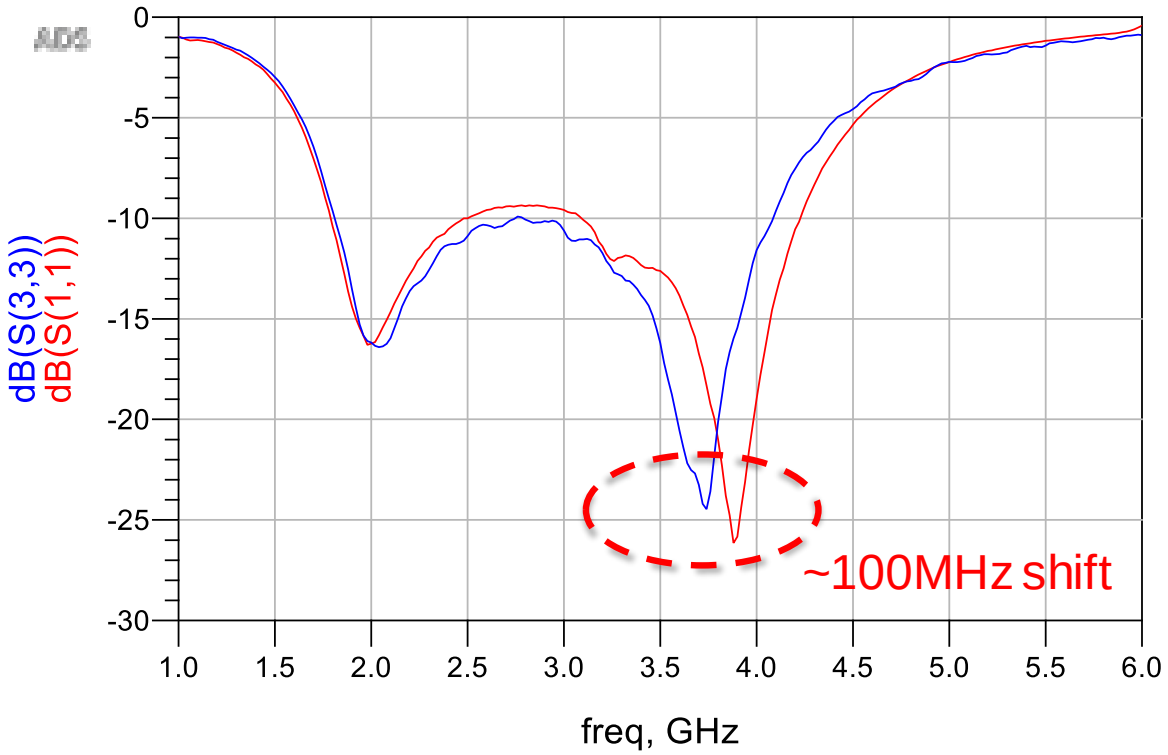
F1490 3-PORT S-PARAMETER MODEL

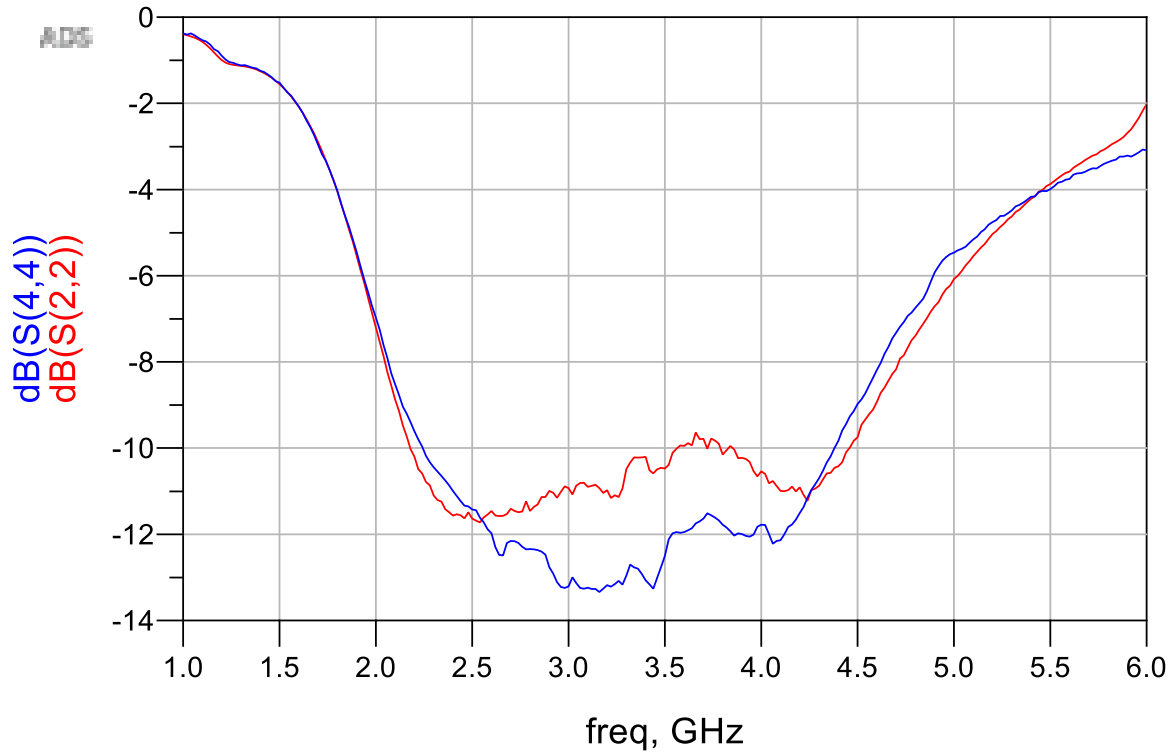
2019 OCTOBER 30

EXECUTIVE SUMMARY

- 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

