

**2007 Asia-Pacific Conference on
Applied Electromagnetics**

4 - 6 December 2007

Melaka, Malaysia

Pages 1 - 340

PAPERS

	Page
KEYNOTES	
Metamaterials – A New Route for Realizing and Synthesizing Electromagnetic Materials from Microwave to Optical Frequencies	1
Joshua Le-Wei Li <i>National University of Singapore</i>	
Parameter Extraction and Physical Interpretation of RF and Microwave Integrated Circuits and Antennas Using Full-Wave Electromagnetic Simulation Tools	6
Ke Wu <i>National University of Singapore, Singapore</i>	
EMC and High Speed Digital Circuit	7
Li Er Ping <i>Program Manager, Engineering Software and Application, Institute of High Performance Computing, Singapore</i>	
 INVITED PAPERS	
E-Field Measurement, Accuracy and Uncertainties	11
Alireza Kazemipour, Xavier Begaud, Hyeong-Seok Kim, Djamel Allal <i>Laboratoire National de Métrologie et d'Essais LNE, France</i> <i>Dept. COMELEC, Telecom-Paris, France</i> <i>College of Engineering, Chung-Ang University Seoul, Korea</i>	
The Recent Activity of Antenna Engineering Research in Indonesia	15
Eko Tjipto Rahardjo <i>Antenna Propagation and Microwave Research Group, Department of Electrical Engineering</i> <i>University of Indonesia, Kampus Baru UI Depok, Depok 16424, Indonesia</i>	
An Image Compression Algorithm for Internet Applications	18
Nazar K. Wafi <i>Electrical Engineering Department, Baghdad University, Baghdad, Iraq</i>	
High Frequency Spectrum: Propagation, Characterization, Data Communications and Spectrum Monitoring	22
Ahmad Zuri bin Sha'ameri <i>Faculty of Electrical Engineering, Universiti Teknologi Malaysia, 81310 UTM-Skudai, Malaysia</i>	
Determination of Rain Characteristics for Propagation Studies in UTM, Malaysia	31
Jafri Din <i>Faculty of Electrical Engineering, Universiti Teknologi Malaysia, 81310 UTM</i> <i>Skudai, Johor, Malaysia.</i>	

COMPUTATIONAL ELECTROMAGNETIC AND EMC

- Optimum Packet Size of Voice Packet in the FIFO Adversarial Queuing Model** 35
Abdullah Muhammed, Kyairulniza Mohd Saleh and Azizol Abdullah
Fac. of Comp. Science and Information Technology, UKM
- The Effect of Aging-Related Variations of Normal Human Head on the Induced Specific Absorption Rate (SAR): Plane Multilayered Head Model** 41
Gasmelseed Akram, Yunus Jasmy
Faculty of Electrical Engineering, Universiti Teknologi Malaysia (UTM)
- CNT Base X-Ray Source for Inspection System** 46
H. Y Choi and J. U. Kim
Korea Electrotechnology Research Institute, Electro-Fusion Technology Research Div. Geonggi Technopark
- Simulation Study of Carbon Nanotube X-Ray Tube Structure** 50
H. Y Choi and J. U. Kim
Korea Electrotechnology Research Institute, Electro-Fusion Technology Research Div. Geonggi Technopark
- Polarization Studies in the UWB Radar Target Response using Joint Time Frequency Analysis** 53
Hoi-Shun Lui, Faisal Aldhubaib, Nicholas V. Z. Shuley
School of Information Technology and Electrical Engineering, University of Queensland, Brisbane
- A Fast Shielding Effectiveness Calculation of Rectangular Enclosures with Arbitrary Shape Apertures** 58
M. A. Khorrami, P. Dehkhoda, R. Moini and S. H. H. Sadeghi
Electromagnetic Research Laboratory of Amirkabir University of Technology, Tehran, Iran.
- Forecasting of Ionospheric Delay Using Statistical Method Over Parit Raja Station, Johor.** 62
Mardina Abdullah, Ahmad Faizal Mohd Zain, Azami Zaharim, Siti Nor Afzan Abdul Habib, Siti Aminah Bahari
Department of Electrical, Electronic and Systems Engineering, Universiti Kebangsaan Malaysia
- Removal of Object's Shadow Algorithm** 67
Masrullizam Mat Ibrahim, Syed Abdul Rahman Al-Attas and Nor Zaidi Harun
Faculty of Electronic and Computer Engineering, Universiti Teknikal Malaysia Melaka, Hang Tuah Jaya, Ayer Keroh, 75450 Melaka
- Month-to-Month Variability of the Melting Layer Boundaries** 72
Nor Hisham Haji Khamis, Omer Abdel Razag Sharif, Zakaria Hanzaz, Ameruddin
Faculty of Electrical Engineering, Universiti Teknologi Malaysia.
- Extremely Low Frequency Electromagnetic Field (ELF EMF) Survey of Residential Areas Around Transmission Lines** 75
R. Tukimin¹, W.N.L Mahadi², M.Y.M Ali¹, M.N.M Thari¹
¹Radiation Health and Safety Division, Malaysian Nuclear Agency, Bangi, 43000 Kajang, Selangor
²Department of Electrical Engineering, University Malaya, 50603 Kuala Lumpur
- Road Pavement Density Measurements using Ground Penetrating Radar (GPR): Simulation Analysis** 80
RSA Raja Abdullah, Helmi Zulhaidi Mohd Shafri, Mardeni Roslee
Department of Computer and Communication System, Faculty of Engineering, Universiti Putra Malaysia

