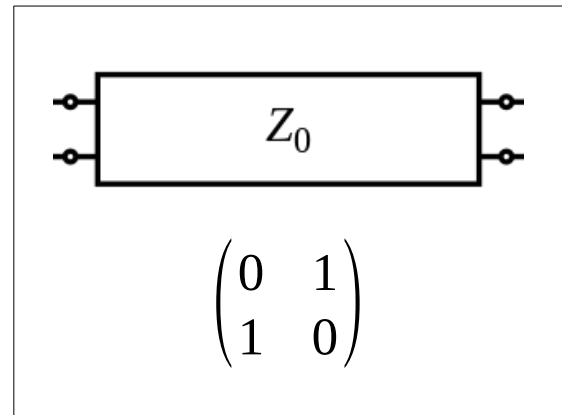
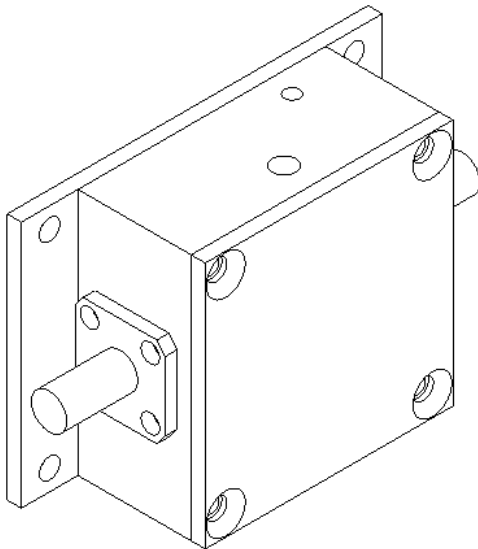


RF Enclosure Mini *PCB reference designs* Application Note



Introduction

In this application note, the S-parameters of the RF Enclosure MINI are measured using various PCB reference designs.

All designs implement a transmission line realized on an RF4 substrate. Both insertion loss and return loss are measured by fixing the circuit board in the RF-ENCL-MINI housing.

There are several reference designs for different transmission line layouts (microstrip and grounded coplaner waveguide).

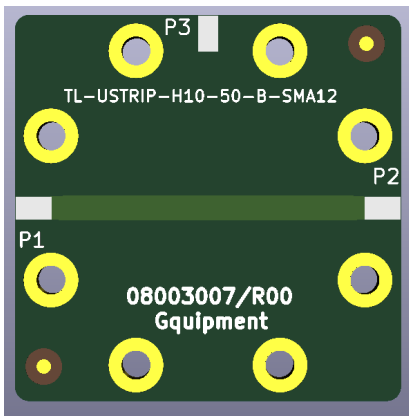
Reference designs

The reference designs are used to demonstrate the performance of the combination of SMA connector, landing area and transmission line. Results may vary due to tolerances in the manufacturing process.

Archive

The PCB gerber files and the charts are all archived in the [Equipment repo at GitHub](#).

08003007-TL-USTRIP-H10-50-A-SMA12



Substrate	: FR4
PCB size	: 26.8 x 26.8 mm
Substrate thickness	: 1.0 mm
SMA connector	: SMA 18 GHz
Z_0	: 50 ohm

