

# octoBox<sup>®</sup> Automated Testbeds



## For end-to-end system-level 5G & Wi-Fi testing

The **octoBox STACK** series is a variety of a small stackable anechoic test beds used for testing wireless devices & systems. They isolate the devices under test from outside interference and create a stable environment for achieving repeatable throughput and other test measurements. The octoBox testbeds come fully integrated with a built-in turntable, multipath emulator, interference generator, internal antennas, and programmable RF attenuators, and arrive ready to test MIMO throughput, roaming, and other wireless performance characteristics. The octoBox series enables service providers, device manufacturers, and chipset vendors to optimize wireless service reliability and capacity thanks to the ease and speed of automated repeatable testing. It is available in four standard configurations and can be customized based on individual needs.

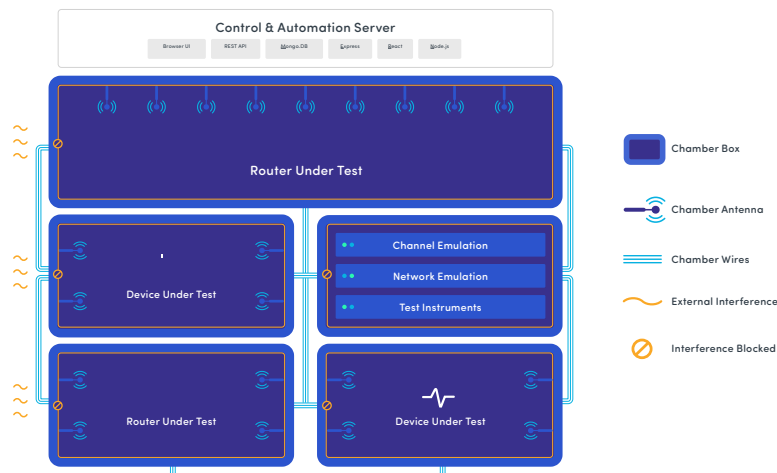
With the addition of the **Pal-6E** and **STApal-6E** test instruments, octoBox testbeds are ready to verify the operation and performance of devices supporting any Wi-Fi standards: 802.11b/g/a/n/ac/ax, including the new 6GHz band. The Pal-6E and STApal-6E function as a traffic partner, sniffer, virtual station emulator, and a load generator for testing throughput, capacity, roaming, band steering and more.

### Test Suites

There are two key test suites that extend the capabilities of the octoBox solutions:

**Tracker** – The Tracker™ enables playback of motion captures recorded in real-world environments. Motion patterns can be recorded in the field and replayed in the STACK system to enable complex test scenarios such as roaming, steering, and load balancing of multi-AP mesh networks. Mesh networks, stations, and access points experience the motion in the testbed just as it was recorded in the real world. The solution combines the benefits of real-world testing with the repeatability that only a controlled testing environment can deliver. This results in the speed and cost of in-lab testing with the confidence that the test results represent realistic end-user scenarios.

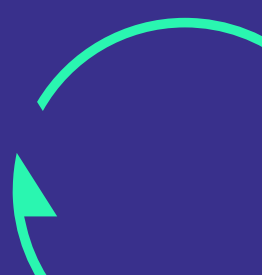
**TR-398 Test suite** – TR-398 is an industry standard test plan created by the Broadband Forum. The primary goal of the specification is to provide a standard set of test cases and framework to measure aspects of the performance between Access Points (APs) and one or more reference stations (STA) under controlled laboratory conditions. octoScope's implementation of TR-398 runs on octoBox testbeds and features a web user interface to execute each of the test cases in TR-398 individually, in groups, or all at once. A printable HTML report can be generated at the end of the execution of the test cases.



The octoBox STACK provides a modular approach to testing that includes automated testbeds with isolation chambers, antennas, emulators, and test instruments that can be rapidly configured and deployed.

### Applications

- Verify the operation and performance of devices supporting Wi-Fi standards 802.11b/g/a/n/ac/ax
- Reduce wireless test time from weeks to hours
  - Complete isolation and repeatable RF environment minimizes time-consuming open-air testing
  - Automation accelerates data collection, improves test coverage and product quality
- Demonstrate highest achievable performance
  - Ideal MIMO environment for highest possible throughput
  - Supports the latest technologies, such as Wi-Fi 6E, OFDMA, MU-MIMO, and Beamforming
- Qualify user experience
  - Emulate real-world challenges
  - Programmable range of conditions from best MIMO environment to challenging real-life impairments



## Testbed features and comparison



	STACK-			Notes
	MIN	MID	MAX	
TR-398	•	•	•	Automated certification to the Broadband Forum TR-398 performance test standard. Full coverage on STACK-MAX and STACK-MID.
RvR	•	•	•	Rate vs range test
RvRvO, RvOvR, RvRwR	•	•	•	Orientation or rotation tests require a turntable
Quad-band throughput	•	•	•	Aggregate throughput on up to 3 channels
Band Steering	•	•	•	
Roaming		•	•	
Mesh		•	•	
8x8 MIMO OTA	•	•	•	
8x8 with multipath			•	
160 MHz MIMO OTA	•	•	•	
MU-MIMO OTA	•	•	•	Beamforming based multi-user MIMO
DFS	•	•	•	
ACS	•	•	•	
Traffic replay	•	•	•	
Inline sniffing	•	•	•	synchroSniffer probe while in STA or AP mode, reporting packets targeted for the STA or AP
synchroSniffer probes	16	23	31	palBox in STACK-MAX has 16 STApal-6Es and a Pal-6E subsystem. Twelve out of the sixteen STApal-6Es have a 2x2 STA radio capable of sniffing on either 2.4, 5 or 6 GHz band
<b>Total number of stations per band</b>				
2.4 GHz	17	22	24	Pal-6E has one 2.4 GHz, two 5 GHz, and one 6 GHz radio.
5 GHz	18	24	28	The two 5 GHz radios can be run separately or combined as a single 8x8 80MHz radio or a 4x4 160 MHz radio.
6 GHz	17	22	24	
OFDMA-capable STAs	16	20	20	OFDMA multiperf endpoints
<b>vSTA</b>				
2.4 GHz	64	128	256	Each vSTA can run its own traffic using octoScope's multiPerf mp2mp traffic; bridge via vSTAs to set up application layer traffic, e.g. voice/ video streams
5 GHz	128	256	512	
6 GHz	64	128	256	
Total	256	512	1024	

### About octoScope

[octoScope, a Spirent Company](#), is the market leader in automated testbeds for accurate, repeatable testing of Wi-Fi and 5G network functions and devices. Our highly-realistic, automated test suites save service providers, and device and network vendors millions in troubleshooting and customer care costs by enabling them to identify problems early in the development cycle before customers are impacted. Our patented testbed technology recreates real-world conditions in controlled testing environments to evaluate the performance of the latest Wi-Fi 6 and 6E, and 5G network equipment and devices. The combination of our solutions with Spirent's test portfolio enhances our automation and emulation capabilities, bringing even greater realism to our test suites and helping our customers innovate with unprecedented speed and efficiency.