



# 承 认 书

## SPECIFICATION FOR APPROVAL

Name: PCB Antenna

Item No: Type: TYY-TX3508

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drawing			Customer approve
MADE	CHECKED	APPROVED	
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DATE: 2023.10.19			DATE

## 1、specification

The TYY-TX3508 antenna is a PCB antenna (as shown in Figure 1 below)

The finished product features			
电 性 能 指 标		Electrical Specifications	
频率范围	2400~2500MHZ	Frequency Range	2400~2500MHZ
电压驻波比	$\leq 2.0$	VSWR	$\leq 2.0$
增 益	3.01 DBI	GAIN	3.01 DBI
输入阻抗	50 $\Omega$	Input Impedance	50 $\Omega$
机 械 指 标		Mechanical Specifications	
天线颜色	黑色	Antenna Color	BLACK
类型	PCB	Type	PCB
线长度	75mm	Cable length	75mm
工作温度	-40°C~+85°C	Working Temperature	-40°C~+85°C
工作湿度	20~80%	Working Humidity	20~80%

**Figure 1 TYY-TX3508 Antenna**

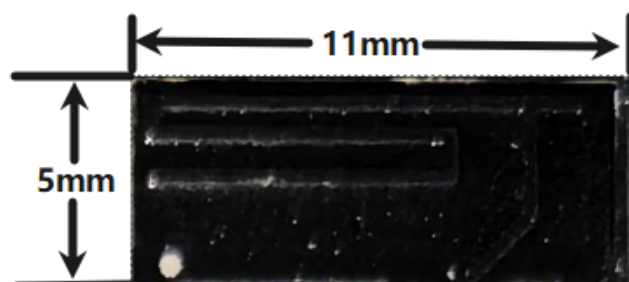
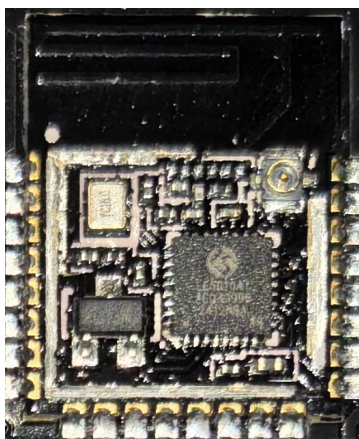


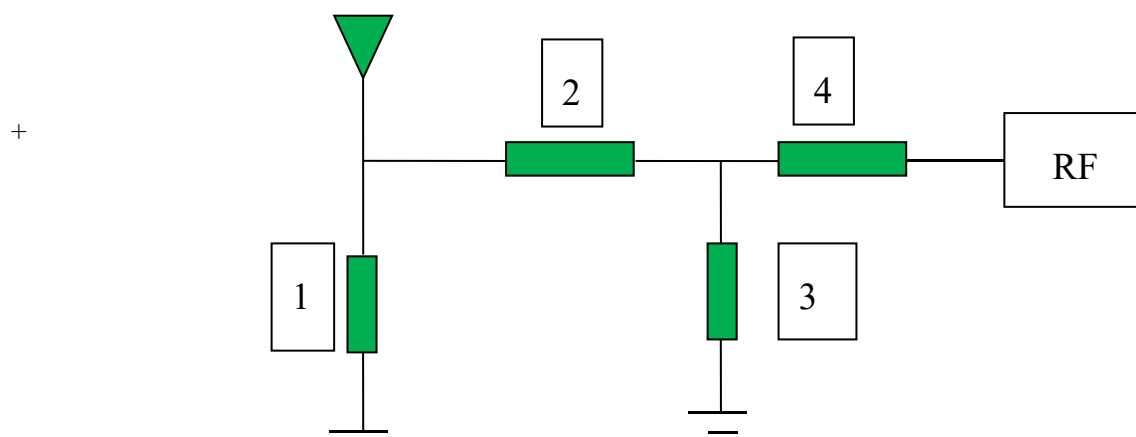
Figure 2 TYY-TX3508 Antenna



Figure 3 Assembly drawings



## 2. Appliance performance



Component number	1	2	3	4
WIFI BEST	NC	0 $\Omega$	NC	
Original (Spare)	50 $\Omega$ match			

