Toyoda, Kouichi Tsunekawa</i>	
<b>Towards a Fully Passive Ku-Band Power Limiter Using RF-MEMS Technologies and Vacuum Microelectronics.....</b>	<b>1108</b>
<i>Alain Phommahaxay, Gaelle Lissorgues, Claudine Vasseur, Lionel Rousseau, Tarik Bourouina, Pierre Nicole</i>	



# Table of Contents

<b>Artificial Line Phase Shifter with Separately Tunable Phase and Line Impedance</b> .....	1112
<i>Christian Damm, Martin Schussler, Jens Freese, Rolf Jakoby</i>	
<b>Weak NLOS Channel Sounding</b> .....	1116
<i>M. Bocquet, Christophe Loyez, Aziz Benlarbi-Delai</i>	
<b>Advances in GaN-Based Discrete Power Devices for L- and X-Band Applications</b> .....	1120
<i>Joachim Wurfl, Reza Behtash, Richard Lossy, Armin Liero, Wolfgang Heinrich, Gunther Trankle, Klaus Hirche, G. Fischer</i>	
<b>A Concurrent Fully-Integrated LNA for W-LAN IEEE 802.11b/g/a Applications</b> .....	1123
<i>C.P. Moreira, Eric Kerherve, P. Jarry, D. Belot</i>	
<b>Innovative Dual Band Reconfigurable Beam Forming Network for Conformal Arrays</b> .....	1127
<i>R. Vincenti Gatti, A. Ocera, L. Marcaccioli, Roberto Sorrentino</i>	
<b>Distortion Performance Prediction in Multi-Band Radio Over Fiber Systems Exploiting Direct Laser Modulation</b> .....	1131
<i>L. Rosa, Stefano Selleri, G. Tartarini, P. Faccin, E.M. Fabbri</i>	
<b>High Directivity Directional Coupler Using Metamaterial</b> .....	1135
<i>Young-Hoon Chun, Jia-Sheng Hong, Ju-Young Moon, Sang-Won Yun</i>	
<b>An Innovative Reconfigurable Reflection-Type Phase Shifter for Dual Band WLAN Applications</b> .....	1138
<i>A. Ocera, E. Sbarra, R. Vincenti Gatti, Roberto Sorrentino</i>	
<b>An Adaptive Homogenisation Process Applied to the Urban Environment</b> .....	1142
<i>Guillaume Dauron, Elodie Richalot, Man-Fai Wong, Odile Picon, Joe Wiart</i>	
<b>Contactless Network Analysis with Improved Dynamic Range Using Diversity Calibration</b> .....	1146
<i>Thomas Zelder, Hermann Eul</i>	
<b>A Novel MEMS-Tunable Hairpin Line Filter on Silicon Substrate</b> .....	1150
<i>A. Ocera, Paola Farinelli, Paolo Mezzanotte, Roberto Sorrentino, Benno Margesin, Flavio Giacomozzi</i>	
<b>Design of CMOS Spiral Inductors for Effective Broadband Shielding</b> .....	1154
<i>Meng-Ju Chiang, Hsien-Shun Wu, Ching-Kuang C. Tzuang</i>	
<b>RF MEMS and GaAs Based Reconfigurable RF Front-End Components for Wide-Band Multi-Functional Phased Arrays</b> .....	1158
<i>R. Malmqvist, A. Gustafsson, T. Nilsson, C. Samuelsson, B. Carlegrim, I. Ferrer, Tauno Vaha-Heikkila, A. Ouacha, R. Erickson</i>	
<b>High Permittivity Tape Transmission Line for Mass-Productive Dielectric Waveguide at Millimeter-Wave Frequencies</b> .....	1162
<i>Futoshi Kuroki, Kazuya Miyamoto</i>	
<b>Design and Realization of Spiral Marchand Balun Using CPW Multilayer GaAs Technology</b> .....	1166
<i>Q. Sun, J. Yuan, V.T. Vo, A.A. Rezazadeh</i>	
<b>Efficient Analysis Tool of Inductive Passive Waveguide Components and Circuits Using a Novel Spatial Domain Integral Equation Formulation</b> .....	1170
<i>F.D. Quesada Pereira, F. Perez Soler, B. Gimeno Martinez, Vicente E. Boria Esbert, J. Pascual Garcia, Jose Luis Gomez Tornero, A. Alvarez Melcon</i>	
<b>A 77-GHz Radar Transmitter with Parallelised Noise Shaping DDS</b> .....	1174
<i>Christoph Wagner, Andreas Stelzer, Herbert Jager</i>	
<b>Broadband RF-MEMS Based SPDT</b> .....	1178
<i>Sergio DiNardo, Paola Farinelli, Flavio Giacomozzi, Giovanni Mannonchi, Romolo Marcelli, Benno Margesin, Paolo Mezzanotte, Viviana Mulloni, Peter Russer, Roberto Sorrentino, Francesco Vitulli, Larissa Vietzorreck</i>	
<b>A New Technique for Estimating the Transverse Dielectric Constant of Laminated Microwave Materials</b> .....	1182
<i>L. Carbonini, E. Gallina, E. Pagana, L. Volpi</i>	

