

天线规格书
Antenna specification for approval

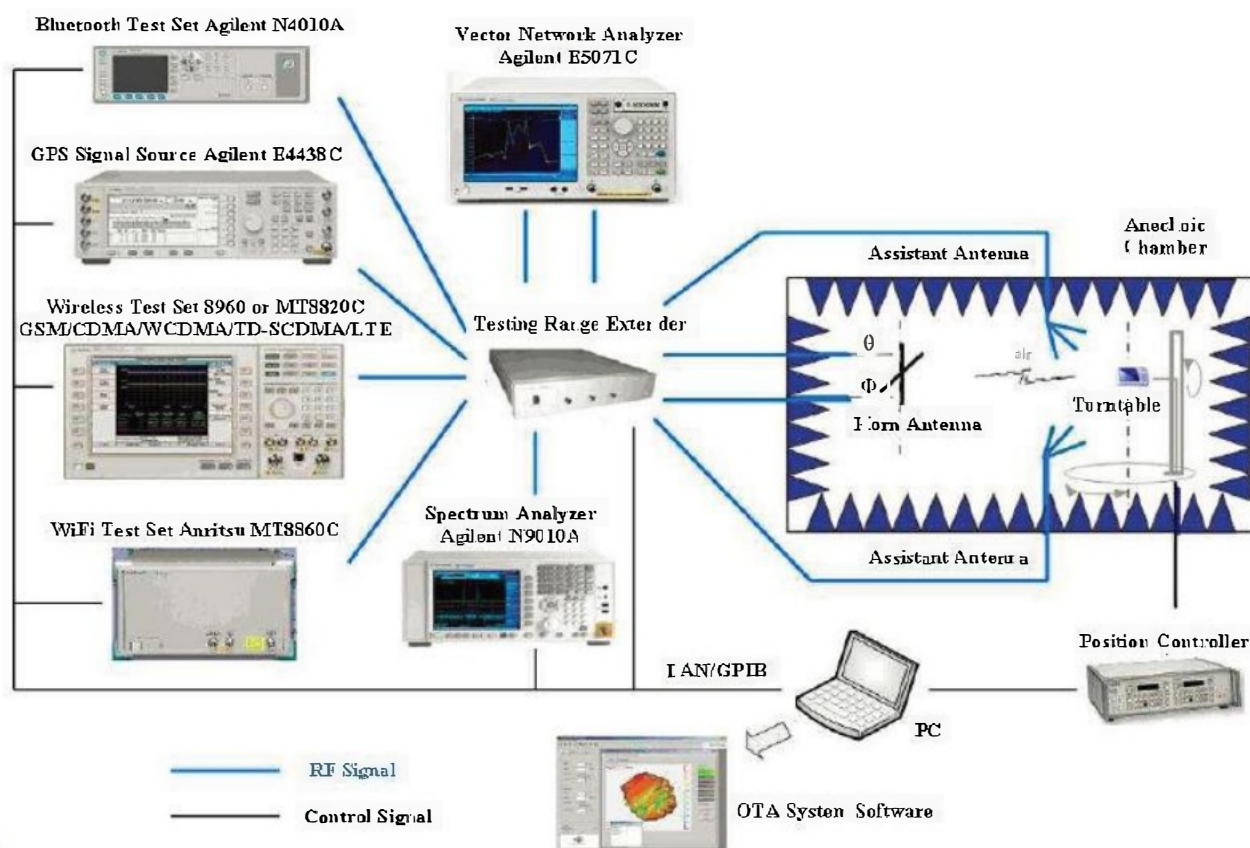
客户名称 Customer name	Jingsha		
机型 Model	MINIPC-H1-61852BE 模块 MINIPC-H1-61852BE Module		
天线频段 Antenna frequency	2.4GHZ&5GHz		
天线功能 Antenna function	WIFI&BT&5Gwifi(1) 天线Antenna		
天线材质 Antenna material	FPC	FPC 颜色 FPC color	黑色Black
型号 model	SF2036B-1B2-A		
料号 Material number	SF2036B-1R24G-140-A		
客户料号 Customer Part Number			
索沃德承认签章 Ward accepted the signature		客户承认签章 Client acknowledges signature	
结构 structure		采购 Purchase	
文控 Document control		结构 structure	
射频 radio frequency		工程 engineering	
审核 To examine		品质 QC	
承办人 Responsible 李婷婷		审核 To examine	
日期 date 2023.11.17	盖章区 Seal area	日期 date 2023.11.17	盖章区 Seal area

