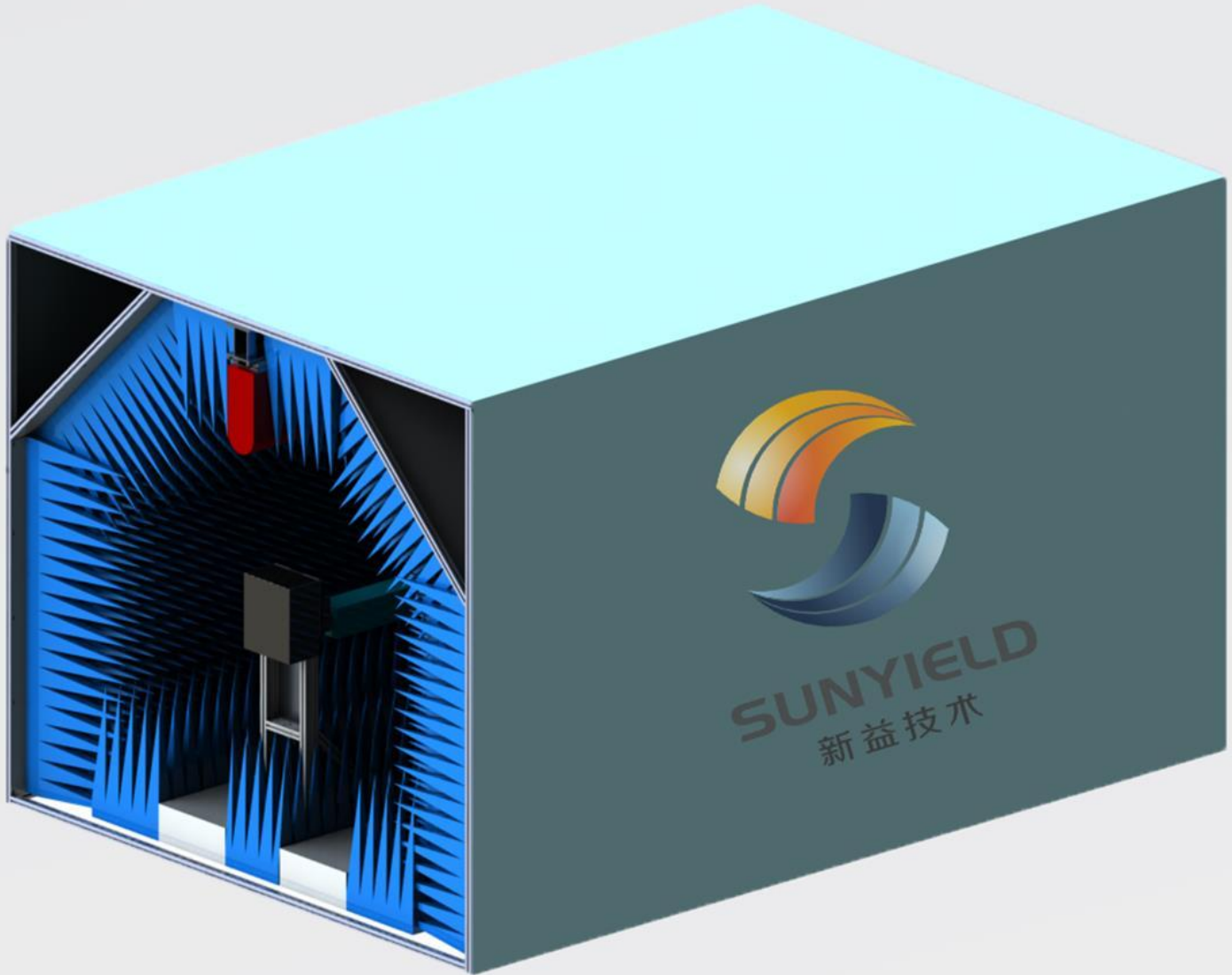