



Certi-Lite: At the Heart of a New Category in Cable Test

Due to an increased reliance on network-connected technologies in the enterprise, IT departments now require a cable test tool that fills the gap between network qualification and certification categories without breaking the bank. This new category of test tool is being referred to as Qualification+. AEM's new Network Service Assistant (NSA) is the first Qualification+ test tool on the market that provides those responsible for general wired and wireless network troubleshooting, as well as assurance that the cabling infrastructure meets industry test standards with features that approach what professional cabling contractor certification tools can measure at a much lower price-point. Let's learn more about AEM's NSA with a focus on the standards-based cable testing, and why its Certi-Lite feature puts the "+" in Qualification+.

As we dive in, it should be noted that the NSA's Certi-Lite feature is not a replacement for those who need to perform dual-ended cable certification in order to qualify for a cable manufacturer's warranty program. For these types of tests, a certification tester like AEM's TestPro is required.

Often times, network owners are faced with the difficult decision of choosing between wire testers for basic cable continuity testing, a network tester to qualify real-world network connectivity scenarios or a cable certifier for those times when a deeper-dive test on cabling is required. However, it's often hard to justify the expense of purchasing two or three different sets of test equipment – especially when many of the more expensive cable certification-grade tests are only occasionally needed. Enter the NSA with Certi-Lite, a hybrid test solution that introduces a new category of field testers, to provide Qualification+ testing for wired and wireless network connectivity testing plus standards compliant cable testing, saving users thousands of dollars by not having to purchase multiple pieces of test equipment.

At Look at Cable Verification, Qualification, Qualification+, Certification

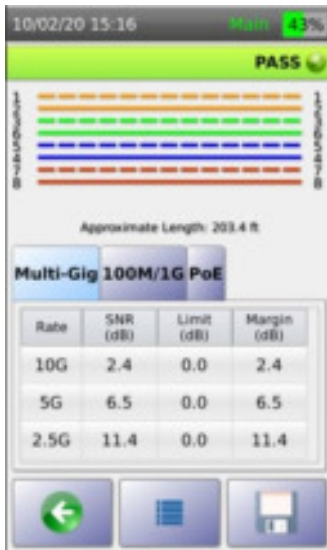
Cable test equipment has long been broadly segmented in the categories of verification, qualification (also referred to as validation), and certification. AEM recently challenged this paradigm and has taken an innovative approach for IT shops that have struggled to find a single test solution that meets all of their needs.

Let's start by taking a high-level view of the general testing capability offered within current categories of test equipment along with the new Qualification+ category. *Be aware that we're only focusing on the cabling infrastructure testing aspects of these tools since this is the focus of this article. Please note that the NSA tester offers capabilities far beyond what is stated here.*

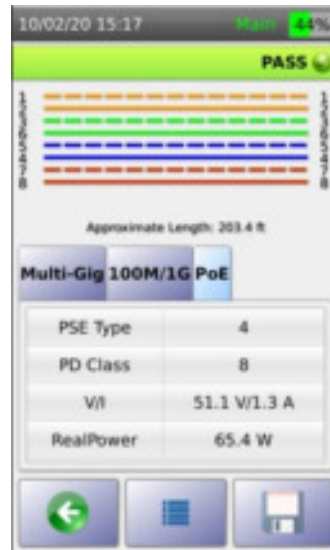
	Verification	Qualification	Qualification+	Certification
	Installer, Network Support, System Integrator	Network Support	Network Manager, System Integrator, Network Support	Datacom Installer, Network Manager, System Integrator
Continuity & Wiremap	●	●	●	●
Basic troubleshooting, TDR (<i>distance to fault</i>), short	●	●	●	●
Performance troubleshooting, TDR	○	●	●	●
Wired/Wireless Network connectivity troubleshooting, speed/duplex/pairing/trace route, ping, TDR	○	●	●	●
Can existing cable support network speed? Multi-gigabit up to 10GigE, VoIP	○	●	●	●
PoE qualification	○	○	●	○
Resistance measurement for successful PoE operation	—	○	●	●
Save infrastructure test results for .pdf reporting	—	○	●	●
Save Multi-gigabit, PoE, Network Connectivity results for .pdf reporting	—	—	●	○
Standards compliant cable testing with TDR to performance defect (Shield, NEXT, RL)	—	—	●	●
Cable compliance to ANSI/TIA/ISO standards for cable category (Cat5e, Cat6A, Cat8, etc.)	—	—	●	●
RF measurement system to provide Pass/Fail results compliant to ANSI/TIA/IS standards	—	—	●	●
Complete Smart Building testing capability	—	—	●	○
Approved for Warranty of cable manufacturers	—	—	—	●
Bi-directional standards compliant cable test	—	—	—	●
Single-direction standards complaint cable test	—	—	●	—

- = Required
- = Optional
- = Not Applicable

The objective of verification testing is to confirm whether the cable link is properly connected end-to-end. The majority of verification testers available on the market today are also helpful in basic troubleshooting by identifying distance to a fault along the length of a cable. With features such as tone generation and numbering remote identifiers, verification testers help IT shops to understand and document pre-existing cabling plants.



