Soward Antenna Debugging Report

Customer Name: Metong

project name: Mirror 1 (Large Screen Strap Recorder NT96580-8821 Module)

Date: 2024.09.02

Project Contact Information

Customer contact person:
mobile phone:
Email:

Soward structure:
mobile phone:
Phone: 0755-29985185
Email: yangwende@szsward.com

Soward RF: Xiao Chunyan
mobile phone:
Phone: 0755-29985185
Email: swdrd005@szsward.com

Project Introduction

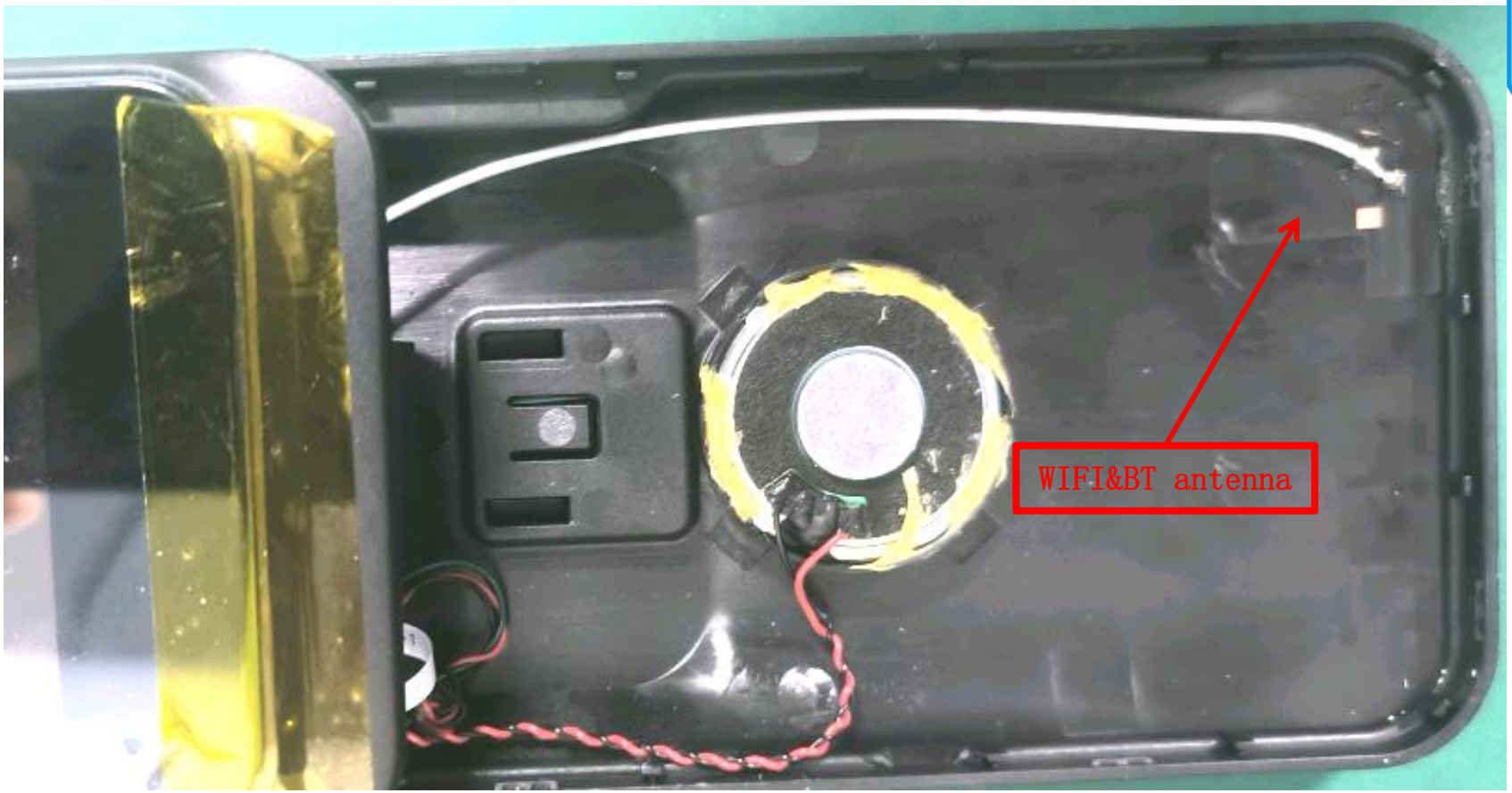
1.Project Overview

Number of project antennas	Machine type
1	WiFi car device
Material of the whole machine shell: large screen strap type recorder	

