IQxel-M8W Multi-DUT Connectivity Test System Specifications Manual

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Contents

General Technical Specifications

RF Analyzer

Parameter: Ports (A/B): **Value**

Input frequency range: RF1 to RF4: **400 to 6000 MHz**
IF bandwidth: RF1 to RF4: **160 MHz**
Input power range: RF1 to RF4: **+30 dBm peak (+25 dBm average)**
Input power accuracy: RF1 to RF4: ***Specification:*** ± 0.75 dB (+25 to -75 dBm) ***Typical:*** ± 0.50 dB (+25 to -75

dBm)
Input return loss: RF1 to RF4: **>12 dB (400 to 6000 MHz)**
Spurious (signal applied)1: RF1 to RF4: **< -60 dBc (CW, for signal levels greater than -20 dBm)**
Spectral flatness: RF1 to RF4: ***Specification:*** **≤ ± 1 dB (± 80 MHz)** ***Typical:*** **± 0.50 dB (± 80 MHz)**
Inherent spurious floor (no signal): RF1 to RF4: **≤ -80 dBm**
Noise figure: – : ≤ 30 dB at minimum input attenuation
Integrated phase noise: – : ≤ 0.3 degrees (100 Hz to 1 MHz) (400 to 6000 MHz), 0.2 degrees (100 Hz to 1 MHz) typical
Signal to noise ratio: – : ≥ 55 dB 100 kHz RBW
Sampling data rate: – :10, 20, 40, 80, 160, 240 MHz
Waveform capture duration: :
at 10 MHz sampling data rate 9600 ms
at 20 MHz sampling data rate 4800 ms
at 40 MHz sampling data rate 2400 ms
at 80 MHz sampling data rate 1200 ms
at 160 MHz sampling data rate 600 ms
at 240 MHz sampling data rate 400 ms

RF Analyzer – Signal Trigger

Parameter: Range
Absolute minimum value: Wideband: RF -30 dBm, Video: -40 dBm
Absolute maximum value: Limited by the maximum input power
Trigger relative threshold: 30 dB
Level accuracy: < ± 2 dB

Port Isolation

Measurement: Description
Port to Port Isolation:
VSA-to-VSA (through path):
100 dB, <2500 MHz, typical
90 dB, >2500 MHz, typical
VSG-to-VSG (through path):
90 dB, <2500 MHz, typical
80 dB, >2500 MHz, typical
VSG-to-VSA (through and combined path):
100 dB, <2500 MHz, typical
80 dB, >2500 MHz, typical

Timebase

Measurement: Description

Oscillator type: OCXO
Frequency: 10 MHz
Initial accuracy (25°C, after 60 minute warm-up): < ± 0.05 ppm
Maximum aging: < ± 0.1 ppm per year
Temperature stability: < ±0.05 ppm over 0oC to 55°C range, referenced to 25°C
Warm-up time (to within ±0.1 ppm at 25°C): > 30 minutes

Wireless LAN 802.11a/b/g/n/p/j/ah/af, 802.11ac (Wi-Fi 5), 802.11ax1 (Wi-Fi 6) Measurement Specifications

Measurement: Description: **Performance**

EVM2:
EVM averaged over payload based on standard requirements (Typical):
Residual loopback EVM (full packet channel estimation): ≤ -50.5 dB (-2 to -15 dBm)
Residual loopback EVM (preamble only channel estimation): ≤ -47.5 dB (-2 to -15 dBm)
Residual VSA EVM (preamble only channel estimation): ≤ -48 dB (+20 to -15 dBm)
Note:
– Measured at 5755 MHz
– Averaged over 20 packets
– 802.11ax waveform, 80 MHz
Peak power: Peak power over all symbols (dBm): .

RMS power:
All: average power of complete data capture (dBm)
No gap: average power over all symbols after removal of any gap between packets (dBm):
VSA power accuracy: ± 0.75 dB (+20 to -75 dBm).
Max avg power:
Peak value of the amplitude as a moving average over 40 samples (dBm): **VSA power accuracy: ± 0.75 dB (+20 to -75 dBm)**

I/Q amplitude error: I/Q amplitude imbalance (%) and approximate contribution to EVM (dB): .

I/Q phase error:
I/Q phase imbalance (degrees) and approximate contribution to EVM (dB): .

Frequency error: Carrier frequency error (kHz): **VSA measurement error: ≤ ± 0.2 ppm calibrated .**

802.11ax (Wi-Fi 6) Waveform Generation

Feature: Specification

Uplink Single User OFDMA (SU-OFDMA)
Downlink Single User OFDMA (SU-OFDMA)
Uplink Multi User OFDMA (MU-OFDMA)
Downlink Multi User OFDMA (MU-OFDMA)
Multi-User MIMO + MU-OFDMA:
Up to 160 MHz
Configurable Guard Interval.

Trigger Frame Waveform Generation with configurable power levels per RU, and user configurable fields:
Up to 12 dB between users

Waveform Generation with DCM (Dual Carrier Modulation) and LDPC support: .

MIMO System Performance

The additional specifications in the table below apply to the complete IQxel-M8W MIMO system.

