

Antenna Specification Document

Antenna Datasheet

FPC antenna

model :

BW258FNX14-5B1L120

description :

2.4G/5.8G FPC antenna

Features: Frequency range:
2400-2500MHz;
5150-5850MHz

Structure: 360° omnidirectional radiation

Line type: RG1.13

Line length: 120 mm

Size: 14mm x 5 mm

Complies with RoHS and REACH regulations

Catalogue

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BW258FNX14-5B1L120

Part Number Description

BW	Company	Bat Wireless
258	Band / Frequency	2400-2500MHz, 5150-5850MHz
F	Name	FPC Antenna
N	Type / Type	Built-in / Internal
X	Constant	X / X
14-5	Size / Dimensions	14-5mm / 14-5mm
B1	Interface / Connector	IPEX-1 / IPEX-1
L	Wire Length	Wire Length
120	Length / Length	120 / 120

Selection Table

Joggle	IPEX-1	IPEX-2	IPEX-3	IPEX-4	IPEX-5	SMA	Optional customization
Wire length	100	150	200	250	300	500	Optional customization
Alphabet of lines	RG0.81	RG1.13	RG1.37	RG174	RG178	RG316	Optional customization

1. Product description/ Description

The BW258FNX14-5B1L120 wireless bat is a versatile component widely used in wireless communications. Featuring flexible polyimide substrates, it can bend and fold to adapt to curved surfaces or confined spaces. This material enables circuit designs to accommodate complex spatial layouts, making it ideal for wearable devices and foldable smartphones. With a thickness of 0.1~0.3mm, it significantly reduces device weight and enhances portability. Combining high-frequency performance, flexibility, and high integration, this component is essential for miniaturizing and optimizing wireless devices.

Classic use cases:

Consumer Electronics: Bluetooth Headsets, Smartwatches, Remote Control for Drones

Industrial field: RFID tags, wireless sensors

Automotive Electronics:胎压监测,车载天线

Bat Wireless offers customized services to optimize your devices. Our experienced R&D team is ready to respond promptly to your needs. For any inquiries, please contact our sales team or Field Assistance Engineers (FAE).



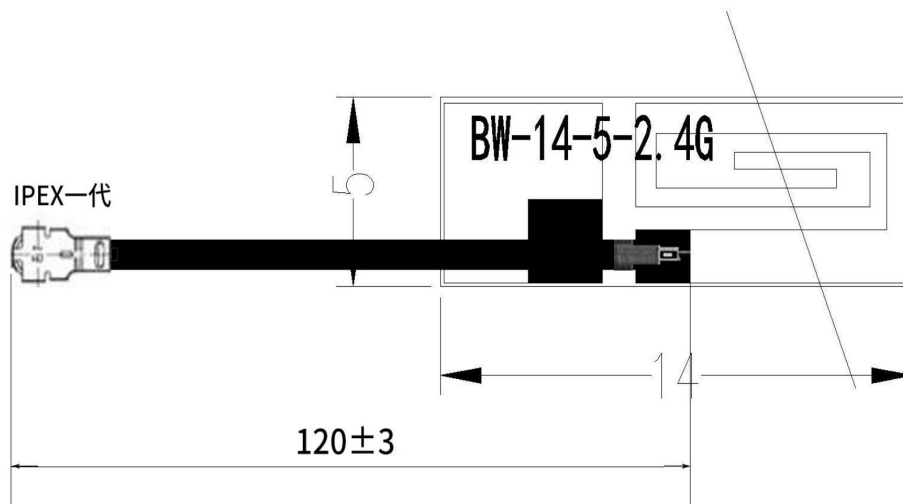
2. Product specifications/ Specification

