



TAOGLAS®



Datasheet

Stingray II

Part No:

Black - MA290.A.001

White - MA290.W.001

Description

2-in-1 Adhesive Mount Antenna GNSS L1 3m RG-174LL SMA(M)ST Wideband
5G/Wi-Fi 3m RG-174LL SMA(M)ST

Features:

Adhesive Mount Antenna
1x GNSS Covering L1
1x Cellular (With Added Wi-Fi 6E/7)
Covering: 600-7125MHz
IP67 Waterproof Enclosure
Dims: Ø56.22 x 19.4 mm
Cable: 3m RG-174LL
Connectors: SMA(M)ST
RoHS & Reach Compliant

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1. Introduction



The Taoglas Stingray II series MA290 is a low-profile 2-in-1 adhesive-mount antenna combining GNSS L1 and wideband Cellular/Wi-Fi functionality in a single compact housing. The Stingray II replaces our legacy Stingray MA204 Series with GNSS and 3G coverage, and supports GNSS L1 alongside Cellular and Wi-Fi coverage from 600 MHz to 7125 MHz. This makes it suitable for a wide range of connected device applications that require super quick and flexible installations.

The MA290 series features a strong adhesive mounting pads and is supplied with 3 m RG-174 cables terminated with SMA male straight connectors as standard. The robust IP67-rated enclosure ensures reliable performance in demanding indoor and outdoor environments, making the Stingray II series an ideal solution for space-constrained, multi-radio devices requiring dependable connectivity.

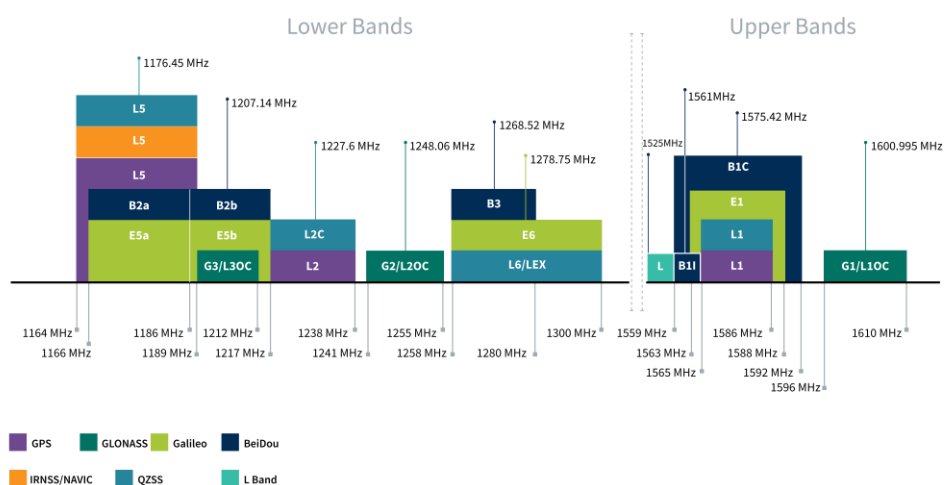
Typical applications include:

- Telematics and fleet management
- Asset tracking and logistics
- Industrial and commercial IoT devices
- Smart city and infrastructure equipment
- Automotive and transportation systems

Customized cable length and connector versions are also available upon request. Contact your regional Taoglas customer support team for further information.

2. Specification

GNSS Frequency Bands					
GPS	L1 1575.42 MHz	L2 1227.6 MHz	L5 1176.45 MHz		
	■	□	□		
GLONASS	G1 1602 MHz	G2 1248 MHz	G3 1207 MHz		
	■	□	□		
Galileo	E1 1575.24 MHz	E5a 1176.45 MHz	E5b 1201.5 MHz	E6 1278.75 MHz	
	■	□	□	□	
BeiDou	B1C 1575.42 MHz	B1I 1561 MHz	B2a 1176.45 MHz	B2b 1207.14 MHz	B3 1268.52 MHz
	■	■	□	□	□
L-Band	L-Band 1542 MHz				
	□				
QZSS (Regional)	L1 1575.42 MHz	L2C 1227.6 MHz	L5 1176.45 MHz	L6 1278.75e6	
	■	□	□	□	
IRNSS (Regional)	L5 1176.45 MHz				
	□				
SBAS	L1/E1/B1 1575.42 MHz	L5/B2a/E5a 1176.45 MHz	G1 1602 MHz	G2 1248 MHz	G3 1207 MHz
	■	□	■	□	□



GNSS Bands and Constellations

GNSS Electrical			
Frequency (MHz)	1561	1575.42	1602
VSWR (max.)	3:1	2:1	1.5:1
Efficiency (%)	89.8	74.0	87.8
Average Gain (dB)	-0.47	-1.31	-0.56
Peak Gain (dBi)	4.60	4.47	4.92
Axial Ratio (dB)	11.82	7.32	12.18
Polarization	RHCP		
Impedance	50 Ω		

LNA and Filter Electrical Properties			
Frequency (MHz)	1561	1575.42	1602
Gain (dB)	32.7	31.3	29.7
Noise (dB)	2.16	2.03	2.36
Group Delay (ns)	40.6	27.2	33.0
Power consumption (mA)	8 $\pm$ 2		
Voltage in (V)	1.8~5		
Out Of Band Attenuation (dB)	>50dB @ 1~1.4GHz and > 45dB @ 1.7~6GHz		
IEC61000-4-2 (ESD protection)	$\pm$ 30 kV air / $\pm$ 20Kv contact discharge		

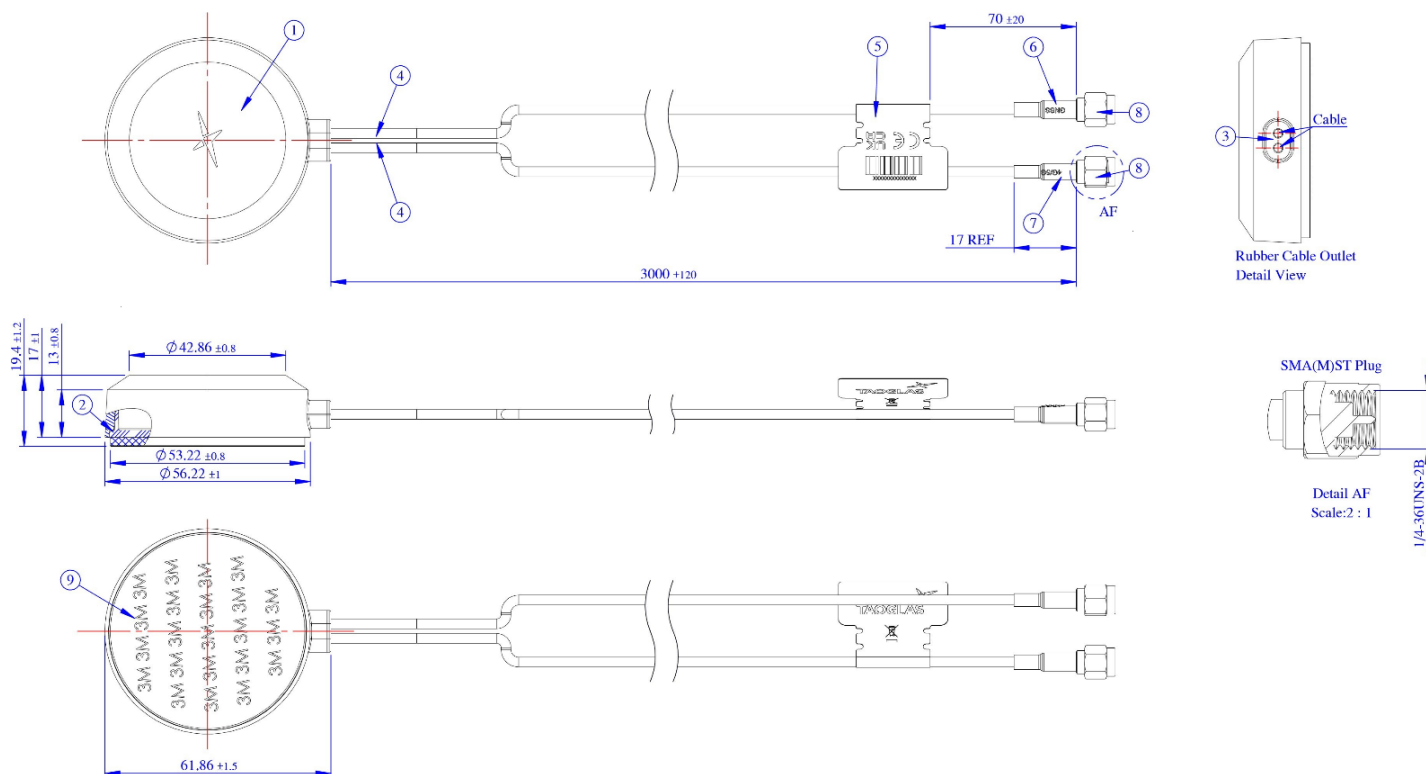
Cellular Electrical								
Band	Frequency (MHz)	Efficiency (%)	Average Gain (dB)	Peak Gain (dBi)	Impedance	Polarization	Radiation Pattern	Max. input power
5GNR/4G Band 71	617-698	42.8	-3.68	2.66	50 Ω	Linear	Omni directional	10W
4G/3G Band 12,13,14,17,28,29	698-806	49.8	-3.03	3.10				
4G/3G/NB-IoT/Cat M Band 5,8,18,19,20,26,27	824-960	57.2	-2.42	3.24				
5GNR/4G Band 21,32,74,75,76	1427-1518	10.9	-9.64	-3.13				
4G/3G Band 1,2,3,4,9,23,25,35,39,66	1710-2200	51.3	-2.90	4.76				
4G/3G Band 7,30,38,40,41	2300-2690	55.3	-2.57	5.56				
5GNR/4G Band 22,42,48,77,78,79	3300-5000	43.8	-3.59	8.97				
LTE5200/Wi-Fi5800	5150-5925	42.5	-3.71	7.50				
Wi-Fi - 6GHz	5925-7125	37.5	-4.26	7.44				

