

Thorward antenna commissioning report

Customer name: A surname

Project name: TVI1065M1 (wifi version
)

Day period: 2023.6.26

Project contact information

Customer contact: Peng
Xiangmei
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Mail box:

Soward structure: Wende Yeung
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Project profile

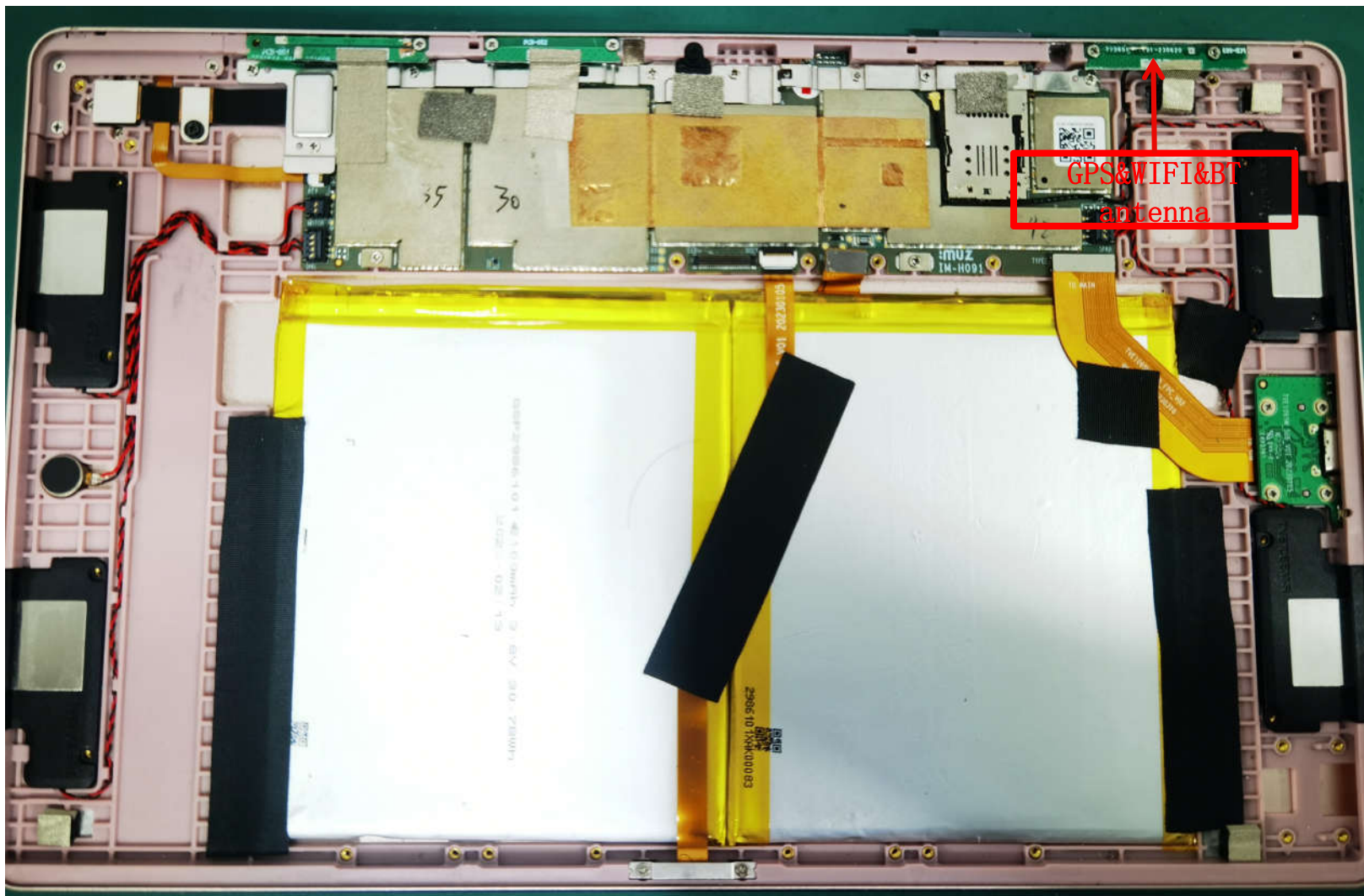
1. Project description

Item antenna number	Machine subtype
3	tablet
Shell material: 10.1 inch full metal + metal broken edge private mold	

