
U7242A USB 3.0 Test Fixture

Notices

© Keysight Technologies 2023

No part of this manual may be reproduced in any form or by any means (including electronic storage and retrieval or translation into a foreign language) without prior agreement and written consent from Keysight Technologies as governed by United States and international copyright laws.

Manual Part Number

U7242-97000

Edition

Third Edition, January 2023

Keysight Technologies, Inc.
1900 Garden of the Gods Road
Colorado Springs, CO 80907 USA

Warranty

THE MATERIAL CONTAINED IN THIS DOCUMENT IS PROVIDED "AS IS," AND IS SUBJECT TO BEING CHANGED, WITHOUT NOTICE, IN FUTURE EDITIONS. FURTHER, TO THE MAXIMUM EXTENT PERMITTED BY APPLICABLE LAW, KEYSIGHT DISCLAIMS ALL WARRANTIES, EITHER EXPRESS OR IMPLIED WITH REGARD TO THIS MANUAL AND ANY INFORMATION CONTAINED HEREIN, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. KEYSIGHT SHALL NOT BE LIABLE FOR ERRORS OR FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES IN CONNECTION WITH THE FURNISHING, USE, OR PERFORMANCE OF THIS DOCUMENT OR ANY INFORMATION CONTAINED HEREIN. SHOULD KEYSIGHT AND THE USER HAVE A SEPARATE WRITTEN AGREEMENT WITH WARRANTY TERMS COVERING THE MATERIAL IN THIS DOCUMENT THAT CONFLICT WITH THESE

TERMS, THE WARRANTY TERMS IN THE SEPARATE AGREEMENT WILL CONTROL.

Technology Licenses

The hardware and/or software described in this document are furnished under a license and may be used or copied only in accordance with the terms of such license.

U.S. Government Rights

The Software is "commercial computer software," as defined by Federal Acquisition Regulation ("FAR") 2.101. Pursuant to FAR 12.212 and 27.405-3 and Department of Defense FAR Supplement ("DFARS") 227.7202, the U.S. government acquires commercial computer software under the same terms by which the software is customarily provided to the public. Accordingly, Keysight provides the Software to U.S. government customers under its standard commercial license, which is embodied in its End User License Agreement (EULA), a copy of which can be found at <http://www.keysight.com/find/sweula>. The license set forth in the EULA represents the exclusive authority by which the U.S. government may use, modify, distribute, or disclose the Software. The EULA and the license set forth therein, does not require or permit, among other things, that Keysight: (1) Furnish technical information related to commercial computer software or commercial computer software documentation that is not customarily provided to the public; or (2) Relinquish to, or otherwise provide, the government rights in excess of these rights customarily provided to the public to use, modify, reproduce, release, perform, display, or disclose commercial computer software or commercial computer software documentation. No additional government requirements beyond those set forth in the EULA shall apply, except to the extent that those terms, rights, or licenses are explicitly required from all providers of commercial computer software pursuant to the FAR and the DFARS and are set forth specifically in writing elsewhere in the EULA. Keysight shall be under no obligation to update, revise or otherwise modify the Software. With respect to any technical data as defined by FAR 2.101, pursuant to FAR 12.211 and 27.404.2 and DFARS 227.7102, the U.S. government acquires no

greater than Limited Rights as defined in FAR 27.401 or DFAR 227.7103-5 (c), as applicable in any technical data.

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.

WARNING

A WARNING 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 personal injury or death. Do not proceed beyond a WARNING notice until the indicated conditions are fully understood and met.

Contents

- 1 About U7242A USB 3.0 Test Fixture
 - Overview** 8
 - Fixture and Accessories** 9
 - Dimensions** 10
- 2 Characteristics and Safety Information
 - Electrical Characteristics** 12
 - Operating and Non-operating Environmental Characteristics** 13
 - Regulatory Safety Information** 14

1 About U7242A USB 3.0 Test Fixture

Overview / 8
Fixture and Accessories / 9
Dimensions / 10

This chapter describes the U7242A USB 3.0 test fixture.

Overview

The U7242A USB 3.0 test fixture is required to perform measurement with the Keysight D9020USBC USB 3.2 Compliance Test Application. The fixture helps you to easily access the USB 3.0 test signals.

