

Parts Acknowledgment

Name of Part: antenna

Specification of Parts: Accessory, Antenna, DRC02, 2.4G&5G dual band wifi FPC built-in Antenna, 0.81mm coaxial line with third-generation ipex terminals, wire Length: 35mm, SF2399A-1L23B-035-A

Store at the material number: 10883000158

Model of application: DRC02 Recorder - WB800D Module

Name of Supplier: Shenzhen Suo Ward Communication Technology Co., Ltd.

Type of Supplier: ☒ Manufacturer、☐ Agent、☐ Trader;

Manufacturer's material number: SF2399A-1L23B-035-A

Recognition number: CRS0003924

Keep an eye on the date of issue:

Supplier approval column

To develop: LTT

audit:

杨文强

Approved by the:

* The following is the check column of the tag tag

Material to send sample check column

Material confirmation and approval column

Procurement Engineer

Purchasing Supervisor

Research and Development Engineer

Research and Development Supervisor

DDPai Technology CO.,LTD. Tel: 86-755-26401213

Address: Guangdong, China. 12th Floor, Yihua Fintech Building, Software Industry Base, Nanshan District, Shenzhen;

Website: www.ddpai.com

DDPai vision equipment Co.,LTD

Address: Building 6, No. 139, Xinhuang Road, Xindai Town, Pinghu City, Jiaxing, Zhejiang

Supplier Address: 6th Floor, Building B, Hexi Hangcheng Industrial Zone, No. 135, Qianjin Second Road, Bao'an District, Shenzhen

