

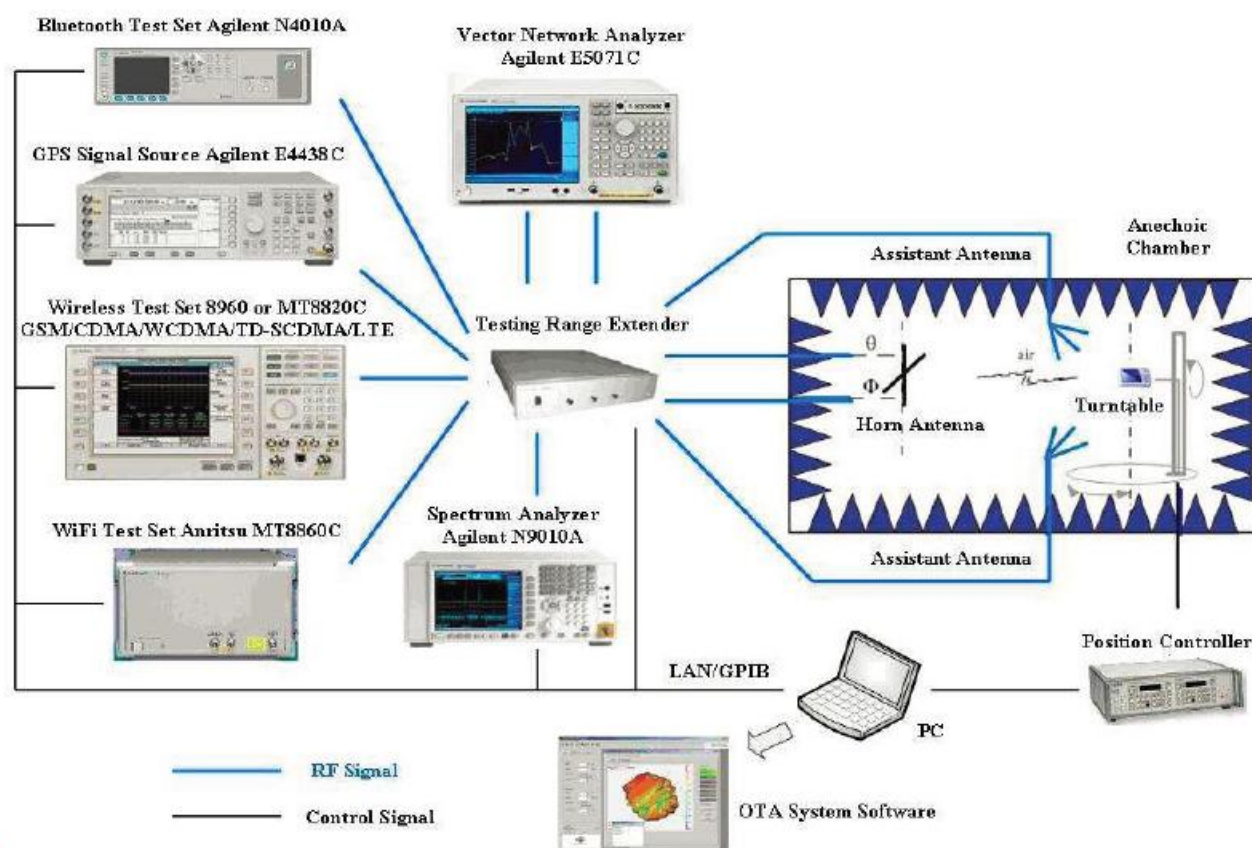


SPECIFICATION FOR APPROVAL

Supplier signature	
Haoqin model	M51
Haoqin Order Number	HS0202411087
Haoqin Material Name	GPS&WIFI&BT&5Gwifi
Haoqin material part number	04.022.00707
Haoqin Material Specification Description	ST1847A-1D23B-047-A/ST1847A-1B2-A/47mm 3
Supplier material model	ST1847A-1B2-A
Supplier material part number	ST1847A-1D23B-047-A

Supplier Name	Shenzhen Suowode Communication Technology Co., Ltd
address	6th Floor, Building B, Hexi Hangcheng Industrial Zone, No. 135 Qianjin 2nd Road, Bao'an District, Shenzhen
phone number	15989585437
Supplier email	luozhiwei@szsward.com

