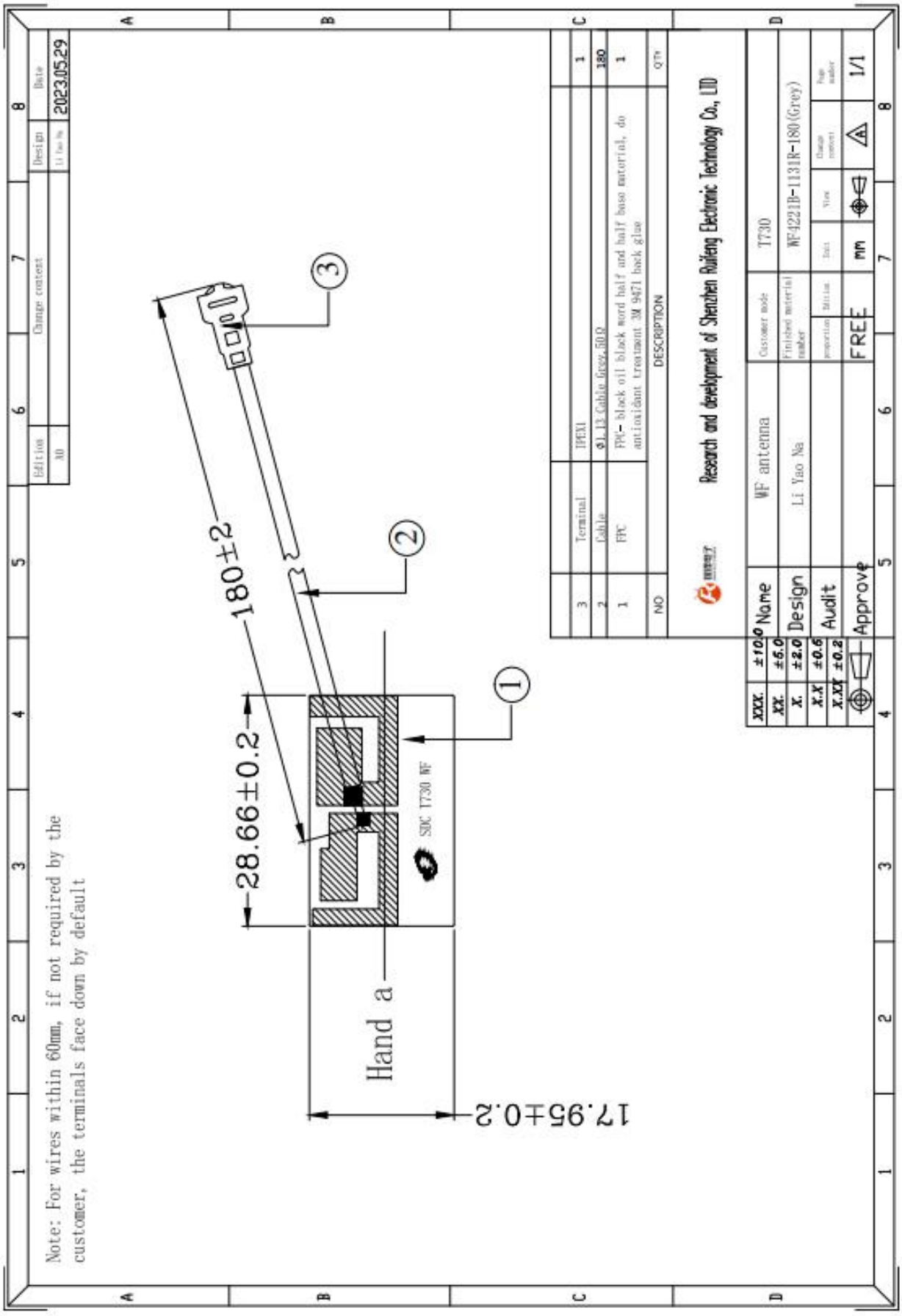
Product Specifications for Approval

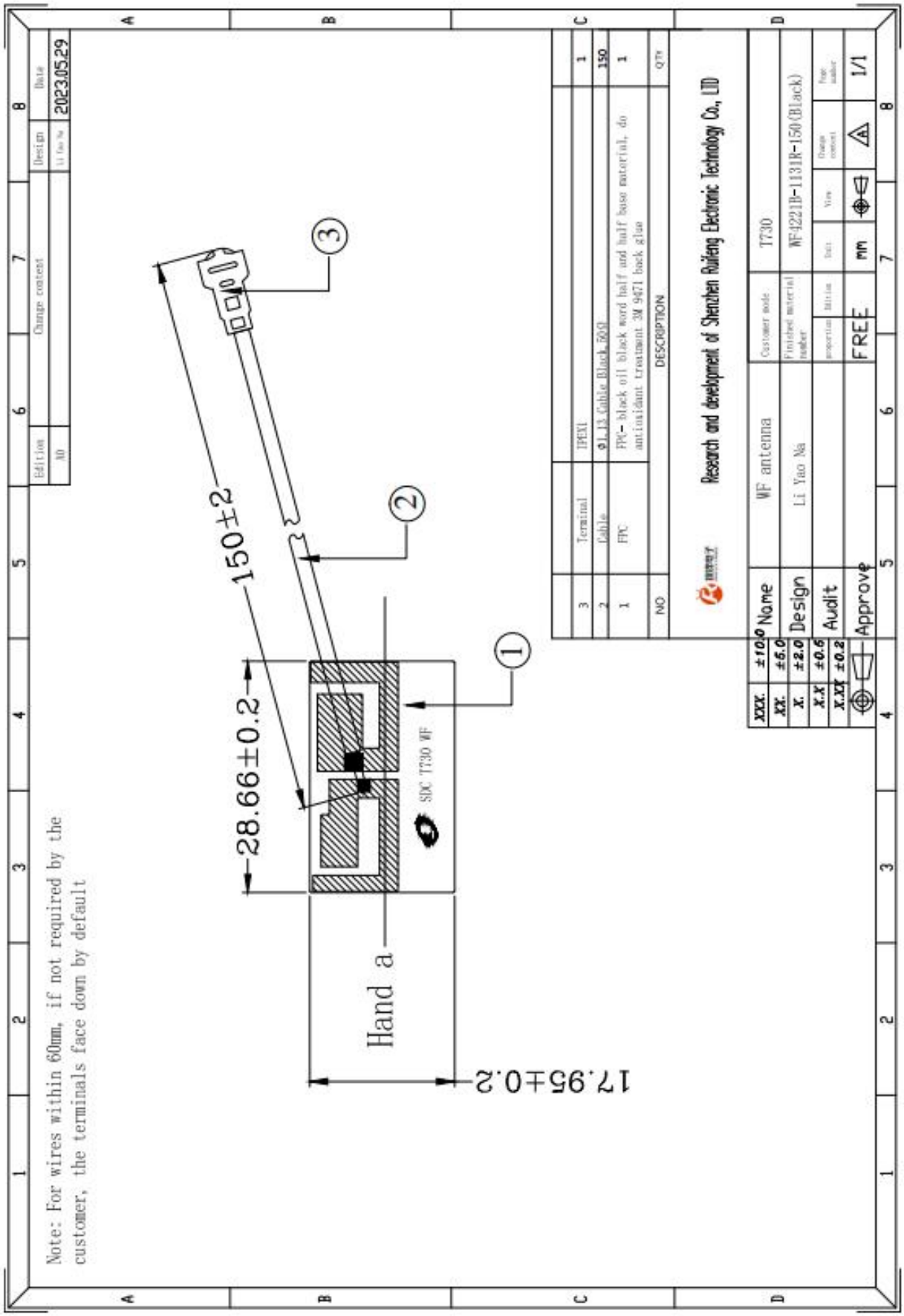
Material part number: WF4221B-1131R-180(Grey)
WF4221B-1131R-150(Black)
WF4221B-1131R-120(Grey)

