Yuande Electronics (Shenzhen) Co., Ltd

Sample Approval Sheet

Product Information：

Customer	Shenzhen Gwelltimes Technology Co.,Ltd.
Material Description	OG 2.4G Antenna
Customer's Part number	
Specifications	FPC（32*14.5mm）+Black Coaxial Cable（Φ0.81*30mm）+Welding
Supplier's Part number	136-OGXXX-10A
Date	2023-8-2

Supplier：

Prepared By	Checked By	Approved By
Zhang Dengqiao	Li Yuepeng	Zhang Hongying

Yuande Electronics (Shenzhen) Co., Ltd.
Add:Xiangyuer Industrial Park, No. 8, Longsheng Road, Longgang Street, Longgang District, Shenzhen, Guangdong, China
Tel:86-755-28510731

Contents

1、Specification

This report mainly provides the testing status of various electrical and structural performance parameters of OG 2.4G Antenna.

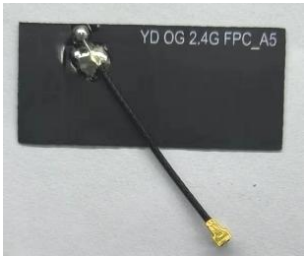


Figure 1　Antenna

Figure 2　Antenna Placement

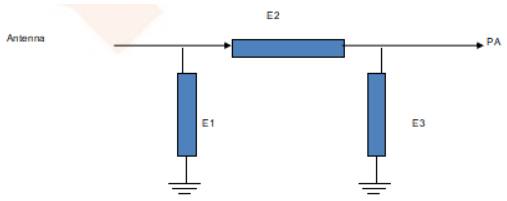
1.1 Electrical specification standard

1.1.1 Electrical Specifications

The antenna operates in the 2400-2480 MHz. The following table is the electrical performance index of the antenna designed by our company.

Antenna	OG 2.4G Antenna
Frequency Range	2400-2480MHz
VSWR	< 2
Efficiency	> 39%
Impedance	50 ohm
Polarization	Linear polarization

1.1.2 Antenna Matching Network



Element	Value
E1(0402)	N/A
E2(0402)	0 R
E3(0402)	N/A

2、Test

The antenna was debugged and tested with the prototype provided by the customer.

