

- Powerful all-in-one Device Designed for Troubleshooting of Wi-Fi (a/b/g/n/ac*), Ethernet (10/100), ZigBee & Bluetooth Networks
- Easily Identify Coverage Problems, Connectivity Issues, Security Risks, Unauthorized/Failed Access Points & Clients in the 2.4 and 5 GHz Bands
- Analyze Overlaps in Wireless Channel Broadcasts to Prevent Interference Between Wi-Fi and ZigBee Wireless Home Security & Automation Networks
- Certify Wi-Fi Installations Using Convenient One Touch Autotest Apps



Maximize the user experience while ensuring the stability of your wireless networks

Introduction

As wireless networks and technologies continue to expand, The new 802 AWE™ Advanced Wireless Test Set from Trilithic is designed to help identify and resolve many problems that are encountered during wireless network deployments.

The 802 AWE is ideal for wireless network installation or troubleshooting and features a compact rugged design, easy-to-use color user interface and built-in antenna for testing of Wi-Fi (a/b/g/n/ac*), ZigBee or Bluetooth wireless networks. The device also includes an Ethernet port for connectivity, traceroute and throughput testing through wired networks.

The 802 AWE offers a superior solution for proactive troubleshooting of wired and wireless networks and is the most cost effective testing tool available for 2.4 GHz and 5 GHz wireless networks.

Why Test Wireless?

Due to the expansion of wireless networks and increased customer demand, many MSOs now bundle home and public Wi-Fi into their core products. Although most customers are satisfied with their overall wireless experience, they continue to request that service providers increase coverage areas, speed up their networks, provide more bandwidth for larger files and ensure their online security for banking and private communications.

All of these factors combined with an exponentially increasing number of wireless devices in the home, office and public spaces, makes it more likely that issues relating to increased ambient noise and interference from co-channels or overlapping carriers will arise.

Without proper installation and setup of wireless networks, user will begin to notice a decrease in service quality and reliability which may also result in an increase in repeat service calls.

How Do I Test Wireless?

What can be done to improve service quality and reliability while also decreasing the number of repeat service calls?

The best way to ensure the stability of the network as a whole is to perform a wireless site survey during installation of new systems. The 802 AWE can be used to help identify any problem areas such as access point placement and interfering devices before they become a problem. With this proactive testing approach, the 802 AWE wireless test set can help to decrease repeat service calls related to issues with the RF environment within the customer premises.

With the 802 AWE at your side, you can ensure the quality and stability of your wireless networks while maximizing your customer's online experience.

*802.11ac connection and testing limited to 802.11n speeds

innovative technology to keep you a *step ahead*

AVAILABLE MODELS

- 802 AWE
P/N 2011743000

STANDARD INTERFACES

- RJ45 Electrical Ethernet Test Port (10/100 Mbps)
- Wi-Fi (802.11a/b/g/n/ac*)
- ZigBee
- Bluetooth
- Mini-USB Type B Female Charge & Data Port

INCLUDES

- 802 AWE Meter
- Protective Carrying Case with Belt Clip
- Shoulder Strap
- AC to DC Power Adapter & Battery Charger
- USB Charge & Data Cable (Mini-B Male to Standard-A Male)
- USB Flash Drive Adapter (Mini-B Male to Standard-A Female)

OPTIONAL SOFTWARE

- ViewPoint Express Configuration Software

RELATED PRODUCTS

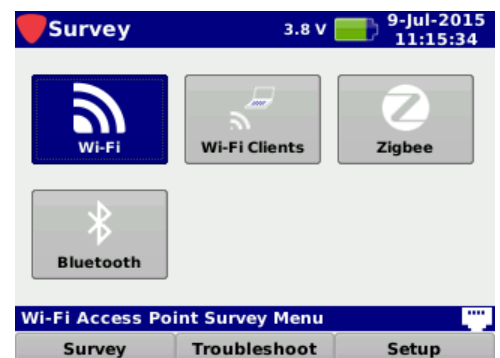
- Vehicle Power Adapter
P/N 0610169007

The 802 AWE supports a variety of functions, including:

- Multi-user support
- Multi-language support
- Create work orders right on the meter
- Interactive autotesting apps
- Datalogs and screen captures

Simple Yet Powerful

Providing the widest range of standard functions for installation and maintenance technicians available today, the 802 AWE provides you with a total end-to-end testing solution for all of your network installation, verification and troubleshooting needs. With the 802 AWE you can quickly and easily analyze overlaps in wireless channel broadcasts to prevent interference between Wi-Fi and ZigBee wireless home security & automation networks.



