

BT250 Antenna test report

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Revision History

Released Date	Version	Record	Tester
Aug.21th,2023	V1.0	Frist Turning	赖锡烈
Oct.24th,2023	V1.1	Optimize	蒙汉泉
Nov.07th,2023	V1.2	Optimize	蒙汉泉

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Requirements of Antenna Design and Measurement

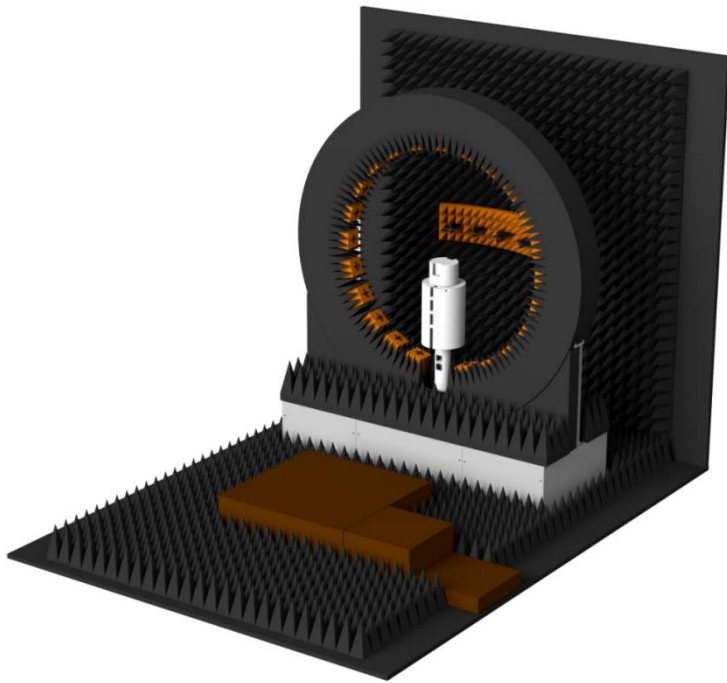
Requirements of Antenna Design(From Customer Demand)

RF Function	Number of ANT	Frequency Band	Remark
ANT	1	2402-2482MHz	Bluetooth

Requirements of Measurement

Test Item	Specification (Free Space)	Remark
VSWR	VSWR<2.0	
Directional patten	/	
Antenna efficiency	efficiency>40%	on board ANT
Antenna Isolation	/	
Over the air Performance	TIS<-85dBm	

Test Setup for Radiation Pattern Measurement



QUIPMENT	BRAND	MODULE TYPE
Network Analyzer	KEYSIGHT	E5071C 9k~8.5G
Signal Generator	R&S	CMW 500
Microwave anechoic chamber	XH-IOE	ATS-300

Antenna Placement & Solution (天线位置&接地处理)



Product picture



Product internal picture

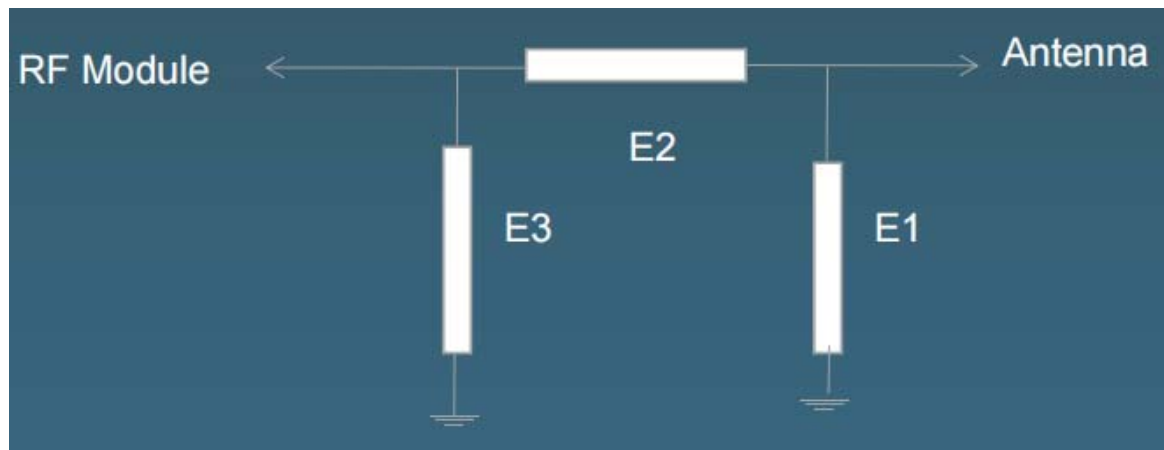


Antenna close-up

Antenna size (Outline drawing)



