

Parts Acknowledgment

Name of Part: antenna

Specification of Parts: Accessory, Antenna, DR2008, Dual band WIFI antenna 2.4G&5G&BT, built-in, 21.93 * 21.3mm, line length 85mm, third-generation IPEX,, FPC; SF2489A-1L23B-085-A, built-in

Store at the material number: 10883000165

Model of application: DR2008-2.9-inch screen recorder

Name of Supplier: Shenzhen Suo Ward Communication Technology Co., Ltd.

Type of Supplier: ☒ Manufacturer、☐ Agent、☐ Trader;

Manufacturer's material number: SF2489A-1L23B-085-A

Recognition number: CRS0004344

Keep an eye on the date of issue:

Supplier approval column

To develop: LTT

audit: 肖春艳

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;

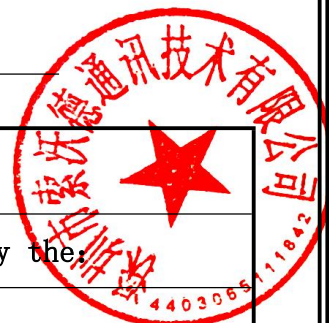
Website: www.ddpai.com

DDPai vision equipment Co.,LTD

Address: Building 6, No. 139, Xinhua 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

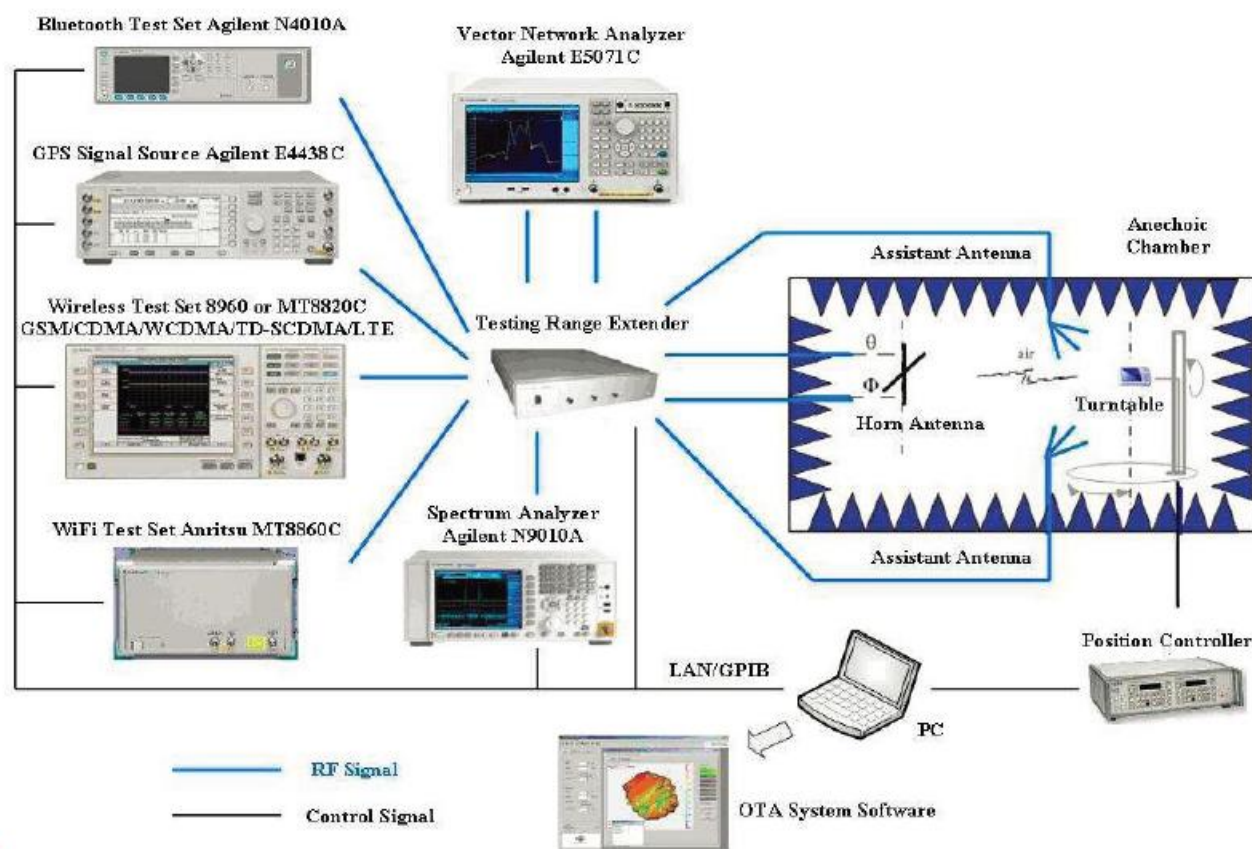


Serial number	Certification number	Material type	Date of issue	Remarks
1	SHAEC24025471005	Tinned copper wire	2024-11-25	One year
2	SHAEC24027284565	halogen	2024-12-06	One year
