WX90

Wi-Fi Expert Test Toolkit

Comprehensive Wi-Fi Testing
Spectrum Analyzer Covering 2.4, 5 and 6 GHz Bands
Internet QoE Validation

Advanced Testing for Next-Generation Networks

Built for modern network deployments, it offers robust Wi-Fi testing with a spectrum analyzer covering 2.4, 5 and 6 GHz. With Internet QoE validation, it empowers technicians to diagnose, optimize and maintain high-speed Wi-Fi networks, making it essential for both residential and enterprise environments.

Platform Highlights

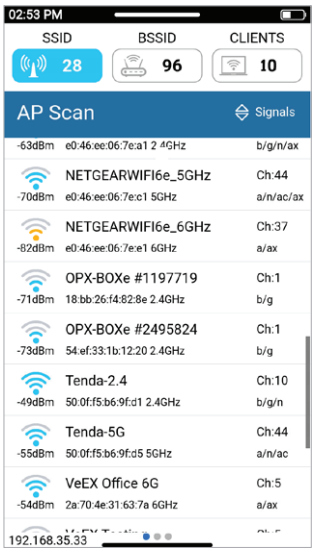
- Optimized for field technicians installing, verifying, troubleshooting, and maintaining high-speed Wi-Fi networks
- Robust and ergonomic handheld design for field environments
- Large and bright high-resolution color display for easy viewing
- Fast boot-up time
- Intuitive graphical user interface (GUI)
- Easy to use and responsive capacitive touchscreen with gesture support
- Large internal data storage for test results
- Built-in Wi-Fi connectivity
- Built-in Near Field Communication (NFC) transceiver, compatible with NoApp® cloud service, for immediate test result transfer and sharing
- Cloud-based NoApp service (included) allows for data transfer via mobile phone or tablet. Secured and always up to date. No installation or updates required.
- Generate and save test results in HTML file format and export to PDF
- Built-in web access server for remote control access
- USB-C PD interface for charging, memory sticks and LAN adapters
- Rechargeable Li-Ion battery includes a low voltage alarm and an auto-off function, providing one full day of typical operation and testing

Key Features

- Comprehensive and easy-to-use: Provides reliable installation procedures, full performance testing and end-user experience validation under traffic load
- Internet Speed Testing: Support Ookla® Speedtest® and iPerf for robust internet performance validation
- Built-in 1000BASE-T Port: Enables 1G speed testing, network performance validation, and PoE (Power over Ethernet) detection
- Advanced Wi-Fi Testing: Supports Wi-Fi (802.11a/b/g/n/ac/ax) across 2.4, 5, and 6 GHz bands, including scan, coverage verification, and speed tests
- Discovers networks and displays Access Points, Clients, and Channels in table or graphical format
- Identifies SSID, BSSID, channels, security, data rates, signal/noise levels, associated clients and more
- Coverage issues through signal and noise level tracking
- Analyzes channel usage by utilization and number of APs
- Detects both associated and non-associated Wi-Fi clients
- Optional Spectrum Analyzer: Identifies Wi-Fi and non-Wi-Fi interference sources for 2.4, 5, and 6 GHz bands
- Customizable Test Profiles: Allows for tailored profiles to match various services and test points
- Multi-User Support: Accommodates multiple user profiles for shared test set use

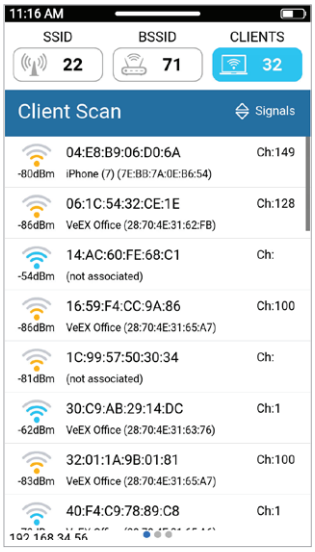
Discover Your Network

Wi-Fi Channel Scan



The WX90 scans Wi-Fi networks for 802.11 a/b/g/n/ac/ax access points (APs) and Clients, presenting results in both table and graphical formats. Scan details include comprehensive AP capabilities such as SSID, BSSID, channels, security settings, supported data rates, signal strength, noise levels, SNR, co-channel and adjacent channels AP, BSS load, and associated clients. Warning indicators alert technicians of AP configuration issues and any measurements exceeding user-defined thresholds. The table view allows filtering by any field for efficient troubleshooting, while the graphical view provides a clear visualization of co-channel and adjacent channel interferers.