Microphone antenna matching circuit

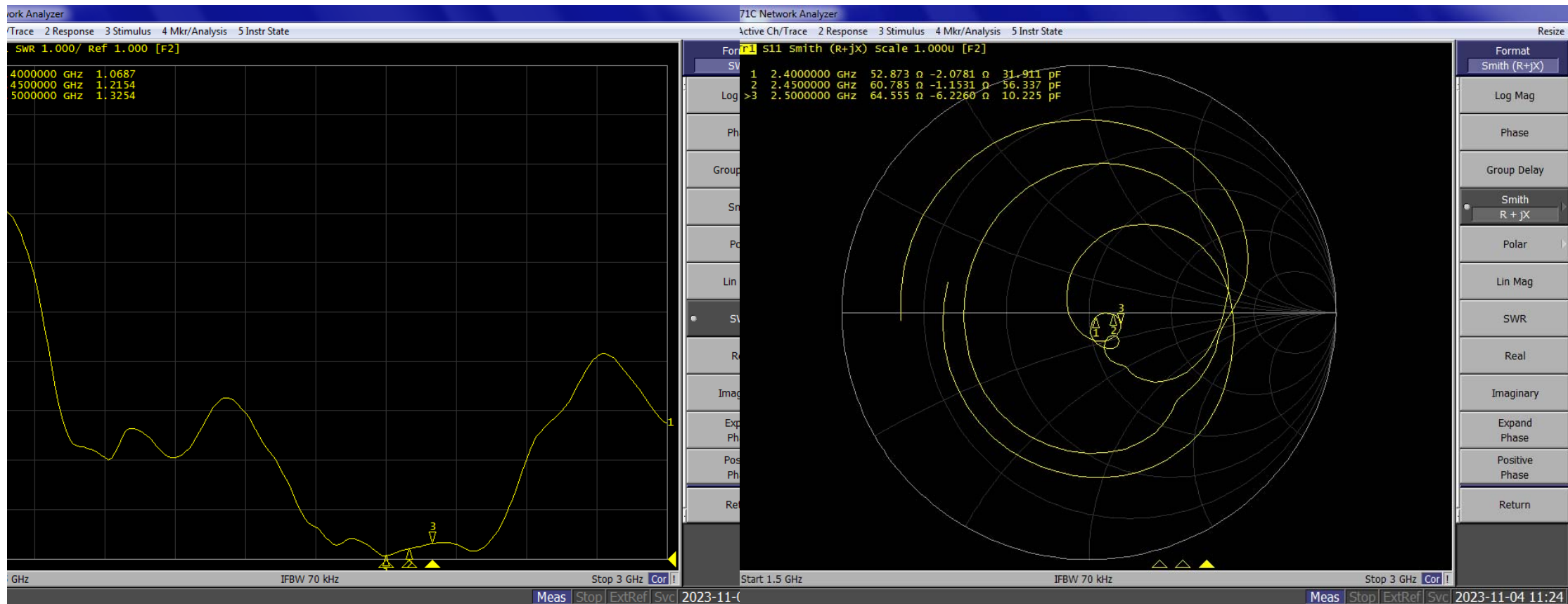


Any changes: No change
Modified

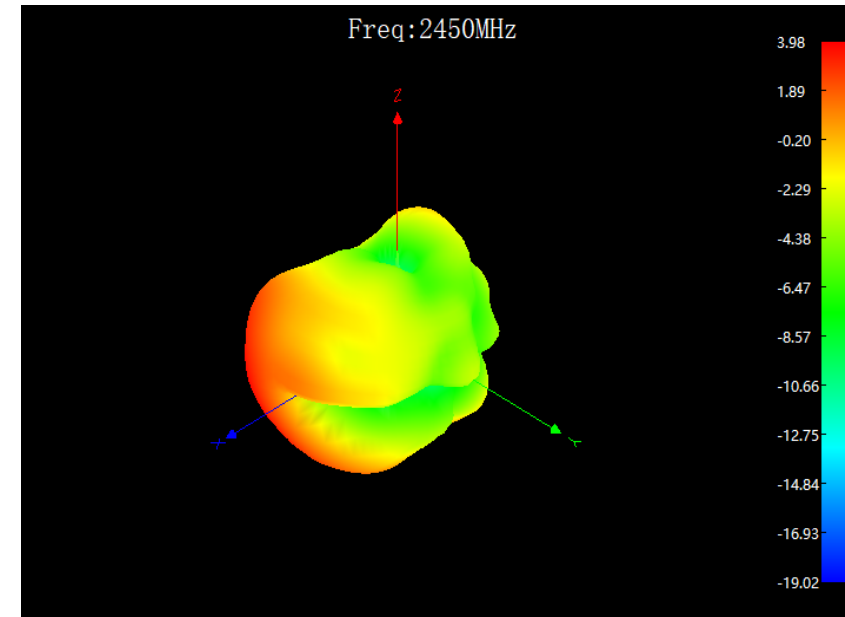
