Sward Antenna Report

Customer ： **Estone**

Project ： MD-100B-AX210D2W-wifi

Report Date： 2025.06.11

深圳市宝安区前进二路135号河西航城工业区B栋6楼
Building B, Hexi Hangcheng Industrial Zone, No. 135 Qianjin No. 2 Road, Baoan District, Shenzhen

Project Introduction

1.Resume

Antennas	Type
2	Tablet
Shell Material：10-inch plastic strip	

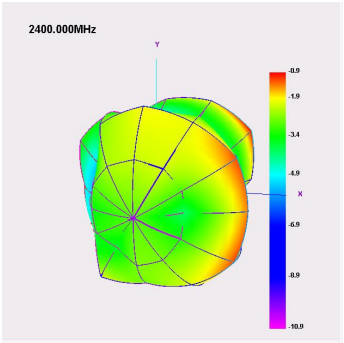
2.Description

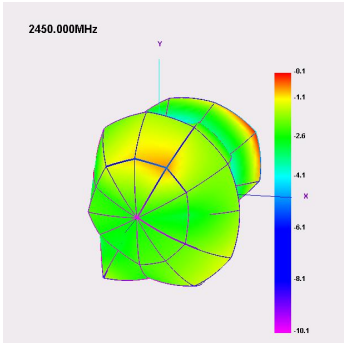
Num.	Function	Frequency Band / MHz	Material / Structure	Manufacturer
1	WIFI&BT&5Gwifi	2400MHz/2500MHz&5.8GHz	PCB	ShenZhen SWARD CommunicationTechnology Co.Ltd
2	WIFI&BT&5Gwifi	2400MHz/2500MHz&5.8GHz	PCB	

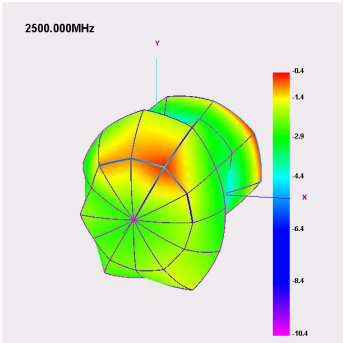
WIFI-Main Antenna S11

Main Antenna 2.4G Efficiency

Passive Test For 2.4Gwifi								
Freq	Effi	Effi	Gain	Gain	UHIS	DHIS	Max	Min
(MHz)	(%)	(dB)	(dBi)	(dBd)	(%)	(%)	(dB)	(dB)
2400	29.94	-5.73	-0.93	-3.08	14.875	11.859	-0.93	-24.14
2410	27.39	-5.62	-0.68	-2.83	15.287	12.102	-0.68	-22.9
2420	28.02	-5.53	-0.51	-2.66	15.539	12.482	-0.51	-20.75
2430	30.2	-5.2	-0.29	-2.44	16.847	13.354	-0.29	-20.5
2440	30.72	-5.13	-0.17	-2.32	17.081	13.635	-0.17	-19.85
2450	30.4	-5.17	-0.14	-2.29	16.727	13.675	-0.14	-19.17
2460	30.44	-5.17	-0.12	-2.27	16.841	13.6	-0.12	-17.64
2470	26.65	-5.74	-0.65	-2.8	14.607	12.048	-0.65	-18.3
2480	26.08	-5.84	-0.85	-3	14.351	11.733	-0.85	-17.85
2490	27.51	-5.6	-0.64	-2.79	15.132	12.381	-0.64	-17.5
2500	30.43	-5.17	-0.36	-2.51	16.794	13.636	-0.36	-18.48

