



Add: 6th Floor, Building A, Xinlongxin Industrial Park, No.50 Fengtang Avenue, Fuhai Street, Baoan District, Shenzhen

深圳市天逸源电子科技有限公司
Shenzhen Tianyiyuan Elec&Technology CO.,Ltd

Recognition book

SPECIFICATION FOR APPROVAL

Name: WIFI/BT Antenna

Item No: TYY-TX2808

Custoer name: Shenzhen Xinruihe Technology Co.

Company stamp: _____

| drawing | | | Customer approve |
|------------------|---------|----------|------------------|
| MADE | CHECKED | APPROVED | |
| QIU | jack | Miketang | |
| DATE: 2023.07.25 | | | DATE |



1、Specifications

The report provides a test of the electrical performance parameters of the **TYY-TX2808** Technical parameters of antenna electrical appliances antenna, which is a science and technology model. TYY-TX2808 WIFI Built in antenna, WIFI Antenna is made by copper pipe+RF Line composition. (As follows 1 Shown)

| Electrical technical parameters | | | |
|---------------------------------|--------------|---------------------------|--------------|
| 电 性 能 指 标 | | Electrical Specifications | |
| 频率范围 | 2400~2500MHZ | Frequency Range | 2400~2500MHZ |
| 电压驻波比 | ≤2.0 | VSWR | ≤2.0 |
| 增益 | 3.8 DBI max | GAIN | 3.8 DBI max |
| 输入阻抗 | 50 Ω | Input Impedance | 50 Ω |
| 机 械 指 标 | | Mechanical Specifications | |
| 天线颜色 | 黑色 | Antenna Color | BLACK |
| 接口形式 | IPEX-1 | Input connector | IPEX-1 |
| 线长度 | 110mm | Cable length | 110mm |
| 工作温度 | -40°C~+85°C | Working Temperature | -40°C~+85°C |
| 工作湿度 | 20~80% | Working Humidity | 20~80% |

Chart 1 TYY-TX2808 Product size

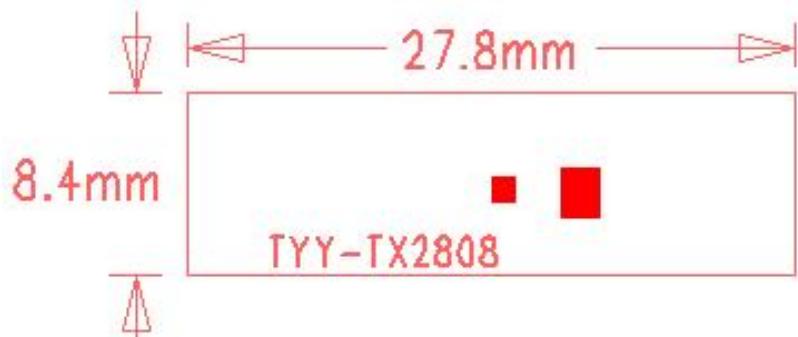
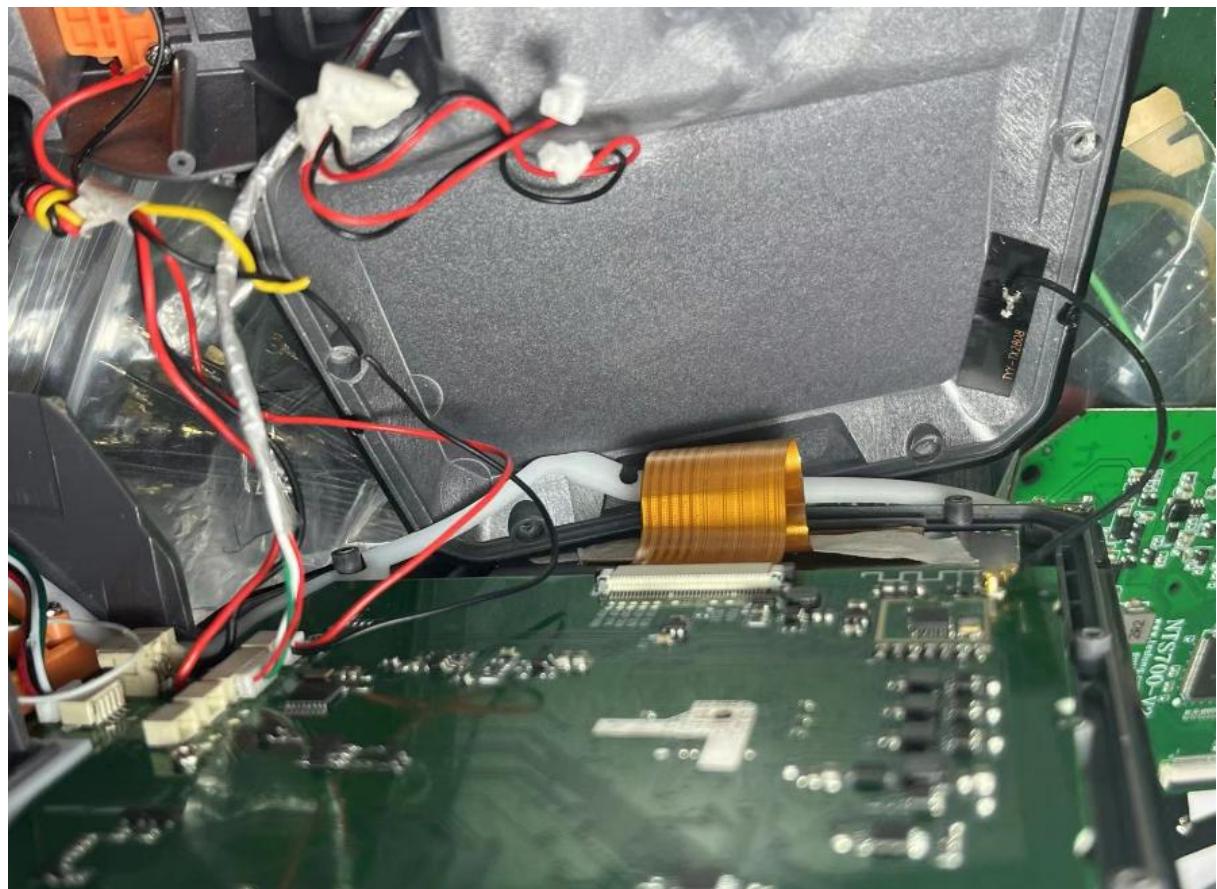


