Soward Antenna Commissioning Report

Customer name:Yipuda

Project name: ES1058-10.1 ″plastic shell – Biota –W863-W motherboard –MT8183V main control

Date:2023.05.06

Project contact information

Customer contact:
cell phone:
Mail:

Soward structure:

Mobile phone:

Tel: 0755-29985185

Mail box: yangwende@szsward.com

Soward Radio frequency: Wende Yang

Mobile phone: 176 7457 9060

Tel: 0755-29985185

Mail box: yangwende@szsward.com

Building B, Hexi Hangcheng Industrial Zone, No. 135 Qianjin No. 2 Road, Baoan District, Shenzhen

Project Description

1. Project Overview

Project Antenna Number	Machine type
1	Flat plate
Machine shell material: plastic shell	

2. Antenna Brief

Antenna number	name	Working frequency/MHZ	Material/Structure
1	WIFI&GPS&BT&5Gwifi	2400MHz/2500MHz&1575MHz&5.8GHz	FPC

Antenna layout
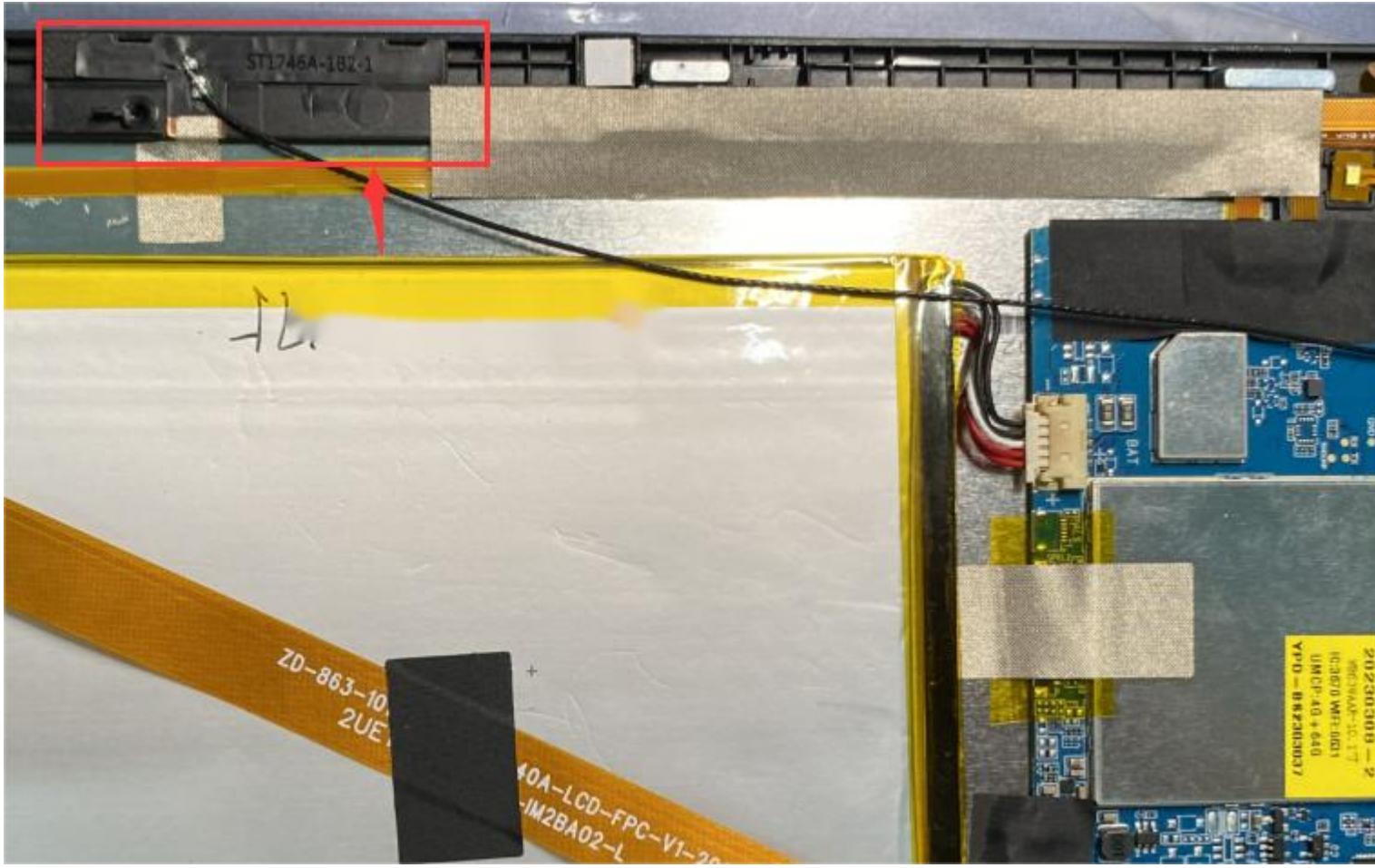
WIFI&GPS&BT antenna S11

Measured distance of BT antenna

Measured effect	
Model number	1
Test environment	Soward Research and Development Center
Test equipment	Huawei AMO8
Test distance	15m $\geqslant$

WIFI&BT Antenna efficiency

Passive Test For 2.4G			
Freq	Effi	Effi	Gain
(MHz)	(%)	(dB)	(dBi)
2400	38.27	-4.17	1.55
2410	36.26	-4.41	1.29
2420	39.88	-3.99	1.52
2430	41.92	-3.78	1.76
2440	41.84	-3.78	1.54
2450	41.4	-3.83	1.56
2460	38.44	-4.15	1.06
