



Antenna Specifications

Antenna Datasheet

2.4G FPCantenna

model:

BW2.4FNX42-12B1

describe:

2.4G FPCantennaIPEX-1interfaceRG1.13Line Type120mmLine length

characteristic:

2400-2500MHzFrequency range

IPEX-1interface

structure:360°Omnidirectional radiation

Line type:RG1.13

Cable length:120mm

size:42mm x 12mm

conform toRoHS & REACHRegulation



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In the spirit of providing the best service to our users, Shenzhen Bat Wireless Technology Co., Ltd. (hereinafter referred to as "Bat Wireless") strives to provide users with detailed and accurate product information in this manual. However, due to the timeliness of the content in this manual, Bat Wireless cannot guarantee its currency and applicability at all times. Bat Wireless reserves the right to update the content of this manual without prior notice. To obtain the latest version of this information, please regularly visit the Bat Wireless official website or contact Bat Wireless staff. Thank you for your understanding and support!



BW2.4FNX42-12B1

Part Number Description

BW	company /Company	Bat Wireless /Bat Wireless
2.4	Frequency band /Frequency	2400-2500MHz / 2400-2500MHz
F	Name /Name	FPCAntenna /FPC Antenna
N	type /Type	built-in /Internal
X	constant /Constant	X / X
42-12	size /Dimensions	42-12mm / 42-12mm
B1	Interface /Connector	IPEX1 / IPEX1
L	length /Length	length /Length
120	Line length /Wire Length	120 / 120

Selection Table

interface	IPEX-1	IPEX-2	IPEX-3	IPEX-4	IPEX-5	SMA	Optional customization
Line length	100	150	200	250	300	500	Optional customization
Line Type	RG0.81	RG1.13	RG1.37	RG174	RG178	RG316	Optional customization

1. Product Description/Description

Bat Wireless BW2.4FNX42-12B1L120 is widely used in wireless communications and uses a flexible substrate that can be bent, folded, and adapted to curved surfaces or small spaces. Flexible substrates (such as polyimide) enable circuits to adapt to complex spatial layouts and are suitable for wearable devices, foldable screen phones, etc. The thickness is usually 0.1~0.3mm, reduce the weight of the device and improve portability. 2.4G FPC With its core advantages of high-frequency performance, flexibility and high integration, it is a key component for miniaturization and high performance of wireless devices.

Classic application scenarios:

Consumer electronics: Bluetooth headsets, smart watches, drone remote controls

Industrial fields: RFID Tags, wireless sensors, automotive

electronics: tire pressure monitoring, vehicle antennas

Bat Wireless provides customized services to optimize your equipment. We have a mature R&D team that can respond quickly to meet your needs. If you have any requirements, please contact our sales and FAE.



2.

Product Specifications/Specification

Parameters /Parameters	Typical value /Typ.	Unit /Unites	Remark /Notes
Electrical characteristics /Electrical Characteristics			
type /Antenna Type	FPCAntenna /FPC Antenna		
Frequency /Frequency Range	2400-2500	MHz	
Input impedance /Input Impendence	50	Ω	
Standing wave ratio /VSWR	<1.7		
Gain /Gain	4	dBi	
Polarization mode /Polarization Type	vertical /Vertical		
Power capacity /Power Capacity	50	W	
Lightning protection /Lightning Protection	-		
Working voltage /DC Voltage	-	V	
Radiator /Radiator	-		
Mechanical properties /Mechanical Characteristics			
size /Dimensions	42 x 12	mm	
Interface type /Connector Type	IPEX-1(customizable)		
Cable Model /Cable Type	RG1.13(customizable)		
Cable length /Cable Length	120(customizable)	mm	
Installation method /Mount way	Snap buckle		
color /Color	black		
Material /Material	FPC		
weight /Weight	0.17	g	
Environmental characteristics /Environmental Characteristics			
Protection level /Waterproof Rating	-		
ROHSstandard /ROHS Complaint	conform to		
Operating temperature /Operating Temperature	-45~+85	$^{\circ}\text{C}$	
Storage temperature /Storage Temperature	-45~+85	$^{\circ}\text{C}$	



3.