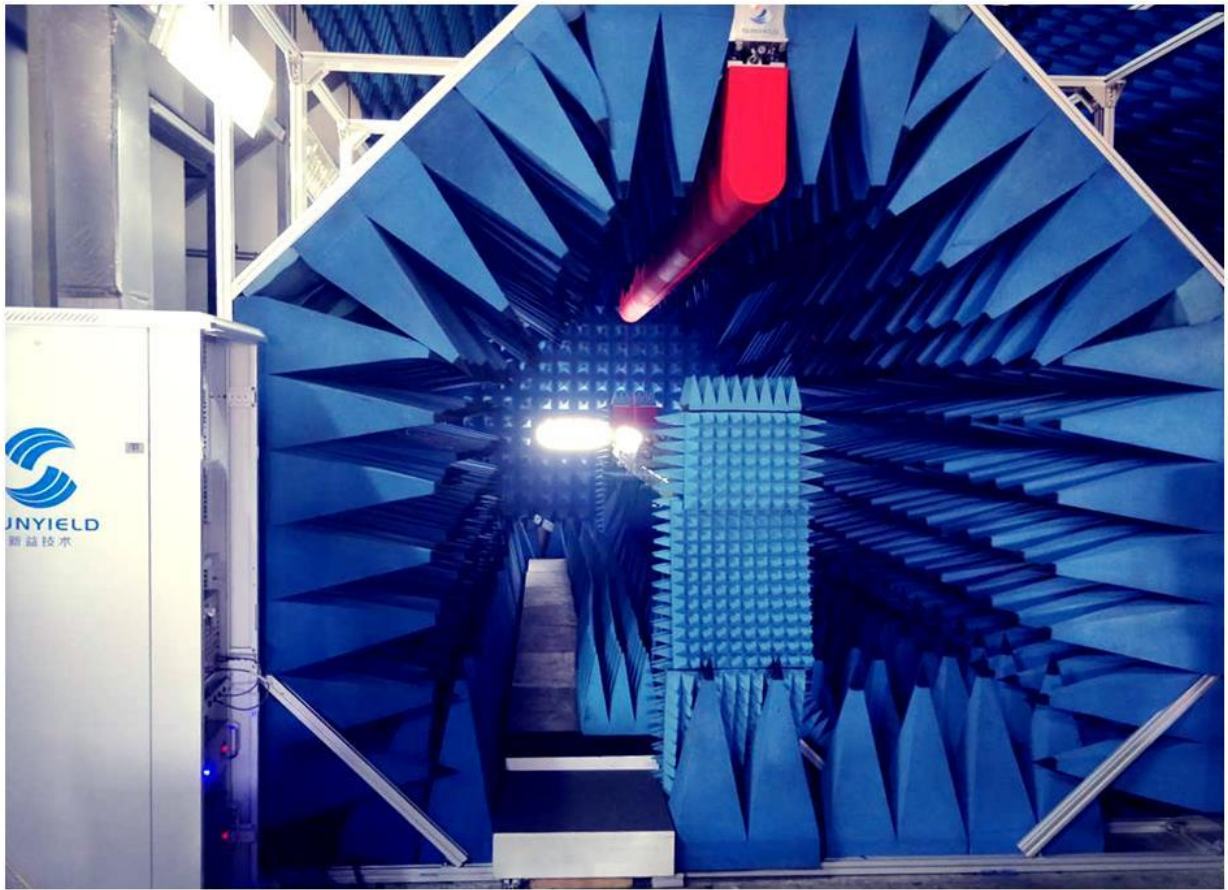# Sunyield

