

Antenna debugging report

Customer name: Beijing No.9 Technology

Project name: BLES100 Bluetooth module

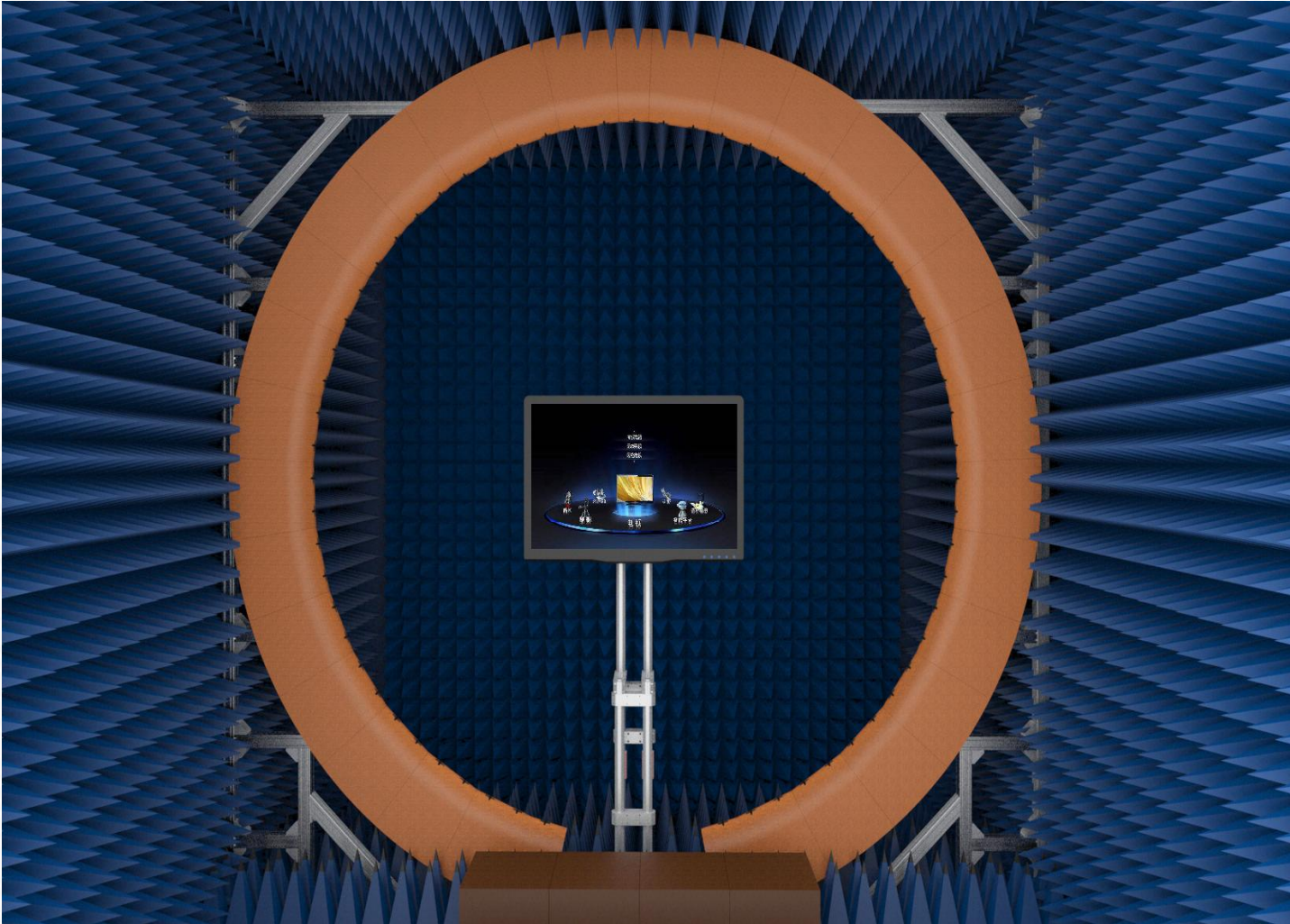
Report version: 2025.5.20

Research and development: Jiang Hao

edition	time	Update notes
A0	2024. 10. 31	Initial test data report
A1	2024. 11. 3	Optimize complete debugging data
A2	2025. 2. 14	New motherboard test data
A3	2025. 5. 20	Supplement drawings
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Prototype status	Debug the prototype
product type	BT module
Number of antennas	1
Antenna band	2400~2500Mhz
	PCB Antenna
structural style	On board
Environmental treatment	
building-out circuit	



