OSFP 1.6T Test Adapters

User Manual

Table of Contents

Table of Contents 2
Introduction 3
OSFP-1.6T-TPA1.xx-R2-HCB-P 4
OSFP-1.6T-TPA1.xx-MCB-M2-R 5
Wilder High-Speed Signal Terminators (HSST) Accessory 7
Cooling Module Thermal Data 9
Thermal Caution 14
Cooling Module Usage Recommendations and Thermal Safety Precautions 14
Product Inspection 15
The OSFP Test Adapter Care and Handling Precautions 16
General Test Adapter, Cable, and Connector 18
Handling and Storage 18
Visual Inspection 18
Cleaning 18
Making Connections 18
Electrostatic Discharge Information 19
User Model 20
OSFP-1.6T-MCB 20
OSFP-1.6T-HCB 23
Channel De-Embedding 24
Mechanical and Environmental Specifications 25
Electrical Responses 35
Wilder OSFP 1.6T HCB Response 35
Wilder OSFP 1.6T MCB Response 36
Wilder OSFP 1.6T Typical MTF Response 37
Wilder OSFP 1.6T ICN 40
Compliance with Environmental Legislation 41
WEEE Compliance Statement 41
Compliance To RoHS 2 Substance Restrictions 41
Glossary of Terms 42
Index 43

Introduction

This user's guide documents the OSFP 1.6T Host Compliance Board (HCB), and OSFP 1.6T Module Compliance Board (MCB) Test Point Adapters (TPA). These test adapters can be used in various configurations for compliance testing. Each TPA has two variations of connector types with 1.85 mm and 1.00 mm connectors. The model numbers are as follows:

Model Numbers:

HCB (Plug):

640-1099-000 (OSFP-1.6T-TPA1.85-R2-HCB-P)
640-1099-100 (OSFP-1.6T-TPA1.00-R2-HCB-P)
640-1178-000 (OSFP-1.6T-TPA1.85-R2-HCB-RHS-P)
640-1178-100 (OSFP-1.6T-TPA1.00-R2-HCB-RHS-P)

MCB (Receptacle):

640-1221-000 (OSFP-1.6T-TPA1.85-MCB-M2-R)
640-1221-100 (OSFP-1.6T-TPA1.00-MCB-M2-R)
640-1221-050 (OSFP-1.6T-TPA1.85-MCB-RHS-M2-R)
640-1221-150 (OSFP-1.6T-TPA1.00-MCB-RHS-M2-R)

MCB with M2 Cooling Module Accessory:

640-1222-000 (OSFP-1.6T-TPA1.85-MCB-M2-RC2)
640-1222-100 (OSFP-1.6T-TPA1.00-MCB-M2-RC2)
640-1222-050 (OSFP-1.6T-TPA1.85-MCB-RHS-M2-RC2)
640-1222-150 (OSFP-1.6T-TPA1.00-MCB-RHS-M2-RC2)

The OSFP 1.6T HCB (Plug) and OSFP 1.6T MCB (Receptacle) TPAs, shown in Figures 1 and 2 below, test 224 Gbps PAM4 OSFP interface cables, hosts, and modules to the requirements of the OSFP MSA[1], IEEE 802.3dj™/D1.2 and OIF CEI-224G-VSR-PAM4 rev. 01 standards.

[1] "OSFP MSA Specification for OSFP Octal Small Form Factor Pluggable Module, Rev 5.0, October 2nd, 2022"

NOTE: To avoid damaging the cables, use the handling techniques described in the Care and Handling section before making any connections or configuring a test setup.

Always use a static-safe workstation when performing tests, as explained in the "Electrostatic Discharge Information" section.

OSFP-1.6T-TPA1.xx-R2-HCB-P

The OSFP 1.6T Host Compliance Test Adapter can be used for testing the compliance of OSFP Host Devices to the OSFP MSA and IEEE 802.3dj™/D1.2 standards.

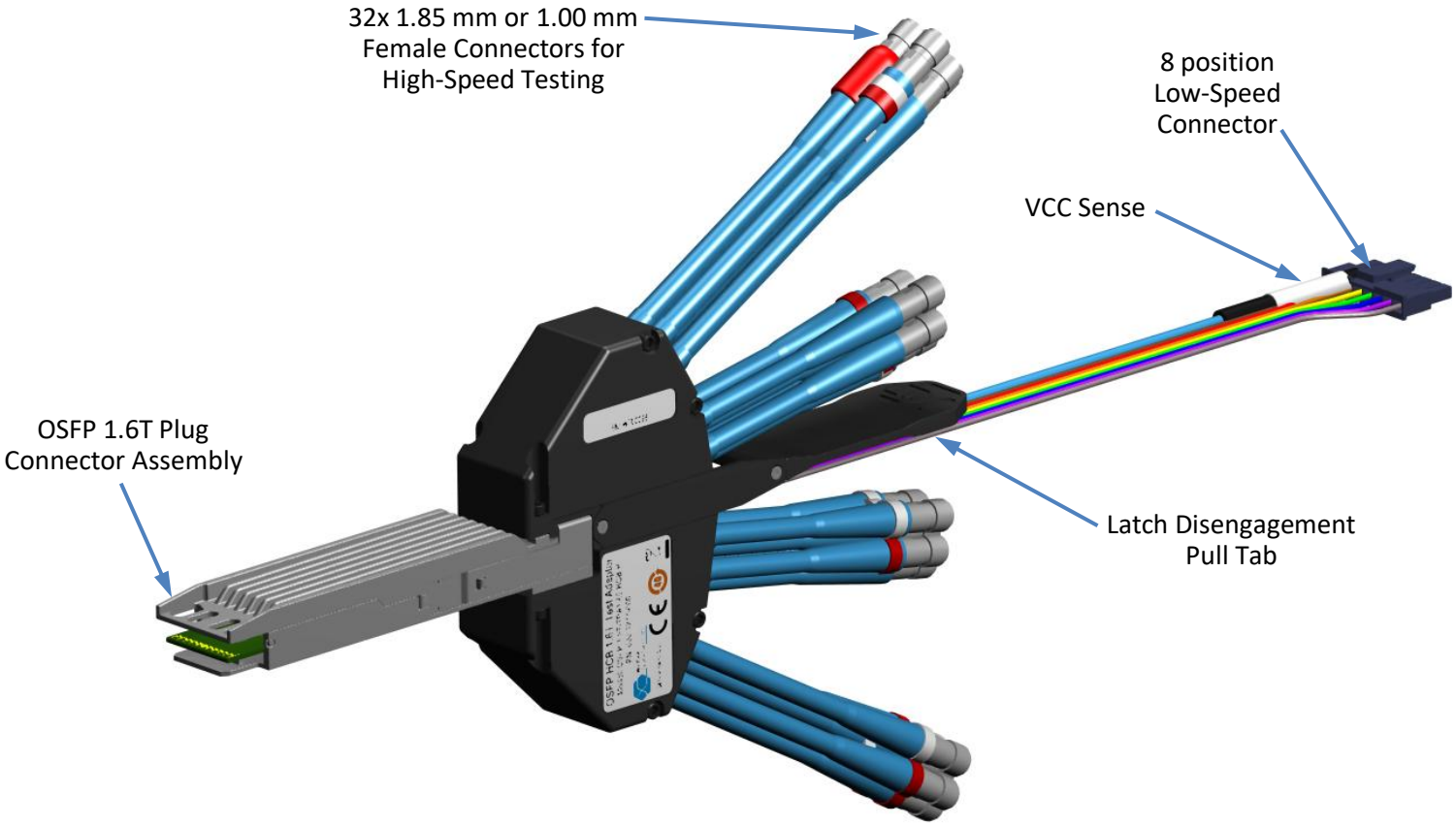


Figure 1. The OSFP 1.6T HCB (Plug) Test Adapter (Note: The coaxial cables are configuration dependent and may be terminated with different connectors and have different color-coding than what is shown.)

Included with the OSFP-1.6T-TPA1.xx-R2-HCB-P are spare Molex plug connectors, provided for users to interface with the Low-Speed connection on the HCB. The Molex part numbers for the included separate plug and contact pins are as follows. Part numbers for the receptacle and its contact pins, which make up the low speed connector (P2) are also listed.

8-position MicroFit Receptacle Housing (P2)	Molex PN 43645-0800
Receptacle Female Terminal Pins (P2)	Molex PN 43030-0011
8-position MicroFit Plug Header (Spare)	Molex PN 43640-0801
Plug Male Contact Pins (Spare)	Molex PN 43031-0011

OSFP-1.6T-TPA1.xx-MCB-M2-R

The OSFP 1.6T Module Compliance Board can be used for testing the compliance of the OSFP MSA and IEEE 802.3dj™/D1.2 standards.

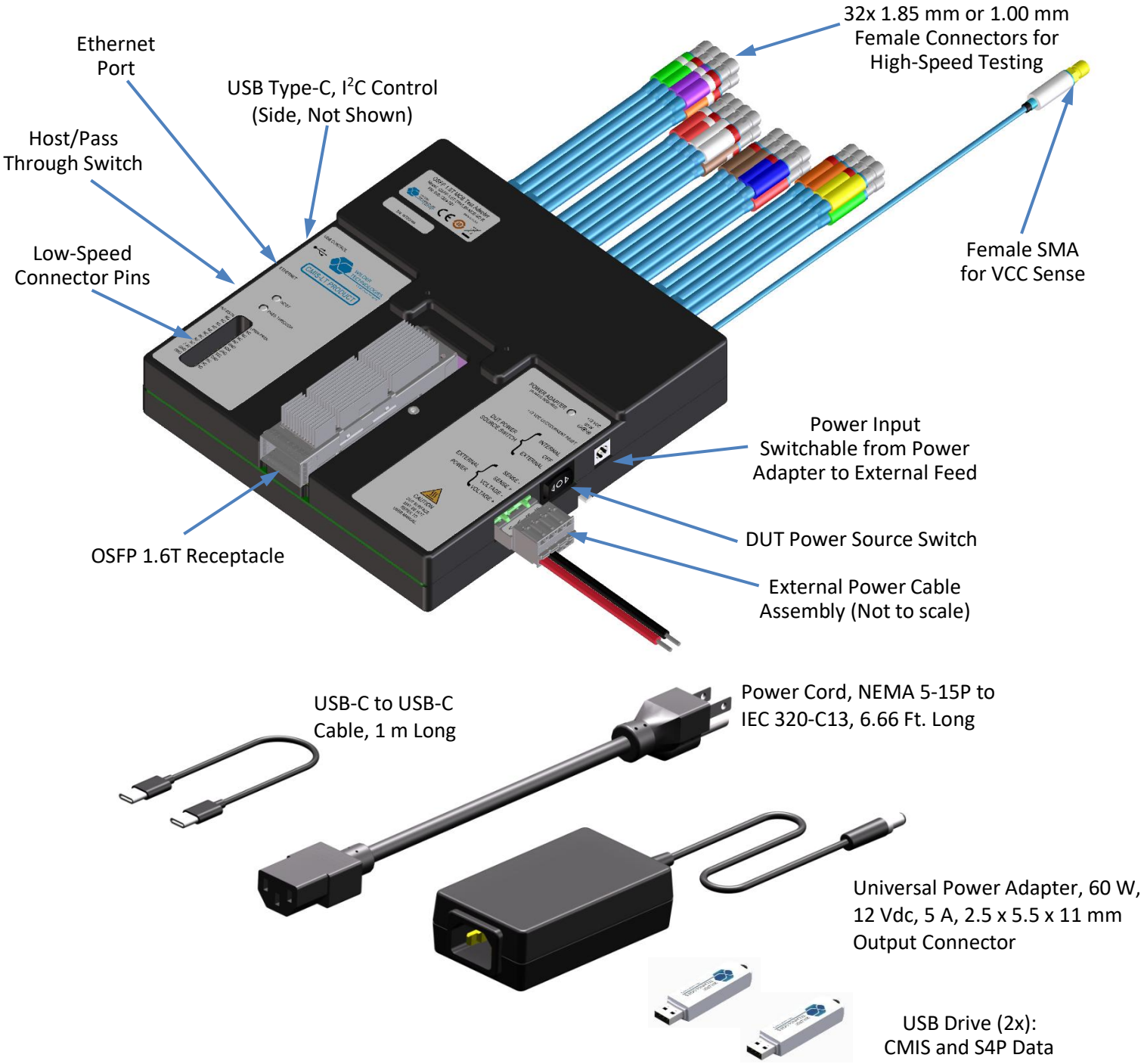


Figure 2. The OSFP 1.6T MCB (Receptacle) Test Adapter (Note: The coaxial cables are configuration dependent and may be terminated with different connectors than what is shown).

Included with the OSFP-1.6T-TPAxxx-MCB-M2-R is an external power cable assembly (415-0179-000) as an acceossry, provided for users to interface with the external power connector on the MCB. The part numbers are as follows:

4-position Connector Plug (16 A, 12-26 AWG)	Phoenix Contact PN 1942617
Solid Wire (13 AWG, Red and Black)	Cal Test PN CT288-X-100 (x=2 for red, x=0 for black)

Replacement parts for the MCB power connections can be additionally purchased through distributors.

