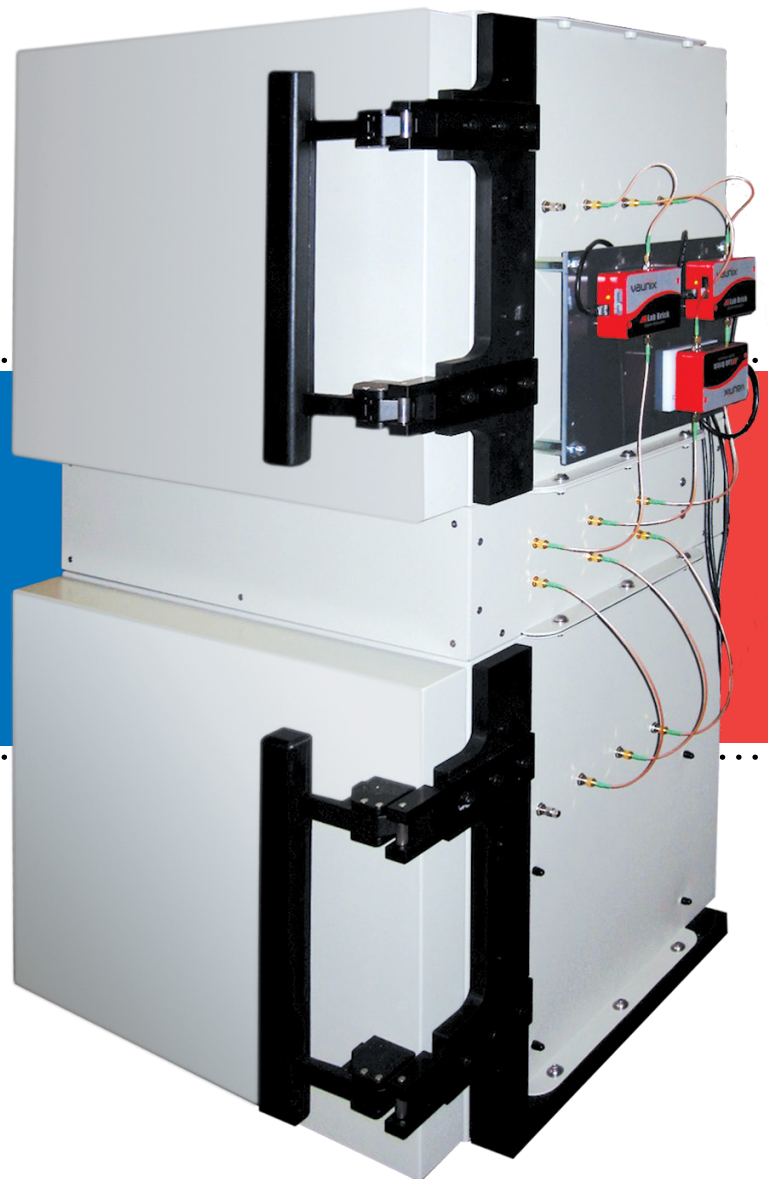
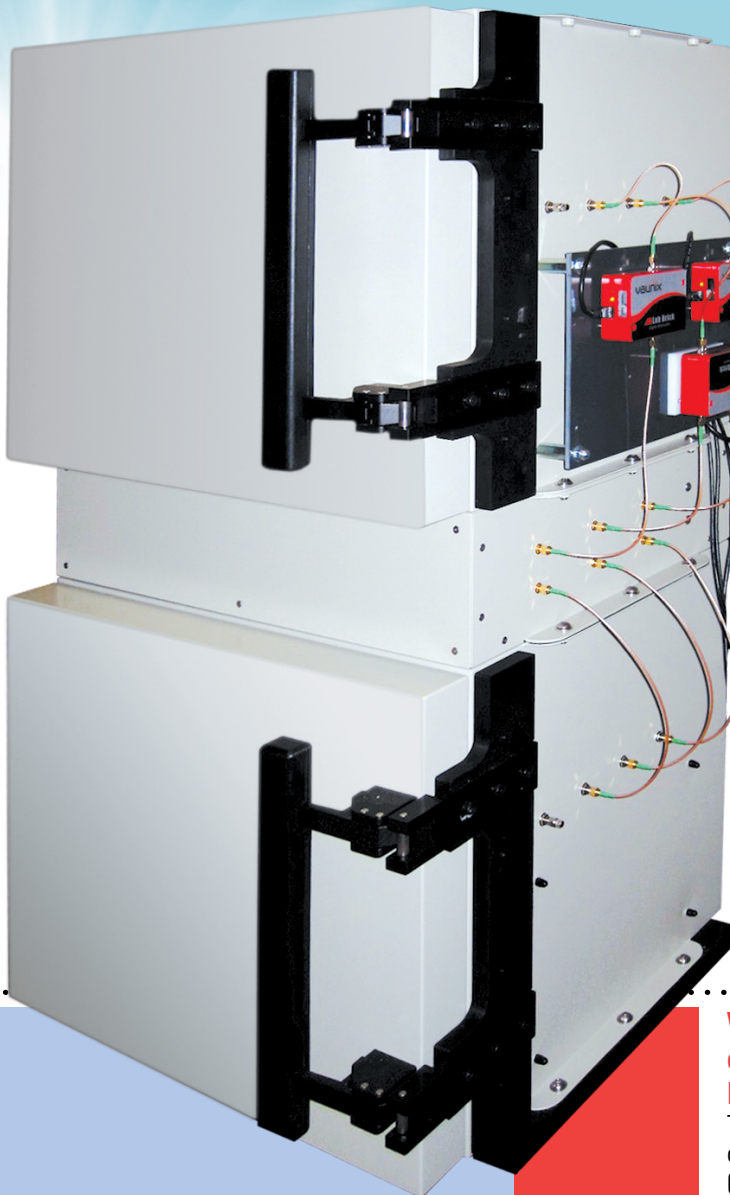