Top OTA dark room in the industry:
64 probes; length/width/height is 6 meters; the size of the item to be tested can reach 2 meters

device name	total quantity	Number of R&D centers in Shanghai	Number of R&D centers in Shenzhen	Number of R&D centers in Chongqing
OTA laboratory	Ten seats	Four seats	Five seats	One set
5G comprehensive tester (SP9500-CTS)	Three units	One unit	One unit	One unit
R&S comprehensive tester (high configuration CMW500)	Seven units	Three units	Three units	One unit
Anritsu Comprehensive tester (Dual channel 8820)	Four units	Two units	Two units	—
NB-IoT comprehensive tester (SP8315)	Three units	One unit	One unit	One unit
Agilent comprehensive tester (8960)	Nine units	Four units	Four units	One unit
Agilent Network Analyzer (E5062A)	Seven units	Three units	Three units	One unit
Agilent Network Analyzer (E5071C 8.5GHZ)	1 1 unit	Five units	Five units	One unit
Agilent Network Analyzer (E5071B 8.5GHZ)	10 units	Five units	Five units	One unit
R&S Network Analyzer (ZND)	10 units	Five units	Four units	One unit
R&S Network Analyzer (ZVB)	Three units	One unit	One unit	One unit
OTA head, hand, cochlea, arm	Five sets	Two sets	Two sets	1 set
GPS/WIFI active test equipment	Five sets	Two sets	Two sets	1 set



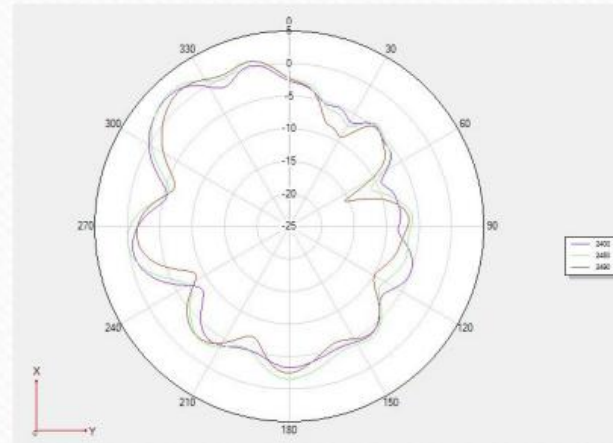
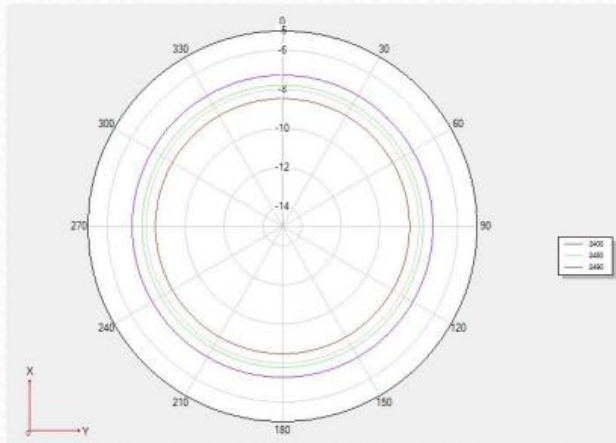
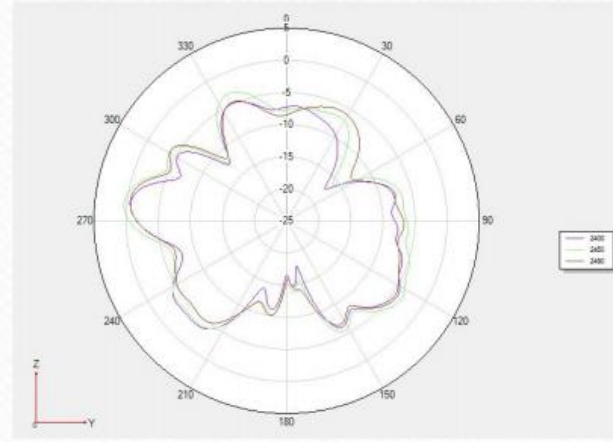
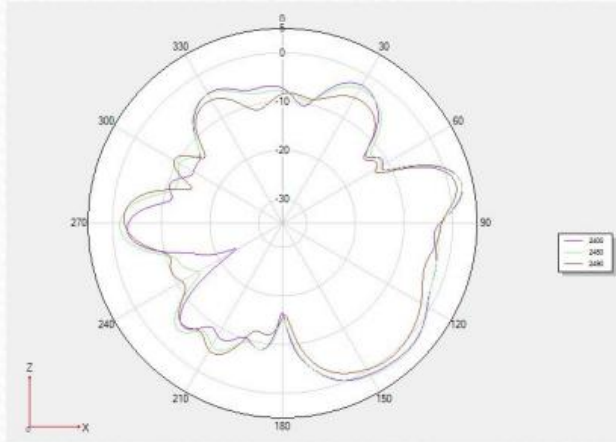
Passive efficiency

