The Microwave Industry Visits the Olympic Village

Patrick Hindle, *Microwave Journal* Editor

The third annual Electronic Design Innovation Conference (EDI CON) China takes place April 14-16 at the China National Convention Center (CNCC) located in the Olympic Village in Beijing. The conference and exhibition has expanded in its first two years and outgrew its previous venue. Like the Olympics, this event draws some of the best "industry athletes" or experts from around the world. They come each year to share and exchange information on the latest developments and advances in our industry.

The conference kicks off at 10:00 on April 14 on the fourth floor of the CNCC with some exciting paper sessions including a full track on amplifier design that includes the latest on envelope tracking and DPD design. There are five parallel tracks including one on high frequency PCB and connector design with presentations from leading substrate material and connector companies from around the world. Another track includes high frequency and high speed design techniques covering various measurement & modeling subjects and mmWave topics. The system level measurement and modeling track features topics on the latest in OTA measurements, Wi-Fi and oscilloscope technology. The systems engineering track on Tuesday covers topics such as MIMO antennas, base stations and measurement chambers. The afternoon workshops build on these topics by offering tutorials from company experts involved in these subject areas.

At 15:30 on Tuesday, the keynote plenary talks commence in the auditorium on the fourth floor. EDI CON honorary chairman, Prof. Dr. Junde Song from Beijing University of Posts and Telecommunications will discuss how the "Construction of Smart Cities and Communities" is driving rapid development of ICT Industry in China. Dr. Song is leading many of the Smart Cities projects around China and is an expert in this area of research. His talk will be followed by Wai Chen from China Mobile Research Institute, discussing the latest developments in the Internet of Things (IoT). Hongbing Ma of China Unicom will then talk about 5G co-existing opportunities and challenges for future communications systems. Jian Li Wang, CTO of RF Products from ZTE will discuss the latest developments in 5G and massive MIMO. Our three major sponsors, Keysight Technologies, Rohde & Schwarz and National Instruments will also discuss their latest product developments and capabilities during the plenary talks.

I am especially excited about the addition of a full day 5G Forum on advanced communications taking place on Wednesday, April 15. The 5G Forum starts with a keynote speech by Dr. Zhengang Pan, principal scientist at China Mobile Research Institute about their vision of 5G and IoT followed by the latest developments from Ericsson. Next will be a panel session with various 5G experts discussing questions from the audience about 5G. The rest of the day includes eight sessions and two workshops covering topics such as massive MIMO, HetNets, phased array transceivers, timing and synchronization, testing challenges, SDR, new modulation schemes and mmWave technologies. This should be a very popular addition to the conference.

The second day also features some interesting tracks including an IoT design track with sessions about low power design, antenna tuning and switching. Another track features several talks on EMI modeling/testing and high speed design techniques. Radar design, test and simulation is the focus of another full day track for system level measurements and modeling plus the systems engineering track covers various topics in testing and designing high frequency and high speed digital systems. The paper session tracks will again be followed by workshops and a special GaN panel with industry experts discussing the status and future of GaN technology in a round table format.

The final day features tracks on microwave component design from VCOs to MMICs to PAs based on LDMOS and GaN technology. There is a measurements and modeling track covering device modeling topics and basic microwave measurement techniques. Another track features various topics on EMC/EMI and high speed measurements and modeling with the systems engineering track covering some high power subsystems and unique communications systems. These are followed by more workshops given by industry experts to close out the conference.

The third annual EDI CON China promises to be bigger and better than ever with a variety of high frequency, high speed and EMC/EMI topics planned over the three day event. EDI CON China 2015 has more than 95 paper sessions and 35 workshops so there is something for everyone. Please join us in Beijing this spring! ■