Wilder High-Speed Signal Terminators (HSST) Accessory

Wilder Technologies has developed our own High-Speed Signal Terminators (HSST) product line (not included but sold as an accessory). These come in various configurations such as 2.92 mm, 2.4 mm, and 1.85 mm male radio frequency (RF) connectors. Wilder's HSSTs can be ordered as singles, a pair, two pairs, four pairs, or eight pairs (see model table below for ordering information). These HSSTs absorb RF energy in the high-speed coaxial transmission lines while properly terminating, preventing reflections, minimizing interference, and maximizing system performance with good signal integrity.

The receiver High-Speed connections for OSFP are normally AC coupled. The OSFP plug and receptacle TPAs do NOT have internal DC Blocks. This allows for parametric testing through the TPAs. Normal testing may require DC Blocks (Some DC blocks may be optionally ordered from Wilder Technologies or refer to the following table for purchasing options). RF Terminators may be required to support specific user test configurations. (Some RF Terminators may be optionally ordered from Wilder Technologies or refer to the following table for purchasing options). The metal shell of both the plug (OSFP HCB) and receptacle (OSFP MCB) connector housing or cage tie high-speed ground to chassis ground.

Figure 3. The Wilder HSST

Model Numbers:

HSST (2.92 mm Version)	
640-1247-000 (HSST-40G-2.92M)	Single HSST, 2.92 mm Male Connector
640-1247-002 (HSST-40G-2.92M-1PR)	1 Pair HSST, 2.92 mm Male Connectors
640-1247-004 (HSST-40G-2.92M-2PR)	2 Pairs HSST, 2.92 mm Male Connectors
640-1247-008 (HSST-40G-2.92M-4PR)	4 Pairs HSST, 2.92 mm Male Connectors
640-1247-016 (HSST-40G-2.92M-8PR)	8 Pairs HSST, 2.92 mm Male Connectors
HSST (2.4 mm Version)	
640-1248-000 (HSST-50G-2.4M)	Single HSST, 2.4 mm Male Connector
640-1248-002 (HSST-50G-2.4M-1PR)	1 Pair HSST, 2.4 mm Male Connectors
640-1248-004 (HSST-50G-2.4M-2PR)	2 Pairs HSST, 2.4 mm Male Connectors
640-1248-008 (HSST-50G-2.4M-4PR)	4 Pairs HSST, 2.4 mm Male Connectors
640-1248-016 (HSST-50G-2.4M-8PR)	8 Pairs HSST, 2.4 mm Male Connectors
HSST (1.85 mm Version)	
640-1249-000 (HSST-60G-1.85M)	Single HSST, 1.85 mm Male Connector
640-1249-002 (HSST-60G-1.85M-1PR)	1 Pair HSST, 1.85 mm Male Connectors
640-1249-004 (HSST-60G-1.85M-2PR)	2 Pairs HSST, 1.85 mm Male Connectors
640-1249-008 (HSST-60G-1.85M-4PR)	4 Pairs HSST, 1.85 mm Male Connectors
640-1249-016 (HSST-60G-1.85M-8PR)	8 Pairs HSST, 1.85 mm Male Connectors

Cooling Module Accessory

The Cooling Module Accessory (Included with product or optional accessory) can be installed to the OSFP 1.6T MCB (Receptacle) Test Adapter. This will increase airflow through a device module (DUT) connector's heat sink and subsequently keep the device module case temperature within recommended ranges (per OSFP MSA). The Cooling Module is required when testing OSFP modules at power classes 4 or greater. Please note that the cooling modules include a vent cover; this gives users two different configurations depending on the module used.

For the Fin Type/Open top modules, it is recommended that the vent cover be in the closed position. For the Tunnel/Closed top modules, it is recommended that the vent cover be in the open position.

The Cooling Module also includes a dial to adjust fan speed. Currently, to ensure that the module receives adequate cooling, adjust the dial to 100% for all power classes.

The Cooling Module is shipped disassembled from the OSFP 1.6T MCB TPA. To install the cooling module onto the MCB, screw down the cooling module with the two screws shown in Figure 3. A 12 V AC-DC Power Adapter is also provided with the assembly and plugs into the Cooling Module's DC Jack, to power the fan.

NOTE: The Cooling Module is required while testing high power modules but is detachable for carrying purposes.

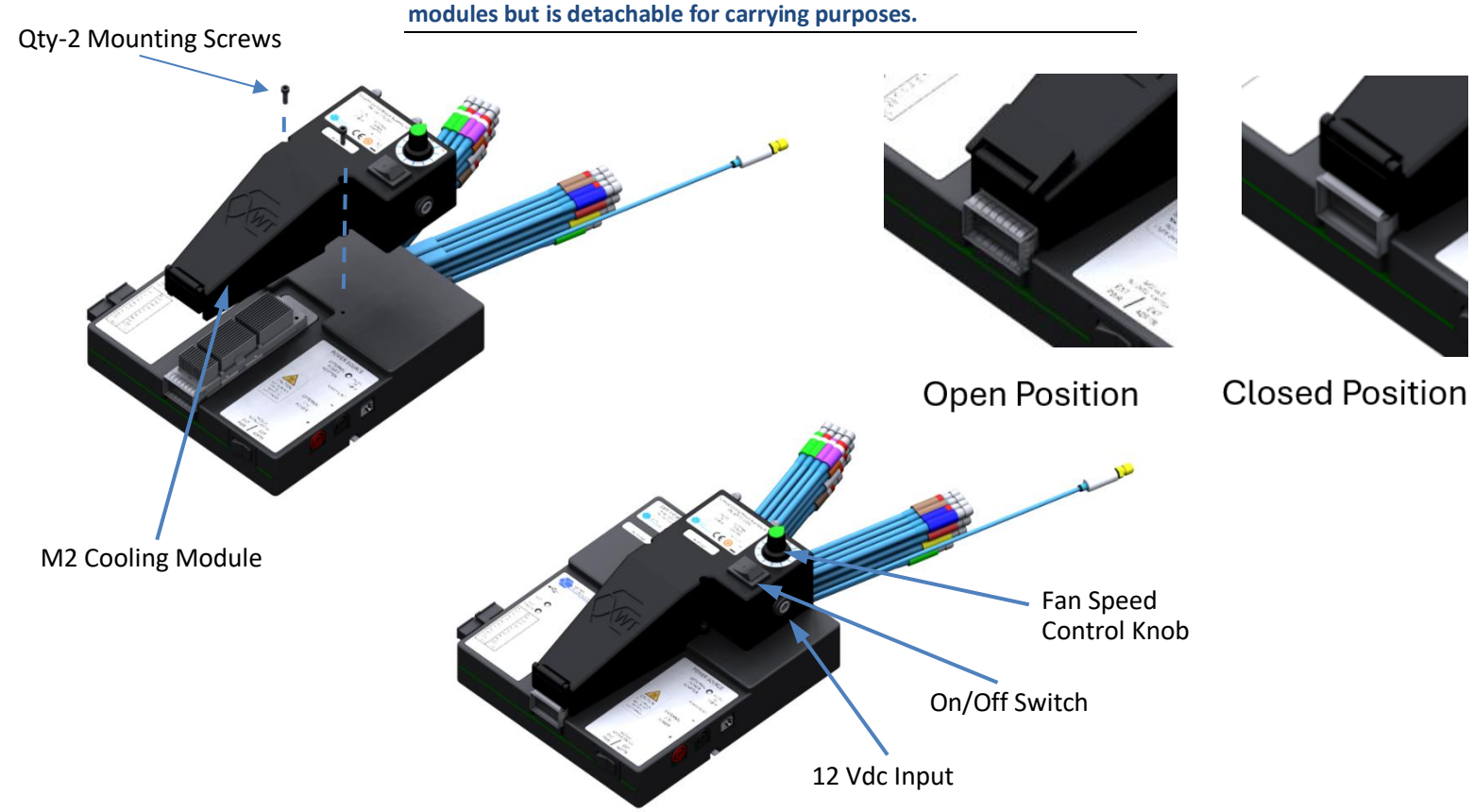


Figure 4. The OSFP MCB (Receptacle) Test Adapter with Cooling Module

Cooling Module Thermal Data

The Cooling Module is required to maintain an OSFP device module case temperature below 70°C, as defined by OSFP MSA Standards[1]. Thermal measurements at an ambient temperature of 20°C were taken of two typical OSFP Module types used with the OSFP MCB TPA while the M2 Cooling Module was powered on.

Temperature results for each power class as well as usage recommendations are shown below. For each power class, the predicted outside case temperature and outside handle temperature are shown (Figure 5 displays these locations on the DUT).

[1] "OSFP MSA Specification for OSFP Octal Small Form Factor Pluggable Module, Rev 5.0, October 2nd, 2022"

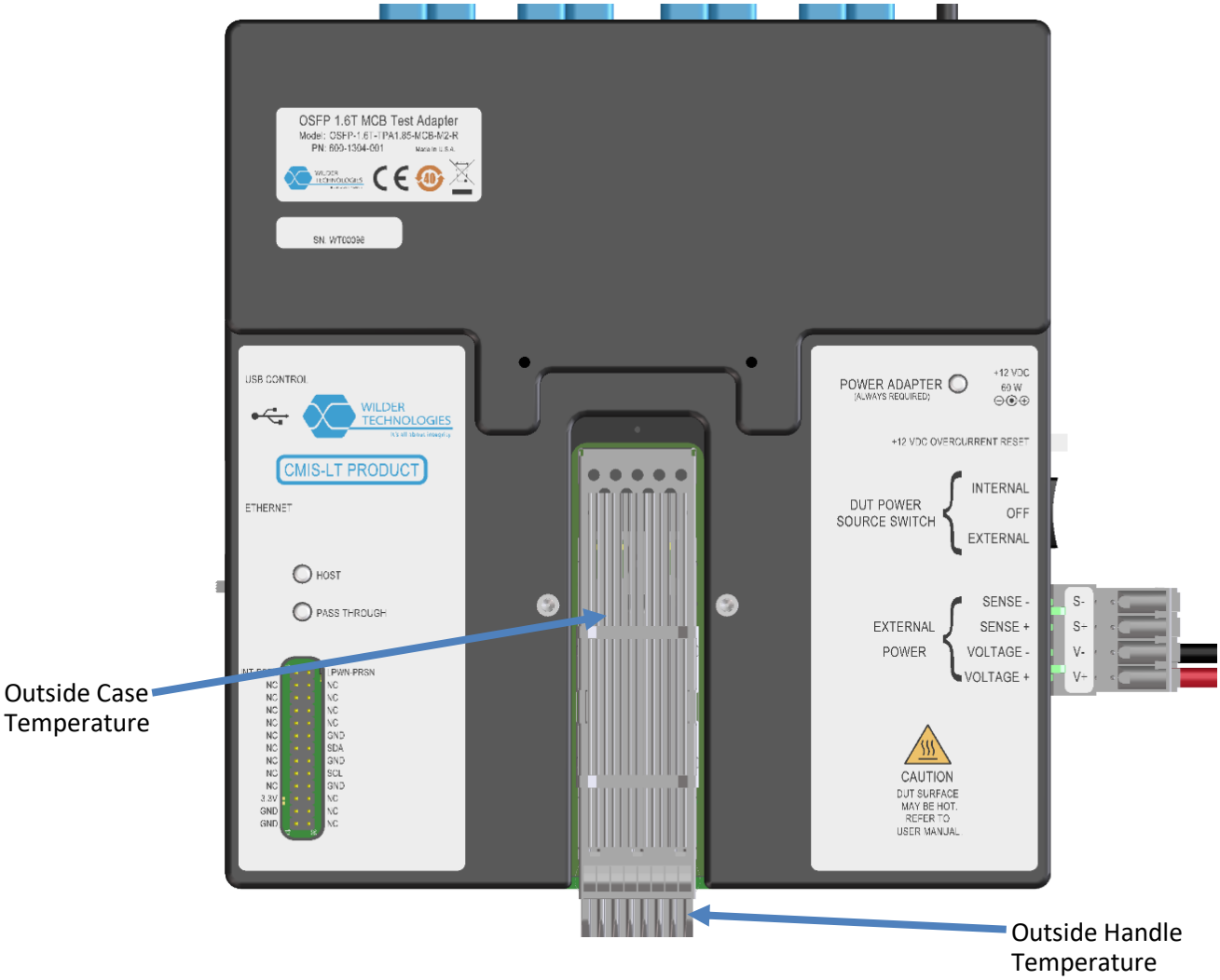


Figure 5. OSFP 1.6T MCB with DUT Temperature locations (Cooling Module not shown).

Module Type 1. OSFP Open Top Heat Sink Module (Fin Type) Thermal Measurements

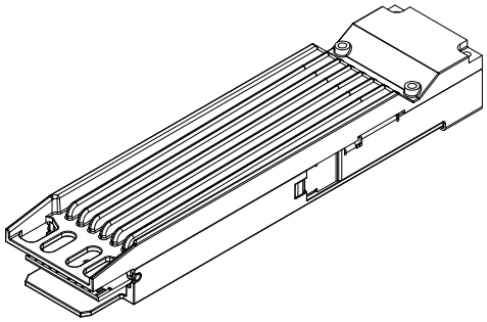


Figure 6. OSFP Open Top Heat Sink Module (Fin Type).

