

IOT8700 Series Wireless Test Solution

Build Confidence in IoT, 4x Faster

What are we seeing in today's IoT World?

Driven by the need for convenience and portability in Internet of Things (IoT) devices, device manufacturers now face new challenges in testing the increasingly smaller devices when wired connections are not possible. IoT technologies is widely used in many mission critical applications such the smart city, industrial automation, and digital health. IoT devices cannot afford to fail, over-the-air measurements are critical to thoroughly test IoT devices at every stage of the design cycle.



Quickly Deploy Cost-effective OTA Signaling Test

Your customers need confidence in their high-value or mission critical IoT devices. Delivering greater peace of mind depends on the right balance of test time versus test coverage.

For WLAN and Bluetooth® Low Energy (BLE) devices, Keysight's IOT8700 Series is a complete solution for wireless test: hardware, software, and RF shielded enclosure. In your production process, our solutions simplify over-the-air (OTA) signaling test of devices running their final firmware. Get true parallel testing from Keysight and build confidence up to 4x faster

To optimize your investment, this cost-effective solution includes essential measurement functionality, signaling test, and enhanced capabilities such as deep radio control and UUID read/write. And to simplify and accelerate the test-development process, consider using Keysight PathWave-based automation software as the foundation of your solution.

Cover Manufacturing Test, and More

The IOT8700 Series is purpose-built for **manufacturing test** of IoT devices. These time-saving solutions help test-development teams stay on track with new-product introduction schedules, and the unique combination of size, speed and functionality will help test-development managers reduce the overall cost of test.

For **R&D validation test**, the IOT8700 Series make it easy to get fast insights into device performance and establish crucial test parameters and margins.

For **regulatory compliance test**, the deep radio control and signaling test capability make the IOT8700 Series an excellent companion device for in-house or independent compliance-test labs.



Ensure Reliable Performance

IoT technologies are becoming more widely used in high value or mission critical applications such as digital health, industrial automation smart cities and high value consumer electronics devices. To ensure dependable operation in real-world conditions, OTA signaling measurements help you assess, validate, and prove device performance at every stage of the product cycle.



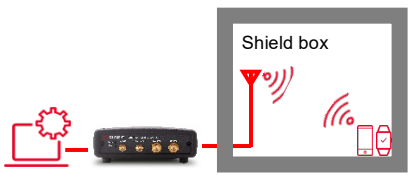
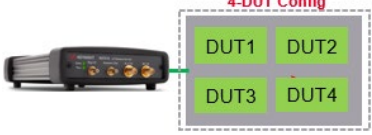

Design validation	Manufacturing	Regulatory compliance
		
<ul style="list-style-type: none"> • Perform over-the-air signaling test of end-device, including the antenna • Characterize device performance under various actual operation modes • Save time and simplify test development with optional XA8722A IoT Soft Front Panel Pro or XA8723A IoT Signaling Measurement Suite 	<ul style="list-style-type: none"> • Perform parallel testing of up to four DUT to reduce cost of test • Maximize throughput and accelerate time-to-market • Assure end device quality and reduce the risk of manufacturing defects or field failures • Increase efficiency and reduce test development time with XA8723A IoT Signaling Measurement Suite 	<ul style="list-style-type: none"> • Ideal companion device for regulatory compliance testing • Simplify receiver blocking test without needing to develop the DUT's control driver • Cover the commonly used radio formats at an affordable cost • Assure your measurement results are accurate and traceable • Easy integration to existing test system through SCPI

Figure 1. IOT8700 Series uses in different applications



Figure 2. Various test configurations of IOT8700 Series

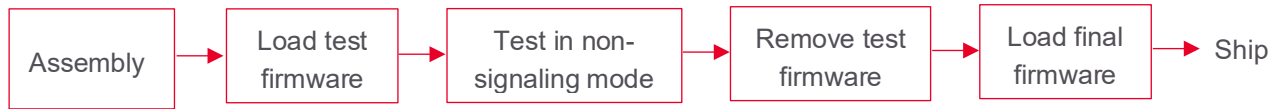
Whether you are characterizing your IoT device over many different scenarios during the design process, filtering manufacturing defects, or testing your IoT device for regulatory compliance, the Keysight IOT8700 Series IoT wireless test solution gives you the confidence and reliability you need to ensure that your IoT products can withstand the mission critical rigors of the real world.

Features to Optimize Your Manufacturing Test

Signaling test capability to streamline manufacturing test flow

The IOT8700 Series enables users to perform signaling test without the need to develop chipset specific driver to control or programming the device into test mode. Manufacturers can easily execute the transmitter and receiver tests by flashing the current firmware on the device under test. This helps manufacturer eliminate the process of switching device under test into test mode for testing and reflash with final firmware once testing is passed. With the streamlined test flow, manufacturers save time and effort on testing as they perform measurements under actual operation mode to ensure device quality.

Existing test flow:



Streamlined test flow with IOT8720A and IOT8740A:



Figure 3. Streamlined test flow by testing in signaling mode with IOT8720 and IOT8740A

Channel-based transmitter power and receiver PER measurements

	Transmitter power	Receiver PER
Channel 37	-8.98 dBm	10.37%
Channel 38	-9.10 dBm	11.29%
Channel 39	-9.45 dBm	8.71%

Active Scan mode is optimized for fast manufacturing test whereby transmitter and receiver tests over all three advertising channels are possible to be completed within 10 seconds. The Active Scan mode provides measurements for the advertising channels at low, mid, and high frequency channels ensuring the device performance over the entire Bluetooth frequency bands.

For BLE data channel measurements, it is possible to configure the IOT8700 Series to Connected Mode to enable transmitter and receiver measurements for any of the data channels. This is normally used for device characterization or troubleshooting as it takes longer time to complete the test.

True multidevice parallel test configuration for Bluetooth® Low Energy Devices

The IOT8740A IoT wireless multidevice test solution is the industry's first solution to enable true parallel testing for both transmitter and receiver tests in signaling mode. It is possible to test up to four devices in parallel with all of them transmitting and receiving concurrently and being placed in the same shielding box. With tight timing alignment between the radio subsystem and RF power detection subsystem in the tester, it is possible to monitor all incoming RF packets using the RF detection subsystem, and correlate each of the packets with the DUT MAC address decoded from the radio subsystem to provide TX and RX measurements for all DUT in parallel. Through this innovative measurement algorithm, manufacturers can now save test time close to 4 times.

