

Test WLAN Performance

on the new E7515W UXM Wireless Connectivity Test Platform with Keysight's wireless solutions.



Test WLAN Designs with Confidence

For Wi-Fi® design, both access point (AP) and client, the correct test approach is to focus on the radio frequency (RF) level first and work up the protocol stack. Issues with RF performance affect all testing at the higher layers, so it is vital to understand the particularities of that operation before determining whether high-level tests are consistent. RF testing enables isolation of the RF layer transmit (Tx) and receive (Rx) operation.

Testing RF performance with signaling emulates how a device under test (DUT) behaves in the real world. A focus on Tx and Rx performance is vital to ensure expected end-user behavior.

Keysight solutions enabling this testing and verification to optimize performance are:-

- S8714A RF Application – Application software to make quick RF measurements, configure and modify parameters for WLAN, 5G NR and LTE technologies.
- S8702A RF Automation Toolset – Benchtop automation solution to test and verify RF performance for Wi-Fi devices in accordance with the IEEE defined test cases.
- S8703A Functional KPI Toolset – Automation solution to verify functional performance like throughput, Rx sensitivity for the Wi-Fi devices.

For existing customers using E7515B UXM 5G Platform, a simple software upgrade provides Wi-Fi 6E, 6, and previous technologies' RF testing capabilities.

Figure 1 below shows the Keysight S8714A UXM 5G RF application running 802.11be (Wi-Fi 7) measurements.



Figure 1. Keysight S8714A UXM 5G RF application running 802.11be (Wi-Fi 7) measurements for RF analysis.

Verify performance of WLAN designs to IEEE Standards

IEEE defines the tests for Wi-Fi devices. The test cases cover the full range of Wi-Fi technologies. Keysight solution using the E7515W UXM wireless connectivity platform, the S8714A RF application, and the S8702A RF automation toolset make it easy to automate RF test cases based on IEEE definitions and provide flexibility for more in-depth testing.

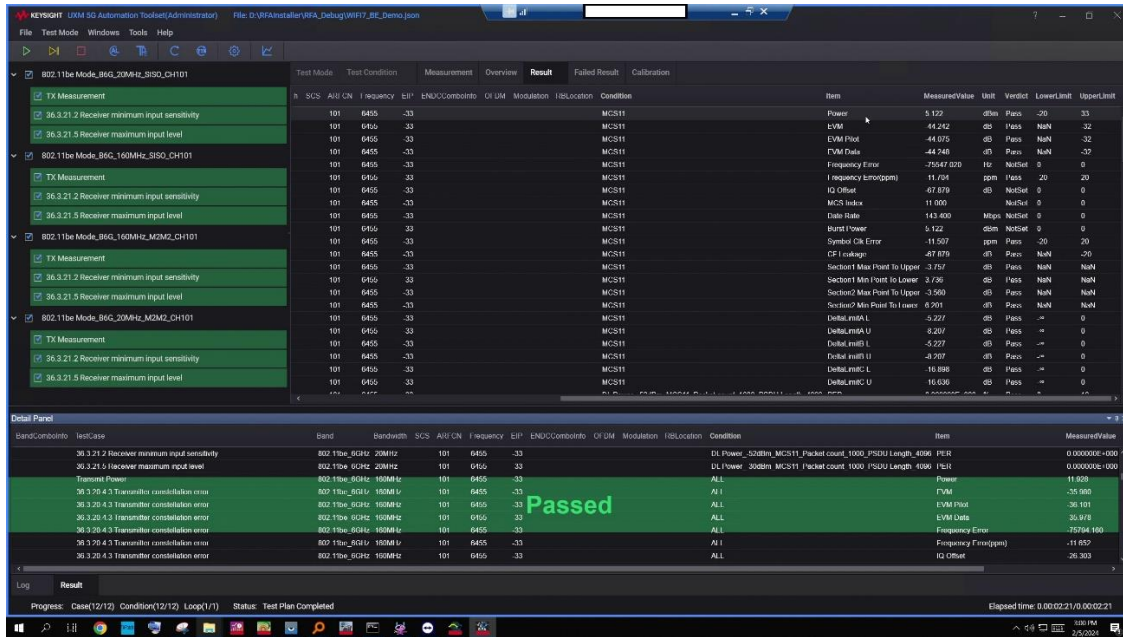


Figure 2. IEEE 802.11be (Wi-Fi 7) test cases available in S8702A RF Automation Toolset

