JDSU Solutions for Enterprise Structured Cabling

JDSU offers a complete range of communications test and measurement solutions to address the needs of cabling contractors, installers, structured cabling professionals, and IT local area network (LAN) managers for installation, maintenance, or ongoing testing. Enterprise cabling professionals must ensure reliable installations and timely troubleshooting of problems that impact end user and business productivity. JDSU offers a comprehensive suite of handheld test solutions in support of this goal.
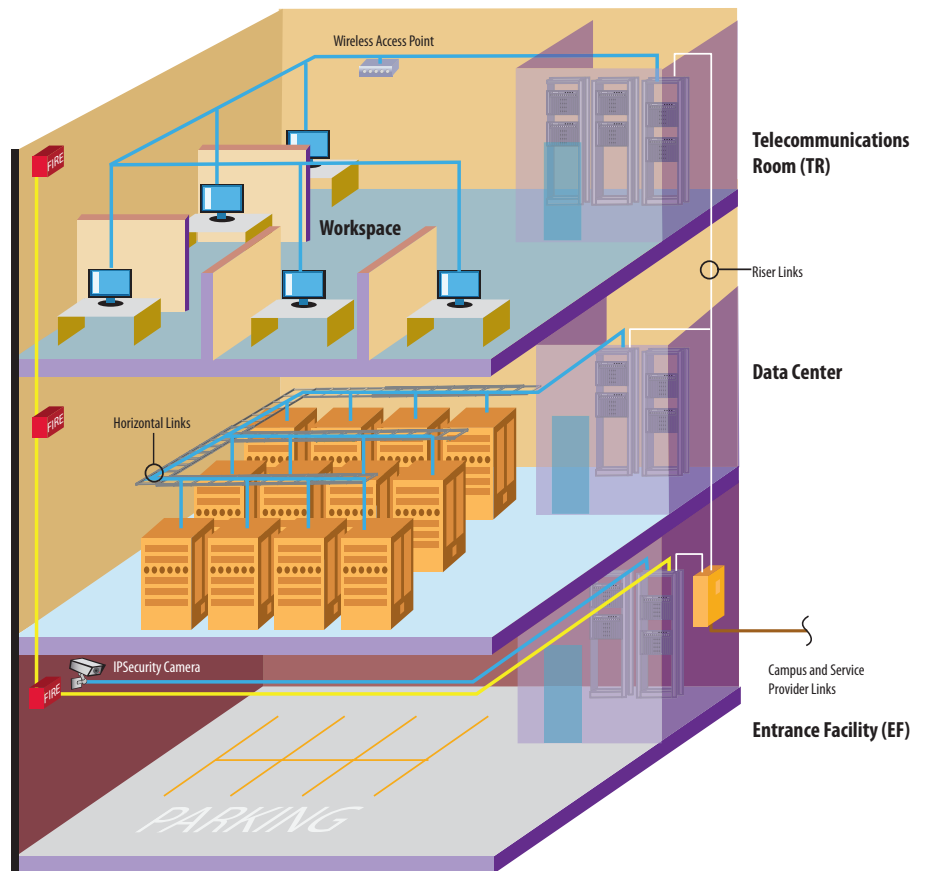
The JDSU portfolio of Enterprise structured cabling solutions includes:

- the industry's most advanced cable certification solutions that test, certify, and document Enterprise structured cabling infrastructure
- a wide range of cost-effective copper cabling solutions from wiremapping to Ethernet speed certification
- industry-leading fiber inspection and test solutions for end face inspection, optical power meters (OPMs), and optical time domain reflectometers (OTDRs)
- a complete set of solutions for managing change in Enterprise networks

An Enterprise network consists of many types of links and locations:

- **campus and service provider links that connect to the entrance facility (EF)**
- **riser links that provide floor-to-floor connectivity (between EF and telecommunications rooms [TR])**
- **horizontal links that provide connectivity from TR to the workspace or data center.**

Performing a variety of tests for each link type in each area when building and operating the network will ensure maximum network uptime. The table on page 2 provides examples of tests to perform on copper and fiber infrastructure

Enterprise Network Testing

Copper	Fiber
• Certify cables to TIA and ISO standards • Speed-test copper cables • Measure distance to shorts • Measure distance to opens • Measure length • Trace using tones and remote identifiers • Wiremap	• Certify fiber cables to TIA and ISO certification standards • Evaluate fiber connector end-face quality • Check optical power levels of active equipment • Measure total fiber link loss • Measure fiber link length • Measure discrete losses of fiber, connectors, and splices • Evaluate fiber connector reflectance • Identify and locate faults in optical cables

Solutions for Testing Enterprise Copper

Copper cabling is dominant in the Enterprise, connecting the vast majority of devices to the network. When building or upgrading a network, it is critical to test copper runs to ensure proper installation and ability to support the service they will carry. When performing regular moves, adds, and changes (MACs) in an operational network, it is important to test the cabling and eliminate it as a cause of network connectivity and performance issues. Most copper test tools support basic tests such as wiremap, length, tone generation, and tracing of cables using passive ID devices. However, testing beyond these simple parameters is often required.

