

Keysight ZA0060A Custom IoT Device Functional Test Solution

If you manufacture IoT devices, testing is essential to avoid product failures or recalls that could damage your brand. The golden radio solution is very cost effective, but the test coverage is very limited and you may miss critical defects. You will not know the true performance of the wireless connectivity of your device-under-test (DUT). On the other hand, you can use a comprehensive tester to perform parametric test, but this means that you are paying for capabilities which you don't need. Now you can confidently and affordably catch defects with the X8711A and ZA0060A test solutions.

ZA0060A Custom IoT Device Functional Test Solution

The Keysight ZA0060A is a custom solution based on the X8711A IoT device functional test solution. It is an over-the-air* signaling tester that enables you to test your IoT device's transmitter and receiver easily and effectively. It is as simple as placing your device into a shield box and running the software test plans to get the transmitter and receiver test results in seconds!

With ZA0060A, you can now extend your test coverage for *Bluetooth*® 5 and Zigbee® 3.0/Zigbee Pro, on top of the existing *Bluetooth* Low Energy 4.2 and WLAN 802.11b/g/n.

*Over-the-air (OTA) measurement is conducted in a controlled environment/shield box to verify the OTA Tx and Rx performance of the device-under-test



Confidently and affordably catch defects

Keysight IoT device functional test solution is an easy-to-use signaling tester which enables you to:

- Test IoT devices in actual operation mode and in its final form
- Assure device quality and reduce risk of field failures
- Maximize manufacturing throughput and accelerate time to market
- Simplify test development with ready-to-use measurement suites



Bluetooth 5

Compared to its predecessor, *Bluetooth 5* is twice as fast, has four times the range and can transfer eight times as much data. The ZA0060A is designed to support all the *Bluetooth 5* physical layers (125 kbps, 500 kbps, 1 Mbps and 2 Mbps) with its ability to verify the device's supported physical layers and run PER tests in 'Connect Request' mode for all the supported rates.

It first detects whether your IoT device is an active scanner or a connected device type and then configures PER tests according to your device. For example, the ZA0060A can be configured to run under 'Active Scan' mode for measuring only the advertising channels or be configured in 'Connect Request' mode to measure the composite PER of all the data channels.

This solution is also able to effectively test the device-under-test's (DUT) transmitter by measuring and reporting the transmit power at each advertising channel (Channel 37, 38 and 39).

Zigbee 3.0 and Zigbee Pro

ZigBee is one of the most popular industry wireless mesh networking standard for connecting sensors, instrumentation and control systems. A typical ZigBee network has three classes of devices, a Coordinator, a Router and an End Device. The ZA0060A is able to test all these three classes of devices by making use of the standard functions of the Zigbee protocol message exchange to test the DUT with its actual firmware.

Since ZA0060A performs PER tests using the standard request/response message pair, it can be used to test any Zigbee compliant device independent of the application profiles of the device.


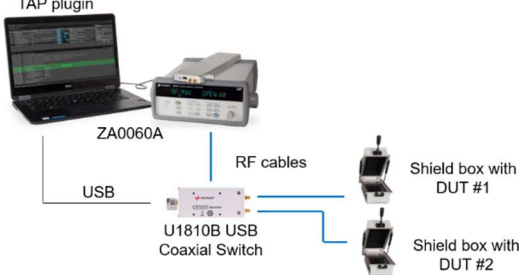
Characteristics

Radio	Bluetooth 5	Low Power Bluetooth 5	Zigbee 3.0 and Zigbee Pro
Input power measurement (DUT transmit power)	Range: 10 to -30 dBm Accuracy: ± 2 dB	Range: -4 to -44 dBm Accuracy: ± 2 dB	Range: 10 to -30 dBm Accuracy: ± 2 dB
Downlink power adjustment (Receiver sensitivity)	Range: -40 to -75 dBm Resolution: 0.5 dB Accuracy: ± 2 dB	Range: -20 to -70 dBm Resolution: 0.5 dB Accuracy: ± 2 dB	Range: -40 to -75 dBm Resolution: 0.5 dB Accuracy: ± 2 dB
	Range: -75 to -100 dBm Accuracy: ± 2.5 dB	Range: -70 to -95 dBm Accuracy: ± 2.5 dB	Range: -75 to -100 dBm Accuracy: ± 2.5 dB

All characteristics are specified at operating temperature of $23\text{ }^{\circ}\text{C} \pm 5\text{ }^{\circ}\text{C}$ and are referenced to the RFIO port.

Accessories

We offer the following custom accessories or options to suit your testing needs. Contact Keysight to discuss your needs.

