

Shenzhen Bonondar Technologies Co., Ltd.

Sample Approval Sheet

Customer

name:

product

name:

Module PCB board 2.4G antenna

Product

Specifications/

Model

Module PCB board 2.4G antenna 16MM * 6.2MM inverted F antenna.

Customer

Material

Number:

Brand:

Manufacturer's

part number:

B-Z13-V2.2 Antenna

Version code:

V1.0

**Acknowledgment of
the number of pages:**

Total 10 pages

Batelanded:

Supplier Confirmation Section

Make	Check	Check and Approve	Confirm and Stamp
Bine	Jdk	Lucas	
Date: 2025.07.29	Date: 2025.7.29.	Date: 2025.07.29	
Address: Room 468, Building F1, TCL Technologies Park, 1001, Zhongshanyuan Road, Shuguang Community, Xili Street Office, Nanshan District, Shenzhen City			
TEL: 139 2466 2765		Fax:	
Website:		Postal Code:	

Customer Acknowledgment Section

Test	Check	Notarize	Check and Approve
Date:	Date:	Date:	Date:

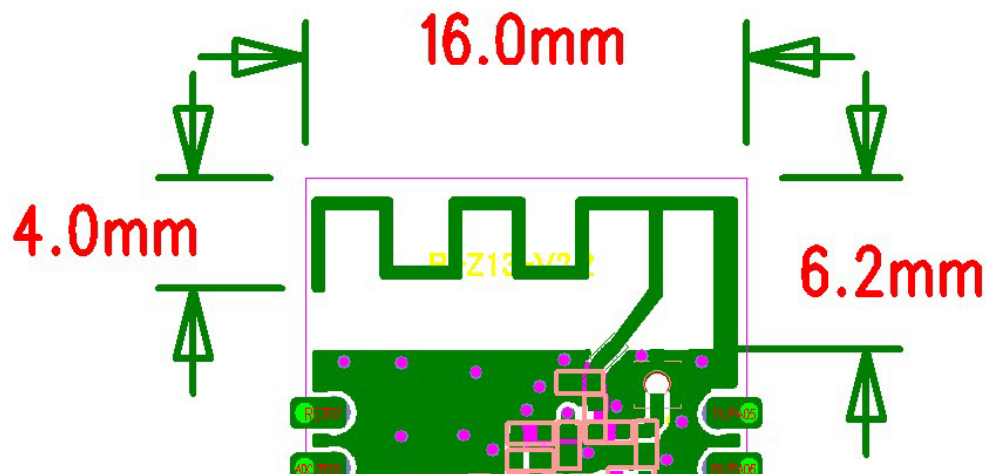
Three copies of the acknowledgement form, 2 copies kept by the customer, and 1 copy to be returned. .

目录 (Content)

1、封面(Cover).	1
2、目录(Content).	2
3、产品图面(Product Picture).	3
4、性能参数表(Specification).	4
5、电气性测试报告(Radiation Report).	5
6、附录(Appendix).	9

Shenzhen Bonondar Technologies Co., Ltd.

3、产品图面(Product Picture)



4、性能参数(Specification)

频率范围 Frequency Range (MHz)	2400~2500
增益 (dBi)	1.5±0.5
效率 Efficiency (%)	22~25
驻波比 VSWR	≤2.5 FYI
天线阻抗Antenna Impedance	50 Ω
工作温度 Operation Temperature	-30℃~80℃
储藏温度 Storage Temperature	-30℃~85℃

