



Automatic RF Techniques Group

69th ARFTG Microwave Measurement Conference

Hilton Hawaiian Village, Honolulu, HI U.S.A. June 8, 2007

TECHNICAL AGENDA

8:00 to 8:05 AM

Welcome and Introduction

8:05 to 8:45 AM

Keynote Speech

“Characterization Challenges for Future Base-Station Power Amplifiers”

Wolfgang Heinrich, FBH Berlin

8:45 to 9:45AM

Session 1: Active Device Characterization

Jean-Pierre Teyssier, Session Chair

Negative Input Resistance and Real-time Active Load-pull Measurements of a 2.5GHz Oscillator Using a LSNA,

Inwon Suh (1), Seok Joo Doo (1), Patrick Roblin (1), Xian Cui (1), Young Gi Kim (1), Jeffrey Strahler (2), Marc Vanden Bossche (3), Roberto Rojas (1), and Hyo Dal Park (1), 1 Ohio State University, Columbus, OH, 2 Andrew Corporation, 3 NMDG Engineering

Inter-Laboratory Comparison of CMOS Distortion Measurements,

Kate A. Remley (1), Joe Gering (2), Susan Sweeney (3), C. Michael Olsen (4), Cliff Xie (2), Dave Walker (1), Tom McKay (4), Jack Pekarik (5), 1 NIST, Boulder, CO, 2 RF Micro Devices, Greensboro, NC, 3 IBM SRDC, Essex Junction, VT, 4 IBM SRDC Hopewell Junction, NY, 5 RF Micro Devices, Scotts Valley, CA

Optimum Tuning Range Analysis of Load Pull Measurement Systems and Impedance Transforming Networks,

Jérôme Sirois and Basim Noori, Freescale Semiconductor, Tempe AZ

9:45 to 10:30 AM

Break and Interactive Forum

10:30 to 11:50 PM

Session 2: Multiport and Differential Measurements

Jon Martens, Session Chair

True Differential Stimulus Gives Additional Insight into Nonlinear Amplifier Behavior,

Jochen Simon, Rohde & Schwarz, Germany

Optimization for Multiport VNA Vector Error Correction,

David Blackham, Agilent Technologies

VNA Error Model Conversion for N-Port Calibration Comparison,

Leonard Hayden, Cascade Microtech, Inc., Beaverton, OR

A Robust Broadband Calibration Method for Wafer-Level Characterization of Multiport Devices,

Andrej Rumiantsev (1), Holger Heuermann (2), and Steffen Schott (1), 1 SUSS MicroTec Test Systems GmbH, Sacka, Germany, 2 University of Applied Sciences Aachen, Germany

11:50 to 1:00 PM

Lunch and Awards

1:00 to 2:40 PM

Session 3: On-Wafer Microwave Measurements

Dylan Williams, Session Chair

Highly Accurate Frequency/Time Domain Characterization of Transmission Lines and Passives for SiP Applications up to 65 GHz,

M. Wojnowski (1), M. Engl (1), R. Weigel (2), 1 Infineon Technologies AG, Neubiberg, Germany, 2 University of Erlangen-Nuremberg, Erlangen, Germany

A bilateral comparison of on-wafer S-parameter measurements at millimeter wavelengths,

Roland G. Clarke (1) and Nick M. Ridler (2), 1 University of Leeds, UK, 2 National Physical Laboratory, UK

Experimental Analysis of On-Wafer Deembedding Techniques for RF Modeling of Advanced RFCMOS and BiCMOS Technologies,

Jing Wang, Robert Groves, Basanth Jagannathan and Lawrence Wagner, IBM Semiconductor Research and Development Center, Hopewell Junction, NY

Design and analysis of inductors for 60 GHz applications in a digital CMOS technology,

Karen Scheir (1,3), Piet Wambacq (2,3), Yves Rolain (1), Gerd Vandersteen (1,3), 1 Vrije Universiteit Brussel (VUB), ELEC, Brussels, 2 VUB, ETRO, Brussels, 3 IMEC, Heverlee, Belgium

Evaluation of Wafer-Level LRRM and LRM+ Calibration Techniques,

Ralf Doerner, Ferdinand-Braun-Institut fuer Hoechstfrequenztechnik (FBH), Berlin, Germany

