Fibre testing with testerhire.co.uk

Fibre optics is the core of today's data networks. Optical fibre is the predominant media type for mission-critical data centre inks, backbone within buildings, and longer distances for campus networks. As network speeds and bandwidth demands increase, distance and loss limitations have decreased, making fibre optic testing more important than ever.

Inspecting Fibre Optic Cable for Light Loss

For decades, optics have been inspected and cleaned to ensure the proper passage of light. While fibre and cleaning fibre connectors is not new, it is growing in importance as links with increasingly higher data rates are driving decreasingly small loss budgets. With less tolerance for overall light loss, the attenuation through adapters must get lower and lower. This is achieved by properly inspecting and cleaning when necessary.

There are two types of problems that will cause loss as light leaves one end-face and enters another inside an adapter: contamination and damage.
Contamination comes in many forms from dust to oils to buffer gel. Simply touching the ferrule will immediately deposit an unacceptable amount of body oil on the end-face. Dust and small static-charged particles float through the air and can land on any exposed termination. This can be especially true in facilities undergoing construction or renovation. In new installations, buffer gel and pulling lube can easily find its way onto an end-face.

Fibre optic cable damage appears as a scratch, pit, crack, or chip. These end-face surface defects could be the result of poor termination or mated contamination. Deciding to mate every connection first and then inspecting only those that fail is a dangerous approach as the physical contact of mated contaminants can cause permanent damage. This permanent damage would require more costly and time consuming re-termination or replacement of pre-terminated links.

From the first days of fibre optic cabling, stereo bench top microscopes were used to inspect fibre optic end-faces. Over time, smaller, portable microscopes were designed to easily test fibre cable. Microscopes can be divided into two basic groupings: optical and video. Optical microscopes incorporate an objective lens and an eyepiece lens to allow you to view the end-face directly through the device. Video microscopes incorporate both an optical probe and a display for viewing the probe’s image. Probes are designed to be small so that they can reach ports in hard-to-access places. The screens allow images to be expanded for easier identification of contaminants and damage. Because the end-face is viewed on a screen instead of directly, probes eliminate any chance of harmful laser light from reaching a person’s eye. Fluke Networks offers a range of fibre optic microscopes from simple to professional-grade.

Cleaning Fibre Optic Cables

Because cleaning has been part of fibre maintenance for years, most people have their own approaches for cleaning end-faces, including some suboptimal approaches such as blasting the fibre cable with canned air, or using Isopropyl alcohol (IPA). Fibre-specific solvents are superior at dissolving virtually any contaminate lurking on a fibre end-face and have tailored evaporation rates that give them time to work yet disappear before mating. The most basic tools used are wipes and swabs used to clean patch cords and inside ports, respectively. Convenient fibre optic cleaning kits include all the solvent and cleaning tools one needs for precision end-face cleaning.

Fibre Optics Testing: Troubleshooting, Verification, and Certification

Fibre optic testers include tools to perform basic inspection and cleaning, basic troubleshooting and verification testers, certification testers, and advanced OTDR testers for troubleshooting and analysis of existing cabling.

For simple fibre troubleshooting and verification, the SimpliFibrePro and source solutions work together to measure multimode and single mode fibre loss. Built-in results storage and automatic wavelength synchronization save time and prevent errors.
Certification of new cabling per IEEE, TIA/EIA, or ISO/IEC standards is necessary to ensure that the link will run the intended application. Complete fibre cabling certification includes two parts; Tier 1 or Basic Test Regimen and Tier 2 or Extended Test Regimen. Tier one cabling certification is performed with a power meter and light source or optical loss test set to measure the absolute loss of the link and compare it to the limits in the standard.

Certification of fibre optic links requires the right test tools, detailed knowledge of installation and application standards, and the ability to document your test results. The DTX-CLT CertiFiber is one handheld tester that quickly and easily certifies multimode networks. One button measures fibre length and optical loss on two fibres at two wavelengths, computes the optical loss budget, compares the results to the selected industry standard and provides an instant PASS or FAIL indication. Test results can easily be saved and managed using included LinkWare Software.
Tier two **fibre certification** requires the use of an OTDR to ensure the quality of individual components of the installed link. Learn more about OTDRs and tier-two fibre certification here.