

Agilent Technologies RF & Microwave Measurement Tutorials

- Free to attend -

For more information, program details and registration:
www.agilent.com/find/eumw2009

Location: Room Livia, Hall 10 on Tuesday. Room for Wednesday
& Thursday to be decided

Tuesday 29 September, 14:00 - 16:00

Modern Spectrum and Signal Analysis

Spectrum Analyzers have advanced considerably in recent years. This tutorial will look at why spectrum analysis is important in a number of different applications and how to measure system and device performance using a spectrum analyzer. We will investigate the advances in modern spectrum analyzers and the benefits they bring to enable advanced signal analysis measurements. You will then get to know the specifications that are important for your application. During the presentation we will look at demonstrations of how these features allow measurements to be optimized.

Wednesday 30 September, 09:30 - 11:15

Signal Generation from Analog Modulation to Multi-Carrier and Multi-Antenna Applications

This presentation addresses the basics of signal generation, the key signal specifications, and the applications of test signals. It will show how signal generators can be taken beyond general purpose applications all the way to simulating advanced signals with impairments, interference, signal capture, and waveform correction. We will first take a brief look at the historical and current applications driving the need to create test signals. From there, the subject of signal sources is divided into these sections: Generating and Simulating signals, Signal Generators, and Signal Simulation Solutions. In the Generating Signals sections, the basics of analog and vector modulation will be discussed. The Signal Generator section will delve into the block diagram, specifications, and applications. The Signal Simulation sections will show how signal generators simulate advanced signals with impairments, interference, signal capture and playback, and waveform correction. Lastly, we will investigate solutions available today and in the near future to best address the challenges of signal generation and simulation. This includes tools for creating waveforms, generating wideband signals and emulating channels for MIMO systems.

Wednesday 30 September, 11:30 - 12:30

Design and Evaluation of a 24 GHz UWB Radar front-end' (presented by Philips Research)

Short-range radar is a technology that can help to enhance road safety. Recently, in the USA as well as in Europe, frequency bands around 24 GHz have been opened up for automotive radar applications. In this workshop, SiGe BiCMOS Ultra-Wideband (UWB) transmitter and receiver front-end ICs will be described. The UWB signal is generated by means of biphasic modulation of a 24 GHz carrier with a pseudo-noise data signal. The transmitter IC will be demonstrated via a remotely controlled wafer-probe station (located at MiPlaza Electronic Measurement Lab, High Tech Campus Eindhoven), enabled through virtual access.



Agilent Technologies

Wednesday 30 September, 14:00 - 17:00

Hands-on tutorial devoted to Electromagnetic Simulations

High performance RF and Microwave devices form the physical layer (PHY) of today's wireless consumer and aerospace defense communication systems. Engineers in this industry have to deal with high complexity silicon and multilayered board technologies. EM (Electromagnetic) interference and coupling between devices is one of the highest challenges. If not contained they can jeopardize the functionality of a complete design. This implies circuit re-spin, lengthening product development time and increasing costs. If equipped with an EM-aware RF Computer Aided Design (CAD) tool, designers can mitigate the impact of electromagnetic effects. Agilent Advanced Design System (ADS), the industry leading RF Electronic Design Automation (EDA) tool, now integrates 3D EM solvers. A 3D EM Finite Element (FEM) solver is added to the ADS layout allowing a full wave 3D EM simulation of 3D structure without leaving the ADS environment. Join this hands-on workshop to learn more about FEM/MOM/FDTD, and try them out on real life test cases. Computers will be provided. Please let us know if you plan to bring your own laptop PC.

Thursday 1 October, 10:00 - 12:00 (presented by Satimo, Italy)

Fast Antenna Measurements Techniques using Probe Arrays

During the session we will describe antenna measurement solutions based on probe array technology with special attention to automotive, aerospace and defense applications. Modern antennas are often multi-beam, active, adaptive and in other ways intelligent. The exhaustive testing of such antennas can be time consuming unless innovative methods are used. Probe array technology offers the possibility to test these modern antennas in a fast and reliable way. The tutorial covers an introduction to probe array technology with examples of different realizations of standard and dedicated measurement systems.

Thursday 1 October, 14:00 - 16:00

Measuring High-Frequency Electrical Networks using Network Analyzers

You will learn what kinds of measurements are made with a network analyser, and how they allow you to characterise both linear and non-linear behaviour of your devices. The session starts with RF fundamentals such as transmission lines and the Smith chart, leading to the concepts of reflection, transmission and S-parameters. The next section covers the major components in a network analyser, including the advantages and limitations of different hardware approaches. Error modelling, some typical swept-frequency and swept-power measurements commonly performed on filters and amplifiers will also be covered.