Target Prediction in Forward Scattering Radar	85
RSA Raja Abdullah, MF A.Rasid, MW Azis and Mohamed Khalafalla <i>Department of Computer and Communication System, Faculty of Engineering, Universiti Putra Malaysia</i>	
Stepped Hairpin Shape Defected Ground Structure (SH-DGS) Study	90
S.H Dahlan, S. Aizam, Elfarizanis, Shipun A.H <i>Faculty of Electrical and Electronic Engineering, Universiti Tun Hussein Onn, Malaysia</i>	
High-Resolution SAR Imaging System Using Tapered Slot Antenna with Orthogonally Anisotropic Directivity	95
Shoji Mochizuki, Hiroyoshi Togo, Naoya Kukutsu, and Tadao Nagatsuma <i>NTT Microsystem Integration Laboratories, Japan</i>	
Modified Multi-objective Particle Swarm Optimization for Electromagnetic Absorber Design	99
Somayyeh Chamaani, Seyed Abdullah Mirtaheri and Mohammad Teshnehlab <i>Faculty of Electrical Engineering, K.N.Toosi University of Technology, P.O. Box 16315-1355, Tehran, Iran</i>	
Effects of Aperture and Wire Penetration on Shielding Effectiveness and S21 of a Rectangular Enclosure	104
Syarfa Zahirah Sapuan, Mohd Zarar Mohd Jenu <i>Center for Electromagnetic Compatibility, Universiti Tun Hussein Onn Malaysia</i>	
An LTCC Design Technique Based on FDTD EM Simulations	109
Zulkifli Ambak, Rosidah Alias, Azmi Ibrahim, Sabrina Mohd Shapee, Samsiah Ahmad, Siti Zaharah Zakaria, Mohamed Razman Yahya, Abdul Fatah Awang Mat <i>TM Research & Development Sdn. Bhd.</i>	
Design of Reconfigurable Patch Antenna with a Switchable V-Slot	113
Tariq Al-maznaee and Hany E. Abd-El-Raouf <i>Department of Electrical and Computer Engineering, International Islamic University Malaysia, 53100 Kuala Lumpur, Malaysia</i>	
Comparison Study of Usage as Grounding Electrode between Galvanized Iron and Copper with and without Earth Additive Filler	118
F. Mahtar, A. Ramli, W.R. Wan Abdullah, M.N. Isa <i>Telekom Research And Development Sendirian Berhad. Idea Tower, UPM-MTDC, Technology Incubation Center One, Lebuh Silikon, 43400, Serdang, Selangor Darul Ehsan.</i>	
Power Quality Analysis Using Spectrogram and Gabor Transformation	123
Abdul Rahim Abdullah, Ahmad Zuri Sha'ameri and Norhashimah Mohd Saad <i>Faculty of Electronic and Computer Engineering, Universiti Teknikal Malaysia Melaka, Hang Tuah Jaya, Ayer Keroh, 75450 Melaka</i>	
Modeling and Simulation of RDWG Measurement Set-up	128
Kamariah Ismail and Zaiki Awang <i>Microwave Technology Centre, Faculty of Electrical Engineering, Universiti Teknologi MARA, 40450 Shah Alam, Selangor, Malaysia</i>	
Modeling of Electromagnetic Wave Penetration in a Human Head due to Emissions from Cellular Phone	133
Nurulhuda binti Ismail, Mohd. Zarar bin Mohd Jenu <i>Center for Electromagnetic Compatibility, Universiti Tun Hussein Onn Malaysia</i>	

3D Simulation and Measurements of Free Space Characterization for Silicon Wafers at K-Band	138
<i>Noor Hasimah Baba, Muhammad Farid Abdul Khalid and Robiatun Adayiah Awang Faculty of Electrical Engineering, University Technology Mara Shah Alam, Selangor</i>	
Characterization and Model Development of CMOS Floating Gate Defect (FGD)	143
<i>Wong Yan Chiew, Prof. Dr. Abu Khari bin A'ain Microelectronic and Computer Engineering Department, UTM, Johor Bahru, Malaysia</i>	
ANTENNAS AND PROPAGATION	
Design and Analysis of UWB Rectangular Patch Antenna	148
<i>A.H.M. Zahirul Alam, Md. Rafiqul Islam and Sheroz Khan Faculty of Engineering, International Islamic University Malaysia (IIUM)</i>	
Ionospheric TEC and Scintillation during the 15-16 May 2005 Major Storm over Equatorial Anomaly Region at ARAU	151
<i>Alina Marie Hasbi^{1,2}, Mohd Alauddin Mohd Ali^{1,2}, Norbahiah Misran^{1,2} ¹ Electrical, Electronic and Systems Department, Faculty of Engineering, Universiti Kebangsaan Malaysia, 43600 Bangi, Selangor, MALAYSIA ²Institute of Space Science, Universiti Kebangsaan Malaysia</i>	
Determination of Optimal Radar Bistatic Angles for Canonical Targets by Scattering Statistical Analysis in Spatial Domain	156
<i>Faisal Aldhubaib, Nicholas V. Shuley School of Information Technology and Electrical Engineering, the University of Queensland, 4072 Australia</i>	
Investigation of Left Handed Metamaterial In Microstrip Antenna Application	161
<i>Huda A. Majid, Mohamad Kamal A. Rahim Faculty of Electrical Engineering, University of Technology Malaysia (UTM)</i>	
Beam Squinted Radial Line Slot Array Antenna (RLSA) Design for Point-to-Point WLAN Application	165
<i>I. M. Ibrahim, Riduan A., Tharek A.R. Faculty of Electronic and Computer Engineering, Universiti Teknikal Malaysia Melaka, Hang Tuah Jaya, Ayer Keroh, 75450 Melaka</i>	
Long-term Rain Attenuation Probability and Site Diversity Gain Prediction	169
<i>Kusay Al-tabatabaie and Din J Wireless Communication Center, Faculty of Electrical Engineering, UTM</i>	
Analysis of ionospheric models during ionospheric disturbances	174
<i>Mardina Abdullah, D.A.A. Mat², A.F.M. Zain and S. Abdullah Department of Electrical, Electronic and Systems Engineering, Universiti Kebangsaan Malaysia</i>	
Array Antenna at 2.4 GHz for Wireless LAN system using Point To Point Communication	178
<i>Mohamad Kamal A. Rahim, Mohd Nazri A. Karim, Thelaha Masri, Osman Ayop Faculty of Electrical Engineering, Universiti Teknologi Malaysia</i>	
BER-Delay Characteristics Analysis of IEEE 802.15.4 Wireless Sensor Networks with Cooperative MIMO	182
<i>Mohd Riduan Ahmad and Eryk Dutkiewicz Department of Computer Engineering, Faculty of Electronics and Computer Engineering, UTM</i>	