octoBox *MPE*
(Multi Path Emulator)





Programmable attenuators

octoBox MPE module

octoBox Stackable

What does octoBox MPE (multipath emulator) do? How is it used?

octoBox™ MPE is a patent-pending module that emulates multipath in a typical indoor environment. MPE can be configured for 1x1, 2x2, 3x3 or 4x4 MIMO-OTA (over the air) operation to test throughput, PER (packet error rate) and other parameters of a link between wireless devices.

What is the supported bandwidth?

Built of high frequency passive RF components, octoBox MPE is wide-band and bidirectional with perfect symmetry of response in both directions.

MPE supports DC to over 6 GHz (see plots below) with channels of any width. For example 5, 10, 20, 40, 80 and 160 MHz wide channels are supported for testing 802.11a/b/g/n/ac, 2G/3G/LTE and other wireless technologies.



Please see details [here](#).

octoBox-26 and octoBox-38 MPE are available for two sizes of octoBox Stackable.

What kind of antennas can be used for MIMO-OTA testing?

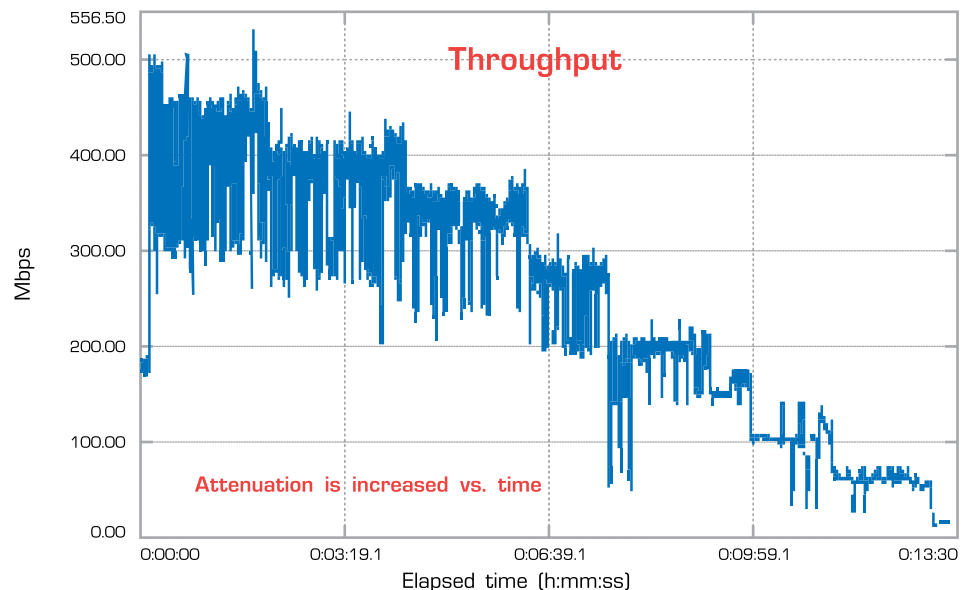
The default configuration consists of dual-band (2.4 GHz and 5 GHz) dipole antennas designed for Wi-Fi systems. Other antennas can be configured per customer request.



