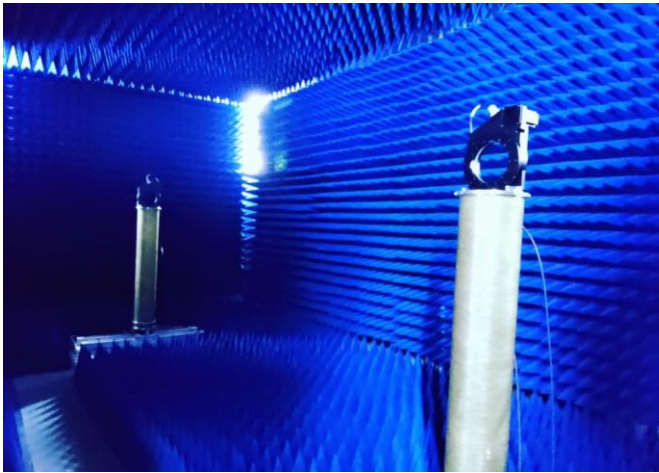


RF ANECHOIC CHAMBER

RF Antenna Measurements

OPTIMAL CONNECTIVITY has designed, built, and operates its **RF Anechoic Chamber** in Dubai, United Arab Emirates (<https://www.oc2me.com/anechoic-chamber-measurements/>). We offer RF measurement of **antennas, filters, absorbers, electronic equipment** EMC/EMI performed under internationally recognized standards like IEEE STD 149-2021, MIL-STD-461D, ISO 17025, etc. These standards define key performance indicators like **antenna pattern, realized gain, co-pol and cross-pol components, shielding efficiency, quiet zone** and many more parameters.



In our Anechoic Chamber, the influence of surrounding sources of radio signals, reflecting objects and electric fields are eliminated. We offer measurement within our **double-walled Faraday-Cage** equipped with non-reflective, RF echo suppressing absorbers for performing antenna and other electronic equipment measurements. With our RF Anechoic Chamber, we can provide exact measurement values with minimal tolerance which are only defined by the limits of measurement equipment and not by the measurement environment and external sources.

Our service includes the planning of the test scenario, **in-house manufacturing** of fixtures and accessories, provision of reference antennas, setup, calibration, etc. which allows us to address your needs with the **lowest cost** and **shortest lead times**.

Our RF Anechoic Chamber and its equipment are **mechanically** and **electronically calibrated** to achieve reliable and repeatable results with the highest accuracy.

Key features

- Frequency range I: 0.2 GHz – 8 GHz
- Frequency range II: 5 GHz – 20 GHz
- Dimensions (outer / inner): L 8m/7m, W 4.5m/3.5m, H 3.8m/2.8m
- Near-field and Far-field Measurements
- Absorption Level 25 – 35 dB
- VNA for 2-port and 4-port SnP measurement
- Static and Dynamic Tx and Rx Positioner (4 axes each)
- Mechanical resolution: linear 0.1mm, radial 0.01 degree
- Automated operation for QA procedures in volume production
- Measurement database for traceability of all performed tests
- Generation of detailed test reports and SnP files (Touchstone)
- Generation of 2D and 3D visualization of test results
- Radar Cross Section (RCS) measurements
- Passive Intermodulation (PIM) measurements

Antenna Measurement Test Results

We provide a detailed explanation and interpretation of your DUT results and a test report together with a recommendation, in case your DUT design could have eventually performed better. This recommendation may help to improve the performance of your product. Antenna measurements are performed according to a customer-specific test plan. We can provide the following characteristics which are important for the overall antenna performance:

- Radiation Pattern
- Directivity
- Beam Width
- Polarization
- Isolation
- Input impedance
- S-Parameters
- Voltage Standing Wave Ratio (VSWR)
- Impedance Matching (Smith Chart)
- Realized Gain Chart
- Efficiency
- Effective Isotropically Radiated Power (EIRP)
- Antenna Noise Temperature

For these antenna parameter measurements, various test setup arrangements may be required. OPTIMAL CONNECTIVITY produces all necessary components for a specific test setup in-house. Standard products or reference antennas are provided by re-known manufacturers.

Antenna Measurement Standards

Our measurement procedures are following and are compliant with the following standards:

Standard	Description
IEEE STD-149-2021	IEEE Recommended Practice for Antenna Measurements (most comprehensive document)
MIL-STD-461D	This standard establishes the design requirements for the control of the electromagnetic emission and susceptibility characteristics of electronic, electrical, and electro-mechanical equipment and subsystems designed or procured for use by activities and agencies of the Department of Defense. Such equipment and subsystems may be used independently or as an integral part of other subsystems or systems.
ISO 10012	Measurement Management Systems, Requirements for Measurement Process and Measurement Equipment
MIL-STD-285	Military Standard of Attenuation Measurement for Enclosures, Electromagnetic Shielding and for Electronic Test Purposes
IEEE STD 1502-2020	IEEE Recommended Practice for Radar Cross-Section Measurement and Test Procedures
CISPR 16-1-4	S-VSWR Site Voltage Standing Wave Ratio (1 GHz – 18 GHz)
EN 61000-4-3	Field Uniformity (26 MHz – 18 GHz)
EN 50147-1	Anechoic Chamber Shield Attenuation Measurement (10 kHz – 40 GHz)

Please tell us about your requirements for measurements in our Anechoic Chamber.