*Tested with 30cm cable length.

Mechanical	
Dimensions	Ø56.22mm x 19.4mm
Weight	118.6g
Material	ASA
Connector	SMA (M) ST Plug
Cable	RG 174LL

Environmental	
Operation Temperature	-40°C - +85°C
Storage Temperature	-40°C - +85°C
Relative Humidity	Non-condensing 65°C 95% RH

3. Mechanical Drawing



	Name	Material	Finish	Qty
1	MA290 Top housing	ASA	Black/White	1
2	MA290 Bottom housing	ASA	Black	1
3	2in1 Cable Rubber	Silicone rubber	Black	1
4	RG174 Low Loss Cable	PVC	Black	2
5	CE, WEEE and UKCA mark logo Label	PEPA	White	1
6	Heat Shrink Tube (GNSS)	PE	Blue Tube / White Text	1
7	Heat Shrink Tube (4G/5G)	PE	Red Tube / White Text	1
8	SMA (M) ST Plug for RG174	Brass	Au Plated	2
9	Double Sided Adhesive (ø53.22)	3M 9448HK-CR4305	Black Foam / White Liner	1

4. Packaging



- ☒ 1 PCS / PE bag
- ☒ PE bag(mm): 100x300 (Ref.)
- ☒ Weight (g): 122 $\pm$ 3%
- ☒ SPQ Label



- ☒ 100 PCS / Carton
- ☒ Carton(mm): 475x272x325
- ☒ Weight (Kg): 13.03 $\pm$ 3%
- ☒ Carton Label