Parameters / Parameters	Typical value / Typ.	Units	Notes
Electrical Characteristics			
Type /Antenna Type	FPC Antenna		
Frequency / Frequency Range	2400-2500, 5150-5850	MHz	
Input Impedance	50	Ω	
Standing wave ratio /V.S.W.R	<4.4		
Gain	4.14	dBi	
Polarization Type	Vertical / Vertical		
Power Capacity	50	W	
Lightning Protection	-		
Working voltage / DC voltage	-	V	
Radiator	-		
Mechanical Characteristics			
Size / Dimensions	14 x 5	mm	
Interface type / Connector type	IPEX-1 (customizable)		
Cable Type	RG1.13 (Customizable)		
Cable length / Cable Length	120 (customizable)	mm	
Mounting method	Button		
Color	Black		
Material / Meterial	FPC		
Weight /Weight	-	g	
Environmental Characteristics			
Waterproof Rating	-		
ROHS Standard / ROHS Complaint	Accord with		
Operating temperature	-45~ +85	°C	
Storage temperature	-45~ +85	°C	

3. Physical Figure/ Dimensions



4. Dimension Drawing/ Mechanical Drawing





5. Test equipment/ Test Equipment



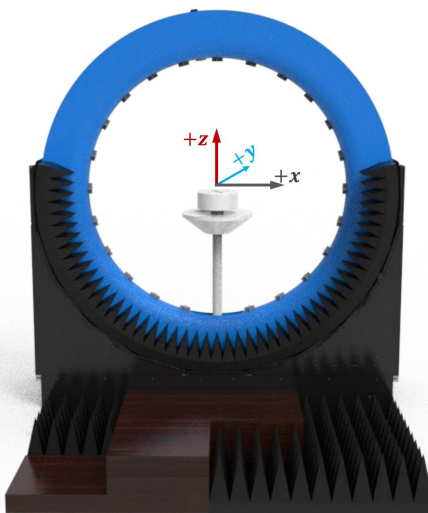
Keysight/E5071C network analyzer



R&S/CMW500 Comprehensive Analyzer



R&S/SMBV100B signal source



DT-3500 datasheet / system specifications

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

Testing Capability

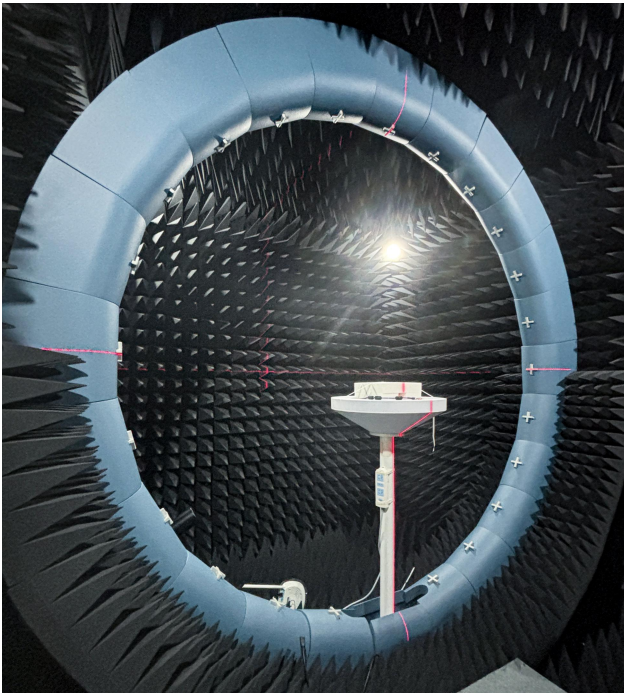
Description / Capability description

Active measurement active testing

Capability/test indicators:TRP, TIS, EIRP, EIS, etc
Mode/Test 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 passive testing

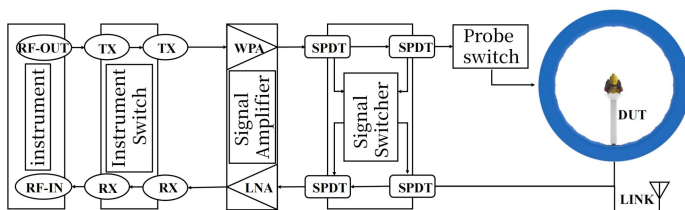
Test category:Gain, Efficiency, 2D pattern, 3D pattern, Pattern roundness, Axial Ratio, ECC, Phase center, etc.
Polarization mode:Circular polarization, Linear polarization, Elliptical polarization.