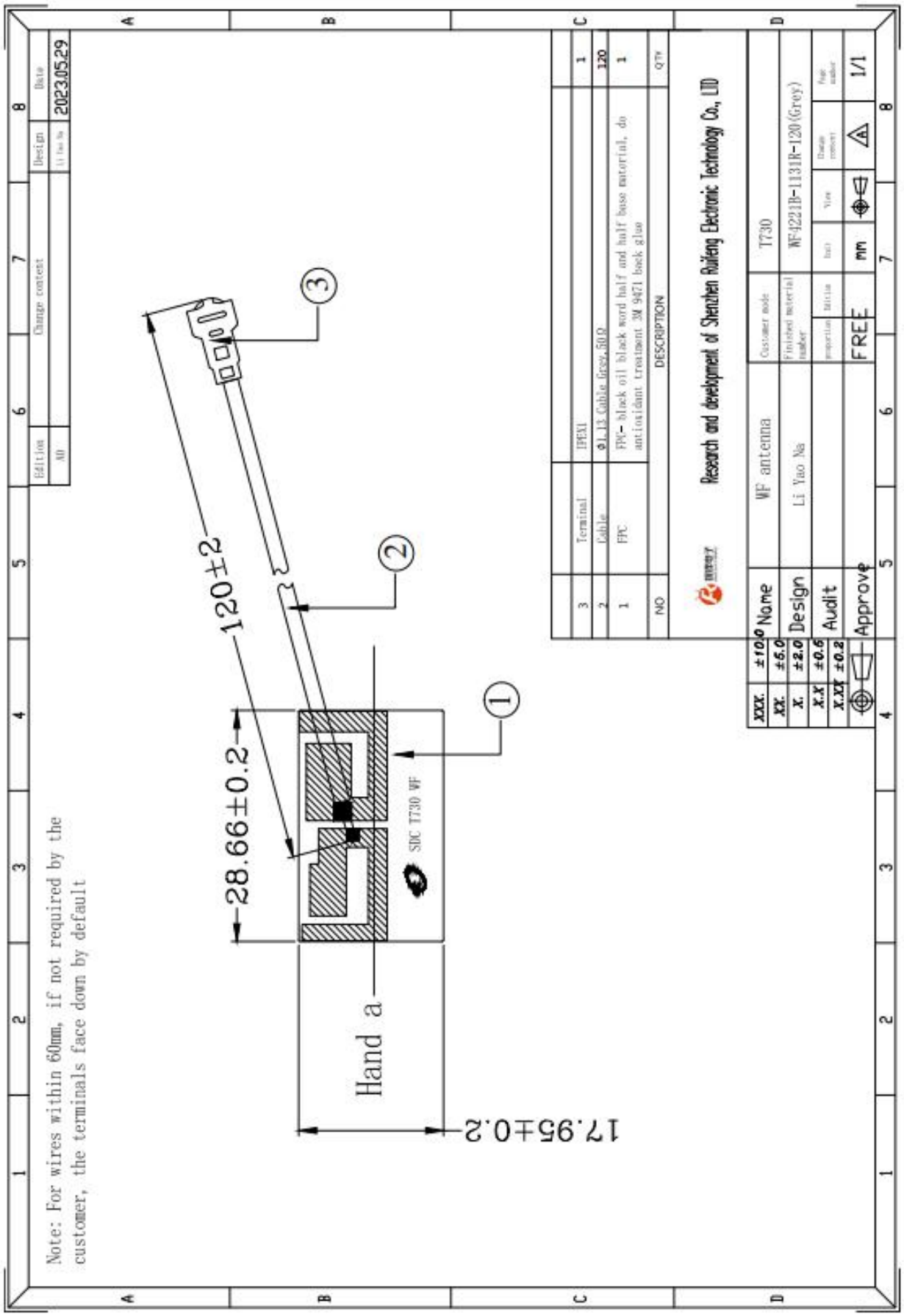
Customer name:ValueHD Corporation Model:APS100

Antenna frequency band: WIFI2.4G/5.8G/BT

Revision: R-A Production date: 2023-01-12


Edition
A0
Change content
Design
Li Yao Na
Date
2023.05.29
Note: For wires within 60mm, if not required by the customer, the terminals face down by default
180±2
28.66±0.2
17.95±0.2
Hand a
SDC T730 WF
1
2
3
NO
DESCRIPTION
QTY
1 FPC FPC- black oil black word half and half base material, do antioxidant treatment 3M 9471 back glue 1
2 Cable Φ1.13 Cable Grey 5019 180
3 Terminal IPEX1 1
Research and development of Shenzhen Ruifeng Electronic Technology Co., LTD
WF antenna
Customer mode
T730
Name
Design
Li Yao Na
Finished material number
WF4221B-1131R-180(Grey)
Audit
proportion
Material
Unit
View
Change content
Page number
Approve
FREE
mm
1/1
XXX. ±10.0
XX. ±6.0
X. ±2.0
X.X ±0.6
X.XX ±0.2


