



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

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Recognition book

SPECIFICATION FOR APPROVAL

Name: WIFI/BT Antenna

Item No: TTY-TX3100-1

Custoer name: Shenzhen Xinruihe Technology Co., Ltd.

Company stamp: _____

drawing			Customer approve
MADE	CHECKED	APPROVED	
QIU	jack	Miketang	
DATE: 2026.01.29			DATE

1、Specifications

The report provides a test of the electrical performance parameters of the **TTY-TX3100-1** Technical parameters of antenna electrical appliances antenna, which is a science and technology model. TTY-TX3100-1 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	3.01 DBI max	GAIN	3.01 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	100mm	Cable length	100mm
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 TTY-TX3100-1 Antenna finished



Line length 100+/-2mm, The other end with the 1-IPEX.

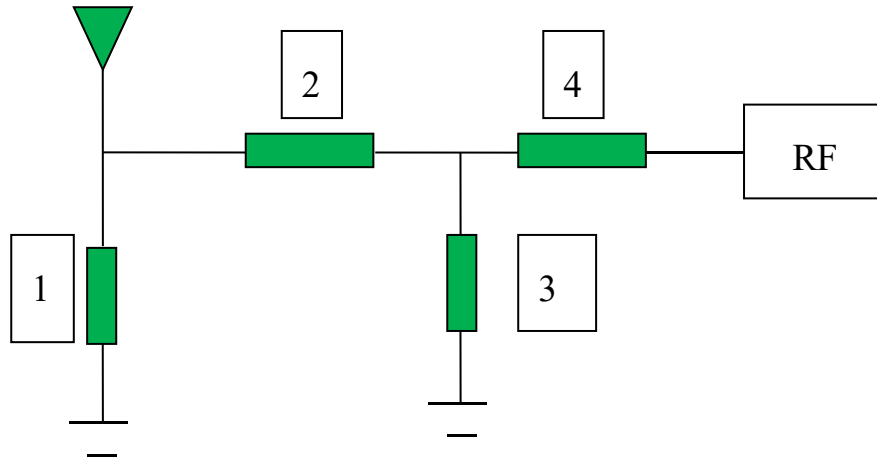
Chart 2 Location of antenna patch

Tip: First fasten the terminal block and then tear the back tape antenna, the antenna must stick straight according to the drawing.thank you!

2. Electrical properties

2.1 WIFI Antenna matching circuit

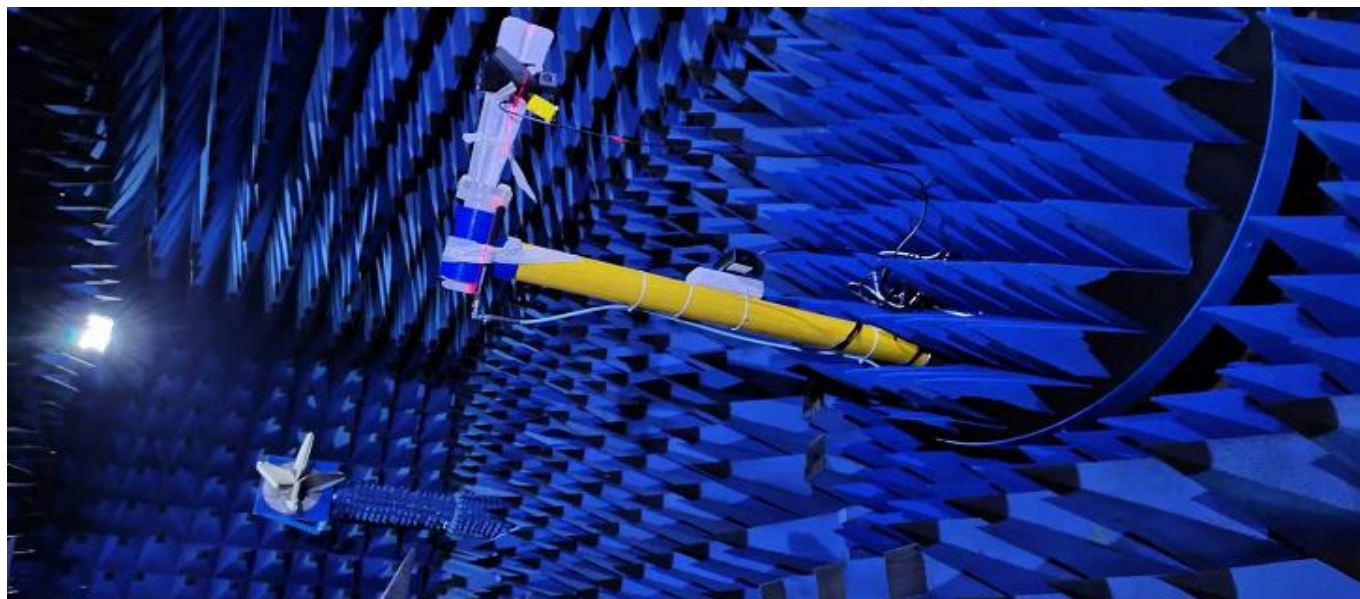
This item matching circuit is provided by the customer.



