

IQmax WiMAX and WiFi Test System

Versatile Wireless One-box Test Solution

The LitePoint IQmax™ Test System is a compact, one-box wireless test instrument targeted for manufacturing and Design Verification test (DVT) for WiMAX (802.16d/e) and WiFi (802.11a/b/g/n) products. IQmax is based on an architecture with integrated Vector Signal Analyzer (VSA) and Vector Signal Generator (VSG) allowing a range of physical layer radio parameters to be verified during product development, volume manufacturing, system test and quality assurance (Q/A).

Flexible RF

The IQmax system offers focused frequency coverage to maximize performance of the key communications frequency bands while minimizing costs. Supported frequency ranges are 2.15 to 2.7 GHz, 3.3 to 3.8 GHz and 4.9 to 6.0 GHz. This broad range of coverage supports all international WiMAX, WiFi, and Bluetooth frequency ranges, offering a wide degree of flexibility in test coverage of varying devices.

Complete WiMAX and Multi-Standard Wireless Test Solution

By utilizing wide bandwidth digitizing in a capture-once-measure-all architecture, the IQmax one-box tester is the ideal wireless test solution supporting product requirements for WiMAX and other wireless products.



IQmax SISO/MIMO-Ready Test System



IQmax Multi-Stream MIMO-Ready Test System

Four Different Models To Fit Your Needs

SISO/MIMO-Ready Models:

- IQmax-300 WiMAX and WiFi test system
- IQmax-100 WiMAX and WiFi-ready test system
- IQmax-50 WiMAX-only test system

Multi-Stream MIMO-Ready Model:

- IQmax-750 MIMO-ready WiMAX and WiFi test system with baseband I/O

Application Areas

- Volume Manufacturing Testing
- Product Development
- Design Verification Test
- System Test
- Quality Assurance/Control

Features

- Complete one-box PHY layer test solution for wireless (single standard or combo) devices
- Supported frequency ranges: 2.15 to 2.7 GHz, 3.3 to 3.8 GHz, and 4.9 to 6.0 GHz.
- Integrated VSA and VSG resources for fast test times
- Independent simultaneous receive and transmit measurements
- WiMAX 802.16e-2005 / WirelessMAN-OFDMA and 802.16-2004 / WirelessMAN-OFDM
- Supports WiFi 802.11a/b/g/n, Bluetooth and ZigBee depending on model or option
- Easy to use through IQsignal graphical user interface
- C++ API interface for automated test
- Supports IQfact chipset-specific turnkey automated production test programs





Flexibility in Software for Optimized Solutions

IQmax includes powerful software tools for both analysis and creation of WiMAX, WiFi, and Bluetooth signals. A comprehensive C++ API provides all of this functionality through Ethernet connectivity for automated production line environments. In addition to standard software tools, LitePoint offers turnkey test programs, such as IQfact, for leading WiMAX and WiFi chipset vendors. The result is rapid deployment and ramp into production with a minimum of test program development expertise.

Supported Measurements

RF Signal Analysis

- Captured waveform (power, I&Q) versus time
- Average/peak RF power (full packet, preamble, data)
- Amplitude statistics (CCDF) & crest factor
- Spectrum (PSD) and mask
- Occupied bandwidth, adjacent channel power
- Spectrogram
- And more (software dependent)

Modulation Analysis

- Symbol constellation diagram (single/multiple bursts)
- EVM (carriers: all, data, pilots, unmodulated)
- EVM (versus OFDM subcarriers, versus time/symbol)
- Spectral flatness, delta spectral flatness
- I/Q imbalance (amplitude, phase)
- Carrier leakage
- Phase noise (integrated, versus time)
- Frequency error (average, versus time)
- Symbol timing error
- Reed-Solomon errors (if applicable)
- Packet CRC check
- And more (software dependent)

IQmax System Models

SISO/MIMO-Ready Models:

- IQmax-50: WiMAX-only test system
- IQmax-100: WiFi-ready WiMAX test system with GUI
- IQmax-300: WiMAX/WiFi integrated test system with GUI

Multi-Stream MIMO-Ready Model:

- IQmax-750: MIMO-ready WiMAX/WiFi test system with GUI

IQmax Hardware Specifications

Frequency Bands	2.15 - 2.7 GHz 3.3 - 3.8 GHz 4.9 - 6.0 GHz
Frequency Resolution	250 kHz
RF Output Power	Modulated Signal -95 to 0 dBm CW Signal -95 to +10 dBm
RF Input Range	-70 to +30 dBm
Baseband Bandwidth	60 MHz
Baseband Quantization	14 bit
EVM Accuracy	RF input ≤ -42 dB RF output ≤ -42 dB BB input ≤ -49 dB BB output ≤ -49 dB
Noise Performance	Analysis Noise Floor ≤ -70 dBm Generator SNR ≥ 70 dB

IQmax System Options

WiFi / Bluetooth Test Option for IQmax-100

- Enables WiFi / Bluetooth Test Capabilities
- Includes IQsignal for WiFi GUI software

ZigBee Test Option for IQmax

- Enables ZigBee Test Capabilities
- IQsignal for ZigBee GUI software

Accessories

Software

- IQfact Automated Manufacturing Test Programs
- IQwave Waveform Generation Software
- MATLAB API
- LabVIEW API

Our commitment is to serve our customers' long-term technology and strategic needs.

LitePoint Corporation designs and markets innovative, dedicated test instrument solutions for existing high volume and emerging wireless products markets, such as IEEE 802.11 WLAN, IEEE 802.15.3a (WiMedia™), IEEE 802.16 (WiMAX), and Bluetooth®. LitePoint solutions are designed specifically to simplify and accelerate standards compliance and performance tests.



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