深圳市恒利永通电子有限公司

Shenzhen Hengli Yongtong Electronics Co.,LTD

产品承认书

客　户　　CHEN QI TOYS FACTORY
CUSTOMER:

品 名 规 格　　Line Antenna
DESCRIPTION:

型　　号　　WA-F-LA-00-112
MODEL NO:

客 户 料 号　　S.CN.TS231N.0001
CUS PART NO:

日　　期　　2024.10.11
D A T E:

呈样签章

工　程 ENGINEERING DEPARTMENT	品　保 Q C DEPARTMENT	业　务 SALES DEPARTMENT

客户承认签章

工　程 ENGINEERING DEPARTMENT	品　保 Q C DEPARTMENT	业　务 SALES DEPARTMENT

※ 客户确认样品附意栏：

WA-F-LA-00-112 Specification

1. Explanation of part number :

WA	_	F	_	LA	_	00	_	112
(1)		(2)		(3)		(4)		(5)

(1) Product Type：Wireless Antenna

(2) Material: Line

(3) Frequency : 2400MHz-2500MHz

(4) Coaxial Cable Type : 00

(5) Suffix : 112

2. Electrical Specification :

Those specifications were specially defined for TS231N model, and all characteristics were measured under the model's handset testing jig .

2-1. Frequency Band:

Frequency Band	MHz
RF2.4G	2400-2500

2-2. Impedance

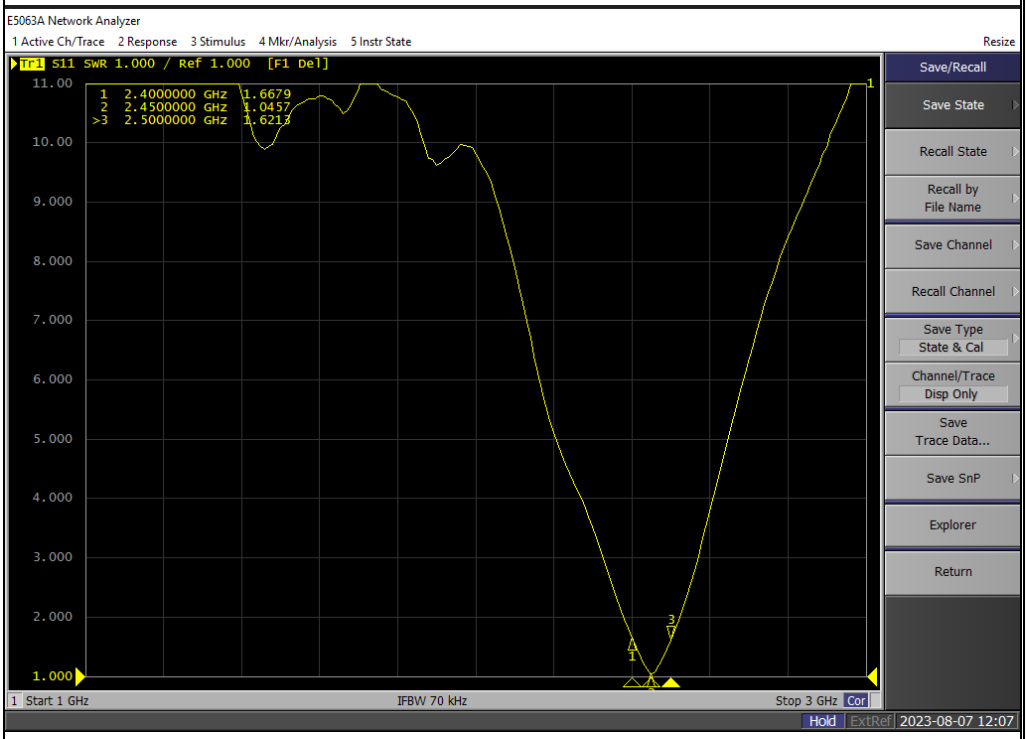
50 ohm nominal

2-3. VSWR

2-3-1.Measurement frequency points and VSWR value

Frequency (Unit MHz)	2400	2450	2500
VSWR	1.66	1.04	1.62

2-3-2. VSWR

Frequency Band(MHz)	2400	2450	2500
2-3-3. Typical Value:	⩽2.0	⩽2.0	⩽2.0
2-3-4 Measuring Method	1. A 50Ω coaxial cable is connected to the FPC. Then this cable is connected to a network analyzer to measure the VSWR. 2. Keeping this jig away from metal at least 20 cm		
2-3-5 Picture			

2-4. Efficiency and Gain

- Measuring instruments: microwave darkroom, network analyzer, standard antenna.
- **Microwave darkroom instructions:**

This is the microwave darkroom set up by our company in Shenzhen, which belongs to a far-field measurement system. The size of the darkroom is 7.0 m x4.0 m x3.0 m, and the size of the Quiet zone is 15 cm x15 cm x15 cm.