一: Device support & testable antenna types



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	有源测试、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	有源测试、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
NB_IOT	同LTE-FDD	CMW500 (高配版)	有源测试、无源测试	筹建中 (功率标准与4G基 本一致)

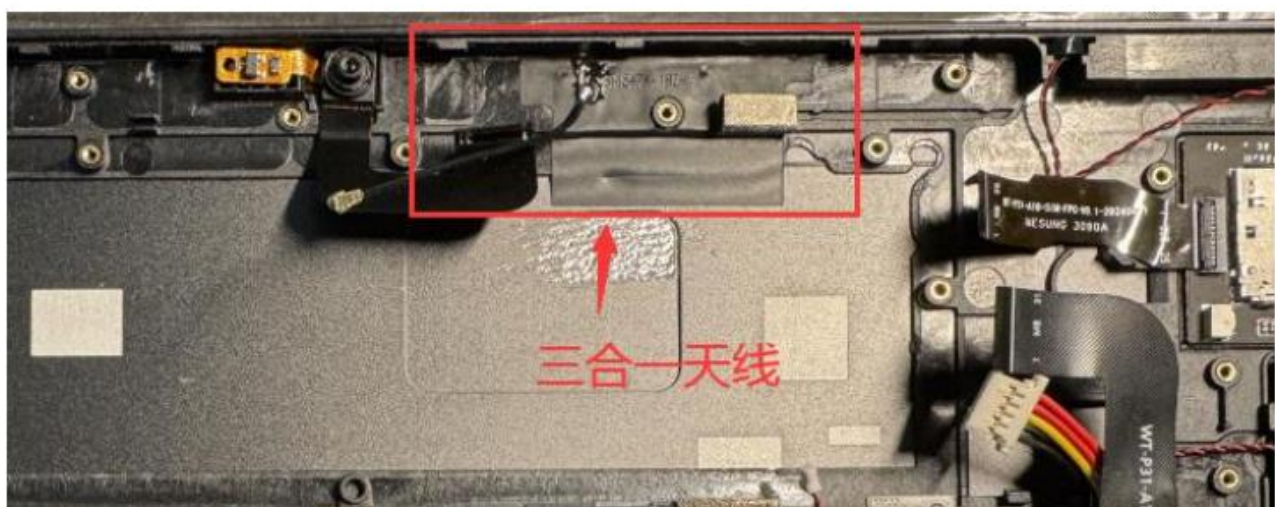
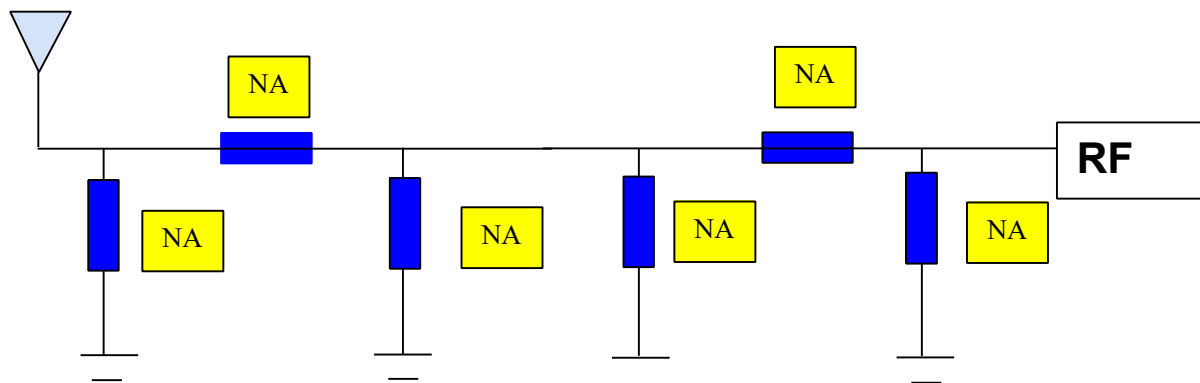
(1)Antenna performance

