

# F1490 3-PORT S-PARAMETER MODEL

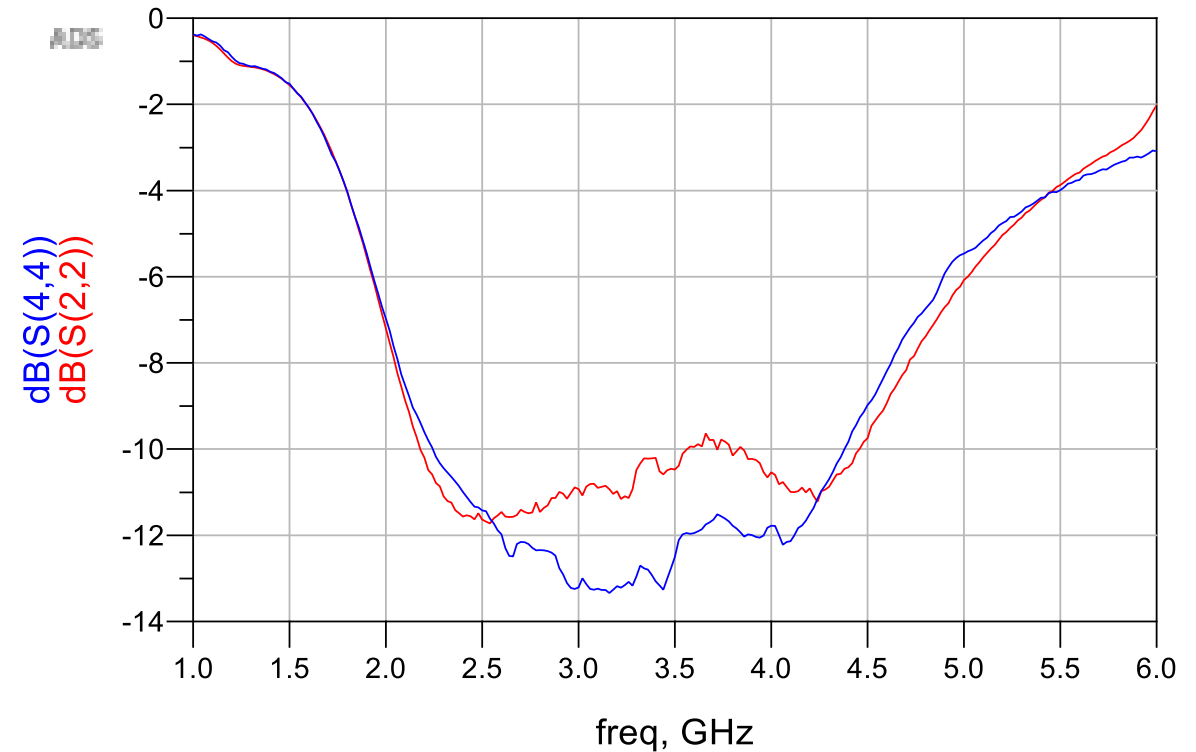
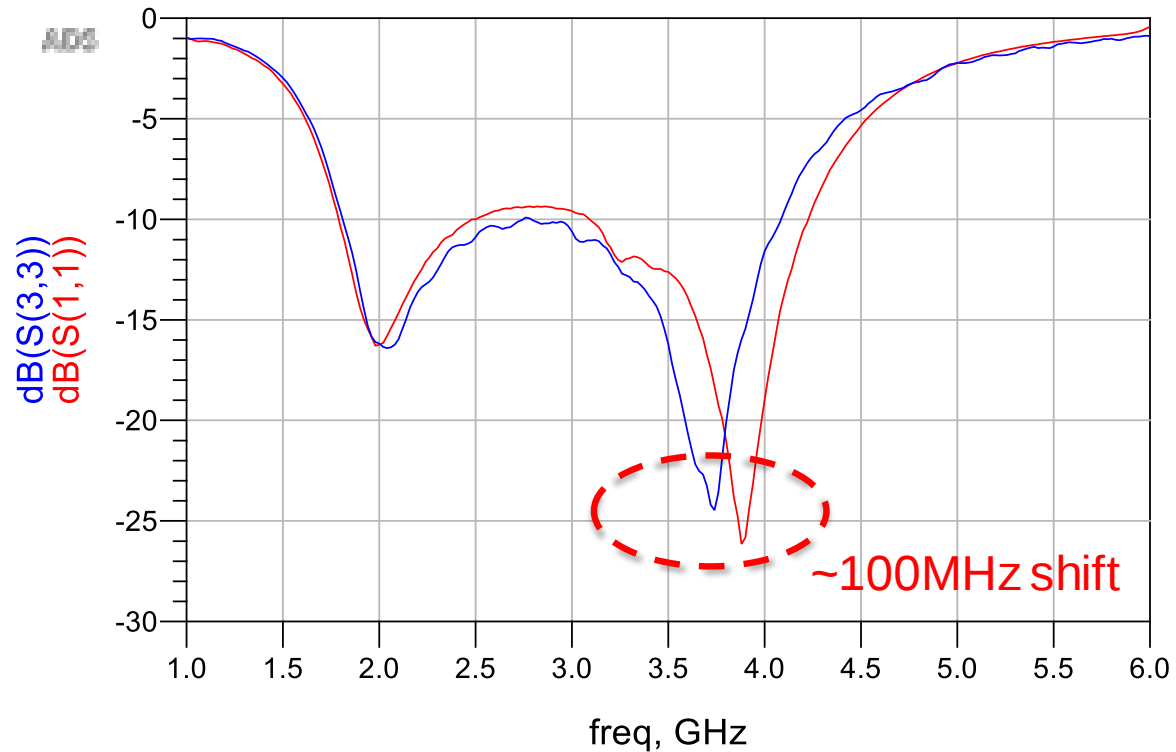
2019 OCTOBER 30

