

Test More. Test Faster. Test for Less.

AEM

Network Service Assistant

Multifunction Connectivity Tester

A New Class of Qualification+ Testing

Bridging the divide between Qualification and Certification in a single multifunction link tester.

IT departments often find a need to ensure the cabling infrastructure meets a certain test standard. This is needed to ensure support for a given application, or simply to support moves/adds/changes. Historically, this requires the purchase of two or even three different types of testers, that span wired, wireless, and certification capabilities, which becomes cost prohibitive.

Introducing the Network Service Assistant (NSA), with Certi-Lite, a multifunction connectivity test solution that represents a new category in field test with Qualification+ grade testing function. The NSA is offered at a fraction of the cost for what you would typically need to spend in multiple testers to get this much test function. And, because the NSA is modular, adding more test function as needs change, and AEM continues to add capabilities, is as easy as hot swapping a test adapter.





Certi-Lite



Certi-Lite performs an ANSI/TIA 1152-A compliant, single ended cable test for CAT3 – CAT6A, with a simple Pass/Fail indication. This provides you with assurance of cabling link integrity to support your requirements. The NSA performs this test using a small passive termination at the remote end, which helps to significantly reduce the overall cost of the test equipment when compared to traditional cable certifiers.

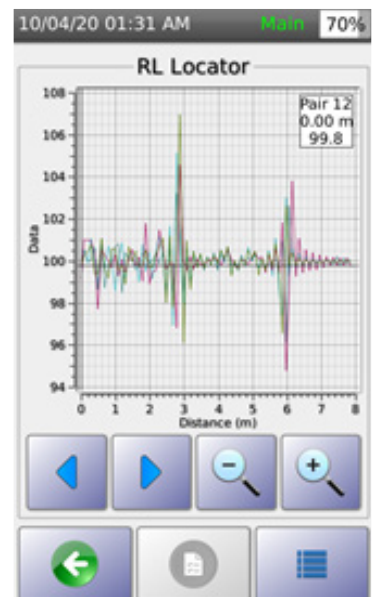
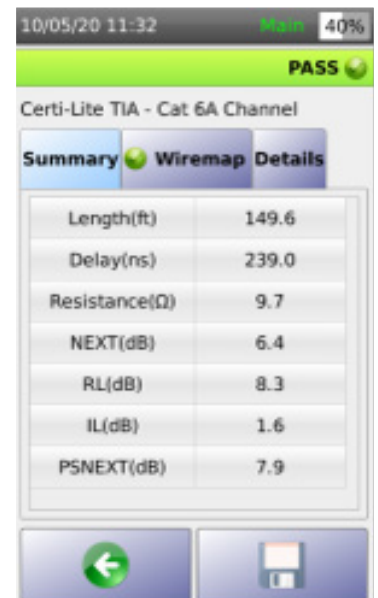
Is Certi-Lite An Alternative to Certification Test?

For cable contractors, a regular dual ended certification test is necessary for new installations for cable manufacturer’s warranty purpose. For network owners and those that do not have a requirement for dual ended certification, the NSA’s Certi-Lite capability is a perfect tool for qualifying existing cabling for its suitability for new applications, particularly smart building where PoE will be heavily used, but at a significantly lower price point. Here is a brief list of situations where Certi-Lite is the most appropriate test method:

- **Reassessing the performance of existing cabling against standards requirements such as CAT6A**
- **Troubleshooting network connectivity and link speed issues**
- **Documenting cable plant performance**
- **Moves, adds, changes**

Test results can be sent to TestDataPro Cloud test results repository via wired or wireless connection. Results can also be saved to memory for later upload to the PC based version of TestDataPro results management software.