Ionospheric Modelling: Improving the Accuracy of Differential GPS (dGPS) in Equatorial Regions	187
Norsuzila Ya'acob, Mardina Abdullah and Mahamod Ismail <i>Department of Electrical, Electronic and Systems Engineering, UKM</i>	
Microstrip Dipole Antenna with and without Circular Parasitic Element	192
Osman Ayop, Mohamad Kamal A.Rahim and Thelaha Masri <i>Faculty of Electrical Engineering, Universiti Teknologi Malaysia</i>	
Nonlinear analysis and design of an active antenna in S frequency band	196
P. Takook, A. Abdipour, G. Moradi <i>Electrical Eng. Dept, Amirkabir University of Technology, Tehran, Iran</i>	
A Novel 2D Sierpinski Gasket Electromagnetic Band Gap Structure for Multiband Microstrip Antenna	201
T.Masri, M.K.A.Rahim , M.N.A. Karim <i>Wireless Communication Centre, Univesiti Teknologi Malaysia, Johor.</i>	
Vertical UWB CDM Antenna with Integrated Band Notched Filtering	204
S. A. Hamzah, S. H. Dahlan, R. M. Talib, S.M. Shah <i>Universiti Tun Hussein Onn Malaysia (UTHM)</i>	
Switched Beam Antenna using Omnidirectional Antenna Array	208
Siti Zuraidah Ibrahim and Mohamad Kamal A.Rahim <i>Wireless Communication Centre, Faculty of Electrical Engineering, Universiti Teknologi Malaysia</i>	
Ionospheric GPS-TEC Observations at Scott Base Antarctica during 2004	212
Sumazly Sulaiman, Mohd Alaudin Mohd Ali and Baharudin Yatim <i>Department of Computer Science, Faculty of Science and Technology, Universiti Malaysia Terengganu</i>	
Design of Low Noise Amplifier with Active Integrated Antenna at 5 GHz	215
Thomas Peter, Mohamad Kamal A. Rahim, Jafri Din, Thelaha Masri <i>Faculty of Electrical Engineering, Universiti Teknologi Malaysia, 81310 Skudai, Johor</i>	
Measurement Corrections for Phase Noise Characterization with Different Baseband Analyzer	220
Toh Chee Leng <i>Agilent Technologies, Bayan Lepas Free Industrial Zone, 11900 Penang, Malaysia.</i>	
Real Valued Minimum Mean Square Error Approach for Polarization Diversity Adaptive Arrays	224
Yerram Ravinder, V.M Pandharipande <i>Centre for Excellence in Microwave Engineering ECE Department, University College of Engineering, Osmania University</i>	
Rain Fading Mitigation in BWA Using Site Diversity	229
Zaid A. Shamsan, Abo-zeed M.I. and Din J. <i>WCC, Faculty of Electrical Engineering, Universiti Teknologi Malaysia, 81310 Skudai, Johor</i>	

Proximity Coupled Stacked Configuration for Wideband Microstrip Antenna	234
Zulhani Rasin, Nor Hisham Haji Khamis <i>Faculty of Electronic and Computer Engineering, Universiti Teknikal Malaysia Melaka, Hang Tuah Jaya, Ayer Keroh, 75450 Melaka</i>	
A Dual Band Planar Monopole Antenna with Inverted-M Parasitic Plane	238
H.M.R Nurul, P.J Soh, A.A.H Azremi, N.A Saidatul, S.R Norra, M.I Ibrahim, R.B Ahmad <i>School of Computer and Communication Engineering, Universiti Malaysia Perlis (UniMAP), Kangar, Perlis, MALAYSIA</i>	
Design, Fabricate and Testing of Feed Network for 2X2 Array Antenna	242
M. S. R. Mohd Shah, Maisarah Abu, M. Z. A. Abdul Aziz <i>Faculty of Electronic and Computer Engineering, Universiti Teknikal Malaysia Melaka, Hang Tuah Jaya, Ayer Keroh, 75450 Melaka</i>	
4x4 Butler Matrix Design by Using Circular Bend	247
M. F. Abd Kadir, M. R. Che Rose, M. S. R. Mohd Shah, D. Mismam, M.K. Suaidi, M. Z. A. Abd Aziz <i>Faculty of Electronic and Computer Engineering, Universiti Teknikal Malaysia Melaka, Hang Tuah Jaya, Ayer Keroh, 75450 Melaka</i>	
Dual Polarization Inset-Fed Microstrip Patch Antenna	252
M. S. R. Mohd Shah, M.R Che Rose, M. F Abdul Kadir, D. Mismam, M. Z. A. Abdul Aziz, M. K Suaidi <i>Faculty of Electronic and Computer Engineering, Universiti Teknikal Malaysia Melaka, Hang Tuah Jaya, Ayer Keroh, 75450 Melaka</i>	
The Mitered and Circular Bend Method of Butler Matrix Design for WLAN Application	258
M.R Che Rose, M. S. R. Mohd Shah, M. F Abdul Kadir, D. Mismam, M. Z. A. Abdul Aziz, M. K Suaidi <i>Faculty of Electronic and Computer Engineering, Universiti Teknikal Malaysia Melaka, Hang Tuah Jaya, Ayer Keroh, 75450 Melaka</i>	
The Effect of Conductor Line to Meander Line Antenna Design	264
D. Mismam, I. A. Salamat, M. F. Abdul Kadir, M. R. Che Rose, M. S. R. Mohd Shah, M. Z. A. Abd. Aziz, M. N. Husain <i>Faculty of Electronic and Computer Engineering, Universiti Teknikal Malaysia Melaka, Hang Tuah Jaya, Ayer Keroh, 75450 Melaka</i>	
Sierpinski Carpet Fractal Antenna	269
M. F. Abd Kadir, A. S. Ja'afar, M. Z. A. Abd Aziz <i>Faculty of Electronic and Computer Engineering, Universiti Teknikal Malaysia Melaka, Hang Tuah Jaya, Ayer Keroh, 75450 Melaka</i>	
Small Rectangular Parasitic Plane as Patch Antenna Ground Plane for Broadband WLAN Application	273
S.R Norra, A.A.H Azremi, P.J Soh, N.A Saidatul, M.I Ibrahim <i>School of Computer and Communication Engineering, Universiti Malaysia Perlis (UniMAP), Kangar, Perlis, MALAYSIA</i>	
Preliminary Development of Mini Anechoic Chamber	278
A. Hasnain, Z.S. Rohaiza, S.Roslan, M.I. Imran, A.A Takiyuddin, A. Rusnani, A.A Azremi <i>Faculty of Electrical Engineering, Universiti Teknologi Mara Pulau Pinang</i>	

