



Antenna Datasheet

FPC Antenna

Model:

BW2.4FNX46-15B1L120

Description:

2.4G/5.8G FPC Antenna

Features:

2400-2500MHz Frequency Range

5150-5850MHz Frequency Range

Structure: 360° Omnidirectional Radiation

Cable Type: RG1.13

Cable Length: 120mm

Dimensions: 46mm x 14mm

Compliant with RoHS & REACH

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BW2.4FNX46-15B1L120

Part Number Explanation

BW	Company	Bat Wireless
2.4	Frequency	2400-2500MHz, 5150-5850MHz
F	Name	FPC Antenna
N	Type	Internal
X	Constant	X
46-15	Dimensions	46-15mm
B1	Connector	IPEX-1
L	Length	Wire Length
120	Wire Length	120

Selection Table

Connector	IPEX-1	IPEX-2	IPEX-3	IPEX-4	IPEX-5	SMA	Customization Available
Cable Length	100	150	200	250	300	500	Customization Available
Cable Type	RG0.81	RG1.13	RG1.37	RG178	RG316		Customization Available

1. Description

The Bat Wireless BW2.4FNX46-15B1L120 is a widely used antenna for wireless communications, constructed with a flexible substrate that enables bending and folding, allowing installation on curved surfaces or in confined spaces. The flexible substrate (e.g., polyimide) allows the circuit to adapt to complex spatial layouts, making it ideal for wearable devices, foldable smartphones, etc. With a typical thickness of 0.1–0.3mm, it reduces device weight and enhances portability. Its flexibility and high integration are core advantages, serving as a key component for the miniaturization and high performance of wireless devices.

Typical Applications:

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

Industrial: RFID tags, wireless sensors

Automotive electronics: tire pressure monitoring, vehicle antennas

Bat Wireless offers customized solutions to optimize your devices. Our experienced R&D team enables rapid response to meet your specific requirements. For any inquiries, please contact our sales team and Field Application Engineers (FAEs).