For a more detailed look at Certi-Lite, check out our article titled [“Certi-Lite: At The Heart Of A New Category In Cable Test”](#)





Fiber Optic Testing

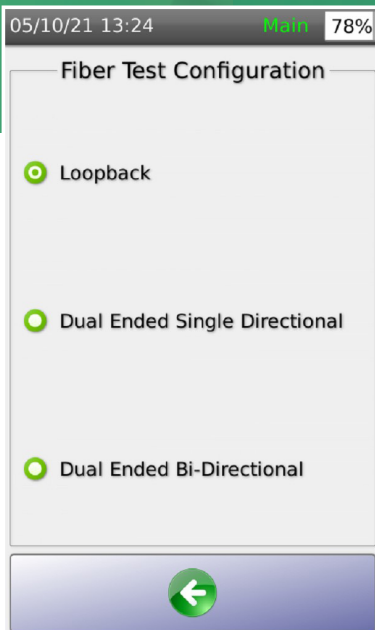


Figure 2 - Fiber Test Configuration Options



Figure 3 - Network Limits reports all networks that can be supported by the cable based on test results

Having the ability to perform optical loss testing as part of the feature set of the Qualification+ functions of Network Service Assistant, provides visibility to ensure the fiber optic links are good and what link speeds they can support based on the test results (Network Limits). The NSA supports Singlemode testing with the AD-NSA-SM-01, and Multimode testing with the AD-NSA-MM-01 adapters. These adapters can be purchased as part of the NSA Fiber Pro Kit or the NSA Expert Kit. Optionally, these adapters can be purchased as stand-alone add-ons.

Key Capabilities:

- Loopback optical loss test provides standards based or loss budget-based loss testing including length, delay, margin, loss and network compatibility.
- Measure voltage on electrical conductors of hybrid powered optical fiber cable allows user to determine if adequate voltage level is reaching the device at the end of the link.
- Stand-alone light source and power meter mode allows user to measure absolute power coming from devices, or perform relative loss measurement using a loopback connector at far end or using a separate light source.
- VFL allows user to pinpoint breaks, bad terminations/splices in the fiber distribution panels as well as confirm light is passing from one end to the other.
- Interface for visual fiber inspection probe via USB port – inspection and cleaning are paramount when dealing with fiber optic loss testing. Connectors should be inspected, cleaned if needed and inspected again prior to connecting. This applies to test equipment reference cables, installed fiber connectors, patch cords for network equipment.



Power Over Ethernet (PoE) Validation



POE TESTING CAPABILITIES

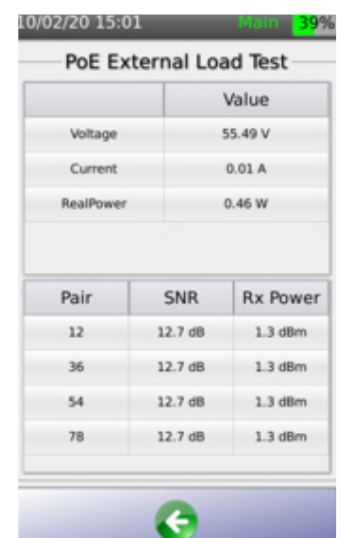
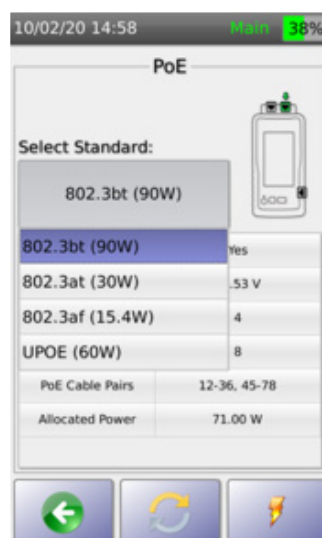
- Load Testing for Real Power at Jack
- Current and Voltage
- PSE Detection
- PSE Type
- PD Class
- PoE Cable Pairs
- Sustained Power Load Monitoring

NSA excels at validating PoE with the most comprehensive test functionality available and in compliance with IEEE 802.3 af/at/bt standards, as well as support for UPOE.

What sets NSA apart is the ability to validate Real Power load at the jack where an end device will be deployed. NSA emulates a Powered Device (PD), such as a WAP or Camera by setting it to the specific standard applicable to that device. NSA negotiates with the Power Source Equipment (PSE) to request information about the switch and the highest level of power load from the PSE for the selected standard.

