



MilliBox™

MMWAVE ANTENNA TEST CHAMBERS



Product Guide 2020

Milliwave Silicon Solutions

WGS-84 LAT 35° 38' 51.16" N LONG 139° 37' 46.73" E J9 X: -39083.64m Y: -18444.57m HT: 57.20m



●RF、ミリ波、THzとGNSSセンサー製品
株式会社 **アムテックス**

Since JAN 1987

info@amtechs.co.jp





mmWave Chambers

COMPACT- The device under test (DUT) antenna size and operating frequency dictates the far-field distance requirement for over-the-air (OTA) testing and drives the chamber dimensions. At mmWave frequencies, the far-field dimension is small enough so that MilliBox chambers can comfortably fit on a lab benchtop.

The deck has multiple measurement positions with 8cm (3") pass-through holes for direct wiring without connector ports. Conveniently, measurement instruments can be placed just below the MilliBox chamber deck, which reduces the RF coax length and cable loss.

The horn post and the DUT positioners are placed on opposite ends of the chamber deck. Access to the inside is granted through the front doors that close to seal the chamber during test.



MODULAR- MilliBox chambers are built of modular construction components allowing the creation of several configurations to address differing needs. The MBX0x series is made of 60cm (24") cubic modules and the MBX3x series of 80cm (30") cubic modules. The chamber size is selected to satisfy your far-field requirements, and extension "cubes" can be added later if the need arises.

The four top corners of the chamber feature passthrough access for accessories like air extraction, cameras, lights, or sensors. Other accessories, like sniffer mounts and fixed or oscillating trihedral corner reflector mounts, are also available.

AFFORDABLE- Compared to "Do-It-Yourself" systems, MilliBox are complete solutions that are priced advantageously, offer better performance, and do not waste scarce engineering resources to develop and maintain.

MilliBox chambers come standard with a GIM01 3D DUT positioner, matching HOR01 horn post with WR2.2 to WR15 horn clamp, power supply, USB dongle, and Python controller software. Other options are available.

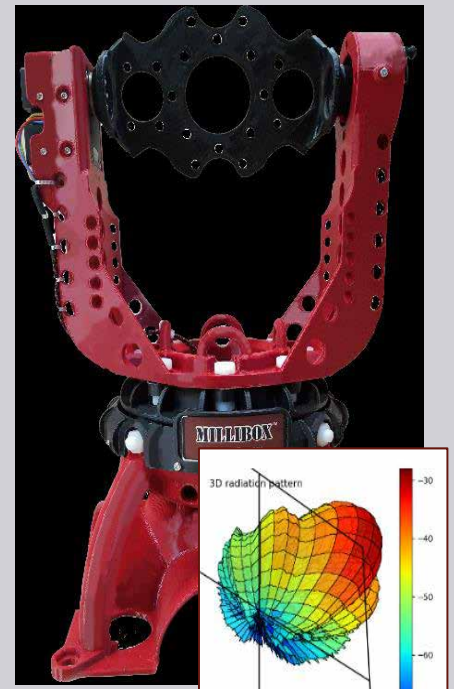
| | MBX02 | MBX03 | MBX04 | MBX33 |
|---------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|------------------------------------|
| | | | | |
| Exterior Dimensions (W x H x D) | 128 x 95 x 66cm (50" x 37" x 26") | 188 x 95 x 66cm (74" x 37" x 26") | 245 x 95 x 66cm (96" x 37" x 26") | 240 x 112 x 82cm (95" x 44" x 32") |
| Interior Cavity (W x H x D) | 101 x 40 x 40cm (40" x 16" x 16") | 161 x 40 x 40cm (63" x 16" x 16") | 221 x 40 x 40cm (87" x 16" x 16") | 213 x 57 x 57cm (84" x 22" x 22") |
| Far Field (GIM01/GIM1D) | 77cm (30") | 138cm (54") | 198cm (78") | 186cm (73") |
| Far Field (GIM03) | 72cm (28") | 133cm (52") | 193cm (76") | 176cm (69") |
| Measurement Positions | 2 | 4 | 6 | 8 |
| Instrument Bay Height | 29cm (12") | | | |
| Absorber Performance | -50dB from 18GHz to 95GHz | | | |
| Manufacturer Warranty | 1 year all parts | | | |

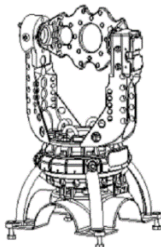
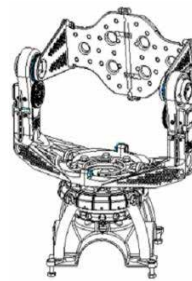
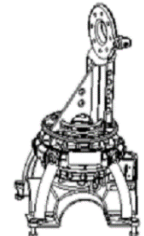
mmWave Positioners

PRACTICAL- MilliBox offers several positioners for different DUT size and weight requirements. The positioners are built of high-performance printed PLA biomaterial with low dielectric constant limiting stray reflections. The wiring to the DUT is done using a passthrough in the horizontal and vertical bearings to prevent wire tangling during operation.

ACCURATE- A laser crosshair guide helps precisely align the initial DUT boresight direction to the measurement horn. The real-time position control is achieved with the feedback of a built-in 12-bit absolute position encoder.

OPEN FRAMEWORK- MilliBox positioners are controlled over USB with Python software delivered in source. The software also controls any SCPI-compatible instrument connected by LAN, GPIB, or USB. All this helps to seamlessly integrate MilliBox into your existing RF testing environment. Many radiation pattern types like HV plots or 3D plots come standard and can be easily modified and augmented as desired.



| | GIM01 | GIM03 | GIM1D |
|-----------------------------|---|--|---|
| |  |  |  |
| Max DUT Width | 11 cm (4") | 27 cm (10") | – |
| Max DUT Weight | 0.5 kg (1 lb) | 3 kg (6 lb) | 5 kg (10 lb) |
| Position Range | 360° x 360° | 360° x 360° | 360° Azimuth only |
| Angular Resolution | 0.088° | | |
| Variable Velocity | 0 to 11 RPM | 0 to 9 RPM | 0 to 11 RPM |
| Measurement Height | 32.7 cm (13") | | |
| Wiring Passthrough Diameter | 20 mm (0.79") | 24 mm (1") | – |

Customization

OPTIONS- Standard horn clamp options are available for common waveguide sizes, and MilliBox can design and fabricate custom horn and DUT mounts, when needed. Design files of critical mechanical parts are available upon request to help you design accessories, mounts, or modify the original design.



Sales Contacts

Headquarters: Milliwave Silicon Solutions
429 Camille Cir Unit 17
San Jose, CA 95134 USA
+1 408 892 9595
millibox@milliwavess.com

USA – East: Beacon Technical Sales
Everett Executive Suites
12 Murphy Drive, Suite 101
Nashua, NH 03062 USA
+1 603 880 0092
sales@beacon-tech.com

USA – Southern California and Arizona: QuantumFlow
10966 Bluffside Dr #2
Studio City, CA 91604 USA
+1 773 627 3108
hello@quantumflow.co

Europe, Middle East, Africa, and India: mmWave Test Solutions
Harrestrup Allé 16
DK-2500 Valby Denmark
+45 2163 0226
info@mmwavetest.com

Japan: AmTechs Corporation
5-20-16 Kyodo
Setagaya-Ku, Tokyo 156-0052 Japan
+81 3 5450 5311
RF@amtechs.co.jp

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