EDI CON

Tuesday, April 14, 2015

	Measurements & Modeling Track: PCB/Connector Focus	Design Track: Amplifier Focus	RF/Microwave & HSD Measurements/ Modeling Track	System-Level Measurements/ Modeling Track	Systems Engineering Track	
	Room 401	Room 402A/B	Room 403	Room 405	Room 406	
08:00 - 17:00	On-Site Registration Opens					
	General Technical Sessions					
10:00 - 10:20	TU_101 - Characterization of PCB Insertion Loss with a New Calibration Method *Cheng, Keysight Technologies*	TU_102 - Multi-Mode Stability Analysis of Power Amplifiers Employing Mixed-Mode Parameters *Yao, IMECAS*	TU_103 - Characterization Using Multi-Purpose Source & Load Pull Tuners (MPT) for Inverse Class F PA First-Pass Design *Tsironis, Focus Microwaves*	TU_104 - Hybrid Over The Air Throughput Measurement *Young, Pace Americas*	TU_105 - Power Distribution Control Room Electromagnetic Field Simulation Modeling *Du, CST*	
10:20 - 10:40	TU_201 - Testing High Speed PCBs with Vector Network Analyzers *Weiss, Rohde & Schwarz*	TU_202 - A Simple Method for Changing the Frequency Range of an RF Power Amplifier Circuit *Vigneri, Freescale Semiconductor*	TU_203 - High Speed Hybrid Active Injection Load-Pull (HAILP) *Tsironis, Focus Microwaves*	TU_204 - WLAN 802.11ad Spectrum and Modulation Measurements in the 60 GHz Range *Schmähling, Rohde & Schwarz*	TU_205 - Simulation Approach for MIMO Antenna Diversity Strategies *Futter, Altair*	
10:40 - 11:00	TU_301 - Performing Reliable, Repeatable RF Measurements Using RF Test Probes On Board to Board Connectors *Masnou, Radiall*	TU_302 - ET Test Solution and Result Analysis *Ma and Wang, Rohde & Schwarz*	TU_303 - A New Method for Noise Figure Measurement Base on Modern VNA *Li, Keysight Technologies*	TU_304 - From 802.11a to 802.11ah: A Survey of the New Features Available in 802.11ad/af/ah *Hall, National Instruments*	TU_305 - Addressing Multi-Channel Synchronization and Calibration Needs for MIMO Testing *Hsu, Keysight Technologies*	
11:00 - 11:30	Tea Break - South Foyer					
11:30 - 11:50	TU_401 - Effect of Laminate Thermal Conductivity, Dielectric Loss and Copper Roughness on the Temperature Rise of HF Transmission Lines/Devices *Aguayo, Rogers Corp.*	TU_402 - A High Voltage GaN HEMT Power Amplifier Design for Envelope Tracking *Wang, Microsoft*	TU_403 - Applying the Y-Factor Method for Noise Factor Measurements of LNAs *Hall, National Instruments*	TU_404 - 16 Bit Vertical Resolution on Oscilloscopes *Beer, Rohde & Schwarz*	TU_405 - Multiple Entities, Base Stations Efficient Testing of Real Life Scenarios *Thuemmler, Rohde & Schwarz*	
11:50 - 12:10	TU_501 - Material for Improved RFPA Performance *Zhang, Arlon*	TU_502 - Measuring the Time-Alignment in Envelope Tracking Power Amplifiers *Feng, Keysight Technologies*	TU_503 - Noise Parameter Measurement System Verification using On-Wafer Passive Attenuator *Tsironis, Focus Microwaves*	TU_504 - Using Real Time Scope to Fully Analyze High Speed Digital Signals *Lu, Keysight Technologies*	TU_505 - Improving Throughput of Multiport Network Analysis using PXIe Vector Network Analyzer *Hirato, Keysight Technologies*	
12:10 - 12:30	TU_601 - Applying VNA for PCB Power Plane Ultra-Low Impedance and Inductance Measurements *Ko, Keysight Technologies*	TU_602 - Envelope Tracking for Uplink LTE Carrier Agregation *Balteanu, Skyworks*	TU_603 - Methods to Improve Noise Figure Measurement Accuracy in Signal Analyzer *Rui, Keysight Technologies*	TU_604 - Using Sequencer Technique to Speed Up Femtocell Measurement *Cong, Keysight Technologies*	TU_605 - Accurate Simulation of Measurement Chambers *Futter, Altair*	**Press Conference** **Exhibition Hours 12:00 - 18:30**
12:30 - 13:30	Lunch Break - Exhibition Floor					**Poster Session: Exhibition Floor 12:30 - 15:30**
	Workshops					
13:30 - 14:10	WS_TU101 - Measurement of the Effect of Laminate Material Properties on the Temperature Rise of High Frequency Devices *Rogers*	WS_TU102 - DPD, ET and Load Pull: Three PA Measurement Techniques Every Engineer Should Know *National Instruments*	WS_TU103 - Millimeter Wave VNA Development and Application *Anritsu*	WS_TU104 - Simulation Enabled 5G Antenna Design *CST*	WS_TU105 - LTE & LTE-A 4x4 MIMO Throughput Test Solution Based on SystemVue & PXI *Keysight Technologies*	
14:15 - 14:55	WS_TU201 - Impact of Cable Assemblies for Test and Measurement *W. L. Gore*	WS_TU202 - The Design and Optimization of Power Amplifiers Based on Test Techniques *Rohde & Schwarz*	WS_TU203 - Complete Millimeter Wave Test System Includes Noise Figure Measurements *Keysight Technologies*	WS_TU204 - Next Generation LDMOS for Multi-Markets *(NXP)* and Next Generation Industrial Innovation and Manufacturing *(Siemens)* *Transemic*	WS_TU205 - Understanding TD-LTE *Qorvo*	
15:00 - 15:30	Tea Break - Exhibition Floor					
15:30 - 17:30	Plenary Session - Featuring Chair Dr. Song, BUPT; Sponsors; Guest Keynotes: China Mobile, China Unicom, ZTE Auditorium					
18:00 - 20:00	VIP Reception and Dinner (Sponsors and Invited Delegates) - Ballroom, First Floor					

