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Anritsu Anechoic Chamber Measurement EduPack Bundle

Providing Today's Industry-Leading Technology to Tomorrow's Industry-Changing Engineers



Antennas have long been a focus of many universities' curriculum and research. As applications, such as 5G, quickly move in to higher frequency ranges, supporting the education, research, analysis, modeling, and test and development effort is paramount. Whether discovering the next breakthrough technology or preparing students for the engineering workforce, universities must leverage the state-of-the-art equipment and methodologies that will help bring these efforts to fruition.

Anritsu is dedicated to helping this charter and has designed the Anechoic Chamber Measurement EduPack Bundle. This premier, turnkey solution equips university engineering labs and their students, academic researchers, and teachers with a complete, cutting-edge system for measuring and characterizing antenna systems. The bundle comes standard with a VectorStar[™] MS4644B 40 GHz vector network analyzer, calibration kit, active measurement suite, Cadence AWR lite software, and MilliBox's anechoic chamber and software.

Anritsu Anechoic Chamber Measurement EduPack Bundle

Anritsu VectorStar MS4644B vector network analyzer (VNA) providing:

- Frequency coverage of 70 kHz to 40 GHz
- Industry-standard Cadence AWR software (lite version)
- Modular design enables system upgrade to provide frequency coverage up to 145 GHz

40 GHz high-precision manual calibration kit

Active measurement suite (includes: step attenuators, bias tees, direct access loops, and gain compression and efficiency measurement capabilities)

Time domain analysis for measuring your devices in time domain rather than frequency domain

IMD measurement wizard that characterizes your amplifiers for various parameters like IMD, TOI, IPn, etc.

Gain compression measurements to check active amplifier characteristics

Receiver offset for mixer and scaler measurements

MilliBox anechoic chamber

MilliBox software, 3D positioner, and controller





Integrating High-Performance VNAs with High-Frequency Design Tools

The VectorStar MS4644B VNA is a leading modular solution that provides coverage from 70 kHz to 40 GHz (available up to 220 GHz with a single coaxial test port) covering the most current communication standards including 5G. This system provides your university's lab with the flexibility, performance, accuracy, and reliability needed for conducting antenna measurements.

- Industry-leading dynamic range (>140 dB) enables users to quickly and easily perform accurate high-sensitivity antenna measurements and overcome path loss at mmWave frequencies
- **Highest data resolution with as many as 100,000 data points in a single channel** allows users to zoom in on narrowband responses and see without recalibration at any frequency range
- Optical Fast CW option enables ~200,000 measurements per second on each receiver with a buffer of 60 million measurements, while the Advanced Fast CW measures 100 million measurement/second on each receiver with a buffer of 800 million measurements – both allowing for enough data to quickly and accurately measure antenna performance
- **Industry-leading 2.5 ns resolution for pulse measurements** includes pulse profile (PP), point-in-pulse (PIP), pulse-to-pulse (P2P), continuous pulse profiling (Cprof), and continuous point-in-pulse (CPIP) available with easy software operations; optional 200 MHz IF bandwidth available for fast and accurate pulse measurements

Cadence AWR Software

Every VectorStar VNA solution includes a lite version of the industry-standard AWR software, enabling your university's students and staff to leverage a variety of tools for their high-frequency IC, PCB, and module design, including:

- Linear circuit simulators
- Electromagnetic (EM) analysis tools
- Integrated schematic and layout

MilliBox Compact Anechoic Chamber and Software

Leveraging an anechoic chamber for antenna measurements has many benefits:

- Absorbing reflections of waves within the chamber rather than having them bounce off walls and create an echo
- Providing shielding from outside interference
- Security
- Interference-free radiation
- Immunity to weather

These help maintain test accuracy and data repeatability. Many chambers used for 4G and LTE have been larger since the signal must travel further. However, at frequencies of 28/39 GHz and beyond, because the far fields are at a smaller distance, the size of the anechoic chamber required to test an antenna with a single feed is much smaller.

MilliBox has designed several compact and modular anechoic chambers that will allow your students and staff to benefit from their use in every day lab environments. The MilliBox anechoic chambers feature pass-through access that enables users to easily connect the VectorStar MS4644B VNA directly to the antenna under test as well as accessories like air extraction, cameras, lights, or sensors. The coaxial cables are routed through the positioner's bearing axis for optimized and tangle-free operation. The 2-axis positioner provides full spherical coverage with <0.1° angular resolution, and is controlled over USB and powered by a power supply adapter (included). Precise alignment of the antenna under test and the measurement horn antenna is facilitated by the installed cross-hair laser guide.

Anritsu and MilliBox Software Compatibility

The VectorStar MS4644B VNA is fully compatible with the MilliBox Python-based software used to make antenna parameter and radiation pattern measurements. Because it is open source, students and staff are able to define and code their own parameters for required measurements, providing flexibility and a skill building opportunity. The initial code includes the commands needed to control the MilliBox positioner and make 2D/3D antenna measurements. Additional measurements like E/H field scans are also provided by MilliBox.

Optimize Your Lab Today for Tomorrow's Future

The Anritsu Anechoic Chamber Measurement EduPack Bundle has the cutting-edge equipment your university's engineering lab needs to help bring your curriculum and research to life. Contact your local Anritsu sales representative to provide your students with the hands-on experience they need to become tomorrow's engineers and your researchers with the tools to discover their next technological breakthrough.



	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'')	1 38cm (54'')	198cm (78")	186cm (73")
Far Field (GIM03)	72cm (28'')	1 33cm (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	l year all parts			



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