Table 1. OSFP Open Top Heat Sink Module Thermal Data with Cooling Module

Power Class	Max Power Consumption (W)	Outside Case Temperature[2] (C)	Outside Handle Temperature[2] (C)
1	1.5	22.5	21.5
2	3.5	24.7	21.8
3	7	28.7	22.3
4	8	29.8	22.5
5	10	32.1	22.8
6	12	34.3	23
7	14	36.6	23.3
8	20	43.4	24.2
	27	51.3	25.2
	30	54.7	25.6
	33	58.1	26.1
	40	66	27.1
	43	69.4	27.5

While being tested with the OSFP MCB TPA, the Open Top heat Sink OSFP Module is expected to still be hot to touch at all power classes. **In all cases, the test operator must use caution when handling the OSFP module as it is hot to touch**. **Refer to the 'Fan Module Usage Recommendations and Thermal Safety Precautions' section below**.

[2] Temperatures interpolated from experimental data.

Chart 1. OSFP Open Top Heat Sink Module Minimum Fan Speed vs Power at 70 degrees C

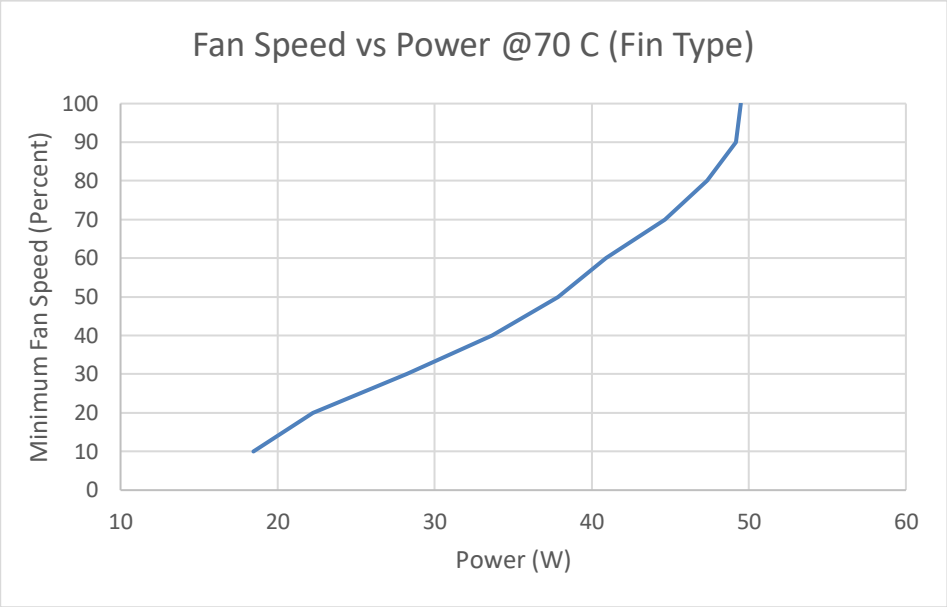


Chart 1. represents thermal measurements that were taken of the OSFP Open Top Module used with the OSFP MCB TPA while the Cooling Module fan speed was varied from a percentage range of 10 to 100% speed and while outside case temperature was held at a constant 70 degrees C. While testing OSFP Open Top Modules, users should reference Chart 1. to determine minimum fan speeds required to cool the DUT to below 70 degrees C at any given power consumption between 19 and 49 W. If a user adjusts the fan speed to below the minimum fan speed indicated in Chart 1 at a given power consumption, then the cooling module will not sufficiently cool the outside case temperature to below 70 degrees C.

Note: For OSFP Open Top modules, the cooling module is recommended to be configured in the closed position (Figure 3) for optimal cooling results.

Module Type 2. OSFP Closed Top Heat Sink Module (Tunnel Type) Thermal Measurements

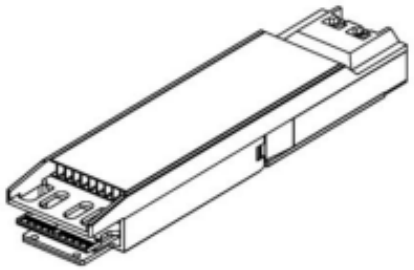


Figure 7. OSFP Closed Top Heat Sink Module (Tunnel Type).

Table 2. OSFP Closed Top Heat Sink Module Thermal Data with Cooling Module

Power Class	Max Power Consumption (W)	Outside Case Temperature[2] (C)	Outside Handle Temperature[2] (C)
1	1.5	21.2	21.7
2	3.5	22	21.8
3	7	23.4	22
4	8	23.8	22.1
5	10	24.6	22.2
6	12	25.4	22.3
7	14	26.2	22.4
8	20	28.7	22.8
	27	31.5	23.2
	30	32.7	23.4
	33	33.9	23.6
	40	36.7	24
	43	37.9	24.2

While being tested with the OSFP MCB TPA, the Closed Top heat Sink OSFP Module is expected to still be hot to touch at all power classes. **In all cases, the test operator must use caution when handling the OSFP module as it is hot to touch**. **Refer to the 'Fan Module Usage Recommendations and Thermal Safety Precautions' section below**.

[2] Temperatures interpolated from experimental data.

Chart 2. OSFP Closed Top Heat Sink Module Minimum Fan Speed vs Power at 70 degrees C

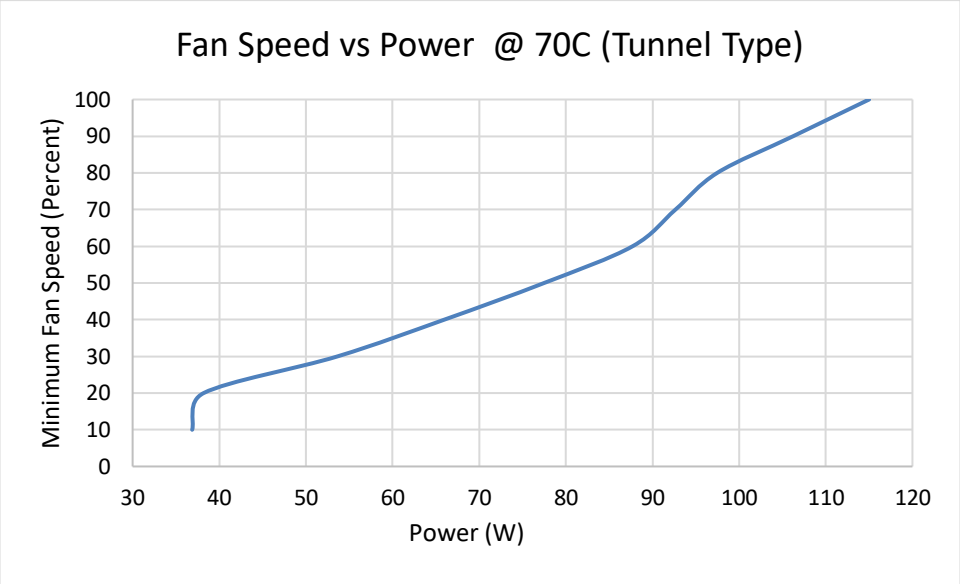


Chart 2. represents thermal measurements that were taken of the OSFP Closed Top Module used with the OSFP MCB TPA while the Cooling Module fan speed was varied from a percentage range of 10 to 100% speed and while outside case temperature was held at a constant 70 degrees C. While testing OSFP Closed Top Modules, users should reference Chart 2. To determine minimum fan speeds required to cool the DUT to below 70 degrees C at any given power consumption between 40 and 110 W. If a user adjusts the fan speed to below the minimum fan speed indicated in Chart 1 at a given power consumption, then the cooling module will not sufficiently cool the outside case temperature to below 70 degrees C.

Note: For OSFP Closed Top modules, the cooling module is recommended to be configured in the open position (Figure 3) for optimal cooling results.

Thermal Caution

While inserted in the OSFP MCB TPA, the OSFP module is expected to reach high temperatures. The thermal caution (Figure 5) serves as a warning of the high temperature that the DUT case can present while inserted in and being tested by the OSFP MCB TPA. **Importantly, at power consumptions greater than power class 3, the test operator should use caution, since the DUT case will be hot**.

Figure 8. Caution Label, IEC 60417. Caution, Hot Surface

Cooling Module Usage Recommendations and Thermal Safety Precautions

While testing an OSFP device module with the OSFP 1.6T MCB TPA, the test operator should adhere to the following usage recommendations and thermal safety precautions.

- The Cooling Module should always be on while the DUT is inserted in the OSFP MCB TPA.
- The user must manually turn on the Cooling Module.
- The user should acknowledge that the DUT case temperature will be hot while inserted in the OSFP 1.6T MCB TPA.
- The user should minimize skin contact with the DUT case while it is being tested.
    - **DO NOT** hold any skin touch due to burn risk.
- When finished with testing, before turning off the Cooling Module, the user should leave the DUT inside the powered-off MCB for 15 seconds before removing it to allow adequate time for cooling.

Product Inspection

Upon receiving OSFP Test Adapters from Wilder Technologies, perform the following product inspection:

- Inspect the outer shipping container, foam-lined instrument case, and product for damage. Retain the outer cardboard shipping container until the contents of the shipment have been inspected for completeness and the product has been checked mechanically and electrically. Use the foam-lined instrument-case for secure storage of the Wilder Technologies OSFP Test Adapter when not in use.

- Locate the shipping list and verify that all items ordered were received.

- In the unlikely event that the product is defective or incomplete, the “Limited Warranty” (see the Wilder web site) discusses how to contact Wilder Technologies for technical assistance and/or how to package the product for return.

The OSFP Test Adapter Care and Handling Precautions

The OSFP Test Adapters require careful handling to avoid damage. Improper handling techniques, or using too small a cable bend radius, can damage the coaxial cable connections within the adapter housing or the cables themselves. This can occur at any point along the cable. To achieve optimum performance and to prolong the OSFP TPA's life, observe the following handling precautions:

- **CAUTION 1: Avoid Torque Forces** (Twisting)
  Twisting any OSFP TPA as a unit, with one end held stationary, may damage, or severely degrade performance. Adherence to Caution 5 (below) helps to avoid twisting.

- **CAUTION 2: Avoid Sharp Cable Bends**
  Never bend coaxial cables into a radius of 26 mm (1-inch) or less. Never bend cables greater than 90°. Single or multiple cable bends must be kept within this limit. Bending the OSFP TPA cables less than a 26mm (1-Inch) radius will permanently damage or severely degrade test adapter performance.

- **CAUTION 3: Avoid Cable Tension** (Pull Forces)
  Never apply tension (pull forces) to an individual coaxial cable that is greater than 2.3 kg (5 lbs.). To avoid applying tension, always place accessories and equipment on a surface that allows adjustment to eliminate tension on the OSFP TPA and cables. Use adjustable elevation stands or apparatus to accurately place and support the OSFP TPA.

- **CAUTION 4: Connect the OSFP Test Adapter First**
  To prevent twisting, bending, or applying tension to the coaxial cables when connecting an OSFP TPA, always attach the OSFP TPA to the device under test (DUT) or cable under test before attaching any High-Speed connectors. Carefully align the OSFP connectors and then gently push the connectors together until fully seated.

  If the OSFP TPA must be turned or twisted to make connection to the DUT, avoid using the OSFP TPA housing alone to make this occur. Try to distribute the torque forces along the length of the test setup and cabling. If this is not possible, it is recommended to first loosen or disconnect the High-Speed connections at the OSFP TPA, make the connection to the DUT and then re-tighten or attach the test equipment leads.

NOTE: Only grip the test adapter housing when inserting or extracting the OSFP TPA to or from the DUT. Pulling directly on the OSFP TPA cables or using them to insert the OSFP TPA may cause damage.

- **CAUTION 5: Carefully Make High-Speed (1.85 mm and 1.00 mm) Connections**
  To connect the OSFP TPA High-Speed connectors, follow these steps:

  1. Hold the cable stationary by grasping the cable at the heat shrink label section near the connector.

  2. Insert the mating High-Speed connector barrel and hand-tighten the free-spinning nut onto the connector while avoiding pulling, bending, or twisting the OSFP TPA coaxial cable.

  3. The OSFP TPA High-Speed connectors have flats that accept an open-end 15/64-inch or 13/64-inch wrench, depending on configuration. When attaching instrument cables to the OSFP TPA, it is recommended that the OSFP TPA connectors be mechanically held and the test leads be tightened to the equipment manufacturer's torque recommendations using an open-end torque wrench; normally 4 inch-lbs for 1.00 mm connector and 8 inch-lbs for 1.85 mm.

     If the test set-up requires repositioning, first loosen, or disconnect the coax cable connections to avoid twisting, bending, or tension.

  NOTE: A drop in signal amplitude by half or 6dB during the testing of a channel may indicate that a cable has been mechanically pulled free of coaxial cable connections internal to the assembly. This could be determined by checking if the cable has any lateral play relative to the TPA. This would only occur when the TPA has exceeded the pull force as specified within the mechanical specification. If the cable cannot be re-seated or continues to fail, the test adapter will need to be sent back to the factory for service.

- **CAUTION 6: Independently Support Instrument Cables or Accessories**
  Excessive weight from instrument cables and/or accessories connected to the OSFP TPA can cause damage or affect the test adapter performance. Be sure to provide appropriate means to support and stabilize all test set-up components.