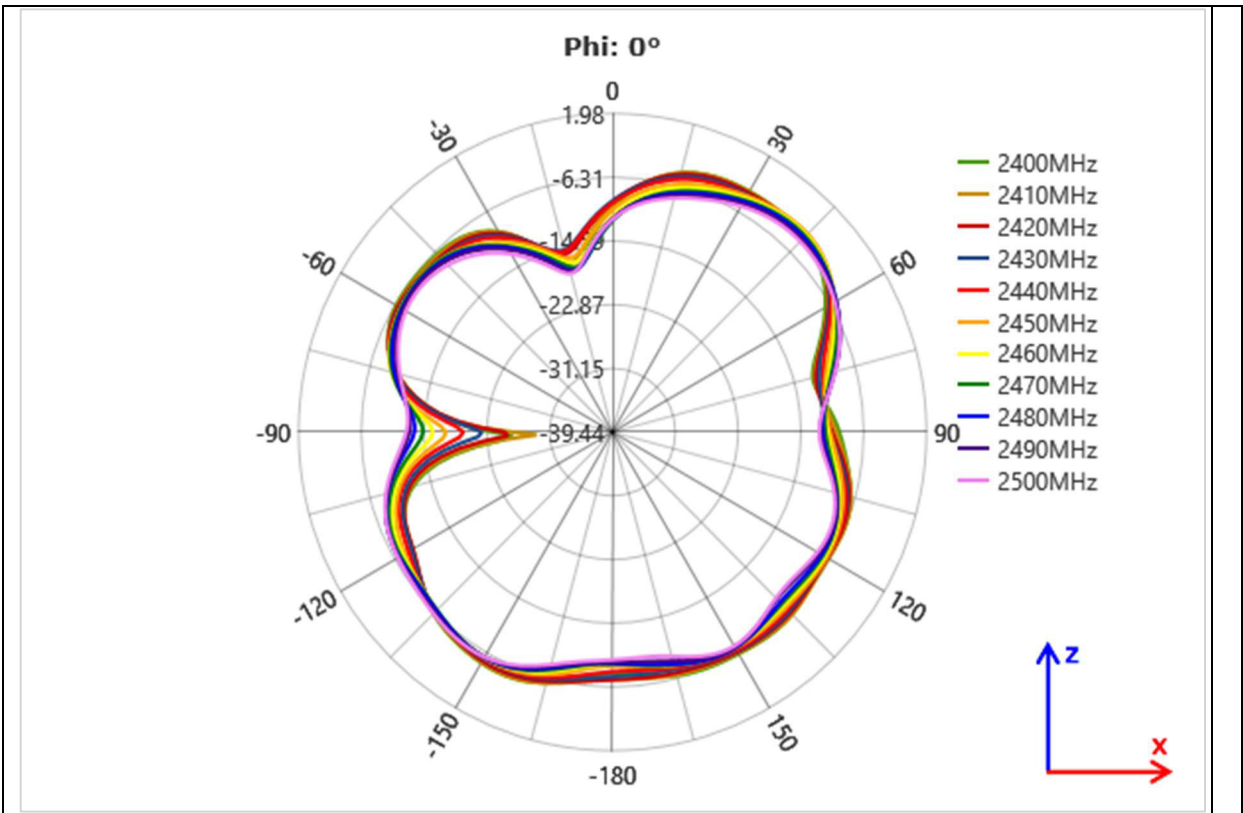
5、电气性能测试报告 (Radiation Report)

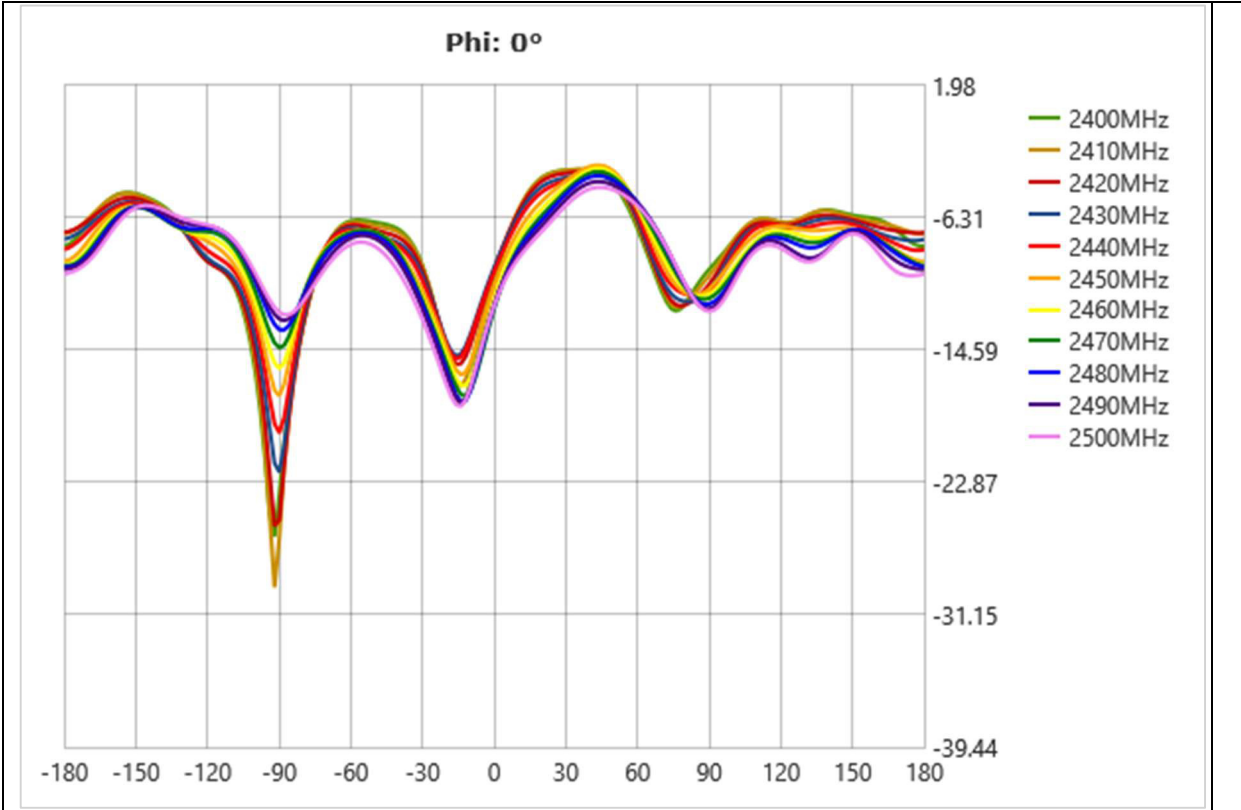
5.1 增益、效率 (Gain/Efficiency)