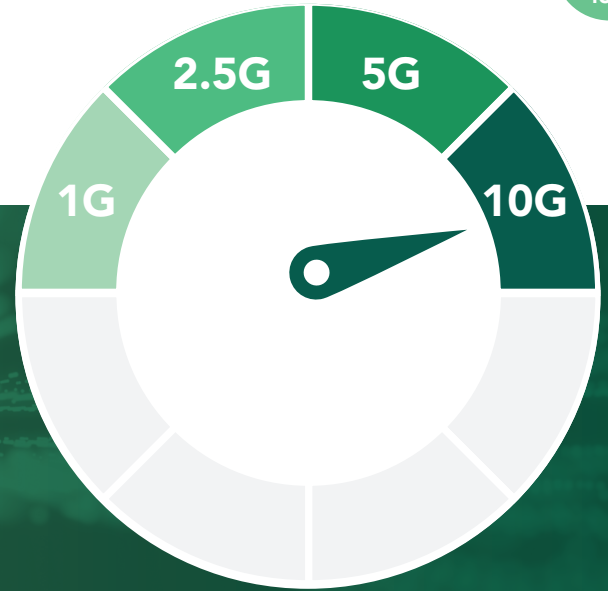
For those pesky intermittent power issues, NSA can monitor power load over time. This allows you to monitor live for any power fluctuation that drops below the required level threshold.

NSA can also characterize the cabling links for DC resistance unbalance parameters either as part of a standard cable certification Autotest or as a one-off quick test.





Multi-Gigabit Link Speed Qualification



10/02/20 15:16 Pass 43%

PASS

Approximate Length: 203.4 ft

Multi-Gig 100M/1G PoE

Rate	SNR (dB)	Limit (dB)	Margin (dB)
10G	2.4	0.0	2.4
5G	6.5	0.0	6.5
2.5G	11.4	0.0	11.4

10/02/20 15:17 Pass 43%

Detail Margin

SNR Rate	12 (dB)	36 (dB)	45 (dB)	78 (dB)
10G	3.7	2.4	3.2	3.1
5G	9.2	6.5	7.0	8.6
2.5G	11.7	11.4	11.4	11.9

10/02/20 15:17 Pass 44%

PASS

Approximate Length: 203.4 ft

Multi-Gig 100M/1G PoE

PSE Type	4
PD Class	8
V/I	51.1 V/1.3 A
RealPower	65.4 W

Improvements in 10Gigabit technology, price, and performance have extended its reach beyond enterprise data centers to midmarket networks. Increasing bandwidth requirements and the growth of enterprise applications are also driving broader deployments of 10 Gigabit Ethernet. TestPro’s Multi-Gigabit testing provides a Pass/Fail indication as well as visibility into available headroom even down to per pair detail.

NSA performs this Signal to Noise Ratio (SNR) based test while under both traffic and PoE load, if a PSE is present. This provides a real world scenario of performance, to ensure the data signal can get through the noise on the wire. NSA’s Multi-Gigabit Autotest is a quick and easy one button operation to ensure that a cabling link will support the desired network rate.

VALIDATION TEST

- 10/100 Mbps
- 1 Gbps

POE LOAD TEST

- 802.3 af/at/bt
- UPoE

QOS TEST

- SNR 2.5 Gigabit
- SNR 5 Gigabit
- SNR 10 Gigabit

“The depth of functionality in the TestPro and value it presents is incredible! It’s like having a Fluke Networks certifier, and a network tester, combined into one product at half the cost of either one.”