2470	35.65	-4.48	0.73
2480	36.07	-4.43	0.7
2490	39.71	-4.01	1.1
2500	42.05	-3.76	1.34

2400.000MHz
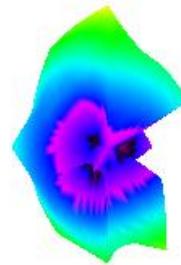
2450.000MHz
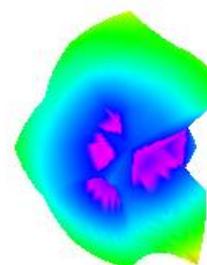
2430.000MHz
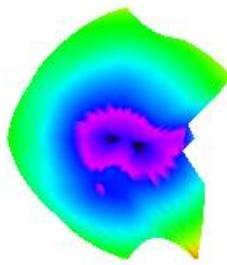
5GWIFI Antenna efficiency

Passive Test For 5G-WIFI			
Freq	Effi	Effi	Gain
(MHz)	(%)	(dB)	(dBi)
5000	26.27	-5.81	-0.09
5100	26.43	-5.78	-1.06
5200	28.54	-5.45	-1.19
5300	33.19	-4.79	-0.23
5400	31.31	-5.04	-0.36
5500	33.16	-4.79	0.18
5600	29.37	-5.32	-0.45
5700	30.75	-5.12	0.4
5800	29.72	-5.27	0.19
5900	25.81	-5.88	-1.36
6000	29.35	-5.32	-0.77

5000.000MHz

-0.1
-1.1
-2.6
-4.1
-6.1
-8.1
-10.1

5500.000MHz

0.2
-0.8
-2.3
-3.8
-5.8
-7.8
-9.8

6000.000MHz

-0.8
-1.8
-3.3
-4.8
-6.8
-8.8
-10.8
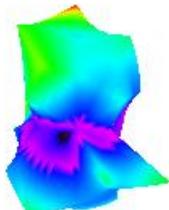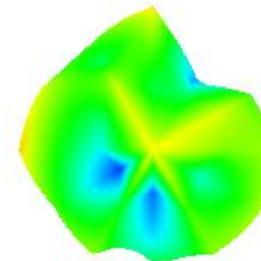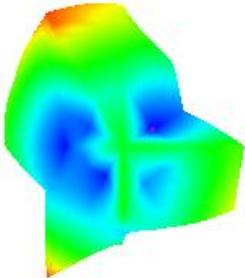
WIFI antenna active data

802.11b : 11MBps		
1	7	13
2412	2442	2472
13.25	14.42	14.34
-83.82	-84.51	-83.38

802.11g : 54MBps		
1	7	13
2412	2442	2472
11.62	12.03	11.91
-71.62	-71.9	-71.57

802.11n : MCS7		
1	7	13
2412	2442	2472
12.34	12.71	12.56
-67	-67.62	-67.83

802.11n : MCS7		
36	136	165
5180	5680	5825
10.46	11.28	12.6
-66.32	-67.93	-66.82

802.11a : 54MBps		
36	136	165
5180	5680	5825
10.62	11.63	12.96
-70.12	-71.54	-72.06