Frequency	Gain(dBi)	Efficiency (%)
2400	1.3	24.89
2410	1.43	24.85
2420	1.54	24.92
2430	1.64	24.91
2440	1.74	24.86
2450	1.72	24.45
2460	1.67	23.86
2470	1.66	23.69
2480	1.65	23.48
2490	1.6	23.14
2500	1.54	22.67

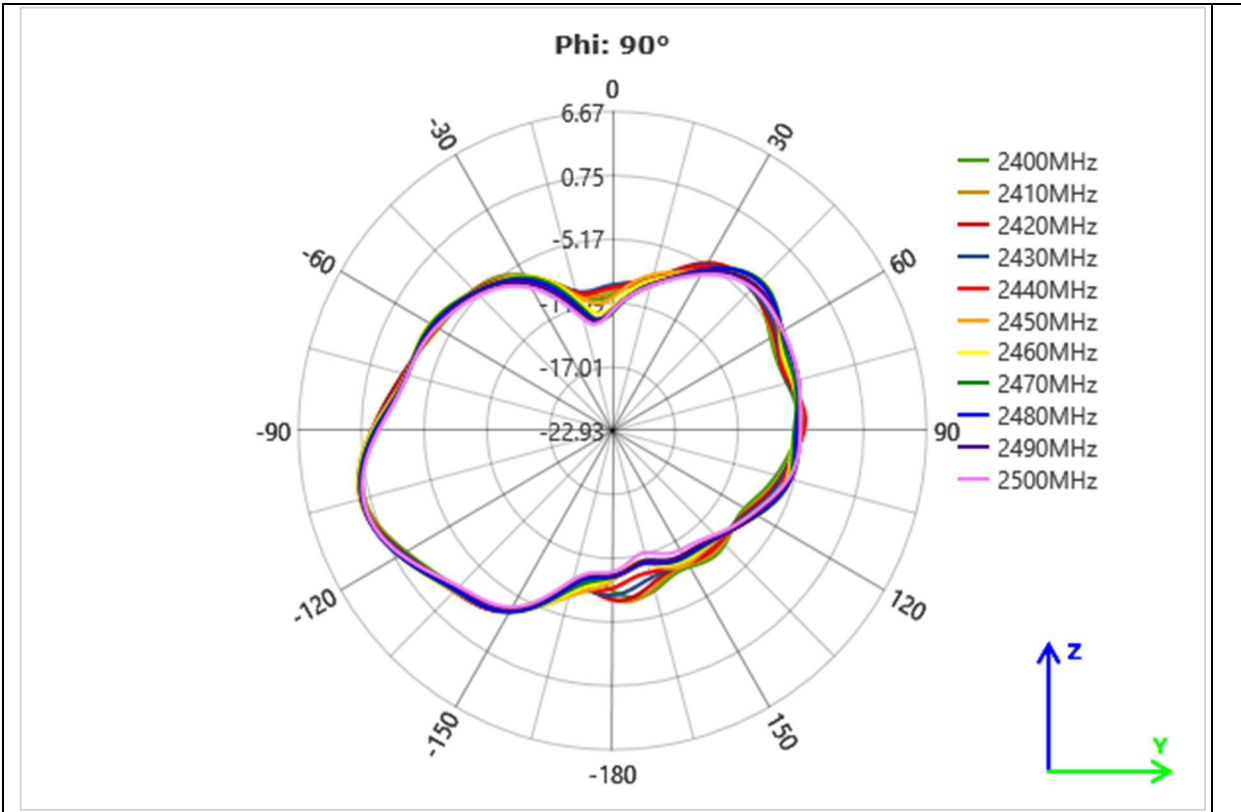
Gain/Efficiency

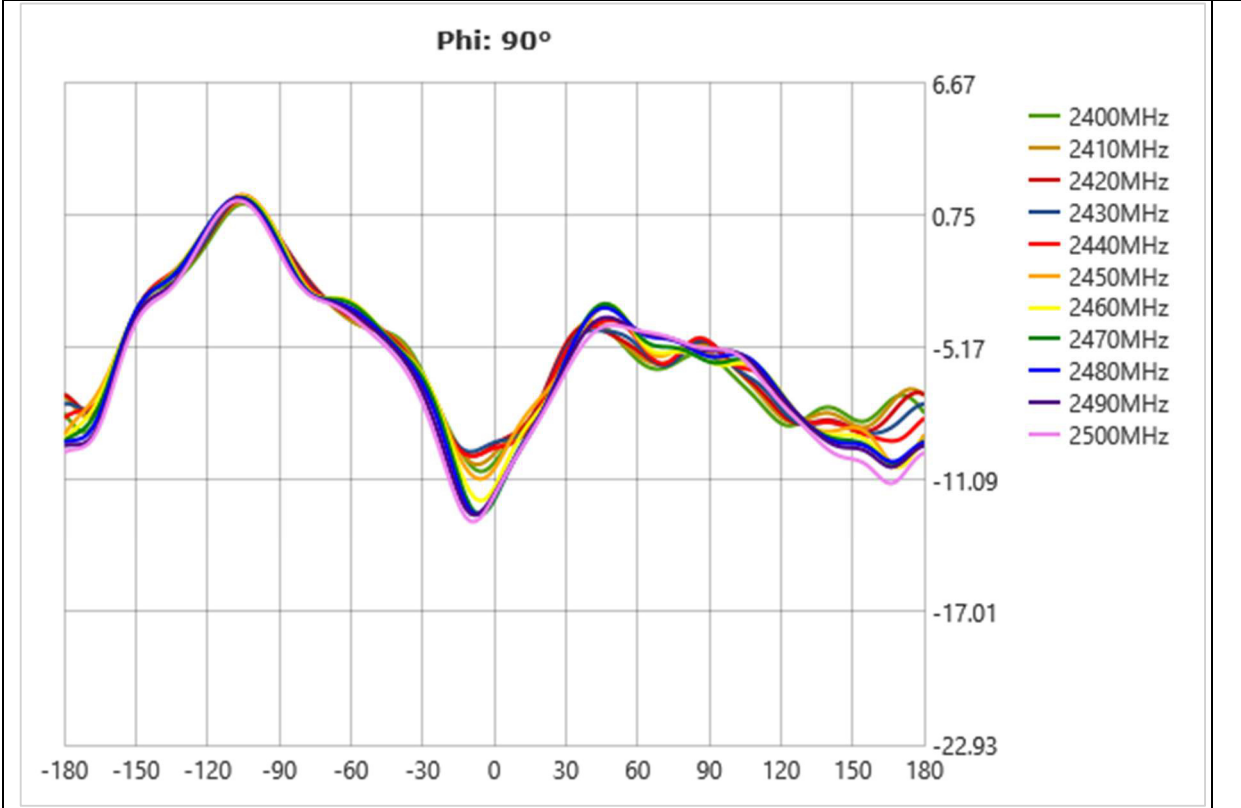
5.2 2D方向图 (Direction)