Contact information of supplier: Chen Heng /13717086260

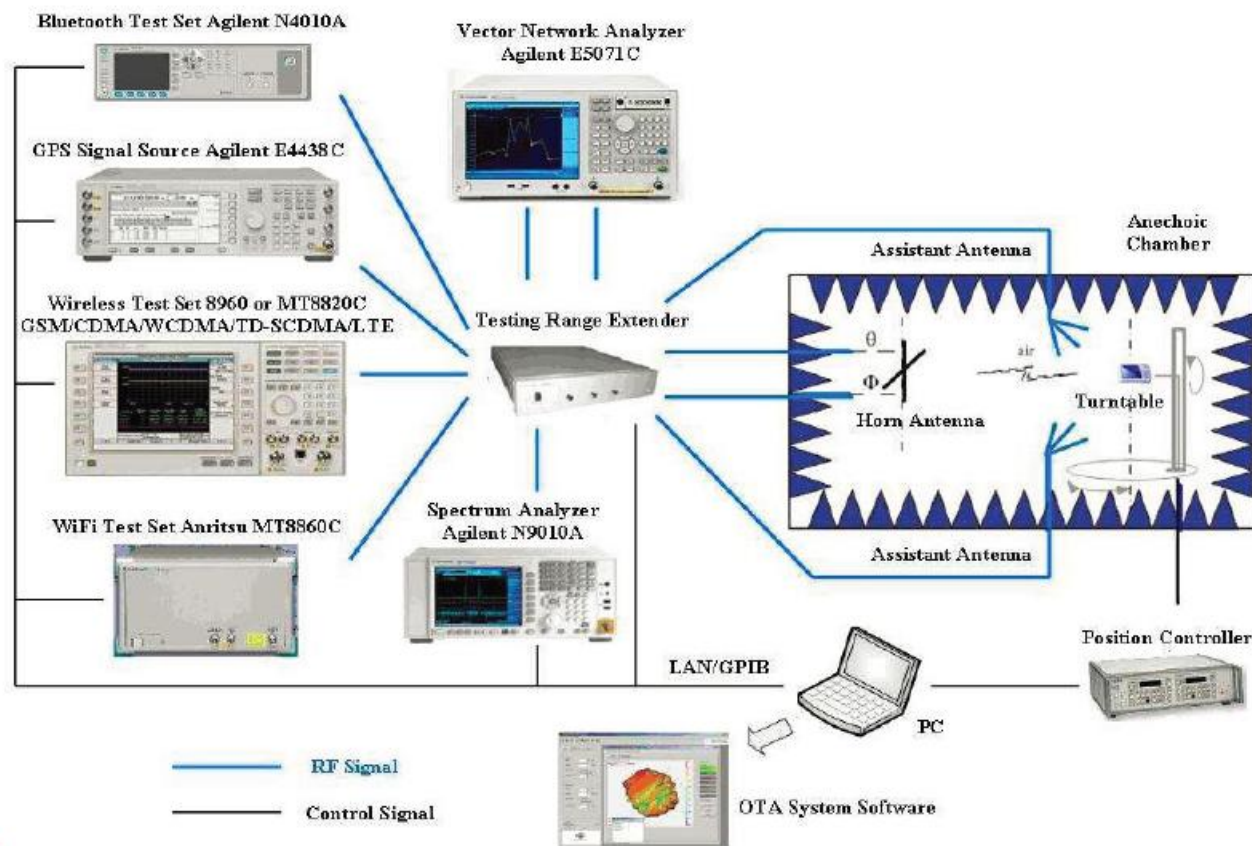


Serial number	Certification number	Material type	Date of issue	Remarks
1	A2240182175102001E	Tinned copper wire	2024-04-12	One year
2	A2240123200101001E	halogen	2024-03-15	One year
3	CANEC24000523102	Adhesive	2024-01-11	One year
4	SHAEC23021984701	FEP sheath	2024-01-04	One year
5	SHAEC23020095573	FEP insulation	2023-12-12	One year
6	SZXEC24002306404	Tin wire	2024-07-24	One year
7	SZXEC24002306408	Tin	2024-07-24	One year
8	ETR24600712	Printing ink	2024-06-14	One year
9	A2240123200102001E	Substrate	2024-03-20	One year
10	CANEC23017402018	EVA foam	2024-01-03	One year
11	A2240439752101001	Conductive cloth	2024-07-29	One year
12	SZXEC24002471802	Gold plating	2024-08-08	One year

catalogue

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一: Device support & testable antenna types



Antenna function	frequency range	Testing instruments	Testing method	Testing standards
2G antenna (GSM)	824MHz-960MHz, 1710MHz-1990MHz	5071B, 8960, OTA darkroom	Active testing, passive testing	Soward standards, customer requirements
3G antenna (WCDMA/TDSCDMA/CDMA-EVDO/2000)	824MHz-960MHz, 1710MHz-2170MHz	5071B, 8960, OTA darkroom	Active testing, passive testing	Soward standards, customer requirements
4G天线 (LTE-FDD/LTE-TDD)		5071B, CMW500, SP8011, OTAdarkroom	Active testing, passive testing	Soward standards, customer requirements
WIFI antenna	2.4GHz-2.48GHz, 5.15GHz-5.35GHz, 5.725GHz-5.825GHz	5071B, CMW500, OTAdarkroom, Router, PC	Active testing, passive testing, APK testing, throughput testing	Soward standards, customer requirements
BT antenna	2.4GHz-2.48GHz	5071B, OTAdarkroom, Bluetooth Speaker	Active testing, passive testing, actual testing	Soward standards, customer requirements
Positioning antenna (GPS, GLONASS, Beidou, Galileo)	1575.42MHz ± 10MHz 1602MHz±0.5625MHz 1561MHz±2.046MHz	5071B, OTAdarkroom, APK	Active testing, passive testing, actual testing	Soward standards, customer requirements
NFC antenna	13.56MHz	5071B, Specialized testing fixture, OTAdarkroom, APK	Passive testing and actual measurement	Soward standards, customer requirements
Remote control antenna	433MHz	5071B, OTAdarkroom	Passive testing and actual measurement	Soward standards, customer requirements
NB_IOT	with LTE-FDD	CMW500 (high-end version)	Active testing, passive testing	Under construction (power standard basically consistent with 4G)

二: summary

(1)Antenna performance

- 1.This approval sheet supports for MID project. FPC antennas include in this project. This report is for the performance of WIFI&BT antenna.
- 2.Antenna shape size: Meet the requirement of MID
- 3.Antenna band: 2.4GHz~5GHz
- 4.Antenna material: Antenna material meet the requirement of MID
- 5.Adhesive performance: Adhesive performance meet the requirement of MID
- 6.Antenna performance meet the spec below:

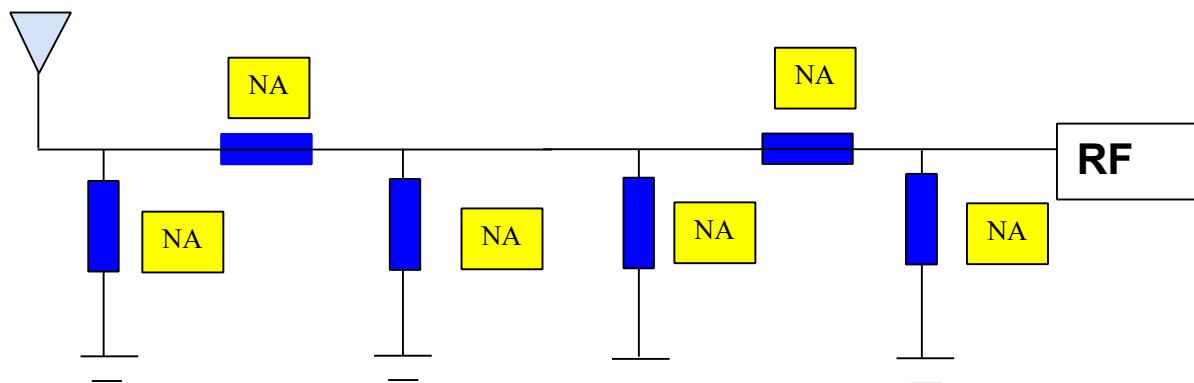
Description	2.4GHz~5GHz	Units
VSWR	≤ 2.0	
Average Antenna Gain	≥ -4.5	dB
Feed Impedance	50 ohms	
Operating Temperature	-40 to +85 deg C	
Polarization / Azimuth	Linear / Omni-directional	

(2)Mechanical Information

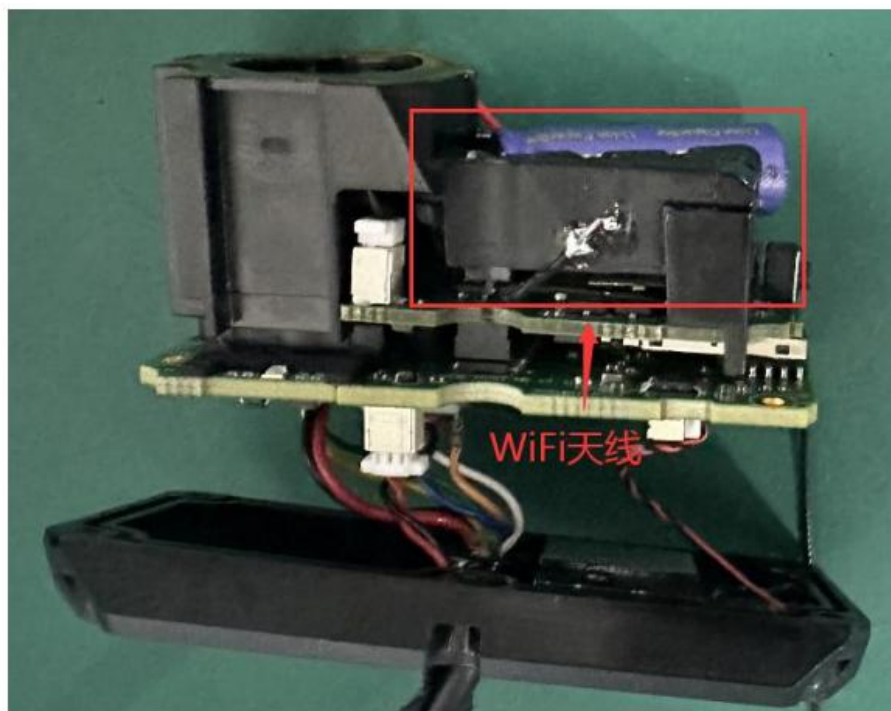
Mechanical Dimension	
Cable Length	038mm/BLACK
Description	WIFI&BT antenna
Material	FPC
Coaxial Cable	50Ω /0. D. 0.81mm
Environmental	
Operation Temperature	-40 to +85 deg C
Storage Temperature	-40 to +85 deg C