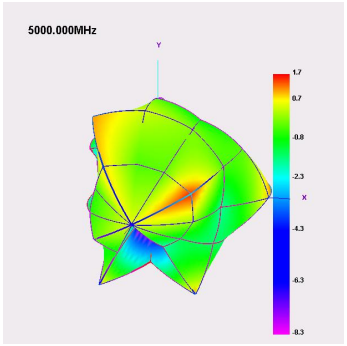


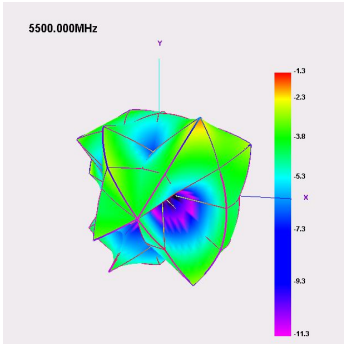


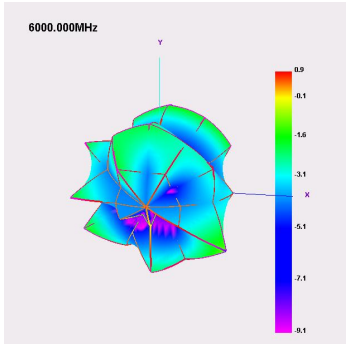


Main Antenna 5G Efficiency

Passive Test For 5Gwifi								
Freq	Effi	Effi	Gain	Gain	UHIS	DHIS	Max	Min
(MHz)	(%)	(dB)	(dBi)	(dBd)	(%)	(%)	(dB)	(dB)
5000	45.51	-3.42	1.66	-0.49	24.045	21.463	1.66	-18.99
5100	50.67	-2.95	1.69	-0.46	27.513	23.158	1.69	-10.41
5200	45.41	-3.43	0.95	-1.2	21.523	23.892	0.95	-18.93
5300	37.52	-4.26	2.26	0.11	18.173	19.344	2.26	-15.39
5400	24.49	-6.11	-1.3	-3.45	12.765	11.728	-1.3	-13.78
5500	23.66	-6.26	-1.31	-3.46	11.93	11.729	-1.31	-16.42
5600	20.07	-6.98	-2.86	-5.01	10.406	9.659	-2.86	-17.51
5700	21.89	-6.6	-0.74	-2.89	11.732	10.16	-0.74	-15.68
5800	23.49	-6.29	0.26	-1.89	12.711	10.776	0.26	-20.83
5900	21.9	-6.6	1.09	-1.06	11.826	10.076	1.09	-25.74
6000	18.79	-7.26	0.92	-1.23	9.265	9.521	0.92	-19.72



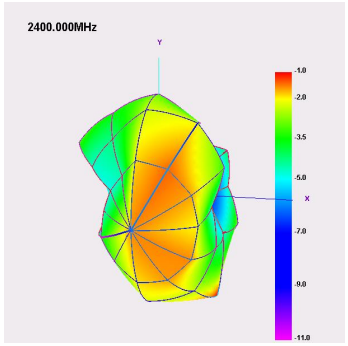


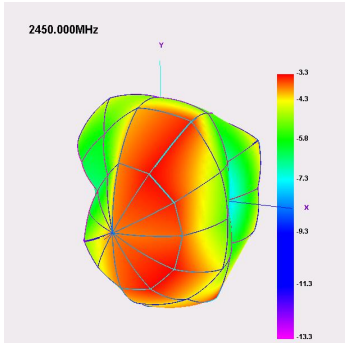


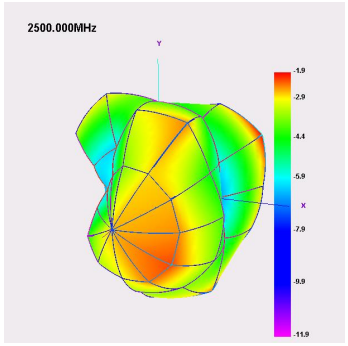
WIFI-Aux Antenna S11

Aux Antenna 2.4G Efficiency

Passive Test For 2.4Gwifi								
Freq	Effi	Effi	Gain	Gain	UHIS	DHIS	Max	Min
(MHz)	(%)	(dB)	(dBi)	(dBd)	(%)	(%)	(dB)	(dB)
2400	29.2	-5.35	-0.98	-3.13	17.01	12.189	-0.98	-16.25
2410	27.47	-5.61	-1.4	-3.55	15.839	11.63	-1.4	-16.87
2420	31.76	-4.98	-0.93	-3.08	18.163	13.594	-0.93	-17.66
2430	29.27	-5.34	-1.47	-3.62	16.624	12.644	-1.47	-20.05
2440	27.98	-5.53	-1.81	-3.96	15.763	12.215	-1.81	-21.82
2450	20.72	-6.84	-3.25	-5.4	11.514	9.207	-3.25	-23.43
2460	21	-6.78	-3.17	-5.32	11.459	9.539	-3.17	-20.36
2470	20.12	-6.96	-3.3	-5.45	10.775	9.346	-3.3	-20.47
2480	23.72	-6.25	-2.7	-4.85	12.479	11.245	-2.7	-19.98
2490	24.45	-6.12	-2.52	-4.67	12.577	11.875	-2.52	-17.97
2500	25.73	-5.9	-1.94	-4.09	12.875	12.852	-1.94	-20

