

SIGNAL INTEGRITY REPORT

Test and Measurement Performance Report

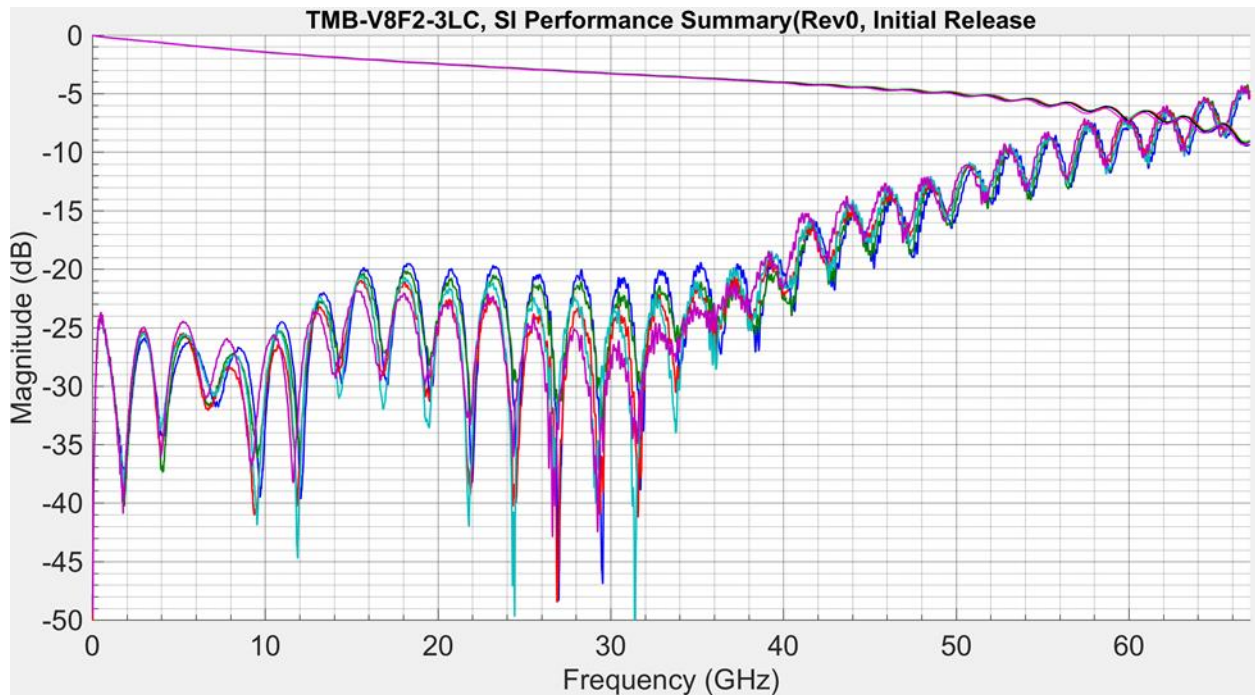
Part Number TMB-V8F2-3LC

(1.85mm Vertical Launch CPW Solderless Precision Connector)

Distribution: *Internal & External Use*



SI Performance Summary (Attenuation & Reflections, Single-Ended)



* 10 connectors are shown, measured in pairs. (5 measurements) For further details regarding testing setup, configurations please see the rest of the report.

<u>REVISION:</u> 1	<u>ECN INFORMATION:</u> EC No: N/A DATE: 04/21/2020	<u>TITLE:</u> 1.85mm Vertical Launch CPW Solderless Precision Connector (TMB-V8F2-3LC)	<u>SHEET No.</u> 1 of 8
<u>DOCUMENT NUMBER:</u> RSI-TMB_V8F2_3LC		<u>SI ENGINEER:</u> R.Stavoli	<u>DESIGN ENGINEER</u> P. Volkov
		<u>ENGINEERING MANAGER</u> E.Soubh	
<small>TEMPLATE FILENAME: SPM(SIZE_A)(V.1).DOC</small>			

