

# CMP-50 ADVANCED CHANNEL MODELING PROGRAM

## EXTREME SIGNAL INTEGRITY TO 50GHz

See CMP-50X for  
custom solution!

### FEATURES

- Includes critical structures such as vias, crosstalk aggressors, impedance analysis, ground voids, meshing, loss, and material ID for complete EDA benchmarking
- Allegro layout (.brd or OBD++) available for easy 3D EM import (NDA required)
- Measured S-parameters files included for each structure, tested for quality,
- Material extraction method, including surface roughness
- HFSS Model library included
- TDR resolvers for ultra-fast TDR (10 psec. and 28 psec. rise times) for EDA time domain calibration
- HFSS set-up, and material ID (X-Y and Z-axis, Tensor-based) web-based training

### APPLICATIONS

- Full Anisotropic X-Y and Z Dk and Df extraction using WRT propriety method (NDA required)
- Establish 50GHz High-Confidence Design
- TDNA-VNA analysis structures
- Learn how to design 1<sup>st</sup> spin designs to 50GHz and achieve IEEE P370 TG1 signal integrity rated quality
- Benchmark simulations, test meshing, port boundaries, solver approach
- De-embedding validation and measurement validation

*For custom solutions based on customer stackup refer to CMP-50X*



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**CMP-50 Standard Product. For custom solutions based on customer stack-up refer to CMP-50X**

### Program Contents:

- **CMP-50 Platform, assembled and 100% TDR QA tested, with custom stands**
- **Cross-section for that platform, use as-fabricated geometries**
- **Measured S-parameters, pre-tested for quality (passivity/causality and resampled for time domain simulations)**
- **PCB layout design files (NDA required)**
- **EDA Library including Loss Models, including Industry First accurate surface roughness models**
- **Comprehensive training for 3D EM analysis – correspondence, material ID in X-Y and Z axis in HFSS**

The CMP-50 Channel Modeling Platform represents a powerful next generation tool for development of high-speed 50 GHz systems. The standard product is also used as a template for a custom modeling solution which utilizes a customer specific stack-up and fabricator. The primary target application for this product is 3D-EM solver analysis modeling versus time and frequency domain measurement methodology. All structures include de-embedding to isolate the device-under-test (DUT) using Symmetrical De-embedding such as Automatic Fixture Removal (AFR, both 1X and 2X) or Measure Based Model (MBM) using ADS.

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### SPECIFICATIONS

Table 1 – CMP-50 platform specifications

PC board material	Isola I-Tera MT40
Connectors	2.4mm or 1.85mm vertical launch female (VLF), compression mount, replaceable. All connector launches are NIST traceable tested.
Dimensions	16" x 16" without stands

Table 2 – Test Structures Included by category

Simple transmission structures for material identification and simple transmission modeling	Single ended and differential traces of different lengths for General Modal material ID determination
Pathological	Untuned connector launch vias and test vias, crosstalk generators, diff pair with adjacent plane cutout
Meshing Challenges	Graduated Co-planar - Challenges 3D EM mesh approach
Time Domain Challenges	Untuned vias, Beatty standards, Thru with whiskers (TDR resolvers for ultra-fast TDR, 10 psec. and 28 psec. rise times)
Z Axis Challenges	Untuned vias, differential pair with adjacent plane cutout
VNA Calibration	Short, Open, Load, Thru, 1X THRU, 2X THRU
Generating circuit resonance	Balanced resonator, ring resonators, stub resonators, anisotropic resonator
Intersymbol Interference	Ultra-long differential traces, 16" and 32"

For details and to request a quote us at [sales@wildrivertech.com](mailto:sales@wildrivertech.com). Contact Al Neves at [al@wildrivertech.com](mailto:al@wildrivertech.com) for a 45minute technical presentation called "Extreme Signal Integrity to 50GHz" that outlines the WRT signal integrity program for:

- What is IEEE P370 TG1, how to achieve good SI in one spin
- Material ID methods in all X-Y and Z direction in HFSS
- Setting up your EDA tool for stellar simulation to measurement
- Making good measurements, S-parameter quality work flows