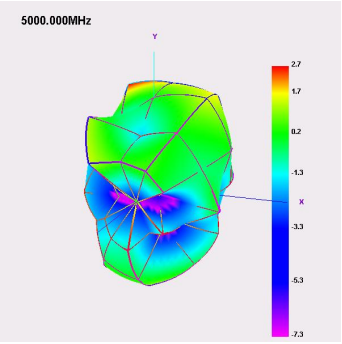


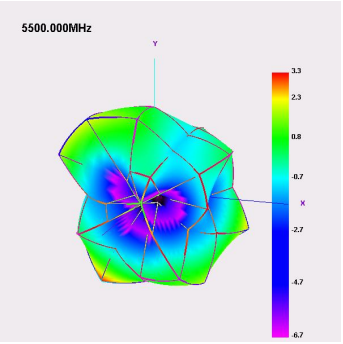


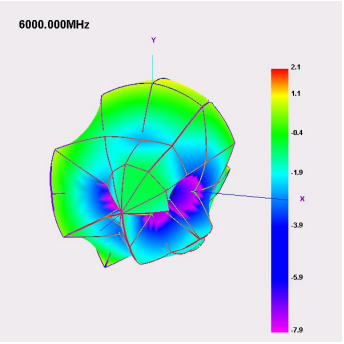


Aux Antenna 5G Efficiency

Passive Test For 5Gwifi								
Freq	Effi	Effi	Gain	Gain	UHIS	DHIS	Max	Min
(MHz)	(%)	(dB)	(dBi)	(dBd)	(%)	(%)	(dB)	(dB)
5000	52.3	-2.81	2.68	0.53	22.924	29.377	2.68	-15.9
5100	50.9	-2.93	2.24	0.09	21.371	29.534	2.24	-13.63
5200	54.99	-2.6	2.41	0.26	22.202	32.786	2.41	-15.57
5300	61.66	-2.1	2.97	0.82	26.236	35.422	2.97	-16.93
5400	56.7	-2.46	2.47	0.32	26.423	30.275	2.47	-17.57
5500	57.51	-2.4	3.27	1.12	26.67	30.836	3.27	-14.98
5600	48.65	-3.13	1.36	-0.79	22.452	26.196	1.36	-14.54
5700	47.17	-3.26	2.42	0.27	25.309	21.856	2.42	-13.16
5800	43.02	-3.66	2.3	0.15	21.97	21.053	2.3	-15.33
5900	34.93	-4.57	2.14	-0.01	16.625	18.303	2.14	-17.36
6000	39.79	-4	2.05	-0.1	16.427	23.36	2.05	-17.81







Bluetooth Distance

Distance Test	
Model	MD-100B
Location	R & D of Sward
Tools	Huawei AM08
Distance	> 10 meters

