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G. Sajin, S. Simion, F. Craciunoiu, A. Muller, A. Bunea, National Institute for Research and Development in Microtechnologies, Bucharest, Romania

A Compact Microstrip Antenna on a Cross-Shape Slotted Ground with a Switchable Circular Polarization  
W. Yoon¹, S. Ha², J. Baik³, S. Pyo⁴, Y. Kim⁴, ¹Samsung Thales, Yongin, Republic of Korea, ²Soochunhyang University, Asan, Republic of Korea, ³Korea University, Seoul, Republic of Korea

An Aperture-Coupled Microstrip Antenna with Frequency Agility and Polarization Diversity  
W. Wu¹, J. Row¹, T. Han¹, C. Sim¹, ¹National Changhua University of Education, Changhua, Taiwan, ²Chienkuo Technology University, Changhua, Taiwan, ³Feng Chia University, Taichung, Taiwan

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L. Marcaccioli, S. Montori, R. V. Gatti, E. Chiuppesi, P. Farinelli, R. Sorrentino, University of Perugia, Perugia, Italy

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P. Chaipanya, P. Uthansakul, R. Wongsan, M. Uthansakul, Suranaree University of Technology, Muang, Thailand

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Y. Tanabe, T. Uwano, T. Baba, Waseda University, Kitakyushu, Japan

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W. Liu, Q. Chu, South China University of Technology, Guangzhou, China

Planar Circular Disc Monopole Antennas Using Compact Impedance Matching Networks for Ultra-Wideband (UWB) Applications  
M. N. Srifi¹, S. K. Podilchak², M. Essaaidi¹, Y. M. Antar², ¹Electronics and Microwave Group, Tetuan, Morocco, ²Royal Military College of Canada , Kingston, Canada

Design of A UWB Antenna for wireless USB dongle Application  
H. Tang, K. Lin, National Sun Yat-Sen University, Kaohsiung, Taiwan

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K. Chen¹, K. Lin¹, H. Su², ¹National Sun Yat-Sen University, Kaohsiung, Taiwan, ²National Pingtung Institute of Commerce, Pingtung, Taiwan

X-band High Directivity Lens Antenna Realized by Gradient Index Metamaterials  
X. Chen, H. Ma, X. Yang, Q. Cheng, W. Jiang, T. Cui, Southeast University, Nanjing, China
Frequency Reconfigurable Metamaterial Resonant Antenna
J. Choi, S. Lim, Chung-Ang University, Seoul, Republic of Korea

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Combined MLFMA - ACA Algorithm application to scattering problems with complex and fine structure
L. Ma, Z. Nie, J. Hu, S. He, University of Electronic Science and Technology of China, Chengdu, China

Comparison of Iteration Solution Methods with Multilevel Fast Multipole Algorithm for Solving Large-scale Scattering Problems
F. Hu, Z. Nie, University of Electronic Science and Technology of China, Chengdu, China

An Enhanced TDIE Solver Using Causal-Delayed Temporal Basis Functions and Curvilinear RWG Spatial Basis Functions
G. Zhang, M. Xia, Peking University, Beijing, China

A Novel Analysis of Rectangular Dielectric Waveguides Using an Interior-Exterior Integral Equation Technique
M. Radfar, R. Faraji-Dana, University of Tehran, Tehran, Iran

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Weighted Laguerre Polynomials-Discrete Singular Convolution Method for Efficient Solution of Maxwell's Equations
H. Zhao, Z. Shen, Nanyang Technological University, Singapore, Singapore

Generalized Matrix Representations for Cascaded Waveguide Discontinuities
Y. Tao\textsuperscript{1}, Z. Shen\textsuperscript{1}, G. Liu\textsuperscript{1}, \textsuperscript{1}Nanyang Technological University, Singapore, Singapore, \textsuperscript{2}ST Electronics, Singapore, Singapore

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A. Qing, National University of Singapore, Singapore, Singapore

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T. Shibata, NTT Corporation, Atsugi, Japan

Microstrip Transmission Lines on Arbitrarily Oriented Biaxial Media
G. F. Pettis\textsuperscript{1}, C. M. Krowne\textsuperscript{2}, J. K. Lee\textsuperscript{1}, \textsuperscript{1}Harris Corporation , Rochester , United States, \textsuperscript{2}Naval Research Laboratory, Washington, United States, \textsuperscript{3}Syracuse University , Syracuse , United States

A Variational Expression of Capacitance of a Thick Annular Ring on a Dielectric Substrate
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S. Peng\textsuperscript{1}, S. Tuan\textsuperscript{2}, H. Hsu\textsuperscript{1}, F. Kuo\textsuperscript{1}, \textsuperscript{1}Yuan Ze University, Chung-Li, Taiwan, \textsuperscript{2}Oriental Institute of Technology, Taipei, Taiwan

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W. E. Sha, W. Chew, The University of Hong Kong, Hong Kong, China

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S. Hussain, H. Asai, Shizuoka University, Hamamatsu, Japan

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K. Motojima, H. Sutoh, Gunma University, Kiryu, Japan

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T. Fukuda\textsuperscript{1}, T. Sugie\textsuperscript{1}, K. Wakino\textsuperscript{1}, Y. Lin\textsuperscript{1}, T. Kitazawa\textsuperscript{1}, \textsuperscript{1}Ritsumeikan University, Kusatsu, Japan, \textsuperscript{2}National Chiao Tung University, Hsinchu, Taiwan

Effect of the Dielectric Filling on the Phase Behaviour of the Circular Waveguide with Azimuthally Magnetized Ferrite Toroid and Dielectric Cylinder
G. N. Georgiev\textsuperscript{1}, M. N. Georgieva-Grosse\textsuperscript{2}, \textsuperscript{1}University of Veliko Tarnovo "St. St. Cyril and Methodius" Veliko Tarnovo, Bulgaria, \textsuperscript{2}Meterstrasse 4, Gerlingen, Germany

