

# 2<sup>nd</sup> European ANAMET Seminar

Venue: VSL, Delft, The Netherlands ([www.vsl.nl](http://www.vsl.nl))

Date: 27 June 2014

Time: 09:00 hours to 17:00 hours

Registration is required!

For information and registration, please contact Marja Koster [mkoster@vsl.nl](mailto:mkoster@vsl.nl)



This event is sponsored by the European Metrology Research Program (EMRP) 'HF-Circuits' Project ([www.hfcircuits.org](http://www.hfcircuits.org)). The event is an informal seminar and is free to attend. The morning session presents mainly tutorial-based information relating to characterising and/or using Vector Network Analysers (VNAs). The seminar features both poster and oral presentations and includes visits to some of the high-frequency electrical measurement facilities at VSL.

## AGENDA

### 09:00 - 09:30 Coffee and registration

09:30 - 09:50 European Research Project 'HF-Circuits' – "Metrology for new electrical measurement quantities in high-frequency circuits": Overview and Update of Activities

Nick Ridler,  
'HF-Circuits' Project Coordinator

### 09.50 – 12.00 Morning Session (oral presentations)

09:50 - 10:10 Best Measurement Practice in VNA Measurements – Hints for the Practitioner

Juerg Ruefenacht,  
METAS Switzerland

10:10 - 10:30 A Method for De-Embedding Cable Flexure Errors in S-Parameter Measurements

Faisal Mubarak,  
VSL The Netherlands

### 10:30 - 11:00 Coffee break

11:00 - 11:20 An Update on Work Establishing Residual Error Models for Electronic Calibration Units

Jörgen Stenarson,  
SP Sweden

11:20 - 11:40 Assessing Connectorised Printed Circuit Boards (PCB) for Differential and Single-ended Propagation

Martin Salter,  
NPL, UK

11:40 – 12:00 Implementation of Mixed-Mode S-Parameter and Wave Quantity Measurements in R&S Vector Network Analysers

Jochen Simon,  
Rohde & Schwarz, Germany

### 12:00 - 13:00 Lunch

### 13.00 - 13.40 Afternoon Session (poster presentations)

Single Flange 2-port Design for THz Integrated Circuit S-parameter Characterization: Measurement Results

Jörgen Stenarson, SP, Sweden;  
Johanna Hanning,  
Chalmers University of  
Technology, Sweden

VNA Characterization Data in the Uncertainty Evaluation of S-parameter Measurements

Michael Wollensack, Markus  
Zeier  
METAS, Switzerland

An Investigation into Coaxial Connector Test Port Recession Measurement Techniques

Richard Koops and Faisal  
Mubarak, VSL, The Netherlands

VNA Verification Using Cross-connected Waveguide Devices

*Martin Salter and Nick Ridler,  
NPL, UK  
Hui Huang, NIM, China*

How Repeatable are Waveguide Measurements at 1.1 THz?

*Nick Ridler, NPL, UK;  
Roland Clarke,  
University of Leeds, UK*

**13.40 – 15.30 Afternoon Session (oral presentations)**

**13.40 - 14.00** Calibration for Extreme Load Impedance Measurement

*Martin Haase and Karel  
Hoffmann, CTU, Czech Republic*

**14.00 – 14.20** Modeling of Multiple Coated Coaxial Air-lines Considering Finite Conductivity and Surface Roughness

*Sherko Zinal,  
PTB, Germany*

**14:20 - 14:50 Coffee break**

**14.50 – 15.10** Provisional Designs of a Reference Device for Nonlinear and Large-signal Network Analysis

*Mohammed Rajabi and  
Dominique Schreurs, KU Leuven,  
Belgium*

**15.10 – 15.30** Some Guidance Information for Designing Layouts on Printed Circuits Boards (PCBs)

*Franz-Josef Schmuckle,  
FBH, Germany*

**15:30-17:00 VSL Laboratory Facilities tour**