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

Chart 3 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 4 Agilent E5071C network analyzer

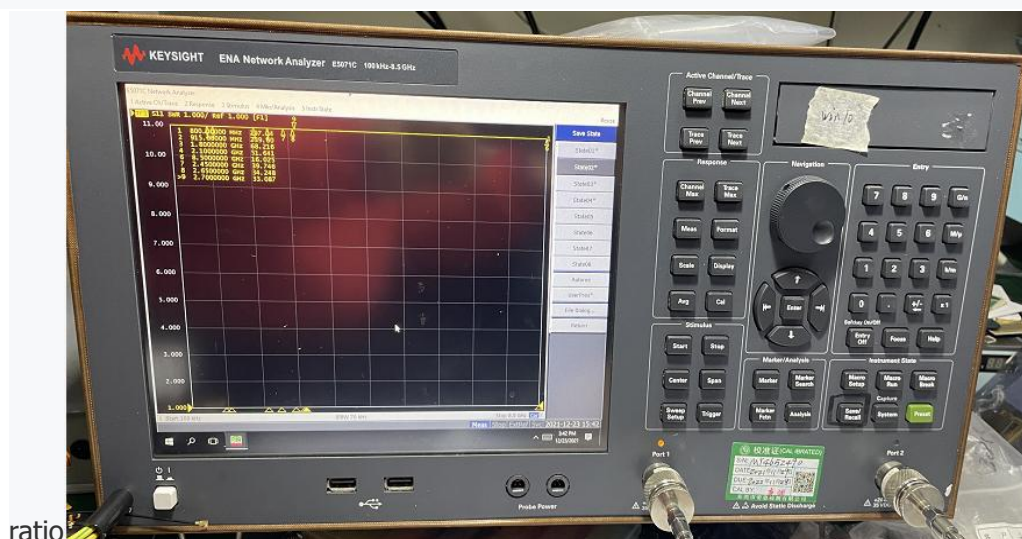


Chart 5 WIFI VSWR



standard	Low frequency		High frequency		
frequency (MHz)	2400	2450	5150	5800	
VSWR	1.3	1.1	1.4	1.9	

Chart 6 Test environment: OTA743 darkroom, 8960/W500/8753ES/5071C, the machine is placed back to 4 meters away from the standard horn antenna turntable