Traditional 'serial' RF test flow Partial parallel test flow Full parallel test flow (IOT8740A)

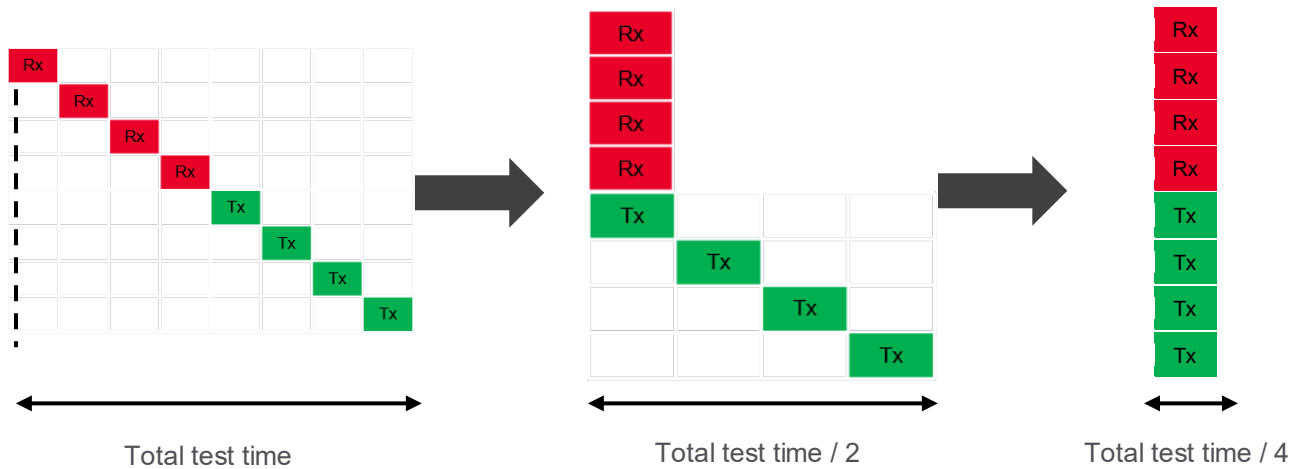


Figure 4. Significant improvement in test time is achievable using full parallel test flow

Built-in pass-fail limit check and result log for manufacturing test

The built-in pass-fail limit check enables faster test time with the ability to catch up with the transmission rate of the DUT. The theoretical tester speed can be estimated as the number of packets multiplies with the advertising interval plus some overhead time to process the data. Production throughput and manufacturing test time can be optimized by the capability of parallel testing and faster test speed. Sample test plans are provided in the XA8723A IoT signaling measurement suite for single and multidevice configurations, along with pass-fail limit check and results logging capability. Manufacturing engineers can save test development and testing time by leveraging and modifying the test plans and test sequence provided.

Features for Design Validation Tests

Advertising interval and throughput measurements

Some BLE devices may have variable advertising interval. The IOT8700 Series will enable user to measure the advertising interval during the advertising events (active or passive scanning) and monitor the trend in a graph view to have better understanding of the advertising events. It is also possible to perform data throughput measurement of the advertising data or the scan response data.

For WLAN devices, the throughput measurements are performed using iPerf methodology in the IOT8700 Series. It enables user to set to various WLAN settings and measure the actual achievable throughput from the connections. It is the number of bits of real data transmitted per unit of total transmission time, typically expressed in kilobits per second (kbps).

Deep radio control capability

With deep radio control capability, it is possible to use IOT8700 Series as a companion device to control the DUT to transmit and receive in various operation modes, and perform a comprehensive transmitter, receiver, and throughput analysis. This is especially useful for designer or test engineers to fully characterize the device performance under various modulations, bandwidth, and channel settings. Test lab or compliance testing engineers able to use IOT8700 Series as a signaling unit during regulatory compliance testing to simplify PER tests at various blocking conditions. Significant saving in setup and testing time is possible since there is no need to develop the individual chipset specific driver.

Transmitter RF power envelope display capability

The turn-on behaviors of IoT devices may vary. Some IoT devices will not advertise immediately upon turned on. Some devices will advertise at high power level for a short duration before reducing the transmit power to the minimum to save battery life. While other devices may have variable advertising intervals. The transmitter RF power envelope display capability will come in handy to have better understanding of the device transmitting behavior to improve the measurement accuracy or repeatability and troubleshoot any connection issues with the instrument.

Connection, pairing and bonding check

Bonding is the exchange of long-term keys after pairing occurs and storing those keys for later use. It is the creation of permanent security between devices. Pairing is the mechanism that allows bonding to occur. Bonding will enable the devices to reconnect to each other in subsequent connections without repeating the pairing process.

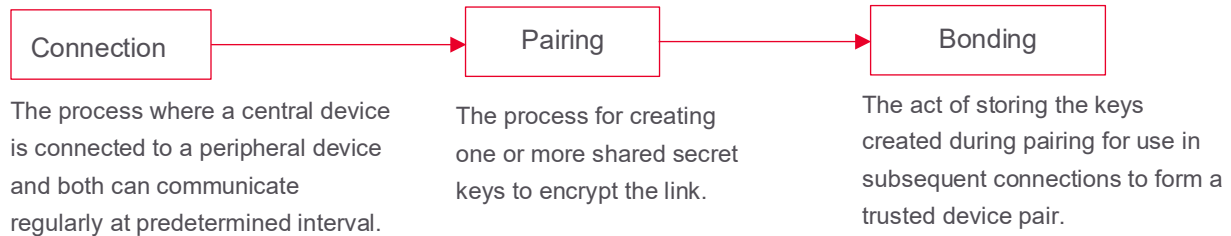


Figure 5. BLE connection, pairing and bonding

IOT8700 Series will enable designers to verify the ability of the device to connect, pair and bond, to ensure that these security features are being implemented properly in the device.

Service discovery and UUID read-write

	Handle	Type (UUID)	Value	Permissions
Service				
Declaration	0x8000	SERVICE(0x2800)	0x180D	READ
Characteristics				
Declaration	0x8001	CHAR (0x2803)	NOT(0x8002HRM)	READ
"Heart Rate Measurement" Value	0x8002	HRM (0x2A37)	bpm	NONE
Descriptor	0x8003	CCCD(0x2902)	0x0001	READ/WRITE

Figure 6. GATT profile example of a heart rate service

UUID (Universally Unique Identifier), it identifies a service provided by a Bluetooth device. The IOT8700 Series can perform UUID service discovery to identify all the supported UUIDs, the handles values and permissions. If the permission is set as write-able, user can overwrite a specific UUID and its values. This feature is very useful for manufacturer to retrieve certain data from the device (example: battery level) or program specific data to the device (example: manufacturing data, serial number) over-the-air without hardware connection. This feature only works on BLE devices supporting Connected Mode.

Features for Regulatory Compliance Tests

Major regulatory bodies like FCC or ETSI require all IoT devices to pass spectrum regulatory testing before the product can gain global market entry. Regulatory testing requirements are complex and vary between countries, so IoT device makers depend on compliance test labs to conduct the tests to prove that the device is compliant with global radio standards and regulations. As a compliance lab engineer, you are responsible for testing a diverse array of devices from many manufacturers, with each using different radio formats and radio chipsets. This can be a complex and time-consuming process, especially when you don't have access to control drivers for the device-under-test.

