DATA SHEET

Ixia IoT—Comprehensive Wi-Fi IoT Device Testing

Deploy mission-critical IoT devices with confidence

Problem: Technology Complexity Results in Inadequate IoT Device Testing

Wi-Fi is everywhere! It's now running mission-critical applications at our homes, offices, hospitals, and many other places. Mission-critical applications require high-performing Wi-Fi Internet of things (IoT) devices to maximize uptime and improve user experience. However, the overall technology complexity combined with the lack of test tools and best practices means companies resort to simple testing and basic quality assurance (QA) practices. Inadequate test strategies leave companies exposed to a lot of risk of mission-critical applications failing in the field.

Solution: Comprehensive IoT Testing, Simplified

To meet user expectations for anywhere, anytime access to mission-critical applications, Wi-Fi IoT device vendors need a well-defined test strategy. A strong foundation for Wi-Fi testing, Ixia IoT enables users to easily validate an IoT device under realistic deployment conditions like interference, roaming, and distance, while also verifying interoperability, stability, and functionality. Whether you are looking for advanced Wi-Fi test capabilities or a simple turnkey application to benchmark and verify interoperability of IoT devices, Ixia IoT is designed to meet your needs.

Highlights

- Ensure robust, high-performance IoT devices using fully configurable simulators and an exhaustive built-in test library
- Simplify testing with an integrated product that drastically cuts costs and time to set-up and maintain test beds
- Build better ecosystem IoT devices by testing at network scale with built-in AP and IoT device simulation
- Reduce debugging cycles with real-time Layers 1-7 statistics and key performance indicators (KPIs)
- Speed and improve release cycles with an automated test-bed

Ixia IoT - Wi-Fi IoT Testing

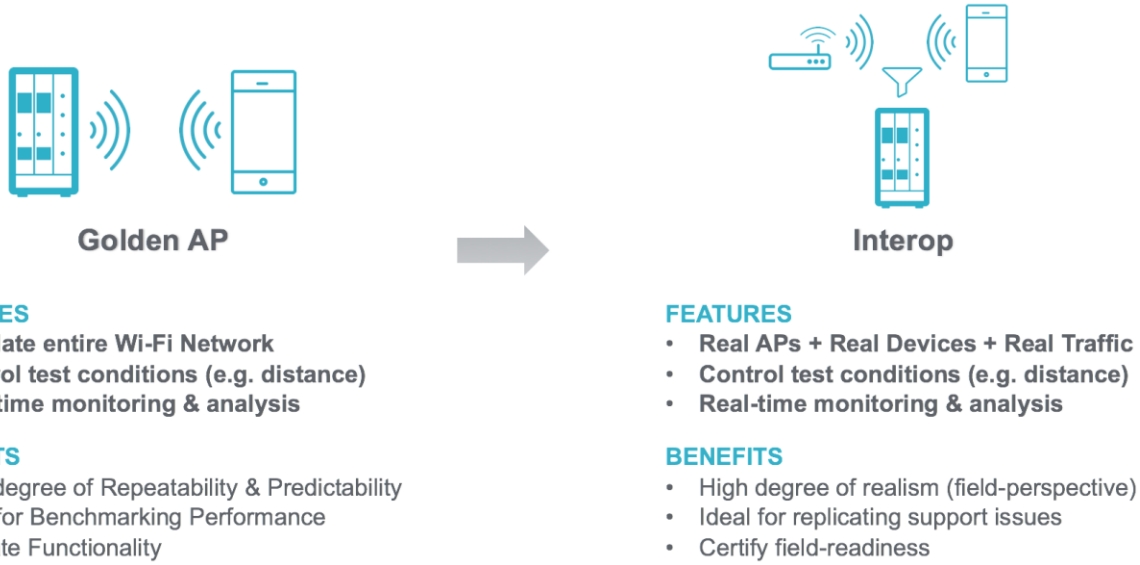
KEYSIGHT TECHNOLOGIES

Key features

- Fully configurable “Reference AP” with support for 4x4 MIMO and full line-rate throughput
- Turnkey OneTest application to fully benchmark IoT devices with minimal user intervention
- Interoperability validation with real access points (APs), applications, and traffic
- Built-in tests to characterize performance over distance, roam, ecosystem, and interference
- Real-time L1-7 statistics and KPIs to evaluate performance

Product Capabilities

Ixia IoT introduces a staged test approach for comprehensively characterizing IoT device performance before release.