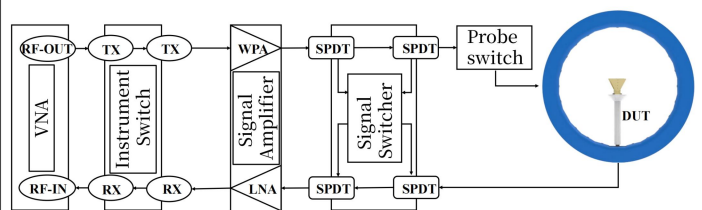
RF Link diagram of multi probe spherical near-field testing system

RF Link Diagram of Multi-Probe Spherical Near Field Testing System

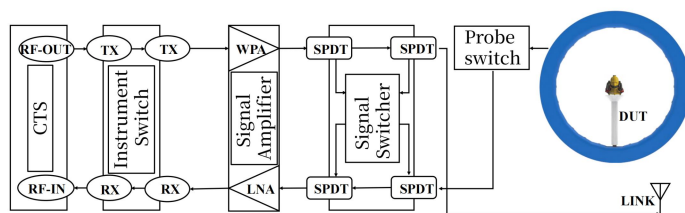
RF Link Overview
Total RF Link Diagram



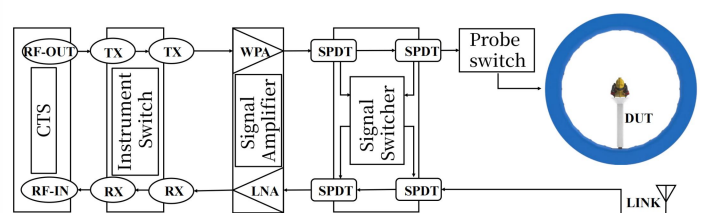
RF Link of Passive measurement
Passive test link diagram



RF Link Overview
Total RF link diagram



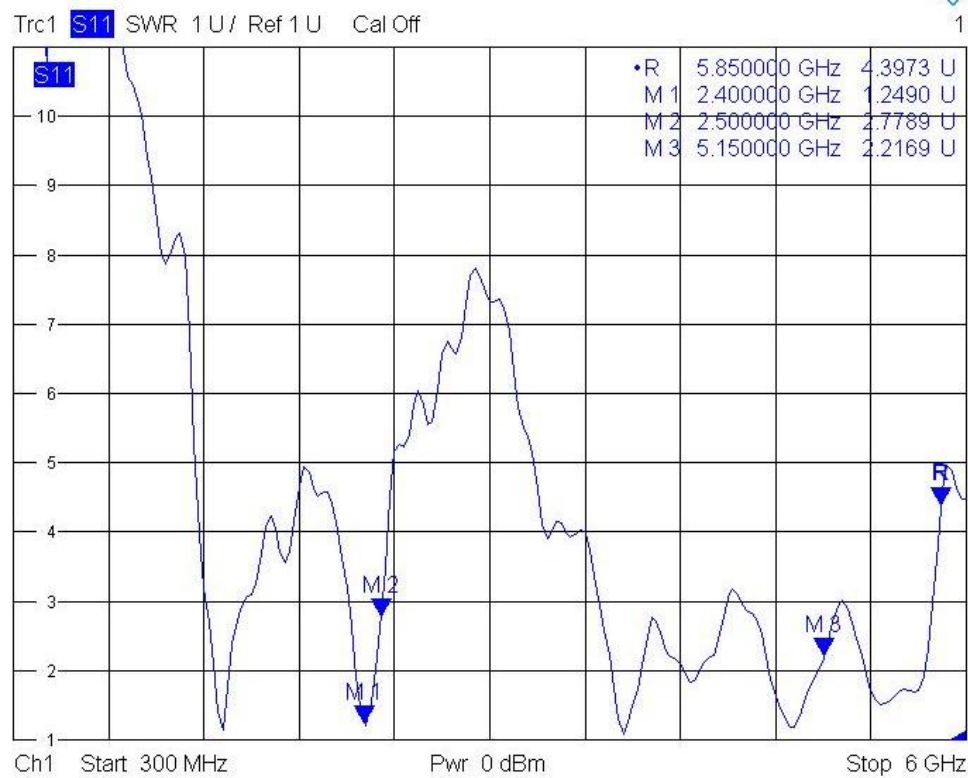
RF Link of Passive measurement
Passive test link diagram