The IOT8700 Series IoT wireless test can be used as the companion or signaling device for regulatory compliance testing.

Simplify receiver blocking or PER tests

The IOT8700 Series' deep radio control capability allows the tester to remotely control the DUT to transmit and receive in different normal operation modes, such as by frequency channel, modulation bandwidth or data rate. Instead of painstakingly writing your own DUT control driver or having to return to your customer for it – which they may not have – you can remotely control the tester and the DUT with the PathWave-based software or through SCPI commands. This test automation saves you days or even weeks of driver development work and allows you to perform receiver blocking tests or PER tests through a signaling connection with the DUT.

Cover the most used radio formats at an affordable cost

The IOT8700 Series offers multi-format signaling test capability so you can perform tests for Bluetooth Low Energy 4.2, 5.0, 5.1, 5.2 and WLAN 802.11 a/b/g/n/ac with just one solution.

Traceable and accurate measurement results

The IOT8700 Series' output signals and input power measurements are fully calibrated in the factory and referenced to a RF power meter with low measurement uncertainty. The measurements are traceable to national metrology institutes.

Single and Multidevice Configurations

The IOT8700 Series is available in two configurations:

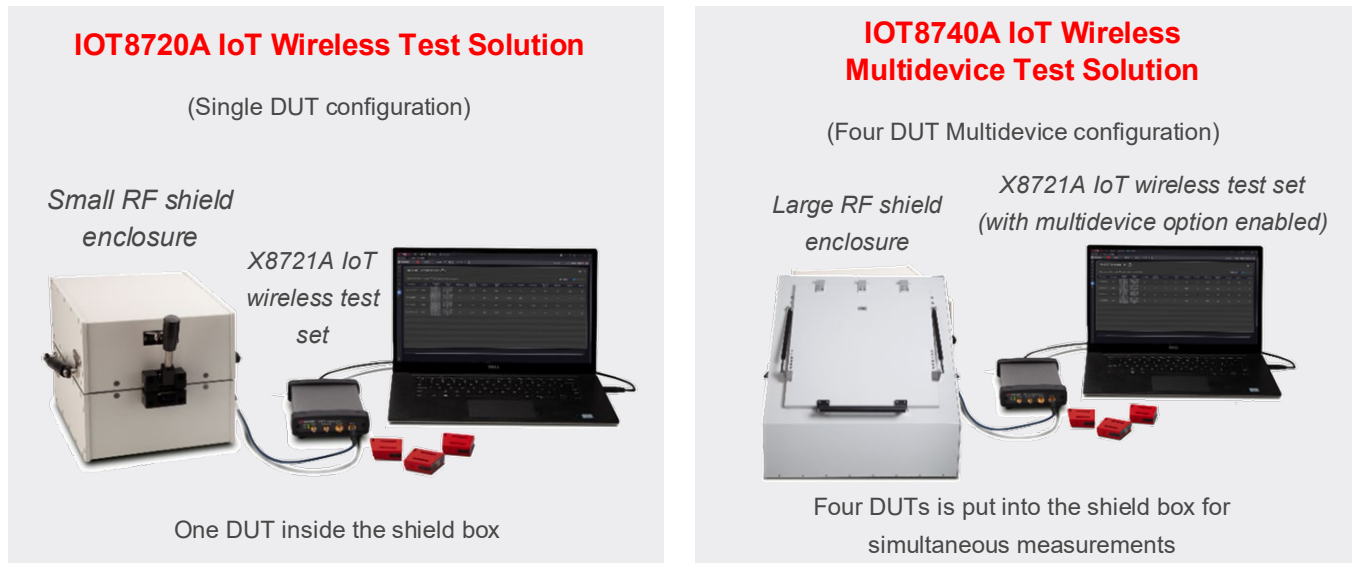


Figure 7. Diagrams showing the single vs multidevice configurations

The IOT8720A is suitable use in design validation whereas IOT8740A is ideal for high volume manufacturing applications.

The IOT8740A is the industry's first solution to offer interleaved multidevice feature where it concurrently tests multidevice inside a single shield box. The testing is interleaved to maximize the utilization of the tester and thus reduce the overall test time.

X8721A Hardware Performance

Bluetooth Low Energy

Below specifications are specified at full range operating temperature and room temperature, with relative humidity less than 80%, and are referenced to RFIO port.

Radio format ¹	Bluetooth Low Energy 4.2, 5.0, 5.1 and 5.2	
Frequency range	2.4 to 2.48 GHz	
Frequency accuracy	50 ppm (nominal)	
Operating temperature	10 °C to 40 °C	23 °C ± 5 °C
Input power measurement (DUT transmit power)	Range: +17 to -50 dBm Accuracy: ± 1.0 dB (typical) ± 1.5 dB (spec)	Range: +17 to -50 dBm Accuracy: ± 0.7 dB (typical) ± 1.0 dB (spec)
Output power range/downlink power adjustment (receiver sensitivity)	Range: -28 to -100 dBm Accuracy: ± 1.0 dB (typical) ± 1.5 dB (spec)	Range: -25 to -100 dBm Accuracy: ± 0.7 dB (typical) ± 1.0 dB (spec)
Output power resolution	0.25 dB	
Maximum input level at RF I/O or Aux I/O	≤ +27 dBm	
Input VSWR at RF I/O or Aux I/O	≤ 2:1 (nominal)	
RF I/O to Aux I/O coupling loss	< 10 dB at 2.48 GHz	
Isolation/shielding effectiveness ²	> 100 dB	
Residual packet error rate ³	< 1%	

Bluetooth Low Energy features

The IOT8700 Series can support BLE testing in Active Scan or Connect Mode. Table below shows the supported BLE device roles and test parameters.

Tester role	Device role	Device description	Active scan			Connected mode			
			TX power	Active scan PER	Throughput	Only available for single DUT configuration			
						TX power	Connected mode PER	UUID	Throughput
Peripheral	Central	Master or control device	No	No	No	Yes	Yes	No	No
Central	Peripheral	Slave device that can send / receive info	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Central	Beacon	Transmit only device	Yes	Yes	Yes	No	No	No	No
None	Observer	Receive only device	No	No	No	No	No	No	No

Radio control for Bluetooth Low Energy

In Connected Mode, IOT8700 Series is configurable for the following settings:

- PHY: LE 1M, LE 2M, Coded S2, Coded S8
- Channel: Configurable in pair, from Channel 00-01 to Channel 35-36

Wireless LAN specifications

Below are specified at full range operating temperature and room temperature, with relative humidity less than 80%, and are referenced to RFIO port.