3	SHAEC24027480902	Adhesive	2024-12-06	One year
4	SHAEC24029171725	FEP sheath	2024-12-26	One year
5	SHAEC24027284563	FEP insulation	2024-12-05	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	CANEC24028865417	EVA foam	2025-01-03	One year
11	A2240439752101001	Conductive cloth	2024-07-29	One year
12	SZXEC24002471802	Gold plating	2024-08-08	One year

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一:Device support&testable antenna type



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: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: 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:

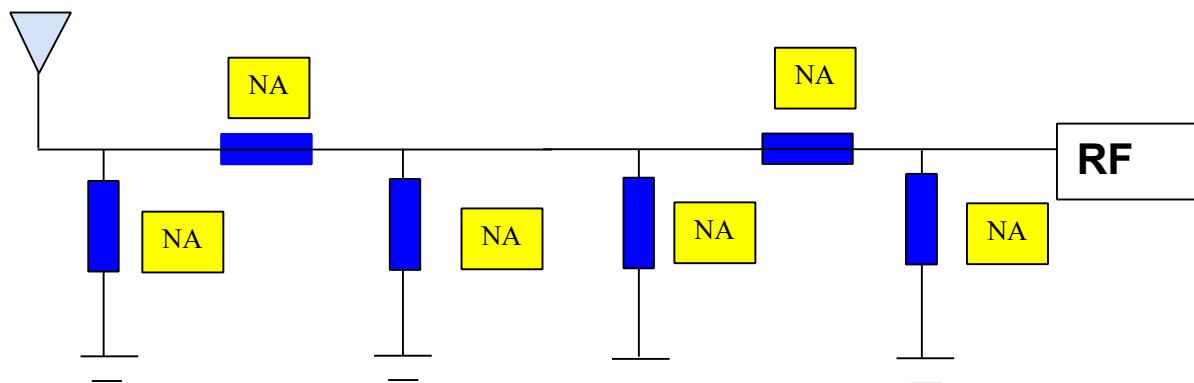
Description	2.4GHz~5GHz	Units
VSWR	≤ 2.0	
Average Antenna Gain	≥ -4.5	dB
Feed Impedance	50 ohms	
Operating Temperature	-40 to +85 deg C	
Polarization / Azimuth	Linear / Omni-directional	

(2)Mechanical Information

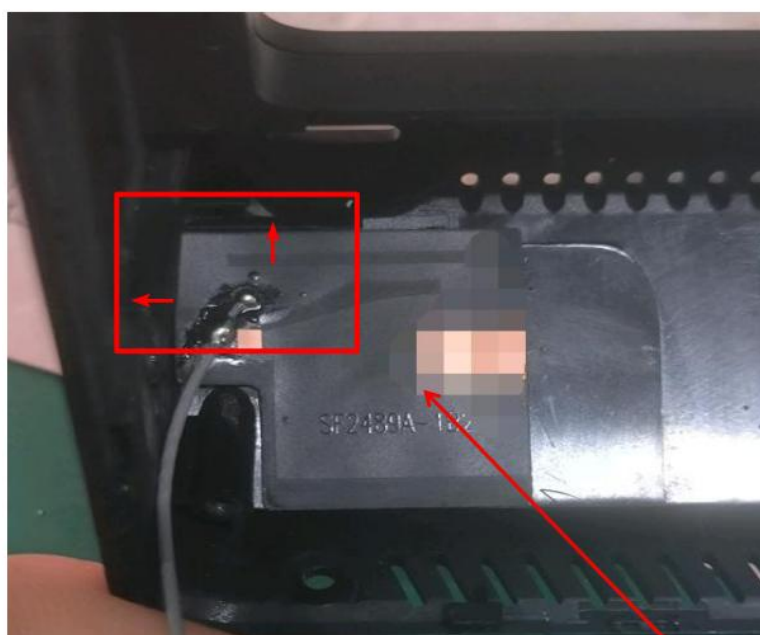
Mechanical Dimension	
Cable Length	085mm/BLACK
Description	WIFI&BT antenna
Material	FPC
Coaxial Cable	50Ω /O. D. 0.81mm
Environmental	
Operation Temperature	-40 to +85 deg C
Storage Temperature	-40 to +85 deg C

