

Antenna specification for approval

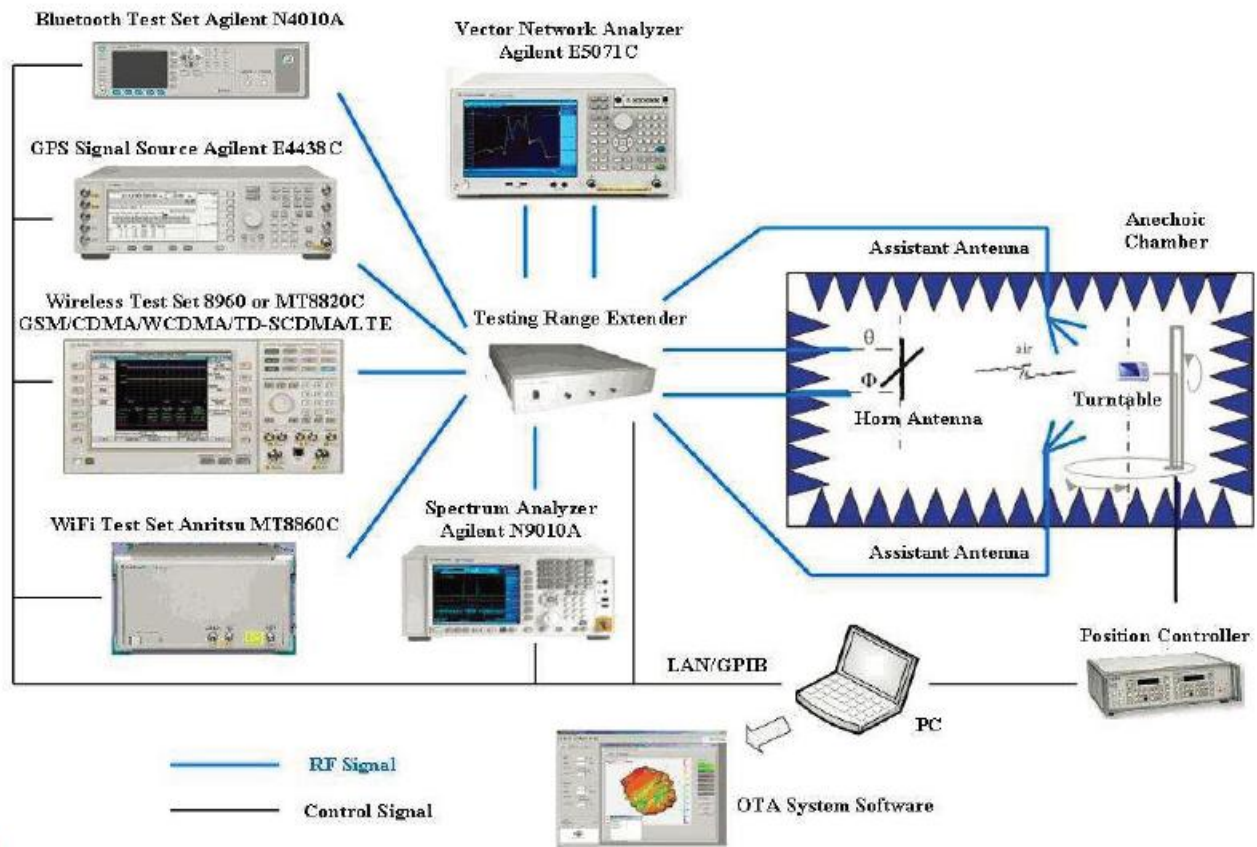
Customer name	Jixinwei		
Model	CP258R-Scope		
Antenna frequency	2.4GHZ		
Antenna function	BT ANT		
Antenna material	FPC	FPC color	black
model	SF2250A-1B2-A		
Material number	SF2250A-1B2-A		
Customer Part Number			

num	Certification Number	Material Type	Issue date	Remark
1	A2230173541101001E	Tinned copper wire	2023-04-24	One year
2	CANEC2227657302	halogen	2022-12-28	One year
3	CANEC2227657303	Adhesive	2022-12-28	One year
4	SHAEC23000346911	FEP jacket	2023-01-13	One year
5	SHAEC22004639301	FEP Insulation	2022-12-15	One year
6	SZXEC2203054804	Tin wire	2022-09-19	One year
7	SZXEC2203054808	Tin Bar	2022-09-19	One year
8	ETR22800844	Printing ink	2022-08-09	One year
9	A2230173918101001E	Substrate	2023-04-18	One year
10	CANEC2227574118	EVA foam	2023-01-03	One year
11	SZXEC2202709609	Conductive fabric	2022-08-16	One year
12	CANEC2218227002	Gold plating	2022-08-30	One year

