

Specification For Approval

client's name: JinghuaAdapted models: M710K-7 inch plastic case-Tianhe Zhiyuan 3126C-8703BSAntenna type: WIFI&BT antennaWorking frequency: 2.4GHzPart No: SF1491A-1R10G-160-A

Certification information (SGS report)

Serial number	Certification number	Material type	Date of issue	Remarks
1	A2220186128101ER1	Tinned copper wire	2022-05-17	One year
2	CANEC2200386502	halogen	2022-01-12	One year
3	CANEC2200386501	Adhesive	2022-01-12	One year
4	SHAEC2200415801	FEP sheath	2022-01-15	One year
5	SHAEC2127178503	FEP insulation	2021-12-21	One year
6	SZXEC2203054804	Tin wire	2022-09-19	One year
7	SZXEC2203054808	Tin	2022-09-19	One year
8	ETR22300684	Printing ink	2022-03-09	One year
9	EKR22501369	Substrate	2022-06-27	One year
10	CANEC2124348308	EVA foam	2022-01-14	One year
11	SZXEC2202709609	Conductive cloth	2022-08-16	One year

(Customer)

	purchase	R&D/Engineering	quality

(Supplier)

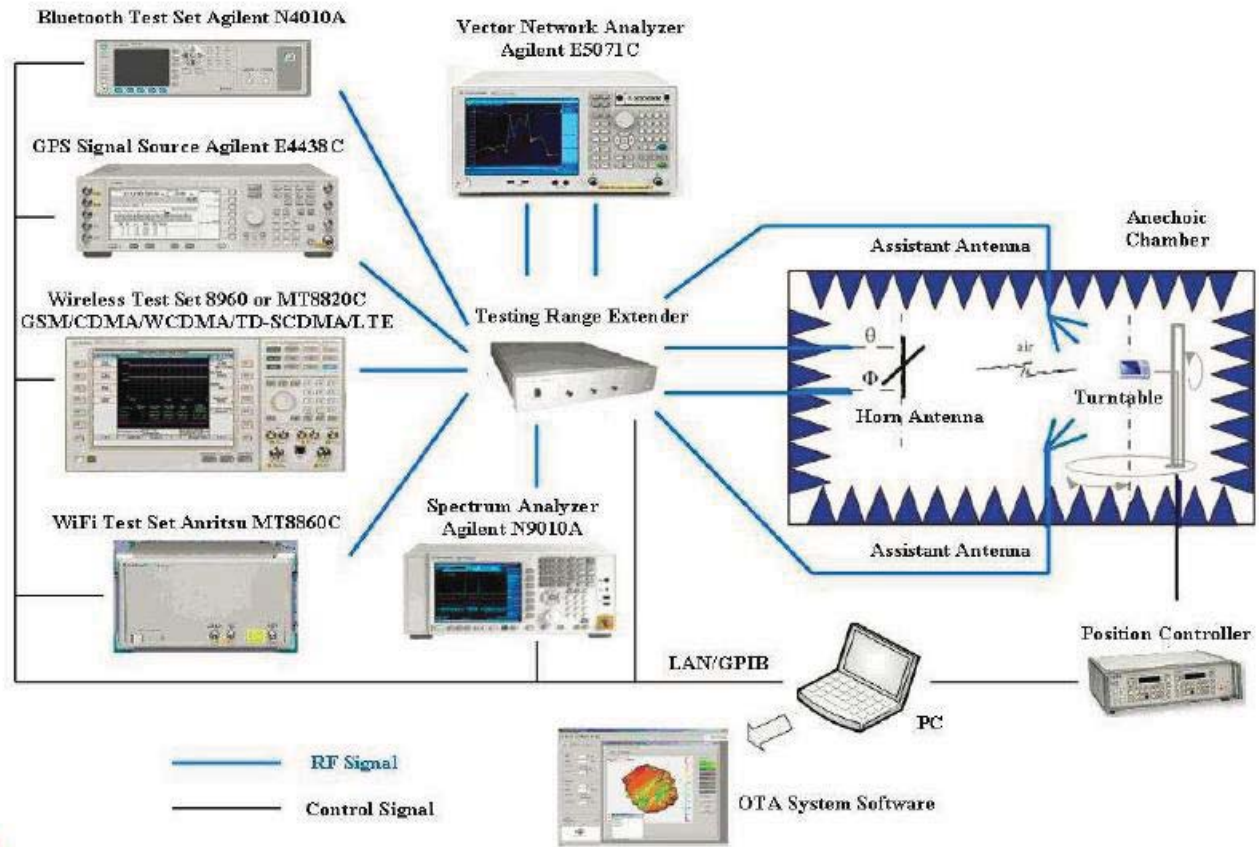
	Engineering production	Engineering audit	business
	LTT		