Ixia IoT—Staged Test Approach

Golden AP test—first stage

For Design and Development Teams, this stage uses Golden APs that simulate the entire network (the APs and the distribution network) and test conditions. Ixia’s custom-designed hardware drives much of this simulation, making it a highly reliable, scalable, and precise test-bed. This approach gives a high degree of repeatability and predictability to the tester and it’s ideal for baselining and benchmarking performance of IoT devices under various conditions.

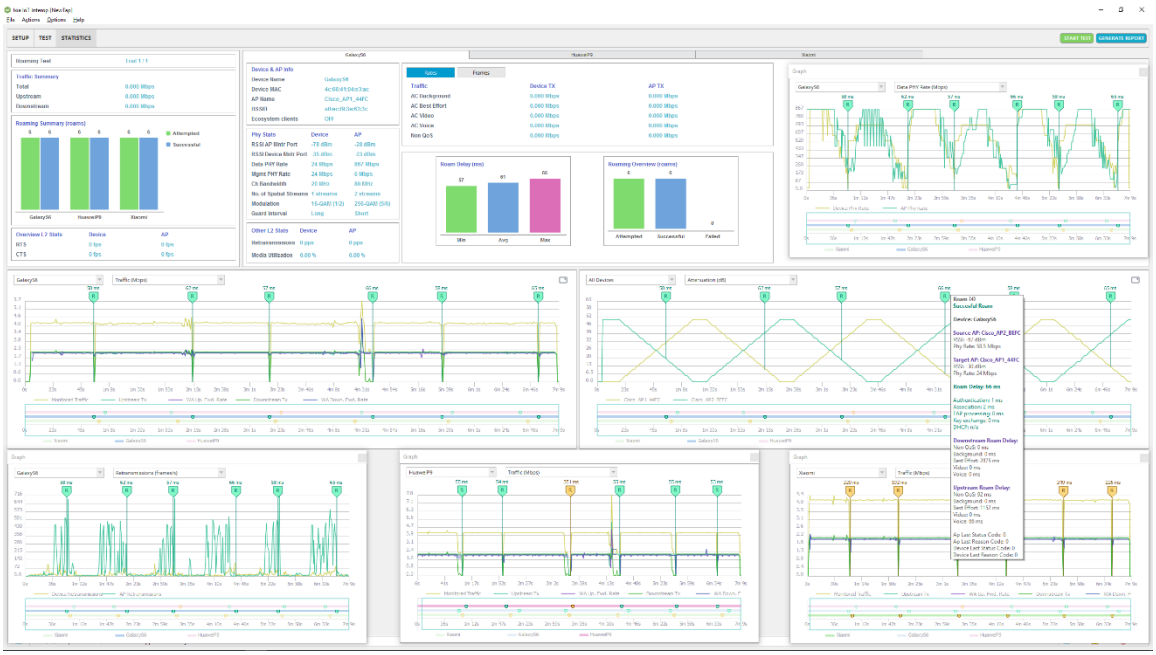
Interop test—second stage

For Pre-Deployment/Integration/Support Teams, this stage focuses on validating interoperability performance. Real APs from deployment, applications, and traffic are used to give an end-to-end perspective while validating interoperability performance of IoT devices and APs. Although this type of

testing, which includes real APs and IoT devices, is the most common form of testing done today, Ixia IoT's value proposition is in:

- Simplifying the test experience with integrated product and easy-to-use user interface (UI)
- Providing real-time statistics for KPIs and analysis, derived by monitoring the link without dropping any frames

Interoperability testing is equally important for both Wi-Fi IoT devices and APs.



