
Shenzhen Hongde Zhixin Technology Co., Ltd

WIFI /BT Antenna Specs

Customer name: Pipo Technology Co.,Ltd	Model name: X20	
Frequency: 2.4G/ 5G	Date: 2023.06.16	Version No: R1

4G Main antenna: HDZXJ1210

Diversity antenna 1: cable length 185mm with the third generation terminal

Diversity antenna 2: HDZX-J105 , cable length 120mm with the third generation terminal

Diversity antenna 3: HDZX-550 cable length 170MM with the third generation terminal, 0.81 dark cable

1. Project information and Electrical Specification

Those specifications were specially defined for 2.4G and 5G model, and all characteristics were measured under the model's handset testing jig .

1-1 Antenna picture

1-2 Frequency Band:

Frequency Band	MHz
2.4G/5G	2400-2500/4950-5850

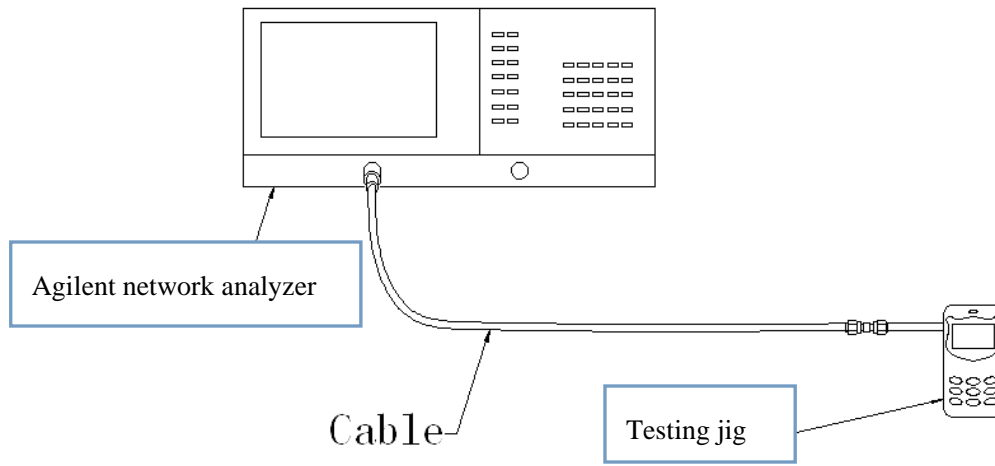
1-3 Impedance matching

2. VSWR

2-1 Measuring Method:

- 1. A 50Ω coaxial cable is connected to the antenna. Then this cable is connected to a network analyzer to measure the VSWR,*
- 2. Keeping this jig away from metal at least 20cm.*

Testing Picture as followed:



2-2 S11 parameter values

Frequency (MHZ)	1550	1580	2389	2450	2500
Standing Wave	1.3	1.2	1.38	1.63	1.23

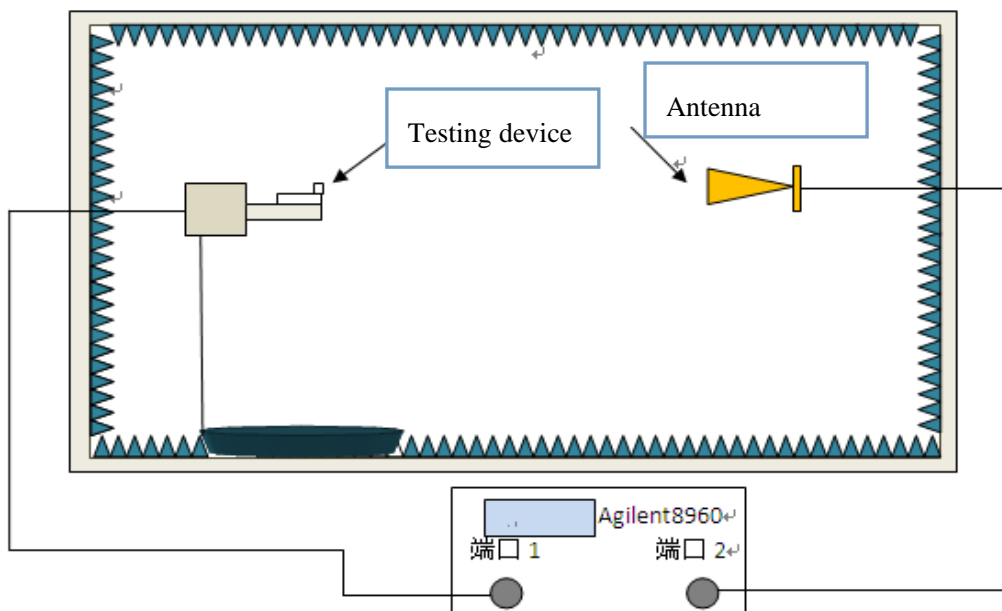
3. Efficiency and Gain

*measuring and test instruments:

Microwave darkroom, Agilent network analyzer, Agilent spectrum analyzer, 8960 wireless communications test set

*test method:

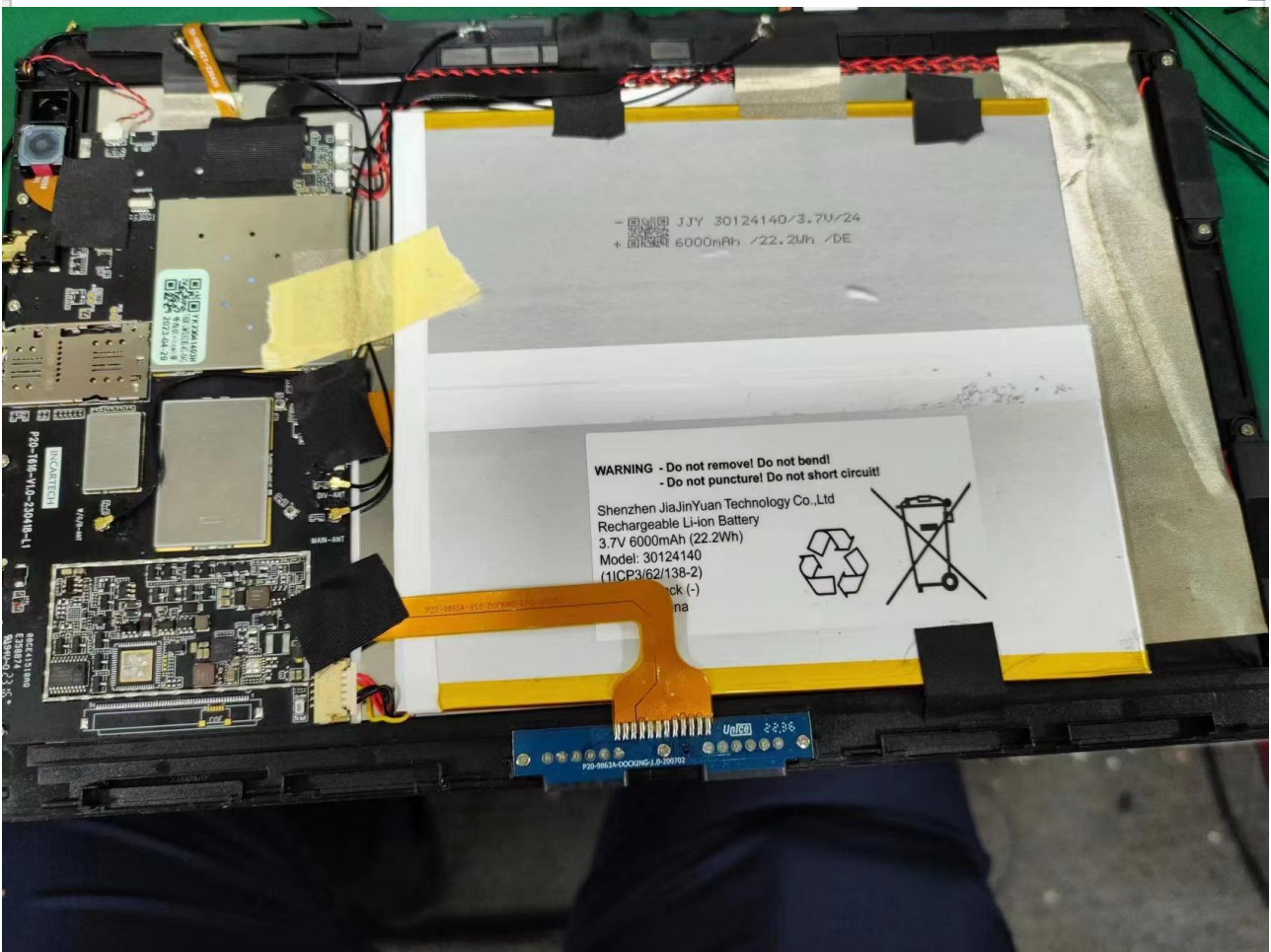
The equipment is fixed in the center position of the turntable with the H plane, and on the same horizontal line of the speaker and the antenna.