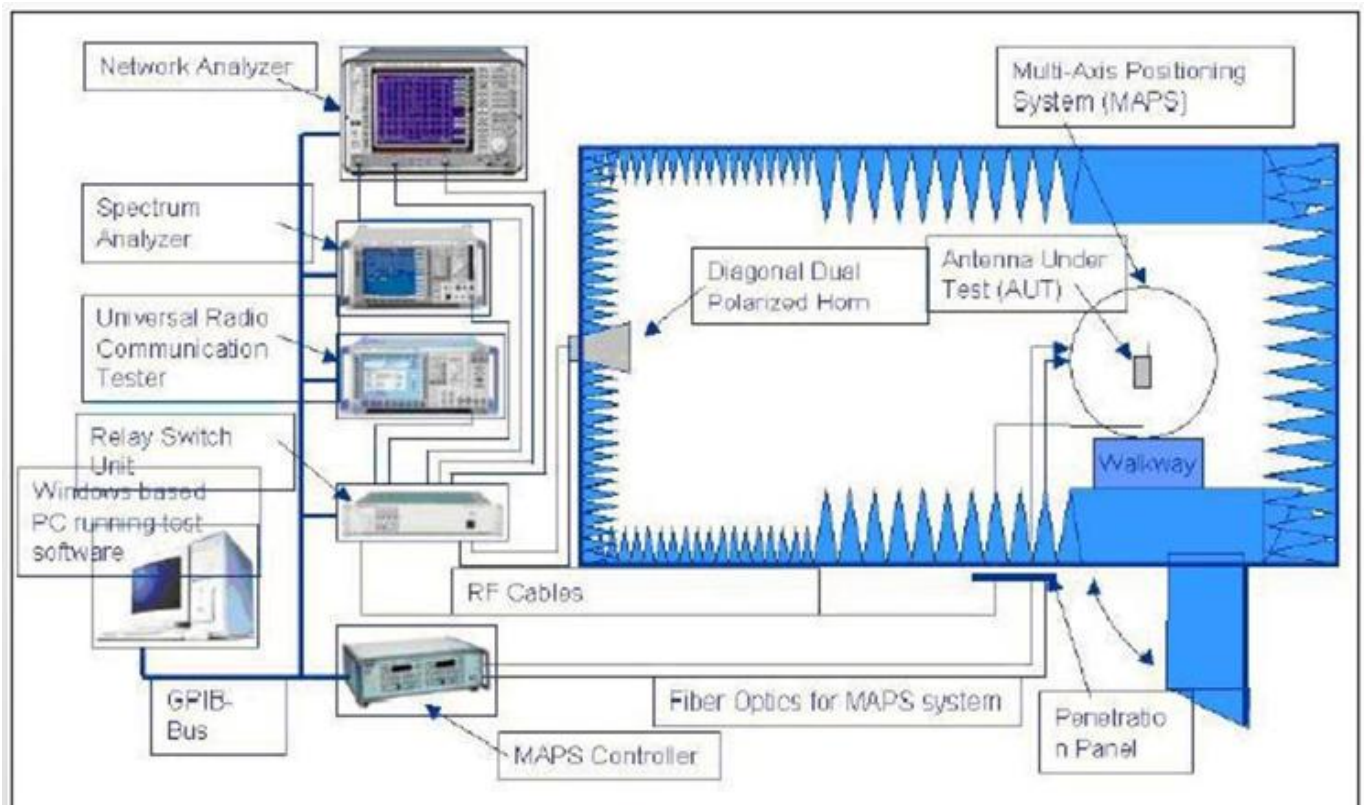
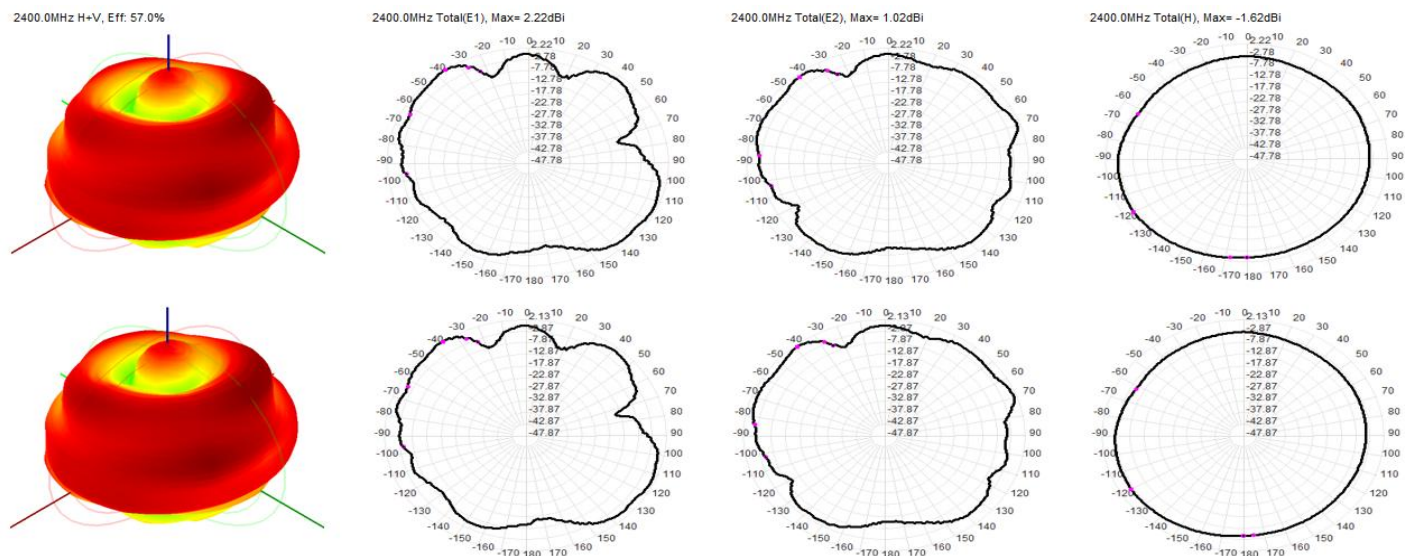
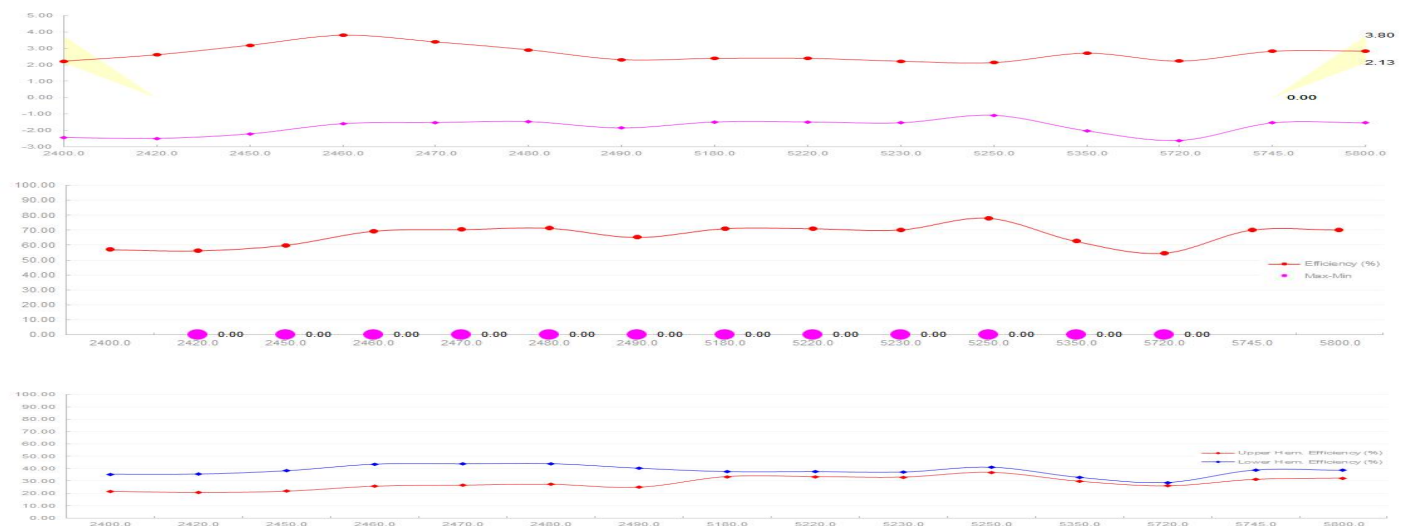
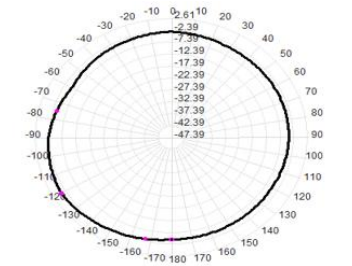
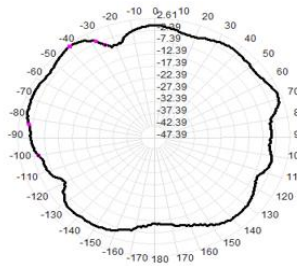
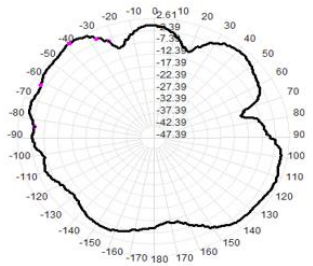
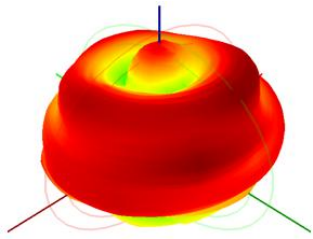
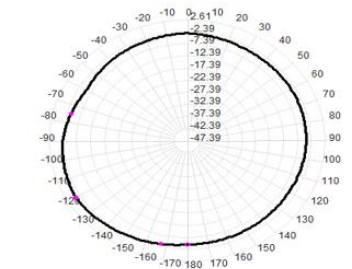