Linear Array Multi-probe Cylindrical Measurement System

SY-SCR-5000/

SY-SCR-6000

Multiple Probes Rapid

Sunyield SCR cylindrical measurement system, the first linear array multi-probe cylindrical measurement system in the industry, innovatively integrates spherical multi-probe technology into the cylinder surface to ensure test accuracy while significantly saving space and cost. The system adopts multi-probe calibration technology and electronic solid-state switch to quickly collect data to measure the 3D pattern of the antenna, and at the same time expand S-parameter information such as standing wave and isolation according to user requirements. According to the characteristics of cylindrical system, this system is particularly suitable for the measurement of base station antennas with narrow vertical beam.

1 Fast test speed

the multi-probe design is adopted, and as the DUT can be horizontally mounted in a convenient and efficient manner, the test efficiency comparable to spherical multi-probe system can be achieved.。

2 Cost-effective system

Compared with spherical near-field system, it features space saving and low cost and guarantees the test accuracy to the greatest extent.

3 Over-sampling technology

the multi-probe structure is slidable to realize Z-axis over-sampling for measurement of larger antenna..

Basic parameters

system model	SCR-5000	SCR-6000
Number of probes	51	61
Test frequency band	690MHz-8.5GHz	400MHz-8.5GHz
Maximum length of DUT	3m	3m
Maximum weight of DUT	100 kg	100 kg
Typical dynamic range	60-80dB	60-80dB
Chamber dimension(L*W*H)（Optional）	5.2m*3.5m*3m	7m*5m*5m
Test distance	1000mm	1500mm
Probe polarization	0/90°	0/90°
Number of test ports	16 ports	16 ports

**The system supports automatic report generation

Parameter Setting _ □ ×
13s

Antenna Type
☑ ±45 ☐ Dipole ☐ Linear ☐ Circle

Export Items ☐ All
Gain MinGain PolarGain Efficiency(dB) Efficiency(%) UHSE UHSG LHSE LHSG
CrossPolarRatio SpAvgGain PhaseCenter Directivity

Horizontal ☐ All
BeamWidth(H) 1sGSL F/B Roundness 1stNullFill SPR60 1stUSL Tilt(max) SPR32.5
60° PDL MaxLevel MinLevel AvgGain SideLobes AxialRatio(H) RollDownDegree

Vertical ☐ All
BeamWidth(V) GSL F/B Roundness 1stNullFill SPR60 USL TiltBW Tilt(max) AvgGain
30° USL SPR32.5 MaxLevel MinLevel TiltAccuracy AxialRatio(V) SideLobes 60° PDL
RollDownDegree

Testable parameters

Near field pattern （2D/3D）	Far-field pattern （2D/3D）
Sidelobe level	Gain
Cross polarization discrimination rate	Beam width
Front to back ratio	Downtilt accuracy

