

Keysight IOT0047A

Regulatory Test Solution for Unlicensed IoT Devices

Deliver the Win-Win in IoT

The race to launch IoT chipsets, modules and devices is pushing test labs to the limit. That is why Keysight created the IOT0047A regulatory test solution as to accelerate the certification of unlicensed wireless devices in a flexible and efficient way.

Before, during and after compliance testing—full or partial—the IOT0047A gives you multiple ways to cover more tests for more standards in less time. With faster throughput for you and quicker time-to-market for your clients, Keysight helps you deliver the win-win in IoT.

Cover More Tests for More Standards in Less Time

The IOT0047A regulatory test solution lets you validate wireless devices across a growing range of major standards. For example, you can thoroughly evaluate devices that use the unlicensed ISM bands at 2.4 GHz, 5 GHz and beyond 6 GHz. Currently, the supported standards are ETSI EN 300 328, ETSI EN 301 893, ETSI EN 303 687 (Draft), FCC Part 15.247, and FCC Part 15.407.

Working in concert, system hardware and software cover nonsignaling and signaling test cases, including adaptivity, receiver blocking and dynamic frequency selection (DFS). In addition, the signaling test is made more efficient with the ability to control companion devices that establish radio links to the device under test (DUT).



Test with confidence

Our world-class, metrology-grade instruments ensure excellent results. In addition, purpose-built software for test automation simplifies and accelerates your workflow. From testing to post-test analysis, and for debugging and consulting, the IOT0047A helps you deliver accurate, repeatable results.



Enhance Your Lab's Test Capabilities and Throughput

Through flexible, scalable configuration and reconfiguration, the IOT0047A lets you easily divide the full system into separate test stations that can be used in parallel to address different standards and test cases. Whether you need to increase lab throughput or respond to an urgent request, you are better able to satisfy client needs within an otherwise full schedule of testing commitments.

Create Better Ways to Cover More Tests in Less Time

The IOT0047A has an intuitive graphical user interface (GUI) that lets you quickly create test plans and configure all test parameters. This makes it easy to incorporate a variety of test conditions into a single test plan. You can also utilize predefined tests that can be easily configured or modified.

When it is time to test a device, the system software lets you select, set up, and perform the required test cases based on the standard and device type (such as FHSS or non-FHSS). If a device fails only one or two tests, you can save time by running or rerunning only the tests of interest.

No matter which standard, device type or test conditions you need to run, the IOT0047A helps you ensure accurate and reproducible results. Once a test is underway, the solution's automation capabilities require minimal user interaction. Ultimately, the IOT0047A enables you to test more devices in less time, freeing you up to offer more value-added consulting to your clients.

The system software also simplifies communication. You can generate comprehensive test reports in standard or customized formats. Easy-to-read graphs and tables help you and your clients quickly understand and interpret test results (Figure 1 and 2). To streamline data sharing, you can export results in a variety of supported formats: PDF, RTF, .xls, and comma-separated variables (.csv).