# EXECUTIVE SUMMARY

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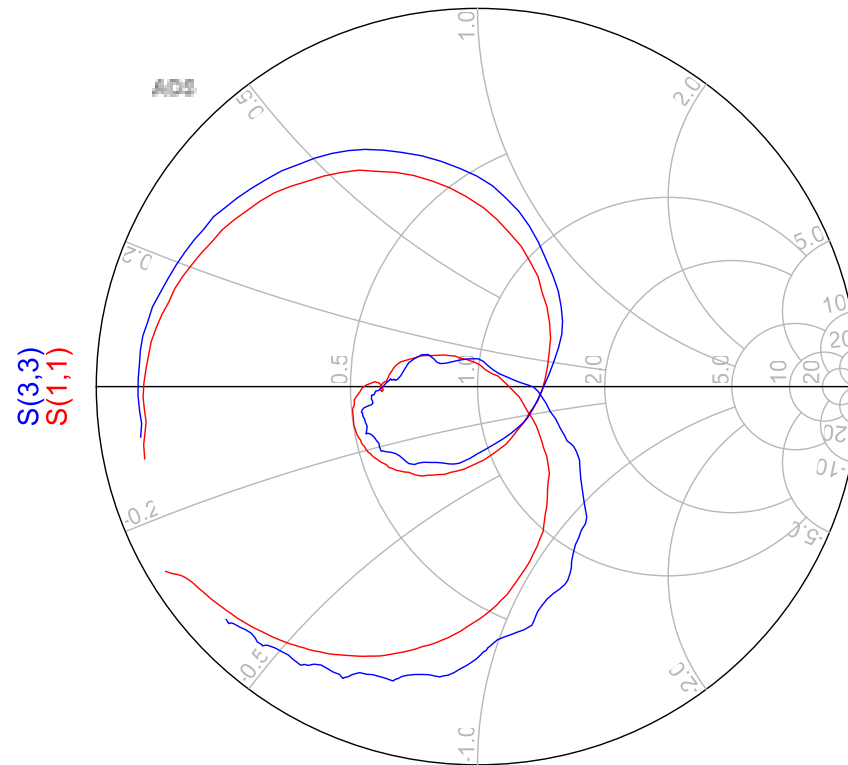
- Background information regarding the F1490 3-Port S-parameter model is presented.
- The 3-port model is accurate enough for sub-6GHz simulations and applications.
- The model can be used to optimize S-parameters and tune the gain peak, especially when the customer layout is different to the Renesas F1490 EVB.
- The simulation input return loss exhibits a 100MHz shift compared to the measurement and this may be caused by components and PCB variation (RLC, IC, and PCB trace).

