

Antenna specification for approval

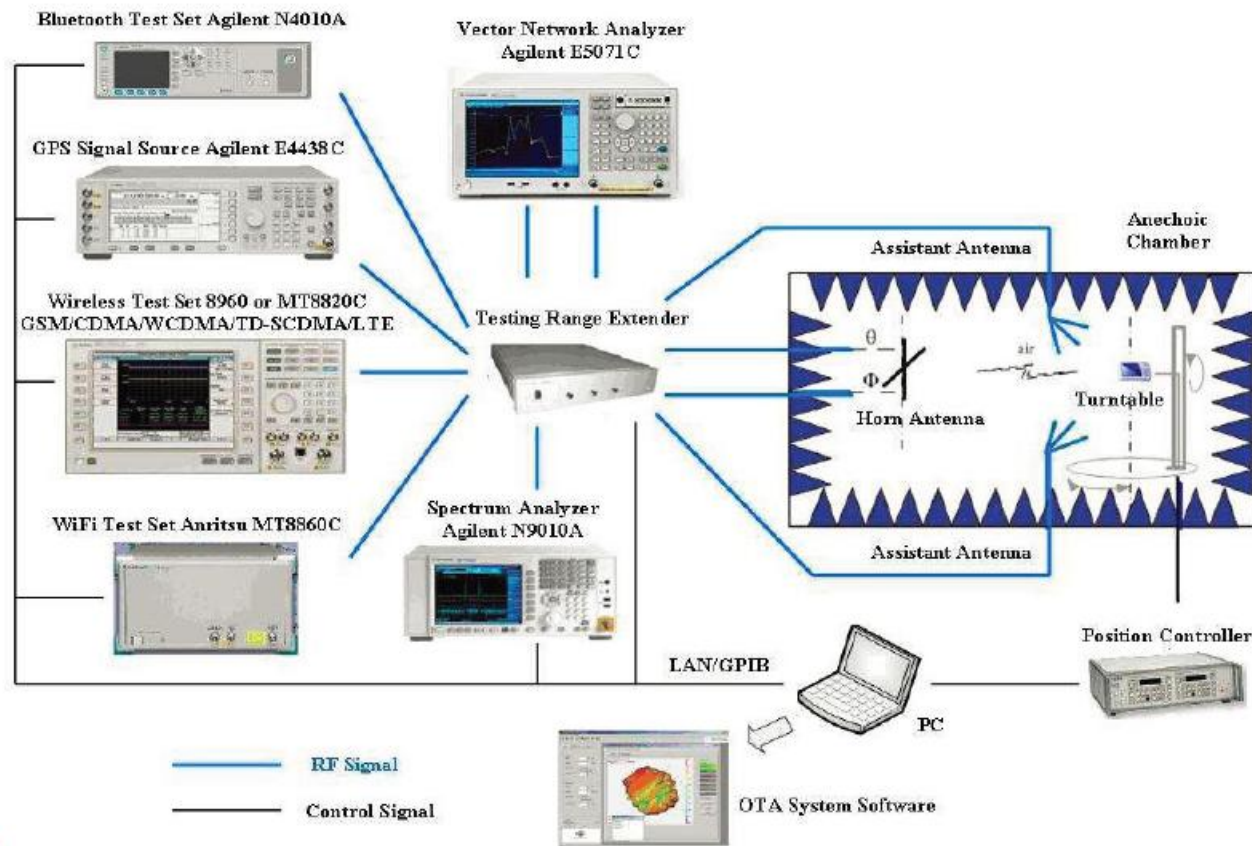
Customer name	Boshida		
Model	S1 Recorder (NT96675-8189FTV module)		
Antenna frequency	2.4GHZ		
Antenna function	WIFI antenna		
Antenna material	FPC	FPC color	black
model	SF1974F-1B2-A		
Material number	SF1974F-1R23B-060-A		
Customer Part Number			
Ward accepted the signature		Client acknowledges signature	
structure		Purchase	
Document control		structure	
radio frequency		engineering	
To examine		QC	
Responsible	LTT	To examine	
date		date	
2023.08.22	Seal area	2023.08.22	Seal area

Serial number	Certification number	Material type	Date of issue	Remarks
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 sheath	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	2022-09-19	One year
8	ETR23701480	Printing ink	2023-07-13	One year
9	A2230173918101001E	Substrate	2023-04-18	One year
10	CANEC2227574118	EVA foam	2023-01-03	One year
11	A2230383826101003	Conductive cloth	2023-08-04	One year
12	CANEC2218227002	Gold plating	2022-08-30	One year

table of Contents

一:Device Support & Testable Antenna Type.....	1
二:Overview.....	2
三:Matching circuit diagram & machine picture & antenna picture	3
四:Antenna standing wave ratio & Antenna Efficiency & measured results.....	4
五:3D pattern.....	5
六:Structural drawing.....	6