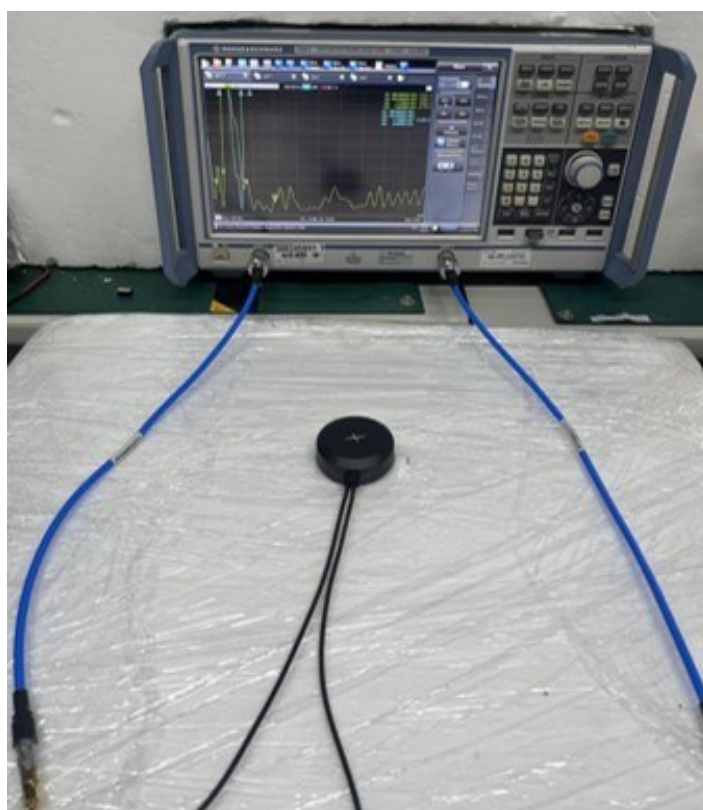
5. Antenna Characteristics

5.1 Test Setup

AUT

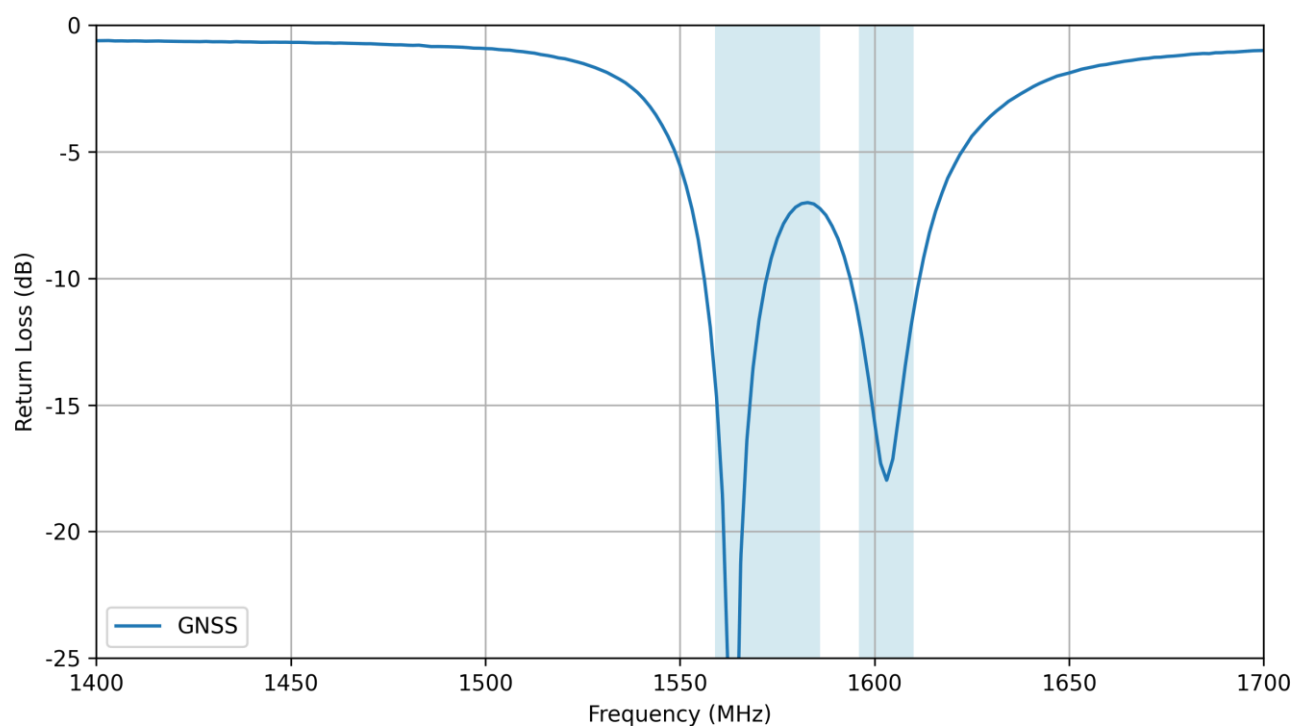


Vector Network Analyzer

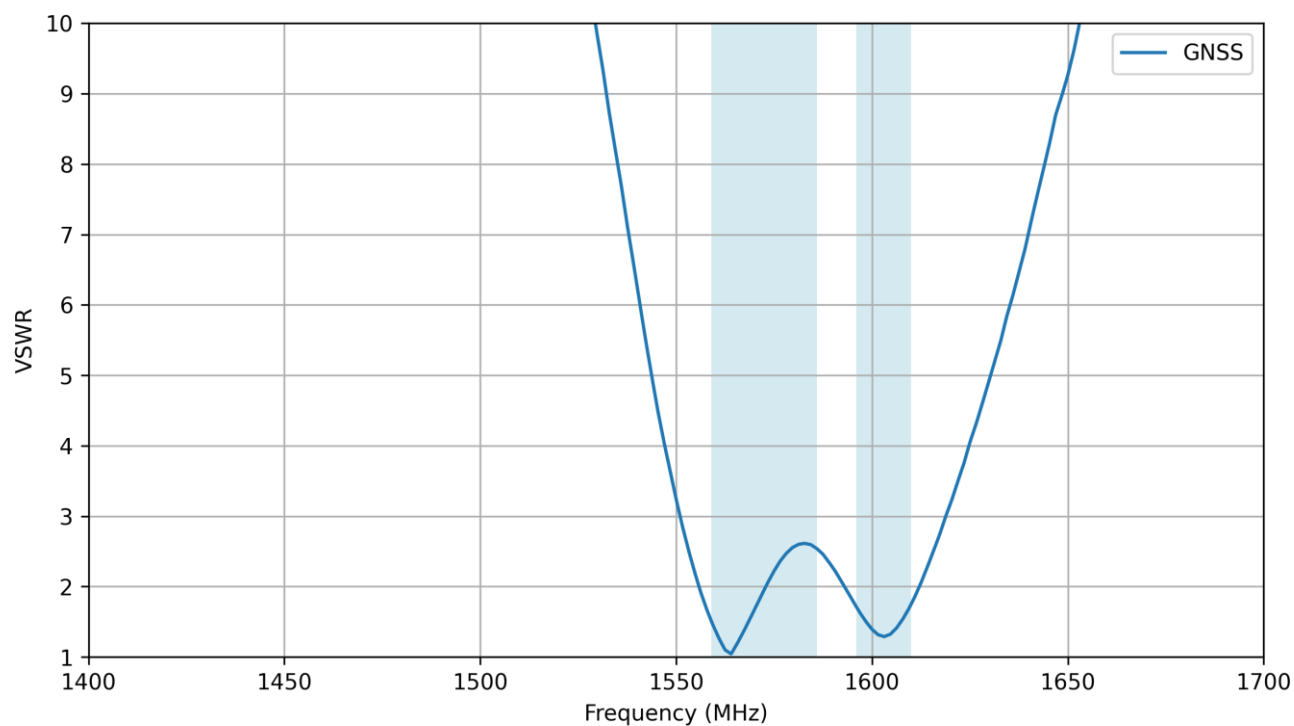


VNA Test Set-up in Free Space