Actual picture/Dimensions



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5. Test equipment/Test Equipment



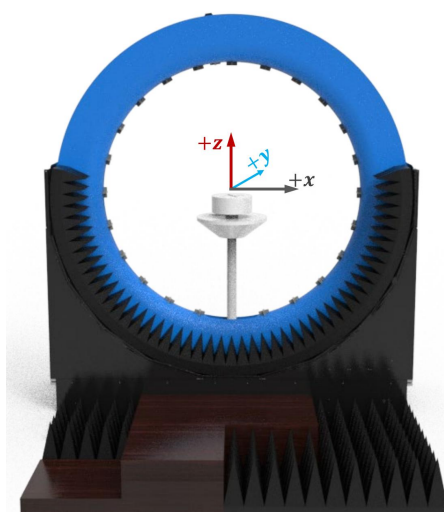
Keysight/E5071C Network Analyzer



R&S/CMW500 Comprehensive tester



R&S/SMBV100B Signal Source



DT-3500 Datasheet / System Specifications

Specification:	Description
Test Frequency /Test frequency domain:	400MHz-8.5GMHz
System Size /System size:	L*W*H=4*3.5*3.5m
Number of Probes /Number of probes:	23 (Probe) + 1 (link)
Interval Angle /Sampling clamp:	15°
Sampling Diameter /Sampling diameter:	2200mm
Carring Capacity /Carrying capacity:	≤40kg

Testing CapabilityTesting capabilities

Description /Ability Description

Active measurement

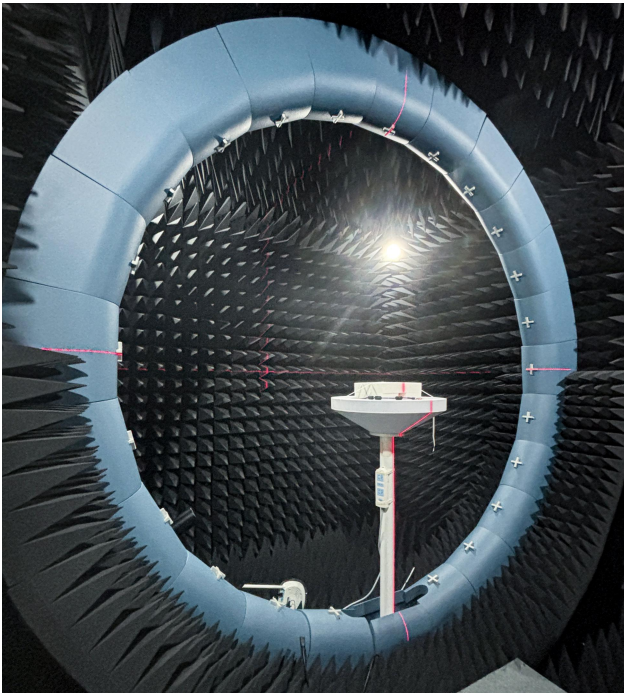
Active testing

Capability /Test indicators:TRP、TIS、EIRP、EIS, etc
Mode /Test format:2G/3G/4G/5G、Wi-Fi b/g/n/a/ac/ax、BT、NB-IOT、Cat-M (eMTC)、GPS/BEIDOU/GLONASS、ZigBee、LoRa(Non-Signaling),.etc

Passive measurement

Passive testing

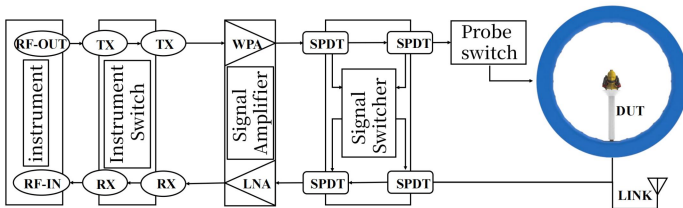
Test category /Test Type:Gain、Efficiency、2D pattern、3D pattern、Pattern roundness、Axial Ratio、ECC、Phase center,. etc **Polarization / Polarization:**Circular polarization, linear polarization, elliptical polarization