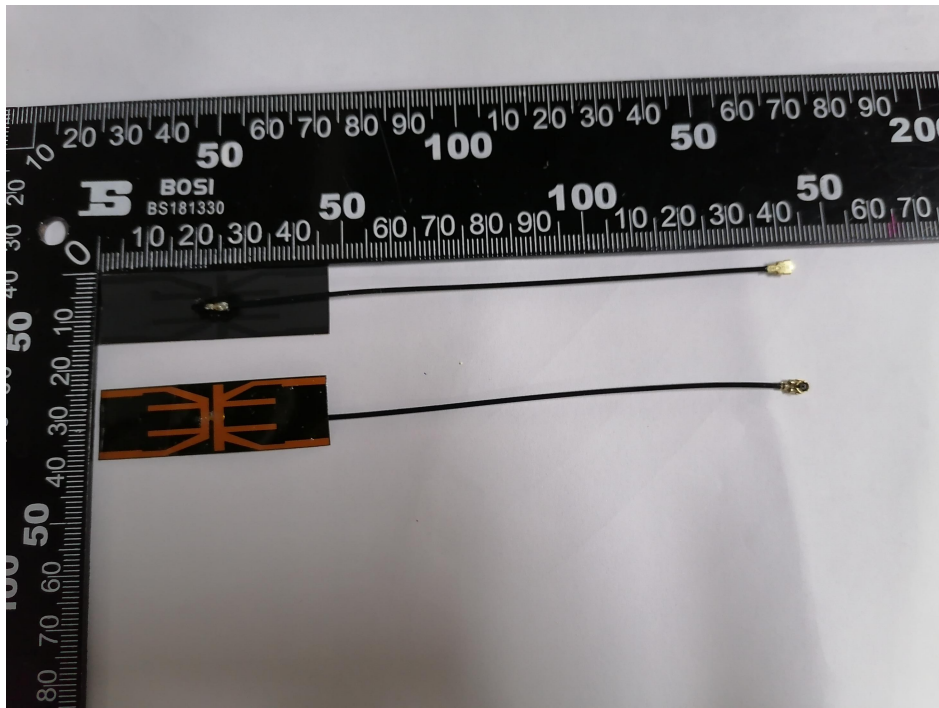


2. Specification

Parameters	Typ.	Unites	Notes
Electrical Characteristics			
Antenna Type	FPC Antenna		
Frequency Range	2400-2500, 5150-5850	MHz	
Input Impedence	50	Ω	
V.S.W.R	<2		
Gain	2.55	dBi	
Polarization Type	Vertical		
Power Capacity	50	W	
Lightning Protection	-		
DC Voltage	-	V	
Radiator	-		
Mechanical Characteristics			
Dimensions	46 x 14	mm	
Connector Type	IPEX-1 (Customizable)		
Cable Type	RG1.13 (Customizable)		
Cable Length	120 (Customizable)	mm	
Mount way	Press-fit Buckle		
Color	Black		
Material	FPC		
Weight	-	g	
Environmental Characteristics			
Waterproof Rating	-		
ROHS Complaint	Compliant		
Operating Temperature	-45~ +85	°C	
Storage Temperature	-45~ +85	°C	



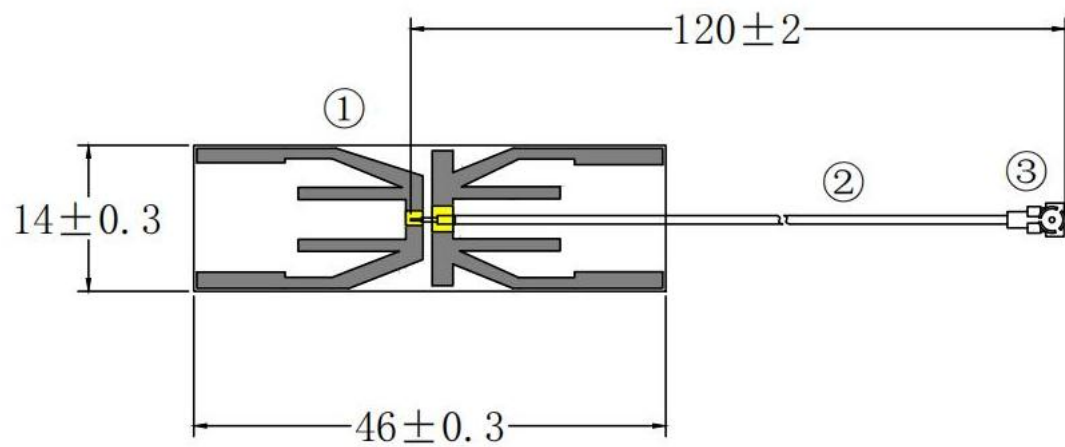
3. Dimensions



Photographs are for illustrative purposes only. Please refer to the actual product.



4. Mechanical Drawing





5. Test Equipment



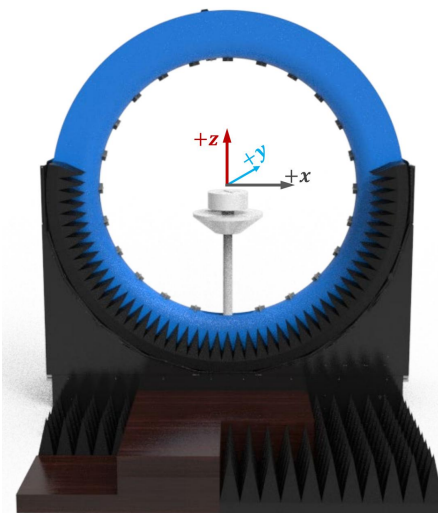
Keysight/E5071C Network Analyzer



R&S/CMW500 Radio Communication Tester



R&S/SMBV100B Vector Signal Generator



DT-3500 Datasheet

Specification:

Specification:	Description
Test Frequency	400MHz-8.5GHz
System Size	L*W*H=4*3.5*3.5m
Number of Probes	23 (Probe) + 1 (link)
Interval Angle	15°
Sampling Diameter	2200mm
Carring Capacity	≤40 kg

