

Keysight Technologies

Propsim Channel Emulation

WLAN 802.11 Performance Testing



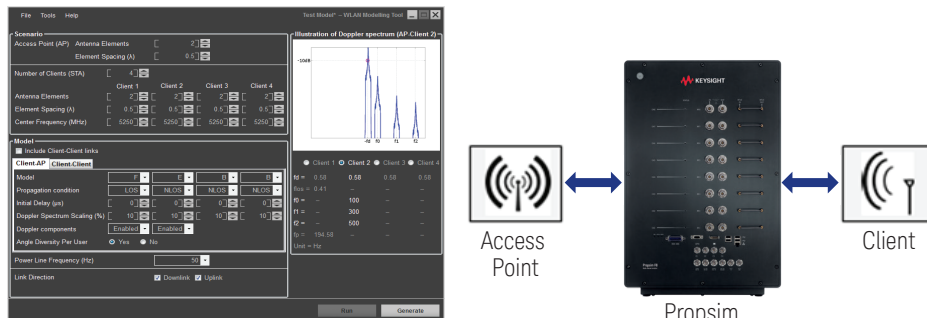
Prosim Enabled WLAN 802.11 Performance Testing

The latest industry standards for WLAN such as 802.11ac, wave 1 and wave 2, and the upcoming 802.11ax enables extraordinary improvements in speed, reliability and quality of wireless connectivity if designed and implemented properly on commercial WLAN products.

Use Prosim radio channel emulators from Keysight Technologies for principal design and testing to ensure overall performance and quality of wireless connectivity of devices.

Prosim radio channel emulators enable a quick and reliable method to implement end-to-end performance testing of the chipset and device 802.11ac/ax physical layer features. Faster, more accurate testing of 802.11ac/ax chipsets and devices results in considerable savings in total test and design time – both in terms of labor and component costs. The Prosim enabled easy-to-use end-to-end test method speeds up product development cycles and provides the opportunity to access the market faster with a verified and reliable 802.11ac/ax WLAN product.

The research and design of an antenna system, receiver chipset algorithms and system software are the typical product development phases where Prosim can help speed your time to market. Prosim provides a simple setup of the WLAN 802.11ac standard based test environment. It is an accurate and repeatable test environment enabling engineers to verify and troubleshoot physical layer operation and evaluate system level end-to-end product performance.



Prosim WLAN modeling tool. IEEE WLAN 802.11 standard channel models.

Leading chipset manufacturers select Prosim for WLAN 802.11 performance testing as it is the only channel emulator on the market with the testing capabilities that are required to develop and verify features of the new 802.11ac and upcoming 802.11ax standards. Prosim enables you to implement the advanced features of 802.11ac/ax in your chipsets and devices ahead of the industry schedule.

Technology Development

- Testing with realistic usage scenarios and propagation conditions
- Development of MIMO and beamforming algorithms
- Development of adaptive antenna algorithms
- Algorithms for multi-user MIMO
- Multi-band testing
- Wi-Fi offloading

Product Quality Assurance Testing

- Testing product quality against reference devices and access points
- Regression testing under different usage scenarios and propagation conditions

Device Benchmarking

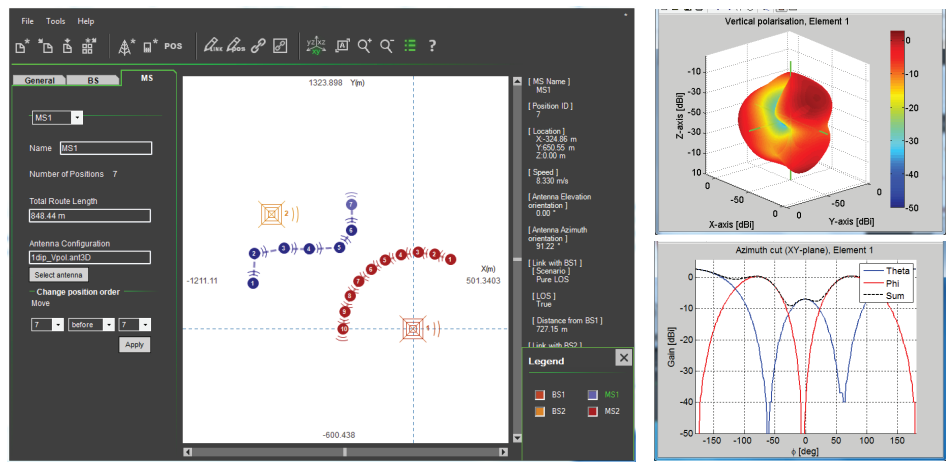
- Benchmarking of devices against reference devices
- Performance evaluation of devices against reference Access Points
- Performance evaluation of Access Points against reference devices



Prosim F8

The industry standard MIMO channel emulator for WLAN 802.11 chipset research and design verification, supporting up to 160 MHz signal bandwidth with 8x8 MU-MIMO and 3D beamforming.