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1. Device support & testable antenna types



Antenna function	Frequency range	Test Equipment	Test method	Test Standards
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、CTA 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 test, throughput test	Soward standards, customer requirements
BT Antenna	2.4GHz-2.48GHz	5071B、OTA darkroom, Bluetooth speakers	Passive test, actual measurement	Soward standards, customer requirements
Positioning antenna (GPS, GLONASS, BeiDou, Galileo)	1575.42MHz±10MHz 1602MHz+0.5625MHz 1561MHz+2.046MHz	5071B、OTA darkroom、 APK	Passive test, actual measurement	Soward standards, customer requirements
NFC antenna	13.56MHz	5071B、Special test fixture, OTA test room、 APK	Passive test, actual measurement	Soward standards, customer requirements
Remote control antenna	433MHz	5071B、OTA darkroom	Passive test, actual measurement	Soward standards, customer requirements

2. 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 BT antenna.
2. Antenna shape size: Meet the requirement of MID
3. Antenna band: 2400MHz~2500MHz
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:

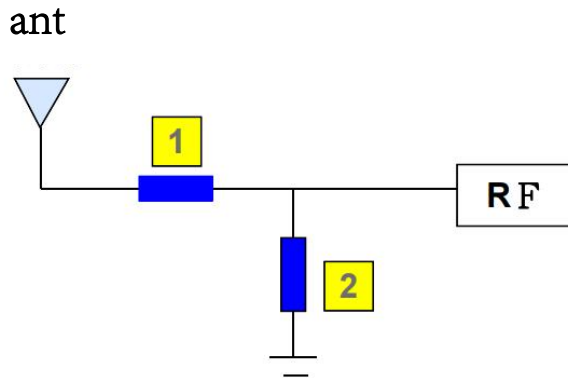
Description	2. 4GHZ~2. 5GHz	Units
VSWR	≤2.0	
Average Antenna Gain	≥-4.5	dB
Feed Impedance	50 ohms	
Operating Temperature	-40 to +85 deg C	
Polarization / Azimuth	Linear / Omni-directional	

(2)Mechanical Information

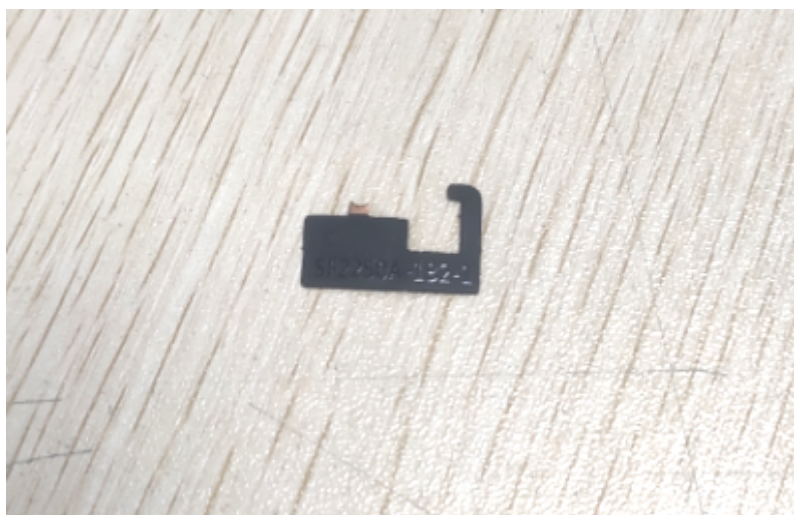
Mechanical Dimension	
Cable Length	NA
Description	BT antenna
Material	FPC
Coaxial Cable	NA
Environmental	
Operation Temperature	-40 to +85 deg C
Storage Temperature	-40 to +85 deg C