An Efficient Approach to Computation of Rain Attenuation with Consideration of Multiple Scattering
E. Setijadi\textsuperscript{1}, A. Matsushima\textsuperscript{1}, N. Tanaka\textsuperscript{1}, G. Hendrantoro\textsuperscript{2}, \textsuperscript{1}Kumamoto University, Kumamoto, Japan, \textsuperscript{2}Institut Teknologi Sepuluh Nopember, Surabaya, Indonesia

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J. Lu\textsuperscript{1}, Y. Lin\textsuperscript{1}, C. Liao\textsuperscript{2}, C. Chang\textsuperscript{1}, \textsuperscript{1}National Chiao Tung University, Hsinchu, Taiwan, \textsuperscript{2}Gemtek Technology Company Ltd., Hsinchu, Taiwan

Compact Slot-Line Bandpass Filter Using Backside Microstrip Open-Stubs and Air-Bridge Structure for Spurious Suppression
X. Luo, J. Ma, University of Electronic Science and Technology of China, Chengdu, China

Coplanar Waveguide Stop-band Filters Implemented by means of Open Split Ring Resonators (OSRRs)
A. Velez, F. Aznar, M. Duran-Sindreu, J. Bonache, F. Martin, Universitat Autonoma de Barcelona, Bellaterra, Spain

Multi-strip Resonator BPF with Extended Spurious Suppression in LTCC Structure -Proposal of New Concept to Suppress Spurious Response in BPF-
I. Awai\textsuperscript{1}, T. Ishitani\textsuperscript{2}, M. Fujimoto\textsuperscript{2}, \textsuperscript{1}Ryukoku University, Otsu, Japan, \textsuperscript{2}Hirai Seimitsu Corporation, Ogaki, Japan

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A. Grr\textsuperscript{1}, C. Karpuz\textsuperscript{2}, E. Gntrak\textsuperscript{1}, M. Urhan\textsuperscript{2}, A. Grr\textsuperscript{2}, \textsuperscript{1}Nigde University, Nigde, Turkey, \textsuperscript{2}Pamukkale University, Denizli, Turkey
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A Novel Compact Quadruple-Mode Microstrip Bandpass Filter with Low Harmonic Response
K. C. Lee, H. T. Su, M. K. Haldar, Swinburne University of Technology (Sarawak Campus), Kuching, Malaysia

Design of the UWB Band-Pass Filter with a Notch Response Using the Suspended Stripline
X. Liao1, W. Hou2, M. Ho1, 1National Changhua University of Education, Changhua City, Taiwan, 2Universal Microwave Technology Inc., Keelung City, Taiwan

Design of A Bandpass Filter with Wide Passband and Wide Rejection Bandwidth
W. Huang, T. Hou, C. Tang, National Chung Cheng University, Chiayi, Taiwan

Ultra Wideband Bandpass Filter Using Microstrip-Slot Couplers Combined with Dumbbell Slots and H-Shaped Stubs
A. Abbosh1, M. Bialkowski2, D. Thiel1, 1Griffith University, Brisbane, Australia, 2The University of Queensland, Brisbane, Australia

A Stopband-Enhanced UWB Bandpass Filter Using Short-/Open-Stubs Embedded Ring Resonator
S. Wong1,2, L. Zhu1, L. Quek1, Z. Chen1, 1Nanyang Technological University, Singapore, Singapore, 2Institute of Infocomm Research, Singapore, Singapore

Special Session on Multiband and Wideband Planar Bandpass Filters (I)

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P. Hsieh, Y. Chiou, J. Kuo, U. Lok, National Chiao Tung University, HsinChu, Taiwan

A Dual-Mode Dual-Band Bandpass Filter Using a Single Ring Resonator
S. Luo1, L. Zhu1, S. Sun1, 1Nanyang Technological University, Singapore, Singapore, 2University of Ulm, Ulm, Germany

Asymmetric Response Dual-Mode Dual-Band Bandstop Filters Having Simple and Understandable Topology
C. Karpuz1, A. Gorur2, E. Gunturkun2, A. K. Gorur1, 1Pamukkale University, Denizli, Turkey, 2Nigde University, Nigde, Turkey

Design of Dual-Passband Cross-Coupled Filter Using Stub-Loaded Open-Loop Resonators
J. Li, C. Chen, W. Wu, Nanjing University of Science and Technology, Nanjing, China

Novel Topology for Low-Cost Dual-band Stopband Filters
R. Lopez-Villarroya1, G. Goussetis2, 1Heriot Watt University, Edinburgh, United Kingdom, 2Queen's University Belfast, Belfast, United Kingdom

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Tunable Notch Characteristics in Microstrip Ultra-Wideband Filters
M. Mokhtaari, J. Bornemann, University of Victoria, Victoria, Canada

Novel Microstrip Stepped-Impedance Resonator for Compact Wideband Bandpass Filters
C. Liang, C. Chang, National Chiao Tung University, Hsinchu, Taiwan

Design of Compact Notched UWB Filter Using Coupled External Stepped-Impedance Resonator
C. Chen1, Y. Takakura1, H. Nihie1, Z. Ma2, T. Anada1, 1Kanagawa University, Yokohamashi, Japan, 2Saitama University, Saitama, Japan

UWB Bandpass Filter with Wide Stopband Using Lumped Coupling Capacitors
A. Abdel-Rahman1, A. Balalem2, J. Machac2, A. Omar2, 1South Valley University, Qena, Egypt, 2University of Magdeburg, Magdeburg, Germany, 3Czech Technical University, Prague, Czech Republic
An UWB Filter Using a Novel Coplanar-Waveguide-Based Composite Right/Left-Handed Transmission Line Structure
C. Liu, Q. Chu, J. Huang, South China University of Technology, Guangzhou, China

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Adapting Sheet Impedance for Electromagnetic Compatibility
J. P. Massman1, M. J. Havrilka1, K. W. Whites2, 1Air Force Institute of Technology, Wright Patterson Air Force Base, United States, 2South Dakota School of Mines and Technology, Rapid City, United States

Scattering Characteristics from Conducting Cylinder with Reconstructing Electromagnetic Cloaking Layers
H. Yao, C. Qiu, L. Li, National University of Singapore, Singapore, Singapore