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12	CANEC2218227002	Gold plating	2022-08-30	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, GLOWASS, 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

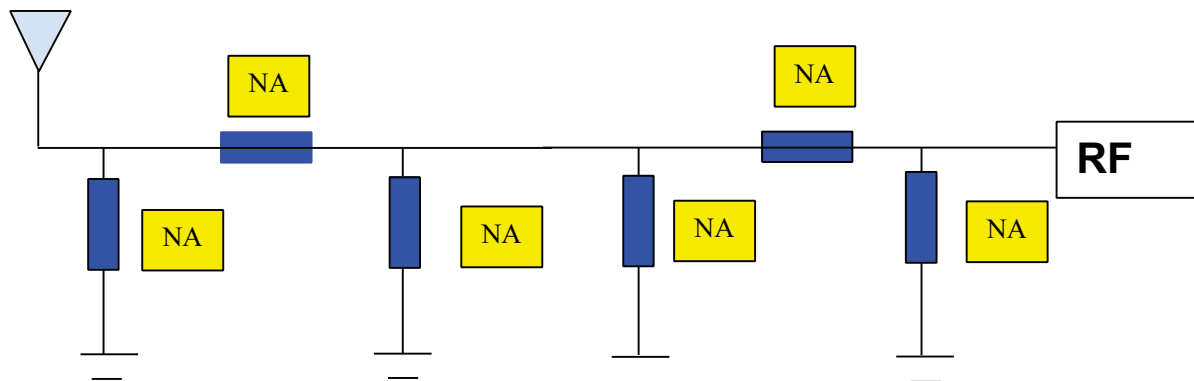
(1) Antenna performance

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: 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:

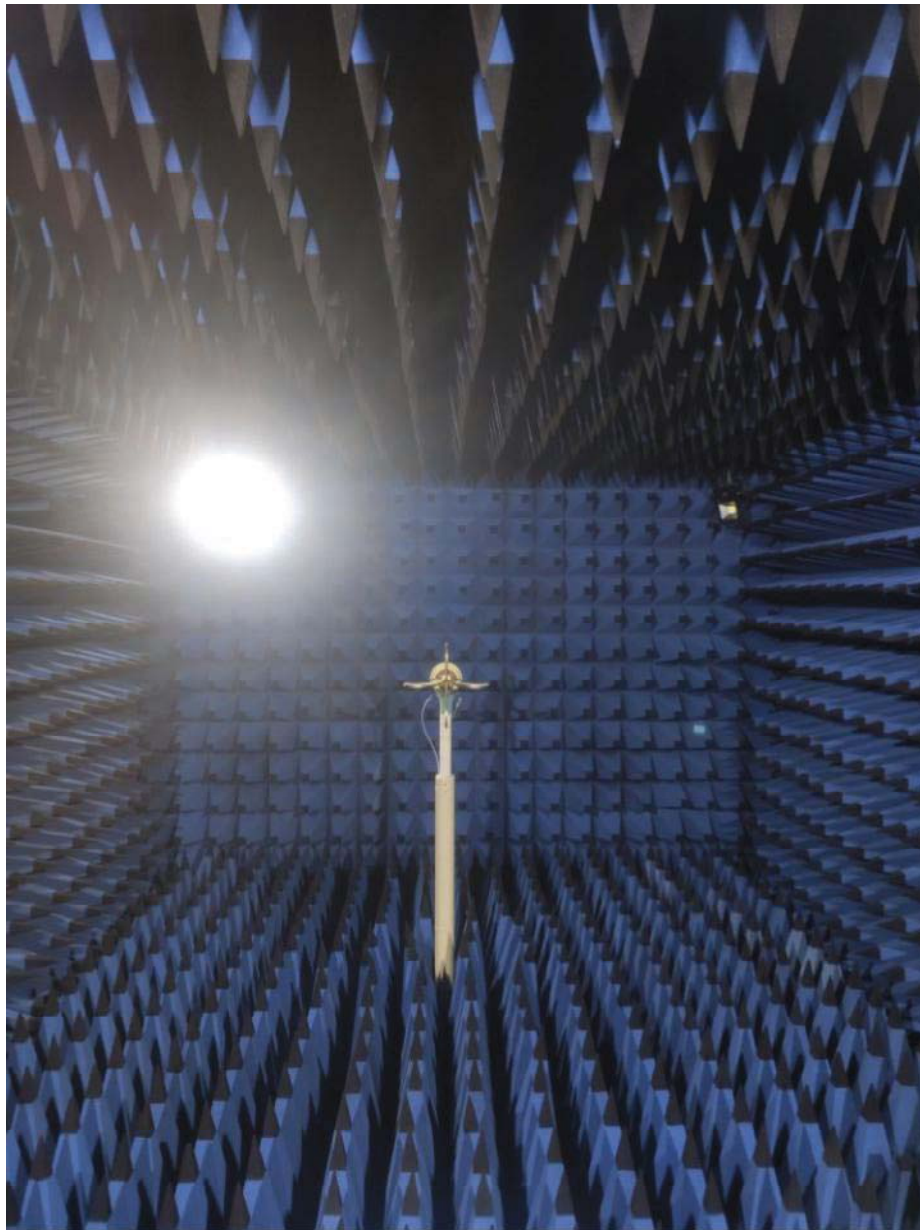
Description	2. 4GHZ~2. 5GHz	Units
VSWR	≤2.0	
Average Antenna Gain	≥-4.5	dB
Antenna Efficiency	≥40	%
Feed Impedance	50 ohms	
Operating Temperature	-40 to +85 deg C	
Polarization / Azimuth	Linear / Omni-directional	