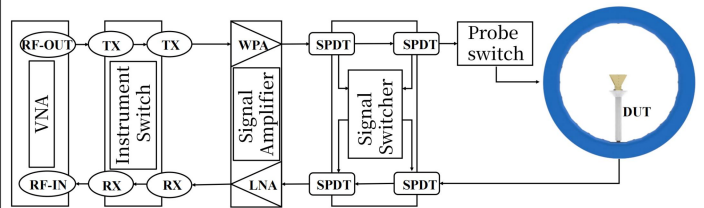
RF Link diagram of multi probe spherical near-field testing system

RF link diagram of multi-probe spherical near-field test system

RF Link Overview
Total RF chain diagram

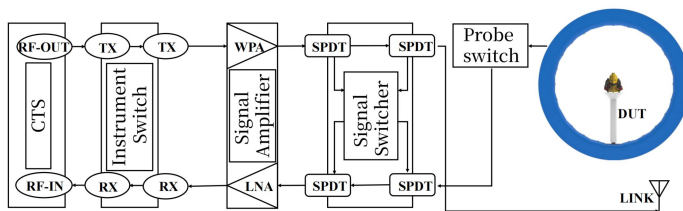


RF Link Overview
Passive test link diagram



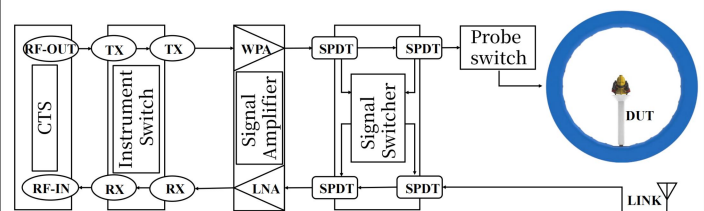
RF Link Overview

Total RF chain diagram



RF Link of Passive Measurement

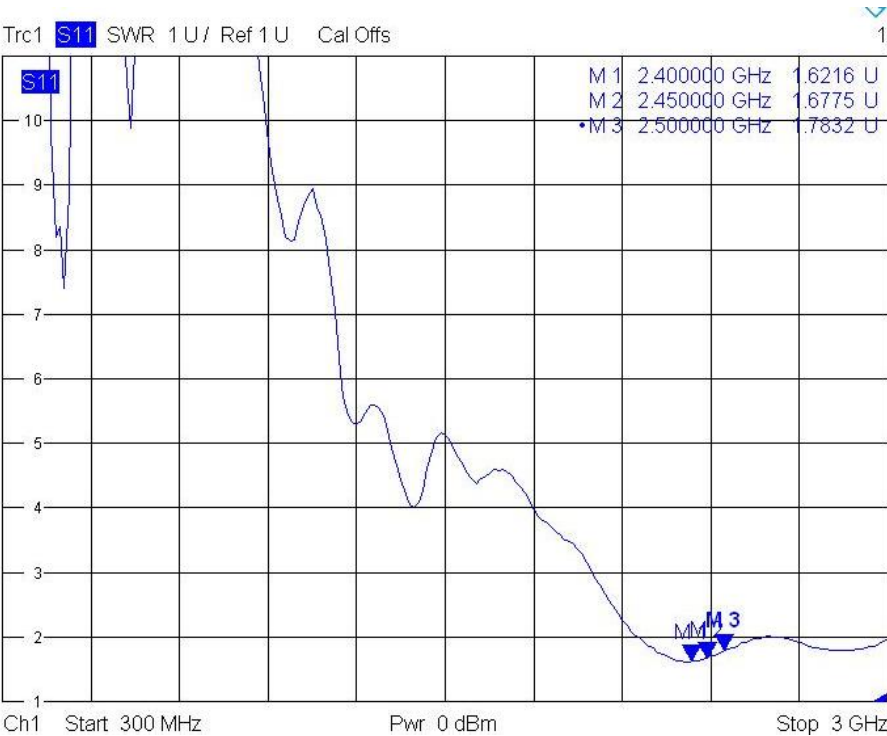
Passive test link diagram