Details in this conference matrix were correct at the time of going to press.
They are subject to change. For up-to-date information visit our website at www.ediconchina.com

EDICON

Wednesday, April 15, 2015

	Design Track: Antennas/IoT/MMICs	5G Forum	HSD/EMC Measurement & Modeling Track	System-Level Measurements/Modeling Track: Radar Focus	Systems Engineering Track	
	Room 401	Room 402A/B	Room 403	Room 405	Room 406	
09:30 - 09:50	WE_101 - Active Antenna and RF Systems Deliver Critical Connectivity for Wireless Devices – From Smartphones to IoT *Wang, Ethertronics*	WE_102 Keynote: 5G and IoT Vision *Dr. Zhengang Pan, China Mobile and Ericsson*	WE_103 - Understanding Fully-Differential Amplifier Specifications and the Benefits of FDAs When Driving ADCs *Sipp, Texas Instruments*	WE_104 - Integrated Framework for Radar Design *Paparisto, National Instruments*	WE_105 - Research and Applications on In-Circuit Test of Signal Processing Boards *Zeng, Beijing Herotec*	
09:50 - 10:10	WE_201 - New IoT RF & Protocol Testing *Ma and Feng, Rohde & Schwarz*	WE_202 - 5G Panel Session: *Keysight Technologies, Rohde & Schwarz, National Instruments, MACOM, China Mobile and Shanghai Tech*	WE_203 - Full-Wave Electromagnetic Simulation for SI and EMI in High Speed Connectors *Sun, CST*	WE_204 - Ultra High Definition (UHD) Imaging for Aerospace and Defense Applications; *Dimitrakopoulos, Rohde & Schwarz*	WE_205 - Simulation to Measurement Workflow for DDR4 Electrical and Timing Compliance; *Yang, Keysight Technologies*	
10:10 - 10:30	WE_301 - HFSS Component Model Libraries to Support Enterprise-Level Product Development and IoT Design *Chen, ANSYS*		WE_303 - Serial Data Link Analysis with Measurement and IBIS-AMI Simulation Correlation *Wang, Keysight Technologies*	WE_304 - A Bridge to Connect Antenna Design and Radar System *Xie, Keysight Technologies*	WE_305 - Real-Time DPD Design-to-Prototype *Inoue, National Instruments*	
10:30 - 11:00	**Tea/Coffee Break - Exhibition Floor**					**Exhibition Hours 10:00 to 17:00**
11:00 - 11:20	WE_401 - Design of W-Band MMICs Based on InP HEMT Technique *Yao, IMECAS*	WE_302 - Massive MIMO System Design and Consideration *Yang, Keysight Technologies*	WE_403 - High-Speed Circuit Board Clock Circuit EMI Simulation and Testing *Ren, CST*	WE_404 - Segmented Capture for Analysis of Long Pulse Sequences for RADAR Analysis *Schmähling, Rohde & Schwarz*	WE_405 - Implementing an FFT-Based EMI Measurement *Tye, Keysight Technologies*	
11:20 - 11:40	WE_501 - Broadband, Low-Loss Impedance Matching for W-Band Power Amplifier with 22 dB Gain *Yao, IMECAS*	WE_402 - Compact Measurement System for 5G mmWave Channel Sounding *Eichler, Rohde & Schwarz*	WE_503 - VFTO Radiated Interference Simulation in GIS Field *Liu, ANSYS*	WE_504 - Automatic Analysis of 500 MHz or 2 GHz Wide Frequency Hopping or Chirp Signals Used in Modern RADAR Applications *Schmähling, Rohde & Schwarz*	WE_505 - Optimization of EVM Testing with VSA/VSG for Modulated Signal Like 802.11 WLAN and LTE *Lin, National Instruments*	