Radio format ¹	802.11 a/b/g/n/ac			
Operating temperature	10 °C to 40 °C		23 °C ± 5 °C	
Frequency range	2.4 to 2.48 GHz	4.8 to 6.0 GHz	2.4 to 2.48 GHz	4.8 to 6.0 GHz
Frequency accuracy	50 ppm (nominal)			
Input power measurement (DUT transmit power)	Range: +17 to -50 dBm Accuracy: ± 1.0 dB (typical) ± 1.5 dB (spec)	Range: +17 to ≥ -35 dBm Accuracy: ± 1.0 dB (typical) ± 1.5 dB (spec) Range: -35 to -39 dBm Accuracy: ± 2.0 dB (typical) ± 3.0 dB (spec)	Range: +17 to -50 dBm Accuracy: ± 0.7 dB (typical) ± 1.0 dB (spec)	Range: +17 to -39 dBm Accuracy: ± 0.7 dB (typical): ± 1.0 dB (spec)
Output power range/Downlink power adjustment (receiver sensitivity)	Range: -28 to ≥ -30 dBm Accuracy: ± 1.5 dB (typical) ± 2.0 dB (spec) Range: -30 to -60 dBm Accuracy: ± 1.0 dB (typical) ± 1.5 dB (spec) Range: ≤ -60 to ≥ -80 dBm Accuracy: ± 1.5 dB (typical) ± 2.0 dB (spec) Range: -80 to -90 dBm Accuracy: ± 2.0 dB (typical) ± 2.5 dB (spec)	Range: -28 to -60 dBm Accuracy: ± 1.0 dB (typical) ± 1.5 dB (spec) Range: ≤ -60 to ≥ -70 dBm Accuracy: ± 1.5 dB (typical) ± 2.0 dB (spec) Range: -70 to -90 dBm Accuracy: ± 2.0 dB (typical) ± 3.0 dB (spec)	Range: -28 to ≥ -30 dBm Accuracy: ± 1.5 dB (typical) ± 2.0 dB (spec) Range: -30 to -60 dBm Accuracy: ± 1.0 dB (typical) ± 1.5 dB (spec) Range: ≤ -60 to ≥ -80 dBm Accuracy: ± 1.5 dB (typical) ± 2.0 dB (spec) Range: -80 to -90 dBm Accuracy: ± 2.0 dB (typical) ± 2.5 dB (spec)	Range: -28 to -60 dBm Accuracy: ± 1.0 dB (typical) ± 1.5 dB (spec) Range: ≤ -60 to ≥ -70 dBm Accuracy: ± 1.5 dB (typical) ± 2.0 dB (spec) Range: -70 to -90 dBm Accuracy: ± 2.0 dB (typical) ± 3.0 dB (spec)
Output power resolution	0.25 dB			
Maximum input level at RF I/O or Aux I/O	≤ +27 dBm			
Input VSWR at RF I/O or Aux I/O	≤ 2:1 (nominal)			
RF I/O to Aux I/O coupling loss	< 10 dB at 2.48 GHz < 12 dB at 6 GHz			
Isolation/Shielding effectiveness ²	> 100 dB			
Residual packet error rate ³	< 1%			

1. Tester can only support the physical layer RF test parameters.

2. Isolation at the Radio with RF I/O and Aux I/O terminated.

3. Tester will not generate any false good or false bad packets above this level. False good packet is counting a good packet as a bad packet. False bad packet is counting a bad packet as a good packet.

WLAN features

The IOT8700 Series supports wireless 802.11a/b/g/n/ac specifications. The table shows all supported roles and test parameters.

Tester role	Device role	Single DUT		
		Device description	TX power	PER
Access point	Station	User equipment	Yes	Yes
Station	Access point	Network equipment	Yes	Yes

Note

1. TX power: Measures the power in the transmit burst of DUT
2. PER: Measures that packet-error-rate (PER) of DUT by sending a known request to the device and listening for a response.
3. Throughput: Throughput is measured through iPerf methodology. The DUT must support a version of iPerf for this feature to work. (iPerf2 is recommended). Tester will always act as client to initiate the test with data traffic being loopback by the DUT (as server). Tester will obtain all the required information to calculate throughput. Throughput test is supported whether the DUT is AP or Station

Radio control for WLAN

- Standard: 802.11 a/b/g/n/ac (current functionality is to filter channels/BW based on standard)
- Channel: 2.4 GHz (Ch 1-13) & 5GHz (Ch 34-64 & 100-165)
- BW: 20, 40, and 80 MHz support coupled to corresponding WLAN channel mapping
- Data Rate: Max data rate up to 292.5 Mbits/s
- Security Types: Open, WPA-TKIP, WPA2

General Characteristics

Remote interfaces	USB 2.0, LAN
Detector output	DC output of 0 – 4 V, proportional to RF input
Trigger I/O	Input: Rising and falling edge with 1ms pulse duration Output: Transmit Indicator (3.3V TTL compliant / 5V tolerant)
Remote programming language	SCPI compliance
Physical dimensions	25 mm (H) x 175 mm (L) x 105 mm (W)
Weight	0.7 kg
Power requirement	100 / 120 V, 50 / 60 Hz 220 / 240 V, 50 / 60 Hz

Front and Rear Panels

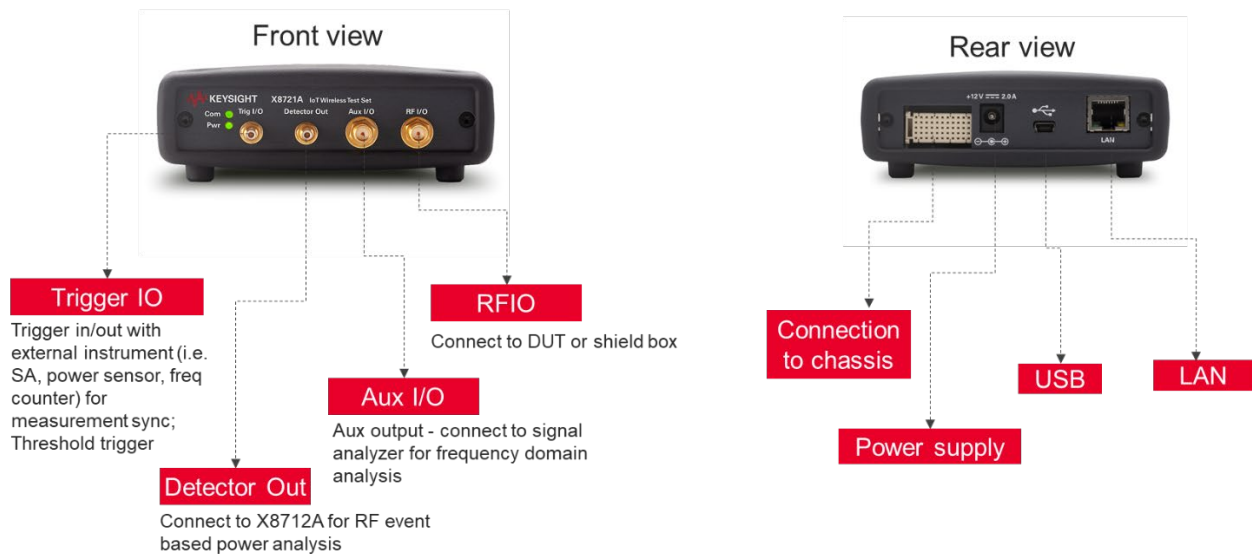


Figure 8. Front and rear panels of X8721A IoT wireless test set

Software Applications

The IOT8700 Series wireless test solution offers 2 optional software packages to help you to easily configure the test setup, and help to save time through test automation, without needing to write your own programming codes.