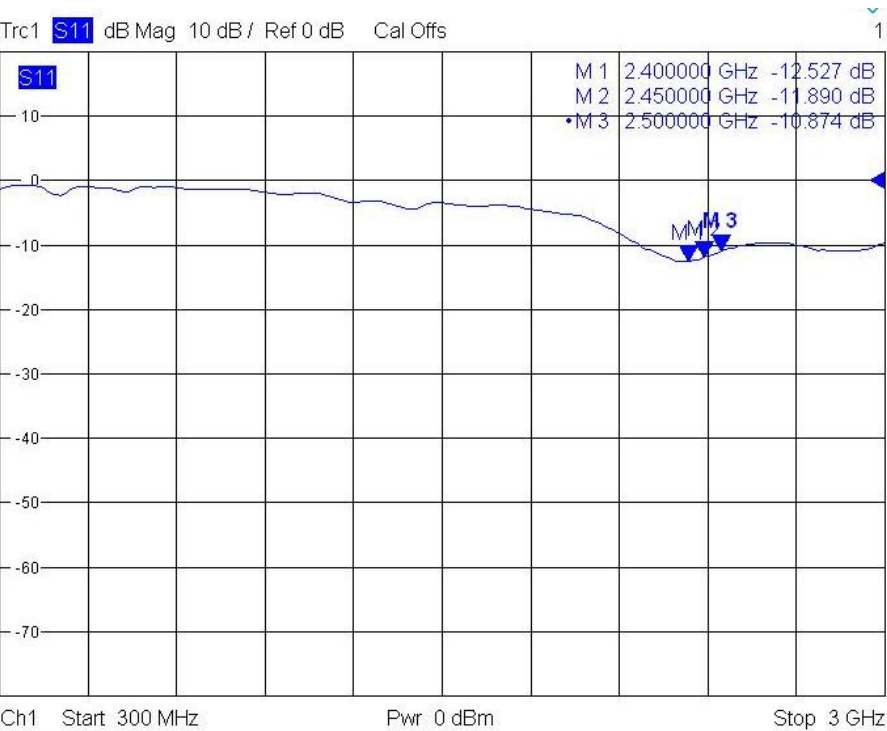


6. Performance data/Performance Data

6.1 VSWR/VSWR



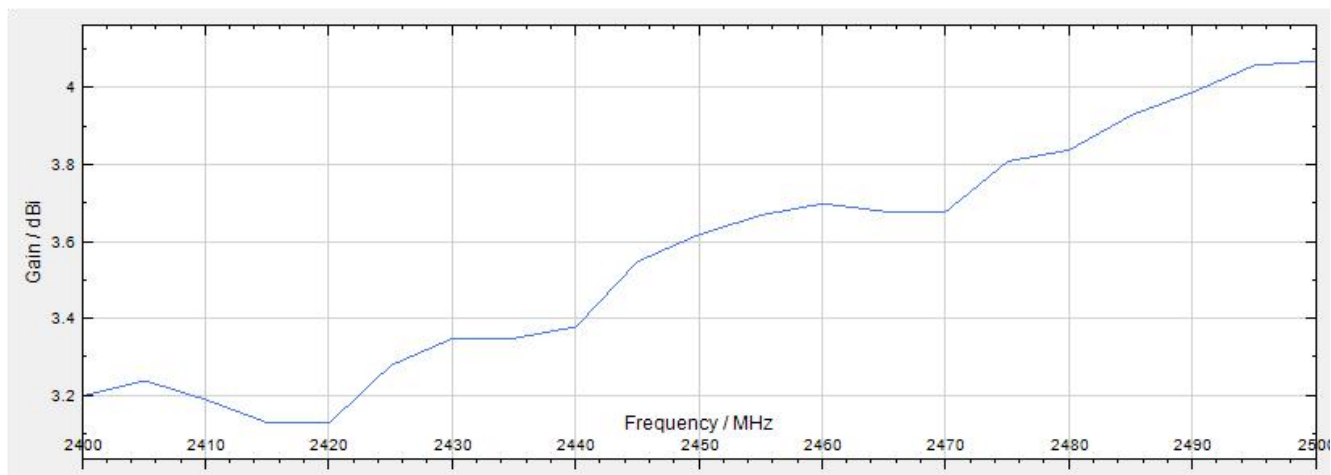
6.2 Return loss/Return Loss



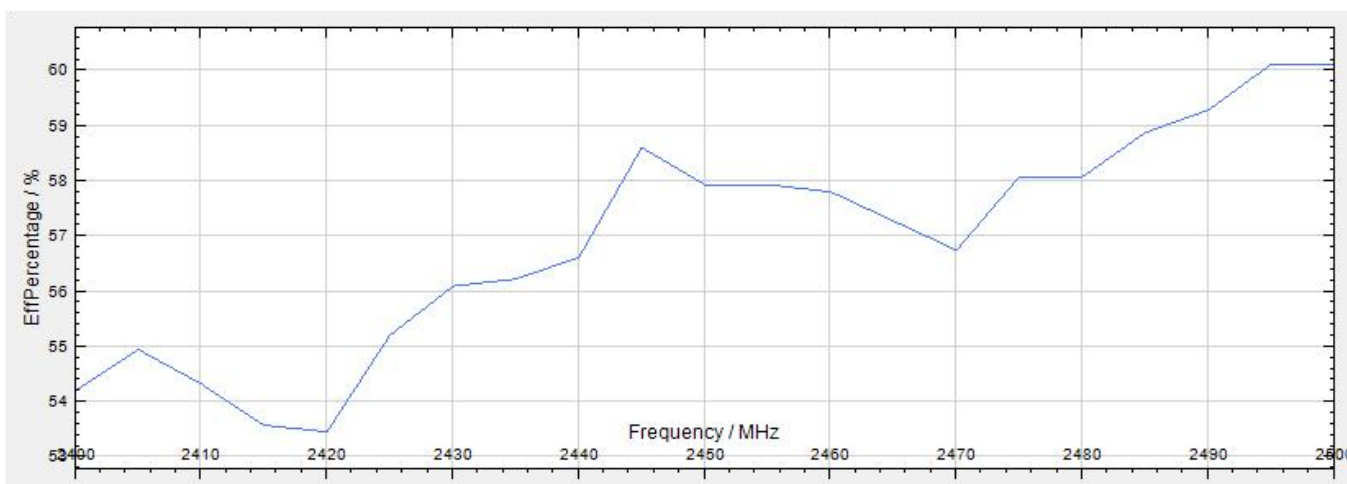


6. Performance data/Performance Data