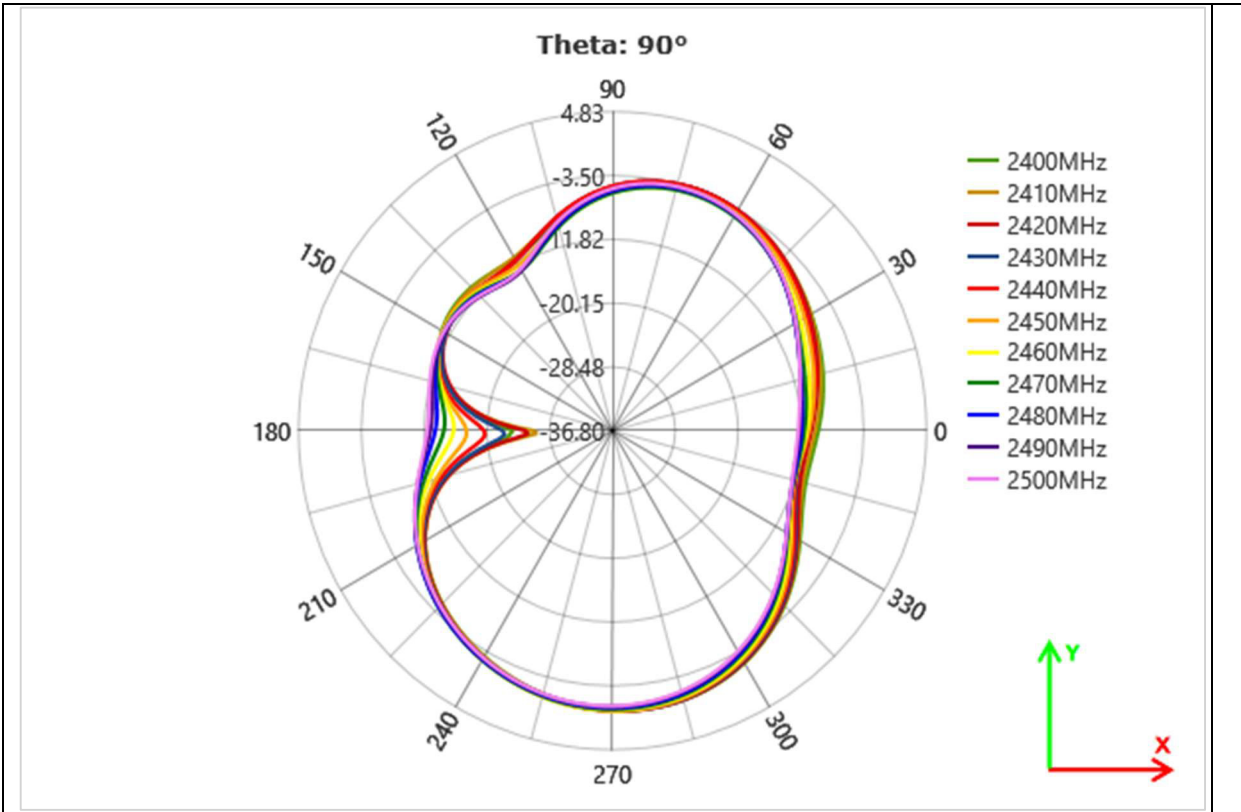


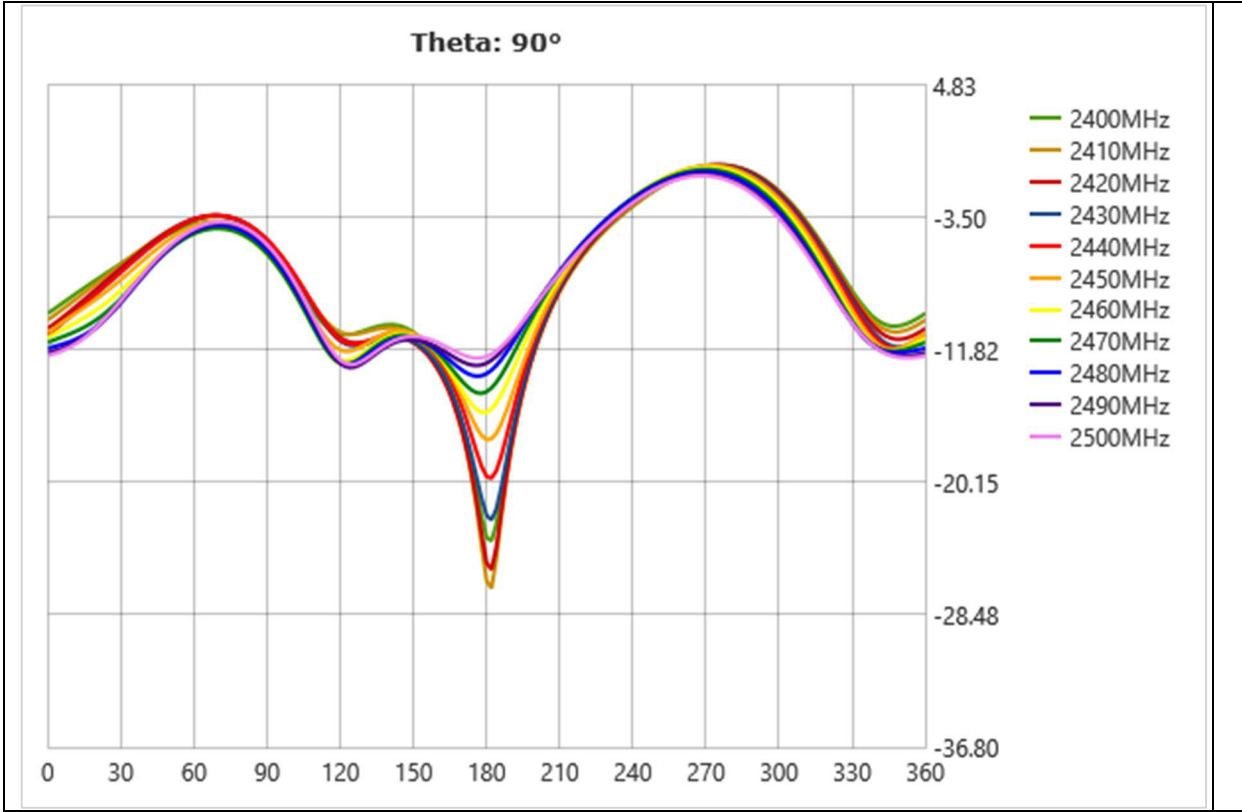