Clients Discovery

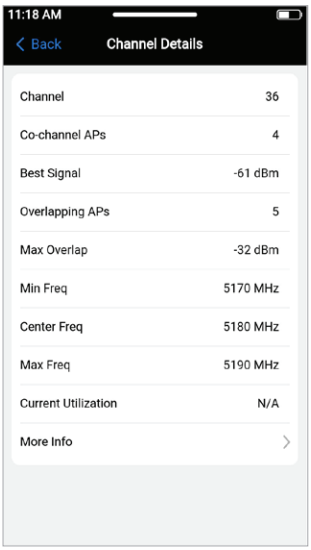


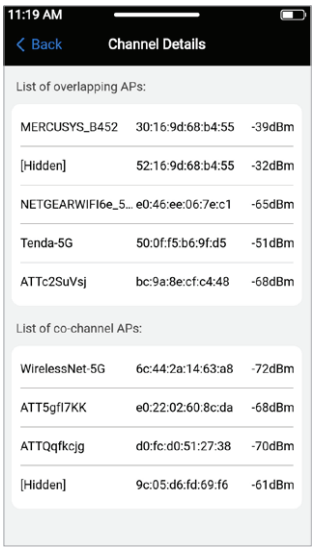
The WX90 Client scan monitors all Wi-Fi channels to detect associated clients and non-associated clients. Network administrators can validate device authorization by reviewing MAC addresses and manufacturer details while also tracking client activity on the network.

Channel Utilization Discovery

Wi-Fi operates as a shared medium, where all devices on the same channel compete for air time. When AP is located on a channel with active co-channel or adjacent channel APs, performance can degrade due to competition for available air time. The WX90's Channel scan function provides a clear view of channel utilization in table format, enabling quick identification of heavily utilized channels.

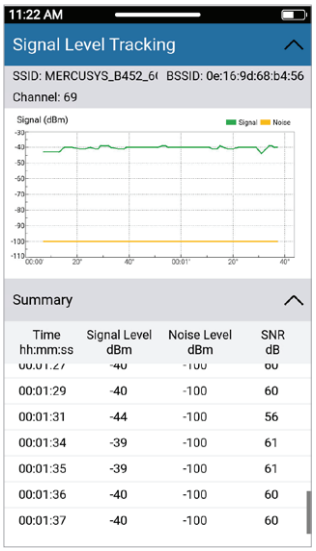
Detailed channel measurements can be sorted by fields such as utilization percentage, number of APs, co-channel AP count, and strongest signal strength. This information is essential for technicians to determine if performance issues are linked to high channel utilization and decide if reconfiguring the AP to a less congested channel is necessary.





Survey Your Network

Signal Level Tracking



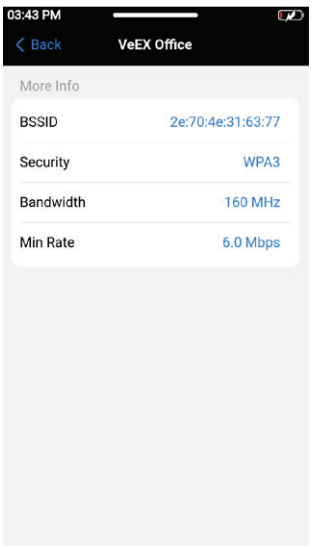
Surveying the facility to ensure proper Wi-Fi coverage is a critical step in any installation. The WX90's Level tracking feature simplifies this process by providing Signal and Noise level measurements in both graphical and table formats.

