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# 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

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

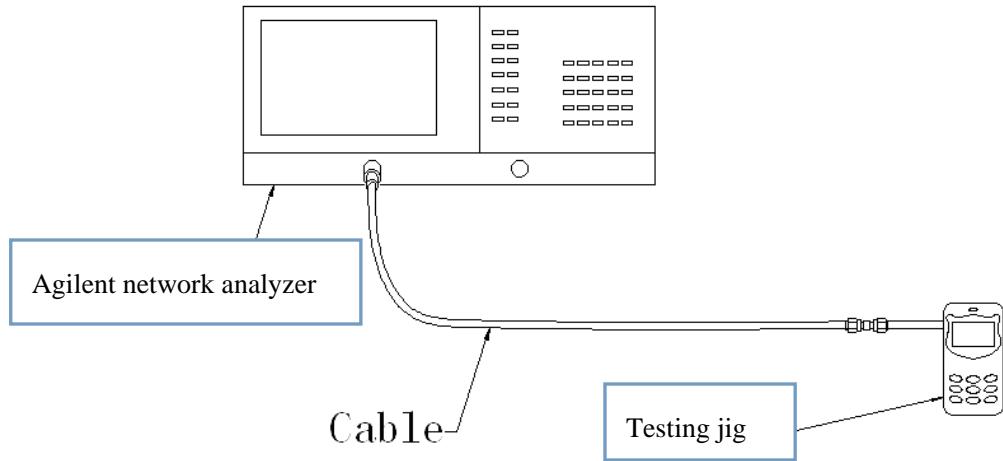
1-3 Impedance matching

## 2. VSWR

### 2-1 Measuring Method:

1. A  $50\Omega$  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

