# U7237A 10GBASE-T Transmitter Test Fixture

User's Guide



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# Warranty

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# U7237A 10GBASE-T Transmitter Test Fixture Description

The U7237A 10GBASE-T transmitter test fixture is required to perform the measurement with the . The fixture helps you to easily access the 10GBASE-T test signals.

The fixture has 3 sections: Section 1, Section 2 and Section 3.

Section 1 of the U7237A 10GBASE-T transmitter test fixture is required for the following tests:

- · Transmitter timing jitter (MASTER) test
- Transmit clock frequency test
- · Maximum output droop test
- · Transmitter power spectral density test
- · Power level test
- · Transmitter linearity tests
- · MDI return loss test

Section 2 of the fixture is required for the following test:

· Transmitter timing jitter (SLAVE) test

Section 3 of the fixture is required for calibration during the MDI return loss test.

Figure 1, Figure 2 and Figure 3 shows the U7237A 10GBASE-T transmitter test fixtures. The U7237A 10GBASE-T transmitter test fixture is shipped to you as one piece of board with 3 sections, as shown in Figure 1. The board has a V-cut breakout tab that allows you to easily separate the board into two pieces.



Figure 1 Complete U7237A 10GBASE-T Transmitter Test Fixture Board



The bigger piece of board, as shown in Figure 2 has Section 1 and Section 2. This sections are required to perform the conformance tests. Whereas, the smaller board which has Section 3, as shown in Figure 3 is required to calibrate the Vector Network Analyzer.

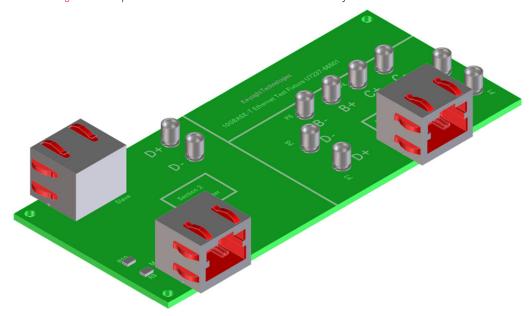


Figure 2 Section 1 and Section 2 of the U7237A 10GBASE-T Transmitter Test Fixture

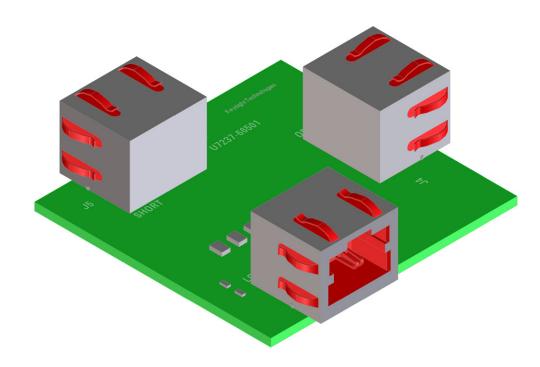


Figure 3 Section 3 of the U7237A 10GBASE-T Transmitter Test Fixture

#### Fixture and Accessories

The complete set of 10GBASE-T transmitter test fixture contains the following items:

Part Number	Description	Quantity
U7237-66501	10GBASE-T test fixture	1 unit
1250-3553*	50 ohm RF SMP female straight connector	6 units
N4235-61602	16 inches phase matched SMP female/SMA male cable pair	2 units
U7237-61601	8 inches 10GBASE-T shielded patch cord	2 units
0955-2095	Precision instrumentation Balun 300 KHz to 3 GHz	1 unit

<sup>\*</sup> It is always recommended to mate and de-mate connectors straight up. However, this connector is capable of mating at a +/-.020" radial tolerance. In handling this connector, one should not hold or squeeze it on the interface side. Always hold it on the knurled end.

#### Dimension

The dimension of the U7237A test fixture board is as follows:

PCB board height = 1.89 inches

PCB board width = 6.30 inches

PCB board thickness = 0.063 inches

#### Test Modes

The test modes are required for testing the transmitter waveform, transmitter distortion, transmitter jitter, transmitter droop and BER testing:

- Test Mode 1 is a mode provided to enable the timing jitter testing on a SLAVE transmitter and transmit clock frequency testing.
- Test Mode 2 is for transmitter jitter testing when the transmitter is in the MASTER timing mode.
- Test Mode 3 is for transmitter jitter testing in the SLAVE mode if the loop timing is supported.
- Test Mode 4 is for the transmitter linearity testing.
- Test Mode 5 is used to verify whether the transmitter is compliant with the transmit PSD mask, power level test and MDI return loss test.
- Test Mode 6 is for testing the transmitter droop.
- Test Mode 7 is used to enable the measurement of the bit error rate of the link.

# Characteristics, Regulatory, and Safety Information

#### **Electrical Characteristics**

The following electrical characteristics are the specification of the U7237A 10GBASE-T transmitter test fixture:

Description	Specification	
Bandwidth	3 GHz	
Attenuation between the master & slave in Section 2 (3 GHz bandwidth)	15 dB ± 1 dB (including transmission line)	
Isolation (between transmitter & Pair D)	> 30 dB	
Insertion loss	Frequency Range	Max Insertion Loss
	0- 500 MHz	< 0.5 dB
	500 MHz - 1 GHz	< 1.5 dB
	1 GHz - 2 GHz	< 3.2 dB
	2 GHz - 3 GHz	< 4.5 dB
Ethernet shielded patch cord	CAT6A	
Balun band width	300 KHz to 3 GHz	

#### Operating and Non-operating Environmental Characteristics

The following are the environmental characteristics of the U7237A 10GBASE-T transmitter test fixture:

Description	Minimum Requirement
Ambient temperature	Operating = 0°C to 40°C Non-operating = - 51°C) to 71°C
Humidity	Operating = 95% RH at 40°C for 24 hours
Altitude	Operating = 4,570m (15,000 ft) Non-operating = 15,244m (50,000 ft)
Indoor use	This fixture is rated for indoor use only
Random vibration	HP/Keysight class B1 and MIL-PRF-2880 OF Class 3 random
Mechanical shock	HP/Keysight class B1 and MIL-PRF-2880 OF (operating 30g, 1/2 sine, 11-ms duration, 3 shocks/axis along major axis. Total of 18 shocks)

#### Safety Information

The U7237A 10GBASE-T transmitter test fixture herewith complies with the essential requirements of the Low Voltage Directive 73/23/EEC and the EMC Directive 89/336/EEC, and carries the CE-marking accordingly. The product was tested in a typical configuration with HP/Keysight test systems.

The following are the safety regulatory information of the U7237A 10GBASE-T transmitter test fixture:

Minimum Requirement:

IEC 61010-1: Second edition 2001-2

EN 61010-1:2001

UL3111-1 or UL 6101B-1:2003 (must be Keysight ID)

Canada: CSA-C22.2 No. 1010.1:1992