

# Antenna Datasheet

## Passive Ceramic Antenna

Model:

BWGNSCNX8-8W4

Description:

BeiDou/GPS Passive Ceramic Antenna

Features:

1575±5MHz Frequency Range

1561±5MHz Frequency Range

360° Omnidirectional Radiation

Dimensions: 8mm x 8mm x 4mm

Compliant with RoHS & REACH Regulations

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## BWGNSCNX8-8W4

### Part Number Explanation

BW	Company	Bat Wireless
GNS	Frequency	GNSS / GNSS
C	Name	Ceramic Antenna
N	Type	Internal
X	Constant	X
8-8	Dimensions	8-8mm
W	Type	Passive Antenna
4	Thickness	4mm

## 1. Description

Bat Wireless BWGNSCNX8-8W4 is a ceramic antenna, operating in the 1575 MHz and 1561 MHz frequency bands. It adopts a special ceramic dielectric material to reduce antenna size while maintaining good performance, featuring low dielectric loss and high radiation efficiency. With low loss and high stability, the ceramic dielectric minimizes signal attenuation and ensures excellent temperature stability, making it suitable for in-vehicle, outdoor, and other harsh environments, as well as for low-power applications.

The right-hand circular polarization design matches the polarization mode of BeiDou satellite signals, providing strong anti-multipath interference capability and improving positioning accuracy. It is easy to integrate, typically featuring an ANT connection pin and a ground pin for convenient soldering or modular design.

Classic Application Scenarios:

Automotive and Transportation: Vehicle navigation systems, commercial fleet management, intelligent transportation facilities

Consumer Electronics and Portable Devices: Smartphones/tablets, outdoor sports devices, shared-economy devices

IoT and Asset Tracking: Logistics tracking, agricultural IoT

Aerospace and Defense: UAVs, satellite communication terminals, military equipment

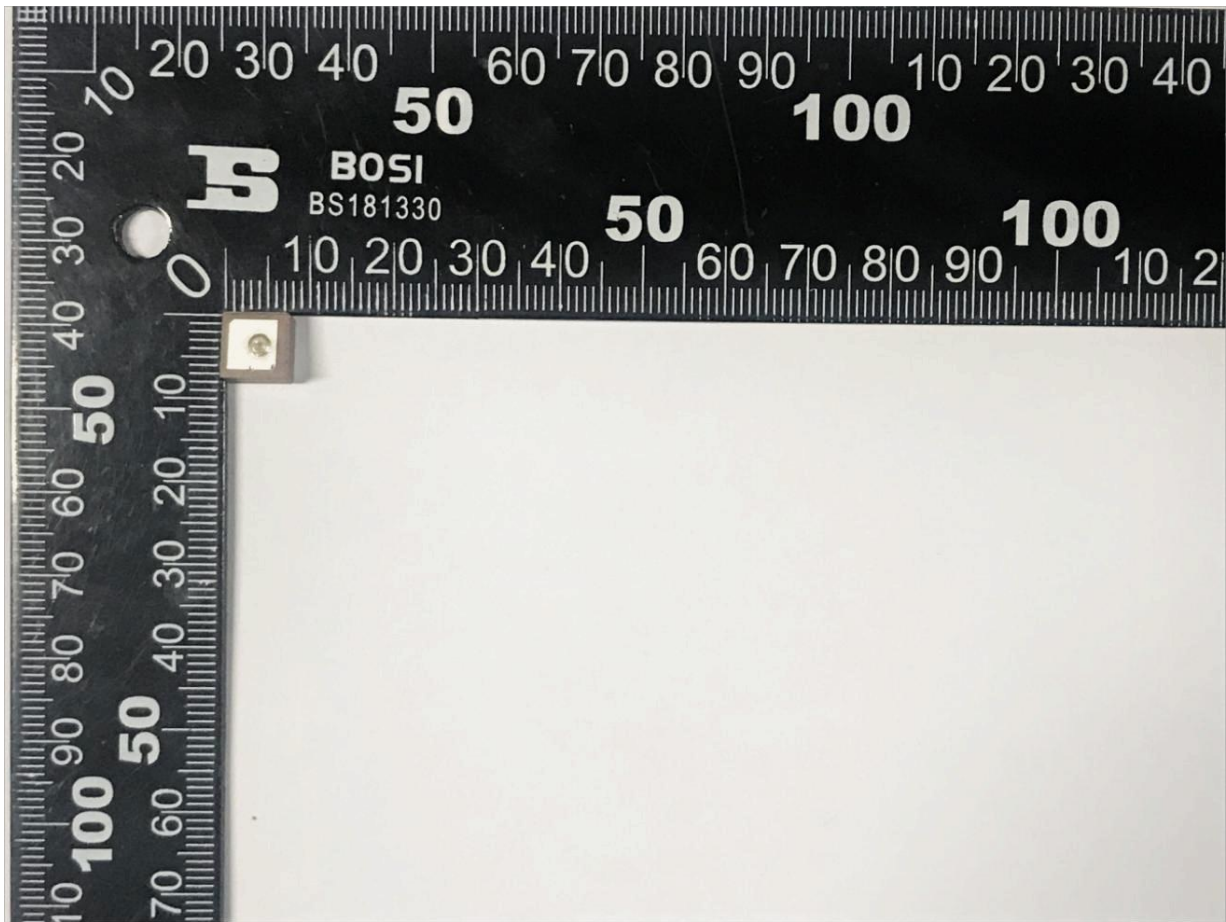
Bat Wireless provides customized services to optimize your equipment. We have a mature R&D team that can respond quickly to meet your needs. If you have any requirements, please contact our sales and FAE.