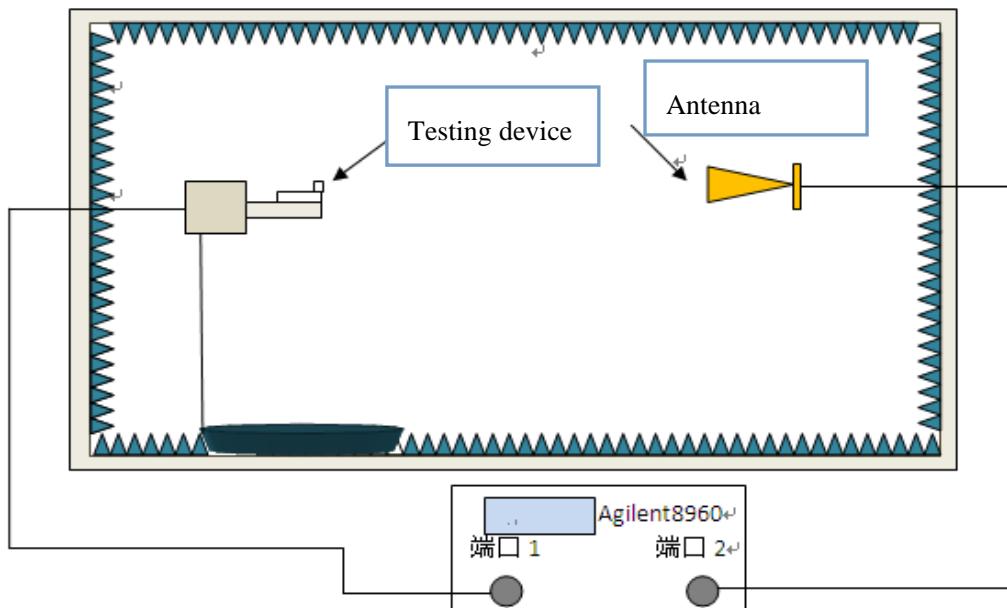
## 3. Efficiency and Gain

### \*measuring and test instruments:

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

### \*test method:

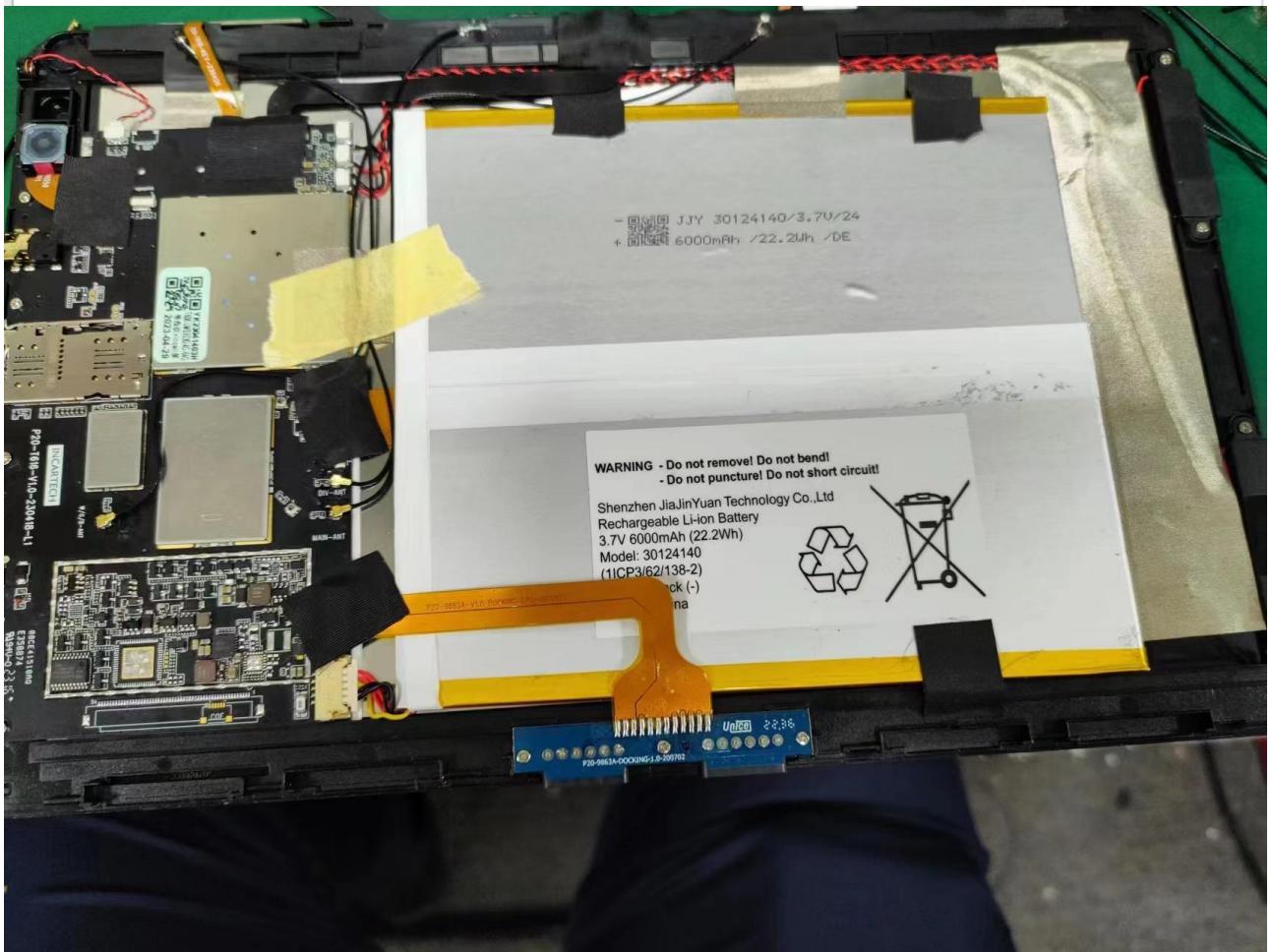
The equipment is fixed in the center position of the turntable with the H plane, and on the same horizontal line of the speaker and the antenna.

