

# SUNNYWAY TECHNOLOGY(CHINA)

## ANTENNA SPEC

Customer name: 百富计算机技术（深圳）有限公司 PAX Computer Technology (Shenzhen) Co., Ltd.	Entry name: A930RTX	
Working band: GPS L1+WiFi(2.4G/5G)+BT		
Motherboard version:		
<b>Sunnyway Material specification</b>		
Specification type	Sunnyway number	Customer number
PIFA Antenna	SZ225261B75-2	<b>200212000000503</b>

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Date of preparation/change	Change content	Altered person	Edition
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<b>Sunnyway Countersign column</b>				
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	RF:	To examine:		

<b>Customer will sign the column</b>			
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## 目录 Directory

ANTENNA SPEC .....	1
1. Project information .....	2
1.1 Mockup picture .....	2
1.2 Antenna product picture .....	2
2. Matching circuit .....	2
3. Antenna passive testing data .....	3
3.1 S11 Description of the test method .....	3
3.2 S11 Test parameters .....	3
3.3 Antenna efficiency and gain .....	4
3.3.1 Antenna efficiency .....	4
3.3.2 Antenna gain .....	5
4. Antenna active testing data .....	5
4.1 Test the environment .....	5
4.2 OTA Active testing data .....	5
4.2.1 WIFI Testing data .....	6
4.2.2 GPS Testing data: .....	6
5. Environmental treatment methods .....	6
6. Standard for mass production antennas .....	6
7. Engineering drawings .....	7

