Parts Acknowledgment

Name of Part:	antenna
Specification of Parts:	Accessory, Antenna, X5P, dual band WIFI antenna, third-generation terminal, 24.9 * 25.1mm, L=53MM; SF1505A-1L23B-053-A
Stare at the material numbe:	10883000095
Modelof application:	X5P Hidden Recorder - HiSilicon Platform-SCR6221 Module block
Name of Supplier:	Shenzhen Suo Ward Communication Technology Co., Ltd.
Type of Supplier:	☑ Manufacturer、☐ Agent、 ☐ Trader;
Manufacturer's material number:	SF1505A-1L23B-053-A
Recognition number:	CRS0000004
Keep an eye on the date of issue:	

Supplier approval column			
To develop: LTT	audit:		Approved by the:
* The following is the check column of the tag tag			
Material to send sample check column		Material confirmation and approval column	
Procurement Engineer	Purchasing Supervisor	Research and Development Engineer	Research and Development Supervisor

DDPai Technology CO.,LTD. Tel: 86-755-26401213

Address: Guangdong, China. 12th Floor, Yihua Fintech Building, Software Industry Base, Nanshan District, Shenzhen;

Website: www.ddpai.com

DDPai vision equipment Co.,LTD

Address: Building 6, No. 139, Xinhuang Road, Xindai Town, Pinghu City, Jiaxing, Zhejiang

Supplier Address: 6th Floor, Building B, Hexi Hangcheng Industrial Zone, No. 135, Qianjin Second Road, Bao'an District, Shenzhen

Contact information of supplier: Chen Heng /13717086260

Serial number	Certification number	Material type	Date of issue	Remarks
1	A2240182175102001E	Tinned copper wire	2024-04-12	One year
2	A2240123200101001E	halogen	2024-03-15	One year
3	CANEC24000523102	Adhesive	2024-01-11	One year
4	SHAEC23021984701	FEP sheath	2024-01-04	One year
5	SHAEC23020095573	FEP insulation	2023-12-12	One year
6	SZXEC24002306404	Tin wire	2024-07-24	One year
7	SZXEC24002306408	Tin	2024-07-24	One year
8	ETR24600712	Printing ink	2024-06-14	One year
9	A2240123200102001E	Substrate	2024-03-20	One year
10	CANEC23017402018	EVA foam	2024-01-03	One year
11	A2240439752101001	Conductive cloth	2024-07-29	One year
12	SZXEC24002471802	Gold plating	2024-08-08	One year

Catalogue

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6th Floor, Building B, Hexi Hangcheng Industrial Zone, No. 135 Qianjin 2nd Road, Bao'an District, Shenzhen
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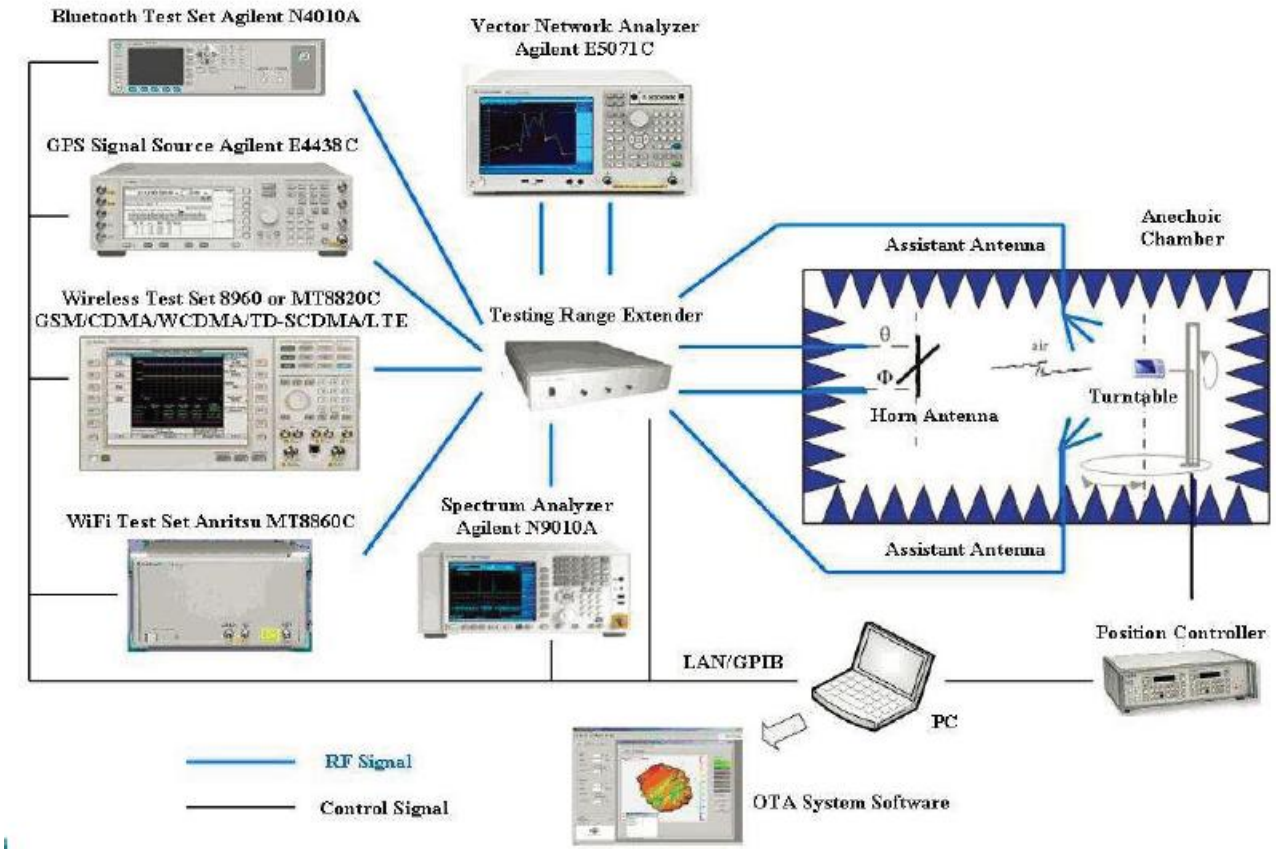
一:Device support&testable antenna types