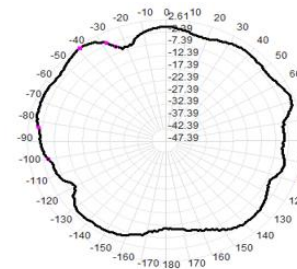
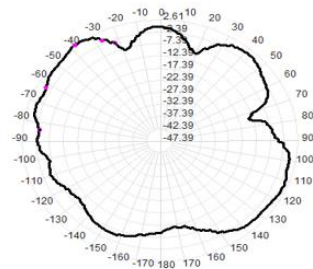
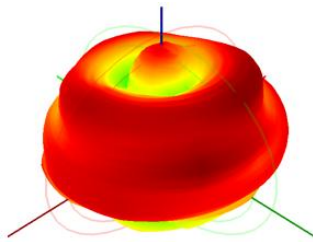
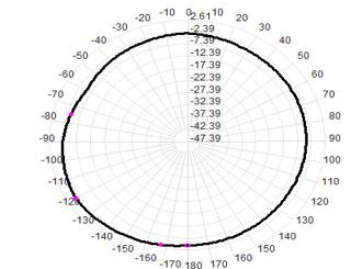
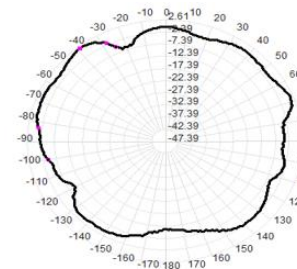
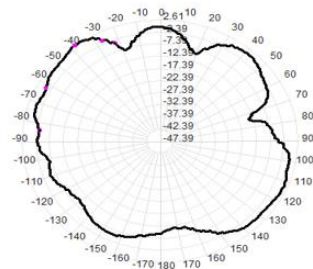
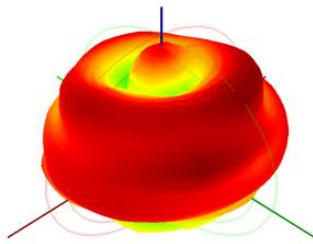