11:40 - 12:00	WE_601 - Multiband Triangular Planar Inverted F-Antenna Design for Wireless Communication Applications *Ho*	WE_502 - Flexible Testbed for 5G Massive MIMO: From Theory to Reality *Jia, National Instruments*	WE_603 - Benefits of Multi-Tone Immunity Testing *Barth, AR*	WE_604 - Modeling and Measurements of Frequency Stepped Chirped Radar *Nguyen, National Instruments*	WE_605 - Design and Implementation of Large-Scale RF and Microwave Switch System *Qi, Pickering*	
12:00 - 12:20	WE_701 - Implementation of a Zigbee Circuit Reference Design *Leong, National Instruments*	WE_602 - mmWave MIMO Channel Sounding for 5G-Technical Challenges and Prototype System *Wen, Keysight Technologies*	WE_703 - EMI and Crosstalk Mitigation on Power Tray *Fan, Cisco*	WE_704 - Comprehensive Radar Testing *Heuel, Rohde & Schwarz*	WE_705 - HFC Improvement for DOCSIS3.1 Evolution *Huang, Keysight Technologies*	
12:30 - 13:30	**Lunch Break - Exhibition Floor**					
	Workshops & Panels					
13:30 - 14:10	WS_WE101 - Smart Antenna Technology and Multi-Channel RF Measurements *Keysight Technologies*	13:30 - 13:50: WE702 - Transceiver Module & Multi-Element Phased Array Design for 5G *Paparisto, National Instruments* 13:50 - 14:10: WE802 - Timing and CFO Synchronization in FBMC System Based on Superimposed Zadoff-Chu Sequences *Zhang, Keysight Technologies*	WS_WE103 - Minimizing EMI Through Effective Signal and Power Integrity *ANSYS*	WS_WE104 - An Active Solution & Service from Microwave to Terahertz for Communications/Radar/Sensor & Imaging Systems *Farran*	WS_WE105 - Commercialization of GaN for Cost-Sensitive Applications *MACOM*	
14:15 - 14:55	WS_WE201- Why Reaching 0 Hz Matters: The True DC Switch *Brown, Peregrine Semiconductor*	14:15 - 14:35: WE902 - Signal and Spectrum Analysis Challenges in 5G Test and Measurement *Schmähling, Rohde & Schwarz* 14:35 - 14:55: WE1002 - HetNet on LTE and Wi-Fi *Yang, Shanghai Tech*	WS_WE203 - 100G Backplane Test Challenges *Keysight Technologies*	WS_WE204 - Radar Complex Electromagnetic Environment Simulation and Evaluation Method *Rohde & Schwarz*	WS_WE205 - Small Cells Design Solutions *Richardson RFPD*	
15:00 - 15:30	**Tea/Coffee Break - Exhibition Floor**					
15:30 - 16:10	WS_WE301 - USB Spectrum Analyzer *Tektronix*	WS_WE302 - Verification and Testing 5G and Millimeter Wave Ultra-Wideband Signals *Keysight Technologies*	WS_WE303 - Automated Test Equipment (ATE) and WiMAX, Wi-Fi, 3G, 4G, LTE, DVB Fading Simulators *Mini-Circuits*	WS_WE304 - Advanced Modeling Techniques for Phased Array Antennas *Cao, ANSYS*	WS_WE305 - Efficiency Enhanced GaN HEMT Allowing Flexible RF Designs for LTE Applications *RFHIC*	
16:15 - 16:55	WS_WE401 - A Method to Reduce Voids in Solder Attach for RF Devices *Freescale*	WS_WE402 - Introduction to Software Defined Radio in LabVIEW *National Instruments*	WS_WE403 - Signal Integrity in Passive RF and Microwave Components *Huber+Suhner*	WS_WE404 - Wideband Impedance Control for Modulated Signals *Focus Microwaves*	PA_WE405 - GaN Panel *Freescale, Qorvo, MACOM and Empower RF* *Sponsored by: Richardson RFPD*	

