

# U7237A 10GBASE-T Transmitter Test Fixture

User's Guide

# Notices

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## Warranty

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## Safety Notices

### CAUTION

A CAUTION notice denotes a hazard. It calls attention to an operating procedure, practice, or the like that, if not correctly performed or adhered to, could result in damage to the product or loss of important data. Do not proceed beyond a CAUTION notice until the indicated conditions are fully understood and met.

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## U7237A 10GBASE-T Transmitter Test Fixture Description

### 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.

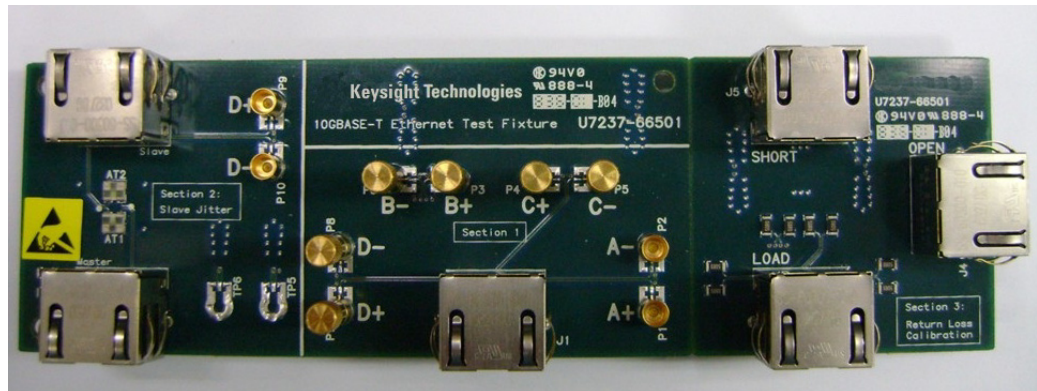


Figure 1 Complete U7237A 10GBASE-T Transmitter Test Fixture Board

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.

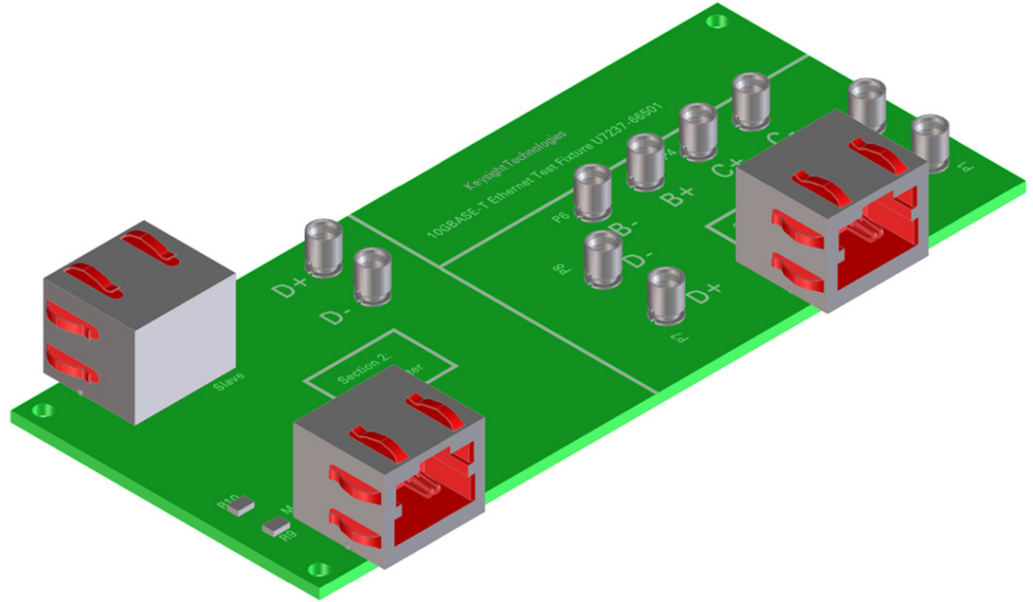


Figure 2 Section 1 and Section 2 of the U7237A 10GBASE-T Transmitter Test Fixture

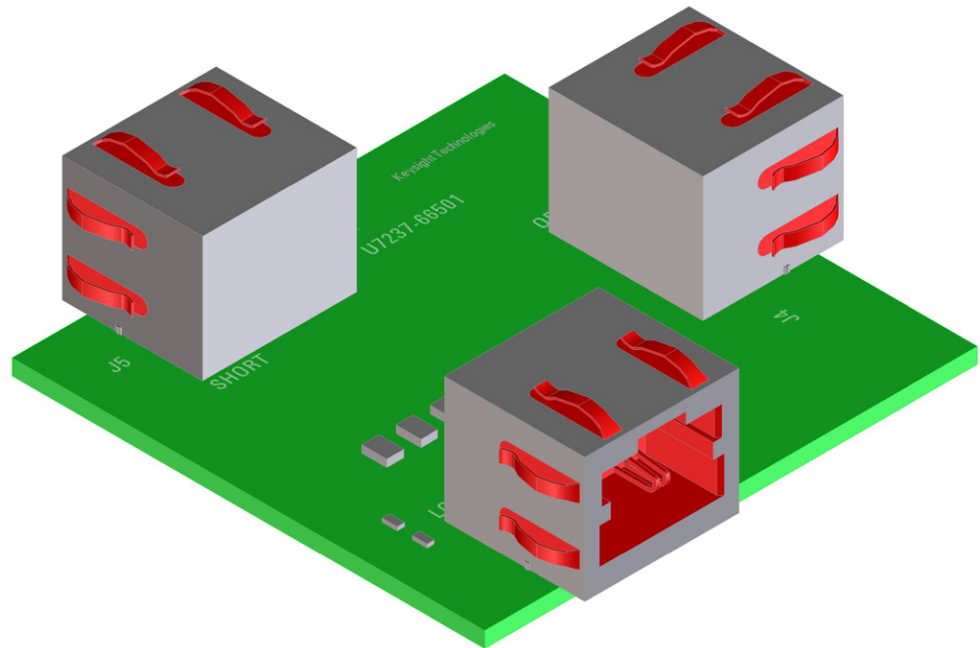


Figure 3 Section 3 of the U7237A 10GBASE-T Transmitter Test Fixture

## 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

\* 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	
Band width	3 GHz	
Attenuation between the master & slave in Section 2 (3 GHz bandwidth)	15 dB $\pm$ 1 dB (including transmission line)	
Isolation (between transmitter & Pair D)	> 30 dB	
Insertion loss	<b>Frequency Range</b>	<b>Max Insertion Loss</b>
	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