# Table of Contents

<b>Use of RF MEMS and Micromachined Parts to Realize Highly Integrated V Band Active Feed for Satellite Antennas .....</b>	<b>1185</b>
<i>O. Yendier, C. Schaffhauser, Y. Cailloce, C. Drevon, J.L. Cazaux, O. Lafond, M. Himdi, G. Carchon, H.A.C. Tilmans, T. Buck, J. Schoebel</i>	
<b>Shorted Patch Antenna with PIN Diode Operating Band Switching .....</b>	<b>1189</b>
<i>Davor Bonafacic, Juraj Bartolic, Mario Germ</i>	
<b>A Passive Circulator for RFID Application with High Isolation Using a Directional Coupler .....</b>	<b>1193</b>
<i>Wan-Kyu Kim, Moon-Que Lee, Jin-Hyun Kim, Hyung-sun Lim, Jong-Won Yu, Byung-Jun Jang, Jun-Seok Park</i>	
<b>Phase Center Stable Ultra Wide-Band Antenna for EMC Field Sensing .....</b>	<b>1197</b>
<i>S. Bruni, A. Neto, F. Marliani</i>	
<b>110--170 GHz Millimetre Wave Power Standard .....</b>	<b>1201</b>
<i>Juha A. Mallat, Sergey N. Dudorov, Dmitri V. Lioubtchenko, Antti V. Raisanen</i>	
<b>A Reconfigurable DCS1800/W-CDMA LNA: Design and Implementation Issues .....</b>	<b>1205</b>
<i>C.P. Moreira, Eric Kerherve, P. Jarry, D. Belot</i>	
<b>A High Linearity, Low Phase Noise and High Operating Temperature Ku-Band MMIC VCO-Prescaler, Suitable for Complex Modulations ACC Radar Source .....</b>	<b>1209</b>
<i>C. Gourdon, R. Sevin, D. Domnesque, M. Camiade</i>	
<b>The Effect of Quadrature Modulator Nonlinearity on a Digital Baseband Predistortion System .....</b>	<b>1213</b>
<i>Ilari Teikari, Kari Halonen</i>	
<b>Fast Modeling and Optimization of Active Millimeter Wave Imaging Systems .....</b>	<b>1217</b>
<i>I. Ocket, Bart Nauwelaers, G. Koers, J. Stiens</i>	
<b>Analysis and Measurement of the RFID System Adapted for Identification of Moving Objects .....</b>	<b>1221</b>
<i>Milan Polivka, Milan Svanda, Premysl Hudec</i>	
<b>Noncontacting R26-Waveguide Sliding Short for Industrial Applications .....</b>	<b>1225</b>
<i>Vladimir Bilik, Jan Bezek</i>	
<b>Comparative Assessment of LTCC Band-Pass Filters for Millimeter-Wave Applications .....</b>	<b>1229</b>
<i>Vasily Kondratyev, Markku Lahti, Kari Kautio</i>	
<b>Optical Suppressed-Carrier Single Side-Band Modulator/Optical Frequency Shifter Utilizing Three-Branched Waveguide Interferometer and Polarization-Reversed Structure .....</b>	<b>1232</b>
<i>Hiroshi Murata, Makoto Anjiki, Yasuyuki Okamura</i>	
<b>Wide-Band Characterization of Ferroelectric Thin-Films: Applications to KTN-Based Microwave Agile Devices .....</b>	<b>1235</b>
<i>Vincent Laur, Anthony Rousseau, Gerard Tanne, Paul Laurent, Stephanie Deputier, Maryline Guilloux-Viry, Andre Perrin, Fabrice Huret</i>	
<b>KTN Ferroelectric Thin-Films: Application to the Realization of Tunable Microwave Devices .....</b>	<b>1239</b>
<i>Vincent Laur, Arnaud Moussavou, Anthony Rousseau, Gerard Tanne, Paul Laurent, Valerie Bouquet, Maryline Guilloux-Viry, Fabrice Huret</i>	
<b>Experimental Analysis of Above-IC Inductor Performance with Different Patterned Ground Shield Configurations and Dummy Metals .....</b>	<b>1243</b>
<i>X. Sun, G. Carchon, Y. Kita, K. Chiba, T. Tani, W. De Raedt</i>	
<b>Design of Branch-Line Coupler in the G-Frequency Band .....</b>	<b>1247</b>
<i>G. Prigent, Eric Rius, H. Happy, K. Blary, Sylvie Lepilliet</i>	
<b>Electro-Thermal Passive Intermodulation Distortion in Microwave Attenuators .....</b>	<b>1251</b>
<i>Jonathan R. Wilkerson, Kevin G. Gard, Michael B. Steer</i>	
<b>Efficient for RCS Computation of Long and Complex Dielectric Objects .....</b>	<b>1255</b>
<i>Saul Perez, MBarek Fares, Bernard Soumy</i>	
<b>Power Amplifier Design Strategy to Null IMD Asymmetry .....</b>	<b>1259</b>
<i>Paolo Colantonio, Franco Giannini, Rocco Giofre, Ernesto Limiti, Antonio Nanni</i>	