三: Match circuit diagrams, machine images, and antenna images

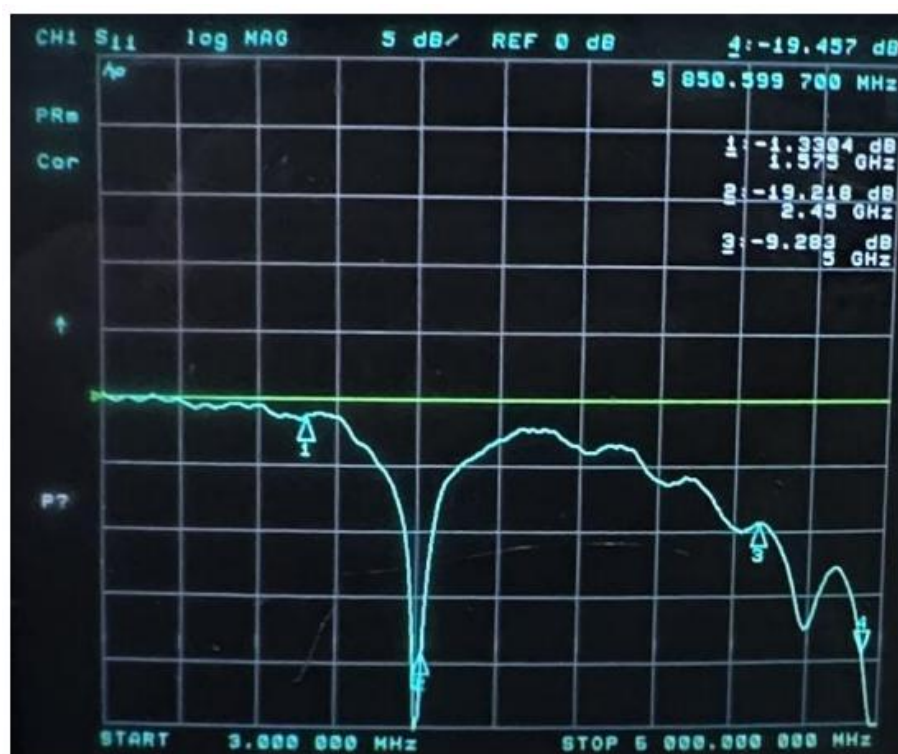
(1) Matching circuit



(2) Machine images&antenna images



四:Antenna standing wave ratio&antenna efficiency&active data



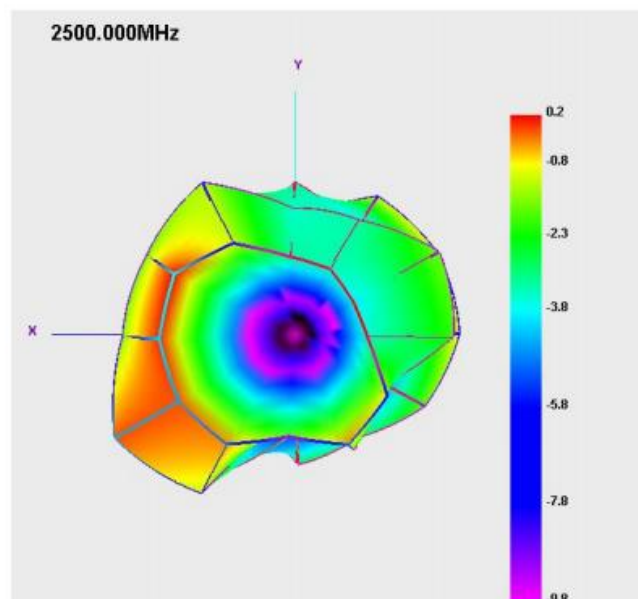
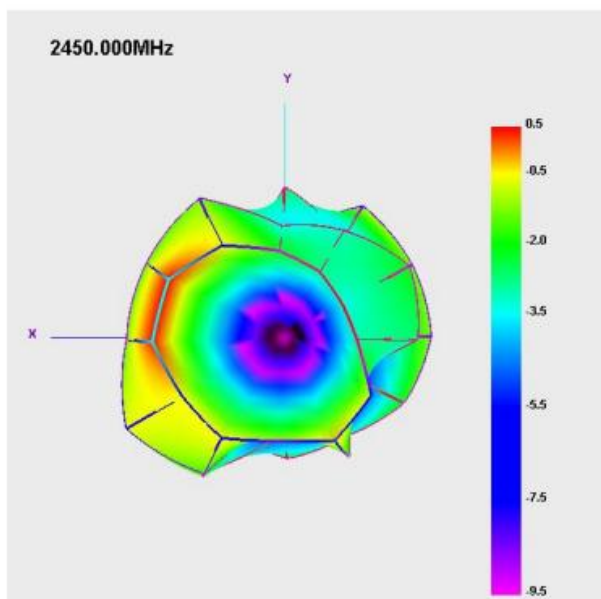
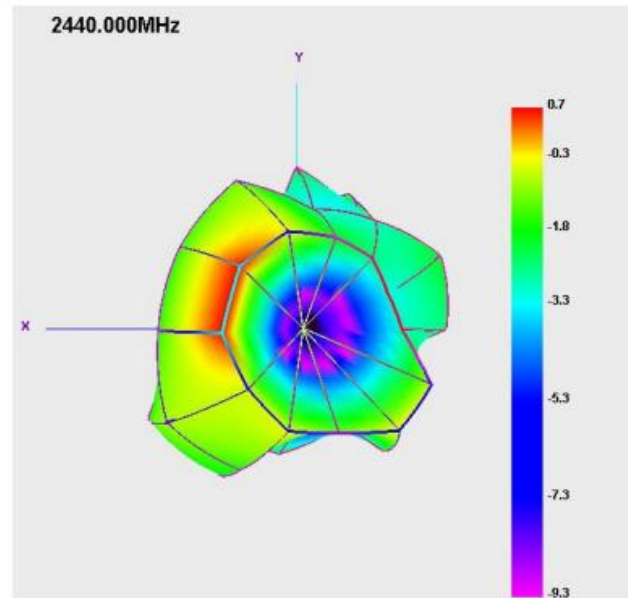