Antenna function	frequency range	Testing instruments	Testing method	Testing standards
2G antenna (GSM)	824MHz-960MHz, 1710MHz-1990MHz	5071B, 8960, OTA darkroom	Active testing, passive testing	Soward standards, customer requirements
3G antenna (WCDMA/TDSCDMA/CDMA-EVDO/2000)	824MHz-960MHz, 1710MHz-2170MHz	5071B, 8960, OTA darkroom	Active testing, passive testing	Soward standards, customer requirements
4G天线（LTE-FDD/LTE-TDD）		5071B、CMW500、SP8011、OTAdarkroom	Active testing, passive testing	Soward standards, customer requirements
WIFI antenna	2.4GHz-2.48GHz, 5.15GHz-5.35GHz, 5.725GHz-5.825GHz	5071B、CMW500、OTAdarkroom、Router、PC	Active testing, passive testing, APK testing, throughput testing	Soward standards, customer requirements
BT antenna	2.4GHz-2.48GHz	5071B、OTAdarkroom、Bluetooth Speaker	Active testing, passive testing, actual testing	Soward standards, customer requirements
Positioning antenna (GPS, GLONASS, Beidou, Galileo)	1575.42MHz ± 10MHz 1602MHz+0.5625MHz 1561MHz+2.046MHz	5071B、OTAdarkroom、APK	Active testing, passive testing, actual testing	Soward standards, customer requirements
NFC antenna	13.56MHz	5071B、Specialized testing fixture、OTAdarkroom、APK	Passive testing and actual measurement	Soward standards, customer requirements
Remote control antenna	433MHz	5071B、OTAdarkroom	Passive testing and actual measurement	Soward standards, customer requirements
NB_IOT	with LTE-FDD	CMW500 (high-end version)	Active testing, passive testing	Under construction (power standard basically consistent with 4G)

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:

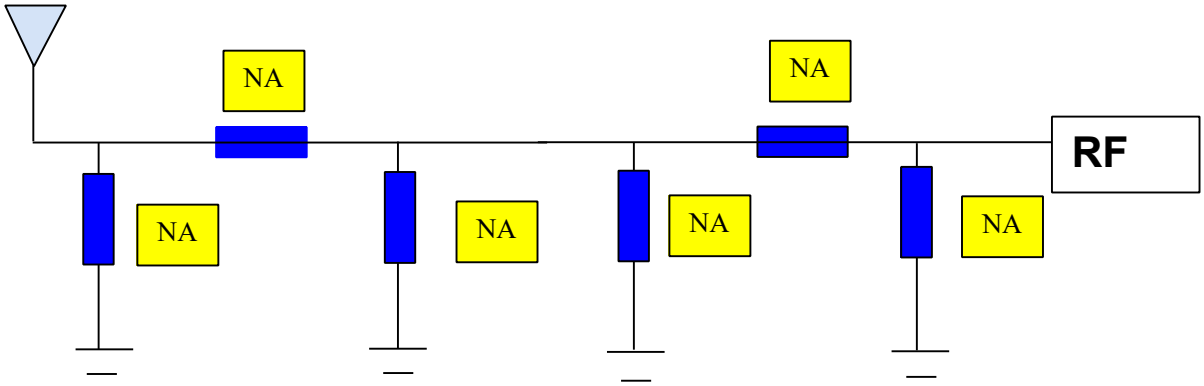
Description	2.4GHz~5GHz	Units
VSWR	≤2.0	
Average Antenna Gain	≥-4.5	dB
Feed Impedance	50 ohms	
Operating Temperature	-40 to +85 deg C	
Polarization / Azimuth	Linear / Omni-directional	

(2)Mechanical Information

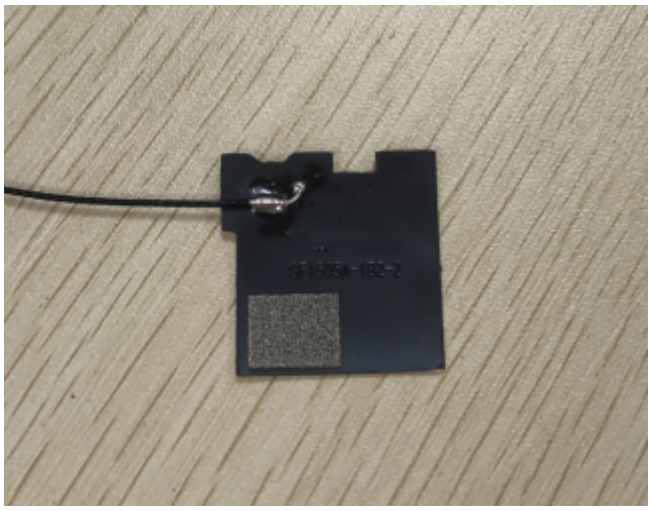
Mechanical Dimension	
Cable Length	053mm/BLACK
Description	WIFI&BT antenna
Material	FPC
Coaxial Cable	50Ohm/O.D.0.81mm
Environmental	
Operation Temperature	-40 to +85 deg C
Storage Temperature	-40 to +85 deg C