Note: For wires within 60mm, if not required by the customer, the terminals face down by default
Edition
NO
Change content
Design
Date
2023.05.29
NO
DESCRIPTION
QTY
3 Terminal 1
2 Cable φ1.13 Cable Black 50Ω 150
1 FPC FPC+ black oil black word half and half base material, do antioxidant treatment 3M 9471 back glue 1
Research and development of Shenzhen Ruifeng Electronic Technology Co., LTD
WF antenna
Customer mode
T730
Li Yao Na
Finished material number
WF4221B-131R-150(Black)
Name
Design
Audit
Approve
proportion
Unit
mm
FREE
1/1
Hand a
150±2
28.66±0.2
17.95±0.2
SDC T730 WF


Edition
A0
Change content
Design
Date
2023.05.29
Note: For wires within 60mm, if not required by the customer, the terminals face down by default
120±2
28.66±0.2
17.95±0.2
Hand a
SDC T730 WF
NO
DESCRIPTION
QTY
1
Terminal
EH31
120
2
Cable
Φ1.13 Cable Grey,50Ω
1
FPC
FPC- black oil black word half and half base material, do antioxidant treatment 3M 9471 back glue
Research and development of Shenzhen Ruifeng Electronic Technology Co., LTD
WF antenna
Customer mode
T730
Li Yao Na
Finished material number
WF4221B-1131R-120(Grey)
FREE
mm
1/1
Name
Design
Audit
Approve

1. Project information and Electrical Specification

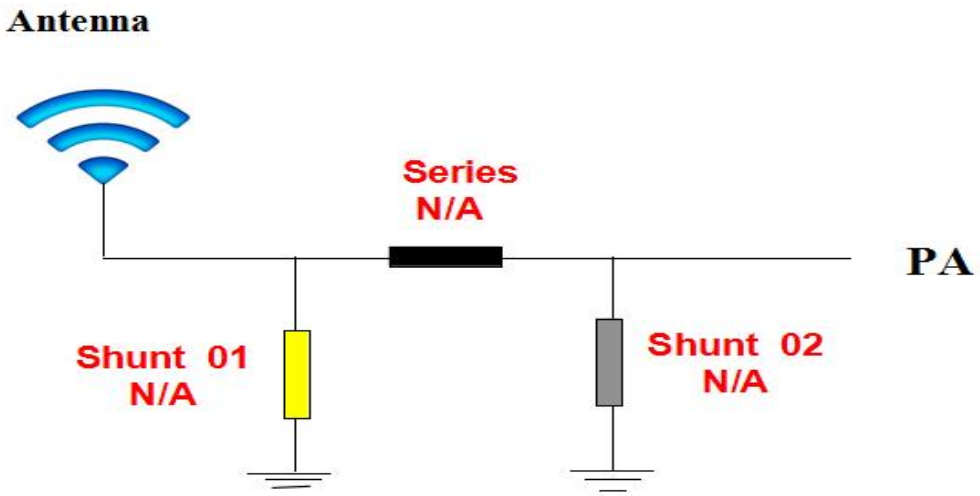
Those specifications were specially defined for ValueHD Corporation **APS100**, ***WIFI2.4G/5.8G/BT***, *and all characteristics were measured under the model's handset testing jig .*

1-1 Antenna picture (See the drawings from page 2-4)

1-2 Frequency Band:

Frequency Band	MHz
WIFI2.4G/5.8G/BT	2400-5850（MHz）

1-3 Impedance matching



2. VSWR

Measuring Method:

1. A 50 Ω 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.* **VSWR parameter value**

MHZ	2400	2450	2500	5150	5350	5550	5750	5850
Ω	35.9	42.6	51.5	67.8	50.2	55.6	54.2	56.4
VSWR	1.41	1.19	1.21	1.37	1.17	1.11	1.22	1.13
Return loss	-15.25	-21.24	-20.6	-15.97	-21.74	-25.34	-20.01	-24.01

MHZ	2400	2450	2500	5150	5350	5550	5750	5850
Ω	33. 84	40. 68	47. 67	58. 14	48. 47	56. 08	52. 79	59. 96
VSWR	1. 62	1. 27	1. 08	1. 25	1. 04	1. 14	1. 16	1. 2
Return loss	-12. 45	-18. 76	-27. 62	-18. 87	-32. 71	-23. 23	-22. 48	-20. 64

MHZ	2400	2450	2500	5150	5350	5550	5750	5850
Ω	29. 48	34. 43	46. 56	55. 31	53. 26	47. 55	39. 5	39. 29
VSWR	1. 78	1. 46	1. 13	1. 1	1. 09	1. 2	1. 23	1. 28
Return loss	-11. 02	-14. 69	-24. 79	-25. 94	-26. 78	-20. 77	-18. 61	-18. 17

