

SPECIFICATION



深圳市大显科技有限公司

Shenzhen Daxian Technology Co., Ltd.

迪芬尼 M3 BT 天线组件

TYMPHANY M3 BT Antenna assembly

产 品 规 格 书

Product Specification

客 户 connection	迪芬尼 TYMPHANY	频 段 frequency range	2400MHz ~ 2500MHz
项目名称 entry name	M3	版 本 edition	V3.0
物料编号 Material No	2L-GMusic-053	颜 色 Color	黑色+白色 Black +White
客户料号 Customer Item Number	T690800047300		
R F 设计 R F Design	刘柱东 ZhuDong.Liu	结构设计 Structural Design	周锐斌 Ruibin.Zhou
品质经理 Quality Manager	潘永杰 YongJie.Pan	技术总监 Technical Director	张 磊 Lei.Zhang
日 期 Date	2025-07-08		

客户确认:

Customer confirmation:

装配是否符合贵司要求: ☐OK ☐NGWhether the assembly meets your company's requirements: ☐OK ☐NG

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6、无源场型图 Passive field pattern diagram.....	9
7、暗室坐标系 Test scenario.....	10
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I、项目说明 Project Description

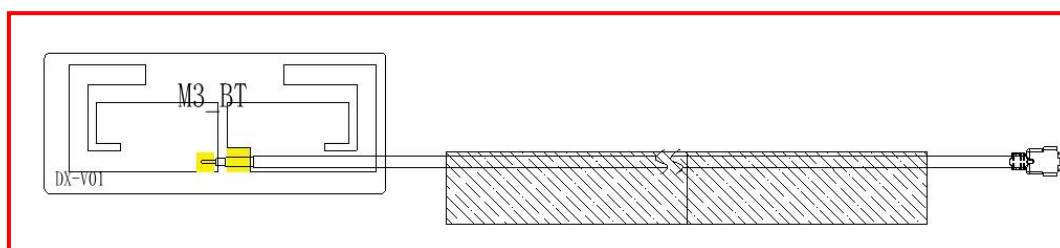
客户名: Customer Name:	迪芬尼 TYMPHANY
整机类型: Type of complete machine:	音箱 loudspeaker box
天线频段: Antenna band:	2400 MHz~ 2500MHz
天线形式: Antenna type:	FPC+同轴线+线材海绵 FPC + coaxial cable + cable sponge
馈电形式: Feed form:	焊接 weld
硬件版本: Hardware version:	/

II、BT 天线组件 BT Antenna assembly

1 规格 specifications

本报告主要提供 **M3** 项目天线的各项电气和结构性能参数的测试状况。下图为大显设计的天线图片。

This report mainly provides the testing status of various electrical and structural performance parameters of the antenna for the **M3** project. The following image shows an antenna with a large display design.



天线外观图

antenna appearing diagram

1.1 电气规格标准 Electrical specifications and standards

1.1.1 电性能指标 Electrical performance index

天线工作频段在 2400MHz ~ 2500 MHz。下表是大显设计和量产天线的电性能的指标。

The operating frequency band of the antenna is between 2400 and 2500 MHz . The following table shows the electrical performance indicators of large display design and mass production antennas.

Frequency Range	Frequency (MHz)	VSWR
BT	2400 ~ 2500	≤ 2

1.2 结构规格标准 Structural specifications and standards

1.2.1 天线组成 Antenna composition

天线主要是由 FFPC+同轴线+线材海绵 组成。

The antenna is mainly composed of FPC + coaxial cable + cable sponge.

2. 测试设备 The Equipment of Active Test

Satimo 3D Chamber $4 \times 4 \times 4$ (m)

CMW500 E5071C

Network analyzer-R&S ZVL

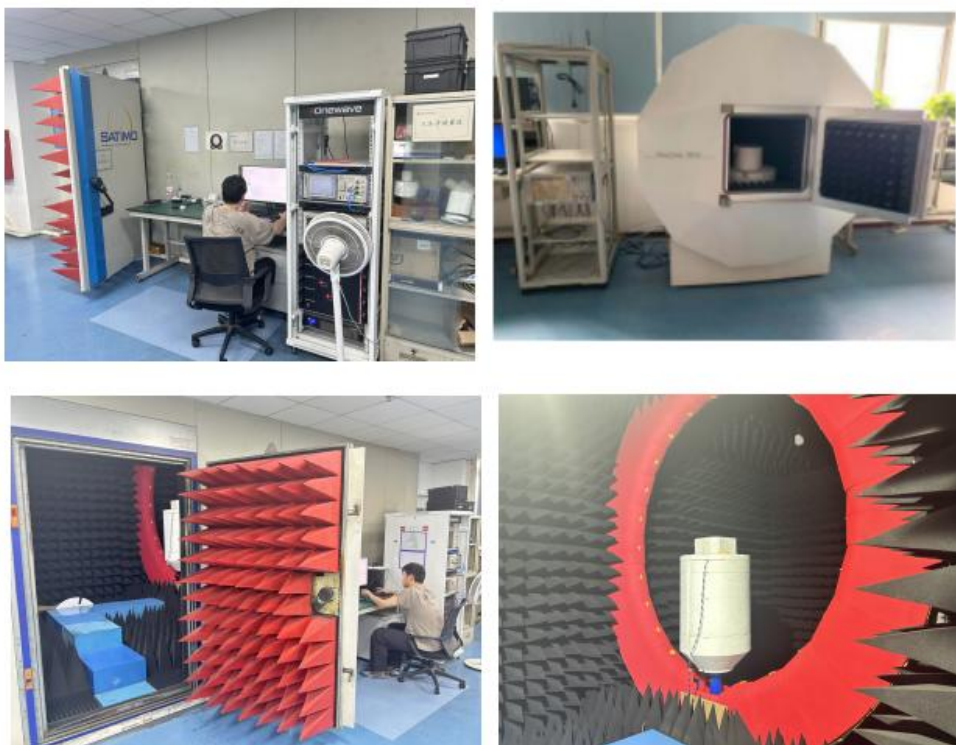


图 2

Figure 2

3 测试 test

3.1 驻波(VSWR)的测试 Test of standing wave (VSWR)

3.1.1 测试连接: VSWR 测试装置依次的连接为: R&S ZVL 网络分析仪 → 测试线 → 测试治

Test connection: The VSWR test device is sequentially connected as follows: R&S ZVL network analyzer → test line → test fixture

实测(附图)Actual measurement (attached drawing)

3.2 增益及效率的测试

Gain and efficiency testing

3.2.1 测试的场地 Test site:

大显微波暗室。测试频率范围为 400MHz—6GHz, 静区范围为 50cm 圆周, 反射率小于-50 dB。

Large display microwave anechoic chamber. The test frequency range is 400MHz - 6GHz, the static zone range is 50cm circumferential, and the reflectivity is less than - 50dB.

3.2.2 测试的仪表 Tested Instruments:

R&S ZVL 网络分析仪、CMW500 E5071C、标准喇叭天线、法国 SATIMO-SG24SYSTEM 系统、打印机等。

R&S ZVL network analyzer, Agilent 8960 E5515C, standard horn antenna, French SATIMO-SG24SYSTEM system, printer, etc.

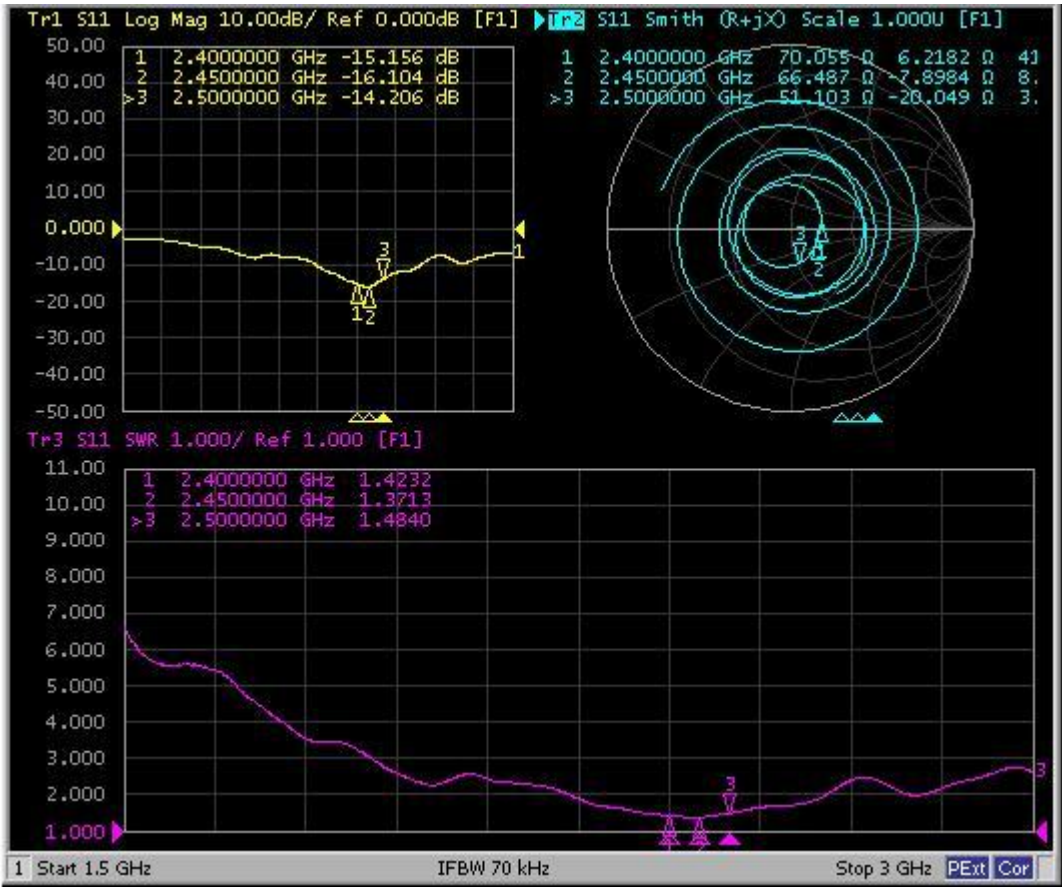
3.2.3 测试数据 : 在微波暗室中, 测试的功率和灵敏度相关的数值如下表

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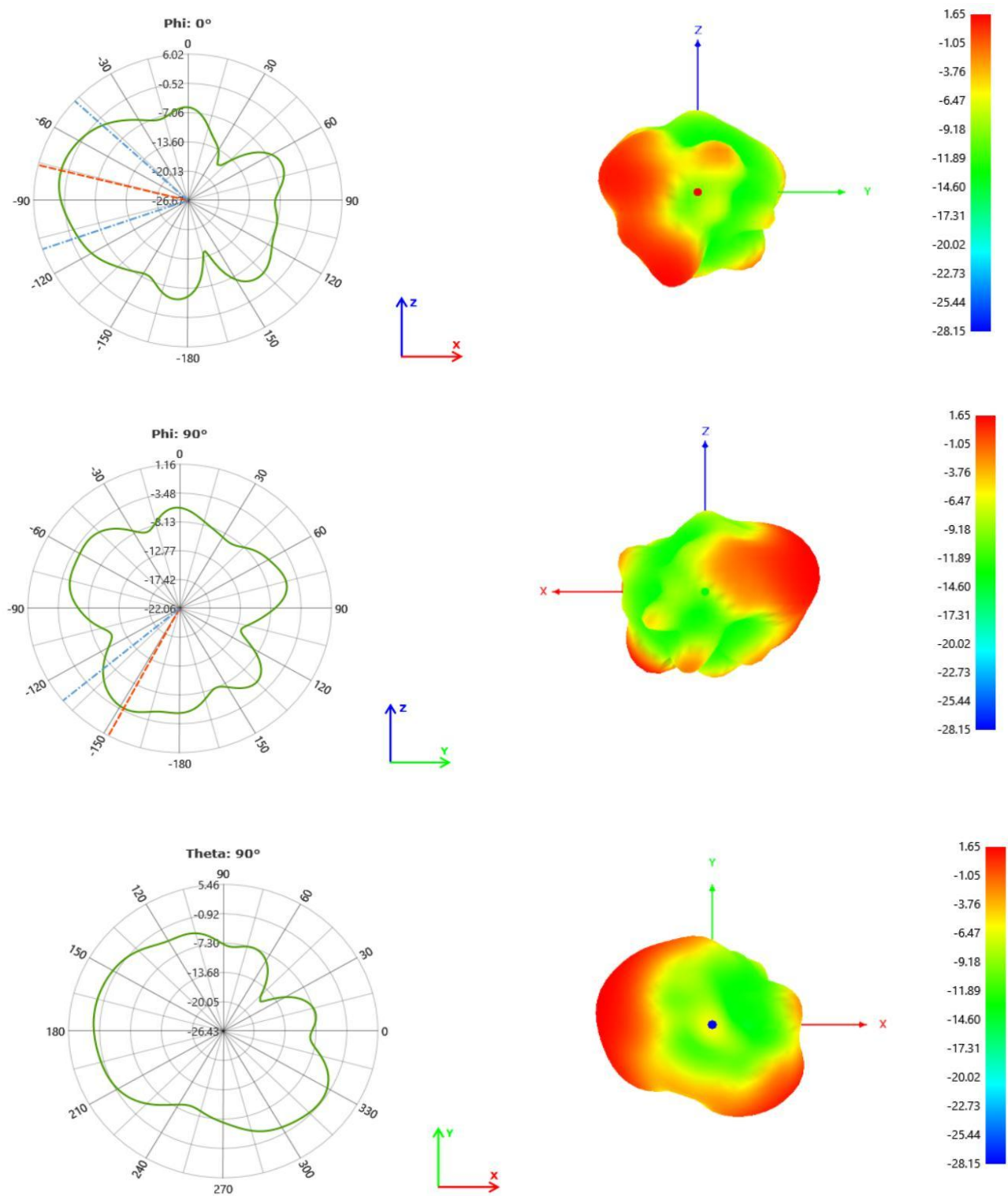
天线测试 Antenna test results:

P/N	BT
Frequency Range	2.4GHz-2.5GHz
Peak Gain(Max)	1.91dBi
Average Total efficiency	>37.33%
Return Loss	<-16.104dB

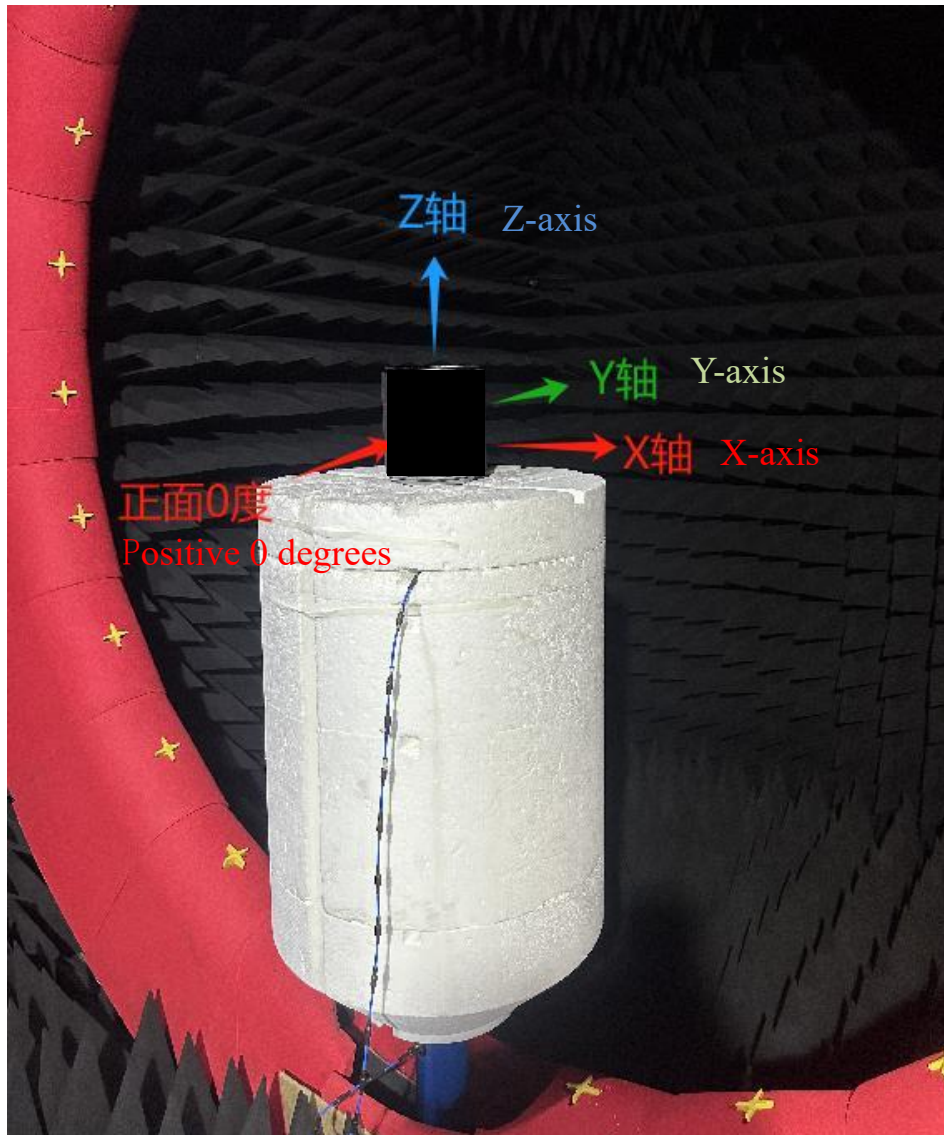
4、VSWR 参数图 VSWR parameter diagram



5、无源效率场型图 Passive efficiency field pattern diagram
2450MHz



6、暗室坐标系 Test scenario:



7、结论 conclusion

此天线是在客户提供样机基础上设计，电参数和结构性能已达到技术要求，请确认！

This antenna is designed based on the prototype provided by the customer. The electrical parameters and structural performance have met the technical requirements, please confirm!

SPECIFICATION



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迪芬尼 M3 WIFI 1 天线组件TYMPHANY M3 WIFI 1 Antenna assembly

产 品 规 格 书

Product Specification

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物料编号 Material No	1L-GMusic-053	颜 色 Color	黑色 Black
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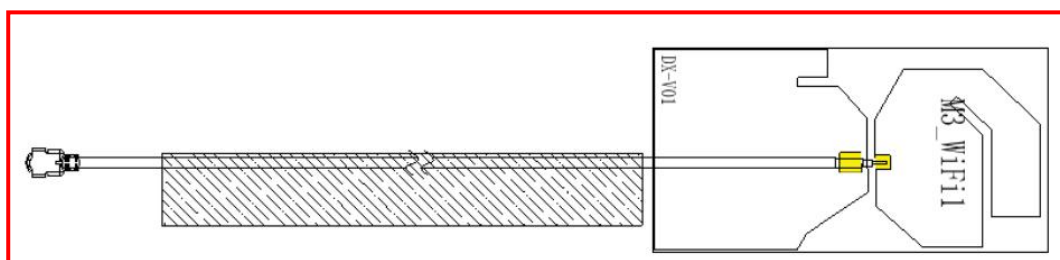
客户名: Customer Name:	迪芬尼 TYMPHANY
整机类型: Type of complete machine:	音箱 loudspeaker box
天线频段: Antenna band:	2400MHz-2500MHz, 5150MHz-5850MHz, 5925MHz-7125MHz
天线形式: Antenna type:	FPC+同轴线+线材海绵 FPC + coaxial cable + cable sponge
馈电形式: Feed form:	焊接 weld
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II、WIFI 1 天线组件 WIFI 1 Antenna assembly

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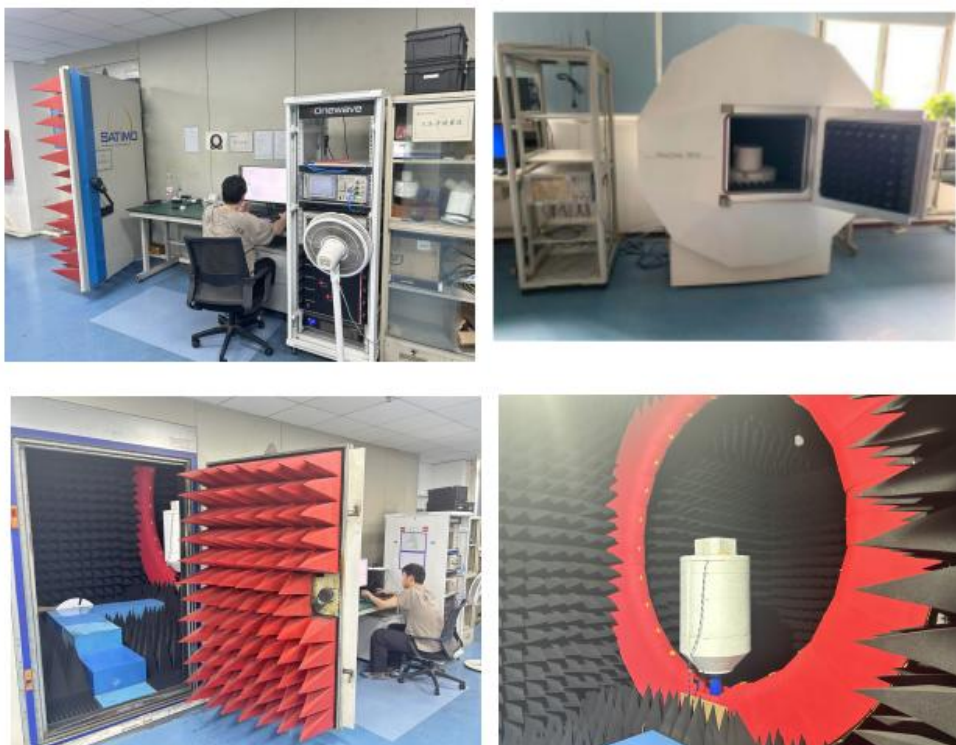


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Large display microwave anechoic chamber. The test frequency range is 400MHz - 6GHz, the static zone range is 50cm circumferential, and the reflectivity is less than - 50dB.