Figure 4 OTA Microwave anechoic chamber test instrument

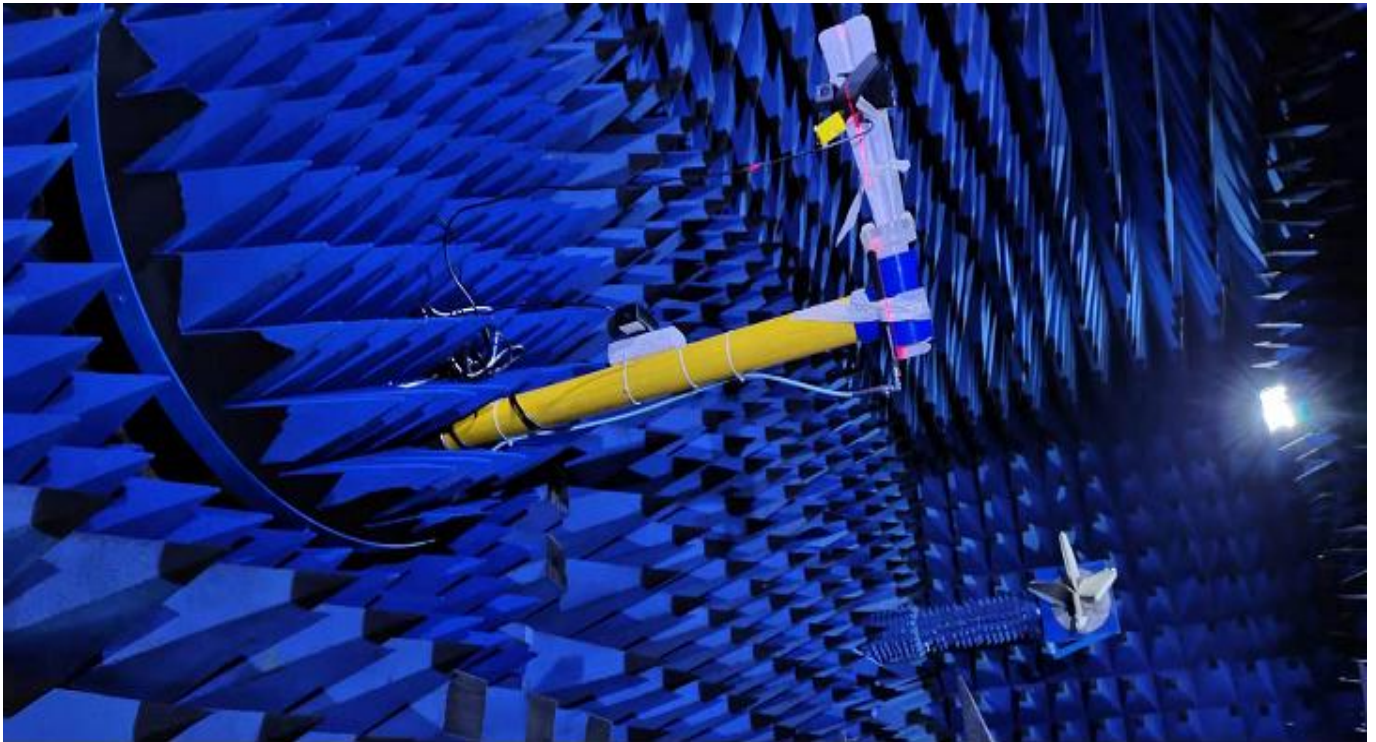


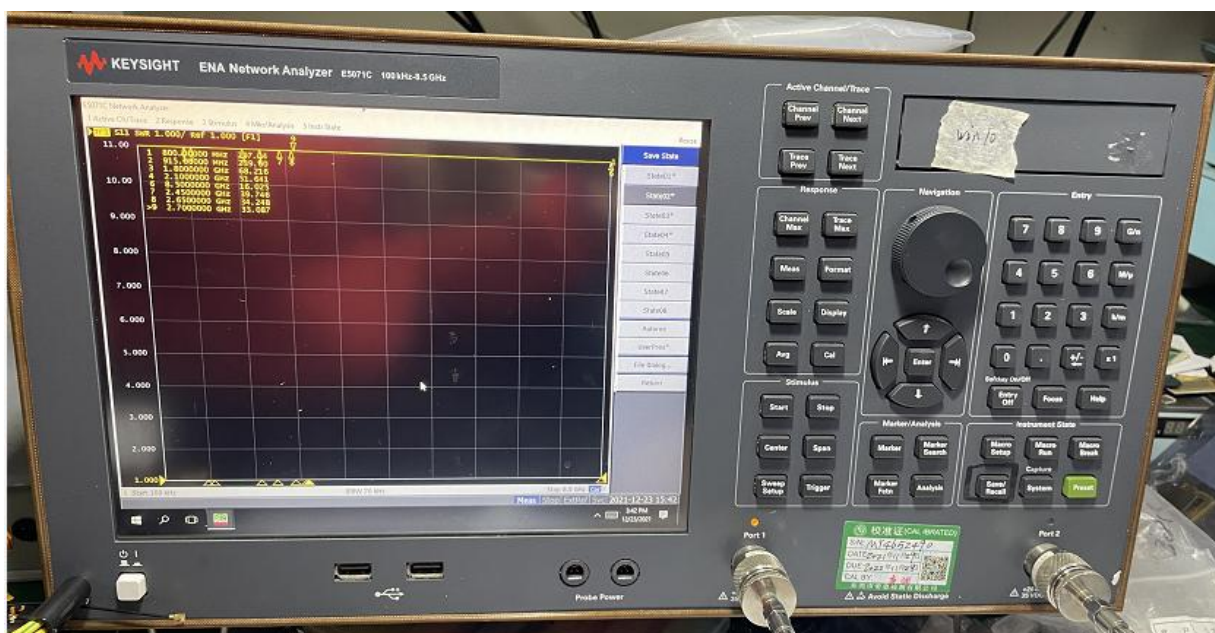
Figure 5 Test Environment: OTA743 darkroom, 8960/W500/8753ES/5071C,  
The machine is placed on the turntable 4  
meters away from the standard horn day in  
the back direction





**2.3.1. Test Setup** The VSWR test fixtures are connected in sequence: Agilent E5071B Network Analyzer ®50 Ohm Coaxial Cable®120mm Copper