Miniature phased array antenna test system

◆ Brief Introduction

The minitype phased array antenna testing system is based on the principle of compact range testing. According to the features and difficulties of phased array antenna testing, special design is adopted, and the concept of miniaturization and multi-function is integrated to economically and efficiently perform the debugging and measurement of microwave and millimeter-wave phased array antenna .

The minitype phased array antenna testing system has a quite zone with diameter of 0.25m, providing a portable, easy to use and accessible testing tool for small antenna design. The system is designed to reduce the testing cost and improve the testing efficiency and quality, especially suitable for the measurement and production of millimeter-wave phased array antenna.

The system has the characteristics of high sensitivity, large dynamic range, small amplitude phase error, strong anti-interference ability, fast data acquisition speed and high automation, with the capacity of obtaining the antenna data of multi-frequency point, multi-channel and multi-beam position(phased array antenna testing) by one scanning measurement.

◆ Minitype Anechoic Chamber Performance Table (Typical)

System performance	Parameter			
Model	VA250	VS400	HS700	HS1200
Frequency range(GHz)*	15~40	10~40	6~90	6~90
System dimension(mm)*	1050×1050×1800	2000×2000×2400	5000×3800×3000	8000×5500×4800
Quiet zone reflected level	<-40dB@15GHz <-45dB@40GHz	<-40dB@10GHz <-45dB@40GHz	<-38dB@7GHz <-50dB@40GHz	<-38dB@7GHz <-50dB@40GHz
Dynamic range(dB)	≥70	≥70	≥70	≥70
Cross polarization(dB)	≤-25	≤-25	≤-25	≤-25
Shielding efficiency(dB)	≥70	≥70	≥90	≥90
Amplitude taper(dB)	≤1	≤1	≤1	≤1
Amplitude ripple(dB)	≤±0.5	≤±0.5	≤±0.5	≤±0.5
Phase ripple(°)	≤10	≤10	≤10	≤10
Cross polarization(dB)	≤-27	≤-27	≤-27	≤-27
DUT max size(mm)	250	400	700	1200
DUT max weight(mm)*	10	10	30	50

*Note: It could be customized.

◆ Features of phased array antenna automatic testing software

Dedicated phased array antenna automatic testing software includes 10 modules: testing project management module, equipment and instrument control module, abnormal handling module, data management module, real time monitoring module, data analysis module, system extension module, testing center module, phased array antenna testing and data analysis module, fast testing module. It has a wide range of testing coverage and multi-function, which could meet phased array antenna's performance debugging and testing requirements, including phased array antenna calibration, pattern testing, EIRP and GT testing, etc. It has multi-beam, multi-frequency point and multi-channel testing functions, and could realize automatic testing. Meanwhile, it has good expansibility and easy to use. Customers can write their own programs to control the existing functional modules, and users can also write their own testing programs or replace the existing functional modules with external device control (management).