Test repeatability and accuracy

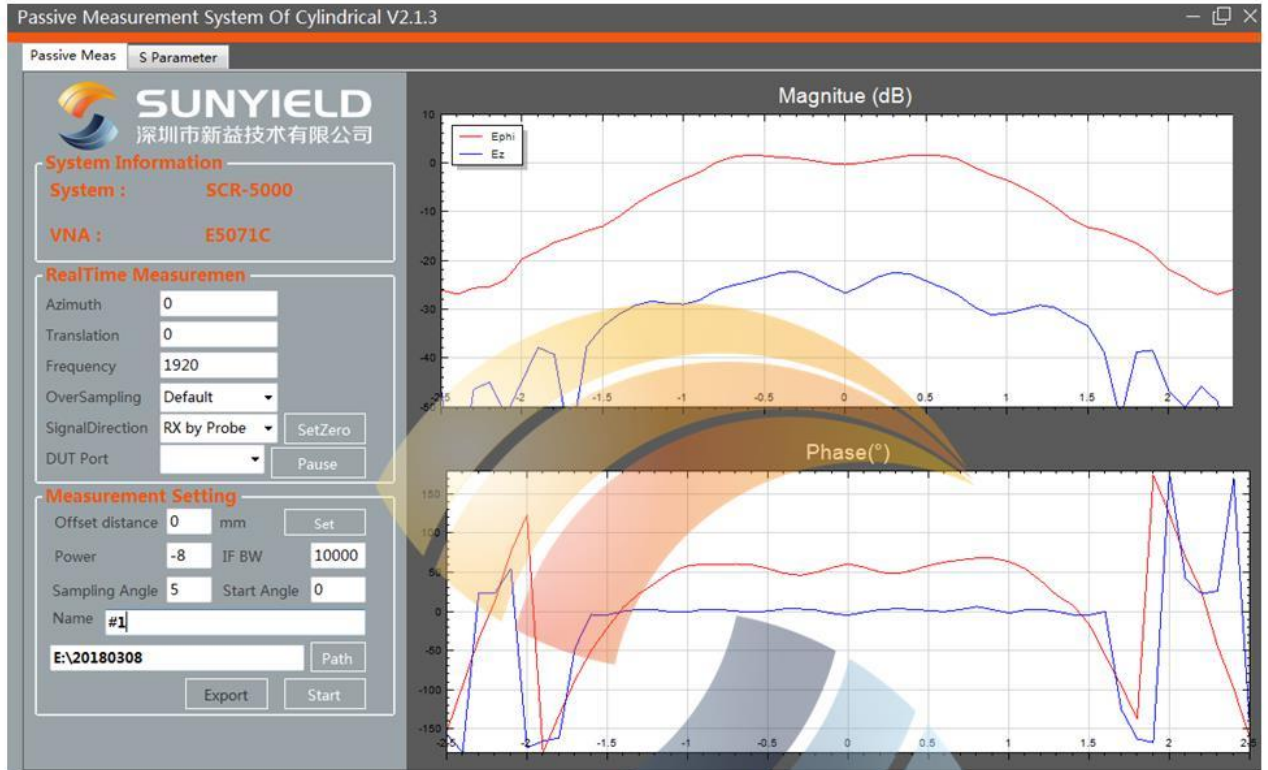| Test items	Repeatability	Accuracy
Gain	≤±0.5dB	≤±1.0dB
half-power lobe width	≤±0.5°	≤±7.5%
Cross-polarization Resolution	≤±0.8dB	≤±5.0dB
Side-lobe	≤±0.5dB	15dB以内： ≤±1.0dB（2.7GHz以下） ≤±1.5dB（2.7GHz以上） 20dB以内： ≤±1.5dB（2.7GHz以下） ≤±2.0dB（2.7GHz以上）

