





SWD-FM-RD-002 A.1/2022.09 IATF16949:2016&IS09001:2015 Double system certification

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## **Project Description**

#### 1. Project Overview

Project Antenna Number	Machine type
1	wifi recorder
Shell material	plastic shell (plastic parts at both ends of the antenna)

### 2. Antenna Brief

Antenna number	name	Working frequency/MHZ	Material/Struct ure	
1	WIFI & BT	2400MHz / 2500MHz	FPC	



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## Antenna layout





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## WIFI&BT antenna S11





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WIFI antenna measured distance & download rate

Measured effect					
Model number	1				
Test environment	Soward Research and Development Center				
Test equipment	Redmi K20 Pro				
Test distance	15 m				

Download rate				
Model number	1			
Test environment	Soward Research and Development Center -1 m			
Test equipment	Redmi K20 Pro			
Test distance	2.9MBps~3.1MBps			



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## WIFIAntenna efficiency

Passive Test For 2.4Gwifi								
Freq	Effi	Effi	Gain	Gain	UHIS	DHIS	Max	Min
(MHz)	(%)	(dB)	(dBi)	(dBd)	(%)	(%)	(dB)	(dB)
2400	45.45	-3.42	0.9	-1.25	23.661	21.79	0.9	-14.54
2410	46.52	-3.32	0.84	-1.31	24.082	22.435	0.84	-14.32
2420	47.24	-3.26	0.93	-1.22	24.254	22. 981	0.93	-15.3
2430	44.98	-3.47	0.72	-1.43	22.777	22.206	0.72	-15.54
2440	46.15	-3.36	0.86	-1.29	23.093	23.054	0.86	-14.66
2450	48.42	-3.15	1.01	-1.14	24.014	24.403	1.01	-13.65
2460	50.64	-2.95	1.39	-0.76	25.255	25.386	1.39	-13.62
2470	51.85	-2.85	1.73	-0.42	26.212	25.643	1.73	-13.07
2480	55.6	-2.55	2.42	0.27	28.784	26.818	2.42	-12.23
2490	58.58	-2.32	2.73	0.58	30.627	27.955	2.73	-11.31
2500	56.92	-2.45	2.58	0.43	29.832	27.093	2. 58	-10.8

2400.000MHz













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# WIFI antenna signal intensity measured picture (data)



Test location: R&D office of our company Test time: 14:40-15:20 Test distance: 1 m  $^{\sim}$  2 m Average speed: 2.9MBps to 3.1MBps

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#### Antenna matching has not changed.

Main antenna	1	2	3	4	5	6	remarks
Original matching							
Change matching							



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## Environmental handling and assembly instructions

Environment processing has not changed.



## SWARD

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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.)