Testing Capability

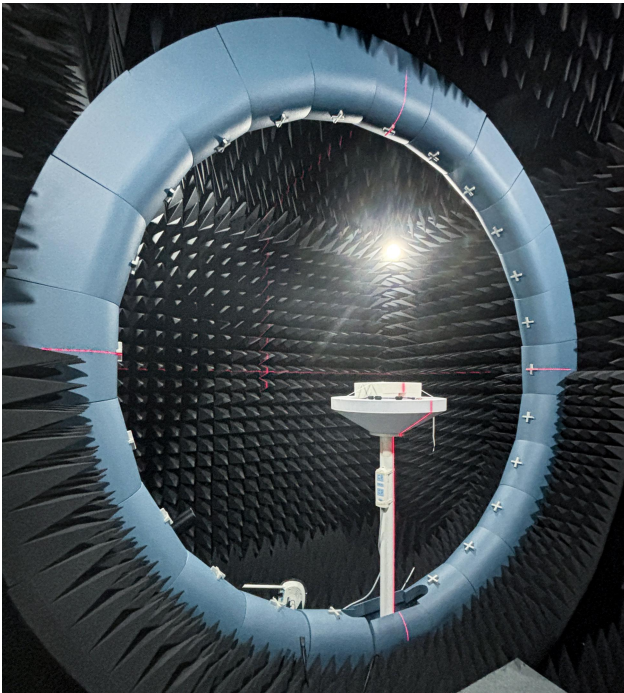
Description

Active measurement

Capability : TRP、TIS、EIRP、EIS,. etc
Mode : 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