What are the programmable attenuators and how are they used?

We supply off-the-shelf Vaunix LDA-602 attenuators, 6 – 6000 MHz with a range of 60 dB.

A simple automation script can be used to ramp attenuators to test throughput, PER and other link parameters vs. path loss and multipath.



How does octoBox MPE compare to conventional faders?

Conventional faders are designed for conducted (cabled) coupling to DUTs. octoBox MPE is designed for OTA coupling and allows testing through MIMO antennas mounted in the octoBox.

Multipath is tuned to resemble 802.11n/ac channel models. Multiple MPEs, each implementing a different model, can be stacked. octoBox MPE is factory-configurable to closely match IEEE 802.11n/ac models B-C.

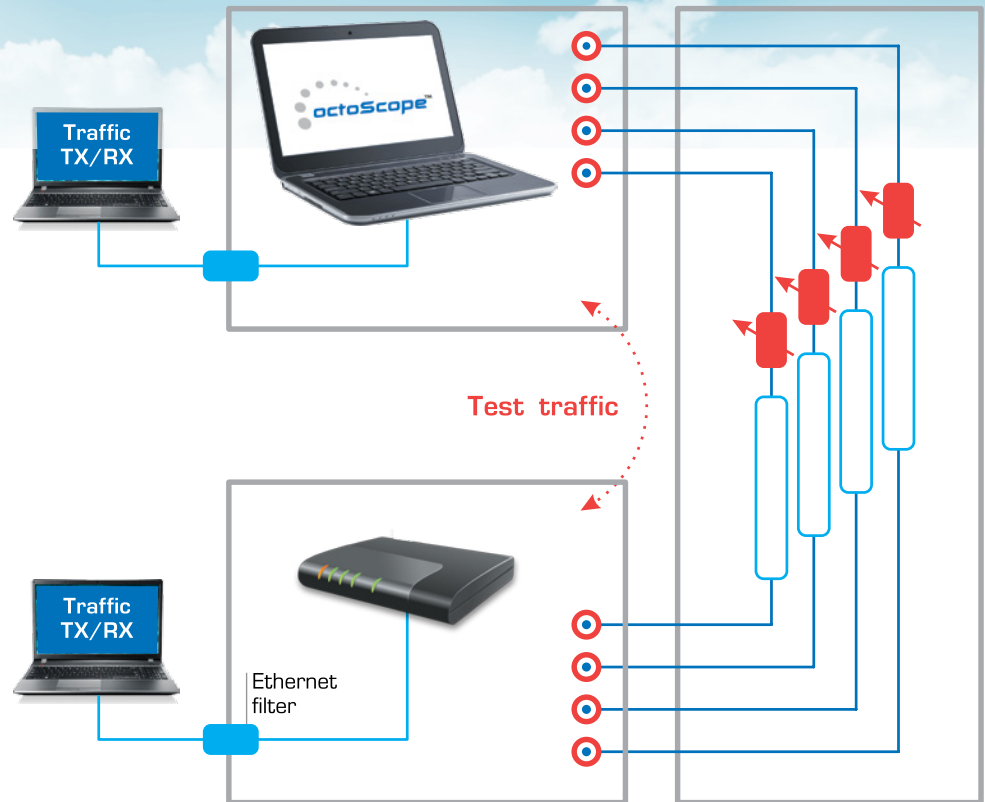
Unlike with conventional faders, multipath parameters, such as delay spread and cluster behavior, are not programmable. Only path loss is programmable using attenuators.