Chart 2 TYY-TX2808 Antenna finished



Line length 110+/-2mm, The other end with the 1-IPEX.

Chart 3 Location of antenna patch

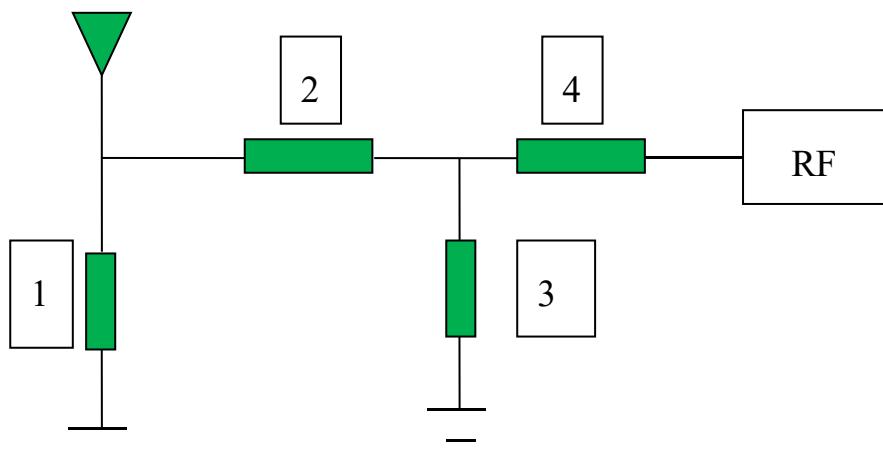


Matters needing attention: WIFI antenna behind the tear tape on the back glue stick flat side, away from the screen on the back of the metal, away from the loudspeaker hardware, if the antenna near the metal lead to WIFI signal frequency deviation, make the antenna standing wave ratio and power and efficiency will become poor, and the signal will become worse, the frequency shift signal variation can also cause interference, so must be in accordance with our marking the location of the antenna, thank you!

