Cisco Support for Gigabit Ethernet Deployments with Multimode Fiber Links up to 2 km

PB338223

This bulletin describes the necessary steps to help ensure that Gigabit Ethernet installations on links up to 2 km of multimode fibers are supported by the Cisco® Technical Assistance Center (TAC).

Under certain conditions, Cisco supports Gigabit Ethernet deployments with 1000BASE-LX gigabit interface converter (GBIC) and Small Form-Factor Pluggable (SFP) transceivers with mode conditioning patch (MCP) cords. Table 1 lists the part numbers applicable to the Cisco solution to support multimode fiber (MMF) links up to 2 km.
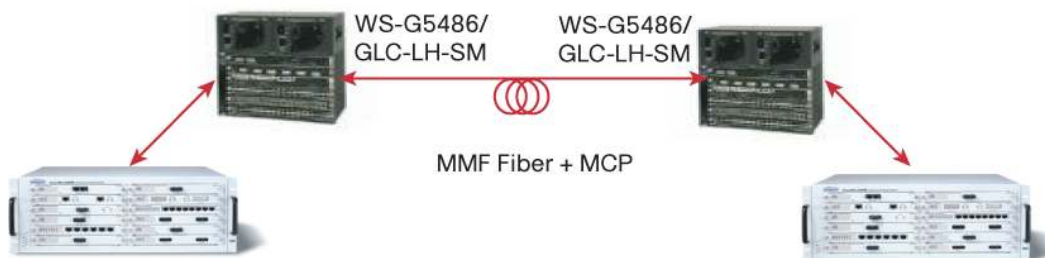
Table 1.   Part Numbers

Part Number	Description
WS-G5486	1000BASE-LX/LH Gigabit Ethernet GBIC
GLC-LH-SM	1000BASE-LX/LH Gigabit Ethernet SFP
SFP-GE-L	1000BASE-LX/LH Gigabit Ethernet SFP with Digital Optical Monitoring and extended temp.
GLC-LX-SM-RGD	1000BASE-LX/LH Gigabit Ethernet SFP for industrial ethernet
CAB-GELX-625=	Mode conditioning patch cord for 62.5 um fiber with SC connectors (GBIC side)
CAB-MCP-LC=	Mode conditioning patch cord for 62.5 um fiber with LC connectors (SFP side)
CAB-MCP50-SC=	Mode conditioning patch cord for 50 um fiber with SC connectors (GBIC side)

Long Reach Support for Multimode Fibers

The minimum distance guaranteed by Cisco and by the IEEE 802.3z standard for 1000BASE-LX optics on multimode fiber is 550m, provided the signal is launched with a mode conditioning patch cord. According to the standard, this distance is the minimum to help ensure 99-percent coverage of the installed base of multimode fiber with optics at the limits of the IEEE specification.

On average, customers will experience much longer transmission reaches than reported in the IEEE specifications, given better than worst-case optics and better than worst-case multimode fiber characteristics. The Cisco TAC supports installations greater than 550m with Cisco Gigabit Ethernet transceivers if the following conditions are met:

- The customer uses the Cisco transceivers listed in Table 1.
- The Gigabit Ethernet signal is launched with a mode conditioning patch cord.
- The customer or Cisco account representatives demonstrate and document error-free full-duplex transmission for 8000 seconds on each specific link greater than 550m. (This number of seconds is chosen to yield a bit error rate (BER) of at least 1e-12 with 99-percent confidence.)
- The suggested setup is shown in Figure 1: two Gigabit Ethernet traffic generators (SmartBits or IXIA or equivalent Gigabit Ethernet traffic generators) connected to two Cisco Ethernet switches or routers at each end of the link. The Cisco platforms are in turn connected to the multimode fiber with mode conditioning patch cords. Line-rate traffic flows in both directions. The Cisco IOS® Software show interface command can be used to detect any input errors on both interfaces. The goal is to demonstrate error-free transmission for 8000 seconds.
- The Cisco TAC reserves the right to ask for recertification of the link performance every 3 years.

Figure 1. Suggested Setup

For More Information

For more information about the Cisco solution for Gigabit Ethernet up to 2 km on multimode fiber, please contact your local Cisco account representative.

Americas Headquarters
Cisco Systems, Inc.
San Jose, CA

Asia Pacific Headquarters
Cisco Systems (USA) Pte. Ltd.
Singapore

Europe Headquarters
Cisco Systems International BV
Amsterdam, The Netherlands

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