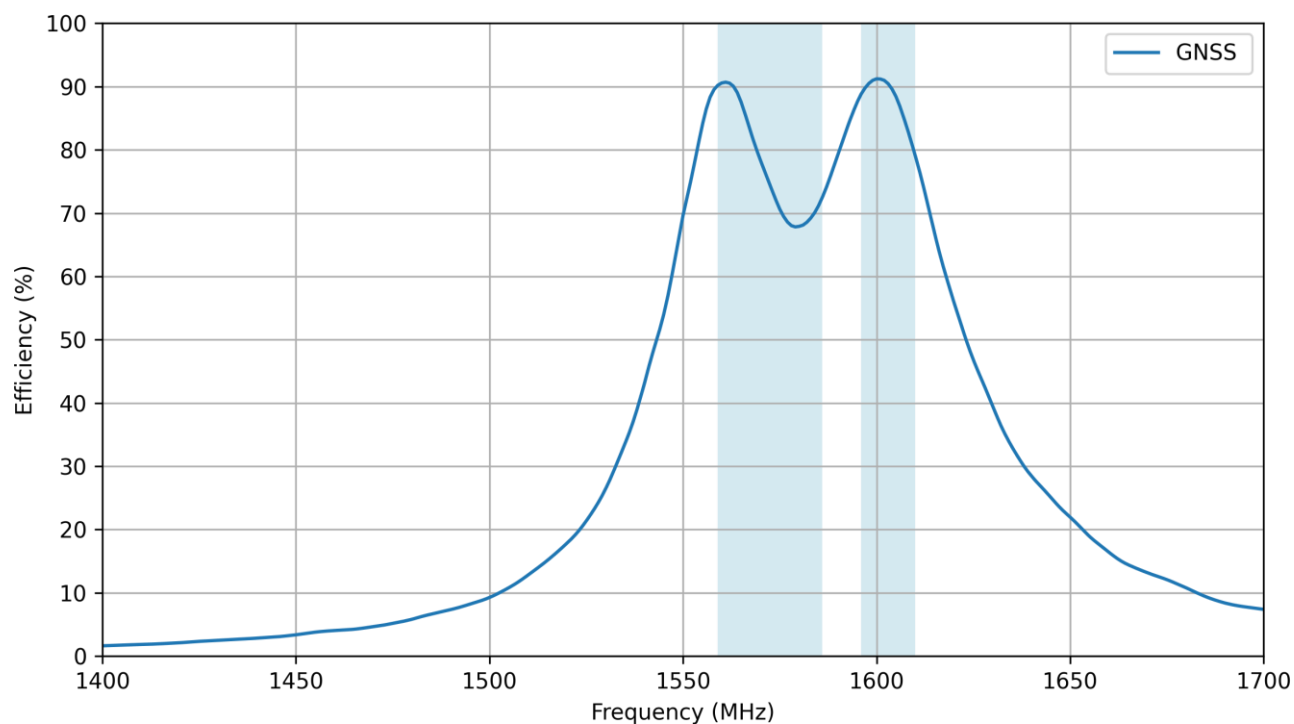
5.2 GNSS - Return Loss



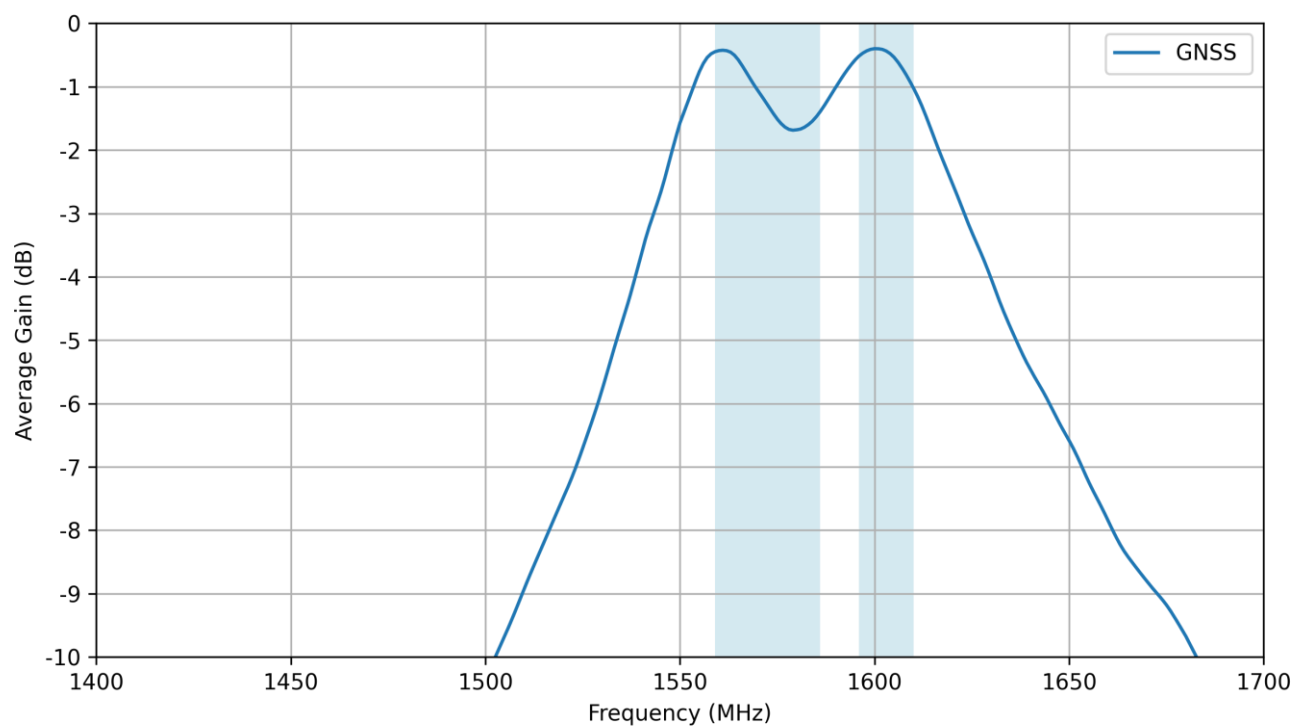
5.3 GNSS - VSWR



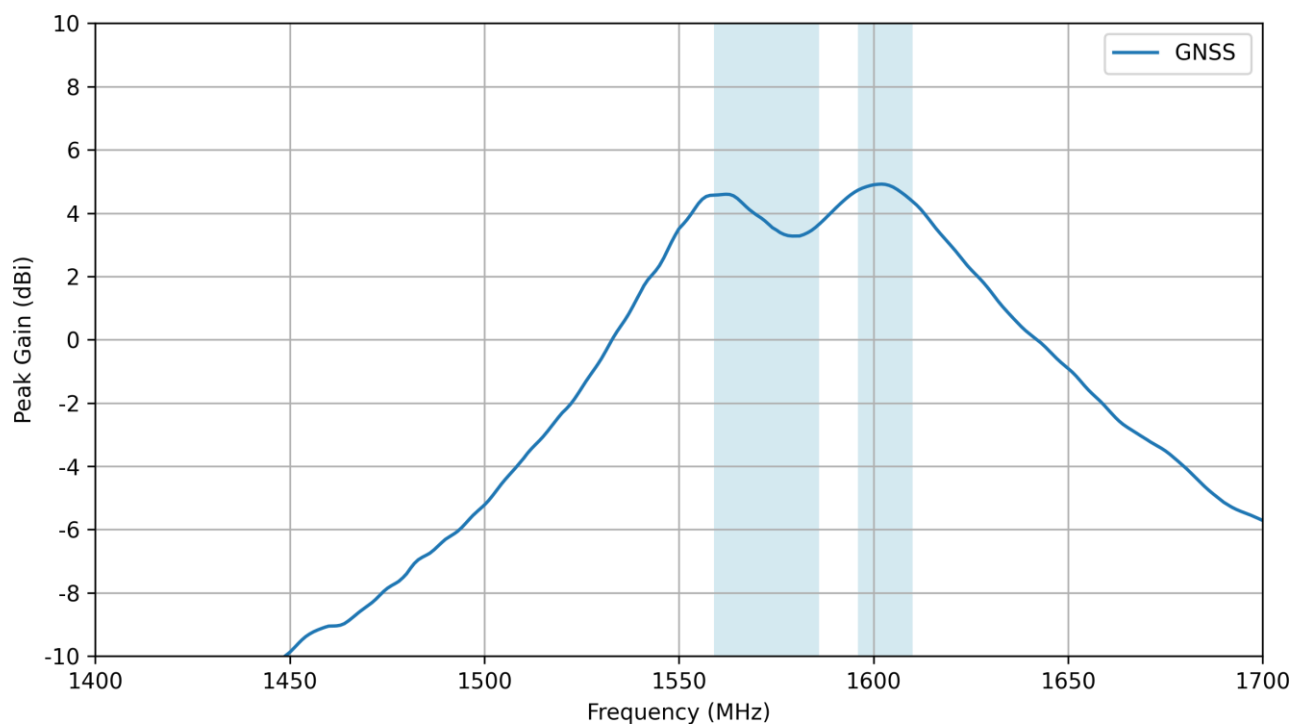
5.4 GNSS - Efficiency