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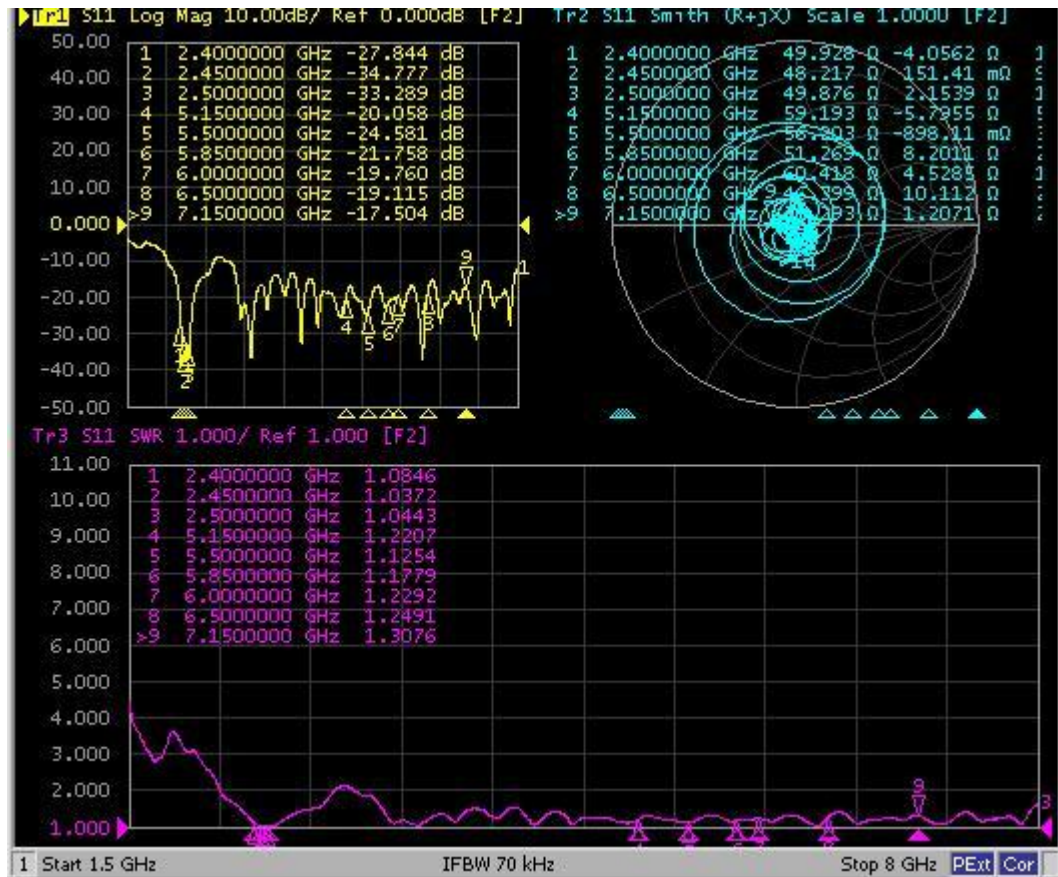
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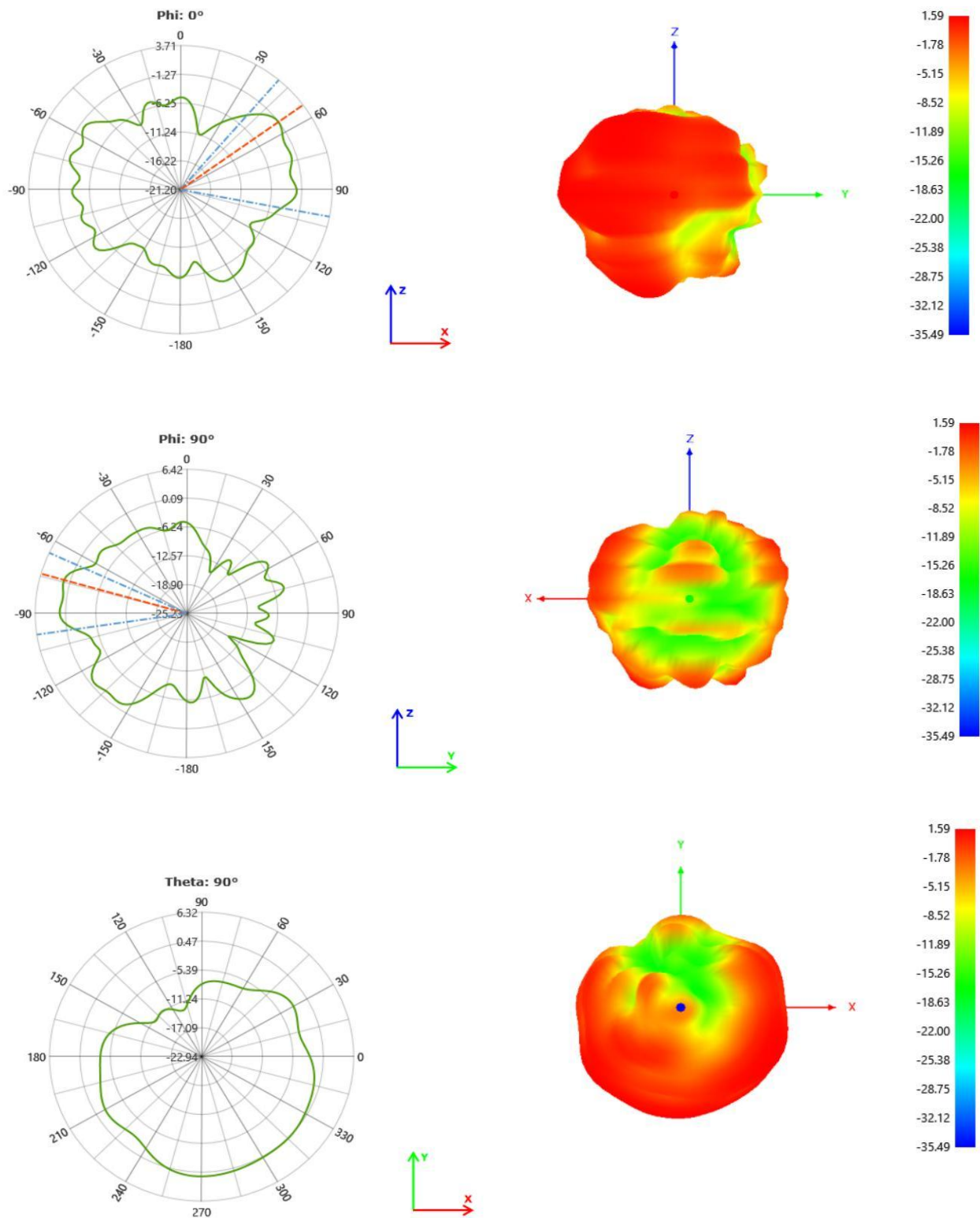
天线测试 Antenna test results:

P/N	WIFI 1		
Frequency Range	2.4GHz-2.5GHz	5.15GHz-5.85GHz	5.925GHz-7.125GHz
Peak Gain(Max)	1.71dBi	2.91dBi	2.36dBi
Average Total efficiency	>46.48%	>36.31%	>36.05%
Return Loss	<-34.777dB	<-24.581dB	<-19.115dB

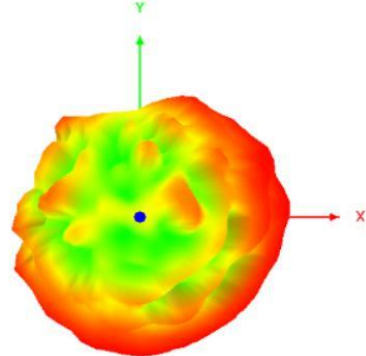
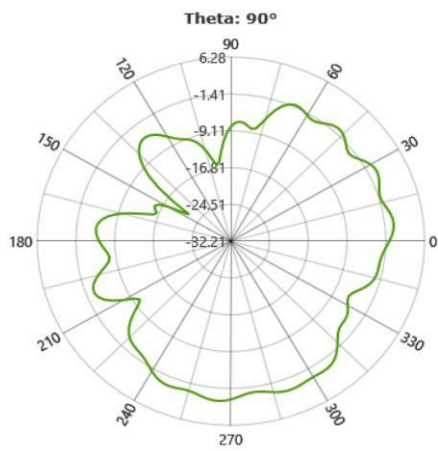
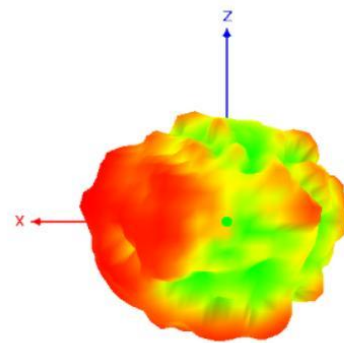
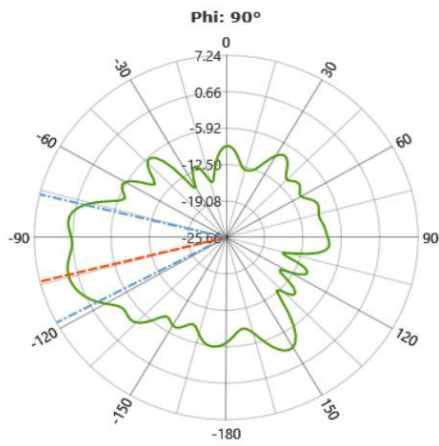
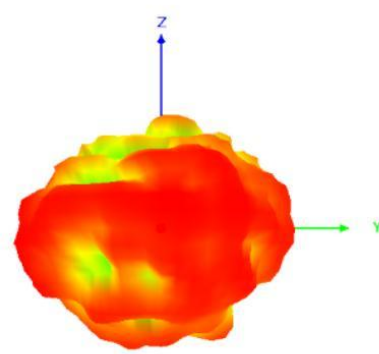
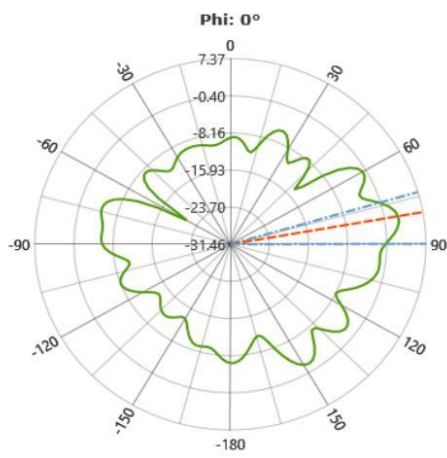
4、VSWR 参数图 VSWR parameter diagram



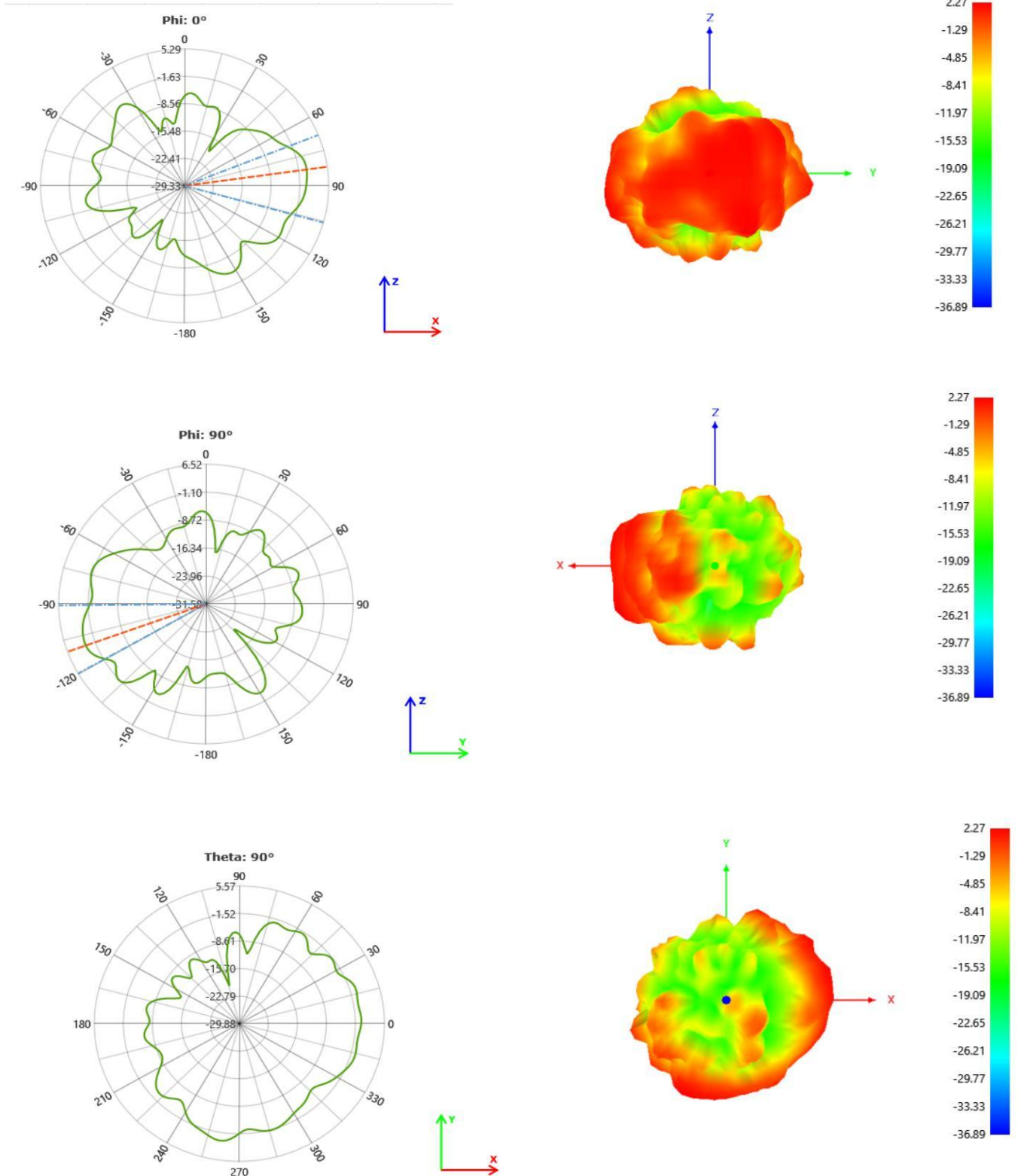
5、无源效率场型图 Passive efficiency field pattern diagram
2450MHz



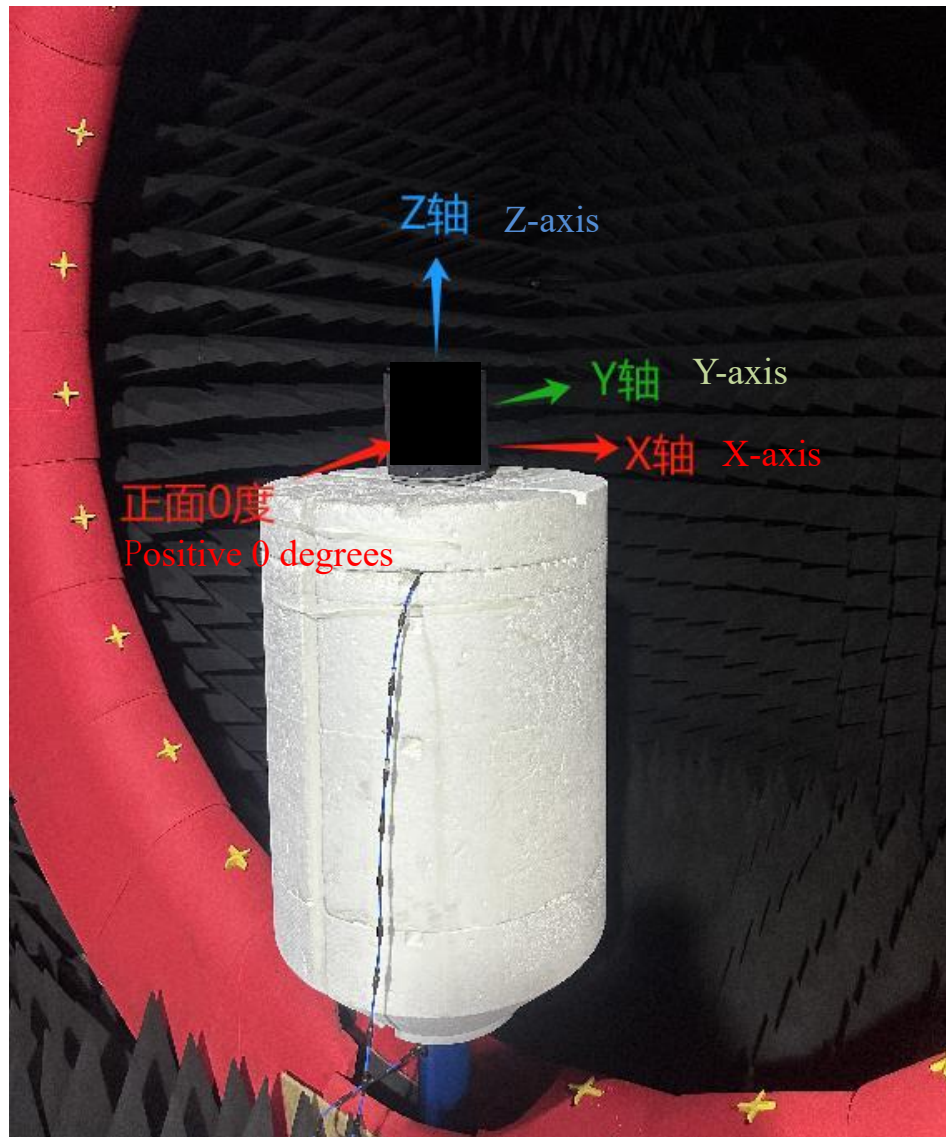
5500MHz



6550MHz



6、暗室坐标系 Test scenario:



7、结论 conclusion

此天线是在客户提供样机基础上设计，电参数和结构性能已达到技术要求，请确认！

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迪芬尼 M3 WIFI 2 天线组件TYMPHANY M3 WIFI 2 Antenna assembly

产 品 规 格 书

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项目名称 entry name	M3	版 本 edition	V3.0
物料编号 Material No	3L-GMusic-053	颜 色 Color	黑色 + 灰色 Black +Grizzly
客户料号 Customer Item Number			
R F 设计 R F Design	刘柱东 ZhuDong.Liu	结构设计 Structural Design	周锐斌 Ruibin.Zhou
品质经理 Quality Manager	潘永杰 YongJie.Pan	技术总监 Technical Director	张 磊 Lei.Zhang
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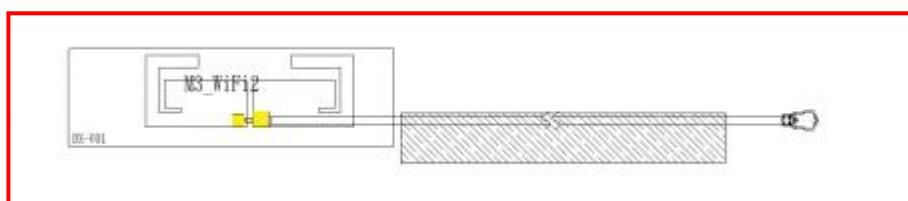
客户名: Customer Name:	迪芬尼 TYMPHANY
整机类型: Type of complete machine:	音箱 loudspeaker box
天线频段: Antenna band:	2400MHz-2500MHz, 5150MHz-5850MHz, 5925MHz-7125MHz
天线形式: Antenna type:	FFPC+同轴线+线材海绵 FPC + coaxial cable + cable sponge
馈电形式: Feed form:	焊接 weld
硬件版本: Hardware version:	/

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天线主要是由 FPC+同轴线+线材海绵 组成。

The antenna is mainly composed of FPC + coaxial cable + cable sponge.