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: summarize

(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 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:

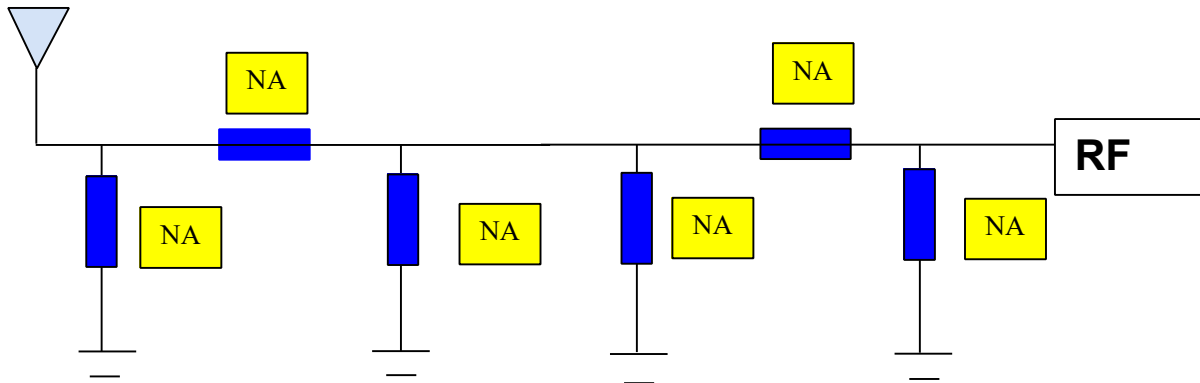
Description	2. 4GHZ~2. 5GHz	Units
VSWR	≤2.0	
Average Antenna Gain	≥-4.5	dB
Feed Impedance	50 ohms	
Operating Temperature	-40 to +85 deg C	
Polarization / Azimuth	Linear / Omni-directional	

(2)Mechanical Information

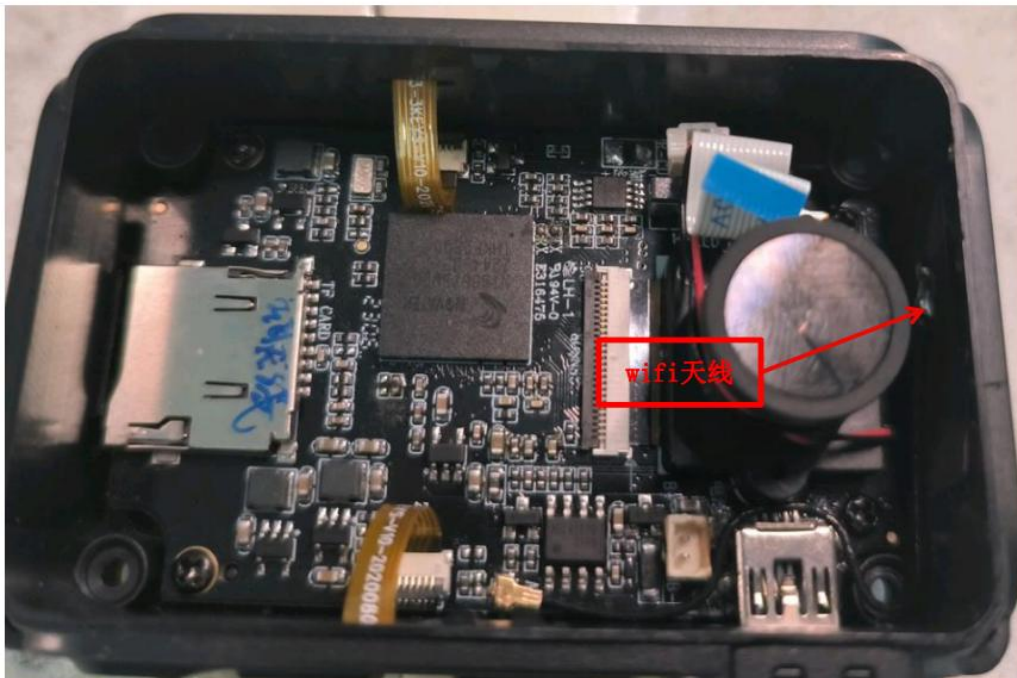
Mechanical Dimension	
Cable Length	060mm/BLACK
Description	WIFI antenna
Material	FPC
Coaxial Cable	50Ω/O. D. 0.81mm
Environmental	
Operation Temperature	-40 to +85 deg C
Storage Temperature	-40 to +85 deg C