X8751A RF Shield Enclosure Kit	X8753A Multi-Up Configuration
	
<ul style="list-style-type: none"> • Suitable for small device under tests. • Includes I/O module, antenna coupler, grid fixture and RF cable <p>*Not available in Europe</p>	<ul style="list-style-type: none"> • For high volume manufacturing • 1x2 multi-up option - one measurement system is shared with 2 devices under test (DUTs) for sequential testing. • Includes: 1x U1810B USB coaxial switch, 3x SMA-Male to N-Male RF cables and 1x N-Female to N-Female adapter. • More configurations are available. Contact Keysight to discuss on your needs.
Model number: X8751A	Option number: X8753A-001

X8751A RF Shield Enclosure

The X8751A RF shield enclosure kit consists of:

- TC-5910D shield box
- 1x M591012B I/O module
- 1x TC-93023B antenna coupler
- 1x F59105A universal grid fixture (140(W) x 210 (D) x 11(H) mm)
- 1x RF cable, 0.9 m
- 1x SMA male to N male adapter
- 1x RF terminator N 50 Ohm

It provides:

- Reliable high RF shielding up to 6 Hz
- Shock absorber on lid

X8751A is non-RoHS compliant



Typical RF shielding

The shield effectiveness below is measured when the blank panel is mounted; the I/O interface panel results a different shielding effectiveness of the shield box

100 to 2000 MHz	> 70 dB
2000 to 3000 MHz	> 70 dB
3000 to 6000 MHz	> 50 dB

M591012B USB 2.0 I/O Interface Panel

- *Shielding Effectiveness: >60 dB from 0.1 to 6 GHz
- DB25 (p) outside and DB25 (s) inside, 1000 pF Pi filter
- USB A(p), 10 pF Pi filter
- Data line Capacity: 100 VDC, 3 Amps max

Weight	Approx. 5 kg
Physical dimensions	Inside: 130 (W) x 235 (D) x 138 (H) mm Outside: 207 (W) x 424 (D) x 170 (H) mm, lid closed. 435 (H) mm, lid open

Ordering Information for ZA0060A

I. *Bluetooth* 5 Standard Configuration

I. Hardware

Option Number	Description
ZA0060A-DAS	34972A LXI Data Acquisition Switch Unit
34999B-001	<i>Bluetooth</i> 5 and <i>Bluetooth</i> LE 4.2 signaling

II. Software

Option Number	Description
KS83304B	<i>Bluetooth</i> 5 and <i>Bluetooth</i> LE 4.2 Signaling Measurement Suite
R-X5Q-004-D	Transportable
R-X6Q-004-L	12 months, transportable, support subscription
KS8400A	Test Automation Platform, Developer's System
R-D5A-004-D	Transportable
R-D6A-004-L	12 months, transportable, support subscription

II. Low Power *Bluetooth* 5 Standard Configuration

I. Hardware

Option Number	Description
ZA0060A-DAS	34972A LXI Data Acquisition Switch Unit
34999B-004	Low Power <i>Bluetooth</i> 5 and <i>Bluetooth</i> LE 4.2 signaling

II. Software

Option Number	Description
KS83304B	<i>Bluetooth</i> 5 and <i>Bluetooth</i> LE 4.2 Signaling Measurement Suite
R-X5Q-004-D	Transportable
R-X6Q-004-L	12 months, transportable, support subscription
KS8400A	Test Automation Platform, Developer's System
R-D5A-004-D	Transportable
R-D6A-004-L	12 months, transportable, support subscription

III. Zigbee 3.0 and Pro Standard Configuration

I. Hardware

Option Number	Description
ZA0060A-DAS	34972A LXI Data Acquisition Switch Unit
34999B-003	Zigbee 3.0 and Zigbee Pro signaling

II. Software

Option Number	Description
KS83305B	Zigbee 3.0 and Zigbee Pro Signaling Measurement Suite
R-X5Q-004-D	Transportable
R-X6Q-004-L	12 months, transportable, support subscription
KS8400A	Test Automation Platform, Developer's System
R-D5A-004-D	Transportable
R-D6A-004-L	12 months, transportable, support subscription

Ordering Information for Upgrades

Upgrades to initial ZA0060A system can be done by purchasing additional RF modules or upgrading firmware of existing compatible RF modules (ZA0060AU).

Option Number	Description
34999B-001	<i>Bluetooth</i> 5 and <i>Bluetooth</i> LE 4.2 signaling
34999B-003	Zigbee 3.0 and Pro signaling
34999B-004	Low Power <i>Bluetooth</i> 5 and <i>Bluetooth</i> LE 4.2 signaling
ZA0060AU-BTH	<i>Bluetooth</i> 5 and <i>Bluetooth</i> LE 4.2 signaling
ZA0060AU-WLN	WLAN b/g/n signaling
ZA0060AU-ZGB	Zigbee 3.0 and Pro signaling

Wants → Has ↓	WLAN b/g/n	Zigbee	<i>Bluetooth</i> LE 4.2/5.0	Low Power <i>Bluetooth</i> 5.0
<i>Bluetooth</i> LE 4.2 (34999A)	X8711AU-002	34999B-003	34999B-001	34999B-004
<i>Bluetooth</i> 5.0	ZA0060AU-WLN	ZA0060AU-ZGB	X	34999B-004
Low Power <i>Bluetooth</i> 5.0	ZA0060AU-WLN	ZA0060AU-ZGB	34999B-001	X
WLAN b/g/n (34999A)	X	34999B-003	34999B-001	34999B-004
Zigbee	ZA0060AU-WLN	X	ZA0060AU-BTH	34999B-004

Related solution: www.keysight.com/find/X8711A

To place an order or for more information, please contact your local Keysight representative.

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