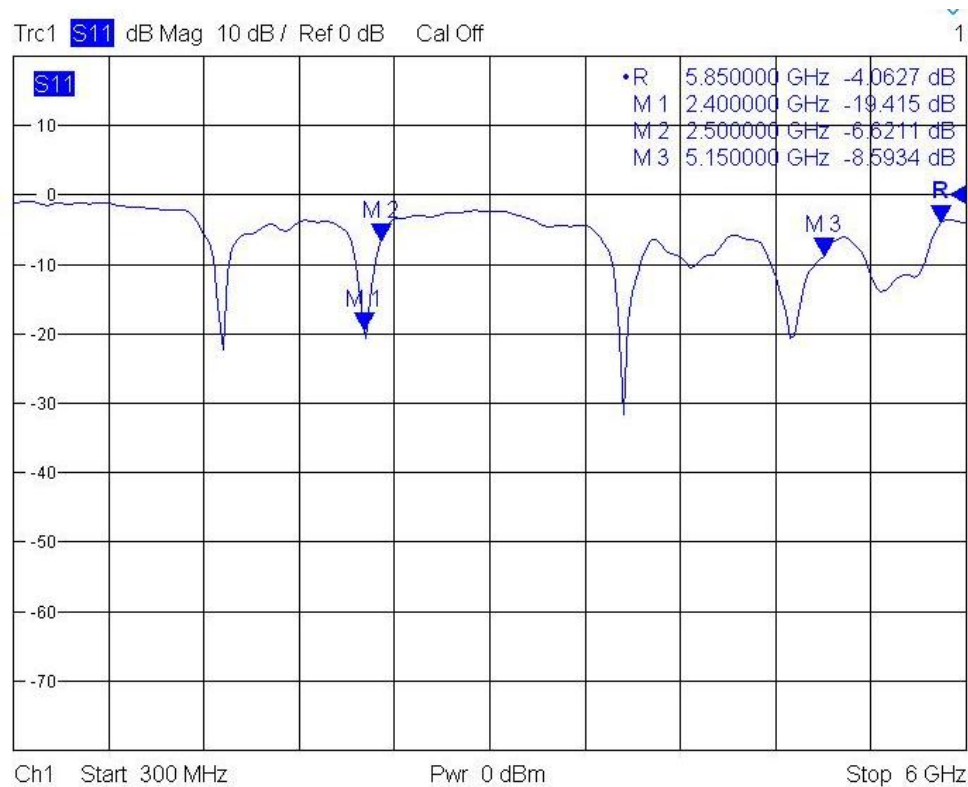


6. Performance data/ Performance Data

6.1 Voltage Standing Wave Ratio/VSWR

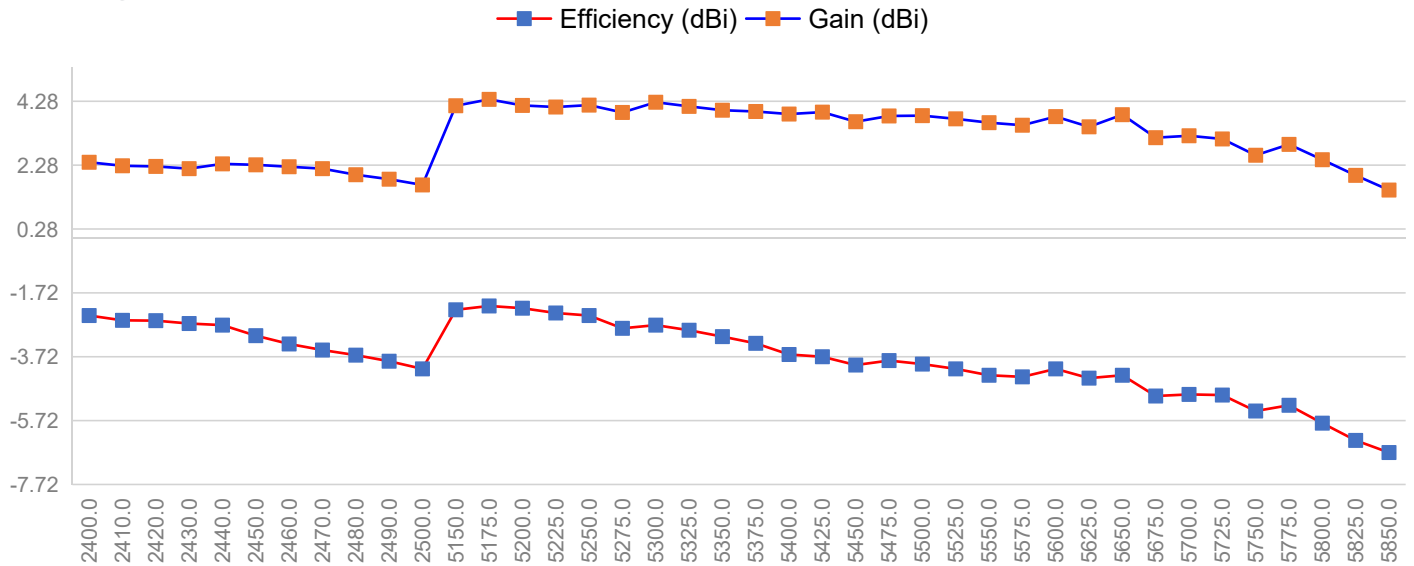