2. Antenna brief

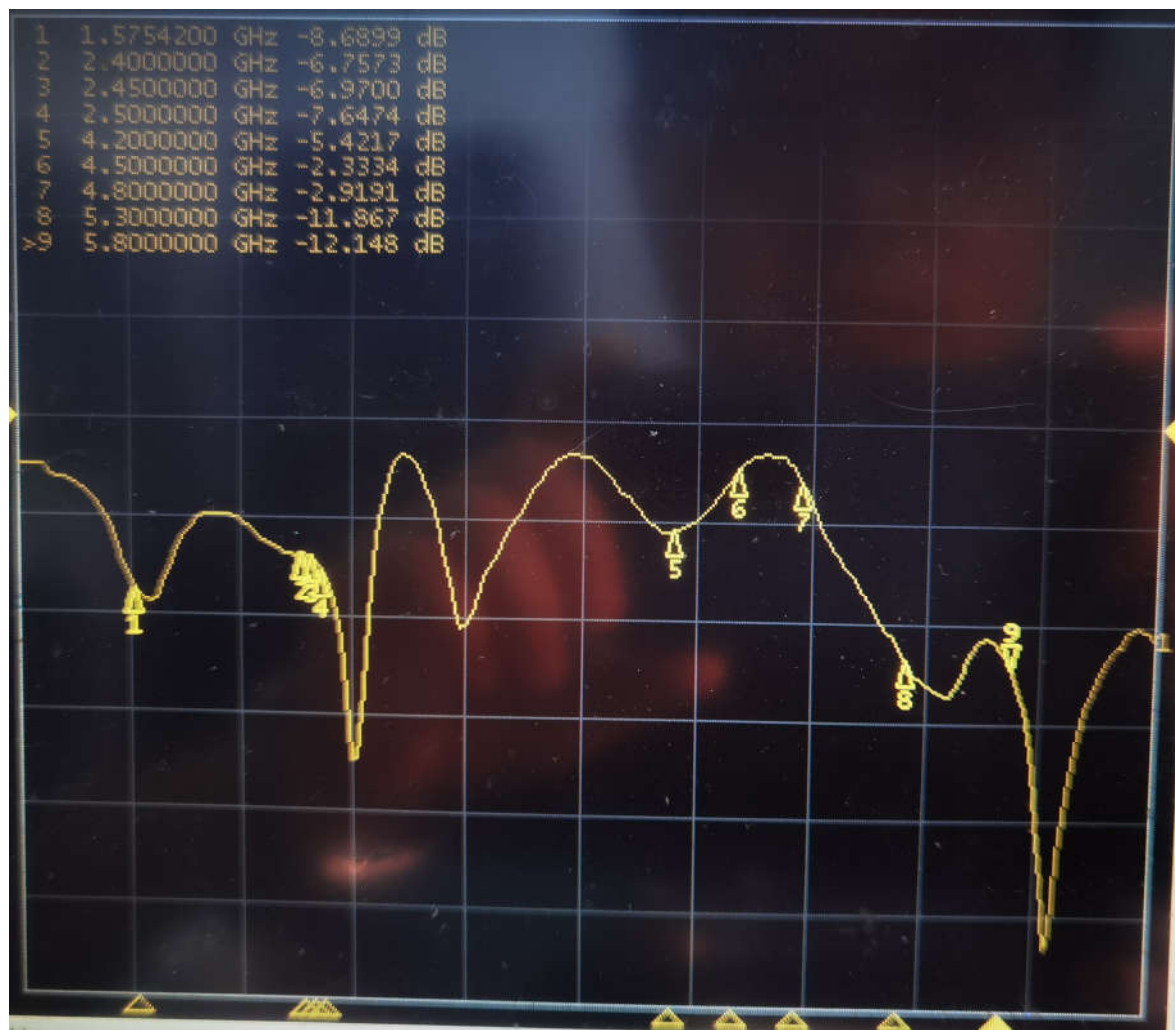
Antenna number	name	Operating frequency band/MHZ	Material/Structure
1	GPS&WIFI&BT&5Gwifi	1575.42MHZ&2400-2500MHZ&5800MHZ	PCB
2			
3			

Antenna layout



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WIFI antenna S11

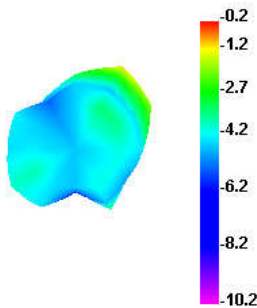


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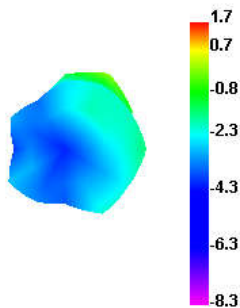
WIFI antenna efficiency

Passive Test For 2.4G												
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Gain (dBd)	UHS (%)	DHS (%)	Max (dB)	Min (dB)	Directivit y (dBi)	Beamwidth (3dB)	AttH (dB)	AttV (dB)
2400	22.15	-6.55	-0.16	-2.31	8.937	13.208	-0.16	-14.88	6.39	60	46.77	47.04
2410	22.43	-6.49	0.25	-1.9	9.071	13.358	0.25	-15.69	6.74	60	46.94	47.16
2420	23.69	-6.25	0.53	-1.62	9.66	14.034	0.53	-16.19	6.79	60	47.02	47.39
2430	25.03	-6.02	0.99	-1.16	10.284	14.746	0.99	-16.29	7.01	60	47.31	47.67
2440	27.73	-5.57	1.36	-0.79	11.599	16.128	1.36	-15.26	6.93	60	47.68	47.91
2450	29.88	-5.25	1.74	-0.41	12.602	17.278	1.74	-13.52	6.99	60	47.98	48.27
2460	30.5	-5.16	1.66	-0.49	12.884	17.614	1.66	-14.54	6.82	30	47.79	48.02
2470	30.18	-5.2	1.63	-0.52	12.661	17.522	1.63	-15	6.83	30	47.6	47.7
2480	31.24	-5.05	1.75	-0.4	12.891	18.344	1.75	-14.51	6.81	30	47.93	48.05
2490	32.69	-4.86	1.99	-0.16	13.202	19.489	1.99	-13.34	6.85	30	48.1	47.95
2500	34.3	-4.65	2.28	0.13	13.641	20.663	2.28	-13.32	6.92	30	48.13	48.09