# Table of Contents

<b>Millimetre Wave Phase Shifters Based on a Metal Waveguide with a MEMS-Based High-Impedance Surface .....</b>	<b>1263</b>
<i>Dmitry Chicherin, Sergey N. Dudorov, Dmitri V. Lioubtchenko, Victor Ovchinnikov, Antti V. Raisanen</i>	
<b>A Novel Dual Circularly Polarized Microstrip Antenna .....</b>	<b>1267</b>
<i>Wanchu Hong, Chin-Ting Cheng, Yu-De Lin, Toshihide Kitazawa</i>	
<b>Implementation of Volterra Model in System Simulation Environments and RF Circuit/System Co-Simulation.....</b>	<b>1271</b>
<i>Abderrazak Bennadji, Arnaud Soury, Edouard Ngoya, Raymond Quere</i>	
<b>From Sixport to Multisixport Measurement Principle --- Wideband VNA .....</b>	<b>1275</b>
<i>Tomas Urbanec</i>	
<b>Space-Wave Leakage of Strip Lines on Circular Substrate.....</b>	<b>1278</b>
<i>H. Miyagawa, T. Nishikawa, K. Wakino, Wanchu Hong, Y.-D. Lin, Toshihide Kitazawa</i>	
<b>Scanning Microwave Profiler .....</b>	<b>1282</b>
<i>L.A. Valiente, Arthur D. Haigh, A.A.P. Gibson, Graham Parkinson, P.J. Withers, R. Cooper-Holmes</i>	
<b>Effects of the Gear Discretization Order on the Computation of Bifurcation Boundaries .....</b>	<b>1286</b>
<i>J. Bonet-Dalmau, Pere Pala-Schonwalder, F. del Aguila-Lopez, R. Giralt-Mas</i>	
<b>Multi-Sine Response of Third Order Nonlinear Systems with Memory Based on Two-Tone Measurements .....</b>	<b>1290</b>
<i>Joao Paulo Martins, Nuno Borges Carvalho, Jose Carlos Pedro</i>	
<b>3D-BCB Based Branchline Coupler for K-Band Integrated Microsystem.....</b>	<b>1294</b>
<i>Minh-Nhut Do, David Dubuc, Katia Grenier, Laurent Bary, Laurent Mazonq, Robert Plana</i>	
<b>A Tunable Metamaterial Phase-Shifter Structure Based on a 0.13(<math>\mu</math>)m CMOS Active Inductor .....</b>	<b>1298</b>
<i>Mohamed A.Y. Abdalla, Khoman Phang, George V. Eleftheriades</i>	
<b>Generalized Design Equations for Class-E Power Amplifiers with Finite DC Feed Inductance.....</b>	<b>1302</b>
<i>Mustafa Acar, Anne Johan Annema, Bram Nauta</i>	
<b>A Method for Device Intermodulation Analysis from 2D, TCAD Simulations Using a Time-Domain Waveform Approach .....</b>	<b>1306</b>
<i>Olof Bengtsson, Lars Vestling</i>	
<b>Liquid Crystal Tunable Filter Based on DBR Topology .....</b>	<b>1309</b>
<i>J.F. Bernigaud, N. Martin, Paul Laurent, Cedric Quendo, Gerard Tanne, B. Della, Fabrice Huret, Ph. Gelin</i>	
<b>Losses' Origins in a 40 GHz Stripline Circulator with 10 (<math>\mu</math>)m Thick Barium Hexagonal Ferrite Films .....</b>	<b>1313</b>
<i>E. Benevent, V. Larrey, D. Vincent, A.S. Dehlinger</i>	
<b>Waveguide Miniaturization Using Spiral Resonators and Dipole Arrays.....</b>	<b>1317</b>
<i>G. Lubkowski, Christian Damm, B. Bandlow, R. Schuhmann, Martin Schussler, T. Weiland</i>	
<b>An Octave-Bandwidth Double-Balanced Millimeter-Wave Mixer.....</b>	<b>1321</b>
<i>Dirk Schneiderbanger, Alexander Cichy, Robert Rehner, Siegfried Martius, Michael Sterns, Lorenz-Peter Schmidt</i>	
<b>A Multi-Probe Microwave Reflectometer Using an Improved Calibration Algorithm.....</b>	<b>1325</b>
<i>B.M. Altrabsheh, Ian D. Robertson</i>	
<b>Lumped-Element Loaded Metamaterial Structure .....</b>	<b>1329</b>
<i>C. Mias, J.H. Yap</i>	
<b>Ultra-Fast Pulse Transmitter for UWB Microwave Radar .....</b>	<b>1333</b>
<i>Annoiy Ruengwaree, Abhijit Ghose, Jurgen Weide, Gunter Kompa</i>	
<b>Full-Wave FDTD Analysis of UWB Pulses on Printed Coupled Lines .....</b>	<b>1337</b>
<i>Shahid Ahmed, Alexander Schuchinsky</i>	
<b>Applications of Electromagnetic Bandgap (EBG) Structures for Novel Communication Antenna Designs.....</b>	<b>1341</b>
<i>Yoonjae Lee, Yang Hao, Clive G. Parini</i>	