2.Antenna Overview

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

Antenna layout



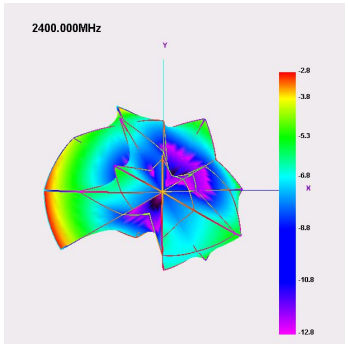
WIFI&BT antenna S11

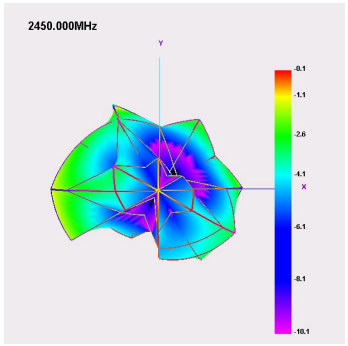
WIFI antenna active data

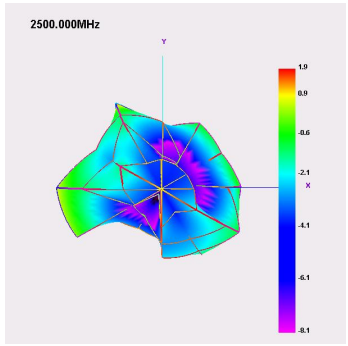
Model number	channel	b mode（11MHz）		g mode（54MHz）		n mode（MCS7）		a mode（54MHz）	
		TRP	TIS	TRP	TIS	TRP	TIS	TRP	TIS
1	1	13.87	-80.94	14.54	-66.52	14.22	-64.56	NA	NA
	6	13.68	-80.46	14.65	-67.01	14.13	-62.66	NA	NA
	11	13.38	-78.27	14.4	-65.02	14.21	-60.93	NA	NA
	36	NA	NA	NA	NA	10.73	-66.68	9.08	-68.93
	64	NA	NA	NA	NA	10.34	-64.98	9.89	-67.61
	165	NA	NA	NA	NA	11.87	-67.15	10.89	-69.89

WIFI&BT antenna efficiency

Passive Test For 2.4Gwifi								
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Gain (dBd)	UHIS (%)	DHIS (%)	Max (dB)	Min (dB)
2400	31.15	-5.07	-2.83	-4.98	11.853	19.296	0.61	-13.93
2410	35.4	-4.51	-1.94	-4.09	13.387	22.014	1.4	-13.67
2420	36.07	-4.43	-1.77	-3.92	13.693	22.375	1.3	-13.56
2430	38.14	-4.19	-1.28	-3.43	14.475	23.669	1.6	-13.86
2440	37.81	-4.22	-1.14	-3.29	14.18	23.635	1.85	-13.82
2450	43.89	-3.58	-0.06	-2.21	16.622	27.265	2.26	-12.71
2460	47.41	-3.24	0.61	-1.54	17.867	29.541	2.52	-13.1
2470	47.77	-3.21	1.4	-0.75	18.097	29.67	2.52	-11.85
2480	41.43	-3.83	1.3	-0.85	15.731	25.7	1.9	-12.56
2490	41.31	-3.84	1.6	-0.55	15.603	25.706	1.88	-12.88
2500	43.48	-3.62	1.85	-0.3	16.42	27.064	2.1	-13.37