Scattering Characteristics Analysis of Chiral Bodies with Generalized Transition Matrix
B. Zhang, L. Zhang, Y. Wang, G. Xiao, Shanghai Jiao Tong University, Shanghai, China

New Micro-sensors Identification Techniques Based on Reconfigurable Multi-band Scatterers
M. M. Jatlaoui1, F. Chebila1,2, P. Pons1, H. Aubert1,2, 1CNRS LAAS, Toulouse, France, 2Universite de Toulouse; INPT, Toulouse, France

Wave Scattering Simulation

Efficient Implementation of FE-RTC-ABC Preconditioner for FE-BI Equations with DDM
C. Wang, National University of Singapore, Singapore, Singapore

Background Condition Effect and Modified SOM with Frequency Hopping Applied in Inverse Scattering
T. Lu, X. Chen, National University of Singapore, Singapore, Singapore

Application of the Subspace-based Optimization Method in the Framework of the Method of Moments: Transverse Electric Case
L. Pan, X. Chen, S. P. Yeo, National University of Singapore, Singapore, Singapore

A New Analysis of Scattering Problems for Electromagnetic Crystals Consisting of Inhomogeneous Dielectric Materials and Conductors
H. Jia, Kyushu University, Fukuoka, Japan

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Investigation and Optimization of Transitions in an LTCC based RF MEMS Switching Matrix for Space Applications
T. Kim, M. U. Faz, L. Vietzorreck, Technische Universit ät Muenchen, Muenchen, Germany

Characteristics of Transition between Coaxial Cable and NRD Guide Using Image NRD Guide at 60 GHz
F. Kuroki, M. Nakamura, M. Okiyokota, Kure National College of Technology, Kure, Japan

A Rectangular Waveguide to Multiple Microstrip Lines Transition for Power Combining Application
X. Shan1, Z. Shen2, P. Kumaresh1, R. M. Jayasuriya1, 1ST Electronics (Satcom & Sensor Systems) Pte Ltd, Singapore, Singapore, 2Nanyang Technological University, Singapore, Singapore

A Super-Compact Wideband Balun Composed of Multi-Layered CRLH Transmission Line
Y. Azuma, Y. Horii, Kansai University, Takatsuki, Japan

Design of Integrated Planar Marchand Balun Using Physical Transformer Model
C. Huang, C. Chen, T. Horng, National Sun Yat-sen University, Kaohsiung, Taiwan
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A TE10-TE20 Mode Transducer Utilizing a Right-Angled Corner and Its Application to a Compact H-Plane Out-of-Phase Power Divider
S. Matsumoto¹, I. Ohta², K. Fukada², T. Kawar³, K. Iio¹, T. Kashiwa¹, ¹Furuno Electric Co., Ltd., 9-32 Ashihara-cho, Nishinomiya, Japan, ²University of Hyogo, 2167 Shosha, Himeji, Japan

Lumped-Element Quadrature Wilkinson Power Divider
T. Kawai, H. Mizuno, I. Ohta, A. Enokihara, University of Hyogo, Himeji-shi, Japan

A Novel Dual-Band Power Divider Based on Coupled-Lines
Z. Lin, Q. Chu, South China University of Technology, Guangzhou, China

A Novel Power-Divider Design with Variable Dividing Ratio
P. W. Li, K. K. Cheng, The Chinese University of Hong Kong, Hong Kong, China

Planar N-Way Metamaterial Power Divider
K. W. Eccleston, University of Canterbury, Christchurch, New Zealand

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Design of Quadrifrilar Spiral Antenna with Integrated Module for UHF RFID Reader
W. Son¹, W. Lim¹, M. Lee², S. Min³, J. Yu¹, ¹Korea Advanced Institute of Science and Technology (KAIST), Daejeon, Republic of Korea, ²University of Seoul (UOS), Seoul, Republic of Korea, ³Actenna Corporation, Seoul, Republic of Korea

Helical Reflector Antenna with a Wideband CP for RFID Reader
D. Kim¹, H. Tae¹, K. Oh¹, M. Lee², J. Yu¹, ¹KAIST, Daejeon, Republic of Korea, ²University of Seoul, Seoul, Republic of Korea

Use of Smart Antennas for the Localization of RFID Reader
M. J. Abedin, A. S. Mohan, University of Technology Sydney, Sydney, Australia

An Annular Microstrip Antenna with Sectoral Slots for RFID Reader
R. Suwalak¹, P. Pongpaibool², C. Phongcharoenpanich¹, M. Krairiksh¹, ¹King Mongkut's Institute of Technology Ladkrabang, Ladkrabang, Thailand, ²National Science and Technology Development Agency, Klongluang, Thailand

A Compact Broadband Patch Antenna for UHF RFID Tags
J. Z. Huang¹,², P. H. Yang¹,³, W. C. Chew¹,²,³, T. T. Ye³, ¹The University of Hong Kong, Hong Kong, Hong Kong, ²Shanghai Jiao Tong University, Shanghai, China, ³University of Electronic Science and Technology of China, Chengdu, China, ⁴University of Illinois, Urbana-Champaign, United States, ⁵HK R&D Center for Logistics and Supply Chain Management, Hong Kong, China

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A Planar Monopole Antenna Integrated with Delay Line for Passive UWB-RFID Tag Applications
K. Koh¹, S. Hu¹, C. Law¹, W. Dou², ¹Nanyang Technological University, Singapore, Singapore, ²Southeast University, Nanjing, China

Development of management system for gathered RFID-Tag with UHF band
M. Ochiai, Y. Okano, Tokyo City University, Tokyo, Japan

Design of an UHF RFID tag antenna for paper money management system
T. Kim, U. Kim, G. Jung, J. Choi, Hanyang University, Seoul, Republic of Korea
Low Cost Development of RFID Antenna
J. M. Rathod1, Y. P. Kosta2, 1B.V.M.Engg College, V V Nagar, India, 2Charotar Institute of Technology, Changa, India

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M. Jung, J. Kim, Y. Yoon, Electronics and Telecommunications Research Institute, Daejeon, Republic of Korea

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S. Pu1,2, J. H. Wang1,2, 1Key Lab of All Optical Network & Advanced Telecommunication Network of EMC, Beijing Jiaotong University, Beijing, China, 2Institute of Lightwave Technology, Beijing Jiaotong University, Beijing, China