# Table of Contents

<b>Helically Corrugated Waveguides for Compression of Frequency Swept Pulses .....</b>	<b>1345</b>
<i>P. MacInnes, K. Ronald, A.W. Cross, A.D.R. Phelps, A.R. Young, W. He, G. Burt, C.G. Whyte, S.V. Samsonov, V.L. Bratman, G.G. Denisov</i>	
<b>Microwave Measurement of Complex Permittivity by Placing a Microstripline Resonator on the Material Under Test.....</b>	<b>1348</b>
<i>Hirosuke Suzuki</i>	
<b>Low Phase Noise Microwave Oscillator Using Split Ring Resonators .....</b>	<b>1352</b>
<i>Jinse Jung, Choon Sik Cho, Jae W. Lee, Jaeheung Kim, Tae Hwan Kim</i>	
<b>Bottom Coupling of Compline Resonators for Hybrid Dielectric / Air-Cavity Bandpass Filters.....</b>	<b>1356</b>
<i>Michael Hoft</i>	
<b>Will RF MEMS Live up their Promise? .....</b>	<b>1360</b>
<i>Jeremie Bouchaud, Bernardo Knoblich, Henning Wicht</i>	
<b>The Influence of Transmitter Phase Noise on FMCW Radar Performance .....</b>	<b>1364</b>
<i>Patrick D.L. Beasley</i>	
<b>Novel Broadband Wilkinson Power Combiner .....</b>	<b>1368</b>
<i>Andreas Wentzel, Viswanathan Subramanian, Ahmed Sayed, Georg Boeck</i>	
<b>Study on Wave Propagation and Boundary Absorption Performance Using a Body-of-Revolution Finite-Difference Time-Domain (BOR-FDTD) Method .....</b>	<b>1372</b>
<i>Ming-Sze Tong, Artem V. Boriskin, Ronan Sauleau, Tae-Gyu Chang</i>	
<b>A UWB Micro-Strip Antenna Design and Simulation.....</b>	<b>1376</b>
<i>Antoine Diet, Alain Azoulay, Alain Joisel, Bernard Duchene</i>	
<b>Efficient Computational Method for Modulation Analysis of Communication Circuits .....</b>	<b>1380</b>
<i>M.M. Gourary, S.G. Rusakov, S.L. Ulyanov, M.M. Zharov, B.J. Mulvaney</i>	
<b>A Novel Balanced Third and Fourth Harmonic Self-Oscillating Mixer with High Conversion Gain.....</b>	<b>1384</b>
<i>Simone A. Winkler, Ke Wu, Andreas Stelzer</i>	
<b>Sub-Wavelength Microwave Imaging by a Slab of Wire Medium .....</b>	<b>1388</b>
<i>Pavel A. Belov, Yang Hao, Sunil Sudhakaran</i>	
<b>Coplanar Antenna Array for 2.45GHz RFID Tag.....</b>	<b>1390</b>
<i>F.R.L. e Silva, M.T. de Melo</i>	
<b>Fast Prototype-Based Design Approach to Miniaturized LTCC Band-Pass Filters Using Two Reflection Zeros .....</b>	<b>1394</b>
<i>H.H. Huang, S.Y. Xu, T.S. Horng</i>	
<b>Complementary Split Ring Resonators Using Square Sierpinski Fractal Curves .....</b>	<b>1398</b>
<i>V. Crnojevic-Bengin, V. Radonic, B. Jokanovic</i>	
<b>On-Chip Spiral Inductors and Metal-Air-Metal Capacitors in Suspended Technology.....</b>	<b>1401</b>
<i>Herve Leblond, Pierre Blondy, Dominique Baillargeat</i>	
<b>A High Isolation and High Selectivity Ladder-Lattice BAW-SMR Filter .....</b>	<b>1405</b>
<i>A.A. Shirakawa, J.-M. Pham, P. Jarry, Eric Kerherve, F. Dumont, J.-B. David, A. Cathelin</i>	
<b>A Fully InP Monolithic Integrated Millimeter-Wave Reflectometer .....</b>	<b>1409</b>
<i>K. Haddadi, Hassan El Aabbaoui, Benoit Gorisse, D. Glay, Nathalie Rolland, T. Lasri</i>	
<b>Design of Miniature Bandpass Filters Embedded in the Organic Substrate for RF SOP Applications .....</b>	<b>1413</b>
<i>C.T. Chiu, C.L. Lin, T.S. Horng, S.M. Wu, C.P. Hung</i>	
<b>Broadband Microprobe Characterization of the Ferroelectric Films and Varactors .....</b>	<b>1417</b>
<i>A. Vorobiev, Dan Kuylenstierna, P. Rundqvist, S. Gevorgian</i>	
<b>IC-Compatible Low Loss Passive Circuits for Millimeter-Wave Applications.....</b>	<b>1421</b>
<i>Fouad Bouchriha, David Dubuc, Katia Grenier, Robert Plana</i>	

# Table of Contents

<b>Wideband Micromachined Transitions for MEMS Tunable High-Q Filters</b> .....	1425
<i>Alexandros Margomenos, Yongshik Lee, Alok Jain, Terry Yao, Dimitris Peroulis, Linda P.B. Katehi</i>	
<b>A Low-Cost Microwave Moisture Sensor</b> .....	1429
<i>Samir Trabelsi, Stuart O. Nelson, Omar M. Ramahi</i>	
<b>A Manual Tuning Method for Coupled Cavity Filters</b> .....	1433
<i>Anton Lindner, Erwin Biebl</i>	
<b>A Balanced Sub-Harmonic Mixer for Multi-OFDM Ultra Wide Band Direct Conversion Transmitters</b> .....	1436
<i>I. Magrini, E. Arzilli, A. Cidronali, G. Manes</i>	
<b>Study and Minimization of the Out-Phasing Amplifiers Nonlinearity</b> .....	1440
<i>Slim Boumaiza, Fadhel M. Ghannouchi</i>	
<b>Pulse-to-Pulse Stability Characteristics of Robust Design Centered High Performances/Low Cost T/R Module</b> .....	1444
<i>M. Cicolani, A. Gentile, S. Maccaroni, L. Marescialli</i>	
<b>Performance and Operation of Stressed Dual-Gap RF MEMS Varactors</b> .....	1448
<i>Greg McFeetors, Michal Okoniewski</i>	
<b>RF LDMOS Power Amplifier Integrated Circuit for W-CDMA/TD-SCDMA Applications</b> .....	1452
<i>Reza Bagger, Chuming David Shih, Yinglei Yu, Johan Sjoström, Paul Andersson</i>	
<b>Very High Tunable Inter-Digital Capacitor Embedded Fully into BZN Thin Film Dielectrics for Microwave Applications</b> .....	1456
<i>Young Chul Lee, Young-Pyo Hong, Duk Man Kim, Kyung Hyun Ko</i>	
<b>A Finite Element Time-Domain Algorithm Based on the Alternating-Direction Implicit Method</b> .....	1459
<i>Masoud Movahhedi, Alexandre Nentschev, Hajdin Cerić, Abdolali Abdipour, Siegfried Selberherr</i>	
<b>Finite Periodic MoL Approach for the Fast Simulation of Tunable MEMS Phase Shifters</b> .....	1463
<i>Larissa Vietzorreck, Wilfrid Pascher, Reinhold Pregla</i>	
<b>Improvement of Characteristics of Dielectric Circular Resonator and its Filter Application</b> .....	1467
<i>Achmad Munir, Takeshi Uemura, Hiroshi Kubo</i>	
<b>Estimation of Memory Length for RF Power Amplifier Behavioral Models</b> .....	1471
<i>Bill O'Brien, John Dooley, Anding Zhu, Thomas J. Brazil</i>	
<b>Ridge Waveguide Elliptic Filters in Narrow-Wall Canonical Configuration</b> .....	1474
<i>Jorge A. Ruiz-Cruz, Yunchi Zhang, Mohamed M. Fahmi, Kawthar A. Zaki</i>	
<b>Phase Mode Excitation in Beamforming Arrays</b> .....	1477
<i>J.G. Davis, A.A.P. Gibson</i>	
<b>On the Robustness of the Predistortion Function Synthesis for Highly Nonlinear RF Power Amplifiers Linearization</b> .....	1481
<i>Oualid Hammi, Slim Boumaiza, Fadhel M. Ghannouchi</i>	
<b>Novel Lumped-Distributed Planar Ring Resonator with Parallel-Coupled Feed</b> .....	1485
<i>Ravee Phromloungsri, Mitchai Chongcheawchamnan, Ian D. Robertson</i>	
<b>836 MHz/1.95GHz Dual-Band Class-E Power Amplifier Using Composite Right/Left-Handed Transmission Lines</b> .....	1489
<i>Seung Hun Ji, Gyu Seok Hwang, Choon Sik Cho, Jae W. Lee, Jaeheung Kim</i>	
<b>Comparative Investigation Between a Single Ended and a Balanced IF VGA</b> .....	1493
<i>M. Anowar Masud, Herbert Zirath</i>	
<b>Archimedean and Equiangular Slot Spiral Antennas for UWB Communications</b> .....	1497
<i>Yongwei Zhang, A.K. Brown</i>	
<b>Vialess Coplanar Probe Pad-to-Microstrip Transitions for 60GHz-Band LTCC Applications</b> .....	1501
<i>Young Chul Lee, Chul Soon Park</i>	