2. Electrical properties

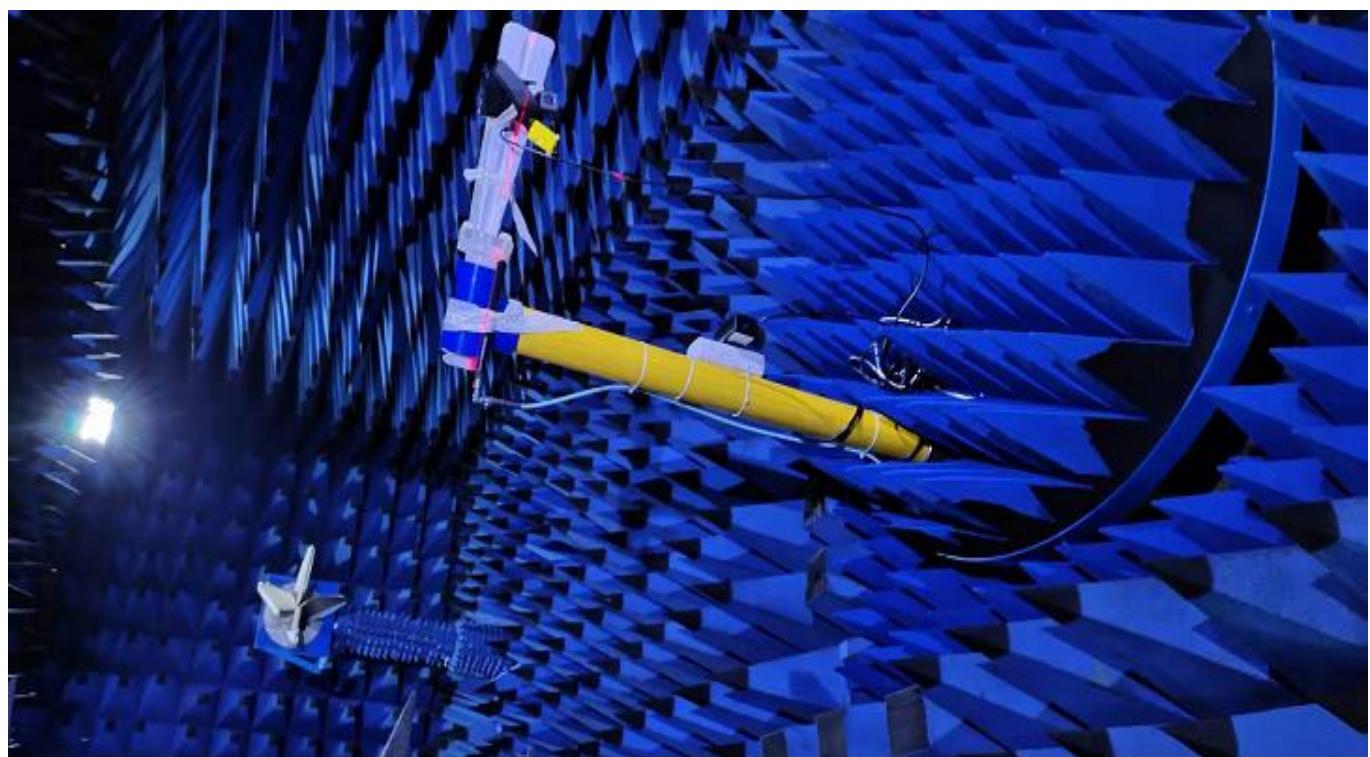
2.1 WIFI Antenna matching circuit

This item matching circuit is provided by the customer.



| Element number | 1 | 2 | 3 | 4 |
|------------------|---|-------|----|---|
| WIFI optimum | NC | 0 ohm | NC | |
| Original (spare) | 50 ohm matching (inductance capacitance / sunlord Darfon) | | | |

Chart 4 OTA Microwave dark room



2.3 Bobbi (VSWR) test

2.3.1. Test setup

Connect the VSWR test device are: Agilent E5071B network analyzer from 50 ohm coaxial Cable 120mm long

Brass & test fixture

Processing test fixture: 50 ohm antenna leads to SMA-J connector from the test point on the plate PCB with a rigid cable, and a

Connect the choke tube, and then sequentially connected with other devices.

4. 3D dynamic test of the whole machine

4.1 Test site

TCT microwave anechoic chamber: the test frequency range is 800mhZ-6ghz, the quiet zone range is 50cm circle, and the reflectivity is less than -90 dB.