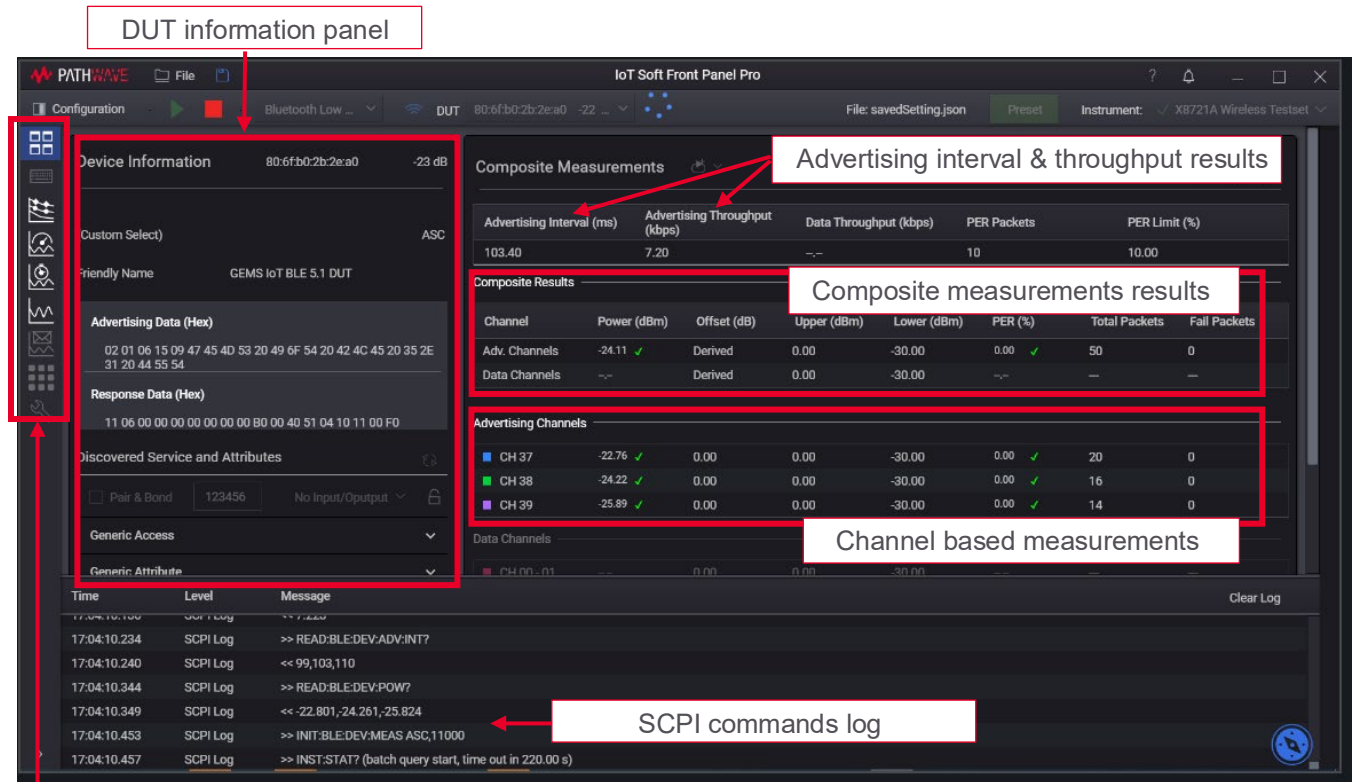
1. XA8722A IoT Soft Front Panel

The **X8722A IoT Soft Front Panel** provides simple interface that allow you to quickly conduct tests without needing to spend a lot of time writing test software. It provides simple operation with powerful visualization, allowing you to easily evaluate and control your hardware, as well as automate and speed up testing.

There are two versions of XA8722A software

Descriptions	XA8722A IoT Soft Front Panel Utility	XA8722A IoT Soft Front Panel Pro
Version	Free version Available for download from www.keysight.com/find/XA8722A	Licensed version Download trial version from www.keysight.com/find/XA8722A
Feature	Provides basic view <ul style="list-style-type: none">• Basic composite TX power, RX PER, throughput, and advertising interval readings• Basic TX power envelope display Provides basic functionalities <ul style="list-style-type: none">• License enablement• Firmware upgrade• Run self-test• Display SCPI logs	Provides various views <ul style="list-style-type: none">• Basic view• TX power envelope display• PER trend chart• Advertising interval trend chart• Throughput trend chart• TX power trend chart• UUID Read/Write• DUT info• Multidevice view• Utility Provides advance measurement capabilities <ul style="list-style-type: none">• Display channel-based TX power and RX PER measurements• Provide min/max and average readings for all measurement parameters• Ability to configure upper and lower limits and perform limit check with pass-fail indicators• Export test results to csv format• Display SCPI logs
PC requirements	Windows 10 Build 1809 onwards, 8GB RAM.	

Software Applications (continued)



Measurement View Selection

Figure 9. XA8722A soft front panel PRO (license required: XA8722A-1TL)