6.2 Return Loss

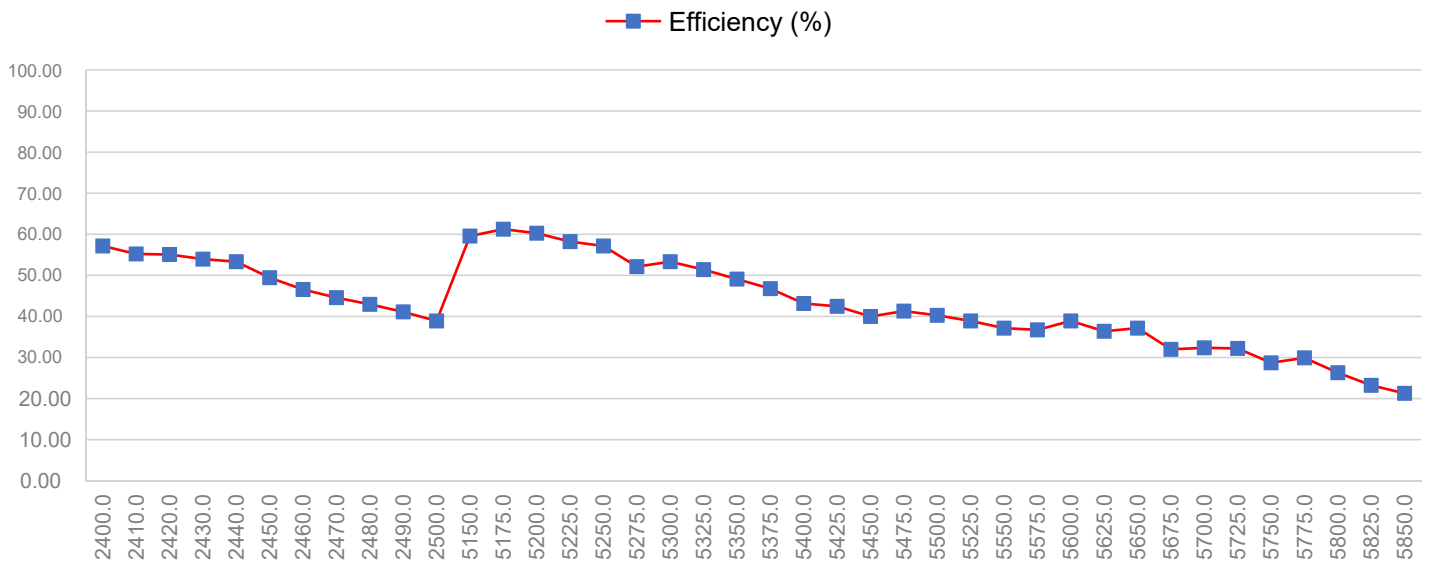


6. Performance data/ Performance Data

6.3 Gain



6.4 Efficiency/ Efficiency



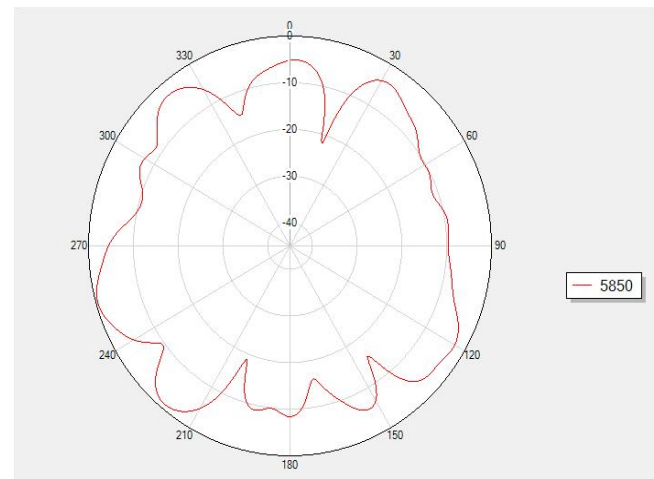