STANDARD TESTING FEATURES

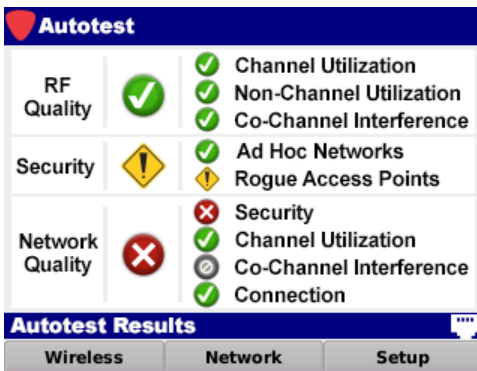
- Wi-Fi Frequency Band Survey
- Wi-Fi Channel Usage
- Zigbee Survey
- Bluetooth Survey
- Client Device Survey
- Client Device Finder
- Ping, Trace Route & Throughput Measurements

802.11ac Survey & Connectivity Support

The 802 AWE provides next generation support for 802.11ac networks using its built-in 802.11 a/b/g/n wireless adapter. As with other wireless standards, the 802.11ac standard provides backwards compatibility with the 802.11n standard. This means that the 802 AWE can be used to detect, find and connect to 802.11ac access points. Just like with other network devices, the 802 AWE provides information such as channel number, SSID, standard, security, max speed, channel width and number of streams for 802.11ac network devices. The 802 AWE can also connect to 802.11ac access points at 802.11n speeds using 20 or 40 MHz channels with 64 QAM modulation in the 5 GHz frequency band over a 1x1 MIMO stream.

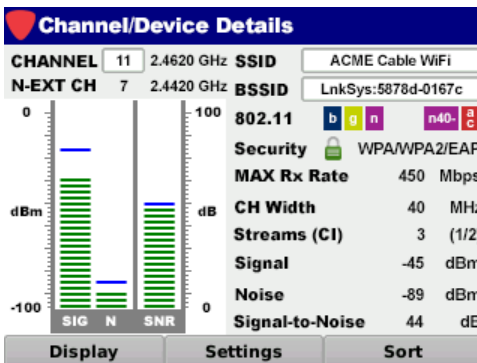
Autotest Apps

The 802 AWE makes installation and troubleshooting of wireless networks more efficient with the use of Autotest apps. These apps allow users to perform a set of tests to determine the RF quality of the surrounding area, security of available networks and the connection quality to these networks. The results are then compared to a specific set of measurement limits and displayed with familiar color-coded Pass/Fail results. All of this can easily be accomplished just by simply pressing a single button.