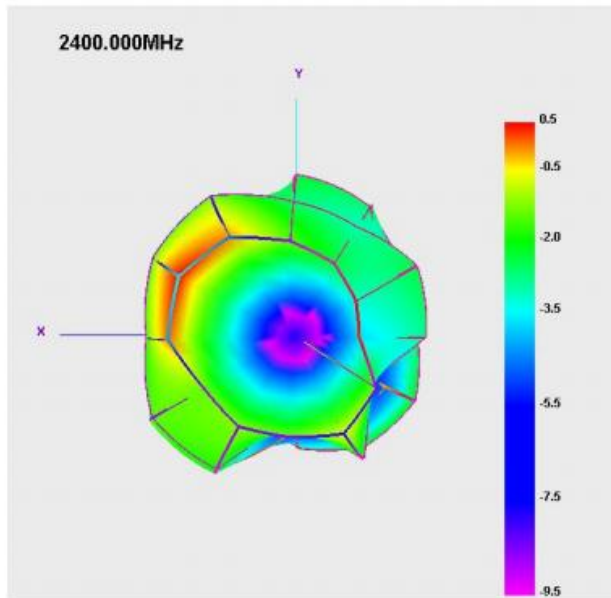
Passive Test For 2.4G			
Freq	Effi	Effi	Gain
(MHz)	(%)	(dB)	(dBi)
2400	33.64	-4.73	0.47
2410	34.81	-4.58	0.57
2420	35.25	-4.53	0.65
2430	37.16	-4.3	0.68
2440	37.02	-4.32	0.70
2450	36.35	-4.4	0.49
2460	37.09	-4.31	0.57
2470	36.05	-4.43	0.35
2480	37.12	-4.3	0.47
2490	38.06	-4.2	0.47
2500	36.97	-4.32	0.25

