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Fiber Optic Cable Activation Sequence



Overview

Fiber Installation and Activation The NCTI® Fiber Installation and Activation course is a comprehensive resource that provides essential and updated knowle.

Key Takeaways

Activating a fiber optic cable involves a structured sequence from network verification to ONT configuration, ensuring end-to-end connectivity for FTTH networks.Step 1: Verify Network Coverage and Prepare Installation

Before activation, confirm that the address is covered by the FTTH network. This ensures that the optical distribution network (ODN) is available for service. The technician schedules an installation appointment and prepares the necessary equipment, including fiber cables, splitters, and ONTs .

Step 2: External and Internal Fiber Routing

The technician checks the external connection between the building and the main fiber network. The fiber optic cable is then routed inside the home using existing conduits or pathways. Care is taken to avoid bends or stress that could affect signal quality .

Step 3: Device and Port Configuration

Activation requires connecting key devices in the network:

• OLT (Optical Line Terminal): The central device in the provider's network.

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• ODP (Optical Distribution Point): May use a passive splitter (e.g., 1:8) to branch the main fiber to multiple customers.

• ONT (Optical Network Terminal): Installed at the customer premises. Connections typically follow this sequence:

• Connect the OLT to the internet source and management ports.

• Attach SFP modules to the OLT ports.

• Connect fiber cables from the OLT to the ODP and then to the ONT using patch cords .

Step 4: Fiber Identification and Splicing

Technicians use the TIA-598-C color code to identify individual fibers within multi-core cables. For cables with more than 12 fibers, the 12-color sequence is repeated across tubes, ensuring correct end-to-end connectivity. Proper identification prevents misrouting and signal loss .

Step 5: Network Activation and Testing

Once physical connections are complete, the network is activated using configuration software (e.g., Winbox for Mikrotik devices). The ONT is powered and connected to the customer's equipment. The system is tested for:

• Signal strength and attenuation (ensuring it meets standards, e.g., ≤ -28 dB)

• Internet connectivity

• Correct routing through the OLT, ODP, and ONT .

Step 6: Final Verification

After activation, the technician verifies that the customer can access the internet at the expected speeds. Any adjustments to splitter configurations or device settings are made to optimize performance. The process ensures a stable, high-speed, and reliable fiber connection . This sequence ensures that fiber optic networks are properly activated, providing fast and stable broadband service directly to the customer's premises.

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