2.1 Test of passive S11

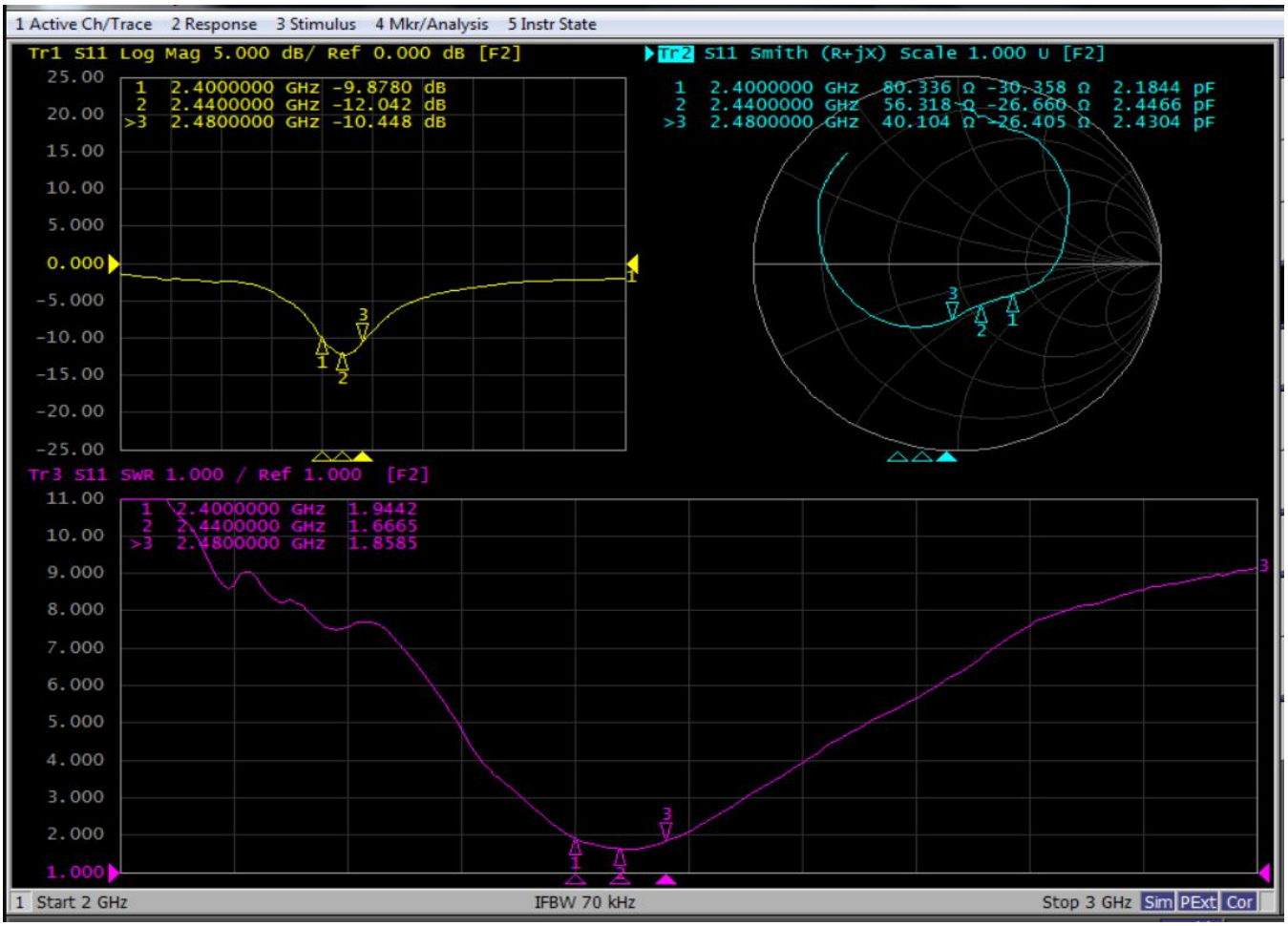
2.1.1 Test connection

The passive S11 test device is connected as follows: Network Analyzer → Test Line → Test Fixture.

2.1.2 Passive S11

The following table shows the standing wave ratio values of the edge frequency points of the antenna operating frequency band. The waveform of Return Loss and VSWR obtained by the test is shown as follows.

Frequency(MHz)	2400	2440	2480
VSWR	1.94	1.67	1.86
Return Loss	-9.88	-12.04	-10.45



2.2 Gain and efficiency test

2.2.1 Test Position

Yuande microwave anechoic chamber, the test frequency range is 400MHz-6GHz.

2.2.2 Test equipment

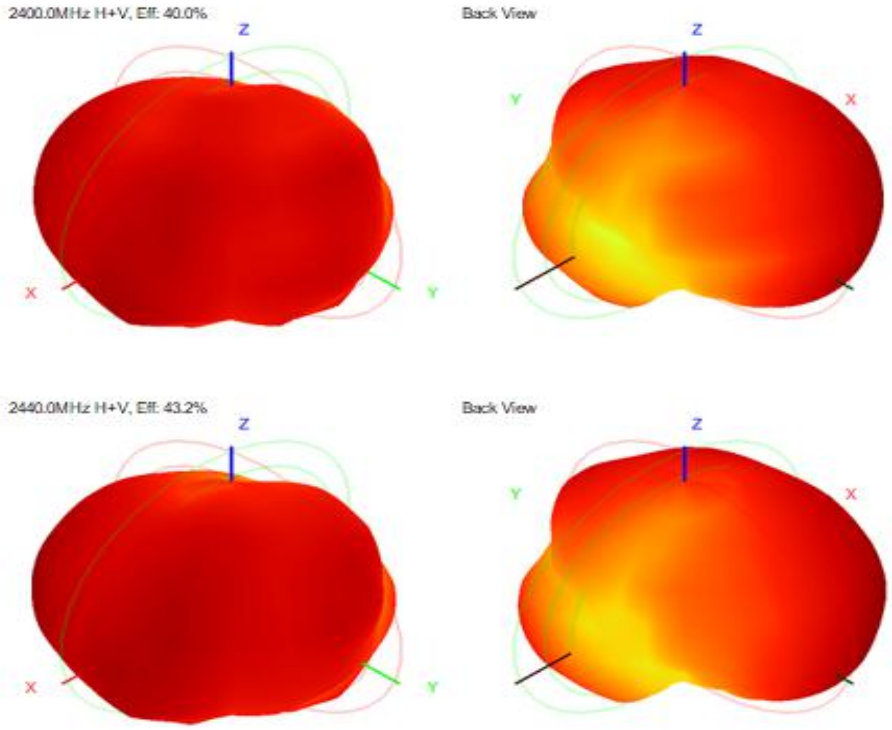
Network analyzer, standard horn antenna, multi-probe near field antenna test system, test computer, etc