Test ® Fixture Handling: The SMA-J connector is led out of the SMA-J connector from the 50 ohm test point of the antenna on the flat panel PCB, connected to the copper tube with chokes, and then connected to other devices in turn.

**Figure 6 Agilent E5071B**



## WIFI VSWR

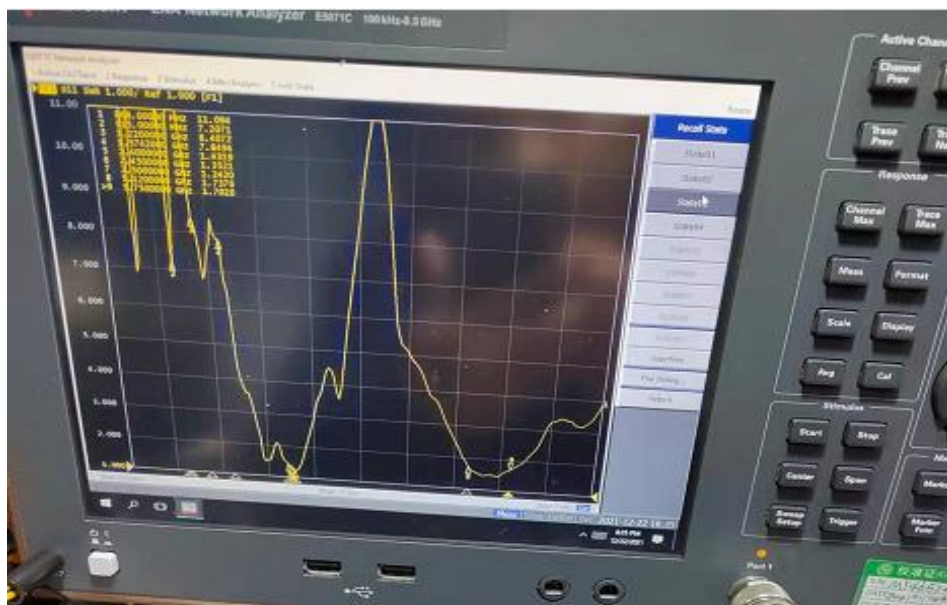
### 2.3 VSWR

**2.3.1. Test Setup VSWR** The test setup is sequentially connected to the Agilent E5071B Network Analyzer @50 ohm coaxial

