

深圳市尚远科技有限公司

Shenzhenshi Sunnyway Technology Co.Ltd.

Antenna SPEC

Customer: Apical		Project	Name:	Belsito 7" (2139)			
Working Band: WiFi 2.4g+5g							
Mainboard Version: 2139-MAIN-01C-1 2022-10-18							
Sunnyway BOM							
SPEC-Type	Sunnyway	r Antenna		Customer Part Number			
WIFI Antenna	SZ19444IW77						

Change history								
Preparation/change date	change content	Changed by	version					
2022.11.23	Yangxin	А						

Sunnyway Countersign Column								
R&D	ME: RF:		Audit: Audit:		Quality Engineer:		Approval:	
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Shenzhenshi Sunny-way Technology Itd. Company Antenna Specification

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1. **PROJECT PICTURES**

project pictures shown below:

PS:

To ensure that the antenna shipment quality, the final prototype Clients validated the antenna's performance, should be kept in our company for at least a year time, facilitate solving antenna amount during abnormal situation,

2. TEST FIXTURE

Purpose: To test antenna passive parameters as accurately as possible .

methods: the fixture is to use a 50 ohm coaxial cable, one end is connected to the pad after the antenna 's matching circuit (the front of the antenna switch) , and the other end is connected to the SMA connector.



3. MATCHING CIRCUIT

Antenna matching did not modify

4. S11 test

4.0 S11 test method instructions

Test equipment: LNA (Agilent E5071B)

 $Test\ method$: With a 50 ohm CABLE ,CABLE export from instrument testing port $\,$, After the calibration with calibration Key, connected to the SMA connector, Records the return loss and VSWR of the related frequency points.

Test schematic diagram is as follows:





4.1 S11 parameter WIFI ANT VSWR



5 CHAMBER TEST DATA

Test equipment

Test system: chamber

Test environment: the temperature of 22 $^{\circ}$ C + 3 $^{\circ}$ C, humidity of 50% plus or minus 15%

Test equipment: to test passive status, use Agilent 8960 Agilent E5071B to test active status, use CMW500

5.1 Efficiency and Gain

Freq	Effi	Gain	Freq	Effi	Gain	Freq	Effi	Gain	Freq	Effi	Gain
(MH_Z)	(%)	(dBi)									
2400	52.45	0.08	5100	41.25	0.54	5400	74.69	2.76	5700	57.12	1.08
2410	51.17	-0.05	5110	41.27	0.55	5410	63.04	2.04	5710	56.3	1.04
2420	51.6	-0.02	5120	38.88	0.35	5420	59.72	1.89	5720	48.48	1.33
2430	51.73	0.03	5130	38.37	0.34	5430	66.21	2.33	5730	43.02	0.95
2440	54.43	0.29	5140	39.08	0.24	5440	63.95	2.3	5740	41.99	0.78
2450	50.5	-0.13	5150	39.7	0.25	5450	67.75	2.53	5750	44.34	1.02
2460	51.1	-0.62	5160	40.51	0.39	5460	60.26	2.64	5760	50.04	1.6
2470	50.29	-0.4	5170	40.79	0.35	5470	67.04	2.44	5770	50.06	1.55
2480	44.46	-2.3	5180	40.06	0.23	5480	61.43	2.67	5780	46.35	1.33
2490	49.26	-0.86	5190	39.6	0.07	5490	62.14	2.78	5790	37.02	0.28
2500	44.93	-1.29	5200	40.61	0.01	5500	61.31	2.71	5800	33.2	-0.08
			5210	41.56	0.17	5510	63.4	1.9	5810	37.83	0.38
			5220	44.74	0.39	5520	62.93	1.85	5820	41.29	0.74
			5230	45.94	0.45	5530	64.42	1.03	5830	42.03	0.76
			5240	47.15	0.44	5540	61.52	1.79	5840	46.31	1.05
			5250	45.21	0.13	5550	62.29	1.87	5850	45.6	0.89
			5260	44.59	0.05	5560	62.76	1.89	5860	40.39	0.36
			5270	42.99	0.03	5570	65.58	1.44	5870	38.91	0.23
			5280	46.54	0.33	5580	64.53	1.41	5880	34.58	-0.35
			5290	48.41	0.55	5590	57.61	1.86	5890	32.96	-0.62
			5300	50.53	0.75	5600	51.15	1.54	5900	34.64	-0.39
			5310	51.92	0.91	5610	54.29	1.67			
			5320	55.66	1.21	5620	58.22	1.02			
			5330	56.44	1.44	5630	63.13	1.35			
			5340	56.74	1.47	5640	65.71	1.57			
			5350	62.18	1.85	5650	62.55	1.27			
			5360	63.93	2.04	5660	63.67	1.52			
			5370	65.02	2.1	5670	57.11	1.07			
			5380	66.21	2.19	5680	55.33	1.88			
			5390	63.65	2	5690	59.98	1.28			

5.2 Antenna 3D Radiation Pattern **3D For 2450MHz**







3D For 5550MHz







2D cross-sectional view







5.3 Active test data

ltem	Measurement	Band	Channel	Frequency	Total
1	TRP	WIFI_B (11M)	1	2412	13.62
2	TRP	WIFI_B (11M)	7	2442	14.1
3	TRP	WIFI_B (11M)	13	2472	13.1
4	TIS(EIRP)	WIFI_B (11M)	13	2472	-84.95
5	TRP	WIFI_G (54M)	1	2412	13.22
6	TRP	WIFI_G (54M)	7	2442	12.78
7	TRP	WIFI_G (54M)	13	2472	11.67
8	TIS(EIRP)	WIFI_G (54M)	13	2472	-71
9	TRP	WIFI_N_ISM (65M)	1	2412	12.23
10	TRP	WIFI_N_ISM (65M)	7	2442	11.5
11	TRP	WIFI_N_ISM (65M)	13	2472	11.77
12	TIS(EIRP)	WIFI_N_ISM (65M)	13	2472	-68.51
13	TRP	WIFI_A (54M)	36	5180	12.63
14	TRP	WIFI_A (54M)	149	5745	12.65
15	TRP	WIFI_A (54M)	165	5825	11.72
16	TIS(EIRP)	WIFI_A (54M)	165	5825	-71.15
17	TRP	WIFI_N_UNII (65M)	36	5180	11.64
18	TRP	WIFI_N_UNII (65M)	149	5745	11.15
19	TRP	WIFI_N_UNII (65M)	165	5825	10.74
20	TIS(EIRP)	WIFI_N_UNII (65M)	165	5825	-69.05