Development of an Economic and Effective Microwave Absorber	283
A. Hasnain, M.A. Hafiz, S.Roslan, M.I. Imran, A.A Takiyuddin, A. Rusnani, O.M. Khusairi <i>Faculty of Electrical Engineering, Universiti Teknologi Mara Pulau Pinang</i>	
An Investigation of Square Split-Ring Resonator as Antenna Operating at Terahertz Frequency	288
Mohd Asmidar bin Abdul Wahab, Aziati Husna Awang and Ros Shilawani S. Abd Kadir <i>Faculty of Electrical Engineering, Universiti Teknologi MARA, 40450 Shah Alam, Selangor Darul Ehsan, MALAYSIA</i>	
Beam-Forming Network Using Switch-line Phase Shifter	294
S.S.B Omran, M.K.A.Rahim and T Masri <i>Wireless Communication Centre, Faculty of Electrical Engineering, Universiti Teknologi Malaysia, 81310 Skudai Johor Baharu</i>	
Radiated Emission of a Bent Microstrip Line Using Hertzian Dipole Method	299
Yee See Khee, Mohd Zazar Mohd Jenu <i>Center for Electromagnetic Compatiblity, Universiti Tun Hussein Onn Malaysia, 86400 Parit Raja, Batu Pahat, Johor, Malaysia</i>	
MICROWAVE AND PHOTONIC	
Quasi-static Model of Microelectromechanical Cantilever	304
A. M.-K. Lai, A.A.Rahman and W.S.-H. Wong <i>School of Engineering Swinburne University of Technology (Sarawak Campus)</i>	
Radiated Emission and Conducted Emission Performance for ADSL Modem under Variable Earth Resistance Values Condition	308
A.N Zainal Abidin, W.R Wan Abdullah, Annuar Ramli <i>EMC & Power Quality Programme, TM Research & Development Sdn. Bhd., Malaysia</i>	
Implementing Digital Finite Impulse Response Filter Using FPGA	313
Abdul Hadi Abdul Razak, Muhamad Iqbal Abu Zaharin and Nor Zaidi Haron <i>Faculty of Electrical Engineering, Universiti Teknologi MARA, 40450, Shah Alam, Selangor, Malaysia</i>	
Design and optimization of Optical power splitter based on Multimode Interference for 1.55-μm operation.	318
Abdulaziz M. Al-hetar ¹ , Abu Sahmah Bin Mohd Supa'at, N. M. Kassim and A. B. Mohammad Photonic Technology Center, Faculty of Electrical Engineering, Universiti Teknologi Malaysia, Johor, Malaysia.	
The Influence of Different Core Arrangements on Magnetic Properties of Electrical Sheets under One-Dimensional Magnetizing System	322
Aisyah Hartini Jahidin ¹ and Wan Nor Liza Wan Mahadi ² ¹ School of Mechatronic Engineering, Universiti Malaysia Perlis, Jalan Kangar-Arau, 02600 Jejawi, Perlis, Malaysia. ² Department of Electrical Engineering, University of Malaya, Jalan Lembah Pantai, 50603 Kuala Lumpur, Malaysia	
Control of a Quarter Car Nonlinear Active Suspension System	326
Amat Amir Basari, Mohd Shakir Md Saat <i>Faculty of Electronic and Computer Engineering, Universiti Teknikal Malaysia Melaka, Hang Tuah Jaya, 75450 Ayer Keroh, Melaka, Malaysia.</i>	

