

Parts Acknowledgment

Name of Part: antenna

Specification of Parts: Accessory, can Antenna, be used DRC01, 2.4 GHz ~ 5 GHz, WiFi
Antenna, pogopin, FPC

Stare at the material numbe: 10883000139

Model of application: DRC01 recorder (Hill02A/WIFI+BT chip)

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

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

Manufacturer's material number: SF2159A-1B2-A

Recognition number: 10883000139

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

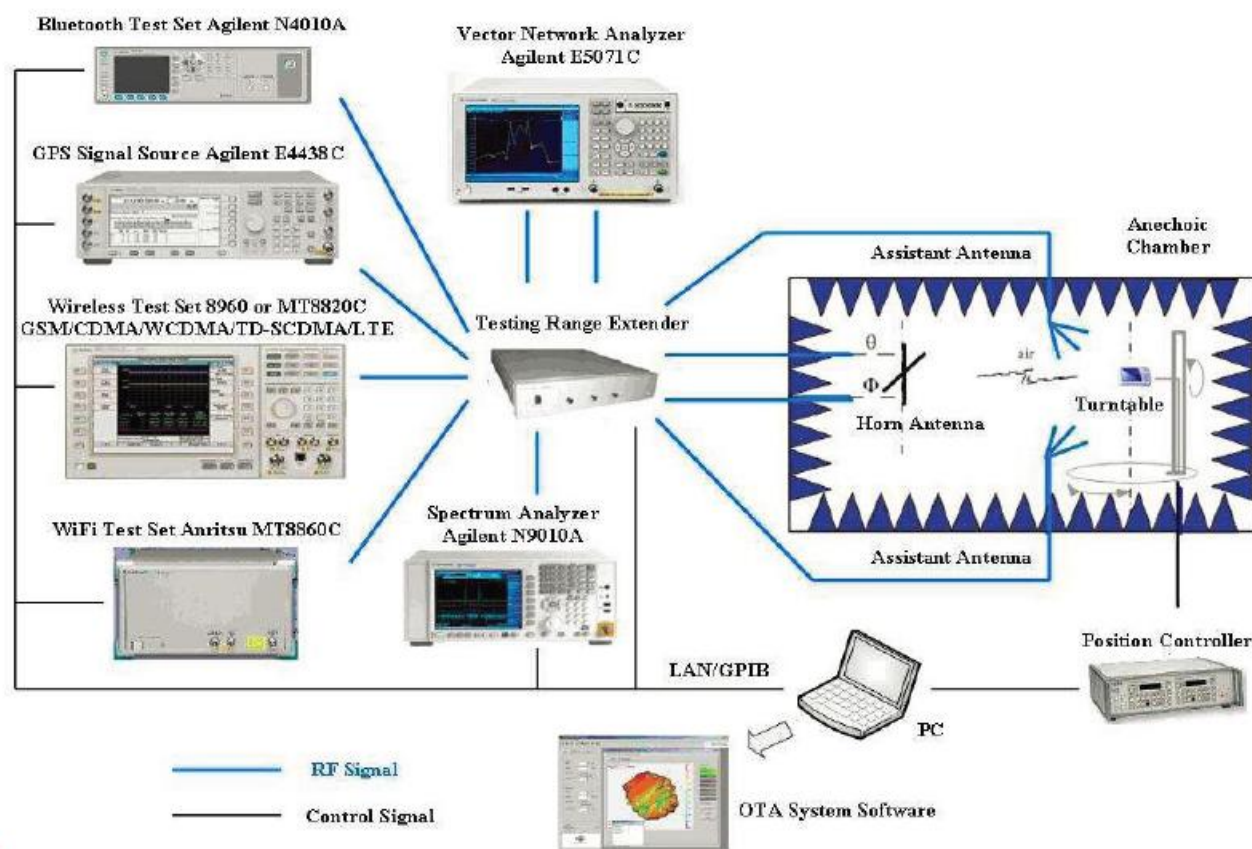
Contact information of supplier: Chen Heng /13717086260

Serial number	Certification number	Material type	Date of issue	Remarks
1	A2230173541101001E	Tinned copper wire	2023-04-24	One year
2	CANEC2227657302	halogen	2022-12-28	One year
3	CANEC2227657303	Adhesive	2022-12-28	One year
4	SHAEC23000346911	FEP sheath	2023-01-13	One year
5	SHAEC22004639301	FEP insulation	2022-12-15	One year
6	SZSEC2203054804	Tin wire	2022-09-19	One year
7	SZSEC2203054808	Tin	2022-09-19	One year
8	ETR23701480	Printing ink	2023-07-13	One year
9	A2230173918101001E	Substrate	2023-04-18	One year
10	CANEC2227574118	EVA foam	2023-01-03	One year
11	A2230383826101003	Conductive cloth	2023-08-04	One year
12	CANEC23002609908	Gold plating	2023-05-11	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, GLONASS, 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: 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:

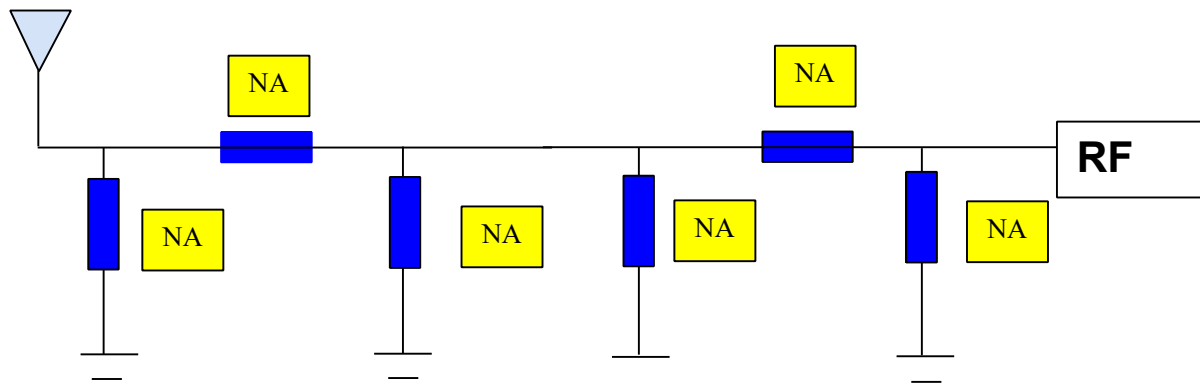
Description	2.4GHz~5GHz	Units
VSWR	≤ 2.0	
Average Antenna Gain	≥ -4.5	dB
Feed Impedance	50 ohms	
Operating Temperature	-40 to +85 deg C	
Polarization / Azimuth	Linear / Omni-directional	

(2)Mechanical Information

Mechanical Dimension	
Cable Length	NA
Description	WIFI&BT antenna
Material	FPC
Coaxial Cable	NA
Environmental	
Operation Temperature	-40 to +85 deg C
Storage Temperature	-40 to +85 deg C

三: Matching circuit diagram & machine picture & antenna picture

(1) Matching circuit



(2) Machine picture & antenna picture



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



Passive Test For 2.4G			
Freq	Effi	Effi	Gain
(MHz)	(%)	(dB)	(dBi)
2400	40.89	-3.88	-1.13
2410	37.21	-4.29	-1.72
2420	43.32	-3.63	-0.99
2430	47.37	-3.24	-0.73
2440	52.12	-2.83	-0.3
2450	54.6	-2.63	-0.23
2460	49.27	-3.07	-0.67
2470	43.92	-3.57	-1.18
2480	44.12	-3.55	-1.15
2490	52.63	-2.79	-0.46
2500	55.9	-2.53	-0.35

Passive Test For 5G-WIFI			
Freq	Effi	Effi	Gain
(MHz)	(%)	(dB)	(dBi)
5000	32.82	-4.84	0.2
5100	34.53	-4.62	0.67
5200	49.26	-3.07	2.12
5300	51.23	-2.9	2.04
5400	43.38	-3.63	0.97
5500	42.78	-3.69	1.26
5600	32.44	-4.89	0.06
5700	37.17	-4.3	0.39
5800	30.03	-5.22	-0.46
5900	27.8	-5.56	-1.51
6000	31.96	-4.95	-0.98