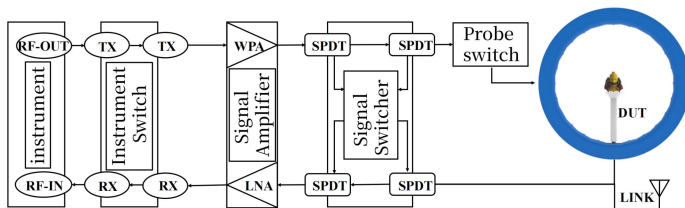
Passive measurement

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

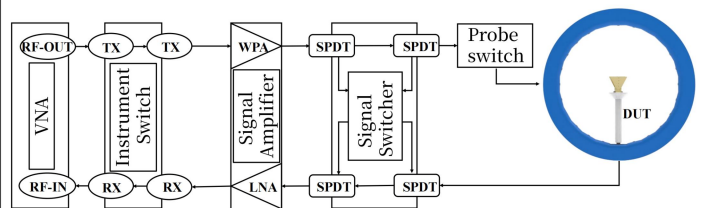


RF Link diagram of multi probe spherical near-field testing system

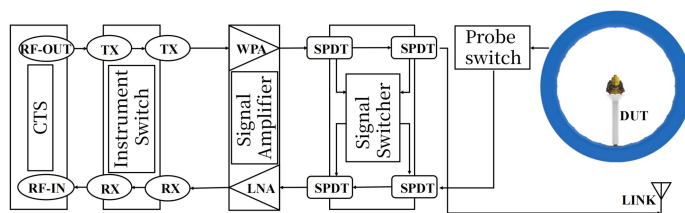
RF Link Overview



