

Advanced EM in ADS

Keysight Technologies invites you to join our training on Advanced EM in PathWave ADS

Overview

You will learn

Keysight Technologies offers a modularly structured training course of the 3D Method of Moments (Momentum) and Finite Element Method (FEM) electromagnetic simulators integrated into the Advanced Design System (ADS). The course can be configured by customers, depending on their unique requirements, to address either engineers completely new to the technology or engineers who have already used the tool for a number of years but may not have been able to delve into the more advanced capabilities of the simulators or are new to one of the simulation technologies.

- Common EM GUI for Momentum and FEM
- Mapping layouts into 3D solid models
- Momentum RF vs. Momentum Microwave
- Perturbational optimization
- Visualizing currents and EM fields
- Patch and other antennas and radiation patterns
- Efficient via modeling
- Defining multilayer structures using slot layers
- CPW simulations using positive and negative masks
- Differential line modeling and mixed-mode S-Parameters
- Using S-Parameters for power loss analysis of passive structures
- Creating EM components for co-simulation and co-optimization in schematics
- EM component parameterization methods
- Finite metal thickness vs. 2D sheet metal modeling
- Layout preprocessing for efficient EM simulations of complex designs
- IC, LTCC package modeling and multi-technology simulations for SiP, PoP, MCM designs
- Integration of arbitrary 3D components from EMPro within ADS (connectors, packages, transitions, etc.)
- Bondwire modeling and compensation techniques and much more

Course type: User / Application Training

Audience: Engineers and scientists who work in an RF, microwave or mm-wave design environment and want an in-depth understanding of designing circuits using the dominant 3D EM simulation technologies

Prerequisites: Knowledge of ADS layout and schematic capture, circuit simulations and data display. Familiarity with basic concepts of electromagnetic simulations microwave and electromagnetic simulations. PC and MS Windows experience.

Course length: 3 days, 8 hours per day

Course format: The course combines lecture presentations with instructor guided hands-on lab exercises

PathWave Advanced EM in ADS

Date: Please contact us for training dates at: eda.training@keysight.com

Delivery: Virtual / Onsite

Cost: Please contact us for pricing at: eda.training@keysight.com

Language: English

Schedule

Advanced EM in ADS

Day 1	EM Component Parameterization, Cosimulation & Cooptimization • EM component parameterization as the basis for EM-circuit-system co-optimizations • Nominal/Perturbed vs subcircuit component parameterization • Compare traditional “puzzle-piece” modeling approaches to modeling an entire geometry in a single EM simulation • Understand and efficiently use thick conductor modeling using LTCC spiral inductors as examples • For custom geometries with complex parameterization requirements, learn how to define AEL artwork macros and convert them into EM components
Day 2	Efficient CPW & Multilayer Modeling & Analysis of Differential Structures • Use slot layers to efficiently model (CPW) Coplanar Waveguide and multilayer PCB structures • Learn the different grounding concepts such as localized grounds and return paths vs. ground at infinity, and differential signaling • Perform pure differential and mixed-mode (common–differential) S-Parameter simulations using schematic templates and DDS equations and understand the implications this has on real-world differential signal routing
Day 3	Multitechnology Structures, IC Packaging, Modules, SiP • The Finite Element Method is the most general 3D simulation technique and allows users to simulate IC or multi-chip module packages and many other structures that Momentum cannot represent • FEM can also be used to validate Momentum simulations to increase confidence levels. In this module, you will also learn why building 3D models from a 2D layout user-interface has significant benefits over having to draw 3D structures in a CAD UI

Keysight enables innovators to push the boundaries of engineering by quickly solving design, emulation, and test challenges to create the best product experiences. Start your innovation journey at www.keysight.com.



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