

Amitec Microwave Anechoic Chamber MAC20 Features:

- * EMI/EMC , Antenna & RCS Measurements
- * Low cost solution to anechoic chamber.
- * Reflected signal (reaching test zone) down by min -30dB with respect to direct signal.
- * Low RCS stand (FRP Rod and holding devices) to hold transmitting/ receiving antenna
- * Antenna under test / RCS measurement target stand on a stepper motor monopod with resolution of 1deg.
- * Five-side PU Foam absorber covered Aluminum Clad Frame.
- * Special corner block absorbers used.
- * PU Absorbers are high performance Pyramidal Microwave absorbers constructed using low density, flexible foam impregnated with carbon formulation.
- * Suitable type optimum performing absorbers at near normal/grazing incidences of extraneous signals used.
- * Specially shaped absorbers for transmitting and receiving (Pyramids for Transmitting and Wedges for receiving).

- * Custom tailored solution, other size boxes, anechoic rooms can be provided.
- * The pyramidal structure gives it the geometrical matching and carbon dispersed gives high attenuation
- * Suitable for 600 MHz to 20GHz and higher frequencies. Performance (Reflection Loss) at lower frequencies shall be deteriorated, like at 500MHz it will be -20dB only)
- * Fire retardant and Zero halogen.
- * Comprehensive Testing Validation report available

Areas of Application

- * Suitable for Microwave and Antenna labs.
- * Measurement of radio noise emission.
- * Making screens for hiding area of maximum reflections.
- * For obtaining Quiet zones in very wide frequency range.
- * Wedge shaped absorbers have maximum performance at grazing incidence angles.
- * Designed in view of requirements of educational institutes.
- * Necessary attachment for Antenna/Microwave Trainers
- * Accurate antenna pattern/RCS Measurements

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Technical Specifications:

Amitec Anechoic Chamber

Dimensions : 1.2mX1.2mX1.2m X2 nos
 Absorber : EM Lossy PU Foam Pyramids
 Reflection : -40dB @ 10GHz
 Fire retardancy : As Per NRL USA-8093 Standard complying Tests No.: 1,2 and 3 with ZERO HALOGEN MEANS.

Shielding
 Effectiveness : 40dB from 2-18 GHz, 50dB 0.5-2 GHz
 Quiet zone : -40dB
 Equivalent RCS : -30dBsm 2-40GHz

Amitec Dual Ridge Horn Antenna DRH20

Frequency Range : 2-18GHz
 Gain(Typ.) : 8.5dBi
 Polarization : Linear
 VSWR (Typ.) : <2:1
 3dB Beam width : 52-24 degree
 Net Weight : 1.1Kgs
 Connector : N type Female
 Mounting Bracket : Aluminum right angled plates with screws

Accessories :

- * All necessary connectors and cables
- * SMA - N Adapters - 2 Nos, N-N right angle adapter -2 Nos
- * 3m Low Loss SMA-SMA cables - 2 Nos.

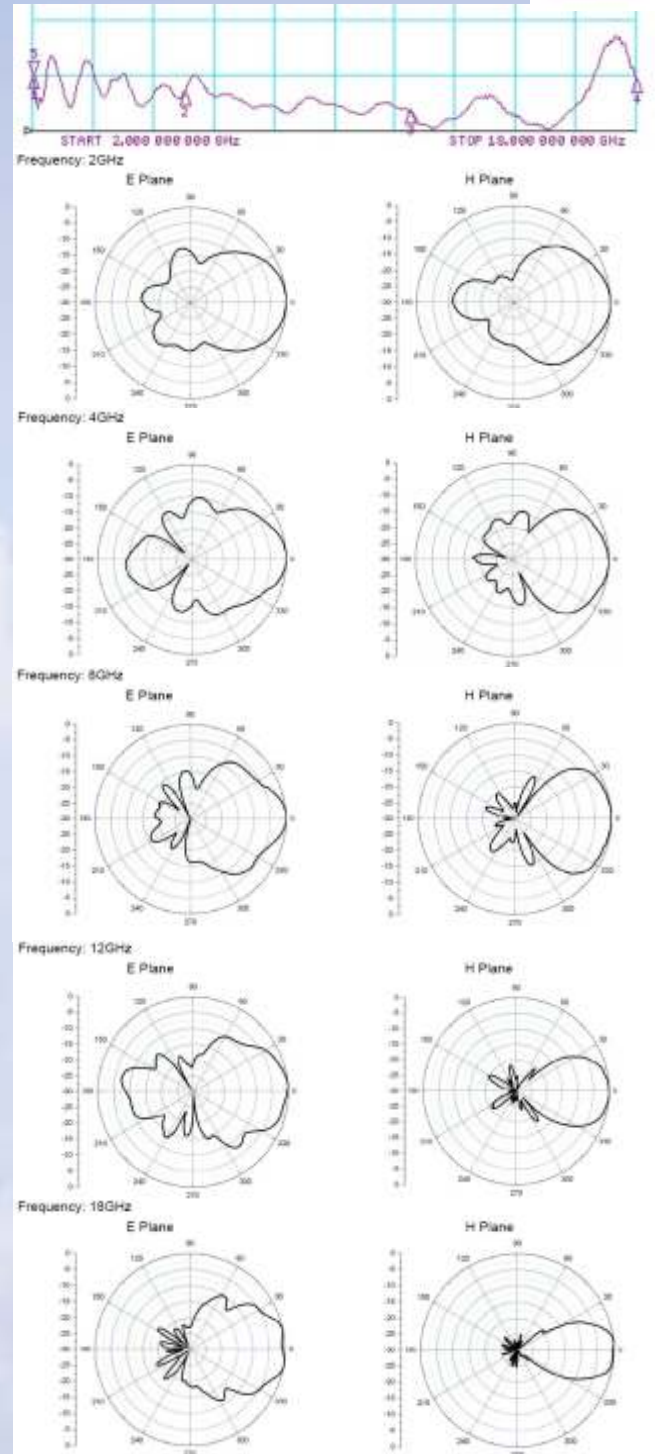
E-Manual: Installation Video for ease of Learning

