

Antenna specification for approval

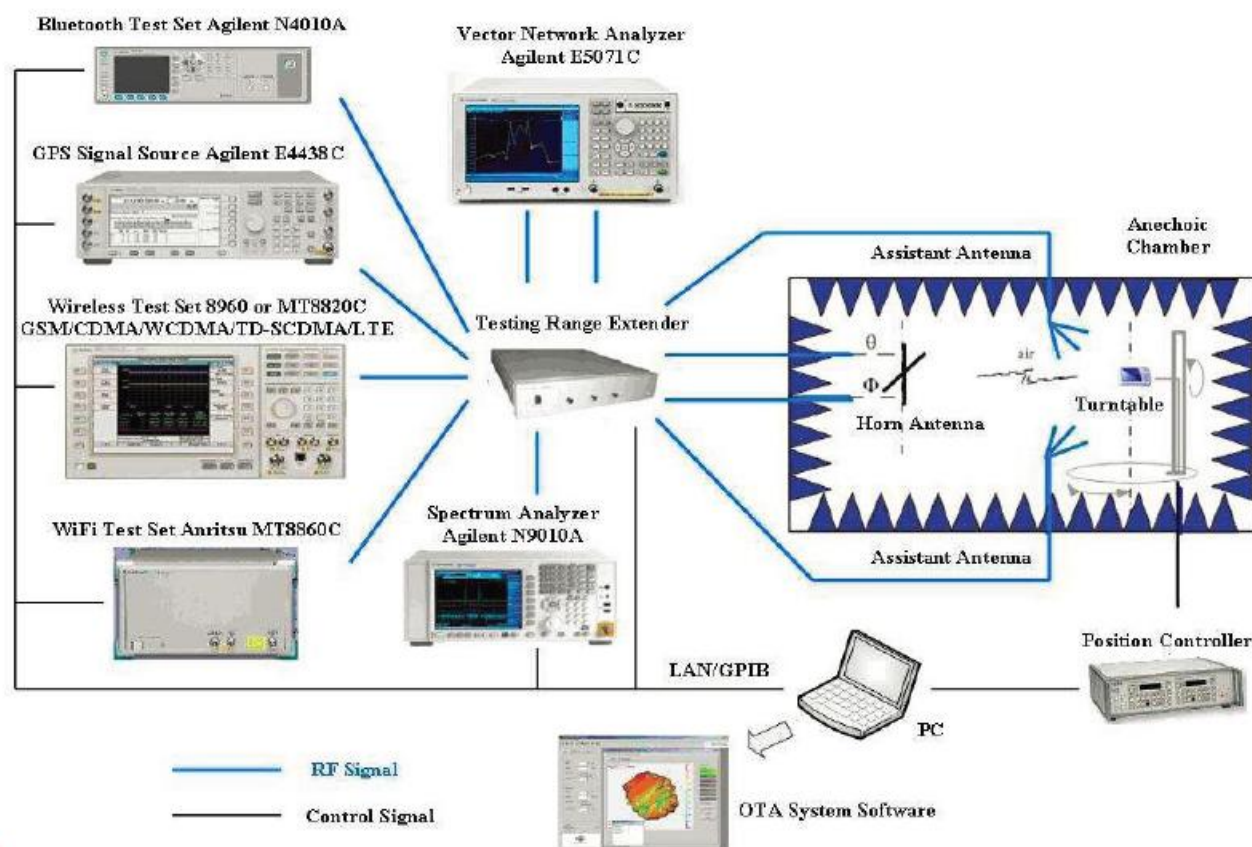
Customer name	SHENZHEN JIEXIANG ELECTRONIC CO LTD		
Model	B00JP3-A (miniPC box plastic case-61821CE module)		
Antenna frequency	2.4GHZ&5GHz		
Antenna function	WIFI&BT&5Gwifi (sub) antenna		
Antenna material	FPC	FPC color	Black
model	SF2350A-1B2-A		
Material number	SF2350A-1L24G-100-A		
Customer Part Number			
Ward accepted the signature		Client acknowledges signature	
structure		Purchase	
QC		structure	
radio frequency		engineering	
To examine		QC	
Responsible LTT		To examine	
date 2024.03.12	Seal area	date 2024.03.12	Seal area