Analysis of Signal Propagation Path Modeling of UWB Through-the-wall Radar
J. Ren, Y. Zhang, T. Jiang, W. Chen, University of Science and Technology of China, Hefei, China

Millimeter-wave Propagation Characterization for Multi-gigabit Video Transmission System in Living Room
H. Sawada1, H. Nakase1, S. Kato1,2, M. Umebira2, K. Sato1, H. Harada1,1Tohoku University, Sendai, Japan, 2Ibaraki University, Hitachi, Japan, 3National Institute of Information and Communications Technology, Yokosuka, Japan

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P. Wang, Z. Zhang, W. Chen, Z. Feng, State Key Lab on Microwave & Digital Communication, Beijing, China

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Average Bit Error Rate for Satellite Downlink Communications in Ka-band under Atmospheric Turbulence Given by Gaussian Model
T. Hanada1, K. Fujisaki1, M. Tateiba1,1Kyushu University, Fukuoka, Japan, 2Ariake National College of Technology, Omata, Japan

Capacity for the Uplink Channel of a Single Cell Multiuser MIMO Systems with Antenna Mutual Coupling Effect Included
X. Wang, H. T. Hui, National University of Singapore, Singapore, Singapore

A Ray Tracing Acceleration Technique for Wave Propagation Modeling
S. Parsa, A. Shishegar, Sharif University of Technology, Tehran, Iran

High Power Amplifier Technologies

Modulation and Filter Test Procedure for RF Class-S Power Amplifier Architecture
A. Samulak1, E. Serebryakova1, G. Fischer1, R. Weigel1,1Friedrich-Alexander University of Erlangen-Nuremberg, Erlangen, Germany, 2Ilmenau University of Technology, Ilmenau, Germany

2.5 GHz CMOS Power Amplifier Integrated with Low Loss Matching Network for WiMAX Applications
D. A. Chan, M. Feng, University of Illinois at Urbana-Champaign, Urbana, United States
New Analytical Expressions for the Design of Linear Power Amplifier Using GaN HEMTs
N. Chevaux, M. M. De Souza, The University of Sheffield, Sheffield, United Kingdom

A SW Ultra-Broadband Power Amplifier Using Silicon LDMOSFETs
S. You1, K. Lim1, J. Cho1, M. Seo1, K. Kim1, J. Sim2, M. Park2, Y. Yang1, 1Sungkyunkwan Univ., Suwon, Republic of Korea, 2Peopleworks Inc., Seoul, Republic of Korea

A High Power SiC MESFET Class-E Power Amplifier With An Asymmetrical Spurline Resonator
L. Wang1, W. Chen1, P. Wang1, X. Xue2, J. Dong2, Z. Feng1, 1Tsinghua University, Beijing, China, 2The 36th Institute of CETC, Jiaxing, China

Low Noise Amplifiers (I)

A L-Band Gain Controllable CMOS LNA
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A Switchable Single-band/Multiband CMOS Low Noise Amplifier
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A Low Power CMOS LNA for 1-10GHz Application
M. T. Hsu, S. Y. Hsu, National Yunlin University of Science & Technology, Douliou, Taiwan

Noise Analysis of Inductive Shunt-Series Feedback Technique Used in Ultra-Wideband Low Noise Amplifier
H. Hsu, C. Hsu, T. Lee, C. Wang, National Chung-Hsing University, Taichung, Taiwan

UWB LNA and Mixer with an Active Balun in 0.18μm CMOS Process
C. Shie, C. Hsieh, Y. Chiang, Chang Gung University, Tao-Yuan, Taiwan

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A Variable Gain Low-Noise Amplifier with Noise and Nonlinearity Cancellation for DVB Applications
K. Chen1, N. Hsu1, K. Lu1, T. Horng1, J. Wu2, 1National Sun Yat-sen University, Kaohsiung, Taiwan, 2National Kaohsiung Normal University, Kaohsiung, Taiwan

24-GHz Low Noise Amplifier using Coplanar Waveguide Series Feedback in 130-nm CMOS
G. D. Nguyen, Y. Chiu, M. Feng, University of Illinois at Urbana-Champaign, Urbana, United States

A 24-GHz Quadrature Receiver Front-end in 90-nm CMOS
M. Tormanen, H. Sjoland, Lund University, Lund, Sweden

A low-power high-gain LNA for the 60GHz band in a 65nm CMOS technology
M. Kraemer1,2, D. Dragomirescu1,2, R. Plana1,2, 1Curs Laus, Toulouse, France, 2University of Toulouse, UPS, INSA, INP, ISAE ; LAAS, Toulouse, France

A high linearity LNA with modified resistor biasing
T. Leitner, Infineon Technologies, Linz, Austria

Frequency Converters

Ku-band Up-converter Multi-function MMIC using 0.25um SiGe BiCMOS Technology
Y. Noh, M. Uhm, I. Yom, Electronics and Telecommunications Research Institute (ETRI), Daejeon, Republic of Korea
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G. He, R. Wu, Y. Poo, P. Chen, Nanjing University, Nanjing, China

A Sheet-Type Metamaterial with Rejection Characteristics in a Frequency Range
H. Kubo, H. Iida, A. Sanada, Yamaguchi University, Ube, Japan

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M. Jiang1, L. Chang2, A. Chin1, 1Ta Hwa Institute of Technology, Hsinchu, Taiwan, 2National Chiao Tung University, Hsinchu, Taiwan

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S. Tang, C. Yu, Y. Chiou, J. Kuo, National Chiao Tung University, HsinChu, Taiwan

Microwave Circuits and Antennas on LTCC/LCP

Development of a broadband Wilkinson Power Combiner on Liquid Crystal Polymer  
J. S. Chieh, A. Pham, University of California Davis, Davis, United States

Compact Low-Loss 2.4GHz ISM-Band SAW Bandpass Filter on the LTCC Substrate  
V. Novgorodov1, S. Freisleben1, J. Hornsteiner1, M. Schmacht1, B. Vorotnikov2, P. Heide1, M. Vossiek2, 1Epcos AG, Munich, Germany, 2Clausthal University of Technology, Clausthal - Zellerfeld, Germany