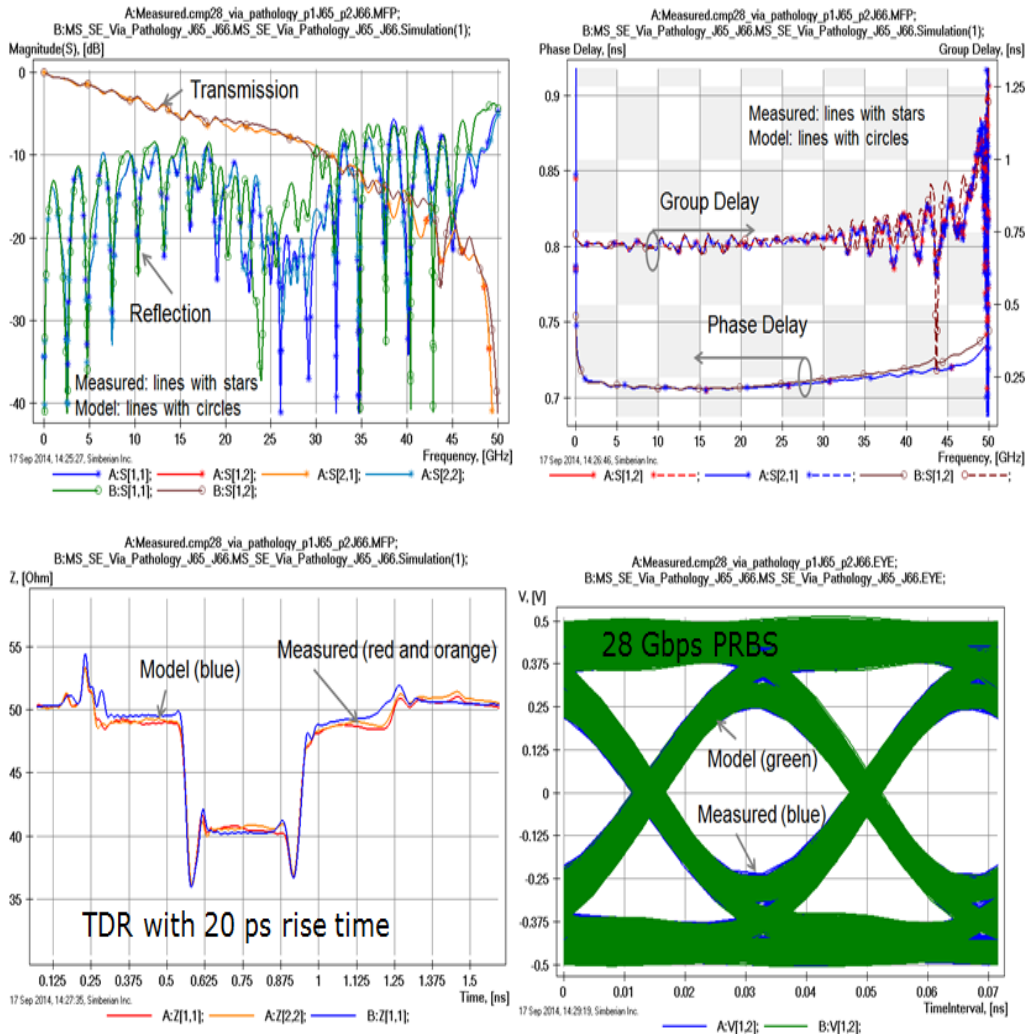


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### EDA KIT AVAILABLE

An EDA is a zipped simulation environment, which includes the board layout, simulation set up and results, and correspondence to measurements for structures on the CMP-50 platform. An example is shown below of simulation to measurement of a pathological structure on the CMP-50. Several EDA kits use a full path approach and others use both de-embedded and full path. Full path includes models of the connector launches. Contact WRT for more information on EDA kits for CMP-50.



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### What's Included

The price for the CMP-50 is expected to be around \$16.9K with 2.4mm connector installed. For this price you get:

- Fully assembled system, 100% NIST traceable TDR tested, report included
- S-parameter library, measured, tested for quality, includes DC point
- Web-based product training with WRT Applications Engineer, scheduled at customers convenience

### Ordering Instructions

Part Number	Model	Description
916-0001-00	CMP-50-1.85mm	Advanced Channel Modeling Platform assembled with 1.85mm VLF connectors
916-0002-00	CMP-50-2.4mm	Advanced Channel Modeling Platform assembled with 2.4mm VLF connectors

### Accessories

Part Number	Model	Description
906-0002-00	Cable Bundle	Four cable pair bundle, blue DXM086 flexible coaxial cable assemblies with 2.4mm compatible male connectors on both ends. Specification: 16dB return loss or better through 50GHz, 1ps or less skew matched cable pairs. Lengths: 2 x 42", 1 x 36", 1 x 24"
907-0016-00	Case	Pelican case with custom cut foam for 16 sq in WRT platforms