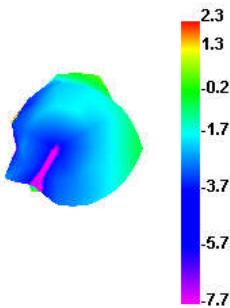
2400.000MHz



2450.000MHz



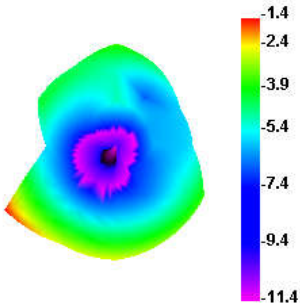
2500.000MHz



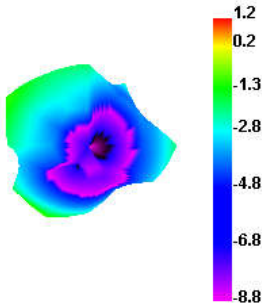
WIFI antenna efficiency

Passive Test For 5G-WIFI												
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Gain (dBd)	UHS (%)	DHS (%)	Max (dB)	Min (dB)	Directivity (dBi)	Beamwidth (3dB)	AttH (dB)	AttV (dB)
5000	15.48	-8.1	-1.39	-3.54	6.344	9.133	-1.39	-21.98	6.71	0	57.34	57.35
5100	15.1	-8.21	-1.62	-3.77	5.95	9.149	-1.62	-17.52	6.59	0	57.81	57.76
5200	17.26	-7.63	-0.34	-2.49	6.904	10.357	-0.34	-18.14	7.29	0	56.99	56.81
5300	21.8	-6.62	1.26	-0.89	8.261	13.534	1.26	-18.02	7.88	0	56.76	56.86
5400	19.91	-7.01	0.91	-1.24	7.24	12.671	0.91	-16.46	7.92	0	56.69	56.95
5500	19.7	-7.06	1.21	-0.94	7.018	12.678	1.21	-19.16	8.27	0	57.35	58.31
5600	16.06	-7.94	0.17	-1.98	5.687	10.37	0.17	-16.56	8.11	0	58.6	59.56
5700	18.04	-7.44	0.01	-2.14	6.241	11.795	0.01	-18.47	7.45	0	59.11	59.81
5800	17.82	-7.49	-1.51	-3.66	6.859	10.961	-1.51	-14.84	5.99	0	59.62	60.26
5900	22.33	-6.51	-1.54	-3.69	9.597	12.737	-1.54	-14.29	4.97	90	60.04	61.12
6000	22.73	-6.43	0.34	-1.81	10.155	12.572	0.34	-13.92	6.77	60	61.72	62.72

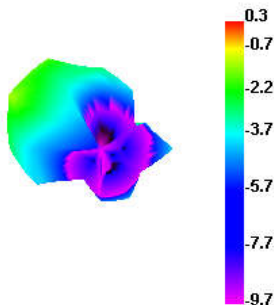
5000.000MHz



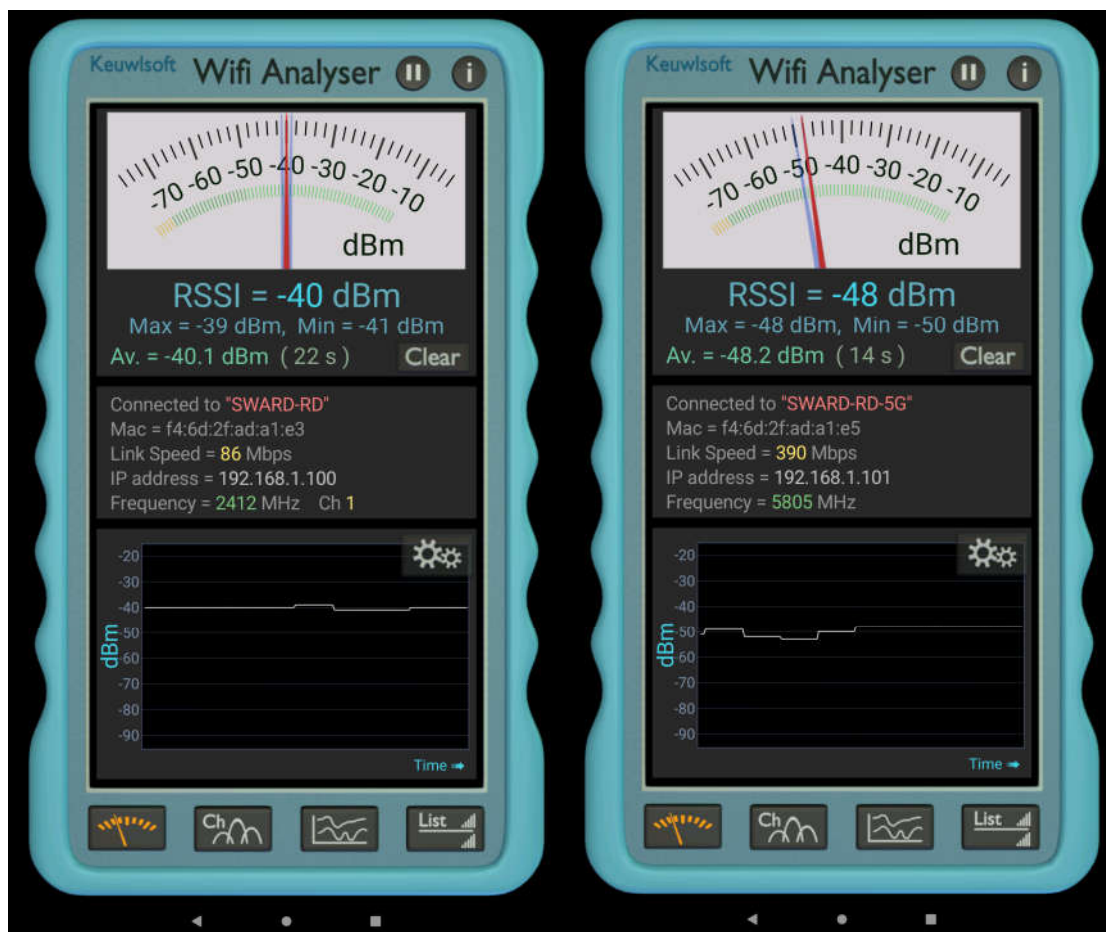
5500.000MHz



6000.000MHz



WIFI antenna signal strength measurement picture (data)



