

IQxel-M8™ Multi-DUT Connectivity Test System





IQxel-M8 — A Breakthrough Innovation for Wireless Testing

The new LitePoint® IQxel-M8™ test system is a major advancement in the speed and efficiency for performing parallel tests on up to eight wireless devices. It is the ideal solution for high-volume production environments enabling testing of numerous connectivity standards including 802.11, Bluetooth®, ZigBee® and DECT, while delivering with superior reliability and test speed.

IQxel-M8 is future-proof for advanced wireless technologies that may get deployed in the near future. It supports 2x2 true MIMO testing in a single tester through its dual VSA/VSG design and is also scalable to support up to 8x8 true MIMO testing by stacking up multiple testers. Through a simple upgrade, IQxel-M8 can be upgraded to also support 802.11ac features such as 80 + 80 MHz as well as beamforming testing.

The manufacturing-optimized IQxel-M8 calibrates and verifies the performance of wireless devices with over 400% increase in throughput relative to single-device test systems. With its rugged and compact design, the 2U-high chassis fits in a standard 19" rack, minimizing the factory deployment footprint. LitePoint's patented Packet Engine™ technology enables test methodologies that are fine-tuned per wireless standards to enable maximum test throughput. The IQxel-M8 utilizes non-signaling physical layer test methods to significantly increase test throughput as compared with signaling-based methodologies typical of R&D and conformance test systems.

The IQxel-M8 was designed to address the worldwide demand for smart devices—over two billion mobile devices are produced each year and that rate is growing at over 20% per year. Adding to the challenge of addressing this explosion in volume comes new, more complex, connectivity standards, and expanding operating bands (both below 1 GHz and above 5 GHz). The complexity of smart devices is at an all-time high.

With the 3G and 4G networks becoming increasingly overloaded due to the growing demand for video content (representing over 50% of mobile data usage), carriers are relying more and more on Wi-Fi networks to handle the burden. To ensure the ability to move smart devices from 3G/4G network service to public and private Wi-Fi network use, carriers have made Wi-Fi production test mandatory. The IQxel-M8 is the production solution that can keep up with these testing challenges today and into the future.

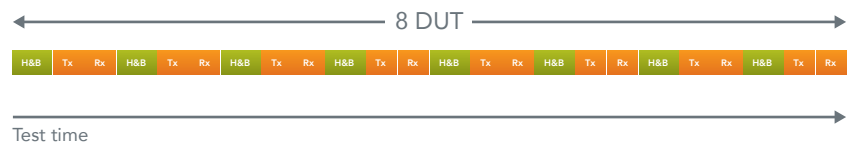
Flexible Parallel Tests on Multiple Devices

A key feature of the IQxel-M8 is its ability to perform parallel tests on up to eight SISO devices or four true MIMO devices simultaneously. The IQxel-M8 has the ability to utilize both asynchronous and synchronous parallel testing methods. Asynchronous mode enables device testing that can start and stop independently of other devices in the same test station. The IQxel-M8 with its embedded intelligent scheduling capability leads to throughput increases over 400% relative to single-device systems. Synchronous testing best utilizes the unique architectural design of the IQxel-M8 by coordinating receive and transmit tests across multiple devices, providing throughput increases in the range of 500% to 600%. Adding other LitePoint innovations to this solution, including Sequence-Based Test (SBT) drives throughput even higher.

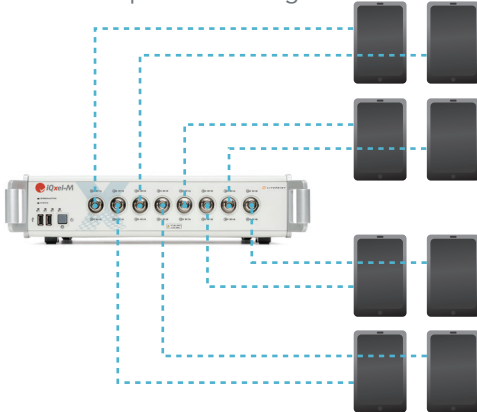
Traditional approaches test DUT serially ("one at a time")



Serially testing requires long test times



IQxel-M supports up to 8-UP multiple DUT testing



Multi-DUT testing significantly reduces test time

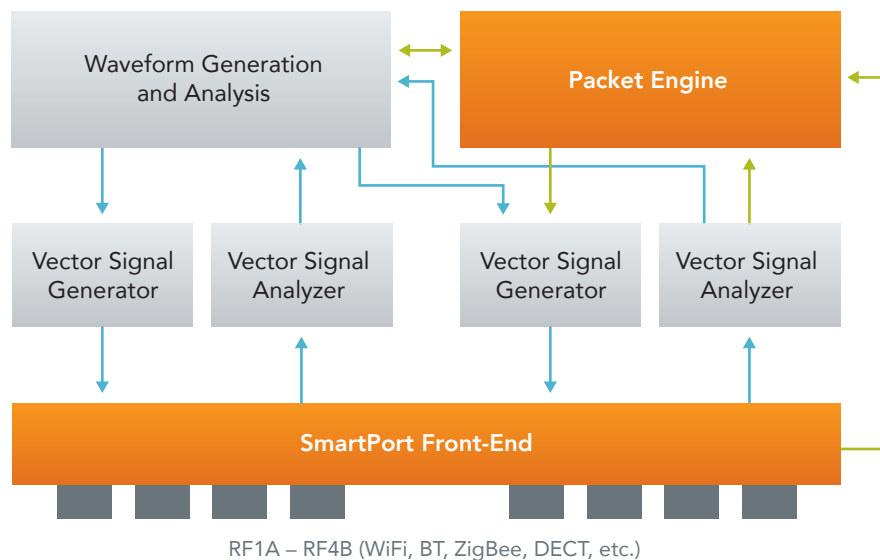


While synchronous parallel test provides the greatest throughput advantage, configuring a factory for such a deployment has implications on initial capital expenditure, production-line setup, and even employee training. Utilizing asynchronous parallel tests with the IQxel-M8 allows for re-use of existing capital equipment such as single-device shielded boxes, preserves the general factory setup and operator experience, while allowing the consolidation of multiple test stations into one. This frees up precious factory floor space and reduces operational expenditure including labor, power consumption, and general overhead. When further capacity expansions are needed, the IQxel-M8 can be re-deployed in a synchronous parallel test configuration for even greater throughput increases and operational savings.

