

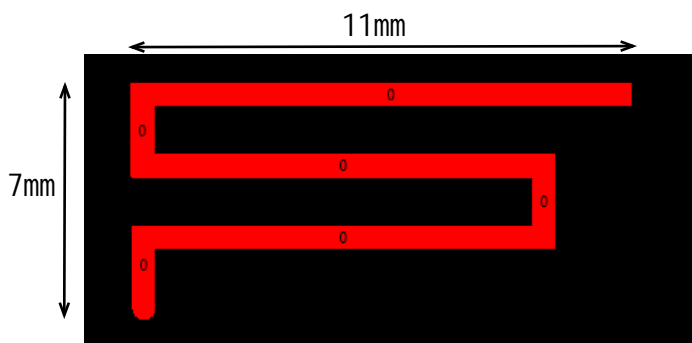
Antenna Report

1. Basic information

	Antenna module on the system board	
Frequency	2.4-2.5GHz	
Ant. Port Input Pwr. (dBm)	0 (Typ. BT class 2 output power)	
Tot. Rad. Pwr. (dBm)	-2.3 (Input pwr – loss pwr)	
Peak EIRP(dBm)	1.3	
Directivity (dBi)	1 (all direction antenna)	
Efficiency (dB)	-2.3 (58.5%)	
Gain (dBi)	1.68 (Peak Gain XY-plane)	
Maximum Power (dBm)	1.3 (XY-plane)	
Minimum Power (dBm)	-4(XY-plane)	
Avg. Power (dBm)	-0.5(XY-plane)	
Max/Min Ratio (dB)	5.3(XY-plane)	
Max/Avg Ratio (dB)	1.8(XY-plane)	
Min/Avg Ratio (dB)	-3.5(XY-plane)	
Average Gain (dB)	-0.5 (Avg Gain XY-plane)	

Manufacturer: Dongguan Eton Electric Appliance CO., Ltd
Model : OVAL-EP1

2. Antenna size



3. Test Data

3.1 Gain

Gain Table

Unit in dBi @2.44GHz	XY-plane		XZ-plane		YZ-plane		Efficiency
	Peak	Avg.	Peak	Avg.	Peak	Avg.	
Module Board	1.35	-0.6	1.68	-3.6	1.11	-3.1	58.4%

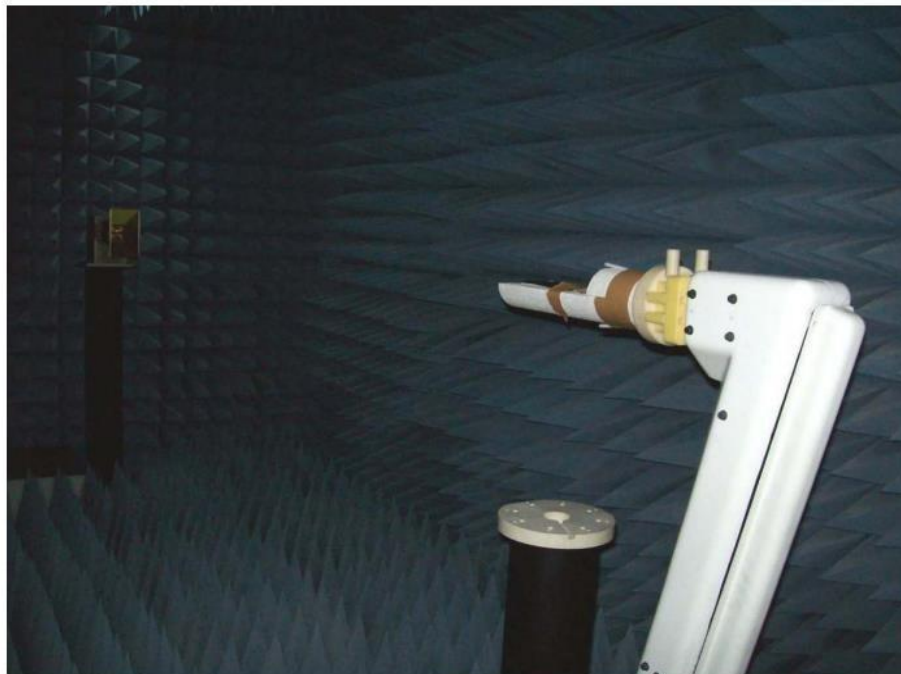
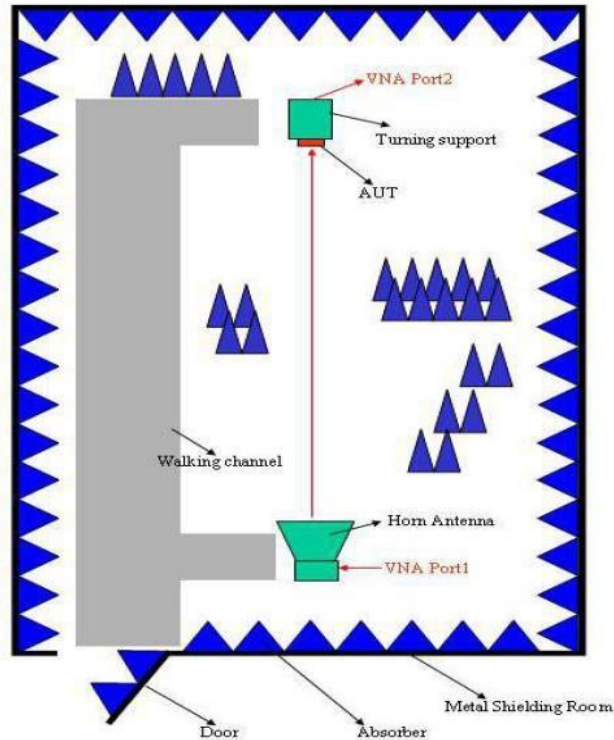
3.2 Return Loss



