

Saward Antenna Debugging Report

Customer Name: Estone Technology LTD

Project Name: SB133 Remote control

Date: December 19, 2023

Project contact information

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Project information

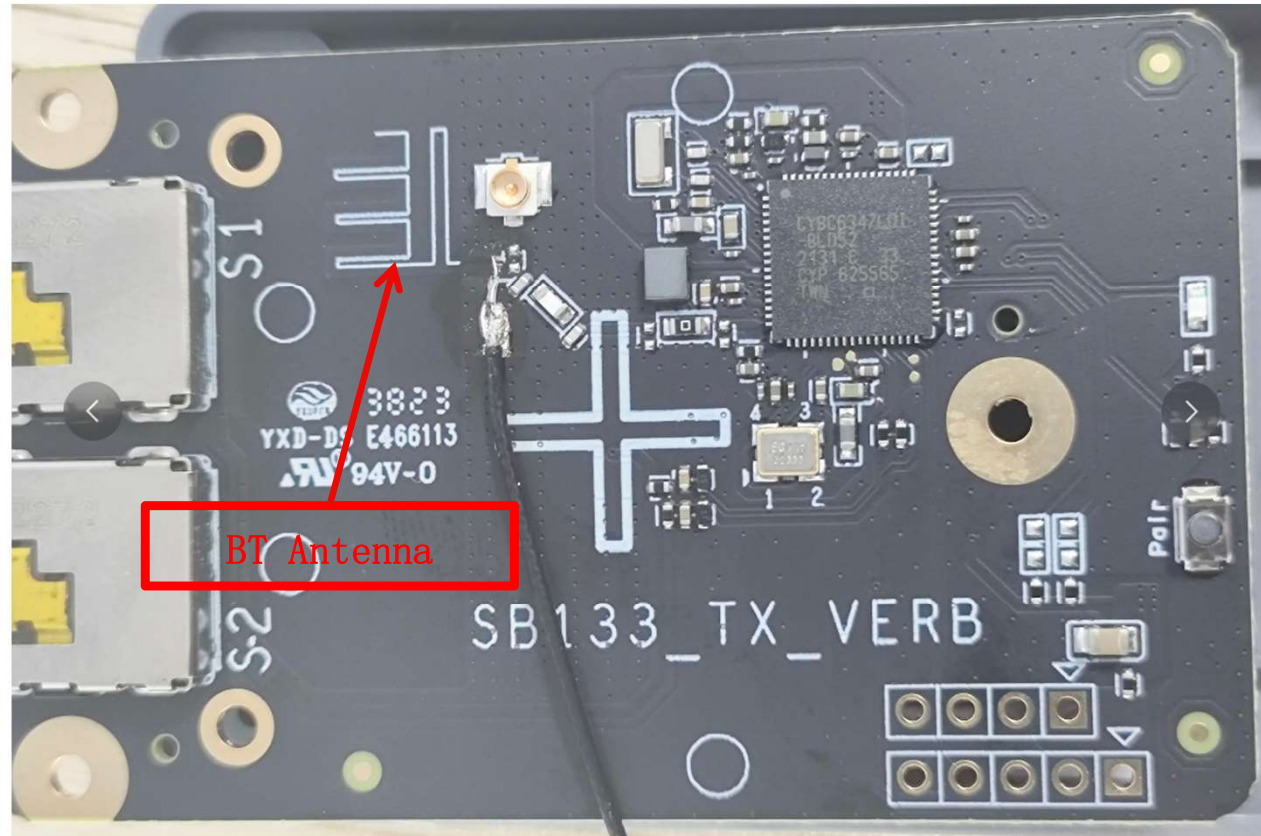
1. Project Description

Number of project antennas	Machine type
1	
Machine shell material: Plastic shell	

2. Antenna Overview

Antenna number	Name	Working frequency band/HMZ	Manufacturer	Material/Structure
1	2.4G BT	2400MHz/2500MHz	ShenZhen SWARD Communi cation Technology Co.Ltd	PCB