- **CAUTION 7: ESD Sensitivity**
  The OSFP HCB is predominantly a passive component and is not in itself sensitive to electrostatic discharge (ESD). The OSFP MCB has active components and is sensitive to ESD. When an active DUT is installed, both devices become susceptible to ESD. Observe proper ESD precautions, discussed further in the Electrostatic Discharge Information section.

General Test Adapter, Cable, and Connector

Observing simple precautions can ensure accurate and reliable measurements.

Handling and Storage

Before each use of the OSFP TPA, ensure that all connectors are clean. Handle all cables carefully and store the OSFP TPA in the foam-lined instrument case when not in use. Do not set connectors contact end down. Install the coax connector protective end caps when the OSFP TPA is not in use.

Visual Inspection

Be sure to inspect all cables carefully before making a connection. Inspect all cables for metal particles, scratches, deformed threads, dents, or bent, broken, or misaligned center conductors. Do not use damaged cables.

Cleaning

If necessary, clean the connectors using low-pressure (less than 60 PSI) compressed air or nitrogen with an effective oil-vapor filter and condensation trap. Clean the cable threads, if necessary, using a lint-free swab or cleaning cloth moistened with isopropyl alcohol. Always completely dry a connector before use. Do not use abrasives to clean the connectors. Re-inspect connectors, making sure no particles or residue remains.

Making Connections

Before making any connections, review the “Care and Handling Precautions” section. Follow these guidelines when making connections:

- Align cables carefully
- Make preliminary connection lightly
- To tighten, turn connector nut only
- Do not apply bending force to cable
- Do not over-tighten preliminary connections
- Do not twist or screw-in cables
- Use an appropriately sized torque wrench, and do not tighten past the “break” point of the torque wrench

Electrostatic Discharge Information

Protection against electrostatic discharge (ESD) is essential while connecting, inspecting, or cleaning the OSFP TPA test adapter and connectors attached to a static-sensitive circuit (such as those found in test sets).

Electrostatic discharge can damage or destroy electronic components. Be sure to perform all work on electronic assemblies at a static-safe workstation, using two types of ESD protection:

- Conductive tablemat and wrist-strap combination
- Conductive floor-mat and heel-strap combination

When used together, both types provide a significant level of ESD protection. Used alone, the tablemat and wrist-strap combination provide adequate ESD protection. To ensure user safety, the static-safe accessories must provide at least 1 MΩ of isolation from ground. Acceptable ESD accessories may be purchased from a local supplier.

WARNING: These techniques for a static-safe workstation should not be used when working on circuitry with a voltage potential greater than 500 volts.

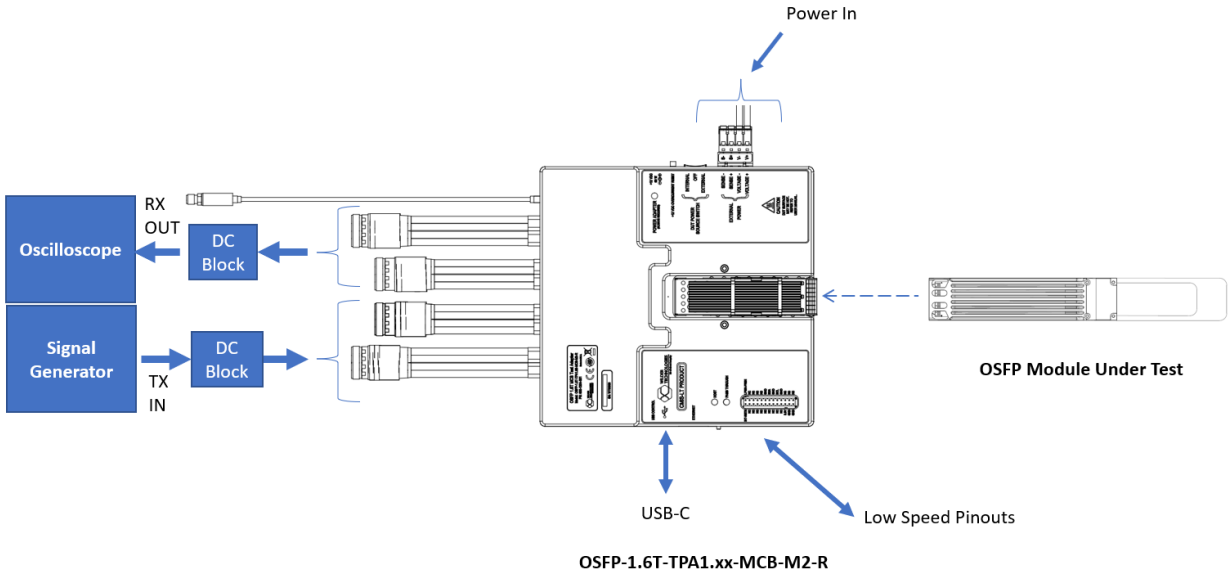
User Model

The OSFP TPAs can perform to the requirements of both MSA and IEEE 802.3dj™/D1.2 specifications, limited only by the specifications, environmental, care and handling specified in this document.

The two most common testing configurations are shown below.

OSFP-1.6T-MCB

OSFP-1.6T-TPA1.xx-MCB-M2-R is used to test an OSFP Module:



*DC blocks are accessories and not provided with this product

Figure 9. OSFP 1.6T MCB User Model

In this configuration, the OSFP 1.6T MCB is used to test an OSFP module. The MCB itself must be powered with the provided 12 V power supply. Power for the OSFP module under test can be supplied from MCB, or from an external source using the provided 3.3V cable assembly.

The MCB receives input signals from a signal generator connected to its TX lines (indicated by TX IN). These signals are then transferred to the OSFP module under test (indicated by TX OUT). The module responds with the RX IN signal, which is transferred through the MCB, and outputted to a connected oscilloscope through its RX lines.

*Note that between the Signal Generator and MCB and the MCB and Oscilloscope are DC Blocks which need to be separately obtained.

Closeup of MCB Interface and Functional Ports

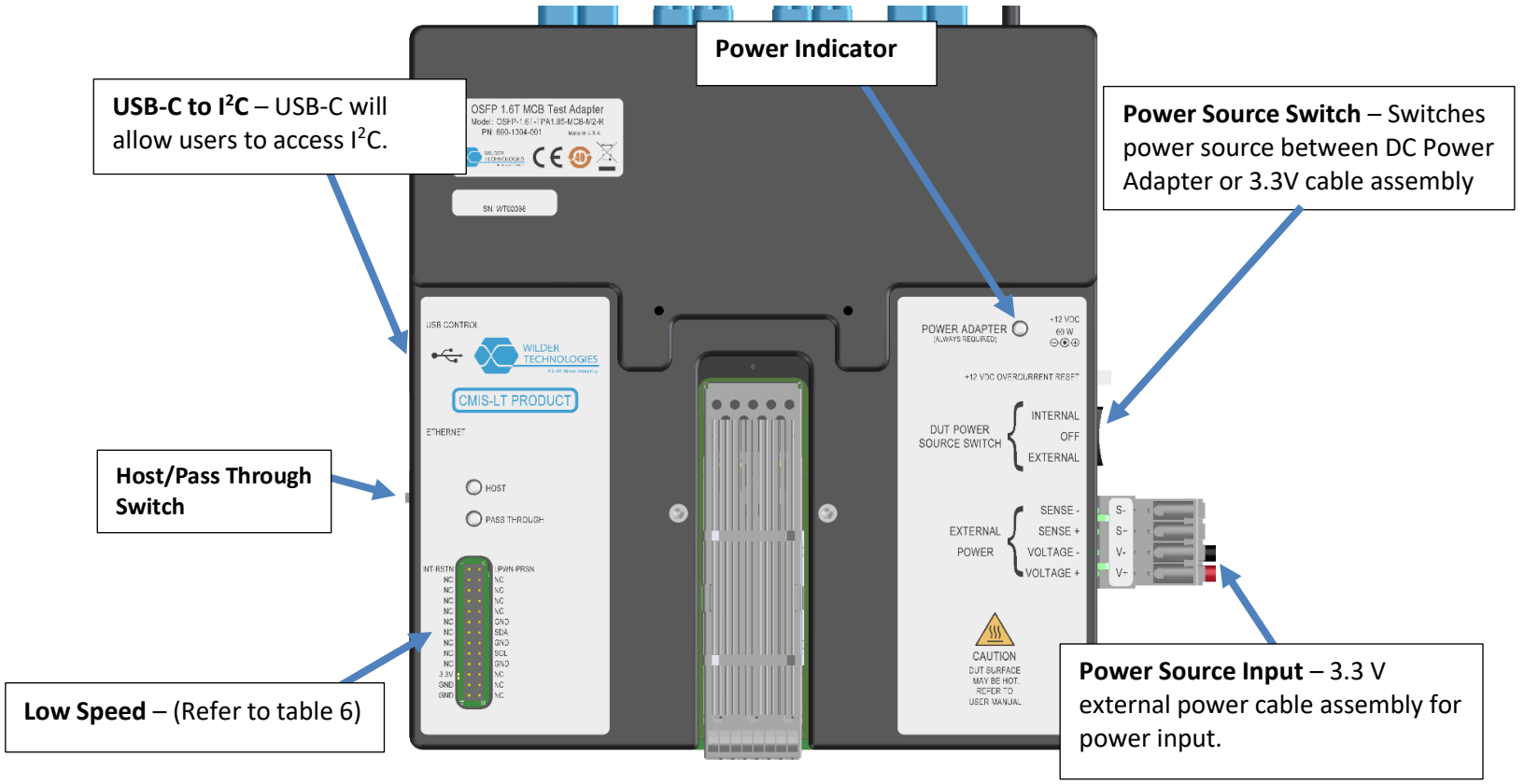


Figure 10. Closeup of OSFP I/O's and External Functions

The **DUT POWER SOURCE SWITCH** allows a user to select which power input supplies the 3.3 V OSFP connector pins. With the switch in the **EXTERNAL** position the module will take power from the **External 3.3 V Power** connectors (4-position external power cable assembly). With the switch in the **INTERNAL** position the module will take power from the **External Power Adapter** (+12 VDC, 60-Watt Power Adapter). The 12 V to 3.3 V regulator can supply up to 8 amps to the module. Note: The external power adapter is always required even when switched to External Power, to operate the MCB.

The **Power Reset** circuit breaker will trip if power consumption exceeds 38 W while in **EXT ADPTR** Mode. When tripped, a **Power Reset** button will pop out of the MCB casing. The **Power Reset** button must be pushed back into the MCB casing to allow power into the MCB once again.

Note: The user should provide an external current limiter, fuse, or breaker to prevent any possible short circuit damage while in **EXT PWR** mode. In EXT PWR mode, the MCB **Power Reset** circuit breaker will still trip if there is a short circuit within the MCB host emulation circuitry.

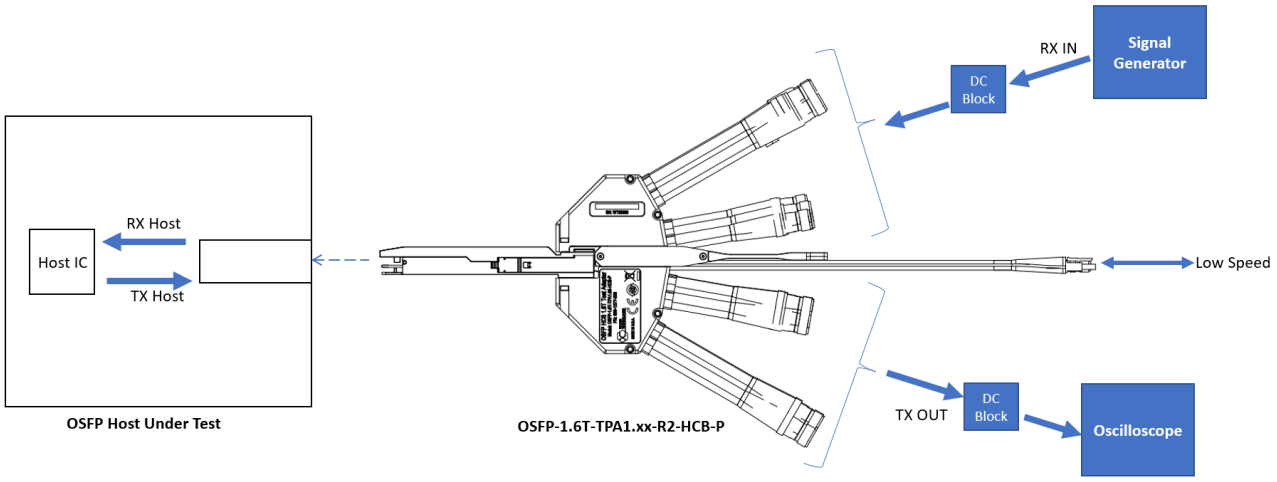
The **Host/Pass Through Switch** switches between a host emulation mode and a signal passthrough mode. In host emulation mode, the MCB can communicate with the Wilder Technologies CMIS GUI software that is running on an external PC. This allows the user to monitor and control the data registers of the system. In signal passthrough mode, the MCB will connect all low-speed signals to the low-speed header on the side of the MCB. This gives users access to all low-speed signals for their own monitoring and control. Note: CMIS GUI monitoring and control will be disabled in passthrough mode.