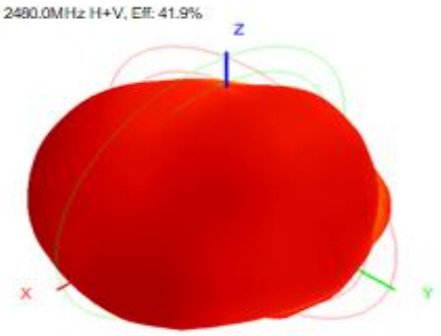
2.2.3 Results Summary

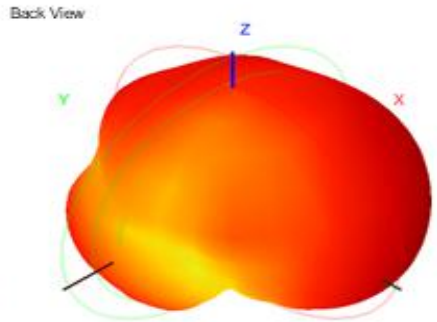
In the microwave anechoic chamber, the measured values related to efficiency and gain are shown in the table below.

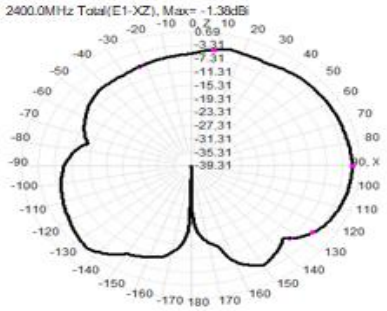
Frequency(MHz)	Gain(dBi)	Efficency(%)
2400	0.69	39.97
2410	0.69	41.26
2420	0.76	42.27
2430	0.96	43.37
2440	0.95	43.15
2450	0.95	42.52
2460	0.84	42.24
2470	0.82	42.05
2480	0.87	41.88
2490	0.93	42.08
2500	0.99	41.65