序号No.	认证编号Certificate No.	材质类型Material Type	发证日期Issue Date	备注Mark
1	A2230173541101001E	镀锡铜Tin Plate Copper Wire	2023-04-24	一年1 Year
2	CANEC2227657302	卤素Halogen	2022-12-28	一年1 Year
3	CANEC2227657303	背胶Adhesive	2022-12-28	一年1 Year
4	SHAEC23000346911	FEP 护套PEP Sheath	2023-01-13	一年1 Year
5	SHAEC22004639301	FEP 绝缘 PEP Isulated	2022-12-15	一年1 Year
6	SZXEC2203054804	锡线 Tin Wire	2022-09-19	一年1 Year
7	SZXEC2203054808	锡条Tin Bar	2022-09-19	一年1 Year
8	ETR23701480	印刷油墨Printing Ink	2023-07-13	一年1 Year
9	A2230173918101001E	基材Base Material	2023-04-18	一年1 Year
10	CANEC2227574118	EVA 泡棉 EVA Foam	2023-01-03	一年1 Year
11	A2230383826101003	导电布Conductive Fabric	2023-08-04	一年1 Year
12	CANEC23002609908	金镀层Gold Plate	2023-05-11	一年1 Year

Content

一:Device Support&Testable Antenna Type.....	1
二:Summary.....	2
三:Matching Circuit Diagram&Machine Photo&Antenna Photo.....	3
四:VSWR&Antenna Efficiency.....	4
五:ThroughPut Test.....	5
六:Signal Strength Test.....	6
七:3D pattern.....	7
八:Structure Drawings.....	8

一: Device Support & Testable Antenna Type



天线功能	频率范围	测试仪器	测试方式	测试标准
2G天线 (GSM)	824MHz-960MHz, 1710MHz-1990MHz	5071B、8960、 OTA暗室	有源测试、无源测试	索沃德标准、客户要求
3G天线 (WCDMA/TDSCDMA/CDMA-EVDO/2000)	824MHz-960MHz, 1710MHz-2170MHz	5071B、8960、 OTA暗室	有源测试、无源测试	索沃德标准、客户要求
4G天线 (LTE-FDD/LTE-TDD)		5071B、CMW500、 SP8011、OTA暗室	有源测试、无源测试	索沃德标准、客户要求
WIFI天线	2.4GHz-2.48GHz, 5.15GHz-5.35GHz, 5.725GHz-5.825GHz	5071B、CMW500、 OTA暗室、路由器、 PC	有源测试、无源测试、 APK实测、吞吐量 测试	索沃德标准、客户要求
BT天线	2.4GHz-2.48GHz	5071B、OTA暗室、 蓝牙音箱	无源测试、实测	索沃德标准、客户要求
定位天线 (GPS、GLONASS、北斗、伽利略)	1575.42MHz±10MHz 1602MHz±0.5625MHz 1561MHz±2.046MHz	5071B、OTA暗室、 APK	无源测试、实测	索沃德标准、客户要求
NFC天线	13.56MHz	5071B、专用测试 治具、OTA暗室、 APK	无源测试、实测	索沃德标准、客户要求
遥控天线	433MHz	5071B、OTA暗室	无源测试、实测	索沃德标准、客户要求

6th F,B Building, No.135 Hexi Hancheng Industrial Zone, Qianjin Road, Bao'An District, Shenzhen深圳市宝安区前进二路135号河西航城工业区B栋6楼

Tel/电话: 0755-29985185 Fax/传真: 0755-27487028

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:

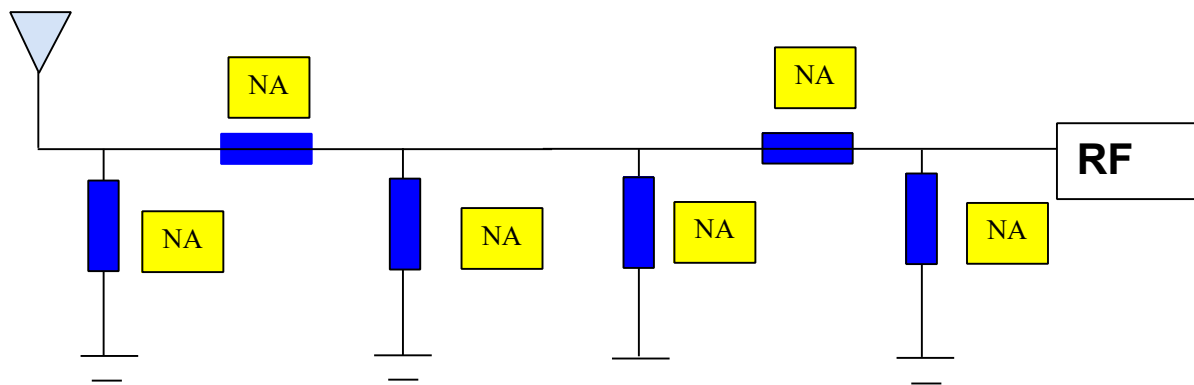
Description	2.4GHz~5GHz	Units
VSWR	≤ 2.0	
Average Antenna Gain	≥ -4.5	dB
Feed Impedance	50 ohms	
Operating Temperature	-40 to +85 deg C	
Polarization / Azimuth	Linear / Omni-directional	

(2) Mechanical Information

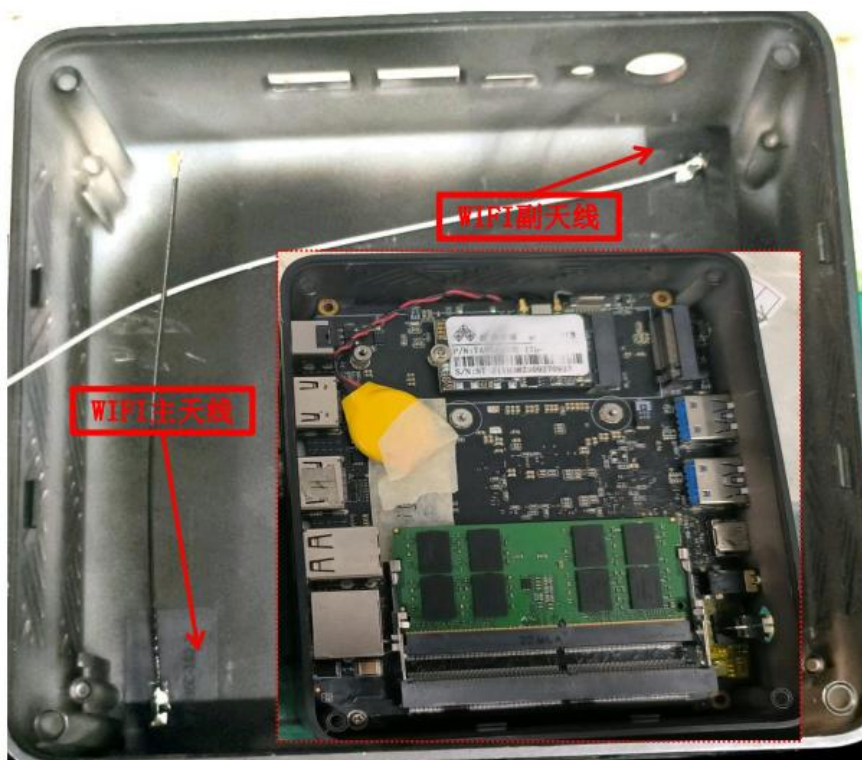
Mechanical Dimension	
Cable Length	140mm/GRAY
Description	WIFI&BT antenna
Material	FPC
Coaxial Cable	50 Ω / O. D. 0.81mm
Environmental	
Operation Temperature	-40 to +85 deg C
Storage Temperature	-40 to +85 deg C