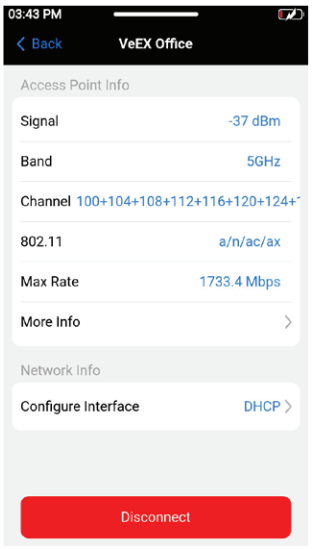
With user configurable thresholds, technicians can easily identify areas where signal or noise levels fall below acceptable standards, ensuring the site is fully prepared. Additionally, pre-configured and customizable location labels allow for precise location tagging, creating a comprehensive record of the facility walkthrough.

Connectivity Testing

To ensure that network connectivity is available, the WX90 emulates a client and connects to an AP using customer credentials. It supports a wide range of security protocols, including WEP, WPA, WPA2, and WPA3, and Splash page/Captive portal logins.

The intuitive interface allows technicians to review association and authentication statuses while providing detailed network parameter information, such as assigned IP address, Gateway, DHCP server and DNS server details. Built-in troubleshooting tools like Ping and Traceroute further verify internet connectivity, enabling quick to the internet.

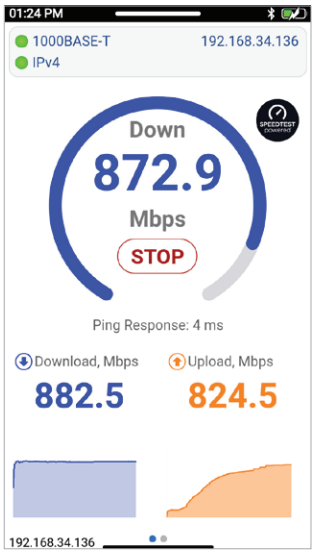




Internet Access QoE Validation

Ookla® Speedtest®

This Internet speed test evaluates the TCP protocol performance of the access network by testing against Ookla's Speedtest® servers. Stresses the link and service up to the test interface's maximum line rate, providing key performance indicators (KPI) such as connection time to the server, data transfer time, and line rate throughput rates, all reported during the test.

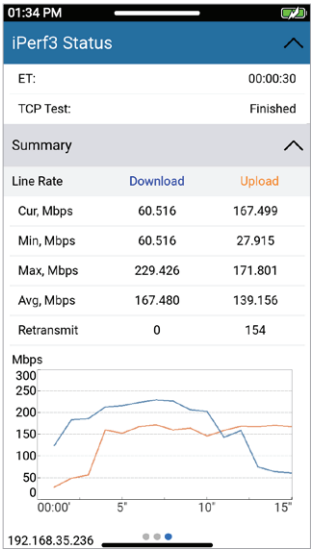


In Speedtest Powered® mode, the test follows Ookla's methodology and tests to the Speedtest® Server Network. In this mode, it scans nearby servers in the local market and tests against the server with the fastest response.

- Full line rate
- Connection time to server
- Total data transfer time
- Requires Ookla® Netgauge server

iPerf TCP/UDP Throughput Test

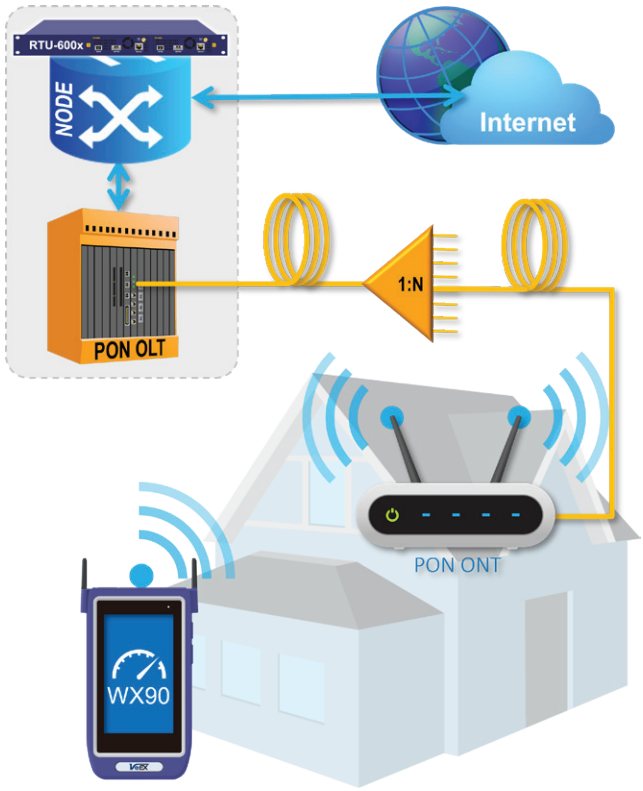
The iPerf is a network performance test used to measure the maximum available bandwidth between two devices over a network. It can test both TCP (Transmission Control Protocol) and UDP (User Datagram Protocol) connections offering insights into network speed, stability, and flag potential issues.