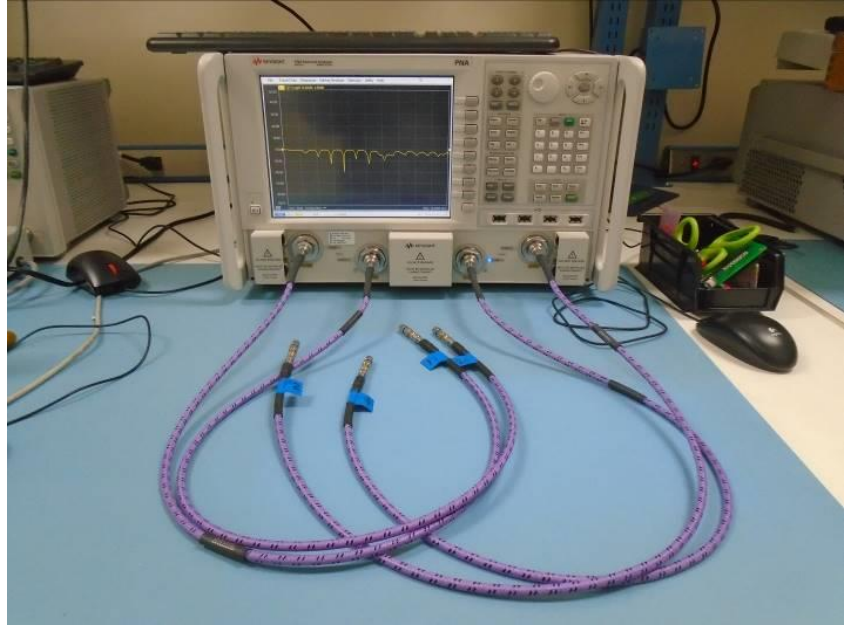
SIGNAL INTEGRITY REPORT

1.0 TEST SETUP AND DUT

Equipment, fixtures, and methods

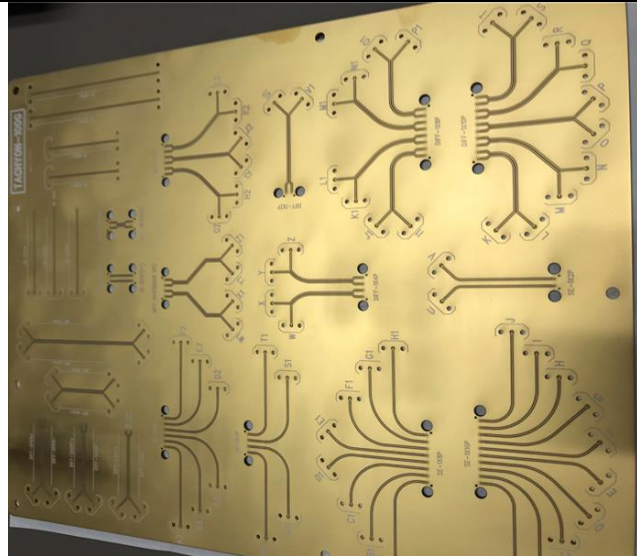
Test method: All data measured from test PCB shown below and a N5227A PNA Network Analyzer

- Calibration was performed up to the 1.85mm adapters using calibration kit: 85058B
- Data was swept from 10 MHz to 67GHz for 6700 points
- Data averaging was turned off.
- Data is not dembedded and includes the board trace/transition and two RF vertical launch CPW precision connectors



Assembly Description

- T&M PN: TMB-V8F2-3LC
- Carlisle DUT PCB: Core HC 2.5mm CPW Test Board (Rev D0)
- **Measured on: 1x Cal Trace (SE-1xCal+)**
- **Port 1: 1.85mm vertical mount CPW**
- **Port 2: 1.85mm vertical mount CPW**



Testing Samples:

- 10 Samples
- 5 Channels
- 5 THRU Measurements (5 Channels = 10 samples) -> **-Single-Ended**

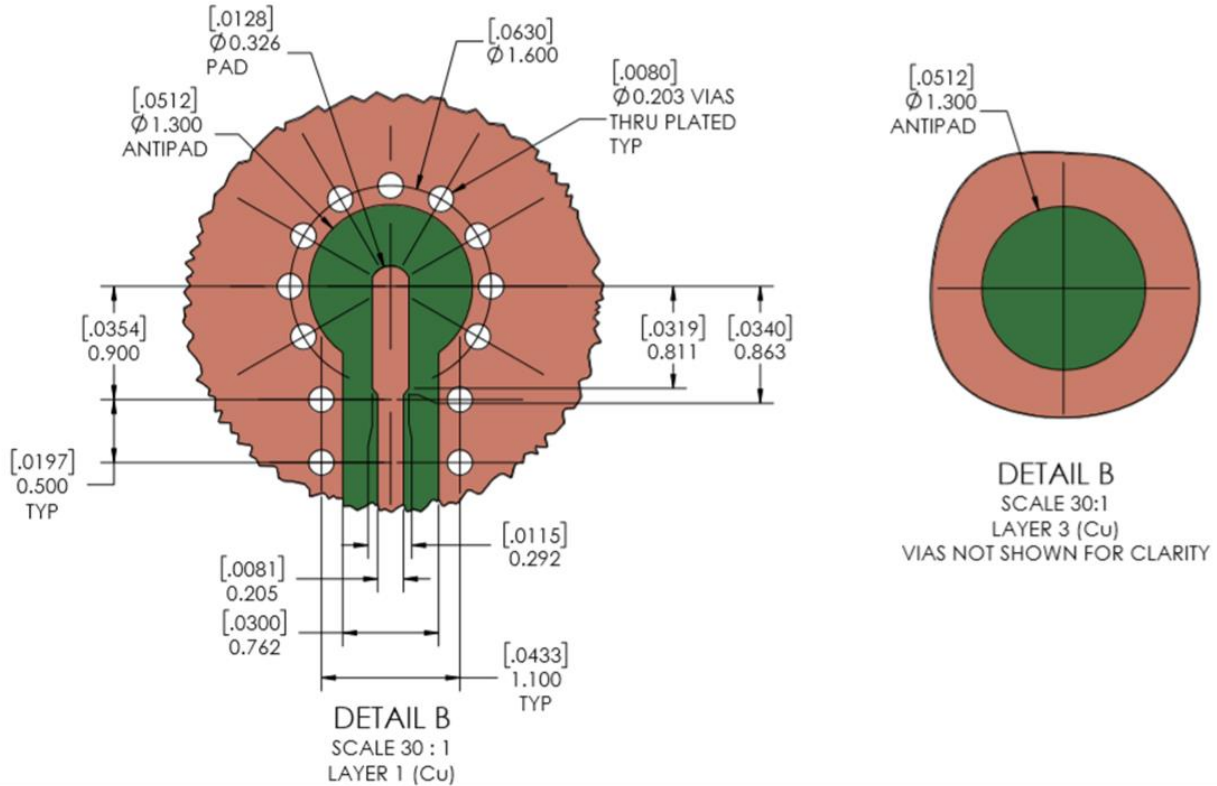
REVISION: 1	ECN INFORMATION: EC No: N/A DATE: 04/ 21 / 2020	TITLE: 1.85mm Vertical Launch CPW Solderless Precision Connector (TMB-V8F2-3LC)	SHEET No. 2 of 8
DOCUMENT NUMBER: RSI-TMB_V8F2_3LC	SI ENGINEER: R.Stavoli	DESIGN ENGINEER P. Volkov	ENGINEERING MANAGER E.Soubh
<small>TEMPLATE FILENAME: SPM(SIZE_AJ)(V.1).DOC</small>			