When selecting a tester for copper cabling, ensure that the tester:

• **Performs tests appropriate to the need**

Different scenarios require different testing approaches. Typically, new building installations require certifying copper cables to international standards, such as TIA/EIA-568 or ISO/IEC 11801. Smaller installations may simply require speed testing the cable runs to ensure they support a particular speed of Ethernet. Day-to-day maintenance (such as MACs) may require basic verification testing (wiremap and length).

• **Allows you to document test results**

Sometimes you only need to test the cable; but other situations require documenting the test results—either to obtain a baseline for comparison when troubleshooting or to document completion of the job. Typically, new building installations with certification require complete documentation.

• **Supports ALL the cable types in your network**

Some testers will only test Ethernet cables while others support various cable types, such as Coax, telephone, and optical cables.

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Certifier40G: Next-Generation Cable Certifier

The Certifier40G is a next-generation certifier that certifies copper cabling to Cat-7A and Class-FA to TIA 568/ISO 11801 cable standards, and performs Tier 1 certification on multimode and single-mode fiber.

Features and Benefits

- Next-generation user friendliness with touch screen graphical interface
- Maximizes installer productivity through accelerated test times and by revealing results for both test ends.
- Advanced measurement engine to ensure years of productive service
- Cost-saving permanent link adapter design
- Integrated planning and reporting software

Validator™ Line of Ethernet Speed Certifiers

The Validator line of Ethernet Speed Certifiers offer the best solution for speed certification of copper and fiber cabling in Enterprise networks.

Features and Benefits

- Certifies a network installation to meet Ethernet data transmission speeds up to 1000Base-T (1 Gbps) using bit error rate (BER) tests
- Measures signal-to-noise ratio (SNR) and Skew to uncover impairments to Ethernet data transmission
- Ensures cable integrity by testing for opens, shorts, split pairs, miswires, and reversals and measures distance to opens and shorts—supports all network, telco, and coax cables
- Identifies cable termination on active Ethernet ports with hub flash
- Creates network layout, documents cable tests, shows network topology, and records moves, adds, and changes with included Plan-Um® software
- ValidatorPRO tests fiber cable runs by measuring optical power on single-mode and multimode fiber.
- Some models include active network test features for the installation and trouble-shooting copper and wireless fidelity (WiFi) LAN networks

TestifierPRO™ Cable Tester

The TestifierPRO serves as a handheld cable tester that provides cable verification functionality with native network, telephone, and coax cable interfaces.

Features and Benefits

- Identifies cable termination on active ports by blinking port LEDs
- Measures cable length
- Identifies opens, shorts, split pairs, reversals, and crossover cable in wiremap format
- Performs single-ended testing to find opens, shorts, and split pairs
- Includes integrated RJ11 and RJ45 jacks and F-connector
- Supports 20 ID-only remote identifiers to trace up to 20 rooms
- Generates tone for tracing

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Solutions for Testing Enterprise Fiber

When testing Enterprise optical networks:

- **Use a VFL to check patch cords and link continuity**

  One of the most valuable (and lowest cost) tools in a fiber optic LAN environment is the visual fault locator (VFL), which is brightly visible light (630 – 650 nm) quite handy for:

  1. checking patch cords for microbends, macrobends, breaks, or bad terminations
  2. verifying continuity (determining whether fiber x on this end really matches up with fiber y on the other end)
  3. verifying port continuity (use to label both ends of a complete run as matching in/out).

- **Always perform a link loss measurement following installation of a new link**

  A link loss measurement can verify receipt of the correct range of power (not too little, not too much), ensuring that equipment functions at peak performance.

- **Properly configure an OTDR for troubleshooting fiber links**

  OTDRs are the only devices that can measure fiber loss, locate events and impairments, measure the impact (loss) of each, and provide the distance to each one.

- **Always inspect before you connect**

  Dirty connectors are the #1 source of troubleshooting in optical networks. Microscopic particles of dirt can create enough signal loss and back reflection to cause significant downtime and network damage. The increasing bandwidth requirements in today's enterprise networks leave little room for error caused by dirt.