The U7242A USB 3.0 test fixture is required for the all the Far End (TP1) tests as listed in the table below. **d**

Table 1 List of Far End (TP1) Tests supported by the U7242A USB 3.0 Test Fixture

Supported Tests
Far End Unit Internal test
Far End SSC Slew Rate test
Far End Template test
Far End Peak-to-Peak Differential Output Voltage test
Far End RMS Random Jitter test
Far End Maximum Deterministic Jitter test
Far End Total Jitter at BER-12 test

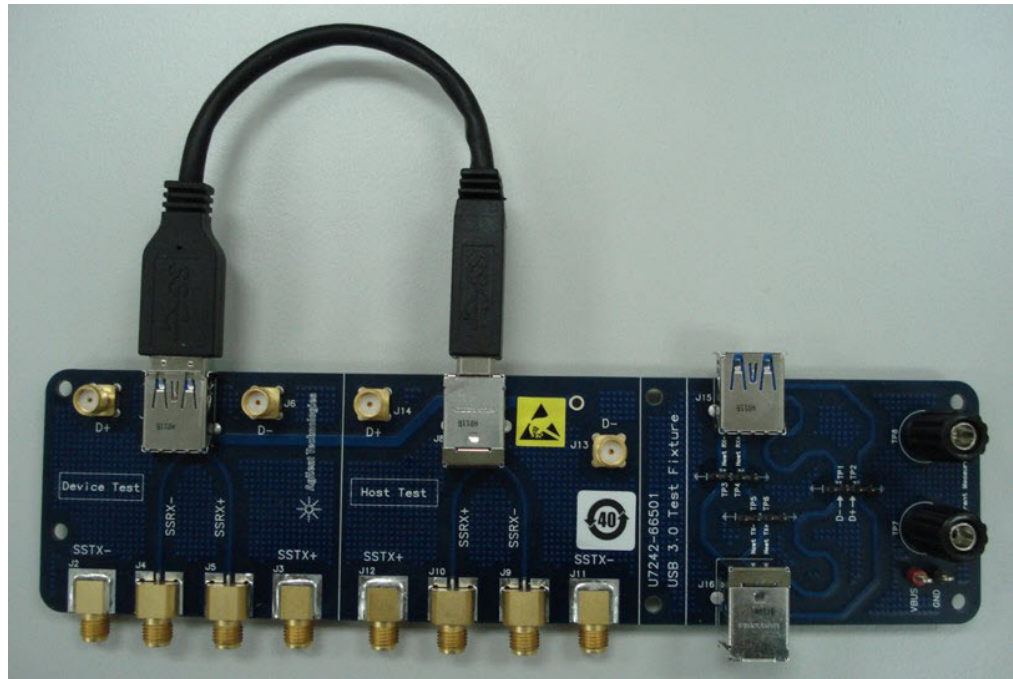


Figure 1 U7242A USB 3.0 Test Fixture Board

Fixture and Accessories

The complete set of USB 3.0 test fixture contains the following items:

Table 2 USB 3.0 test fixture items

Part Number	Description	Quantity
U7242-66501	USB 3.0 test fixture	1 Unit
8121-1880	USB 3.0 A-Type to B-Type cable (4 inches)	1 Unit
8121-1924	USB 3.0 A-Type to B-Type cable (3.1 meter)	1 Unit
8121-2154	USB 3.0 A-Type to Micro B-Type Cable (8 inches)	1 Unit
1253-8358	Double Banana Plug With Shorting Bar	1 Unit

Dimensions

The dimensions of the U7242A test fixture board are as follows:

Table 3 PCB board dimensions

Dimension	Value (Inches)
Height	2.00
Width	7.75
Thickness	0.063

2 Characteristics and Safety Information

Electrical Characteristics / 12
Operating and Non-operating Environmental Characteristics / 13
Regulatory Safety Information / 14

This chapter describes the electrical and environmental characteristics of the USB 3.0 test fixture along with the regulatory safety information.

Electrical Characteristics

The following table lists the electrical characteristics of the U7242A USB 3.0 test fixture:

Table 4 PCB board dimensions

Dimension	Specification
Trace Impedance	3.00 GHz
Mated Connector	15 dB \pm 1 dB (including transmission line)
Cable	> 30 dB

Operating and Non-operating Environmental Characteristics

The environmental characteristics of the U7242A test fixture are:

Table 5 Environmental characteristics

Description	Minimal Requirements
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 = 4,570 m (15,000 ft) Non-operating = 15,244 m (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 30 g, 1/2 sine, 11 ms duration, 3 shocks/axis along major axis. Total of 18 shocks)

Regulatory Safety Information

The U7242A USB3.0 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 table provides the regulatory safety information for the test fixture:

Table 6 Minimum safety requirements for U7242A USB3.0 Test Fixture

Description	Minimal Requirements
IEC 61010-1 EN	Second edition 2001-2
61010-1	2001
UL3111-1 or UL 6101B-1	2003 (must be a Keysight ID)
Canada	CSA-C22.2 No. 1010.1:1992

