Aries

0.4 mm Socket Test and Model Results

Gert Hohenwarter

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Objective

- Test socket
  - Return loss (S11)
  - Insertion loss
  - Impedance

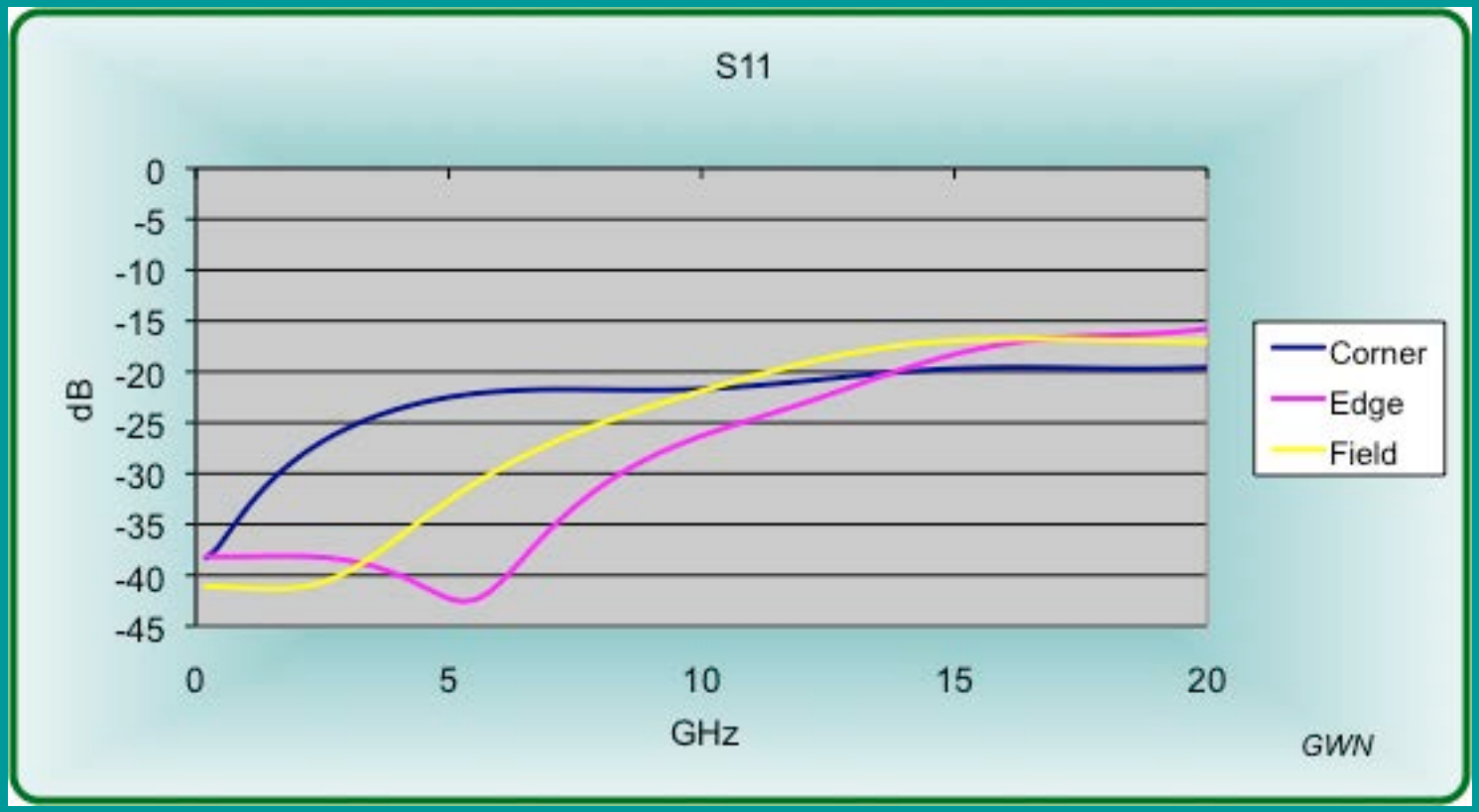
6200 Gisholt Dr. Ste. 205
MADISON,WI 53713 USA
608-224-1250
g.hohenwarter@gatewave.com

Setup

- Agilent HP8722C VNA option 10
- 50 MHz-40.05 GHz
- Effective risetime ~ 25 ps
- Custom probes