Serial number	Certification number	Material type	Date of issue	Remarks
1	A2230173541101001E	Tinned copper wire	2023-04-24	One year
2	CANEC2227657305	halogen	2023-05-30	One year
3	CANEC2227657306	Adhesive	2023-05-30	One year
4	SHAEC23021984701	FEP sheath	2024-01-04	One year
5	SHAEC23020095573	FEP insulation	2023-12-12	One year
6	SZXEC23001647204	Tin wire	2023-07-28	One year
7	SZXEC23001647208	Tin	2023-07-28	One year
8	ETR23701480	Printing ink	2023-07-13	One year
9	A2230173918101001E	Substrate	2023-04-18	One year
10	CANEC23017402018	EVA foam	2024-01-03	One year
11	A2230383826101003	Conductive cloth	2023-08-04	One year
12	CANEC23002609908	Gold plating	2023-05-11	One year

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一: Device Support & Testable Antenna Type



Antenna function	Frequency Range	test instrument	test method	standard test
2G antenna (GSM)	824MHz-960MHz, 1710MHz-1990MHz	5071B、8960 OTA darkroom	Active test, passive test	Soward standards, customer requirements
3G antenna (WCDMA/TDSCDMA/CDMA-EVDO/2000)	824MHz-960MHz, 1710MHz-2170MHz	5071B、8960 OTA darkroom	Active test, passive test	Soward standards, customer requirements
4G antenna (LTE-FDD/LTE-TDD)		5071B、CMW500、 SP8011、OTA darkroom	Active test, passive test	Soward standards, customer requirements
WIFI antenna	2.4GHz-2.48GHz, 5.15GHz-5.35GHz, 5.725GHz-5.825GHz	5071B、CMW500、OTA darkroom、router、 PC	Active test, passive test, APK actual test, throughput test	Soward standards, customer requirements
BT antenna	2.4GHz-2.48GHz,	5071B、OTA darkroom 、Bluetooth Speaker	Passive test, actual test	Soward standards, customer requirements
Positioning antenna (GPS, GLONASS, Beidou, Galileo)	1.575.42MHz±10MHz 1602MHz+0.5625MHz 1561MHz+2.046MHz	5071B、OTA darkroom 、APK	Passive test, actual test	Soward standards, customer requirements
NFC antenna	13.56MHz	5071B、Dedicated test fixture、OTA darkroom、APK	Passive test, actual test	Soward standards, customer requirements
Remote control antenna	433MHz	5071B、OTA darkroom	Passive test, actual test	Soward standards, customer requirements

二:Overview

(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:

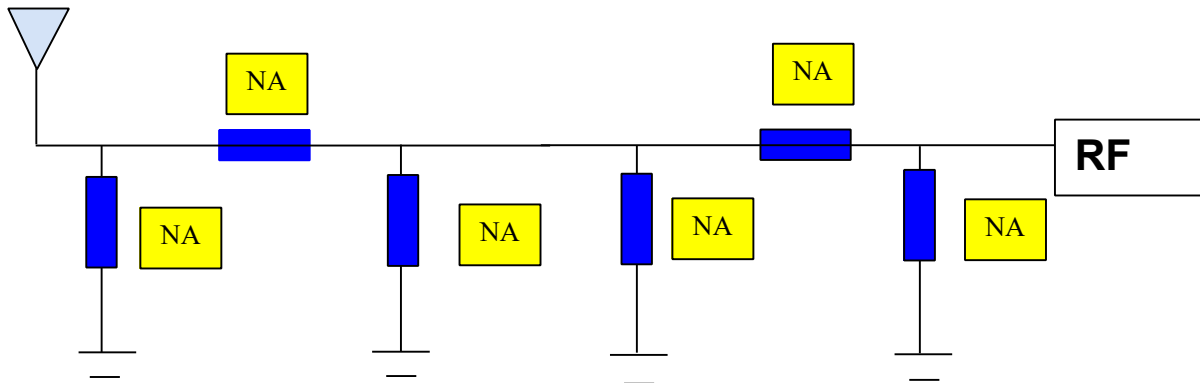
Description	2.4GHz~5GHz	Units
VSWR	≤ 2.0	
Average Antenna Gain	≥ -4.5	dB
Feed Impedance	50 ohms	
Operating Temperature	-40 to +85 deg C	
Polarization / Azimuth	Linear / Omni-directional	