S8702A RF Automation Toolset also covers test cases for 802.11a through 802.11ax



Figure 3. Wi-Fi test cases coverage for each technology in S8702A RF Automation Toolset

Characterize receiver performance with Automation

Automated receiver testing is quick and easy with the Keysight E7515W UXM wireless connectivity platform, S8714A RF Application, and S8703A Functional KPI Toolset. Users can evaluate Rx sensitivity and data throughput and troubleshoot issues early in the design workflow.

Figure 4 lists the Functional KPI WLAN performance test steps.

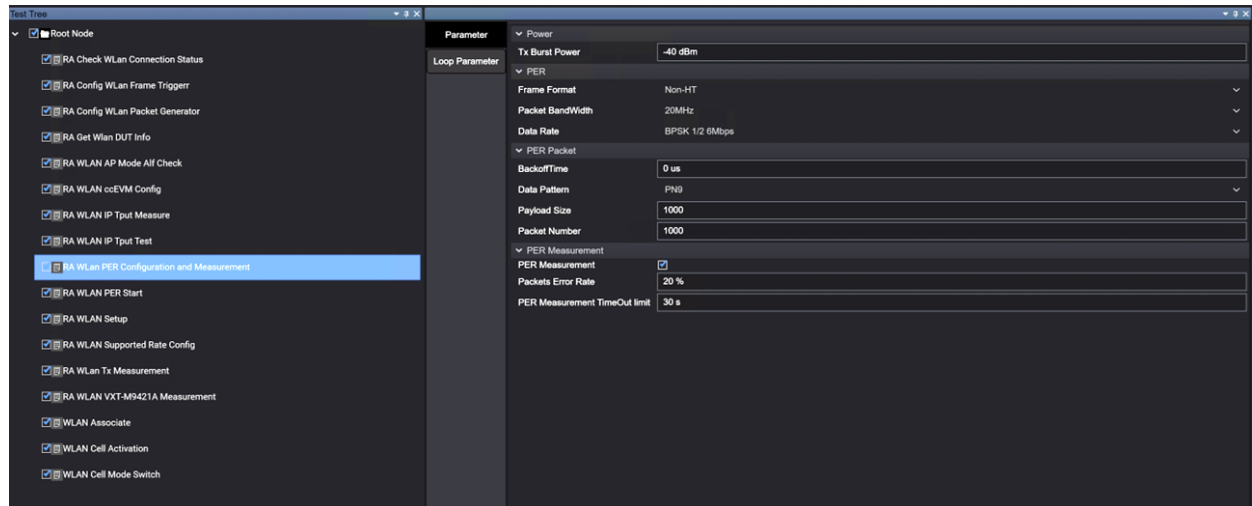


Figure 4. Receiver test cases and example PER result using Functional KPI toolset

Verify Performance Across the Workflow

Keysight PER solutions for WLAN provide comprehensive testing during all phases of the design workflow to accelerate time to market and reduce failures seen by end users.

For more information, visit these Keysight websites:

- [WLAN Testing](#)
- [E7515W UXM Wireless Connectivity Test Platform](#)
- [Everything You Need to Know About Wi-Fi 7](#)
- [S8702A RF Automation Toolset](#)
- [S8703A Functional KPI Toolset](#)
- [S8714A RF Application](#)

Keysight enables innovators to push the boundaries of engineering by quickly solving design, emulation, and test challenges to create the best product experiences. Start your innovation journey at www.keysight.com.