Cable@120mm long Copper Test @ Fixture Handling of Test Fixture: Use a rigid cable to lead the SMA-J connector from the 50 ohm test point of the antenna on the flat panel PCB, connect it to the copper tube with the choke, and then connect the other devices in turn.

## 3 WIFI VSWR

Figure 7 WIFI VSWR



Freq(MHz)	2412	2480	2500	5700	5800
VSWR	1.1	1.1	1.2	1.6	2.0

## 3、3D dynamic testing of the whole machine

### 3.1 The site of the test

TCT Microwave anechoic chamber: The test frequency range is 600MHz-6GHz, the quiet area range is 50cm circumference, and the reflectivity is less than -90 dB.

(Figure 4, Figure 5)

### 3.2 Environmental Treatment

Environmental Treatment: No Environmental Treatment.

Figure 8 2/3/4 LTE Return loss



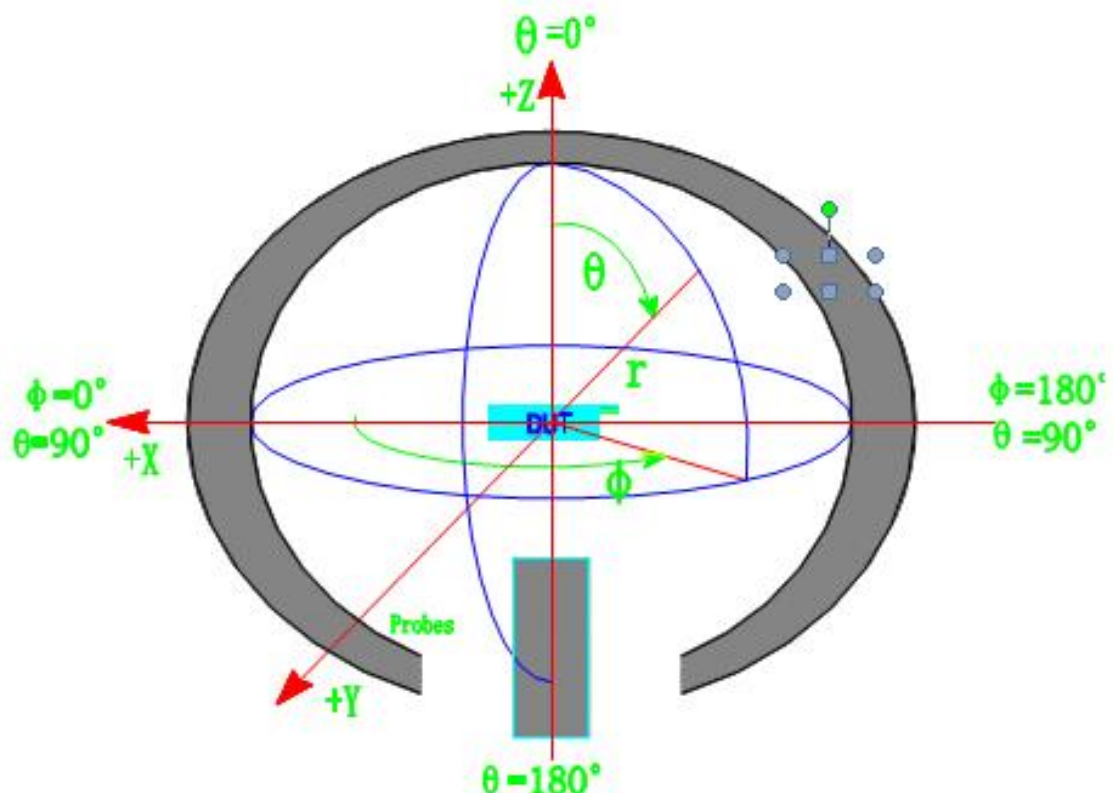


Figure 9 WIFI Passive Test Report (Efficiency & Gain)

