The BWG Antenna Sample Confirmation

File number：**SNW-QR-D-007/A.0**

Customer	SHENZHEN ALONG ELECTRONICS CO.,LTD.			
Project Name	6503-K20		Date	2023-12-19
Project NO.	SN1138	Notes	FPC	
Frequency Range	BT/WIFI(2.4G/5G)/GPS			

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

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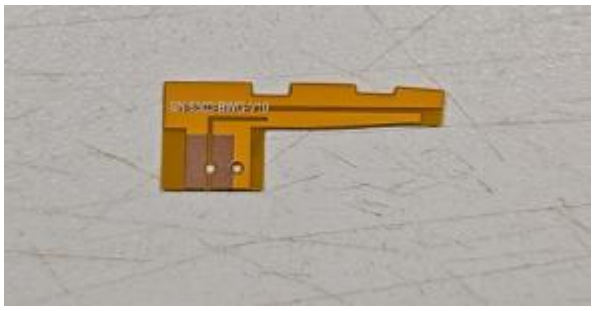
Catalogue

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



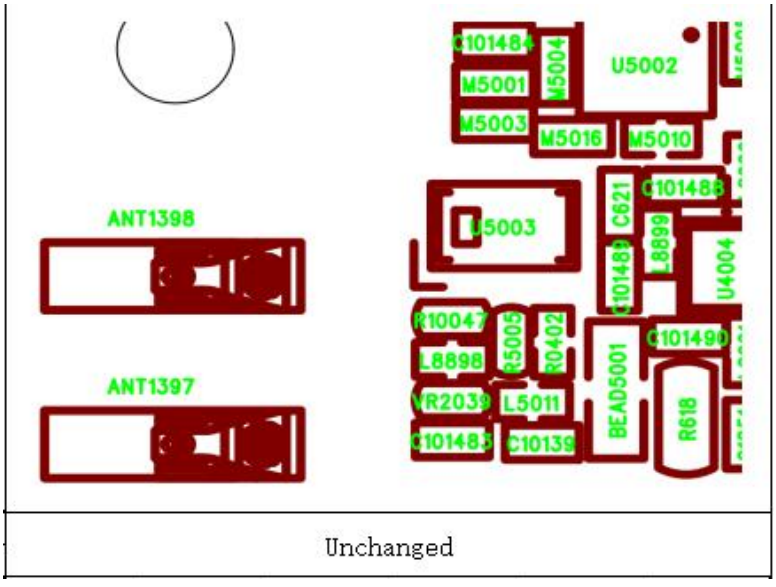
3. Electrical performance

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

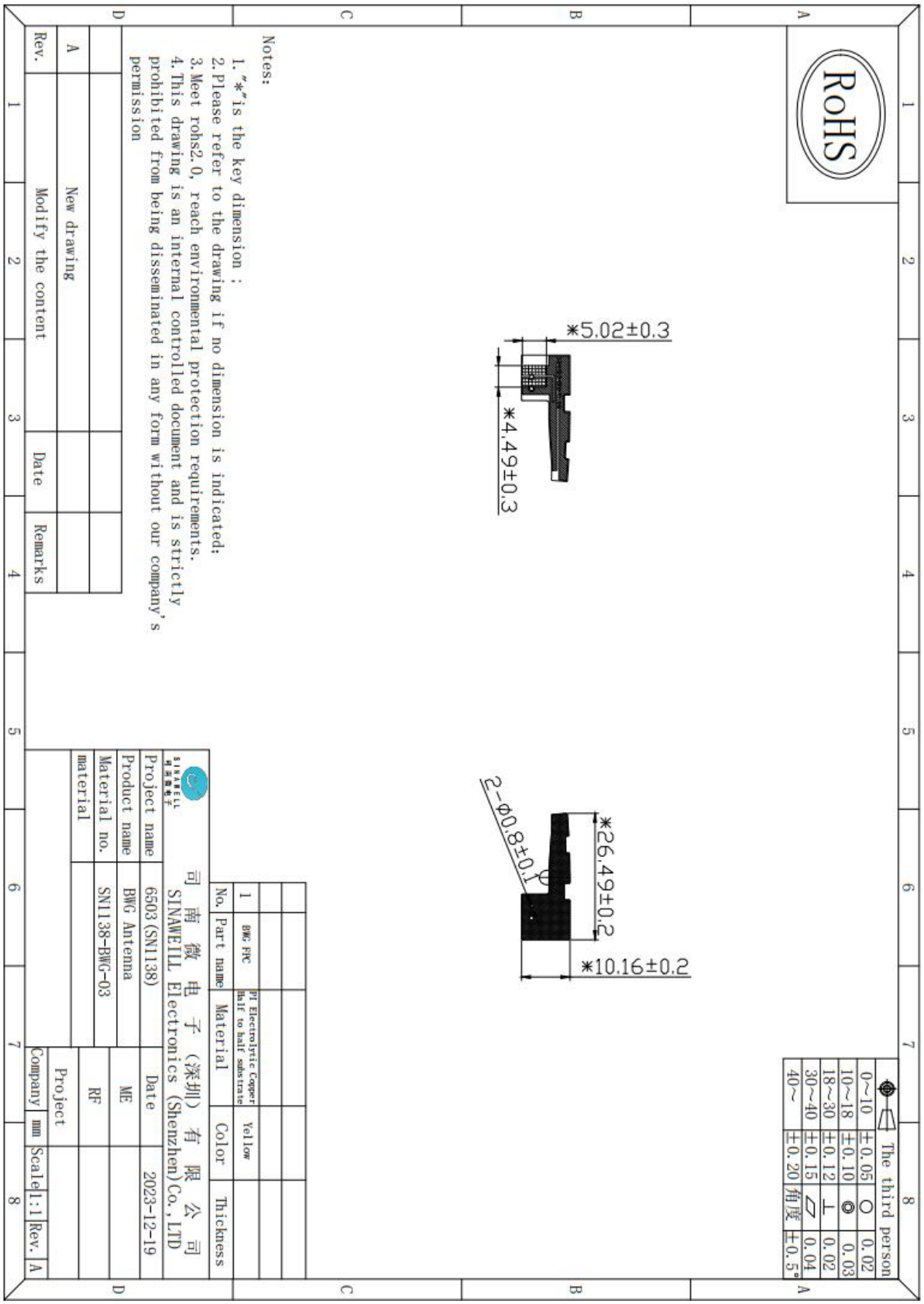
The following table format

Appendix I: structural drawings