三: Match circuit diagram & machine picture & antenna picture

(1) Matching circuit



(2) Machine picture & antenna picture





四:Antenna standing wave ratio & Antenna Efficiency & measured results



Passive Test For 2.4G								
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Gain (dBd)	UHS (%)	DHIS (%)	Max (dB)	Min (dB)
2400	33.01	-4.81	-0.18	-2.33	15.365	17.65	-0.18	-13.81
2410	31.96	-4.95	-0.42	-2.57	15.122	16.838	-0.42	-14.68
2420	32.8	-4.84	-0.46	-2.61	15.983	16.82	-0.46	-17.21
2430	33.49	-4.75	-0.45	-2.6	16.784	16.711	-0.45	-17.9
2440	34.91	-4.57	-0.33	-2.48	17.895	17.018	-0.33	-15.49
2450	36.2	-4.41	-0.22	-2.37	18.875	17.33	-0.22	-13.77
2460	35.19	-4.54	-0.41	-2.56	18.597	16.59	-0.41	-13.81
2470	33.63	-4.73	-0.8	-2.95	18.047	15.58	-0.8	-14.7
2480	34.44	-4.63	-0.79	-2.94	18.741	15.697	-0.79	-15.99
2490	38.31	-4.17	-0.17	-2.32	21.101	17.206	-0.17	-15.83
2500	41.06	-3.87	0.26	-1.89	22.822	18.237	0.26	-15.33

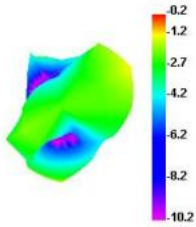
Measured effect

实测效果	
机型编号	1
测试环境	索沃德研发中心
测试设备	Redmi K50 Pro
测试距离	15 米

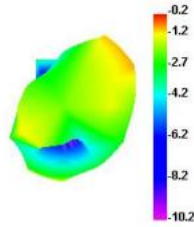
下载速率	
机型编号	1
测试环境	索沃德研发中心-1米
测试设备	Redmi K50 Pro
测试速率	3.2Mbps左右

五:3D pattern

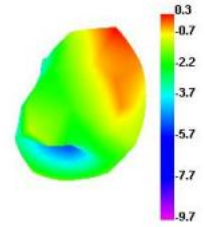
2400.000MHz



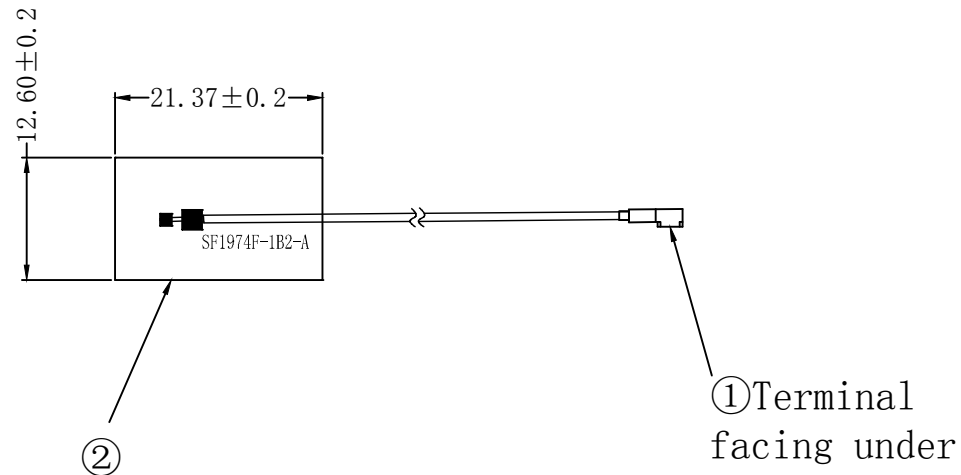
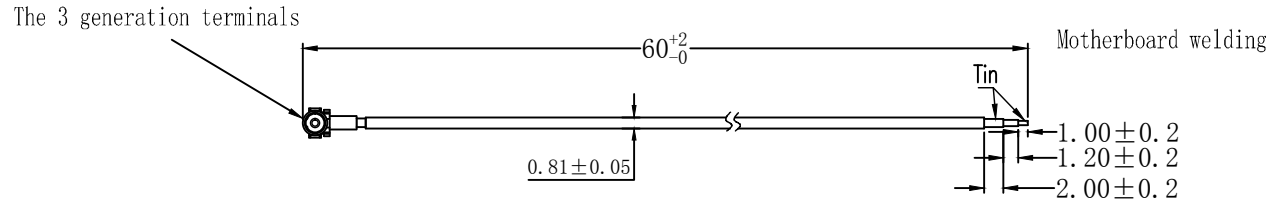
2450.000MHz



2500.000MHz



六:Structural drawing



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;

<u>SWARD</u>										ShenZhen SWARD Communication Technology Co.Ltd	
5											
4											
3					signatures	date	mass	signatures	date	time markup	percentage
2	FPC	black	1	SF1974F-1B2-A	RD	LXH	2023.08.22	Q C			
1	coaxial line	black	1	φ=0.81mm	RF					1	1 : 1
	name	color	quantity	specifications	audits			approval			
										ROHS	