FEITUKEJI											
Frequency ID	1	2	3	4	5	6	7	8	9	10	11
Frequency (MHz)	2400.0	2410.0	2420.0	2430.0	2440.0	2450.0	2460.0	2470.0	2480.0	2490.0	2500.0
Efficiency (dBi)	-1.72	-1.68	-1.52	-1.25	-1.06	-0.83	-0.61	-0.47	-0.64	-0.87	-1.04
Gain (dBi)	2.04	2.10	2.26	2.72	2.68	2.94	3.01	2.88	2.20	1.68	1.56
Efficiency (%)	67.32	67.94	70.50	75.01	78.27	82.59	86.95	89.83	86.21	81.78	78.67
Directivity (dB)	3.76	3.78	3.78	3.97	3.75	3.77	3.62	3.34	2.85	2.55	2.60
Peak Gain Position (Theta)	83.00	82.00	83.00	85.00	88.00	92.00	88.00	93.00	97.00	73.00	75.00
Peak Gain Position (Phi)	30.00	30.00	30.00	360.00	360.00	360.00	360.00	360.00	360.00	360.00	360.00
Efficiency ThetaPol (%)	65.57	66.34	69.10	73.67	76.99	81.33	85.58	88.35	84.69	80.22	77.04
Efficiency PhiPol (%)	1.75	1.60	1.40	1.35	1.28	1.26	1.37	1.49	1.51	1.57	1.63
Upper Hem. Efficiency (%)	41.71	41.72	42.46	44.27	45.34	47.06	48.83	50.02	47.88	45.34	43.58
Lower Hem. Efficiency (%)	25.61	26.22	28.05	30.74	32.93	35.53	38.13	39.81	38.33	36.45	35.08