SIGNAL INTEGRITY REPORT

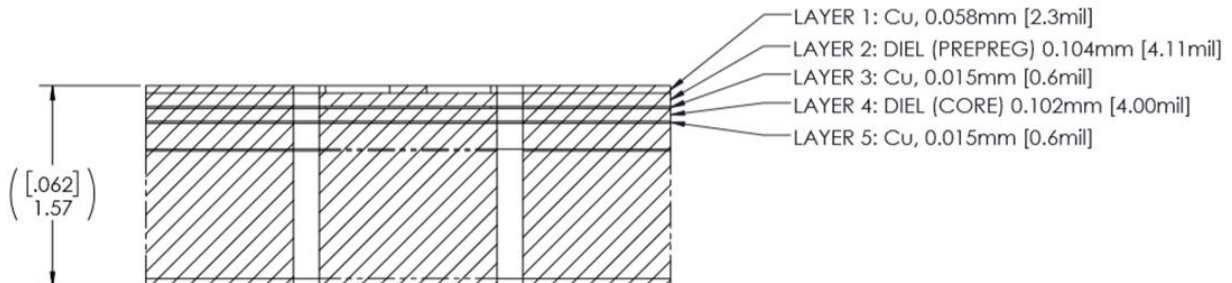
2.0 BOARD DETAILS & STACKUP

- Carlisle Core HC 2.5mm CPW Test Board
 - Revision D, Coplanar Waveguide
 - **Interconnects placed on 1x Cal Traces**
- Dielectric Material: Tachyon 100G (Dk.2.97, Df 0.0014 @ 20 Ghz)
 - Thickness: 0.104mm / 4.11 mil

TMB-V8F2-3LC, Interconnect Footprint



Core HC 2.5mm CPW Test Board Stackup (RevD0)



REVISION: 1	ECN INFORMATION: EC No: N/A DATE: 04/21/2020	TITLE: 1.85mm Vertical Launch CPW Solderless Precision Connector (TMB-V8F2-3LC)	SHEET No. 3 of 8
DOCUMENT NUMBER: RSI-TMB_V8F2_3LC	SI ENGINEER: R.Stavoli	DESIGN ENGINEER P. Volkov	ENGINEERING MANAGER E.Soubh
TEMPLATE FILENAME: SPM(SIZE_A)(V.1).DOC			

SIGNAL INTEGRITY REPORT

C) PCB FINISH

1. Surface Protective Plating

- a. All exposed copper on the outer layers shall be plated with a protective surface finish.
- b. All exposed pads, edge fingers and plated through holes shall be ENIG with thickness listed in Table 2.

Table 2: Protective Plating Thickness

Nickel		Immersion Gold	
µm (microinch)		µm (microinch)	
Min.	Max.	Min.	Max.
2.5 (100)	13(512)	0.051 (2)	0.2032 (8)