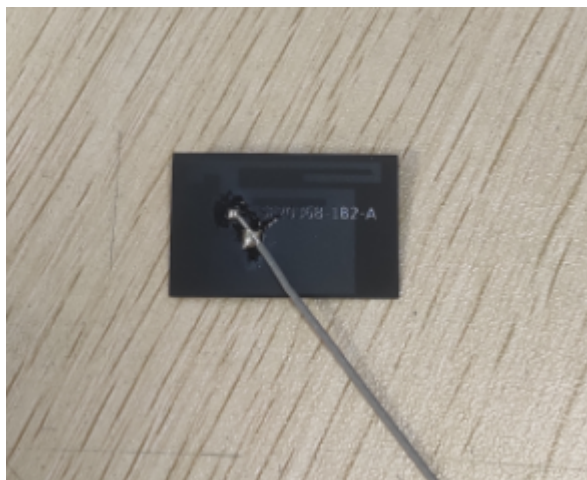
三: Matching Circuit Photo&Machine Photo&Antenna Photo

(1) Matching Circuit

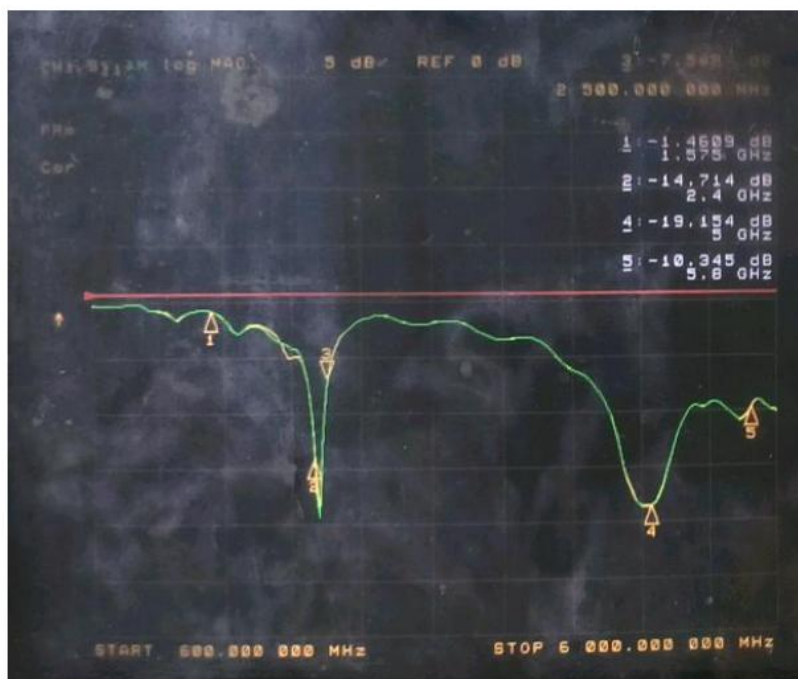


(2) Device Photo&Antenna Photo





四:VSWR&Antenna Efficiency



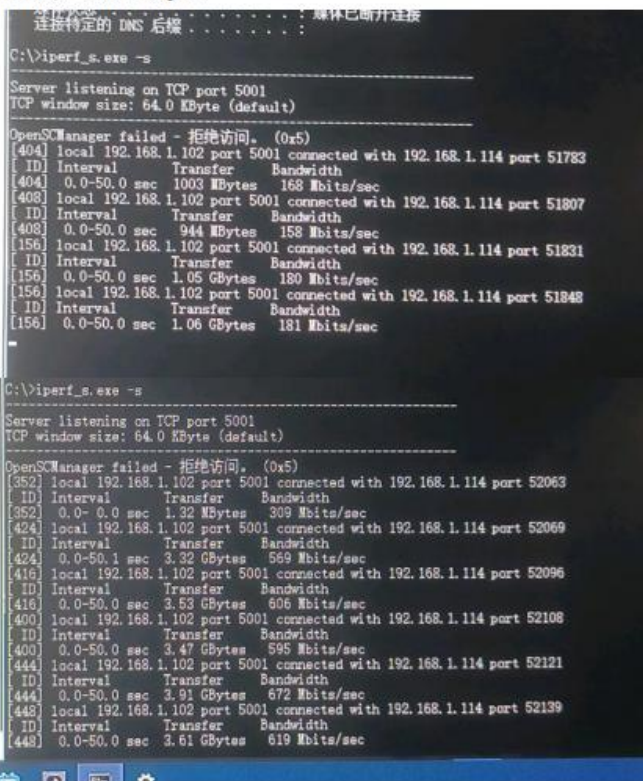
Passive Test For 2.4Gwifi								
Freq	Effi	Effi	Gain	Gain	UHS	DHS	Max	Min
(MHz)	(%)	(dB)	(dBi)	(dBd)	(%)	(%)	(dB)	(dB)
2400	38.11	-4.19	0.97	-1.18	13.878	24.232	0.97	-14.37
2410	41.26	-3.85	1.59	-0.56	15.662	25.595	1.59	-14.75
2420	42.96	-3.67	2.2	0.05	16.719	26.24	2.2	-15.34
2430	45.37	-3.43	2.77	0.62	18.589	26.781	2.77	-15.13
2440	46.25	-3.35	3.28	1.13	19.509	26.738	3.28	-14.2
2450	43.74	-3.59	3.34	1.19	19.206	24.539	3.34	-13.42
2460	40.7	-3.9	3.3	1.15	18.307	22.389	3.3	-12.54
2470	38.05	-4.2	3.19	1.04	17.578	20.476	3.19	-14.7
