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IQxel-MX™ High Performance Wi-Fi 7 Test System

The fastest Wi-Fi generation requires the best performing test solution and LitePoint has developed the IQxel-MX test platform with industry-leading performance.

Wi-Fi 7 will be the fastest Wi-Fi generation, with throughput higher than 30 Gbps and very low latency. The use cases that are being targeted for the next generation Wi-Fi devices are the most demanding applications for Augmented Reality (AR), full immersion Virtual Reality (VR), gaming and cloud computing.

With these challenging applications in mind, many new features are being introduced in the IEEE 802.11be standard that will make this "Extremely High Throughput" (EHT) generation of devices a reality. Tri-band operation in the 2.4 GHz, 5 GHz and 6 GHz frequency bands, extra-wide 320 MHz channels, 4096 QAM modulation, up to 16x16 MIMO and multi-link operation (MLO) are pushing the limits of Wi-Fi device's RF performance and are ushering in a new era in connectivity. LitePoint has developed the IQxel-MX test platform with industry-leading performance to ensure that each and every wireless device tested meets or exceeds the stringent 802.11be requirements.

	802.11ac Wi-Fi 5	802.11ax Wi-Fi 6/6E	802.11be Wi-Fi 7
Operating Bands	5 GHz	2.4 GHz, 5 GHz & 6 GHz	
Technology	OFDM	Uplink/Downlink OFDMA	
MU-MIMO	Downlink MU-MIMO	Uplink/Downlink MU-MIMO	
Modulation	256 QAM	1024 QAM	4096 QAM
Spatial Streams	Up to 8 spatial streams		Up to 16 spatial streams
Bandwidth	20, 40, 80, 80+80 & 160 MHz		20, 40, 80, 80+80, 160 & 320 MHz
Multi-Link Operation (MLO)			Yes
Enhanced OFDMA			Preamble puncturing, Multi-RU

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IQxel-MX Key Benefits

Performance

- Industry-leading EVM ensures highest modulation accuracy
- Superior power accuracy ensures device calibration precision
- Scalable MIMO architecture for up to 16x16 true MIMO testing
- Comprehensive support for legacy Wi-Fi and a wide range of connectivity technologies

Simplicity

- Fully-integrated signal generation, signal analysis, and RF front-end enable simple Wi-Fi 6E and Wi-Fi 7 testing in the 2.4, 5 and 6 GHz bands
- Architecture support for multi-link/multi-channel (MLO) and coexistence testing eliminates the need for external components, greatly simplifying test setup
- Flexible and intuitive Graphical User Interface (GUI) enables both on-site and remote development

Economics

- Turnkey test software solutions with IQfact+ enable fast time to market and a seamless transition from product development to manufacturing
- Multi-DUT software architecture reduces manufacturing cost by providing optimized test throughput
- IQxel family software compatibility enables rapid test program migration, reducing development cost

For R&D characterization or high-volume production, the IQxel-MX family is available in three configurations:

- 2 ports (2 VSA/VSG)
- 8 ports (2 VSA/VSG)
- 16 ports (4 VSA/VSG)

These support up to 2x2 and 4x4 true MIMO testing (extensible to 16x16) and high efficiency Multi-DUTparallel testing.

IQxel-MX High Performance Test System

IQxel-MX Key Features

Industry-leading RF performance for 802.11be

- Analysis bandwidth of over 320 MHz
- Best-in-class residual Error Vector Magnitude (EVM) floor to ensure the highest measurement accuracy for 4096 QAM
- Architecture support for multi-link/multi-channel (MLO) and coexistence testing with internal combiners

Fully-integrated test system measurements in the 2.4 GHz, 5 GHz and 6 GHz bands

- Frequency coverage from 400 MHz to 7300 MHz
- Addresses the requirements of the IEEE 802.11be (Wi-Fi 7), 802.11ax (Wi-Fi 6, Wi-Fi 6E) and IEEE 802.11 legacy specifications, including 802.11a/b/g/n/p/ac/ah/af/j
- Signal generation covers OFDMA RU and multi-RU (MRU) assignments
- Signal analysis covers all EHT PHY standard measurements for transmitter (spectral mask, flatness, frequency error, constellation error and more) and receiver (sensitivity, ACR and more)

Scalable MIMO support

- True MIMO testing with up to 4x4 testing capability and expandable architecture supports higher order MIMO

Test support for full range of connectivity technologies

- All Bluetooth device standards (1.x, 2.x, 3.0, 4.x, 5.x)
- Connectivity standards DECT (ETSI EN 300 176-1), 802.15.4-based standards including ZigBee, Z-Wave and WiSUN
- LPWAN technologies LoRa and Sigfox

High test throughput for manufacturing

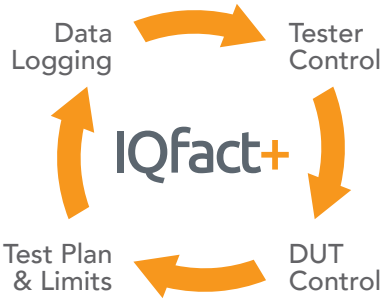
- LitePoint's patented Packet Engine technology provides industry-leading test speed and built-in parallel test capability for high test system efficiency
- Efficient parallel multi-DUT test enhances production capacity