WIFI antenna throughput test

Iperf throughput test						
Machine type		module		Software version		
Model number	channel	distance	Test Angle	Test data (TX) 1min mean value	Mean value of test data (RX) in 1min	Remarks (times of switching)
2.4GWIFI		15米	0°	51.9M/S	60.5M/S	0
			90°	52.3M/S	58.7M/S	
			180°	51.1M/S	62.9M/S	
			270°	52.3M/S	59.7M/S	
5GWIFI		15米	0°	241M/S	308M/S	0
			90°	249M/S	323M/S	
			180°	250M/S	284M/S	
			270°	248M/S	325M/S	

WIFI antenna signal intensity measured picture (data)

Test location: R&D office of our company
Test time: 14:00-14:30
Test distance: 10-15 meters
Signal strength: -38dBm to -30dBm

WIFI antenna signal intensity measured picture (data)
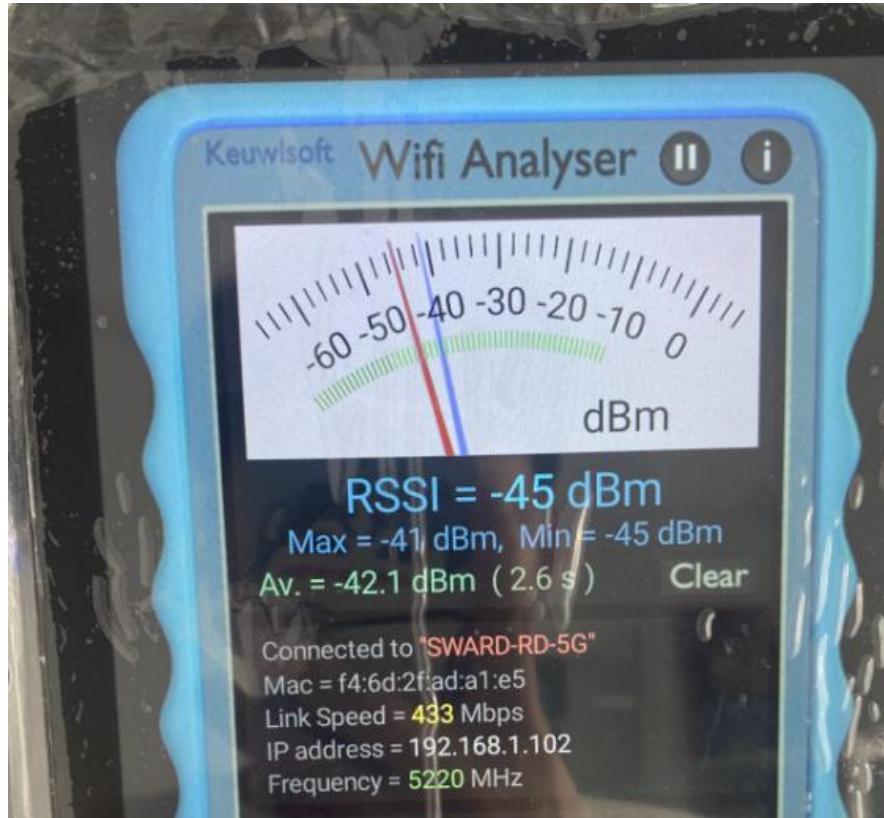
Test location: R&D office of our company
Test time: 14:00-14:30
Test distance: 10-15 meters
Signal strength: -50dBm to -45dBm

