

Name of supplier: **SUNNYWAY TECHNOLOGY(CHINA)**

Specification for Approval

Client Name: PAX Computer Technology (Shenzhen) Co., Ltd

Brand Name: SUNNYWAY

Part No: SZ22692IB75-2

Part Description: FPC ANTENNA

Manufacturer: SUNNYWAY TECHNOLOGY(CHINA)

Name of factory: SUNNYWAY TECHNOLOGY(CHINA)

PAX Part Name: A910S-SL8541E-2.4G/5.8G/1575MHz-V01-Three-in-one
Antenna-FPC-Sunnyway

PAX Materiel No.: 200212000000527

Sunnyway Technology(CHINA)

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SUNNYWAY TECHNOLOGY(CHINA)

ANTENNA SPEC

Customer name : PAX Computer Technology (Shenzhen) Co., Ltd		Entry name: A910S-NA
Working band: GPS +WiFi 2.4G/5G+BT		
Motherboard version:		
Sunnyway Material specification		
Specification type	Sunnyway number	Customer number
GWB Antenna	SZ22692IB75-2	200212000000527

Revision history

Date of preparation/change	Change content	Altered person	Edition
2023.04.28	New issue	Chen min	A

Sunnyway Countersign column

R&D	ME:	To examine:	QE:	Approval:
	RF:	To examine:		

Customer will sign the column

Electronic Engineer	Project manager	Structural Engineer	Quality Engineer

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1. Project information

1.1 Mockup picture

please refer to external photos.

2. Matching circuit

The motherboard default match is unchanged

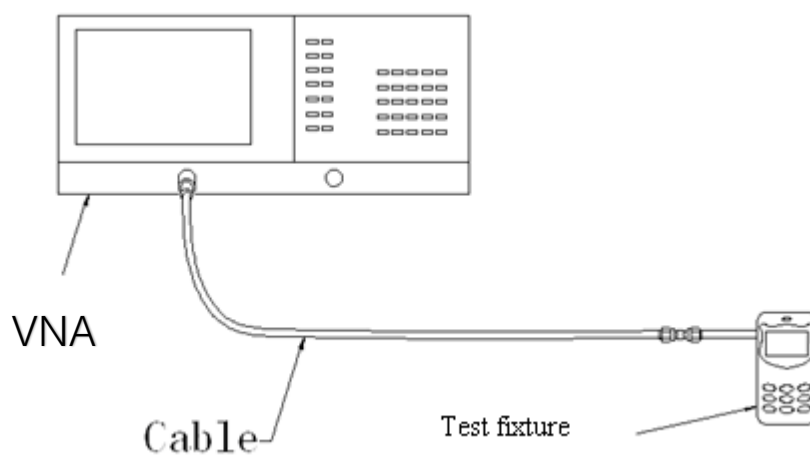
3. Antenna passive testing data

3.1 S11 Description of the test method

Test the equipment: Vector network analyzer (Agilent E5071C)

Test methodology: Use a 50 ohm CABLE cable to export from the instrument test port, use the calibration piece to calibrate and connect the SMA connector of the test fixture, and record the return loss and standing wave ratio corresponding to the relevant frequency point.

Below is a schematic picture of the test:

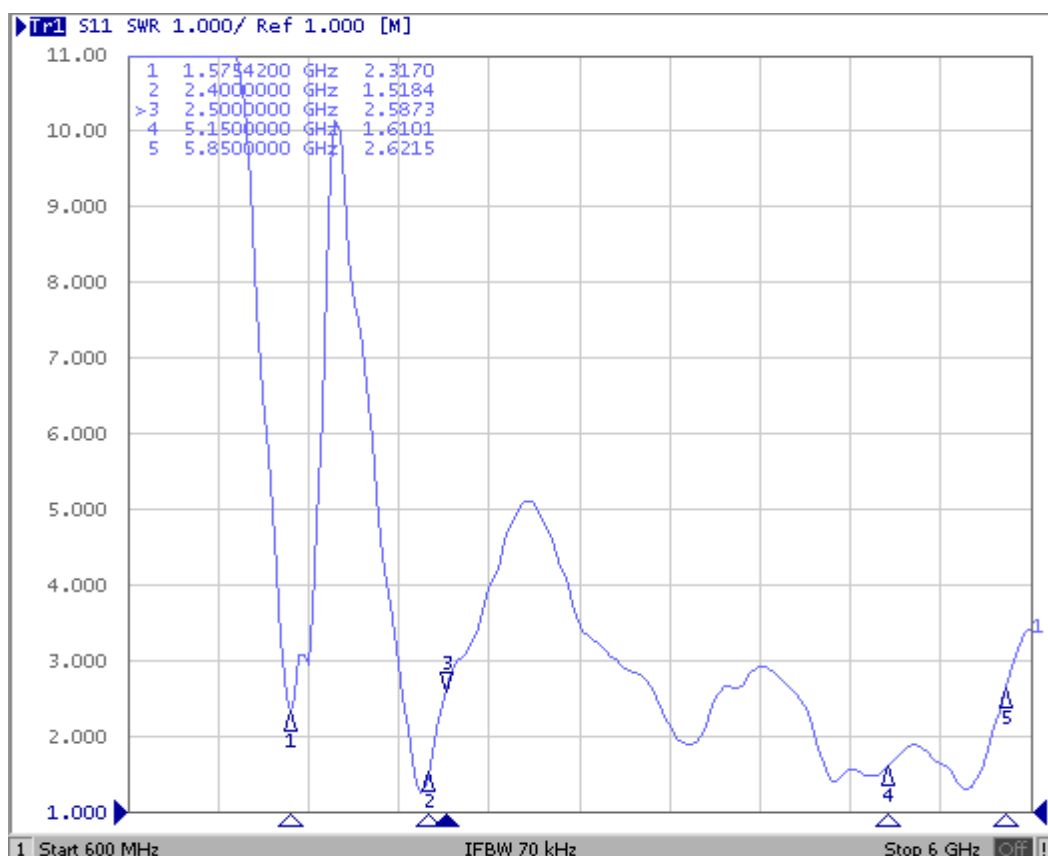


Test schematic diagram

3.2 S11 Test parameters

(Freq.) MHz	1575.42	2400	2500	5.15	5.85
VSWR	2.3	1.5	2.6	1.6	2.6

VSWR



3.3 Antenna efficiency and gain

3.3.1 Antenna efficiency

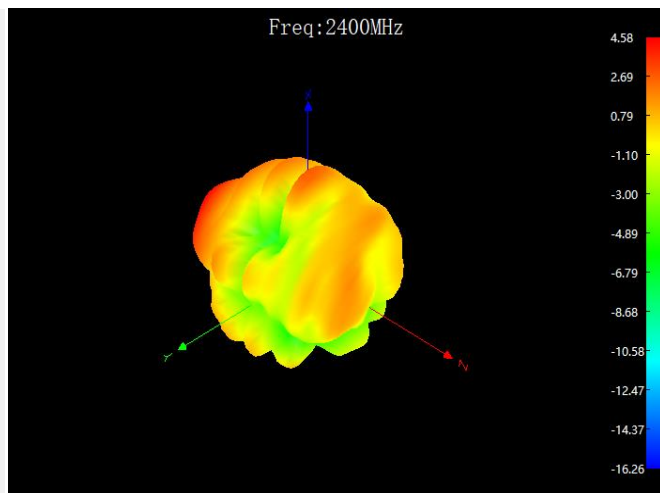
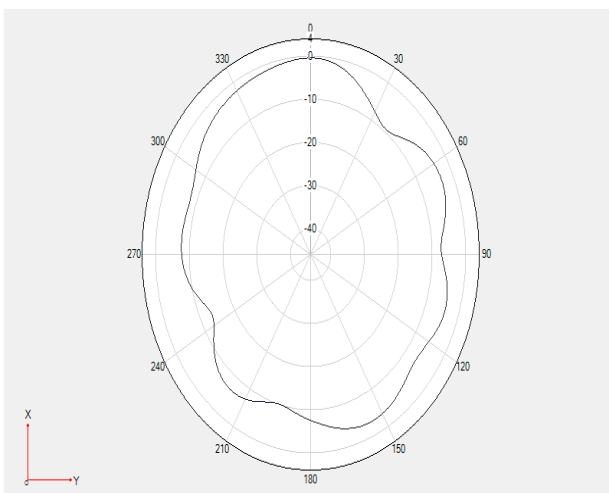