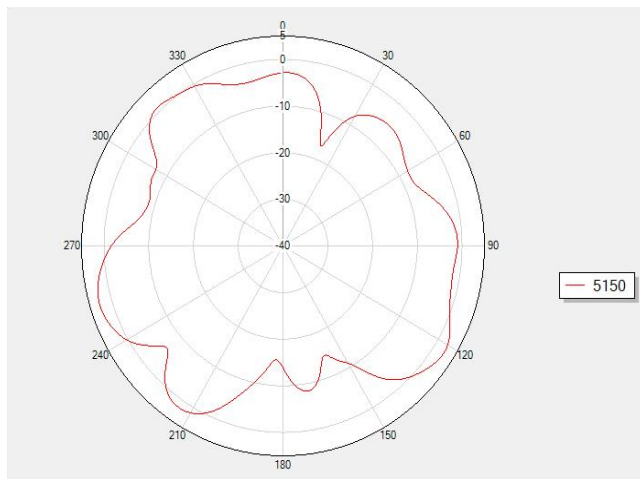
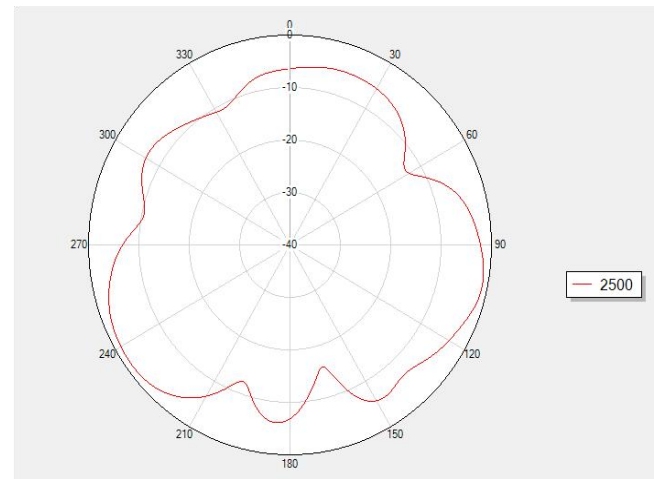
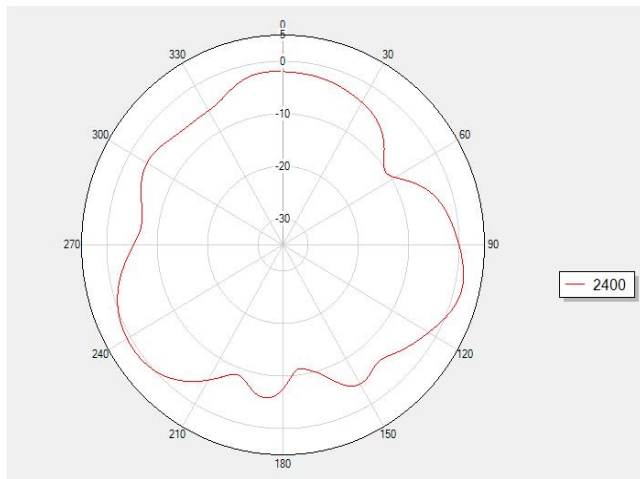
6.5 Antenna Gain and Efficiency