Test location: Our R & D
office
Test distance: 10-15
meters
Signal strength: -47dBm to
-38dBm

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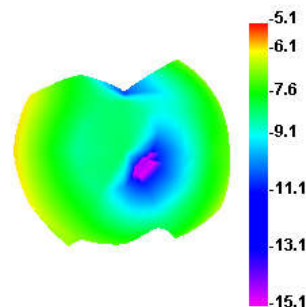
WIFI antenna active data (lit 50%)

802.11b : 11Mbps		
1	7	13
2412	2442	2472
10.22	11.66	10.49
-79.57	-82.71	-78.8
802.11g : 54Mbps		
1	7	13
2412	2442	2472
9.88	10.57	8.91
-66.94	-70.61	-66.47
802.11n : MCS7		
1	7	13
2412	2442	2472
9.11	10.39	9.22
-62.85	-65.68	-62.48
802.11n : MCS7		
36	64	165
5180	5320	5825
9.14	10.05	10.13
-67.31	-67.6	-65.75

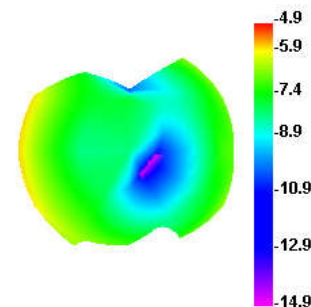
GPS antenna efficiency

Passive Test For GPS-BD-GNSS				
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Gain (dBd)
1560	14.4	-8.42	-5.13	-7.28
1561	14.53	-8.38	-5.09	-7.24
1562	14.75	-8.31	-5.03	-7.18
1563	14.96	-8.25	-4.98	-7.13
1564	15.17	-8.19	-4.94	-7.09
1565	15.31	-8.15	-4.91	-7.06
1566	15.35	-8.14	-4.92	-7.07
1567	15.29	-8.16	-4.93	-7.08
1568	15.19	-8.19	-4.95	-7.1
1569	15.04	-8.23	-5.01	-7.16
1570	14.93	-8.26	-5.02	-7.17
1571	14.77	-8.31	-5.05	-7.2
1572	14.68	-8.33	-5.06	-7.21
1573	14.69	-8.33	-5.04	-7.19
1574	14.77	-8.31	-5	-7.15
1575	14.97	-8.25	-4.95	-7.1
1576	15.16	-8.19	-4.86	-7.01
1577	15.39	-8.13	-4.81	-6.96
1578	15.56	-8.08	-4.76	-6.91
1579	15.63	-8.06	-4.75	-6.9
1580	15.59	-8.07	-4.75	-6.9