Frequency/Mhz	Efficiency / dB	Efficiency / %
2400	-4.59	34.75
2410	-4.44	35.97
2420	-4.29	37.24
2430	-4.22	37.84
2440	-4.26	37.5
2450	-4.23	37.76
2460	-4.39	36.39
2470	-4.45	35.89
2480	-4.75	33.5
2490	-5.19	30.27
2500	-5.89	25.76

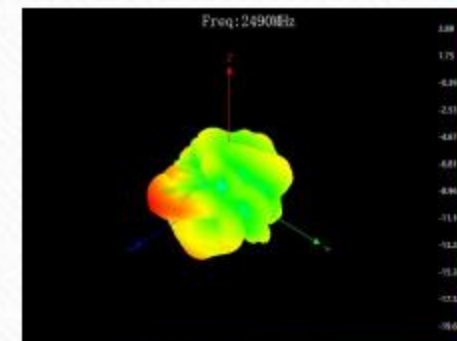
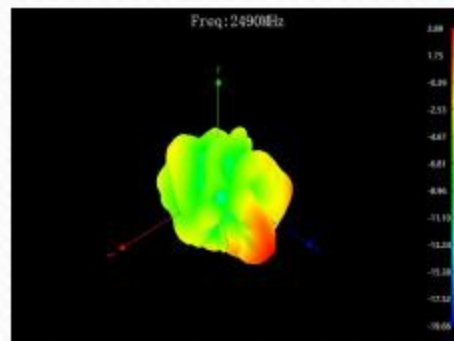
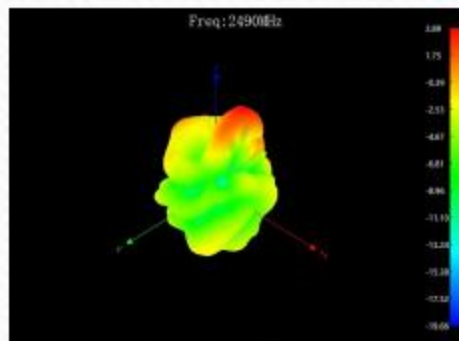
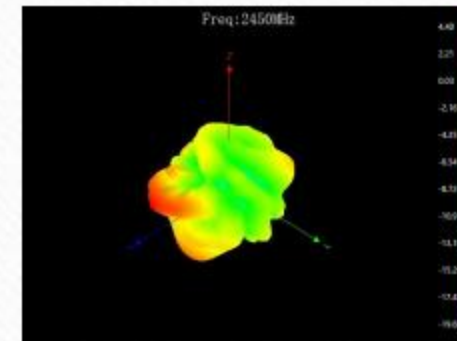