Tunable Ultra Wideband Phase Shifter Using Liquid Crystal Polymer  
A. Abbosh1, M. Bialkowski2, D. Thiel1, 1Griffith University, Brisbane, Australia, 2The University of Queensland, Brisbane, Australia

A Compact Sized LTCC Diplexer with High-Band Selectivity and High Isolation for GSM and CDMA Multi-band Applications  
T. Kim, Y. Lee, Mokpo National Maritime University, Mokpo-si, Republic of Korea

Compact Ultra-Wideband Filtering Antennas on Low Temperature Co-Fired Ceramic Substrate  
M. K. Mandal, Z. N. Chen, X. Qiong, Institute for Infocomm Research, Singapore, Singapore

Microwave Couplers (I)

Dual-Band Branch Line Coupler With Large Power Division Ratios  
C. L. Hsu, Ta Hwa Institute of Technology, Qionglin, Taiwan
Analysis and Design of Double-Ring Crossover Junction With Arbitrary Diagonal Port Impedances
Y. Chiou, S. Lai, J. Kuo, National Chiao Tung University, HsinChu, Taiwan

Design of 60-GHz SIW Short-Slot Couplers
C. Chen¹, T. Chu², ¹National Taiwan Ocean University, Keelung, Taiwan, ²National Taiwan University, Taipei, Taiwan

Broad-Band Cruciform Substrate Integrated Waveguide Couplers
M. Kishihara¹, M. Komatsubara¹, K. Okubo¹, I. Ohta², ¹Okayama Prefectural University, Soja, Japan, ²University of Hyogo, Himeji, Japan

Wideband Butler Matrix in Microstrip-Slot Technology
S. Z. Ibrahim, M. E. Bialkowski, The University of Queensland, Brisbane, Australia

Microwave Couplers (II)

Dual-Band Rat-Race Coupler With Arbitrary Power Division Using Microwave C-Sections
C. Wu, Y. Chiou, J. Kuo, National Chiao Tung University, HsiChu, Taiwan

Distributed and Lumped-Element Realizations of Wideband Branch-Line Hybrids with Arbitrary Power Division
T. Lin, Y. Chiou, J. Kuo, National Chiao Tung University, HsinChu, Taiwan

Design of Dual-Band Substrate-Integrated Waveguide E-Plane Directional Couplers
V. A. Labay¹, J. Bornemann², ¹Gonzaga University, Spokane, United States, ²University of Victoria, Victoria, Canada

Design of Lumped Rat-Race Coupler in Multilayer LTCC
T. Shen, C. Chen, T. Huang, R. Wu, National Taiwan University, Taipei, Taiwan

Design of Compact Ka-band Monolithic Branch-Line Coupler on Silicon Substrate
M. Chiang¹, H. Wu², M. Lee³, C. C. Tzuang², ¹HTC Corporation, Xindian City, Taipei County, Taiwan, ²National Taiwan University, Taipei, Taiwan

Microwave Integrated Circuits on Silicon

Bandwidth-optimal Single Shunt-capacitor Matching Networks for Parallel RC Loads of Q > 1
W. N. Allen, J. Small, X. Liu, D. Peroulis, Purdue University, West Lafayette, United States

A Miniature Switching Phase Shifter in 0.18-um CMOS
W. Tseng, C. Lin, Z. Tsai, H. Wang, National Taiwan University, Taipei, Taiwan

High Aspect Ratio CPW Fabricated Using Silicon Bulk Micromachining with Substrate Removal
S. T. Todd, X. T. Huang, J. E. Bowers, N. C. MacDonald, University of California, Santa Barbara, Santa Barbara, United States

Novel Symmetric-Structure Switchable Differential Inductor Design
P. Tsai, Y. Chen, T. Huang, RF@CAD Laboratory, Tainan, Taiwan

Loss Optimization of Coplanar Strips for CMOS RFICs
M. S. Arif, D. Peroulis, Purdue University, West Lafayette, United States

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S. Otto¹,², A. Bettray¹, K. Solbach², ¹IMST, Kamp-Lintfort, Germany, ²University of Duisburg-Essen, Duisburg, Germany
License-free Microwave Systems Evaluation
S. Z. Asif, Telenor Pakistan, Islamabad, Pakistan

Bent Tapered Microstrip Balun Transformer
A. Lestari1, E. Bharata2, A. B. Sukmono2, A. Yarovsky1, L. Ligthart1, 1Delft University of Technology, Delft, Netherlands, 2Bandung Institute of Technology, Bandung, Indonesia

Design of High-Permittivity Ceramic UHF Microstrip Filter for a Space Application
Y. Clavet1, A. Manchec1, J. Favennece, E. Rius2, C. Quendo2, B. Bonnet1, J. Azzara1, C. Debarge1, J. Cazaux1, 1Elliptiqa, Brest, France, 2Universite de Brest, Brest, France, 3Thals Alnia Space, Toulouse, France

Mobile Communications, TD-SCDMA and Other Techniques

Novel Channel Description Method for Decentralized Wireless Relay Networks
Y. Chen, P. Rapajic, University of Greenwich, Kent, United Kingdom

Fast Dummy Sequence Insertion Method for PAPR Reduction in WiMAX Systems
S. Chaokuntod, P. Uthansakul, M. Uthansakul, Suranaree University of Technology, Nakhon Ratchasima, Thailand

The Enhancement of MIMO capacity using Angle Domain Processing Based on Measured Channels
A. Innok, M. Uthansakul, P. Uthansakul, Suranaree University of Technology, Muang, Thailand

Despreading Code Synchronization Technique Utilizing Discrete Sampled Data and its Application to DS-CDMA Systems using RF Direct Under-Sampling
R. Okiuzumi, K. Konishi, M. Maraguchi, Tokyo University of Science, 1-14-6 Kudankita, Chiyoda-ku, Japan

Load Pull Analysis of Chireix Outphasing Class-E Power Amplifiers
K. Tom1,2, K. Mouthaan1, M. Faulkner2, 1National University of Singapore, Singapore, Singapore, 2Victoria University, Melbourne, Australia