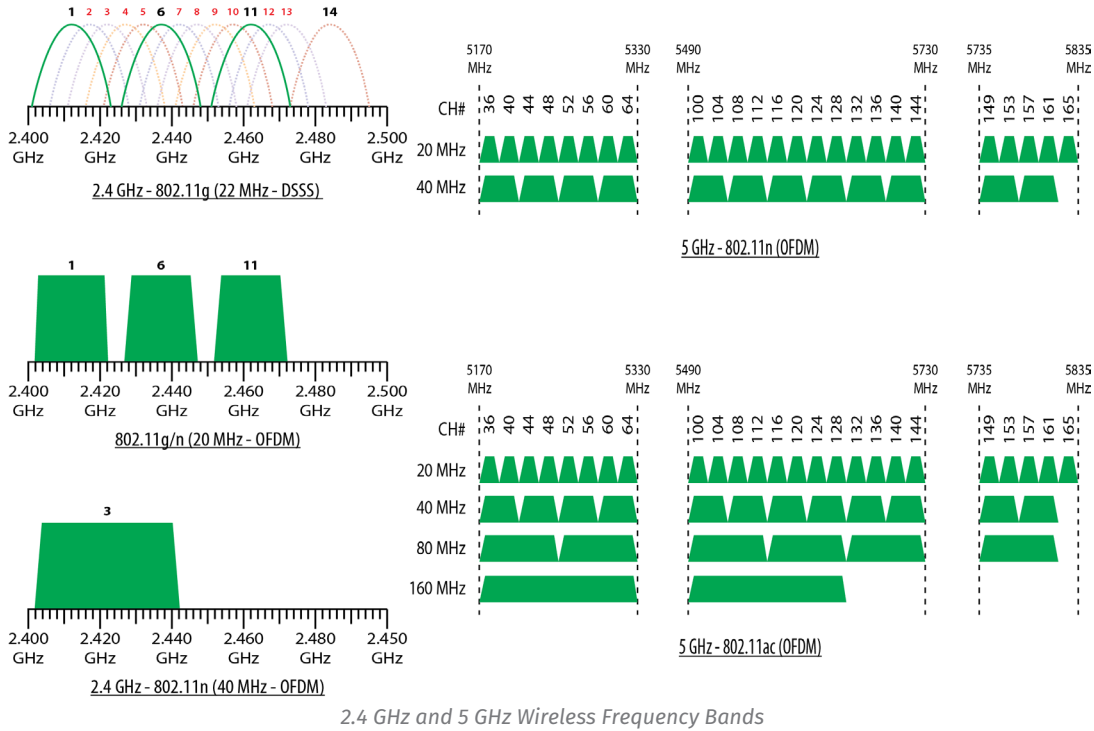
In-Depth Measurements

For the more advanced user, the 802 AWE is a total end-to-end testing solution for all of your network installation, verification and troubleshooting needs. The 802 AWE provides a wide variety of in-depth measurement tools and a full network test suite for both Ethernet and Wi-Fi networks.



STANDARD MEASUREMENTS

- Signal Level
- Noise Level
- Signal-to-Noise Ratio
- % Channel Usage
- SSID
- BSSID
- Number of Access Points
- Security Type
- Supported Wireless Standards
- Maximum Rx Rate
- Channel Width
- Number of Streams
- Ping
- Traceroute
- Throughput



2.4 GHz and 5 GHz Wireless Frequency Bands

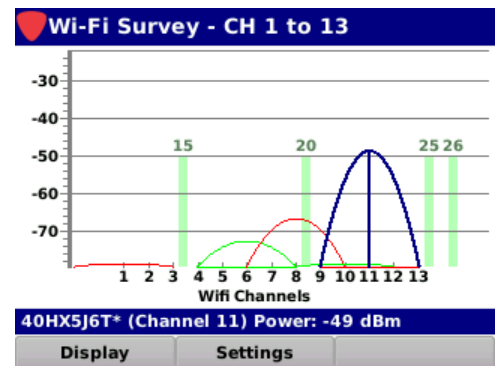
TABULAR SURVEY

- Displays a tabular view of all detected wireless networks in range of the 802 AWE
- Provides a quick view of the signal level, SSID, security type, network protocols & channel of each network device
- This display is useful for quickly and easily finding familiar or specific wireless networks and view their full device details by simply selecting the highlighted item

Wi-Fi Survey				
dBm	SSID	SEC	802.11	CH
-51	40HX5J6T		g n	11
-79	Apps_Wireless		b g n	1
-79	Guest		b g n	3
-81	HP0D2385		b	10
-71	INSTENGNET		b	6
-71	TrilithicCorp		a n	56
-77	TrilithicCorp		b g n	3
-63	TrilithicCorp		b g n	8
40HX5J6T* (Channel 11) Power: -51 dBm				
Display		Sort		

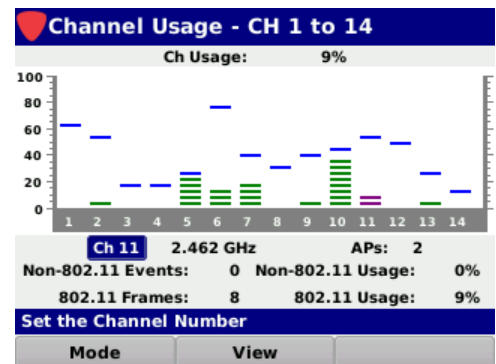
FREQUENCY BAND SURVEY

- User-selectable frequency bands provides the ability to display multiple survey graphs depending on your band of interest
- Displays the SSID, channel number and signal level of active wireless signals for easy identification of shared and overlapping channels in order to prevent possible performance issues and sources of interference
- ZigBee channel overlay feature to show areas of potential overlap and interference between Wi-Fi and ZigBee networks within the 2.4 GHz frequency band