2:40 to 3:20 PM

Break and Interactive Forum

3:20 to 4:20 PM

Session 4: Accuracy of Linear Vector Network Analysis

Nick Ridler, Session Chair

Computing Uncertainties of S-Parameters by Means of Monte Carlo Simulation,

Johannes Paul Hoffmann, Pascal Leuchtman, Juerg Schaub, and Ruediger Vahldieck, ETH Zurich, IFH, Zurich, Switzerland

Determination of Complex Residual Error Parameters of a Calibrated Vector Network Analyzer,

Gerd Wuebbeler (1), Clemens Elster (1), Thomas Reichel (2), and Rolf Judaschke (3), 1 Physikalisch-Technische Bundesanstalt (PTB), Berlin, 2 Rohde & Schwarz, Munich, 3 Physikalisch-Technische Bundesanstalt (PTB), Braunschweig, Germany

LRM: A quantitative look at reference impedance contradictions and other uncertainty impacts,

Jon Martens, Anritsu Company, Morgan Hill, CA

4:20 to 5:00 PM

Session 5: Complex Waveform Analysis

Jan Verspecht, Session Chair

Complex Signal Measurement Bench Based on a Special Spectrum Super-Resolution Algorithm,

João Paulo Martins (1), Paulo J. S. G. Ferreira (2), and Nuno B. Carvalho (1), 1 Instituto de Telecomunicações, 2 IEETA, Universidade de Aveiro, Portugal

A General Evaluation Criteria For Behavioral Power Amplifier Models,

David Wisell (1,2,3), Magnus Isaksson (1,2), Niclas Keskitalo (1,3), 1 University of Gävle, Dept. of Electronics, Gävle, Sweden, 2 Royal Institute of Technology, Signal Processing Lab, Stockholm, Sweden

Interactive Forum: Poster Papers

Characterization of Low Dielectric Constant Materials,

Dietmar Köther, Uwe Gollor, IMST GmbH, Kamp-Lintfort, Germany

ANN Modeling of Synthetic Cold Loads,

Diego Langoni and Mark H. Weatherspoon, Department of Electrical and Computer Engineering Florida A&M University-Florida State University College of Engineering, Tallahassee, FL

A new technique for measuring the resonant behavior of power amplifier bias circuits,

Scott Rumery (1) and Basim Noori (2), 1 Skyworks Inc. Cedar Rapids, IA, 2 Freescale Semiconductor Inc. Tempe, AZ

A Study of a Variable-Capacitance Drain Network's Influence on Dynamic Behavioral Modeling of an RF PA,

Magnus Isaksson (1,2), David Wisell (1,2,3), Anders Eng (4), and Daniel Rönnow (5), 1 University of Gävle, Gävle, Sweden, 2 Royal Institute of Technology, Stockholm, Sweden, 3 Ericsson AB, Stockholm, Sweden, 4 Syntronic AB, Gävle, Sweden, 5 WesternGeco AS Asker, Norway

HiCUM and Bsim3V3.2.4 Nonlinear Behavior Validation in RF BiCMOS SiGeC 0.25 μ m Process for Bipolar and CMOS Transistors,

Raphael Paulin, H el ene Beckrich-Ros, Samuel Boret, Patrick Scheer, Didier C eli, Daniel Gloria, STMicroelectronics, Crolles Cedex, France

Noncontacting measurement of reflection coefficient and power in planar circuits up to 40 GHz,

K. Yhland, J. Stenarson, and C. Wingqvist, SP Technical Research Institute of Sweden, Boras, Sweden

Analytical expression of error propagation from OSL calibration standards for RF reflection measurement,

Yufeng Han, MKS Instruments, ENI, Rochester, NY

Residual error models for the SOLT and SOLR VNA calibration algorithms,

J. Stenarson, K. Yhland, SP Technical Research Institute of Sweden, Boras, Sweden

A new assessment method for the residual errors in SOLT and SOLR calibrated VNAs,

J. Stenarson, K. Yhland, SP Technical Research Institute of Sweden, Boras, Sweden

Characterization of MOS varactor with Large Signal Network Analyser (LSNA) in CMOS 65nm bulk and SOI technologies,

Y. Morandini (1,2), D. Ducateau (2), J.-F. Larchanche (1), C. Gaqu iere (2), and Daniel Gloria (1), 1 STMicroelectronics, Crolles Cedex, France, 2 IEMN, Villeneuve d'Ascq Cedex, France