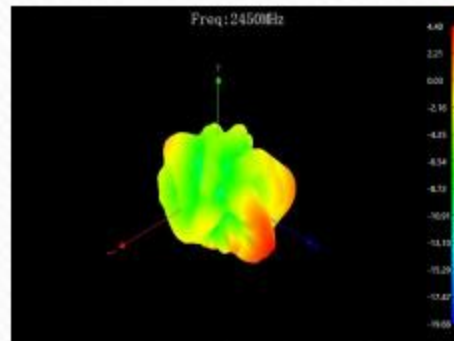
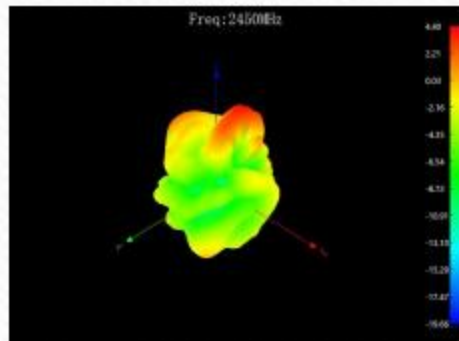
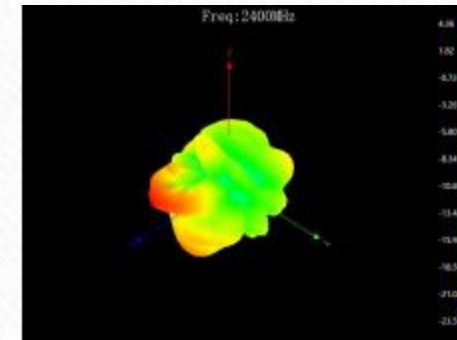
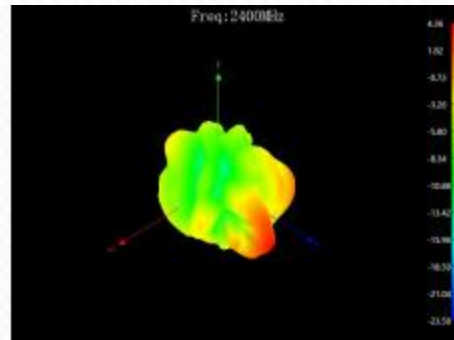
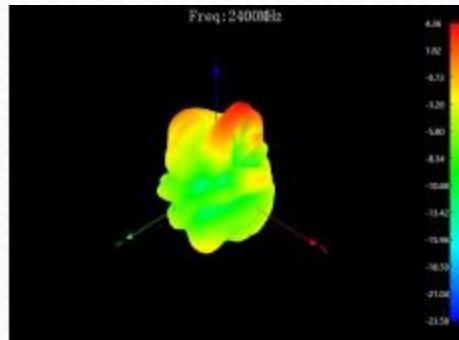
Passive gain

Frequency/MHz	MaxGain/dBi	AvgGain/dBi
2400	4.36	-4.59
2410	4.29	-4.44
2420	4.59	-4.29
2430	4.5	-4.22
2440	4.54	-4.26
2450	4.4	-4.23
2460	4.37	-4.39
2470	4.25	-4.45
2480	4.26	-4.75
2490	3.89	-5.19
2500	3.72	-5.89

