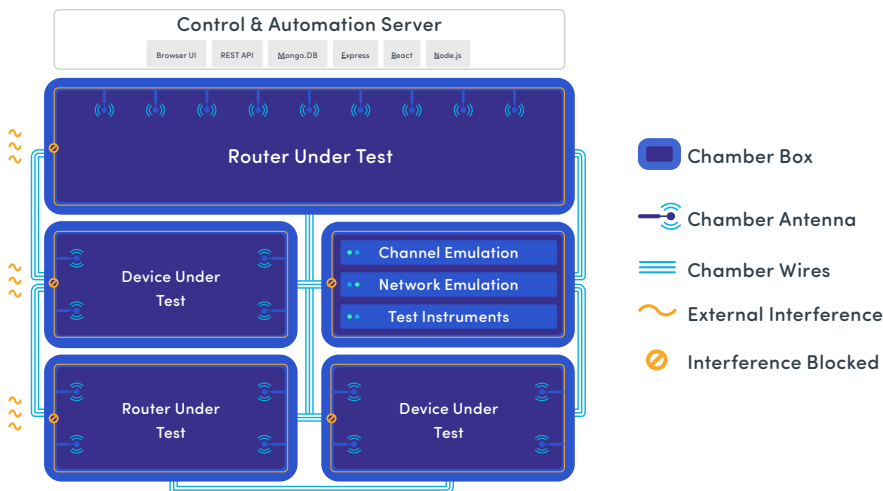


Octobox Automated Testbeds

For end-to-end system-level 5G and 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. 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 Octobox Pal-7 test instrument, Octobox testbeds are ready to verify the operation and performance of devices supporting any Wi-Fi standards: 802.11b/g/a/n/ac/ax/be, including the new 6GHz band. The Pal-7 and STApal-6Es function as a traffic partner, sniffer, virtual station emulator, and a load generator for testing throughput, capacity, roaming, band steering, and more.



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/be
- 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 7, OFDMA, Wi-Fi Mesh, MU-MIMO, and Beamforming
- Qualify user experience
 - Emulate real-world challenges
 - Programmable range of conditions from best MIMO environment to challenging real-life impairments

Octobox Software Packages

There are key Octobox software packages that extend the capabilities of the Octobox solutions:

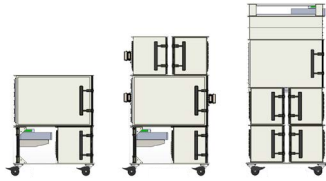
Tracker—The Tracker enables playback of motion captures recorded in real-world environments. Motion patterns can be recorded in the field and replayed in the Stack system to enable complex test scenarios such as roaming, steering, and load balancing of multi-AP mesh networks. Mesh networks, stations, 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 Automation Package—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. Spirent's implementation of TR-398 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.

RFC 2544 Automation Package—IETF RFC 2544 defines a specific set of benchmark tests that can be used to evaluate equipment performance. Having a set of industry supported tests built around the standards is important. This automation package defines a set of 4 tests: throughput, latency, frame loss rate, and back-to-back frames. Networks referred in RFC 2544 can be Local Area Networks (LAN) or Wide Area Networks (WAN).

Mesh Automation Package—Mesh access point systems are becoming an increasingly popular solution to deliver broadband internet throughout a home or an office. Currently, there is no performance testing standard that covers this space. Spirent has created a Mesh Automation Package to address a unique set of test cases to help characterize the performance of a mesh system. The Mesh Automation Package characterizes the mesh network in terms of the level of service that it delivers to the end user. The automation package simulates real, recorded homes in the lab. The testing is performed using a black box testing principle: no assumptions are taken about how the mesh operates.

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		•	•	
4x4 MIMO OTA	•	•	•	
4x4 with multipath			•	
320 MHz MIMO OTA	•	•	•	
MU-MIMO OTA	•	•	•	Beamforming based multi-user MIMO
DFS	•	•	•	
ACS	•	•	•	
Traffic replay	•	•	•	
Inline sniffing	•	•	•	Octobox synchroSniffer probe while in STA or AP mode, reporting packets targeted for the STA or AP
Octobox synchroSniffer probes	16	23	31	palBox in STACK-MAX has 16 STAPal-6Es and a Pal-7 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
Total number of stations per band				
2.4 GHz	17	22	24	
5 GHz	18	24	28	Pal-7 has one 2.4 GHz, two 5 GHz, and one 6 GHz radio.
6 GHz	17	22	24	
OFDMA-capable STAs	16	20	20	OFDMA multiperf endpoints
vSTA				
2.4 GHz	TBD	TBD	TBD	Each vSTA can run its own traffic using Spirent's multiPerf mp2mp traffic; bridge via vSTAs to set up application layer traffic, e.g. voice/video streams
5 GHz	TBD	TBD	TBD	
6 GHz	TBD	TBD	TBD	

About Spirent Communications

Spirent Communications (LSE: SPT) is a global leader with deep expertise and decades of experience in testing, assurance, analytics and security, serving developers, service providers, and enterprise networks. We help bring clarity to increasingly complex technological and business challenges. Spirent's customers have made a promise to their customers to deliver superior performance. Spirent assures that those promises are fulfilled. For more information visit: www.spirent.com

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