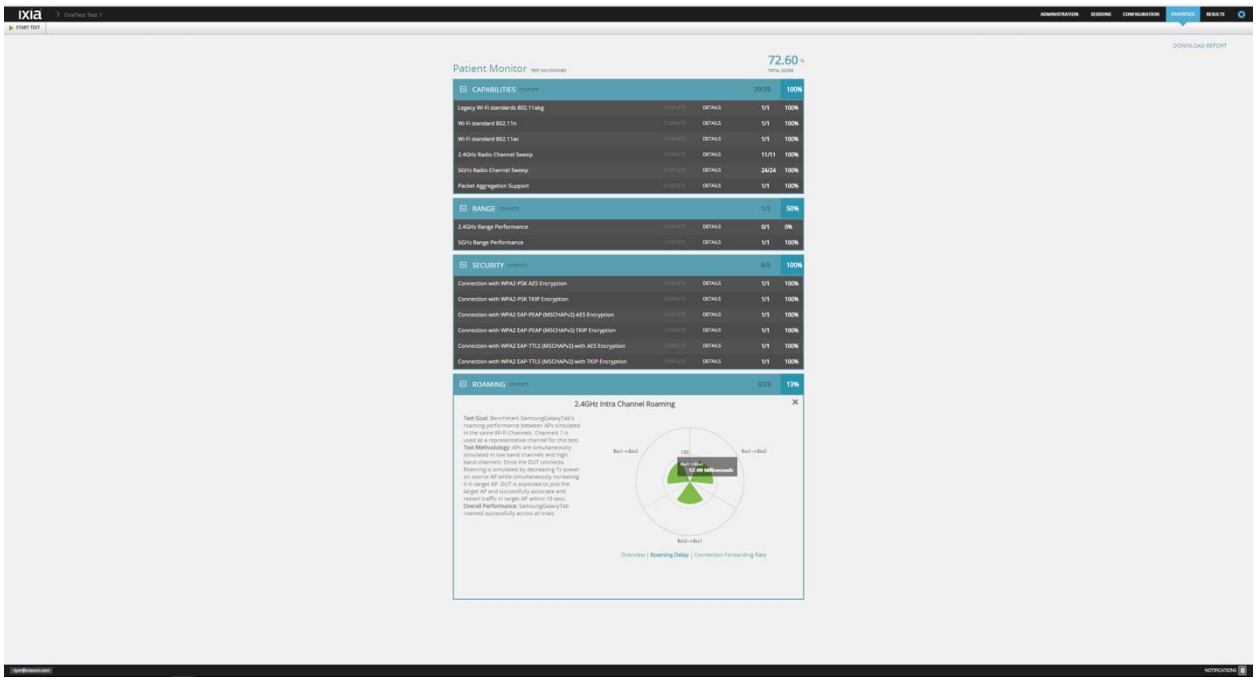
Ixia IoT dashboard view with realtime statistics

OneTest—A turnkey application to benchmark IoT devices

For Teams Getting Started with Wi-Fi Testing, the complexity involved with Wi-Fi technology and test methodologies can be a significant barrier. OneTest is designed to address this challenge by simplifying IoT device testing.