Optimization of the substrate parameters for EM simulators,

F. Korndoerfer (1), F. Sischka (2), 1 IHP, Frankfurt(Oder), Germany, 2 Agilent Technologies, B oblingen, Germany

The Modified Ripple Test for On-Wafer S-Parameter Measurements,

Holger Heuermann (1) and Andrej Rumiantsev (2), (1) Univ. of Applied Sciences Aachen, Germany, (2) SUSS MicroTec Test Systems, Sacka, Germany

An Automated LNA/PPA Characterization System,

Jean-Fran ois Nowakowski, STMicroelectronics, Crolles Cedex, France

Using a Mismatch Transmission Line to Verify Accuracy of a High Performance Noise Figure Measurement System,

Ken Wong (1), Roger Pollard (1,2), Bob Shoulders (1), Lynn Rhymes (1), 1 Agilent Technologies, Inc., Santa Rosa, CA, 2 School of Electronic and Electrical Engineering, University of Leeds, Leeds, UK

On-Wafer Time Domain Load-Pull Optimization of Transistor Load Cycle with the New Multi-Harmonic MPT Tuner,

Fabien De Groote (1), Olivier Jardel (1), Jean-Pierre Teyssier (1), Tony Gasseling (2), Jan Verspecht (3), Vince Mallette (4), Christos Tsironis (4), (1) XLIM CNRS, University of Limoges, France, (2) AMCAD Engineering, Limoges, France, (3) Jan Verspecht BVBA, Belgium, (4) Focus Microwaves, Canada

A New Multiline TRL Calibration Technique Implemented with a Variable Phase Shifter,

J. E. Z u niga-Ju arez, J. A. Reynoso-Hern andez, CICESE, Ensenada, M exico

Characterizing the 2.92 mm-Connector Airline using the Time-domain Gating Methods,
Yeou-Song (Brian) Lee, Anritsu Company, Morgan Hill, CA

45 Degrees Loaded-Line Phase Shifter using Switchable Slow Wave Transmission Lines,
S. Brebels (1,2), X. Rottenberg (1,2), P. Ekkels (1,2), R. P. Mertens (1,2), and W. De Raedt (1), 1 IMEC Leuven, Belgium, 2 K.U.LEUVEN, ESAT, Leuven, Belgium

Dynamic Time-Frequency Waveforms for VSA Characterization of PA Long-term Memory Effects,
Jie Hu (1), Kevin G. Gard (1), Nuno Borges Carvalho (2) and Michael B. Steer (1), 1 North Carolina State University, Raleigh, USA, 2 Instituto de Telecomunicações, Campo Universitário, Aveiro, Portugal

An Innovative Waveguide Interface for Millimeter Wave and Sub-millimeter Wave Applications,
Yuenie S. Lau and Anthony Denning, OML Inc., Morgan Hill, CA

The XML File Format as a General Solution for Measurement Data Storage and Exchange,
Jean-Pierre Teyssier (1), Fabien de Groote (1), Markus Mayer (2), Peter Schlemko (2), Andrej Rumantsev (3), Viktor Khutko (3), Roland Gesche (4), Ralf Doerner (4), 1 XLIM-IRCOM, CNRS, University of Limoges, Brive, France, 2 Technische Universität Wien, Vienna, Austria, 3 SUSS MicroTec Test Systems GmbH, Thiendorf OT Sacka, Germany, 4 Ferdinand-Braun-Institut für Höchstfrequenztechnik (FBH), Berlin, Germany

Modeling of Multi-Port Inductor Considering Mutual Components,
Takeshi Ito, Kenichi Okada, and Kazuya Masu, Integrated Research Institute, Tokyo Institute of Technology, Yokohama, Japan

An Automated 1-kHz Null-Balance Receiver for Precision RF and Microwave Attenuation Measurements and Standards,
Anton Widarta, Hitoshi Iida and Tomoteru Kawakami, National Metrology Institute of Japan (NMIJ), National Institute of Advanced Industrial Science and Technology (AIST)

Noise Temperature Measurement Uncertainty Analysis Using Monte Carlo Simulations,
R. Joe Smith and Mark H. Weatherspoon, Department of Electrical and Computer Engineering, Florida A&M University–Florida State University College of Engineering, Tallahassee, FL



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