3. Efficiency and Gain*measuring and test instruments:

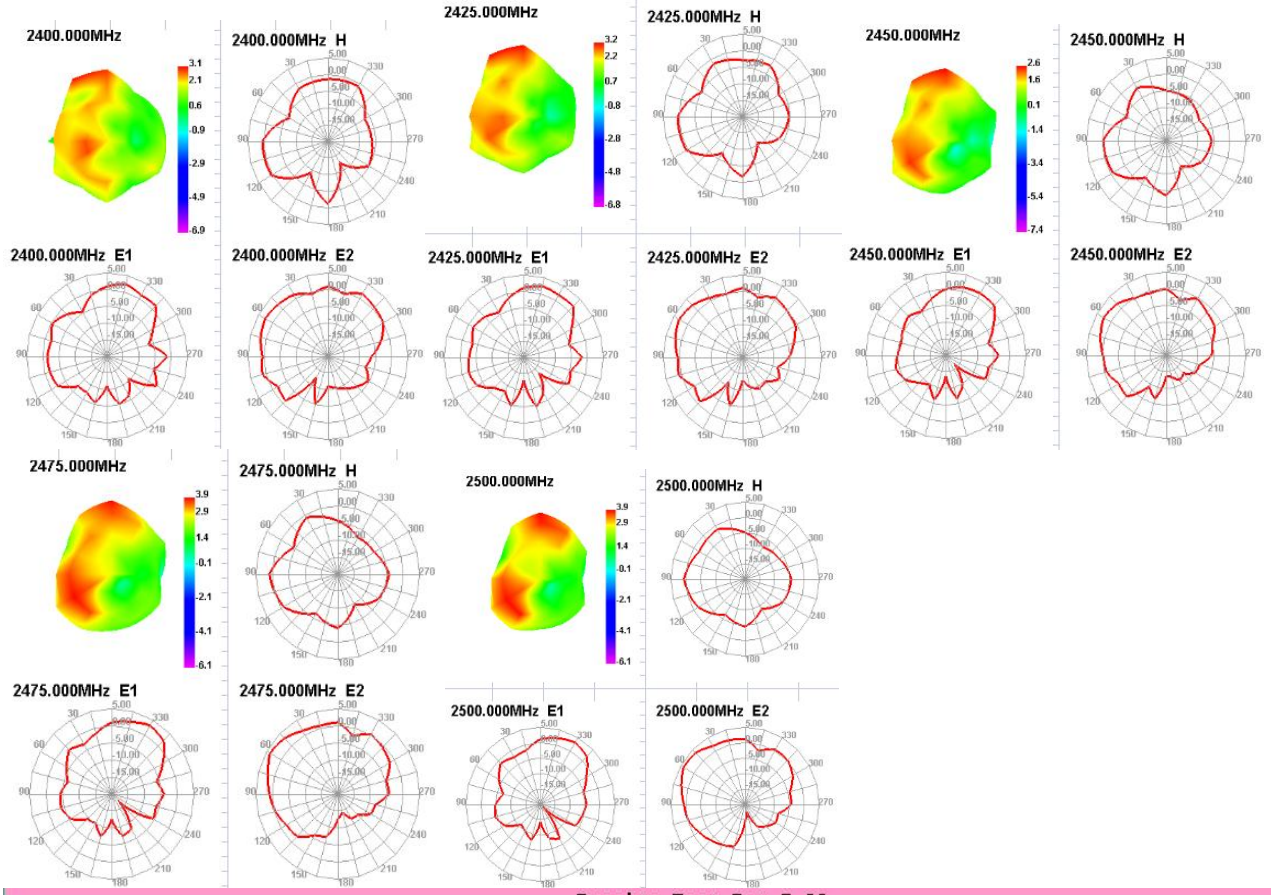
Microwave anechoic chamber, Agilent network analyzer, Agilent spectrum analyzer, 8960 comprehensive tester, standard antenna *test method:

The equipment is fixed on the center of the turntable with the H surface on the same horizontal line as the center of the horn antenna. Efficiency/Gain-