4. Test setup

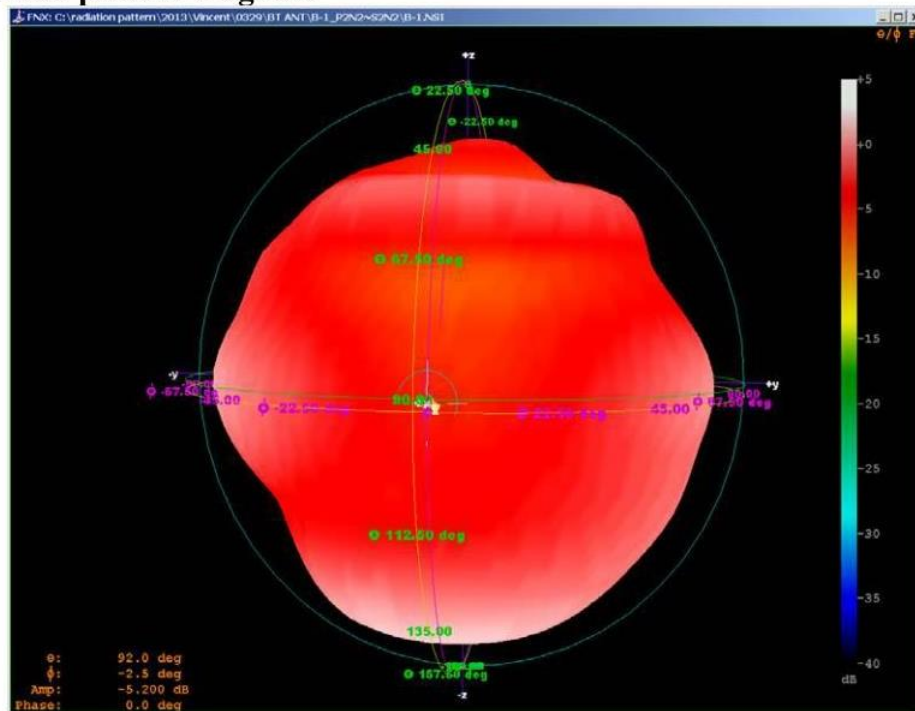
Antenna measurements such as VSWR were measured with an HP 8753D vector network analyzer. Radiation patterns were measured with a A388/A333 vector network analyzer in a ETS-3D chamber equivalent. Phase center is nine inches above the Phi positioner. Flat surface measurements were done with the antenna centered on a 1.5 mm-thick plate of polycarbonate. Curved surface measurements were taken by placing the antenna on the inside and outside of different diameter PVC tubing.

The Environment of Antenna Radiation Pattern

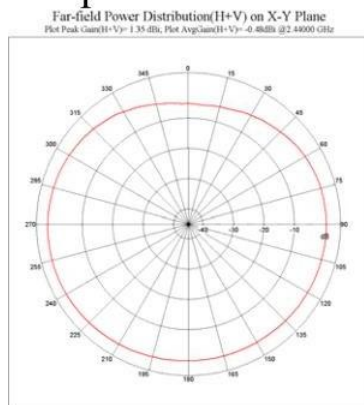


5. 3D Test Chart

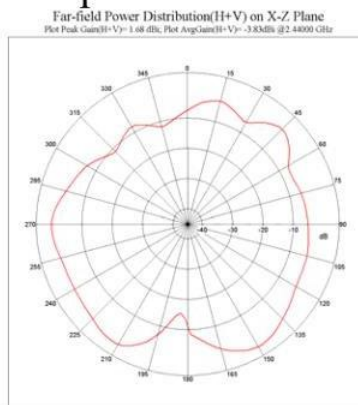
3D radiation pattern diagram



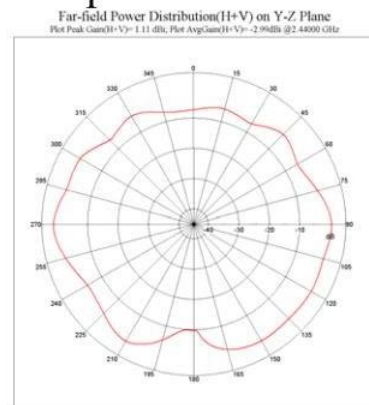
XY-plane



XZ-plane



YZ-plane



6. Test Equipment

设备/equipment	
网络分析仪/Network analyzer:	A338/A333
综合测试仪/Comprehensive test instrument:	Agilent 8960/ CMW500
1. 暗室/Shielding room:	7x4x3 m (ETS-3D)
2. 网络分析仪/Network analyzer:	HP 8753D