(2)Mechanical Information

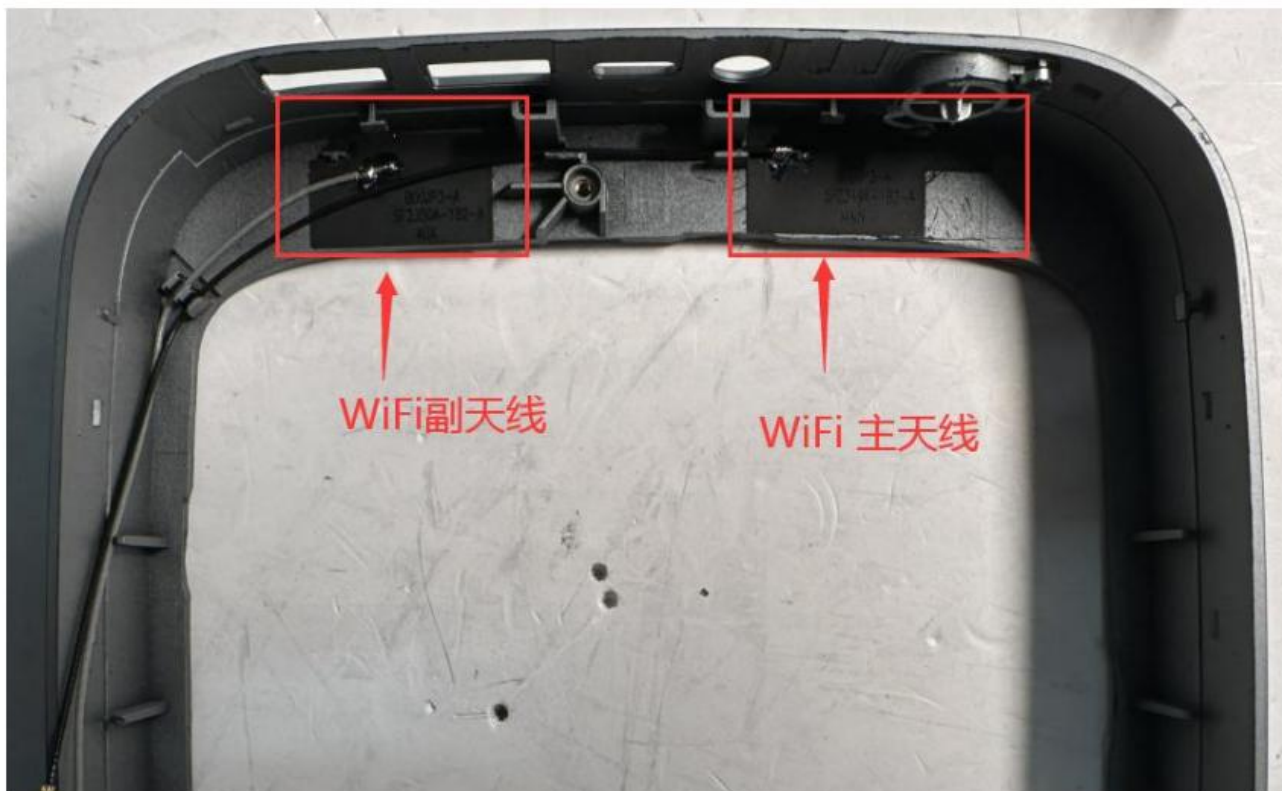
Mechanical Dimension	
Cable Length	100mm/GRAY
Description	WIFI&BT antenna
Material	FPC
Coaxial Cable	50Ω/O. D. 0.81mm
Environmental	
Operation Temperature	-40 to +85 deg C
Storage Temperature	-40 to +85 deg C

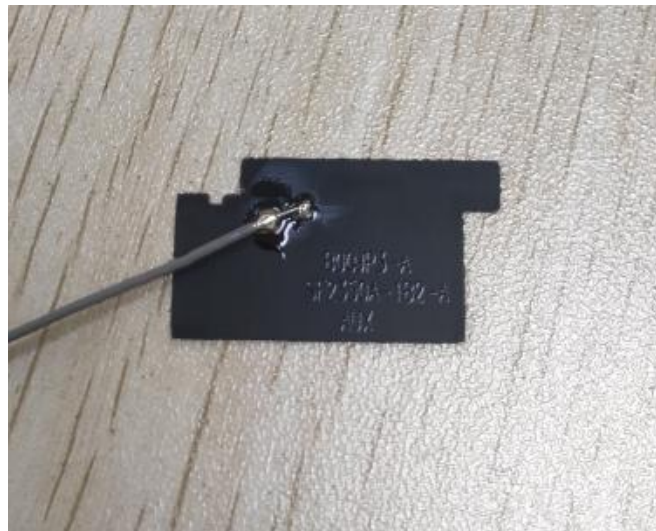
三: Matching circuit diagram & machine picture & antenna picture