NSA Multi-gigabit test result



NSA PoE Load Test

The objective of qualification testing (also sometimes referred to as validation testing) is to confirm if an existing cable will be able to support an intended application. As an example, “will I be able to upgrade the switch and devices to 5Gbps on this link?” is a typical question readily answered by qualification testers. These testers in most cases use an actual Ethernet PHY to perform traffic tests at desired speed and allow the operator to observe the data error margin. While qualification testing is useful, it is important to be careful in selecting a test instrument. Most qualifiers in the market do not offer resistance measurement, an essential measurement for cables intended

to carry PoE loading. Additionally, qualifiers are often not designed for handling shielded cabling and showing shield discontinuity issues. If you install or are planning to install shielded cabling, be certain to choose a tester that supports these types of shield measurements.

Certification testing confirms the bi-directional compliance of cabling against transmission parameters specified by standards such as ANSI/TIA 568.2. The advantage of certification testing is that a cable meeting a certain cabling standard can be guaranteed to work for any network application designed to run on cables meeting that standard. As an example, a CAT6A compliant cabling channel can be guaranteed to work for 10GBASE-T application, and for a future networking application that might specify CAT6A cabling as a requirement. It is for this reason that certification testing is essential while installing new cabling.

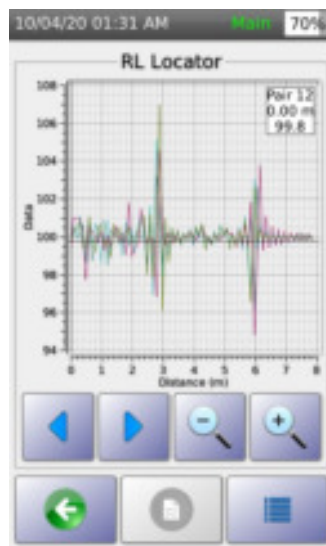
Finally, NSA with its Certi-Lite capability is at the heart of defining a new category of test instrumentation – Qualification+. Certi-Lite provides full RF testing involving the measurement of complex cable parameters such as Return Loss, NEXT, Insertion Loss, ACRF, length, delay, shield discontinuity, and graphical TDR analysis of faults.



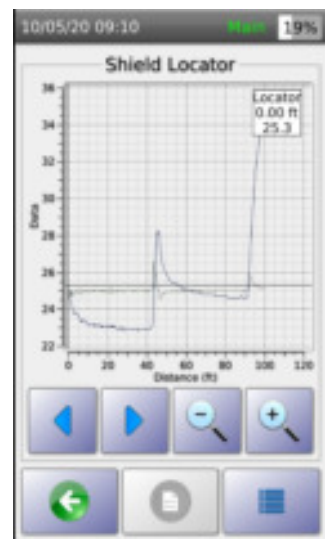
Certi-Lite CAT6A Channel Test



Certi-Lite Network Compliance Report



Certi-Lite Return Loss TDR



Certi-Lite Shield TDR

NSA
Remote



The main test unit of NSA is similar to a main unit of AEM's award-winning certification tester, TestPro that comes in a pair for dual-ended testing. Because the NSA performs a single-ended cable test, it comes with a small passive termination plug called *NSA Remote*, at the remote end, which helps to significantly reduce the overall cost of the test equipment while providing an ANSI/TIA 1152-A compliant cable test.

It's important to keep in mind that the difference between certification testers and all other cable test categories rests mainly in the goals of those who operate them. Certification testers are predominantly used by professional cable installers who must run specific tests on each cable to ensure the cable, connector and terminations meet the cable manufacturer's warranty standard. Other testers such as Qualification and now Qualification+ testers are used more by enterprise IT departments. These tools are great for troubleshooting, stress-testing speed/PoE load capabilities and upgrade planning tasks of existing cable plants that are already in production.

Is Certi-Lite an alternative to Certification Testers for IT Departments?

For cable contractors, a traditional dual-ended certification test required for new installations for cable manufacturer's warranty purpose. For IT network managers and those that do not have a need for dual ended certification, the NSA's Certi-Lite capability is a perfect tool for qualifying existing cabling and for its suitability for verifying cable operation for new and bandwidth-intensive, low-latency applications. This is particularly true for IT departments that are struggling to ensure cabling is ready for smart building projects where PoE is heavily used. Here are a few more use-case situations where Certi-Lite is the most appropriate test tool for your organization:

- Reassessing the performance of existing cabling against standards requirements such as CAT6A
- Troubleshooting network connectivity and link speed issues
- Documenting cable plant performance
- Auditing certification testing jobs
- Moves, Adds, Changes

Is Certi-Lite standards compliant cable certification test?

One of the first questions that many ask is whether Certi-Lite meets the standards set forth by the Telecommunications Industry Association (TIA). The answer is yes, the ANSI/TIA-1152-A field test standard specifies certification testing parameters for two different test cases. Testing unidirectionally, and testing bi-directionally. The regular certification testing done with cable certifiers like AEM's multifunction cable tester TestPro CV100 falls under the "testing bi-directionally" category. As mentioned before, this is the proper method for certification testing for newly installed cabling.

The other method "testing unidirectionally" as specified in the ANSI/TIA-1152-A standard is the method achieved by AEM's NSA. This provides a standards compliant test with information on all relevant parameters from a single direction.

Want to learn more?

As mentioned, this blog is specifically focused on the Certi-Lite test function and does not go into detail on the depth of NSA's full capability as a new breed of Qualification+ field tester. Please refer to AEM's NSA product datasheets, website and other supporting materials to get a complete picture of NSA's complete testing capabilities. If you're interested in a live virtual demo, let us know by contacting us at customercare@aem-test.com.

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