The **USB-C to I2C –** CMIS (Common Management Interface Specification) is a standardized way for module manufacturers to define what data is used for control and monitoring and where this data is located in internal registers. Communication with the module is based on Two Wire Interface using the I2C standard. Access to CMIS for module control and monitoring can be easily done with the use of Wilder Technologies CMIS GUI software. The software runs on an external PC using the Microsoft Windows™ operating system. Installation and instructions are in the CMIS GUI user manual (910-0070-000). This manual is provided on USB Flash Drive supplied with the OSFP MCB product

The **VCC Sense** SMA connector (Cable interface at the rear of the unit) can be used to precisely monitor supply voltages just before the OSFP primary connector contact-lead pads.

OSFP-1.6T-HCB

OSFP-1.6T-TPA1.xx-R2-HCB-P is used to test an OSFP Host:



*DC blocks are accessories and are not provided with this product

Figure 11. OSFP 1.6T HCB User Model

In this configuration, the OSFP 1.6T HCB is used to test an OSFP Host.

An RX signal, inputted from a connected Signal Generator, is transferred through the HCB's RX lines into the OSFP host under test. The Host responds by outputting TX signals which are transferred through the HCB, out through its TX lines into a connected Oscilloscope for measurement.

*Note that between the Signal Generator and MCB and the MCB and Oscilloscope are DC Blocks which need to be separately obtained.

Note: In the case where the laboratory source or load is not used in the test, each unused signal line must be replaced with RF terminators. Some RF terminators can be optionally purchased from Wilder Technologies.

Channel De-Embedding

The OSFP TX and RX channels are fully passive. Therefore, calibration compensating for the losses must occur within the test instrumentation that drives the OSFP Receivers or looks at the response of the OSFP Transmitters.

The OSFP TPA's have Touchstone S4P files for de-embedding the electrical length and losses within the TPA up to the OSFP connector interface pads. (Contact Wilder Technologies, support@wilder-tech.com, to obtain a copy of the S4P files.) The Touchstone S4P files enable the test engineer to compensate for the last four of the following six repeatable, systematic errors that occur when moving the reference plane:

- Signal leakage effects: *Directivity errors*
- Signal leakage effects: *Crosstalk errors*
- Reflection effects: *Source Impedance Mismatching errors*
- Reflection effects: *Load Impedance Mismatching errors*
- Bandwidth effects: *Receiver Transmission in Test Equipment errors*
- Bandwidth effects: *Receiver Reflection-tracking in Test Equipment errors*

These errors are corrected on each port. Refer to the Instrument Manual for instructions on the instrument's specific de-embedding process.

NOTE: The reference plane is the boundary, both physically and electrically, between the calibrated and uncalibrated portions of the circuit. Everything outside the reference plane is considered part of the DUT. Any instrument that does not use calibration or de-embedding of the test fixture defines the DUT as the total of externally connected components. If the de-embedding file is not used, all of the OSFP TPA and associated coaxial cables, as well as cables connecting the TPA assembly to the test instrument, would be a part of the DUT.

Non-repeatable errors, such as drift or random errors, can be reduced but not corrected. Drift errors aggregate over time or with environmental changes such as temperature shift. To eliminate drift errors, perform an instrumentation-level calibration.

A random error cannot be corrected through calibration since the error occurred randomly. Random errors are typically associated with either test instrument noise or test repeatability problems. Reduce test instrument noise by increasing source power, lowering the IF bandwidth, or averaging results over multiple sweeps. Reduce test repeatability problems through the use of a torque wrench or, again, by averaging over multiple sweeps.

Mechanical and Environmental Specifications

NOTE: All specifications in this manual are subject to change.

Table 3. General Specifications

ITEM	DESCRIPTION
Usage Environment	Controlled indoor environment
HCB (Plug) Test Adapter Length (w/ 1.85mm coax)	327.7 mm (12.9 inches) (Characteristic)
MCB (Receptacle) Test Adapter Length (w/ 1.85mm coax)	297 mm (11.7 inches) 401 mm (15.8 inches)
Receptacle Test Adapter Housing Dimensions	175 x 168 x 38 mm (6.9 x 6.6 x 1.5 inches) (L, W, H)
Operating Temperature	0° C to +55° C (32° F to +131° F) (Characteristic)
Storage Temperature	-40° C to +70° C (-40° F to +158° F) (Characteristic)

OSFP-1.6T-TPA1.xx-R2-HCB-P (Plug)

The Plug-Type OSFP-1.6T-TPA1.xx-R2-HCB-P test adapter provides thirty-two 1.85 mm or 1.00 mm (High-Speed) connectors (eight lanes of primary differential signals). Color coded heat shrink labels mark each cable or connector. The following figure refers to the pin-description tables for the OSFP-1.6T-TPA1.xx-R2-HCB-P (Plug) test adapters.

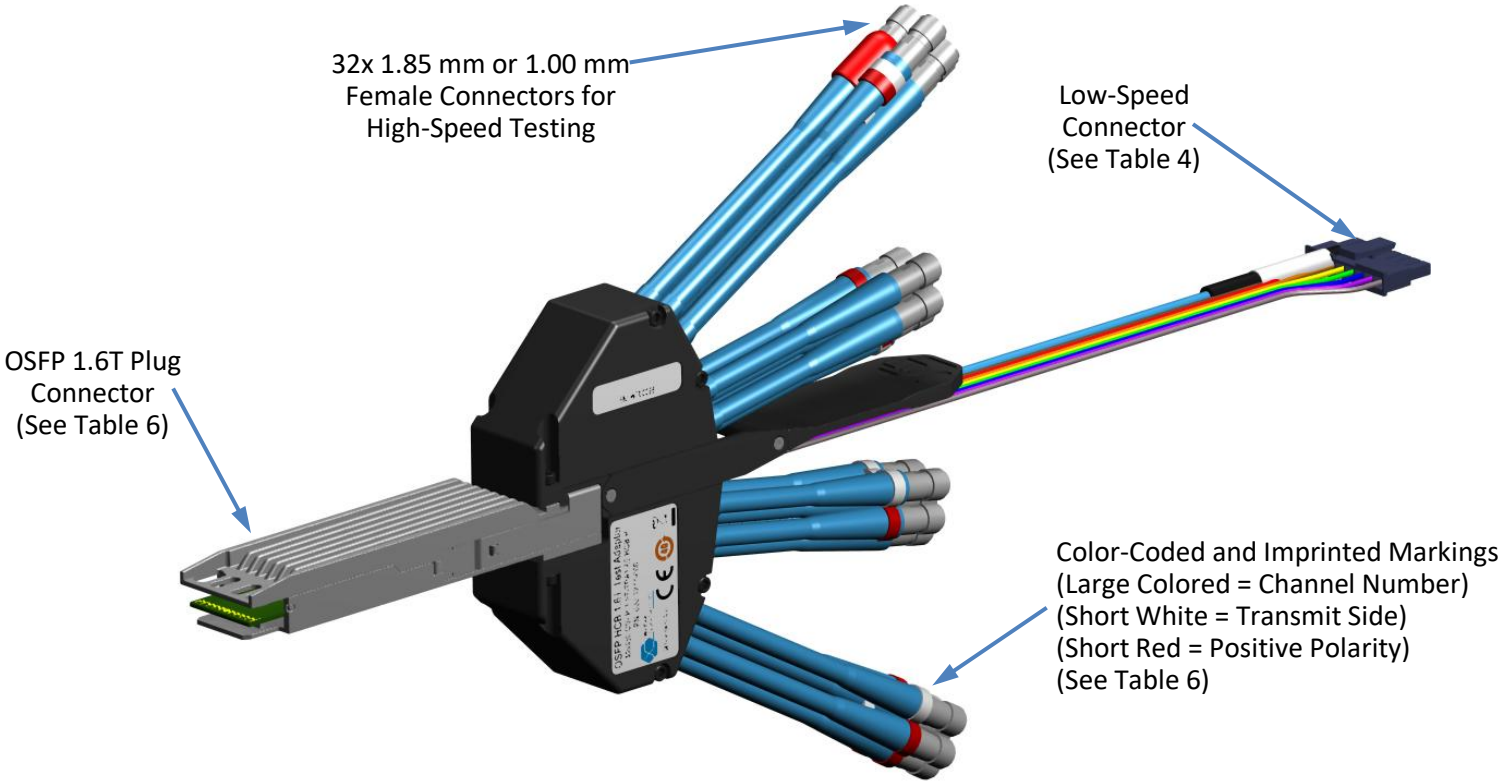


Figure 12. Cable Connectors (OSFP-1.6T-TPA1.85-R2-HCB-P shown).

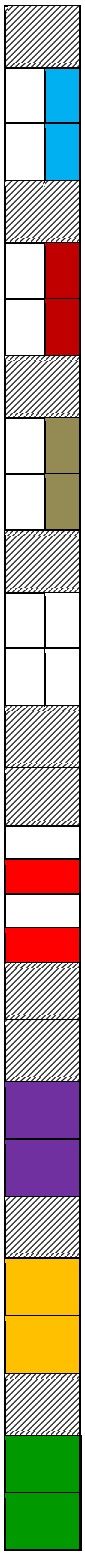
Table 4. OSFP-1.6T-TPA1.xx-R2-HCB-P: 8-Position Cable Connector (Low-Speed).

The low-speed signals are passive connections to their respective connections on the OSFP module connector. Signal functions, logic signal voltage levels, pull up resistor values, etc. are defined in OSFP MSA Specification for OSFP Octal Small Form Factor Pluggable Module, Rev 5.0, October 22nd, 2022.

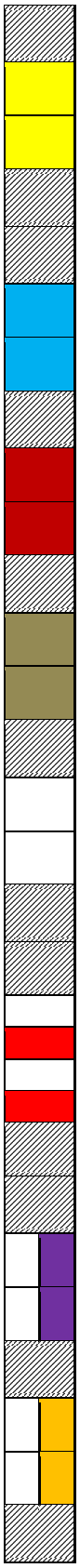
LABEL	PIN NO.	COLOR ID FOR HCB	DESCRIPTION
SDA	Pin 1	Grey	SDA, I^2C Data, Serial Data Line
GND	Pin 2	Purple	Signal (RF Ground) and Supply (Power) Common
SCL	Pin 3	Blue	SCL, I^2C Clock, Serial Clock Line
GND	Pin 4	Green	Signal (RF Ground) and Supply (Power) Common
I/RST	Pin 5	Yellow	Interrupt
L/PRS	Pin 6	Orange	Low Power Mode/ Module Present
VCC	Pin 7	Red	3.3V Power
GND	Pin 8	Brown	Signal (RF Ground) and Supply (Power) Common

Table 5. OSFP-1.6T-TPA1.xx-R2-HCB-P (Plug) Pin Assignements

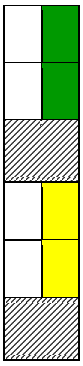
Pin Description	Connector Pin Number	Destination (HCB)	Color ID for Data Line Polarity	Color Identification (HCB)
Ground	1	Coax Shield and P2 Pin 2,4, and 8	N/A	See Table 4
Tx2p	2	Tx2+	Red	White/Blue
Tx2n	3	Tx2-	Black	White/Blue
Ground	4	Coax Shield and P2 Pin 2,4, and 8	N/A	See Table 4
Tx4p	5	Tx4+	Red	White/Red
Tx4n	6	Tx4-	Black	White/Red
Ground	7	Coax Shield and P2 Pin 2,4, and 8	N/A	See Table 4
Tx6p	8	Tx6+	Red	White/Brown
Tx6n	9	Tx6-	Black	White/Brown
Ground	10	Coax Shield and P2 Pin 2,4, and 8	N/A	See Table 4
Tx8p	11	Tx8+	Red	White/White
Tx8n	12	Tx8-	Black	White/White
Ground	13	Coax Shield and P2 Pin 2,4, and 8	N/A	See Table 4
SCL	14	P2 Pin 3	N/A	See Table 4
VCC	15	VCC Sense (SMA) P2 Pin 7	N/A	See Table 4
VCC	16	VCC Sense (SMA) P2 Pin 7	N/A	See Table 4
LPWn/PRSn	17	P2 Pin 6	N/A	See Table 4
Ground	18	Coax Shield and P2 Pin 2,4, and 8	N/A	See Table 4
Rx7n	19	Rx7-	Black	Violet
Rx7p	20	Rx7+	Red	Violet
Ground	21	Coax Shield and P2 Pin 2,4, and 8	N/A	See Table 4
Rx5n	22	Rx5-	Black	Orange
Rx5p	23	Rx5+	Red	Orange
Ground	24	Coax Shield and P2 Pin 2,4, and 8	N/A	See Table 4
Rx3n	25	Rx3-	Black	Green
Rx3p	26	Rx3+	Red	Green