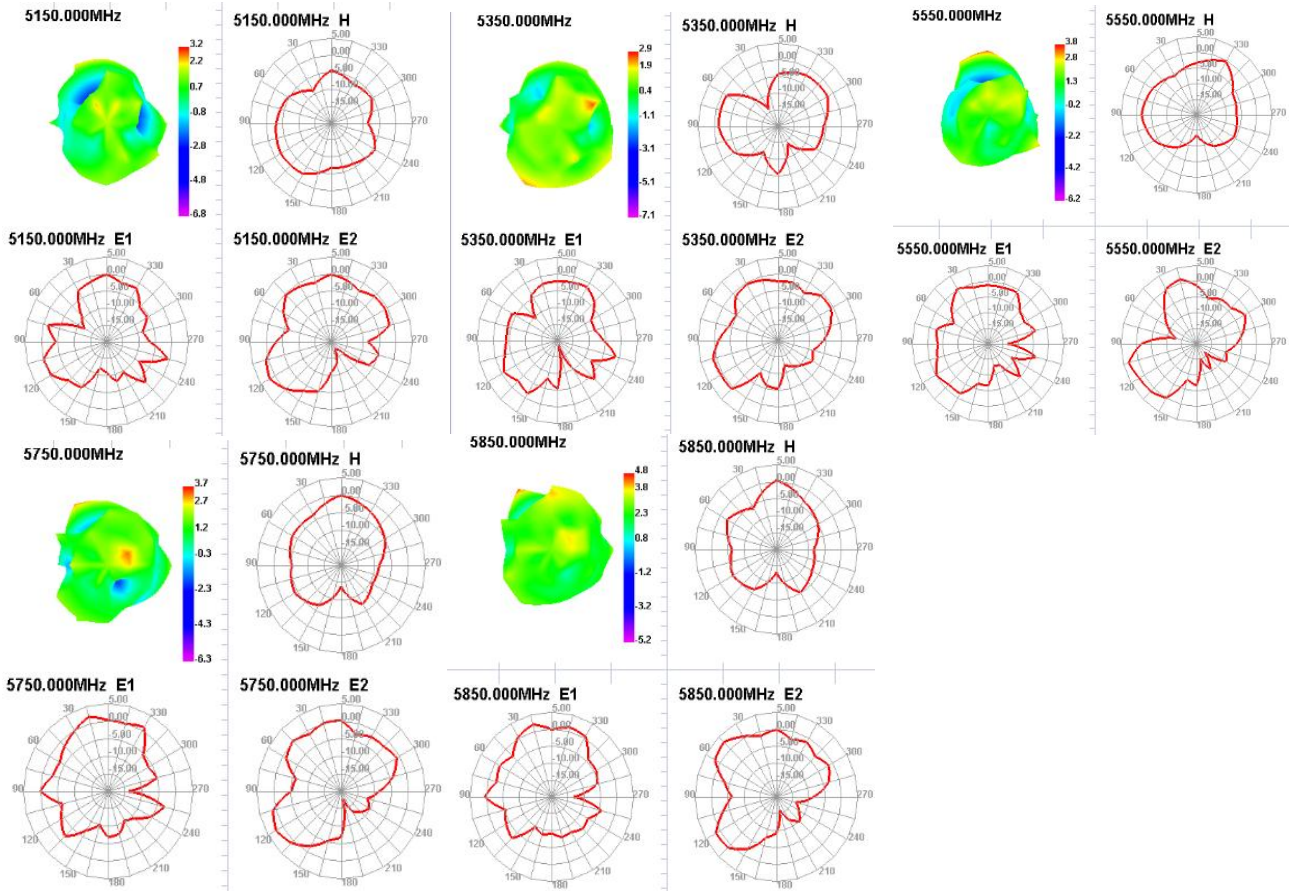
WIFI2.4G/5.8G/BT

WIFI 1

Passive Test For 2.4G												
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Gain (dBd)	UHIS (%)	DHIS (%)	Max (dB)	Min (dB)	irectivit (dBi)	Beamwidth (3dB)	AttH (dB)	AttV (dB)
2400	57.93	-2.37	3.14	0.99	41.66	16.268	3.14	-20.86	5.52	45	48.93	49.09
2425	57.93	-2.37	3.19	1.04	42.882	15.047	3.19	-17.77	5.56	45	49.1	49.23
2450	46.61	-3.32	2.6	0.45	35.563	11.046	2.6	-18.09	5.92	45	49.24	49.26
2475	58.55	-2.32	3.89	1.74	45.782	12.766	3.89	-21.98	6.22	45	49.98	49.91
2500	61.38	-2.12	3.94	1.79	48.037	13.342	3.94	-19.47	6.06	45	49.71	49.62



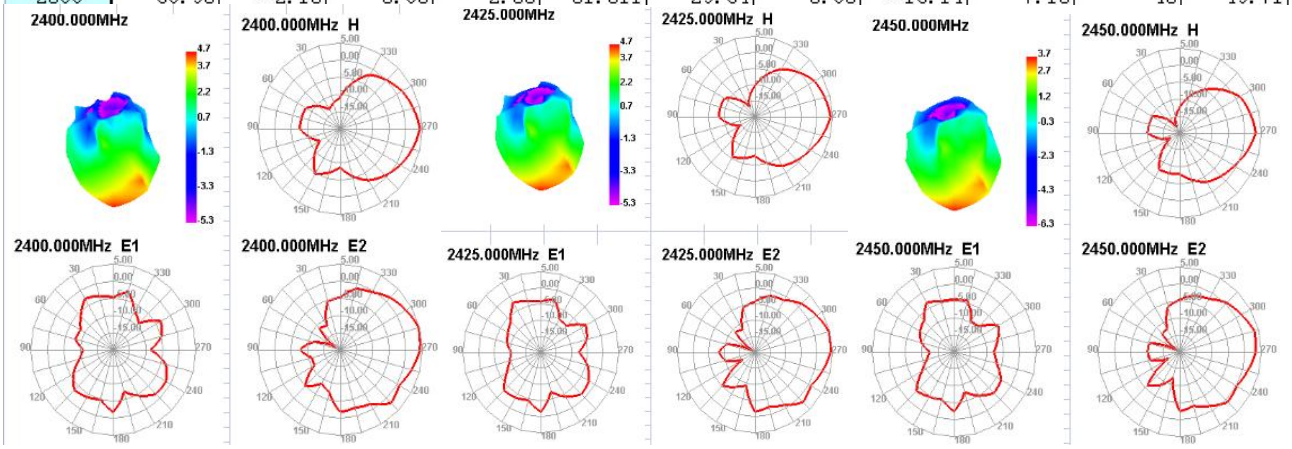
Passive Test For 5.8G												
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Gain (dBd)	UHIS (%)	DHIS (%)	Max (dB)	Min (dB)	irectivit (dBi)	Beamwidth (3dB)	AttH (dB)	AttV (dB)
5150	44.06	-3.56	3.22	1.07	21.838	22.221	3.22	-21.24	6.78	15	61.1	60.72
5250	51.42	-2.89	3.5	1.35	26.132	25.285	3.5	-17.17	6.39	15	61	60.69
5350	46.11	-3.36	2.93	0.78	24.225	21.883	2.93	-25.7	6.29	45	60.61	59.93
5450	58.08	-2.36	4.18	2.03	31.164	26.92	4.18	-15.68	6.54	45	62.77	61.52
5550	51.35	-2.89	3.82	1.67	25.862	25.487	3.82	-19.29	6.71	60	62.14	60.69
5650	55.81	-2.53	3.61	1.46	28.331	27.477	3.61	-30.26	6.15	75	64.09	62.89
5750	53.73	-2.7	3.75	1.6	28.387	25.344	3.75	-17.68	6.44	60	63.14	62.22
5850	61.39	-2.12	4.83	2.68	33.896	27.491	4.83	-21.75	6.95	60	64.81	63.97