# Table of Contents

<b>A Detailed Study and Implementation of an RPC for LFM-CW Radar .....</b>	<b>1505</b>
<i>M. Angeles Gonzalez, Jesus Grajal, Alberto Asensio, Diego Madueno, Laureano Requejo</i>	
<b>Investigation of On-Wafer TRL Calibration Accuracy Dependence on Transitions and Probe Positioning .....</b>	<b>1509</b>
<i>H.I. Atasoy, M. Unlu, K. Topalli, I. Istanbuluoglu, E.U. Temocin, O. Bayraktar, Simsek Demir, O.A. Civi, S. Koc, T. Akin</i>	
<b>MEMS IC Concept for Reconfigurable Low Noise Amplifier .....</b>	<b>1513</b>
<i>J.-P. Busquere, Katia Grenier, David Dubuc, E. Fourn, P. Ancey, Robert Plana</i>	
<b>Unusual Wave Phenomena in a Guiding/Radiating Clustered Dielectric Particle Metamaterial (CDP-MTM) .....</b>	<b>1517</b>
<i>A. Rennings, Christophe Caloz, M. Coulombe</i>	
<b>Assessment of a Composite Right/Left-Handed Transmission Line-Based Distributed Amplifier Implemented in Microstrip Technology .....</b>	<b>1521</b>
<i>J. Mata-Contreras, T.M. Martin-Guerrero, C. Camacho-Penalosa</i>	
<b>Microwave p-i-n Diodes and Switches Based on 4H-SiC .....</b>	<b>1525</b>
<i>Konstantinos Zekentes, Nicolas Camara, George Konstantinidis, Leonid P. Romanov, Aleksey V. Kirillov, Mykola S. Boltovets</i>	
<b>Finite-Element Time-Domain Modelling of Broadside Radiation from a 2D Parallel-Plate Waveguide Antenna Array .....</b>	<b>1529</b>
<i>Yong Cai, C. Mias</i>	
<b>Comparison of FETD Numerical and Experimental Results for Frequency Selective Surfaces .....</b>	<b>1533</b>
<i>Yong Cai, C. Mias</i>	
<b>The Generalized Analysis of Ferroelectric-Based Nonlinear Transmission Lines .....</b>	<b>1537</b>
<i>T. Samoilova, V. Osadchy, D. Kosmin, A. Mikhailov, D. Ginley, T. Kaydanova, A. Kardo-Sysoev, A. Kozyrev</i>	
<b>Coaxial 2D Bragg Structures for Microwave Electronics .....</b>	<b>1541</b>
<i>I.V. Konoplev, A.W. Cross, A.D.R. Phelps, K. Ronald, M. Thumm</i>	
<b>Efficient BAW Filtering Solution for EDGE Transmitter .....</b>	<b>1545</b>
<i>P. Bar, I. Hixon, Alexandre Giry, F. Dumont, Denis Pache, P. Ancey, J.F. Carpentier</i>	
<b>A Reconfigurable RF MEMS Triple Stub Impedance Matching Network .....</b>	<b>1549</b>
<i>M. Unlu, K. Topalli, H.I. Atasoy, E.U. Temocin, I. Istanbuluoglu, O. Bayraktar, Simsek Demir, O.A. Civi, S. Koc, T. Akin</i>	
<b>On the Possibility of Nanowire Antennas .....</b>	<b>1553</b>
<i>Nikolaus Fichtner, Peter Russer</i>	
<b>Load-Pull Measurements Using Modulated Signals .....</b>	<b>1557</b>
<i>B. Noori, P. Hart, John Wood, P.H. Aaen, M. Guyonnet, M. Lefevre, J.A. Pla, J. Jones</i>	
<b>On the Convergency Properties of Fast Spherical Multipole Analysis for Frequency-Independent Log-Per. Planar Antennas .....</b>	<b>1561</b>
<i>Gunnar Armbrecht, Oliver Klemp, Hermann Eul</i>	
<b>Couplings Control in the Defected Ground Star-Geometry Dual-Mode Filter .....</b>	<b>1565</b>
<i>M.G. Banciu, S. Shen, R. Ramer, N. Militaru, G. Lojewski</i>	
<b>Linearity Measurements of Si/SiGe:C Heterojunction Bipolar Transistor Using a Large Signal Network Analyzer Associated with an Active Load-Pull Setup .....</b>	<b>1569</b>
<i>Floria Blanchet, Mohammed El Yaagoubi, Denis Barataud, Jean-Michel Nebus, Denis Pache, Alexandre Giry</i>	
<b>Accurate Sparse-Matrix Semisymbolic Analysis of Large-Scale RF Circuits .....</b>	<b>1573</b>
<i>Josef Dobes, Jan Michal</i>	
<b>Development of Low-Cost Active RFID Tag at 2.4 GHz .....</b>	<b>1577</b>
<i>Nemai C. Karmakar, Sushim Mukul Roy, Stevan Preradovic, Trung D. Vo, Stewart Jenvey</i>	
<b>Simulation and Experimental Study of Electromagnetic Wave Localization in 3D Dielectric Fractal Structures .....</b>	<b>1581</b>
<i>Elena Semouchkina, Yoshinari Miyamoto, Soshu Kirihara, George Semouchkin, Michael Lanagan</i>	