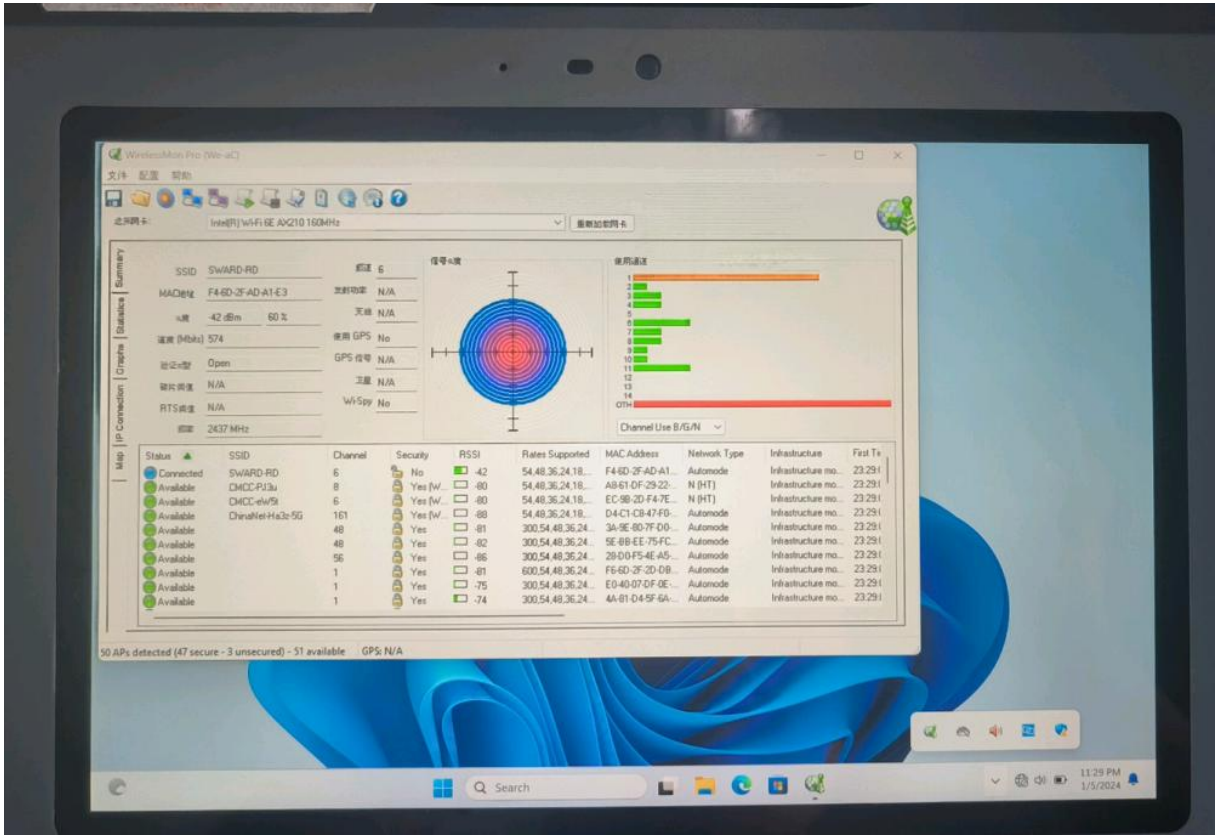
WiFi Throughput

Iperf Test for Throughput						
Type	MD-100B	Module	AX210D2W	Software	Windows_Iperf	
No.	Freq.	Status	Angle	Average Value（TX）/1min	Average Value（RX）/1min	Remarks (Packet loss)
1	2.4G	2.4G WIFI（R&D 15m）	0°	41.3 Mbps	138 Mbps	0
			90°	57.3 Mbps	160 Mbps	0
			180°	71 Mbps	161 Mbps	0
			270°	80.3 Mbps	138 Mbps	0
		-				
	5G	5F WIFI（R&D 15m）	0°	641 Mbps	775 Mbps	0
			90°	493 Mbps	750 Mbps	0
			180°	532 Mbps	735 Mbps	0
			270°	554 Mbps	765 Mbps	0