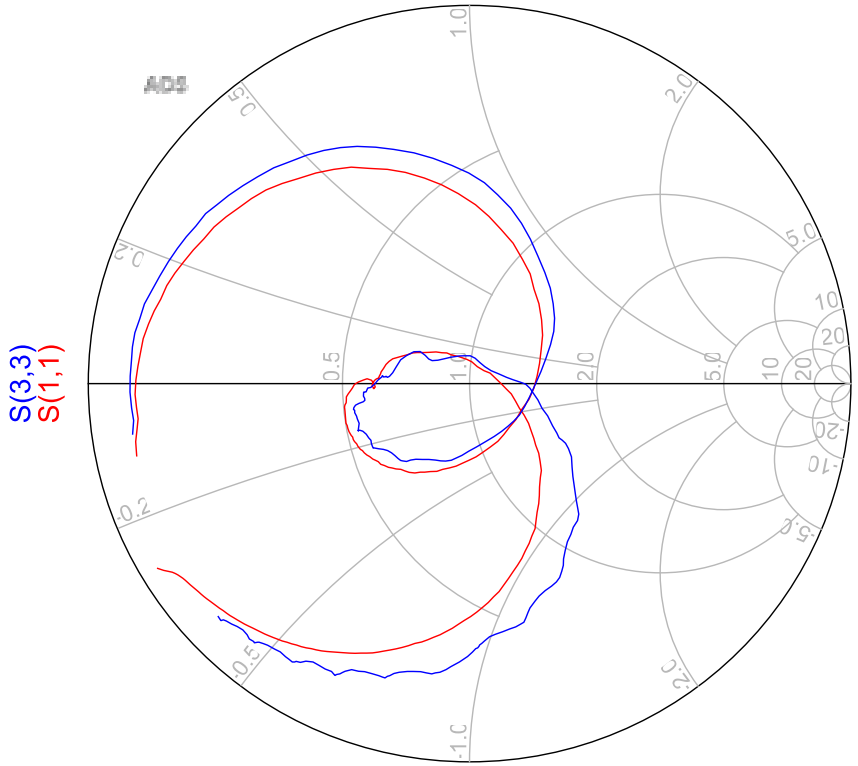




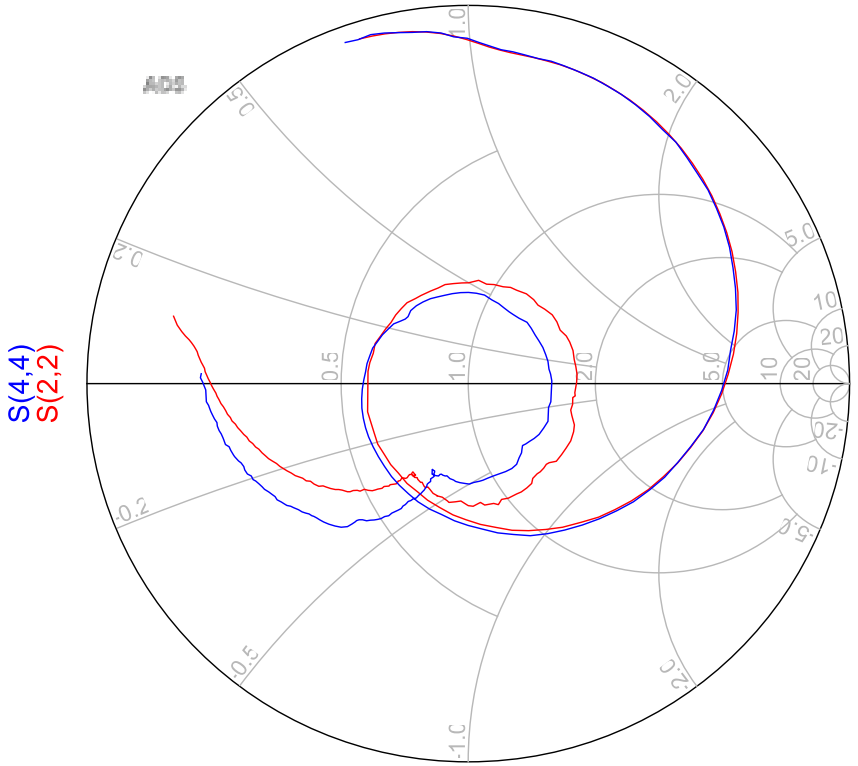
Red curve – ADS simulation

Blue curve – Measurement

INPUT AND OUTPUT S-PARAMETER COMPARISON



freq (1.000GHz to 6.000GHz)

