2007 Korea-Japan MicroWave Conference
(KJMW2007)

Advance Program

Naha, Okinawa, Japan
15-16 November, 2007

Organized and co-sponsored by
IEEE MTT-S Japan Chapter
IEEE MTT-S Korea Chapter
The Technical Group on Microwave Engineering and
the Electronics Society of the Institute of Electronics, Information and
Communication Engineers (IEICE) of Japan
The Korea Electromagnetic Engineering Society (KEES)

Technical co-sponsored by
IEEE MTT-S
IEEE MTT-S Kansai Chapter
IEEE Fukuoka Section
IEICE Technical Group on Microwave Simulator Technology

IEEE Catalog Number: 07EX2002
Message from the Conference Chair

Welcome to the 2007 Korea-Japan Microwave Conference in Okinawa!
Over a thousand kilometer far from Seoul and Tokyo, Okinawa Islands is located at a junction of the Black Current and the Jet Stream which creates favored nature: beautiful coral reefs, flowers, fruits, etc. Okinawa people “Uchinanchu” have unique customs and prosperous culture incomparably to the other prefectures in Japan. Korea, Japan and other countries have further different customs and cultures, which are probably reflected on the way of thinking. Please find such differences and discuss in the Conference. Exchange of different views, I believe, will create new progress of microwave technology.

This Conference is originated in Korea-Japan Microwave Workshops, the first in 2000, Seoul, the second in 2002, Yokosuka, and the third in 2005, Busan. The name has changed from Workshop to Conference and the number of accepted papers almost doubled. We hope you will enjoy the Conference and the variety of Okinawa.

Prof. Osami Ishida
Conference Chair

Department of Information and Communication Systems Engineering
Okinawa National College of Technology
Nago
General Information

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Official Language: English

Registration fee:
- Member (IEEE, IEICE, KEES) 12,000 yen
- Non-Member 15,000 yen
- Student 5,000 yen

The registration fee covers admission of all sessions of the conference and a copy of the Conference Proceedings and CD-ROM. The fee should be paid on Japanese Yen or U. S. Dollar at a conference registration desk. Any credit cards are not acceptable. Please download and fill in all the necessary items on Registration Form, and send it to KJMW 2007 Steering Committee.

Conference Proceedings & CD-ROM: will be provided at the registration desk.

How to access Okinawa Gender Equality Center "Tiruru" from Naha Airport:
KJMW2007 Local Arrangement Committee recommends you take a taxi from Naha airport. It will cost between 1,000 and 1,500 yen that depends on traffic condition. If the driver doesn't know "Tiruru," just say "U-n-te-n-me-n-kyo Shi-ke-n-jo-u," or "Pacific Hotel." Both are very close to "Tiruru."

Available Currency:
The Yen is the national monetary unit. Other currencies (Dollars, Won, etc.) are not usually accepted.

Climate:
In November the average maximum daytime temperature in Naha is a warm 24°C (76°F), with little chance of discomfort from heat and humidity, while the average minimum night-time temperature is a comfortable 19°C (66°F).

On average 128 mm (5 inches) of rainfall is expected in Naha during November with rain generally falling on 19 days of the month. There are usually 4 hours of bright sunshine each day, which represents 36% of daylight hours.

During November around midday under clear sky conditions the UV Index in Naha is High (UV Index 6). Average sea temperature around Naha in November is a comfortable 25°C (78°F). (Source: weather4travel.com)
# KJMW2007 Session Schedule

### November 15th (Thursday)

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<td>13:00-13:10</td>
<td>Opening</td>
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| 13:10-14:40| Session 1 (6)  
- Amplifier Techniques - | Session 2 (6)  
- Field Theory and Simulations - |
| 14:40-14:55| Coffee Break                                   | Coffee Break                                   |
| 14:55-16:10| Session 3 (4)  
- Frequency Conversion - | Session 4 (5)  
- Advanced Antennas - |
| 16:10-16:25| Coffee Break                                   | Coffee Break                                   |
| 16:25-17:25| Session 5 (4)  
- Propagation and Absorbers - | Session 6 (4)  
- Advanced Filters - |
| 18:30-21:00| Social Meeting (Pacific Hotel Okinawa)         |                                                |

### November 16th (Friday)

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<th>Time</th>
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| 9:30-10:45 | Session 7 (4)  
- Signal/Power Transmission and Processing - |
| 10:45-11:00| Coffee Break                                   |
| 11:00-12:15| Session 8 (5)  
- Signal Generation and Noise Reduction Techniques - |
| 12:15-14:00| Lunch                                          |
| 14:00-15:30| Session 9 (6)  
- Metamaterials and their Applications - |
| 15:30-15:45| Coffee Break                                   |
| 15:45-17:00| Session 10 (5)  
- Millimeter-Wave and Terahertz-Wave Technologies - |
| 17:00-17:10| Closing                                        |
| 17:30-18:30| KJMW Committee Mtg.                            |
Session 1: Amplifier Techniques
Thursday, November 15th 2007, 13:10-14:40
Room 1-2F