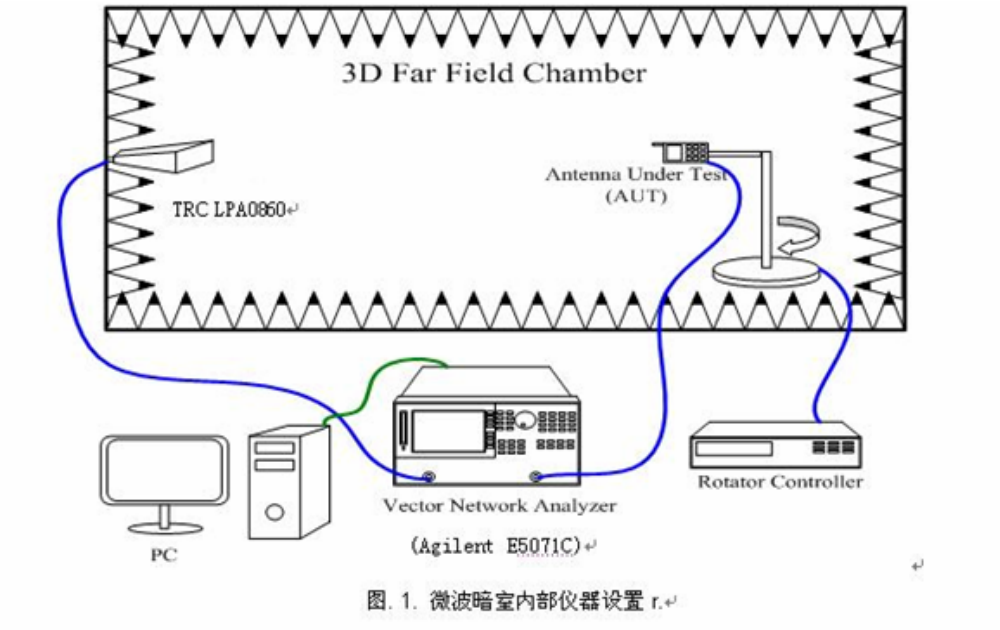


图. 1. 微波暗室内部仪器设置 r.

FIG. 1 shows the instrument setup in the microwave darkroom and the connection diagram of the network analyzer. The distance between the transmitting antenna (the model of transmitting antenna used in the darkroom is TRC LPA0860 800MHZ-6GHZ) and the antenna to be tested (AUT) is 1.35m. The antenna to be measured is placed on a rotating platform and can be measured roughly and accurately by controlling the rotating Angle of th`e rotating table.

The antenna to be measured is placed on the rotating table, and the 360-degree field intensity data of each plane (ZY plane and ZX plane) are measured. Then replace the antenna to be measured with a standard dipole antenna (the standard dipole antenna model used in this darkroom is TRC AD series dipole antenna 800MHz~2500MHz) and measure its 360-degree field intensity data to convert the standard gain value. The gain value and direction diagram of the antenna to be measured can be obtained through the conversion of formula 1.