Dual polarized Vivaldi probe antenna

The model uses an exponential function to describe the conical profile, calculates far-field modes and structural impedance, and obtains highly matched results over a wide frequency band..
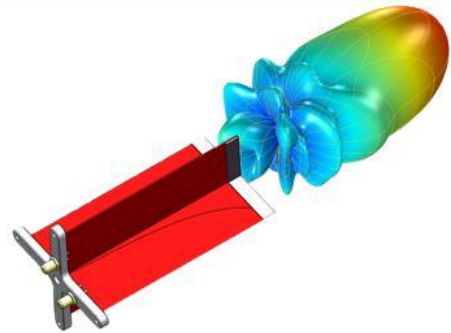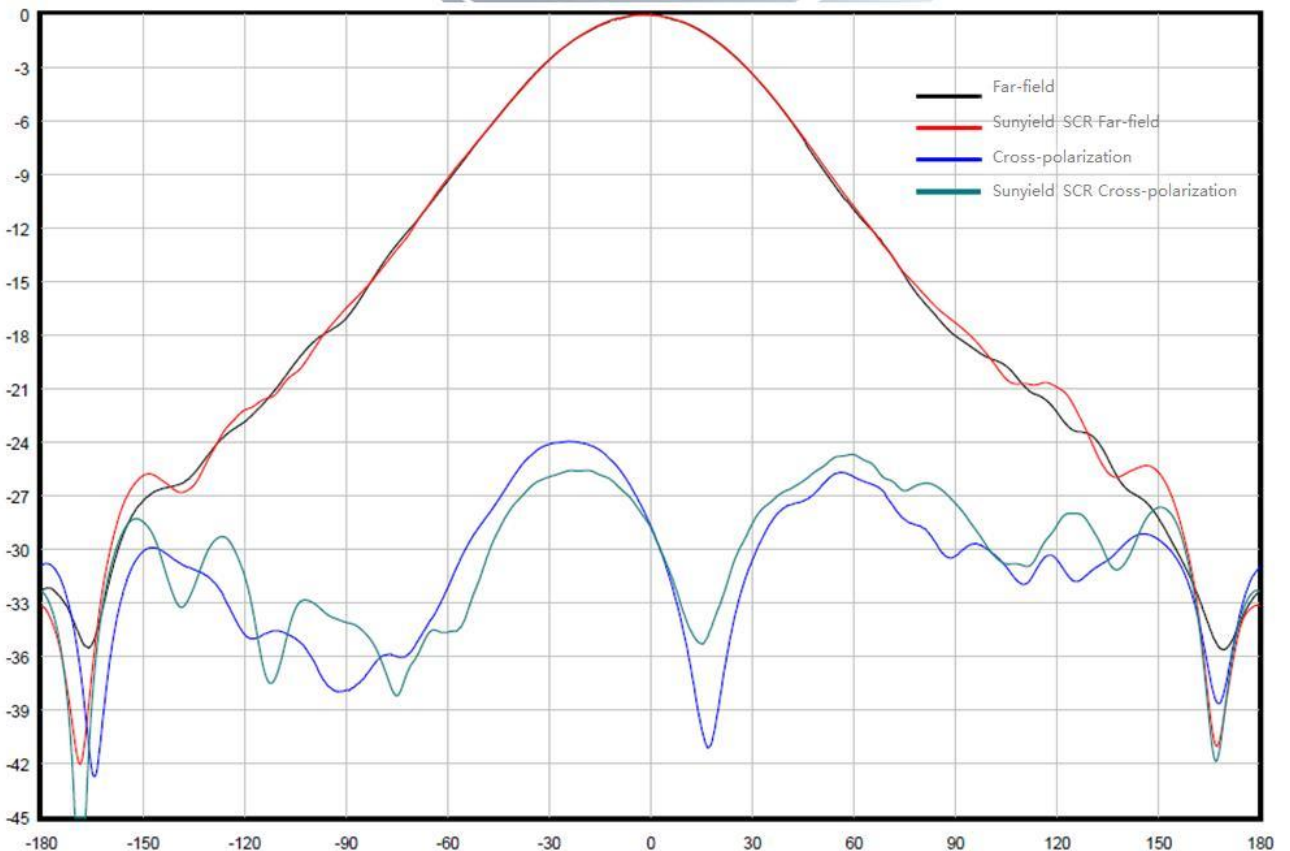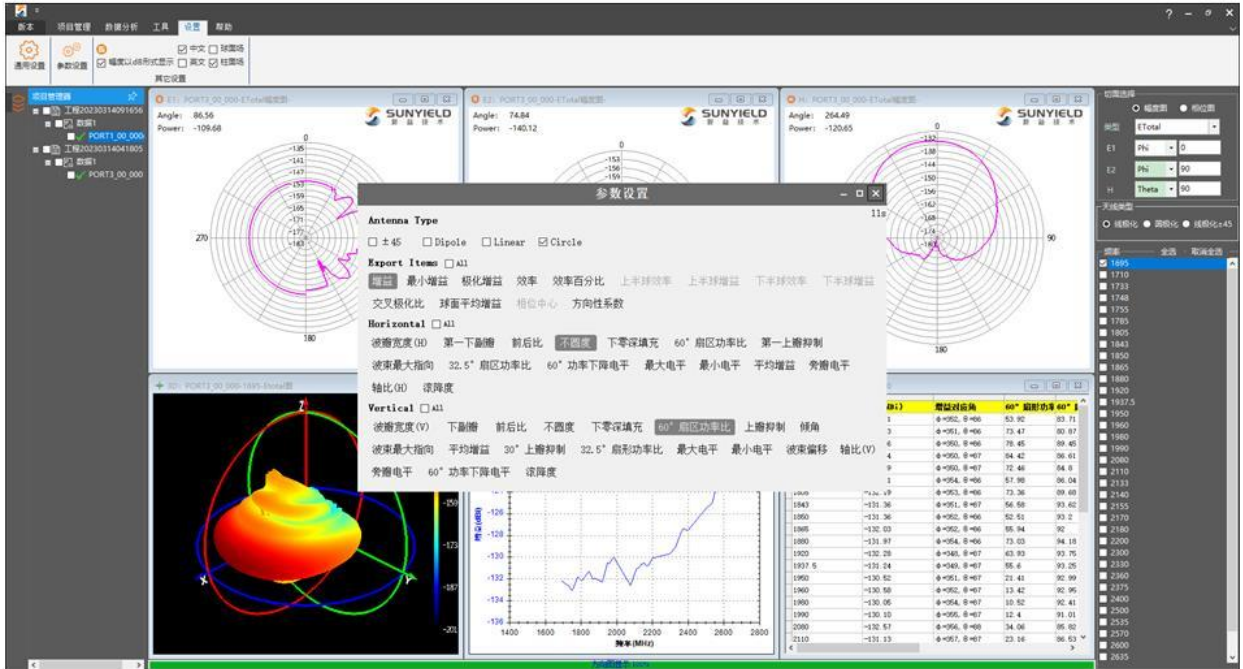