Ground	27	Coax Shield and P2 Pin 2,4, and 8	N/A	Black Insulation
Rx1n	28	Rx1-	Black	Yellow
Rx1p	29	Rx1+	Red	Yellow
Ground	30	Coax Shield and P2 Pin 2,4, and 8	N/A	See Table 4
Ground	31	Coax Shield and P2 Pin 1	N/A	See Table 4
Rx2p	32	Rx2+	Red	Blue
Rx2n	33	Rx2-	Black	Blue
Ground	34	Coax Shield and P2 Pin 2,4, and 8	N/A	See Table 4
Rx4p	35	Rx4+	Red	Red
Rx4n	36	Rx4-	Black	Red
Ground	37	Coax Shield and P2 Pin 2,4, and 8	N/A	See Table 4
Rx6p	38	Rx6+	Red	Brown
Rx6n	39	Rx6-	Black	Brown
Ground	40	Coax Shield and P2 Pin 2,4, and 8	N/A	See Table 4
Rx8p	41	Rx8+	Red	White
Rx8n	42	Rx8-	Black	White
Ground	43	Coax Shield and P2 Pin 2,4, and 8	N/A	See Table 4
INT/RSTn	44	P2 Pin 4	N/A	See Table 4
VCC	45	VCC Sense (SMA) P2 Pin 7	N/A	See Table 4
VCC	46	VCC Sense (SMA) P2 Pin 7	N/A	See Table 4
SDA	47	P2 Pin 1	N/A	See Table 4
Ground	48	Coax Shield and P2 Pin 2,4, and 8	N/A	See Table 4
Tx7n	49	Tx7-	Black	White/Violet
Tx7p	50	Tx7+	Red	White/Violet
Ground	51	Coax Shield and P2 Pin 2,4, and 8	N/A	See Table 4
Tx5n	52	Tx5-	Black	White/Orange
Tx5p	53	Tx5+	Red	White/Orange
Ground	54	Coax Shield and P2 Pin 2,4, and 8	N/A	See Table 4



Tx3n	55	Tx3-	Black	White/Green	
Tx3p	56	Tx3+	Red	White/Green	
Ground	57	Coax Shield and P2 Pin 2,4, and 8	N/A	See Table 4	
Tx1n	58	Tx1-	Black	White/Yellow	
Tx1p	59	Tx1+	Red	White/Yellow	
Ground	60	Coax Shield and P2 Pin 2,4, and 8	N/A	See Table 4	



OSFP-1.6T-TPA1.xx-MCB-M2-R (Receptacle) Cable Pin-out

The OSFP-1.6T-TPA1.xx-MCB-M2-R test adapter provides thirty-two 1.85 mm or 1.00 mm connectors (eight lanes of primary differential signals) to access all OSFP high-speed signals. Labels clearly mark each cable or connector. The following figure refers to the pin-description tables for the OSFP-1.6T-TPA1.xx-MCB-M2-R (Receptacle) test adapter.

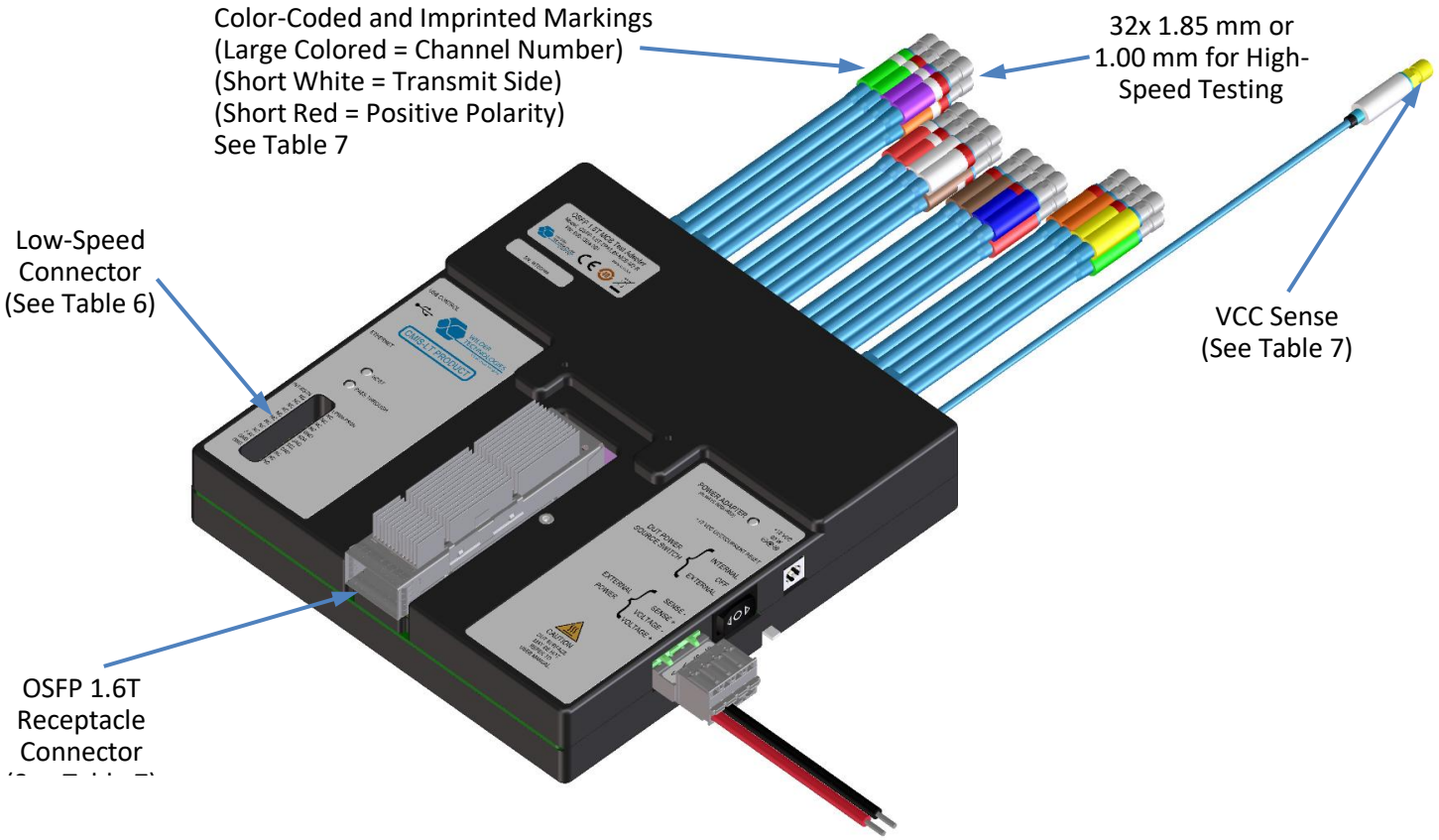


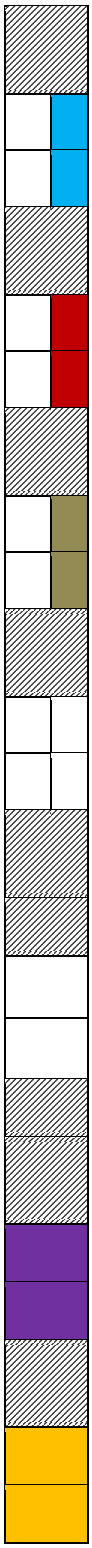
Figure 13. Cable Connectors (OSFP-1.6T-TPA1.xx-MCB-M2-R shown)

Table 6. OSFP-1.6T-TPA1.xx-MCB-M2-R (CONN6) 26-Position Fixture-Mounted Connector Pins (Low-Speed)

LABEL	PIN NO.	DESCRIPTION
INT-RSTn	Pin 1	Interrupt
N/C	Pin 2	No Connection
N/C	Pin 3	No Connection
N/C	Pin 4	No Connection
N/C	Pin 5	No Connection
N/C	Pin 6	No Connection
N/C	Pin 7	No Connection
N/C	Pin 8	No Connection
N/C	Pin 9	No Connection
N/C	Pin 10	No Connection
3.3 V	Pin 11	3.3 V Power Supply
GND	Pin 12	
GND	Pin 13	
LPWn-PRSn	Pin 14	Low Power Mode/ Module Present
N/C	Pin 15	No Connection
N/C	Pin 16	No Connection
N/C	Pin 17	No Connection
N/C	Pin 18	No Connection
GND	Pin 19	
SDA	Pin 20	SDA, Serial Data Line
GND	Pin 21	
SCL	Pin 22	SCL, I^2C Clock, Serial Clock Line
GND	Pin 23	
N/C	Pin 24	No Connection
N/C	Pin 25	No Connection
N/C	Pin 26	No Connection

Table 7. OSFP-1.6T-TPA1.xx-MCB-M2-R (Receptacle) Pin Assignements

Pin Description	Connector Pin Number	Destination (MCB)	Color ID for Data Line Polarity	Color Identification (MCB)
Ground	1	Coax Shield and CONN 6 Pin 12,13,19,21,23	N/A	N/A
Tx2p	2	Tx2+	Red	White/Blue
Tx2n	3	Tx2-	Black	White/Blue
Ground	4	Coax Shield and CONN 6 Pin 12,13,19,21,23	N/A	N/A
Tx4p	5	Tx4+	Red	White/Red
Tx4n	6	Tx4-	Black	White/Red
Ground	7	Coax Shield and CONN 6 Pin 12,13,19,21,23	N/A	N/A
Tx6p	8	Tx6+	Red	White/Brown
Tx6n	9	Tx6-	Black	White/Brown
Ground	10	Coax Shield and CONN 6 Pin 12,13,19,21,23	N/A	N/A
Tx8p	11	Tx8+	Red	White/White
Tx8n	12	Tx8-	Black	White/White
Ground	13	Coax Shield and CONN 6 Pin 12,13,19,21,23	N/A	N/A
SCL	14	CONN 6 Pin 22	N/A	N/A
VCC	15	(3.3V Filtered) VCC Sense (SMA)	N/A	White
VCC	16	(3.3V Filtered) VCC Sense (SMA)	N/A	White
LPWn/PRSn	17	CONN 6 Pin 14	N/A	N/A
Ground	18	Coax Shield and CONN 6 Pin 12,13,19,21,23	N/A	N/A
Rx7n	19	Rx7-	Black	Violet
Rx7p	20	Rx7+	Red	Violet
Ground	21	Coax Shield and CONN 6 Pin 12,13,19,21,23	N/A	N/A
Rx5n	22	Rx5-	Black	Orange
Rx5p	23	Rx5+	Red	Orange



Ground	24	Coax Shield and CONN 6 Pin 12,13,19,21,23	N/A	N/A	
Rx3n	25	Rx3-	Black	Green	
Rx3p	26	Rx3+	Red	Green	
Ground	27	Coax Shield and CONN 6 Pin 12,13,19,21,23	N/A	Black Insulation	
Rx1n	28	Rx1-	Black	Yellow	
Rx1p	29	Rx1+	Red	Yellow	
Ground	30	Coax Shield and CONN 6 Pin 12,13,19,21,23	N/A	N/A	
Ground	31	Coax Shield and CONN 6 Pin 12,13,19,21,23	N/A	N/A	
Rx2p	32	Rx2+	Red	Blue	
Rx2n	33	Rx2-	Black	Blue	
Ground	34	Coax Shield and CONN 6 Pin 12,13,19,21,23	N/A	Black Insulation	
Rx4p	35	Rx4+	Red	Red	
Rx4n	36	Rx4-	Black	Red	
Ground	37	Coax Shield and CONN 6 Pin 12,13,19,21,23	N/A	N/A	
Rx6p	38	Rx6+	Red	Brown	
Rx6n	39	Rx6-	Black	Brown	
Ground	40	Coax Shield and CONN 6 Pin 12,13,19,21,23	N/A	N/A	
Rx8p	41	Rx8+	Red	White	
Rx8n	42	Rx8-	Black	White	
Ground	43	Coax Shield and CONN 6 Pin 12,13,19,21,23	N/A	N/A	
INT/RSTn	44	J2 Pin 4	N/A	N/A	
VCC	45	(3.3V Filtered) VCC Sense (SMA)	N/A	White	
VCC	46	(3.3V Filtered) VCC Sense (SMA)	N/A	White	
SDA	47	CONN 6 Pin 20	N/A	N/A	
Ground	48	Coax Shield and CONN 6 Pin 12,13,19,21,23	N/A	N/A	

Tx7n	49	Tx7-	Black	White/Violet	
Tx7p	50	Tx7+	Red	White/Violet	
Ground	51	Coax Shield and CONN 6 Pin 12,13,19,21,23	N/A	N/A	
Tx5n	52	Tx5-	Black	White/Orange	
Tx5p	53	Tx5+	Red	White/Orange	
Ground	54	Coax Shield and CONN 6 Pin 12,13,19,21,23	N/A	N/A	
Tx3n	55	Tx3-	Black	White/Green	
Tx3p	56	Tx3+	Red	White/Green	
Ground	57	Coax Shield and CONN 6 Pin 12,13,19,21,23	N/A	N/A	
Tx1n	58	Tx1-	Black	White/Yellow	
Tx1p	59	Tx1+	Red	White/Yellow	
Ground	60	Coax Shield and CONN 6 Pin 12,13,19,21,23	N/A	N/A	

Electrical Responses

Documented in the following pages are the typical electrical responses of the Wilder Technologies OSFP 1.6T TPAs. HCB loss, MCB loss, and MTF response data is shown. The following data is pending upon ratification of the final specification: ICN, ERL, and other electrical responses and limits. Cursor measurements are shown at 802.3dj and OIF CEI-224G-VSR Nyquist frequencies (53.125 GHz and 58 GHz)