## 2. Specification

Parameters	Typ.	Unites	Notes
<b>Electrical Characteristics</b>			
Antenna Type	Ceramic Antenna		
Frequency Range	1575±5 , 1561±5	MHz	
Input Impedence	50	Ω	
V.S.W.R	<2		
Gain	1	dBi	
Polarization Type	RHCP		
Power Capacity	50	W	
Lightning Protection	-		
DC Voltage	-	V	
Radiator	-		
<b>Mechanical Characteristics</b>			
Dimensions	8 x 8 x 4	mm	
Connector Type	-		
Cable Type	-		
Cable Length	-	mm	
Mount way	-		
Color	Sliver White		
Meterial	Ceramic		
Weight	3.2	g	
<b>Environmental Characteristics</b>			
Waterproof Rating	-		
ROHS Complaint	Compliant		
Operating Temperature	-45~ +85	°C	
Storage Temperature	-45~ +85	°C	

3. Product Picture



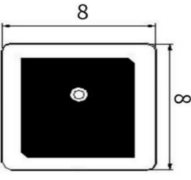
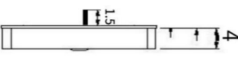
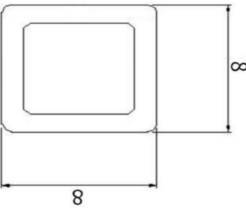
# 4. Mechanical Drawing

<b>PARTS DRAWING</b>	<b>ROHS Compliant</b>					
		REV	PRODUCT NO.	DATE	NAME	DESCRIPTION



  

Antenna Assembly Precautions:

1. Assembly Orientation Refer to the prototype or specification document diagram
2. Coaxial Cables must have a large bend radius when routing.
3. Secure terminals and ceramic components with adhesive
4. ESD (Electrostatic Discharge) protection protocols must be followed throughout the entire assembly process.

BOTTOM

ANGLE PROJECTION					
GENERAL TOLERANCES					
100-200 :	± 0.30				
50-100 :	± 0.20				
25-50 :	± 0.15				
10-25 :	± 0.10				
1-10 :	± 0.10				

PRODUCT NAME					
GNSS Ceramic Antenna-8*8*4					
UNIT	MM	SIZE			
PAGE	1 OF 1	FORNMT			
		A4			