## 1. Project information

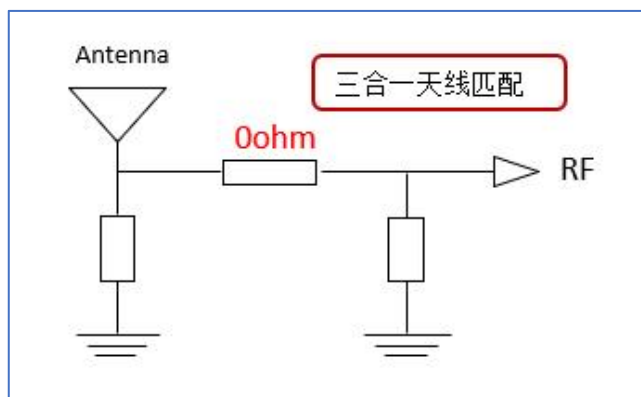
### 1.1 Mockup picture

NA

### 1.2 Antenna product picture



## 2. Matching circuit



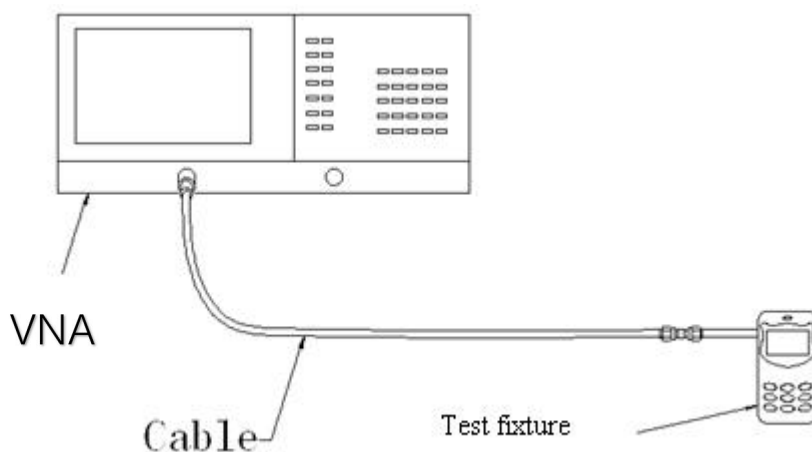
### 3. Antenna passive testing data

#### 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:

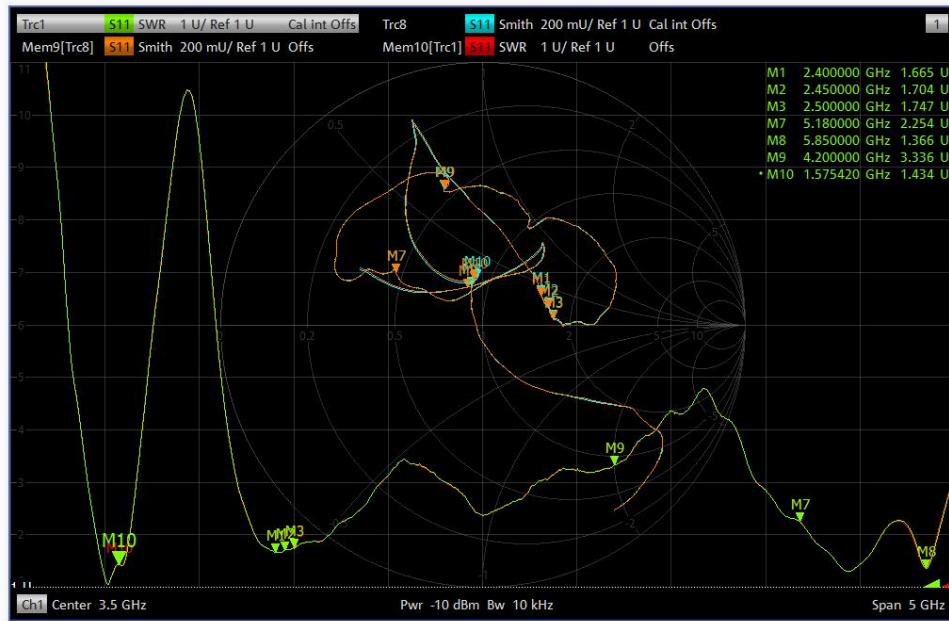


Test schematic diagram

#### 3.2 S11 Test parameters

(Freq.) MHz	15745.42	2400	2450	2500	5150	5850
VSWR	1.43	1.66	1.70	1.74	2.25	1.36

VSWR



### 3.3 Antenna efficiency and gain

#### 3.3.1 Antenna efficiency

Frequency / MHz	Efficiency / %	Efficiency / %	Frequency / MHz	Efficiency / %	Efficiency / %	Frequency / MHz	Efficiency / %	Efficiency / %	Frequency / MHz	Efficiency / %	Efficiency / %	Frequency / MHz	Efficiency / %	Efficiency / %
1500	-4.17	38.28	2400	-4.52	35.32	5180	-6.06	24.77	5460	-7.33	18.49	5740	-8.84	20.79
1510	-3.99	39.9	2410	-4.52	35.32	5190	-6.14	24.32	5470	-7.41	18.16	5750	-9.07	20.12
1520	-3.88	40.93	2420	-4.36	36.64	5200	-6.27	23.6	5480	-7.45	17.99	5760	-8.89	20.64
1530	-4.05	39.36	2430	-4.34	36.81	5210	-6.3	23.44	5490	-7.38	18.28	5770	-8.99	20.35
1540	-3.95	40.27	2440	-4.3	37.15	5220	-6.26	23.66	5500	-7.56	17.54	5780	-8.88	20.67
1550	-4.14	38.55	2450	-4.24	37.67	5230	-6.36	23.12	5510	-7.46	17.95	5790	-8.95	20.47
1560	-4.41	36.22	2460	-4.2	38.02	5240	-6.35	23.17	5520	-7.56	17.54	5800	-8.93	20.52
1570	-4.51	35.4	2470	-4.23	37.76	5250	-6.56	22.08	5530	-7.63	17.26	5810	-9.15	19.89
1580	-4.54	35.16	2480	-4.13	38.64	5260	-6.55	22.13	5540	-7.77	16.71	5820	-8.84	20.79
1590	-4.82	32.96	2490	-4.21	37.93	5270	-6.7	21.38	5550	-7.65	17.18	5830	-9.03	20.23
1600	-4.89	32.43	2500	-4.36	36.64	5280	-6.64	21.68	5560	-7.88	16.29	5840	-9.02	20.26
1610	-5.13	30.69				5290	-6.73	21.23	5570	-7.9	16.22	5850	-9.05	20.18
1620	-5.34	29.24				5300	-6.71	21.33	5580	-8.15	15.31	5860	-8.88	20.67
1630	-5.57	27.73				5310	-6.89	20.46	5590	-8.07	15.6	5870	-9	20.32
1640	-5.89	25.76				5320	-6.73	21.23	5600	-8.24	22.73	5880	-8.97	20.41
1650	-6.19	24.04				5330	-6.82	20.8	5610	-8.34	22.39	5890	-9.25	19.62
						5340	-6.79	20.94	5620	-8.46	21.99	5900	-8.88	20.67
						5350	-6.89	20.46	5630	-8.34	22.39			
						5360	-6.85	20.65	5640	-8.52	21.79			
						5370	-6.91	20.37	5650	-8.51	21.82			
						5380	-6.89	20.46	5660	-8.64	21.41			
						5390	-7.1	19.5	5670	-8.74	21.1			
						5400	-6.98	20.04	5680	-8.7	21.22			
						5410	-6.99	20	5690	-8.77	21			
						5420	-7.13	19.36	5700	-8.92	20.55			
						5430	-7.14	19.32	5710	-8.72	21.16			
						5440	-7.15	19.28	5720	-8.85	20.76			
						5450	-7.26	18.79	5730	-8.91	20.58			