(2) Mechanical Information

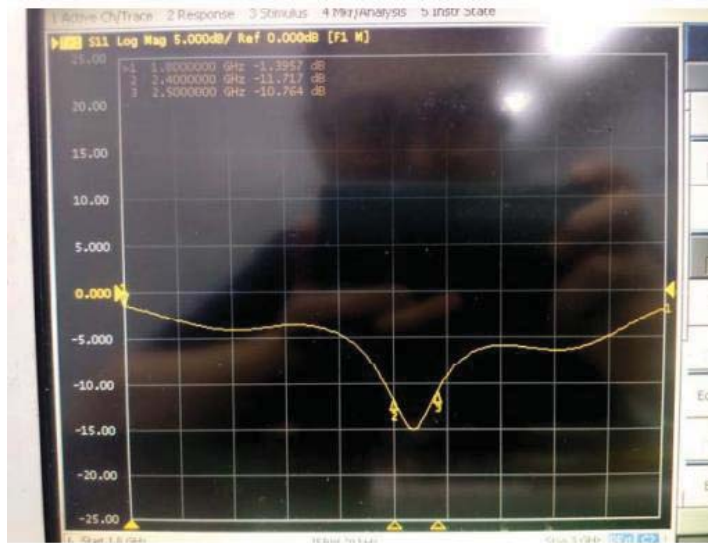
Mechanical Dimension	
Cable Length	160mm/GRAY
Description	WIFI&BT antenna
Material	FPC
Coaxial Cable	500hm/0. D. 1. 13mm
Environmental	
Operation Temperature	-40 to +85 deg C
Storage Temperature	-40 to +85 deg C

≡: Matching Circuit Diagram & Machine Picture & Antenna Picture**(1) Matching circuit****(2) Machine picture & antenna picture**