Dimensions: 1.2m X 1.2m X 1.2m - 2 Nos. Weight: 500 kg.
 Warranty: 3 yrs

EXPERIMENTS

- * Square law characteristics of Microwave propagation
- * Polar Plots- E & H Plane
- * Cartesian Plots- E & H Plane
- * Vertical Plane Plots – Ground Plane effect
- * Directive gain, Front to back ratio of Antenna.
- * Side lobe Level and its Angular Position
- * Beam width – Half Power (3dB) & 10 dB
- * Frequency Bandwidth of an Antenna
- * Study RF reflection loss and absorption loss properties of some sample absorbers

CHI Markers
 1: 2.0081
 2.00000 GHz
 2: 1.6860
 6.00000 GHz
 3: 1.3602
 12.00000 GHz
 4: 1.9296
 18.00000 GHz



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Features:

- * PLL transmitter and receiver 0.001-4 GHz.
- * 1 KHz step size with measurement in 0.1 dB resolution
- * 110 dB dynamic range.
- * Directional Coupler for VSWR/ Return Loss.
- * Stepper motor antenna rotator.
- * 1 degree resolution stepper motor
- * USB interface with polar/cartesian plotting software
- * All SMA connectors, Teflon RG316 Cables
- * All antenna gain, return loss and pattern plot provided
- * 1000 location Frequency and level storage in receiver

1. PLL Synthesized Signal Source



Technical Specifications:

Frequency range :	1-4000 MHz PLL synth. in 2 ranges
Step size :	1 KHz to 500 MHz
Accuracy :	0.001%
Display :	16X2 Backlit LCD
Controls :	Menu, Enter, Escape, Up & Down
Memory :	1000 individual frequencies be stored
RF Level :	10dBm typical
Attenuator :	40dB (external SMA-SMA)
Output Z :	50 ohms
Connector :	Gold plated SMA

2. PLL Synthesized Receiver



Technical Specifications:

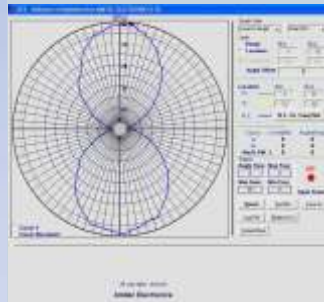
Frequency range :	1-4000 MHz PLL synth. in 2 ranges
Step size :	1 KHz to 500MHz
Accuracy :	0.001%
Display :	16X2 Backlit LCD
Memory :	1000 frequencies & levels be stored
Measurements :	RF level measurement in dBuV / dBm / pW / dBr with 0.1dB resolution
Sensitivity :	-100dBm
Dynamic range :	110 dB (70dB log. + 40dB attenuator)
RS232 interface :	To PC for plotting software
Auto mode :	Interfacing with source
Input Z :	50 ohm Gold plated SMA connector

3, 4. Stepper Motor Controller Unit - 2 Nos.