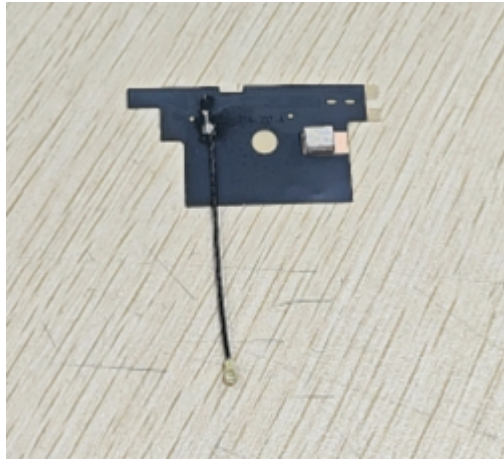
- 1.This approval sheet supports for MID project. FPC antennas include in this project. This report is for the performance of GPS&WIFI&BT antenna.
- 2.Antenna shape size: Meet the requirement of MID
- 3.Antenna band: 1570MHz~1580MHz, 2400MHz~2500MHz&5400MHz
- 4.Antenna material: Antenna material meet the requirement of MID
- 5.Adhesive performance: Adhesive performance meet the requirement of MID
- 6.Antenna performance meet the spec below:

Description	1. 57GHz~1. 58GHz 2. 4GHz~2. 5GHz&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	047mm/black
Description	GPS&WIFI&BT antenna
Material	FPC
Coaxial Cable	50Ω /0. D. 0. 81mm
Environmental	
Operation Temperature	-40 to +85 deg C
Storage Temperature	-40 to +85 deg C

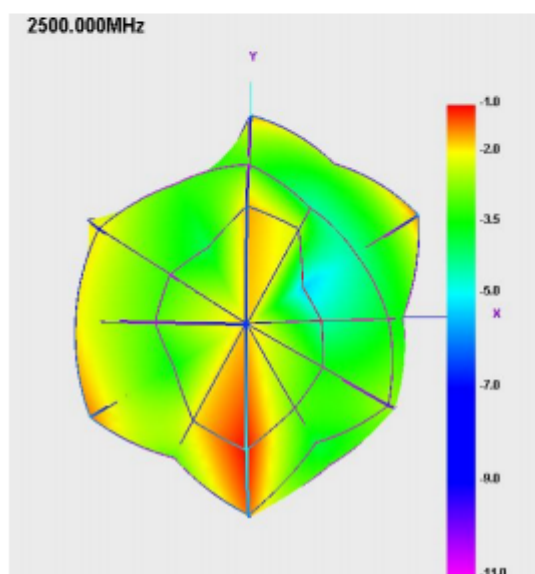
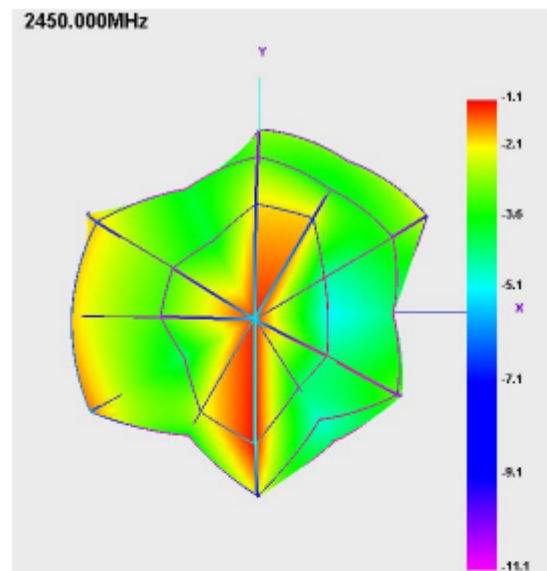
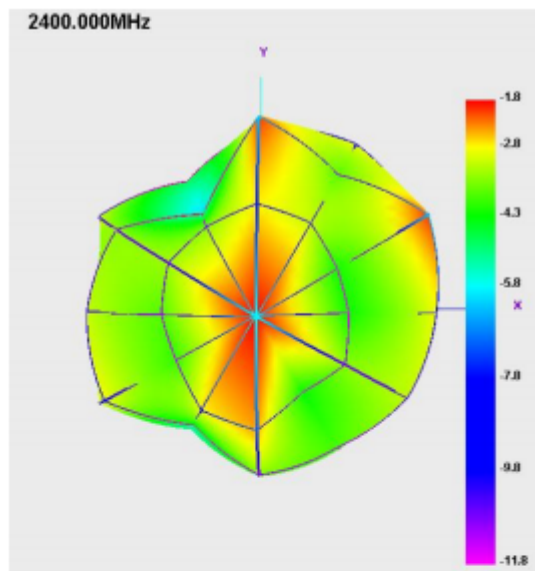