2. Solder Mask

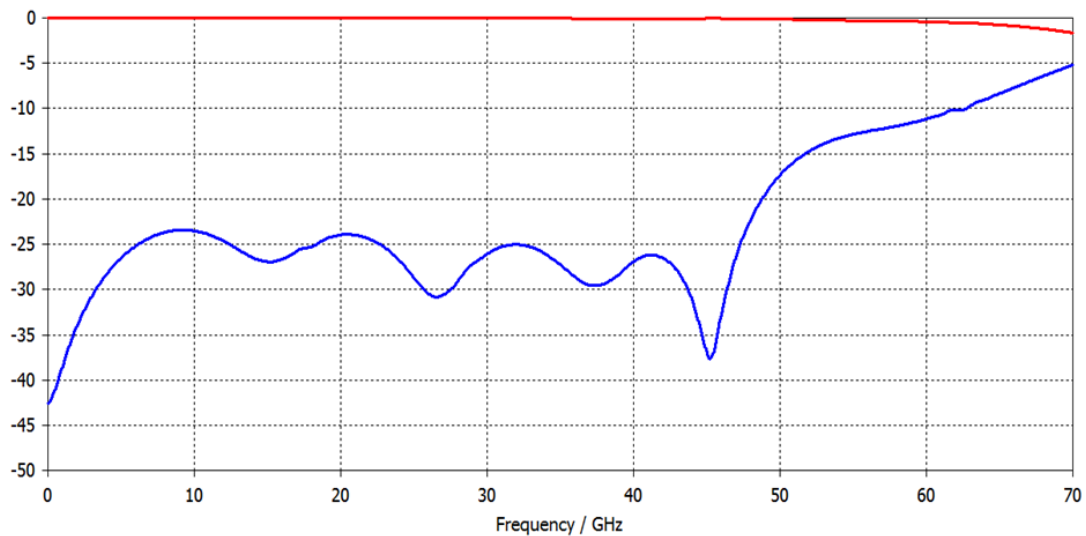
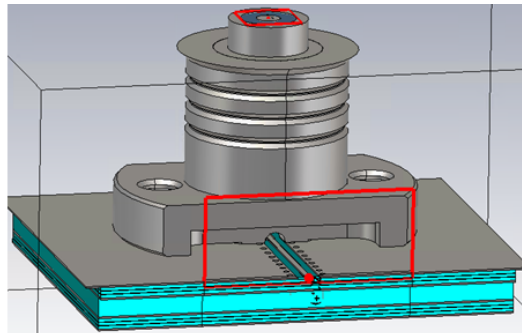
Apply an LPI solder mask to both sides of the board, the solder mask color is defined in the table.

PCB PN	Soldermask color
NA	Green

3. Silkscreen

Silkscreen shall be permanent, non-conductive ink. There shall be no silkscreen on any solderable component pad.
Color: White

Simulated Data
1 connector to PCB



REVISION: 1	ECN INFORMATION: EC No: N/A DATE: 04/ 21 / 2020	TITLE: 1.85mm Vertical Launch CPW Solderless Precision Connector (TMB-V8F2-3LC)	SHEET No. 4 of 8
DOCUMENT NUMBER: RSI-TMB_V8F2_3LC	SI ENGINEER: R.Stavoli	DESIGN ENGINEER P. Volkov	ENGINEERING MANAGER E.Soubh
TEMPLATE FILENAME: SPM(SIZE_A)(V.1).DOC			

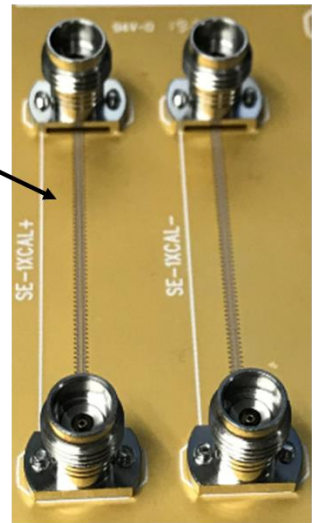
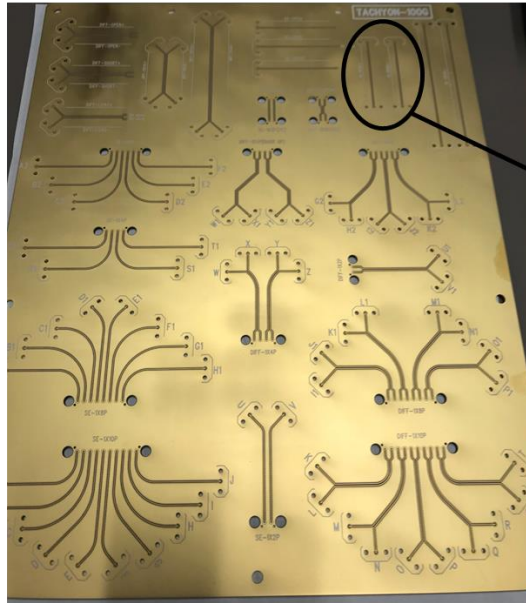
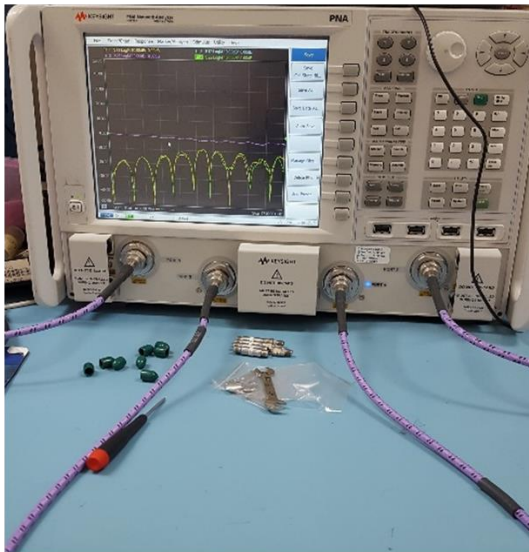
SIGNAL INTEGRITY REPORT