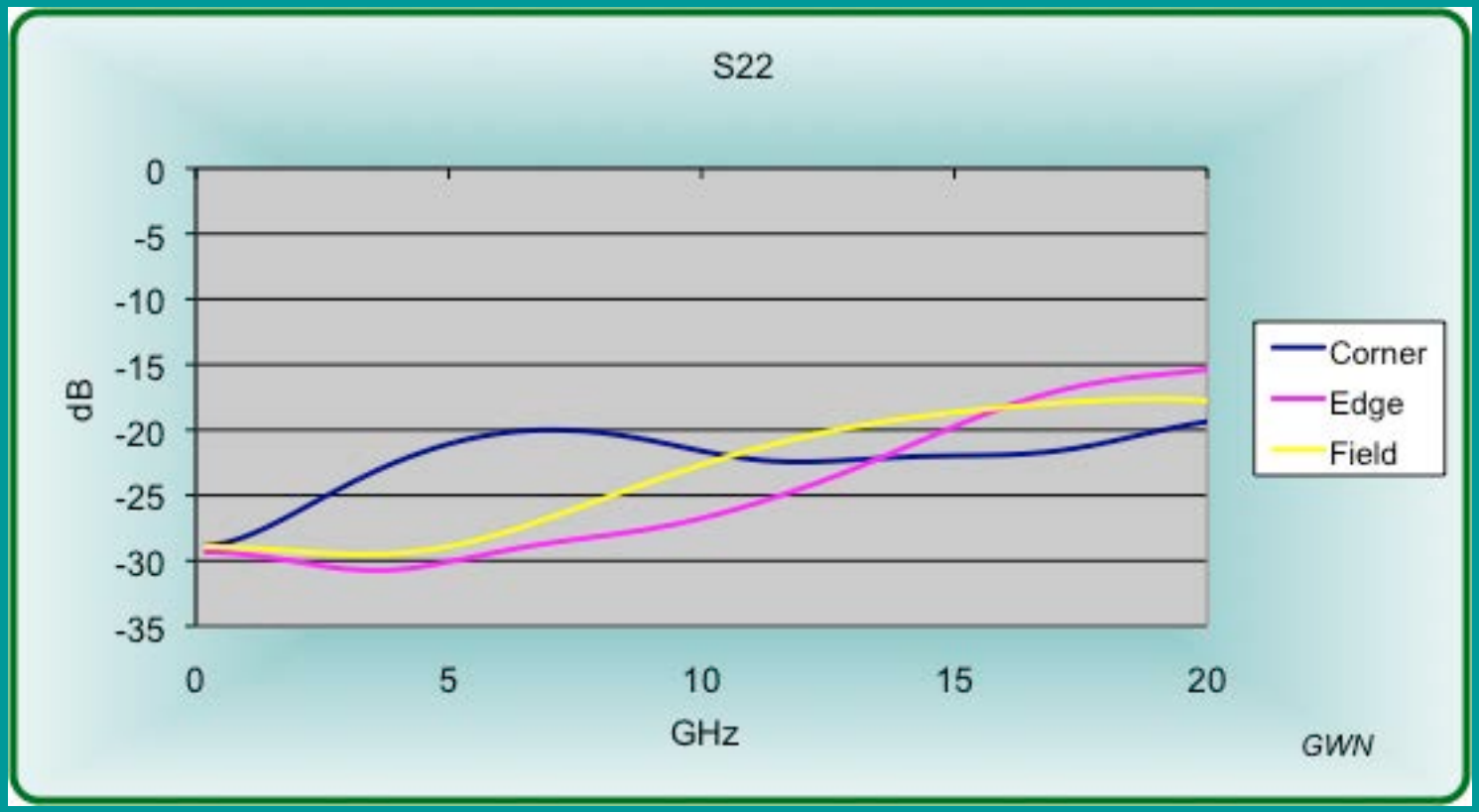
- ANSYS HFSS 3D field modeler

Return loss S11 measured



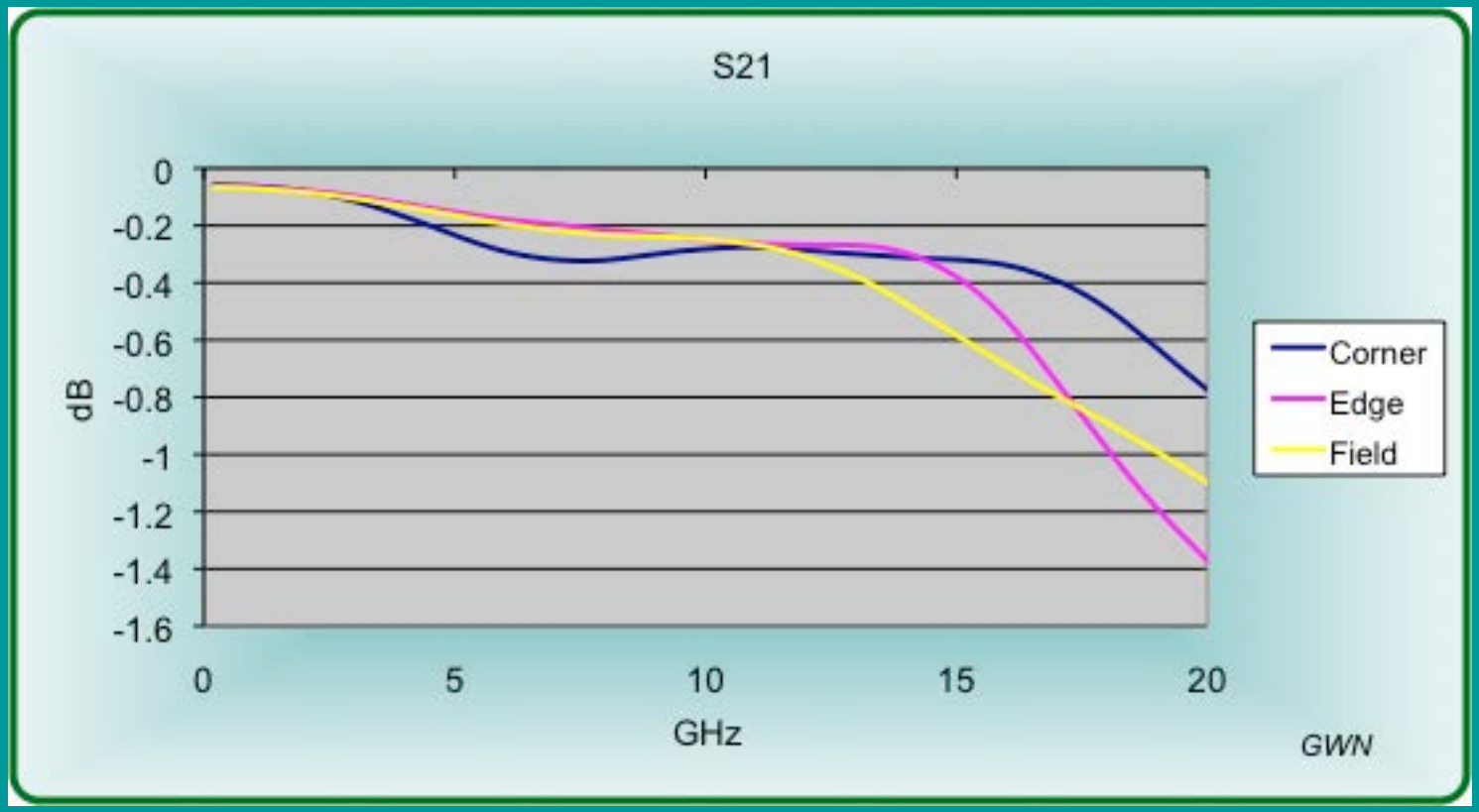
Return loss from PCB side

Return loss S22 measured