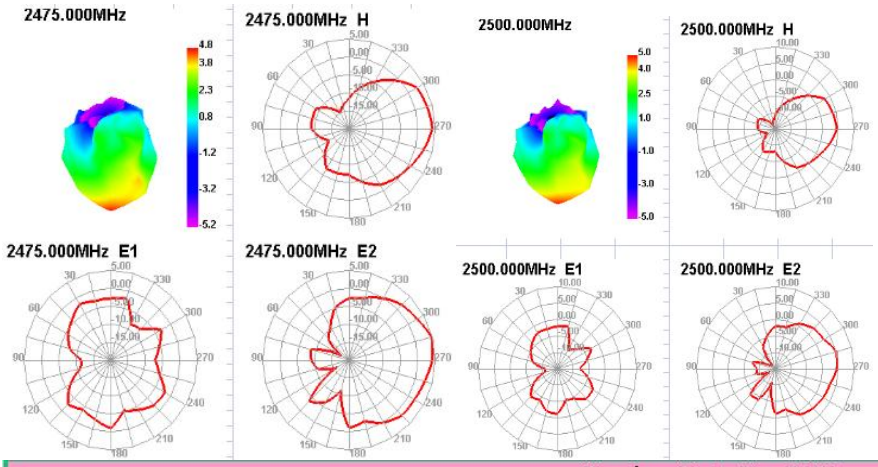


WIFI 2

Passive Test For 2.4G

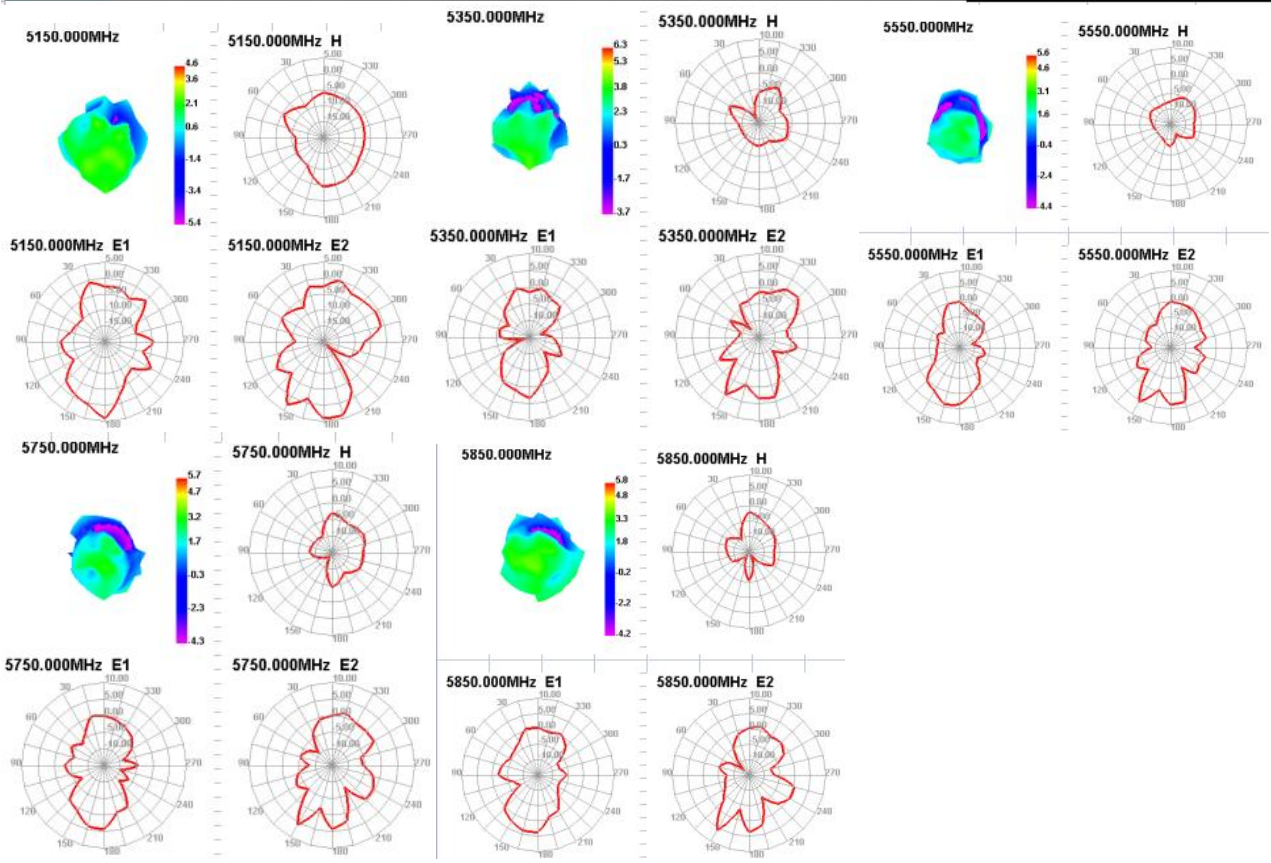
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Gain (dBd)	UHIS (%)	DHIS (%)	Max (dB)	Min (dB)	irectivit (dBi)	Beamwidth (3dB)	AttH (dB)	AttV (dB)
2400	55.14	-2.59	4.73	2.58	28.247	26.89	4.73	-18.86	7.32	45	48.93	49.09
2425	53.49	-2.72	4.68	2.53	27.535	25.954	4.68	-20.68	7.39	0	49.1	49.23
2450	41.74	-3.79	3.66	1.51	21.603	20.141	3.66	-22.74	7.46	45	49.24	49.26
2475	55.85	-2.53	4.83	2.68	28.852	27	4.83	-17.6	7.36	15	49.98	49.91
2500	60.95	-2.15	5.03	2.88	31.311	29.64	5.03	-16.14	7.18	45	49.71	49.62