2d(phi 0°)





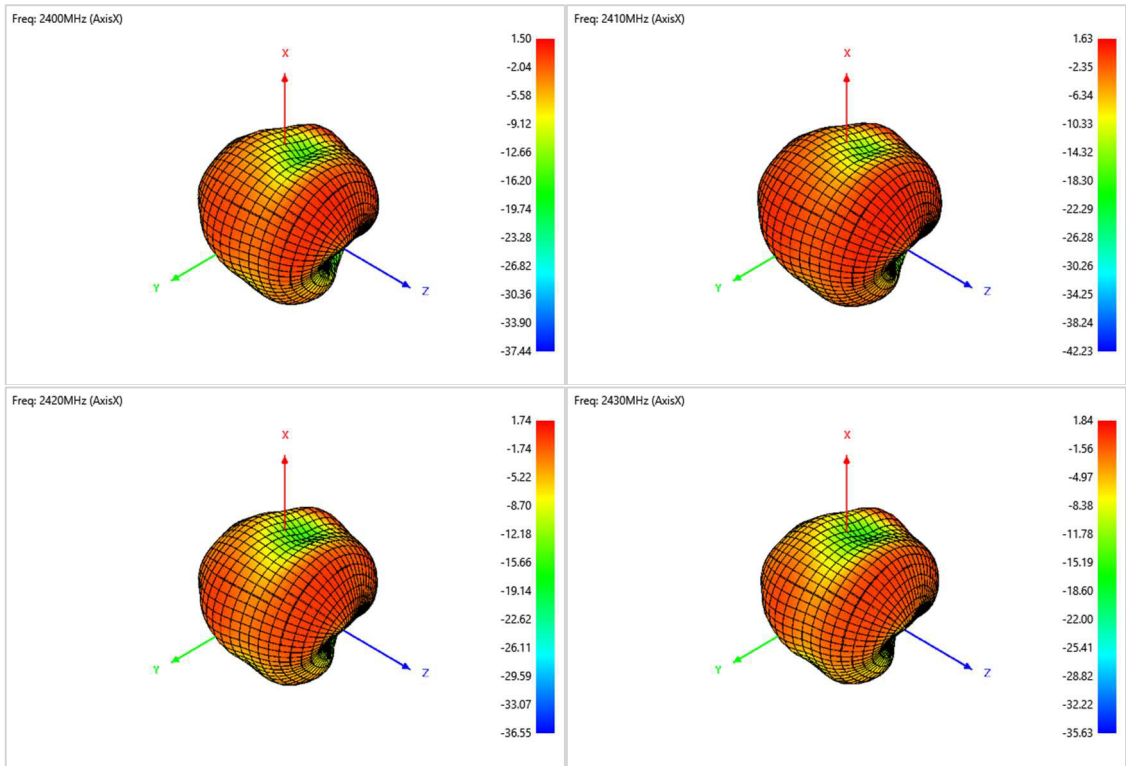
2d(phi 90°)