The TCP test focuses on measuring the maximum achievable bandwidth while ensuring reliable data transmission, providing metrics such as bandwidth and retransmissions.

On the other hand, the UDP test measures bandwidth without error correction, making it suitable for real-time applications like video streaming. It provides metrics including bandwidth, packet loss, and jitter.

- TCP/UDP Throughput
- Stateful TCP/UDP Test at line rate
- Client and server modes
- Compatible with iPerf client/server
- Measurements: TCP/UDP Throughput rate (current, minimum, maximum, average), retransmissions for TCP, as well as packet loss and jitter for UDP



Troubleshoot Your Network

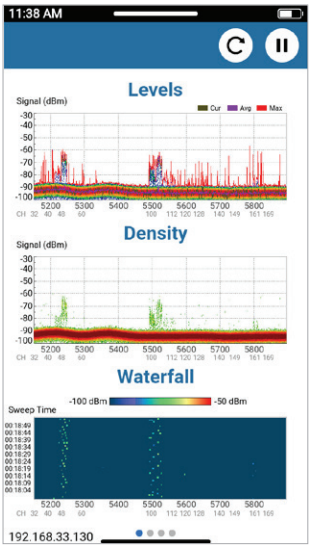
The 2.4, 5, and 6 GHz RF bands are open for unlicensed use and are shared by numerous devices, making Wi-Fi frequencies highly susceptible to interference. While the 6 GHz band offers additional spectrum and less congestion, the 2.4 GHz band remains the most crowded, heavily utilized by not only Wi-Fi but also devices such as cordless phones, Bluetooth, Zigbee, baby monitors, wireless audio systems, and security devices. These devices contribute to non-Wi-Fi interference by emitting signals in various patterns, such as narrowband signals from devices like Zigbee, frequency-hopping signals from Bluetooth, and continuous spectrum-wide emissions from sources like microwave ovens.

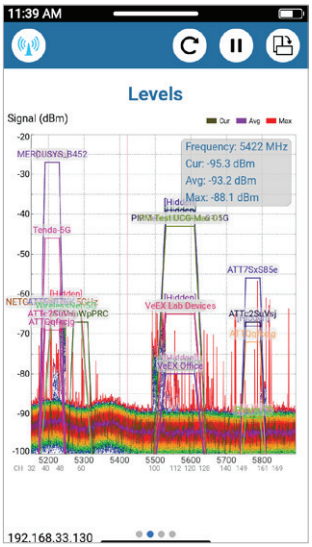
Unlike Wi-Fi devices, these interferers don't follow Wi-Fi protocols. They can interrupt transmissions unexpectedly and persist for an indefinite duration. In response, Wi-Fi systems may automatically reduce their data rate, significantly slowing wireless applications. In severe cases, strong, constant interference can completely halt Wi-Fi communications until the source of interference subsides.