Wilder OSFP 1.6T HCB Response

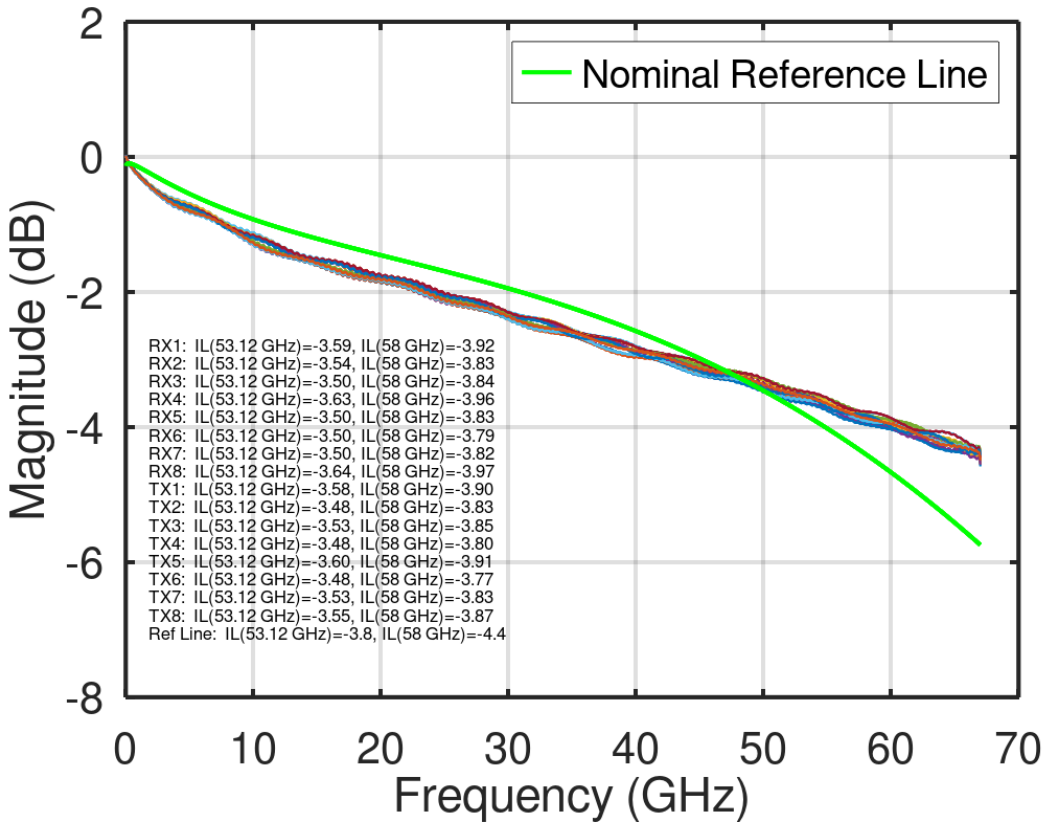


Figure 14. Plot of typical OSFP 1.6T HCB Insertion Loss

The loss of the HCB up to but excluding the connector and its associated PCB pads is plotted in Figure 13. Note that the IEEE 802.3dj™/D1.2 specification states that the difference between reference and true HCB response should be accounted for in the measurement.

Wilder OSFP 1.6T MCB Response

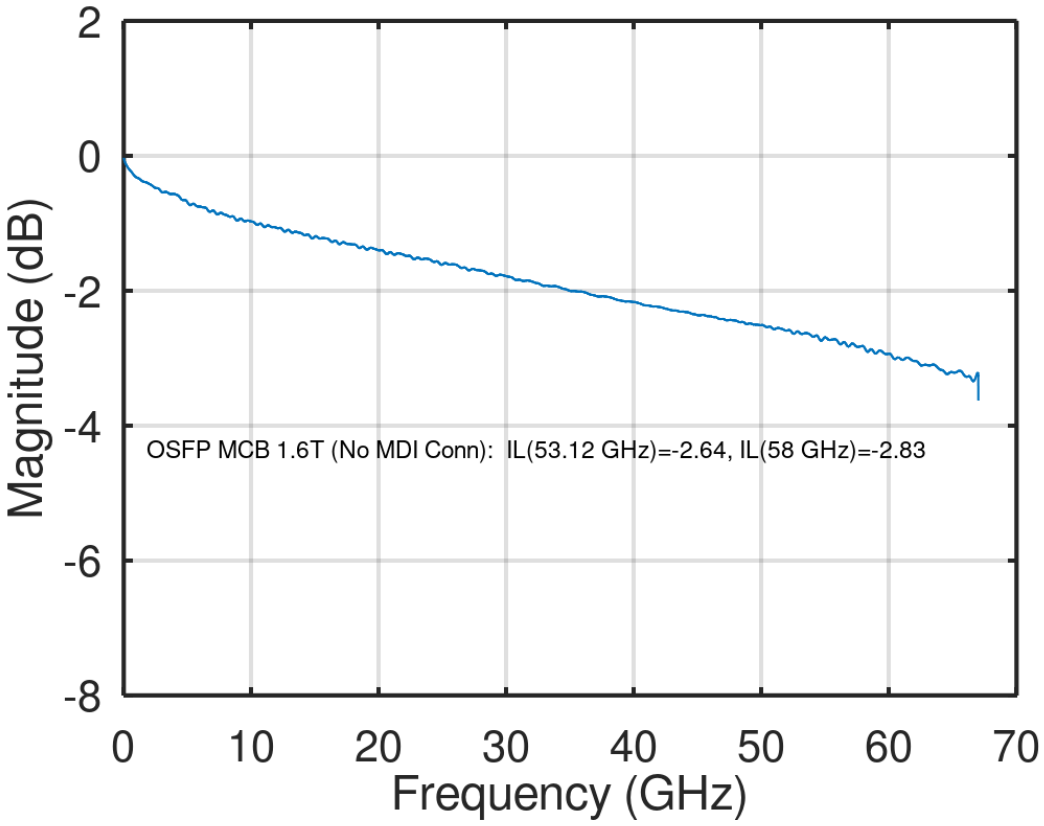


Figure 15. Plot of typical OSFP 1.6T MCB Insertion Loss

The loss of the MCB up to but excluding the connector and its associated PCB pads is plotted in Figure 14. Note that the IEEE 802.3dj™/D1.2 specification states that the difference between reference and MCB response should be accounted for in the measurement.

Wilder OSFP 1.6T Typical MTF Response

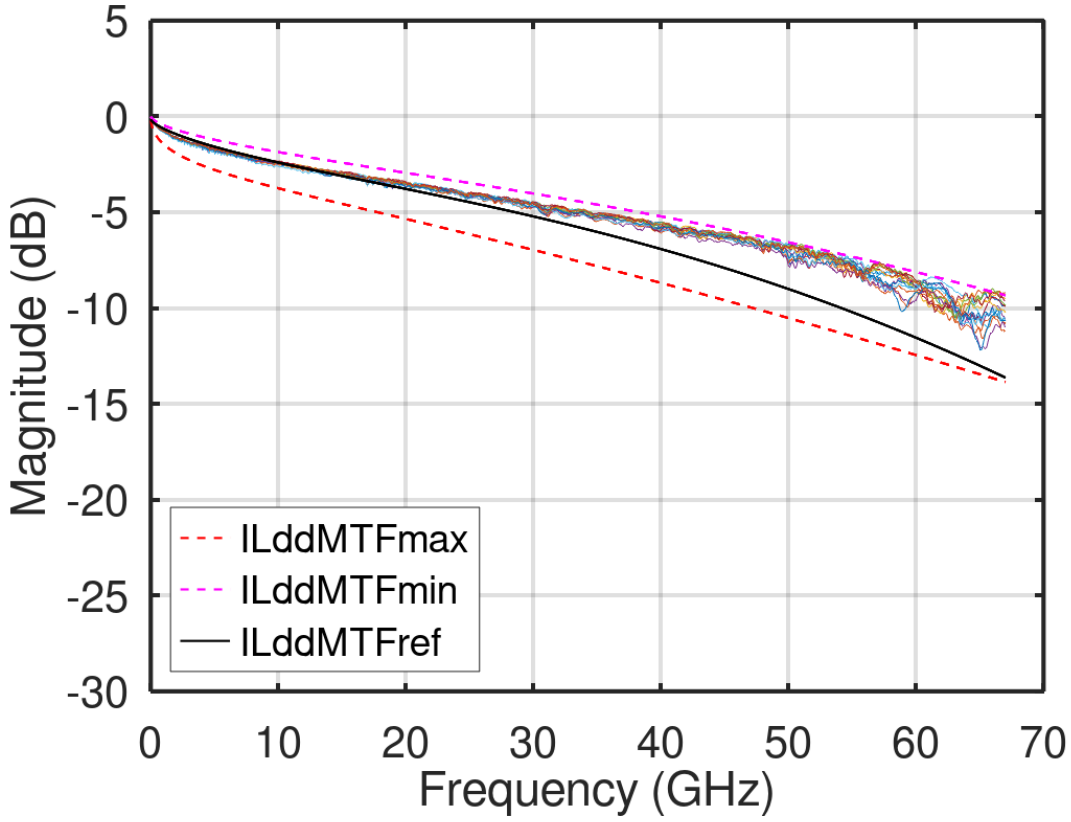


Figure 16. Plot of typical OSFP 1.6T Mated Differential Insertion Loss Response

Effective Return Loss and FOM Insertion Loss Deviation			
	ERL11	ERL22	FOMILD
RX1	13.664	13.104	0.059
RX2	12.468	11.815	0.073
RX3	13.046	12.531	0.059
RX4	13.03	12.468	0.067
RX5	13.635	12.991	0.053
RX6	12.575	12.178	0.057
RX7	12.879	12.21	0.06
RX8	12.792	11.832	0.065
TX1	12.664	11.92	0.078
TX2	12.649	12.263	0.063
TX3	12.439	11.962	0.063
TX4	13.195	12.516	0.059
TX5	12.952	12.313	0.064
TX6	12.686	12.284	0.061
TX7	12.631	11.835	0.077
TX8	12.414	11.418	0.073
ERL Pass >= 10.3, FOMILD Pass <=0.15			