2D directional pattern



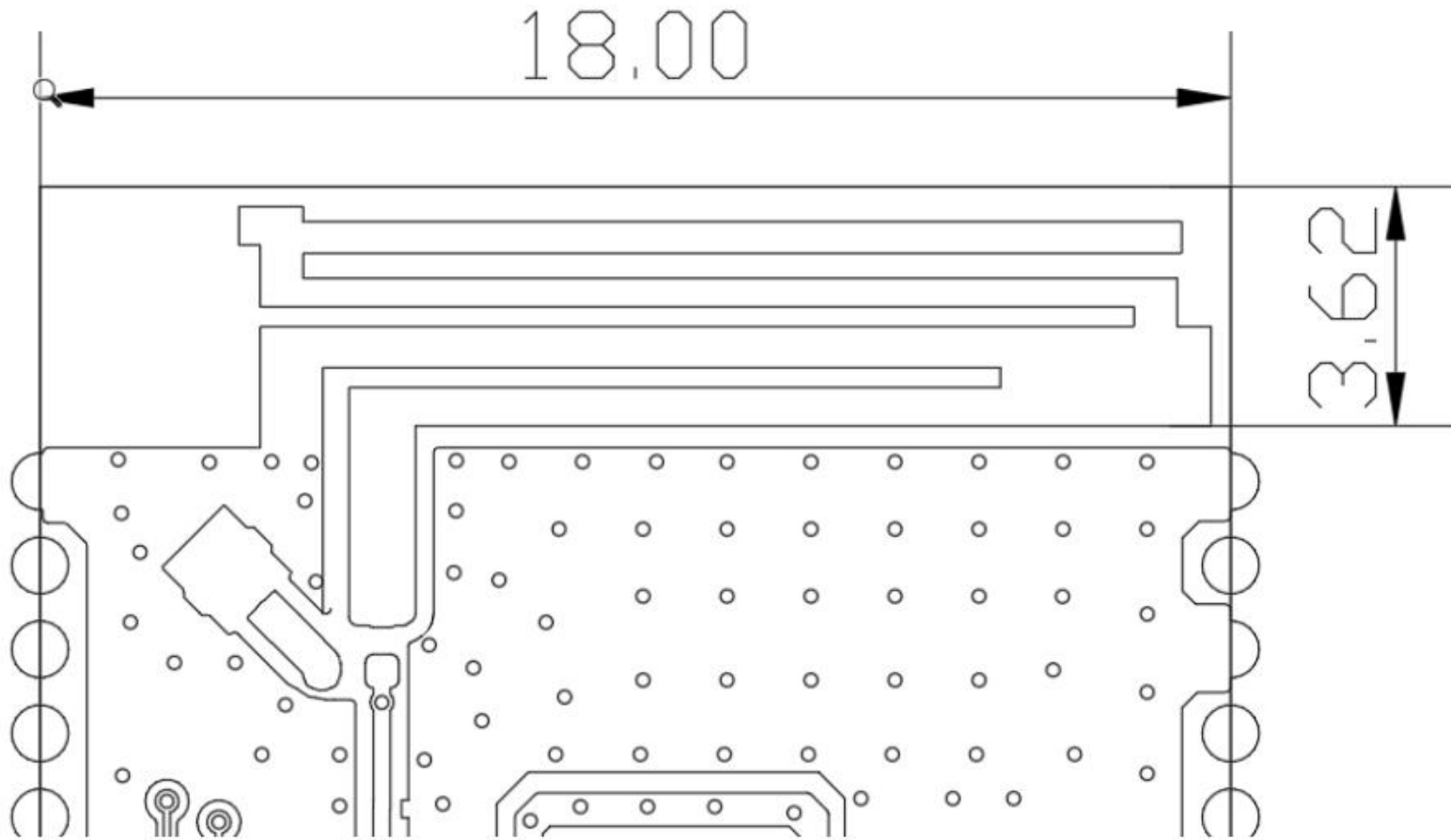
3D Direction Map



Active data

Band	Channel	TRP	TIS
BLUETOOTH	0	4.18	-92.12
BLUETOOTH	19	3.86	-91.09
BLUETOOTH	39	3.21	-90.44

Antenna size drawings



Thank You

Shanghai R&D Center: 1st Floor, Building 4, No.99, Lane 215, Gaoguang Road, Qingpu District, Shanghai

Shenzhen R&D Center: 6th Floor, Building 5, Nantai Yunchuang Valley Center, Guangming District, Shenzhen

Chongqing R&D Center: 1F, ARM Eco-Park, No.19, Xiantao Data Valley East Road, Yubei District, Chongqing

Huizhou factory address: Huizhou City, Longhu Industrial Zone, District Shuikou Town, Village 1-5 floor



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