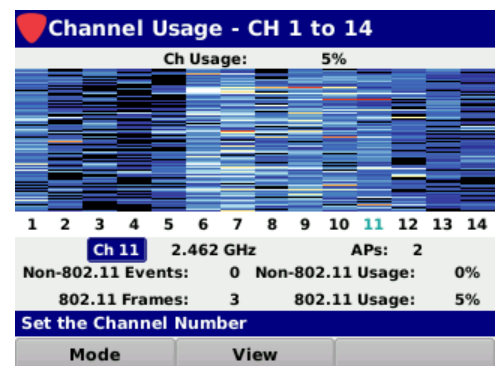
CHANNEL USAGE BAR GRAPH DISPLAY

- User-selectable frequency bands provides the ability to display channel usage graphs depending on your band of interest
- Measures the amount of time that Wi-Fi traffic and non-Wi-Fi traffic are present within the channels of the selected frequency band
- This measurement is called channel usage and it is displayed as a live view of the current usage level and maximum usage level detected for each channel during the current measurement period
- Easily identify undesirable channels operating with high levels of channel usage (both 802.11 and non-802.11 traffic) that could cause performance and connectivity issues



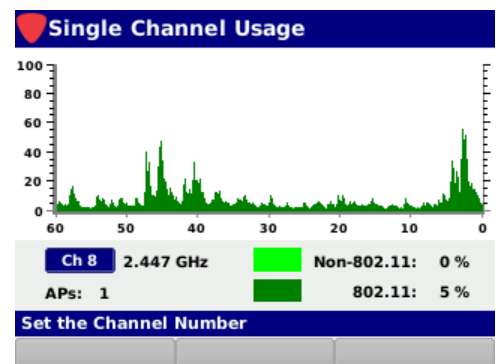
CHANNEL USAGE WATERFALL DISPLAY

- Measures the amount of time that Wi-Fi traffic and non-Wi-Fi traffic are present within the channels of the selected frequency band over the last 60 seconds
- Displayed as a waterfall graph or heat map showing the levels of utilization for the each channel within the selected frequency band over time
- The waterfall graph uses color to represent the prevalence of a signals and gives the user a visual cue if the transmissions are occurring frequently, infrequently, or somewhere in between



SINGLE CHANNEL USAGE HISTOGRAM DISPLAY

- Measures the amount of time that Wi-Fi traffic and non-Wi-Fi traffic are present within a single selected channel over the last 60 seconds
- Displayed as a histogram graph showing the levels of utilization for a single selected channel over time
- The histogram graph is used to identify sporadic or bursty usage within the channel at a specific moment in time to give the user real time way to identify interference or other devices that may be causing issues on a specific channel



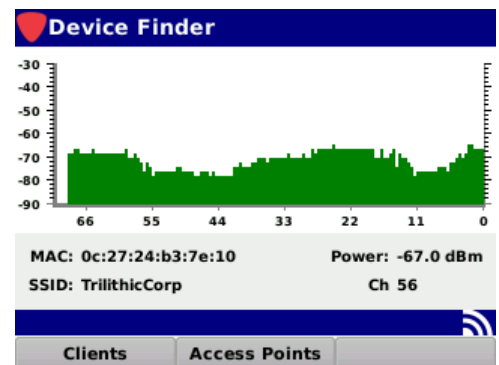
CLIENT SURVEY

- Displays a tabular view of all detected wireless clients in range of the 802 AWE with a user-selectable SSID that provides the ability to filter the list to display only clients belonging to a certain network of interest
- Provides a quick view of the signal level, MAC address, SSID and channel number of active wireless clients for easy identification of specific devices in order to prevent possible performance issues and sources of interference