Chairpersons: Sungtek Kahng, University of Incheon
             Hiroshi Okazaki, NTT DoCoMo

TH01-1  A Basic Study on EER Transmitter with Burst-width Envelope Modulation Based on
        Triangle-wave PWM
        Toshio Kodera, Nobuhiko Ando, and Makoto Taromaru
        ATR

TH01-2  A 300–400MHz Band High Efficiency Power Amplifier with Intrinsic Harmonics
        Termination for SDR
        Noriyuki Mukai#, Hiroyuki Arai#, and Kazuhirsa Yamanuchi*
        #Yokohama National University, *Mitsubishi Electric Corp.

TH01-3  0.5 W High Linearity Power Amplifier for Broadband Wireless (3.3 ~ 3.9 GHz)
        Chin-Leong Lim
        Avago Technologies

TH01-4  Compact, Planar and High-Power Spatial Power Combiner by Active Integrated
        Antenna Technique at 5.8 GHz
        Shigeo Kawasaki
        Kyoto University

TH01-5  A 25 GHz, 40 mW Fully-Integrated Power Amplifier in Standard 90 nm Si-MOS
        Technology
        Yoichi Kawano, Toshihide Suzuki, Yasuhiro Nakasha, Tatsuya Hirose, and Kazukiyo Joshin
        Fujitsu Ltd.

TH01-6  Consideration of Linearity in Cascode Low Noise Amplifiers using Double Derivative
        Superposition Method with a Tuned Inductor
        Chi-Wan Park and Jichai Jeong
        Korea University
TH02-1  Time Domain Scheme Based on Positive Sampling Basis Associated with Coifman Scaling Function
Jae Jong Ryu, Wu Seong Lee, Yeon Kwan Moon, Han Chul Kim, and Hyun Chul Choi
Kyungpook National University

TH02-2  Numerical Analysis of Electromagnetic Field Distribution in Hollow Metallic Rectangular Parallelepiped with Roof
Mitsuo Taguchi#, Yasushi Hamada*, and Yuta Sanabe#
#Nagasaki University, *Maeda Motor Corp.

TH02-3  Calculation of Propagation Eigenmode for Stripline with Finite Thickness based on Equivalent Network along Horizontal or Vertical Direction
Kai Ding, Takaharu Hiraoka, and Jui-Pang Hsu
Kanagawa University

TH02-4  Calculation of Near-Field Radiation from Microstrip Using Green's Functions for Arbitrary Height
Sung Jin Kim, Kun Woo Kim, Kyung Hyun Oh, and Taek Kyung Lee
Korea Aerospace University

TH02-5  TE Scattering from Large Number of Grooves Using Green’s Functions and Floquet Modes
Yong Heui Cho
Mokwon University

TH02-6  Modeling of Wave Penetration through Cylindrical Aperture Using an Iterative Method Based on Transverse Wave Concept
Tarek Bdour, Noemen Ammar, Taoufik Aguili, and Henri Baudrand
Sys’Com Laboratory in Engineering School of Tunis
Session 3: Frequency Conversion

Thursday, November 15th 2007, 14:55-16:10
Room 1-2F

Chairpersons: Kenjiro Nishikawa, NTT
              Chul Hun Seo, Soongsil University

TH03-1  A 5.2 GHz Linearized SiGe Quadrature Modulator Using Current Feedback from Output Buffer
        Fumiki Onoma, Koji Tsutsumi, and Noriharu Suematsu
        Mitsubishi Electric Corp.

TH03-2  Highly Linear 1.765 GHz Downconversion Double Balanced Mixer using InGaP/ HBT Technology for AF-ICS Application
        Won Jun Choi, Jae Wook Ko, and Nam Youg Kim
        Kwangwoon University

TH03-3  Analysis of Nonlinear Distortion in Direct Sampling Mixers
        Masaki Ishii and Kiyomichi Araki
        Tokyo Institute of Technology

TH03-4  Noise Analysis of Switched Capacitor Networks in Direct Sampling Mixers
        Takafumi Nasu and Kiyomichi Araki
        Tokyo Institute of Technology
Session 4: Advanced Antennas

Thursday, November 15th 2007, 14:55-16:10
Room 2-3F

Chairpersons: Takashi Ohira, Toyohashi Institute of Technology
Dong Chul Park, Chungnam National University