3.0 MEASUREMENT SET-UP

Port 1:
TMB-V8F2-3LC 1.85mm
Vertical Launch CPW
Solderless Precision
Connector # 1 A

1x Cal Trace (SE-1XCal+)
Core HC 2.5mm CPW
Test Board (RevD0)

Port 2:
TMB-V8F2-3LC 1.85mm
Vertical Launch CPW
Solderless Precision
Connector # 1 B

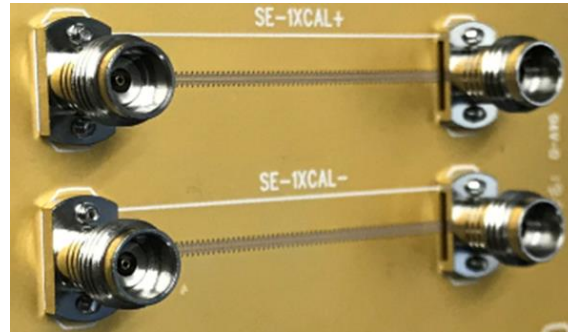


Measurements are not dembedded and include the two 1.85mm vertical launch CPW solderless precision connectors, and the PCB (transition, traces)

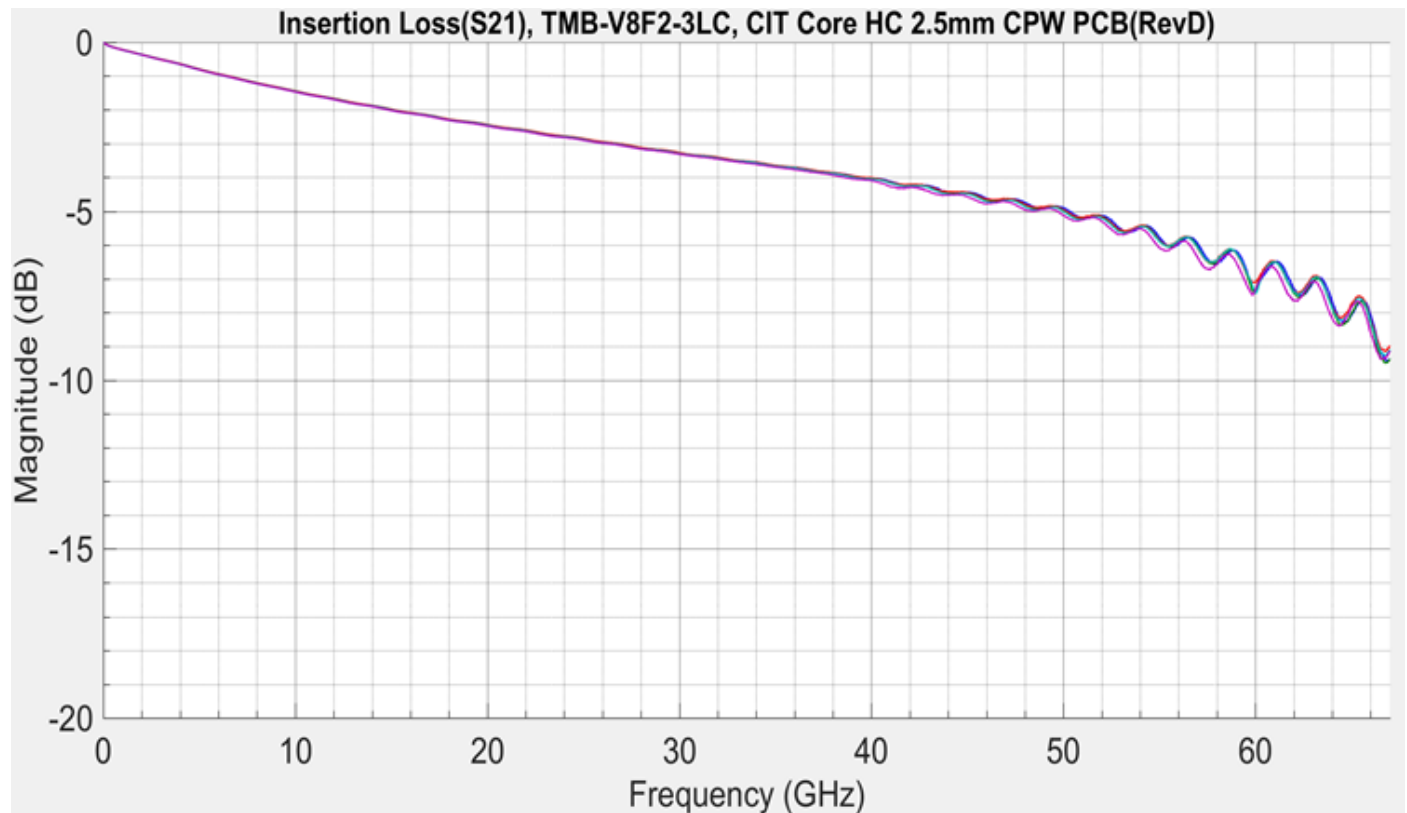
REVISION: 1	ECN INFORMATION: EC No: N/A DATE: 04/21/2020	TITLE: 1.85mm Vertical Launch CPW Solderless Precision Connector (TMB-V8F2-3LC)	SHEET No. 5 of 8
DOCUMENT NUMBER: RSI-TMB_V8F2_3LC	SI ENGINEER: R.Stavoli	DESIGN ENGINEER P. Volkov	ENGINEERING MANAGER E.Soubh
TEMPLATE FILENAME: SPM(SIZE_A)(V.1).DOC			