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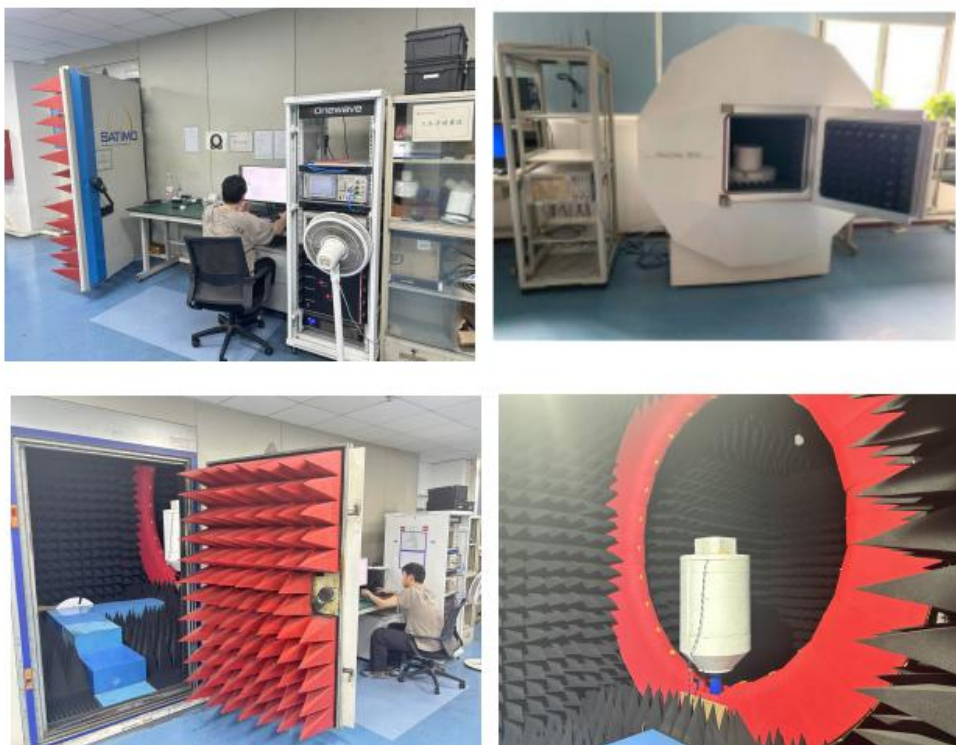


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Figure 2

3 测试 test

3.1 驻波(VSWR)的测试 Test of standing wave (VSWR)

3.1.1 测试连接: VSWR 测试装置依次的连接为: R&S ZVL 网络分析仪 → 测试线 → 测试治

Test connection: The VSWR test device is sequentially connected as follows: R&S ZVL network analyzer → test line → test fixture

实测(附图)Actual measurement (attached drawing)

3.2 增益及效率的测试

Gain and efficiency testing

3.2.1 测试的场地 Test site:

大显微波暗室。测试频率范围为 400MHz—6GHz, 静区范围为 50cm 圆周, 反射率小于-50 dB。

Large display microwave anechoic chamber. The test frequency range is 400MHz - 6GHz, the static zone range is 50cm circumferential, and the reflectivity is less than - 50dB.

3.2.2 测试的仪表 Tested Instruments:

R&S ZVL 网络分析仪、CMW500 E5071C、标准喇叭天线、法国 SATIMO-SG24SYSTEM 系统、打印机等。

R&S ZVL network analyzer, Agilent 8960 E5515C, standard horn antenna, French SATIMO-SG24SYSTEM system, printer, etc.

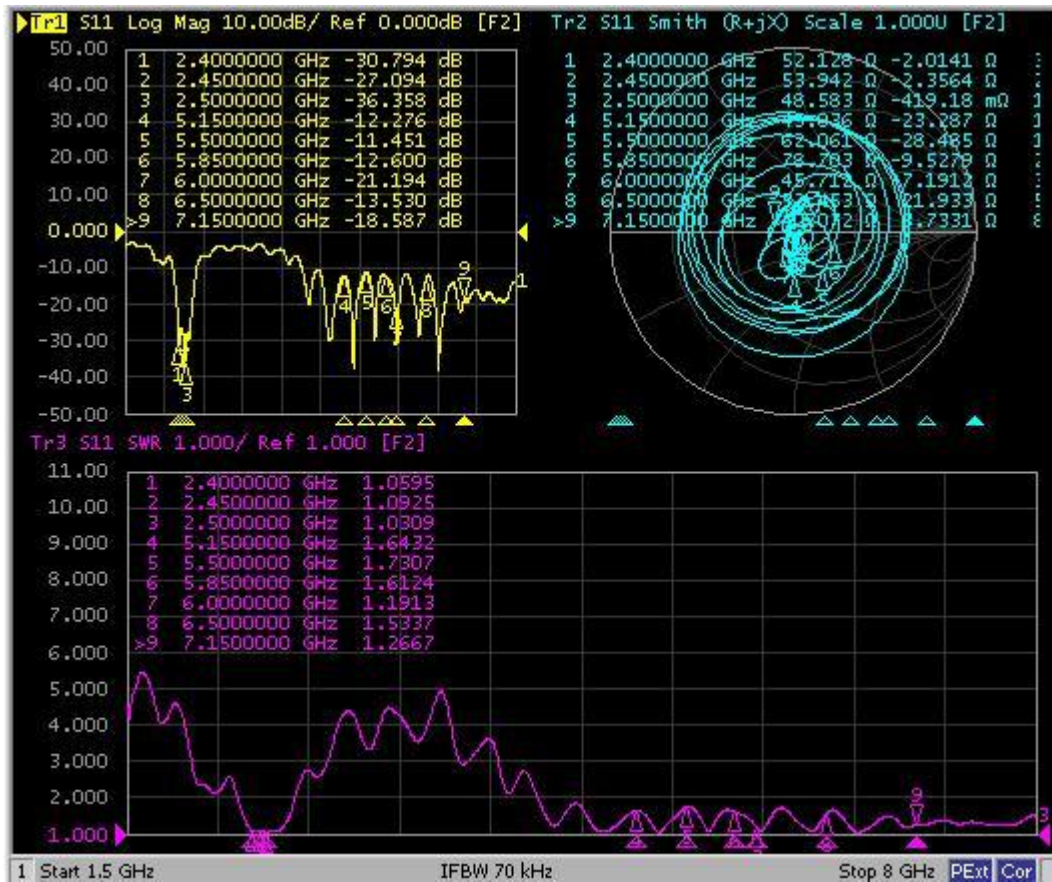
3.2.3 测试数据 : 在微波暗室中, 测试的功率和灵敏度相关的数值如下表

Test data: In a microwave anechoic chamber, the values related to the power and sensitivity tested are shown in the table bel

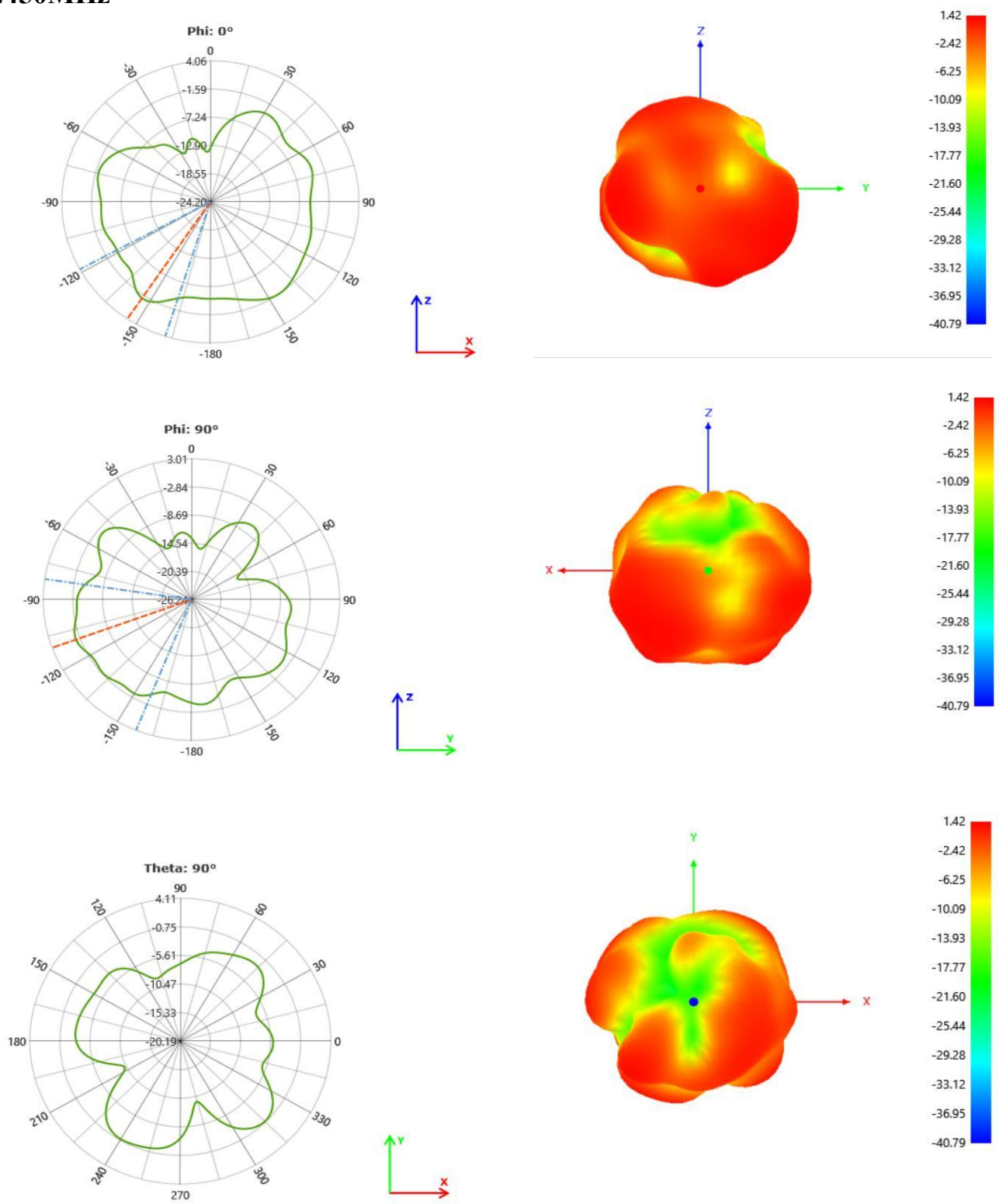
天线测试 Antenna test results:

P/N	WIFI 2		
Frequency Range	2.4GHz-2.5GHz	5.15GHz-5.85GHz	5.925GHz-7.125GHz
Peak Gain(Max)	1.42dBi	3.42dBi	3.55dBi
Average Total efficiency	>42.2%	>36.93%	>35.485%
Return Loss	<-27.094dB	<-11.451dB	<-13.53dB

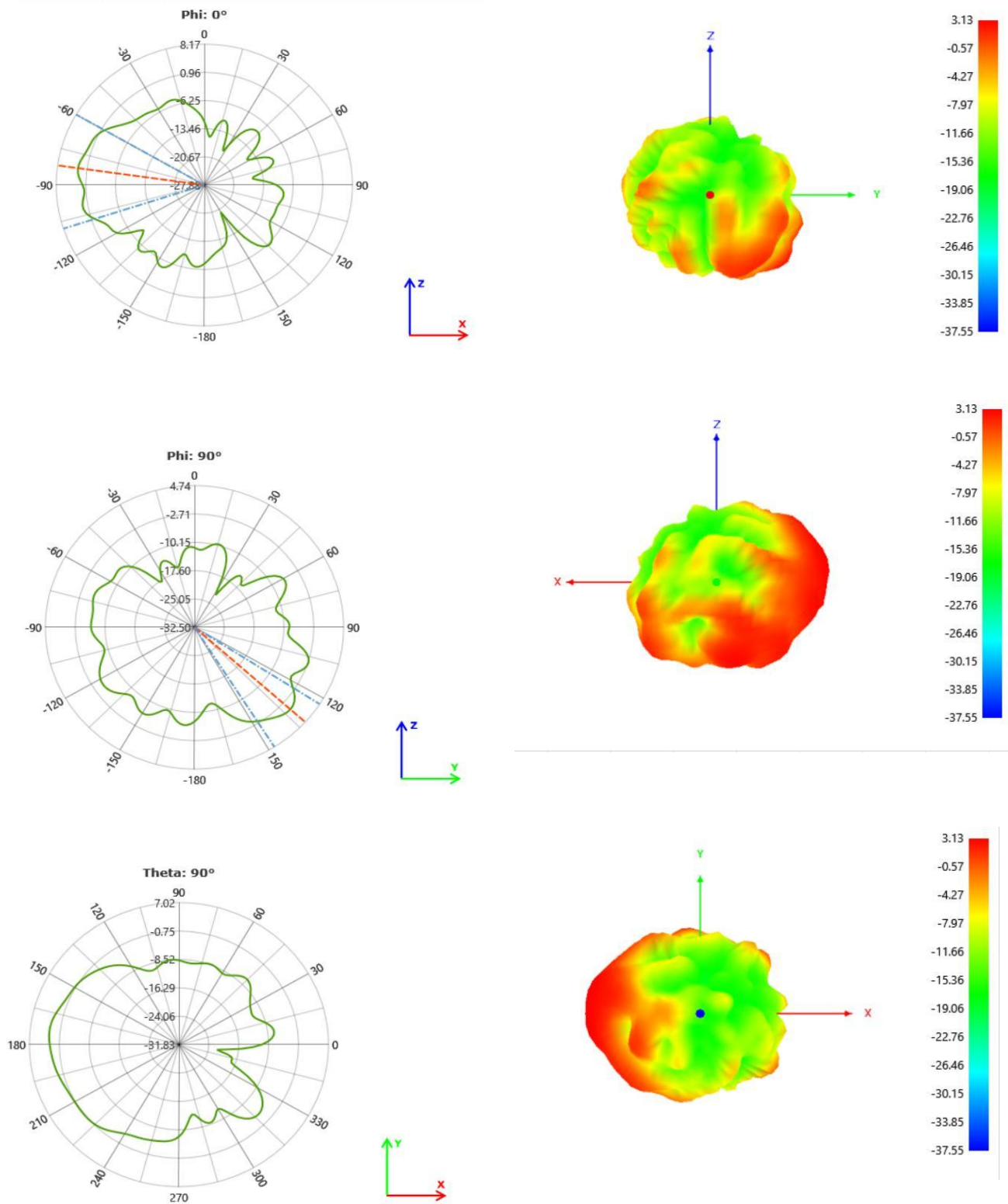
4、VSWR 参数图 VSWR parameter diagram



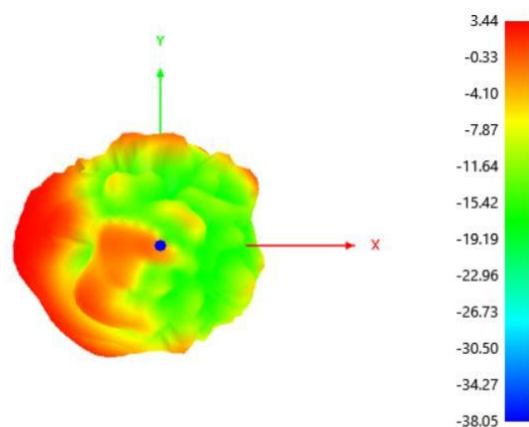
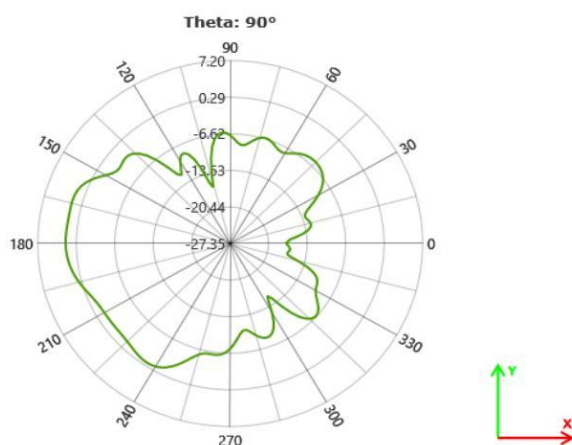
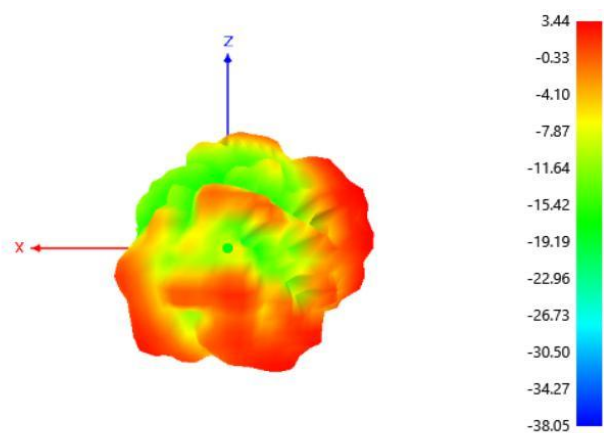
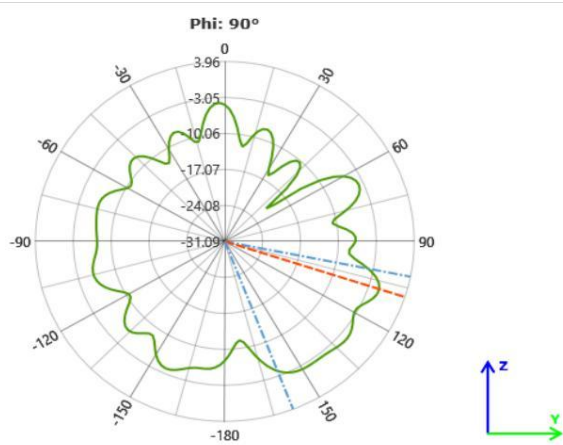
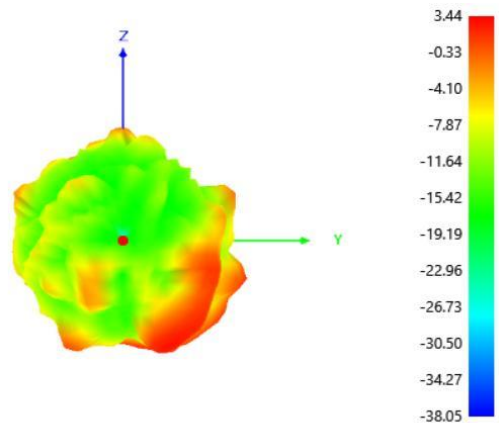
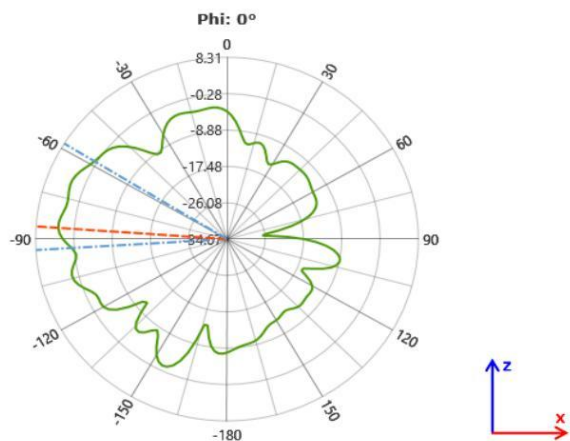
5、无源效率场型图 Passive efficiency field pattern diagram
2450MHz



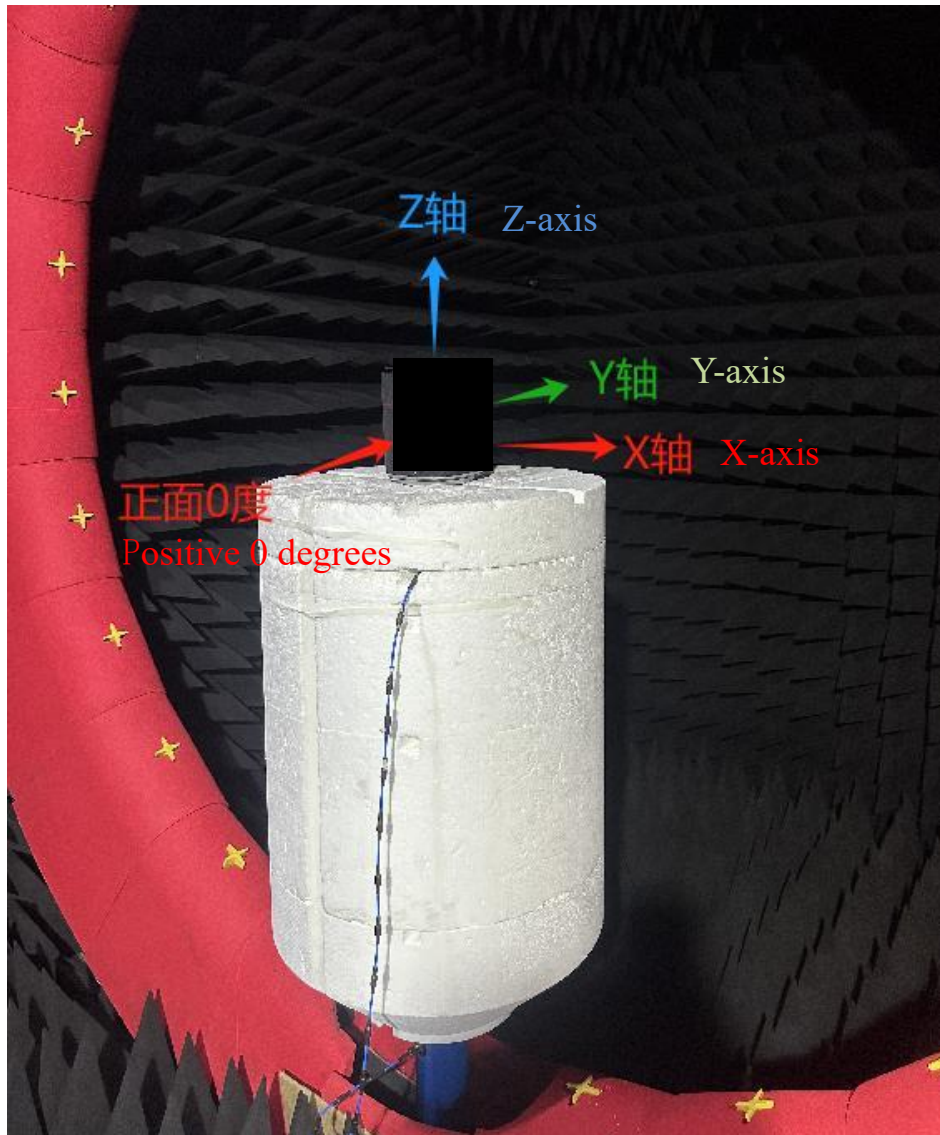
5500MHz



6550MHz



6、暗室坐标系 Test scenario:



7、结论 conclusion

此天线是在客户提供样机基础上设计，电参数和结构性能已达到技术要求，请确认！

This antenna is designed based on the prototype provided by the customer. The electrical parameters and structural performance have met the technical requirements, please confirm!