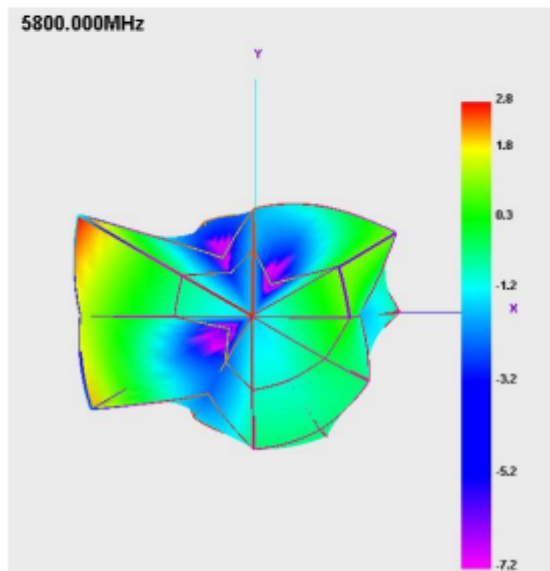
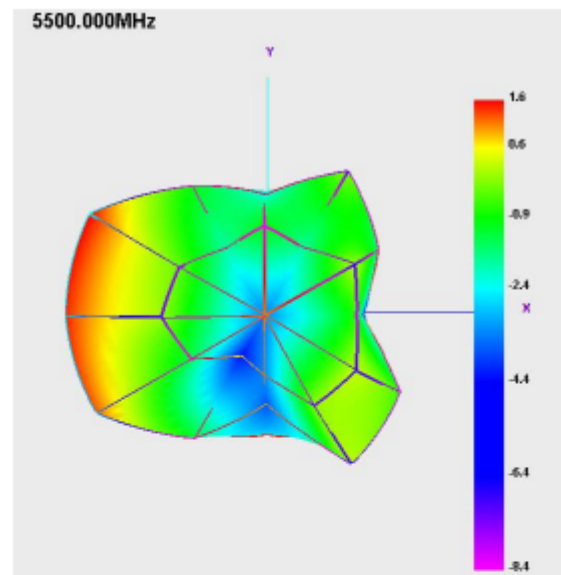
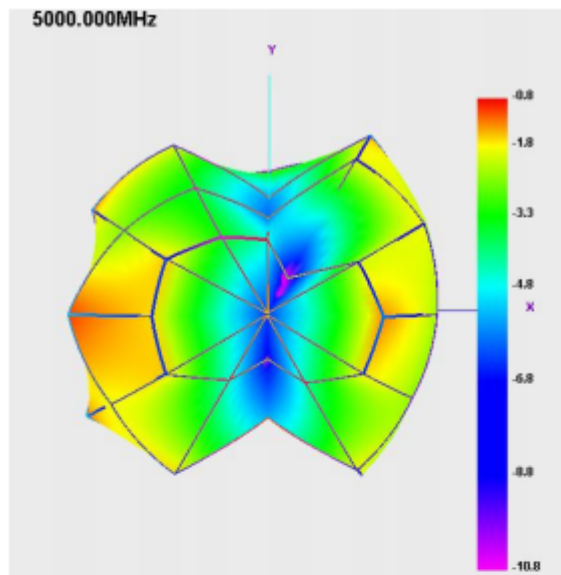