Wi-Fi Clients			
SSID		All	
dBm	Mac	SSID	CH
-81	microsof:17:6e:0b	TrilithicCorp	8
-56	samsung:06:d7:52	TrilithicCorp	8
-69	microsof:25:59:64		-
-65	htc_corp:dd:1b:ca		-
-83	murata_m:22:9c:1d		-
-58	trilithi:00:f1:73		-
-87	hon hai:72:02:25		-

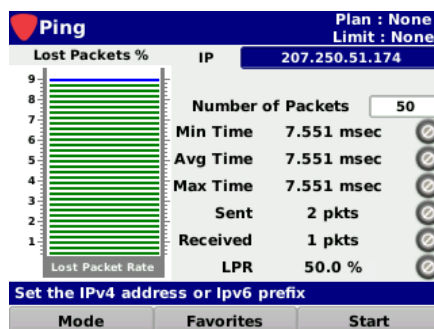
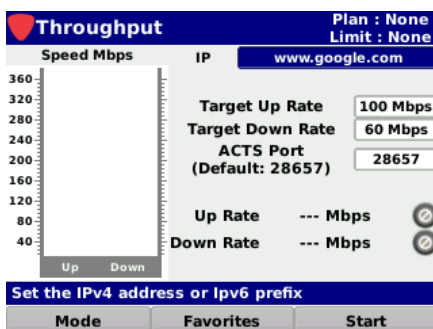
DEVICE FINDER

- Displays a graphical view of the signal level of a specific wireless device in range of the 802 AWE and provides a tone proportional to signal strength that helps identify whether you are moving toward or away from the wireless device.
- Provides a quick view of the signal level, MAC address, SSID and channel number of active wireless devices for easy identification of specific devices causing performance issues or acting as a source of interference



NETWORK CONNECTIVITY TESTING

- Use the network connectivity testing tools of the 802 AWE to ping network devices, validate proper throughput, and perform trace route testing.
- Provides a quick view of upstream and downstream connectivity to assure network devices are properly communicating within wired and wireless networks.



Traceroute		
IP www.google.com		
Hop	Address	Name
4	66.192.250.158	chi2-pr1-xe-1-2-0-0.us.
5	72.14.212.199	72.14.212.199
6	209.85.143.146	209.85.143.146
7	209.85.143.111	209.85.143.111
8	209.85.142.110	209.85.142.110
9	209.85.142.75	209.85.142.75

WI-FI SPECIFICATIONS

Supported Protocols	IEEE 802.11a, 802.11b, 802.11g, 802.11n and 802.11ac* *limited to 802.11n speeds)
Wi-Fi Modes	Embedded Wi-Fi Client & Access Point
802.11n MIMO Support	1x1
802.11ac Features	Detection/Location of Access Points, Network Connectivity & Performance Validation, Connects to 802.11ac Access Points at 802.11n data rates
Device Analysis	Access Point and Client Detection/Properties/Login Smart Device Classification Rogue Access Point and Client Detection/Location
Channel & Noise Analysis	Wi-Fi Signal Strength, Noise, SNR, Channel Utilization & Availability
Network Protocols	DHCP or Static IP
Performance Analysis	Ping & Trace Route
Receive Channels/ Frequencies	2.4 GHz Band 2402 to 2494 MHz (Channels 1 to 14) 5 GHz Band 5170 to 5330 MHz (Channels 34, 36, 38, 40, 42, 44, 46, 48, 52, 56, 60 & 64) 5490 to 5710 MHz (Channels 100, 104, 108, 112, 116, 120, 124, 128, 132, 136 & 140) 5735 to 5835 MHz (Channels 149, 153, 157, 161 & 165)
Transmit Channels/ Frequencies	2.4 GHz Band 802.11b, 22 MHz BW 2402 to 2494 MHz (Channels 1 to 14) 802.11g/n, 20 MHz BW (HT20) 2402 to 2482 MHz (All combinations of legally available bonded channel pairs) 802.11n, 40 MHz BW (HT40) 2402 to 2482 MHz (All combinations of legally available bonded channel pairs) 5 GHz Band 802.11a/n, 20 MHz BW (HT20) 5170 to 5330 MHz (Channels 36, 40, 44, 48, 52, 56, 60 & 64) 5490 to 5710 MHz (Channels 100, 104, 108, 112, 116, 120, 124, 128, 132, 136 & 140) 5735 to 5835 MHz (Channels 149, 153, 157, 161 & 165) 802.11n, 40 MHz BW (HT40) 5170 to 5330 MHz (All combinations of legally available bonded channel pairs) 5490 to 5690 MHz (All combinations of legally available bonded channel pairs) 5735 to 5815 MHz (All combinations of legally available bonded channel pairs)
Modulation	OFDM with BPSK, QPSK, 16-QAM and 64-QAM 802.11b with CCK and DSSS
QoS	WMM and WMM Power Save Support