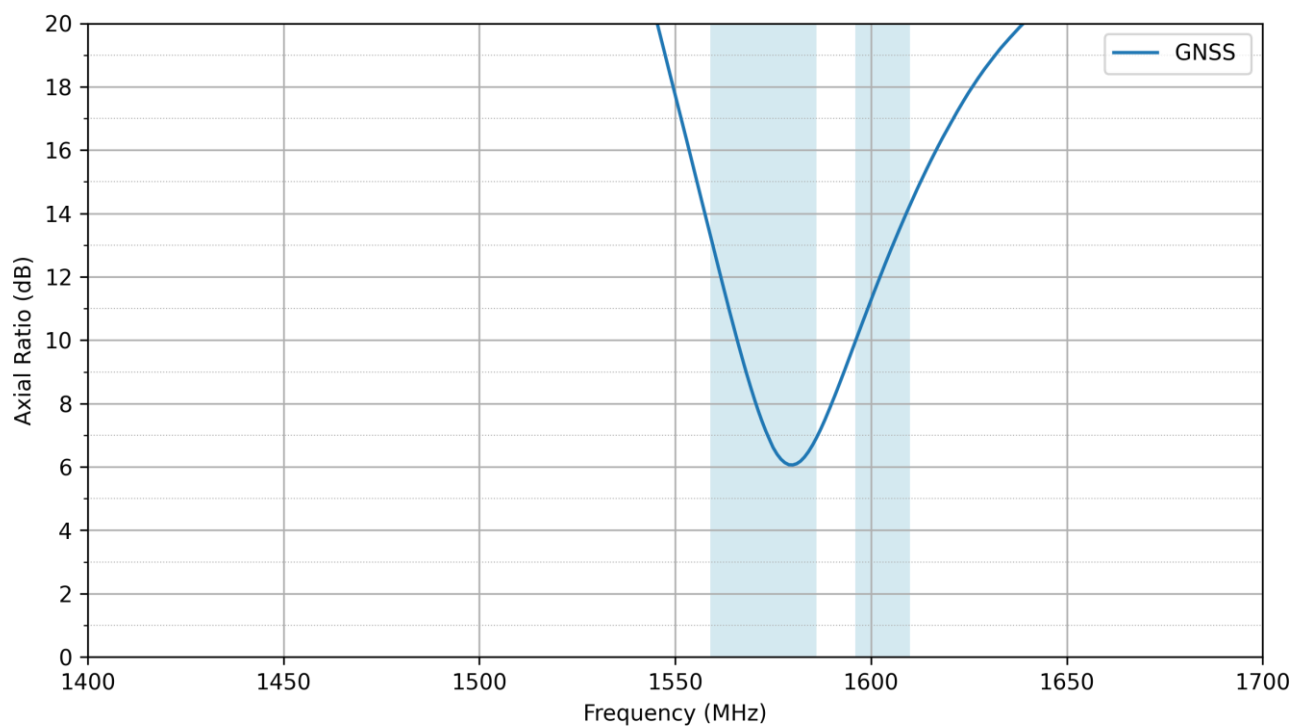
5.5 GNSS - Average Gain



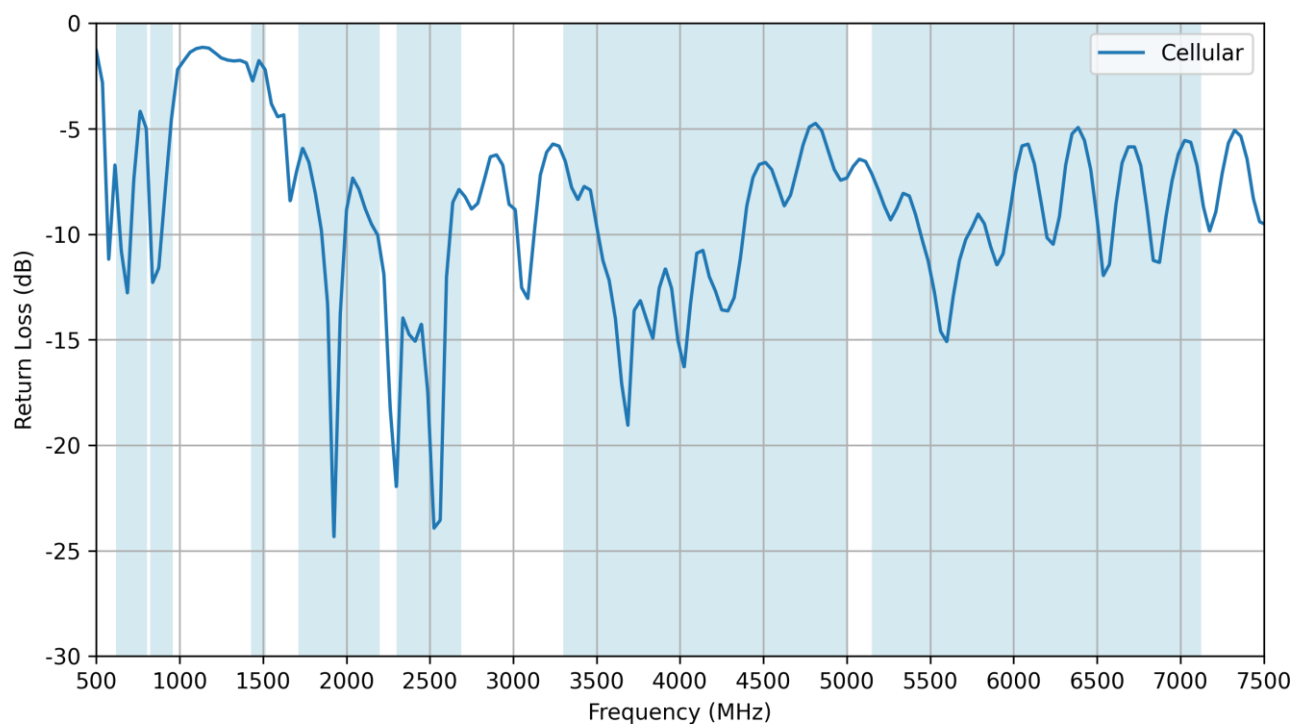
5.6 GNSS - Peak Gain



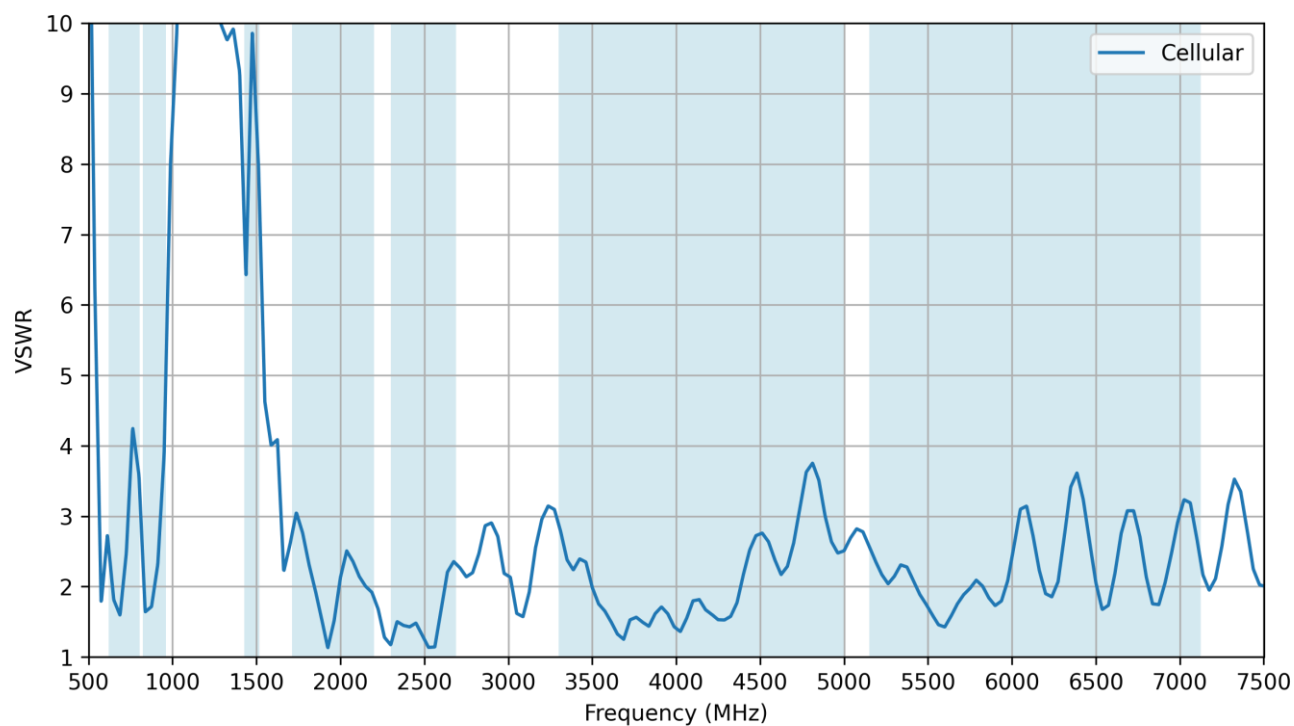
5.7 GNSS - Axial Ratio



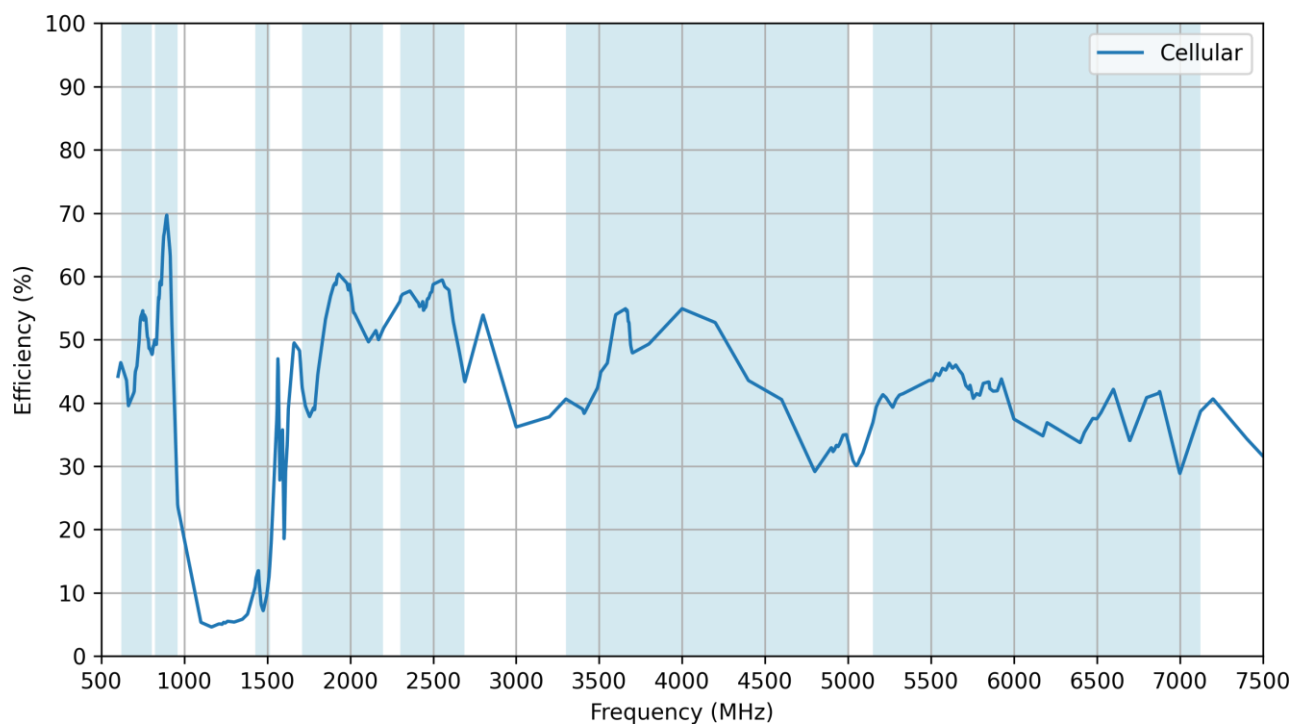
