



Agilent Technologies

**IEEE Southeastern Michigan Section
"Chapter IV" Workshop
Mon, May 4, 2009, 12 – 4 pm
Pizza and Beverages Provided
Room #1200, EECS Bldg,
North Campus, University of Michigan
1301 Beal Ave, Ann Arbor, MI**



"X"- Parameters & Nonlinear Vector Network Analysis (NVNA) Going Beyond S Parameters

Loren Betts

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Please register for this free workshop by emailing Suzanne Melsheimer at Suzanne_melsheimer@agilent.com or by calling (847) 944-6322.

Abstract:

Recent advances in VNA HW and measurement algorithms provide the means to accurately measure and model the RF and Microwave nonlinear characteristics of devices. This presentation will discuss the error correction algorithms used to accurately measure nonlinear device characteristics, introduce a new nonlinear measurement scattering parameter (X-parameter), new measurements of memory effects in nonlinear devices, and recent algorithm advancements RF and DC pulse detection.

Speaker's Biography:

Loren Betts received his BSc degree in computer engineering from the University of Alberta, Edmonton, Alberta, Canada, in 1997, and his MSc degree in electrical engineering from Stanford University, Stanford, CA, in 2003. Currently he is completing his PhD degree in electrical engineering from The University of Leeds, Leeds, UK. His PhD research is specifically the invention and development of the Nonlinear Vector Network Analyzer (NVNA) based on the Agilent PNA-X. He won the "Barnholt Innovation Award" for the NVNA as the invention of the year at Agilent Technologies in 2008. He was also a finalist for the EETimes ACE awards for "Innovator of the Year."

He is currently a research scientist at Agilent Technologies focusing on complex stimulus/response measurements and modeling of nonlinear components utilizing vector network analyzers. He developed the pulse measurement detection algorithms utilized in current Agilent VNAs. He was also instrumental in driving the current multiport measurement and control schemes used in current Agilent VNAs as well as antenna measurements. He has authored and coauthored numerous articles in magazines, trade journals, conferences, and customer presentations.

Details:

Historically Vector Network Analyzer has been used for small signal S-parameters to characterize passive and active devices in a linear operation. Specific configurations have enabled the Vector Network Analyzer to adapt to particular measurement requirements such as pulse, antennae, mmWave, and large signal S-parameter. Today the new highly integrated architecture of the Vector Network Analyzer has added a new level of flexibility and capabilities that can perform simultaneous linear and non-linear measurements on active devices. Learn the concept and technique used to characterize active devices using a modern Vector Network Analyzer.

- Nonlinear Vector Network Analyzer Applications (Why should you care?)
- Nonlinear Vector Network Analyzer Measurements:
- Component Characterization
 - Multi-Envelope Domain
 - X-Parameters
- NVNA Hardware
- NVNA Demonstration (Discussion)
- Summary

Public Invited

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