Environmental handling and assembly instructions
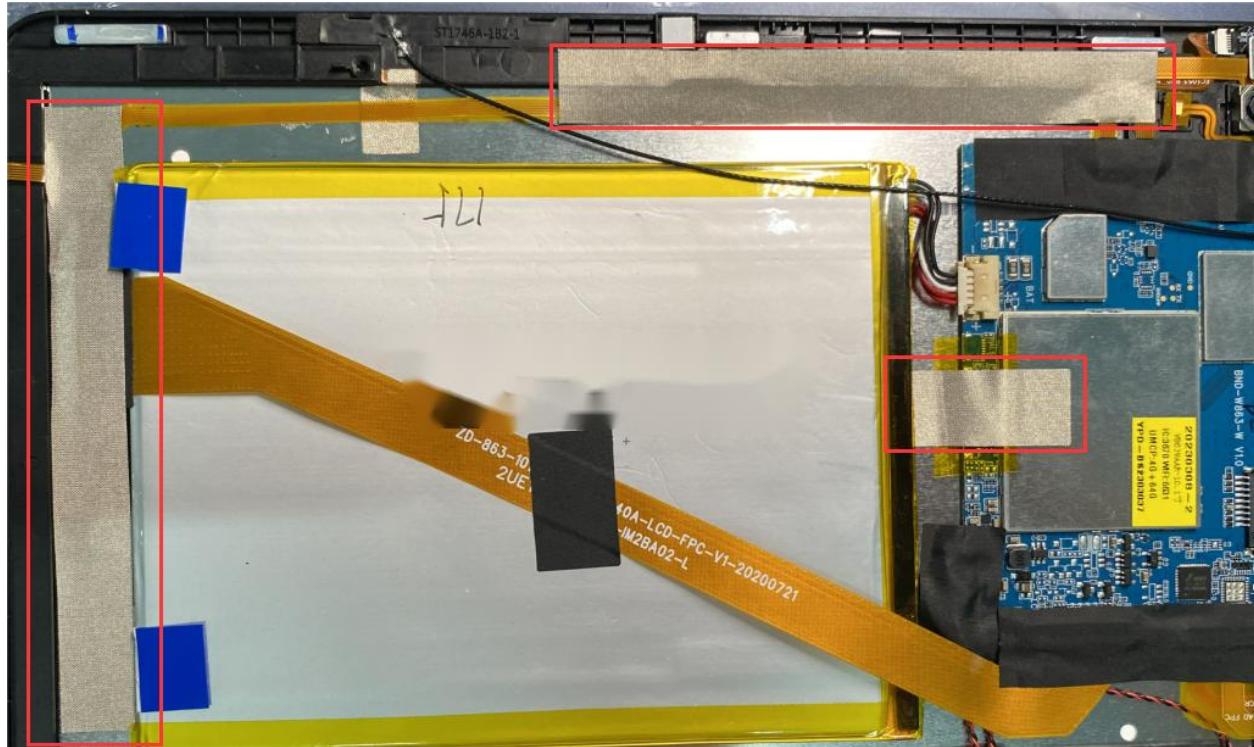
Use conductive cloth to mask the seat element of the red frame
The shielding cover above the motherboard is grounded with conductive cloth
The camera wiring is shielded by conductive cloth

drawing

The 3 generation terminals

Motherboard welding

Tin

170^{+2}_{-0}

0.81 ± 0.05

1.00 ± 0.2
1.50 ± 0.2
2.00 ± 0.2

48.00

2.00

5.50

单面背胶绝缘泡棉　单个出货

10.00 ± 0.2

15.00 ± 0.2

conductive fabric

43.52 ± 0.2

② ST1746A-1B2-A

③

12.18 ± 0.2

①Terminal
facing inward

technical requirements:
1.* for critical dimensions;
2. Size conform to the requirements of the drawings;
3. No virtual welding welding point, false welding. Require
full welding points.
4. Network test pass.
5. No marked tolerance according to SJ/T 10628 1995 6classes;

5														
4	Insulating foam	black	1	48*5.5*2mm										
3	conductive fabric	gray	1	10*15mm										
2	FPC	black	1	ST1746A-1B2-A	RD	YWD	2023.06.12	Q C						
1	coaxial line	black	1	φ=0.81MM	RF									
	name	color	quantity	specifications	audits	signatures	date	mass	signatures	date				

ShenZhen SWARD Communication
Technology Co.Ltd

SWARD

ST1746A-1R23B-170-A

time markup

percentage

1 | A | 1 : 1

ROHS

Note: 1. This report is based on the actual debugging and testing of the debugging 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 in the prototype, it is necessary to timely feedback to our company for re-verification;

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

4. Due to the small number of debugging prototypes or only one, some probabilistic problems cannot be completely found. It is recommended to check the problem points in small batches before mass production (such as splash screen, noise from speakers, TP jump, black screen of death, signal diving, etc.)