A Modern Bandpass Microstrip Filter with Spurious Response Suppression and Size Reduction	331
Andrew Elvis Simon and Lim Kuang Yaw <i>Agilent Technologies Sdn Bhd, Bayan Lepas FIZ Phase III, 11900 Pulau Pinang</i>	
Obtaining Translation from a 6-DOF MEMS IMU – an Overview	336
Ashrani Aizzuddin b. Abd. Rahni <i>Faculty of Engineering, Universiti Kebangsaan Malaysia</i>	
A Study and Design of Microwave Mixer for Optimum Conversion Efficiency (CE) Performance	341
Gan Chee Tat, Lim Koon Tin <i>Agilent Technologies Sdn Bhd, Bayan Lepas FIZ Phase III, 11900 Pulau Pinang</i>	
Comparison on Losses and Flux Distribution between Two 3-Phase Distribution Transformers 1000 KVA Assembled with Air Gap and Without Air Gap of Transformer Core Lamination	346
I.Daut, Dina M.M. Ahmad, S. Zakaria and S. Taib <i>School of Electrical System Engineering, Universiti Malaysia Perlis (UniMAP)</i>	
A Study of Jitter Effects in nm-FPGA with respect to Various Physical and Electrical Quantities	350
Iliya Zamek, Man OnWong, Peter Boyle, Nafira Daud, Lian Nee Soh, Hui Lee Teng, Chee Seong Fong <i>1,3,4101 Innovation Drive, San Jose, CA, 94134, Altera Corporation.</i>	
Design of a High Speed and Low Power Digital Matched Filter for CDMA System	355
Indu Saini, R K Sarin, Mamta Khosla, Harpreet Singh <i>Department of Electronics & Communication Engineering, Dr B R Ambedkar National Institute of Technology, Jalandhar</i>	
Effect of SSN (Simultaneous Switching Noise) Induced PDN (Power Delivery Network Noise) on a LVDS (Low Voltage Differential Signal) Output Buffer	360
Joseph Kho, Chooi Ian Loh, Bozidar Krsnik, Zhe Li, Chee Seong Fong, Peter Boyle, Man On Wong <i>101 Innovation Drive, San Jose, CA, 94134, Altera Corporation.</i>	
A Comparative FDTD Analysis of Magnetized Ferrites	365
K. A. Madanifar and M. Kamyab <i>Dept. of Electrical Eng., K. N. Toosi University of Technology, Tehran, Iran.</i>	
Time Domain Analysis of Lossy Nonuniform Transmission Line Using FDTD Technique	369
Kambiz Afrooz, Abdolali Abdipour, Ahad Tavakoli and Masoud Movahhedi <i>Microwave/mm-Wave & Wireless Communication Research Lab, Radio Communication Center of Excellence, Electrical Engineering Department, Amirkabir University of Technology 424 Hafez Ave., Tehran, Iran</i>	
Fifth Order versus Third Order Intermodulation Distortion	374
Lisa Yong, Mohamad Kadim Suaidi, Anderson Kho Ngap Chai, Awangku Abdul Rahman <i>School of Engineering, Swinburne University of Technology (Sarawak Campus)</i>	
The Analysis of E-plane Filters with Loaded Resonators with Mode Matching Method	379
Meysam Sabahi, Nader Komjani <i>Electrical Department of Iran University of Science & Technology</i>	
Compact ‘Butterfly’ Microwave Ultra-Wideband Filter	383
Mohammad Shahrazel Razalli, Alyani Ismail, Mohd Adzir Mahdi, Mohd Nizar Hamidon <i>Faculty of Engineering, Universiti Putra Malaysia, 43400 UPM Serdang.</i>	

Gain and Cut-off Frequency Analysis of Multiple-Gated AlGaAs/InGaAs HEMTs	388
Mohd Nizam Osman, Zaiki Awang, Syamsuri Yaakob, Mohamed Razman Yahya and Abdul Fatah Awang Mat	
<i>Microelectronic and Nano Technology Programme, TM Research & Development Sdn. Bhd</i>	
Experimental Determination of Direct Current Excited CO₂ Laser at 10.6μm Wavelength	392
N. Md. Saad, N. Mariun, M. F. Abas	
<i>Faculty of Electrical and Electronics Engineering Universiti Malaysia Pahang</i>	
Modeling and Simulation of Finite State Machine Memory Built-in Self Test Architecture for Embedded Memories	397
Nor Zaidi Haron, Siti Aisah Mat Junos@Yunus and Masrullizam Mat Ibrahim	
<i>Faculty of Electronic and Computer Engineering, Universiti Teknikal Malaysia Melaka, Hang Tuah Jaya, Ayer Keroh, 75450 Melaka</i>	
Dual Band Electromagnetic Band Gap (EBG) Structure	402
Osman Ayop, Mohamad Kamal A.Rahim and Thelaha Masri	
<i>Faculty of Electrical Engineering, Universiti Teknologi Malaysia, 81310 Skudai, Johor</i>	
FDTD Analysis of Distributed Amplifiers Based on the Fully Distributed Model	405
R. Mirzavand, A. Abdipour and A. A. Shishegar	
<i>Amirkabir University of Technology</i>	
Solid State Development of a C Band Pulse Altimeter	410
Robab Kazemi, Ra mezan Ali Sadeghzadeh and Reza Fatemi	
<i>Department of Electrical Engineering, K. N. Toosi University of Technology</i>	
An Accurate Numerical Approach of 2D Comb Structured MEMS Capacitor	415
Shafrida Sahrani and Michiko Kuroda	
<i>Faculty of Engineering, University Malaysia Sarawak</i>	
Real time production performance monitoring system a production aid for all industries	419
Siva Kumar a/I Subramaniam, Siti Huzaimah binti Husin, Yusmarnita binti Yusop, Abdul Hamid bin Hamidon	
<i>Faculty of Electronic and Computer Engineering, Universiti Teknikal Malaysia Melaka, Hang Tuah Jaya, Ayer Keroh, 75450 Melaka</i>	
Target Strength Measurement of Selar boops (Oxeye scad) Using 38 kHz and 120 kHz	423
Sunardi, Adil Mohd, Jafri Din, Raja Bidin Raja Hassan, Nadzri Seman	
<i>Electrical Engineering Department, Universitas Ahmad Dahlan, Janturan 55164 Yogyakarta, Indonesia</i>	
K-Factor due to Implementing of DC Unbalanced/Balanced of a Transformer with Mode Matching Method	426
Syafruddin Hasan, Ismail Daut and Soib Taib	
<i>School of Electrical System Engineering, UniMAP</i>	
Comparison Study of Distributed Raman Amplifier Gain Characteristics on CWDM Band by Employing SMF, NZDF, DCF, & DSF Based on Numerical Simulation	430
V. Vekky R. Repi, Ucuk Darusalam and Purnomo Sidi Priambodo	
<i>Department of Physics Engineering, Faculty of Technique & Science,</i>	
Performance Degradation of Defective MEMS Tunable RF Filter	436
W.S.H. Wong, H.T. Su, K.C. Lee1, M.A. Mohd Ali and Burhanuddin Yeop Majlis	
<i>School of Engineering, Swinburne University of Technology (Sarawak Campus)</i>	