SIGNAL INTEGRITY REPORT

4.0 SIGNAL INTEGRITY RESULTS (CIT: CORE HC 2.5MM CPW PCB, 1X CAL TRACE)



Insertion Loss (S21), 10 connectors measured, 5 measurements

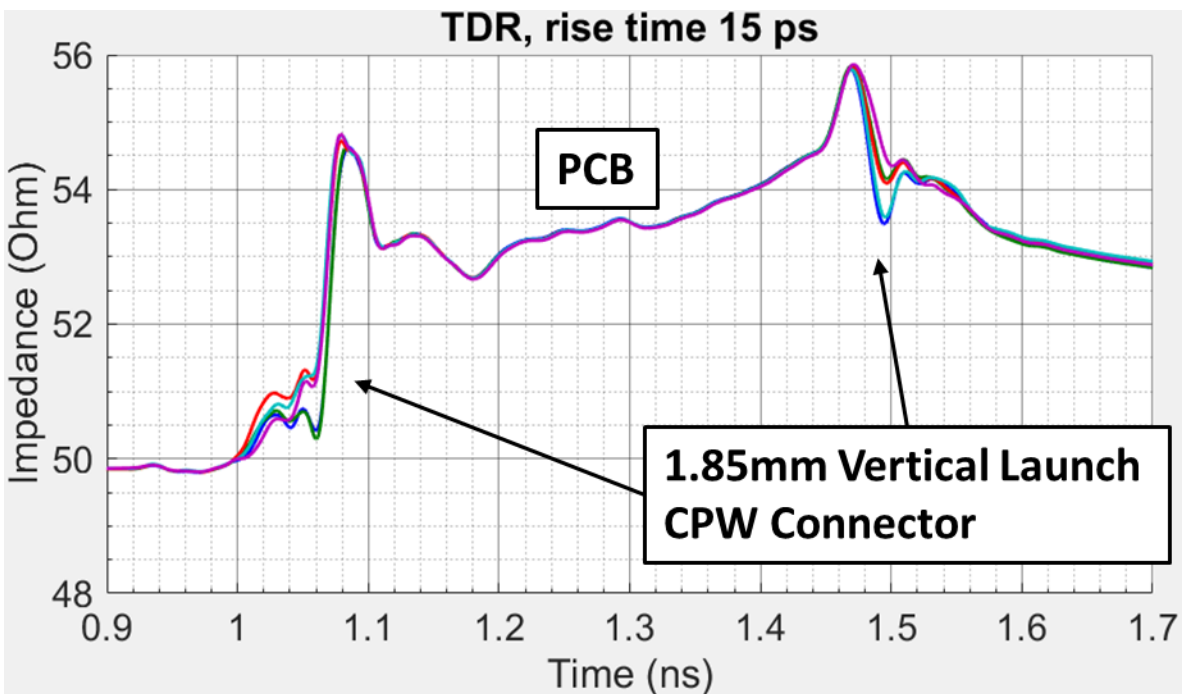
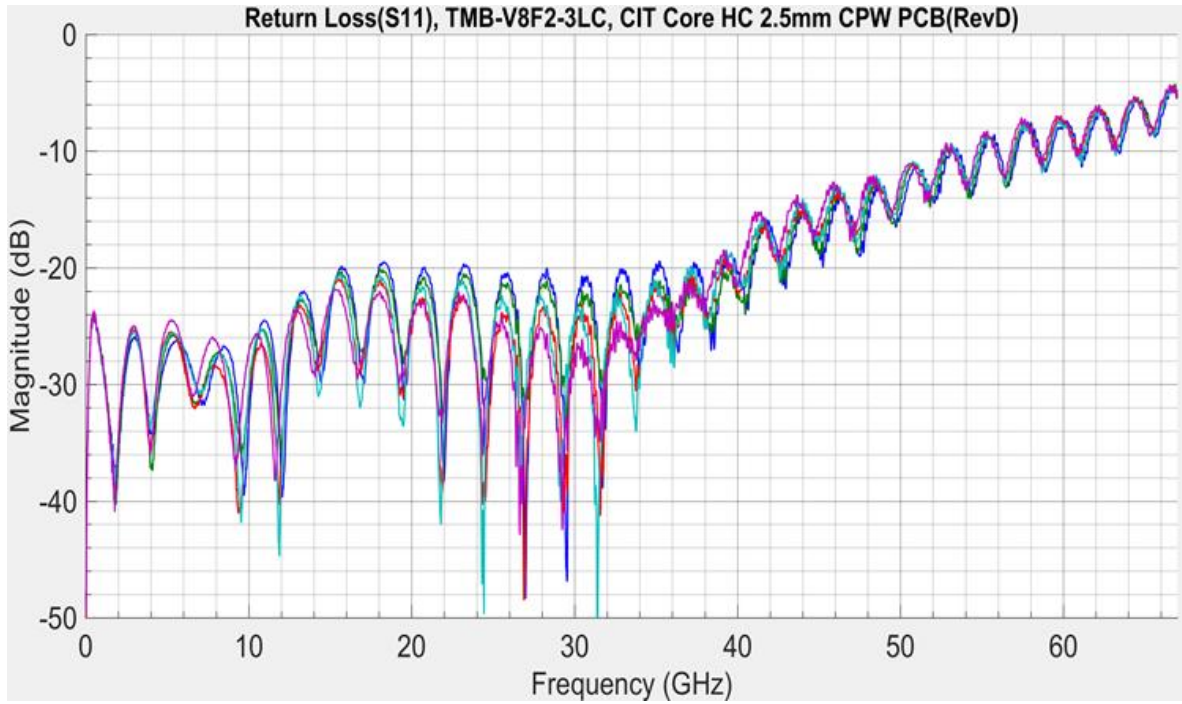