苏州硕贝德通讯技术有限公司

SUZHOU SPEED COMMUNICATION

TECHNOLOGY CO.LTD

M5 BT Antenna Specification

Customer/Project	LG M5		Frequency Band	2400~2500MHz	
SCT P/N	F-0G-QH-0003-003-K 0		Version	V04	
Date	2025.07.08				
SPEED					
Checked by	RF	Hao Wu	Designed by	RF	Liyang Zhao
	ME	Kevin wang		ME	Weston Dong
	QC		Remark		
Customer					
Date					
Confirmed by	RF				
	ME				
Remark					

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4	Measured Results.....	5
	4.1 Return Loss	5
	4.2 Efficiency & Peak Gain.....	5
5	Antenna Radiation Pattern(2D)	6

1. Project Overview

This specification outlines the characteristics of the BT antenna for project M5. Its operating frequency range is 2400~2500 MHz.

2. Antenna Specifications

Antenna Type	FPC + Coaxial Cable	
Operating Frequency	2400~2500 MHz	
VSWR	VSWR<2	
Peak Gain	2.61~3.35dBi@2400~2500MHz	
Efficiency	≥44%	
Isolation	BT&WiFi-1	≤-25dB
	BT&WiFi-2	≤-35dB
Impute Impedance	50ohm	
Polarization Mode	Linear	
Antenna Size	As shown in the drawing	
Operating Temperature	-40°C to +80°C	
Storage Temperature	-40°C to +80°C	

3. Antenna Test Environment

The testing equipment for antenna return loss, voltage standing wave ratio, and isolation degree is the Keysight E5071C vector network analyzer. As shown in the following figure:



Figure 1: Keysight E5071C Vector Network Analyzer

The antenna's efficiency, gain, and pattern were all measured in a French Satimo anechoic chamber. This chamber uses 64 probes to electronically scan the antenna's radiation performance, collect data, and analyze and organize it through a computer. It can provide antenna tests within the frequency band of 400 MHz to 6,000 MHz.



Figure 2: Satimo Chamber Testing System

4. Measured Results

4.1 Return Loss

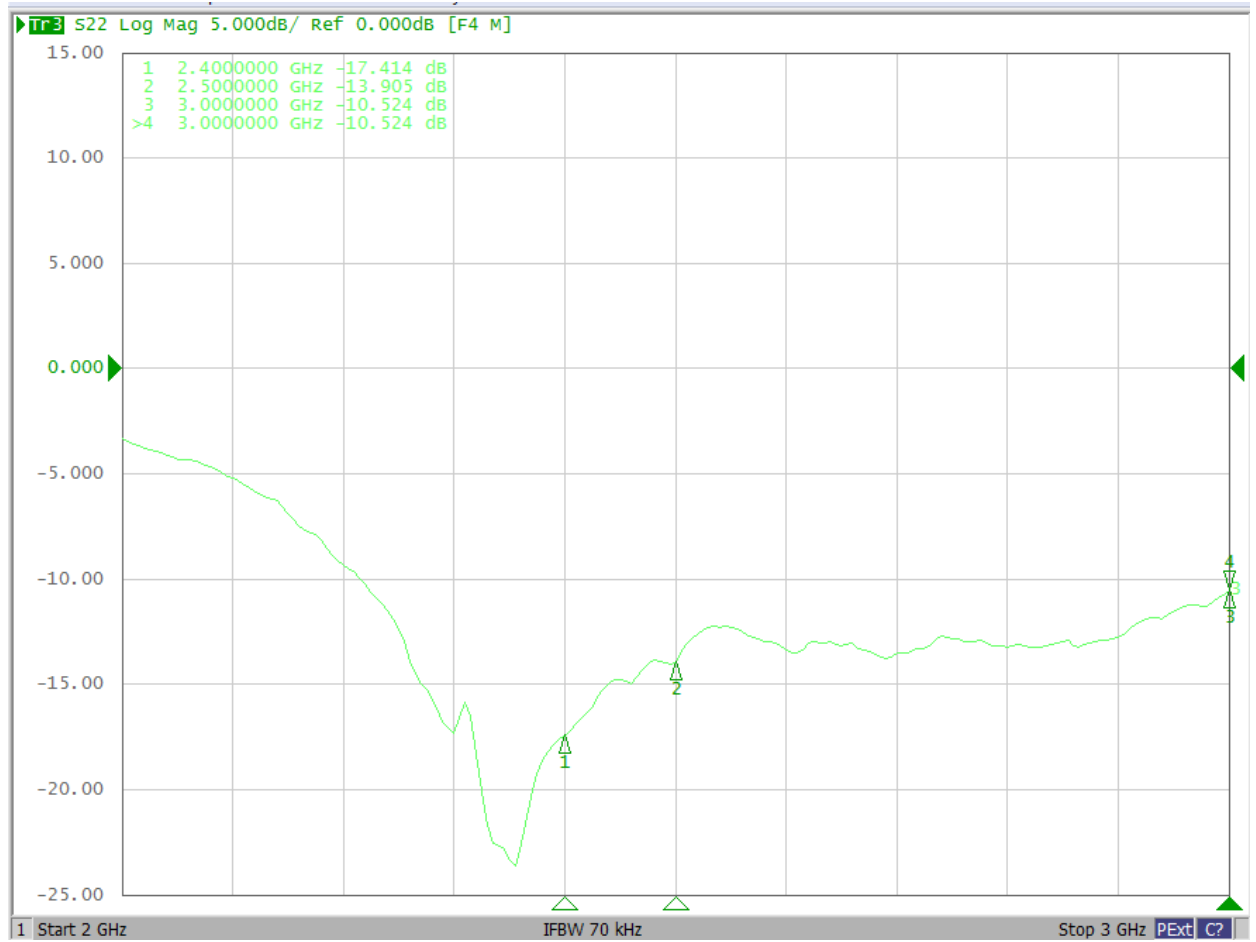
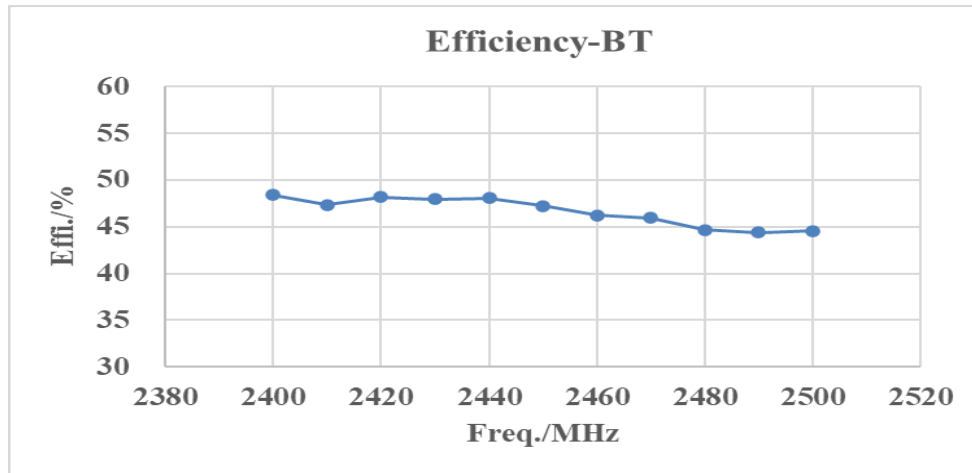


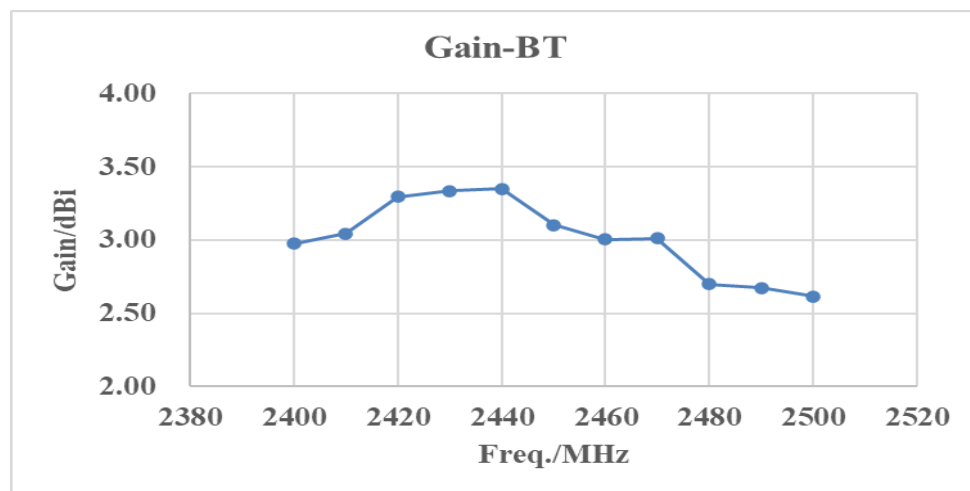
Figure 3: Return Loss

4.2 Efficiency & Peak Gain

Frequency Range	2400~2500MHz
Peak Gain (Max)	3.35dBi
Average Total Efficiency	>47%



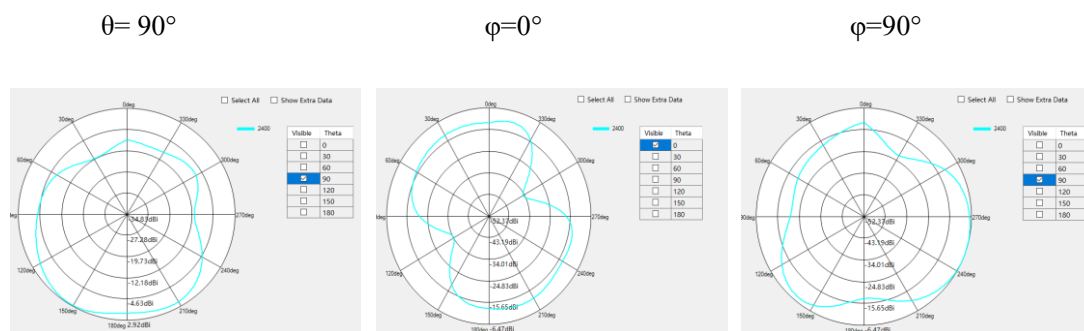
(a) Antenna Efficiency



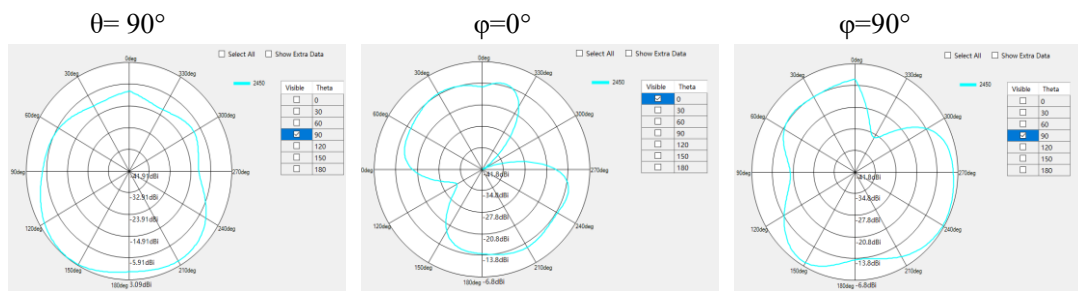
(b) Peak Gain

Figure 4: Efficiency & Peak Gain

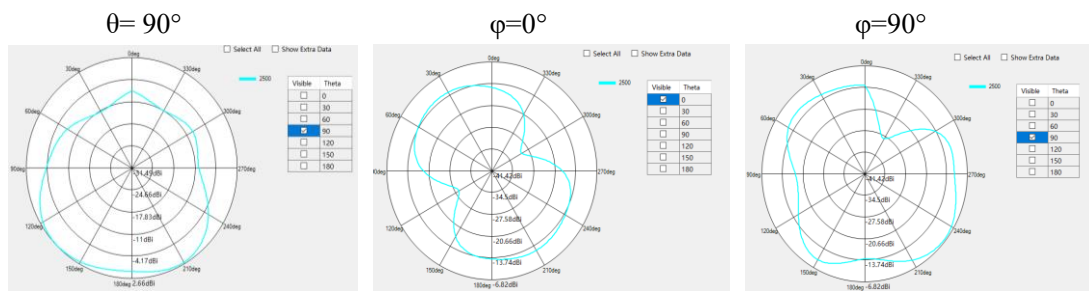
5 Antenna Radiation Pattern(2D)



(a) 2400MHz



(b)2450MHz



(c)2500MHz

Figure 5: Radiation Pattern(2D)



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SUZHOU SPEED COMMUNICATION

TECHNOLOGY CO.LTD

M5 Wi-Fi Antenna Specification

Customer/Project	LG M5	Frequency Band	2400~2500MHz 5150~5850MHz 5925~7125MHz		
SCT P/N	F-0G-QH-0003-001-K 0	Version	V04		
Date	2025.07.08				
SPEED					
Checked by	RF	Hao Wu	Designed by	RF	Liyang Zhao
	ME	Kevin Wang		ME	Weston Dong
	QC		Remark		
Customer					
Date					
Confirmed by	RF				
	ME				
Remark					

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1. Project Overview

This specification outlines the characteristics of the WiFi antenna (WiFi-1) for project M5. Its operating frequency range is 2400~2500 MHz & 5150~5850 MHz&5925~7125MHz.

2. Antenna Specifications

Antenna Type	FPC + Coaxial Cable	
Operating Frequency	2400~2500 MHz&5150~5850MHz&5925~7125MHz	
VSWR	VSWR<2	
Peak Gain	2.81~3.12dBi@2400~2500MHz 3.15~3.98dBi@5150~5850MHz 0.74~5.01dBi@5925~7125MHz	
Efficiency	≥38%	
Isolation	WiFi-1&WiFi-2	≤-30dB
	WiFi-1&BT	≤-25dB
Impute Impedance	50ohm	
Polarization Mode	Linear	
Antenna Size	As shown in the drawing	
Operating Temperature	-40°C to +80°C	
Storage Temperature	-40°C to +80°C	

3. Antenna Test Environment

The testing equipment for antenna return loss, voltage standing wave ratio, and isolation degree is the Keysight E5071C vector network analyzer. As shown in the following figure:



Figure 1: Keysight E5071C Vector Network Analyzer

The antenna's efficiency, gain, and pattern were all measured in a French Satimo anechoic chamber. This chamber uses 64 probes to electronically scan the antenna's radiation performance, collect data, and analyze and organize it through a computer. It can provide antenna tests within the frequency band of 400 MHz to 6,000 MHz.



Figure 2: Satimo Champer Testing System

4. Measured Results

4.1 Return Loss

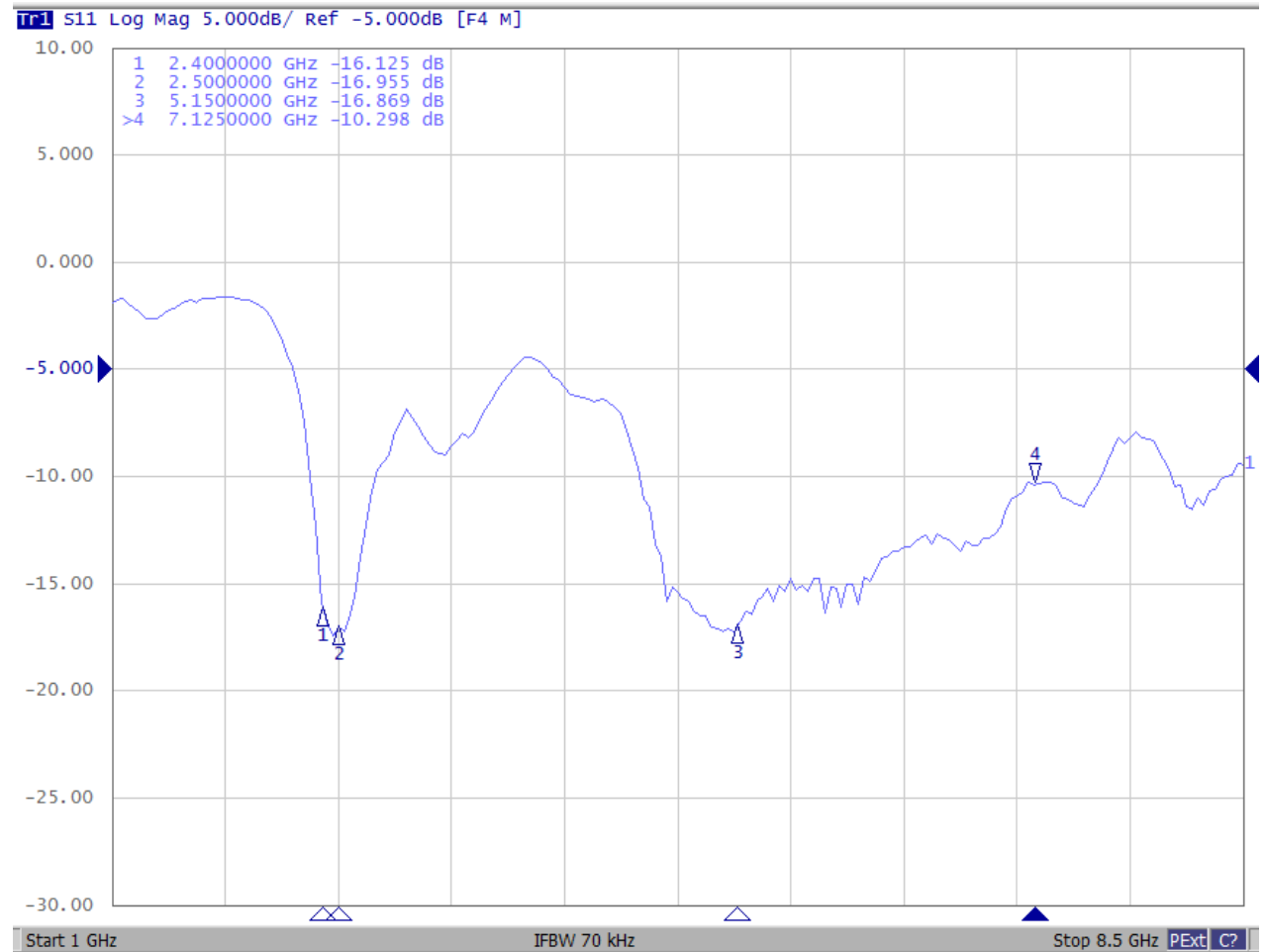
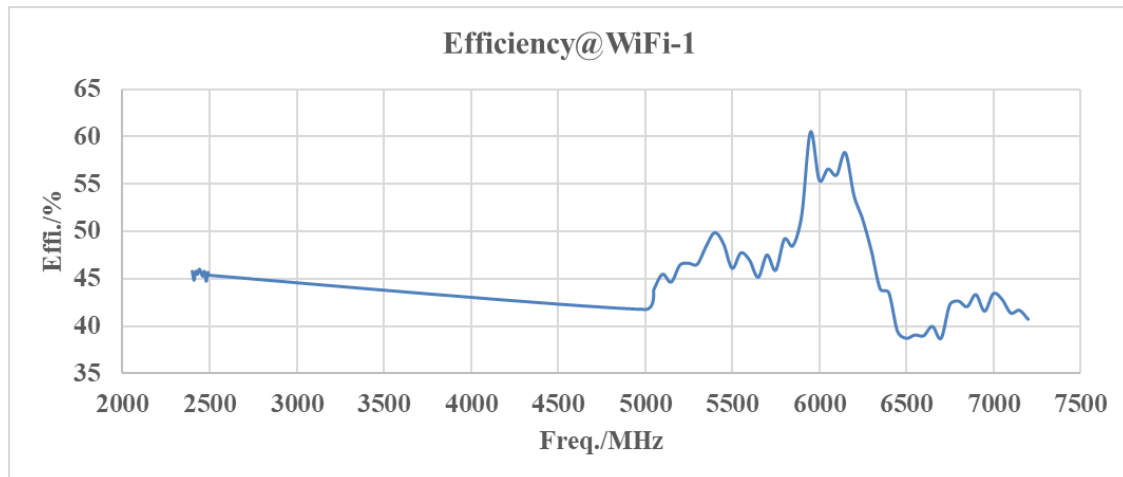


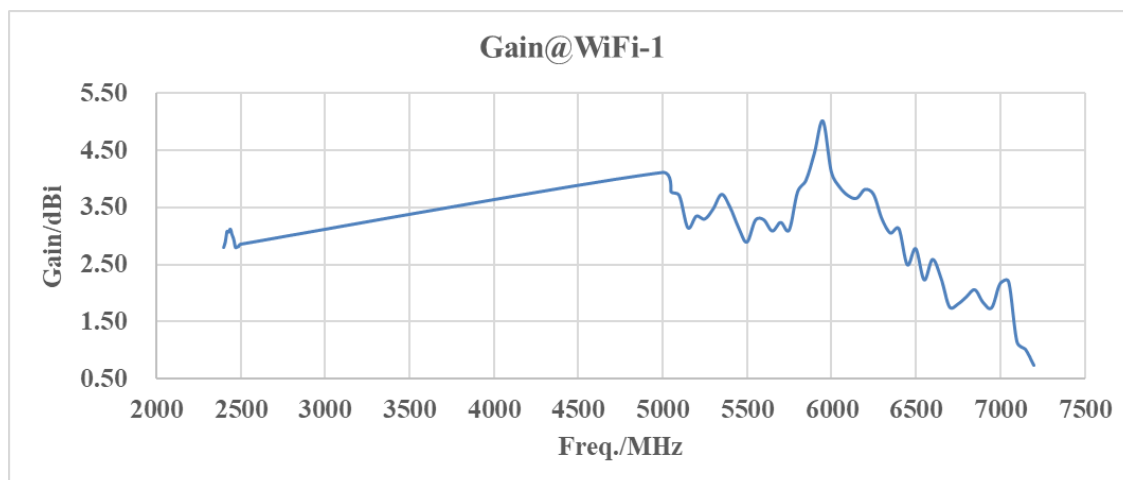
Figure 3: Return Loss

4.2 Efficiency & Peak Gain

Frequency Range	2400~2500MHz	5150~5850MHz	5925~7125MHz
Peak Gain (Max)	3.35dBi	3.98dBi	5.01dBi
Average Total Efficiency	>46%	>47%	>46%