Theoretical Basis and Measurement Techniques for SSN (Simultaneous Switch Noise) on FPGA (Field Programmable Gate Array) Products	441
Wei Wei Lo, Larry Smith, Geping Liu, Man On Wong, Nafira Daud <i>1,4Plot 6, Bayan Lepas Technoplex, Medan Bayan Lepas, 11900 Penang, Malaysia, Altera Corporation</i>	
Stimulated Raman Scattering for Various Fiber Types and Walk-off Lengths	446
Yasin M. Karfaa, M. Ismail, Abbou F. M, S. Shaar and Majumder S. P <i>Dept. of Electrical, Electronics and Systems Engineering, University Kebangsaan Malaysia</i>	
Determination of Copper Contamination from Various Sources in an RFIC Wafer Fab Using VPD -TXRF Methodology	451
Hasmayati Abu Bakar, Zaiki Awang and Wan Ab Aziz Wan Razali <i>¹Microwave Technology Centre, Faculty of Electrical Engineering, Universiti Teknologi MARA, 40450 Shah Alam, Selangor, MALAYSIA, ²Silterra (M) Sdn Bhd, 09000 Kulim, Kedah, MALAYSIA</i>	
Single Stage RF Amplifier at 5.8GHz ISM Band with IEEE 802.11a Standard	456
A. R. Othman, I. M. Ibrahim, M. S. A. S. Samingan, A. A. A. Aziz, M. F. Mohd Selamat, H. C. Halim <i>Faculty of Electronics and Computer Engineering, Universiti Teknikal Malaysia Melaka, Hang Tuah Jaya, Ayer Keroh, 75450 Melaka</i>	
5.75 GHz Microstrip Bandpass Filter for ISM Band	460
A. R. Othman, I. M. Ibrahim, M. F. Mohd Selamat , M. S. A. S. Samingan , A. A. A. Aziz, H. C. Halim <i>Faculty of Electronic and Computer Engineering, Universiti Teknikal Malaysia Melaka, Hang Tuah Jaya, Ayer Keroh, 75450 Melaka</i>	
Cascading LNA and RF Amplifier for Front-End Direct-Conversion Receiver at 5.8 GHz	465
A.A Abd Aziz, A. Rani Othman, S.A Sahingan, M.F Selamat and M.H Che Halim <i>Faculty of Electronic and Computer Engineering, Universiti Teknikal Malaysia Melaka, Hang Tuah Jaya, Ayer Keroh, 75450 Melaka</i>	
5-6 GHz Front-End Low Noise amplifier	471
M.H Che Halim, A. Rani Othman, S.A Sahingan, M.F Selamat and A.A Abd Aziz <i>Faculty of Electronic and Computer Engineering, Universiti Teknikal Malaysia Melaka, Hang Tuah Jaya, Ayer Keroh, 75450 Melaka</i>	
Analysis of Y-Junction Waveguide Using the Method of Line	476
Zainuddin Lambak, Imran A. Tengku, Azliza J.M. Adnan and Chan Wai Yee <i>Photonic Devices Cluster, Telekom Research & Development, Idea Tower I & II, UPM-MTDC, Technology Incubation Center One, Lebuh Silikon, 43400, Serdang, Malaysia.</i>	
Optical Packaging of PLC Optical Splitter and Their Reliability Test	481
W.Y. Chan, Zainuddin Lambak, Azliza J.M. Adnan and Imran A. Tengku <i>Photonic Devices Cluster, Telekom Research & Development, Idea Tower I & II, UPM MTDC, Technology Incubation Center One, Lebuh Silikon, 43400, Serdang, Malaysia</i>	
Improved Characterization and Modeling of PZT Thin Film Capacitors	484
Nor Fazlina Mohd Lazim, Zaiki Awang, Ashaari Yusof, Asban Dollah <i>Microwave Technology Center, Universiti Teknologi MARA, 40450 Shah Alam, Selangor, Malaysia</i>	
Etching Characteristics of PZT Thin Films and Via Hole Patterning for MMIC Capacitors	489
Raudah Abu Bakar, Zaiki Awang, Nor Fazlina Mohd Lazim, Suhana Sulaiman, and Asban Dollah <i>Microwave Technology Center, Universiti Teknologi MARA, 40450, Shah Alam, Selangor, Malaysia</i>	