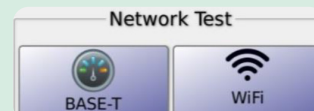
Mark Johnston, CEO Telementrix



Wired and Wireless Network Testing

The ability to get quick visibility into both your wired and wireless network infrastructure are must have features for troubleshooting and performing moves/adds/changes. Some key features NSA delivers include:

- Network Discovery
- Traffic Generator
- Traceroute
- Ping
- WiFi SSID Discovery & Associated RSSI (Signal Strength)
- Switch Detail including slot/port/VLAN
- VLAN Discovery



BASE-T Wired Ethernet Connection Details

- Perform Network Discovery to see what's behind the jack
- Display list of IP addresses for connected devices
- Select any IP address to view that device details, MAC address, and more
- View LAN details such as Gateway, Subnet Mask, DHCP Server
- Generate traffic to any desired IP address
- Perform Trace Route to see the connection path and intermediate hop delays for bottlenecks
- Use Ping to verify point-to-point or Internet connectivity and response time

Wi-Fi Ethernet Connection

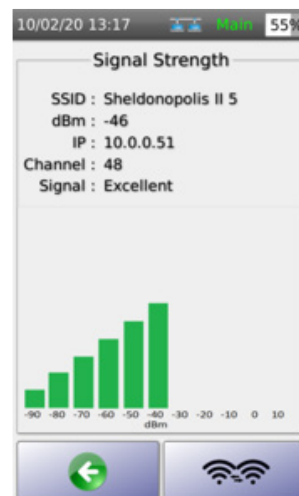
NSA's auto-discovery will display all detected SSID's and their associated RSSI (received power level). This is useful in determining if the Wi-Fi network to which the user is trying to connect has sufficient signal strength.

Determine Wi-Fi "dead zones" by roaming to checking RSSI values in different locations

Connect to any SSID using the appropriate credentials for that network

Use Ping to verify point-to-point connectivity or out to the Internet by selecting pre-defined or custom website URLs and see latency details.

Please Note: For Wi-Fi testing, an optional Edimax EW-7822ULC Wi-Fi USB adapter is required. These adapters are region specific and can be purchased on Amazon or any preferred retailer.

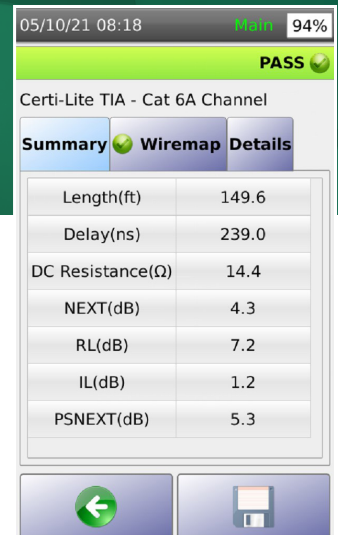


Advanced Link Identification

AEM takes link identification to the next level with Certi-Lite capable numbered remote IDs, and noise filtering Tone Probe capability. Unlike your typical “dumb” remote ID’s that simply tell if you have connected to number 1,2,3 and so on, AEM remote ID’s are smart, and are capable of supporting a standards based Certi-Lite cable test for CAT5e, CAT6, CAT6A. This provides you with the added benefit of a complete Autotest, which can be saved, in addition to identifying which numbered remote ID you connected to.

Tracking wires and faults can be difficult, in a dense, electrically noisy environment. Noise may be coming from the equipment in the wiring closet or induced by adjacent wires in the cable pathway. The Tempo Communications branded tone probe receiver offered in applicable kits, works in tandem with the output tone from the Network Service Assistant. The selectable filter blocks power noise and harmonics, with support for either 50Hz or 60Hz, based on model ordered, allowing user to pick up and hear the signal even in the noisiest of environments.

- Adjustable sensitivity/volume control
- Powerful rear-fire speaker
- LED signal strength indication – allows user to zero in on correct wire even when bleed-over exists between multiple wires
- One-button operation
- Replaceable tip