(a) Antenna Efficiency



(b) Peak Gain

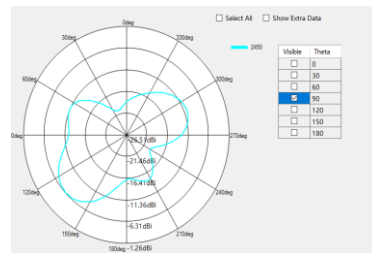
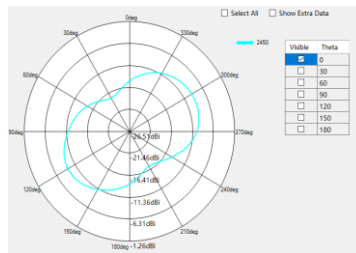
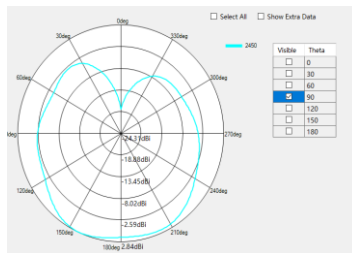
Figure 4: Efficiency & Peak Gain

5 Antenna Radiation Pattern(2D)

$\theta=90^\circ$

$\varphi=0^\circ$

$\varphi=90^\circ$

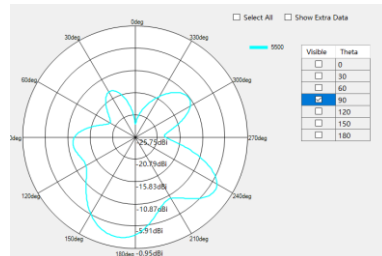
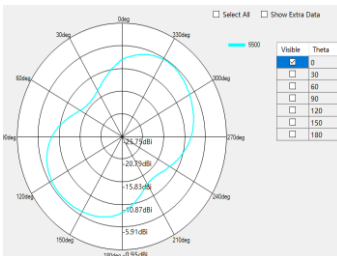
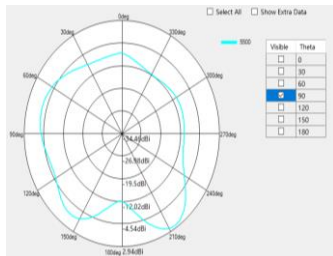


(a)2450MHz

$\theta=90^\circ$

$\varphi=0^\circ$

$\varphi=90^\circ$

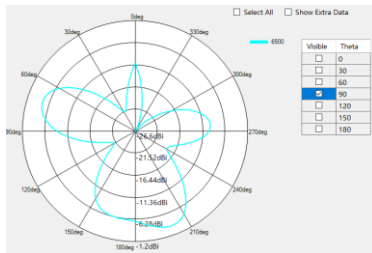
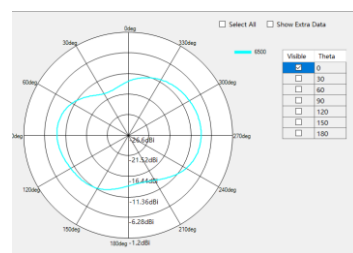
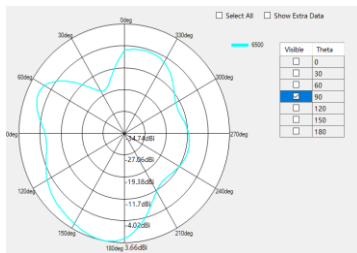


(b)5500MHz

$\theta=90^\circ$

$\varphi=0^\circ$

$\varphi=90^\circ$



(c)6500MHz

Figure 5: Radiation Pattern(2D)



苏州硕贝德通讯技术有限公司

SUZHOU SPEED COMMUNICATION

TECHNOLOGY CO.LTD

M5 Wi-Fi Antenna Specification

Customer/Project	LG M5	Frequency Band	2400~2500MHz, 5150~5850MHz, 5925~7125MHz		
SCT P/N	F-0G-QH-0003-002-K 0	Version	V04		
Date	2025.07.08				
SPEED					
Checked by	RF	Hao Wu	Designed by	RF	Liyang Zhao
	ME	Kevin Wang		ME	Weston Dong
	QC		Remark		
Customer					
Date					
Confirmed by	RF				
	ME				
Remark					

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1. Project Overview

This specification outlines the characteristics of the WiFi antenna (WiFi-2) for project M5. Its operating frequency range is 2400~2500MHz&5150~5850MHz&5925~7125MHz

2. Antenna Specifications

Antenna Type	FPC + Coaxial Cable	
Operating Frequency	2400~2500 MHz&5150~5850MHz&5925~7125MHz	
VSWR	VSWR<2	
Peak Gain	3.33~4.21dBi@2400~2500MHz 3.86~4.90dBi@5150~5850MHz 2.51~5.36dBi@5925~7125MHz	
Efficiency	≥42%	
Isolation	WiFi-1&WiFi-2	≤-30dB
	WiFi-2&BT	≤-35dB
Impute Impedance	50ohm	
Polarization Mode	Linear	
Antenna Size	As shown in the drawing	
Operating Temperature	-40°C to +80°C	
Storage Temperature	-40°C to +80°C	

3. Antenna Test Environment

The testing equipment for antenna return loss, voltage standing wave ratio, and isolation degree is the Keysight E5071C vector network analyzer. As shown in the following figure:

www.speed-hz.com



Figure 1: Keysight E5071C Vector Network Analyzer

The antenna's efficiency, gain, and pattern were all measured in a French Satimo anechoic chamber. This chamber uses 64 probes to electronically scan the antenna's radiation performance, collect data, and analyze and organize it through a computer. It can provide antenna tests within the frequency band of 400 MHz to 6,000 MHz.



Figure 2: Satimo Chamber Testing System

www.speed-hz.com

4. Measured Results

4.1 Return Loss

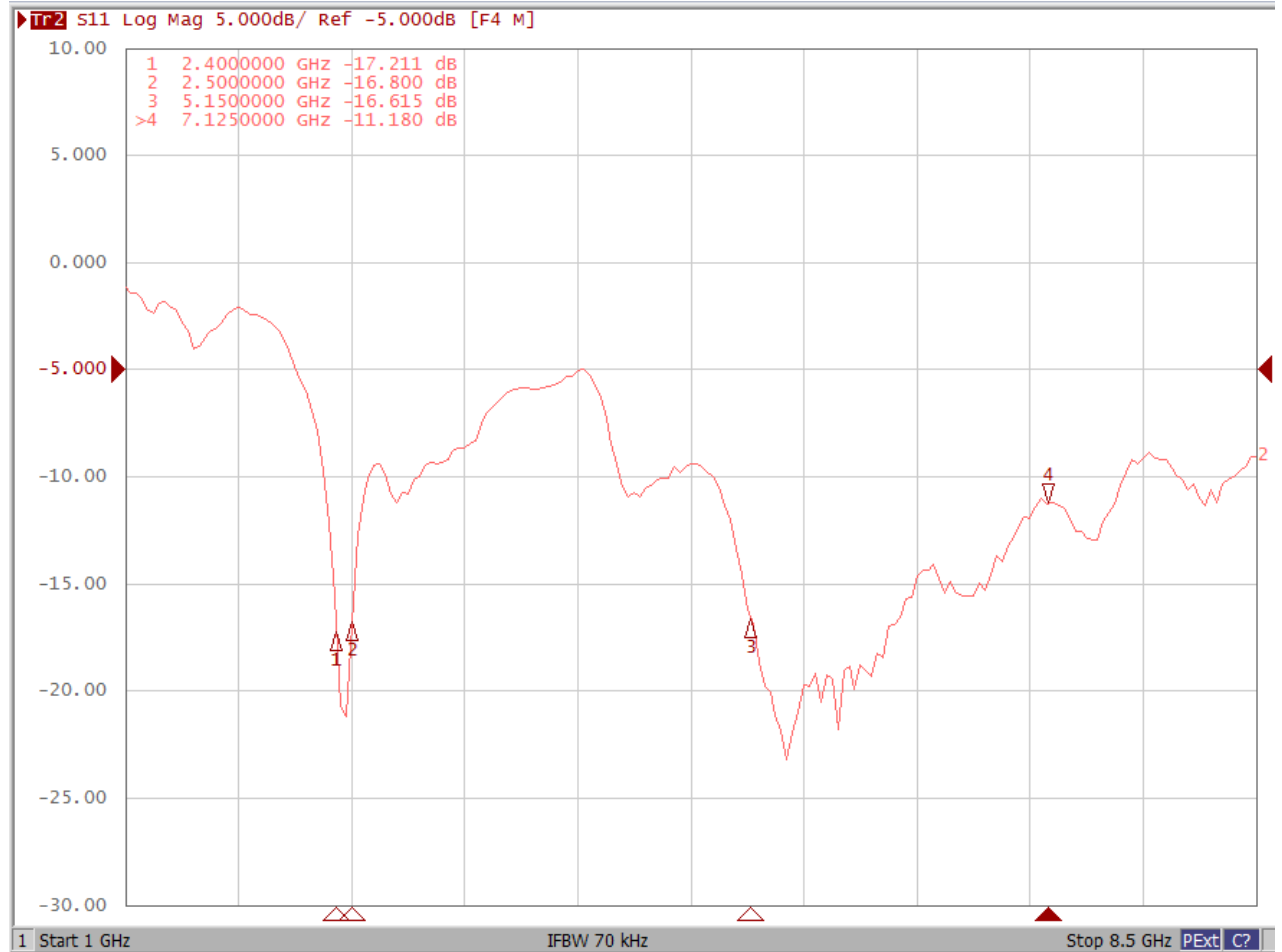
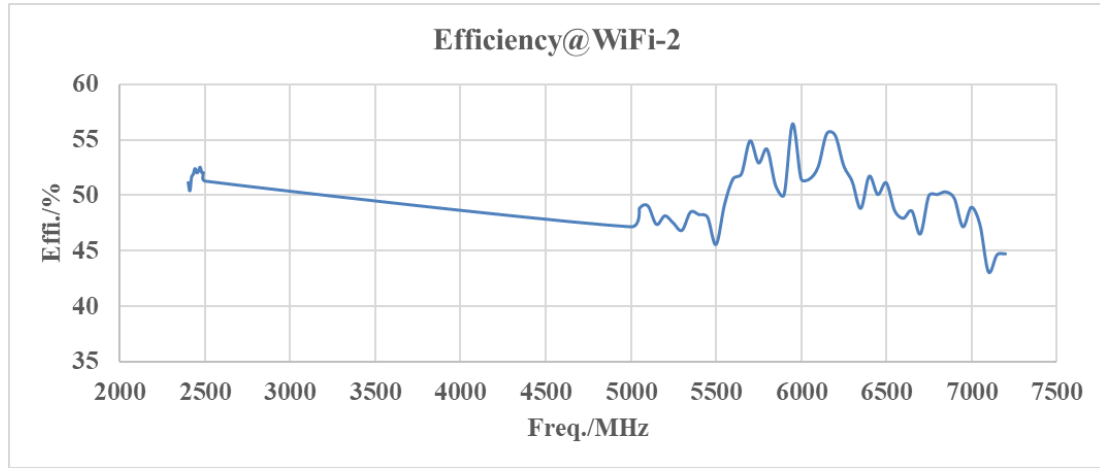


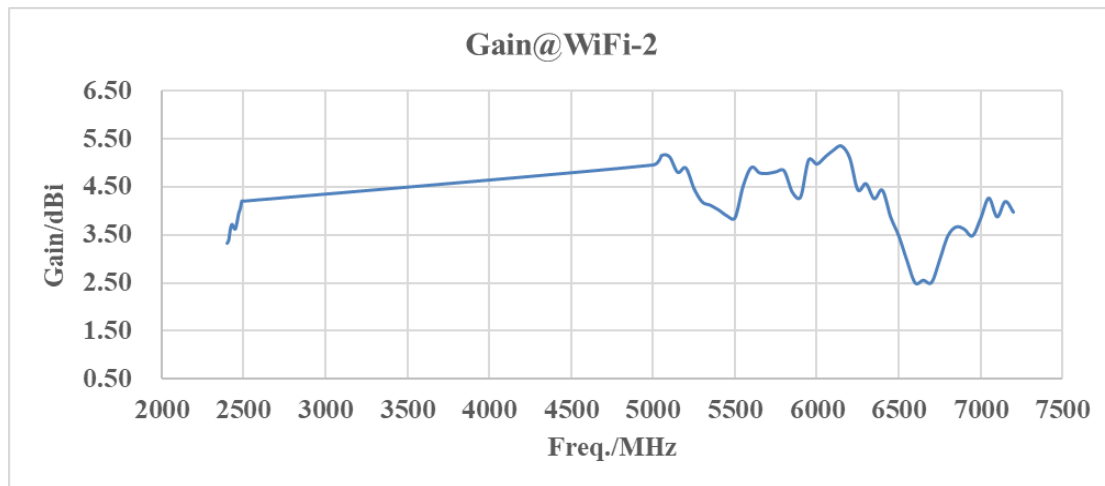
Figure 3: Return Loss

4.2 Efficiency & Peak Gain

Frequency Range	2400~2500MHz	5150~5850MHz	5925~7125MHz
Peak Gain (Max)	4.21dBi	4.90dBi	5.36dBi
Average Total Efficiency	> 52%	> 50%	> 50%



(a) Antenna Efficiency



(b) Peak Gain

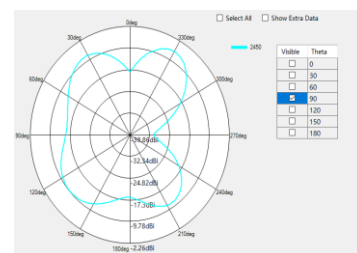
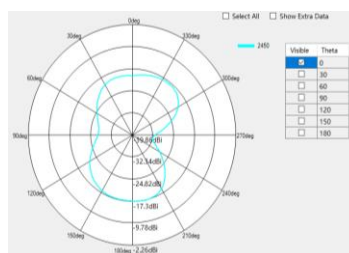
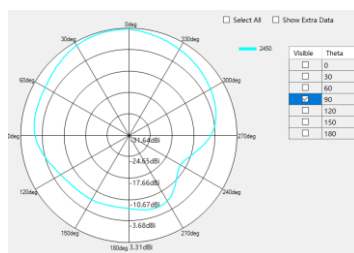
Figure 4: Efficiency & Peak Gain

5 Antenna Radiation Pattern(2D)

$\theta = 90^\circ$

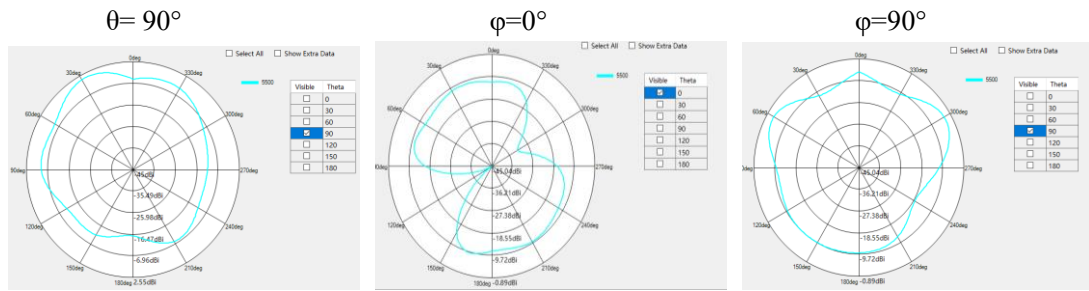
$\phi = 0^\circ$

$\phi = 90^\circ$

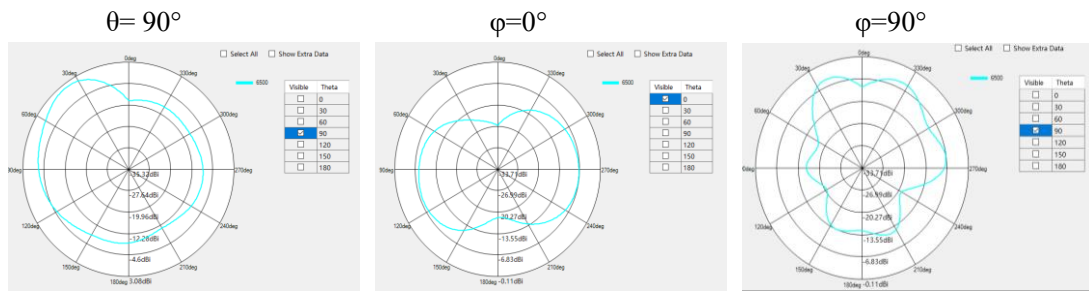


(a) 2450MHz

www.speed-hz.com



(b)5500MHz



(c)6500MHz

Figure 5: Radiation Pattern(2D)

SPECIFICATION



深圳市大显科技有限公司

Shenzhen Daxian Technology Co., Ltd.

迪芬尼 S7 BT 天线组件

TYMPHANY S7 BT Antenna assembly

产 品 规 格 书

Product Specification

客 户 connection	迪芬尼 TYMPHANY	频 段 frequency range	2400 ~ 2500MHz
项目名称 entry name	S7	版 本 edition	V3.0
物料编号 Material No	2L-GCMAX-014	颜 色 Color	黑色+蓝色 Black+Blue
客户料号 Customer Item Number	T690800046100		
R F 设计 R F Design	沈 川 Chuan.Shen	结构设计 Structural Design	周锐斌 Ruibin.Zhou
品质经理 Quality Manager	潘永杰 YongJie.Pan	技术总监 Technical Director	张 磊 Lei.Zhang
日 期 Date	2025-07-08		

客户确认:

Customer confirmation:

装配是否符合贵司要求: ☐OK ☐NGWhether the assembly meets your company's requirements: ☐OK ☐NG

深圳市大显科技有限公司

Shenzhen DaXian Technology Co., Ltd.

深圳市龙岗区布吉镇吉华路 513 号上水径村(国防培训基地
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training base) Dacheng Industrial Park, Building 7.

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Room201, Building8, LongDongRoad3000#, Semiconductor Industry
Park, ZhangJiang Hitech Zone, ShangHai

TEL:021-61630552

FAX:755-84276383

变更履历

Revision history

[illegible]

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I、项目说明 Project Description

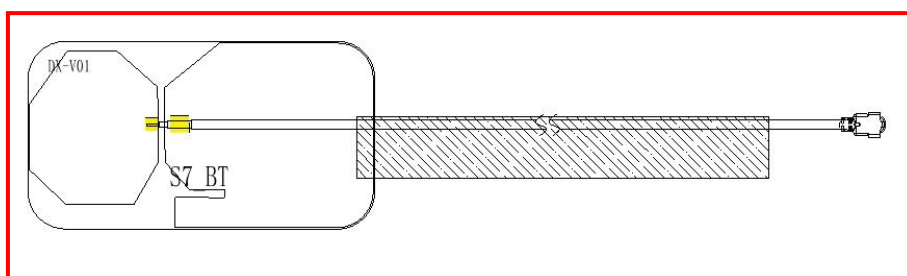
客户名: Customer Name:	迪芬尼 TYMPHANY
整机类型: Type of complete machine:	音箱 loudspeaker box
天线频段: Antenna band:	2400 ~ 2500MHz
天线形式: Antenna type:	FPC+同轴线+线材海绵 FPC + coaxial cable + cable sponge
馈电形式: Feed form:	焊接 weld
硬件版本: Hardware version:	/

II、BT 天线组件 BT Antenna assembly

1 规格 specifications

本报告主要提供 **S7** 项目天线的各项电气和结构性能参数的测试状况。下图为大显设计的天线图片。

This report mainly provides the testing status of various electrical and structural performance parameters of the antenna for the **S7** project. The following image shows an antenna with a large display design.



天线外观图

antenna appearing diagram

1.1 电气规格标准 Electrical specifications and standards

1.1.1 电性能指标 Electrical performance index

天线工作频段在 2400 ~ 2500 MHz。下表是大显设计和量产天线的电性能的指标。

The operating frequency band of the antenna is between 2400 and 2500 MHz . The following table shows the electrical performance indicators of large display design and mass production antennas.