2480	38.88	-4.1	3.47	1.32	18.258	20.621	3.47	-17.48
2490	43.57	-3.61	4.07	1.92	20.942	22.632	4.07	-20.1
2500	47.8	-3.21	4.61	2.46	23.42	24.383	4.61	-22.6

Passive Test For 5Gwifi								
Freq	Effi	Effi	Gain	Gain	UHS	DHS	Max	Min
(MHz)	(%)	(dB)	(dBi)	(dBd)	(%)	(%)	(dB)	(dB)
5000	54.63	-2.63	4.03	1.88	29.863	24.764	4.03	-15.72
5100	55.41	-2.56	4.22	2.07	30.612	24.795	4.22	-16.74
5200	59.98	-2.22	3.97	1.82	32.532	27.446	3.97	-17.18
5300	71.13	-1.48	3.61	1.46	37.051	34.082	3.61	-12.98
5400	70.46	-1.52	3.15	1	34.9	35.559	3.15	-11.72
5500	71.55	-1.45	3.83	1.68	33.278	38.272	3.83	-12.07
5600	56.21	-2.5	3.72	1.57	28.451	27.757	3.72	-12.88
5700	64.66	-1.89	5.13	2.98	33.662	30.999	5.13	-12.1
5800	65.74	-1.82	4.75	2.6	33.723	32.016	4.75	-22.48
5900	59.49	-2.26	3.74	1.59	31.093	28.397	3.74	-20.23
6000	68	-1.68	4.51	2.36	37.654	30.343	4.51	-13.01