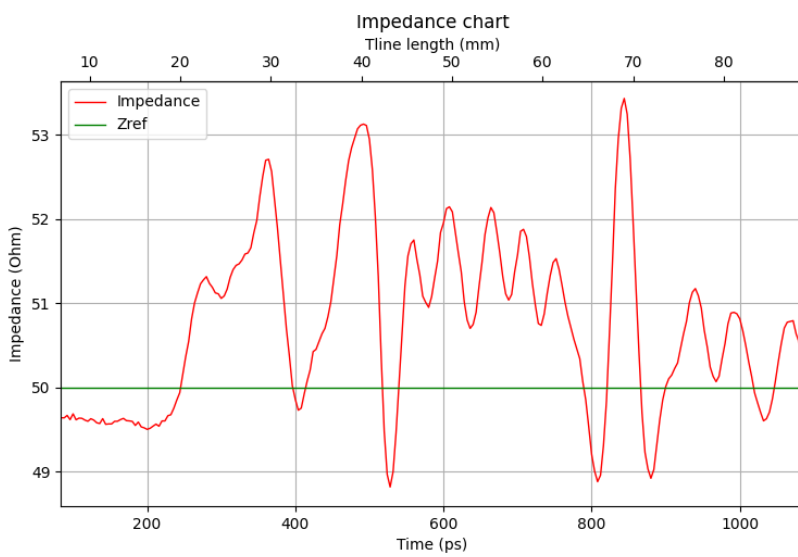


Figure 1: 08003007, TDR trace

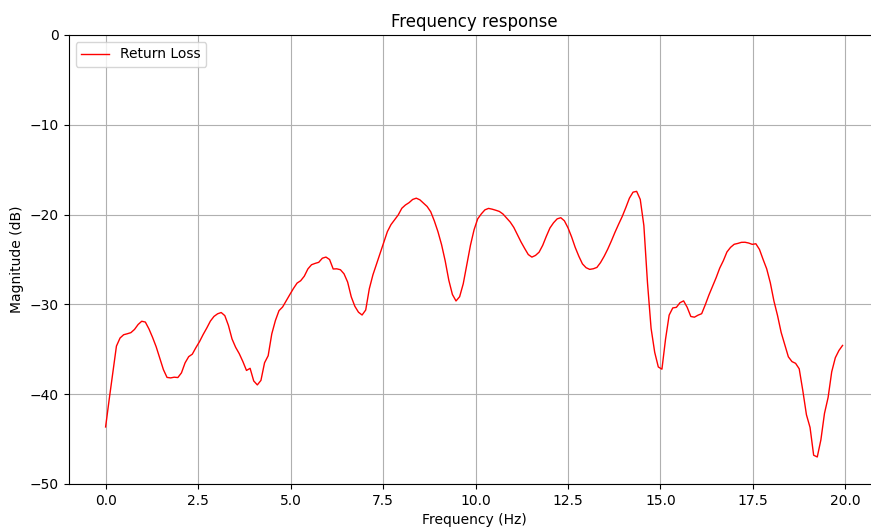


Figure 2: 08003007, return loss (FFT of TDR trace)

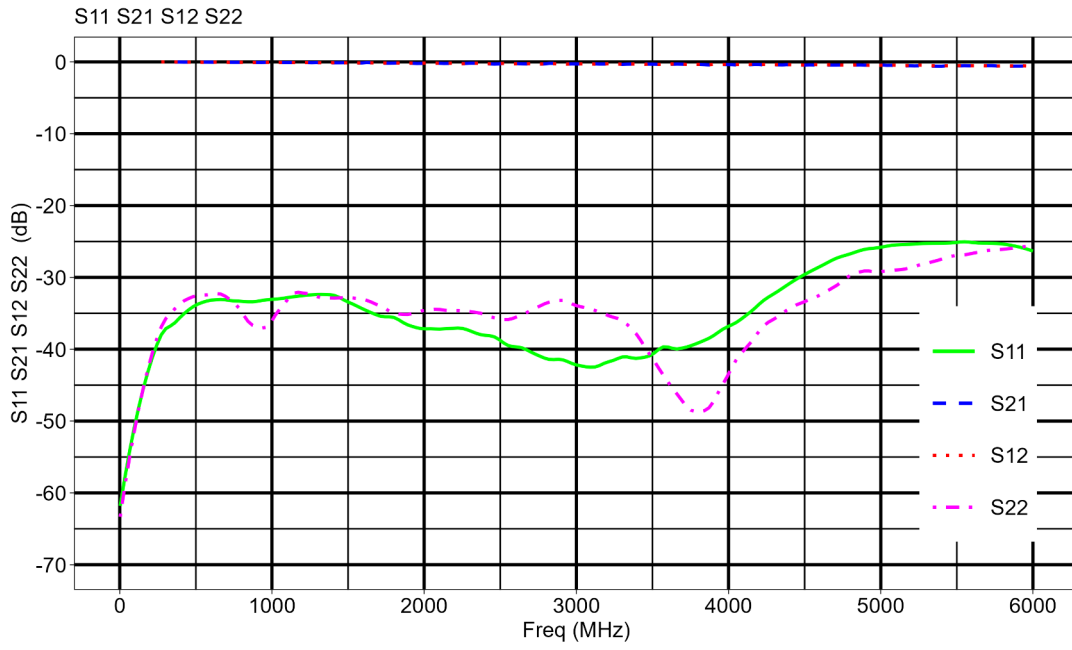
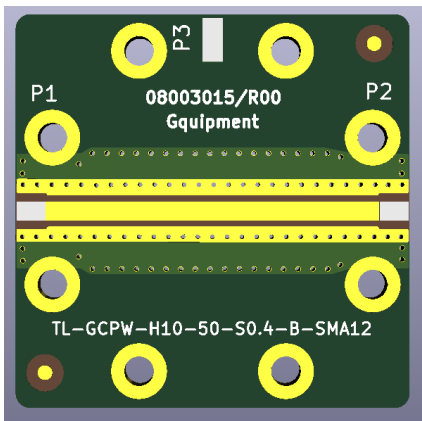