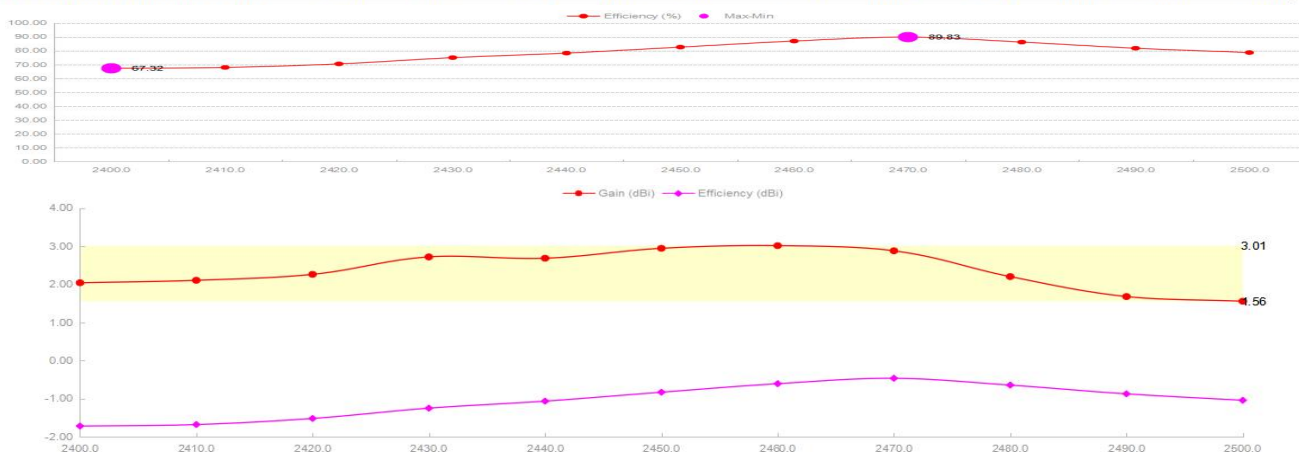
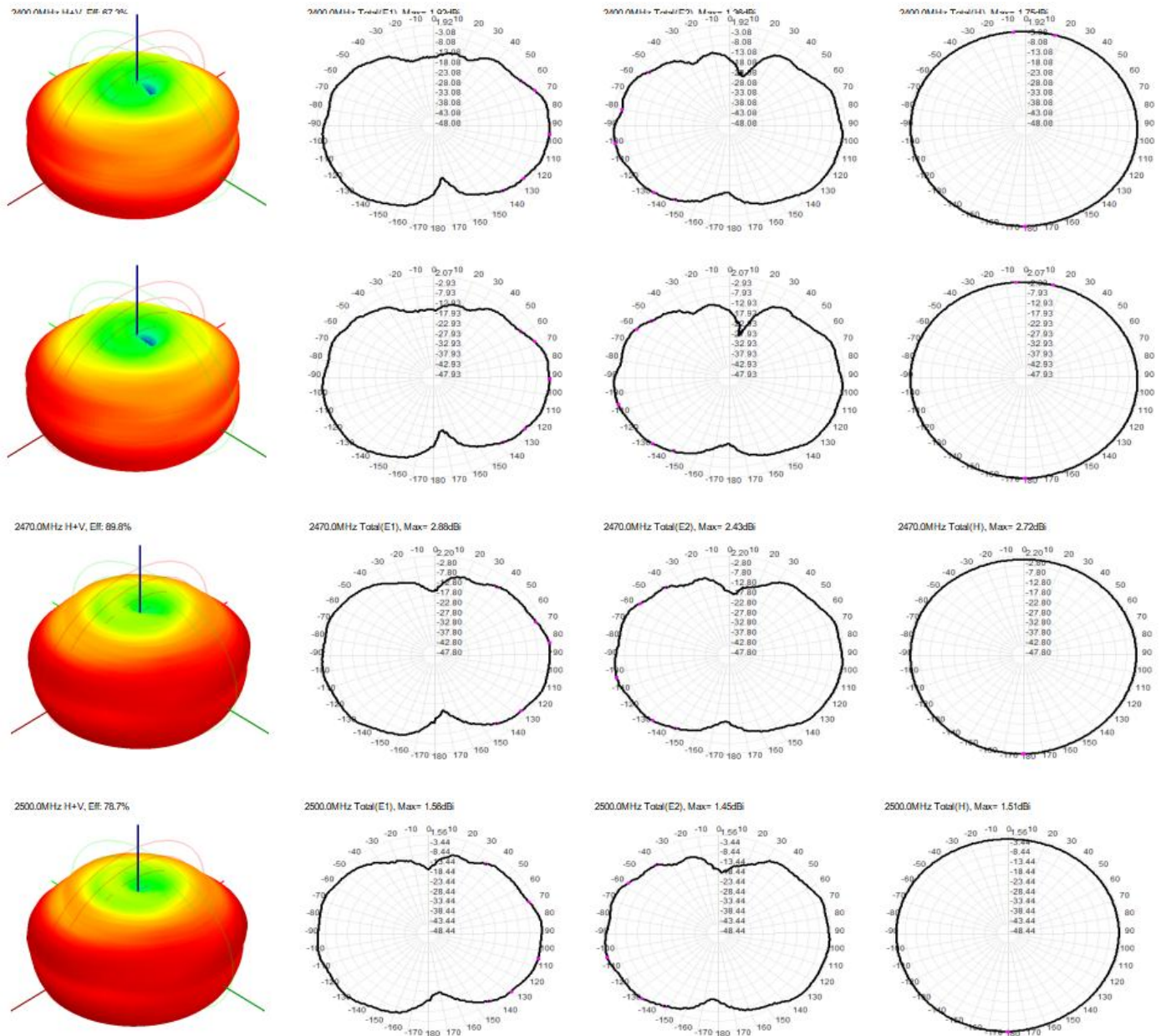


Figure 10 Three-dimensional renderings



## 5、Recommendations & Conclusions

This report is based on the final version of the model project of Shenzhen Lesongge Technology Co., Ltd. to provide the measured antenna electrical performance. As can be seen from the above test data, this antenna provides good electrical performance. Shenzhen Tianyiyuan Electronic Technology Co., Ltd. R&D looks forward to your confirmation, thank you for your cooperation!