Antenna layout



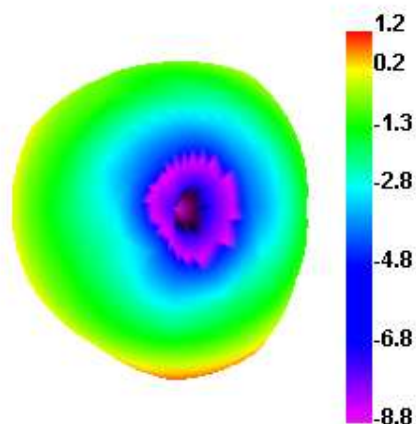
BT antenna S11



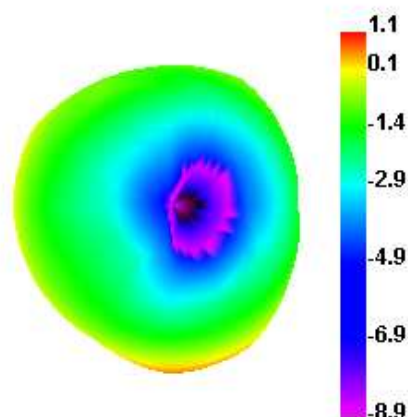
BT antenna efficiency

Passive Test For 2.4G												
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Gain (dBd)	UHS (%)	DHS (%)	Max (dB)	Min (dB)	Directivity (dBi)	Beamwidth (3dB)	AttH (dB)	AttV (dB)
2400	59.45	-2.26	1.24	-0.91	22.785	36.669	1.24	-14.05	3.5	0	48.4	47.97
2410	57.35	-2.41	1.08	-1.07	22.104	35.248	1.08	-13.75	3.5	0	48.44	48.08
2420	61.6	-2.1	1.33	-0.82	23.873	37.73	1.33	-12.97	3.43	0	48.89	48.62
2430	64.78	-1.89	1.51	-0.64	25.164	39.611	1.51	-12.63	3.4	0	48.94	48.66
2440	66.91	-1.75	1.62	-0.53	26	40.908	1.62	-12.72	3.37	0	49.18	48.91
2450	59.45	-2.26	1.12	-1.03	23.022	36.433	1.12	-13.75	3.38	0	49.12	48.82
2460	60.21	-2.2	1.2	-0.95	23.203	37.011	1.2	-13.91	3.4	0	48.97	48.66
2470	53.21	-2.74	0.72	-1.43	20.583	32.625	0.72	-14.48	3.46	0	48.83	48.47
2480	54.72	-2.62	1	-1.15	21.119	33.604	1	-14.25	3.62	0	49.36	49
2490	55.63	-2.55	1.24	-0.91	21.08	34.548	1.24	-14.86	3.79	0	49.07	48.82
2500	61.13	-2.14	1.89	-0.26	22.614	38.516	1.89	-15.16	4.02	0	49.77	49.56

