



Copper cable testing with testerhire.co.uk

Whether installing new cable, or troubleshooting existing cable, cable testing plays an important role in the process. Common tests for **datacom cabling** include length, wiremap, attenuation, NEXT, DC loop resistance, and return loss.

As networks evolve, so do the requirements of the cabling infrastructure to support them. New standards are continuously being developed to provide guidelines for cabling professionals when installing, testing, troubleshooting, and certifying both copper and fibre. Whether it's 10BASE-T, 100BASE-TX or 1000BASE-T, there are specific requirements and potential pitfalls in implementing these technologies. And with the introduction of 10GBASE-T, it becomes even more critical to keep current with the latest developments in cabling and cable testing.

Cable testing provides a level of assurance that the installed cabling links provide the desired transmission capability to support the data communication desired by the users.

Types of Cable Testers

Cable test instruments are designed with a variety of focused feature sets for particular field work tasks. They vary in price, performance, and application. Depending on the task the field test instrument performs, it can be classified into one of the three hierarchical groups: certification, qualification, or verification. While some features overlap between test tools, each group answers a unique testing need and provides a different level of operational assurance.

Levels of Cable Testing

Certification – guarantees cabling system compliance to industry standards

Certification instruments are the only tools that provide “Pass” or “Fail” information in accordance with industry standards. In the North America market, the prevalent industry standards organization dealing with structured cabling, specifically with the transmission capabilities of structured cabling, is the Telecommunications Industry Association (TIA). In the international markets, the Electro-technical commission of the International Organization for Standards (ISO/IEC) creates and maintains standards for telecommunication cabling.

Certification test tools determine whether a link is compliant with a category (TIA) or class (ISO); for example, category 6 or class E in cat 6 testing. Certification is the final step required by many structured cabling manufacturers to grant their warranties for a new **cabling installation**. The **DTX Series CableAnalyzer™** has become the premier certification tester in the market for professional data communication installers, as well as network infrastructure staffs.

Qualification – determines if an existing cabling link can support certain network speeds & technologies

Qualification is a new category of testers in the industry that meets the emerging needs of network technicians who do not install new cabling, but need to troubleshoot operating networks. Qualification testers perform tests that decide whether an existing cabling link will support the requirements for “Fast Ethernet” (100BASE-TX), Voice over Internet Protocol (VoIP), or Gigabit Ethernet. These test tools furthermore allow the network technician to quickly isolate cabling problems from network protocol or addressing problems. Qualification test tools, such as **CableIQ™ Qualification Tester**, include all the capabilities of verification test tools but they are more powerful in that they perform an assessment of the cabling bandwidth and identify defects that affect the bandwidth. Qualification testers do not execute the battery of tests prescribed by the standards to be considered a “certification tool.”

Verification – verifies that cable is connected correctly

Verification test tools perform basic continuity functions; that is to say, assure that all wires in a cabling link are connected to the proper termination points and not to any other conductors. In **twisted pair cabling**, it is critical to maintain the proper pairing of the wires. Better verification test tools also verify wire pairing and detect installation defects like “split pairs”. Verification test tools may also assist in troubleshooting by providing a toner to locate a cabling link. Verification tools sometimes include additional features such as a Time Domain Reflectometer (TDR) to determine length of a cable or distance to a break or short circuit. These test tools do not provide any information on bandwidth or suitability for high-speed data communication.

Cable testing – The basics

Companies spend thousands of dollars upgrading their network equipment but the cabling often gets little, if any, attention. This is ironic, because if the cabling doesn't work, the network doesn't work. Some estimate cabling issues account for up to 50% of all LAN failures.

This results in network downtime which translates to millions of dollars in lost productivity, idle resources, and lost revenues. If you are a network administrator, it is essential to understand how to get the best performance from your cabling investment and find faults quickly when they occur. If you are a cable installer, you need to be up-to-date on the latest cabling installation and conformance techniques to ensure that your work meets changing international standards.

As networks evolve, so do the requirements of the cabling infrastructure to support them. New standards are continuously being developed to provide guidelines for cabling professionals when installing, testing, troubleshooting and certifying both copper and fiber. Whether it's 10BASE-T, 100BASE-TX or 1000BASE-T, you need to be aware of the specific requirements and potential pitfalls in implementing these technologies. And with the introduction of 10GBASE-T, it becomes even more critical to keep current with the latest developments in cabling.