

ARFTG 64th Conference – Digital Communication System Metrics

December 2, 2004

7:30 - 8:30 Registration and Breakfast

8:30 - 8:40 Opening Remarks

Session 1: Uncertainty

8:40 - 9:00 1-1

A generalised approach to the propagation of uncertainty in complex S -parameter measurements
N.M. Ridler, M.J. Salter
National Physical Laboratory, Teddington, Middlesex, UK

9:00 - 9:20 1-2

Calculations of measurement uncertainty in complex-valued quantities involving 'uncertainty in the uncertainty'
B.D. Hall
Measurement Standards Laboratory of New Zealand, Lower Hutt, New Zealand

9:20 - 9:40 1-3

Uncertainty Analysis of the Weighted Least Squares VNA Calibration
Ken Wong
Agilent Technologies, Santa Rosa, CA

9:40 - 10:00 1-4

Influence of RF Measurement Uncertainties on Model Uncertainties: Practical case of a SiGe HBT
D. Schreurs, H. Hussain, H. Taher, B. Nauwelaers
K.U.Leuven, Leuven, Belgium

10:00 - 10:40 Break

Session 2: Digital Communication System Metrics

10:40 - 11:00 2-1

Accurate Estimation of Digital Communication System Metrics — SNR, EVM and Rho in a Nonlinear Amplifier Environment
K.M. Gharaibeh, K.G. Gard, M.B. Steer
North Carolina State University, Raleigh, NC

11:00 - 11:20 2-2

EVM Measurements for Broadband Modulated Signals
Mike McKinley¹, Kate A. Remley¹, Maciej Myslinski¹, J. Stevenson Kenney²
¹NIST
²Georgia Institute of Technology

11:20 - 11:40 2-3

Dynamic complex IMD measurement system

B. Noori, M. Sajid, K. Salam
REMEC/Spectrian, Folsom, CA

11:40 - 12:00 2-4

Volterra Characterization and Predistortion, Linearization of Multi-Carrier Power Amplifiers

S.K. Myoung¹, D. Chaillot^{1,2}, P. Roblin¹, W. Dai³, S.J. Doo¹

¹Ohio State University, ²on leave from CEA, ³Agere Systems

12:00 - 12:20 2-5

Identifying the main nonlinear contributions: Use of multitone excitations during circuit design

L. De Locht^{1,2}, G. Vandersteen¹, P. Wambacq¹, Y. Rolain², R. Pintelon², J. Schouken², S.

Donnay¹

¹IMEC, Heverlee, Belgium

²Vrije Universiteit Brussel, Brussels, Belgium

12:20 - 13:40 Lunch

Session 3: Semiconductor Modeling

13:40 - 14:00 3-1

Analysing impact of MOSFET oxide breakdown by small- and large-signal HF measurements

D. Schreurs¹, L. Pantisano², and B. Kaczer²

¹K.U.Leuven, ²IMEC, Leuven, Belgium

14:00 - 14:20 3-2

The Normalized Difference Unit as a Metric for Comparing IV Curves

C. Baylis, L.P. Dunleavy, A.D. Snider

University of South Florida, Tampa, FL

14:20 - 14:40 3-3

An approximate method for extracting the effective parasitic capacitance of a large signal

LDMOS transistor

B. Noori and L. Giffin

REMEC/Spectrian, Folsom, CA

14:40 - 15:20 Business Meeting and Elections

Session 4: Open Forum

15:20 - 17:00

4-1

Design of On Chip Coplanar Waveguide Matching Circuit for SiGe BiCMOS RF Amplifier

H. Kanaya, T. Nakamura, K. Yoshida

Kyushu University, Fukuoka, Japan

4-2

Experimental analysis of short-circuit line technique for measuring permeability of ferromagnetic materials

V.B. Bregar^{1,2}, D. Lisjak², A. Žnidaršič¹, M. Drofenik^{2,3}

¹Kolektor Group Feriti - Iskra Feriti, Ljubljana, Slovenia

²Jozef Stefan Institute, Ljubljana, Slovenia

³Faculty for Chemistry and Chemical Engineering, Maribor, Slovenia

4-3

Practical modeling and de-embedding procedure for matching circuit of triple band front-end module used for EGSM/DCS/PCS cellular phone system