Test Efficiency

Frequency band （MHz）	Test time (10 frequency points per port)
400~1000	3~4min
1000~2000	5~8min
2000~3000	9~12min
3000以上	＞12min'

testing software

Passive Measurement System Of Cylindrical V2.1.3

Passive Meas | S Parameter

SUNYIELD
深圳市新益技术有限公司

System Information

System : SCR-5000

VNA : E5071C

RealTime Measuremen

Azimuth 0

Translation 0

Frequency 1920

OverSampling Default

SignalDirection RX by Probe | SetZero

DUT Port | Pause

Measurement Setting

Offset distance 0 mm | Set

Power -8 | IF BW 10000

Sampling Angle 5 | Start Angle 0

Name #1

E:\20180308 | Path

Export | Start

Magnitue (dB) — Ephi, Ez

Phase(°)

Compared with far-field measurements

Far-field
Sunyield SCR Far-field
Cross-polarization
Sunyield SCR Cross-polarization

Passive Test

Passive testing is currently the most commonly used antenna testing method, mainly used by antenna companies. Generally speaking, passive testing is the process of transmitting signals from a network analyzer to a horn antenna through a cable, and then radiating them to the DUT antenna. The DUT antenna then transmits the signal back to the network analyzer through the cable, and obtains passive measurement parameters after analysis and processing by the network analyzer.。

Test items

- 2D/3D Radiation pattern
- Gain / Efficiency
- Cross Polar
- 1stNullFill
- Beam width
- Level drop
- Beam offset