Display: 16X2 backlit LCD
 Rotation: 0-359 degrees
 Resolution: 1 degree.
 Angular steps: 1, 5, 10, 45°
 Memory: 1000 angular position store/recall
 Auto mode: Automatic rotation with receiver
 Mode: CW/CCW rotation, Fast Slow speed modes
 Power Supply: 100-240V AC, 50-60 Hz

5. Software



RS 232 interface with polar plotting with log, linear cartesian and polar plots, Vi, Vr & Return loss plots, Multiple pattern overlay, Double cursor, Zoom, Colour editing, 1000 location editor, Absolute / Relative, 3dB/10dB beam-width, Gain, Front to back, Side lobe level and position, Plot rotate, File-edit, save, get.

6. Directional Coupler



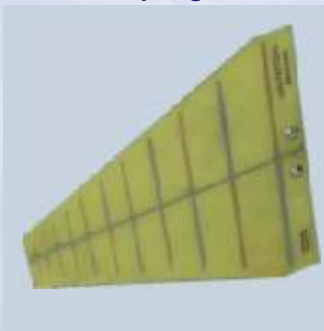
Bandwidth: 0.1 - 4 GHz
 Insertion S_{12} : 1.5 ± 0.5 dB
 Coupling S_{13} : 20 ± 2 dB
 Isolation S_{14} : 20 ± 2 dB
 Directivity S_{23} : 15 ± 3 dB
 Impedance : 50 Ohms
 Connector : SMA
 Usage: Antenna forward & reverse power & VSWR measurements.

7. 4 Ghz Coaxial Slotted Line



S_{11} : >15 dB, S_{12} : <1.5 dB
 Resolution: 0.05 mm / 0.15 degree at 1.5GHz) using vernier
 Coupling factor: -20dB
 Connector: SMA
 Residual VSWR : <1.2
 Velocity propagation : 1.818×10^8 m/s
 Wavelength/360° phase : 121mm at 1.5GHz
 Total Length : 200mm

8. Microstrip Log Periodic Antenna



S_{11} : >10 dB
 Bandwidth: 1500 ± 500 MHz
 Gain: 6dBi
 Beamwidth : E plane 60°
 Beamwidth : H Plane 80°
 Polarisation : Linear
 Front to Back Ratio: 6dB
 Connector : SMA

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9. Near Field Magnetic probe M1



Type: Loop
 Sensor: Magnetic Field
 Rejection E/H: 40dB
 Frequency: 800MHz upper resonant
 Sensitivity: High
 Diameter: 6cm

14. Passive Magnetic Loop Antenna



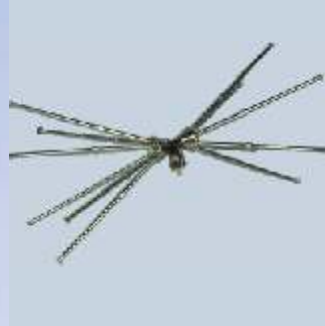
Frequency: 9KHz-30MHz
 Diameter: 300mm
 Connector: SMA
 Inductance: 1uH
 Turns: Multi
 Shielding: Electrostatic
 Applications: RE, RI

10. Near Field Magnetic probe M2



Type: Loop
 Sensor: Magnetic Field
 Rejection E/H: 30dB
 Frequency: 1.5GHz upper resonant
 Sensitivity: High
 Diameter: 3cm

15. Biconical Antenna



S11: >10dB
 Bandwidth: 600 ± 300 MHz
 Gain: 2dBi
 Beamwidth: E plane 60°
 Beamwidth: H Plane 180°
 Polarisation: Linear
 Front to Back Ratio: 0dB
 Connector: SMA

11. Near Field Magnetic probe M3



Type: Loop
 Sensor: Magnetic Field
 Rejection E/H: 10dB
 Frequency: 2.5GHz upper resonant
 Sensitivity: Low
 Diameter: 1cm

16,17. Dipole L/2, L/4



S11: >10dB
 Bandwidth: 600 ± 300 MHz
 Gain: 2dBi
 Beamwidth: E plane 70°
 Beamwidth: H Plane 180°
 Polarisation: Linear
 Front to Back Ratio: 0dB
 Connector: SMA

12. Near Field Electric probe E1



Type: Omni Directinoal
 Sensor: Electric Field
 Rejection H/E: 30dB
 Frequency: 1GHz upper resonant
 Sensitivity: High
 Diameter: 3.6cm

13. Near Field Electric probe E2



Type: Narrow Directinoal
 Sensor: Electric Field
 Rejection H/E: 30dB
 Frequency: 3GHz upper resonant
 Sensitivity: Low
 Size: 0.6cm

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