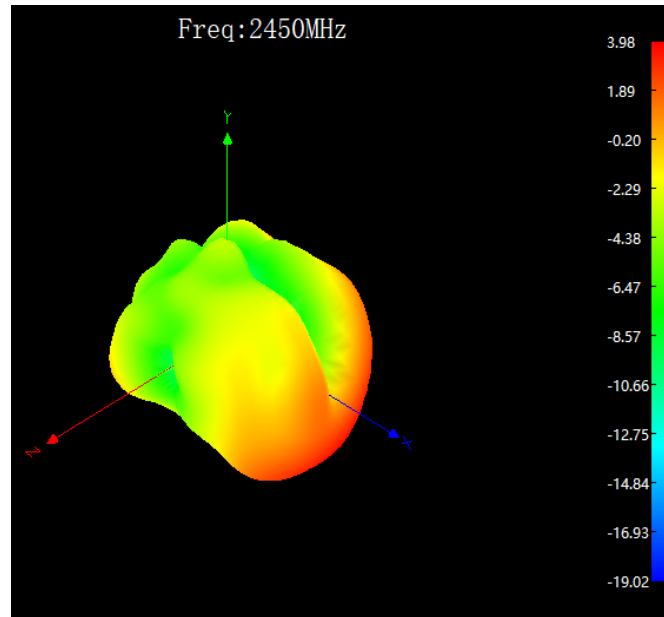
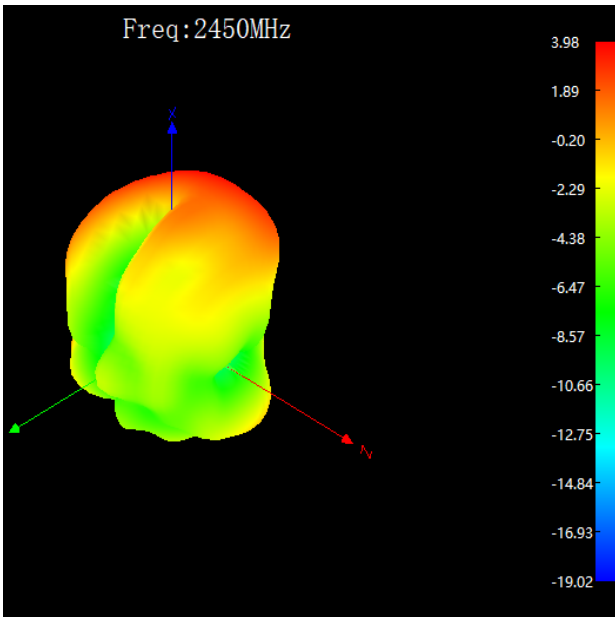
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Element	Value
E1(0402)	0.5pF
E2(0402)	0R
E3(0402)	NC