TMB-V8F2-3LC_185_CPW_1xCALPlus_HC2RevD0_P1C1A_P2C1B	✓	3/25/2020 2:11 PM	S2P File	706 KB
TMB-V8F2-3LC_185_CPW_1xCALPlus_HC2RevD0_P1C2A_P2C2B	✓	3/25/2020 2:14 PM	S2P File	707 KB
TMB-V8F2-3LC_185_CPW_1xCALPlus_HC2RevD0_P1C3A_P2C3B	✓	3/25/2020 2:16 PM	S2P File	708 KB
TMB-V8F2-3LC_185_CPW_1xCALPlus_HC2RevD0_P1C4A_P2C4B	✓	3/25/2020 2:19 PM	S2P File	707 KB
TMB-V8F2-3LC_185_CPW_1xCALPlus_HC2RevD0_P1C5A_P2C5B	✓	3/25/2020 2:22 PM	S2P File	708 KB

REVISION: 1	ECN INFORMATION: EC No: N/A DATE: 04/21/2020	TITLE: 1.85mm Vertical Launch CPW Solderless Precision Connector (TMB-V8F2-3LC)	SHEET No. 6 of 8
DOCUMENT NUMBER: RSI-TMB_V8F2_3LC	SI ENGINEER: R.Stavoli	DESIGN ENGINEER P. Volkov	ENGINEERING MANAGER E.Soubh
TEMPLATE FILENAME: SPM(SIZE_A)(V.1).DOC			