INSPECT BEFORE YOU CONNECT^{SM}

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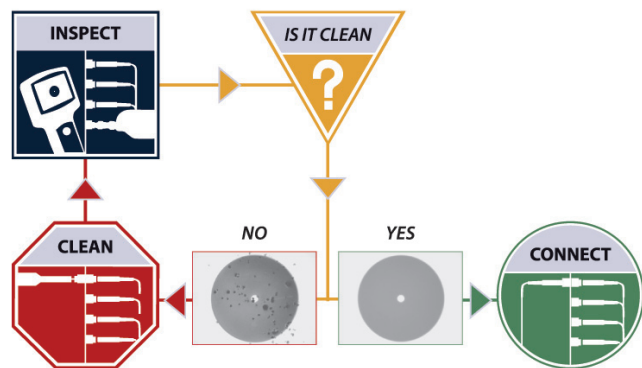
Easily overcome these problems with the right tools and methods. Using a fiber inspection microscope is the cornerstone of fiber-handling best practices, as it is the only way to ensure that the fiber connector end-face quality is acceptable before connecting. When inspecting fiber connectors, select a microscope that:

- **Lets you inspect BOTH SIDES of a fiber connection**
  Inspecting both sides of a fiber connection can only be performed with a probe microscope used in conjunction with a video display. For superior throughput and optimal workflow, use a display that includes an integrated patch cord microscope that will let you "park" the male connector while inspecting the female port.

- **Lets you inspect ALL of the fiber connections in your network**
  Be sure to consider the current and future connections in your network. Make note of the various connector types, locations, and applications of the fiber connections and choose a microscope that allows easy access and inspection for each of these connections.

- **Has a video display size that suits the use of your application**
  A 1.8-inch display is extremely compact and provides a high-quality image for inspection. Some technicians prefer the larger 3.5-inch screen size over the compact size as viewing a larger image makes inspecting the end face easier.

Basic Fiber Inspection Kits (FBE Series)

The FBE Series Fiber Inspection Kits make it easy to inspect both the bulkhead (female) and patch cord (male) sides of a fiber connection with a compact, handheld system.

Features and Benefits

- Provides ergonomic, compact design and controls for easy one-hand operation
- Offers a selection of inspection tips and adapters for common connectors and applications
- Provides crisp, clear view of fiber end face conditions
- Offers rugged, handheld HD3 display with 1.8-in TFT LCD display

Optimized Fiber Inspection Kits (FBP Series)

The FBP Series Optimized Fiber Inspection Kits combine the power of two microscopes into one system for inspecting both sides of the fiber interconnect in less than half the time.

Features and Benefits

- Offers a broad selection of inspection tips and adapters for every connector and application
- Integrated Patch Cord Microscope (PCM) improves workflow
- Provides inspection of both sides of the fiber interconnect in less than half the time!
- Streamlines the Inspect Before You Connect process
- Eliminates changing, mishandling, and misplacing inspection tips for the probe
- Protects patch cords from contamination by parking it in the patch cord microscope

Integrated Inspection/Test Kits

Integrated Inspection/Test Kits make it possible to inspect, clean, and test fiber interconnects in less than half the time with an integrated, portable system.

Features and Benefits

- Drives users to follow best practices for fiber handling in a way that optimizes their workflow and overall performance
- Combines fiber inspection, cleaning, fault detection, and optical power measurement into a simple, hands-free system
- Eliminates switching between different devices
- Promotes proper fiber handling practices
- Portable carrier keeps hands free for other tasks such as logging data, accessing equipment, or routing cable

Digital Analysis Kits

Digital Analysis Kits eliminate human subjectivity from end face evaluation by providing automated Pass/Fail analysis at the push of a button.

Features and Benefits

- Provides digital live image viewing (dual magnification)
- Connects to PC/laptop via USB 2.0
- Certify compliance to customer specification or industry standards, including IEC 61300-3-35
- Save, print, and archive images and test results
- Standardize fiber inspection, analysis, and grading processes throughout the fiber network
- Configurability allows for user-defined Pass/Fail criteria settings
- Generate certification reports

USB Optical Power Meter (MP-60A)

The USB Optical Power Meter (OPM) provides a small-form-factor OPM that can connect to a PC/laptop and other JDSU devices via USB 2.0.

Features and Benefits

- Offers a small-form-factor device that connects to a PC/laptop and other devices via USB 2.0
- Integrates with FiberChek2 software
- Offers compatibility with Validator PRO and other JDSU test devices
- Includes the USB PowerMeter software program
- Generates measurements (dB, dBm, and mW) at multiple pre-calibrated wavelengths: 850, 980, 1300, 1310, 1490, 1550, 1625 nm
- Electronically archives and logs results (manual or automated)
- Physical button on device initiates tests and establishes reference levels

Visual Fault Locator

The Visual Fault Locator helps locate sharp bends, breaks, and damages in fiber.