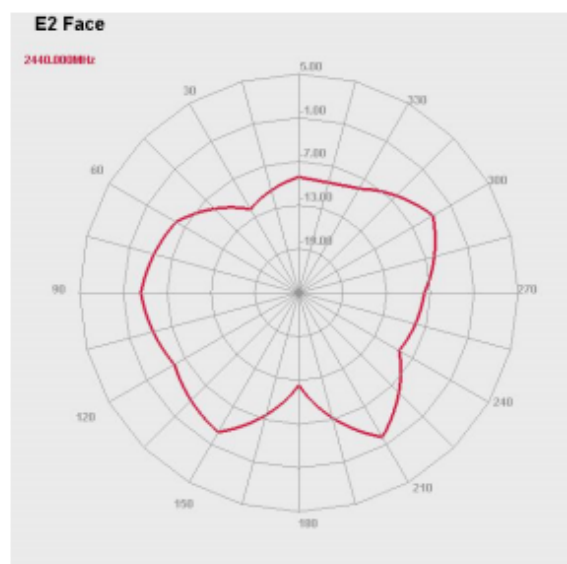
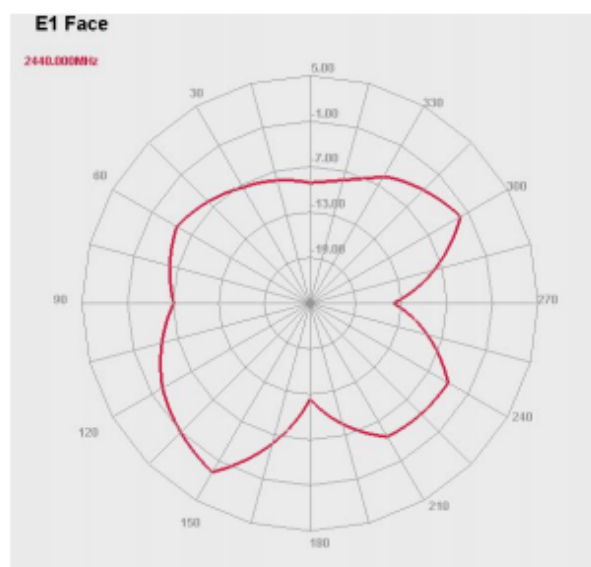
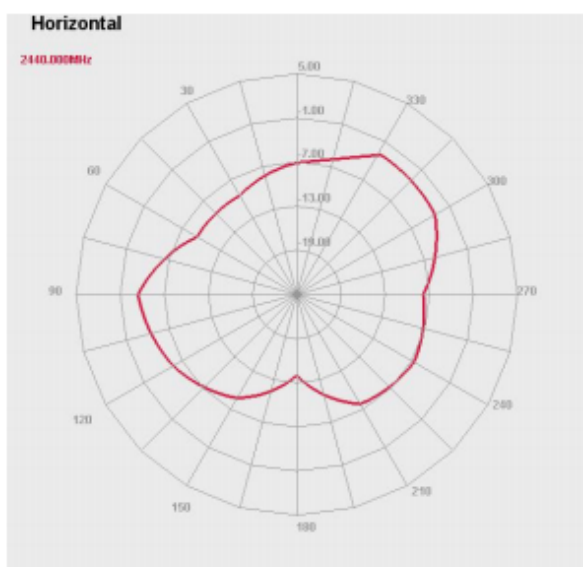
Passive Test For 5G-WIFI			
Freq	Effi	Effi	Gain
(MHz)	(%)	(dB)	(dBi)
5000	49.22	-3.08	1.96
5100	46.04	-3.37	1.51
5200	40.63	-3.91	1.30
5300	47.92	-3.2	1.57
5400	54.8	-2.61	2.98
5500	51.59	-2.87	3.34
5600	43.88	-3.58	2.84
5700	48.67	-3.13	3.14
5800	48.53	-3.14	3.09
5900	38.94	-4.1	2.08
6000	42.27	-3.74	2.87