# Table of Contents

<b>Application of EBG Structures at Sub-Array Level.....</b>	<b>1585</b>
<i>R.J. Bolt, D.J. Bekers, N. Llombart, A. Neto, G. Gerini</i>	
<b>A Novel Low Voltage and Low Power 0.18-(<math>\mu</math>m) Inductorless CMOS Even-Harmonic Mixer .....</b>	<b>1589</b>
<i>Parag Upadhyaya, Deukhyoun Heo</i>	
<b>Fully Functional ``Real Time'' Non-Linear Device Characterization System Incorporating Active Load Control.....</b>	<b>1593</b>
<i>Tudor Williams, Johannes Benedikt, Paul J. Tasker</i>	
<b>A Simplified Model for Chireix Outphasing Combiner Efficiency .....</b>	<b>1597</b>
<i>M. El-Asmar, A. Birafane, A. Kouki</i>	
<b>Iterative Solution of Composite Problems with the Combined-Field Integral Equation .....</b>	<b>1601</b>
<i>Ozgur Ergul, Levent Gurel</i>	
<b>Improved Accuracies for Rectangular Waveguide Data.....</b>	<b>1603</b>
<i>Murray Niman</i>	
<b>A Novel Substrate Integrated Coaxial Line (SICL) for Wide-Band Applications.....</b>	<b>1606</b>
<i>Fabrizio Gatti, Maurizio Bozzi, Luca Perregrini, Ke Wu, Renato G. Bosisio</i>	
<b>Symbolic/Numerical Nonlinear Circuit Analysis Using Volterra Series.....</b>	<b>1610</b>
<i>Georgios Rozakis, Apostolos Samelis</i>	
<b>A Compact Quasi-Elliptic Dual-Mode Cavity Filter Using LTCC Technology for V-Band WLAN Gigabit Wireless Systems.....</b>	<b>1614</b>
<i>J.-H. Lee, N. Kidera, Stephane Pinel, Joy Laskar, Manos M. Tentzeris</i>	
<b>New Method for Transformation of Microstrip Lowpass Filter to Compact Bandpass Filter Using Defected Ground Structure (DGS) Coupled Resonators .....</b>	<b>1617</b>
<i>Ahmed Boutejdar, Adel Elsherbini, A.S. Omar</i>	
<b>Performance Capability Modeling and Optimization of RF/Millimeter Wave Integrated Functions and Modules Using a Hybrid Statistical/Electromagnetic Technique that Includes Process Variations .....</b>	<b>1621</b>
<i>Daniela Staiculescu, Lara Martin, Jong-Hoon Lee, Manos M. Tentzeris</i>	
<b>Characterisation of TFMS and CPW Lines and Interconnections up to 100 GHz in Multilayer Photoimageable Thick Film Technology.....</b>	<b>1625</b>
<i>K.K. Samanta, Ian D. Robertson</i>	
<b>Efficient Analysis and Design Strategies for Evanescent Mode Ridge Waveguide Filters.....</b>	<b>1629</b>
<i>P. Soto, D. de Llanos, E. Tarin, Vicente E. Boria Esbert, B. Gimeno, A. Onoro, I. Hidalgo, J.M. Padilla</i>	
<b>Evaluation of the Computational Efficiency of a Wavelet-Transformed FDTD Scheme.....</b>	<b>1633</b>
<i>Winfried Bilgic, Ingo Wolff</i>	
<b>Taking Advantage of a Schottky Junction Nonlinear Characteristic for Radiofrequency Temperature Sensing .....</b>	<b>1636</b>
<i>T. Aballo, L. Cabria, J.A. Garcia, Tomas Fernandez, F. Marante</i>	
<b>Parasitic Moding Influences on Coplanar Waveguide Passive Components at G-Band Frequency.....</b>	<b>1640</b>
<i>K. Elgaid, I.G. Thayne, G. Whyte, J. Martens, D. Culver</i>	
<b>Dual-Band CRLH Six-Port Front-End in MIM Technology .....</b>	<b>1643</b>
<i>Hoang V. Nguyen, Christophe Caloz</i>	
<b>Applications of Green's Theorem to Overmoded Coaxial Waveguide .....</b>	<b>1646</b>
<i>J.G. Davis, A.A.P. Gibson</i>	
<b>Statistical Space Mapping Approach for Large-Signal Nonlinear Device Modeling.....</b>	<b>1650</b>
<i>Lei Zhang, Kui Bo, Qi-Jun Zhang, John Wood</i>	
<b>Compact Coplanar Filters Using Resonators with Left-Hand Characteristics.....</b>	<b>1654</b>
<i>Jiafeng Zhou, Yi Wang, Michael J. Lancaster</i>	