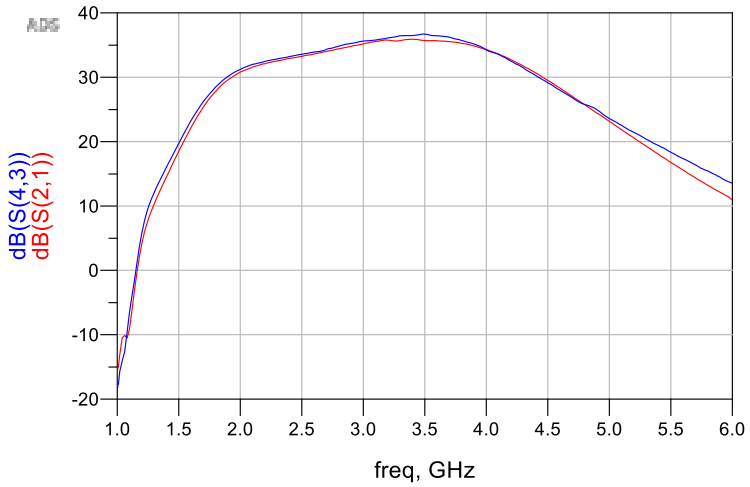


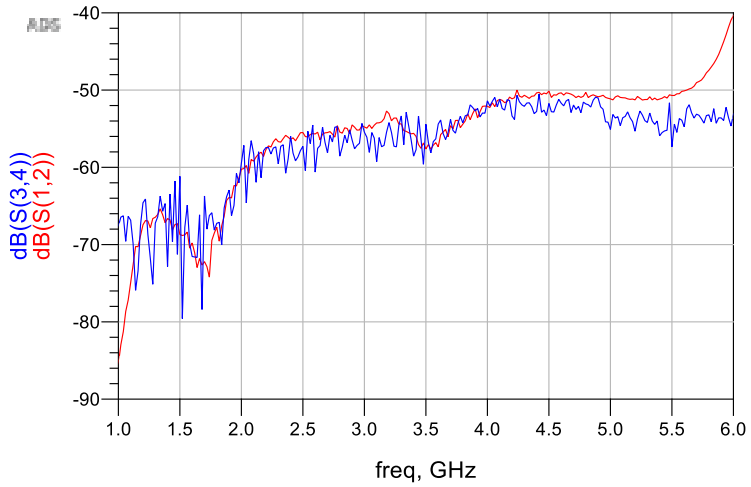
freq (1.000GHz to 6.000GHz)

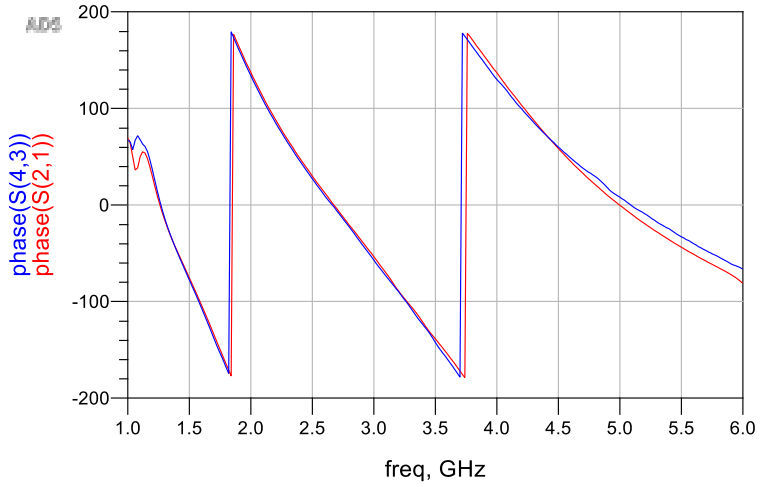
Red curve – ADS simulation

Blue curve – Measurement

GAIN AND ISOLATION COMPARISON



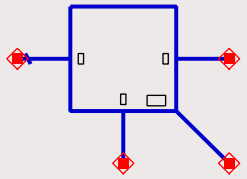




Red curve – ADS simulation
Blue curve – Measurement

S-PARAMETER FILE DETAILS

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



S3P
SNP3
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THANK YOU