Frequency Range	Frequency (MHz)	VSWR
BT	2400 ~ 2500	≤ 2

1.2 结构规格标准 Structural specifications and standards

1.2.1 天线组成 Antenna composition

天线主要是由 FPC+同轴线+线材海绵组成。

The antenna is mainly composed of FPC + coaxial cable + cable sponge

2. 测试设备 The Equipment of Active Test

Satimo 3D Chamber $4 \times 4 \times 4$ (m)

CMW500 E5071C

Network analyzer-R&S ZVL

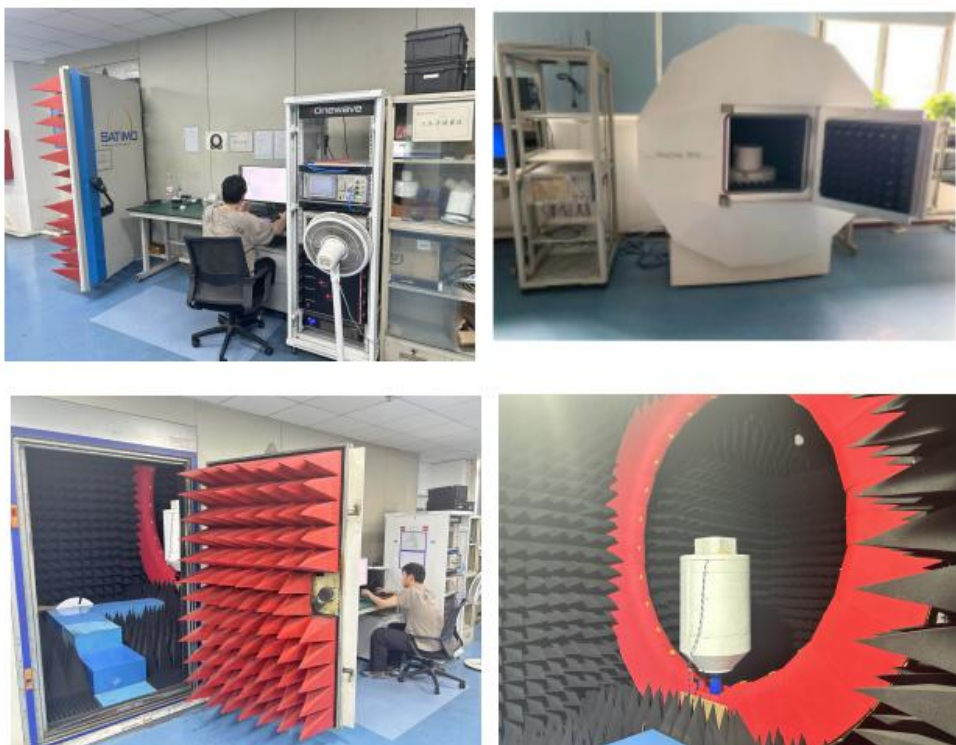


图 2

Figure 2

3 测试 test

3.1 驻波(VSWR)的测试 Test of standing wave (VSWR)

3.1.1 测试连接: VSWR 测试装置依次的连接为: R&S ZVL 网络分析仪 → 测试线 → 测试治

Test connection: The VSWR test device is sequentially connected as follows: R&S ZVL network analyzer → test line → test fixture

实测(附图)Actual measurement (attached drawing)

3.2 增益及效率的测试

Gain and efficiency testing

3.2.1 测试的场地 Test site:

大显微波暗室。测试频率范围为 400MHz—6GHz, 静区范围为 50cm 圆周, 反射率小于-50 dB。

Large display microwave anechoic chamber. The test frequency range is 400MHz - 6GHz, the static zone range is 50cm circumferential, and the reflectivity is less than - 50dB.

3.2.2 测试的仪表 Tested Instruments:

R&S ZVL 网络分析仪、CMW500 E5071C、标准喇叭天线、法国 SATIMO-SG24SYSTEM 系统、打印机等。

R&S ZVL network analyzer, Agilent 8960 E5515C, standard horn antenna, French SATIMO-SG24SYSTEM system, printer, etc.

3.2.3 测试数据 : 在微波暗室中, 测试的功率和灵敏度相关的数值如下表

Test data: In a microwave anechoic chamber, the values related to the power and sensitivity tested are shown in the table bel

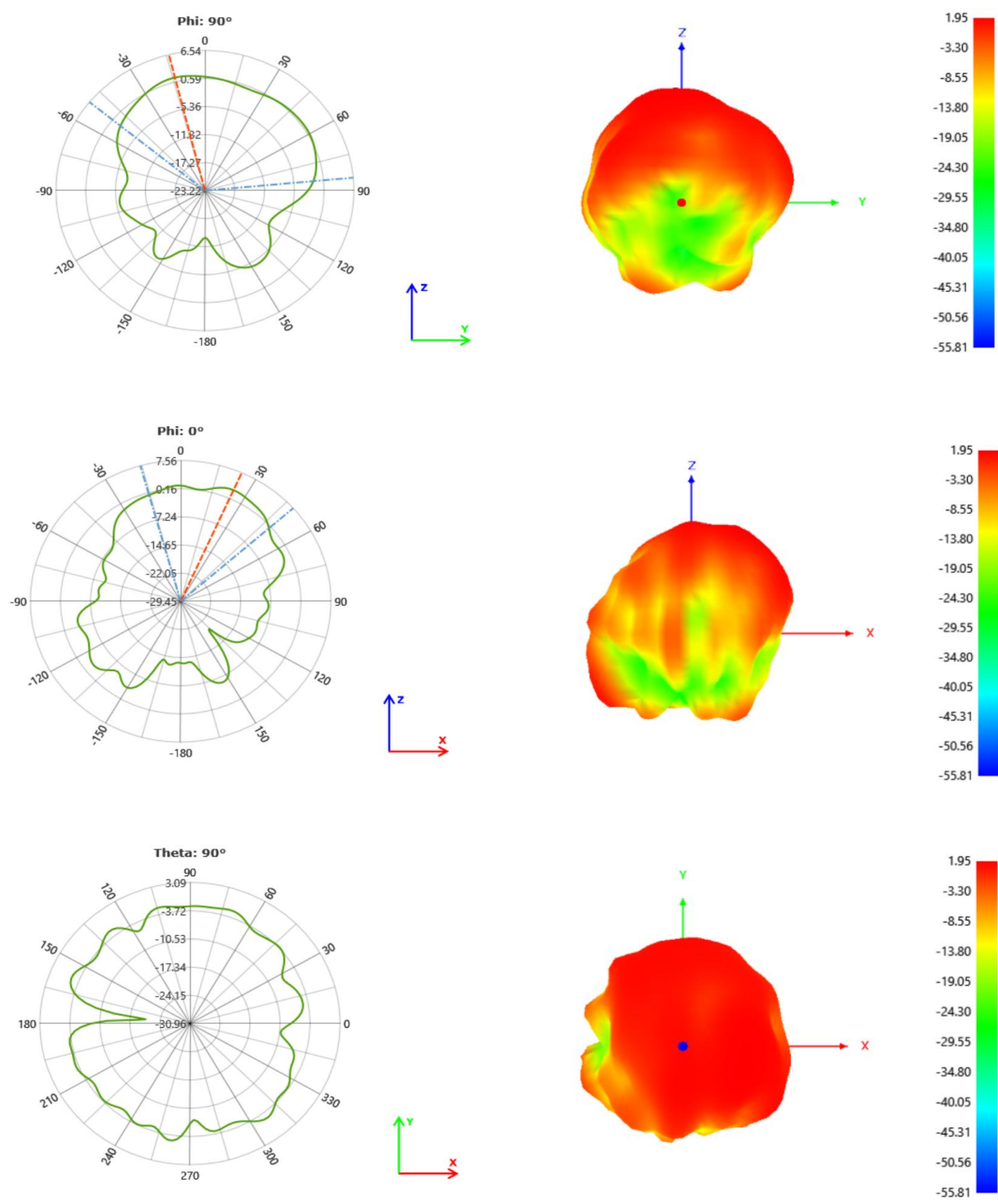
天线测试 Antenna test results:

P/N	BT
Frequency Range	2.4GHz-2.5GHz
Peak Gain(Max)	1.95dBi
Average Total efficiency	>42%
Return Loss	<-17dB

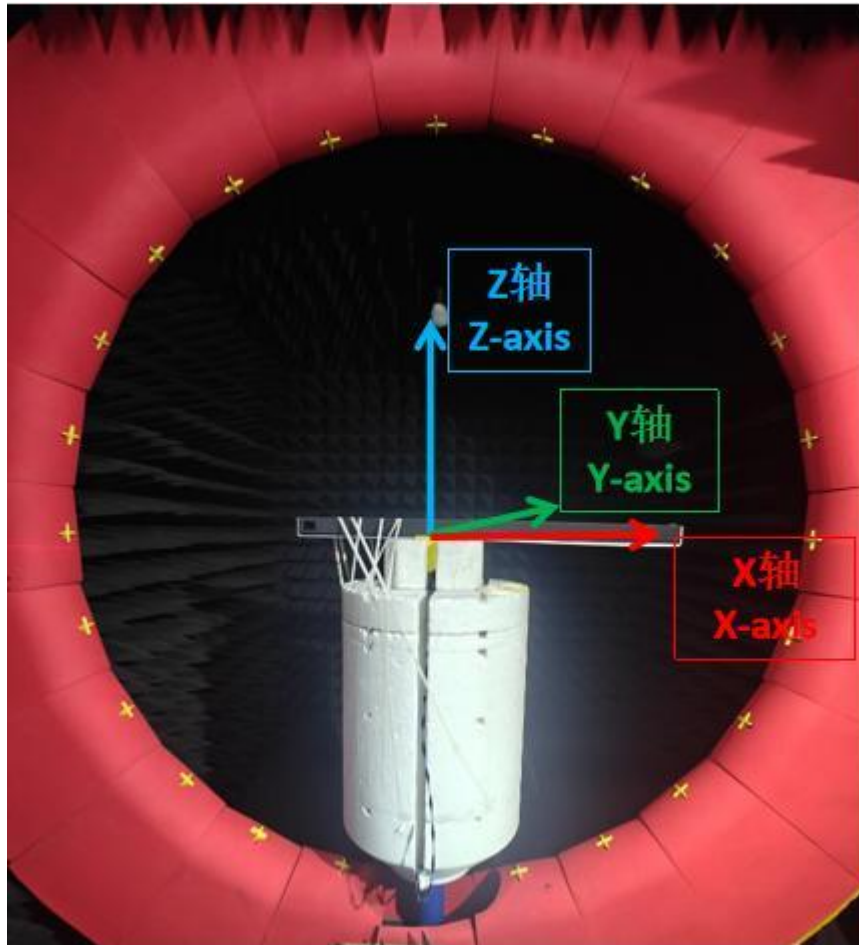
4、VSWR 参数图 VSWR parameter diagram



5、无源效率场型图 Passive efficiency field pattern diagram
2450MHz



6、暗室坐标系 Test scenario:



7、结论 conclusion

此天线是在客户提供样机基础上设计，电参数和结构性能已达到技术要求，请确认！

This antenna is designed based on the prototype provided by the customer. The electrical parameters and structural performance have met the technical requirements, please confirm!

SPECIFICATION



深圳市大显科技有限公司

Shenzhen Daxian Technology Co., Ltd.

迪芬尼 S7 WIFI1 天线组件

TYMPHANY S7 WIFI1 Antenna assembly

产 品 规 格 书

Product Specification

客 户 connection	迪芬尼 TYMPHANY	频 段 frequency range	2400MHz-2500MHz 5150MHz-5850MHz 5925MHz-7125MHz
项目名称 entry name	S7	版 本 edition	V3.0
物料编号 Material No	1L-GCMAX-014	颜 色 Color	黑色 Black
客户料号 Customer Item Number	T690800046300		
R F 设计 R F Design	沈 川 Chuan.Shen	结构设计 Structural Design	周锐斌 Ruibin.Zhou
品质经理 Quality Manager	潘永杰 YongJie.Pan	技术总监 Technical Director	张 磊 Lei.Zhang
日 期 Date	2025-07-08		

客户确认:

Customer confirmation:

装配是否符合贵司要求: ☐OK ☐NGWhether the assembly meets your company's requirements: ☐OK ☐NG

深圳市大显科技有限公司

Shenzhen DaXian Technology Co., Ltd.

深圳市龙岗区布吉镇吉华路 513 号上水径村(国防培训基地
对面) 达成工业园综合楼 7 楼

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FAX:0755-84276383

上海分部: 上海市张江高科技园区集成电路产业区龙东大道
3000 号 8 号楼 201 室

TEL:021-61630552

FAX:755-84276383

Buji Town, Longgang District, Shenzhen, China Jihua Road 513,
Shangshuijing Village (opposite the national defense
training base) Dacheng Industrial Park, Building 7.

TEL:0755-28576002

FAX:0755-84276383

Room201, Building8, LongDongRoad3000#, Semiconductor Industry
Park, ZhangJiang Hitech Zone, ShangHai

TEL:021-61630552

FAX:755-84276383

变更履历

Revision history

[illegible]

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1.1.1 电性能指标 Electrical performance index.....	5
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1.2.1 天线组成 Antenna composition..	5
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3.2 效率的测试 Testing of efficiency.....	7
3.2.1 测试的场地 Test site.....	7
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6、无源场型图 Passive field pattern diagram.....	9-11
7、暗室坐标系 Test scenario.....	12
8、结论 conclusion.....	12

I、项目说明 Project Description

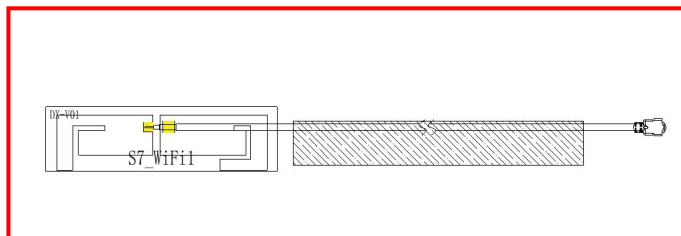
客户名: Customer Name:	迪芬尼 TYMPHANY
整机类型: Type of complete machine:	音箱 loudspeaker box
天线频段: Antenna band:	2400MHz-2500MHz 5150MHz-5850MHz 5925MHz-7125MHz
天线形式: Antenna type:	FPC+同轴线+线材海绵 FPC + coaxial cable + cable sponge
馈电形式: Feed form:	焊接 weld
硬件版本: Hardware version:	/

II、WIFI1 天线组件 WIFI1 Antenna assembly

1 规格 specifications

本报告主要提供 **S7** 项目天线的各项电气和结构性能参数的测试状况。下图为大显设计的天线图片。

This report mainly provides the testing status of various electrical and structural performance parameters of the antenna for the **S7** project. The following image shows an antenna with a large display design.



天线外观图

antenna appearing diagram

1.1 电气规格标准 Electrical specifications and standards

1.1.1 电性能指标 Electrical performance index

天线工作频段在 2400MHz-2500MHz 5150MHz-5850MHz 5925MHz-7125MHz 。下表是大显设计和量产天线的电性能的指标。

The operating frequency band of the antenna is between 2400 and 2500 MHz 、 5150 and 5850MHz、 5925and 7125MHz. The following table shows the electrical performance indicators of large display design and mass production antennas.

Frequency Range	Frequency (MHz)	VSWR
WiFi1	2400MHz-2500MHz 5150MHz-5850MHz 5925MHz-7125MHz	≤ 2

1.2 结构规格标准 Structural specifications and standards

1.2.1 天线组成 Antenna composition

天线主要是由 FPC+同轴线+线材海绵组成。

The antenna is mainly composed of FPC + coaxial cable + cable sponge.

2. 测试设备 The Equipment of Active Test

Satimo 3D Chamber $4 \times 4 \times 4$ (m)

CMW500 E5071C

Network analyzer-R&S ZVL

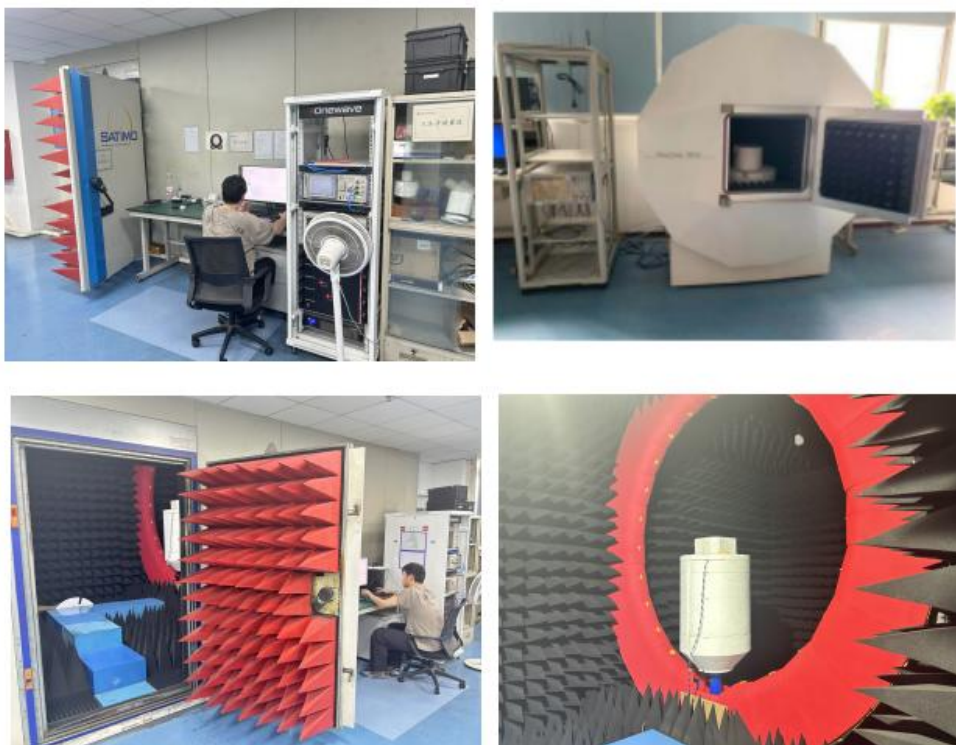


图 2

Figure 2

3 测试 test

3.1 驻波(VSWR)的测试 Test of standing wave (VSWR)

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实测(附图)Actual measurement (attached drawing)

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Gain and efficiency testing

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大显微波暗室。测试频率范围为 400MHz—6GHz, 静区范围为 50cm 圆周, 反射率小于-50 dB。

Large display microwave anechoic chamber. The test frequency range is 400MHz - 6GHz, the static zone range is 50cm circumferential, and the reflectivity is less than - 50dB.

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R&S ZVL network analyzer, Agilent 8960 E5515C, standard horn antenna, French SATIMO-SG24SYSTEM system, printer, etc.

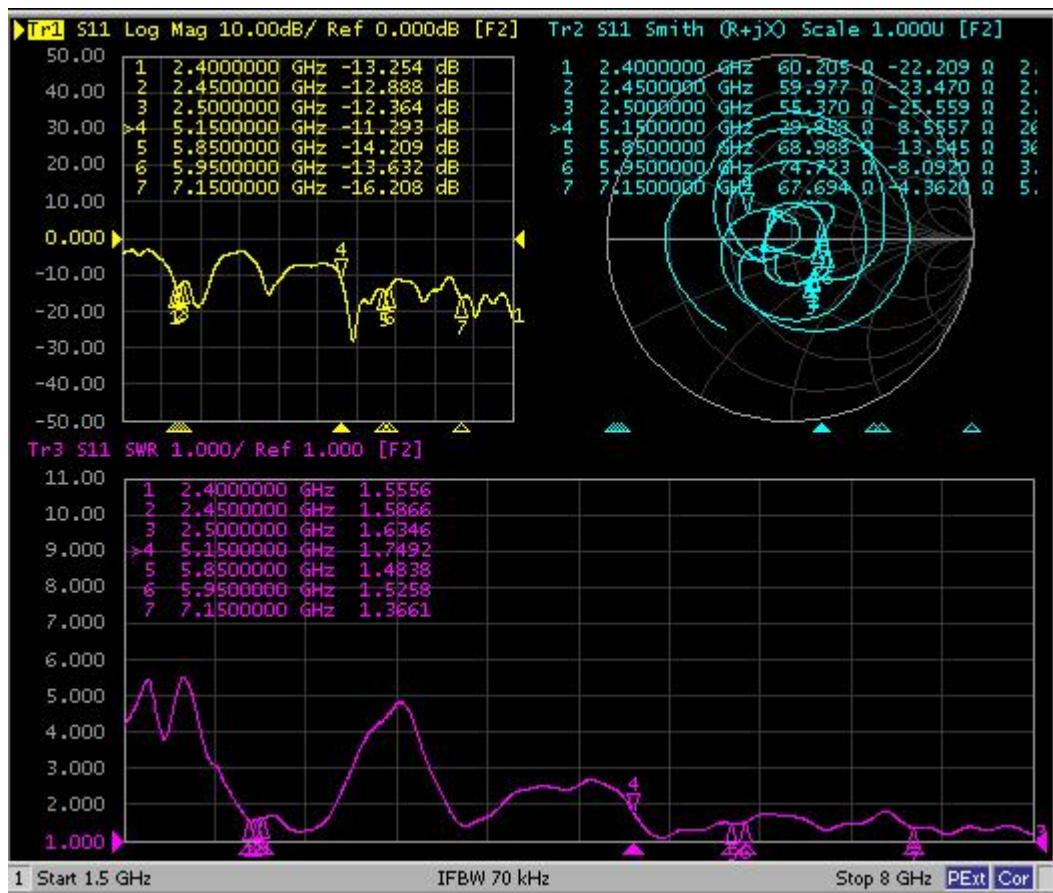
3.2.3 测试数据 : 在微波暗室中, 测试的功率和灵敏度相关的数值如下表

Test data: In a microwave anechoic chamber, the values related to the power and sensitivity tested are shown in the table bel