Table 8. Table of Typical OSFP 1.6T Mated Test Fixture ERL and FOMILD

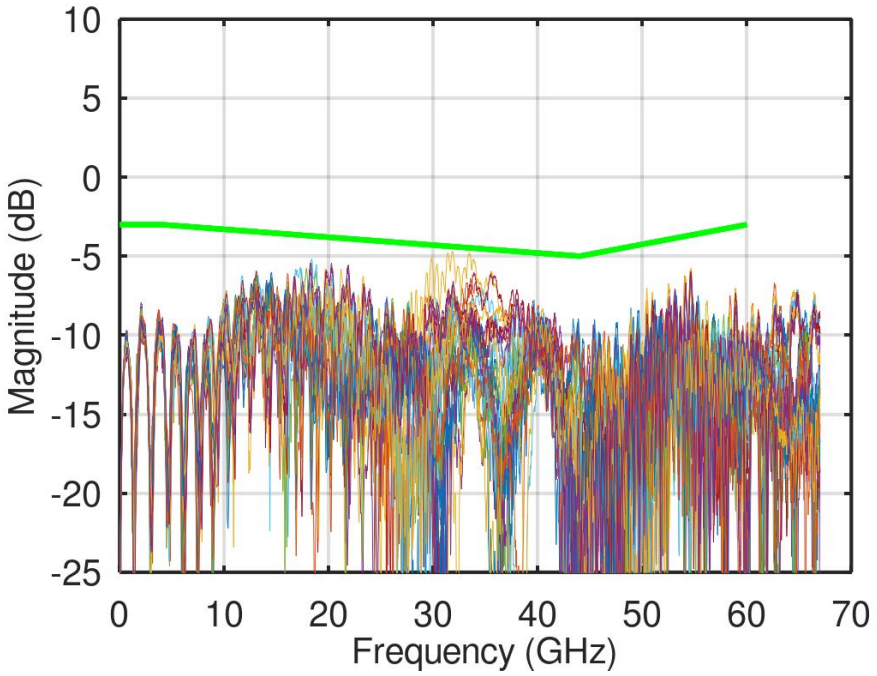


Figure 17. Plot of typical OSFP 1.6T MTF Common Mode Return Loss

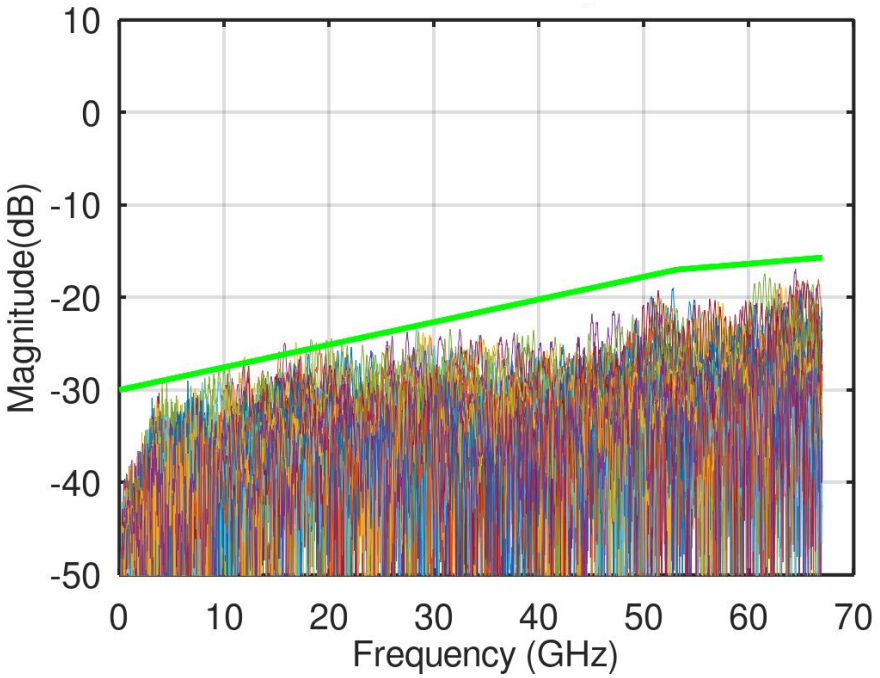


Figure 18. Plot of typical OSFP 1.6T MTF Conversion Return Loss

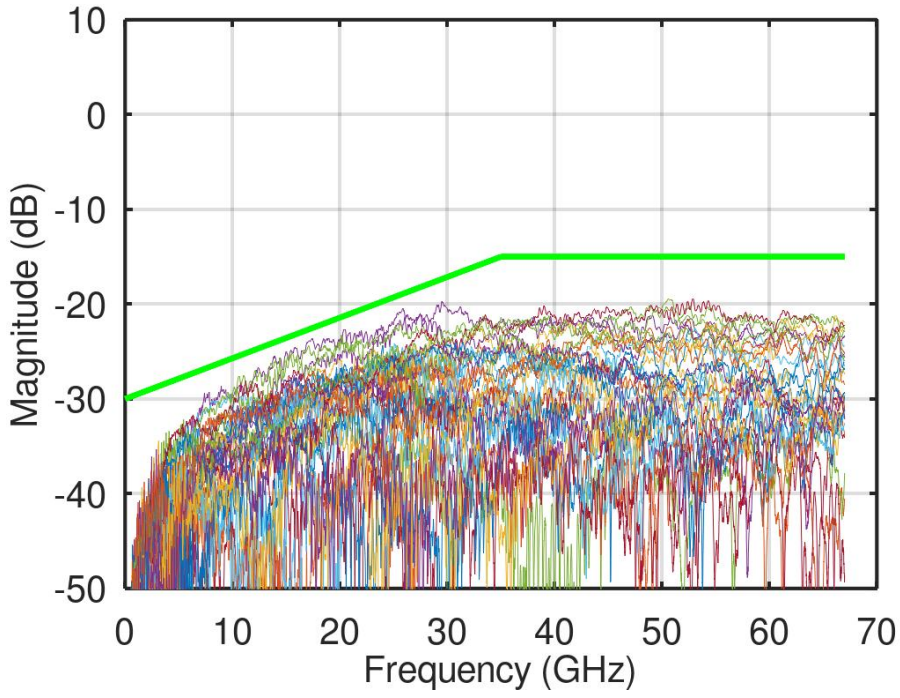


Figure 19. Plot of typical OSFP 1.6T MTF Conversion Insertion Loss

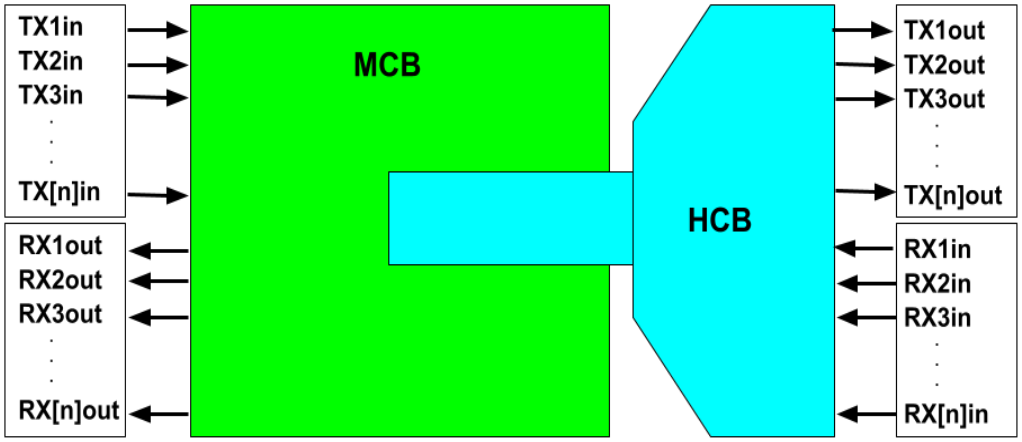
Wilder OSFP 1.6T ICN

The following is an explanation of how the Integrated Crosstalk Noise (ICN) specification is measured in a Mated Test Fixture (MTF) set of HCB And MCB.

TX victim is on HCB side and aggressors for TX victim are TX1in-TX[n]in on MCB (excluding thru channel) and TX1in-TX[n]in on MCB which make up the FEXT and NEXT responses, respectively.

RX victim is on MCB side and aggressors for RX victim are RX1in-RX[n]in on HCB (excluding thru channel) and TX1in-TX[n]in on MCB which make up the FEXT and NEXT responses, respectively.

For each victim, all FEXT aggressors are power summed, and all NEXT aggressors are power summed then each are integrated as outlined in the 802.3dj™ specification. Both single valued integrated noise levels are then added RSS to give the total ICN value.



Compliance with Environmental Legislation

Wilder Technologies, LLC, is dedicated to complying with the requirements of all applicable environmental legislation and regulations, including appropriate recycling and/or disposal of our products.

WEEE Compliance Statement

The European Union adopted Directive 2002/96/EC on Waste Electrical and Electronic Equipment (WEEE), with requirements that went into effect August 13, 2005. WEEE is intended to reduce the disposal of waste from electrical and electronic equipment by establishing guidelines for prevention, reuse, recycling and recovery.

Wilder Technologies has practices and processes in place to conform to the requirements in this important Directive.

In support of our environmental goals, effective January 1st, 2009 Wilder Technologies, LLC has partnered with EG Metals Inc. – Metal and Electronics Recycling of Hillsboro, Oregon, www.egmetalrecycling.com, to recycle our obsolete and electronic waste in accordance with the European Union Directive 2002/96/EC on waste electrical and electronic equipment ("WEEE Directive").

As a service to our customers, Wilder Technologies is also available for managing the proper recycling and/or disposal of all Wilder Technologies products that have reached the end of their useful life. For further information and return instructions, contact support@wilder-tech.com.

Compliance To RoHS 2 Substance Restrictions

Wilder Technologies, LLC certifies that the parts described in this document are compliant to the substance restrictions of Directive 2011/65/EU of the European Parliament, and of the Council of 8 June, 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS 2 Directive), prohibiting the use in homogeneous materials in excess of the listed maximum concentration value, except in cases where use is allowed by applicable exemptions listed in Annex III and Annex IV of the Directive.

Compliance with RoHS 2 has been verified through internal controls at design and production sites, including establishment of processes for specifying and controlling materials and segregation of non-compliant parts, receipt of supplier declarations of compliance and/or analytical test.

Glossary of Terms

TERMINOLOGY	DEFINITION
Aggressor	A signal imposed on a system (i.e., cable assembly) to measure response on other signal carriers.
Decibel (dB)	Ten times the common logarithm (i.e. log10) of the ratio of relative powers.
Far-end crosstalk or FEXT	Crosstalk that is propagated in a disturbed channel in the same direction as the propagation of a signal in the aggressor channel. The terminals of the aggressor channel and the victim channel are usually close to each other.
Informative	The designation of a test that is not required for compliance.
Insertion loss	The ratio, expressed in dB, of incident power to delivered power.
Near-end crosstalk or NEXT	Crosstalk that is propagated in a disturbed channel in the opposite direction as the propagation of a signal in the aggressor channel. The terminals of the aggressor channel and the victim channel are usually close to each other.
Normative	The designation of a test that is required for compliance.
Return Loss	The ratio, expressed in dB, of incident power to reflected power.
OSFP	High density Octal Small Form factor Pluggable, an optical module form factor utilizing 8 lanes defined in OSFP MSA Specification for OSFP Octal Small Form Factor Pluggable Module, Rev 5.0, October 2nd, 2022
OSFP Host	The OSFP Host is the fixed end of the connection.
OSFP Module	The OSFP Module is the moveable end of the connection.
OSFP TPA	OSFP Test Point Access. A specialized assembly that interfaces to an OSFP host or module and enables access of signals for measurement or stimulation.
Victim	A signal carrier on a system that has a response imposed on it by other signals in the system.

Index

1.85 mm HSST, 7
2.4 mm HSST, 7
2.92 mm HSST, 7
AC coupled, 7
Cable Bend Limits, 16
Cable Tension (Pull Forces), 16
Cable Twisting (Torque), 16
Care and Handling, 16
Channel De-Embedding, 24
Cleaning, 18
Compliance
  IEEE P802.3dj™/D1.2, 5
  IEEE P802.3dj™/D1.2, 3
  IEEE P802.3dj™/D1.2, 20
  OSFP MSA, 3, 5, 9, 20
  RoHS, 43
  WEEE, 43
Connections
  OSFP TPA to DUT, 16, 17
Crosstalk Errors, 24
DC Blocks, 7, 20, 23
Directivity Errors, 24
Drift Errors, 24
DUT, 24
Electrical Responses, 35
Electrostatic Discharge Information (ESD), 19
Environmental Changes, 24
Errors
  Crosstalk, 24
  Directivity, 24
  Drift, 24
  Load Impedance Mismatching, 24
  Random, 24
  Receiver Reflection-tracking in Test Equipment, 24
  Receiver Transmission in Test Equipment, 24
  Source Impedance Mismatching, 24
ESD Sensitivity, 17
External Power Adapter, 5, 21
Fan Module Usage Recommendations and Thermal Safety Precautions, 14
Figures
  Cable Connectors, 25, 30
  Closeup of OSFP MCB I/O's and External Functions, 21
  OSFP HCB (Plug) Test Adapter, 4
  OSFP HCB ILoss, 35
  OSFP HCB User Model, 23
  OSFP MCB (Receptacle) Test Adapter, 5
  OSFP MCB ILoss, 36
  OSFP MCB User Model, 20
  OSFP MCB with DUT Temperature Locations, 9
  OSFP MTF Common-Mode Return Loss, 40
  OSFP MTF Conversion Insertion Loss, 41
  OSFP MTF Conversion Return Loss, 40
  OSFP MTF Response, 37
  OSFP MTF Return Loss (Informative), 38
  OSFP Open Top Heat Sink Module with DUT Temperature Locations, 10
  OSFP-TPA-HCB Test Adapter (Plug), 25
  OSFP-TPA-MCB-R (Receptacle) Test Adapter, 30
Glossary, 44
Handling and Storage, 18
High Speed Cables, 25, 30
IEEE P802.3dj™/D1.2, 5
IEEE P802.3dj™/D1.2, 3
IEEE P802.3dj™/D1.2, 20
Load Impedance Mismatching Errors, 24
Low-Speed Connector, 4, 6, 21
Making Connections, 18
Mechanical and Environmental Specifications, 25
Model Numbers, 3, 7
Molex part numbers, 4, 6
OSFP MSA, 3, 5, 9, 20
OSFP-HCB-TPA-P Testing a OSFP Host, 23
OSFP-TPA-HCB-P Cable Pinout, 25
OSFP-TPAH-MCB-R Testing a OSFP Module, 20
OSFP-TPA-MCB-R Cable Pinout, 30
Product Inspection, 15
Product Return, 15
Pull Force, 16, 17
Random Errors, 24
Receiver Reflection-Tracking in Test Equip. Errors, 24
Receiver Transmission in Test Equipment Errors, 24
RF Terminators, 23
RoHS, 43
Secure Storage, 15
Source Impedance Mismatching Errors, 24
Support, 24, 43
Supporting Instrument Cables or Accessories, 17
Tables
  General Specifications, 25
  Module Type 2-Cooling Module Recommended Use, 12
  Open Top Heat Sink Module -Cooling Module Recommended Use, 10, 11, 13
  OSFP-TPA-HCB-P (P2) 6-Position Cable Connector, 26
  OSFP-TPA-HCB-P Pin Assignments, 27
  OSFP-TPA-MCB-R (CONN6) 20-Position Fixture-Mounted Connector, 31
  OSFP-TPA-MCB-R (Receptacle) Pin Assignments, 32
Test Instrument Noise, 24
Test Repeatability Problems, 24
Thermal Caution, 14
User Model Examples, 20, 23
Visual Inspection, 18
VSense, 22
Web Sites
  support@wilder-tech.com, 43
  www.egmetalrecycling.com, 43
WEEE, 43
Wilder High-Speed Signal Terminator (HSST), 7

Visit our website at www.wilder-tech.com

Wilder Technologies, LLC
11201 NE 9th St.
Vancouver WA, 98684
Phone: 360-859-3041
Fax: 360-859-3105
www.wilder-tech.com

Document No. 910-0079-000 Rev. E
Date Created: 10/25/2024
Date Revised: 9/25/2025