$$G_{AUT} = G_{stand} + P_{AUT} - P_{stand}$$

G_{AUT} : Gain of AUT

G_{stand} : Gain of Standard Gain Antenna

P_{AUT} : Measured Power of AUT

P_{stand} : Measured Power of Standard Gain Antenna

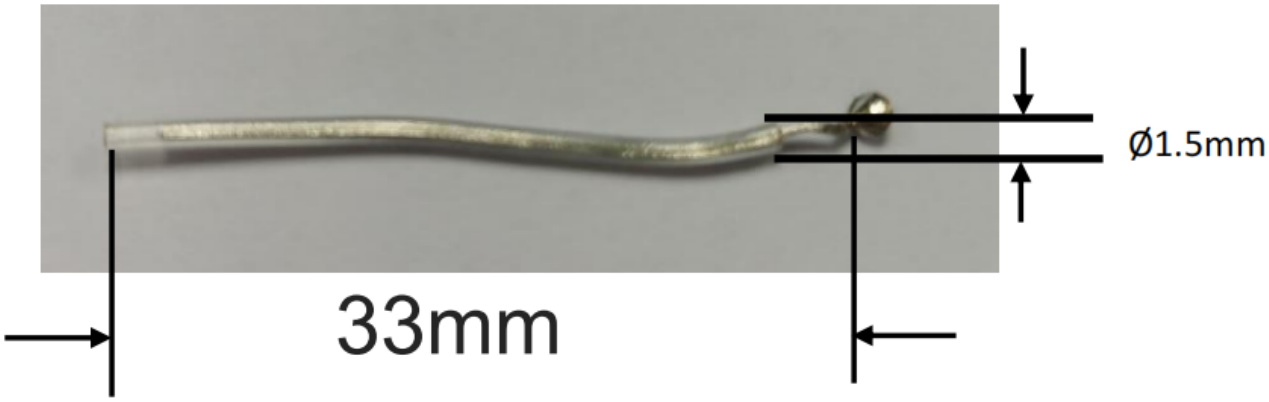
2-4-1 Efficiency and Gain

Frequency(MHz)	Efficiency (%)	Average GAIN(dB)	Peak GAIN (dBi)
2400	31.55	-5.01	-1.27
2450	32.51	-4.88	-1.17
2500	31.84	-4.97	-1.36

3.Mechanical Specification:

3-1. Mechanical Configuration (Unit: mm)