Figure 3: 08003007, S-parameters (0-6GHz)

8003015-TL-GCPW-H10-50-S0.4-A-SMA12



Substrate	: FR4
Substrate thickness	: 1.0 mm
PCB size	: 26.8 x 26.8 mm
SMA connector	: SMA 18 GHz
GCPW gap size	: 0.4 mm
Z_0	: 50 ohm

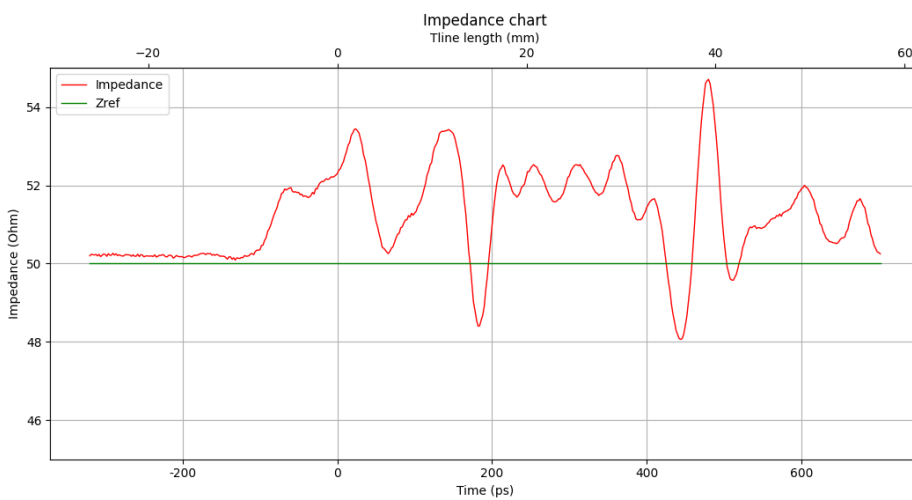


Figure 4: 08003015, TDR trace

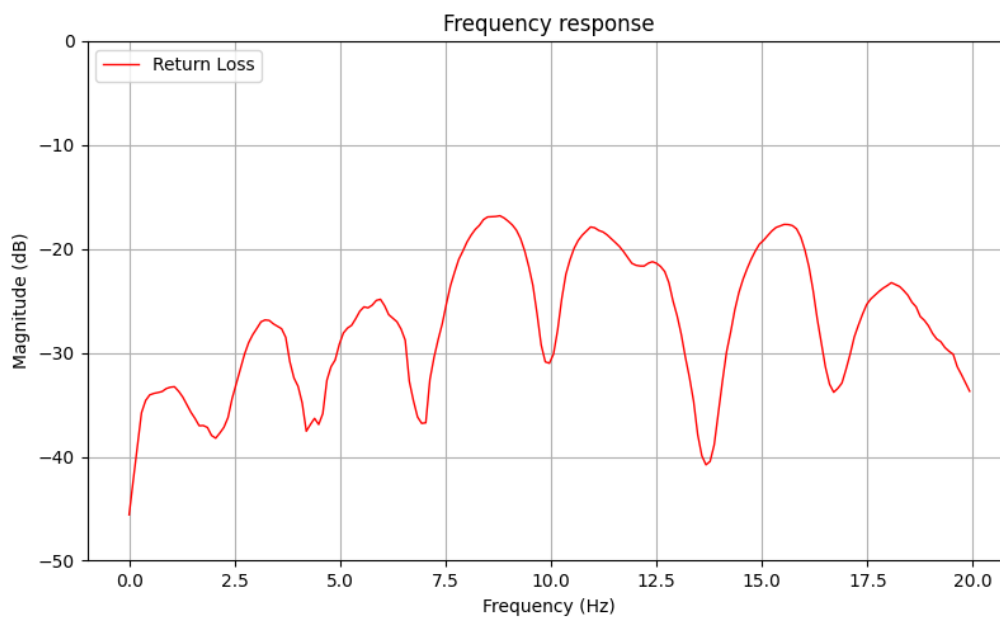


Figure 5: 08003015, return loss (FFT of TDR trace)

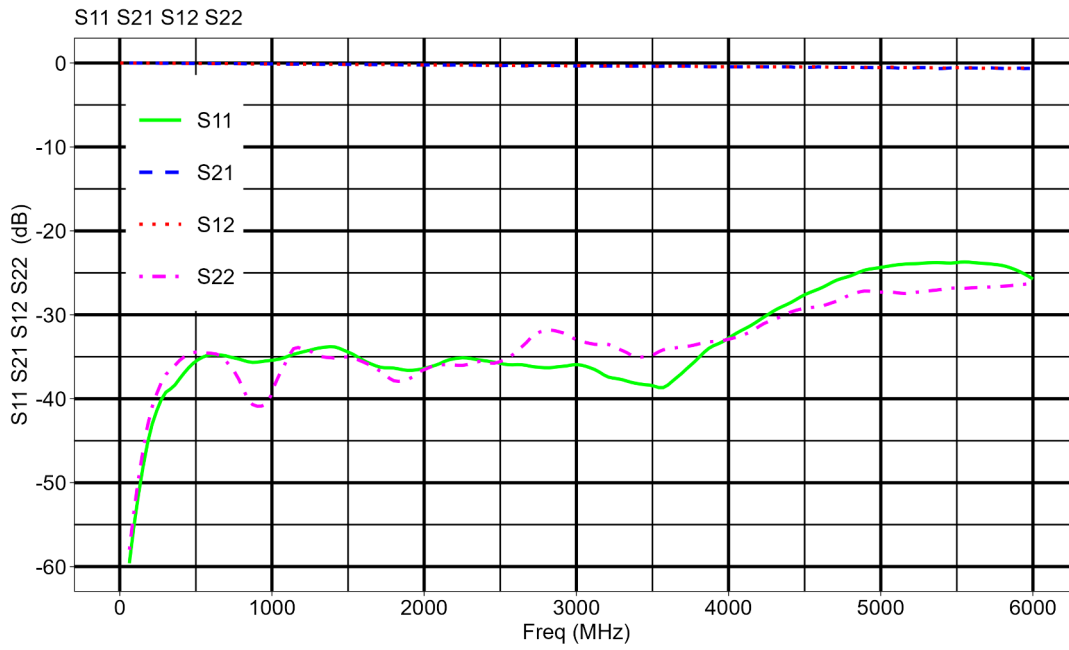
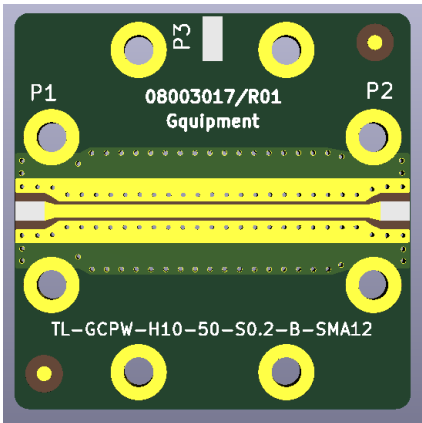