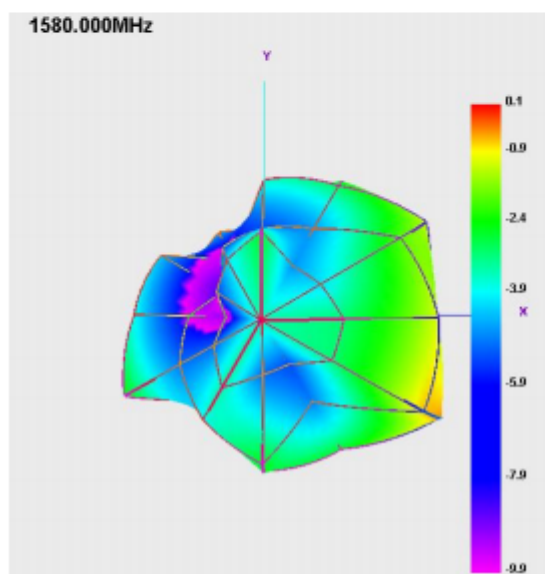
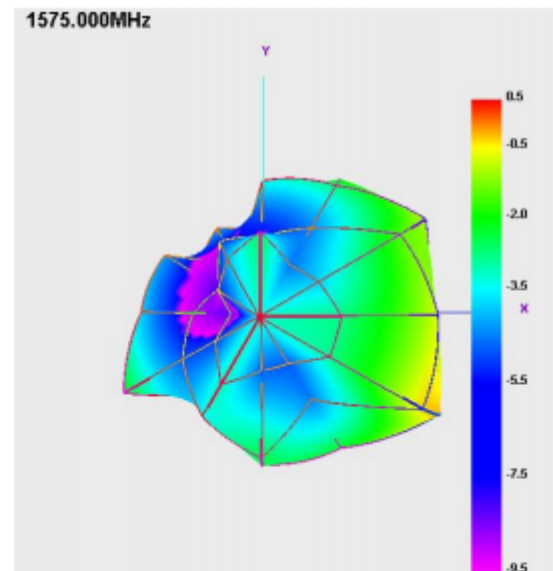
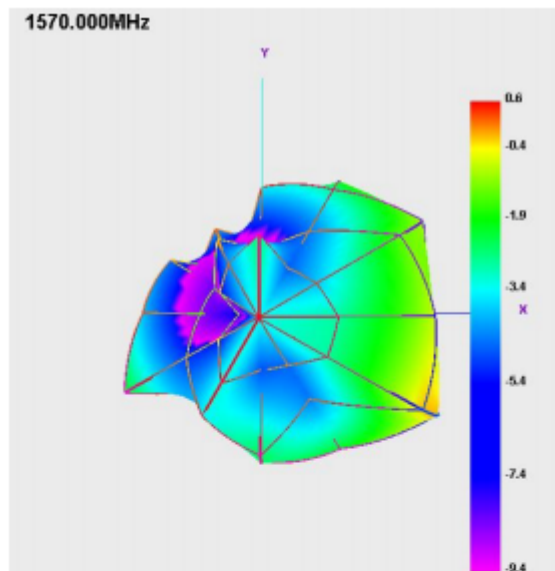
Passive Test For 2.4G				Passive Test For 5G-WIFI			
Freq	Effi	Effi	Gain	Freq	Effi	Effi	Gain
(MHz)	(%)	(dB)	(dBi)	(MHz)	(%)	(dB)	(dBi)
2400	28.35	-5.47	-1.82	5000	32.36	-4.9	-0.79
2410	28.8	-5.41	-1.68	5100	33.92	-4.7	0.16
2420	28.52	-5.45	-1.83	5200	29.16	-5.35	-0.01
2430	30.83	-5.11	-1.33	5300	43.69	-3.6	2.62
2440	31.18	-5.06	-1.19	5400	35.6	-4.49	2.24
2450	30.86	-5.11	-1.07	5500	34.96	-4.56	1.59
2460	30.45	-5.16	-0.96	5600	29.95	-5.24	0.19
2470	26.58	-5.75	-1.4	5700	37.33	-4.28	2.14
2480	26.07	-5.84	-1.49	5800	39.74	-4.01	2.76
2490	28.24	-5.49	-1.34	5900	36.28	-4.4	1.55
2500	31.66	-4.99	-1.01	6000	34.73	-4.59	-0.38