Antenna OTA Data

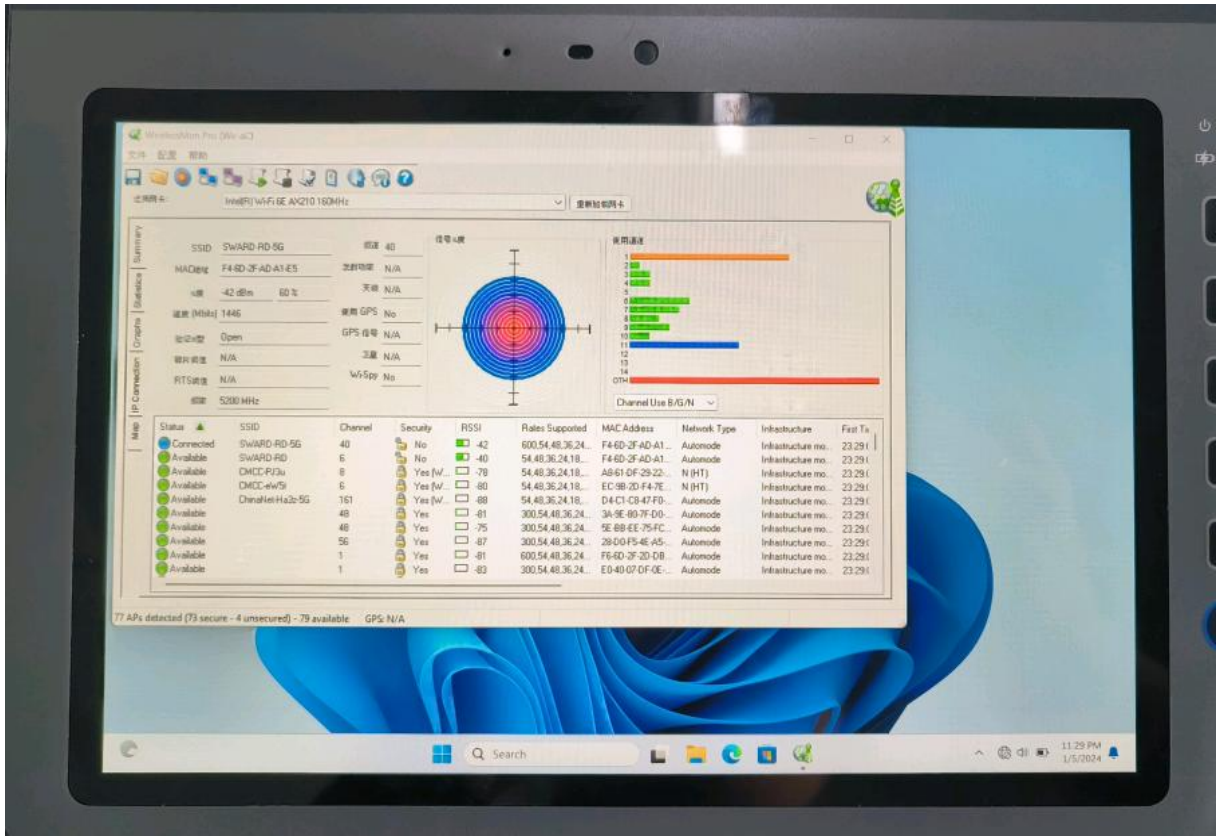
Num.	Channel	802.11b : 11MBps		802.11g : 54MBps		802.11n : MCS7		802.11a : 54MBps	
		TRP	TIS	TRP	TIS	TRP	TIS	TRP	TIS
1	1	11.18	-82.36	10.6	-69.74	11.35	-67.75	NA	NA
	7	11.53	-78.11	11.76	-69.63	12.43	-67.07	NA	NA
	13	11.02	-76.29	6.29	-69.35	7.3	-66.28	NA	NA
	36	NA	NA	NA	NA	9.87	-64.45	10.65	-66.63
	64	NA	NA	NA	NA	11.56	-68.55	11.74	-69.8
	165	NA	NA	NA	NA	13.33	-68.98	12.12	-69.96

Antenna 2.4G& 5G Signal Strength



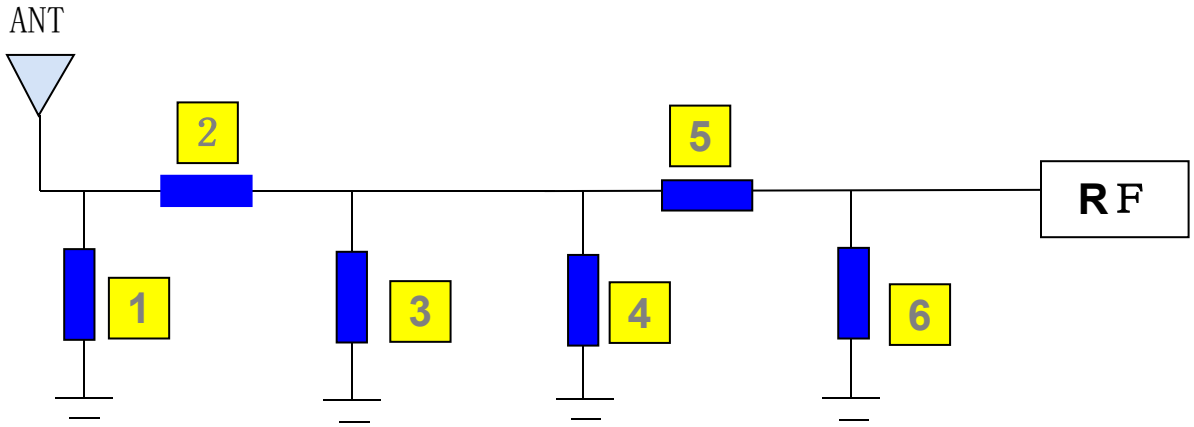
Test Location: R & D of Sward
Test Time : 11：20-11:40
Test Distance: 10-15 meters
Test Result : -45dbm to -38dbm