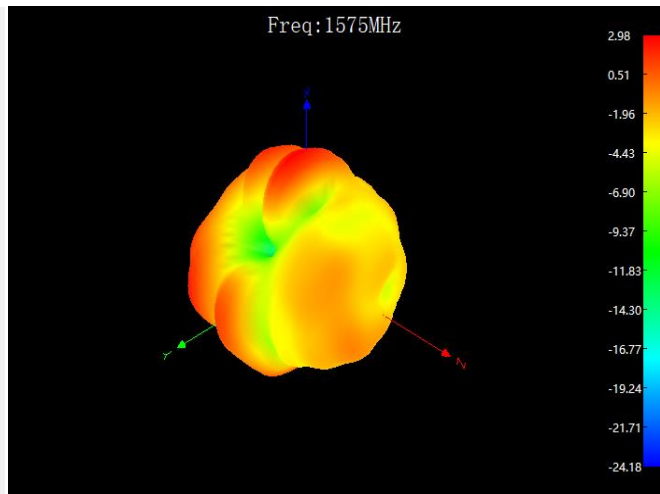
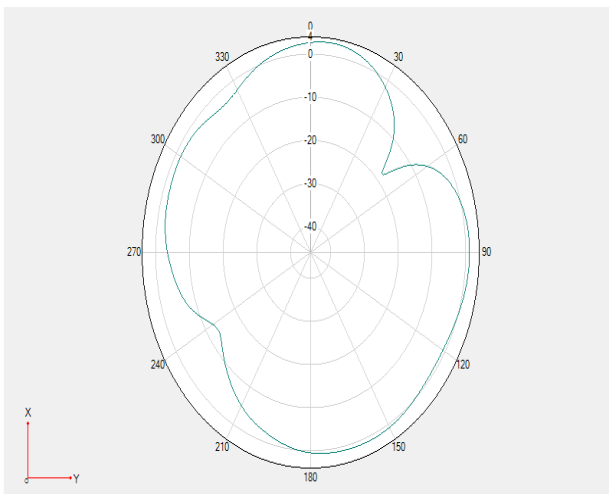
Frequency/Mhz	Efficiency / dB	Efficiency / %
1560	-4.05	39.36
1565	-3.97	40.09
1570	-4.07	39.17
1575	-3.97	40.09
1580	-3.94	40.36
2400	-3.97	40.09
2410	-4.28	37.33
2420	-4.36	36.64
2430	-4.66	34.2