# RETURN LOSS SIMULATION VS. MEASUREMENT

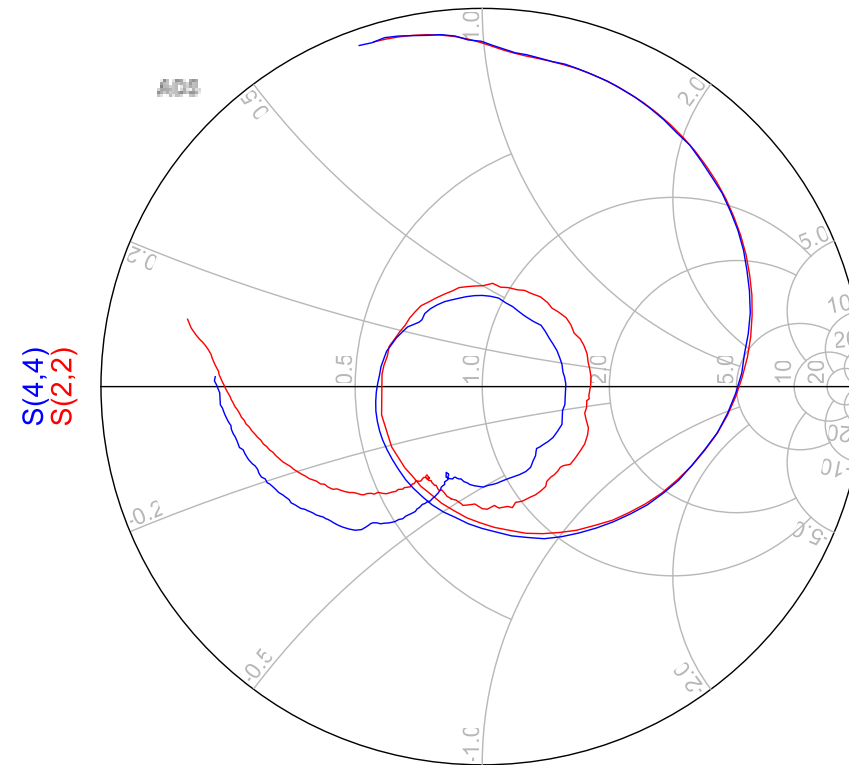


**Red curve – ADS simulation**  
**Blue curve – Measurement**

# INPUT AND OUTPUT S-PARAMETER COMPARISON



freq (1.000GHz to 6.000GHz)