Frequency / Frequency (MHz)	2400	2450	2500	5150	5500	5850
Maximum gain / Gain (dBi)	2.37	2.29	1.66	4.14	3.61	1.5
Efficiency (%)	57.15	49.43	38.9	59.57	37.15	21.28



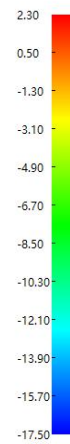
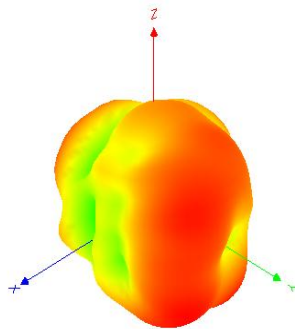
7. Radiation patterns/ Radiation Patterns

7.1 2D Radiation Pattern Diagram/ Radiation Patterns

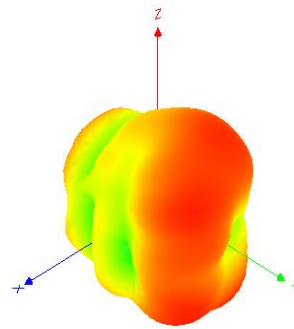


6.2 3D Radiation Pattern

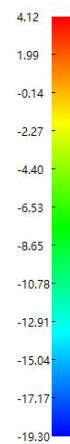
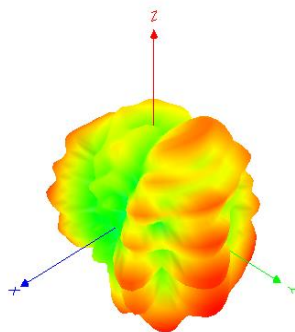
Frequency (MHz) : 2400



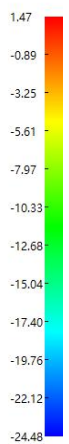
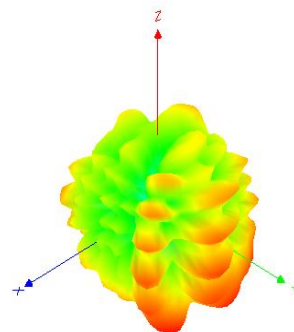
Frequency (MHz) : 2500



Frequency (MHz) : 5150



Frequency (MHz) : 5850





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