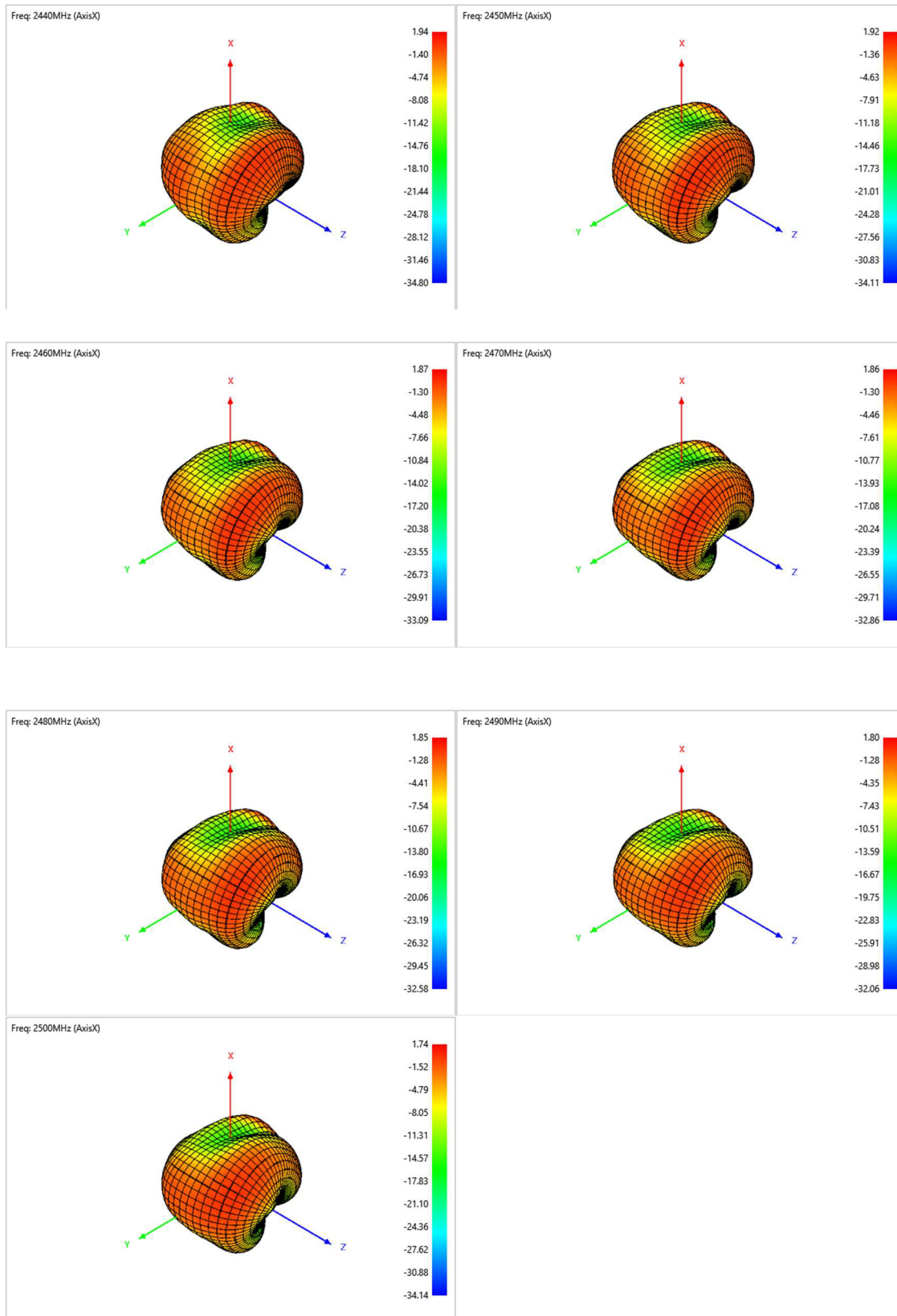


2d(theta 90°)