Chart 5 Agilent E5071C network analyzer

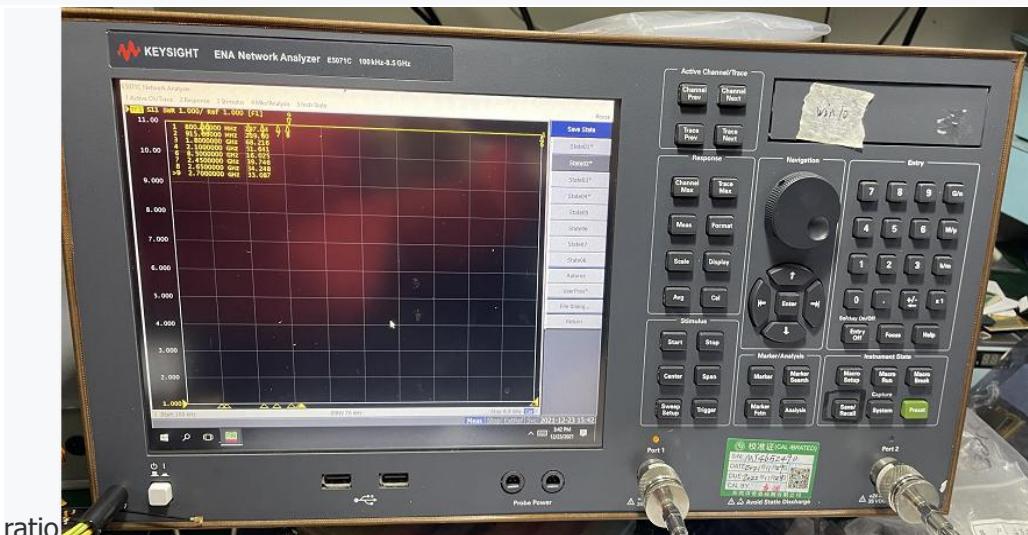


Chart 6 WIFI VSWR



| standard | Low frequency | | High frequency | | |
|-----------------|---------------|------|----------------|------|--|
| frequency (MHz) | 2400 | 2500 | 5700 | 5800 | |
| VSWR | 14 | 1.1 | 1.4 | 1.9 | |

Chart 7 Test environment: OTA743 darkroom, 8960/W500/8753ES/5071C, the machine is placed back to 4 meters away from the standard horn antenna turntable