With pre-canned tests and custom deployment profiles, test planning and configuration is quick and seamless. And with built-in automated and proactive analysis, test evaluation also also simplified. With the click of a button, users get a detailed report that spotlights a device's Wi-Fi performance issues. Key highlights of OneTest include:

- Custom test profiles, based on IoT device under test simplifies test planning
- Automated test execution simplifies operation
- Proactive anlaysis with recommendations simplifies interpretation and engagement with module vendors



OneTest Execution View

Specifications

	OneTest	Golden AP Test	Interop Test
Configuration	802.11a/b/g/n/ac	Fully configurable 802.11a/b/g/n/ac AP with hundreds of AP settings	802.11a/b/g/n/ac
Throughput	Customized for each test mode	802.11a/b/g/n/ac up to 4x4 MIMO	
APs	Up to 2 APs, depending on test configuration	Up to 64 APs per port	Up to 12 real APs per SW instance
IoT Devices	1 IoT DUT	1 - 4 IoT DUTs, depending on test	
Security	• WPA-PSK (AES/TKIP) • WPA2-PSK (AES/TKIP) • WPA2 EAP-PEAP MSCHAPv2 (AES/TKIP) • WPA2 EAP-TTLS MSCHAPv2 (AES/TKIP)		
Built-In Tests	Customized for each IoT device under test	• Simple • Rate vs. Range • Roaming • Traffic Mix • General Data Plane	

	OneTest	Golden AP Test	Interop Test
Traffic Type	Ixia simulated; TCP/UDP/ICMP with different packet sizes	Ixia simulated; TCP/UDP/ICMP with different packet sizes	Real and Ixia-simulated
Interference Generation	Wi-Fi, Bluetooth	Wi-Fi, Bluetooth, Microwave, Gaussian White Noise	
Statistics	Custom KPIs for each test • Connection time • Roam delay • Throughput	Hundreds of L1-7 statistics measured in real-time; available per Traffic Flow, Client (IoT device), and Port	
Real-Time Sniffer/ Capture	1GB	256MB capture buffer (3/4-series WaveBlades) 1GB capture buffer (5-series WaveBlades)	
Analysis	Automated analysis; Wireshark captures included.	Advanced protocol analysis with Wireshark; Ixia customized extensions	
Automation	NA	Python API - IxV	

Platform Options

Visit ixiacom.com for more information on Ixia IoT platform options	
Chassis	• WT93 – 9 Slot Chassis (980-1006) • WT22 – 2 Slot Chassis (980-1005)
Load Modules (Note: RF Modules are required for Layer 1 analysis)	• RFX5: 4-port modular card (AP/Client/Interference) with RF analysis option (980-2071) • WBX5/WBL5: 4-port modular card (AP/Client/Interference) (980-2070/2072) • WBI5: 4-port IoT only modular card (AP/Client/Interference) (980-2073) • WBW1604N: WLAN Interference Simulation (980-2010)

Ordering Information

980-3080

Ixia IoT Software Bundle;

Ixia IoT Software Bundle. License applies can be used in both Golden AP and Interop test models. Counted license, licensed per test use. Includes a Simple Test, Rate vs Range Test, General Data Plane Test, Roaming Test, Traffic Mix Test and Automation (API) license. Requires: 5-series WaveBlades for both Golden AP and Interop applications, or 3 / 4-series WBA or RFA cards for Golden AP, and 4-series WBW/RF cards for Interop.

980-3084

Ixia IoT WBI5 2-Port Upgrade;

Ixia IoT WBI5 2-port upgrade, allows WBI5 WaveBlade (980-2073) to operate in full port capacity (1-port 4x4 MIMO, 2-port 2x2 MIMO or 4-port SISO). License applicable for all Ixia IoT applications. Counted & Floating license model, license applied to a WaveBlade during test runtime.
Requires: WBI5 WaveBlade (980-2073)

980-3085

Ixia IoT WBI5 160MHz Upgrade;

Ixia IoT WBI5 160MHz upgrade, enables 160MHz and 80+80MHz capability to one instance of an Ixia IoT application using a WBI5 WaveBlade (980-2073). The WBI5 Port can be configured as (4x4MIMO, 2x2 MIMO or SISO), regardless, the license will apply to all reserved ports of the WBI5 WaveBlade. License applicable for all Ixia IoT applications. Counted & Floating license model, license applied per port during test runtime.
Requires: WBI5 WaveBlade (980-2073)

Learn more at: www.keysight.com

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