- Axial ratio
- FrontToRatio
- TiltAccuracy
- Sidelobe Level
- Roundness
- ……

Function

- Parameters can be calculated manually or automatically
- Display the calculation results in the form of graphics (the software supports viewing six images at the same time)
- You can view the corresponding 2D and 3D patterns for different types of antennas
- Near far field calculation, parameter calculation, report export and other optional configurations are provided
- Provide project management function
- Provide data analysis, data export function
- The test data can be exported in many formats, such as TXT, Excel and cm
- Calculation, configuration, etc. all provide software memory function, background memory user habits
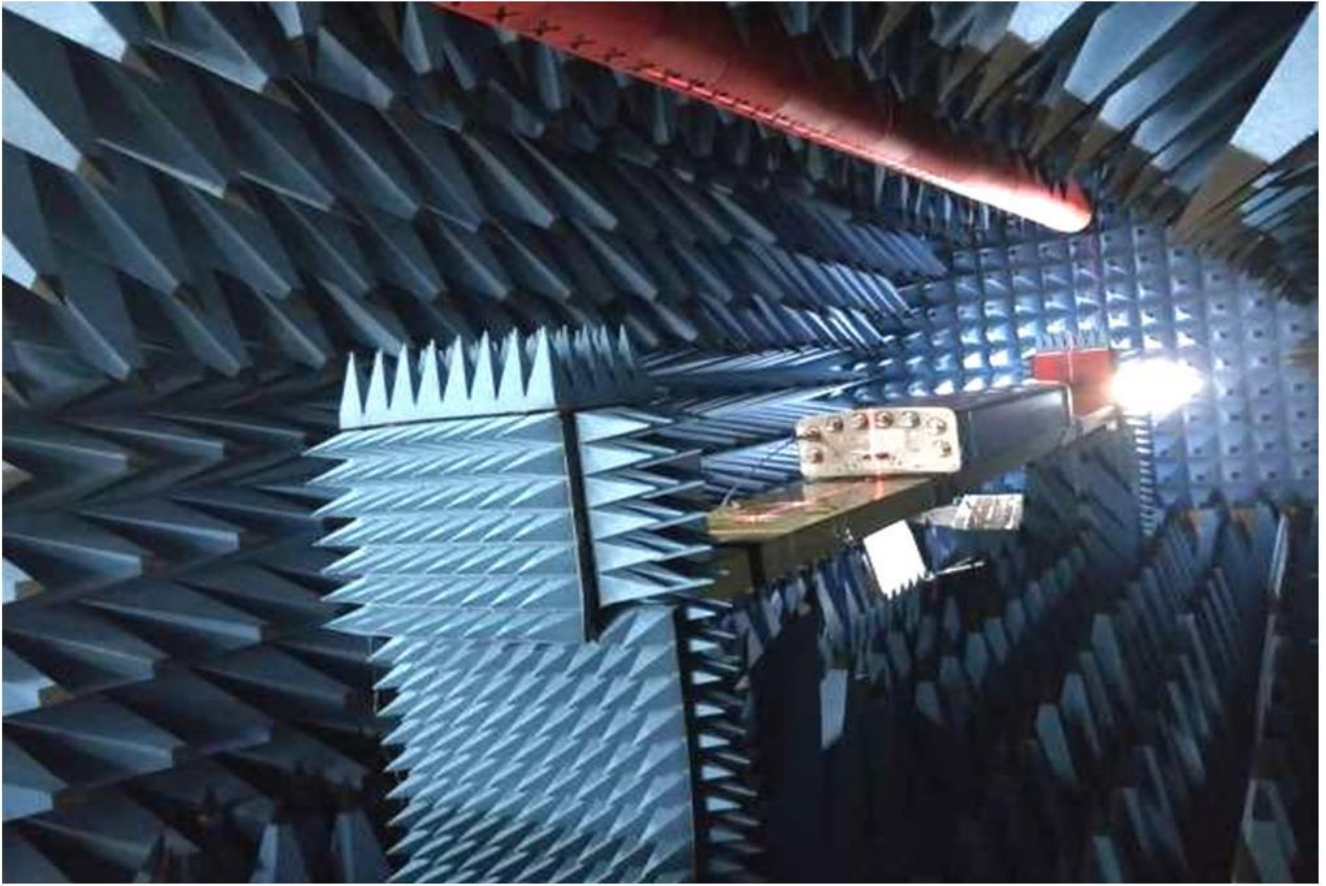
Service and technical support	
System calibration	Free system calibration after delivery
Warranty service	Free for the first year
Software upgrade	Free for the first year

Sunyield Technologies CO.LTD, founded in 2011, is the earliest company in China to research near field multi-probes antenna measurement technology. Over the years has focused on the related areas technology innovation and market development, Sunyield service in the domestic most antenna manufacturer, and is committed to become the industry leading manufacturers.

website:

wechat:

*For more details please visit us at: www.sunyield.com
or contact us at: 0755-82997688*