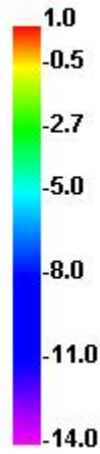
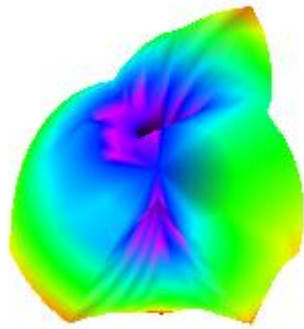
3-1 Efficiency/Gain- WIFI/BT

Passive Test For wifi2.4G/BT								
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Gain (dBd)	Max (dB)	Min (dB)	Attenut Hor	Attenut Ver
2400	49.29	-3.07	1.01	-1.14	1.01	-13.99	51.11	50.57
2450	53.42	-2.72	3.01	0.86	3.01	-18.1	51.94	51.53
2500	51.25	-2.9	3.26	1.11	3.26	-17.39	51.98	51.64

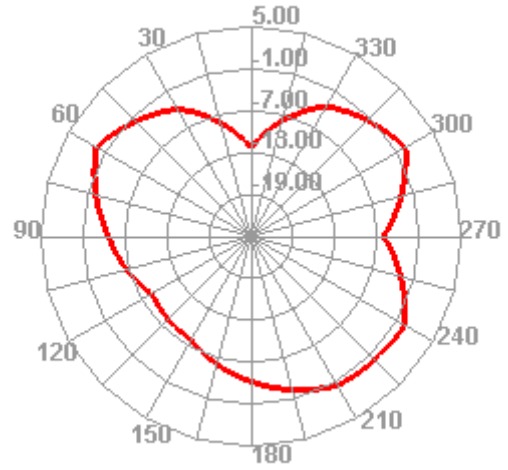
Passive Test For 5.8								
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Gain (dBd)	Max (dB)	Min (dB)	Attenut Hor	Attenut Ver
4950	53.52	-2.71	2.33	0.18	2.33	-16.16	62.44	62.5
5400	66.72	-1.76	4.64	2.49	4.64	-19.6	63.55	63.99
5850	64.22	-1.92	3.44	1.29	3.44	-11.42	66.35	66.32



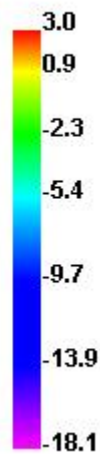
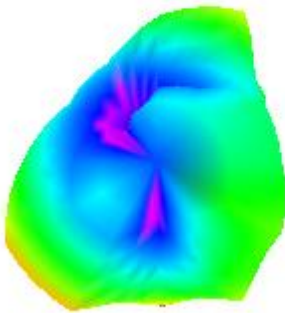
2400.000MHz



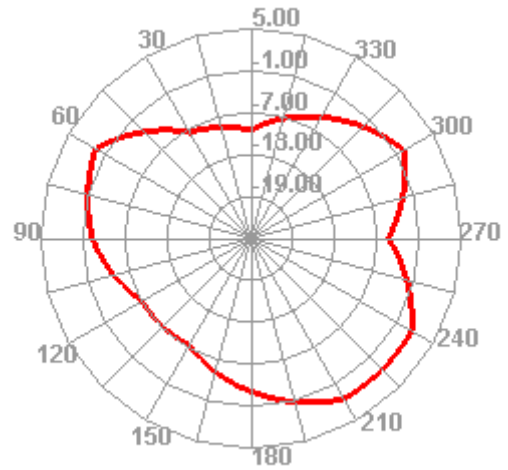
2400.000MHz H



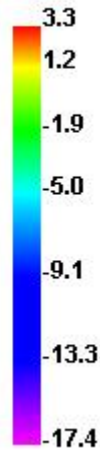
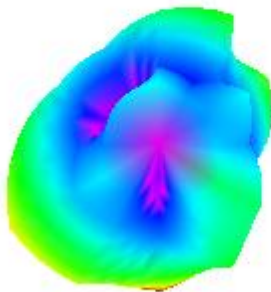
2450.000MHz