5.8 Cellular - Return Loss



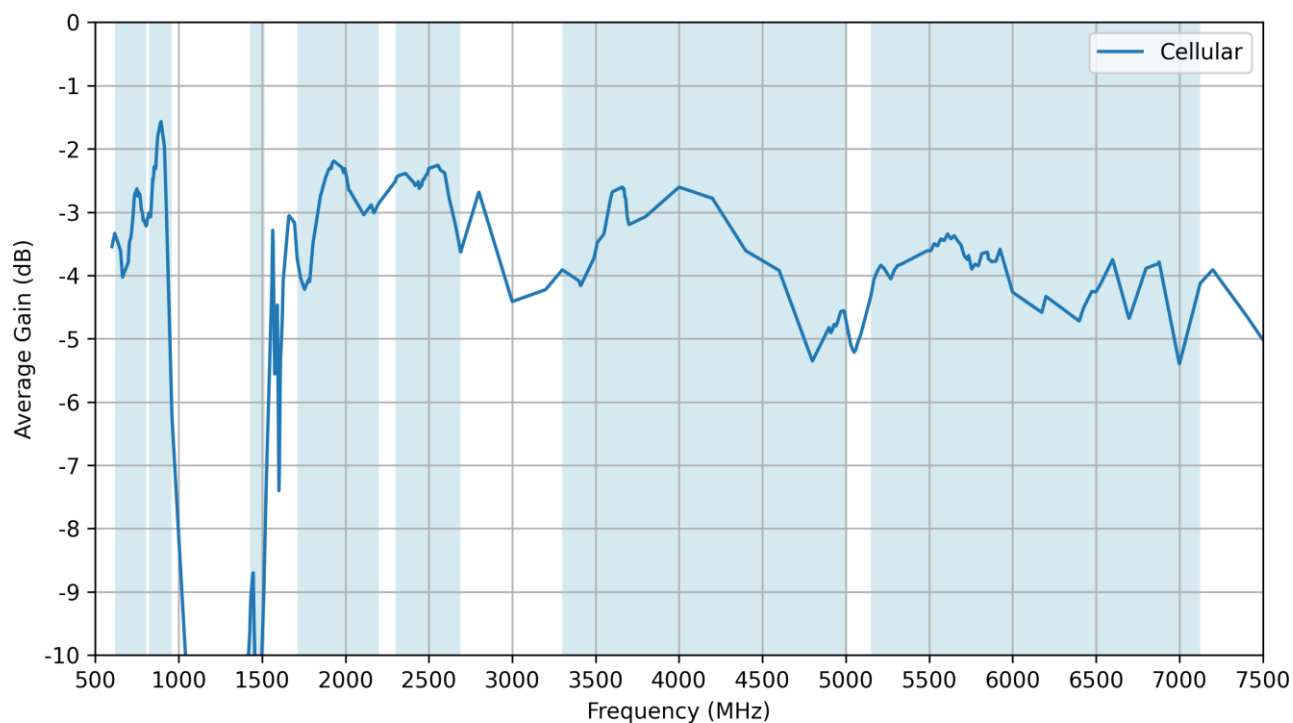
5.9 Cellular - VSWR



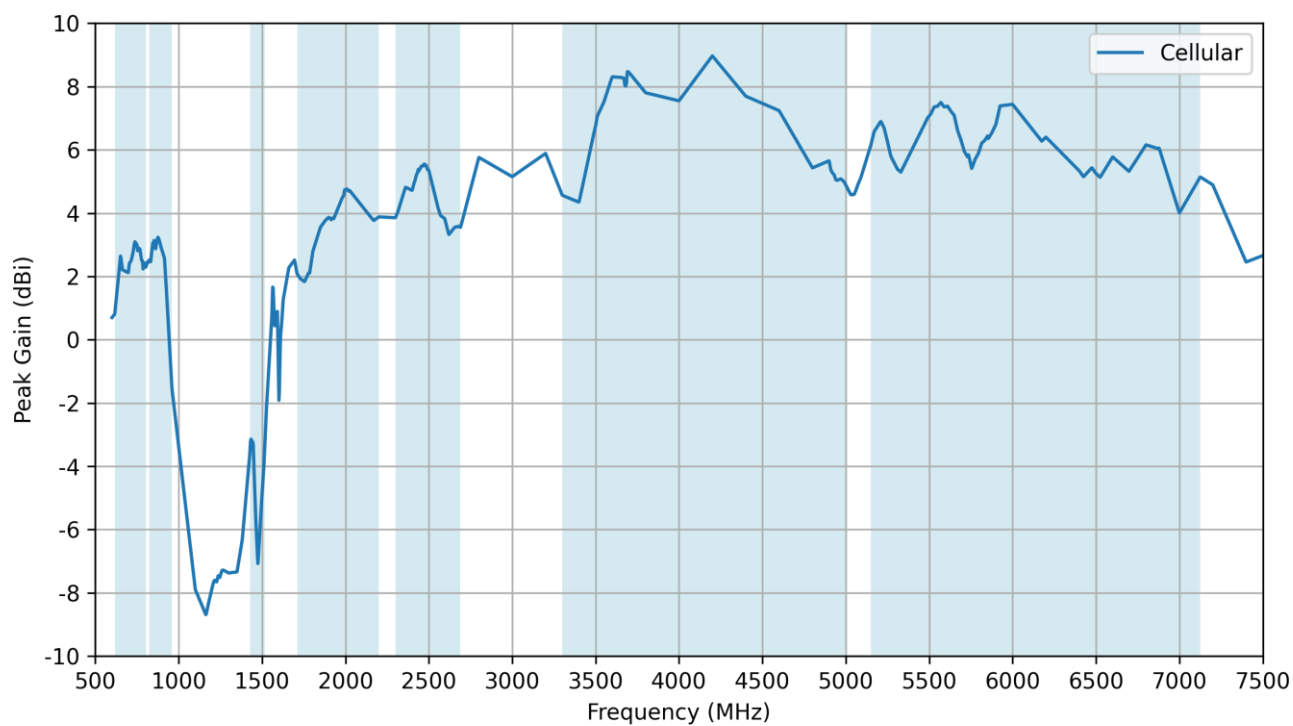
5.10 Cellular - Efficiency



5.11 Cellular - Average Gain