Passive Test For 5.8G

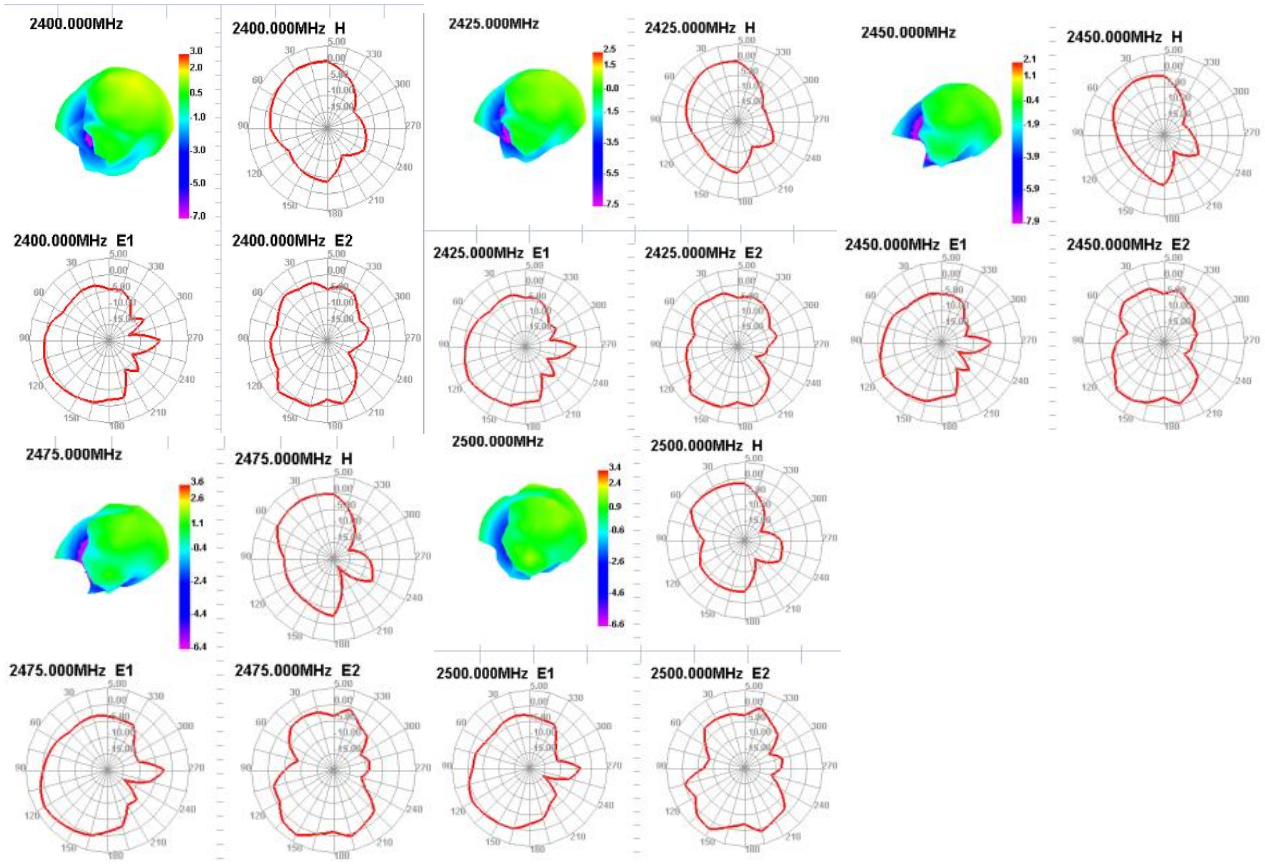
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Gain (dBd)	UHIS (%)	DHIS (%)	Max (dB)	Min (dB)	irectivit (dBi)	Beamwidth (3dB)	AttH (dB)	AttV (dB)
5150	36.16	-4.42	4.59	2.44	15.218	20.94	4.59	-21.84	9.01	0	61.1	60.72
5250	43.6	-3.61	6.28	4.13	18.432	25.164	6.28	-17.15	9.89	15	61	60.69
5350	42.95	-3.67	6.25	4.1	18.377	24.572	6.25	-16.83	9.92	30	60.61	59.93
5450	48.83	-3.11	6.57	4.42	19.741	29.085	6.57	-14.64	9.69	45	62.77	61.52
5550	42.51	-3.72	5.59	3.44	16.446	26.063	5.59	-14.93	9.31	30	62.14	60.69
5650	45.08	-3.46	6.03	3.88	18.169	26.913	6.03	-15.29	9.49	15	64.09	62.89
5750	48.13	-3.18	5.66	3.51	19.419	28.709	5.66	-14.14	8.84	15	63.14	62.22
5850	49.03	-3.1	5.81	3.66	19.692	29.337	5.81	-18.73	8.9	30	64.81	63.97



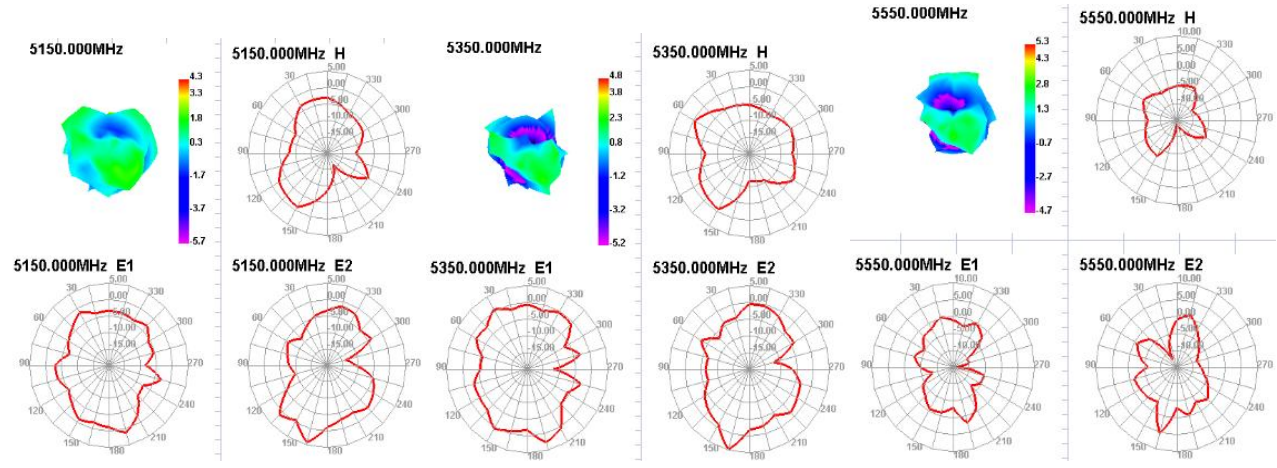
WIFI 3

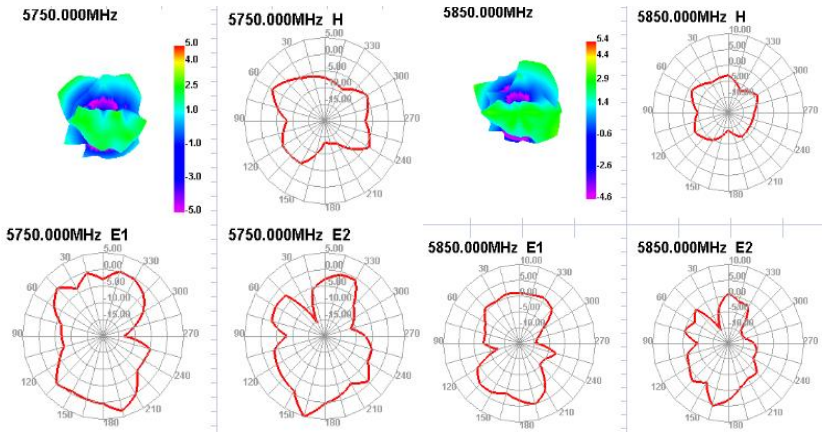
Passive Test For 2.4G

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Gain (dBd)	UHIS (%)	DHIS (%)	Max (dB)	Min (dB)	irectivit (dBi)	Beamwidth (3dB)	AttH (dB)	AttV (dB)
2400	47.7	-3.21	2.97	0.82	18.525	29.175	2.97	-23.67	6.19	90	48.93	49.09
2425	44.82	-3.49	2.49	0.34	17.288	27.532	2.49	-20.65	5.97	90	49.1	49.23
2450	42.8	-4.23	2.08	-0.07	14.14	23.657	2.08	-18.42	6.3	75	49.24	49.26
2475	53.21	-2.74	3.6	1.45	18.808	34.407	3.6	-18.14	6.34	75	49.98	49.91
2500	49.08	-3.09	3.35	1.2	17.399	31.683	3.35	-21.69	6.45	60	49.71	49.62