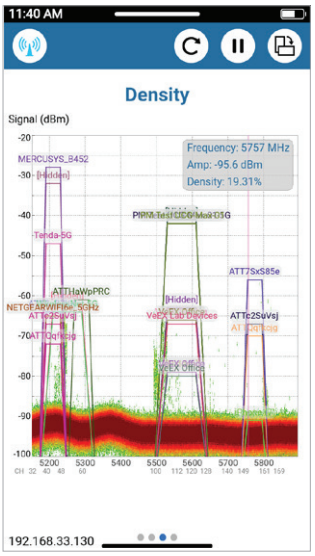
While the 6 GHz band experiences fewer legacy interferers due to its newer adoption, its use is expected to grow as more devices adopt Wi-Fi and Wi-Fi 7 standards. Many intermittent and disruptive Wi-Fi performance issues in all three bands are caused by non-Wi-Fi interference. Traditional Wi-Fi network scanning tools are limited to detecting 802.11 devices and cannot identify these sources.

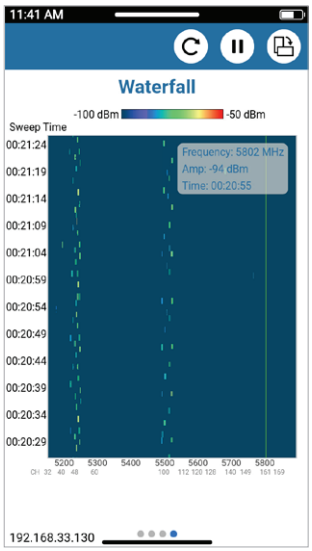
The WX90 Spectrum Analyzer supports all three bands—2.4, 5, and 6 GHz—offering a comprehensive view of RF activity, including both Wi-Fi and non-Wi-Fi interferers. Its Spectrum Analyzer view allows technicians to visualize interference sources overlapping with the AP under test. Additionally, the built-in Wi-Fi interference library helps identify interference signatures by matching them against a list of known sources, including cordless phones, Zigbee, and Bluetooth.

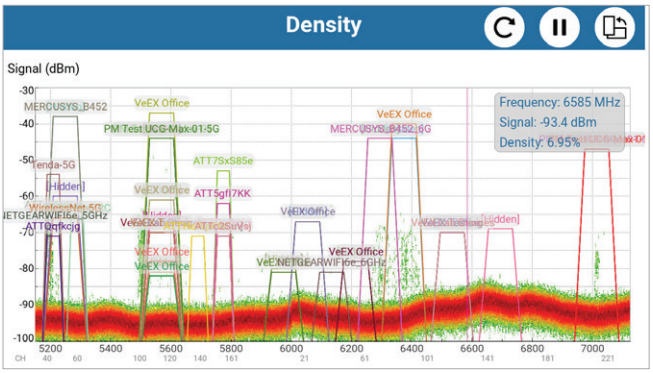
A specialized spectrum analyzer is essential for technicians to pinpoint and address interference effectively, ensuring optimal network performance across the 2.4, 5, and 6 GHz bands.