Antenna 2.4G& 5G Signal Strength



Test Location: R & D of Sward
Test Time : 11：20-11:40
Test Distance: 10-15 meters
Test Result : -45dbm to -38dbm

Antenna Matching Network



Antenna matching has not been changed.

Main Ant	1	2	3	4	5	6	Remarks
Original Match	-	-	-	-	-	-	-
Changed Match	-	-	-	-	-	-	-

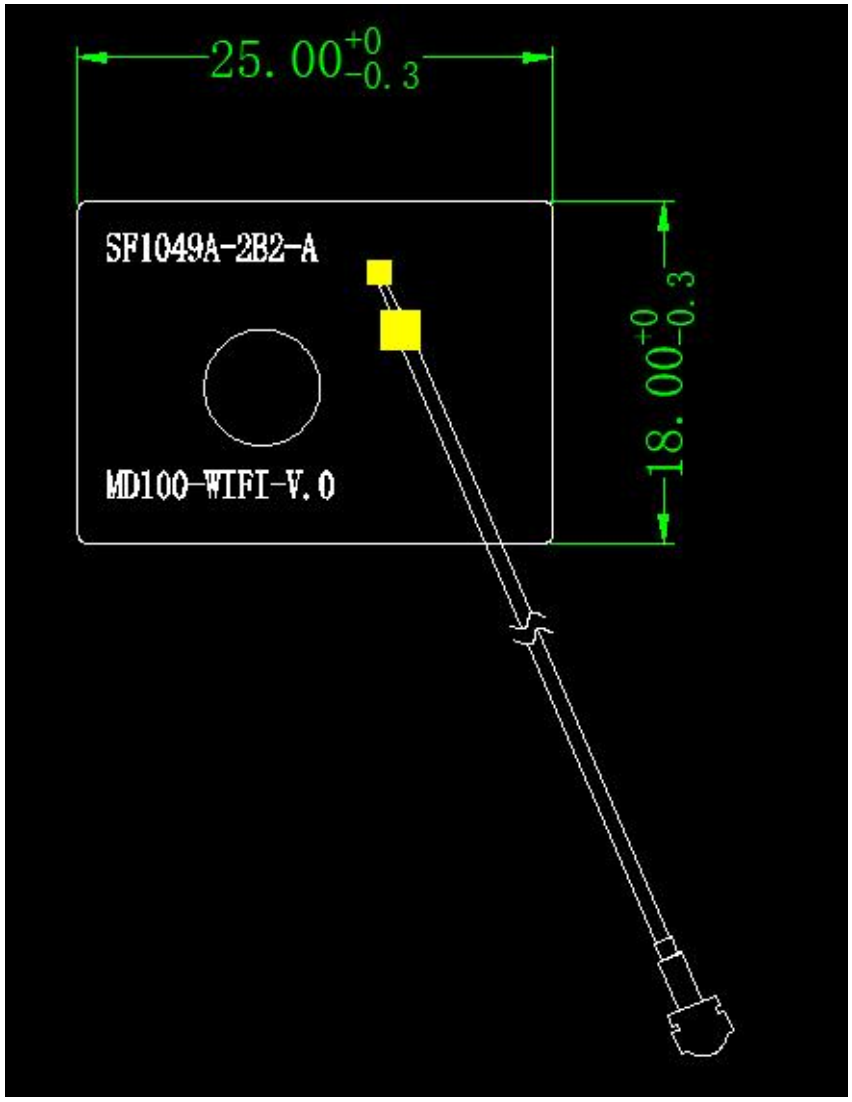
Notes:

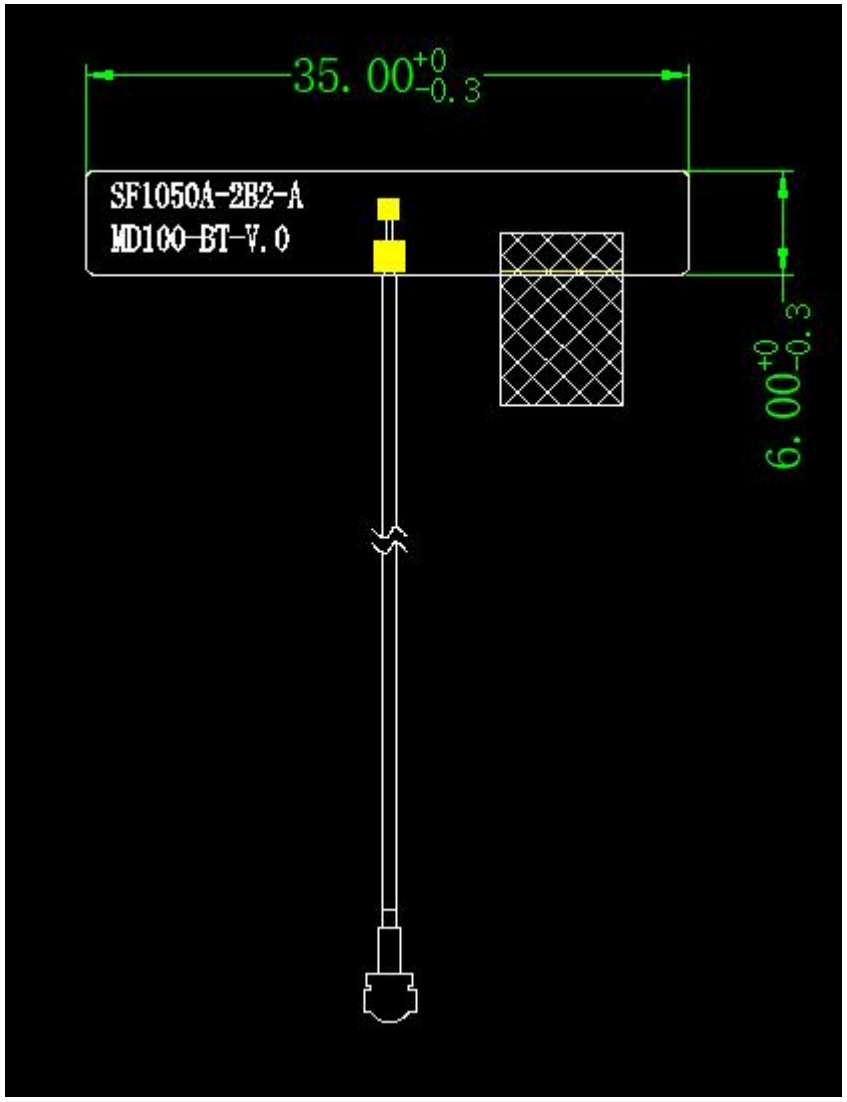
1. This report is based on the actual commissioning and testing of the commissioning prototype, including the assembly instructions, antenna position and assembly position of each device. **It cannot be changed at will;**

2. If there is **any change** in the materials used in the prototype, it is necessary to timely feed back to our company for **re-verification**;

3. List of sensitive devices:
   TP (material, coating, wiring, etc.)
   Screen (amplification circuit, led, cable layout design, etc.)
   Shell material (antenna assembly method, structural interference, shell material, antenna position height and area, etc.)
   Mainboard (mainboard conduction, RF circuit matching, PA, duplex, filter, LNA, power circuit, etc.)
   Camera, battery, motor, MIC, fingerprint identification module, etc.

4. Due to the small number or only one sample adjusting machine, some probabilistic problems cannot be completely found. **It is recommended to Check the problem points in small batch trial production before mass production**(screen flashes , horn noise, TP jump point, black screen OR crash, signal diving, etc.).


25.00 +0 -0.3
SF1049A-2B2-A
MD100-WIFI-V.0
18.00 +0 -0.3


35.00 +0 -0.3
SF1050A-2B2-A
MD100-BT-V.0
6.00 +0 -0.3