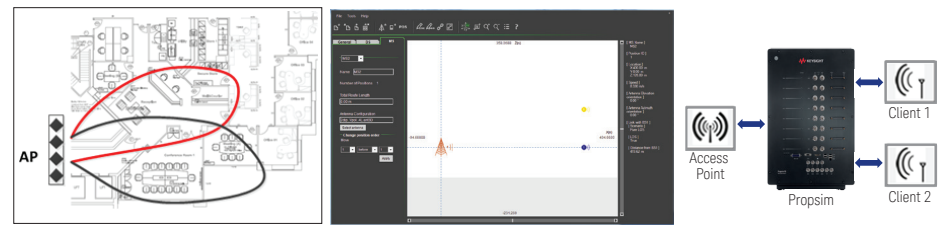
Used by leading WLAN chipset and device OEMs around the world.



Prosim GCM Tool. Advanced Scenario based testing utilizing geometric channel modeling and antenna patterns of DUTs

Prosim tools provide you access to real world like propagation conditions enabling you to quickly test and evaluate receiver performance across use case scenarios and propagation conditions. All use case scenarios and propagation conditions can be tested with several different kinds of antenna types or with your own antenna designs. More accurately allowing you to evaluate how the antenna design changes the performance under different use case and propagation conditions. Prosim tools enable you to perform testing using traditional RF cable connection to DUT antenna ports or to perform testing in Over-The-Air test setup in anechoic chamber.

Designed to be compliant with IEEE802.11 standards, the Prosim tools are a safe choice for all users in the wireless industry. The 802.11ac and upcoming 802.11ax standard has been enhanced with new features such as wide signal bandwidth up to 160 MHz, high order MIMO (4x4, 8x8), multi-user MIMO and beamforming. These features are already supported by Prosim platform and test scenario building tools, which means the Prosim is future proof for WLAN 802.11 performance testing. In addition to the industry standard testing capability for IEEE 802.11ac chipsets and devices, you have access to the most advanced test tools for designing and testing the performance of MIMO and active antenna designs.



Prosim GCM Tool. Multi-User MIMO & Beamforming scenario based testing.

Prosim F8 Key Benefits

- The industry standard tool for design and testing of IEEE 802.11ac/ax (and legacy) chipset, access points and client stations
- Easy-to-use test method, saving designers' time
- Simple control for complex propagation parameters in laboratory setup
- A future-proof solution as
 - All sub 6GHz WLAN bands and signal bandwidths supported
 - All MIMO topologies and fading channel models are supported
 - Superior RF- performance.
 - Excellent dynamic range and phase stability guarantees that Prosim fully meets the requirements for testing high order modulation schemes with MIMO and beamforming

Prosim F8 Key Features

- 80 MHz and 160 MHz bandwidth options
 - 160 MHz continuous or 80 + 80 MHz bandwidth configurations
- Seamless RF range up to 220-6000MHz
 - All WLAN bands within this RF range including sub 1GHz band
 - Simultaneous multi band testing supported
- High linearity e.g. better than -42dB EVM @160MHz BW
- Bi-directional testing of 3x3 or 4x4 MIMO with a single channel emulator unit
- MU-MIMO testing
 - e.g. four stations (single antenna) and one access point (4 antennas) with single unit
 - Higher number of users and access points with two or more channel emulator units
- Bi-directional 8x8 MIMO or MU-MIMO with two channel emulator units
- Beamform testing with single and multi-users
- Integrated phase and amplitude calibration across the antenna ports
- RF cable connected and Over-The-Air test methods
- Unique test scenario building tools for MIMO and beamforming



Prosim F8

Evolving

Our unique combination of hardware, software, support, and people can help you reach your next breakthrough. **We are unlocking the future of technology.**



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