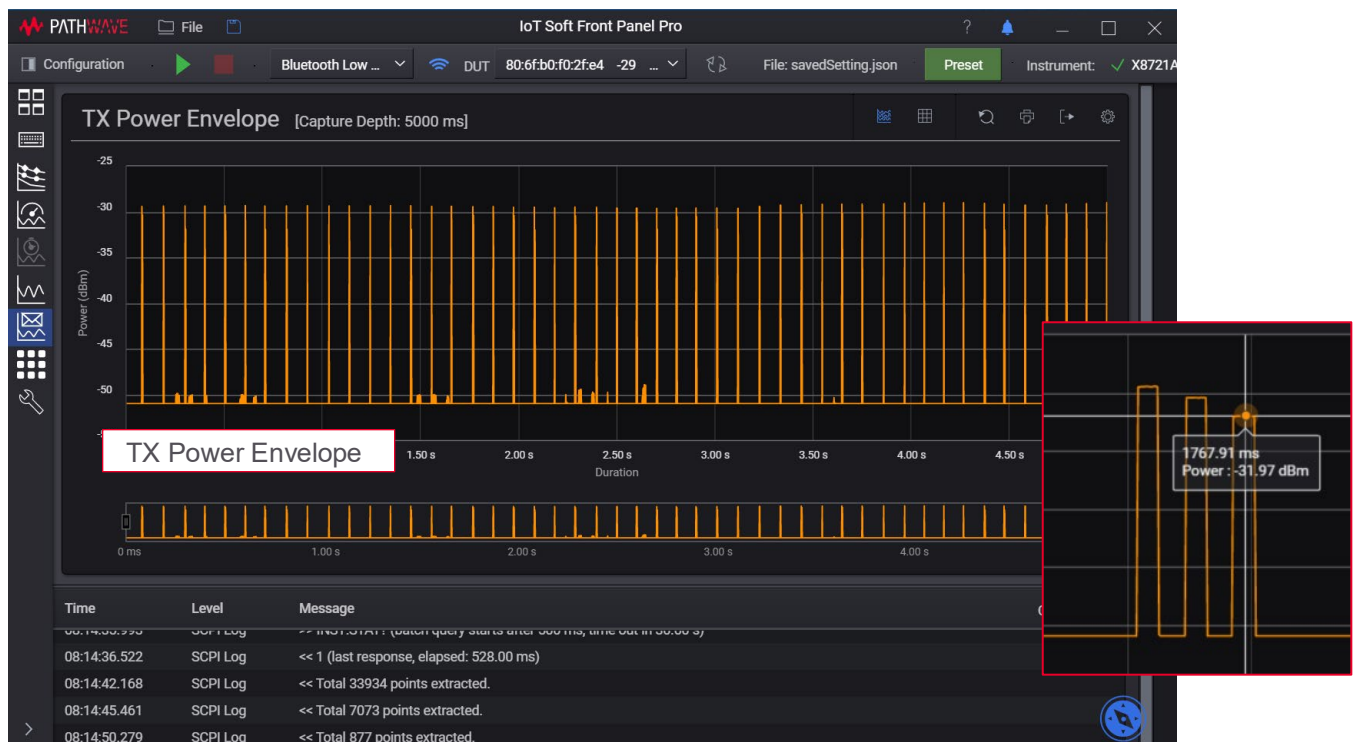


Figure 10. X8722A RF power envelope display with zoom in capability

Software Applications (continued)

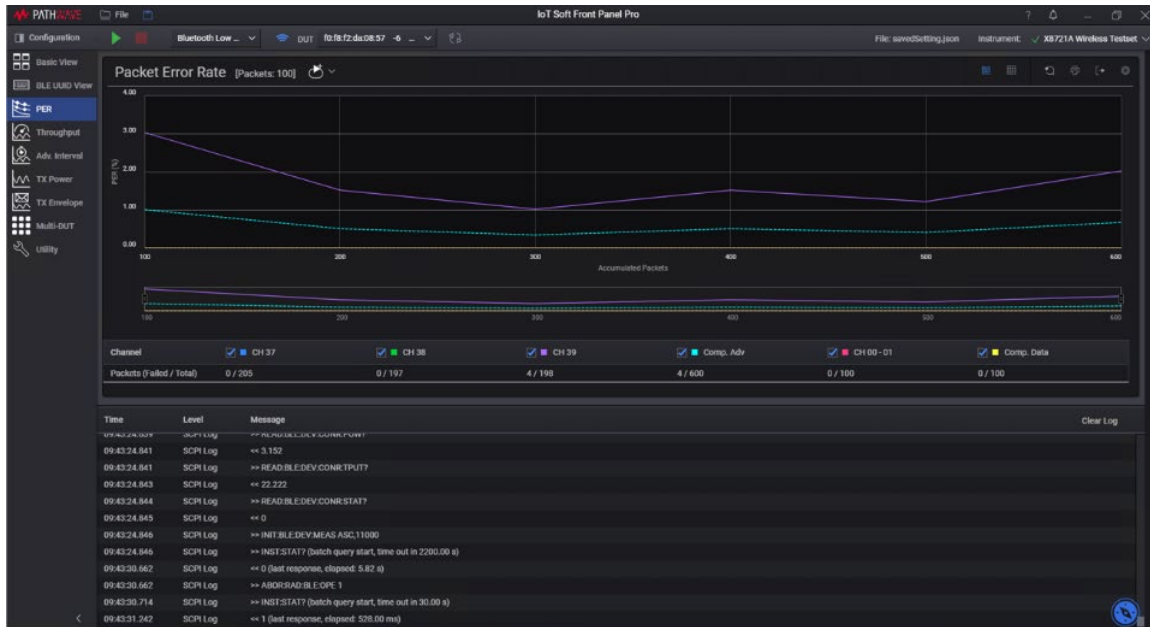


Figure 11. PER view - PER results by individual channels, provided in graph and numerical format, including average, maximum and minimum readings and total packet received

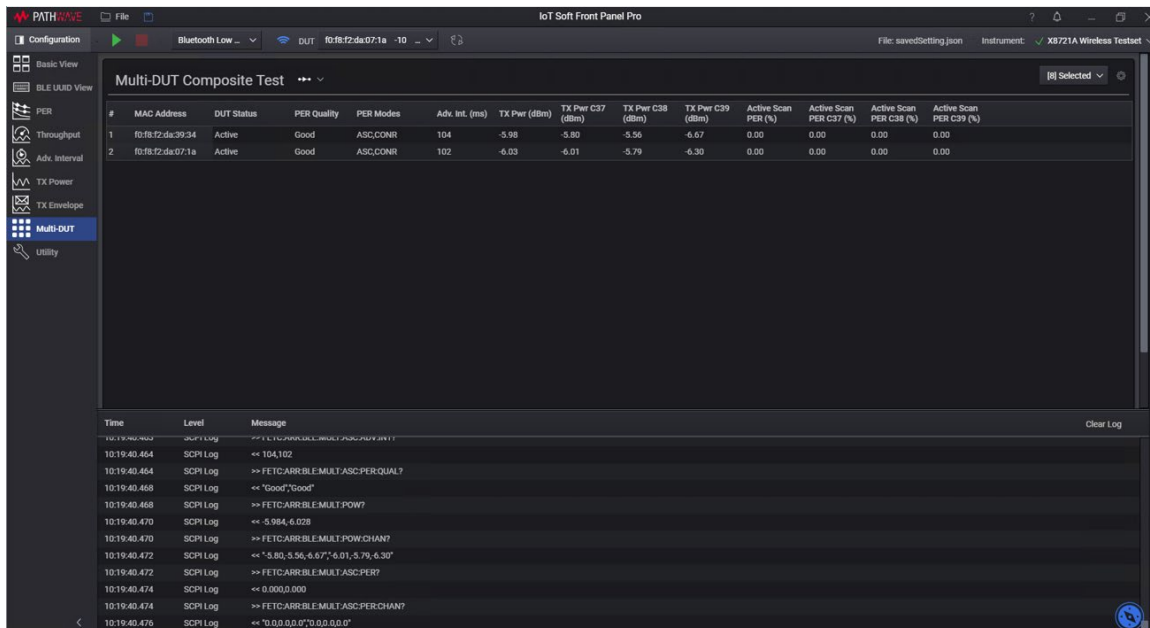


Figure 12. Multidevice view - All DUTs results display in tabular format, with ability to configure display parameters. Support up to maximum 4-DUT (required Multidevice option).