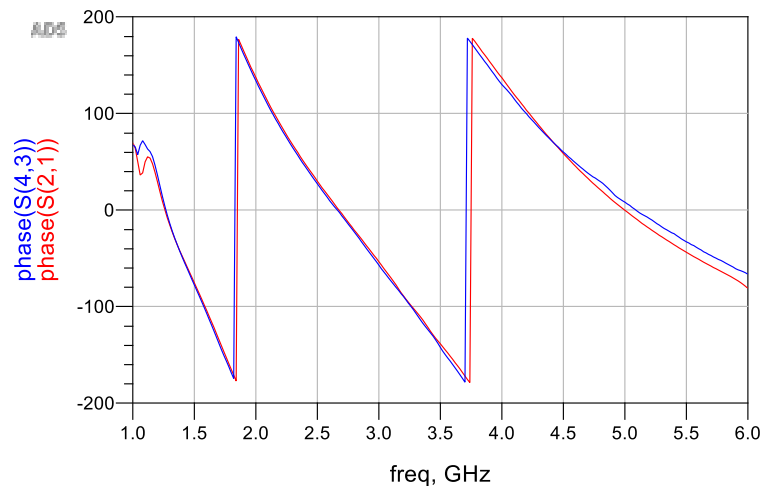
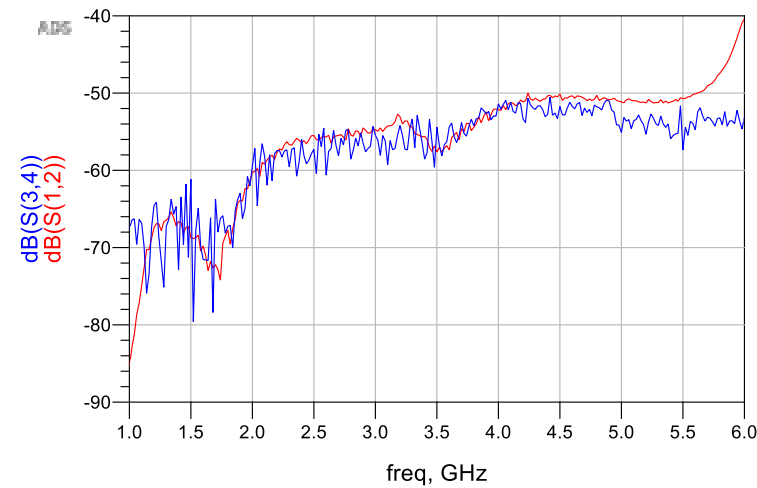
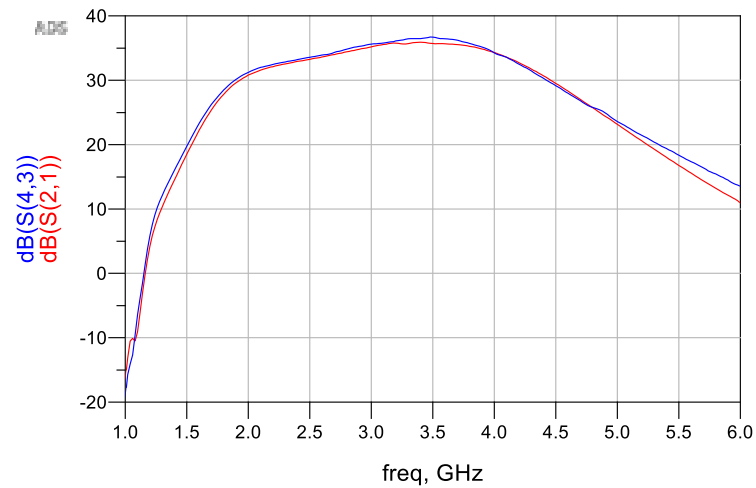


freq (1.000GHz to 6.000GHz)

**Red curve – ADS simulation**

**Blue curve – Measurement**

# GAIN AND ISOLATION COMPARISON

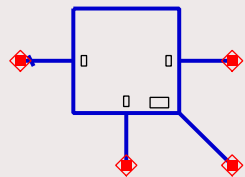


**Red curve – ADS simulation**  
**Blue curve – Measurement**

# S-PARAMETER FILE DETAILS

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- Port 1 = Input
- Port 2 = Output
- Port 3 = PIN 4
- Connect Reference to GND



S3P  
SNP3

File="E:\Project\Simulation\ADS\F1490\_wrk\model\F1490\_3P\_-25dBm\_P1IN\_P2O\_P3\_4\_5V\_75mA\_R11K8ohm\_R2150ohm.s3p"

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THANK YOU