Return loss from DUT side

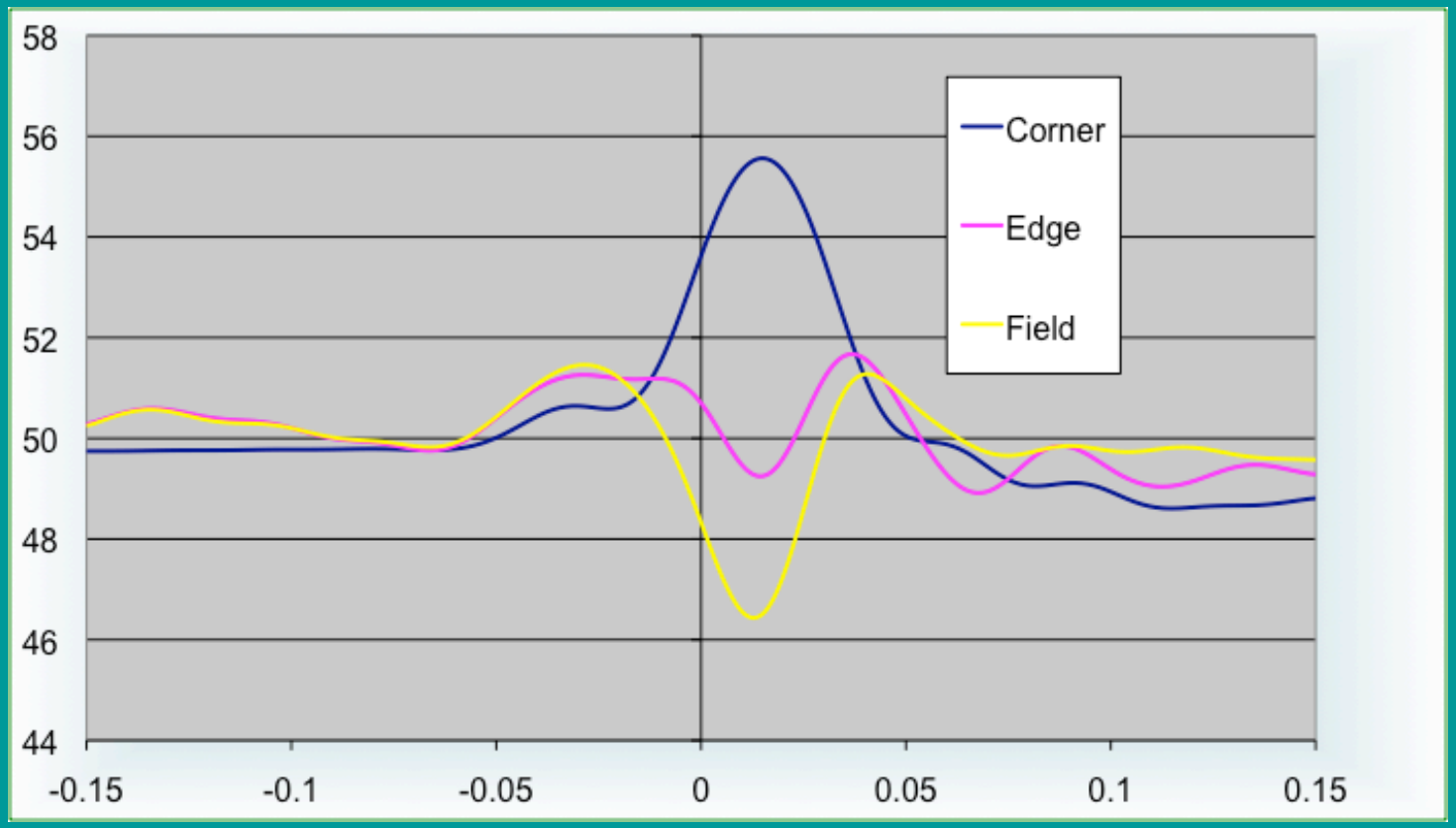
Insertion loss S21 measured



Insertion loss from PCB to DUT side

Impedance measured

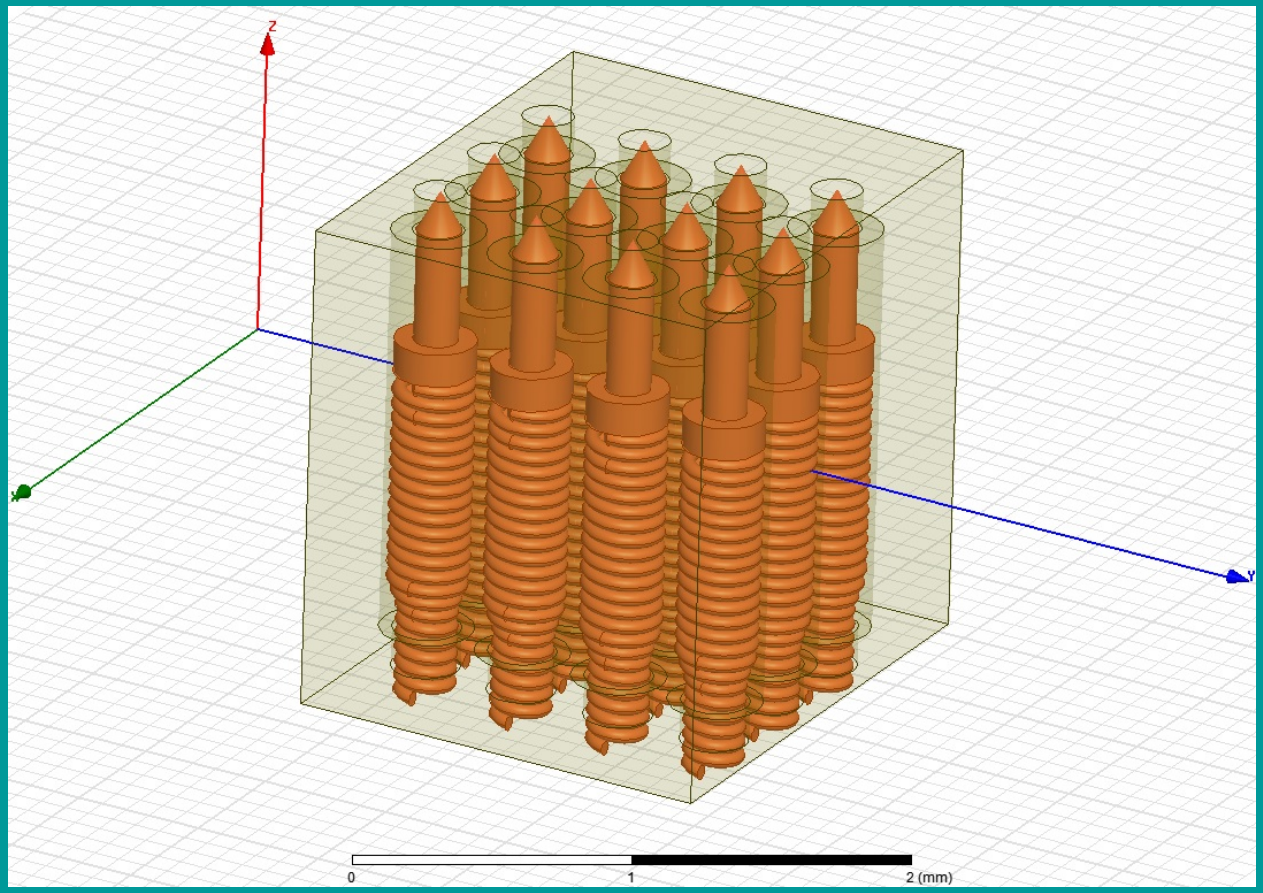