TH04-1  **Q Evaluation of Small Insulated Antennas in a Lossy Medium and Practical Radiation Efficiency Estimation**
Jae Chun Lee and Sang Wook Nam
Seoul National University

TH04-2  **Compact Meander Slot Antenna with Open-ends**
E. K. Kim#, H. H. Jung#, Y. S. Lee#, and Y. K. Cho*
#Kumoh National Institute of Technology, *Kyungpook National University

TH04-3  **Design of the Tree-Shaped UWB Antenna Using Fractal Concept**
Hyo Woo Kim, Hee Soon An, Jung Nam Lee, Jong Kweon Park, and Jin Suk Kim
Hanbat National University

TH04-4  **The Realization of Wideband Antenna Using Fractal of Crosswise Shape**
Kun Woo Kim, Ki Hyoung Bae, Kyung Hyun Oh, and Hyun Sik Tae
Samsung Thales Co.

TH04-5  **Internal Broadband Folded Monopole Antenna for DTV Laptop Application**
Seng Gil Jeon, Kwang Woo Ryu, Young Ki Lee, and Jae Hoon Choi
Hanyang University
Session 5: Propagation and Absorbers

Thursday, November 15th 2007, 16:25-17:25
Room 1-2F

Chairpersons: Taek Kyung Lee, Korea Aerospace University
Hitoshi Shimasaki, Kyoto Institute of Technology

TH05-1 Development of the EM Wave Absorber for ETC System Using MnZn-ferrite and Carbon
Young Man Song, Dong Il Kim, Chang Mook Choi, and Dae Hee Lee
Korea Maritime University

TH05-2 Study on the Empirical Prediction of 1-min Rain Rate Distribution from Various Integration Time Date
Myoung Won Jung#, Il Tak Han#, Moon Young Choi#, Joo Hwan Lee*, Jeong Ki Pack#
#Chungnam National University, *ETRI

TH05-3 Measurement of Time-Varying Rainfall Rate in Surabaya and Estimation of Attenuation Statistics by Synthetic Storm Technique
Gamantyo Hendrantoro#, Muriani*, Didik Cahyono#, Achmad Mauludiyanto#, and Akira Matsushima$
#Institut Teknologi Sepuluh Nopember, *Universitas Sains dan Teknologi Jayapura
$Kumamoto University

TH05-4 Prediction of Line-of-sight Microwave Signal Fading through Meteorological Parameters
Sukla Duttagupta
Institute of Radio Physics & Electronics
Session 6: Advanced Filters

Thursday, November 15th 2007, 16:25-17:25
Room 2-3F

Chairpersons: Yong Heui Cho, Mokwon University
Hiromitsu Uchida, Mitsubishi Electric Corp.

TH06-1  Design and Fabrication of a New Dual-Mode Microstrip Ring Resonator Bandpass Filter Using Micromachining Technology
Sung Soo Choi and Dong Chul Park
Chungnam National University

TH06-2  Novel Vertical Split Ring Resonator Fabricated in LTCC
Masaya Tamura#, Toshio Ishizaki#, Michael Hoeft*, and Hidekazu Tamai#
#Panasonic Electronic Devices Co.Ltd., *Panasonic Electronic Devices Europe GmbH

TH06-3  Compact 2.1/3.6 GHz Planar Bandpass Filter
Yuta Takagi, Kei Satoh, Kunihiro Kawai, Daisuke Koizumi, and Shoichi Narahashi
NTT DoCoMo Inc.

TH06-4  Cross-coupled Combline Bandpass Filter Using Active Capacitance Circuit
Han Ul Moon, Youg Ho Cho, Seung Un Choi, and Sang Won Yun
Songang University
Session 7: Signal/Power Transmission and Processing

Friday, November 16th 2007, 9:30-10:45
Room 1-2F

Chairpersons: Shigeo Kawasaki, Kyoto University
               Jeong Ki Pack, Chungnam National University

FR07-1  Receiving Coil Analysis for Wireless Power Transmission with Inductive Coupling
        Youn Myoung Gimm#*, Jae Sung Yoo#, Ho Sang Yoo*, Mija Kim*
        #Dankook University, *EMF Safety

FR07-2  Resistively-Terminated Via-Stubs for Signal Integrity Improvement in the
        Semiconductor Test Board
        Sung Ho Joo, DonYeop Kim, Sang Hoon Lee, Se Jang Oh, Ki Sang Kang, and Hai Youg Lee
        Ajou University

FR07-3  Malfunction and Destruction Analysis of CMOS IC by Intentional High Power
        Microwave
        Joo Il Hong, Sun Mook Hwang, Chang Su Huh, Uk Youl Huh, and Jin Soo Choi
        Inha University