BT Antenna structure drawing

Appendix 1: Structural Drawings

Appendix II: Electrical Performance Test Report

Appendix 1: FPC structural drawings



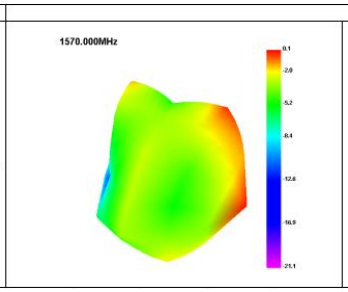
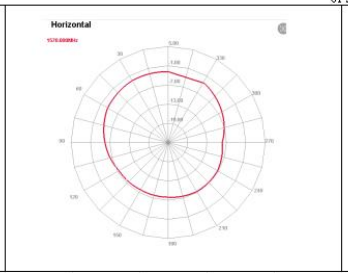
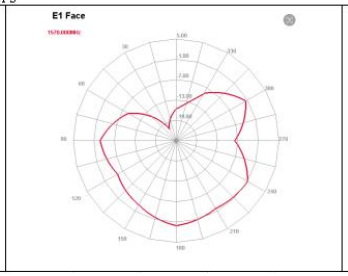
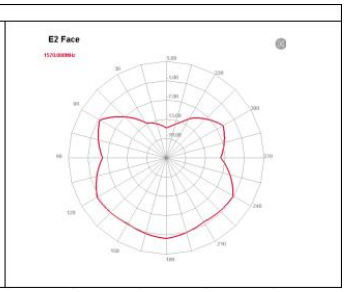
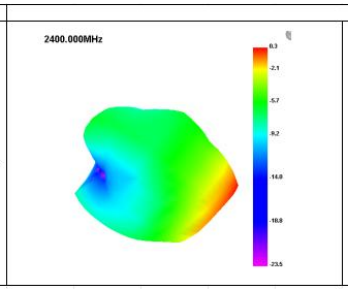
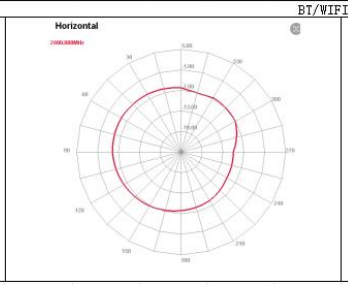
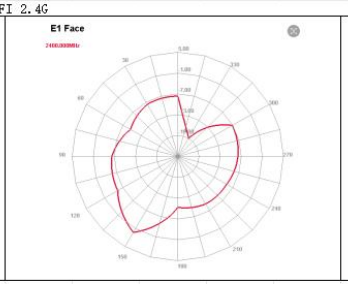
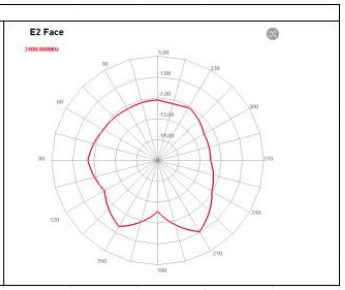
Appendix II: 3D Test Report

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

ChanneL	GPS			
Gain diagram				
ChanneL	BT/WIFI 2.4G			
Gain diagram				
ChanneL	WIFI 5G			
Gain diagram