(1) matching circuit

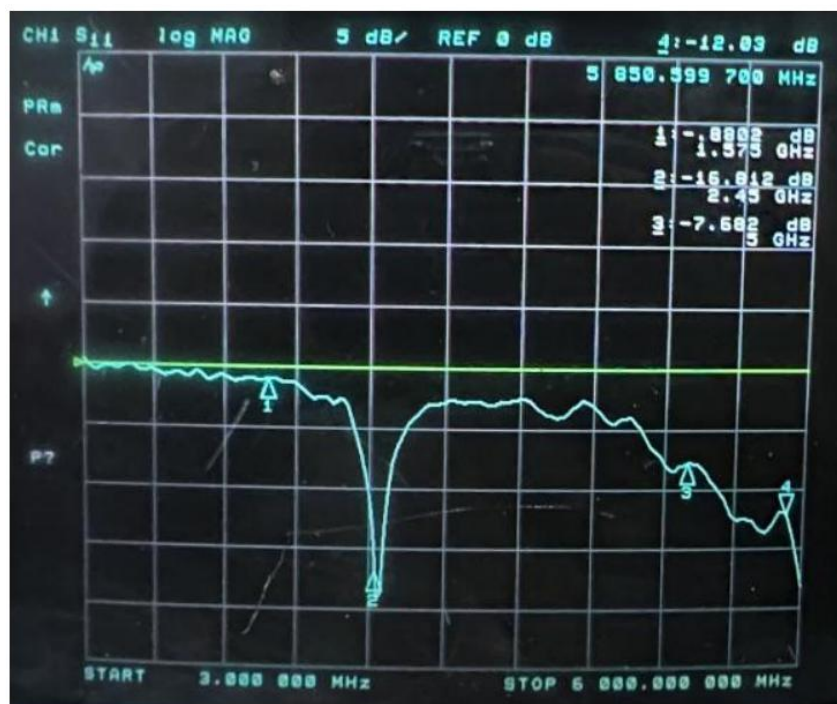


(2) Machine images&antenna images





四:Antenna Standing Wave Ratio & Antenna Efficiency (VSWR)



Passive Test For 2.4G				Passive Test For 5G-WIFI			
Freq	Effi	Effi	Gain	Freq	Effi	Effi	Gain
(MHz)	(%)	(dB)	(dBi)	(MHz)	(%)	(dB)	(dBi)
2400	37.86	-4.22	0.69	5000	34.66	-4.6	0.79
2410	37.26	-4.29	0.6	5100	31.16	-5.06	0.41
2420	40.37	-3.94	0.86	5200	34.71	-4.6	0.71
2430	41.79	-3.79	1.11	5300	37.16	-4.3	1.16
2440	43.58	-3.61	1.31	5400	44.09	-3.56	1.51
2450	40.68	-3.91	1.43	5500	41.71	-3.8	0.66
2460	42	-3.77	1.88	5600	38.89	-4.1	0.33
2470	36.94	-4.32	1.54	5700	45.95	-3.38	1.25
2480	36.81	-4.34	1.63	5800	48.85	-3.11	1.99
2490	37.45	-4.27	1.79	5900	44.45	-3.52	1.31
2500	41.63	-3.81	2.27	6000	46.97	-3.28	1.4

五:Throughput testing&WIFI active data

IperfThroughput testing						
model		module		Software version		
Model number	channel	distance	Testing angle	Test data (TX) 1-minute mean	Test data (RX) 1min average value	Remarks (switching times) Number)
2.4GWIFI		15米	0°	56.2M/S	67.6M/S	0
			90°	46.3M/S	74.2M/S	
			180°	54.2M/S	65.2M/S	
			270°	61.1M/S	68.5M/S	
5GWIFI		15米	0°	213M/S	236M/S	0
			90°	202M/S	217M/S	
			180°	227M/S	223M/S	
			270°	213M/S	232M/S	

