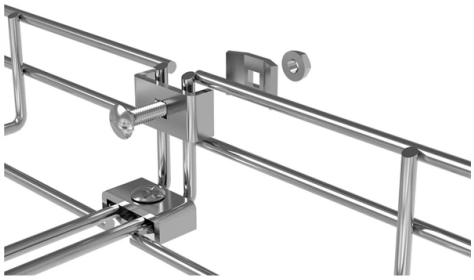
OTDR cannot measure length when pigtail is plugged in



Overview

The OTDR test pulse, Figure 8, has a long length in the fibre, typically 5 to 500 meters long (17 to 1700 feet).

Key Takeaways

An OTDR may fail to measure fiber length when a pigtail is plugged in due to high reflectance at the connector, dead zones, or the absence of a proper launch cable.Why This Happens

When a pigtail is directly connected to the OTDR, the first connector can produce a strong Fresnel reflection that saturates the OTDR receiver, creating a "dead zone" where the OTDR cannot detect the fiber immediately after the connector. This prevents accurate measurement of the fiber length and early events in the trace . Short fibers or highly reflective connectors exacerbate this problem, as the OTDR cannot resolve events close to the launch point .

Solutions

Use a Launch Cable: A launch cable (or OTDR pulse fiber) is a short length of fiber with a known connector that is connected between the OTDR and the pigtail. It allows the OTDR to stabilize and measure the backscatter from the fiber under test accurately, eliminating dead zones near the input . Check Connector Quality: Ensure that connectors are clean and properly matched. Mismatched or dirty connectors can increase reflectance and prevent the OTDR from detecting the fiber length correctly . Adjust OTDR Settings: Selecting an appropriate pulse width and range can improve resolution and dynamic range, helping the OTDR detect short fibers or low-reflectance events . Bidirectional Testing: For critical measurements, testing from both ends of the fiber and averaging the results can compensate for events that are difficult to detect from a single direction .

Best Practices
• Always use a launch cable when testing pigtails or short fiber segments.

• Keep connectors clean and inspect them before testing.

• Choose OTDR settings suitable for the fiber type and length.

• Consider bidirectional testing for accurate loss and length measurements. By following these practices, the OTDR can accurately measure fiber length even when pigtails are involved, avoiding dead zones and false readings caused by high reflectance at the first connector.

Article Content

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Just measure the fiber on the spool of cable with the OTDR, then look at the cable jacket for length markings to get the actual length

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If you have a long length of cable with distances marked on it, you can measure it with the OTDR and use the index of refraction to

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However, like any measurement technique, OTDR testing can encounter certain challenges and issues that can affect

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If OTDR launches 2nd pulse before 1st pulse exits the fiber, reflections at the end of the fiber are aliased back into the start of the

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This creates what''s known as a dead zone — a short distance at the very beginning of the fiber where the OTDR

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An OTDR, however, works like RADAR. It sends a pulse down the fiber and looks for a return signal from fiber backscatter and

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OTDR: General Questions Q: What do OTDRs test? A: OTDRs test the overall length, loss and optical return loss of fiber optic

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Before connecting the optical fiber connector to the OTDR, it must be carefully cleaned, including the output connector of the OTDR

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Nonetheless, as this paper demonstrates, an OTDR of sufficiently high resolution and dynamic range, and depending somewhat on

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The OTDR measures the length of the fiber, not the length of the cable. The fiber is usually 1-2% longer than the cable so you may

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For OTDR testing, this requires a reference launch cable to connect the OTDR to the fiber in the cable under test and a receive cable

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What is OTDR (Optical Time Domain Reflectometer)? An Optical Time Domain Reflectometer (OTDR) is a

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This allows the OTDR to accurately measure the first connector and the beginning portion of the actual fiber under

Understanding measurement

The OTDR test pulse, Figure 8, has a long length in the fibre, typically 5 to 500 meters long (17 to 1700 feet). It cannot see features

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