Special Session on Antennas and Propagation for Body-Centric Network Communications

Radiation Pattern of a Short Dipole nearby Human-body
D. Ma, W. X. Zhang, State Key Lab. of Millimeter Waves, Southeast University, Nanjing, China

System-Level Modelling of Optimal Ultra Wideband Body-Centric Wireless Network
A. Alomainy, Q. H. Abbasi, A. Sani, Y. Hao, Queen Mary University of London, London, United Kingdom

Proximity Effect of UWB Antenna on Human Body
T. S. See, Z. N. Chen, X. M. Qing, Institute for Infocomm Research, Singapore, Singapore

Personal and Body Area Network Channels between Dual Band Button Antennas
J. C. Batchelor, S. Swaisaenyakorn, J. A. Miller, University of Kent, Canterbury, United Kingdom

Transmit Only UWB Body Area Network for Medical Applications
C. Ho, M. R. Yuce, University of Newcastle, Callaghan, Australia

A New Hybrid Technique for Handling fine Features in FDTD and its Application to Body-centric Communications
J. Bringuier, R. Mittra, The Pennsylvania State University, Pennsylvania, United States

Frequency Dependence of On-Body Channels with Top-Loaded Monopole Antennas in the Range of HF to UHF
N. Haga, K. Ito, Chiba University, Chiba, Japan
Remote Sensing, Terrestrial and Satellite Based Systems

Study on Flood Risk Management Based on Soil Moisture Estimation Using ALOS PALSAR
H. Yamada, S. Obi, K. Uto, S. Kakumoto, Y. Kosugi, Tokyo Institute of Technology, Yokohama, Japan

Subsurface Target Recognition using an Approximated Method
H. Lui, N. Shuley, 1Chalmers University of Technology, Gothenburg, Sweden, 2The University of Queensland, Brisbane, Australia

Doppler Radar Non-contact Measurement of Rotational Movement in Both Macro- and Micro- Scales
C. Li, J. Lin, 1Texas Tech University, Lubbock, United States, 2University of Florida, Gainesville, United States

Radar Imaging and Electromagnetic Scattering Analysis for Ground Moving Target by Ground-Based Stationary Radar
Y. Zhang, X. Zhang, W. Zhai, X. Shi, X. Gu, Center for Space Science and Applied Research, CAS, Beijing, China

Special Session on RFID-enabled Sensors and "Green" Substrates

Highly Efficient Multistandard RFIDs Enabling Passive Wireless Sensing
J. Essel1, D. Brenk1, J. Heidrich1, R. Weigel1, H. Reinisch1, G. Hofer1, G. Holweg2, 1University of Erlangen-Nuremberg, Erlangen, Germany, 2University of Erlangen-Nuremberg, Erlangen, Germany

Design of UHF RFID systems using Computational Electromagnetics
R. Sun, C. J. Reddy, EM Software & Systems (USA) Inc, Hampton, United States

Development of Efficient Calculation Tool for Miniaturized H-shaped Antenna for UHF RFID Applications
X. Qing1, T. Tan2, Z. Chen1, 1Institute for Infocomm Research, Singapore, Singapore, 2National University of Singapore, Singapore

Near-perpetual operated Solar and RF powered Autonomous Sensing Systems
R. Vyas1, V. Lakafosis1, Y. Wu1, Y. Kawahara1, M. M. Tentzeris1, 1Georgia Institute of Technology, Atlanta, United States, 2The University of Tokyo, Tokyo, Japan

On the Development of RFID Tags in TFT Technology
Y. E. Chen, Y. Lee, Y. Yu, S. Huang, National Taiwan University, Taipei, Taiwan

Design Issues for Energy Harvesting Enabled Wireless Sensing Systems
Y. Kawahara1, V. Lakafosis1, Y. Sawakami1, H. Nishimoto1, T. Asami1, 1Georgia Institute of Technology, Atlanta, United States, 2Georgia Institute of Technology, Atlanta, United States

Exploring RFCOAs and Its Application to Products
G. DeJean, D. Kirovski, Microsoft Research, Redmond, United States

Frequency Multipliers

A Miniature Balanced-Diode Frequency Doubler Using Hybrid Couplers for Fundamental Harmonic Suppression
N. Youngershinlara1, P. Phudpong2, T. Rergmaneevan1, P. Booppha1, 1Kasem Bundit University, Bangkok, Thailand, 2National Electronics and Computer Technology Center, Pathumthani, Thailand

A 22-30GHz Balanced SiGe BiCMOS Frequency Doubler with 47dBe Suppression and Low Input Drive Power
J. Sun1, Q. Liu1, Y. Suh1, T. Shibata2, T. Yoshimasa1, 1Waseda University, Kitakyushu, Japan, 2Denso Corporation, Nishin, Japan
A 20-to-60 GHz CMOS Frequency Tripler based on a BPSK Modulator
F. Huang, C. Chen, H. Chang, Y. Hsin, National Central University, Chung-Li, Taiwan

60GHz Injection Locked Frequency Quadrupler with Quadrature Outputs in 65nm CMOS Process
S. Hara, T. Sato, R. Murakami, K. Okada, A. Matsuzawa, Tokyo Institute of Technology, Tokyo, Japan

Tunable Pulse Generator for Ultra-Wideband Applications
R. Jin, S. Halder, J. C. Hwang, C. L. Law, 'Lehigh University, Bethlehem, United States, 'Nanyang Technology University, Singapore, Singapore

CMOS Oscillators

A Low Power 10 GHz Current Reused VCO Using Negative Resistance Enhancement Technique
M. T. Hsu, C. T. Chiu, Microwave Communication and Radio Frequency Integrated Circuit Lab, Douliou, Taiwan, 'National Yunlin University of Science & Technology, Douliou, Taiwan

A Low Phase Noise and Wide Tuning Range CMOS VCO with Transformer Feedback
M. T. Hsu, Y. H. Huang, National Yunlin University of Science & Technology, Douliou, Taiwan