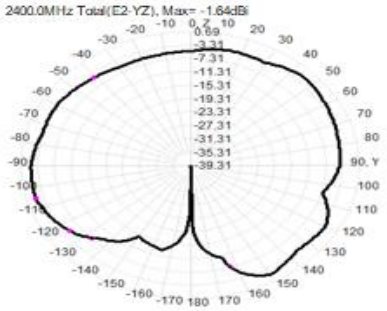
2.2.4 Radiation Pattern Results

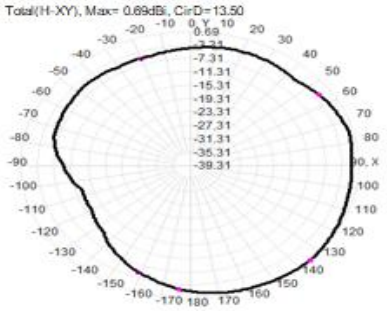


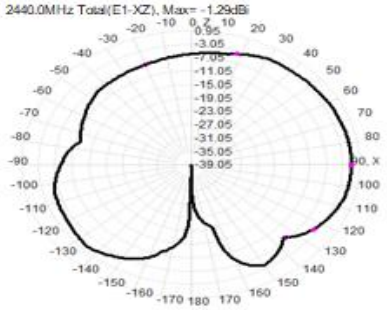

2480.0MHz H+V, Eff: 41.9%
Z
X
Y

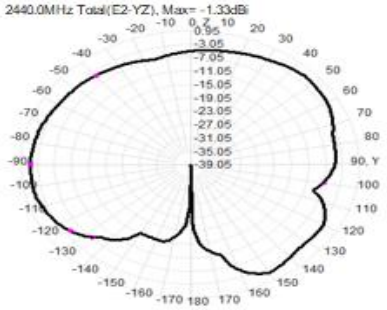

Back View
Z
Y
X

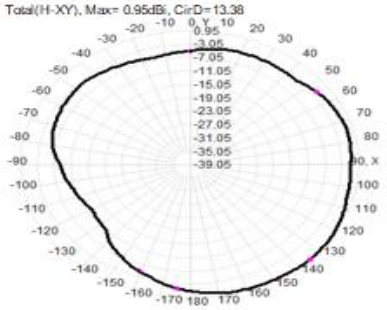

2400.0MHz Total(E1-XZ), Max= -1.38dBi

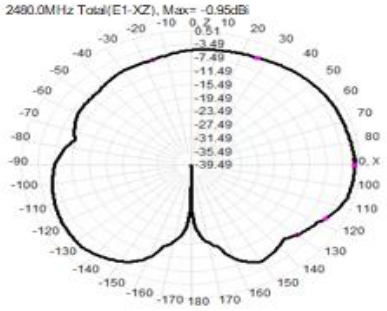

2400.0MHz Total(E2-YZ), Max= -1.64dBi

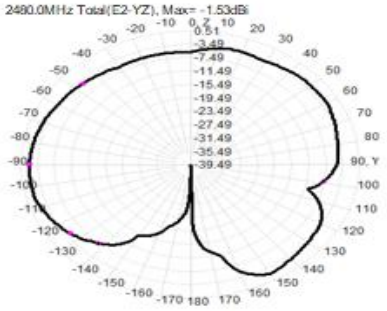

Total(H-XY), Max= 0.69dBi, CirD=13.50

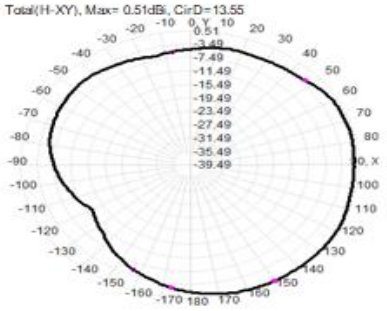

2440.0MHz Total(E1-XZ), Max= -1.29dBi


2440.0MHz Total(E2-YZ), Max= -1.33dBi


Total(H-XY), Max= 0.95dBi, CirD=13.38


2480.0MHz Total(E1-XZ), Max= -0.95dBi


2480.0MHz Total(E2-YZ), Max= -1.53dBi


Total(H-XY), Max= 0.51dBi, CirD=13.55

2.3 Test of OTA

2.3.1 Results Summary

WIFI 802.11b 11Mbps	Channel	TRP(dBm)	TIS(dBm)-80
	1	16.21	-83
	6	15.01	-82.38
	9	14.98	-81.72
	10	15.12	-83.46
	11	15.67	-84.76
WIFI 802.11b 1Mbps	Channel	TRP(dBm)18	TIS(dBm)
	1	18.7	-91.27
	6	17.43	-90.35
	11	17.91	-92.98
WIFI 802.11g 54Mbps	Channel	TRP(dBm)	TIS(dBm)-70
	1	16.78	-70.34
	6	16.49	-69.81
	11	17.03	-72.27
WIFI 802.11g 6Mbps	Channel	TRP(dBm)17	TIS(dBm)
	1	17.86	-88.52
	6	16.67	-86.82
	11	17.16	-89.22
WIFI 802.11n MCS7	Channel	TRP(dBm)	TIS(dBm)-65
	1	16.81	-69.05
	6	16.5	-67.64
	11	17.06	-70.35
WIFI 802.11n MCS0	Channel	TRP(dBm)16	TIS(dBm)
	1	17.8	-88.04
	6	16.63	-86.56
	11	16.88	-89.11

3、Conclusion

This antenna is designed on the basis of the prototype provided by the customer. The above electrical performance parameters are tested under the environmental treatment conditions of the test prototype. The electrical parameters and structural performance have met the technical requirements. Please confirm!

4、Part Drawing