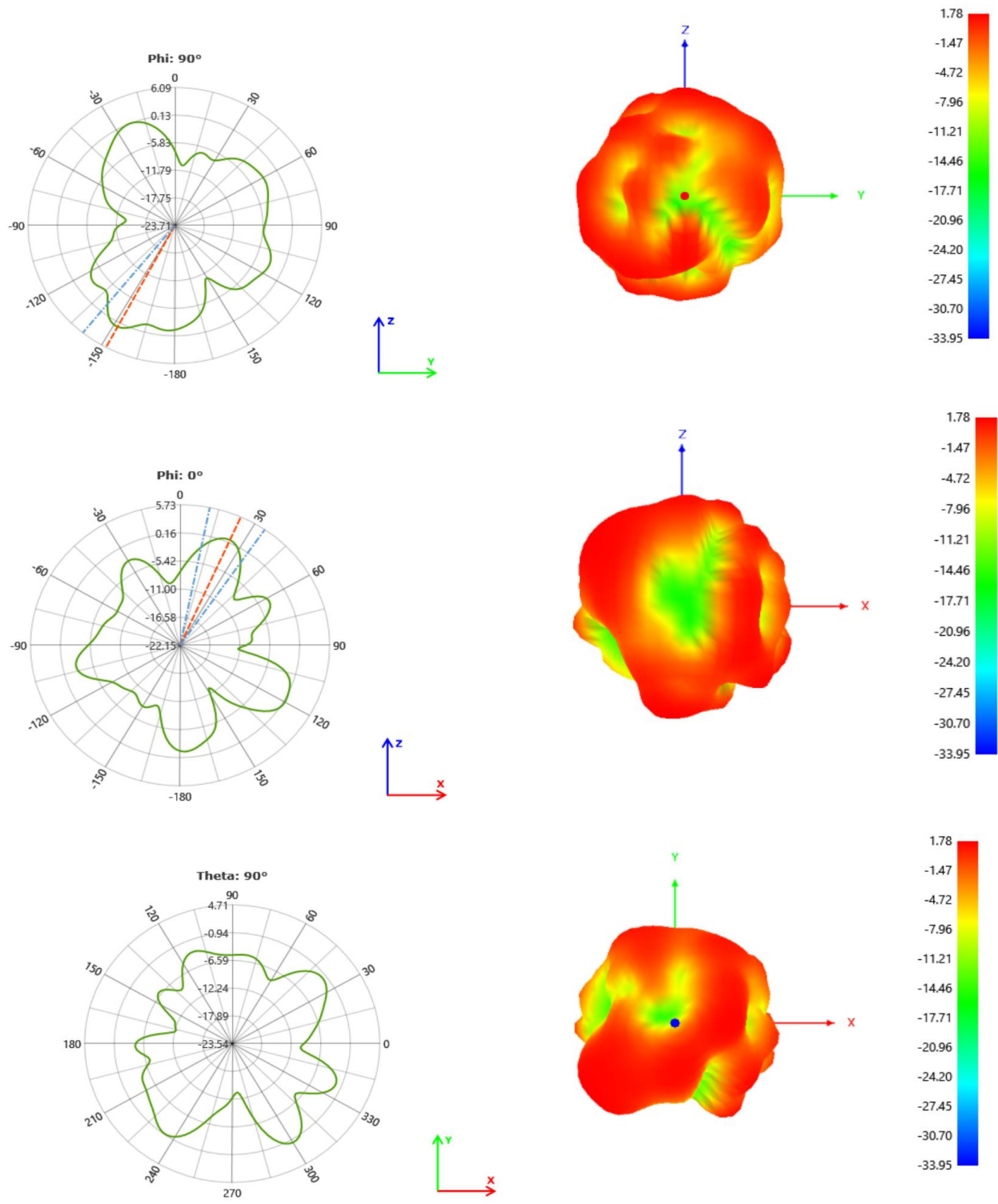
天线测试 Antenna test results:

P/N	WIFI 1		
Frequency Range	2.4GHz-2.5GHz	5.15GHz-5.85GHz	5.925GHz-7.125GHz
Peak Gain(Max)	1.78dBi	2.58dBi	2.75dBi
Average Total efficiency	>43%	>40%	>38%
Return Loss	<-12dB	<-11dB	<-13dB

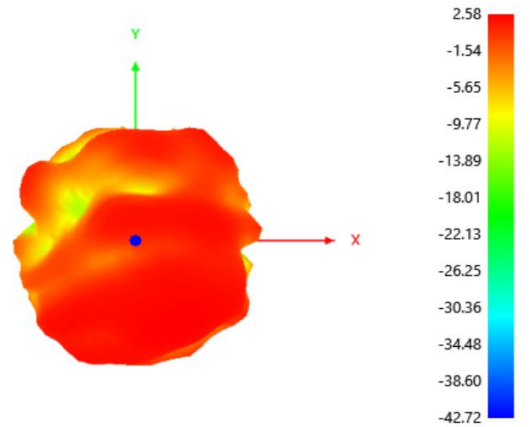
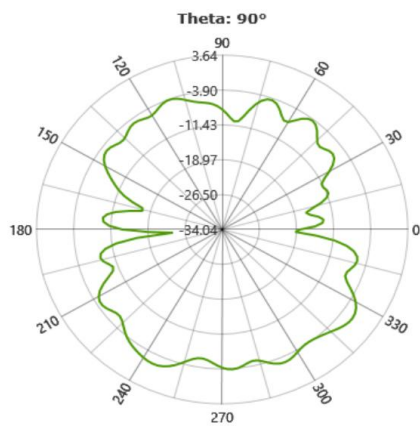
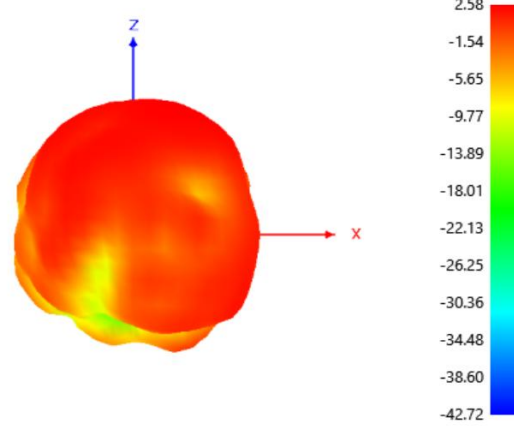
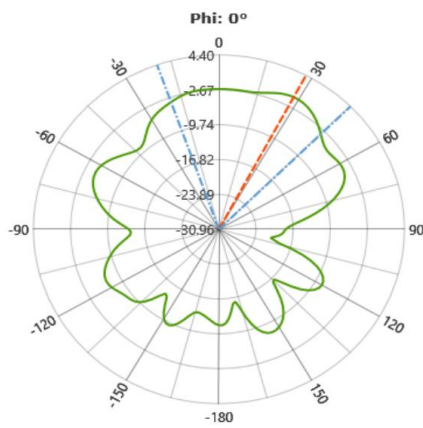
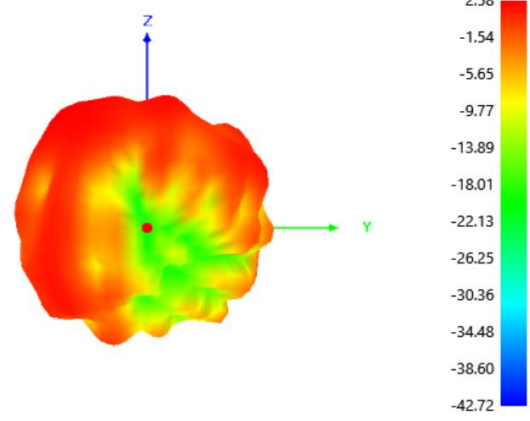
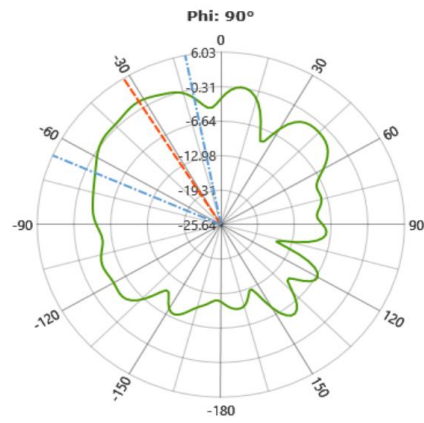
4、VSWR 参数图 VSWR parameter diagram



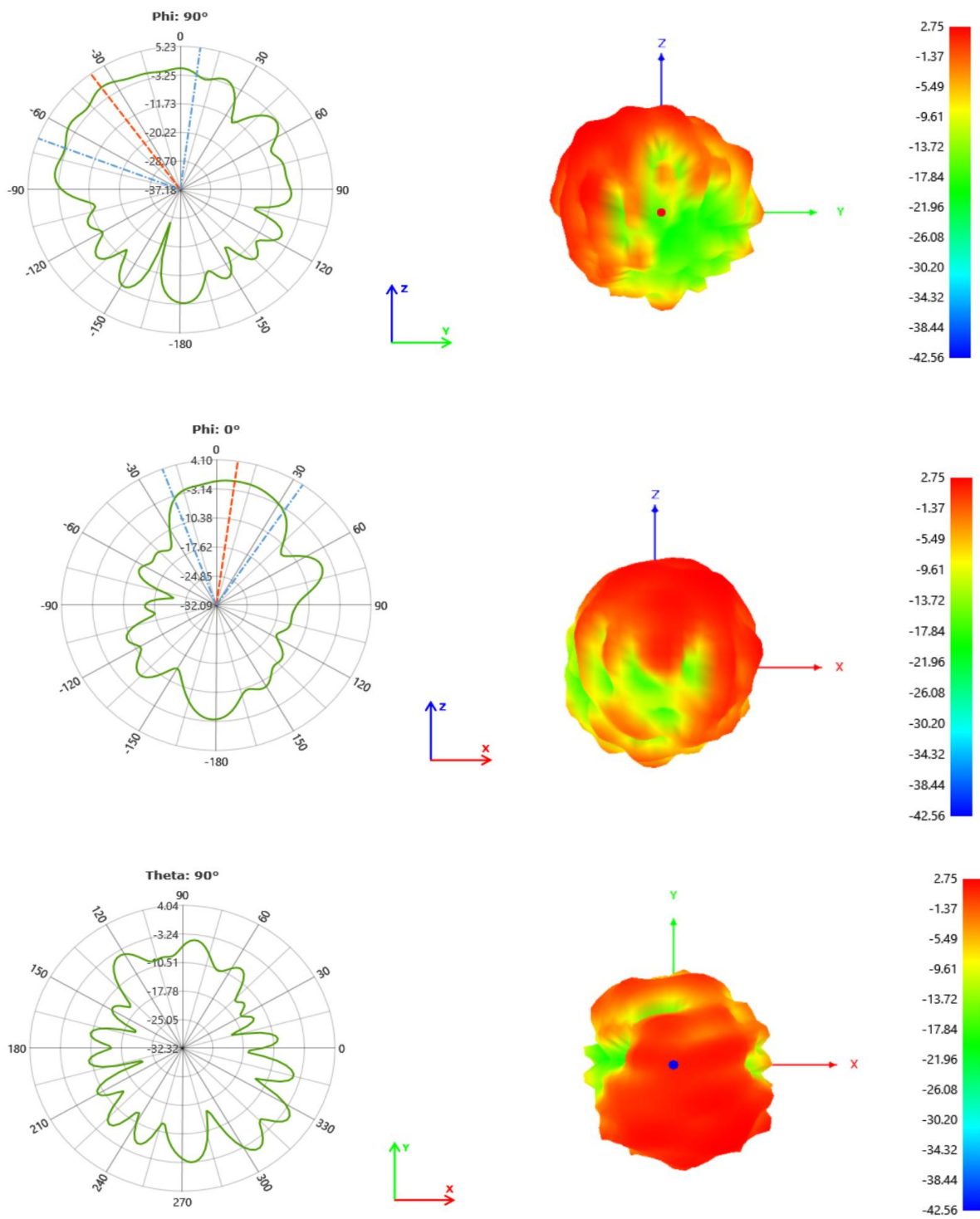
5、无源效率场型图 Passive efficiency field pattern diagram 2450MHz



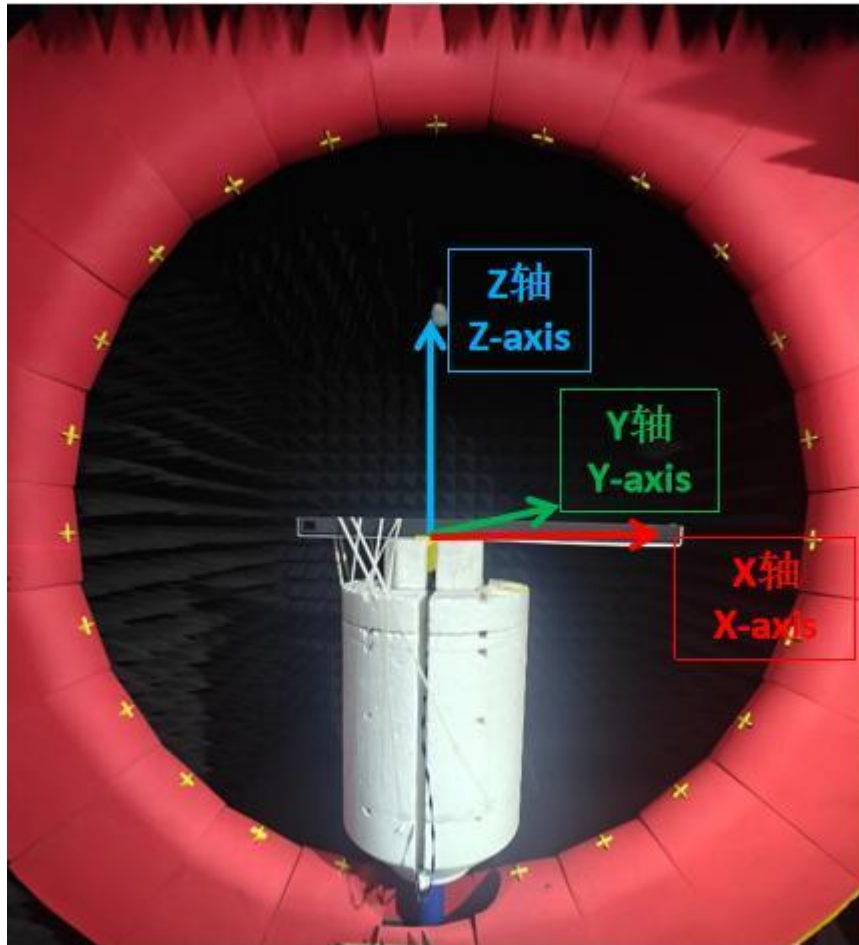
5500MHz



6525MHz



6、暗室坐标系 Test scenario:



7、结论 conclusion

此天线是在客户提供样机基础上设计，电参数和结构性能已达到技术要求，请确认！

This antenna is designed based on the prototype provided by the customer. The electrical parameters and structural performance have met the technical requirements, please confirm!

SPECIFICATION



深圳市大显科技有限公司

Shenzhen Daxian Technology Co., Ltd.

迪芬尼 S7 WIFI2 天线组件

TYMPHANY S7 WIFI2 Antenna assembly

产 品 规 格 书

Product Specification

客 户 connection	迪芬尼 TYMPHANY	频 段 frequency range	2400MHz-2500MHz 5150MHz-5850MHz 5925MHz-7125MHz
项目名称 entry name	S7	版 本 edition	V3.0
物料编号 Material No	3L-GCMAX-014	颜 色 Color	黑色 +灰色 Black +Grizzly
客户料号 Customer Item Number	T690800046200		
R F 设计 R F Design	沈 川 Chuan.Shen	结构设计 Structural Design	周锐斌 Ruibin.Zhou
品质经理 Quality Manager	潘永杰 YongJie.Pan	技术总监 Technical Director	张 磊 Lei.Zhang
日 期 Date	2025-07-08		

客户确认:

Customer confirmation:

装配是否符合贵司要求: ☐OK ☐NGWhether the assembly meets your company's requirements: ☐OK ☐NG

深圳市大显科技有限公司

Shenzhen DaXian Technology Co., Ltd.

深圳市龙岗区布吉镇吉华路 513 号上水径村(国防培训基地
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Shangshuijing Village (opposite the national defense
training base) Dacheng Industrial Park, Building 7.

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FAX:0755-84276383

Room201, Building8, LongDongRoad3000#, Semiconductor Industry
Park, ZhangJiang Hitech Zone, ShangHai

TEL:021-61630552

FAX:755-84276383

变更履历

Revision history

版本号 Version number	变更内容 Change content	变更理由 Reason for change	发起变更方 Originating Party	日期 Date	修改人 Modified by
V1.0	创建 found			2025-05-07	
V2.0	更新 modify	天线性能及设计结构 更新 Antenna performance and design structure update	DX	2025-07-05	
V3.0	更新 modify	删除保密要求和网址 Deletion of confidentiality requirements and web site	客户 our customers	2025-07-08	

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3.2 效率的测试 Testing of efficiency.....	7
3.2.1 测试的场地 Test site.....	7
3.2.2 测试的仪表 Tested Instruments.....	7
3.2.3 测试数据 test data.....	7
4、VSWR 参数图 Parameter diagram.....	8
6、无源场型图 Passive field pattern diagram.....	9-11
7、暗室坐标系 Test scenario.....	12
8、结论 conclusion.....	12

I、项目说明 Project Description

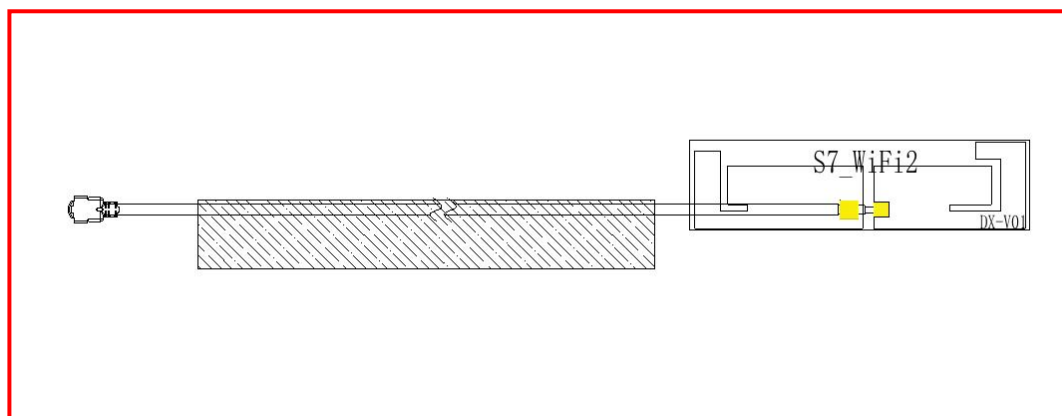
客户名: Customer Name:	迪芬尼 TYMPHANY
整机类型: Type of complete machine:	音箱 loudspeaker box
天线频段: Antenna band:	2400MHz-2500MHz 5150MHz-5850MHz 5925MHz-7125MHz
天线形式: Antenna type:	FPC+同轴线+线材海绵 FPC + coaxial cable + cable sponge
馈电形式: Feed form:	焊接 weld
硬件版本: Hardware version:	/

II、WIFI2 天线组件 WIFI2 Antenna assembly

1 规格 specifications

本报告主要提供 **S7** 项目天线的各项电气和结构性能参数的测试状况。下图为大显设计的天线图片。

This report mainly provides the testing status of various electrical and structural performance parameters of the antenna for the **S7** project. The following image shows an antenna with a large display design.



天线外观图

antenna appearing diagram

1.1 电气规格标准 Electrical specifications and standards

1.1.1 电性能指标 Electrical performance index

天线工作频段在 2400MHz-2500MHz 5150MHz-5850MHz 5925MHz-7125MHz 。下表是大显设计和量产天线的电性能的指标。

The operating frequency band of the antenna is between 2400 and 2500 MHz 、 5150 and 5850MHz、 5925and 7125MHz. The following table shows the electrical performance indicators of large display design and mass production antennas.

Frequency Range	Frequency (MHz)	VSWR
WIFI2	2400MHz-2500MHz 5150MHz-5850MHz 5925MHz-7125MHz	≤ 2

1.2 结构规格标准 Structural specifications and standards

1.2.1 天线组成 Antenna composition

天线主要是由 FPC+同轴线+线材海绵组成。

The antenna is mainly composed of FPC + coaxial cable + cable sponge.