# Table of Contents

<b>W-Band RF-MEMS Sliding Termination for Six-Port Reflectometer Calibration .....</b>	<b>1658</b>
<i>William J. Schaeffer Jr., Zhiyang Liu, Robert M. Weikle II, N. Scott Barker</i>	
<b>Fast Analysis of Waveguide Junctions with Gyromagnetic Post Resonators .....</b>	<b>1662</b>
<i>Michal Polewski, Piotr Kozakowski, Jerzy Mazur</i>	
<b>A High-Performance 34 to 40 GHz Frequency Quadrupler Fabricated with Flip-Chip Technology .....</b>	<b>1666</b>
<i>Edward B. Stoneham</i>	
<b>A New Substrate Integrated Waveguide Phase Shifter .....</b>	<b>1669</b>
<i>Kheireddine Sellal, Larbi Talbi, Tayeb Denidni, Jules Lebel</i>	
<b>Calibration Standards Verification Procedure Using the Calibration Comparison Technique.....</b>	<b>1673</b>
<i>Andrej Rumiantsev, Ralf Doerner, Steffen Thies</i>	
<b>Accurate Modeling of the Interaction Between Feeds and Dichroic Mirrors .....</b>	<b>1676</b>
<i>Maurizio Bozzi, Marco Formaggi, Marco Pasian, Luca Perregrini</i>	
<b>A Photonic Crystal Delay Line with Two Time Delays .....</b>	<b>1680</b>
<i>M. Fakharzadeh, Omar M. Ramahi, S. Safavi-Naeini, S.K. Chaudhuri</i>	
<b>Blind Peak-to-Average Power Ratio Reduction Technique for WiMAX RF Front-End .....</b>	<b>1684</b>
<i>Han Gil Bae, Mohamed Helaoui, Anton Seregin, Slim Boumaiza, Fadhel M. Ghannouchi</i>	
<b>RF-MEMS Technology Platform for Agile Mobile and Satellite Communications.....</b>	<b>1688</b>
<i>X. Rottenberg, P. Soussan, S. Stoukatch, P. Czarnecki, Bart Nauwelaers, G. Carchon, I. De Wolf, W. De Raedt, H.A.C. Tilmans</i>	
<b>A High-Performance 14.4 to 19.7 GHz Power Detector Fabricated with Flip-Chip Technology .....</b>	<b>1692</b>
<i>David M. Zeeb</i>	
<b>Novel Planar Meta-Structures with Anisotropic Left-Handed Properties .....</b>	<b>1696</b>
<i>Naoko Matsunaga, Atsushi Sanada, Hiroshi Kubo</i>	
<b>High-Precision Flip-Chip Process Yields E-Band Harmonic Mixers with Potential Sub-10-dB Conversion Loss .....</b>	<b>1700</b>
<i>Edward B. Stoneham</i>	
<b>A New Compact 3-D Hybrid Coupler Using Multi-Layer Microstrip Lines at 15 GHz.....</b>	<b>1704</b>
<i>Jung Gil Yang, Yongsik Jeong, Sunkyoo Choi, Kyounghoon Yang</i>	
<b>A Rigorous Comparison of Package and PCB Effects on Micromixer- and Gilbert Mixer-Based Upconverter MMICs .....</b>	<b>1708</b>
<i>F.Y. Han, J.M. Wu, T.S. Horng</i>	
<b>Enhanced Adaptive Frequency Sampling for RF and Microwave CAD .....</b>	<b>1712</b>
<i>Arash Kashi, Vijaya Kumar Devabhaktuni</i>	
<b>3D Antenna for UHF RFID Tags with Eliminated Read-Orientation Sensitivity.....</b>	<b>1716</b>
<i>Dmitry V. Kholodnyak, Pavel A. Turalchuk, Andrey B. Mikhailov, Sergey Yu. Dudnikov, I.B. Vendik</i>	
<b>CMOS Compatible Fast Switching RF MEMS Varactors.....</b>	<b>1720</b>
<i>B. Lacroix, A. Pothier, A. Crunteanu, C. Cibert, F. Dumas-Bouchiat, C. Champeaux, A. Catherinot, Pierre Blondy</i>	
<b>UWB Bandpass Filters with Multi Notched Bands.....</b>	<b>1724</b>
<i>Keren Li, Daisuke Kurita, Toshiaki Matsui</i>	
<b>PCS Power Amplifier Module Package Using Selectively Anodized Aluminum Substrate .....</b>	<b>1728</b>
<i>Seong-Ho Shin, Ju-Hyang Lee, Bo-In Sohn, Seung-Han Ryu, Young-Se Kwon</i>	
<b>Fabrication and Analysis of High-Q Inductor on Anodized Aluminum for High Power Package.....</b>	<b>1732</b>
<i>Ju-Hyang Lee, Seong-Ho Shin, K. M. Kim, Young-Se Kwon</i>	
<b>Analysis on High-Coupling Transformer in Silicon-Based Technology .....</b>	<b>1736</b>
<i>Heng-Ming Hsu, Jeng-Zen Chang, Chien-Wen Tseng, Kuo-Hsun Huang</i>	
<b>Investigation into a Novel Planar Wheel Resonator .....</b>	<b>1740</b>
<i>Sushim Mukul Roy, Nemai C. Karmakar</i>	