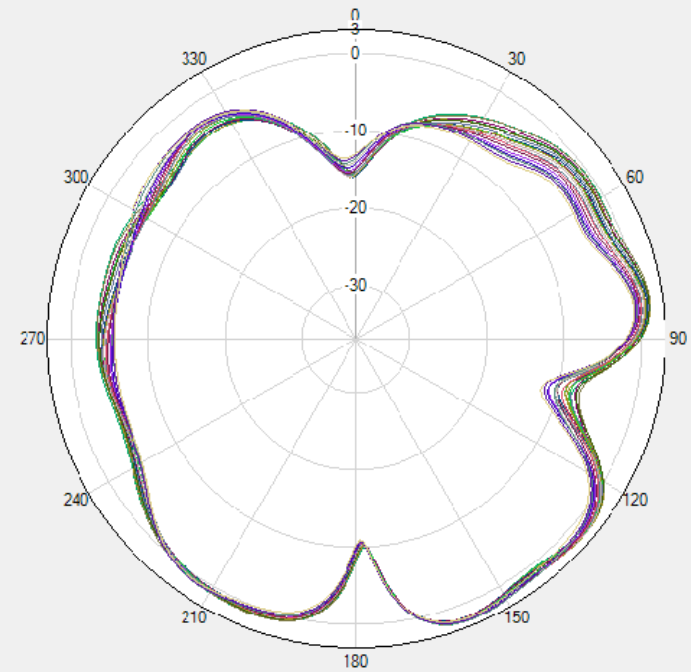
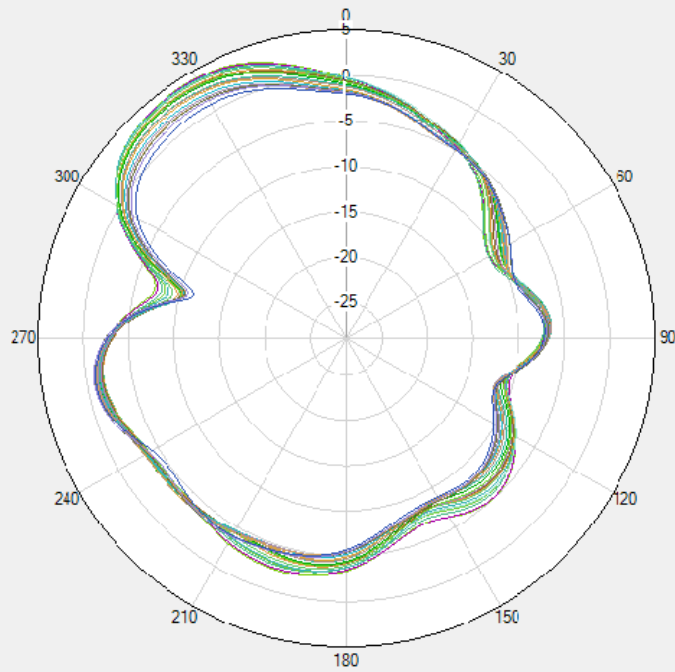
VSWR Results/Smith chart



3D Radiation Pattern Results



2D Radiation Pattern Results



Results Summary-Peak Gain & Efficiency

Frequency/Mhz	Efficiency / dB	Efficiency / %	MaxGain/dBi	AvgGain/dBi
2400	-2.5	56.23	4.41	-2.5
2405	-2.44	57.02	4.23	-2.44
2410	-2.53	55.85	4.1	-2.53
2415	-2.45	56.89	4.22	-2.45
2420	-2.31	58.75	4.3	-2.31
2425	-2.19	60.39	4.26	-2.19
2430	-2.3	58.88	4.12	-2.3
2435	-2.38	57.81	4.06	-2.38
2440	-2.35	58.21	4.03	-2.35
2445	-2.37	57.94	3.88	-2.37
2450	-2.29	59.02	3.98	-2.29
2455	-2.28	59.16	4	-2.28
2460	-2.43	57.15	3.71	-2.43
2465	-2.43	57.15	3.56	-2.43
2470	-2.57	55.34	3.44	-2.57
2475	-2.61	54.83	3.22	-2.61
2480	-2.6	54.95	3.06	-2.6
2485	-2.68	53.95	2.99	-2.68
2490	-2.57	55.34	3.1	-2.57
2495	-2.59	55.08	3.01	-2.59
2500	-2.84	52	2.59	-2.84

TRP&TIS (OTA Test Data) :

DUT NO.	Channel	Test data(dBm)	
		TRP	TIS
1# (BDR 1DH5)	0	1.68	-90.48
	39	1.69	-90.1
	78	1.28	-89.26

Conclusion (结论)

- 该项目板载天线效率50%以上,达到预期目标,天线性能可满足一般场景需求。

重要说明 NOTICE



1

请贵司注意报告中的匹配是否更改、环境处理是否可行；这直接影响天线性能，若有异议请及时与本司联系；

Please pay attention to whether the matching in the report has changed and whether the environmental treatment is feasible; This will directly affect the antenna performance, if you have any objections, please contact us in time;

2

若贵司机器有更换物料、更新软件、环处理变更等，须及时提供最新状态机器来我司验证；

If your driver has replacement materials, updated software, environmental processing changes, etc., you must provide the latest status machine to our company for verification in time

3

若贵公司机器需送第三方验证或送检，请最好提供送测机器来我司测试验证OK后方可送测（因为主板、环境处理、天线组装等一致性会影响天线性偏差）

If your company's machine needs to be sent to a third party for verification or inspection, it is best to provide the test machine to our company to test and verify OK before sending it for testing (because the consistency of the motherboard, environmental treatment, antenna assembly and so on will affect the antenna deviation)