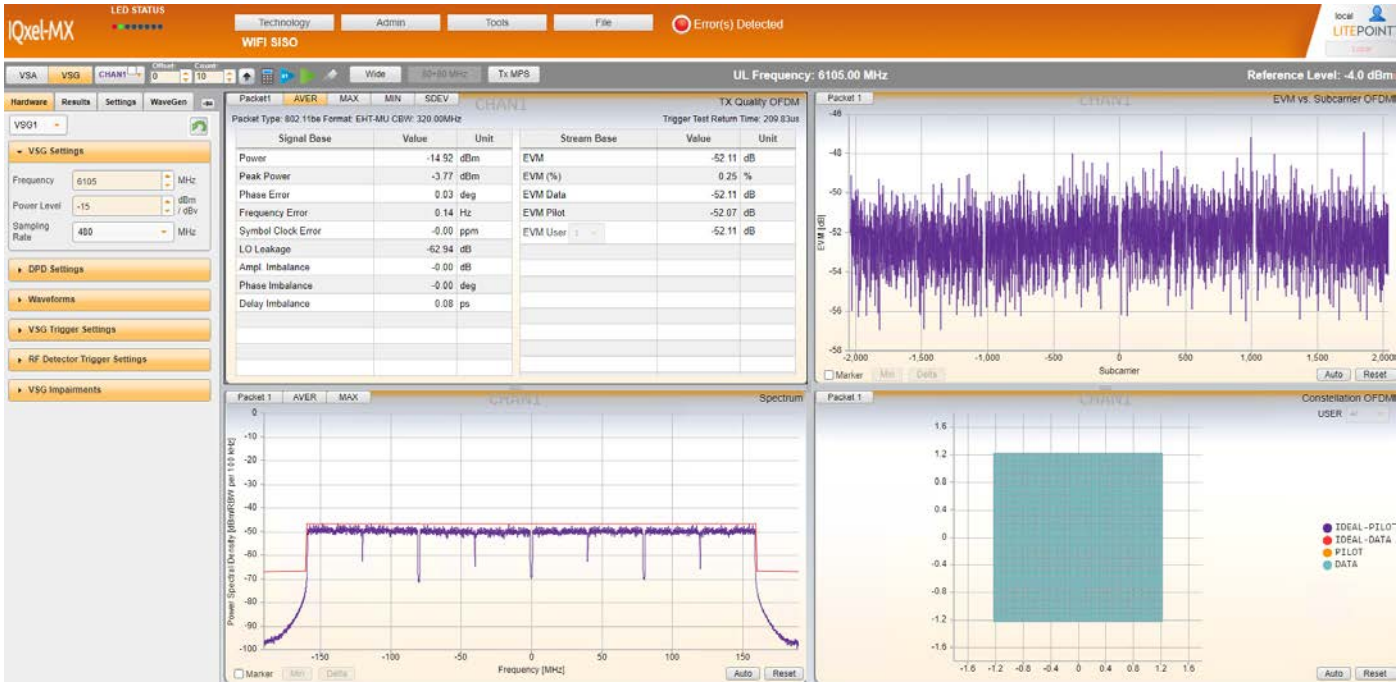
Flexible programming interface

- Flexible and intuitive Graphical User Interface (GUI) enables both on-site and remote development
- The IQxel-MX is backward compatible with existing LitePoint connectivity test systems, making the transition from older generations seamless
- Supports test development using text-based SCPI programming

Turnkey test software solutions

- LitePoint IQfact+ software provides turnkey solutions for customized testing of leading chipsets, enabling thorough design verification and rapid volume manufacturing with minimal engineering effort
- To facilitate accurate test synchronization, IQfact+ controls both the LitePoint tester and the DUTs. In addition, each IQfact+ is tailored to provide the best test efficiency for a specific chipset and designed specifically for the LitePoint tester architecture, resulting in drastically reduced test time and engineering effort
- IQfact+ encompasses a growing library of hundreds of chipset-specific test solutions and supports all key wireless connectivity technologies





Available Technology Options for WLAN, Bluetooth, IoT and LPWAN

- Wi-Fi, 802.11be (Wi-Fi 7)
- Wi-Fi, 802.11ax (Wi-Fi 6, Wi-Fi 6E)
- Wi-Fi, 802.11ac (Wi-Fi 5)
- Wi-Fi, 802.11a/b/g/j/n/p
- Wi-Fi, 802.11af
- Wi-Fi, 802.11ah (HaLow)
- Wi-Fi, 802.11az Next Generation Positioning (NGP)
- Wi-Fi, 802.11ba Wake Up Radio (WUR)
- Bluetooth, Classic/EDR (1-4.x), Low Energy (4.0, 4.1, 4.2) and Bluetooth (5.0, 5.1, 5.2)
- Zigbee, Z-Wave and Wi-SUN
- DECT
- LPWAN: Sigfox, LoRa

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