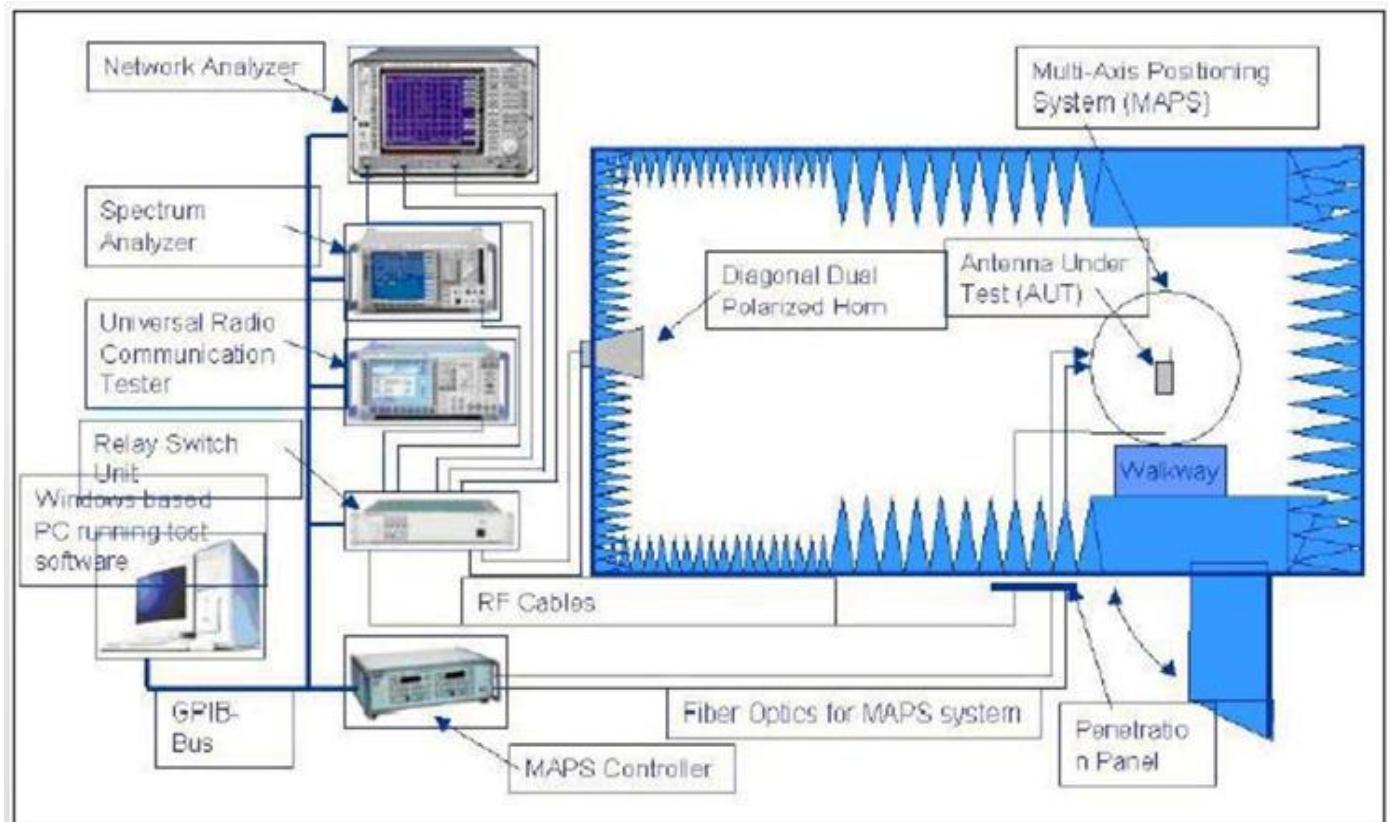


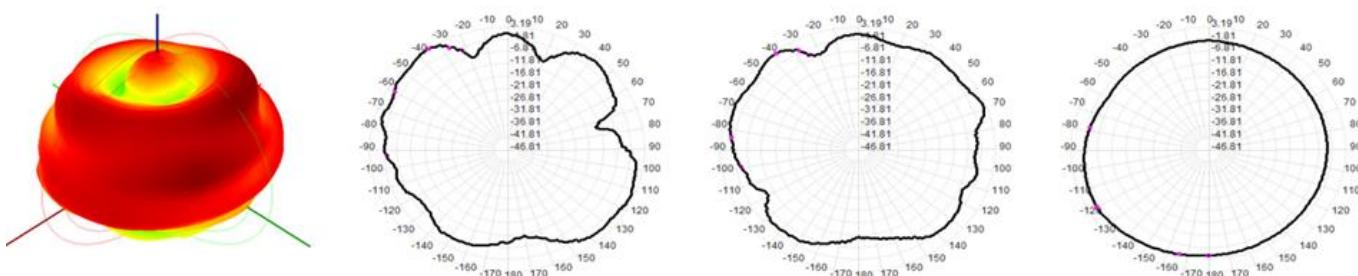
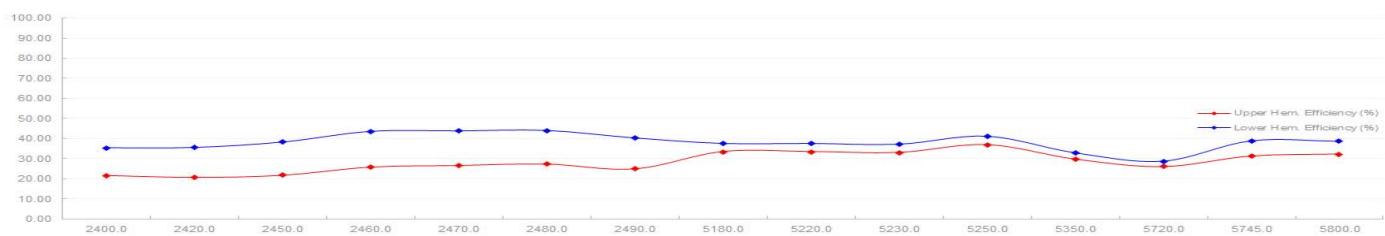
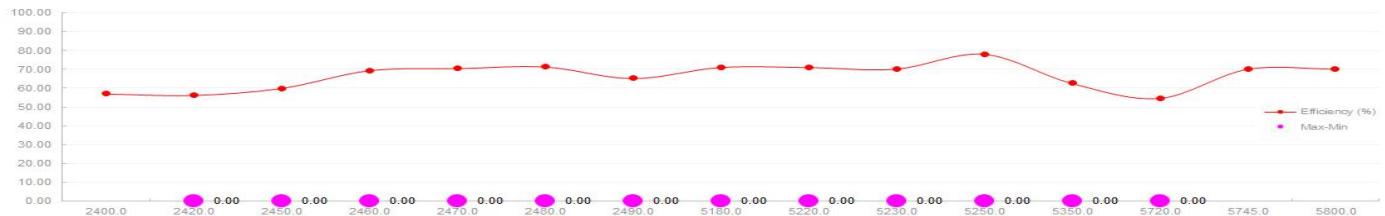
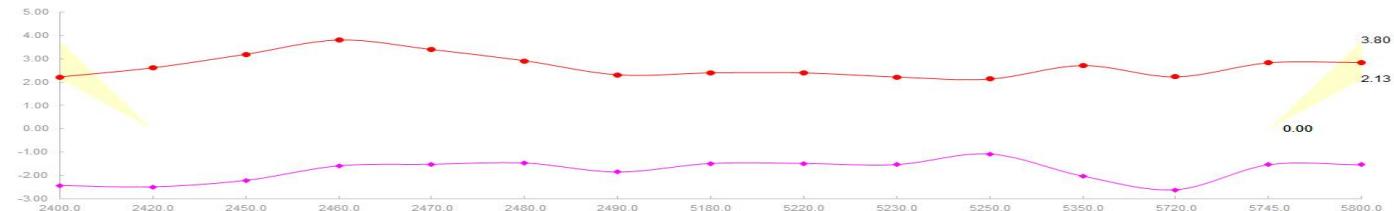
Chart 8 Elevation map coverage