Ohms



ns

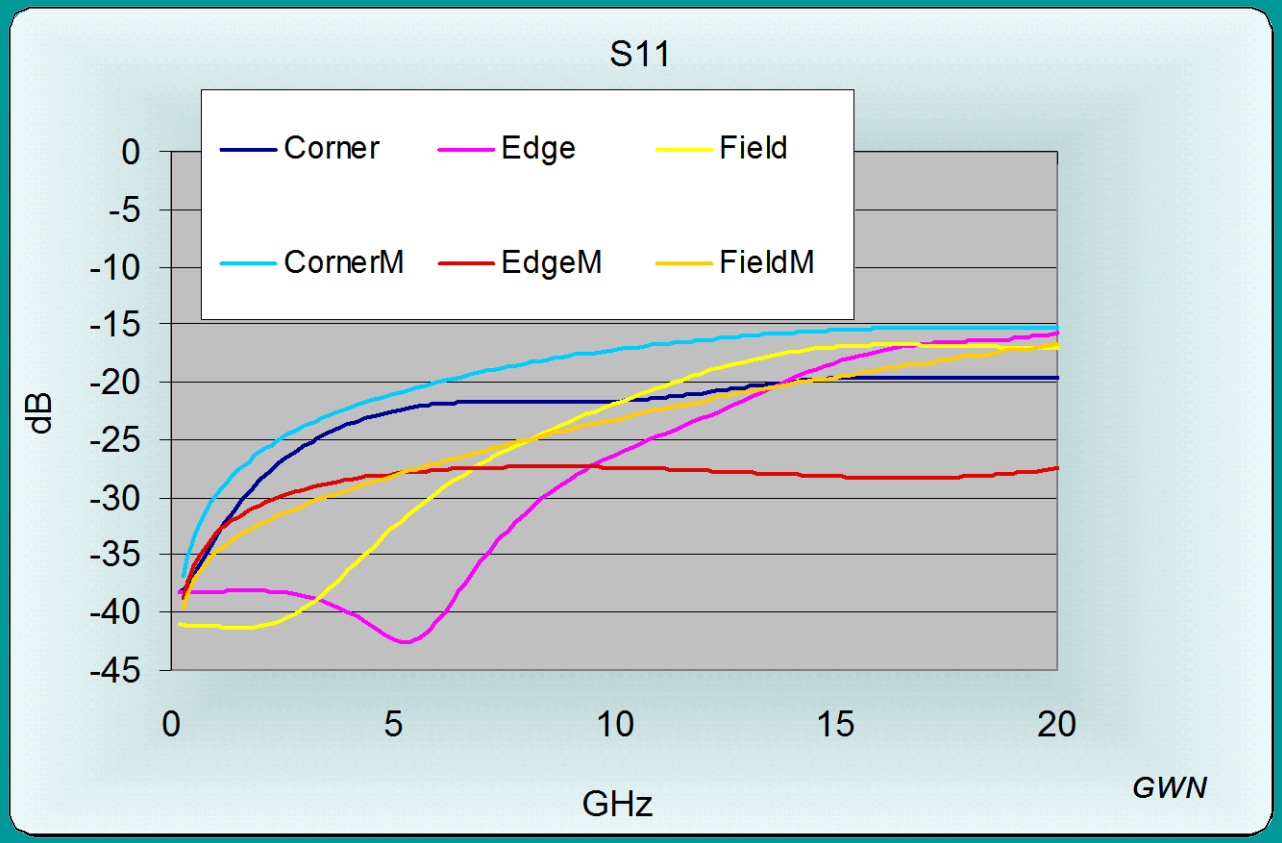
TDR from PCB toward DUT side

HFSS model



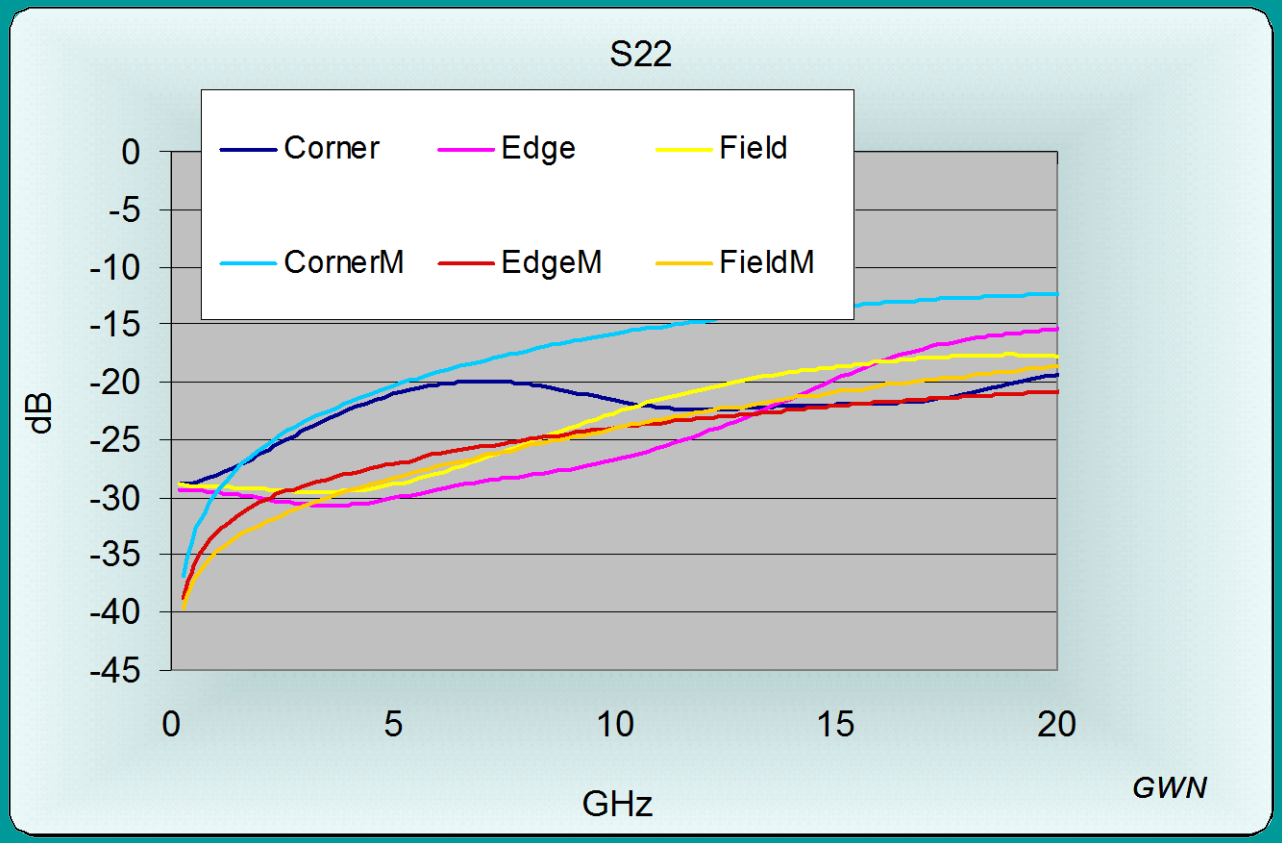
3x4 array for 3D model

Return loss S11



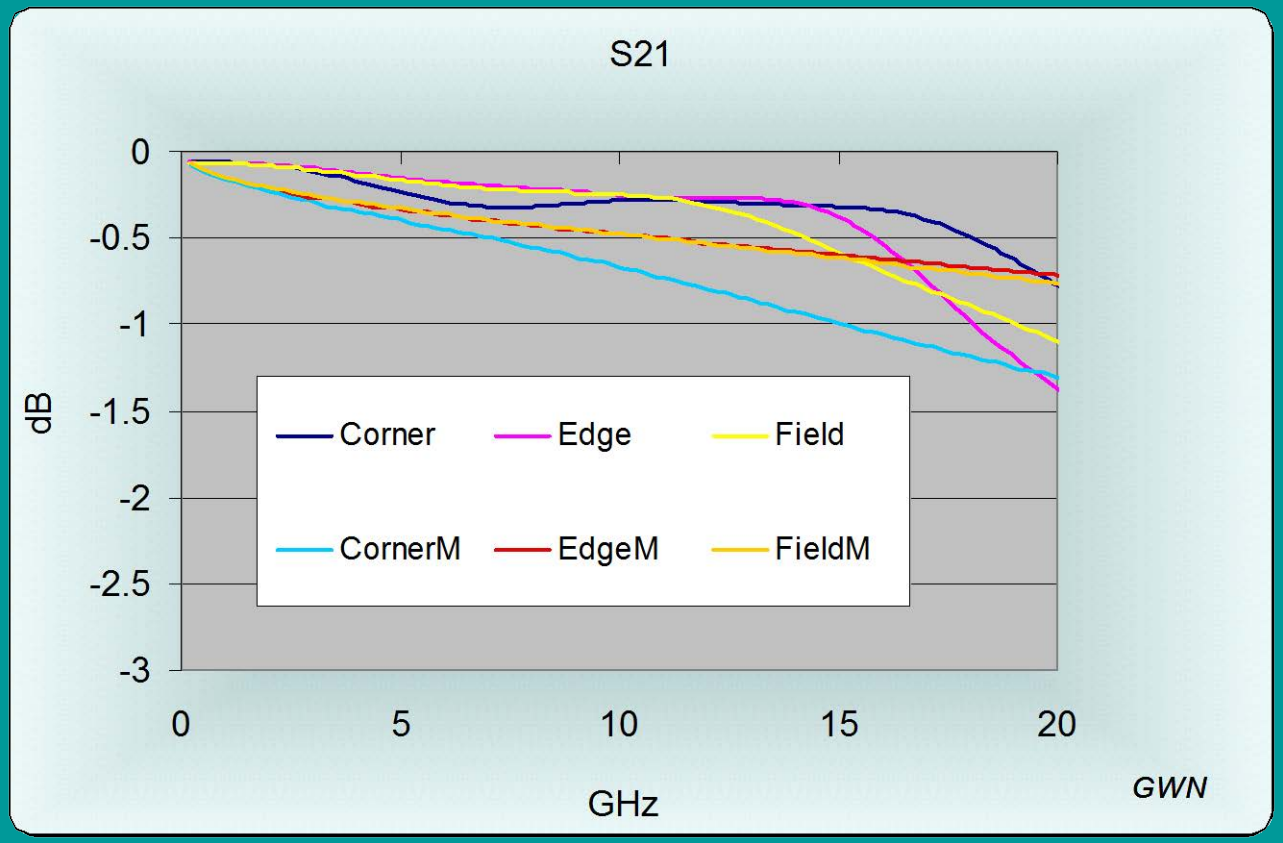