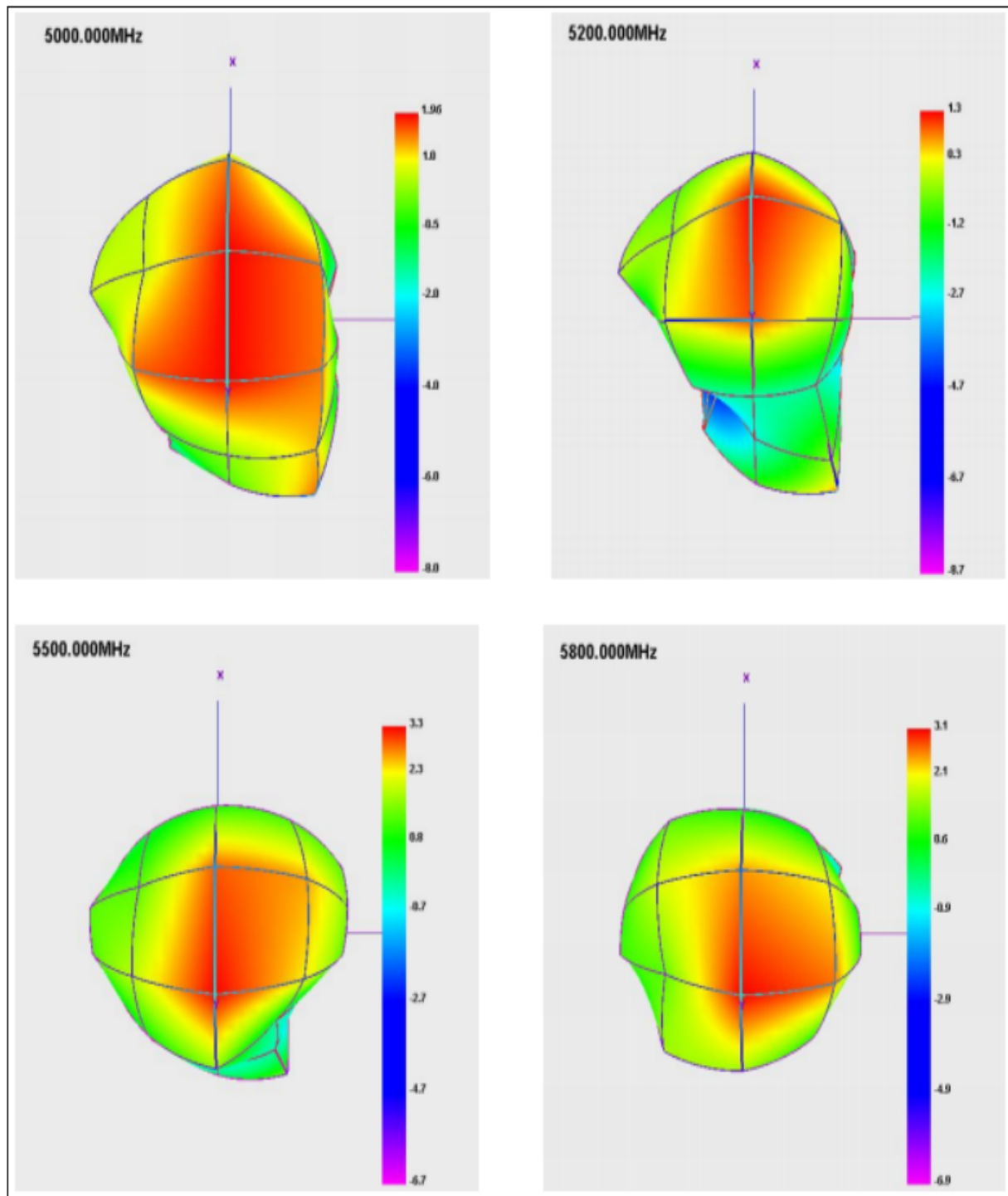
Active data

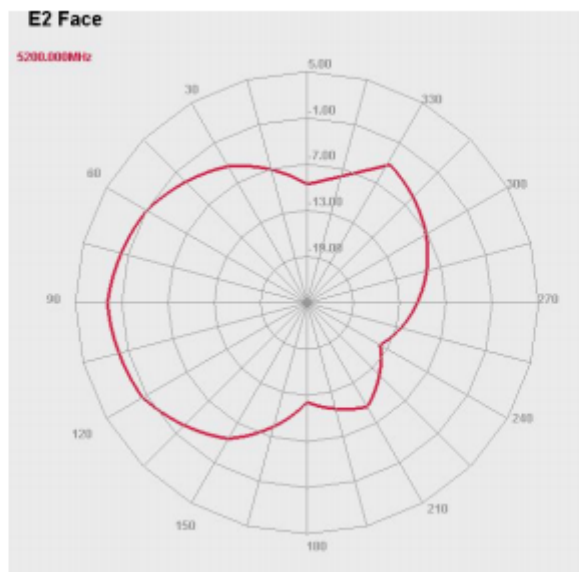
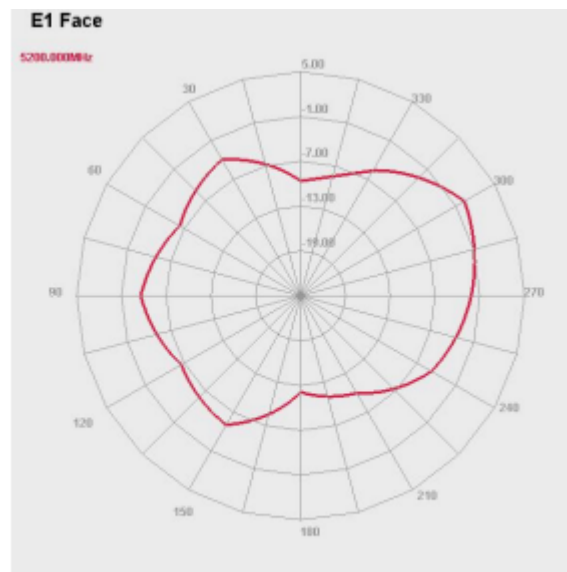
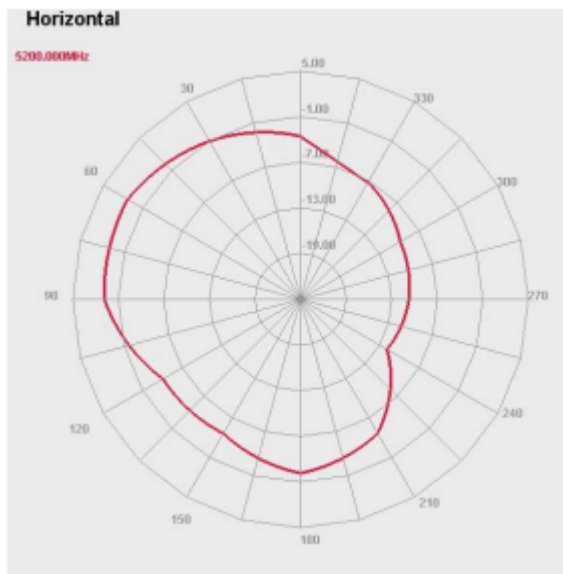
Test	802.11b : 11Mbps 20M		
Result	1	7	13
Frequency (MHz)	2412	2442	2472
TRP (dBm)	11.79	11.53	11.26
TIS (dBm)	-78.5	-79.11	-76.48
Test	802.11g : 54Mbps 20M		
Result	1	7	13
Frequency (MHz)	2412	2442	2472
TRP (dBm)	11.26	11	11.92
TIS (dBm)	-68.8	-68.64	-68.84
Test	802.11n : MCS7 20M		
Result	1	7	13
Frequency (MHz)	2412	2442	2472
TRP (dBm)	11.21	11.96	11.86
TIS (dBm)	-65.33	-65.21	-65.36
Test	802.11n : MCS7 20M		
Result	36	64	165
Frequency (MHz)	5180	5320	5825
TRP (dBm)	12.29	12.1	12.19
TIS (dBm)	-69.28	-69.68	-69.91
Test	802.11a : 54Mbps 20M		
Result	36	64	165
Frequency (MHz)	5180	5320	5825