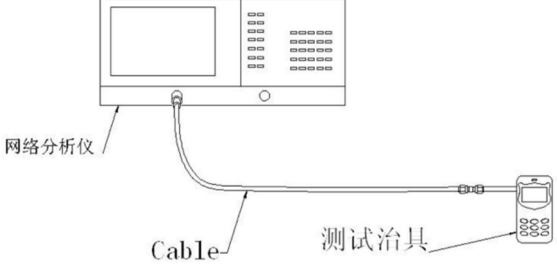
5.3 3D Image



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6、附录(Appendix)

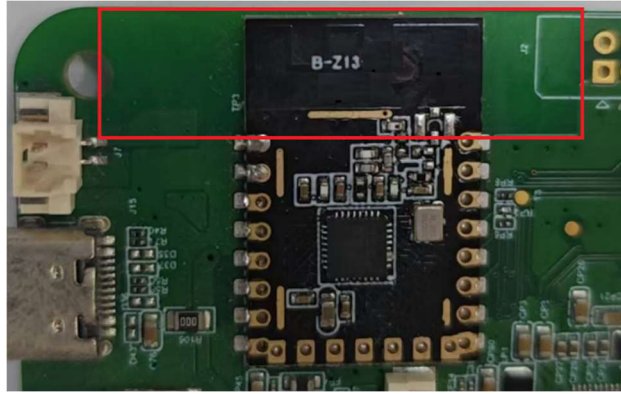
Schematic Diagram	Operating Instructions
 The diagram shows a network analyzer (labeled '网络分析仪') connected via a cable (labeled 'Cable') to a test fixture (labeled '测试治具'). The network analyzer is a rack-mounted unit with a screen and control buttons. The test fixture is a small electronic component with a probe connected to it.	1. As shown in the left figure, a network analyzer (the one we use is Agilent 5071C) is employed. The analyzer is connected to the test cable with a 50-ohm termination, and the other end is connected to the test sample. 2. Using calibration pieces, the connector connected to the test sample is calibrated, and the voltage standing wave ratio (VSWR) corresponding to the required frequency point is recorded.

S参数测试方法

Schematic Diagram	Operating Instructions
 The diagram shows a microwave anechoic chamber testing system. It features a large, circular, red, serrated structure (the anechoic chamber) mounted on a metal frame. A test sample is placed inside the chamber, and a test probe is connected to it. A coordinate system (X, Y, Z) is shown near the test sample.	1. As shown in the left figure, it is a microwave anechoic chamber testing system. It uses a network analyzer and connects the network analyzer to the test sample and test probe in the anechoic chamber testing system through a 50-ohm test cable. This allows for the measurement of the efficiency and gain parameters of the test sample using the radiation method. 2. As shown in the left figure, it is a microwave anechoic chamber testing system. It uses a comprehensive tester (the one we use is CMW 500), and connects the comprehensive tester through a 50-ohm test cable to the test probe in the anechoic chamber testing system. The OTA data of the test sample is measured using the radiation method.

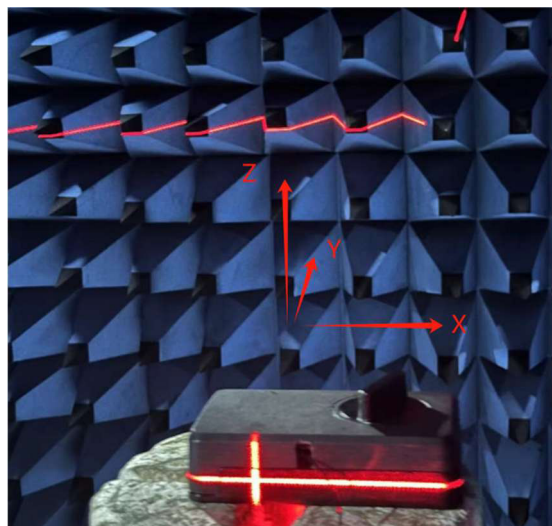
Efficiency gain and OTA testing methods

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Board-mounted antenna installation diagram

Note: As shown in the above figure, the antenna is located at the edge of the board, and a clearance area is reserved at the bottom of the antenna. There are no copper foil or other metal components within a 5mm radius around the antenna. For example, if it is a metal, the distance between the antenna and the metal casing is more than 10mm.



Antenna testing coordinate diagram