## 3.3.2 Antenna gain

Band (MHZ)		Peak Gain(dBi)
<b>2.4G BT &amp; WLAN</b>	2400~2480	2.15
<b>5G WLAN</b>	5150~5250	2.17
	5250~5350	2.35
	5470~5725	2.4
	5725~5850	2.05

## 4. Antenna active testing data

## 4.1 Test the environment

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

Test the environment: Temperature  $22^{\circ}\text{C}\pm 3^{\circ}\text{C}$ , humidity  $50\%\pm 15\%$

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

Measurement	Band	Channel	Total
TRP	WIFI_B (11M)	1	12.75
TRP	WIFI_B (11M)	6	14.37
TRP	WIFI_B (11M)	11	13.89
TIS	WIFI_B (11M)	11	-81.12
TRP	WIFI_G (54M)	1	11.61
TRP	WIFI_G (54M)	6	12.21
TRP	WIFI_G (54M)	11	12.31
TIS	WIFI_G (54M)	11	-71.92
TRP	WIFI_N_ISM (65M)	1	11.05
TRP	WIFI_N_ISM (65M)	6	12.03
TRP	WIFI_N_ISM (65M)	11	11.13
TIS	WIFI_N_ISM (65M)	11	-69.06
TRP	WIFI_A (54M)	36	12.93
TRP	WIFI_A (54M)	149	11.35
TRP	WIFI_A (54M)	165	11.62
TIS	WIFI_A (54M)	165	-71.05
TRP	WIFI_N_UNII (65M)	36	11.92
TRP	WIFI_N_UNII (65M)	149	11.95
TRP	WIFI_N_UNII (65M)	165	11.51
TIS	WIFI_N_UNII (65M)	165	-67.51

## 4.2.2 GPS Testing data:

Type	Measurement	FixedMode	CNO	UHS	PIGS	Tis
Gps	AccurateSensMulSatellite	Track	26.89	141.27	141.75	142.12

## 5. Environmental treatment methods

NA

## 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(Production performance)<VSWR(Confirmed performance)+0.5
2400-2500	VSWR (Production performance)<VSWR(Confirmed performance)+0.5
5150-5850	VSWR (Production performance)<VSWR(Confirmed performance)+0.5

7. Engineering drawings