| Frequency ID | 1 | 3 | 5 | 7 | 9 | 11 | 12 | 14 | 16 | 18 | 20 | 22 |
|----------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Frequency (MHz) | 2400.0 | 2420.0 | 2440.0 | 2460.0 | 2480.0 | 2500.0 | 5700.0 | 5720.0 | 5740.0 | 5760.0 | 5780.0 | 5800.0 |
| Efficiency (dBi) | -2.44 | -2.50 | -1.91 | -1.59 | -1.47 | -2.10 | -1.49 | -1.08 | -2.62 | -1.42 | -1.52 | -1.55 |
| Gain (dBi) | 2.22 | 2.61 | 3.43 | 3.80 | 2.91 | 2.38 | 3.39 | 4.13 | 2.22 | 3.61 | 3.78 | 2.82 |
| Efficiency (%) | 57.02 | 56.28 | 64.38 | 69.33 | 71.29 | 61.70 | 71.01 | 78.01 | 54.67 | 72.14 | 70.49 | 70.06 |
| Directivity (dB) | 4.66 | 5.11 | 5.34 | 5.39 | 4.38 | 4.48 | 4.88 | 5.21 | 4.85 | 5.03 | 5.30 | 4.37 |
| Peak Gain Position (Theta) | 144.00 | 141.00 | 144.00 | 124.00 | 144.00 | 145.00 | 80.00 | 127.00 | 79.00 | 86.00 | 141.00 | 81.00 |
| Peak Gain Position (Phi) | 180.00 | 180.00 | 180.00 | 210.00 | 180.00 | 180.00 | 90.00 | 90.00 | 90.00 | 270.00 | 60.00 | 90.00 |
| Efficiency ThetaPol (%) | 39.41 | 39.00 | 45.30 | 49.26 | 50.37 | 43.36 | 22.93 | 23.88 | 24.09 | 23.92 | 23.84 | 23.39 |
| Efficiency PhiPol (%) | 17.60 | 17.28 | 19.08 | 20.07 | 20.92 | 18.34 | 48.08 | 54.13 | 30.58 | 48.22 | 46.65 | 46.67 |
| Upper Hem. Efficiency (%) | 21.62 | 20.70 | 23.32 | 25.75 | 27.24 | 23.07 | 33.45 | 36.85 | 26.01 | 33.82 | 32.02 | 31.23 |
| Lower Hem. Efficiency (%) | 35.39 | 35.57 | 41.06 | 43.58 | 44.04 | 38.62 | 37.56 | 41.16 | 28.66 | 38.32 | 38.47 | 38.83 |