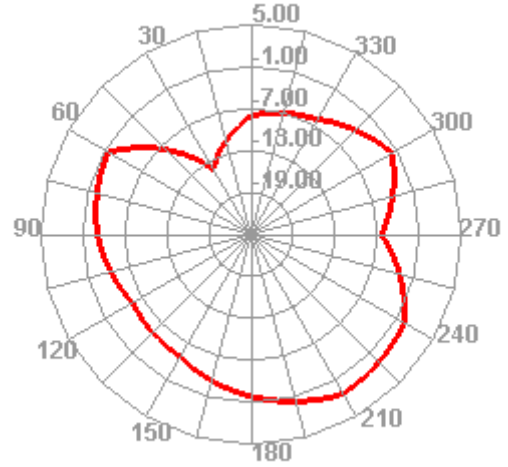
2450.000MHz H

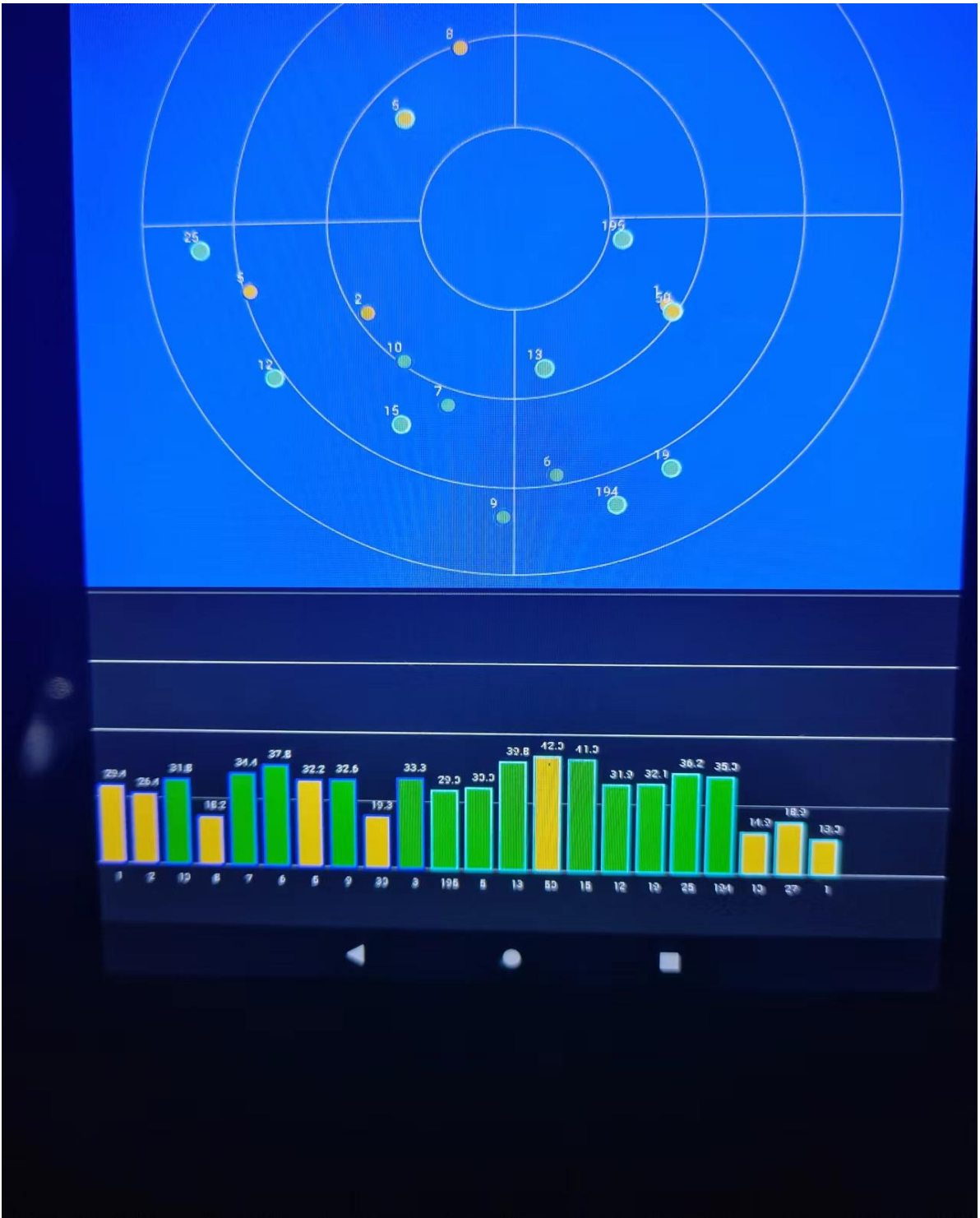


2500.000MHz

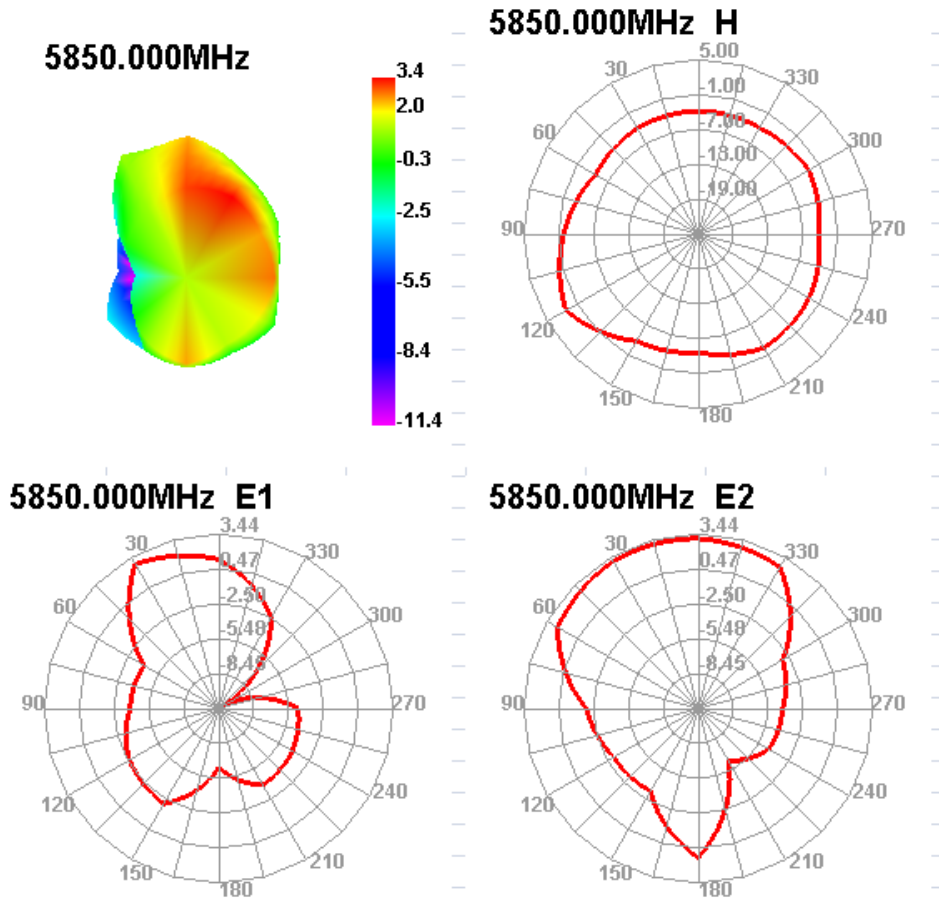


2500.000MHz H





GPS Testing photo: Can be located more than 5 stars within 70 seconds.



4. The production index

When make mass production(MP), please refer to the SWR(standing-wave ration) as the standard,and the SWR difference as followed:

Frequency	MP standard
GPS(1560_1580MHZ) WIFI (2400-2500Mhz 5100MHZ-5850MHZ/)	VSWR (MP one) <VSWR(Sample)+0.5