SIGNAL INTEGRITY REPORT

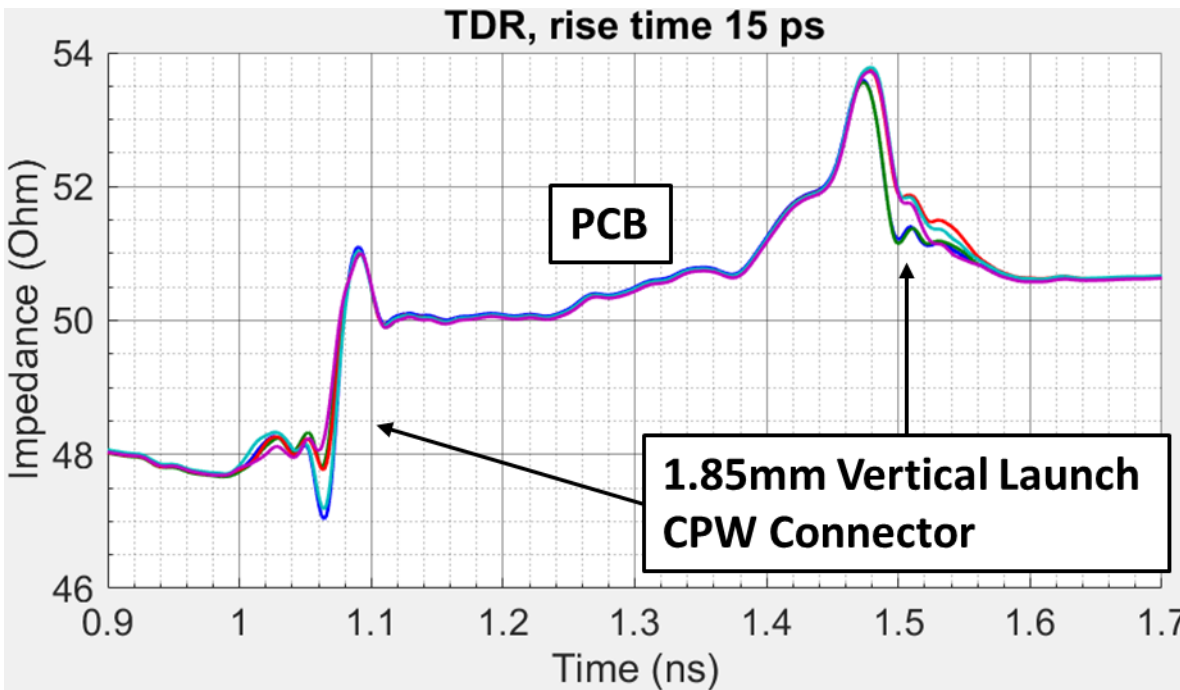
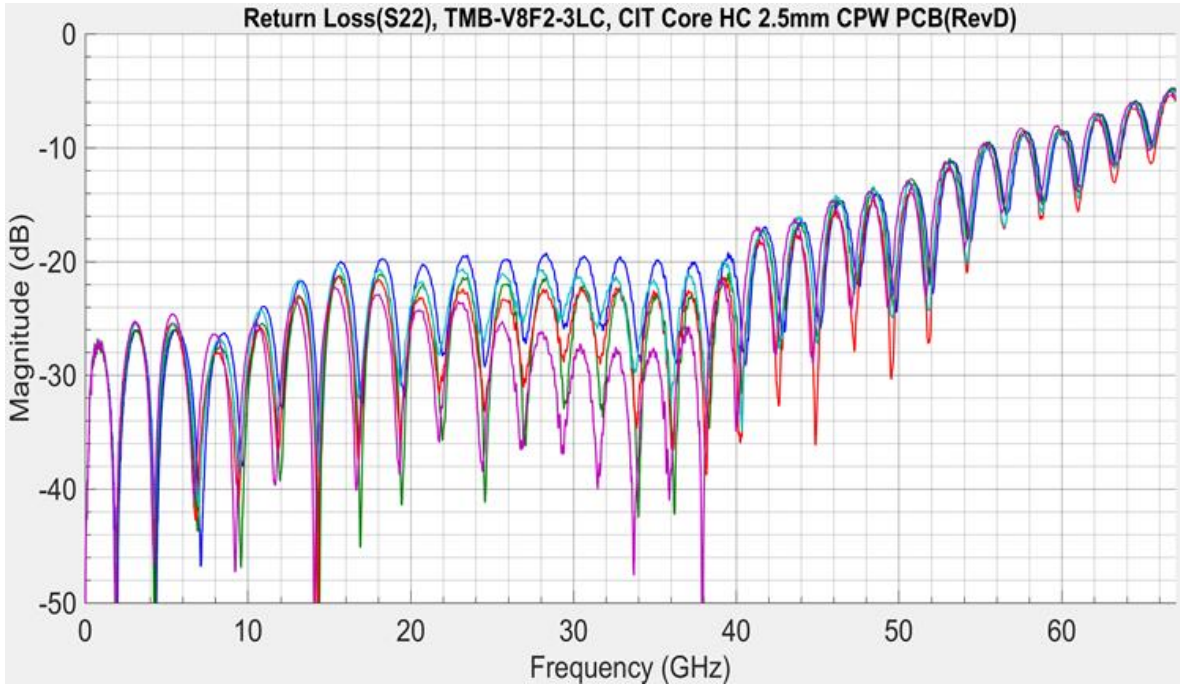
Return Loss (S11), 10 connectors measured, 5 measurements



REVISION: 1	ECN INFORMATION: EC No: N/A DATE: 04/21/2020	TITLE: 1.85mm Vertical Launch CPW Solderless Precision Connector (TMB-V8F2-3LC)	SHEET No. 7 of 8
DOCUMENT NUMBER: RSI-TMB_V8F2_3LC	SI ENGINEER: R.Stavoli	DESIGN ENGINEER P. Volkov	ENGINEERING MANAGER E.Soubh

SIGNAL INTEGRITY REPORT

Return Loss (S22), 10 connectors measured, 5 measurements



REVISION: 1	ECN INFORMATION: EC No: N/A DATE: 04/ 21 / 2020	TITLE: 1.85mm Vertical Launch CPW Solderless Precision Connector (TMB-V8F2-3LC)	SHEET No. 8 of 8
DOCUMENT NUMBER: RSI-TMB_V8F2_3LC	SI ENGINEER: R.Stavoli	DESIGN ENGINEER P. Volkov	ENGINEERING MANAGER E.Soubh
<small>TEMPLATE FILENAME: SPM(SIZE_A)(V.1).DOC</small>			