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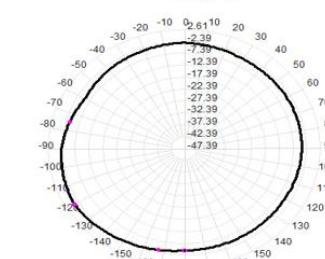
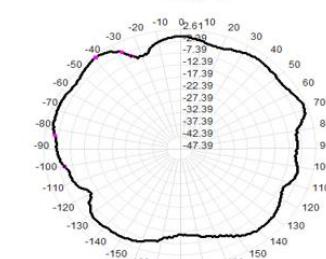
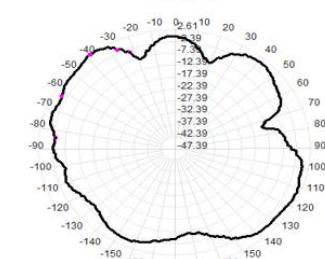
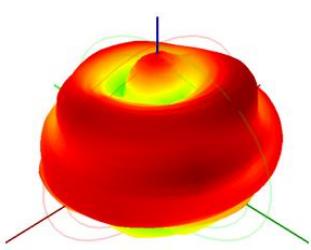
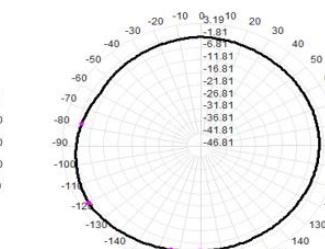
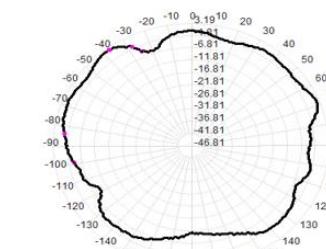
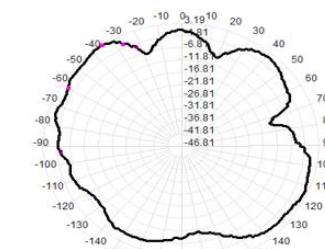
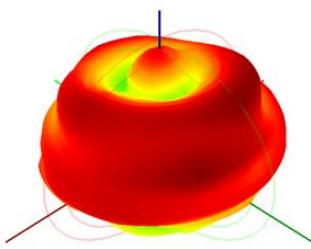
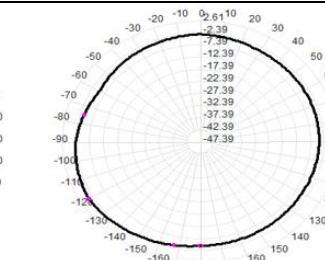
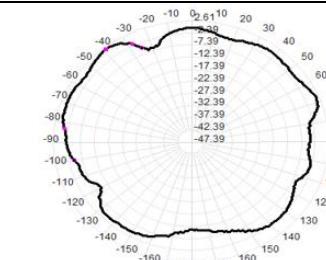
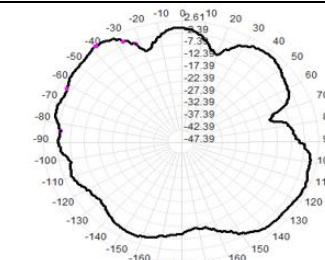
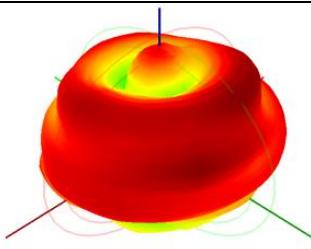
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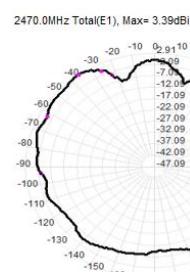
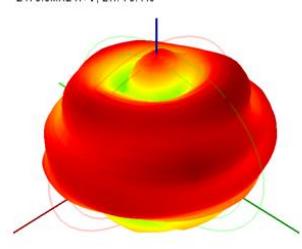


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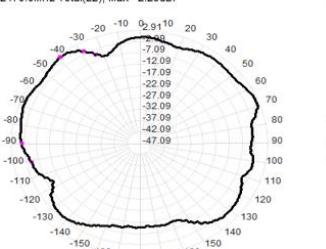
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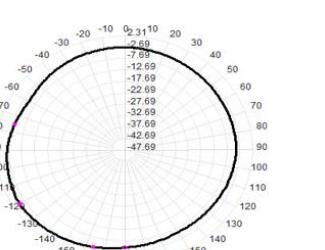
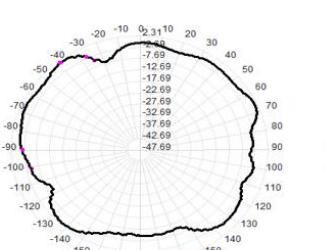
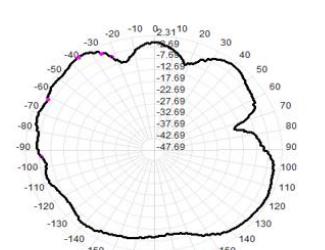
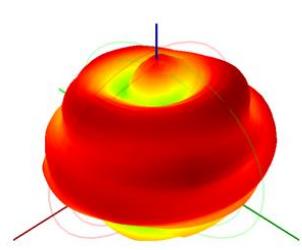
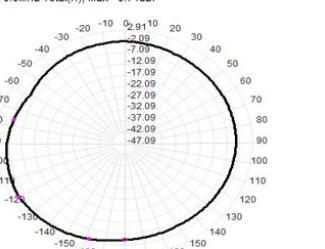
2470.0MHz H+V, Eff: 70.4%