The Effect of MOSFET Second-Order Nonlinearity to Active Inductor-Based Oscillator	493
Ler Chun Lee, Abu Khari bin A'ain and Albert Victor Kordesch <i>Faculty of Electrical Engineering, University of Technology Malaysia, Skudai, Johor, Malaysia</i>	
Effect of Grounding Arrangement on PZT Thin Film Capacitor	497
Suhana Sulaiman, Nor Fazlina Mohd Lazim, Raudah Abu Bakar, Zaiki Awang and Asban Dollah <i>Microwave Technology Center, Universiti Teknologi MARA, 40450 Shah Alam, Selangor, Malaysia</i>	
Effects of Four-wave Mixing Crosstalk in WDM Networks on the Transmitted Optical Frequencies and Wavelengths of Channels for Various Fiber Types	501
Yasin M. Karfaa, M. Ismail, Abbou F. M, S. Shaari and Majumder S. P <i>Dept. of Electrical, Electronics and Systems Engineering, University Kebangsaan Malaysia, Selangor.</i>	
 WIRELESS AND CELLULAR COMMUNICATION	
The Performance of Cellular System in Using Bunched Concept	506
A.Nasoruddin Mohamad, Mahamod Ismail and Zarina Bt Baharudin Zamani <i>Faculty of Electronic and Computer Engineering Universiti Teknikal Malaysia Melaka, Hang Tuah Jaya, Ayer Keroh, 75450 Melaka</i>	
Handoff Architecture in Next-Generation Wireless Systems Arbitrary Shape Apertures	509
Azita Laily Yusof, Mahamod Ismail and Norbahiah Misran <i>Dept. of Electrical, Electronic and System Engineering, Universiti Kebangsaan Malaysia</i>	
Mobile Prayer Times and Qiblat Direction Using GPS	514
Azmi Awang Md. Isa, Zahriladha Zakaria, Fauzi Mohd. Johar and Ahmad Faisal Othman <i>Department of Telecommunication, Faculty of Electronic and Computer Engineering, Universiti Teknikal Malaysia Melaka, Hang Tuah Jaya, Ayer Keroh, 75450 Melaka</i>	
Mobile Ad Hoc Network Overview	519
Datuk Prof Ir Ishak Ismail and Mohd Hairil Fitri Ja'afa <i>Faculty of Electrical Engineering Universiti Teknologi Malaysia, Skudai, Johor, Malaysia</i>	
Radio Frequency Identification (RFID): Evaluation of the Technology Supporting the Development of Program Latihan Khidmat Negara (PLKN) Participants Tracking Application	527
Datuk Prof. Ir. Ishak Ismail, George Yii Chii Cheng and Nik Mohd Habibullah Nik Mohd Nizam <i>Faculty of Electrical Engineering, University of Technology Malaysia, 81300 Skudai, Johor Bahru</i>	
A Design of UFH Balun for Mobile RFID System	535
Jeong-cheol Kim, Boo-won Jeon, Hyoung-Hwan Roh, Kyong-tae Park, Jun-Seok Park <i>Kookmin Univ. 7-606 Jeongreung-Dong Seongbuk-Gu Seoul</i>	
Reduced Latency in Restricted Flooding Routing Protocol for mobile AD Hoc Network	539
L.A.Latiff, A.Ali, N.Fisal <i>Faculty of Electrical Engineering, University Technology Malaysia</i>	
The Design of Flexible Front End Framework for Accessing Patient Health Records through Short Message Service	544
M.K. Abd Ghani, R.K. Bali, R.N.G. Naguib, I.M. Marshall, A.S. Shibghatullah <i>Faculty of Engineering and Computing, Coventry University, CV1 5FB, UK</i>	

OXADM: Feasibility of Network Security and Migration	549
Mohammad Syuhaimi Ab-Rahman, Muhammad Faiz Bukhori and Sahbudin Shaari <i>Institute of Micro Engineering and Nanoelectronics, UKM, Malaysia</i>	
Process Division between the Transmitter and the Receiver in Synchronous Multiuser Communications	554
Mohd Fadzil Ain, Farid Ghani, Mutamed Khatib, Syed Idris Syed Hassan and Mandeep Singh <i>School of Electrical and Electronic Eng., Universiti Sains Malaysia</i>	
Fractal Koch Curve For UHF Band Application	558
Mohd Nazri A.Karim, Mohamad Kamal A.Rahim, Mohamad Irfan <i>Wireless Communication Center, Faculty of Electrical Engineering, UTM.</i>	
High Speed Vertical-Cavity Laser for Local Area Network Communication	562
Mohd Sharizal Alias, Sufian Mousa Mitani, Mohd Fauzi Maulud, and Hasbullah Anthony Hasbi <i>TM Research & Development Sdn. Bhd. (TMR&D)</i>	
Performance Evaluation of Multiple Differential Detection for Third Generation Mobile Communication System	567
Muhammad Syahrir Johal <i>Department of Telecommunication, Faculty of Electronic and Computer Engineering, Universiti Teknikal Malaysia Melaka, Hang Tuah Jaya, Ayer Keroh, 75450 Melaka</i>	
Smart Attendance System by Using RFID	572
M. K. Yeop Sabri, M. Z. A. Abdul Aziz, M. S. R. Mohd Shah, M. F. Abd Kadir <i>Department of Telecommunication, Faculty of Electronic and Computer Engineering, Universiti Teknikal Malaysia Melaka, Ayer Keroh, 75450 Melaka</i>	
Dynamic Hybrid Automatic Repeat Request for WiMAX - Mobile Multi-Hop Relay	576
Rashid Abdelhaleem Saeed, Ng Chee Kyun, Hafizal Mohamad and Borhanuddin Mohd. Ali <i>Centre for Wireless Communications, MIMOS Berhad, Technology Park Malaysia</i>	
RF Receiver System Design for Wireless Local Area Network Bridge at 5725 to 5825 MHz	582
N.A. Shairi, T. Abd. Rahman, M.Z.A. Abd Aziz <i>Wireless Communication Center, Faculty of Electrical Engineering, Universiti Teknologi Malaysia, 81300 Skudai, Johor, Malaysia</i>	
Analysis of Hemispherical Dielectric Lens Antennas for Wireless Applications	588
S.Ravishankar, T.S.Rukmini, H. Kumaraswamy, S. Sunit, Y. Karthik, P.Vinay, and Arjun Ravishankar <i>Department of Telecommunication Engineering, RV College of Engineering, Mysore Road, Bangalore</i>	
Beamforming Networks Using Cascaded Butler Matrices	593
Sharul Kamal Abdul Rahim* and Peter Gardner <i>Wireless Communication Centre, Faculty of Electrical Engineering, Universiti Teknologi Malaysia, 81300, Skudai, Malaysia</i> <i>Department of Electronic, Electrical & Computer Engineering, The University of Birmingham, Edgbaston, B15 2TT, UK</i>	
Effect of Variable Guard Time Length on Mobile WiMAX System Performance	598
Waiel Elsayed Osman, Tharek Abd. Rahman <i>Wireless Communication Center, Faculty of Electrical Engineering, Universiti Teknologi Malaysia, 81310 Skudai, Johor Bahru, Malaysia</i>	