3. Matching circuit diagram & machine picture & antenna picture

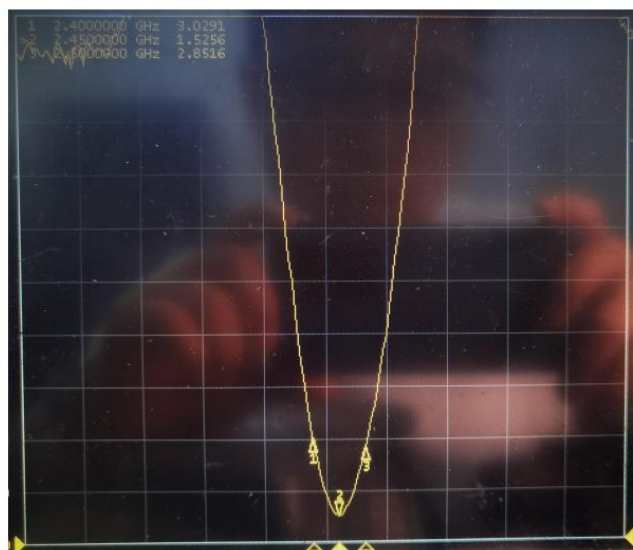
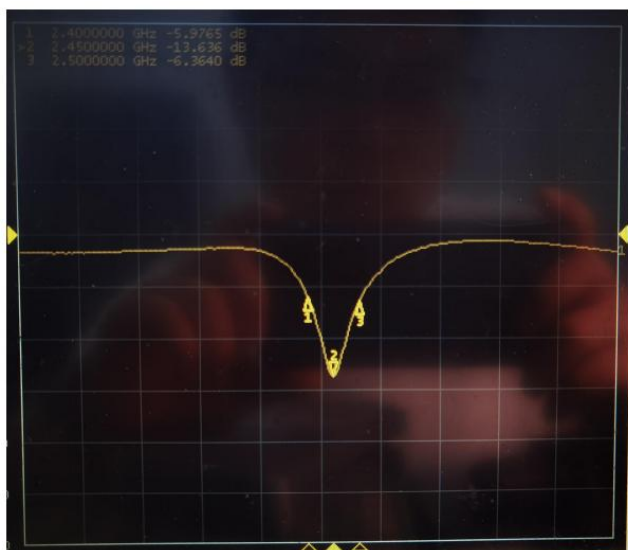
(1) Matching circuit



main ant	1	2	remark
original match	0 Ω	NC	
change match	0.6nH	2.4pf	



4. Antenna Standing Wave Ratio & Antenna Efficiency (VSWR)

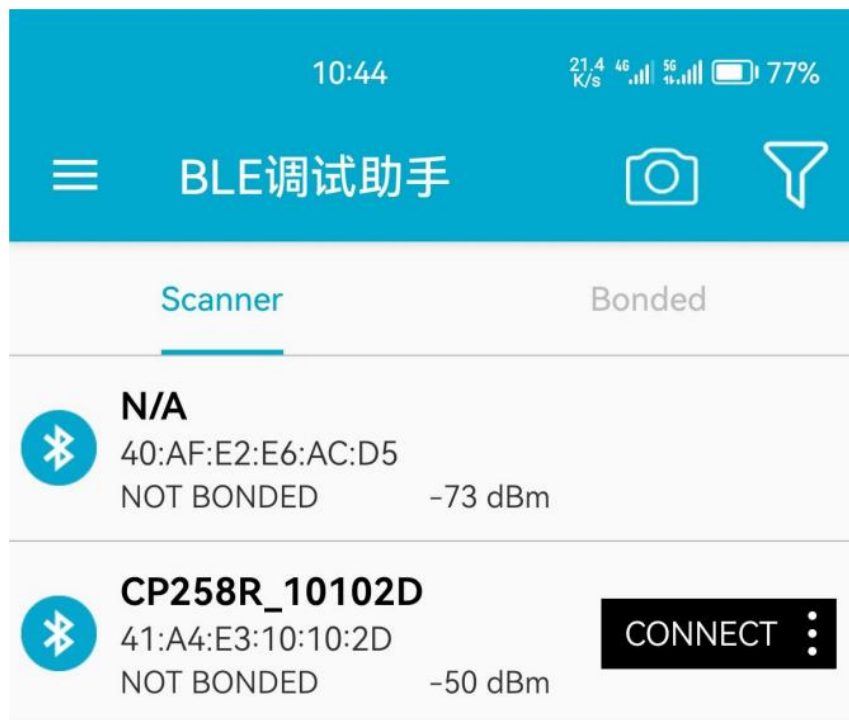


Frequency	2400MHz	2450MHz	2500MHz
VSWR	3.0	1.52	2.85
Return loss	-5.97dBm	-13.63dBm	-6.36dBm

