Testing the fiber optic cable connection to the pigtail



Overview

The FOA Reference For Fiber Optics After fiber optic cables are installed, spliced and terminated, they must be tested. For every fiber optic cable plant.

Key Takeaways

To test a fiber optic cable connection to a pigtail, you typically perform a temporary fusion or mechanical splice and measure signal loss using a power meter or OTDR.

Understanding the Pigtail Connection

A fiber optic pigtail is a short fiber with a factory-terminated connector on one end and a bare fiber on the other. The bare end is permanently spliced to the incoming fiber, while the connector end plugs into equipment or a patch panel. This setup ensures low-loss, reliable connections and avoids the challenges of field-terminating connectors.

Preparing for Testing

Before testing, ensure you have: A clean, high-quality pigtailA fusion splicer or mechanical splicerA fiber cleaver for precise end preparationA power meter and light source or an OTDR for measurement Cleanliness is critical; dust or misalignment can significantly increase loss.

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Testing Methods

Temporary Splice with Power MeterUse the pigtail as a launch cable. Perform a temporary fusion or mechanical splice to the fiber under test. Measure the insertion loss with a power meter.

This method is quick but may introduce slight uncertainty due to the temporary splice.

Bare Fiber Adapter Method

Connect the bare fiber end directly to a bare fiber adapter on the power meter. Attach the pigtail via a temporary splice. Measure the output power to calculate loss.

Ensure a good cleave and clean splice for reliable results.

OTDR Testing

Use an OTDR with a launch cable (pigtail) to connect to the fiber under test.

The OTD

R measures backscatter to determine attenuation and splice quality. Suitable for longer fibers (>50 meters) and provides a trace for identifying faults.

Best Practices

Always clean connectors and fibers before splicing or testing. Use a high-quality cleaver to ensure a smooth fiber end. If using a temporary fusion splice, splice protectors are optional but ensure the splice is stable during measurement.

For multimode fibers, consider mode conditioning to avoid measurement errors. Record insertion loss and OTDR traces for documentation and future troubleshooting. By following these steps, you can reliably test a fiber optic cable connection to a pigtail, ensuring low-loss, high-quality network performance.

Article Content

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Patch cords or equipment jumpers are used to bridge the network electronic ports to the fiber optic link contained between patch panels (also known as “cross-connects”). Figure 1 below

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