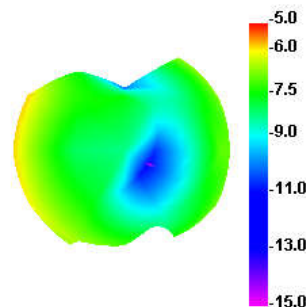
1560.000MHz



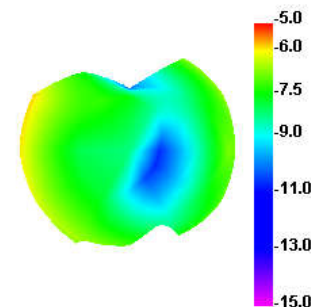
1565.000MHz



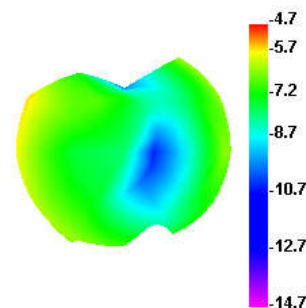
1570.000MHz



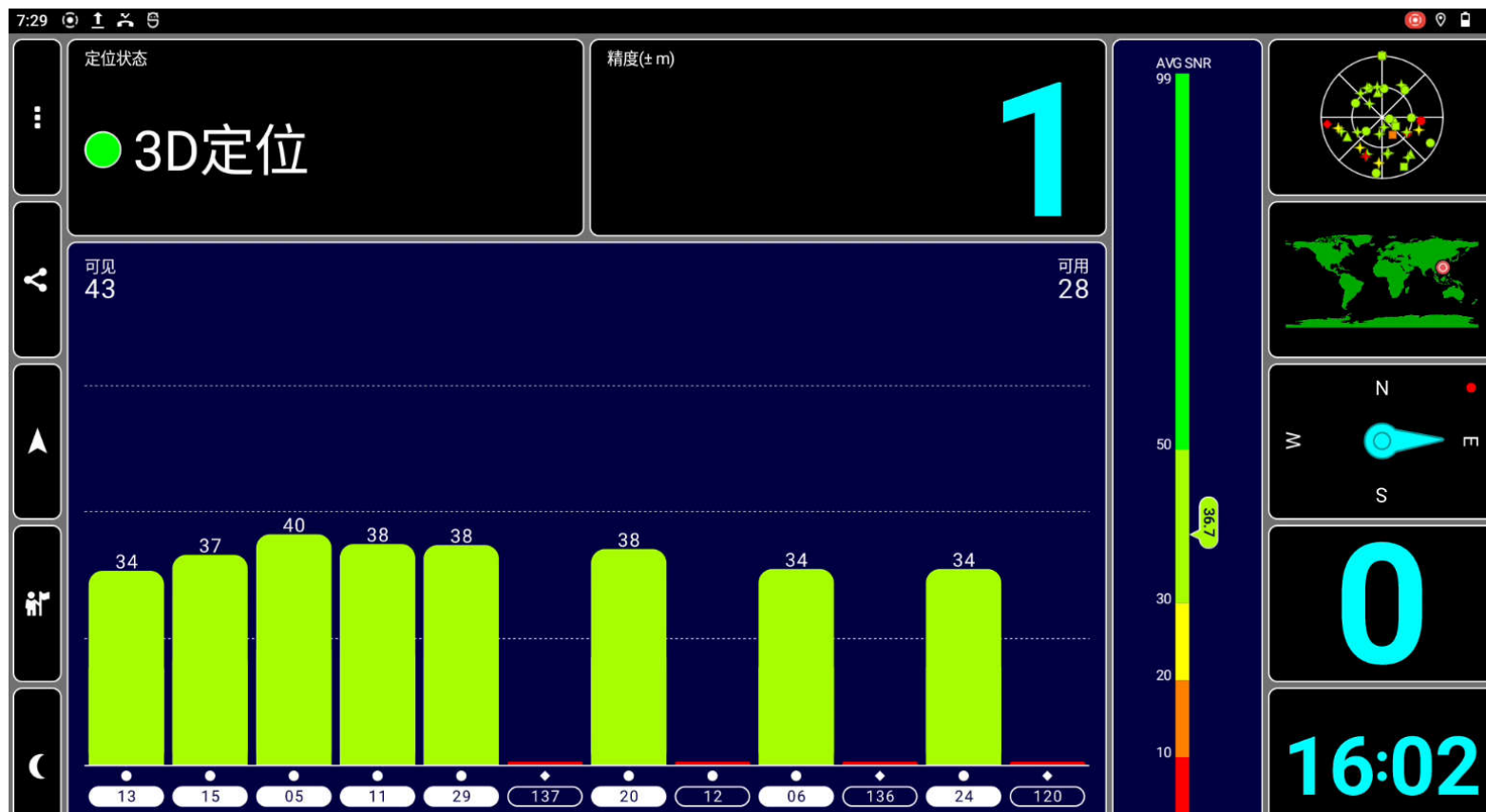