三:Match circuit diagrams, machine images, and antenna images

(1)Matching circuit



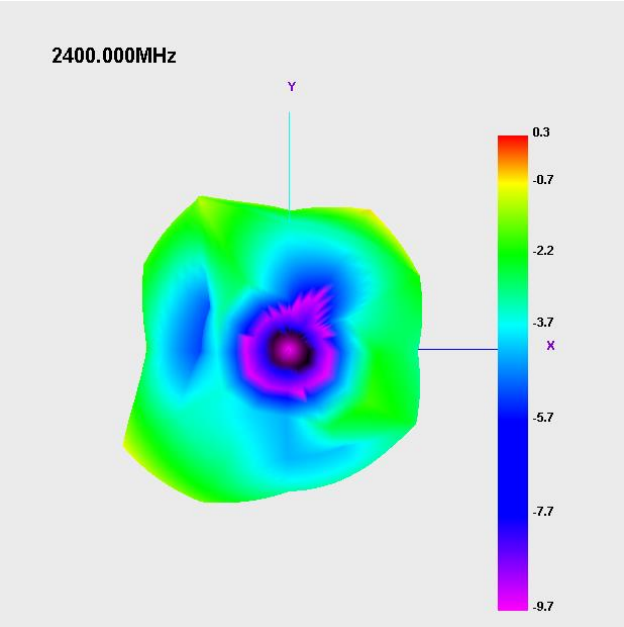
(2) Machine images&antenna images

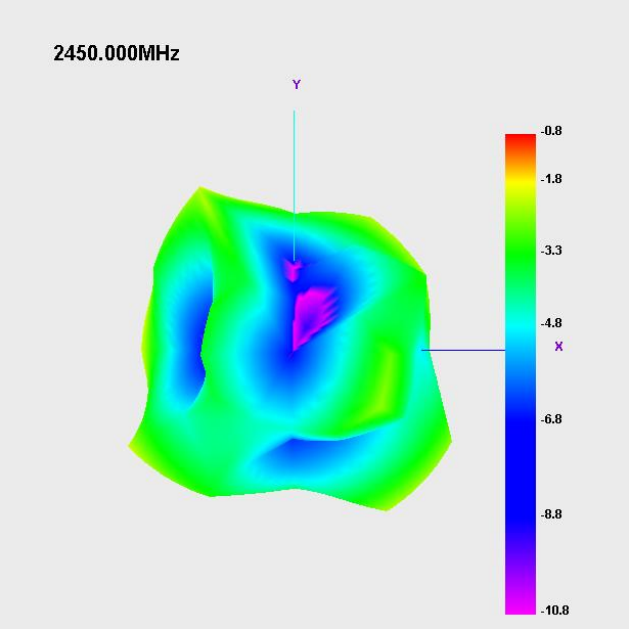


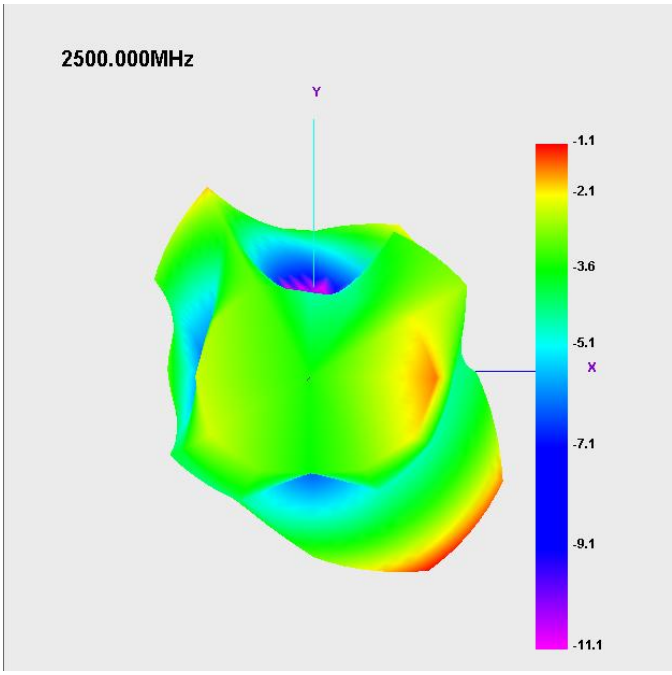
四:Antenna efficiency

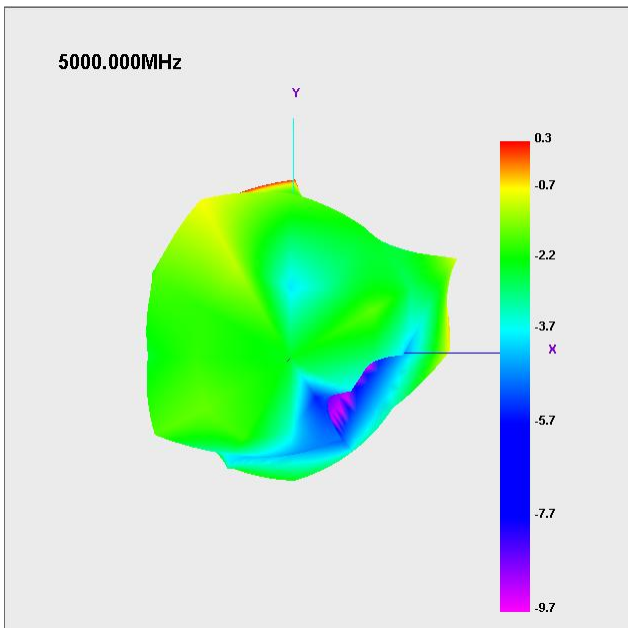
Passive Test For 2.4Gwifi										
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Gain (dBd)	UHIS (%)	DHIS (%)	Max (dB)	Min (dB)	Attenut Hor	Attenut Ver
2400	21.92	-6.59	-1.09	-3.24	9.444	12.481	-1.09	-17.57	50.42	50.3
2410	21.36	-6.7	-1.12	-3.27	9.378	11.984	-1.12	-16.78	50.47	50.33
2420	19.57	-7.09	-1.4	-3.55	8.581	10.984	-1.4	-16.34	50.54	50.29
2430	19.42	-7.12	-1.31	-3.46	8.458	10.963	-1.31	-15.77	50.49	50.29
2440	19.2	-7.17	-1.25	-3.4	8.243	10.953	-1.25	-16	50.49	50.29
2450	18.58	-7.31	-1.28	-3.43	7.896	10.682	-1.28	-15.98	50.74	50.44
2460	18.77	-7.27	-1.44	-3.59	7.957	10.809	-1.44	-16.09	50.62	50.43
2470	19.22	-7.16	-1.49	-3.64	8.142	11.075	-1.49	-15.36	50.72	50.67
2480	20.95	-6.79	-1.35	-3.5	8.852	12.098	-1.35	-14.51	51.27	51.09
2490	21.62	-6.65	-1.48	-3.63	9.06	12.562	-1.48	-14.83	50.98	50.87
2500	21.96	-6.58	-1.59	-3.74	9.224	12.739	-1.59	-15.79	51.62	51.32