10 Bit 2/5 GHz Dual Band Digitally-Controlled LC-Oscillator in 0.18 um CMOS Process
R. K. Pokharel, K. Uchida, A. Tomar, H. Kanaya, K. Yoshida, Kyushu University, Fukuoka, Japan

Oscillator Technologies

Differential Oscillator Based on Double-Sided Parallel-Strip Line
J. Shi, J. X. Chen, Q. Xue, City University of Hong Kong, Hong Kong, China

Analysis on Locking Characteristics of Band-stop Type of Self-injection Locked NRD Guide Gunn Oscillator at 60 GHz
K. Ohue, F. Kuroki, T. Yoneyama, 'Kure National College of Technology, Kure, Japan, 'Tohoku Institute of Technology, Sendai, Japan

Low Phase Noise VCO Using Novel Harmonic Control Circuit Based on Composite Right/Left-Handed Transmission Line
J. Choi, S. Ha, B. Lee, C. Seo, 'Soongsil University, Seoul, Republic of Korea, 'Samsung Thales CO. LTD, Yongin, Republic of Korea

Dual-Band SiGe HBT Clapp VCOs with a Novel Band-Switching Technique of Controlling a Negative Resistance Bandwidth
Y. Iroh, W. Cao, Shonan Institute of Technology, Fujisawa, Japan

Active Circuit Technologies

A 77-GHz FMCW Radar Transceiver sourced through a 19-GHz SiGe Colpitts Oscillator
F. Starzer, H. P. Forstner, C. Wagner, A. Fischer, H. Jaeger, D. Kissinger, A. Stelzer, 'Johannes Kepler University, Linz, Austria, 'Infineon Technologies AG, Neubiberg, Germany, 'DICE GmbH, Linz, Austria, 'University of Erlangen-Nuremberg, Erlangen, Germany, 'Johannes Kepler University, Linz, Austria

MEMS-Integrated Ultra-Wideband Terahertz Traveling Wave Tube Amplifier
Y. Shin, J. Zhao, L. R. Barnett, N. C. Luhmann Jr., University of California-Davis, Davis, United States

12~18 GHz Resistive Mixer with a Miniature Marchand Balun using Standard CMOS Process
H. Wei, C. Meng, K. Tsang, G. Huang, 'National Chiao Tung University, Hsinchu, Taiwan, 'National Nano Device Laboratories, Hsinchu, Taiwan

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Impedance Matching Considerations for Passive UHF RFID Tags
L. Ukkonen, L. Sydnheimo, Tampere University of Technology, Rauma, Finland

Fully Printable Multi-Bit Chipless RFID Transponder on Flexible Laminate
S. Preradovic, S. M. Roy, N. C. Karmakar, Monash University, Melbourne, Australia

Microstrip Antennas for Remote Moisture Sensing using Passive RFID
J. Siden1, J. Gao1, B. Neubauer2, 1Mid-Sweden University, Sundsvall, Sweden, 2TU Braunschweig, Braunschweig, Germany

Tag Placement Studies

UHF Near-field RFID Reader Antenna
X. Qing, C. Goh, Z. Chen, Institute for Infocomm Research, Singapore, Singapore

Active Proxy Masking for Protecting Private RFID Tags
T. Li1, K. Chiew2, W. He1, 1Institute for Infocomm Research, Singapore, Singapore, 2Singapore Management University, Singapore, Singapore, 3Singapore Institute for Manufacturing Technology, Singapore, Singapore

A Triple-feed and Near Omni-directional (3D) RFID Tag Antenna Design
S. Chen1, R. Mittra2, 1China Steel Corporation, Kaohsiung, Taiwan, 2Pennsylvania State University, State College, United States

Special Session on RFID Technology and its Application (II)

An UHF Reader Antenna Design for Near-field RFID Applications
H. Liu, C. Yang, C. Weng, H. Kuo, K. Wu, Y. Lin, National Taiwan University of Science and Technology, Taipei, Taiwan

A Novel Miniaturized Antenna for RFID Application in the Entrance Guard's System
J. Pan, S. Wen, University of Electronic Science and Technology of China, Chengdu, China

Segmented Coupling Eye-shape UHF band Near Field Antenna Design
X. Li1,2, J. Liao4,2, Y. Yuan2,4, D. Yu3,4, 1Beijing University of Posts and Telecommunications, Beijing, China, 2State Key Laboratory of Millimeter Waves, Nanjing, China, 3Radio access Technology and Solution (RTS) Corporate Technology Siemens Ltd. China, Beijing, China

Planar CP RFID R/W Antennas Based on EM Coupling
A. S. Andrenko, T. Yamagajo, Fujitsu Laboratories LTD., Yokosuka, Japan

A Low-Cost, Wideband RFID Tag Antenna on Metallic Surfaces Using Proximity-Coupled Feed
S. Jeong1, H. Son2, J. Yeo2, 1Chonbuk National University, Jeonju, Republic of Korea, 2Daegu University, Gyeongsan, Republic of Korea

'Smart House' and 'Smart-Energy' Applications of Low-Power RFID-based Wireless Sensors
J. Dowling1, M. M. Tentzeris1,2, 1Georgia Tech Ireland, Athlone, Ireland, 2Georgia Tech, Atlanta, United States

Design Method of a Tap Feed for a Very Small Normal-Mode Helical Antenna
N. Q. Dinh1, N. Michishiha1, Y. Yamada2, K. Nakatani2, 1National Defense Academy, Yokosuka, Japan, 2The Yokohama Rubber Co., Ltd, Ohwake, Japan

Design and Implementation of Transparent Multiple-Area RFID Antennas
M. Iwai1, A. Wada1, Y. Danmura1, 1the University of Tokyo, Komaba, Japan, 2Figla Corporation, Chiyoda, Japan
Signal, Power integrity and EMI

Analysis of Power-Ground Plane with Combination of Rectangle and Triangle Segmentation
C. Liu, J. Mao, M. Tang, Shanghai Jiao Tong University, Shanghai, China

Modeling of Arbitrary Power-Ground Planes with Slot by Using Integral Equation and Transmission Line Method
G. Zou¹, E. Li², X. Wei², X. Cui¹, G. Luo¹, ¹North China Electric Power University, Beijing, China, ²A*STAR Institute of High Performance Computing, Singapore, Singapore