Operating Temperature: -45°C~85°C

Storage Temperature: -45°C~85°C

## 5. Test Equipment



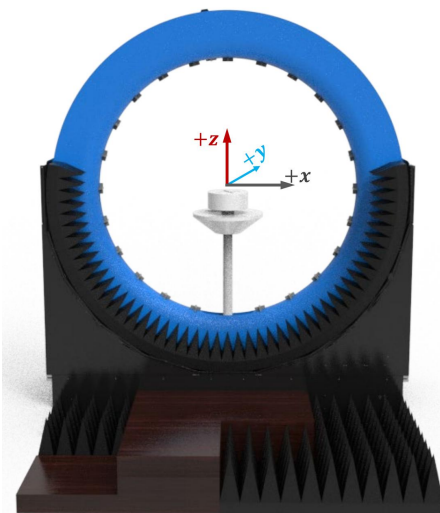
Keysight/E5071C Network Analyzer



R&amp;S/CMW500 Comprehensive Tester



R&amp;S/SMBV100B 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	≤40kg

#### 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 diaram of multi probe spherical near-field testing system

RF Link Overview



RF Link of Passive measurement



RF Link Overview

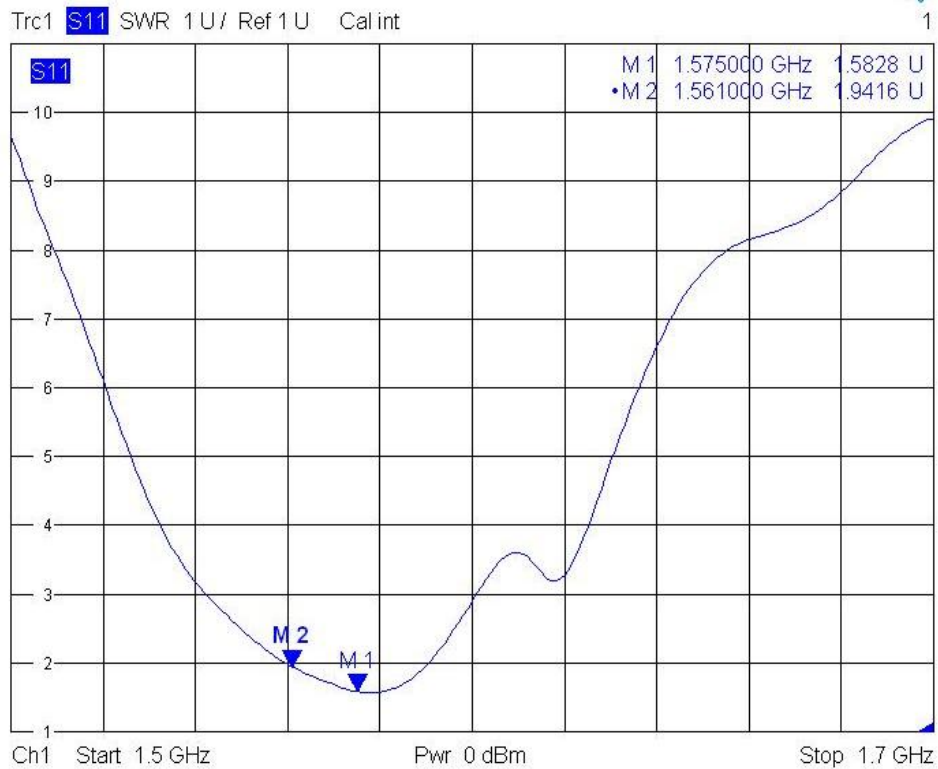


RF Link of Passive measurement

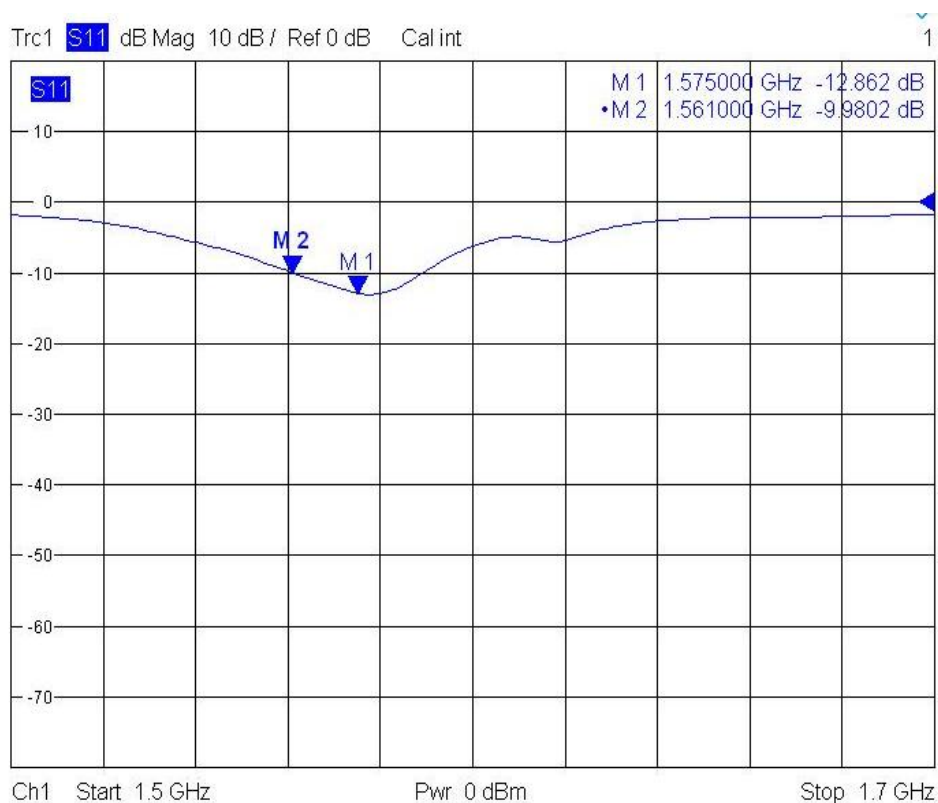


## 6. Performance Data

### 6.1 VSWR

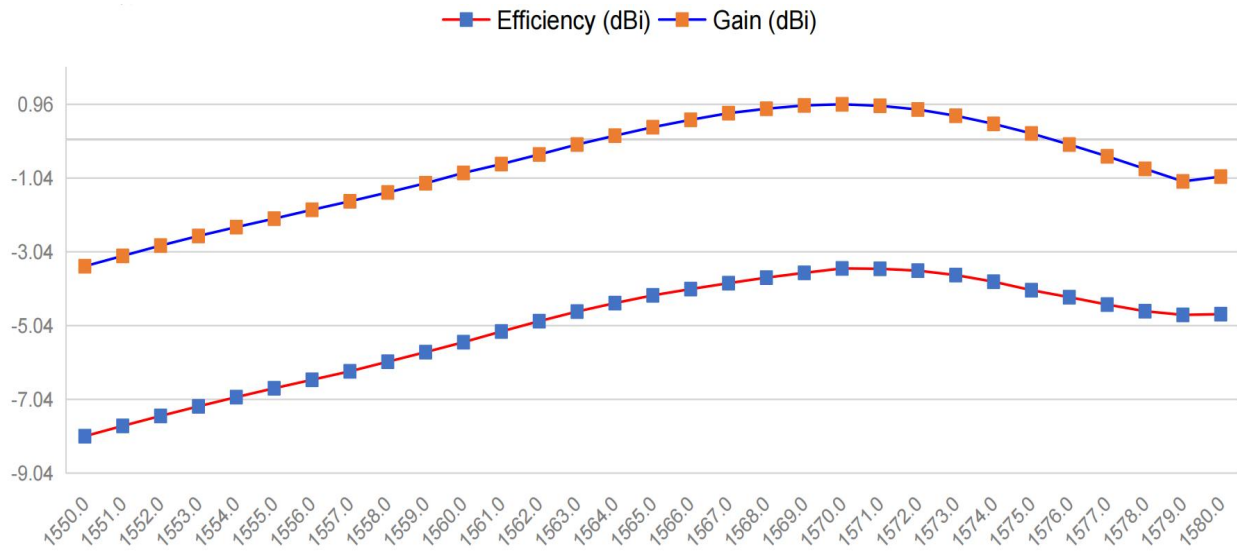