N. Shibagaki¹, K. Sakiyama², M. Hikkita¹

¹Hitachi Central Research Lab, ²Hitachi Media Electronics, Tokyo, Japan

4-4

A Non-Contacting Sampled-Line Reflectometer for Microwave Scattering Parameter Measurements

D. Hui, R.M. Weikle, II

University of Virginia, Charlottesville, VA

4-5

First results of microwave measurement of broadband radio interference filter

K. Hoffmann, Z. Skvor

Czech Technical University, Prague, Czech Republic

18:30 - 20:30 Awards Banquet

ARFTG 64th Conference – Digital Communication System Metrics

December 3, 2004

7:30 - 8:30 Continental Breakfast

Session 5: Differential Measurements

8:30 - 8:50 5-1

New Measurement Results and Models for Non-linear Differential Amplifier Characterization

Joel Dunsmore

Agilent Technologies, Santa Rosa, CA

8:50 - 9:10 5-2

LRL/LRM Modifications for Simplified High Frequency Multiport/Differential Measurements

J. Martens, D. Judge, J. Bigelow

Anritsu Company, Morgan Hill, CA

9:10 - 9:30 5-3

Multimode TRL and LRL Calibrated Measurements of Differential Devices

T. Büber¹, A. Rodríguez^{1,2}, J.P. Lanteri¹, J. Bennett¹, R. Wohlert¹, J. Mahon¹, A. Khalil¹, A. Jenkins¹, I. Gresham¹, N. Kinayman¹, L.P. Dunleavy²

¹M/A-COM, Inc., Lowell, MA

²University of South Florida, Tampa, FL

9:30 - 9:50 5-4

A high isolation dual signal probe technology

Tim Leshner, Leonard Hayden

Cascade Microtech, Beaverton, OR

9:50 - 10:30 Break

Session 6: Microwave Measurement Technique

10:30 - 10:50 6-1

Network Analyzer Functionality Simulator

P. Malmlöf

Ericsson AB,

Gävle, Sweden

10:50 - 11:10 6-2

A New Concept of PTP Vector Network Analyzer

V. Závodný, K. Hoffmann, Z. Skvor

Czech Technical University, Prague, Czech Republic

11:10 - 11:30 6-3

Large Signal Network Analyzer with Trigger for Baseband & RF System Characterization with Application to K-Modeling & Output Baseband Modulation Linearization

S.K. Myoung¹, X. Cui¹, P. Roblin¹, D. Chaillot^{1,2}, F. Verbeyst³,

M. Vanden Bossche³, S.J. Doo¹ and W. Dai^{1,4}

¹Ohio State University, ²on leave from CEA, ³NMDG, ⁴presently at Agere Systems

11:30 - 11:50 6-4

Functional Tests for Peak Power Sensor and Meter

Y.-S. (Brian) Lee

Anritsu Company, Morgan Hill, CA

11:50 - 13:20 Lunch

Session 7: On-wafer Technique

13:20 - 13:40 7-1

Impact of ground line position on CMOS interconnect behavior

M.F. Ktata¹, U. Arz², H. Grabinski¹, H. Fischer³

¹Universität Hannover, Hannover, Germany

²Physikalisch-Technische Bundesanstalt (PTB), Braunschweig, Germany

³Infineon Technologies, Munich, Germany

13:40 - 14:00 7-2

On-Chip Microwave Test Circuits for Production IC Measurements

W.R. Eisenstadt, R.M. Fox, Q. Yin, J-S Yoon, T. Zhang

University of Florida, Gainesville, FL

14:00 - 14:20 7-3

On-Wafer Measurement Setups for On-chip Antennas Fabricated on Silicon Substrates

Jau-Jr Lin¹, Aravind Sugavanam¹, Li Gao², Joe E. Brewer¹, and Kenneth K. O¹

¹University of Florida, Gainesville, FL

²Silicon Laboratories Inc., Austin, TX

14:20 - 16:00 Student Forum