三: Match circuit diagram & machine image & antenna image

(1) matching circuit

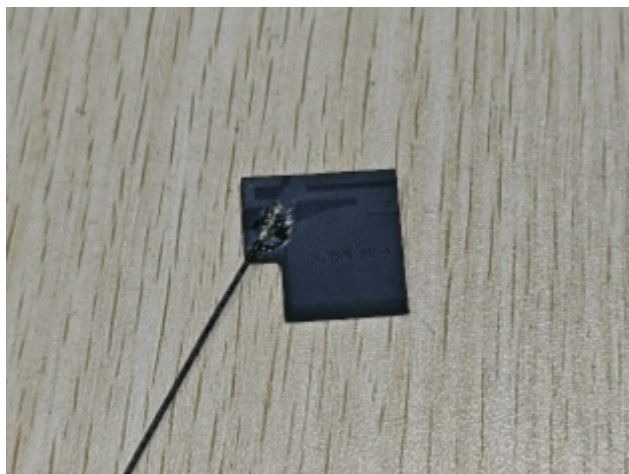


(2) Machine images & antenna images



WIFI&BT天线 (示意图)

路135号河西航城工业区B栋6楼



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



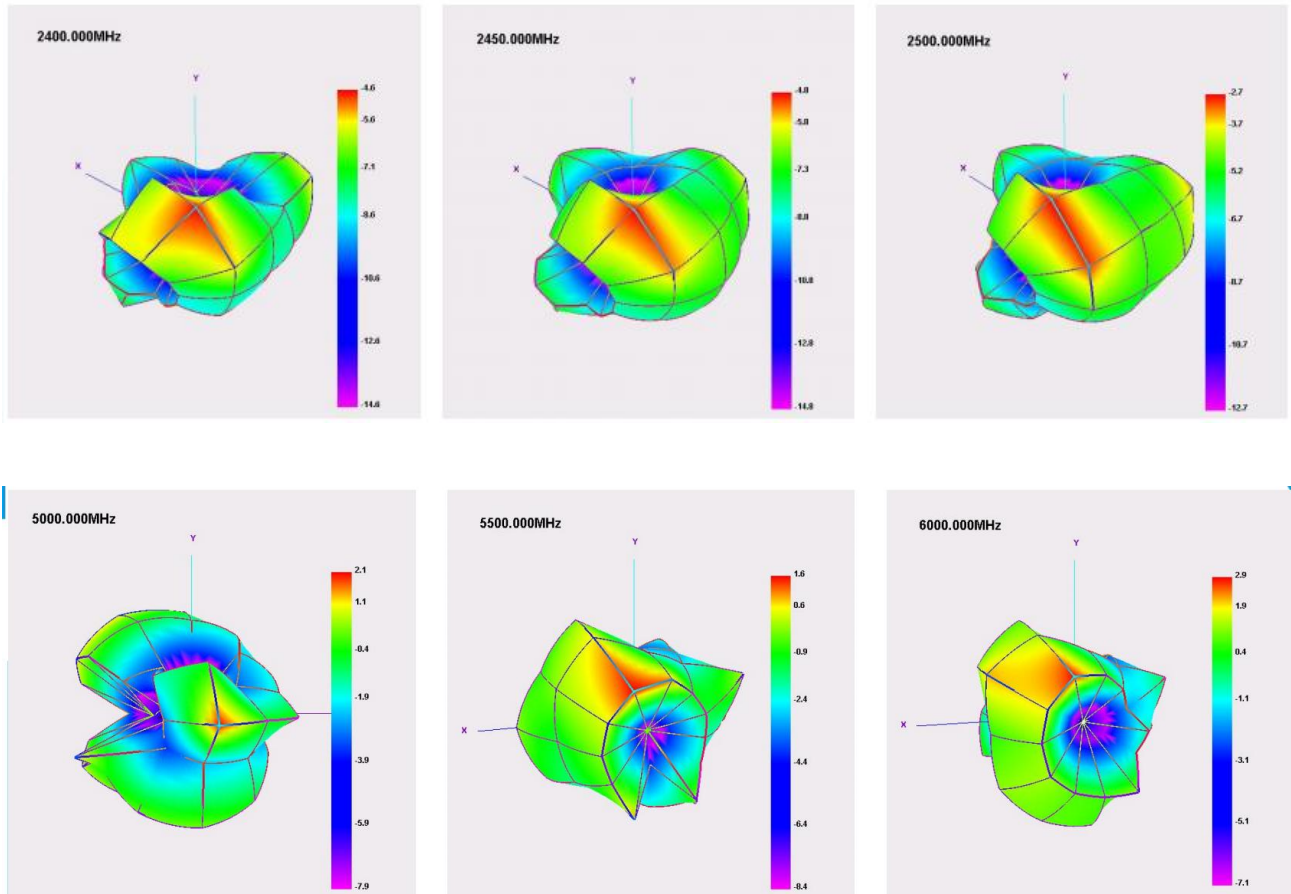
Passive Test For 2.4Gwifi								
Freq	Effi	Effi	Gain	Gain	UHS	DHS	Max	Min
(MHz)	(%)	(dB)	(dBi)	(dBd)	(%)	(%)	(dB)	(dB)
2400	10.65	-9.72	-4.62	-6.77	4.5	6.154	-4.62	-17.99
2410	10.12	-9.95	-5.02	-7.17	4.386	5.73	-5.02	-17.87
2420	13.4	-8.73	-3.74	-5.89	5.927	7.474	-3.74	-16.72
2430	13.02	-8.85	-3.85	-6	5.849	7.175	-3.85	-17.26
2440	14.29	-8.45	-3.42	-5.57	6.52	7.77	-3.42	-18.88
2450	10.06	-9.97	-4.82	-6.97	4.643	5.421	-4.82	-21.56
2460	10.45	-9.81	-4.57	-6.72	4.925	5.526	-4.57	-19.33
2470	9.34	-10.29	-5.03	-7.18	4.503	4.841	-5.03	-22.07