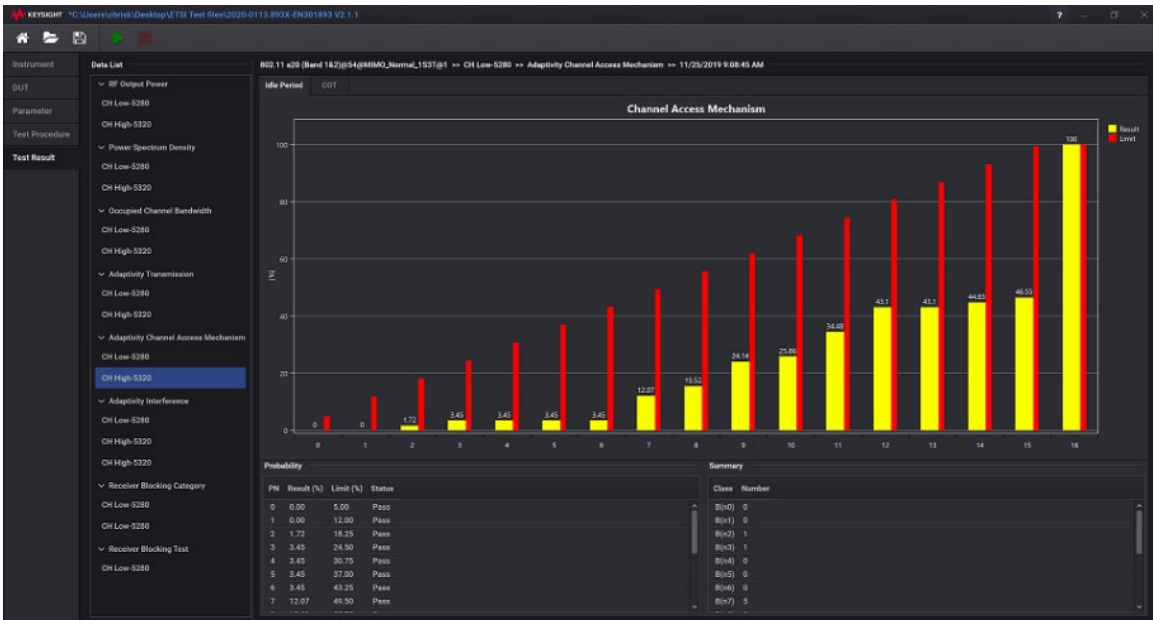


Figure 1. Adaptivity test result is displayed in bar chart for easy to understand and interpret.

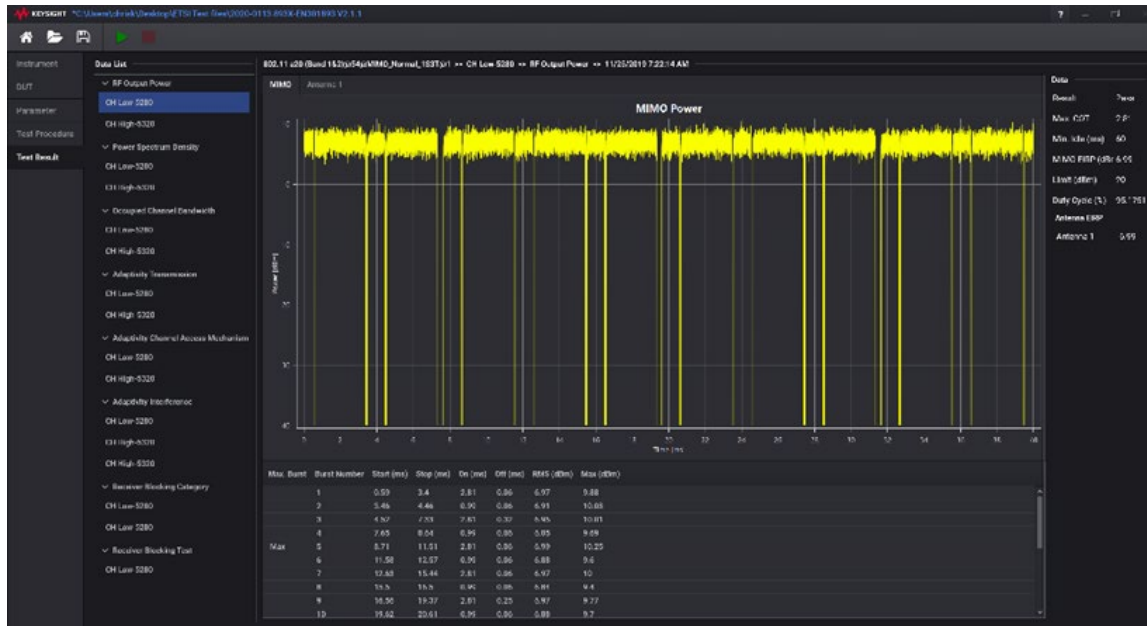


Figure 2. MIMO output power waveform analysis with numeric data table

Deliver the Win-Win for Your Lab and Your Clients

If you are a test manager, the IOT0047A makes your lab more productive and efficient. It starts with automated test procedures that ensure correct setups as well as accurate, reproducible results across standards, device types and test conditions. Regular software updates will keep the IOT0047A current with the latest standards. When a client comes to you with an urgent request for testing, the IOT0047A helps you say “Yes” even when your schedule is full. The ability to separate the solution into smaller systems allows you to implement parallel testing stations, dedicating each one to a specific standard or device type.