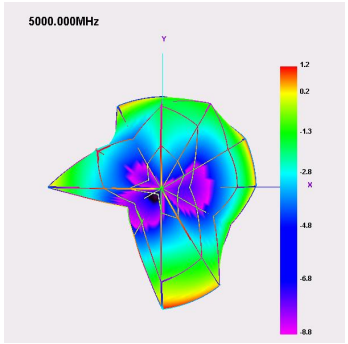


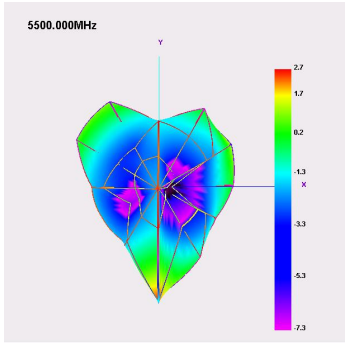


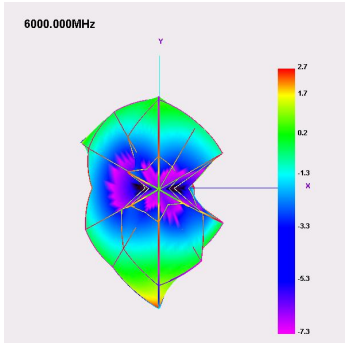


5G WIFI antenna efficiency

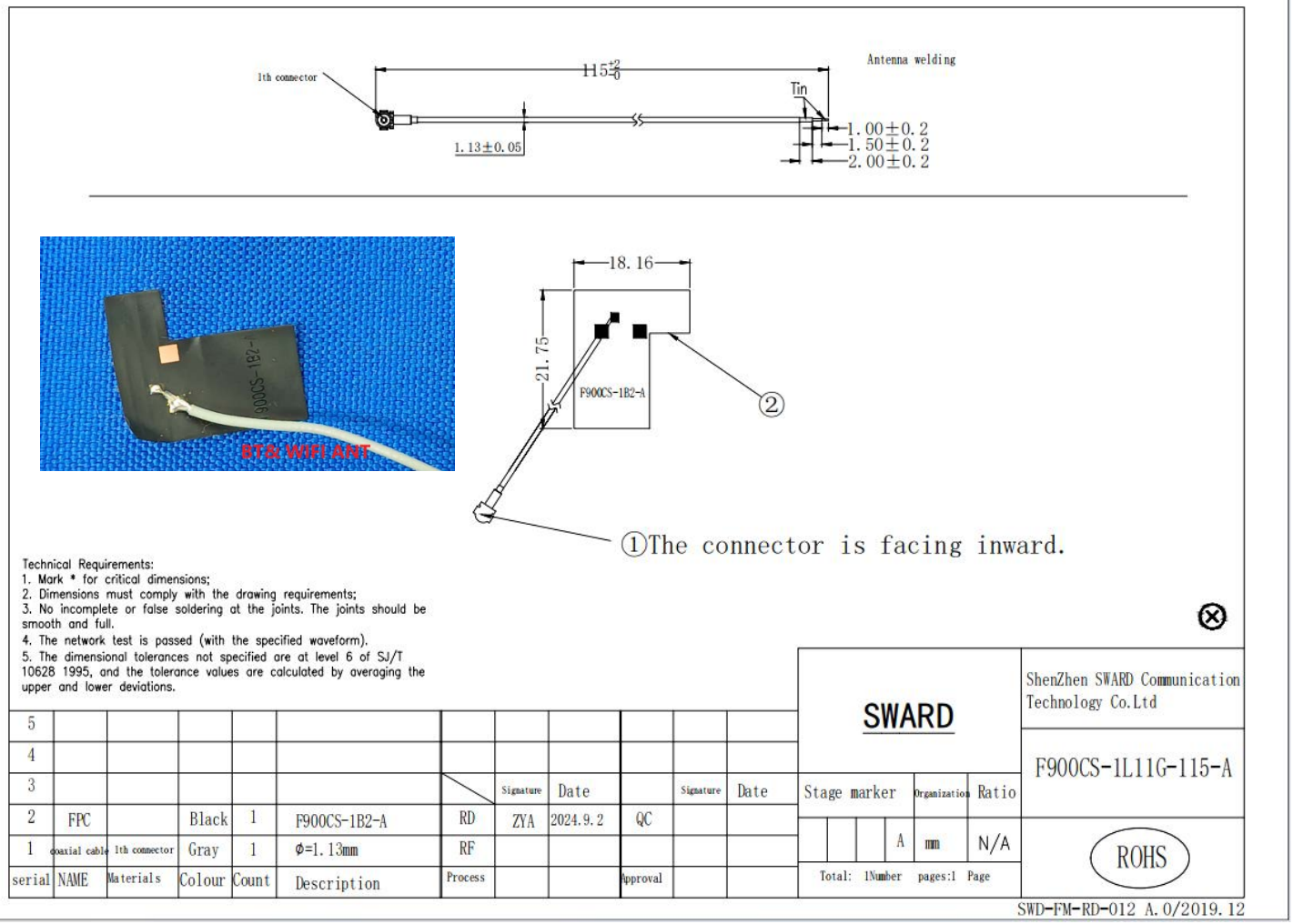
Passive Test For 5Gwifi								
Freq	Effi	Effi	Gain	Gain	UHIS	DHIS	Max	Min
(MHz)	(%)	(dB)	(dBi)	(dBd)	(%)	(%)	(dB)	(dB)
5000	49.07	-3.09	1.2	-0.95	16.983	32.084	1.2	-12.95
5100	53.17	-2.74	1.98	-0.17	18.913	34.261	1.98	-15.07
5200	54.31	-2.65	2.23	0.08	21.177	33.135	2.23	-24.83
5300	61.74	-2.09	2.76	0.61	23.261	38.483	2.76	-10.92
5400	55.14	-2.59	2.3	0.15	21.615	33.525	2.3	-11.05
5500	50.19	-2.99	2.66	0.51	19.643	30.547	2.66	-12.68
5600	40.52	-3.92	1.4	-0.75	15.706	24.814	1.4	-15.35
5700	53.77	-2.69	2.94	0.79	21.541	32.228	2.94	-11.44
5800	53.65	-2.7	3.15	1	21.695	31.955	3.15	-13.34
5900	49.3	-3.07	3.08	0.93	20.284	29.019	3.08	-12.23
6000	51	-2.92	2.66	0.51	20.937	30.061	2.66	-12.52