6.3 Gain/Gain



6.4 efficiency/Efficiency



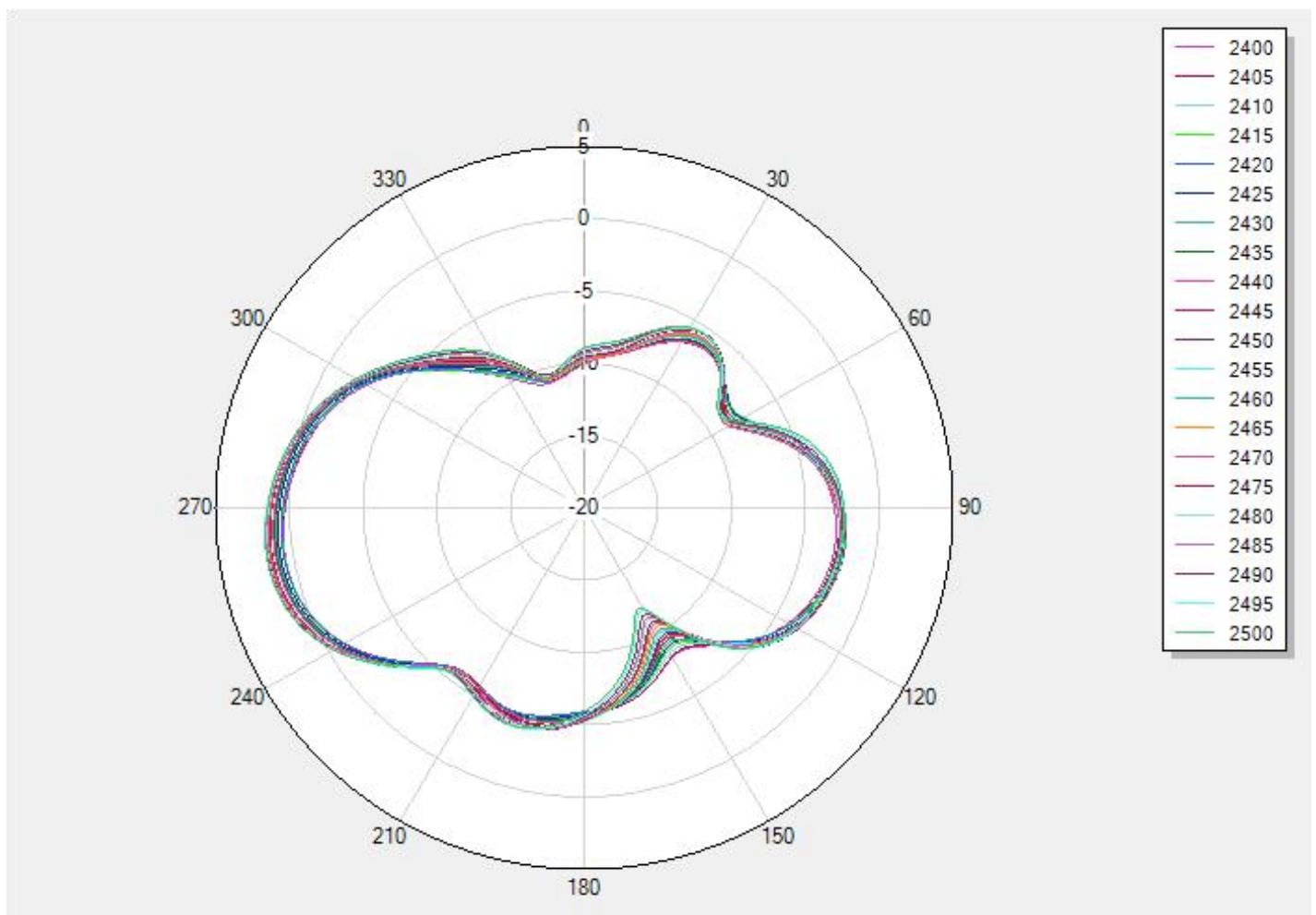
6.5 Antenna Gain and Efficiency

Frequency /Frequency (MHz)	2400	2450	2500
Maximum gain /Gain (dBi)	3.2	3.62	4.07
efficiency /Efficiency (%)	54.2	57.94	60.12