### 6.2 Return Loss

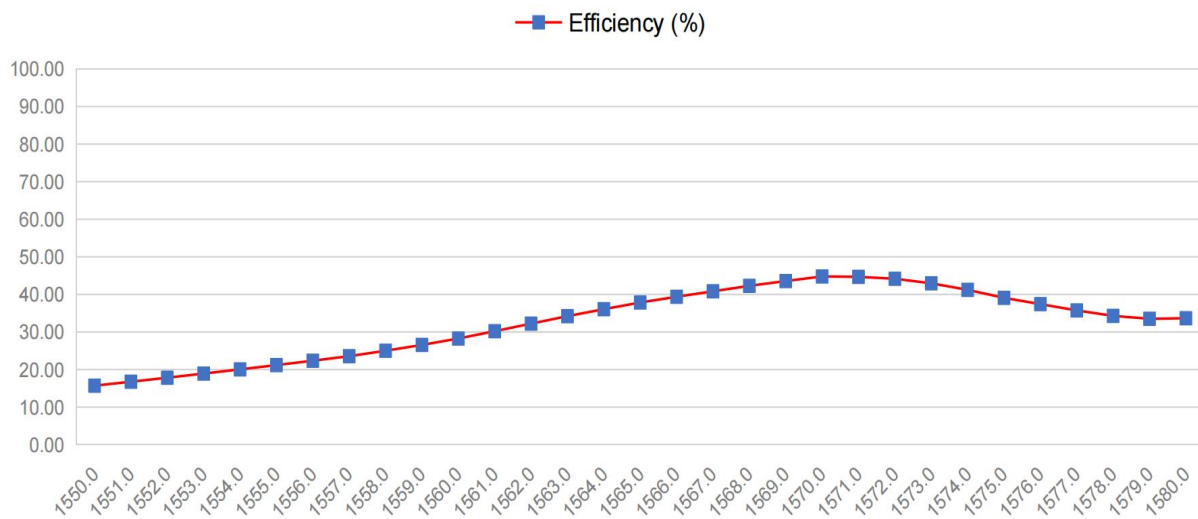


## 6. Performance Data

### 6.3 Gain



### 6.4 Efficiency



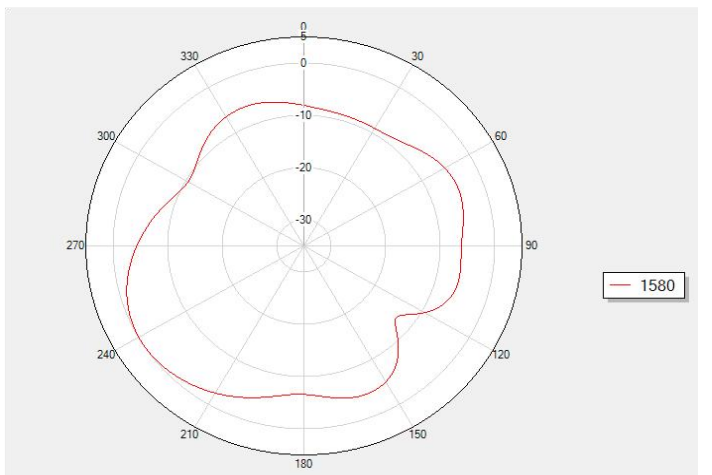
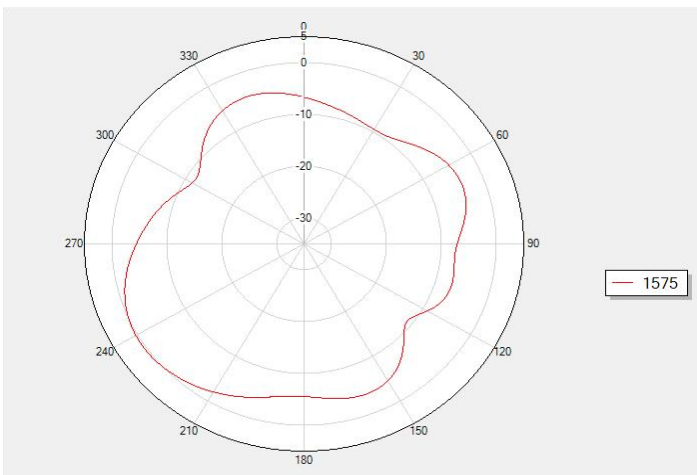
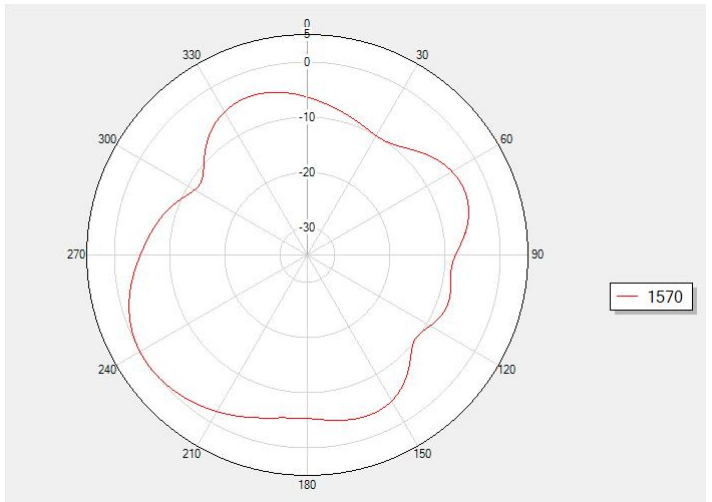
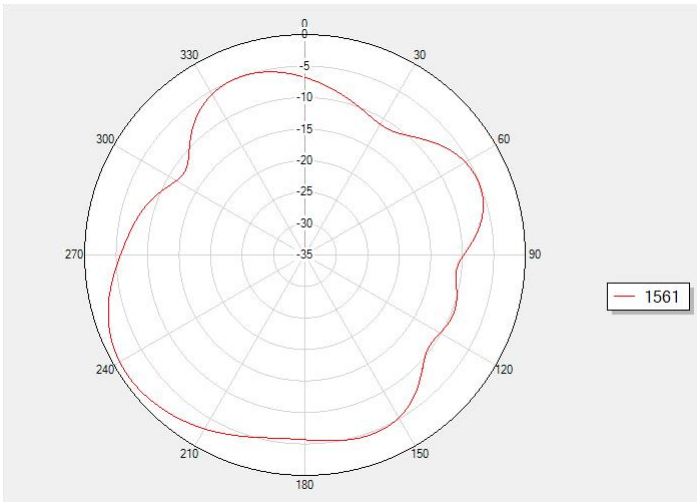
### 6.5 Gain and Efficiency