Measurement: Range

VSA capture trigger accuracy: ≤ ± 3.5 ns
VSA start trigger accuracy: ≤ ± 3.5 ns

Navigation1

Measurement: Range

Test Capability: Carrier-to-noise ratio
Output frequency range:
GPS: 1575.42 MHz (fixed)
GLONASS: 1598 to 1606 MHz
COMPASS: 1561.098 (+/- 2.046) MHz
Galileo: 1559 to 1593 MHz
Number of simultaneous channels: 1
Output power range2: -60 to -95 dBm
Level accuracy: ± 0.75 dB

Port Descriptions

Front Panel

I/O: Function: **Type**

Power switch: Power on/off: **Pushbutton switch**
RF1A/**RF1B: RF** input/output: **N female**
RF2A/**RF2B RF:** input/output: **N female**
RF3A/**RF3B RF:** input/output: **N female**
RF4A/**RF4B RF:** input/output: **N female**
Power indicator: LED green – powered up, running, LED orange – powered up, standby: **LED indicator**
Session active indicator: LED green – remote session active, LED red – remote session lock: **LED indicator**
Status indicator: LED green – no faults/errors detected, LED orange – Software error detected, LED red – Hardware fault detected: **LED indicator**
RF port 1 A/**B indicator:** Indicates port input/output status: **LED indicator**
RF port 2 A/**B indicator:** Indicates port input/output status: **LED indicator**
RF port 3 A/**B indicator:** Indicates port input/output status: **LED indicator**
RF port 4 A/**B indicator:** Indicates port input/output status: **LED indicator**
USB (2 ports): USB 2.0 compatible connection to external controller: **USB Type A**

Rear Panel

General I/O

I/O: Function: **Type**

10 MHz ref input: 10 MHz reference input the 10 MHz reference input has a 200 ohm impedance and accepts a sine wave ranging in amplitude from 0.3 Vpp to 4 Vpp.: **BNC female**
10 MHz ref output 10 MHz reference output: **BNC female**
Marker out / trigger in 1: TTL compatible: **BNC female**
Marker out / trigger in 2: TTL compatible: **BNC female**
Marker out / trigger in 3: TTL compatible: **BNC female**
Marker out / trigger In 4: TTL compatible: **BNC female**
USB (2 ports): USB 2.0 compatible connection to external controller: **USB Type A**
AC in: AC power input: **100 to 240VAC (automatically switched) 50 to 60 Hz, Includes hard power switch**
DVI port: Display Litepoint monitor: **DVI-D**
VGA port: Display Litepoint monitor: **VGA-15 pin**
Communication I/O LAN: 1000 Base-T LAN: **RJ-45**
GPIO: General purpose input/output: **50-pin connector**

General and Environmental

Dimensions: 14.5” W x 3.2” H x 20.5” D (368 mm x 82 mm x 521 mm)
Weight: 11.4 kg (25.2 pounds)
Power requirements: 100 to 240 VAC, < 300 W, 50 to 60 Hz
Power consumption: <235 W (maximum), <10 W (standby)
Recommended PC: Intel Core i5 2.5 GHz with 4 GB of RAM or better
Recommended browser for optimal performance: Google Chrome R10 Release
Operating temperature: +10°C to +50°C (IEC EN60068-2-1, 2, 14)
Storage temperature: -20°C to +70°C (IEC EN60068-2-1, 2, 14)
Specification validity temperature1: +20°C to +35°C
Operating humidity: 15% to 95% relative humidity, non-condensing (IEC EN60068-2-30)
EMC: EN 61326 Immunity for industrial environment, Class B emissions
Safety: IEC 61010-1, EN61010-1, UL3111-1, CAN/CSA-C22.2 No. 1010.1
Mechanical vibration: IEC 60068, IEC 61010 and MIL-T-28800D, class 5
Mechanical shock: ASTM D3332-99, Method B
Recommended calibration cycle: 12 months
Warranty: 12 months hardware, 12 months software updates

Order Codes

Code: Product

0100-IXMW-001: IQxel-M8W Test System with 8 RF ports active. Includes WLAN measurement suite software for SISO 802.11a/b/g/n/j/p
0100-IXMW-002: IQxel-M8W Test System with 4 RF ports active.Includes WLAN measurement suite software for

SISO 802.11a/b/g/n/j/p
0300-IXMW-001: 802.11ac VHT80 (80MHz signal bandwidth) software license
0300-IXMW-057: 802.11ac VHT160 (80+80MHz and 160MHz signal bandwidth) software license (Requires 802.11ac VHT80 license)
0300-IXMW-069: 802.11ax software license (Requires 802.11ac VHT80 license for 80MHz signal bandwidth or 802.11ac VHT160 license for 160MHz signal bandwidth)
0300-IXMW-061: WLAN MIMO software license. Enables MIMO option for 802.11n, 802.11ac, and 802.11ax (Requires associated 802.11 technology license)
0150-IXMW-003: WLAN MIMO kit. Includes MIMO software license and tester synchronization cables
0300-IXMW-003: Sequence Based Test (SBT) software license, also enables Trigger Based Test (TBT) for 802.11ax
0300-IXMW-089: WiFi Traffic Sniffer software license (Requires 802.11ax license)
0300-IXMW-002: Bluetooth measurement suite software license. Supports Bluetooth 1.0 – 4.x
0300-IXMW-071: Bluetooth 5 measurement suite software license (Requires Bluetooth 1.0 – 4.x license)
0300-IXMW-008: Zigbee measurement suite software license. Includes measurement capability for Zigbee, Wi-SUN and Z-wave
0300-IXMW-009: DECT measurement suite software license
0300-IXMW-044: 802.11ah measurement suite software license
0300-IXMW-059: 802.11af measurement suite software license
0300-IXMW-065: Sigfox measurement suite software license
0300-IXMW-055: LTE measurement suite software license

CONTACT INFORMATION

LitePoint Corporation 575 Maude Court Sunnyvale, CA 94085-2803
United States of America **+1.866.363.1911/ +1.408.456.5000**
LITEPOINT TECHNICAL SUPPORT **www.litepoint.com/support**

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