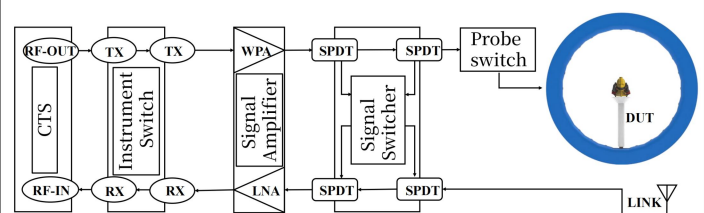
RF Link of Passive measurement



RF Link Overview



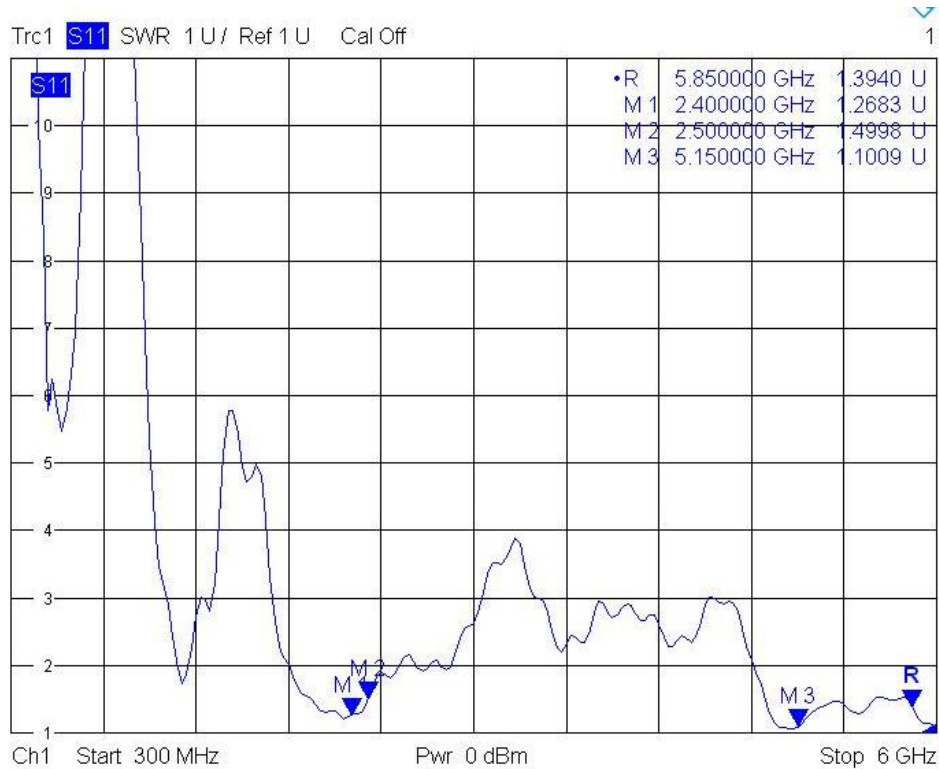
RF Link of Passive measurement



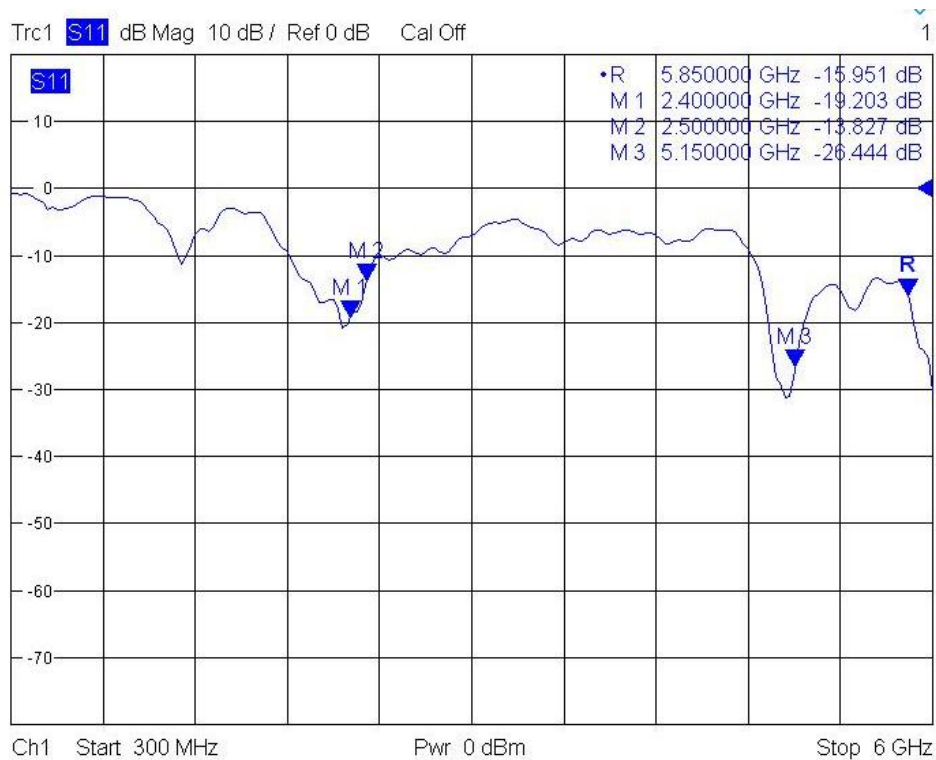


6. Performance Data

6.1 VSWR

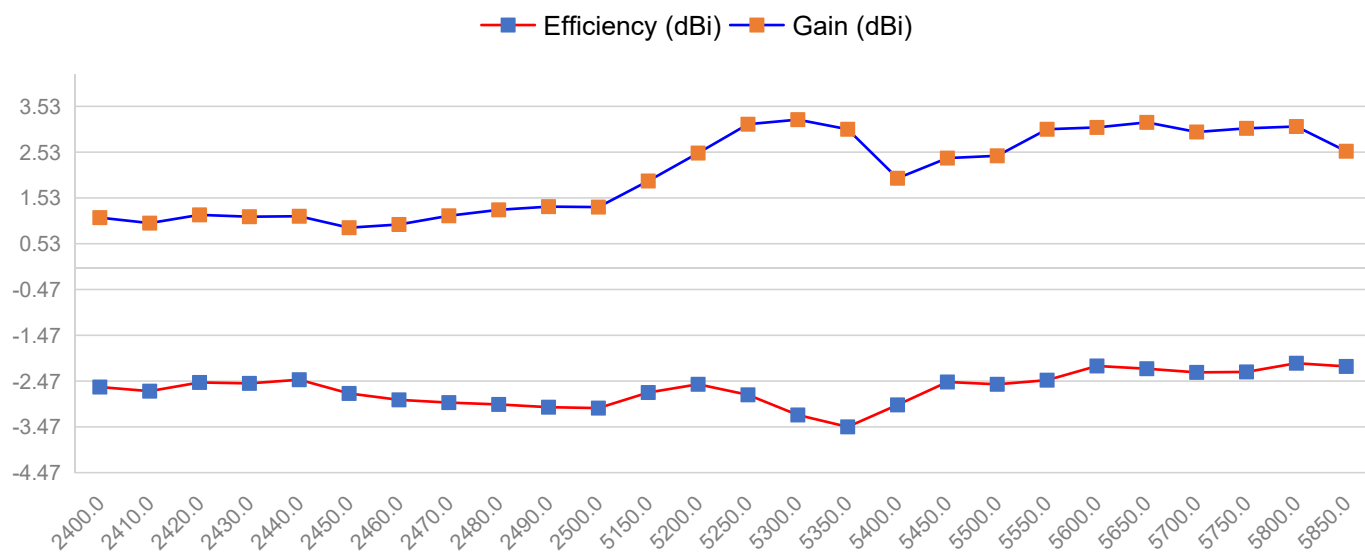


6.2 Return Loss