EDICON

Thursday, April 16, 2015

	Measurements & Modeling Track	Design Track	EMC/EMI & HSD Measurements/Modeling Track	Systems Engineering Track	
	Room 401	Room 402A	Room 403	Room 405	
09:30 - 09:50	TH_101 - A Finite-Element Thermal Model for Compound Semiconductor Devices Implemented in SPICE *Tarazi, MACOM*	TH_102 - Tunable VCO Filtering Circuitry *Ho*	TH_103 - Integrated Low Pass Filter with ESD Protection for Audio Applications *Liu, OnSemi*	TH_105 - System for Positioning and Locating of Missile Threats, Mountable on Airliners *Modammadi, BAAM*	
09:50 - 10:10	TH_201 - DynaFET: Accurate Modeling of III-V HEMTs Based on NVNA Measurements and ANNs *Long, Keysight Technologies*	TH_202 - Coupled Electro-Thermal Analysis of High Power RF Filters *Yuan, ANSYS*	TH_203 - Addressing the Challenges of PAM-4 Receiver Stressed Input Testing *Hoehne, Keysight Technologies*	TH_205 - A 60 and 80 GHz Point-to-Point Data Link with Throughput Up to 160 & 225 Gb *Modammadi, BAAM*	
10:10 - 10:30	TH_301 - Statistical Model Extraction Solution *Fei, Keysight Technologies*	TH_302 - Design Methodology for GaAs MMIC and/or Basestation PA *Lien, National Instruments/AWR*	TH_303 - Analysis of Small Voltage Variation Under Large Signal Conditions *Beer, Rohde & Schwarz*	TH_305 - A Novel Interpretation of Shipbourne EMI Measurements by Means of Fuzzy Theory *Macedo, Inmetro*	
10:30 - 11:00	**Tea/Coffee Break - Exhibition Floor**				**Exhibition Hours 10:00 to 15:00**
11:00 - 11:20	TH_401 - Understanding the Effect of Source Isolation on Intermodulation Distortion Measurements *Fernandez, National Instruments*	TH_402 - C-Band GaN Microwave Power Device Broadband Matching Circuit *Shen*	TH_403 - Advanced Techniques for Testing High Speed, Multi-Lane PCI Express 3.0 and 4.0 Devices *Eads, Keysight Technologies*	TH_405 - A BPSK Demodulator Design for Onboard Satellite Telecommand Receiver *Basit, UET Taxila Pakistan*	
11:20 - 11:40	TH_501 - Measurement of Passive Inter-modulation Using a Vector Network Analyzer *Bednorz, Rohde & Schwarz*	TH_502 - A Rigorous and Simple Method for Loop Circuit Stability Analysis *Yao, IMECAS*	TH_503 - How to Test the DDR4 Circuit and Timing Accurately *Zhao, Keysight Technologies*	TH_505 - Overcoming RF-System Level Challenges in an UHF Multi-Protocol RFID Reader Using Software-Defined Radio (SDR) *Wong, Avidus*	
11:40 - 12:00	TH_601 - Fundamentals of Pulsed Power Measurements *Fernandez, National Instruments*	TH_602 - A 790 to 960 MHz Wideband 600 W LDMOS Asymmetry Doherty Amplifier *Hao, Freescale Semiconductor*	TH_603 - Standard Document to the Test Floor Measurement - Challenges from the Bluetooth Perspective *Jia, National Instruments*	TH_605 - 200 W Power Amplifier/Transceiver Switch Assembly *Hou, Avidus*	
12:00 - 12:20	TH_701 - S-Parameter Measurements with Modulated Signals *Bednorz, Rohde & Schwarz*	TH_702 - Low Phase Noise and Fast Tuning Microwave Signal Generator *Fernandez, National Instruments*	TH_703 - NFC Analogue Measurement Uncertainty Brought by Position Accuracy *He, VI Service*	TH_705 - Microwave Power Combining System Based on Two Injection-Locked CW Magnetrons *Huang*	
12:30 - 13:30	**Lunch Break - Exhibition Floor**				
	Workshops				
13:30 - 14:10	WS_TH101 - Application Circuit to Extend the Bandwidth of Narrow Band Matched MMIC Power Amplifiers *Mini-Circuits*	WS_TH102 - Highly Integrated mmWave PHEMT Foundry Processes *WIN Semiconductors*	WS_TH103 - Resolving Cavity Resonance Effects in Microwave Circuits *Leong, National Instruments*	WS_TH105 - Phase Coherent Signals, Challenges and Applications *Thuemmler, Rohde & Schwarz* and Facing Multi-Port Device Challenges with Modern VNA Testing Techniques *Bednorz, Rohde & Schwarz*	
14:15 - 14:55	WS_TH201 - PCB and Electronic Industry Materials Measurement Methods from Low Frequency to Microwave *Keysight Technologies*	WS_TH202 - A Fast and Reliable High Efficiency GaN PA Design Approach with Measurement Based Model *Maury Microwave*	WS_TH203 - *CETC41 Workshop*	WS_TH205 - Complex RF Environment: Challenges in Telecommunications and A&D; *Thuemmler/Heuel, Rohde & Schwarz* and A Method to Improve the Efficiency of Agile Frequency Synthesizer Testing *Peng, Rohde & Schwarz*	

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