# EASIER TESTING FOR GIGABIT COMPLIANCE

## LAN Qualifier and Network Diagnostics

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Field testing passive networks intended for later use as Gigabit networks can be a complicated, prolonged and costly business. By carrying out three simple tests - checking Bit Error Rate, Signal to Noise Ratio and determining delay skew - in a single session you can check for suitability and cable quality. By taking this approach, you can not only almost instantly find out whether the network is performing as it should but you can also track errors and build up a documentation database.

Today's ever-growing bandwidth demands mean a vast increase in the number of network cables used for communication (data, telephone, coaxial, audio...) as well as building management (security, access, alarms...). The importance of ethernet is growing and its role is expanding. As systems are increasingly linked together, and Moves, Adds and Changes become more frequent, it is vital to ascertain whether individual cables and bundles are working in accordance with specs and make sure there are no bottlenecks along the line.

This testing is more complex than it may seem at first glance. Installers are required to present 'proof of performance' documentation and perform pre-tests. The IEEE 802.3ab 1000BASE-T standard gives minimum requirements on multiple test parameters for verifying Gigabit devices.

If network testing is either late, inaccurate or incomplete, pretty much anything can go wrong - this can drive up the cost of the network. Testing must be an integrated part of the design and rollout processes. Connections are often separately checked for certification, qualification and verification. That is to say: is the cabling system compliant to industry standards, can an existing cabling link support certain network speeds and technologies and is the cabling connected correctly? A fourth common element is active troubleshooting. Of these, certification might be considered the most rigorous. Based on TIA and ISO standards, these either ‘Pass’ or ‘Fail’ a measured connection.

**Multiple tests for greater accuracy**

In practice, qualification is often the main thing which needs to be tested in the field. Operators and installers simply want to know whether a cabling network works and can support Gigabit bandwidth, not only whenever new networks are built, but also whenever existing networks are changed or extended. Qualification can be tested by taking a few carefully selected parameters from the relevant transmission standards and using these basic tests to get valuable results.

However, if tests show up that a network doesn't live up to expectations, it is handy to find out where the problem is and get an indication of what's causing it - without having to test extensively on LF and RF parameters. Short circuits, miswires and split pairs will all affect system performance - so identifying these is crucial to taking effective steps to remedying failure.

Checking for Bit Error Rate (BER), Signal to Noise Ratio (SNR) and determining delay skew are common test methods, but by performing all three in a single session and cross-referencing the results, test accuracy is increased to a very considerable degree. Most of the profession al test devices normally used for this are, however, very costly. You would need to carry around multiple expensive devices in sometimes very harsh environments.

**Cost-effective cable Testing and Ethernet Speed Certification**

That's where NetXpert 1400 comes in. This small, portable, rugged device can test for BER, SNR and delay skew but is some five times cheaper than other devices. It has been designed specifically for checking smaller installations, such as SOHO networks, clinics, law firms and so on. Operation requires no special skills.


Psiber Data NetXpert 1400 – new comprehensive cable qualifier and network diagnostic tool

The cost-effective NetXpert 1400 allows installers and operators to quickly and easily find out whether their network cabling systems qualifies for IEEE 802.3ab standard compliant Gigabit Ethernet, and also enables troubleshooting of active networks. A ‘Pass/Fail’ result indicates whether existing cabling link supports data rates up to 1Gbit/s.

**Verifying links**

NetXpert allows the user to verify whether cabling links will support a maximum data rate of up to 1Gbit/s irrespective of the category of the cables, patch panels, or outlets installed. Performing standards-based tests with real data as per IEEE 802.3ab and bit error rate tests (BERT) the NetXpert 1400 tests the error-free data transmission up to 1Gbit/s. Adding to this, parameters affecting signal quality can be displayed including signal-to-noise ratio (SNR) and delay skew. Delay skew in a 4-pair cable indicates the signal time delay between pairs and can impact Gigabit Ethernet performance.

Continuity test results of all 8 wires and the shielding are displayed in wire map format in full color while showing cable faults such as opens, shorts, miswires, and split pairs in a clear and easy to understand way. Cable length and distance to the cable fault are determined using advanced TDR (Time Domain Reflectometer) and capacitance technology.

**Network Testing and Diagnosis**

Featuring a bundle of active network testing capabilities, the NetXpert 1400 assists you with verifying network configuration and troubleshooting networks as any moves, adds & changes (MACs) performed will require a renewed verification.


Three ways of qualifying adding up to a reliable statement

The NetXpert 1400 verifies, when connected to a telecommunications outlet, if a link can be established to the switch and which connection speeds are supported (up to 1Gbit/s). The Ping test detects the availability of individual and lists of IPv4 and IPv6 addresses and any user-selectable URLs. User can also choose from a range of other network tests, such as LLDP/CDP and VLAN discovery and comprehensive PoE tests, including a load test.

The full-color touch screen and 4 additional buttons make the NetXpert 1400 easy to use while the high-resolution color screen guarantees excellent readability in any environment. Its rugged design is ideally suited for rough handling environments. Results can be saved in the NetXpert 1400 and detailed, full color reports can be generated for documentation purposes. Internally stored test data can be moved via USB Flash to a PC or tablet in PDF or CSF format and printed without special software.

Testing network links by combining three key parameters means accurate results with an easy-to-use, purpose-built, portable and rugged device is the fastest, most cost effective way to verify whether cabling links will support a maximum data rate of up to 1Gbit/s.

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