1575.000MHz



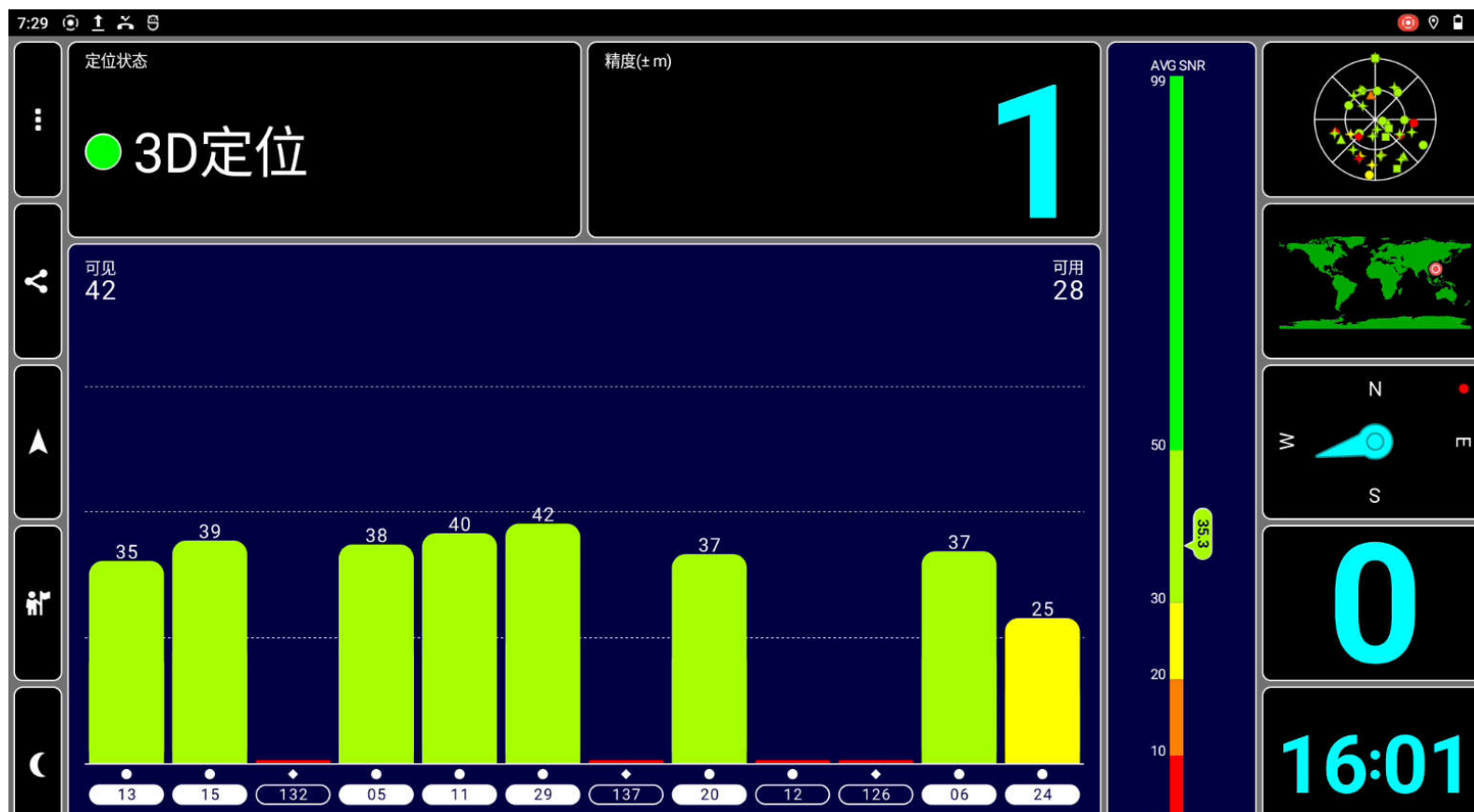
1580.000MHz



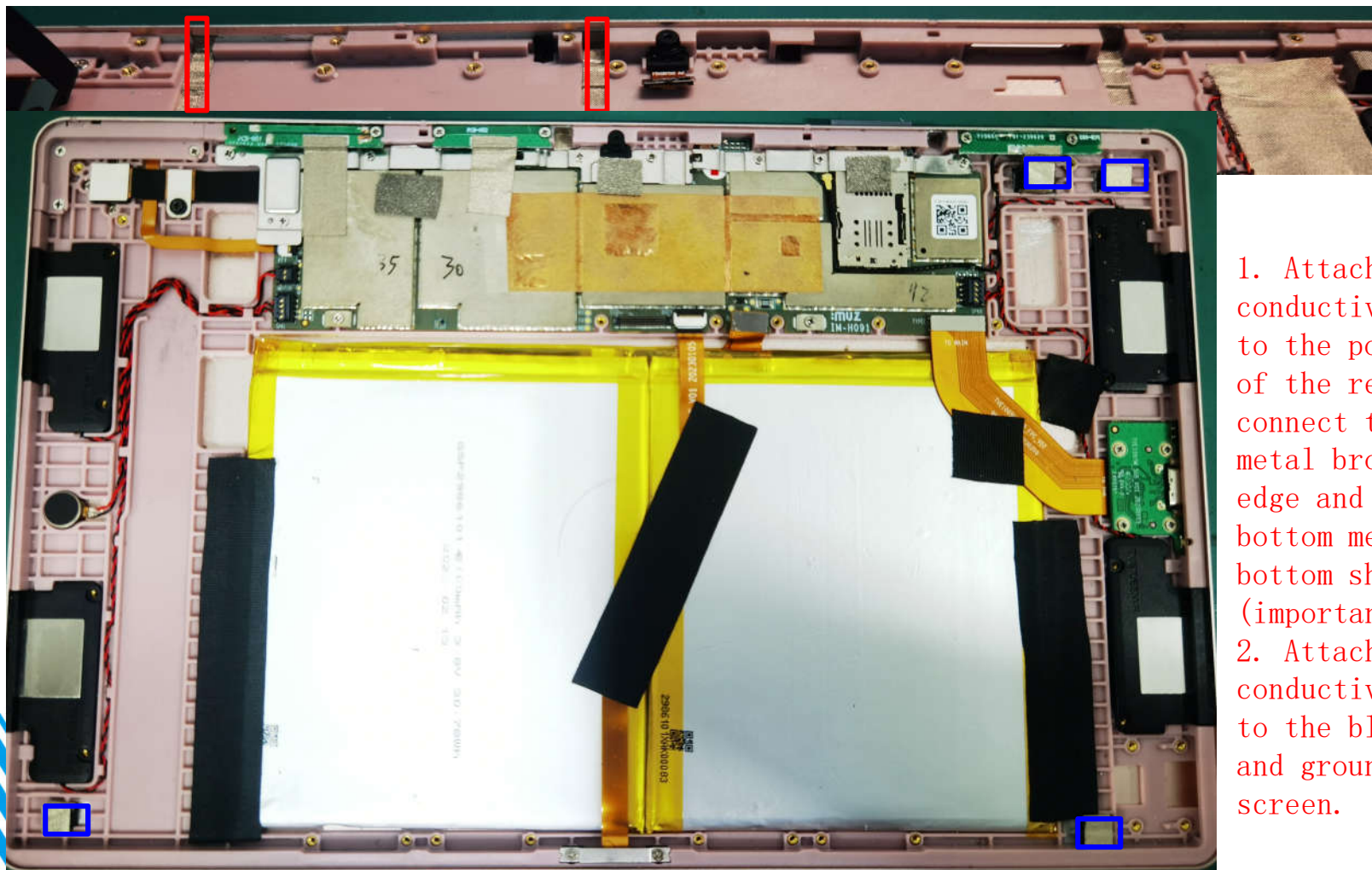
GPS measured pictures (data)



GPS measured pictures (data)