Passive Test For 2.4G-WiFi-BT										
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Gain (dBd)	UHS (%)	DHIS (%)	Max (dB)	Min (dB)	Directivity (dBi)	Beamwidth (3dB)
2400	15.51	-8.09	-3.34	-5.49	7.054	8.453	-3.34	-20.57	4.75	60
2410	14.6	-8.36	-3.81	-5.96	6.612	7.985	-3.81	-20.64	4.55	60
2420	15.08	-8.22	-3.75	-5.9	6.615	8.46	-3.75	-20.89	4.47	150
2430	16.02	-7.95	-3.51	-5.66	6.869	9.151	-3.51	-21.08	4.44	90
2440	17.25	-7.63	-2.92	-5.07	7.137	10.114	-2.92	-21.1	4.71	120
2450	17.93	-7.47	-2.62	-4.77	7.278	10.647	-2.62	-21.33	4.85	120
2460	17.57	-7.55	-2.44	-4.59	6.902	10.668	-2.44	-20.99	5.11	120
2470	17.41	-7.59	-2.42	-4.57	6.778	10.634	-2.42	-20.06	5.17	120
2480	17.65	-7.53	-2.21	-4.36	6.745	10.908	-2.21	-18.45	5.32	150
2490	18.9	-7.24	-2.05	-4.2	7.238	11.66	-2.05	-16.74	5.18	150
2500	19.09	-7.19	-2	-4.15	7.241	11.848	-2	-16.46	5.19	150

5. Signal measurement

10cm



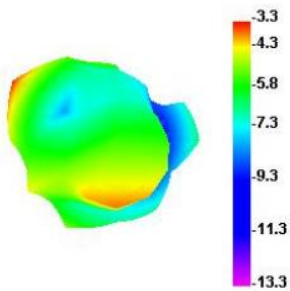
BT antenna measured distance and transmission rate



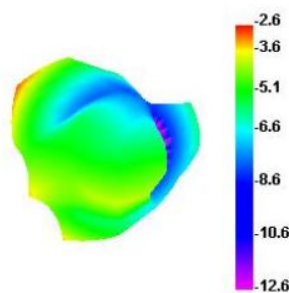
8m transmission effect

6. 3D pattern

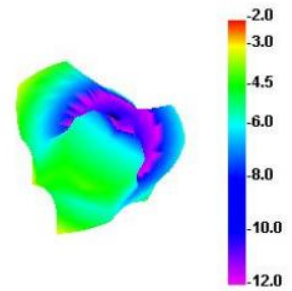
2400.000MHz



2450.000MHz

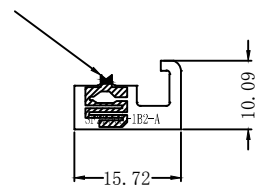


2500.000MHz



7. Structural drawings

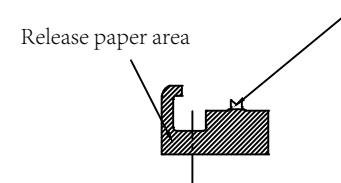
No need for substrate edging at the edge of the copper leak point



front

Adhesive-3M300

No release paper or adhesive area required



Reverse

Technical requirements:


1. Please use one-to-one PI substrate and electrolytic copper.
2. The yellow part is the wiring part, the surface is sprayed matte black, and the text is printed bright black.
3. The yellow shadow part is the exposed welding point, and the process requires anti-oxidation treatment.
4. All materials meet the environmental protection ROHS standard.
5. The "*" is the key size, and the tolerance is: ± 0.03 .

Inspection standards:

1. The dimensions and circuit dimensions are consistent with the drawings and within the controllable tolerance.
2. The antenna circuit has no misalignment or breakage. The FPC bend is subjected to a 180° bending test without breakage. More than 5 times is considered a PASS.
3. The silk screen is clear and has no misprints.

Packaging requirements:

1. PE seal bag packaging
2. 100pcs/bag.

<u>SWARD</u>					SF2250A-1B2-A	
Stage Marker				Maximum area		
1	2	3	A	300 mm ²	N/A	
Total 1 photo			/	Photo 1		