The appearance of the antenna is according to drawing Figure **3-1-1**



Manufactuter:Shenzhen Hengli Yongtong Electronics Co.,LTD
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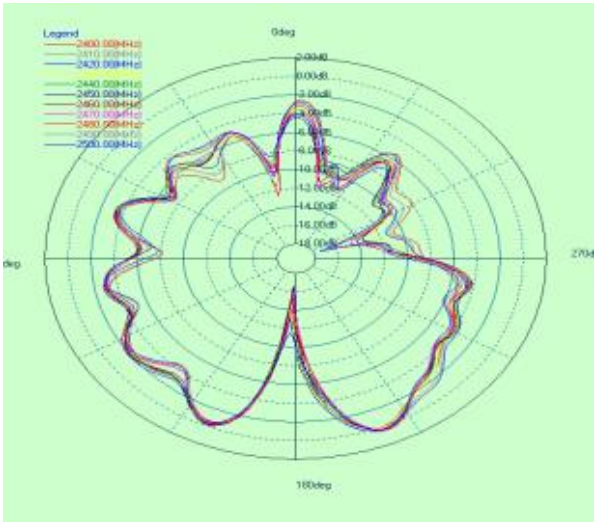
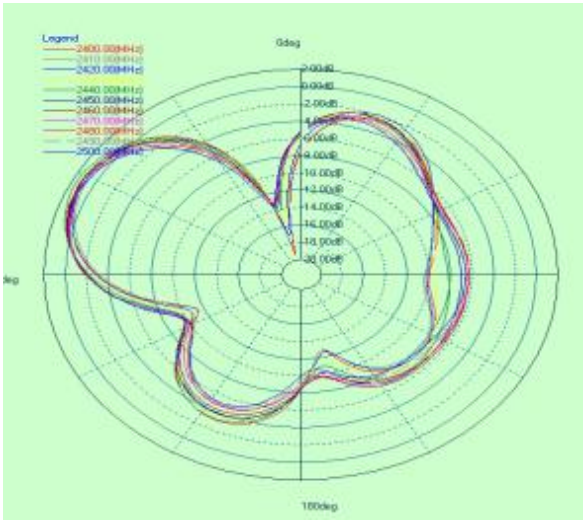
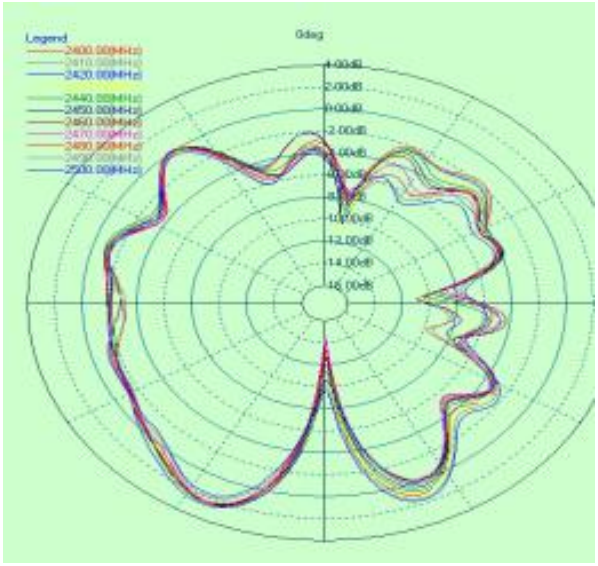
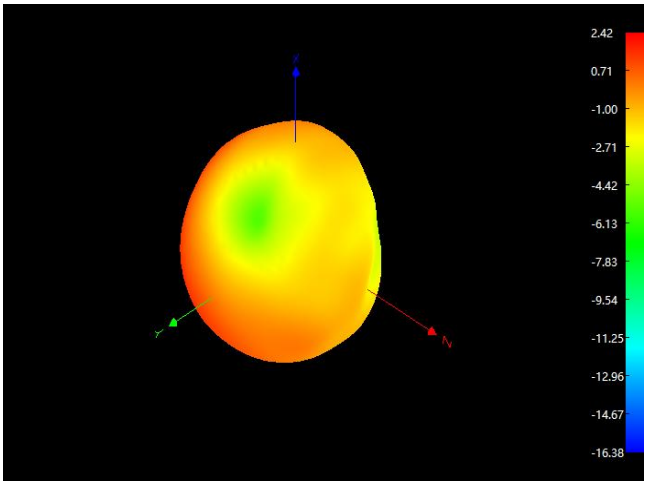
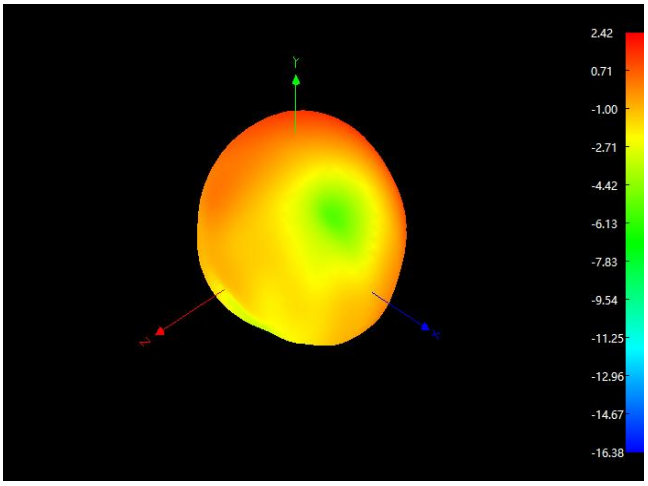
Appendix Radiation Pattern(1D and 3D)








2.42
0.71
-1.00
-2.71
-4.42
-6.13
-7.83
-9.54
-11.25
-12.96
-14.67
-16.38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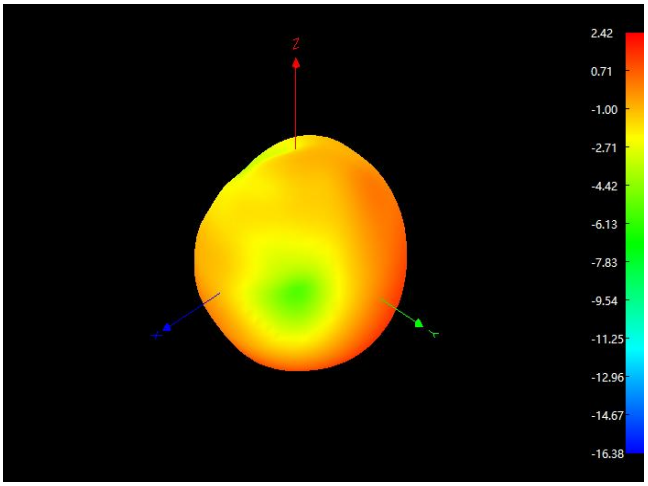
-16.38


2.42
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-6.13
-7.83
-9.54
-11.25
-12.96
-14.67
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