05/10/21 08:18 Main 94%

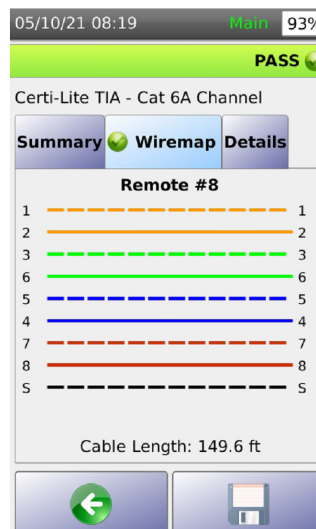
PASS

Certi-Lite TIA - Cat 6A Channel

Summary Wiremap Details

Length(ft)	149.6
Delay(ns)	239.0
DC Resistance(Ω)	14.4
NEXT(dB)	4.3
RL(dB)	7.2
IL(dB)	1.2
PSNEXT(dB)	5.3

Figure 4 - Certi-Lite Autotest result can be obtained with Remote IDs. Click on Details tab to drill into each test result. Test Results can be stored in tester memory for later upload to the included PC based TestDataPro, or immediately with the included TestDataPro Cloud via wired or wireless network connection.



05/10/21 08:19 Main 93%

PASS

Certi-Lite TIA - Cat 6A Channel

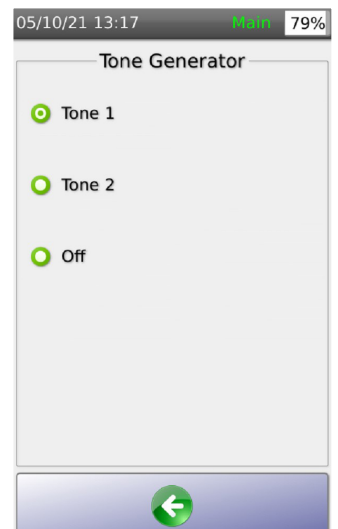
Summary Wiremap Details

Remote #8

1	-----	1
2	-----	2
3	-----	3
6	-----	6
5	-----	5
4	-----	4
7	-----	7
8	-----	8
5	-----	5

Cable Length: 149.6 ft

Figure 5 - Wiremap with Remote ID# Identified



05/10/21 13:17 Main 79%

Tone Generator

Tone 1

Tone 2

Off

Figure 6 - Tone Generation option offers varying Tone options to be received by the filtering Tone Probe.

NSA Selection Guide



Test Function	NSA-K30	NSA-K31	NSA-K60 50Hz	NSA-K60 60Hz	NSA-K61 50Hz	NSA-K61 60Hz
CAT 5e/6A Certi-Lite with Detailed Printed Reports	✓	✓	✓	✓	✓	✓
DC Resistance Unbalance	✓	✓	✓	✓	✓	✓
Wiremap with Distance-to-Fault	✓	✓	✓	✓	✓	✓
MM and SM Fiber Loopback Test		✓		✓		✓
Hybrid Powered Fiber Voltage Test		✓		✓		✓
PoE Load and Validation Testing	✓	✓	✓	✓	✓	✓
Multi-Gig Autotest	✓	✓	✓	✓	✓	✓
Multi-Gig (2.5 / 5 / 10G) SNR	✓	✓	✓	✓	✓	✓
100/1000BASE-T SNR Testing	✓	✓	✓	✓	✓	✓
BASE-T Network Connectivity (Switch detail, Traceroute, Ping, TCP Connect, etc.)	✓	✓	✓	✓	✓	✓
Wireless Network Connectivity* (AP availability, Signal Strength, Traceroute, Ping, etc)	✓	✓	✓	✓	✓	✓
Link Identifier #2 - #8 Including Certi-Lite Capability			✓	✓	✓	✓
Filtering Tone Probe			✓	✓	✓	✓

* Wireless capability requires Edimax EW-7822ULC Wi-Fi USB Adapter purchased separately from Amazon or other component provider of your choice.

NOTE: All accessories including test adapters are compatible with any kit, to allow test function build-out as needs change.

For more information: www.aem-test.com/NSA | Inquiries: customer@care@aem-test.com

North America: AEM International (US)

5560 West Chandler Blvd, Suite 3, Chandler, AZ 85226 | Toll Free 833-572-6916 | 480-534-1232

Asia: AEM Singapore Pte. Ltd. 52 Serangoon North Ave 4 Singapore 555853

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