Analytical Formulas for the Barrel-plate and Pad-plate Capacitance in the Physics-based Via Circuit Model for Signal Integrity analysis of PCBs
Y. Zhang¹, E. Li¹, Z. Oo¹, W. Zhang³, E. Liu¹, X. Wei¹, J. Fan¹, ¹Institute of High Performance Computing, Singapore, Singapore, ³Missouri University of Science and Technology, Rolla, United States

Fabrication of Portable HSDPA USB Dongle
Y. Kao¹, H. Yang², ¹Chung Hua University, Hsin Chu, Taiwan, ²Chiao Tung University, Hsin Chu, Taiwan

Frequency Domain Propagation and Permittivity Characterization Method for Printed Circuit Boards
K. Fuh¹, A. Cheng¹, ¹National United University, Miaoli, Taiwan, ²ITEQ Corporation, Taoyuan, Taiwan

Plasmonic Nanotechnology in Microwave Engineering

Plasmonic Waveguides and Metamaterial Components at Terahertz Frequencies
T. Akalin¹, W. Padilla¹, ¹IEMN, Lille 1 University, Villeneuve d'Ascq, France, ²Boston College, Chestnut Hill, United States

Turning Plasmonic Wave Transmission and Reflection with Nanocircuit Loads in Plasmonic Circuitry
X. Wei, M. Gu, P. Bai, E. Li, A*STAR Institute of High Performance Computing, Singapore, Singapore

Effect of Radial Anisotropy on Plasmonic Optical Properties of Coated Nanorods
Y. King¹, L. Gao¹, C. Qiu², ¹Jiangsu Key Laboratory of Thin Films, Soochow University, Suzhou, China, ²National University of Singapore, Singapore, Singapore

Wide-Band Electrical Characterization of Printable Nano-Particle Copper Conductors
R. Makinen¹, H. Sillanpaa¹, K. Ostmans², V. Palakuru³, V. Pynttari¹, T. Kanerva¹, J. Hagberg¹, T. Lepisto², H. Jantunen¹, M. Yang³, P. Laxton¹, H. Arimura¹, R. Ronkkö³, ¹Tampere University of Technology, Tampere, Finland, ²Tampere University of Technology, Tampere, Finland, ³University of Oulu, Oulu, Finland, ⁴Applied Nanotech, Inc., Austin, United States, ⁵Ishihara Chemical Co., Ltd., Kobe, Japan, ⁶Nokia Research Center, Tampere, Finland

Parallel Single Wall Carbon Nanotubes for Microwave Applications
A. M. Attiya, M. A. Alkanhal, King saud University, P.O.Box 800, Saudi Arabia

Multiband Antennas (II)

Hearing Aid-Compatible Loop Chip Antenna for Penta-Band Clamshell Mobile Phone Application
W. Li³, K. Wong¹, C. Wu¹, ¹National Sun Yat-Sen University, Kaohsiung, Taiwan, ²Industrial Technology Research Institute, Hsinchu, Taiwan

Design of a Multiband Antenna for GSM900/DCS1900/WiMax Wireless Communication Application
D. Kim, S. Hong, J. Choi, Hanyang University, Seoul, Republic of Korea

Multi-band Planar Inverted-F Antenna with Microstripline Coupling to Open-End Ground Slots
A. R. Razali¹, M. E. Bialkowski¹, F. E. Tsai², ¹University of Queensland, Brisbane, Australia, ²Wistron NeWeb Corporation, Hsinchu Science Park, Taiwan
Printed I-Shaped Monopole Antenna with Circular Conductor-Backed Plane for WLAN Operations
C. Pan, W. Tu, J. Duan, J. Jan, National Kaohsiung University of Applied Sciences, Kaohsiung, Taiwan

Isolation Improvement of WLAN Internal Laptop Computer Antennas Using Dual-Band Strip Resonator
T. Kang, K. Wong, National Sun Yat-Sen University, Kaohsiung, Taiwan

UWB Antennas (III)

A Size-Reduced Exponentially Tapered Slot Antenna with Corrugations for Directivity Improvement
M. E. Bialkowski, Y. Wang, The University of Queensland, Brisbane, Australia

A Notched-Band UWB Planar Monopole Antenna using the Tapped-line Coupled Resonator
S. Wu, C. Kang, K. Chen, C. Chan, J. Tarng, National Chiao Tung University, Hsinchu, Taiwan

Design of a Fork-Tuned Antenna for Ultra-WideBand (UWB) Communications
A. M. Ezanuddin, P. J. Soh, A. H. Suhaizal, M. N. Norazliana, Universiti Malaysia Perlis (UniMAP), Kuala Perlis, Malaysia

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Design of a Microstrip Dual-Passband Bandpass Filter With Modified Quarter-Wavelength Stepped-Impedance Resonances
H. Hsu, C. Tang, M. Chen, J. Wu, National Chung Cheng University, Chiayi, Taiwan

Novel Compact Wideband Bandpass Filter Using Microstrip and Coplanar-Waveguide Resonators With Good Harmonic Suppression
K. Deng, W. Feng, W. Che, Nanjing University of Science & Technology, Nanjing, China

A Via-Free Left-Handed Transmission Line with Radial Stubs
G. Naga Satish1, K. V. Srivastava1, A. Biswas1, D. Kettle2, 1Indian Institute of Technology Kanpur, Kanpur, India, 2The University of Manchester, Manchester, United Kingdom

Hybrid Microstrip Compact Hairpin Bandpass Filter
C. Hsu1, C. Hsu2, H. Ho1, 1National United University, Miaoli, Taiwan, 2National Yunlin University of Science and Technology, Yunlin, Taiwan

LTCC BPFs used in Ka band LTCC Frequency Synthesizer Module
M. Zhan, P. Qiu, B. Yan, R. Xu, W. Lin, University of Electronic Science and Technology of China, Chengdu, China

Miniaturized Bandpass Filter using a Dual-Mode Octagonal Patch Resonator
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³University of Wales, Wrexham, United Kingdom

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