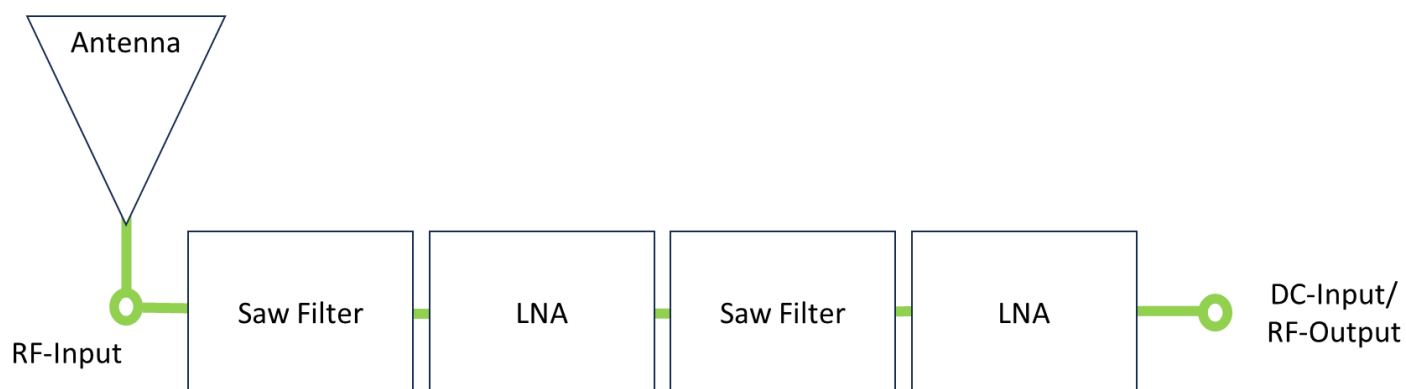


5.12 Cellular - Peak Gain

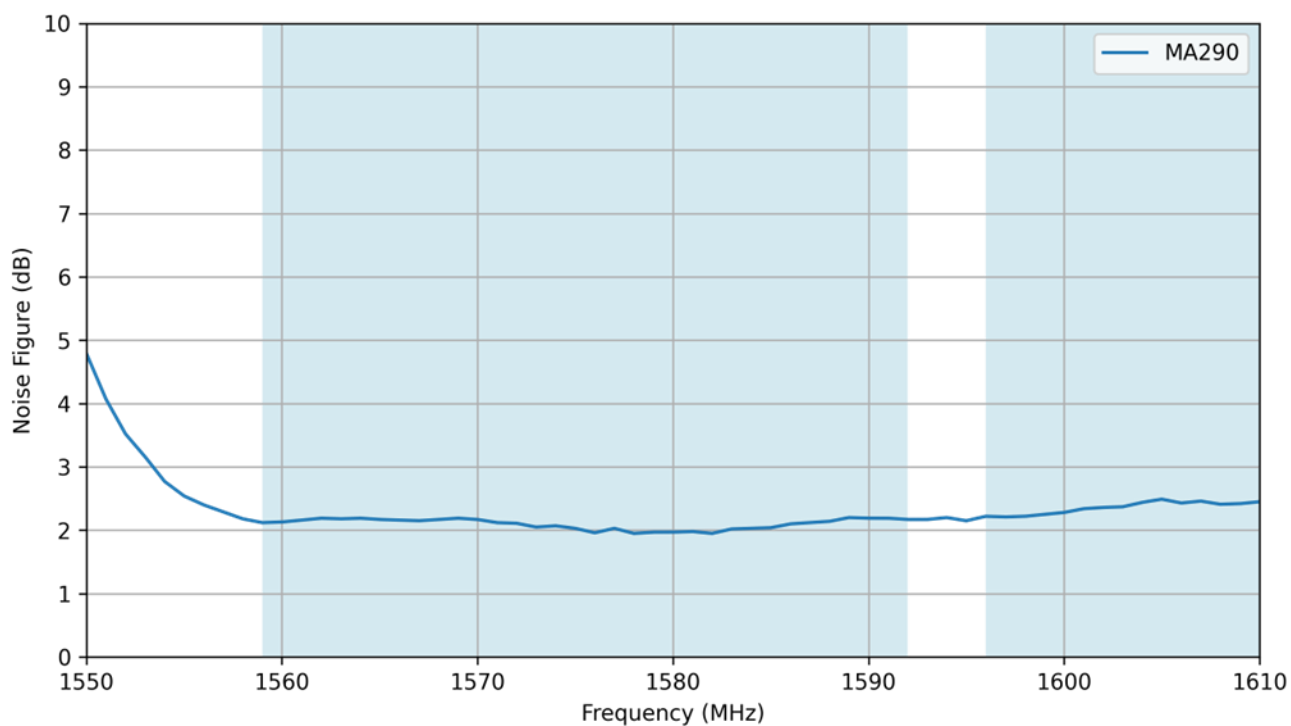


6. LNA Characteristics

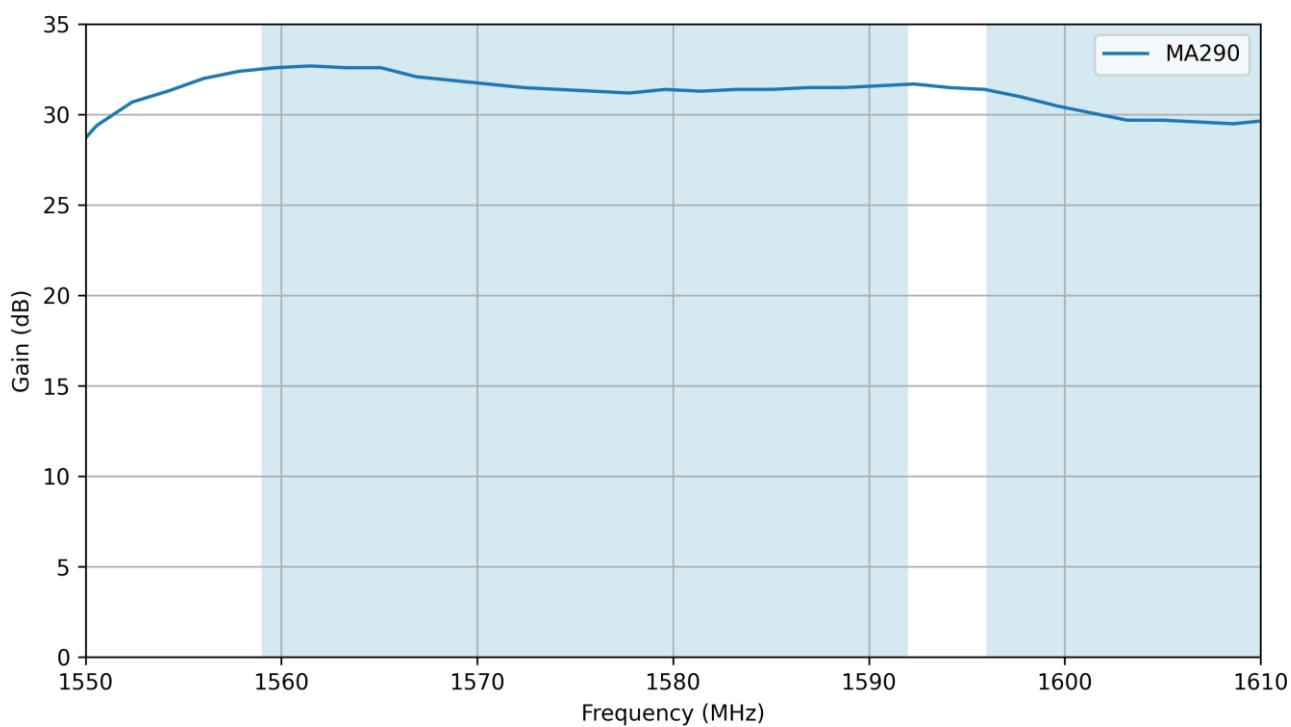
6.1 Block Diagram



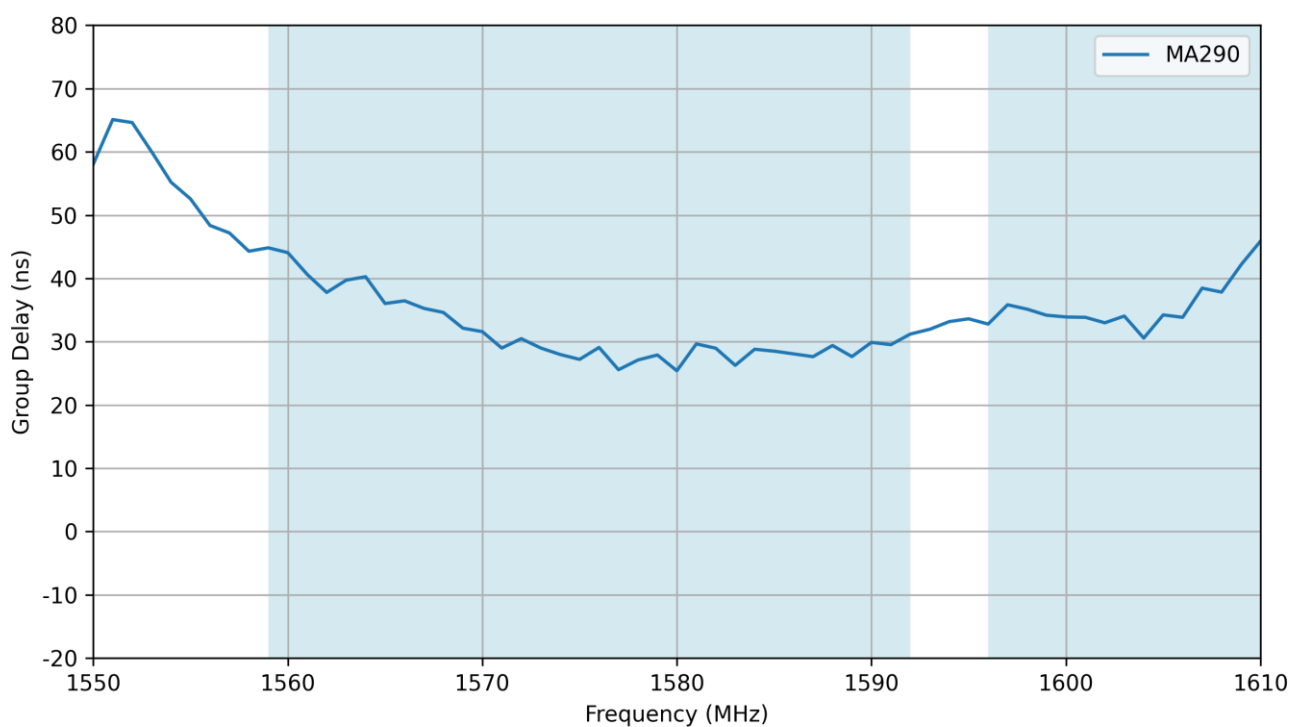