Features and Benefits

- Provides a compact, ergonomic design for ultimate portability
- Offers visible wavelength of 650 nm
- Offers high-powered laser (1 mW) for single-mode (>7 km) and multimode (>5 km) connectors
- Provides continuous or flash illumination
- Provides universal connector interface for quick, easy connection
- Provides 2.5 mm connector input (1.25 mm adapter available)

Live Fiber Identifier

The FI-60 LFI enables users to easily detect the optical signal without having to disconnect the fiber or disrupt network traffic. The FI-60 easily converts to an OPM.

Features and Benefits

- Avoid network downtime and damage with repeatable SafeChek™ easy-pull trigger system
- Complete jobs faster with a single LFI head that is compatible with multiple cable diameters (250 μm to 3 mm jacketed fibers)
- Increase reliability and avoid false readings with integrated ambient light shield
- Twice the tool at half the price, the FI-60 LFI easily converts to a fully functioning OPM that stores, recalls, and exports results to a PC via USB

Optical Loss Test Kits

The OMK-34 offers a dual-wavelength LAN optical test kit with a single-port dual wavelength 850/1300 nm 50 μm (CPR-compliant) multimode LED source (OLS-34) and a fixed SC connector output, a broadband power meter (Ge detector), and a universal push/pull 2.5 mm adapter (UPP) interface (OLP-34). The kit provides power, loss, and continuity testing on multimode LAN networks.

The OMK-34P offers a premium version of the OLP-34 that provides additional features such as interchangeable SC output adapters on the source and a micro-USB port on the power meter to enable AC charging and data storage downloads to a PC.

The OMK-36 combines multimode and single-mode test capabilities in one quad-wavelength optical test kit with a combination dual wavelength 850/1300 nm 50 μm (CPR-compliant) multimode LED and a dual wavelength 1310/1550 nm single-mode laser in one unit (OLS-36). Both ports offer a fixed SC connector output. It also includes a broadband optical power meter (InGaAs detector) with a UPP 2.5 μm adapter interface (OLP-35) that provides excellent performance in power, loss, and continuity testing on both multimode and single-mode Enterprise Datacomm networks.

Optical Loss Test Kits (continued)

The OMK-36P offers a premium version of the OMK-36 that provides additional features such as interchangeable SC output adapters on the source and a micro-USB port on the power meter to enable AC charging and data storage downloads to a PC.

Features and Benefits

- Offers rugged, pocket-sized design
- Combines a large display with an easy-to-use interface
- Offers quick, error-free testing with the auto-wavelength and TWINtest features
- Provides permanent reference power level storage
- Accommodates standard AA alkaline batteries or micro USB interface for AC power supply
- Provides internal data storage (100 results)
- Offers report generation with OFS-355 software
- Power meter (OLP-34) offers individual wavelength settings in 1 nm steps
- Power meter (OLP-34) and light sources (OLS-24, OLS-36) are available individually
- Offers a 3-year calibration period

T-BERD/MTS-4000

T-BERD®/MTS-4000 and T-BERD/MTS-2000 Quad and Multimode OTDR and LTS

The Multimode/Single-mode Quad and Multimode modules provide full-featured OTDRs for the T-BERD/MTS-4000 and T-BERD/MTS-2000 platforms with powerful certification tools that give a complete picture of single-mode and multimode fiber plants. The Quad OTDR module, designed for use in the installation and maintenance of Enterprise fiber networks, combines dual wavelength multimode and single-mode OTDR test functionality. The user-friendly interface makes every technician a fiber expert with port quality check, automatic settings, loss limits per events and fiber links, automatic event analysis, and results management. In addition, the module integrates a continuous wave (CW) light source and power meter for optical power level and insertion loss measurements for both single-mode and multimode fibers.

T-BERD/MTS-2000

Features and Benefits

- Most compact dual-modular fiber test solution on the market
- Dual Multimode 850/1300 nm, or Quad (MM+SM) 850/1300 and 1310/1550 nm wavelengths
- 26/24 dB (MM), 37/35 dB (SM) dynamic range
- < 1 m EDZ/4 m ADZ dead zones
- Integrated MM/SM loss test sets
- Automated bend detection
- Propagation delay measurement in MM
- Integrated USB ports for data storage, keyboard/mouse, fiber inspection with pass/fail analysis
- Easy remote control via RJ45 Ethernet port
- Combine with the Ethernet Services Application Module (ESAM)
- Highest resolution fiber inspection available; Pass/Fail image analysis enables users to certify compliance with IEC-61300-3-35
- Tier II certification to TIA and ISO standards

Test & Measurement Regional Sales