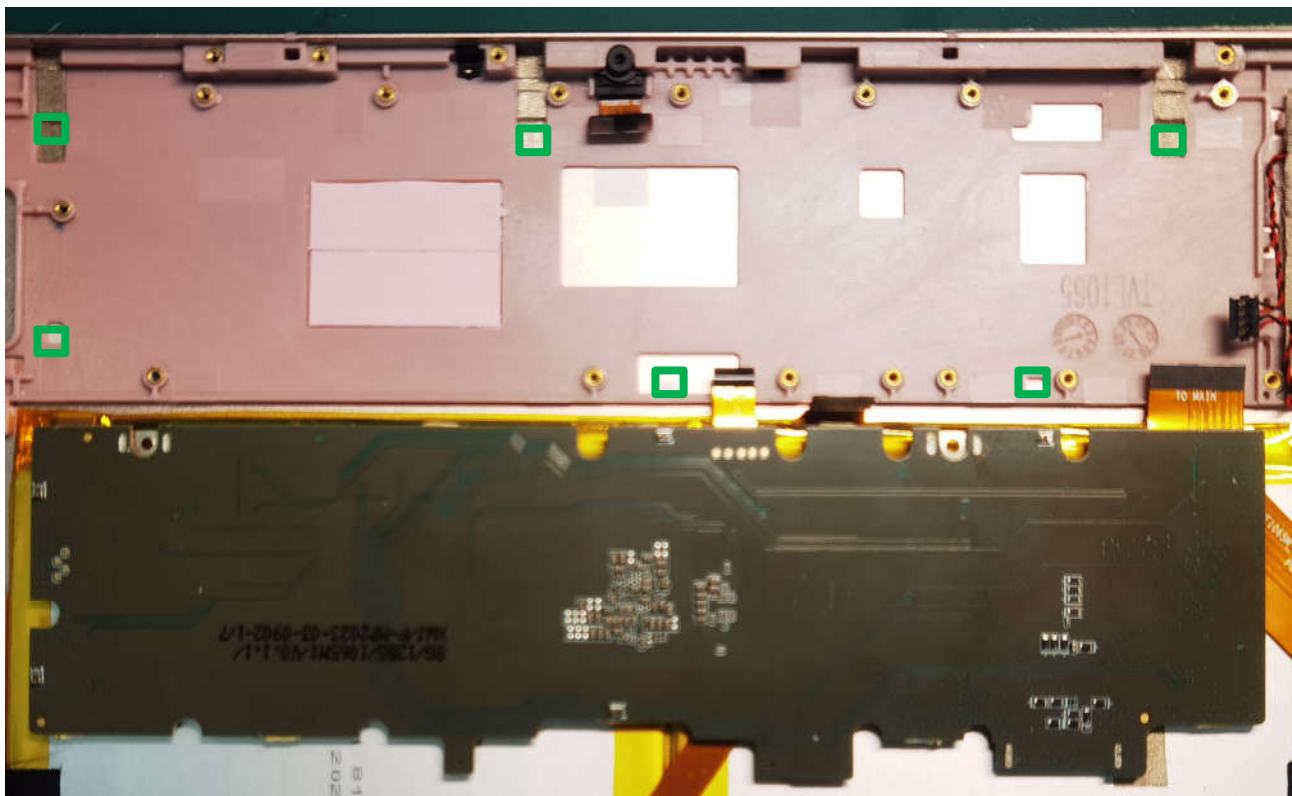


Environmental handling and assembly instructions



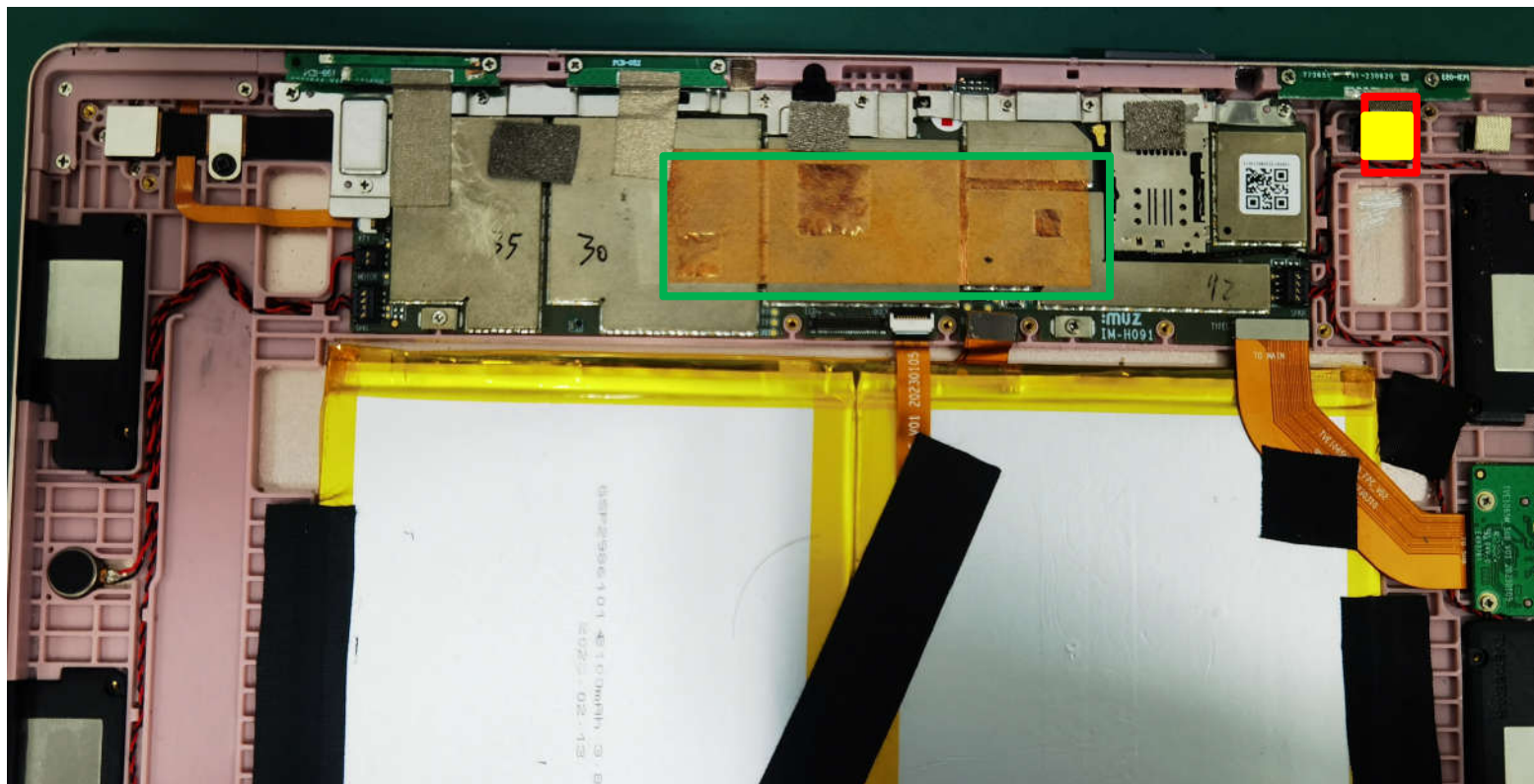
1. Attach conductive cloth to the position of the red box, connect the side metal broken edge and the bottom metal bottom shell; (important)
2. Attach conductive foam to the blue box and ground the screen.