Performance Analysis and Optimization of Orthogonal Frequency Division Multiplexing System with Enhanced Clipping Technique	603
Wan Hafiza Wan Hassan <i>Physical Sciences Department, Faculty of Science and Technology Universiti Malaysia Terengganu</i>	
Future trend of Radio-Over-Fiber (ROF) in mobile communication	608
Reza Abdolee, Razali Ngah, Tharek Abd Rahman, Abu Bakar Mohammad <i>Faculty of Electrical Engineering, Universiti Teknologi Malaysia, 81310 Skudai, Johor</i>	
Secured Indoor Powerline Communication Using CDMA Technique	613
Mohamed Sherfi Omer AbuElHassan and Razali Ngah <i>Faculty of Electrical Engineering, Universiti Teknologi Malaysia, 81310 Skudai, Johor</i>	
Ray-Tracing Propagation Prediction for Wireless Mesh Networks (WMNs)	618
M.S.Zakaria, V.R Gannapathy, M.Muhammad, N.M Salleh, M.K Suaidi, M.S Johal, M.Z.A Abdul Aziz, M.R Ahmad <i>Faculty of Electronic and Computer Engineering, Universiti Teknikal Malaysia Melaka, Hang Tuah Jaya, Ayer Keroh, 75450 Melaka</i>	
Physical and MAC Cross Layer Design for Wireless Mesh Networks	623
M. Muhammad, N. M. Salleh, M.S. Zakaria, V.R. Gannapathy, M. N. Husain, I. M. Ibrahim, M. S. Johal, M. R. Ahmad, M. Z. A. Abdul Aziz. <i>Faculty of Electronic and Computer Engineering, Universiti Teknikal Malaysia Melaka, Hang Tuah Jaya, Ayer Keroh, 75450 Melaka</i>	
Wireless Mesh Networks: Cross Layer Design Challenge!	628
N.M. Salleh, M. Muhammad, M. S. Zakaria, V.R. Gannapathy, M.K. Suaidi, I. M. Ibrahim, M. Z. A. AbdulAziz, M.S. Johar, M.R. Ahmad <i>Faculty of Electronic and Computer Engineering, Universiti Teknikal Malaysia Melaka, Hang Tuah Jaya, Ayer Keroh, 75450 Melaka</i>	
Network and Medium Access Control (NET-MAC) Layers for Wireless Mesh Network (WMN)	633
V.R. Gannapathy, M. Muhammad, M. S. Zakaria, N.M. Salleh, M.K. Suaidi, I. M. Ibrahim, M. Z. A. AbdulAziz, M.S. Johar, M.R. Ahmad <i>Faculty of Electronic and Computer Engineering, Universiti Teknikal Malaysia Melaka, Hang Tuah Jaya, Ayer Keroh, 75450 Melaka</i>	
Preliminary Study on GPRS Throughput at Northern Region BSC Network	638
S.Roslan, S.M.Rizaudin,A. Hasnain, M.I. Imran, Fadzil A, I.C.M. Izmi <i>Faculty of Electrical Engineering, Universiti Teknologi Mara Pulau Pinang</i>	
The Development and Challenges of Millimeter Wave Test System for Package Level	643
Lim Chee Chiang and Noor Azwan Shairi <i>Avago Technologies, Wireless Semiconductor Division R&D; Bayan Lepas Free Industrial Zone, 11900 Penang, Malaysia</i>	
Real time mailbox alert system via sms or email	648
Siva Kumar a/l Subramaniam, Siti Huzaimah binti Husin, Yusmarnita binti Yusop, Abdul Hamid bin Hamidon <i>Faculty of Electronic and Computer Engineering, Universiti Teknikal Malaysia Melaka, Hang Tuah Jaya, Ayer Keroh, 75450 Melaka</i>	

Modeling and Performance Analysis of WCDMA Radio over Fiber System	652
Hamim Nasoha1 and Sevia M. Idrus2	
<i>Photonics Technology Center, Faculty of Electrical Engineering, University Technology of Malaysia, 81310 Skudai, Johor, Malaysia</i>	
Effects of Cross-phase Modulation Crosstalk in WDM Networks on Received Power and Number of Channels for Various Fiber Types	656
Yasin M. Karfaa, M. Ismail, Abbou F. M, S. Shaari and Majumder S. P	
<i>Dept. of Electrical, Electronics and Systems Engineering, University Kebangsaan Malaysia, Selangor</i>	
Experimental Performance of Harmonic Suppressed Bandpass Filter	661
Jayaseelan Marimuthu and Mazlina Esa	
<i>Microwave/RF and Antenna Research Group, Department of Radio Communication Engineering, Faculty of Electrical Engineering, 81310 UTM Skudai, Johor Darul Takzim, MALAYSIA</i>	
Three Element Compact Broadband Parallel Coupled Microstrip Bandpass Filter of Simple Configuration	665
Jayaseelan Marimuthu and Mazlina Esa	
<i>Microwave/RF and Antenna Research Group, Department of Radio Communication Engineering, Faculty of Electrical Engineering, 81310 UTM Skudai, Johor Darul Takzim,</i>	
TCP Performance Measurement in Different GPRS Network Scenarios	670
A.K. Othman, M. Zakaria, K. Ab. Hamid	
<i>Universiti Malaysia Sarawak, 94300 Kota Samarahan, Sarawak, Malaysia.</i>	