TRP (dBm)	11.73	11.14	11.13
TIS (dBm)	-70.92	-70.16	-70.31

五:3D pattern





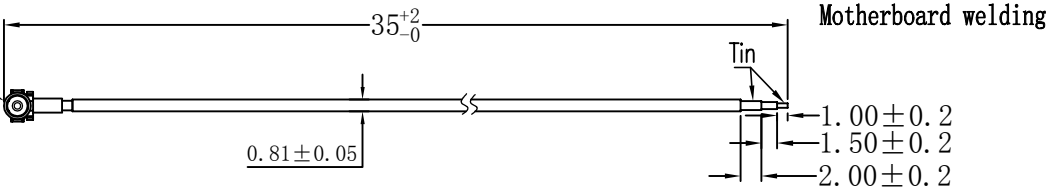




河西航城工业区D栋6楼

六:Structural drawings

The 3 generation terminals



- technical requirements:
- 1.* for critical dimensions;
 - 2.Size conform to the requirements of the drawings;
 - 3.No virtual welding welding point, false welding. Require full welding points.
 - 4.Network test pass.
 - 5.No marked tolerance according toSJ/T 10628 1995 6classes;

5										
4										
3										
2	FPC	black	1	SF2399A-1B2-A	RD	ZYA	2024. 12. 7	Q C		
1	coaxial line	black	1	Φ=0.81mm	RF					
	name	color	quantity	specifications	audits			approval		

SWARD				ShenZhen SWARD Communication Technology Co.Ltd			
				SF2399A-1L23B-035-A			
time markup		percentage		ROHS			
1		A	1 : 1				