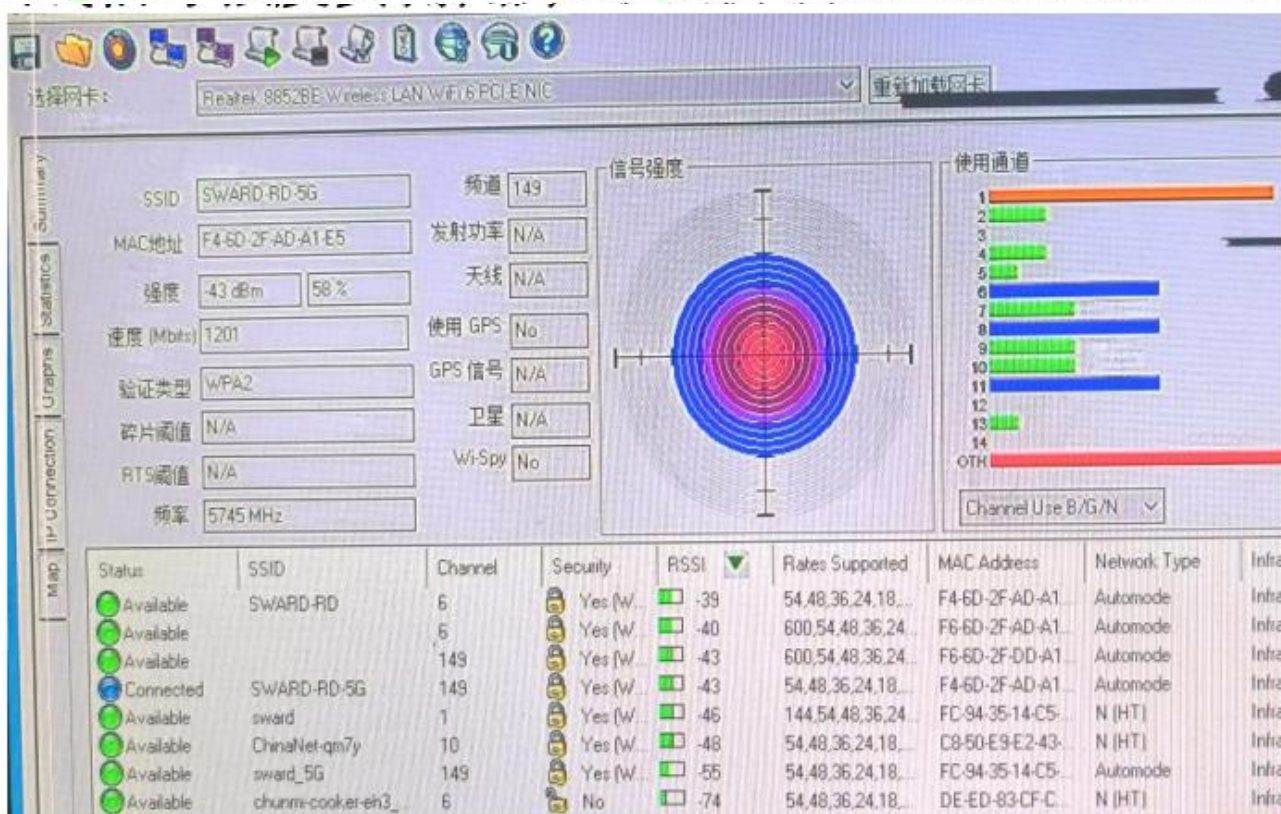
五:ThroughPut Test

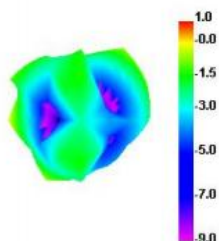
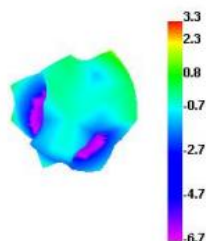
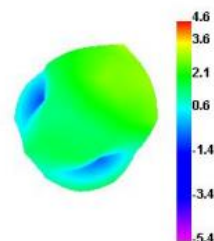
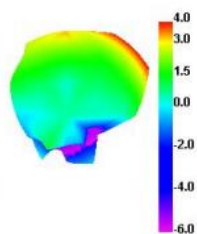
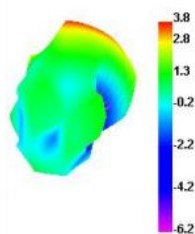
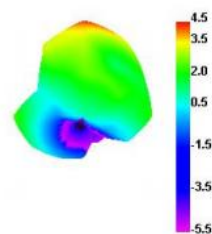
Iperf吞吐量测试						
机型	MINIPC-H1	模块	61852BE模块	软件版本	Windows_Iperf	
机型编号	频段	距离	测试角度	测试数据 (TX) 1min均值	测试数据 (RX) 1min均值	备注 (掉包次数)
1	2.4G	2.4G WIFI (研发测试15m)	0°	36.9 Mbps	168 Mbps	0
			90°	33.9 Mbps	158 Mbps	0
			180°	35.3 Mbps	180 Mbps	0
			270°	30.1 Mbps	181 Mbps	0
		-				
	5G	5G WIFI (研发测试15m)	0°	370 Mbps	569 Mbps	0
			90°	398 Mbps	606 Mbps	0
			180°	446 Mbps	595 Mbps	0
			270°	380 Mbps	672 Mbps	0