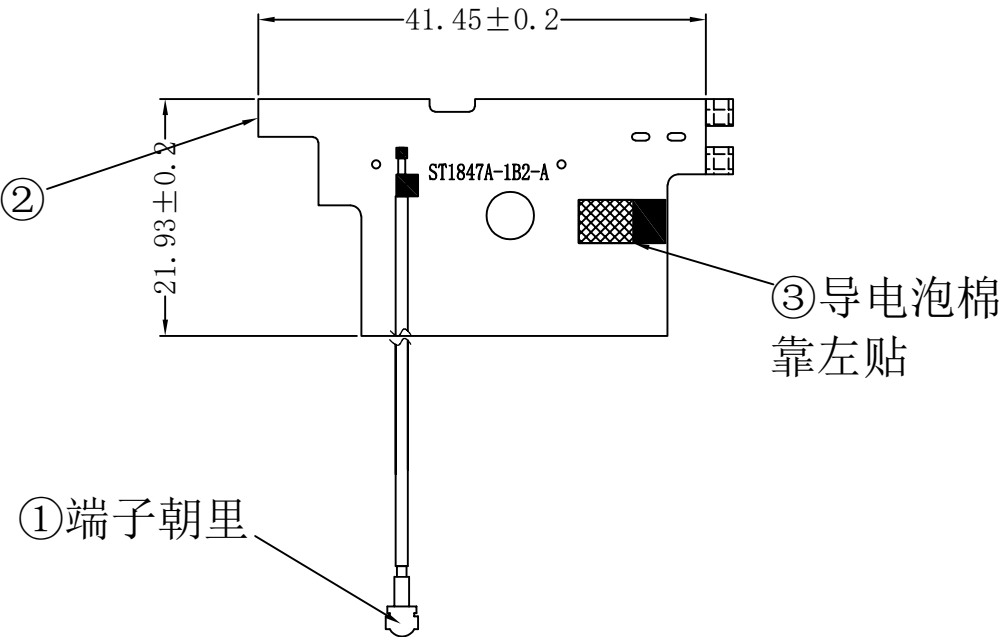
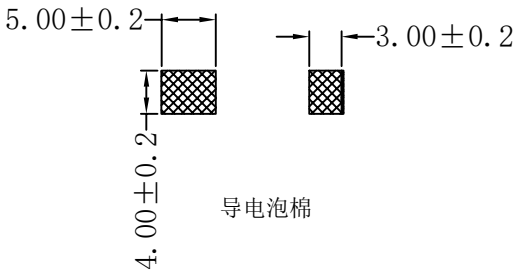
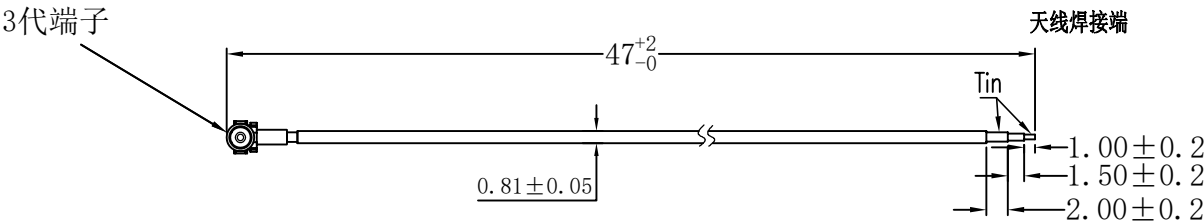
Passive Test For GPS			
Freq	Effi	Effi	Gain
(MHz)	(%)	(dB)	(dBi)
1570	32.61	-4.87	0.57
1571	32.72	-4.85	0.57
1572	32.66	-4.86	0.57
1573	32.62	-4.87	0.56
1574	32.5	-4.88	0.47
1575	32.42	-4.89	0.49
1576	31.99	-4.95	0.39
1577	31.65	-5	0.34
1578	31.3	-5.04	0.26
1579	31.01	-5.09	0.2
1580	30.67	-5.13	0.1

八:3D pattern









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											
4											
3	导电泡棉		灰色	1	5*4*3mm		签名	年月日	量产	签名	年月日
2	FPC		黑色	1	ST1847A-1B2-A	RD	ZYA	2025.1.7	Q C		
1	同轴线	3代端子	黑色	1	φ=0.81mm	RF					
序号	名称	材料	颜色	数量	描述	审核			批准		

SWARD						索沃德通讯技术有限公司					
						ST1847A-1D23B-047-A					
阶段标记			比例			ROHS					
1			A		1 : 1						
共 1 张			第 1 张								