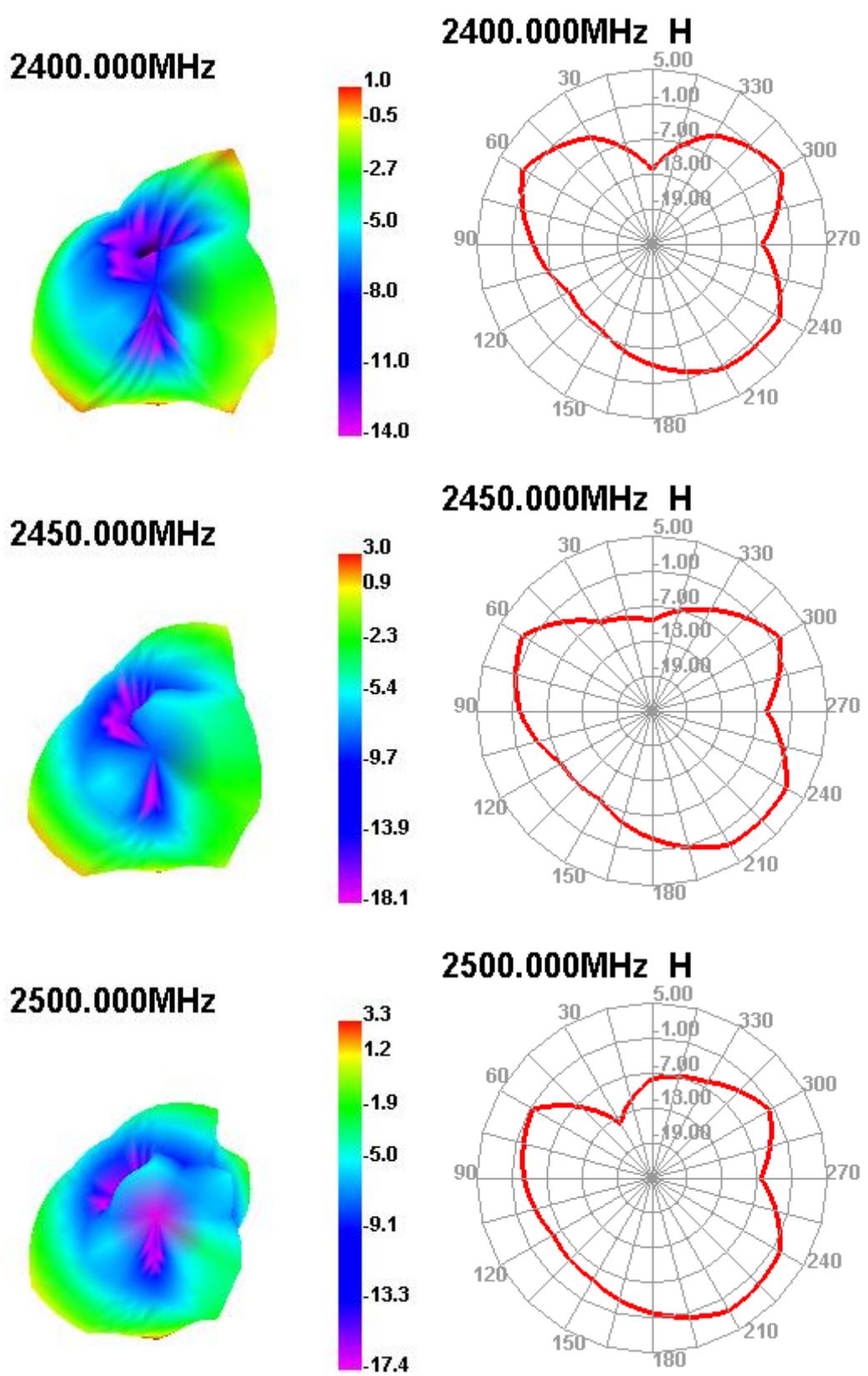


### 3-1 Efficiency/Gain- WIFI/BT

Passive Test For wifi 2.4G/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

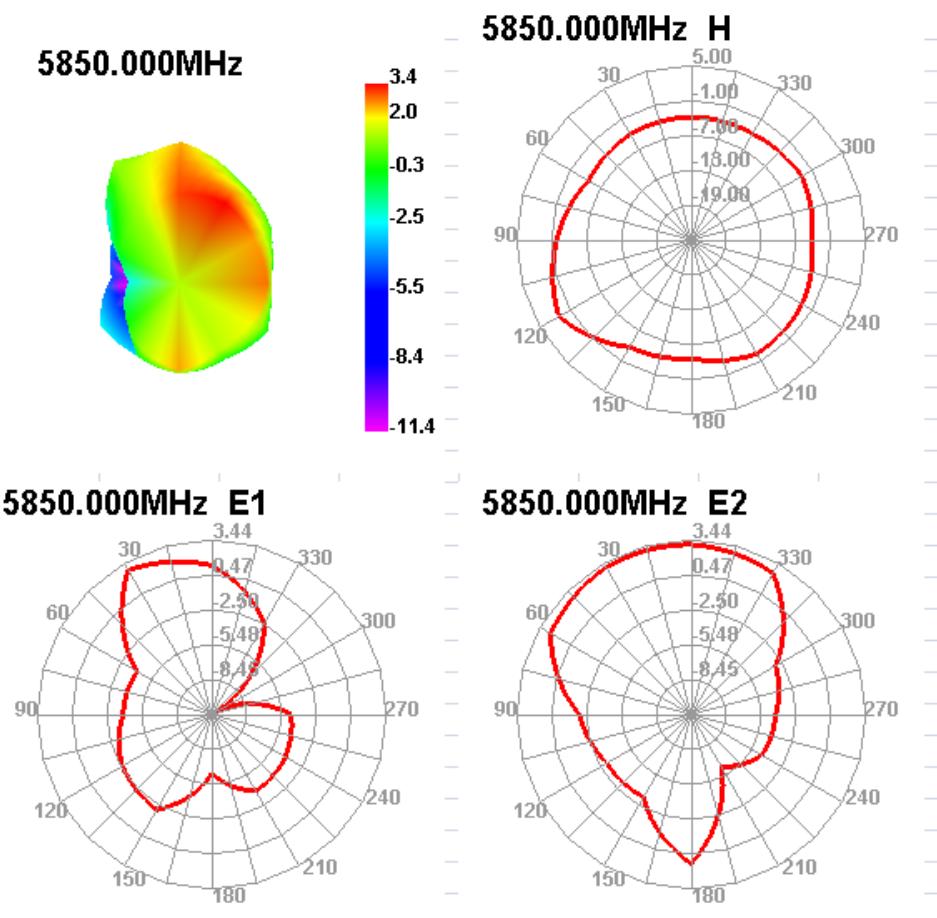
Passive Test For 5.8								
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Gain (dBd)	Max (dB)	Min (dB)	Attenut Hor	Attenut Ver
4950	53.52	-2.71	2.33	0.18	2.33	-16.16	62.44	62.5
5400	66.72	-1.76	4.64	2.49	4.64	-19.6	63.55	63.99
5850	64.22	-1.92	3.44	1.29	3.44	-11.42	66.35	66.32







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