Environmental handling and assembly instructions



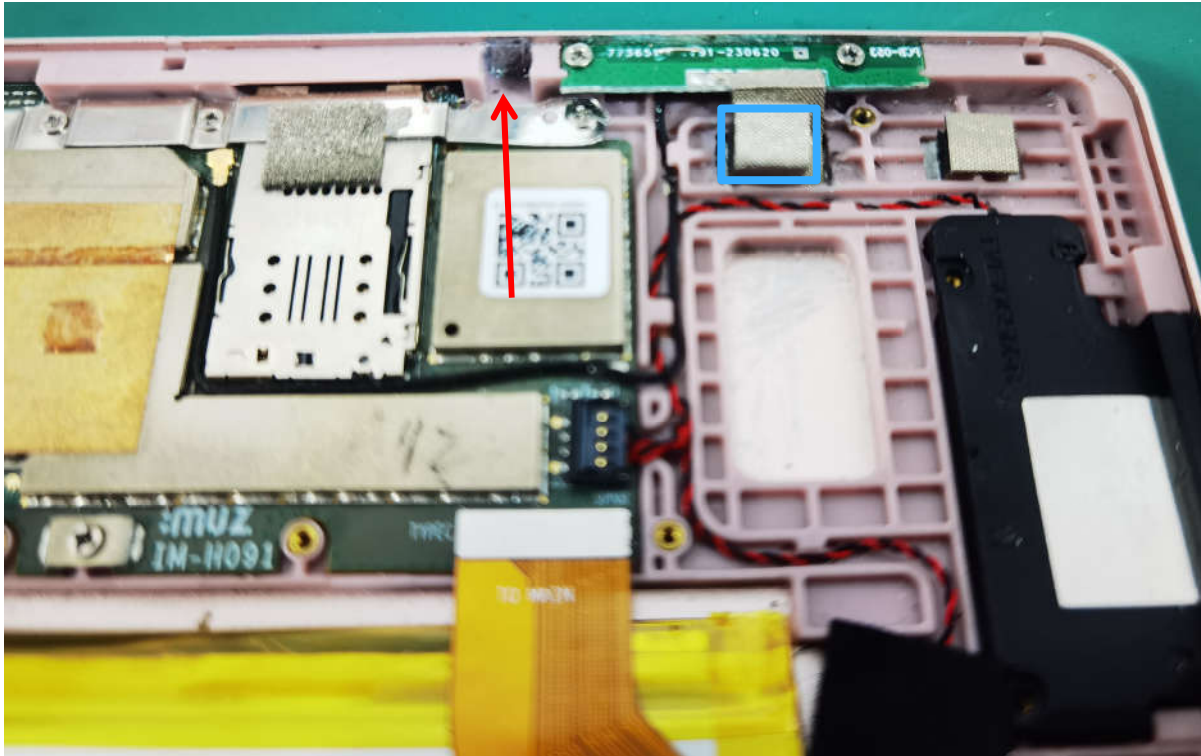
3. Attach a conductive sponge (or ground pin of the mainboard) to the green box for grounding the mainboard.

Environmental handling and assembly instructions



4. Attach copper foil to the position of the green box, and screen the position of the window opening of the shield cover (improve the GPS effect)
5. Attach conductive foam to the yellow box to ground the GPS&WIFI panel with the screen;

Compared with the first prototype, the environmental treatment is different



1. Ground the conductive cloth on the broken edge of the card slot. (as indicated by red arrow)
2. Add conductive foam grounding (screen and metal shell) to the GPS&WIFI antenna position, such as the position of the blue box.

Note: 1. This report is based on the actual commissioning and testing of the commissioning prototype, including environmental treatment, antenna position and assembly position of each device

Cannot be changed at will;

2. If there is any change in the materials used by the prototype, please timely report to our company for re-verification;

3. List of sensitive devices:

TP (material, coating, wiring, etc.)

Screen (amplifier circuit, LED, wiring design, etc.)

Shell material (antenna assembly method, structural interference, shell material, antenna position height and area, etc.)

Motherboard (motherboard conduction, RF circuit matching, PA, dual power, filter, LNA, power circuit, etc.)

Camera, battery, motor, MIC, fingerprint recognition module, etc

4. Due to the small number of commissioning prototypes or only one, some probability problems can not be completely found, it is recommended to troubleshoot the problem points in small batches of trial production before mass production (such as flashing screen, loudspeaker noise, TP jump point, black screen death, signal diving, etc.)