Passive Test For 5.8G												
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Gain (dBd)	UHIS (%)	DHIS (%)	Max (dB)	Min (dB)	irectivit (dBi)	Beamwidth (3dB)	AttH (dB)	AttV (dB)
5150	40.81	-3.89	4.31	2.16	17.884	22.93	4.31	-18.55	8.2	15	61.1	60.72
5250	50.51	-2.97	5.26	3.11	23.038	27.474	5.26	-16.08	8.23	0	61	60.69
5350	46.96	-3.28	4.82	2.67	22.428	24.532	4.82	-12.17	8.11	15	60.61	59.93
5450	49.4	-3.06	5.54	3.39	22.505	26.898	5.54	-17.1	8.6	15	62.77	61.52
5550	43.3	-3.64	5.28	3.13	19.344	23.956	5.28	-13.98	8.91	15	62.14	60.69
5650	49.42	-3.06	5.94	3.79	21.21	28.21	5.94	-18.79	9	0	64.09	62.89
5750	46.08	-3.36	4.98	2.83	18.145	27.938	4.98	-15.59	8.35	15	63.14	62.22
5850	63.14	-2	5.37	3.22	25.274	37.866	5.37	-13.27	7.37	30	64.81	63.97





4.WIFI OTA Data

2.4GWIFI	TRP			TIS		
Channel	CH1	CH6	CH12	CH1	CH6	CH12
802.11b, 11M	19.79	19.63	19.24	-77.25	-76.43	-76.28
802.11g, 54M	19.15	19.06	19	-66.11	-66.72	-67.09
802.11n, MCS7(65M)	19.46	19.14	18.73	-66.48	-66.61	-67.56

5.8G	802.11A, (5.8G)54M		
Channel	CH36	CH60	CH165
TRP	18.93	18.89	17.38
TIS	-74.11	-73.97	-73.38

5.The production index

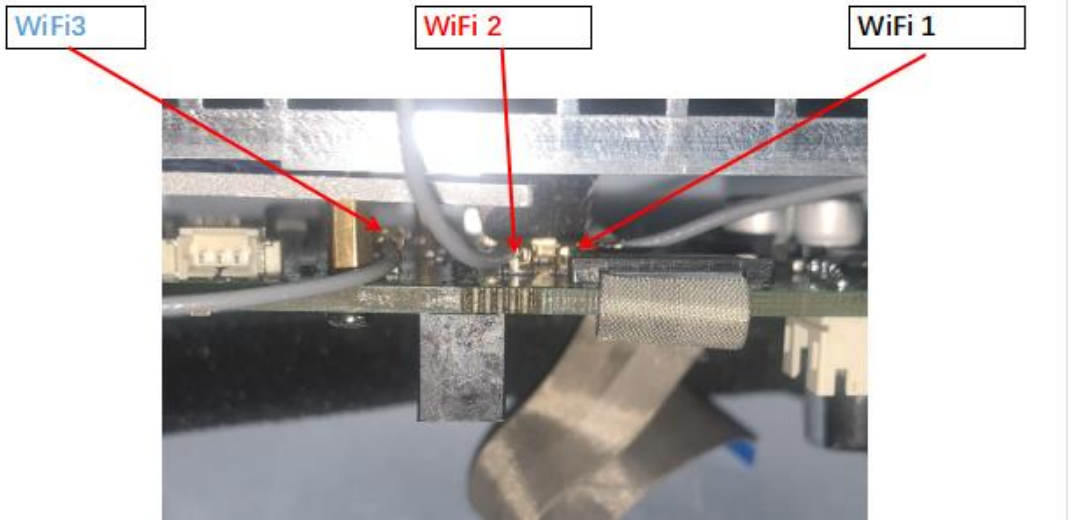
When the antenna is mass-produced, the VSWR is used as the mass-production test standard.

According to the differences of the project itself, the following standards are given:

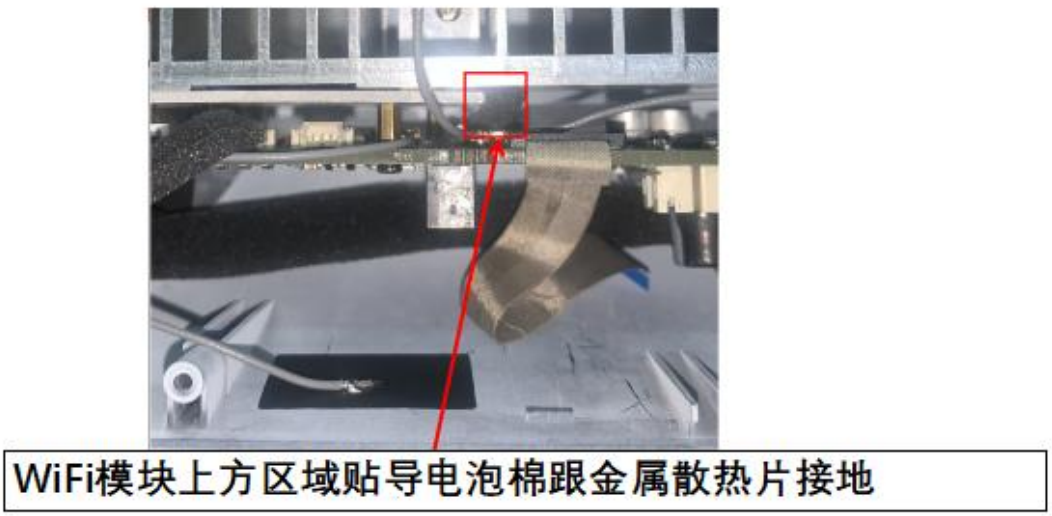
Frequency	Mass production criteria
WIFI2.4G/5.8G/BT	VSWR (mass production product) < VSWR (design sample) +/-0.5

6.Antenna installation location diagram

天线端子座位置图



7. Environmental treatment



'The area above the Wifi module is pasted with conductive foam and metal heat sink for grounding'