FR07-4  Feature Extraction of Radar Targets using Evolutionary Adaptive Wavelet
        Transform
        In Sik Choi# and Hyo Tae Kim*
        #Hannam University, *Pohang University
Session 8: Signal Generation and Noise Reduction Techniques

Friday, November 16th 2007, 11:00-12:30
Room 1-2F

Chairpersons: Youn Myoung Gimm, Dankook University
Tsuneo Tokumitsu, Eudyna Device

FR08-1  A Push-Push Oscillator Using Coupled Microstrip Lines in Common Feedback Loop
Takayuki Tanaka, Mitsuhiro Ueyama, and Masayoshi Aikawa
Saga University

FR08-2  A Comparative Analysis of two Differential Colpitts VCOs in InGaP/GaAs HBT Technology
Cheng Qian, Bhanu Shrestha, Ho San Na, and Nam Youg Kim
Kwangwoon University

FR08-3  Broadband VCO Using Electronically Controlled Metamaterial Transmission Line Based on Varactor-Loaded Split-Ring Resonator
Jae Won Choi and Chul Hun Seo
Soongsil University

FR08-4  Miniaturized Multilayer Inductors on GaAs Three-dimensional MMIC
Takana Kaho#, Motoharu Sasaki*, Yo Yamaguchi#, Kenjiro Nishikawa#, and Kazuhiro Uehara#
#NTT Corporation, *Kyushu University

FR08-5  A Peak-Voltage-Control Circuits and Its Application to Noise Reduction from High Speed RZ Signals
Yuta Tsubouchi, Rennichi Morimoto, Masahiro Akiyama, and Saeko Oshiba
Kyoto Institute of Technology
Session 9: Metamaterials and their Applications

Friday, November 16th 2007, 14:00-15:30
Room 1-2F

Chairpersons: Young Soon Lee, Kumoh Natl. Institute of Tech.
Atsushi Sanada, Yamaguchi University

FR09-1 **A Miniaturized Band Rejection Filter with New Compact Photonic Band-Gap (PBG) Cell Employing Comb-type Microstrip Line**
Young Bae Park, Han Nah Joh, Se Ho Kim, and Young Yun
Korea Maritime University

FR09-2 **An Elliptic-Function Bandpass Filter Employing Left-Handed Operations of an Inter-Digital Coupled Line**
Hiromitsu Uchida, Naofumi Yoneda, Yoshihiko Konishi, and Shigeru Makino
Mitsubishi Electric Corp.

FR09-3 **Left-Handedness based Bandpass Filter Design for RFID UHF-Band applications**
Sungtek Kahng and Jeong Ho Ju
University of Incheon

FR09-4 **A Left-Handed Transmission Line Using a Magnetic Symmetrical Plane**
Hiroshi Kubo, Hidetaka Kuwahara, and Atsushi Sanada
Yamaguchi University

FR09-5 **Basic RF Characteristics of the Microstrip Line Employing Periodically Perforated Ground Metal on MMIC**
Young Yun, Han Nah Joh, Young Bae Park, Se Ho Kim, Hae Cheon Kim, Woo Jin Chang,
Hong Gu Ji, and Ho Kyun Ahn
Korea Maritime University

FR09-6 **Very Thin and Flat Lens Antenna Made of Artificial Dielectrics**
Ikuo Awai, Seiji Kida, and Osamu Mizue
Ryukoku University
Session 10: Millimeter-Wave and Terahertz-Wave Technologies

Friday, November 16th 2007, 15:45-17:00
Room 1-2F

Chairpersons: Joungsuck Bae, Nagoya Institute of Technology
Seog-Tae Han, KASI

FR10-1 Active MMW Imaging System using the Frequency-Encoding Technique
Thomas Deham, Hirokazu Komada, Toru Iwasaki, and Takao Kuki
NHK (Japan Broadcasting Corporation) Science and Technical Research Laboratories

FR10-2 L-Shaped Vertical Strip Line as a Primary Radiator for 2-Dimensional Parabolic Reflector at 60 GHz
Makoto Okiyokota and Futoshi Kuroki
Kure National College of Technology

FR10-3 High Permittivity Tape Transmission Line Embedded in Low Dielectric Support at Millimeter-Wave Frequencies
Ryo-ji Tamaru and Futoshi Kuroki
Kure National College of Technology

FR10-4 Transmission Properties of an Optically Excited Finline Used for a Doppler Frequency Converter
Joungsuck Bae, Yuan Jun Xian, and Sho Yamada
Nagoya Institute of Technology

FR10-5 Plasma Effects in HEMT-like Structures: Equivalent Circuit Model and Simulation
Irina Khmyrova
University of Aizu
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