# Table of Contents

<b>A Fast 2-D Microwave Imaging Technique Using Synthetic Aperture Focusing of 1-D Profiles .....</b>	<b>1744</b>
<i>Valeri Mikhnev, Pertti Vainikainen</i>	
<b>Electromagnetic Modeling of Split-Ring Resonators.....</b>	<b>1747</b>
<i>Levent Gurel, Alper Unal, Ozgur Ergul</i>	
<b>Simple Experimental Determination of Complex Permittivity or Complex Permeability of SNG Metamaterials .....</b>	<b>1750</b>
<i>Silvio Hrabar, Luksa Benic, Juraj Bartolic</i>	
<b>A Novel Method for the Determination of the Dielectric Properties of Liquids at Microwave Frequencies.....</b>	<b>1754</b>
<i>Ilona Rolfes, Burkhard Schiek</i>	
<b>Radar Distance Measurements in Over-Sized Circular Waveguides.....</b>	<b>1758</b>
<i>T. Musch, N. Pohl, M. Gerding, B. Will, J. Hausner, Burkhard Schiek</i>	
<b>Real-Time Measurements of Oil, Gas and Water Contents Using an EM Wave Sensor for Oil-Marine- Environment Industries .....</b>	<b>1762</b>
<i>S.R. Wylie, A. Shaw, A.I. Al-Shamma'a</i>	
<b>Compact Tuneable Terahertz Source .....</b>	<b>1766</b>
<i>R.A. Stuart, C.C. Wright, A.I. Al-Shamma'a</i>	
<b>Experimental Investigations of Electromagnetic Wave Propagation in Seawater.....</b>	<b>1769</b>
<i>A. Shaw, A.I. Al-Shamma'a, S.R. Wylie, D. Toal</i>	
<b>Integrated LTCC Modules by Laminating and Co-Firing Tapes Directly on Heat Sink.....</b>	<b>1773</b>
<i>Markku Lahti, Kari Kautio, Pentti Karioja</i>	
<b>Fully Reconfigurable 8-Channel 2--18GHz Broadband Switched Multiplexer .....</b>	<b>1777</b>
<i>P. Hardcastle</i>	
<b>Design, Performance and Qualification of a Commercially Available MEMS Switch.....</b>	<b>1781</b>
<i>John McKillop, Thomas Fowler, David Goins, Richard Nelson</i>	
<b>Photonic Synthesis of THz Signals .....</b>	<b>1784</b>
<i>A.J. Seeds, C.C. Renaud, M. Pantouvaki, M. Robertson, I. Lealman, D. Rogers, R. Firth, P.J. Cannard, R. Moore, R. Gwilliam</i>	
<b>Metamaterials Technology for Sub-mm Wave Imaging .....</b>	<b>1788</b>
<i>I. Ederra, R. Gonzalo, J. Gomez Rivas, P. Haring Bolivar, Peter de Maagt</i>	
<b>Applications of Right/Left Handed and Resonant Left Handed Transmission Lines for Microwave Circuit Design.....</b>	<b>1792</b>
<i>I.B. Vendik, Dmitry V. Kholodnyak, I.V. Kolmakova, E.V. Serbryakova, P.V. Kapitanova, Ferran Martin, J. Bonache, J. Garcia, Ignacio Gil, Marta Gil</i>	
<b>Metamaterial-Based Devices at Millimetre and Sub-Millimetre Wavelengths .....</b>	<b>1796</b>
<i>D. Lippens</i>	
<b>Observation of Negative Refraction and Negative Phase Velocity in True Left-Handed Metamaterials.....</b>	<b>1800</b>
<i>Ekmel Ozbay, Costas M. Soukoulis</i>	
<b>Microwave Generation by Optical Techniques --- A Review.....</b>	<b>1804</b>
<i>Asher Madjar, T. Berceci</i>	
<b>Performance Evaluation of Opto-Electronic Oscillators Employing Photonic Crystal Fibers.....</b>	<b>1808</b>
<i>A.S. Daryoush, H.-W. Li, G. Bouwmans, D. Decoster, J. Chazelas, F. Deborgies</i>	
<b>Generation of Low-Phase Noise and Frequency-Tunable Millimeter-/Terahertz-Waves Using Optical Heterodyning Techniques with Uni-Traveling Carrier Photodiodes .....</b>	<b>1812</b>
<i>Tadao Nagatsuma, Hiroshi Ito, Katsumi Iwatsuki</i>	
<b>Review of Highly-Directive Flat-Plate Antenna Technology with Metasurfaces and Metamaterials .....</b>	<b>1816</b>
<i>Y. Vardaxoglou, F. Capolino</i>	

# Table of Contents

<b>Remote Optoelectronic Microwave Generation in Fiber Radio Systems Using a Ring Oscillator .....</b>	<b>1820</b>
<i>Ralf Gindera, Dieter Jager</i>	
<b>Artificial Lines with Exotic Dispersion for Phase Shifters and Delay Lines.....</b>	<b>1823</b>
<i>Mikhail Lapine, Igor S. Nefedov, Jussi Saily, Sergei A. Tretyakov</i>	
<b>Left Handed Microwave Ferrite Circuit and Devices.....</b>	<b>1827</b>
<i>Makoto Tsutsumi</i>	
<b>Spatial-Filtering Microwave Devices Using Metallic Anisotropic Grids Over Ground .....</b>	<b>1831</b>
<i>Omar F. Siddiqui, George V. Eleftheriades</i>	
<b>Integrated Left-Handed Metamaterials for RF/MMIC Miniaturization and Performance Enhancement.....</b>	<b>1835</b>
<i>Philip D. Curtis, Zhirun Hu, Wei Tong, Hong S. Chua, A.A.P. Gibson, Mohamed Missous</i>	
<b>Applications of Infinite Wavelength Phenomenon.....</b>	<b>1838</b>
<i>Anthony Lai, Kevin M.K.H. Leong, Tatsuo Itoh</i>	