2480	11.66	-9.33	-4.15	-6.3	5.686	5.978	-4.15	-20.9
2490	12.94	-8.88	-3.77	-5.92	6.364	6.577	-3.77	-18.32
2500	17.56	-7.55	-2.73	-4.88	8.817	8.748	-2.73	-18.63

Passive Test For 5Gwifi								
Freq	Effi	Effi	Gain	Gain	UHS	DHS	Max	Min
(MHz)	(%)	(dB)	(dBi)	(dBd)	(%)	(%)	(dB)	(dB)
5000	52.24	-2.82	2.15	0	22.218	30.022	2.15	-11.33
5100	51.87	-2.85	1.96	-0.19	21.09	30.777	1.96	-11.6
5200	47.2	-3.26	1.46	-0.69	20.19	27.011	1.46	-17.05
5300	54.47	-2.64	1.98	-0.17	21.855	32.61	1.98	-12.76
5400	45.46	-3.42	1.52	-0.63	18.387	27.073	1.52	-19.94
5500	41.52	-3.82	1.58	-0.57	15.748	25.774	1.58	-14.91
5600	34.89	-4.57	0.34	-1.81	13.626	21.259	0.34	-15.39
5700	42.15	-3.75	2.43	0.28	14.727	27.421	2.43	-13.42
5800	48.17	-3.17	2.43	0.28	17.665	30.508	2.43	-15.45
5900	32.17	-4.93	0.32	-1.83	12.016	20.156	0.32	-21.6
6000	38.5	-4.15	2.87	0.72	11.63	26.868	2.87	-16.85