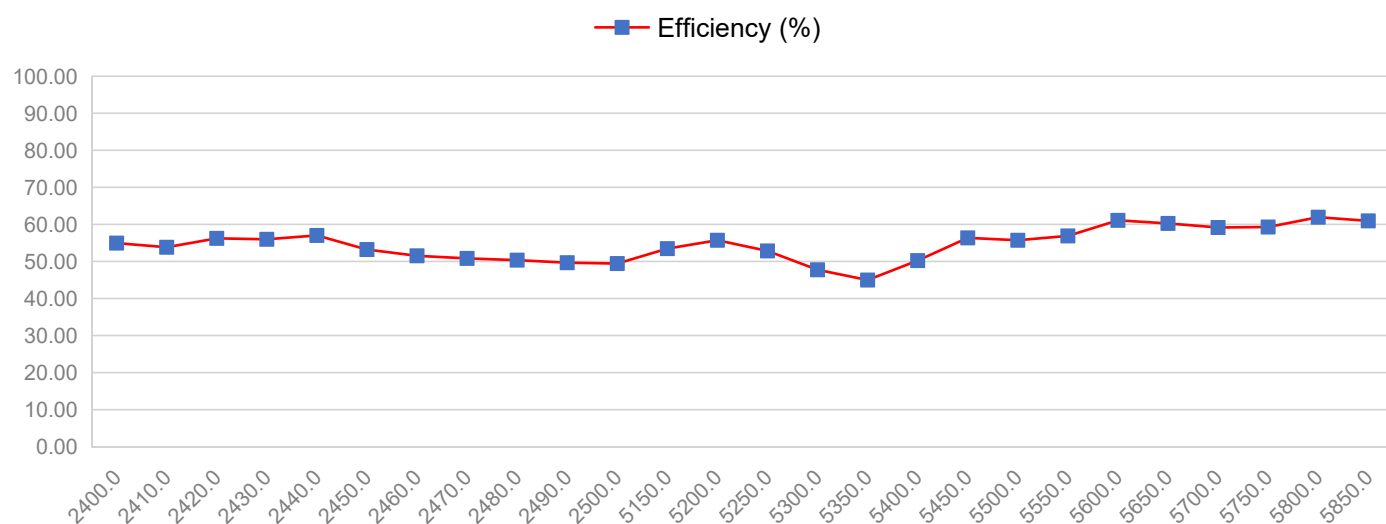


6. Performance Data

6.3 Gain



6.4 Efficiency



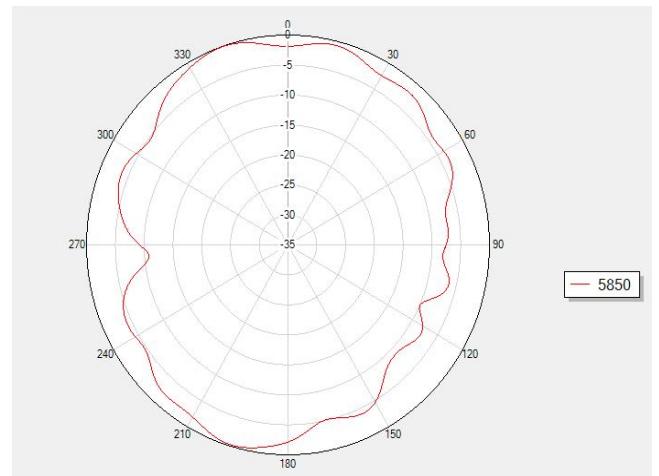
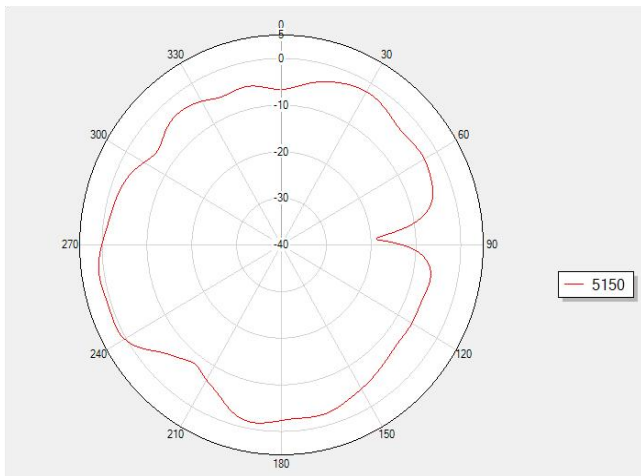
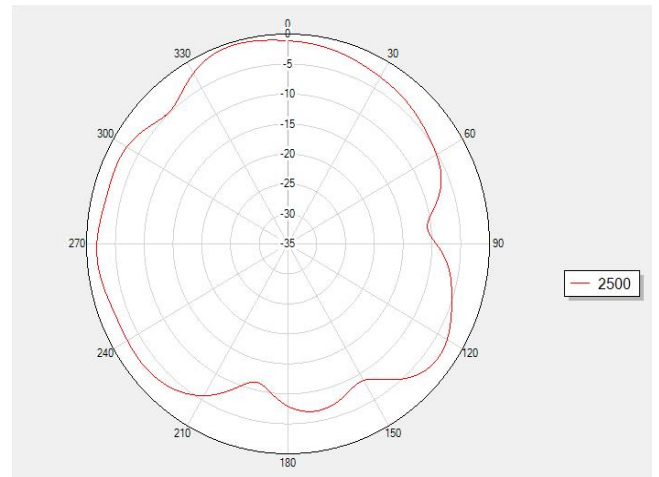
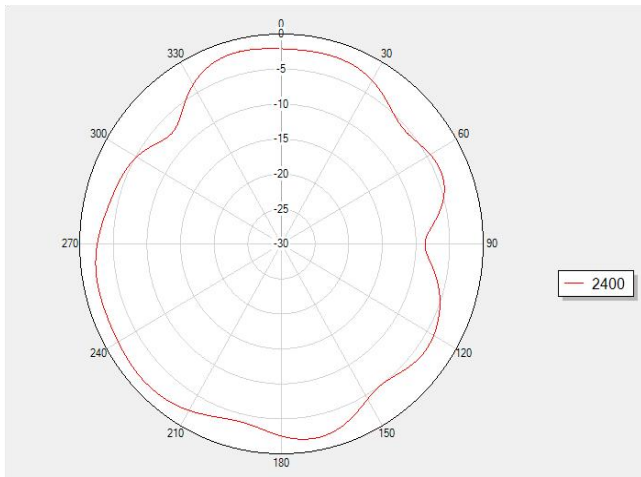
6.5 Antenna Gain and Efficiency