Please see [here](#) for more details of MPE vs. conventional faders.

octoBox anechoic chamber

RF Multipath emulator



Cabled connections can be used at one end of the link to maximize signal power at the DUT.

MIMO antenna spacing controls correlation

Spacing of the antennas determines the correlation of a MIMO link and this in turn impacts throughput. The wider the antennas are spread the lower the correlation and the higher the theoretical throughput.

Antenna spacing is adjustable.

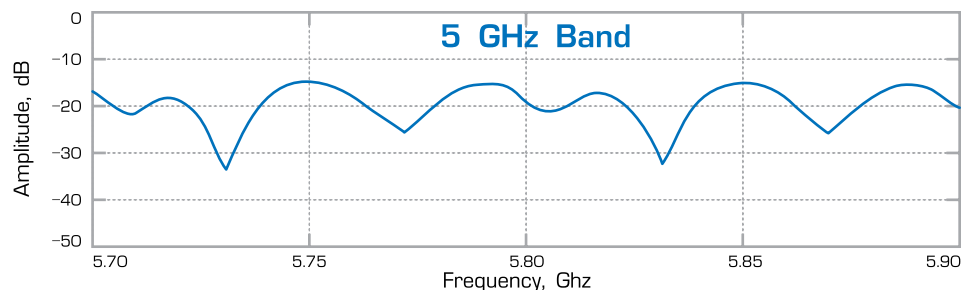
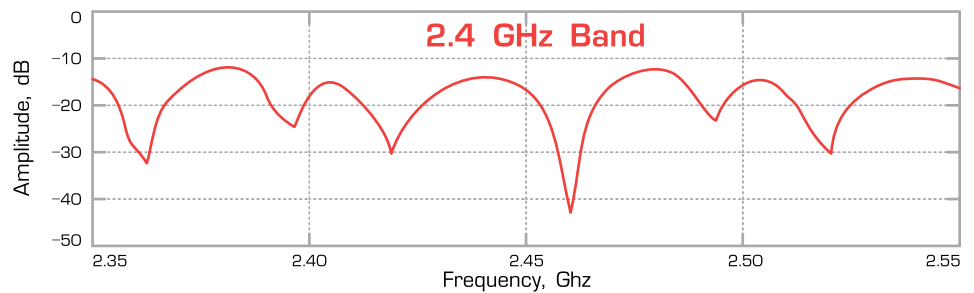
octoBox MPE Mechanical Specifications

	octoBox-26 MPE	octoBox-38 MPE
Size	5.6" H x 26.35" W x 18" D	TBD
Weight	40-48 Lbs (18-22 kg), depending on the MIMO configuration	TBD