四: Test scenario diagram

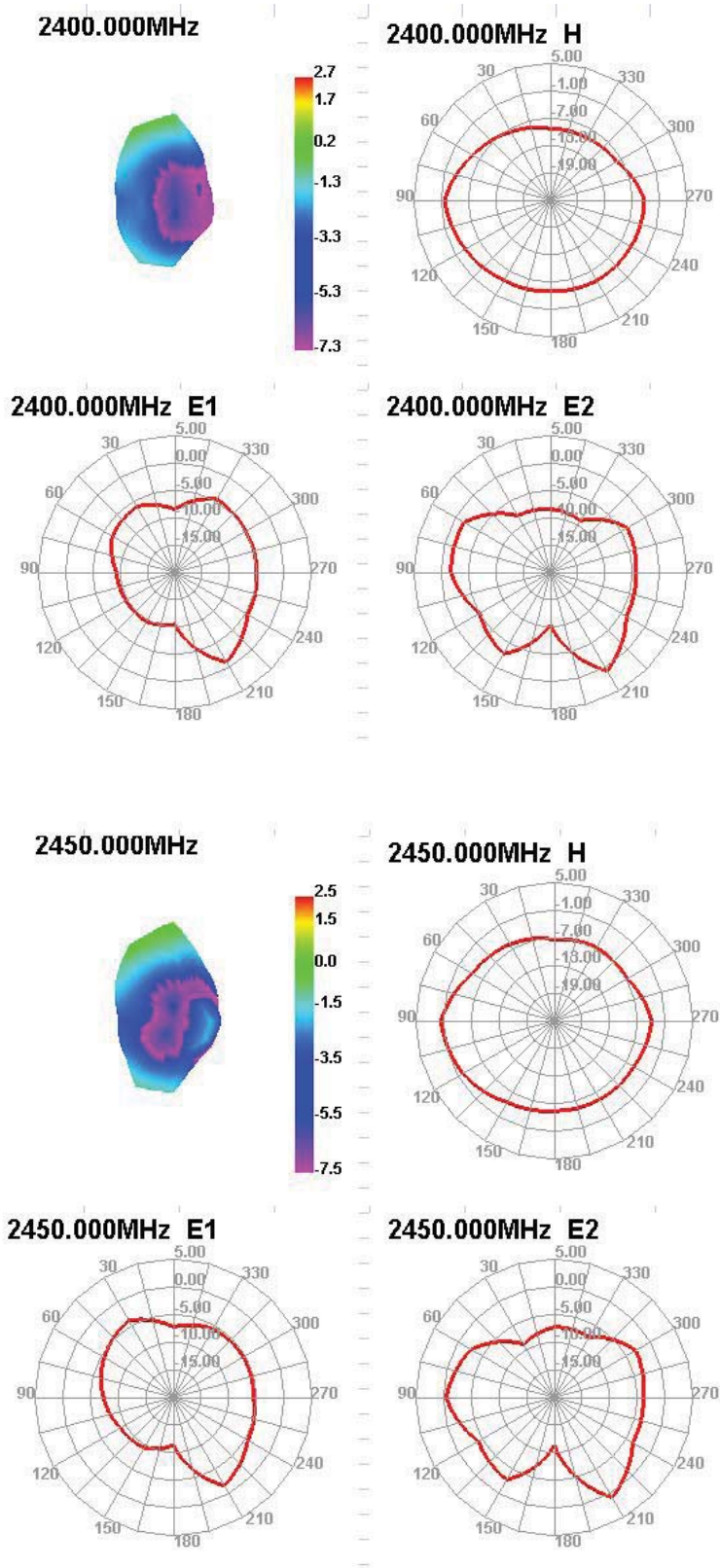


五:Antenna Standing Wave Ratio & Antenna Efficiency (VSWR)

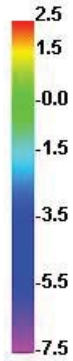
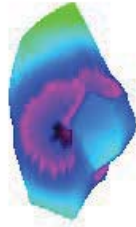