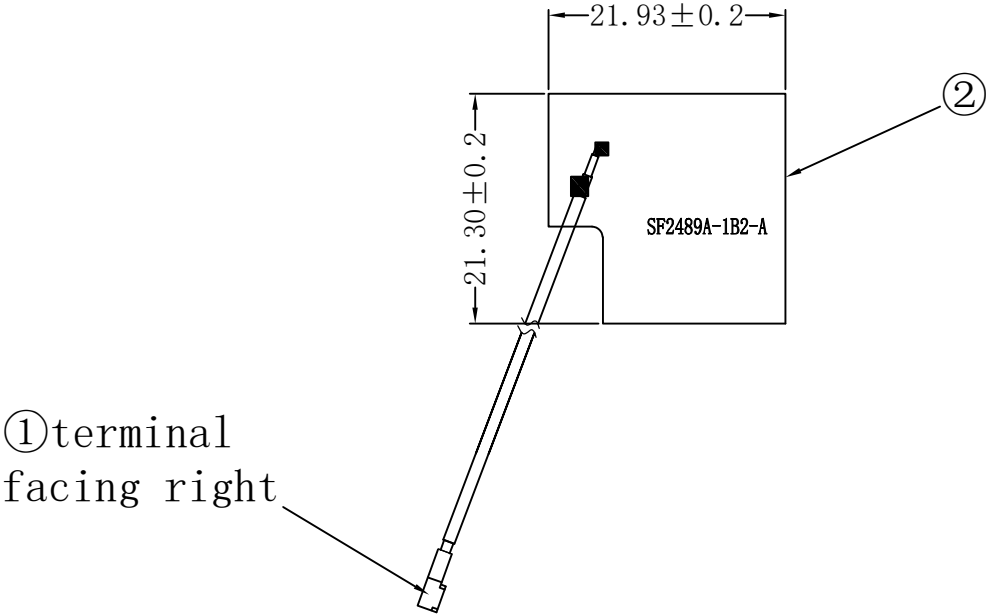
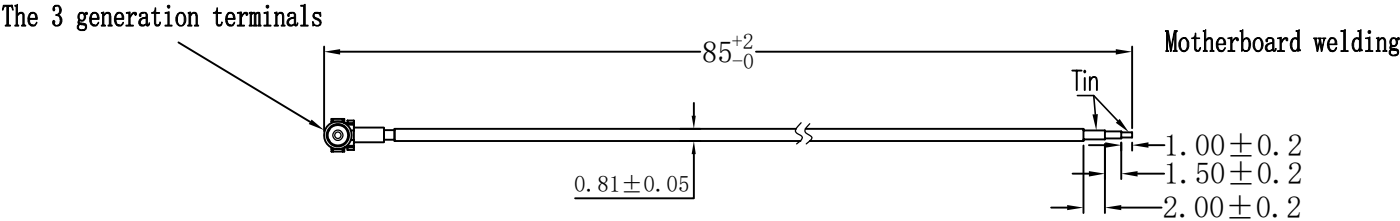
五:Active data

Mode l number	channel	b mode (11MHz)		g mode (54MHz)		n mode (MCS7)		a mode (54MHz)	
		TRP	TIS	TRP	TIS	TRP	TIS	TRP	TIS
1	1	10.92	-75.93	9.64	-64.67	10.28	-61.65	NA	NA
	7	7.21	-75.26	6.92	-63.89	6.91	-61.88	NA	NA
	13	7.14	-75.19	5.82	-63.24	6.02	-61.42	NA	NA
	36	NA	NA	NA	NA	10.12	-71.98	10.07	-72.16
	64	NA	NA	NA	NA	12.31	-69.03	12.87	-71.25
	165	NA	NA	NA	NA	11.32	-70.55	8.91	-70.25

六:3D pattern



七: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										
2	FPC	black	1	SF2489A-1B2-A	RD	ZYA	2025. 2. 25	Q C		
1	coaxial line	black	1	$\phi=0.81$	RF					
	name	color	quantity	specifications	audits			approval		

SWARD					ShenZhen SWARD Communication Technology Co.Ltd				
					SF2489A-1L23B-085-A				
					signatures	date	mass	signatures	date
					time markup			percentage	
					1		A	1 : 1	
					ROHS				