Specifications

	Wi-Fi Module
Wireless Standards	802.11 a, b, g, n, ac, ax
Wi-Fi Data Rates	802.11a: Up to 54 Mbps 802.11b: Up to 11 Mbps 802.11g: Up to 54 Mbps 802.11n (Wi-Fi 4): Up to 600 Mbps • Modulation: BPSK, QPSK, 16-QAM, 64-QAM • MCS 0~15 802.11ac (Wi-Fi 5): Up to 6.93 Gbps • Modulation: BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM • MCS 0~9 802.11ax (Wi-Fi): Up to 10.53 Gbps • Modulation: BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM, 1024-QAM • MCS HE0~HE11
Operating Frequencies*	ISM: 2.400 GHz to 2.484 GHz UNII: 5.000 GHz to 7.125 GHz
MIMO Channels	2x2:2
Wi-Fi Security Standards	64/128-bit WEP WPA/WPA2/WPA3 802.1x Authentication
Output Power	802.11b (2.4 GHz): 17 dBm 802.11g (5.15–5.25 GHz): 18dBm 802.11n HT20 (5.25–5.35 GHz): 18 dBm 802.11n HT40 (5.47–5.65 GHz): 18 dBm 802.11ac HT80 (5.65–5.725 GHz): 18 dBm 802.11ax HE20 (6–7 GHz): 18 dBm
Receiver Sensitivity	Low Band (LB) • 802.11b: ≤-96.75 dBm @ 1 Mbps, ≤-88.75 dBm @ 11 Mbps • 802.11g: ≤-93.5 dBm @ 6 Mbps, ≤-76.75 dBm @ 54 Mbps • 802.11n HT20: ≤-93.75 dBm @ MCS0, ≤-75.75 dBm @ MCS7 • 802.11n HT40: ≤-92.25 dBm @ MCS0, ≤-72.25 dBm @ MCS7 • 802.11ax HE20: ≤-69.75 dBm @ MCS9, ≤-63.75 dBm @ MCS11 • 802.11ax HE40: ≤-66.75 dBm @ MCS9, ≤-60.75 dBm @ MCS11 High Band (HB) • 802.11a: ≤-95 dBm @ 6 Mbps, ≤-77.75 dBm @ 54 Mbps • 802.11n HT20: ≤-95.25 dBm @ MCS0, ≤-79.25 dBm @ MCS6 • 802.11n HT40: ≤-93.75 dBm @ MCS0, ≤-73.75 dBm @ MCS7 • 802.11ac HT20: ≤-95.25 dBm @ MCS0, ≤-73.75 dBm @ MCS8 • 802.11ac HT40: ≤-93.75 dBm @ MCS0, ≤-69.25 dBm @ MCS9 • 802.11ac HE80: ≤-90.25 dBm @ MCS0, ≤-65.25 dBm @ MCS9 • 802.11ac HE160: ≤-87.25 dBm @ MCS0, ≤-61.75 dBm @ MCS9 • 802.11ax HE20: ≤-71 dBm @ MCS9, ≤-64.75 dBm @ MCS11 • 802.11ax HE40: ≤-68 dBm @ MCS9, ≤-61.75 dBm @ MCS11 • 802.11ax HE80: ≤-89.5 dBm @ MCS0, ≤-58.5 dBm @ MCS11 • 802.11ax HE160: ≤-62 dBm @ MCS9, ≤-55.75 dBm @ MCS11 Ultra-High Band (UHB) • 802.11a: ≤-95 dBm @ 6 Mbps, ≤-77.75 dBm @ 54 Mbps • 802.11n HT20: ≤-95 dBm @ MCS0, ≤-76.75 dBm @ MCS7 • 802.11n HT40: ≤-93.5 dBm @ MCS0, ≤-73.5 dBm @ MCS7 • 802.11ac HT20: ≤-95 dBm @ MCS0, ≤-73.5 dBm @ MCS8 • 802.11ac HT40: ≤-93.5 dBm @ MCS0, ≤-69 dBm @ MCS9 • 802.11ac HE80: ≤-90.25 dBm @ MCS0, ≤-65.25 dBm @ MCS9 • 802.11ac HE160: ≤-87.25 dBm @ MCS0, ≤-61.75 dBm @ MCS9 • 802.11ax HE20: ≤-71 dBm @ MCS9, ≤-64.75 dBm @ MCS11 • 802.11ax HE40: ≤-68 dBm @ MCS9, ≤-61.75 dBm @ MCS11 • 802.11ax HE80: ≤-64.75 dBm @ MCS9, ≤-58.75 dBm @ MCS11 • 802.11ax HE160: ≤-62.25 dBm @ MCS9, ≤-56 dBm @ MCS11

**The tester transmits only on the frequencies allowed in the country where it is operating.*

Platform Features & Options

General Platform Functions

- File Manager
- Multiple user profiles
- Screen lock
- Screen capture
- Calculator

VeSion® R-Server™ Client

VeEX's R-Server enhances and streamlines job workflows to achieve the highest level of quality and repeatability required by telecom service providers, MSOs and their contractors.
The centralized Workflow and Asset Management architecture provides important tools to manage teams of technicians, test equipment, standardized test profiles, test results collection, reporting functions, including jobs/ticketing resulting in a more disciplined and improved test process.