Frequency (MHz)	2400	2450	2500	5150	5500	5850
Gain (dBi)	1.1	0.88	1.33	1.9	2.45	2.55
Efficiency (%)	54.95	53.21	49.43	53.46	55.72	60.95



7. Radiation Patterns

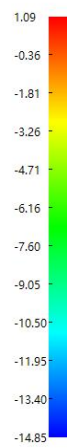
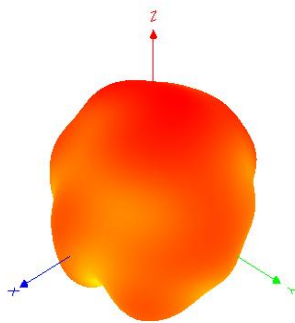
7.1 2D Radiation Patterns



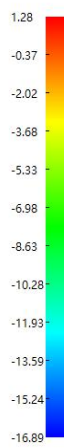
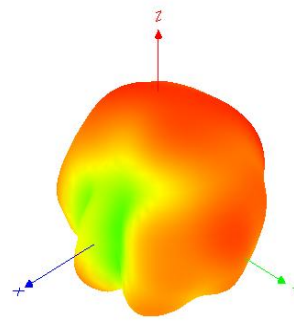
7. Radiation Patterns

7.2 3D Radiation Patterns

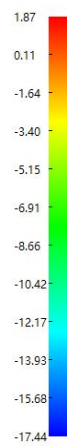
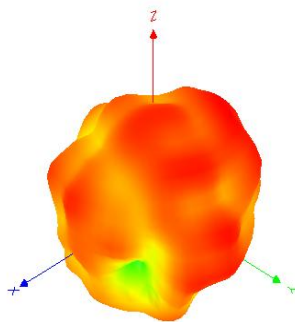
Frequency (MHz) : 2400



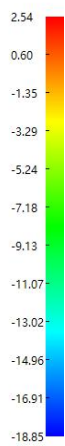
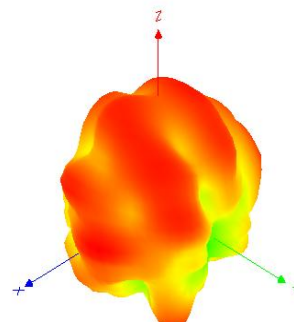
Frequency (MHz) : 2500



Frequency (MHz) : 5150



Frequency (MHz) : 5850



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蝙蝠无线
BAT WIRELESS

www.batwireless.cn

Shenzhen Bat Wireless Technology Co.,Ltd

Office Add: Room 1301, 13th Floor, No. 8 Langhua Road, Xinshi
Community, Dalang Street, Longhua District, Shenzhen

Email: sales@batwireless.com

Tel: +86-0755-21031236