Packet Engine Technology: The Central Nervous System

Now in its fifth generation, LitePoint's Packet Engine is the central nervous system of the IQxel-M8. Delivering best-in-class test speeds by implementing device verification designed for the technology being tested, the Packet Engine enables signal analysis that is fully aligned with the device under test, rather than relying on time-based assumptions. As a result, your testing will be completed in the shortest period of time possible, with measurements being consistent and repeatable from device to device.

The Packet Engine in the IQxel-M8 is fully programmable, allowing LitePoint to add new wireless standards and test methods to the system, making it a future-proof solution for your test needs. To drive test efficiency to the next level, LitePoint has coupled the Packet Engine with our new SmartPort™ technology allowing each RF port on the IQxel-M8 to be independently controlled while simultaneously providing input to the Packet Engine. This enables testing on up to four devices in parallel and dramatically increases device throughput.



Future-Proof Test System

The IQxel-M8 provides comprehensive test coverage of the physical layer for the most popular wireless connectivity standards, including both legacy and new standards. With the capability to update the system's generation and analysis software, the IQxel-M8 is ready for the future. The IQxel-M8 covers test requirements of all common connectivity technologies in wireless devices including 802.11a/b/g/n/p/ac/ah/j, Bluetooth, DECT, and ZigBee. With convenient software licensing options available, customers can expand the tester capabilities as new test standards evolve, therefore preserving your capital investment. IQxel-M8 can also be easily upgraded to support advanced 802.11ac options including 80 + 80 MHz, MIMO and beamforming testing.

Ready-to-Go Solutions for All Major Chipsets

Tying together the innovations inside the IQxel-M8 with the wireless device to be tested is LitePoint's IQfact+™ software. Backed by a library of literally hundreds of chipset solutions that LitePoint has created by working closely with the leading chipset suppliers, IQfact+ utilizes the power of the IQxel-M8's Packet Engine and SmartPort technology to deliver a total solution that accelerates time-to-market while minimizing the total cost of test of advanced wireless devices.

IQfact+ solutions are fully tested with each new chipset and verified with key semiconductor suppliers, saving you weeks or even months of development effort and correlation work. With LitePoint, you can focus on driving innovation for your customers, not spending your time programming and setting up complicated test systems. With well over 300 solutions available, covering the latest innovations in 802.11ac (including MIMO and beamforming) Bluetooth Low Energy, etc., IQfact+ can cover all of your chipset support needs and across virtually all LitePoint test platforms. More than a decade of close cooperation with major wireless chipset vendors ensures the most efficient testing possible and allows for unique, optimized calibration routines to reduce test time. You get a solution that simply works. Fast.

System Capabilities and Features

Rugged and compact design

- 2U-high chassis fits in standard 19" rack

Quickest and easiest factory test capabilities

- Integrates easily into automated test solutions and high-volume device-manufacturing applications because of its simple and robust architecture
- Standard gigabit Ethernet communication and SCPI-compliant control commands with no external PC required for signal processing

Supports full range of WLAN, Bluetooth, ZigBee and DECT device testing

- Ability to fully test enhanced capabilities of IEEE 802.11ac specification that demands increased bandwidth, higher modulation order, and more stringent EVM requirements than legacy Wi-Fi standards
- Ability to test nearly all IEEE 802.11 specifications, including 802.11 a/b/g/n/p/ac/ah/j
- Fully backward compatible with existing LitePoint WLAN test systems
- Ability to test all Bluetooth device standards (1.x, 2.x, 3.0, 4.x, 5)
- Ability to test 802.15.4-based standards including ZigBee
- Ability to test DECT standards (ETSI EN 300 176-1)

High test throughput for manufacturing

- 5th generation of Packet Engine provides industry-leading test speed Built-in 8-device parallel test capability for high test system efficiency
- Concurrent test capability for bidirectional and unidirectional communications through dedicated hardware

Scalable MIMO support

- Expandable architecture to support up to 8x8 true MIMO
- Supports testing of all key IEEE 802.11ac MIMO specification enhancements, including MU-MIMO
- Supports calibration of beamforming

Built-in Waveform Generation

- Ability to generate custom waveforms for different technologies

Flexible Programming Interface

- Ability to leverage API test routines within existing LitePoint systems and program using LitePoint IQmeasure
- Ability to program over Ethernet using text-based SCPI programming
- Fully backward compatible with existing LitePoint connectivity test systems

Available Turnkey Test Software Solutions

- Availability of LitePoint IQfact+ software solutions for customized testing of leading WLAN / Bluetooth chipsets
- Ability to calibrate and verify hundreds of legacy and new chipsets

Supported Wireless Standards

- 802.11a/b/g/n/p/j
- 802.11ac (optional)
- 802.11ah (optional)
- Bluetooth 1.x, 2.x, 3.0, 4.x, 5 (optional)
- DECT (optional)
- ZigBee/IEEE 802.15.4 (optional)
- TD-LTE (optional)
- More standards capabilities being added...

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