Keysight solution also ensures that you will be ready for audits: we offer ISO 17025 accredited calibration for all Keysight instruments in the system. In addition, we engaged Bureau Veritas, one of the leaders in regulatory-standard certification, to validate the IOT0047A for conformity with ETSI and FCC regulatory requirements.



Simplify Pre-compliance Testing and Post-test Analysis

Developers of IoT chipsets, modules and devices can also benefit from the capabilities of the IOT0047A. For example, automated pre-compliance assessments can prepare your design for full compliance testing, increasing the chances of passing on the first try.

A choice of four hardware configurations lets you choose the right one for your needs. The ability to reconfigure a full solution as smaller test stations focused on a specific standard or device type makes these capabilities available to multiple teams.

- **Achieve excellent results through simple and configurable test software**
 - Accelerate your workflow with Keysight PathWave, a platform designed for complex test processes
- **Identify and diagnose the root causes of failed tests, after formal or in-house testing**
 - Easily include or exclude any test or combination of tests through the modern GUI
 - Save time by selecting only the tests you need to re-run
- **Reduce the time spent retesting through flexible configuration of the test software**
 - Adjust test parameters to cover only the trouble spots within any test
 - Avoid repeating known-good configurations
- **Generate informative reports quickly and easily in standard or custom formats**
 - Quickly understand and interpret results presented in easy-to-read graphs and tables
 - Easily export and share results in a variety of supported formats: PDF, .xls, .csv, and .rtf



Address Specific Requirements

The IOT0047A is available in four upgradeable configurations. You can optimize your budget by purchasing what you need today and adding more capability later. Whichever configuration you choose, we will keep you up-to-date with evolving standards via continuous software updates.

Complete ETSI, FCC and DFS Test Station

- Covers unlicensed bands at 2.4 GHz, 5 GHz and beyond 6GHz (see table)
- Hardware: Keysight signal analyzer and signal generators (analog and vector); X8749A and X8750A test sets
- XA5001A ETSI Regulatory Test Software
- XA5002A FCC Regulatory Test Software
- XA5003A DFS Test Software

Non-signaling Conducted Test Station for ETSI EN 300 328 / 301 893 / 303 687 (Draft)

- Covers ETSI test cases at 2.4 GHz, 5 GHz and beyond 6 GHz
- Hardware: Keysight signal analyzer; X8750A MIMO test set
- XA5004A ETSI Regulatory Test Software for Non-signaling Tests

Signaling Adaptivity/Receiver blocking Test Station

- Covers ETSI test cases at 2.4 GHz, 5 GHz and beyond 6 GHz
- Hardware: Keysight signal analyzer and signal generators (analog and vector); X8749A test set
- XA5005A ETSI Regulatory Test Software for Signaling Tests

Dynamic Frequency Selection (DFS) Test Station

- Hardware: Keysight signal analyzer and vector signal generator; X8749A test set
- XA5003A DFS Test Software

Standards	Service Frequency Bands
ETSI EN 300 328	2,400 to 2,483.5 MHz (transmit & receive)
ETSI EN 301 893	• 5,150 to 5,350 MHz (transmit & receive) • 5,470 to 5,725 MHz (transmit & receive)
ETSI 303 687 (Draft)	5.925 to 6.425 MHz
FCC Part 15.247	2.4 to 2.438 GHz
FCC Part 15.407	5.15 to 7.125 GHz (KDB987594 Phase 1 Specification)

Table 1. The IOT0047A covers all relevant service frequency bands for a growing range of standards.

You can also select measurement hardware that best suits today's devices and designs, and upgrade later as your needs, and standards evolve.

- **Signal analyzer:** Keysight EXA, MXA, PXA or UXA
- **Analog or vector signal generator:** Keysight EXG or MXG
- **Frequency extender:** N5128BX07 (compatible with EXA signal analyzer and MXG signal generator)
- **Signal-conditioning test set:** X8749A
- **MIMO power test set:** X8750A, four channels; can choose two for eight-channel measurements

For more information, visit www.keysight.com/find/IOT0047A

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