Figure 6: 08003015, S-parameters (0-6GHz)

08003017-TL-GCPW-H10-50-S0.2-A-SMA12



Substrate	: FR4
Substrate thickness	: 1.0 mm
PCB size	: 26.8 x 26.8 mm
SMA connector	: SMA 18 GHz
GCPW gap size	: 0.2 mm
Z ₀	: 50 ohm

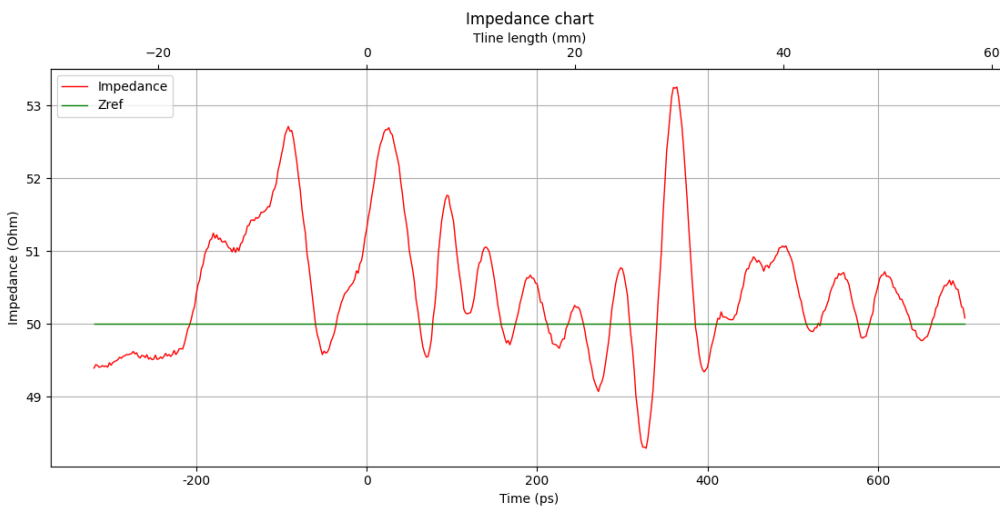


Figure 7: 08003017, TDR trace

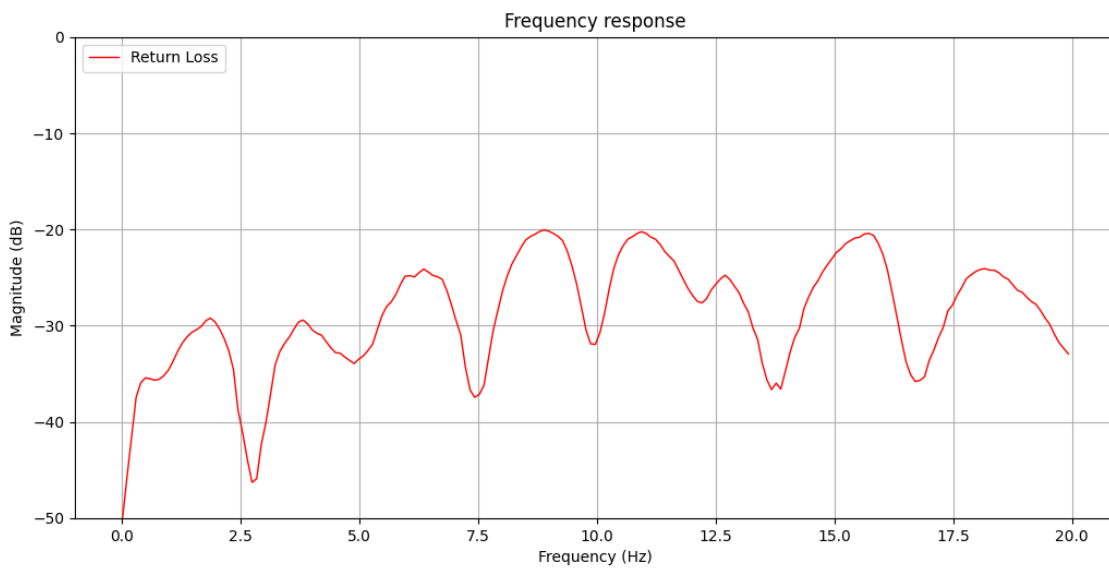


Figure 8: 08003017, return loss (FFT of TDR trace)

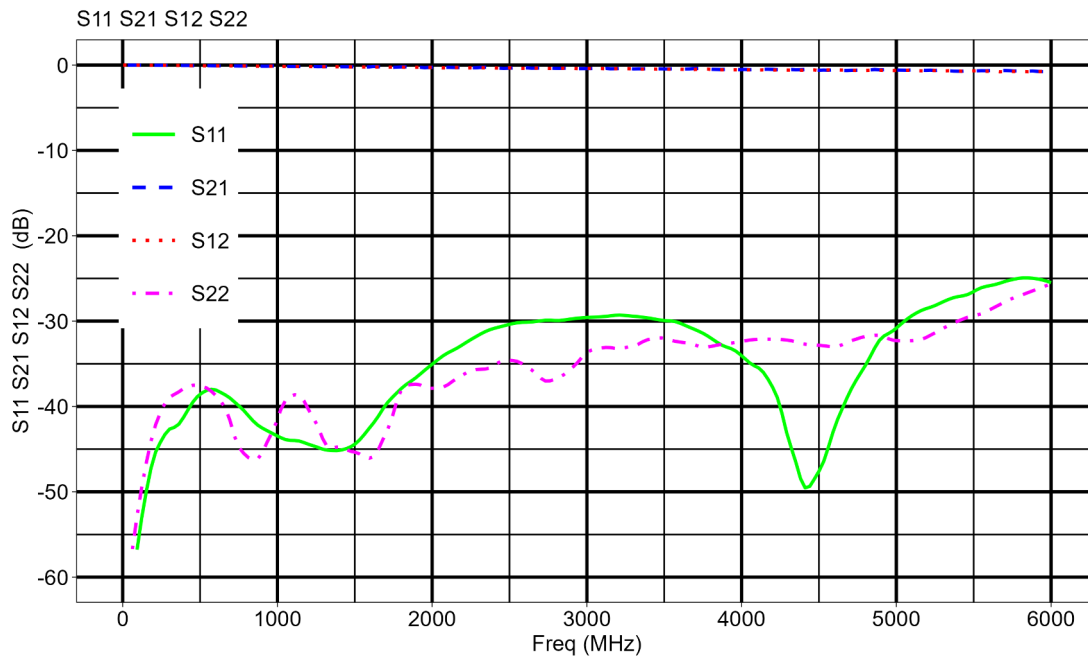


Figure 9: 08003017, S-parameters (0-6GHz)

Product overview

Image	Product
	<u>RF Enclosure MINI - with mounting flange</u>
	<u>RF Enclosure MINI</u>
	<u>SMA connector 18 GHz brass, gold plated,</u>
	<u>SMA connector 18 GHz, stainless steel</u>

Order information RF Enclosure Mini



Select the correct SMA connector type when ordering the RF-Enclosure-Mini. By default, the brass, gold plated SMA 18 GHz connector is selected.

Documents

Datasheet RF Enclosure MINI
RF Enclosure Mini Repo in Github

Revision history

Revision	Status	Date
002	Released	July 09, 2024

Legal

Specifications are subject to change without notice.

www.gequipment.com