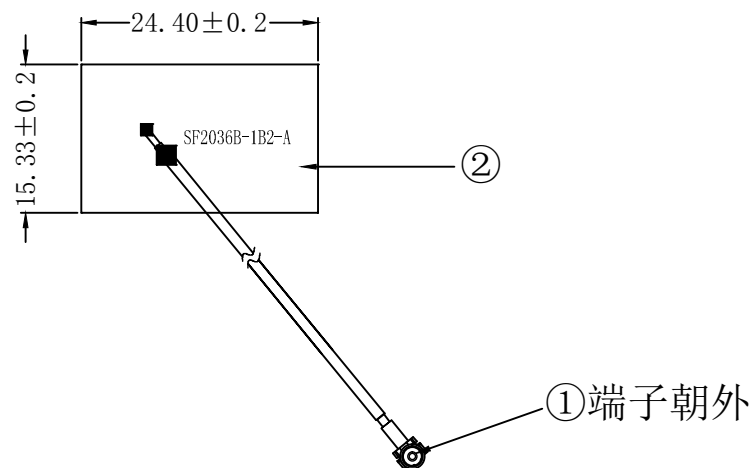
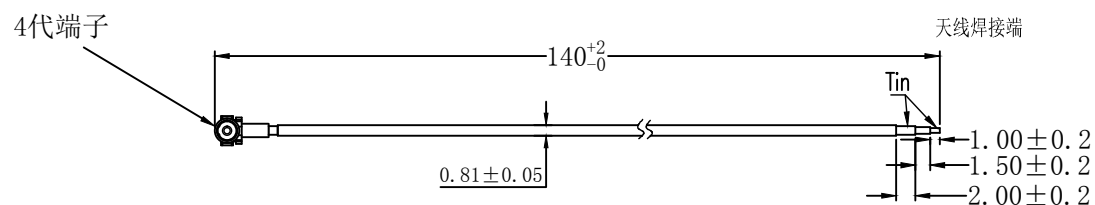
测试数据2.4Gwifi/5.8Gwifi (对应连接速率为 573 / 1201 Mbps)



六:Signal Strength Test



七:3D pattern**2400.000MHz****2450.000MHz****2500.000MHz****5000.000MHz****5500.000MHz****6000.000MHz****八:Structure Drawings**



技术要求:

1. 打*为重点尺寸;
2. 尺寸符合图纸要求;
3. 焊点无虚焊、假焊。要求圆润、饱满。
4. 网分测试通过（出现指定波形）。
5. 线形尺寸未注公差按照SJ/T 10628 1995 6级，公差值由上下偏差均分;

5												SWORD				SF2036B-1R24G-140-A					
4																					
3							签名	年月日	量产	签名	年月日	阶段标记			比例	ROHS					
2	FPC		黑色	1	SF2036B-1B2-A		RD	YWD	2023. 11. 17	Q C			1							A	
1	同轴线	4代端子	灰色	1	Ø=0. 81mm	RF															
序号	名称	材料	颜色	数量	描述	审核				批准			共 1 张		第 1 张						