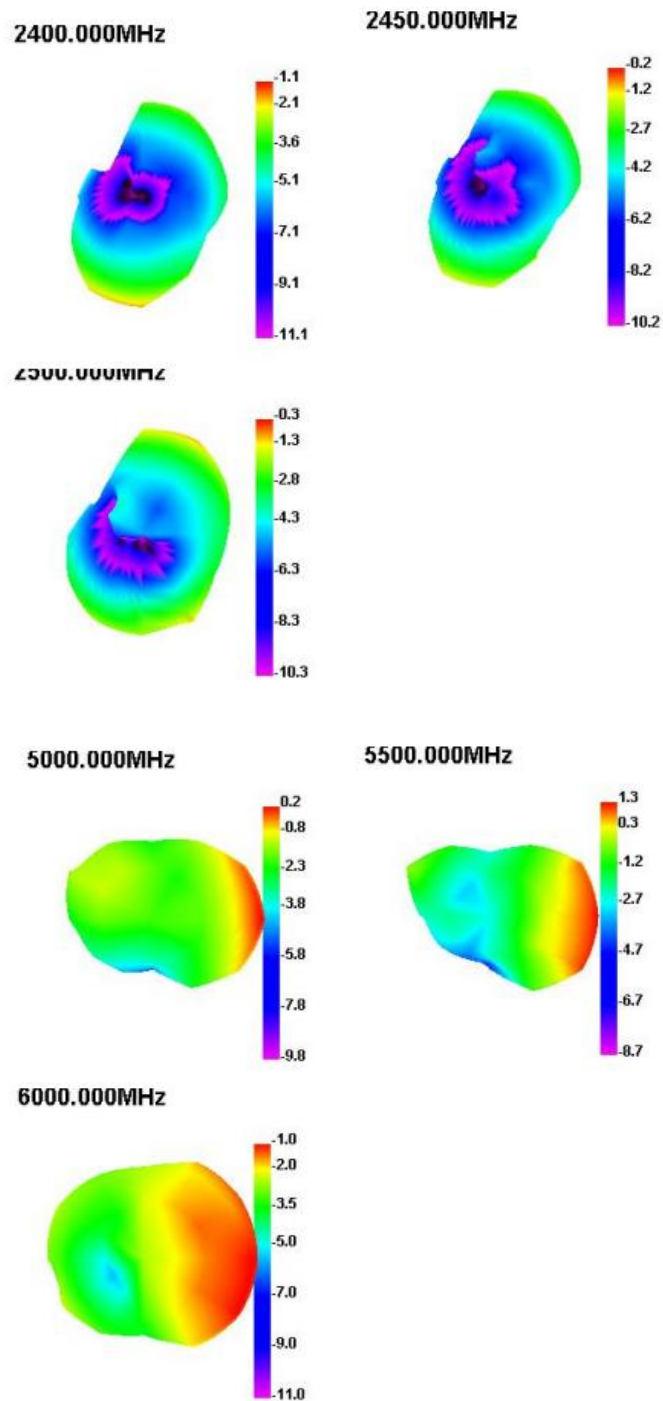
五:Active data

802.11b : 11Mbps		
Wifi 2G TRP		
1	7	13
2412	2442	2472
14.62	15.71	15.01
Wifi 2G TIS		
1	7	13
2412	2442	2472
-79.11	-81.41	-79.72

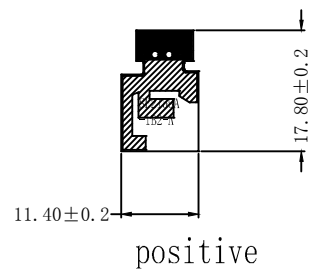
802.11n : MCS7		
Wifi 2G TRP		
1	7	13
2412	2442	2472
13.75	13.76	13.31
Wifi 2G TIS		
1	7	13
2412	2442	2472
-64.7	-64.1	-64.84

802.11a : 54Mbps		
Wifi 5G TRP		
36	64	165
5180	5320	5825
10.88	10.89	7.61
Wifi 5G TIS		
36	64	165
5180	5320	5825
-70.64	-70.35	-68.65

六:3D pattern

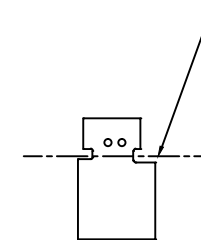


七:Structural drawing



Gum-3M300

Hand tear line position



Technical requirements:

- 1, Please use a pair of half PI base material, electrolytic copper.
- 2, the yellow part is the wiring part, the surface spray matte black, text printing bright black.
3. The yellow shaded parts are exposed welding points, and the process requires electrometal treatment.
- 4, all materials meet environmental ROHS standards.
- 5, with "*" is the key size, tolerance is: ± 0.03 .

Test criteria:

- 1, Shape dimensions and line dimensions consistent with drawings, within controllable tolerances.
- 2, Antenna line, broken line, FPC bend to do 180 ° bending experiment, no fracture, more than 5 times PASS.
- 3, Clear, no misprints.

Packaging requirements:

1. PE sealed pocket packaging.
2. 100 pcs/bag.

SWARD

ShenZhen SWARD Communication
Technology Co.Ltd

SF2159A-1B2-A

ROHS

	signatures	date	mass	signatures	date
RD	YWD	2023.05.16	QC		
RF					
audits			approval		

time markup				percentage
1			A	1:1
共 1 张				第 1 张