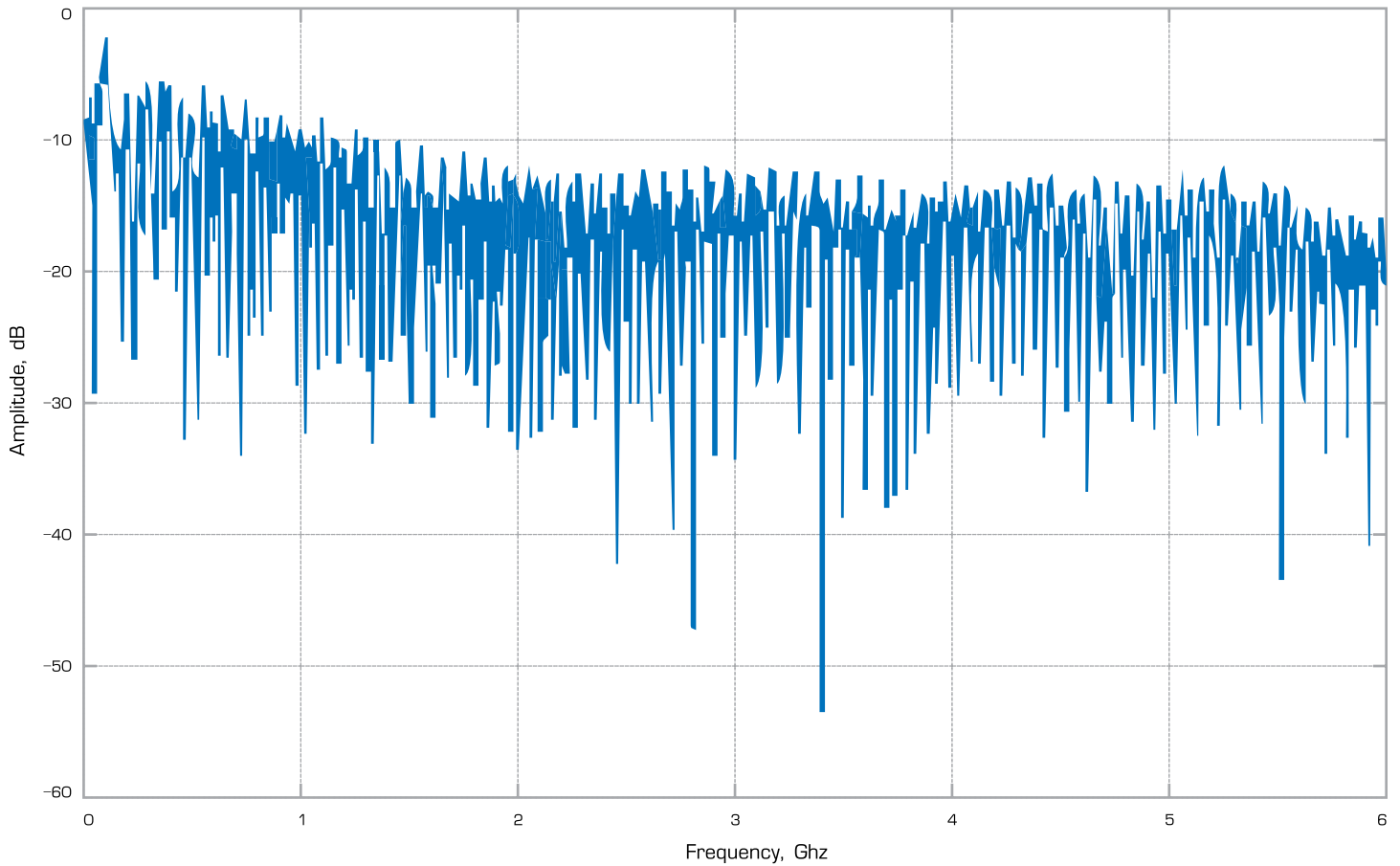
octoBox MPE Frequency Response

The plots show the response of each multipath emulator subsystem.

For a 1 x 1 configuration only 1 subsystem is present; for a 2x2 configuration 2 subsystems are present, etc.



oB MPE Frequency Response



oB MPE ordering Information

For example:

OB26-MPE-B-3-A is octoBox-26 MPE 3x3 with programmable attenuators; model B

Model #	Description
OB26-MPE-B/C-1/2/3/4-A	octoBox-26 MPE + programmable attenuator module Select B for model B; C for model C Select 2 for 2x2; 3 for 3x3; 4 for 4x4
OB26-MPE-B/C-1/2/3/4	octoBox-26 MPE
OB38-MPE-B/C-1/2/3/4-A	octoBox-38 MPE + programmable attenuator module
OB38-MPE-B/C-1/2/3/4	octoBox-38 MPE
Note: Coaxial cabling and dual-band Wi-Fi dipole antennas are included when ordered as a tesbed with at least one octoBox Stackable.	



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