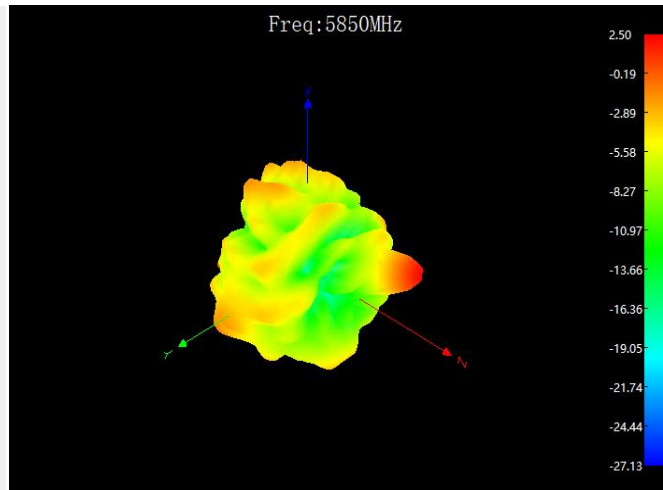
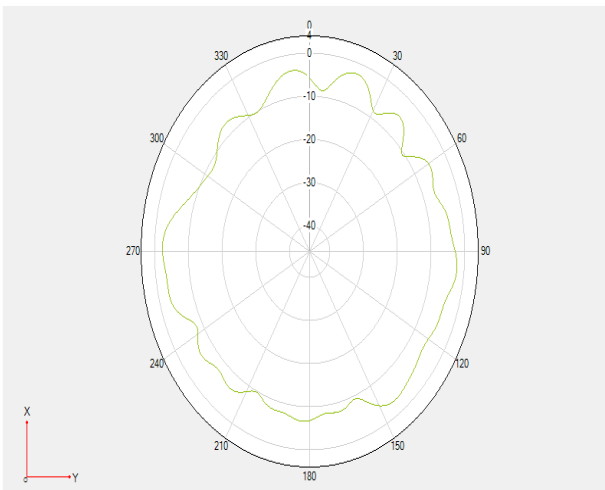
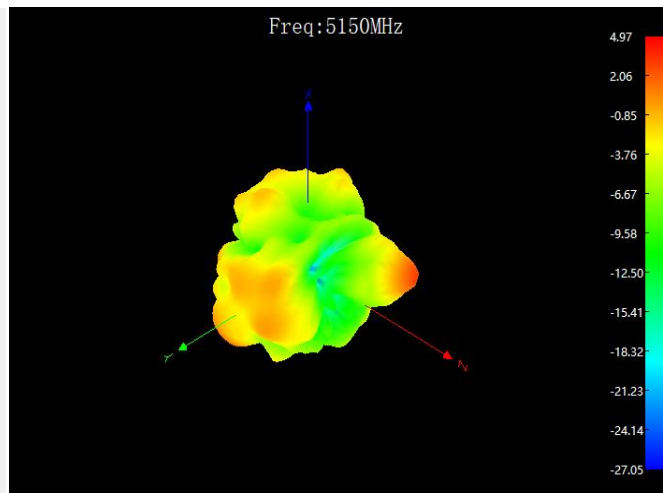
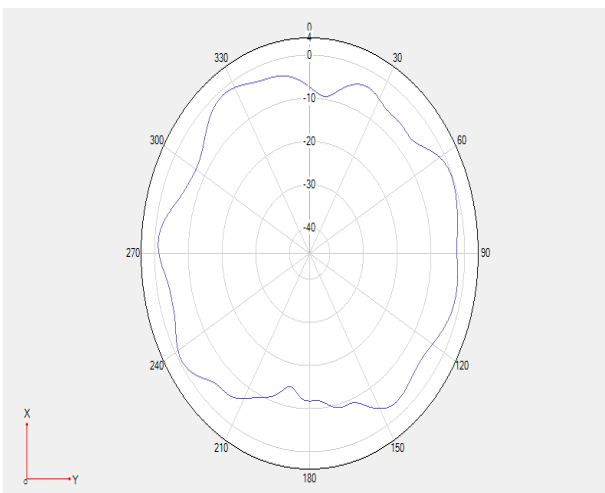
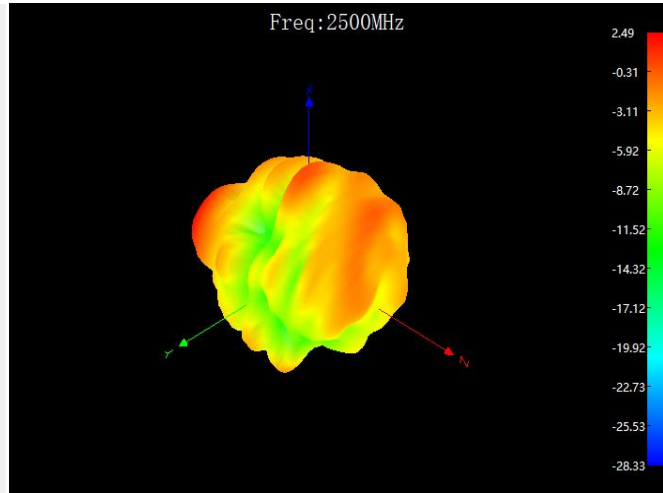
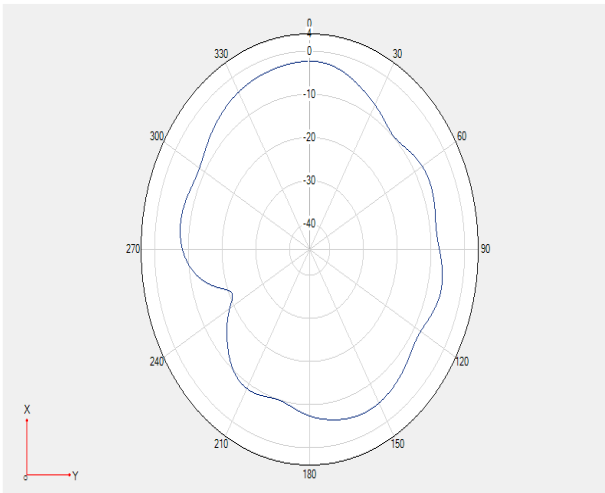
2440	-4.71	33.81
2450	-4.62	34.48
2460	-4.78	33.25
2470	-4.52	35.34
2480	-4.71	33.77
2490	-4.87	32.61
2500	-5.06	31.18
5150	-4.69	33.96
5170	-4.74	33.57
5190	-4.51	35.4
5210	-4.86	32.66
5230	-4.86	32.66
5250	-4.9	32.36
5270	-4.9	32.36
5290	-4.96	31.92
5310	-5.15	30.55
5330	-4.86	32.66
5350	-5.18	30.34
5370	-5.27	29.72
5390	-5.35	29.17
5410	-4.99	31.7
5430	-5.26	29.79
5450	-5.29	29.58
5470	-5.15	30.55
5490	-5.08	31.05
5510	-5.17	30.41
5530	-5.04	31.33
5550	-4.81	33.04
5570	-5.15	30.55
5590	-5.11	30.83
5610	-5.1	30.9
5630	-5.17	30.41
5650	-5.33	29.31
5670	-5.21	30.13
5690	-5.08	31.05
5710	-5.44	28.58
5730	-5.76	26.55
5750	-5.59	27.61
5770	-5.37	29.04
5790	-5.74	26.67
5810	-5.88	25.82
5830	-5.91	25.64
5850	-6.05	24.83