Software Applications (continued)

2. XA8723A IoT Signaling Measurement Suite

The XA8723A IoT Signaling Measurement Suite is a plugin that runs under Keysight KS8400A Test Automation Platform (TAP). It contains test steps that enable BLE signaling connection, TX power measurements, RX packet-error-rate, sensitivity, and many other measurements, for both single device and multidevice parallel testing configurations.

The software provides powerful, flexible, and extensible test sequence and test plan creation with additional capabilities that optimize your test software development and overall performance. TAP provides a graphical user interface (GUI) so that both beginning and experienced programmers can quickly construct test plans consisting of multiple test steps. Flow operations are supported, along with parallel testing.

XA8723A software trial license will be available for download from www.keysight.com/find/XA8723A

(PC requirement: Windows 10 Build 1809 onwards, 8GB RAM)

The screenshot displays the Keysight Test Automation Platform (TAP) interface. The main window shows a test plan titled "Ble Signaling Test*" with three test steps: "Initialize Radio", "Device Discovery", and "Single DUT Measurement". The "Test step configurations" panel shows the status of these steps: "Initialize Radio" (Pass), "Device Discovery" (Pass), and "Single DUT Measurement" (Pass). The "Test step settings" panel shows the configuration for the "Single DUT Measurement" step, including Basic Settings (Instrument: X8721, DL Power: -30 dBm), PER Settings (Packet Count: 30, PER Limit: 20%), and Results (Advertising Type: SCAN, RSSI: -40 dB). The "Log" window shows the test results, including the test plan name, test step names, and the overall result: "Passed". A "Results logging in CSV format" window is also visible, showing the test results being logged.

Figure 13. Sample BLE signaling test plan

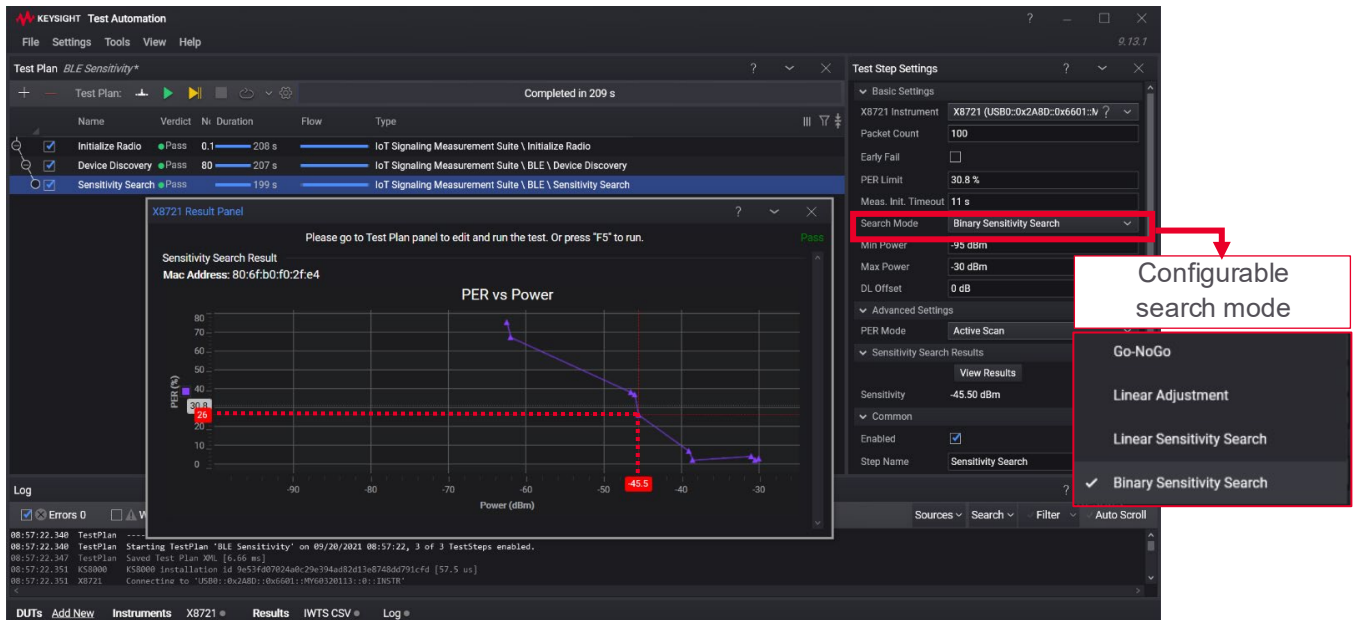


Figure 14. BLE receiver sensitivity test plan with configurable search mode

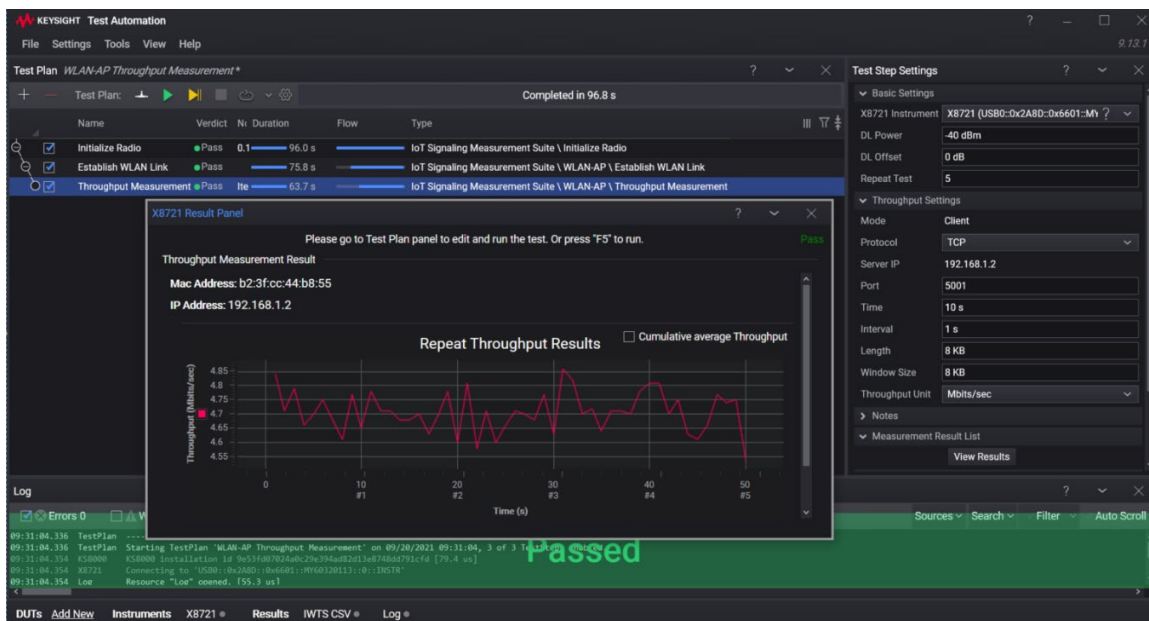


Figure 15. WLAN throughput measurements using iPerf methodology with tester acted as a client device to generate the data traffic