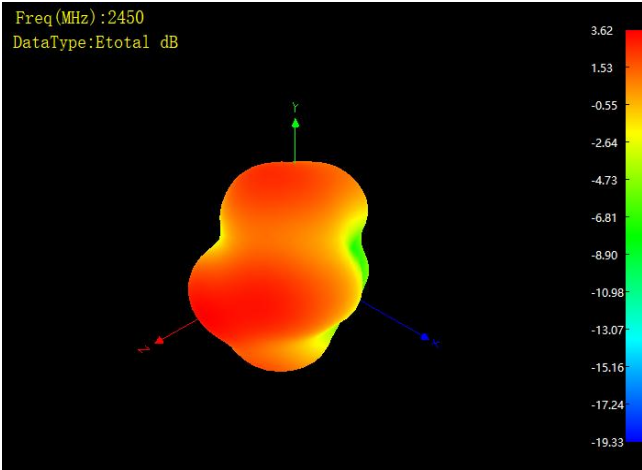
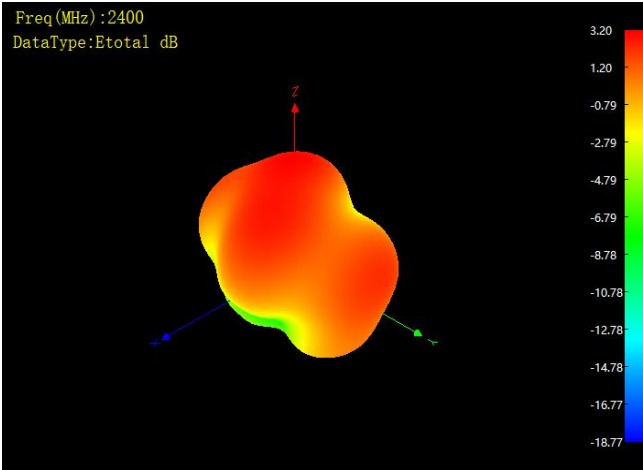
7. Radiation pattern/Radiation Patterns

7.1 2DRadiation pattern diagram/Radiation Patterns

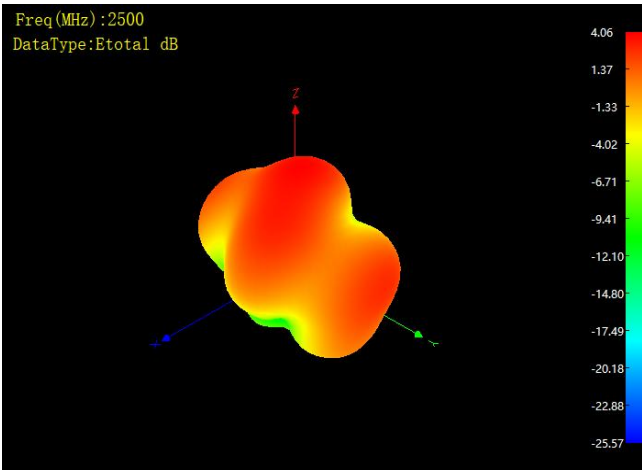
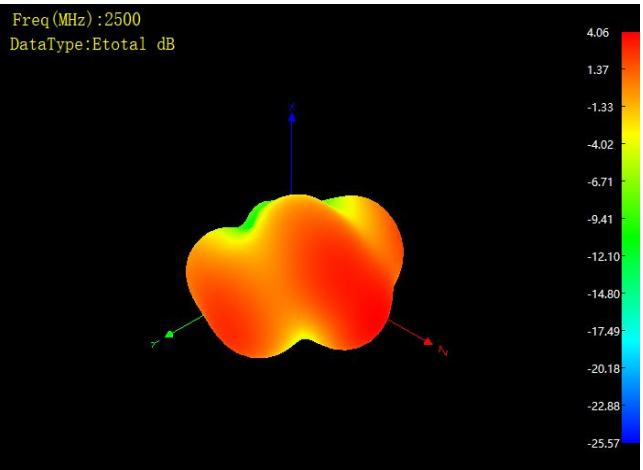




7.2 3DRadiation pattern diagram/3D Radiation Patterns—2400MHz、 2450MHz



7.2 3DRadiation pattern diagram/3D Radiation Patterns—2500MHz





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