3.3.2 Antenna gain

Band (MHz)	Peak Gain
1575.42	1.2
2400-2500	2.3
5150-5850	2.4

3.3.3 Antenna pattern





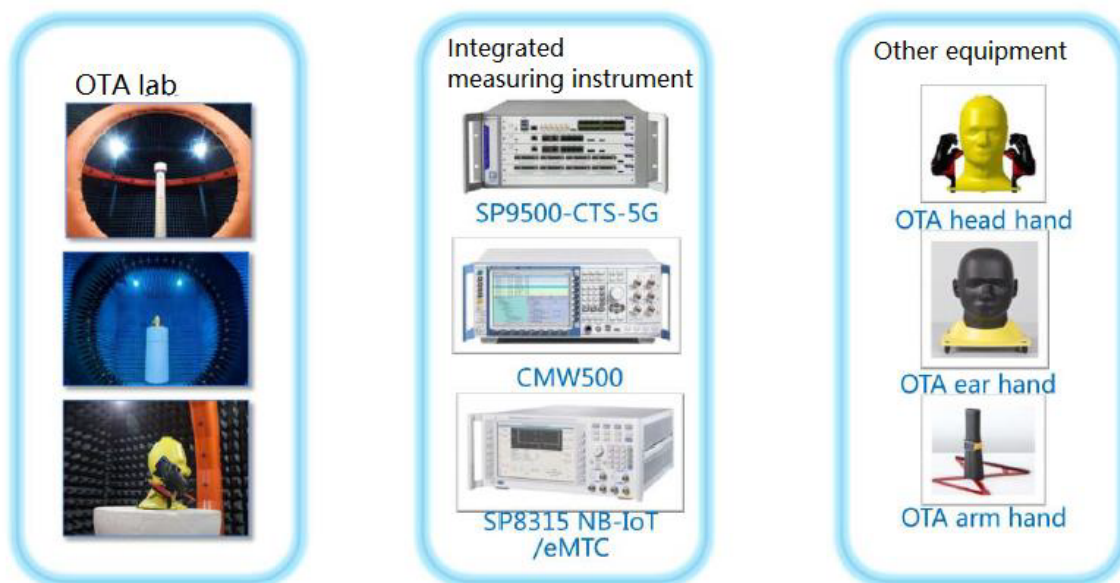
4. Antenna active testing data

4.1 Test the environment

Test the system: Multi-probe OTA measurement system (XH-IoT)

Test the environment: Temperature 22°C±3°C, humidity 50%±15%

Test the equipment: When testing passive data, use the network analyzer R&S ZND/ Agilent E5071C
 When testing active data, use the Agilent 8960/CMW500/SP9500E/SP8315



4.2 OTA Active testing data

4.2.1 WIFI Testing data

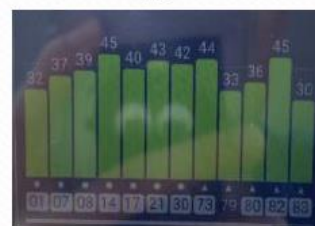
			1#	2#
Measurement	Band	Channel	Total	Total
TRP	WIFI_B (11M)	1	12.21	13.03
TRP	WIFI_B (11M)	7	13.11	13.86
TRP	WIFI_B (11M)	13	13.59	13.31
TIS(EIRP)	WIFI_B (11M)	13	-81.33	-81.95
TRP	WIFI_G (54M)	1	11.84	12.22
TRP	WIFI_G (54M)	7	12.27	12.91
TRP	WIFI_G (54M)	13	11.43	12.19
TIS(EIRP)	WIFI_G (54M)	13	-69.07	-69.91
TRP	WIFI_N_ISM (65M)	1	10.87	11.81
TRP	WIFI_N_ISM (65M)	7	10.59	11.22
TRP	WIFI_N_ISM (65M)	13	10.66	11.38
TIS(EIRP)	WIFI_N_ISM (65M)	13	-64.5	-64.68

			1#	2#
Measurement	Band	Channel	Total	Total
TRP	WIFI_A (54M)	36	12.37	12.35
TRP	WIFI_A (54M)	149	11.47	11.77
TRP	WIFI_A (54M)	165	11.16	11.3
TIS(EIRP)	WIFI_A (54M)	165	-71.27	-71.39
TRP	WIFI_N_UNII (65M)	36	10.04	10.21
TRP	WIFI_N_UNII (65M)	149	10.36	10.68
TRP	WIFI_N_UNII (65M)	165	10.21	10.16
TIS(EIRP)	WIFI_N_UNII (65M)	165	-66.94	-66.84
TRP	WIFI_AC (78M)	36		12.33
TRP	WIFI_AC (78M)	149		11.7
TRP	WIFI_AC (78M)	165		11.23
TIS(EIRP)	WIFI_AC (78M)	165		-67.17

1#



2#



4.2.2 GPS measured data:



5. Environmental treatment methods

please refer to internal photos.

This area is shielded with a conductive cloth

6. Standard for mass production antennas

When the antenna is mass-produced, the VSWR is used as the mass production test standard.

According to the differences in the project itself, the following criteria are given:

Freq. (MHz)	Mass production standards
1575.42±1.023	$VSWR(\text{Production performance}) < VSWR(\text{Confirmed performance}) + 0.5$
2400-2500	$VSWR(\text{Production performance}) < VSWR(\text{Confirmed performance}) + 0.5$