Frequency (MHz)	1561	1570	1575	1580
Gain (dBi)	-0.9	0.96	0.65	-0.79
Efficiency (%)	28.25	44.77	41.21	34.28



# 7. Radiation Patterns

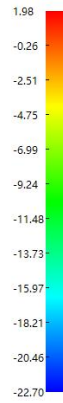
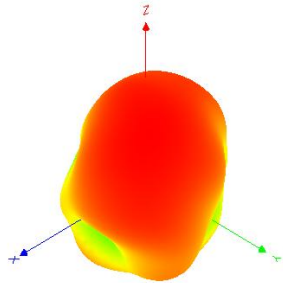
## 7.1 2 D Radiation Patterns



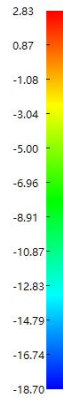
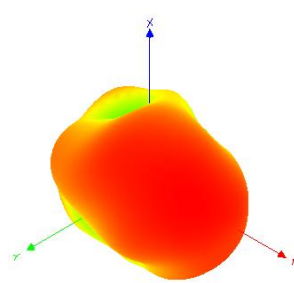


## 7.2 3D Radiation Patterns

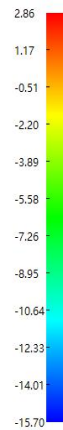
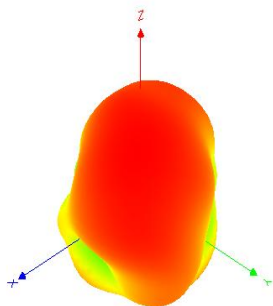
Frequency (MHz) : 1561



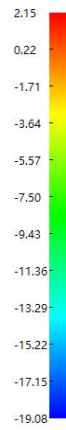
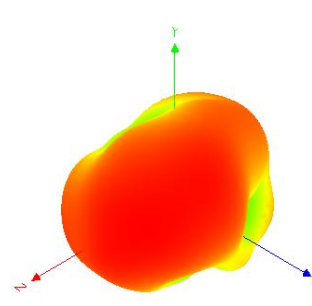
Frequency (MHz) : 1570



Frequency (MHz) : 1575



Frequency (MHz) : 1580





## DECLARATION:

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Documentation

Version :	August-21-2025-A01
Date :	2025-8-21
Remarks :	First update
Author:	Carly

Change Log
