

The BWG Antenna Sample Confirmation

File number: SNW-QR-D-007/A.0

Customer	SHENZHEN ALONG ELECTRONICS CO., LTD.			
Project Name	6503-K20			2023-12-19
			Date	
Project NO.	SN1138		FPC	
		Notes		
Frequency Range	BT/WIFI (2. 4G/5G) /GPS			

Designer: SINAWELL Electronics(Shenzhen) Co., Ltd.

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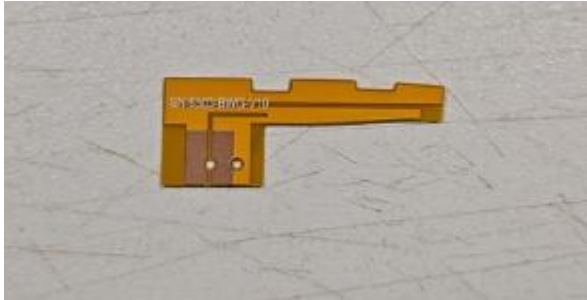
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1. Overview of specifications

This specification describes the status of 6503-K20 built-in antenna, and its frequency band is BT/WIFI/GPS.

2. Antenna appearance



3. Electrical performance

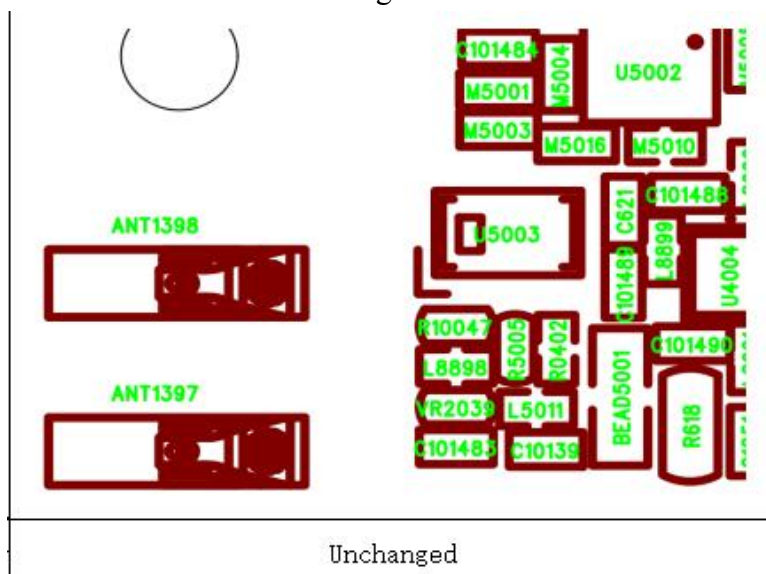
3.1. Antenna frequency band

	Antenna
Transmitting frequency band(MHz)	BT/WIFI(2.4G/5G)/GPS

3.2. Matching circuit

The test point is behind the antenna connector (RF test port), as shown in the figure below.

Note: the antenna matching electronic material should be 1% accurate.



4. Appearance structure

4.1 Antenna material

FPC

5. Remarks

The following table format

Appendix I: structural drawings
BT Antenna structure drawing

Appendix 1: Structural Drawings

Appendix II: Electrical Performance Test Report

Appendix 1: FPC structural drawings

RoHS

Notes:

1. "φ" is the key dimension ;
2. Please refer to the drawing if no dimension is indicated;
3. Meet rohs2.0, reach environmental protection requirements.
4. This drawing is an internal controlled document and is strictly prohibited from being disseminated in any form without our company's permission

Rev.	New drawing	Modify the content	Date	Remarks
1				

No.	Part name	Material	Color	Thickness
1	BWG-FPC	PI Electrolytic Copper half to half substrate	Yellow	

司 南 微 电 子 (深圳) 有 限 公 司
SINAMEILL Electronics (Shenzhen) Co., LTD

Project name	Date
6503 (SNI138)	2023-12-19

Product name	ME
BWG Antenna	

Material no.	RF
SNI138-BWG-03	

material	Project

Company	mm	Scale	1:1	Rev.	A

The third person	0~10	±0.05	0	0.02
10~18	±0.10	0	0.03	
18~30	±0.12	0	0.02	
30~40	±0.15	0	0.04	
40~	±0.20	角度	±0.5°	

Appendix II: 3D Test Report

WIFI-2.4G	Data Rate	Channel	TRP (dBm)	TIS (dBm)
11B	11M	1	12.76	-80.21
		6	11.65	-82
		11	10.87	-80.33
WIFI-5G	Data Rate	Channel	TRP (dBm)	TIS (dBm)
11A	54M	40	8.78	-70.75
		56	8.82	-70.09
		157	7.61	-68.18
GPS	Channel		CN (dBm)	TIS (dBm)
GPS	0		40.02	-152.82

Passive efficiency

GPS				BT/WIFI-2.4G				WIFI-5G			
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
1500	26.49	-5.77	0.97	2300	19.04	-7.2	-1.26	5150	26.25	-5.81	-0.63
1510	26.23	-5.81	0.91	2310	16.88	-7.73	-1.86	5170	23.64	-6.26	-1.15
1520	29.75	-5.27	1.15	2320	22.8	-6.42	-0.43	5190	26.06	-5.84	-0.77
1530	36.1	-4.43	1.78	2330	22.56	-6.47	-0.59	5210	25.82	-5.88	-0.72
1540	37.07	-4.31	1.51	2340	25.04	-6.01	0.08	5230	27.84	-5.55	-0.65
1550	40.81	-3.89	1.96	2350	29.3	-5.33	0.96	5250	26.68	-5.74	-0.87
1560	41.37	-3.83	2.07	2360	27.51	-5.6	0.71	5270	28.09	-5.51	-0.67
1570	41.73	-3.8	2.09	2370	24.62	-6.09	0.44	5290	26.41	-5.78	-0.57
1580	42.34	-3.73	2.48	2380	30.91	-5.1	1.68	5310	25.02	-6.02	-0.64
1590	43.02	-3.66	2.69	2390	28.78	-5.41	1.44	5330	29.01	-5.37	-0.46
1600	42.09	-3.76	2.54	2400	23.87	-6.22	0.6	5350	24.82	-6.05	-1
				2410	29.26	-5.34	1.37	5370	27.41	-5.62	-0.32
				2420	31.78	-4.98	1.6	5390	25.9	-5.87	-1.04
				2430	35.06	-4.55	1.99	5410	26.62	-5.75	-0.92
				2440	34.94	-4.57	1.94	5430	22	-6.58	-1.67
				2450	33.35	-4.77	1.63	5450	22.53	-6.47	-1.77
				2460	32.88	-4.83	1.46	5470	23.42	-6.3	-1.42
				2470	35.51	-4.5	1.71	5490	24.29	-6.15	-1.19
				2480	35.73	-4.47	1.6	5510	23.16	-6.35	-1.46
				2490	34.94	-4.57	1.46	5530	23.35	-6.32	-1.38
				2500	33.45	-4.76	1.19	5550	21.58	-6.66	-1.7
								5570	19.62	-7.07	-1.88
								5590	17.92	-7.47	-2.25
								5610	16.82	-7.74	-2.41
								5630	13.53	-8.69	-3.38
								5650	15.83	-8	-2.54
								5670	15.21	-8.18	-2.87
								5690	13.7	-8.63	-3.28
								5710	15.01	-8.24	-3
								5730	13.16	-8.81	-3.8
								5750	13.74	-8.62	-3.32
								5770	11.38	-9.44	-4.24
								5790	9.3	-10.32	-5.55
								5800	9.37	-10.28	-5.13

Field intensity pattern