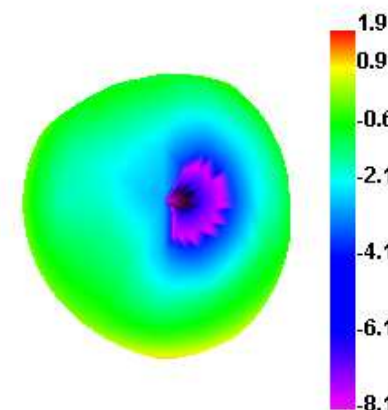
2400.000MHz



2450.000MHz

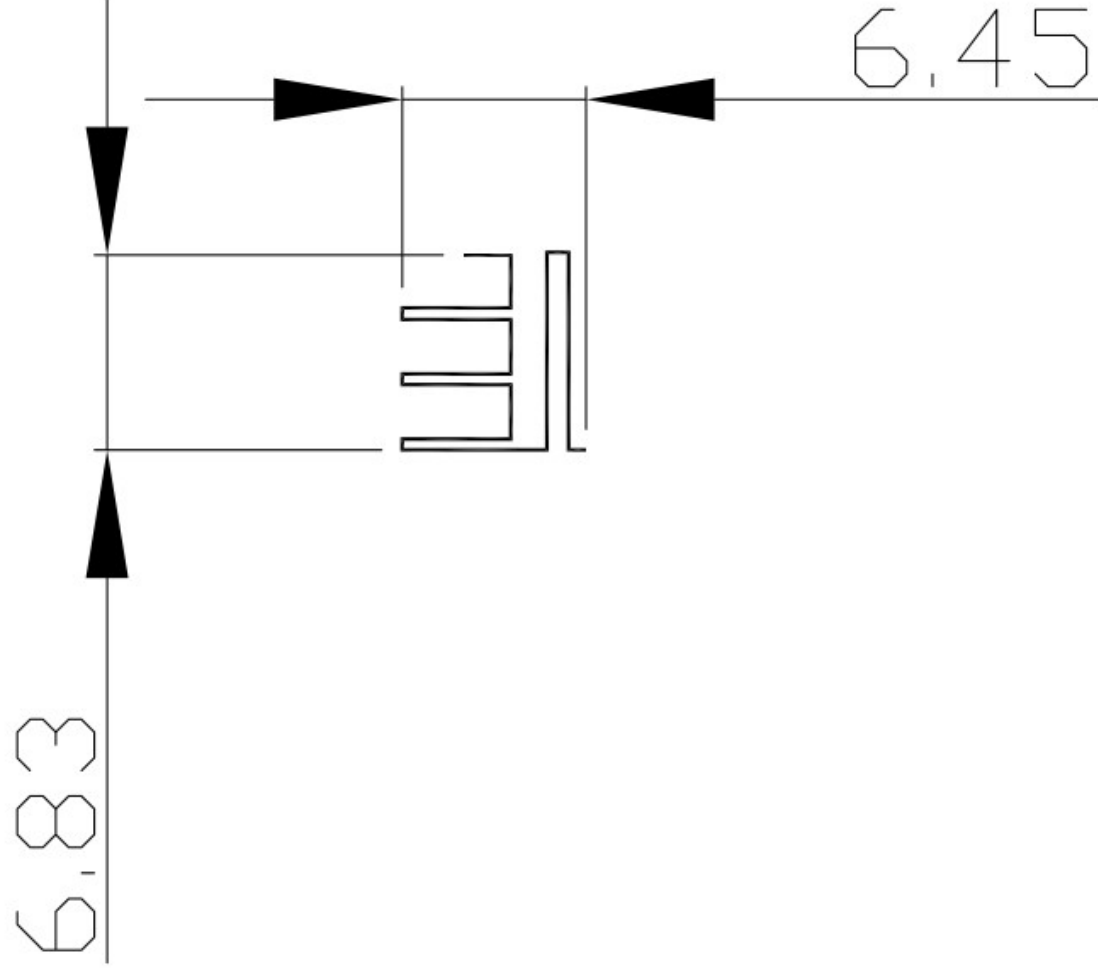


2500.000MHz



Note:

1. This report is based on the actual debugging and testing of the prototype, including environmental treatment, antenna position, and assembly position of various components Cannot be changed arbitrarily;
2. If there are any changes to the materials used in the prototype, please provide timely feedback to our company for re verification;
3. List of sensitive devices:
TP (material, coating, wiring, etc.)
Screen (amplification circuit, LED, ribbon 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, LNA, power circuit, etc.)
Camera, battery, motor, MIC, fingerprint recognition module, etc.)
4. Due to the small number or only one testing machine, some probabilistic issues cannot be completely identified. It is recommended to conduct small-scale trial production before mass production to identify problem points (such as flashing screens, speaker noise, TP jumping, black screen crash, signal diving, etc.)



PCB Layout