Active data

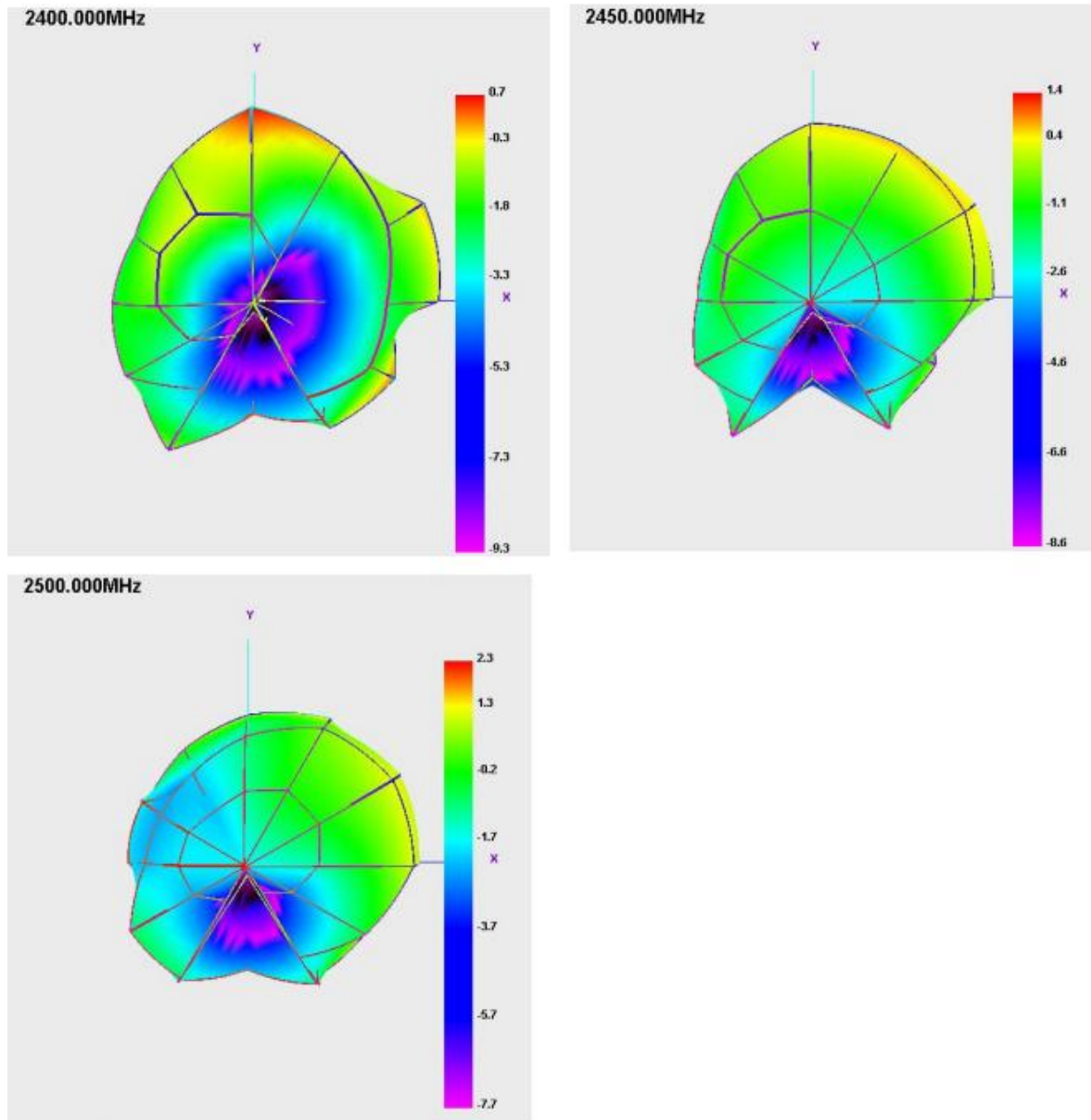
Model number	channel	n模式 (MCS7)	
		TRP	TIS
1	1	11.77	-58.67
	6	11.67	-58.72
	11	11.81	-60.37
	36	14.63	-64.1
	56	14.49	-64.2
	100	14.87	-64.06
	149	15.72	-64.8
	165	15.8	-64.2