*802.11ac connection and testing limited to 802.11n speeds

Data Rates	802.11b: from 1 Mbps to 11 Mbps 802.11a/g: from 6 Mbps to 54 Mbps 802.11n/ac: from 6.5 Mbps to 150 Mbps (MCS 0-7)
Typical Transmit Power	802.11b (DSSS): 18 dBm, ± 2 dBm 802.11g/n (OFDM): 17 dBm, ± 2 dBm 802.11a/g/n (OFDM): 15 dBm, ± 2 dBm
Receiver Sensitivity	1 Mbps: -97 dBm, ± 1 dBm (< 8% PER) 54 Mbps: -76.5 dBm, ± 1 dBm (< 10% PER) MCS 0-7 (20 MHz): -72 dBm, ± 1 dBm (< 10% PER) MCS 0-7 (40 MHz): -69 dBm, ± 1 dBm (< 10% PER)

BLUETOOTH SPECIFICATIONS

Supported Protocols	Bluetooth v2.1 + EDR, v3.0 + HS, v4.0
Bluetooth Modes	Master, Slave
Modulation	GFSK, DQPSK and 8DPSK
Data Rates	1, 2 or 3 Mbps
Typical Transmit Power	19 dBm (± 2 dBm)
Receiver Sensitivity	1 Mbps: -93 dBm, ± 1 dBm 2 Mbps: -93 dBm, ± 1 dBm 3 Mbps: -84 dBm, ± 1 dBm BTLE (1 Mbps): -91 dBm, ± 1 dBm

ZIGBEE SPECIFICATIONS

Supported Protocols	802.15.4-2009 (2.4 GHz)
ZigBee Modes	End Device
ZigBee Advanced Features	CCM Security, Orphan Scanning, Coordinator Realignment and Mesh Routing
Modulation	DSSS
Data Rates	250 Kbps
Typical Transmit Power	19 dBm, ± 2 dBm
Receiver Sensitivity	250 Kbps: -101 dBm (< 8% PER)

PHYSICAL & ENVIRONMENTAL SPECIFICATIONS

Physical Specifications

Construction	Rugged plastic housing
Control	Water resistant front panel solid membrane keypad
Display	Color LCD screen 320 x 240 pixels (approx 3.5" x 2.67")
Annunciators	Audible annunciator for key strokes
Dimensions w/o Case (H x W x D)	7.00 x 4.50 x 1.75 in (20.32 x 13.97 x 5.08 cm)
Dimensions w/ Case (H x W x D)	8.00 x 5.50 x 2.75 in (22.86 x 16.51 x 7.62 cm)
Weight w/o Case	1.00 lbs (0.45 Kg)
Weight w/ Case	1.50 lbs (1.09 Kg)

Available Interface Types

USB	Mini-USB 2.0 Type B female receptacle
Ethernet (Optional)	RJ45 Ethernet Port (10/100 Mbps)

Battery & Power Specifications

Operating Time	10 hours, dependant on use
Charge Time	12 hours
Battery	Two 2600 mAh @ 3.6V Li-Ion internal battery, factory replaceable
Power Adapter Input	Type: 2-prong un-grounded male plug (NEMA 1-15p) Voltage: 100 to 240 VAC ~ 50 to 60 Hz Current: 0.3 A Max
International Power Adapters (Optional)	Type: Interchangeable clip-on, US adapter (included) Euro: CEE 7/16 Europlug, Type C UK: BS 546, Type D AUS: AS/NZS 3112
Power Adapter Output	Type: USB Type A female receptacle Voltage: 5 VDC Current: 1.0A
Data & Charge Cable	USB Type A male plug to Mini-USB Type B male plug

Environmental Specifications

Storage & Operating Temperature	-18° to +50° C (0° to 122° F)
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