

Mid-span connector specification

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802.3dk

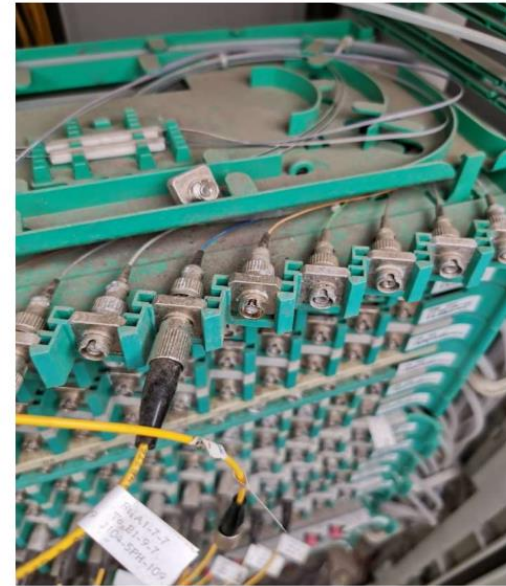
802.3 Plenary November 2023

Supporters and their affiliation

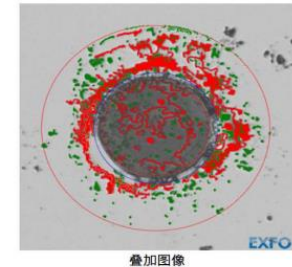
- Tom Mitcheltree, USConec
- Jose Castro, Panduit
- Tiger Ninomiya, Senko
- Mabud Choudhury, OFS
- Yi Sun, OFS

Overview

- Earlier contribution discussed multipath interference (MPI) in access networks
- Some failed links even complied with “Maximum value of each discrete reflectance” tables like Table 160-13
- Illustration showed improperly installed connectors that were contaminated and contributing to MPI



Dirty fiber end face



Environment factors:

- dust
- sand
- Moisture

**OTL
deploy**

Review of IEEE 802.3 standards connector specifications

- Only MDI performance specifications are listed
- IEC 61753-1-1 replaced by IEC 61753-1

160.10.3 Medium Dependent Interface (MDI) requirements

The 50GBASE-BRx PMD is coupled to the fiber optic cabling at the MDI. The MDI is the interface between the PMD and the “fiber optic cabling” (as shown in Figure 160–8). Examples of an MDI include the following:

- a) Connectorized fiber pigtail
- b) PMD receptacle

When the MDI is a connector plug and receptacle connection, it shall meet the interface performance specifications of IEC 61753-1-1 and IEC 61753-021-2.

NOTE—Transmitter compliance testing is performed at TP2 as defined in 160.5.1, not at the MDI.

151.11.3 Medium Dependent Interface (MDI) requirements

The 400GBASE-FR4 or 400GBASE-LR4-6 PMD is coupled to the fiber optic cabling at the MDI. The MDI is the interface between the PMD and the “fiber optic cabling” (as shown in Figure 151–7). Examples of an MDI include the following:

- a) Connectorized fiber pigtail
- b) PMD receptacle

When the MDI is a connector plug and receptacle connection, it shall meet the interface performance specifications of IEC 61753-1 and IEC 61753-021-2.

NOTE—Transmitter compliance testing is performed at TP2 as defined in 151.5.1, not at the MDI.

No mid-span connector specifications are typically listed

- Total connector loss is specified, but no additional requirements for mid-span connectors

160.9 Fiber optic cabling model

The fiber optic cabling model is shown in Figure 160–8.

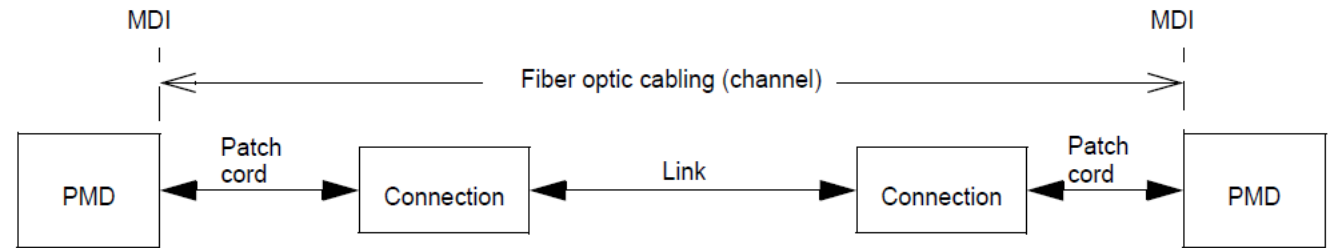


Figure 160–8—Fiber optic cabling model

160.10.2 Optical fiber connection

An optical fiber connection, as shown in Figure 160–8, consists of a mated pair of optical connectors.

160.10.2.1 Connection insertion loss

Connections with different loss characteristics may be used provided the requirements of Table 160–12 are met. The maximum link distance for 50GBASE-BR10 and 50GBASE-BR40 is based on an allocation of 2 dB total connection and splice loss. The maximum link distance for 50GBASE-BR20 is based on an allocation of 5 dB total connection and splice loss.

Proposal

- Include this text:

“xxx.10.2 Optical fiber connection

An optical fiber connection, as shown in Figure ***–*, consists of a mated pair of optical connectors. All optical fiber connectors shall meet the interface performance specifications of IEC 61753-1.”