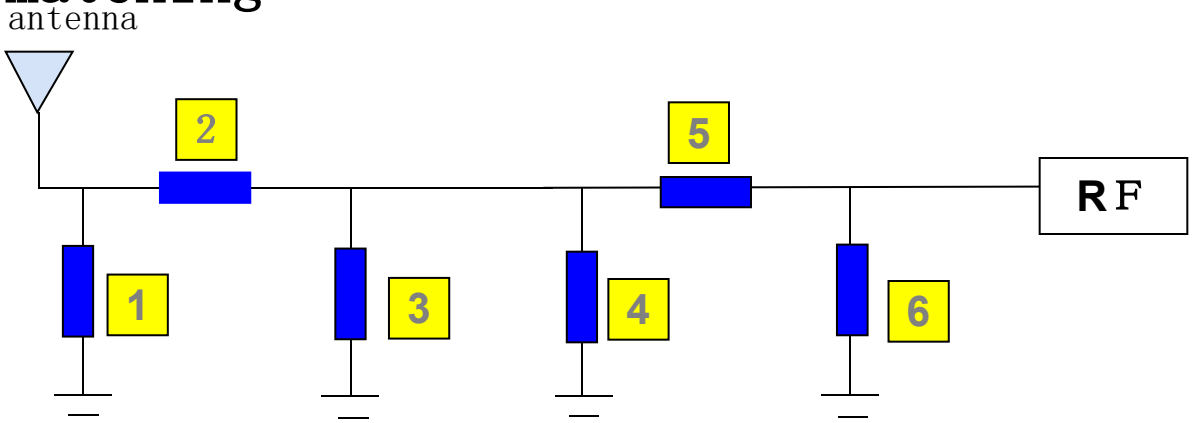




structural drawings



antenna matching



No antenna matching has been changed。

main	1	2	3	4	5	6	备注
Original Match							
Change Matching							

Environmental treatment and assembly instructions

Environment processing has not been changed。

Note: 1. This report is based on the actual debugging and testing of the prototype, including environmental treatment, antenna position, and assembly position of each component
Cannot be changed arbitrarily;
If there are any changes in the materials used in the prototype, please promptly provide feedback to our company for further verification;
3. List of sensitive components:
TP (Material, Coating, Wiring, etc.)
Screen (amplifier circuit, LED, cable 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, filtering, etc.)
LNA, Power supply circuit, etc
Camera, battery, motor MIC、 Fingerprint recognition module, etc
4. Due to the small number or only one sample testing machine, some probabilistic issues cannot be fully identified. It is recommended to conduct a small batch trial production before mass production to investigate the problem points (such as flashing screens, speaker noise, TP jump points, black screen crashes, signal drops, etc.)