2. 测试设备 The Equipment of Active Test

Satimo 3D Chamber $4 \times 4 \times 4$ (m)

CMW500 E5071C

Network analyzer-R&S ZVL

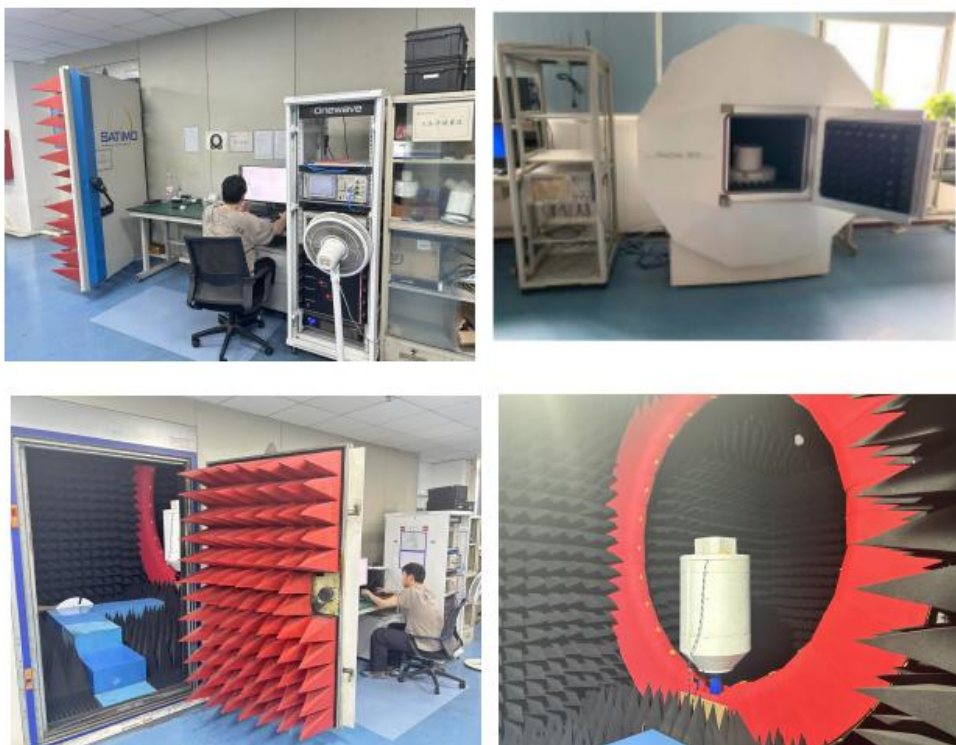


图 2

Figure 2

3 测试 test

3.1 驻波(VSWR)的测试 Test of standing wave (VSWR)

3.1.1 测试连接: VSWR 测试装置依次的连接为: R&S ZVL 网络分析仪 → 测试线 → 测试治

Test connection: The VSWR test device is sequentially connected as follows: R&S ZVL network analyzer → test line → test fixture

实测(附图)Actual measurement (attached drawing)

3.2 增益及效率的测试

Gain and efficiency testing

3.2.1 测试的场地 Test site:

大显微波暗室。测试频率范围为 400MHz—6GHz, 静区范围为 50cm 圆周, 反射率小于 -50 dB。

Large display microwave anechoic chamber. The test frequency range is 400MHz - 6GHz, the static zone range is 50cm circumferential, and the reflectivity is less than - 50dB.

3.2.2 测试的仪表 Tested Instruments:

R&S ZVL 网络分析仪、CMW500 E5071C、标准喇叭天线、法国 SATIMO-SG24SYSTEM 系统、打印机等。

R&S ZVL network analyzer, Agilent 8960 E5515C, standard horn antenna, French SATIMO-SG24SYSTEM system, printer, etc.

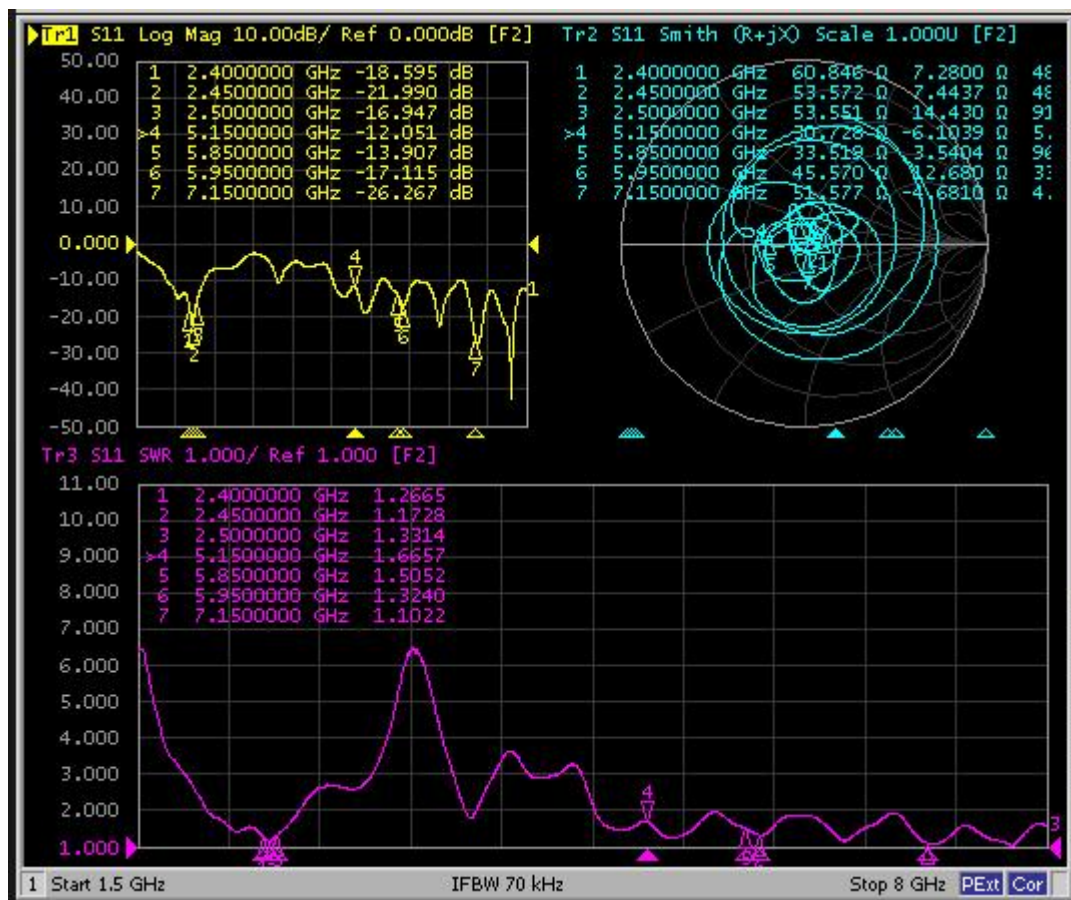
3.2.3 测试数据 : 在微波暗室中, 测试的功率和灵敏度相关的数值如下表

Test data: In a microwave anechoic chamber, the values related to the power and sensitivity tested are shown in the table bel

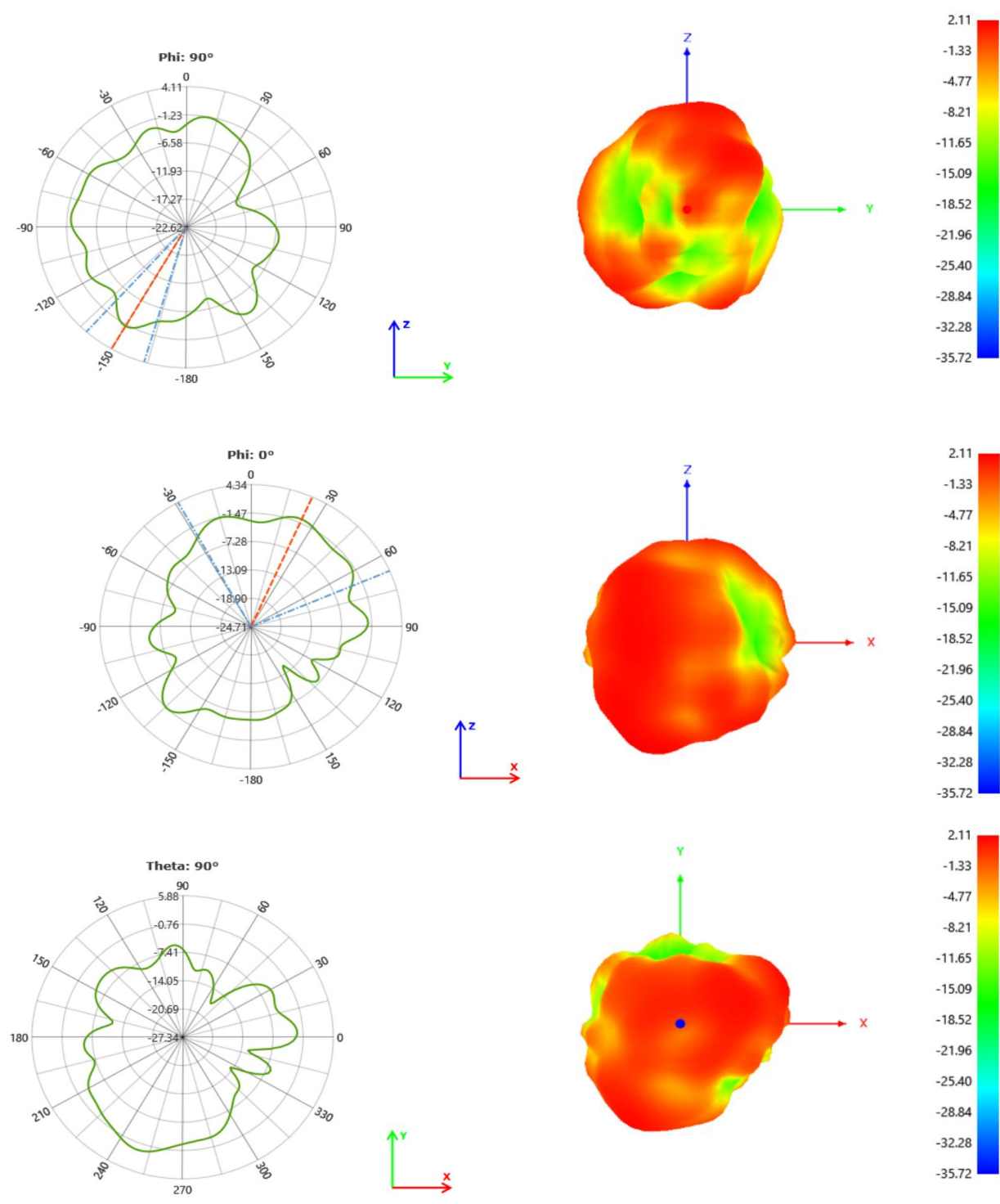
天线测试 Antenna test results:

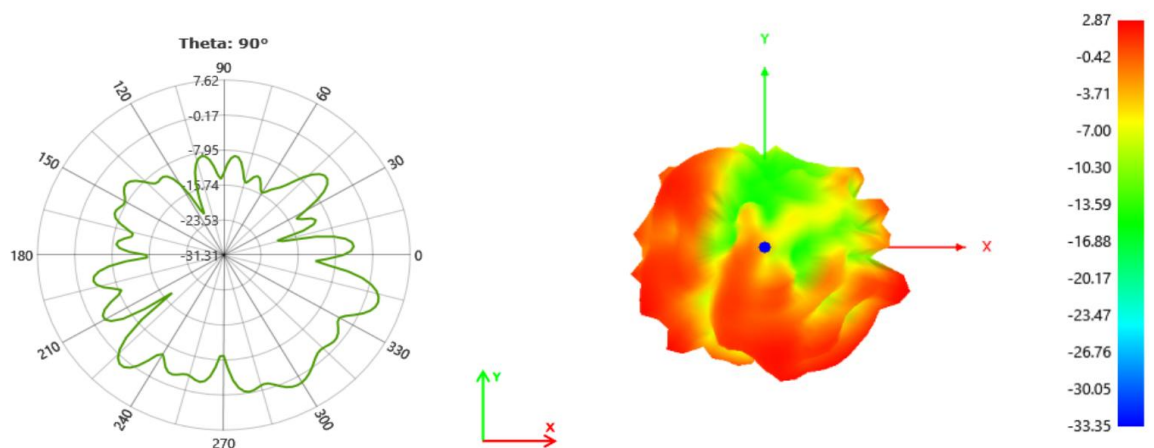
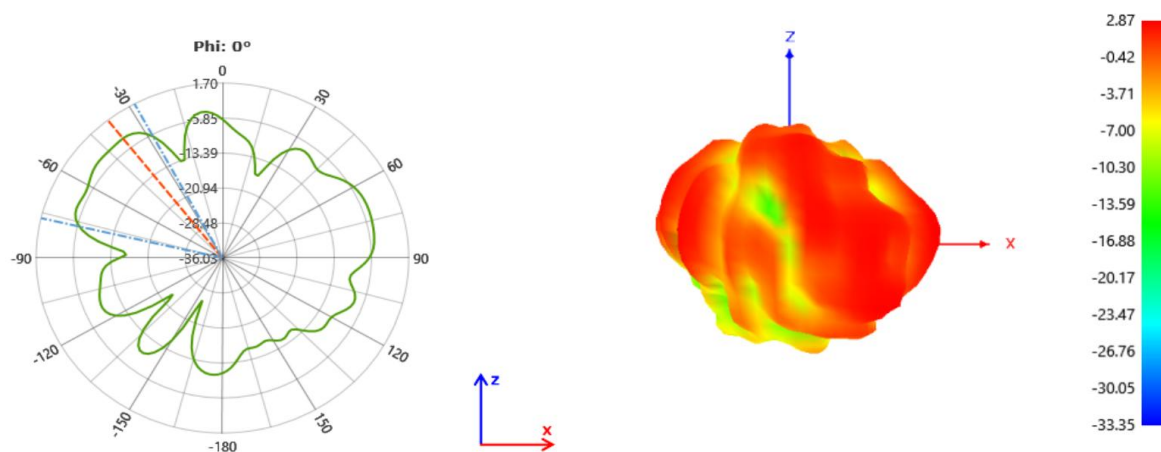
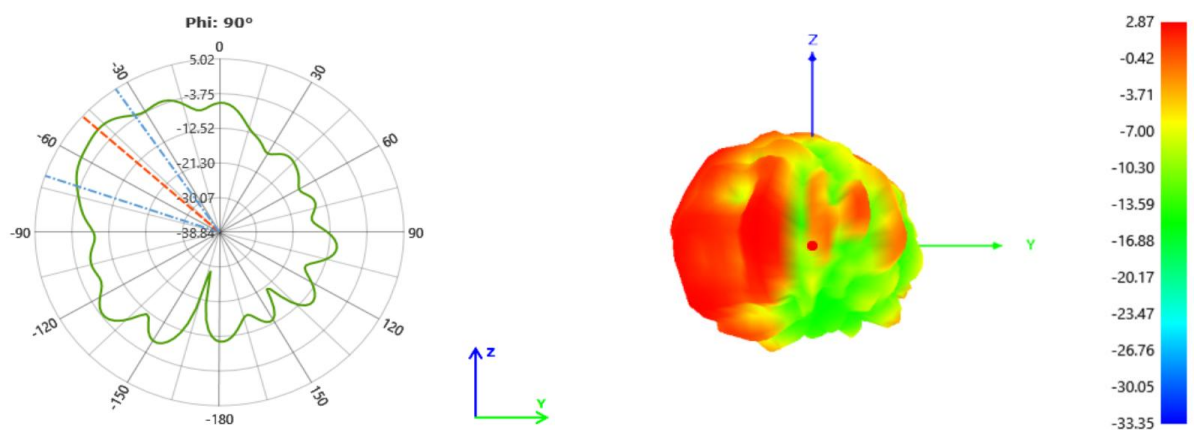
P/N	WIFI 2		
Frequency Range	2.4GHz-2.5GHz	5.15GHz-5.85GHz	5.925GHz-7.125GHz
Peak Gain(Max)	2.11dBi	2.87dBi	2.98dBi
Average Total efficiency	>45%	>39%	>37%
Return Loss	<-16dB	<-12dB	<-17dB

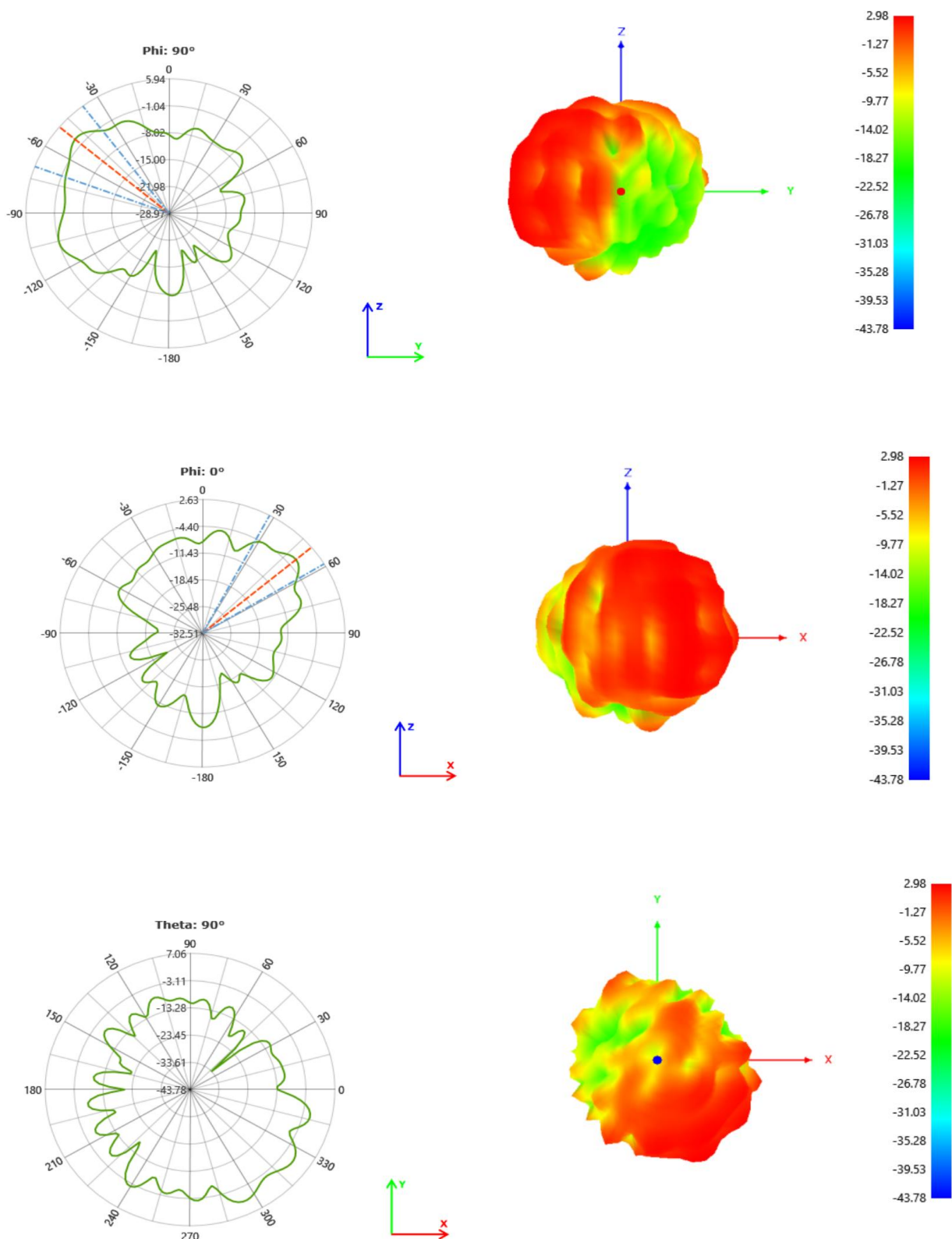
4、VSWR 参数图 VSWR parameter diagram



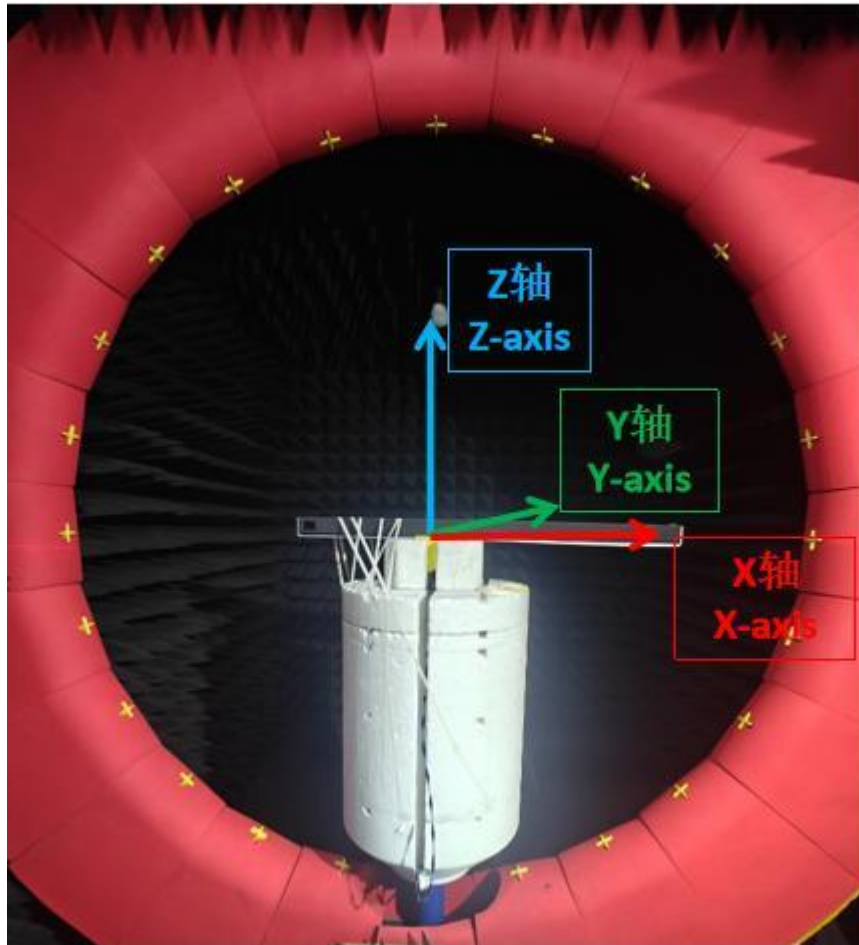
5、无源效率场型图 Passive efficiency field pattern diagram
2450MHz







6、暗室坐标系 Test scenario:



7、结论 conclusion

此天线是在客户提供样机基础上设计，电参数和结构性能已达到技术要求，请确认！

This antenna is designed based on the prototype provided by the customer. The electrical parameters and structural performance have met the technical requirements, please confirm!