Optional Accessories

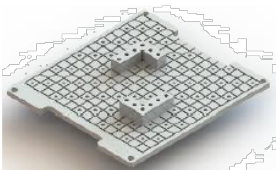
RF shielded enclosures and antenna couplers

Three different sizes of RF shielded enclosures are available for purchase together with the IOT8700 Series. These enclosures are RoHS compliant and is shippable to most countries globally. To complement the IOT8720A and IOT8740A solutions, Keysight offers the ordering convenience to add RF shielded enclosure manufactured by and including 1-year warranty from BIP Roottek.

1. X8763A small RF shielded enclosure and antenna couplers

- High performance RF absorber
- High shielding effectiveness using double layer gasket structure
- Fixture mounting holes in the bottom plate
- Include one RF N-Terminator plug straight
- Include one 36 in RF cable with SMA-Male to N-Male to connect X8721A module to the enclosure

Parameters		Characteristics
Inner size		173 mm (W) x 248 mm (D) x 134 mm (H)
Weight		Approx. 7.6 kg
Interface		1x DB25, 1x USB 2.0 2x N-SMA
Grid plate & antenna coupler		Small grid plate <ul style="list-style-type: none"> - On-board screw holes - 2x L-guide with screws - 5mm thickness Small antenna coupler <ul style="list-style-type: none"> - Wide band VSWR < 2.2 @0.8~6 GHz
Shielding effectiveness (measured when the blank I/O panel is attached)	100-3000 MHz	> 70 dB
	3000-6000 MHz	> 60 dB



2. X8764A medium RF shielded enclosure and antenna couplers

- High performance RF absorber on inside walls
- High shielding effectiveness using double layer gasket structure
- Include one RF N-Terminator plug straight
- Include one 36 in RF cable with SMA-Male to N-Male to connect X8721A module to the enclosure

Parameters		Characteristics
Inner size		457 mm (W) x 480 mm (D) x 358 mm (H)
Weight		Approx. 38 kg
Interface		1x DB25, 1x USB 2.0 2x N-SMA
Grid plate & antenna coupler		Medium grid plate <ul style="list-style-type: none"> - On-board screw holes - 20x L-guide with screws - 5mm thickness Small antenna coupler <ul style="list-style-type: none"> - Wide band VSWR < 2.3 @0.5~6 GHz
Shielding effectiveness (measured when the blank I/O panel is attached)	100-3000 MHz	> 70 dB
	3000-6000 MHz	> 60 dB



Optional Accessories (continued)

3. X8765A large RF shielded enclosure and antenna couplers

- High performance RF absorber on inside walls
- High shielding effectiveness using double layer gasket structure
- Fixture mounting holes in the top, bottom and side walls
- Include one RF N-Terminator plug straight
- Include one 36 in RF cable with SMA-Male to N-Male to connect X8721A module to the enclosure

Parameters		Characteristics
Inner size		842 mm (W) x 842 mm (D) x 842 mm (H)
Weight		Approx. 100 kg
Interface		1x DB25, 1x USB 2.0 2x N-SMA
Grid plate & antenna coupler		Large Grid Plate <ul style="list-style-type: none"> - On-board screw holes - 20x L-guide with screws - 5mm thickness Small Antenna Coupler <ul style="list-style-type: none"> - Wide band VSWR < 2.3 @0.5~6 GHz
Shielding effectiveness (measured when the blank I/O panel is attached)	100-3000 MHz	> 70 dB
	3000-6000 MHz	> 60 dB



X8761A rackmount kit

This rackmount kit supports up to 3 units of X8721A to an EIA 19-inch test rack cabinet. Fillers are provided to cover empty slots.

- Dimension: 483 mm(W) x 44 mm(H) x 105 mm(D)



Ordering Information

Step 1: Choose single or multidevice test configuration (select one)	
IOT8720A	IoT wireless test solution
IOT8740A	IoT wireless test solution, multidevice
Step 2: Choose radio option (select one or more)	
X8721A- BT5	Bluetooth Low Energy 4.2, 5.0, 5.1 and 5.2
X8721A-WLN	Wireless LAN a/b/g/n/ac
Step 3: Choose multidevice option (select one); skip this step for IOT8720A	
X8721A-D04	Multidevice, 4-DUT
Step 4: Choose software option (optional)	
XA8722A	IoT Soft Front Panel Pro
XA8723A	IoT Signaling Measurement Suite (required KS8400A Keysight PathWave test automation)
Step 5: Choose RF Shield Enclosure (optional)	
X8763A	Small RF shielded enclosure and antenna coupler
X8764A	Medium RF shielded enclosure and antenna coupler
X8765A	Large RF shielded enclosure and antenna coupler
Step 6: Choose other accessories (optional)	
X8761A	Rackmount kit

Software – License Type and Terms

For XA8722A IoT soft front panel Pro and XA8723A IoT signaling measurement suite

Time-base license type and support subscription	
R-X4Y-001-L	12-months, node-locked license, KeysightCare software support subscription
R-X4Y-002-L	12-months, floating (single site) license, KeysightCare software support subscription
R-X4Y-004-L	12-months, transportable license, KeysightCare software support subscription
R-X4Y-005-L	12-months, USB portable license, KeysightCare software support subscription

For KS8400A Pathwave test automation developer system

Time-base license type and support subscription	
R-D4A-001-L	12-months, node-locked license, KeysightCare software support subscription
R-D4A-002-L	12-months, floating (single site) license, KeysightCare software support subscription
R-D4A-004-L	12-months, transportable license, KeysightCare software support subscription
R-D5A-005-L	12-months, USB portable license, KeysightCare software support subscription

Standard Shipping Items

- X8721A IoT wireless test set
- USB Type-A male to Mini-USB 2.0 Type-B cable
- External power adapter 85-264VAC, 12VDC, 2.09A, 25W and power cord
- Certificate of calibration
- IoT Soft Front Panel Utility Software
(available to download at www.keysight.com/find/XA8722A)

Related Information

KS8400A and KS8000A test automation platform

www.keysight.com/find/TAP

Learn more at: www.keysight.com

For more information on Keysight Technologies' products, applications or services, please contact your local Keysight office. The complete list is available at: www.keysight.com/find/contactus