Key Features

- Cloud-based: One system platform
- Seamless integration: Single system for job ticketing and work order management
- Visibility: Comprehensive overview of field test equipment assets and field technician activity
- Tamper-proof: Lock profiles, registration, date/time on tester for a consistent test environment

Web Remote & Web Access

The test set offers multiple ways for remote control and provides remote access to its information from a PC, tablet, or smartphone (e.g. test results, test profiles, screenshots, etc.). The test set can be easily reached via:

- Standard web browser
- VNC® Client app
- EZ Remote™ cloud service
- Connectivity: Wi-Fi 802.11 a/b/g/n/ac/ax (built-in), 10/100/1000BASE-T test port (built-in)

EZ Remote™

The EZ Remote functionality allows users to quickly connect to VeEX test sets all over the world, without the need for VPN, port forwarding or public IP addresses. This VeEX-hosted cloud service takes care of all the complex tasks required and presents users with a simple application.
Connect online anytime, anywhere, with any computer, tablet, or smartphone, using standard web browsers for screen-sharing, remote control, and access to test results. Use it for remote control, collaboration, technical support or training purposes.

- Remote Control - Provides full control of remote test sets (screen mirroring and touch/mouse control)
- Remote Access - Allows users to View, Download, Rename, Delete, Convert to PDF the test results
- No VPN setup required
- Works through firewalls, no ports to open
- Web browser based
- Multi-platform (OS) support
- No software to install
- Service included with test set

NoApp® Test Results Transfer

NoApp uses NFC and QR code technologies to quickly transfer test results from devices to smartphones or tablets for cloud processing, streamlining workflows, and reporting. It's a web-based solution that works on any screen size, requires no app installation or updates, and is always up to date, eliminating the need for constant IT approvals. It's compatible with any modern smartphone or tablet that supports NFC and QR Code reader.

- Geotagging test results
- Generate PDF reports
- Upload results to R-Server
- Compile different test results into a single job report
- Add pictures and files
- Effective job closing, maintenance, and birth certificates
- Share test results via SMS and/or email
- Export to JSON format
- Access quick guides and resources
- Secure
- No registration required

NoApp Using QR Code

NoApp Using NFC

General

Wi-Fi Spectrum Analyzer (Optional)

- Tri-band 2.4, 5, and 6 GHz Spectrum Analyzer
- Amplitude Range: -110 to -6.5 dBm
- Frequency Range: 2400-2484 MHz and 5000 MHz to 7125 MHz
- 2x2:2 Wi-Fi internal antenna

Test Interfaces

- 10/100/1000BASE-T (RJ45) supporting speeds up to 1 Gbit/s
- Wi-Fi 802.11 a/b/g/n/ac/ax support with 2.4, 5, and 6 GHz bands, delivering speeds of up tp 2 Gbit/s and beyond

PoE Detection (Yes/No)

General Specifications

Display (LCD)	5” TFT color screen, 720x1280px Capacitive multi-touch
Data Storage	
Internal Flash	18 GB (built-in)
External	USB-C memory stick (not included)
Remote	Upload via VeSion® R-Server (optional)
Connectivity/Management	
Wi-Fi	Built-in 802.11 a/b/g/n/ac/ax (optional) 2.4, 5, and 6 GHz
Ethernet	USB-C to 100/1000BASE-T adapter (optional)
NFC	Built-in NFC transceiver
USB	USB Type-C
Battery	
Capacity	24 Wh, 3.3 VDC, 7200 mAh
Type	Rechargeable Lithium-Ion
Autonomy	More than one day worth of typical use and testing
AC/DC Adapter[1]	45W, 15 VDC, 3.0A max
AC Input	100-240 VAC 50/60 Hz, 1.3A max
DC Output	15 VDC, USB-C Power Delivery (PD)
Dimensions (W x H x D)	107 x 202 x 44 mm 4.21 x 7.95 x 1.73 inches
Weight	605g/545g (1.33/1.02 lbs.) including battery
Environmental	
Operating Temperature	-5˚C to 50˚C (23˚F to 122˚F)
Storage Temperature	-40˚C to 60˚C (-40˚F to 140˚F)
Humidity	5% to 85%, non-condensing
Compliance	CE, WEEE, ROHS

[1]*Requires smart AC/DC charger and cable with USB-C power delivery (PD) capabilities*

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