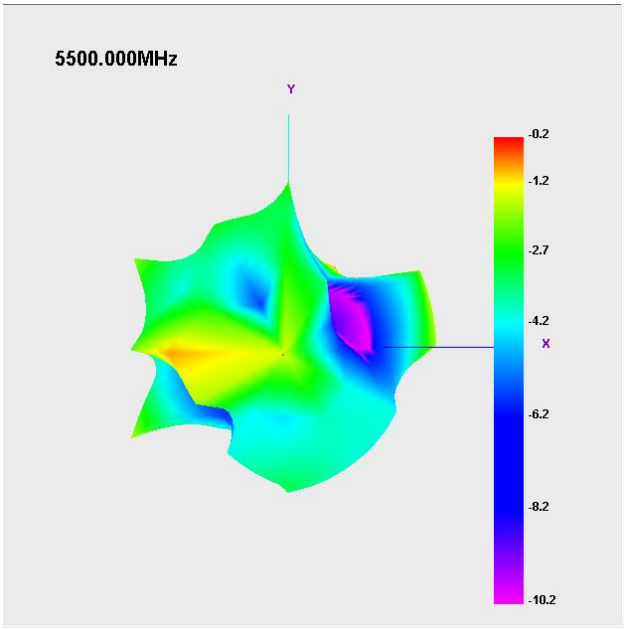
Passive Test For 5Gwifi										
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Gain (dBd)	UHIS (%)	DHIS (%)	Max (dB)	Min (dB)	Attenut Hor	Attenut Ver
5000	62.76	-2.02	1.99	-0.16	29.913	32.844	1.99	-10.27	62.54	57.46
5100	41.28	-3.84	0.51	-1.64	18.802	22.477	0.51	-13.53	61.59	57.17
5200	41.5	-3.82	-0.01	-2.16	17.543	23.954	-0.01	-12.96	60.21	57.57
5300	44.35	-3.53	-0.09	-2.24	18.573	25.773	-0.09	-18.23	60.86	59.02
5400	56.98	-2.44	1.78	-0.37	26.065	30.916	1.78	-10.3	61.13	59.11
5500	61.87	-2.08	2.17	0.02	27.739	34.134	2.17	-9.97	60.4	59.92
5600	50.62	-2.96	1.84	-0.31	22.419	28.205	1.84	-12.61	60.01	59.51
5700	43.77	-3.59	2.18	0.03	18.363	25.403	2.18	-14.4	60.31	59.92
5800	32.15	-4.93	0.83	-1.32	14.269	17.882	0.83	-15.52	60.05	59.68
5900	38.56	-4.14	0.84	-1.31	18.866	19.691	0.84	-12.8	60.15	59.67
6000	34.09	-4.67	-0.1	-2.25	17.288	16.805	-0.1	-14.38	60.01	59.58

