

# EMRP

European Metrology Research Programme  
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## HF-Circuits

### Third European ANAMET Seminar and Workshop “Plans and Considerations for the Upcoming Revision of the EURAMET VNA Calibration Guide”

Wednesday 17<sup>th</sup> December 2014 at 09.00 am (CET)

Venue: Seminar Centre - Room A, Kohlrausch Building, PTB, Braunschweig, Germany

Agenda (Draft)		
9:00-9:30	Coffee and registration	
9:30-9:40	Welcome	Karsten Kuhlmann, PTB, Germany
9:40-10:00	European research project - metrology for new electrical measurement quantities in high-frequency circuits: an overview of activities	Nick Ridler, NPL, UK
10:00-12:20	<b>Morning Session</b>	
10:00-10:20	Reduction technique for measurement comparisons with complex-valued measurands	Karsten Kuhlmann, PTB, Germany
10:20-10:40	Design for candidate reference devices for the LSNA and NVNA	Mohammad Rajabi, KU Leuven, Belgium
10:40-11:00	Use of reduced aperture waveguide to verify mm-wave S-parameter measurements	Martin Salter, NPL, UK
11:00-11:20	Coffee break	
11:20-11:40	Calibration of a VNA operating in differential mode	Martin Hudlicka, CMI, Czech Republic
11:40-12:00	Modeling of balanced calibration standards	Djamel Allal, LNE, France
12:00-12:20	Parasitic electromagnetic effects in differential probes, pads, connectors and transitions – challenges and solutions	Franz J. Schmückle, FBH, Germany
12:20-13:10	<b>Lunch</b>	
13:10-15:40	<b>Afternoon Session: Workshop – “Revising the EURAMET VNA Guide”</b>	
13:10-13:30	The new EURAMET cg-12 guide	Markus Zeier, Metas, Switzerland
13:30-13:50	A simplified method of VNA uncertainty estimation	Markus Zeier, Metas, Switzerland
13:50-14:10	A method for residual error analysis of a calibrated VNA	Faisal Mubarak, VSL, The Netherlands
14:10-14:30	Coffee break	
14:30-14:50	Connector effect and ripple method	Johannes Hoffmann METAS, Switzerland
14:50-15:10	Deriving the residual error model from uncertainties in reflection standards	Jörgen Stenarson, SP, Sweden
15:10-15:30	Using the 'ripple technique' to evaluate residual errors in waveguide VNAs	Nick Ridler, NPL, UK
15:30-15:40	Open Discussion – review of outputs from the workshop	
15:40-17:00	<b>PTB Laboratory Facilities tour</b>	

Last update: 21.11.2014