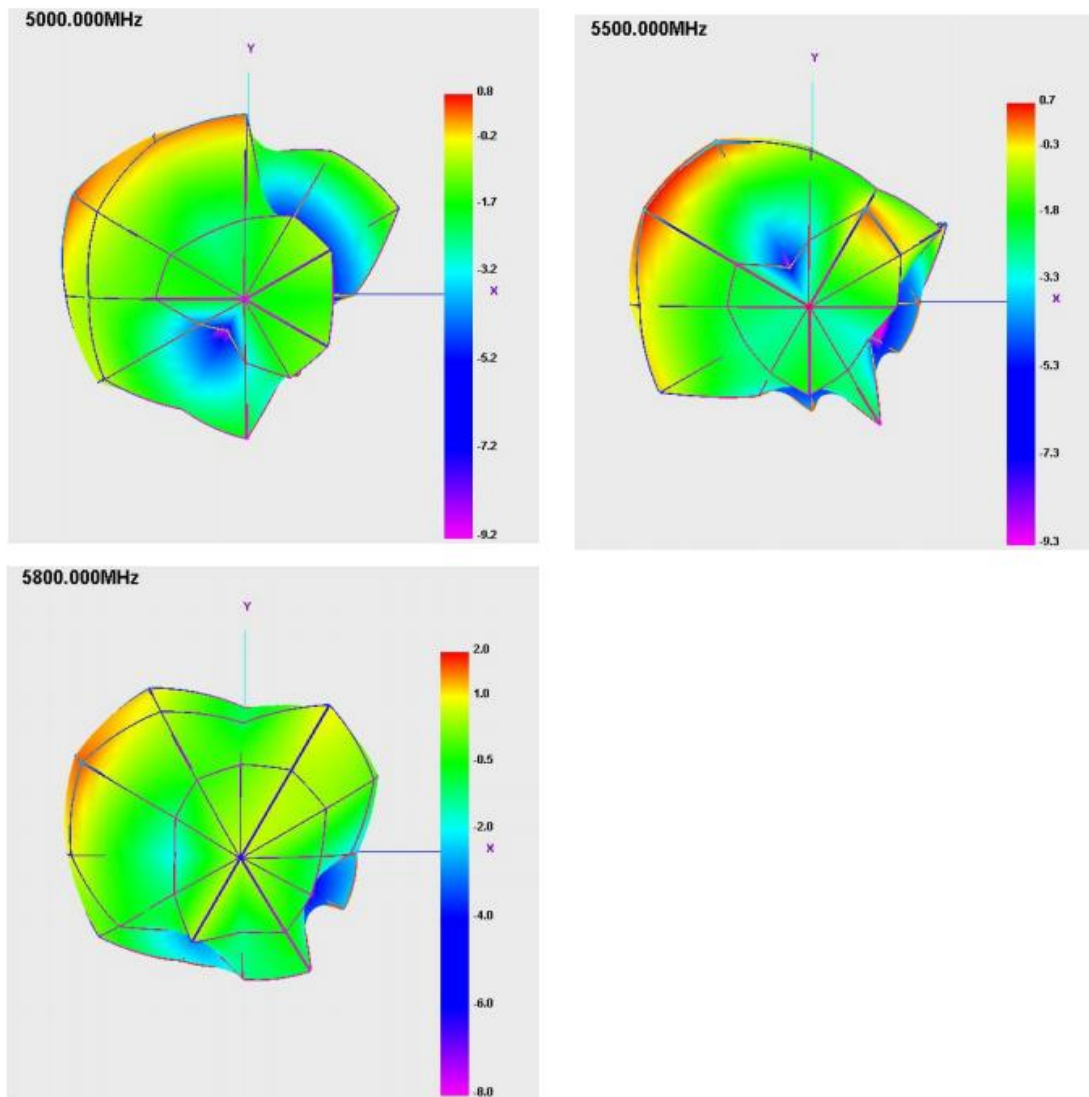
六:Antenna measurement diagram

Actual measurement effect	
Model number	1
testing environment	Soward R&D Center
Test equipment	HuaweiAM08
test distance	10m $\geq$

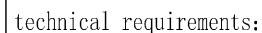
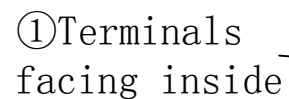


七:3D pattern





八: Structural drawing



- 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;

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