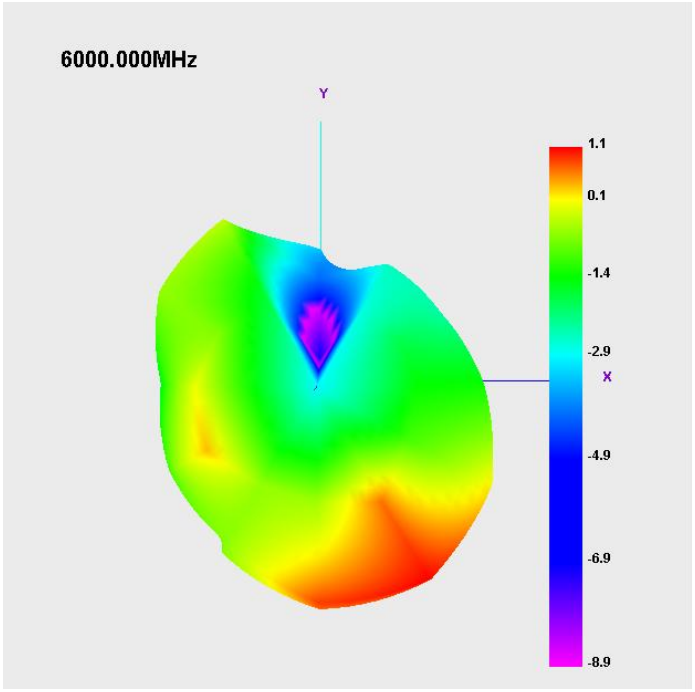

2400.000MHz
Y
0.3
-0.7
-2.2
-3.7
X
-5.7
-7.7
-9.7


2450.000MHz
Y
-0.8
-1.8
-3.3
-4.8
X
-6.8
-8.8
-10.8

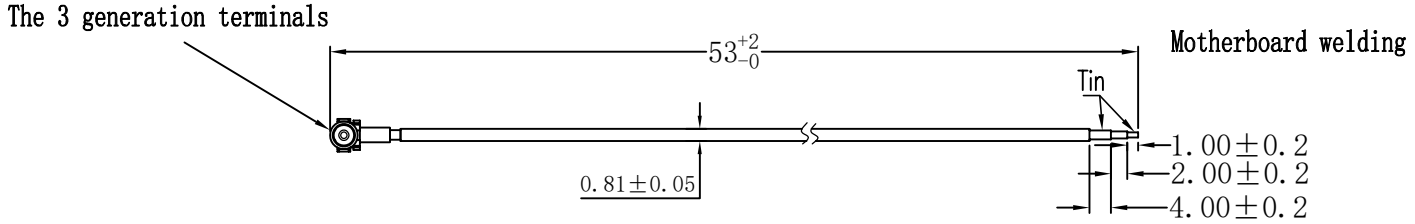

2500.000MHz
Y
-1.1
-2.1
-3.6
-5.1
X
-7.1
-9.1
-11.1

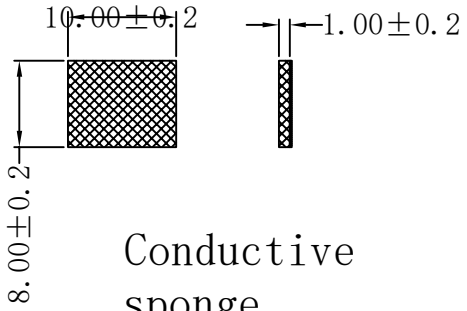


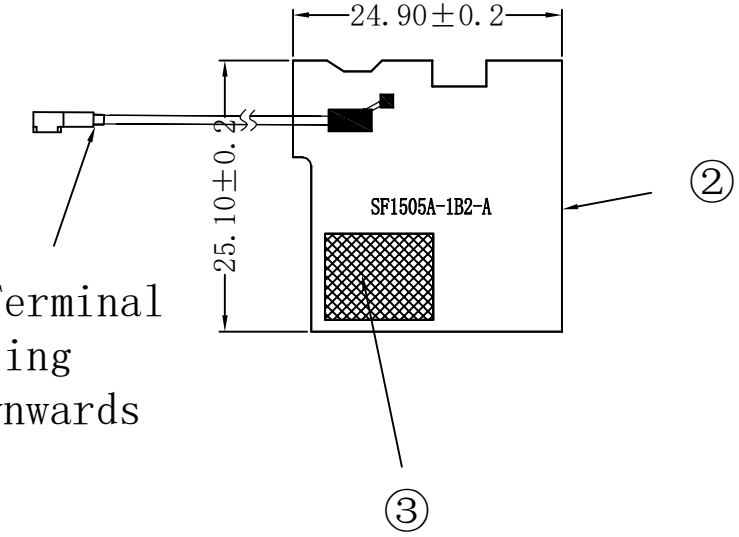




五:Structural drawings







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;

5											
4											
3	Conductive sponge	gray	1	10*8*1mm		signatures	date	mass	signatures	date	
2	FPC	black	1	SF1505A-1B2-A	RD	ZYA	2024.12.2	Q C			
1	coaxial line	black	1	ϕ=0.81mm	RF						
	name	color	quantity	specifications	audits			approval			

SWARD

ShenZhen SWARD Communication Technology Co.Ltd

SF1505A-1L23B-053-A

time markup					percentage
1			A		1 : 1

ROHS