Passive Test For 2.4Gwifi										
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Gain (dBd)	UHS (%)	DHS (%)	Max (dB)	Min (dB)	Attenut Hor	Attenut Ver
2400	35.97	-4.44	2.68	0.53	15.996	19.976	2.68	-11.85	50.42	50.3
2410	35.91	-4.45	2.52	0.37	15.959	19.951	2.52	-10.93	50.47	50.33
2420	36.13	-4.42	2.39	0.24	16.143	19.986	2.39	-10.99	50.54	50.29
2430	37.85	-4.22	2.45	0.3	16.979	20.87	2.45	-11.42	50.49	50.29
2440	38.43	-4.15	2.46	0.31	17.235	21.2	2.46	-11.94	50.49	50.29
2450	38.25	-4.17	2.51	0.36	16.966	21.28	2.51	-11.58	50.74	50.44
2460	38.88	-4.1	2.74	0.59	17.047	21.834	2.74	-11.63	50.62	50.43
2470	39.27	-4.06	2.95	0.8	17.189	22.077	2.95	-10.97	50.72	50.67
2480	40.72	-3.9	3.03	0.88	18.047	22.672	3.03	-10.48	51.27	51.09
2490	39.22	-4.07	2.75	0.6	17.664	21.552	2.75	-10.63	50.98	50.87
2500	38.29	-4.17	2.47	0.32	17.414	20.871	2.47	-10.76	51.62	51.32

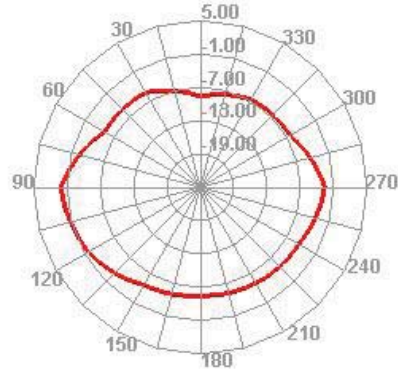
六:3D pattern



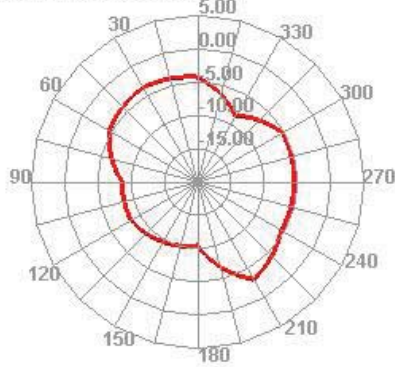
2500.000MHz



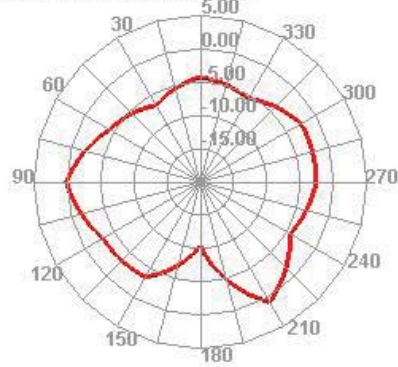
2500.000MHz H



2500.000MHz E1



2500.000MHz E2

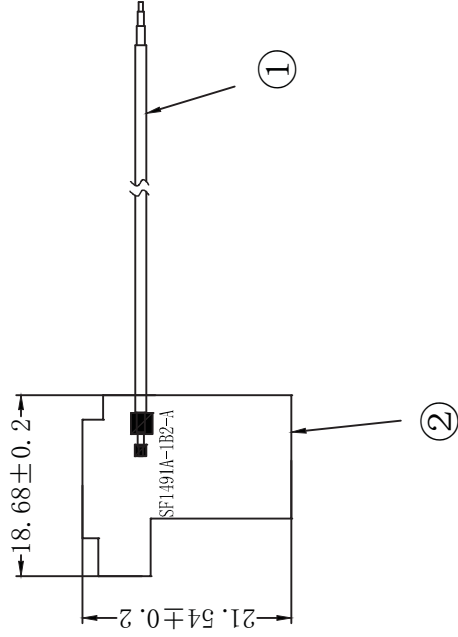


七:Signal strength**八:Structural drawing**

Antenna welding

Motherboard welding

- 1. 0.00 ± 0.2
- 1. 0.50 ± 0.2
- 2. 0.00 ± 0.2



- 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 to SJ/T 10628 1995 6classes;

5															
4															
3								signatures	date	signatures	date	percentage			
2	FPC	black	1	SF1491A-1B2-A	RD	YWD	2022.12.07	Q C				time markup			
1	coaxial line	gray	1	$\phi=1.13\text{mm}$	RF							1	A	1 : 1	
	name	color	quantity	specifications	audits			approval							
SWARD												ShenZhen SWARD Communication Technology Co.Ltd			
												SF1491A-1R10G-160-A			
												ROHS			