Return loss from PCB side – 'M' = model

Return loss S22



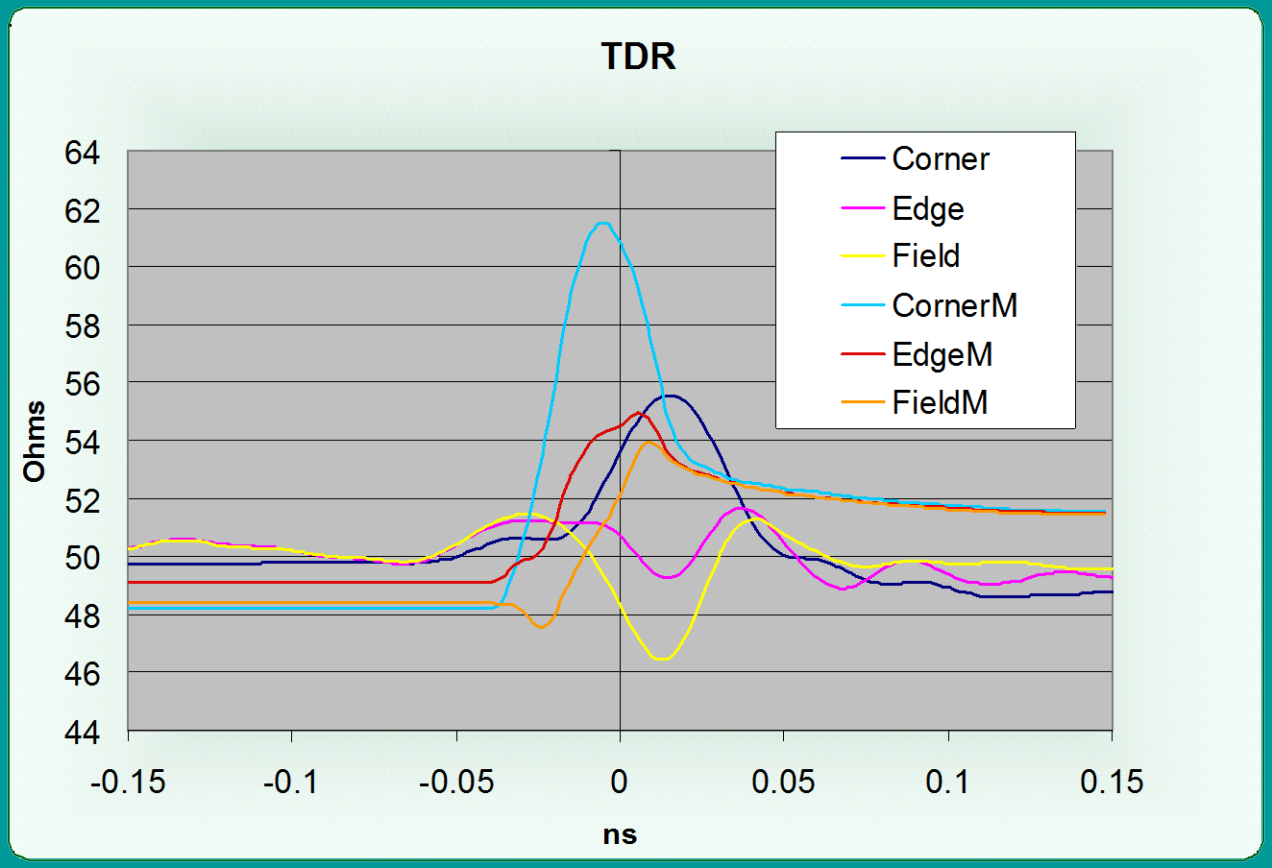
Return loss from DUT side– ‘M’ = model

Insertion loss S21



Insertion loss from PCB to DUT side – 'M' = model

Impedance



TDR from PCB toward DUT side

'M' = model (risetime is faster than measurement and will lead to higher peaks)

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Summary

- Return loss performance is best for the edge case since impedance is closest to 50 Ohms in that configuration
- There is reasonable agreement between model and measurement up to about 10 GHz.
- It appears a few coils never close completely. This introduces some uncertainty in the model as their number is not known.

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