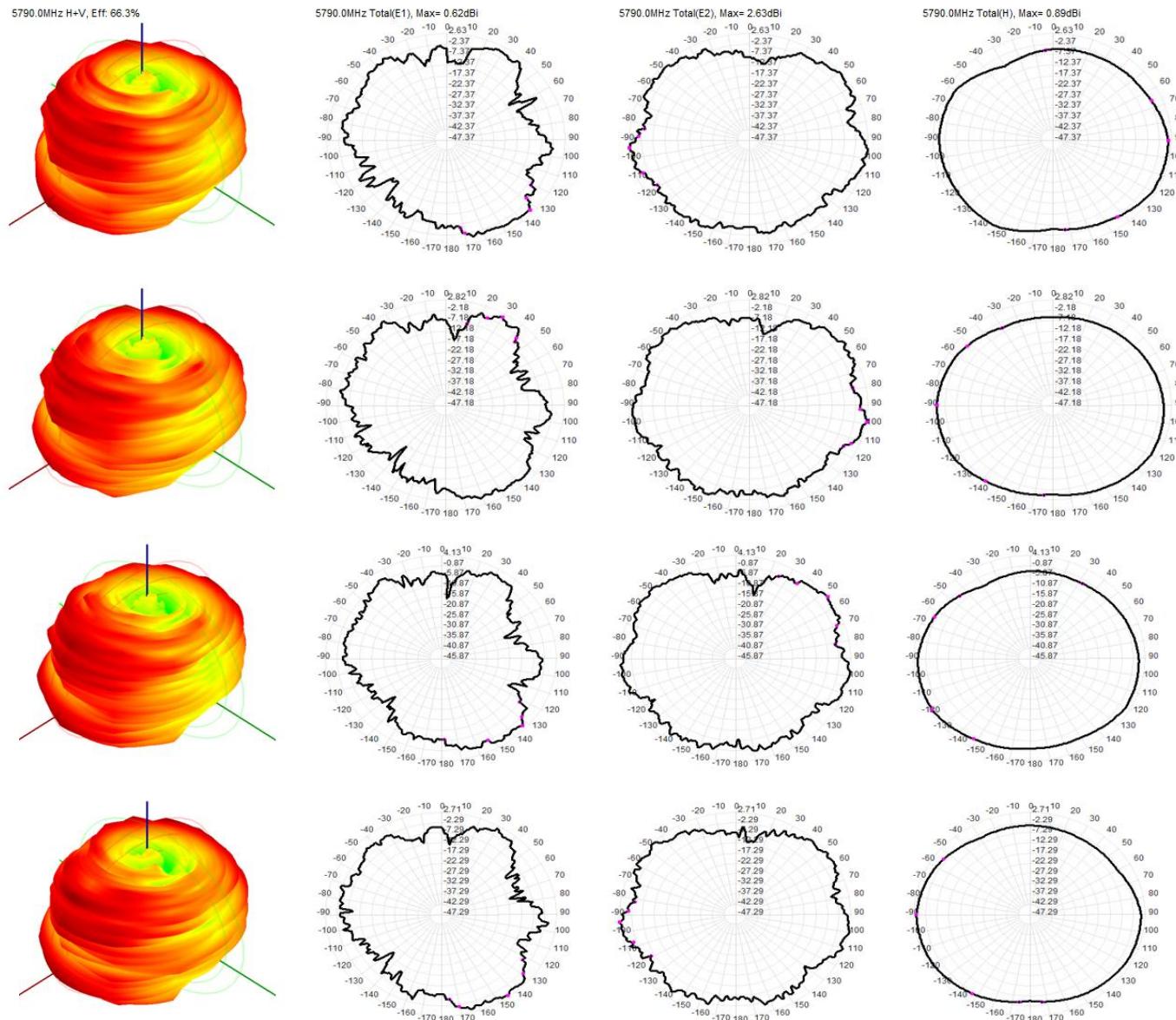


2470.0MHz Total(E2), Max= 2.29dBi



2470.0MHz Total(H), Max= 0.74dBi





3, recommendations and conclusions

This report is based on the final version of the antenna electrical performance measured by the customer Shenzhen Xinrui and Technology Co., Ltd. As can be seen from the above test data, this antenna provides better electrical performance. Tianyiyuan R & D looks forward to your confirmation, thank you for your cooperation!



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