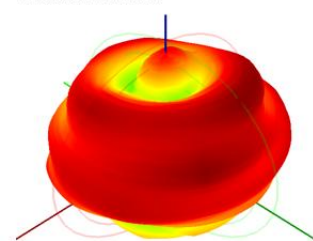
Chart 7 Elevation map coverage

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

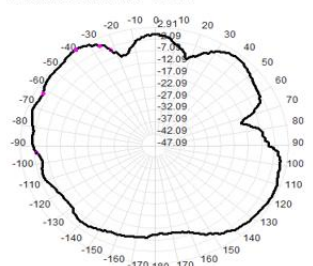




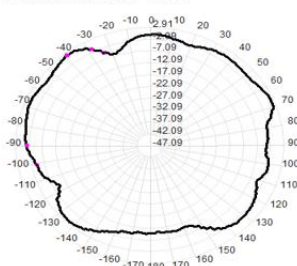
2470.0MHz H+V, Eff: 70.4%



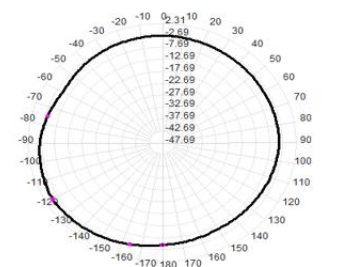
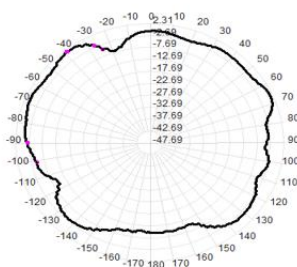
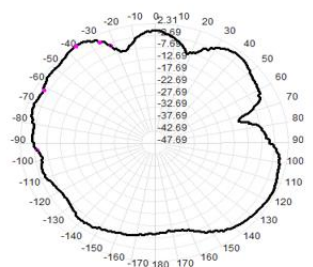
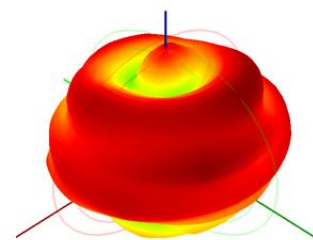
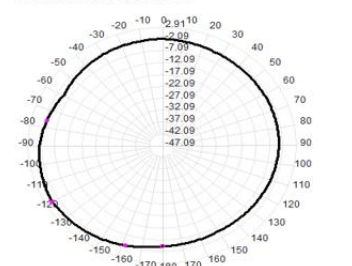
2470.0MHz Total(E1), Max= 3.39dBi



2470.0MHz Total(E2), Max= 2.29dBi



2470.0MHz Total(H), Max= 0.74dBi



3, recommendations and conclusions

This report is based on the antenna electrical performance measured by the customer based on the final version of the model project of Shenzhen Xinruihe Technology Co., Ltd.

As can be seen from the above test data, the antenna provides good electrical performance. Tianyiyuan is looking forward to your confirmation. Thank you for your cooperation!