6.2 Noise Figure



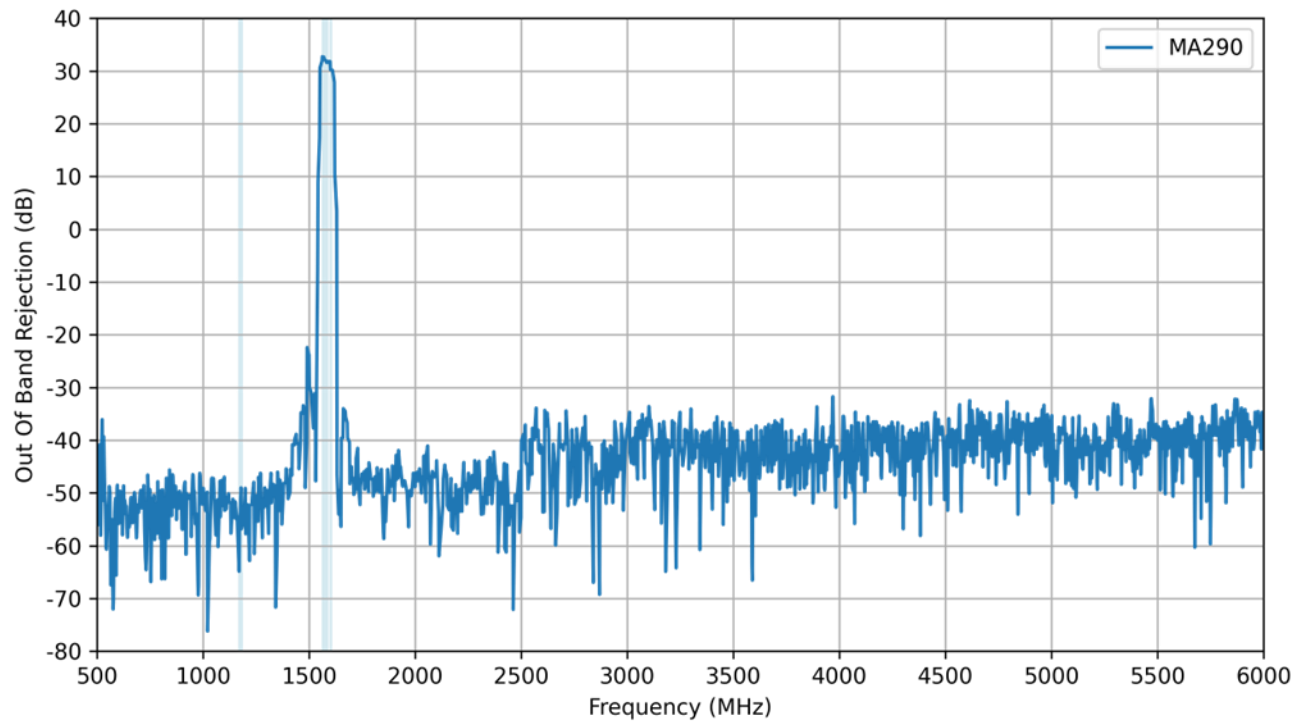
6.3 Gain



6.4 Group Delay

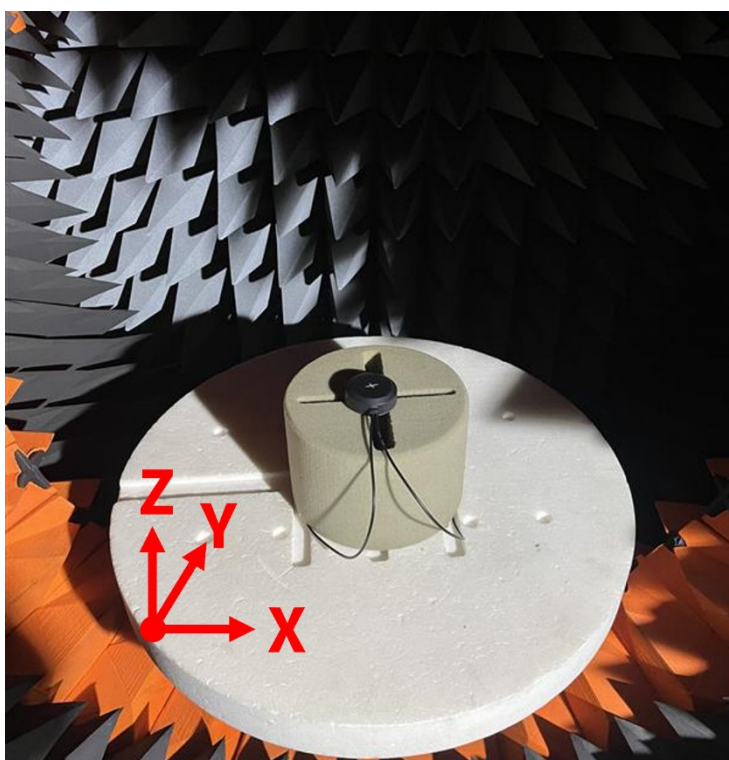
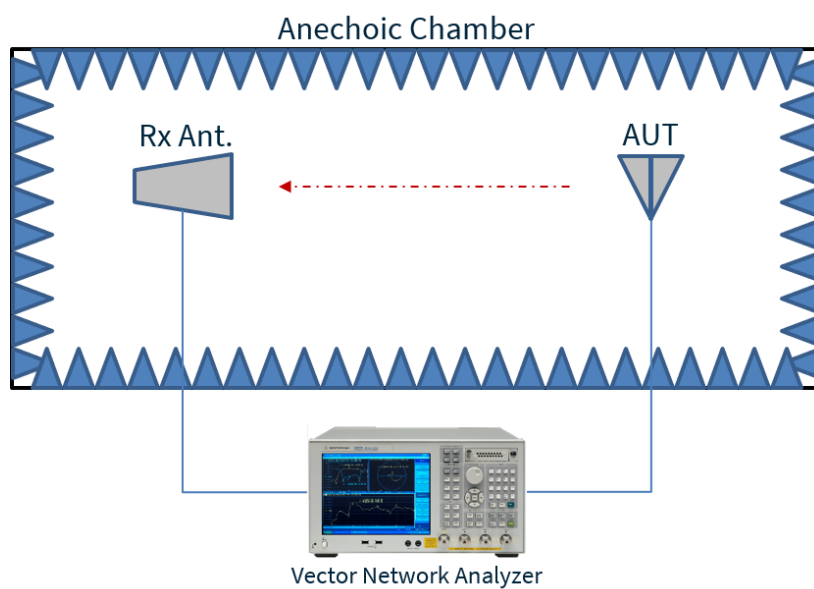


6.5 Out Of Band Attenuation



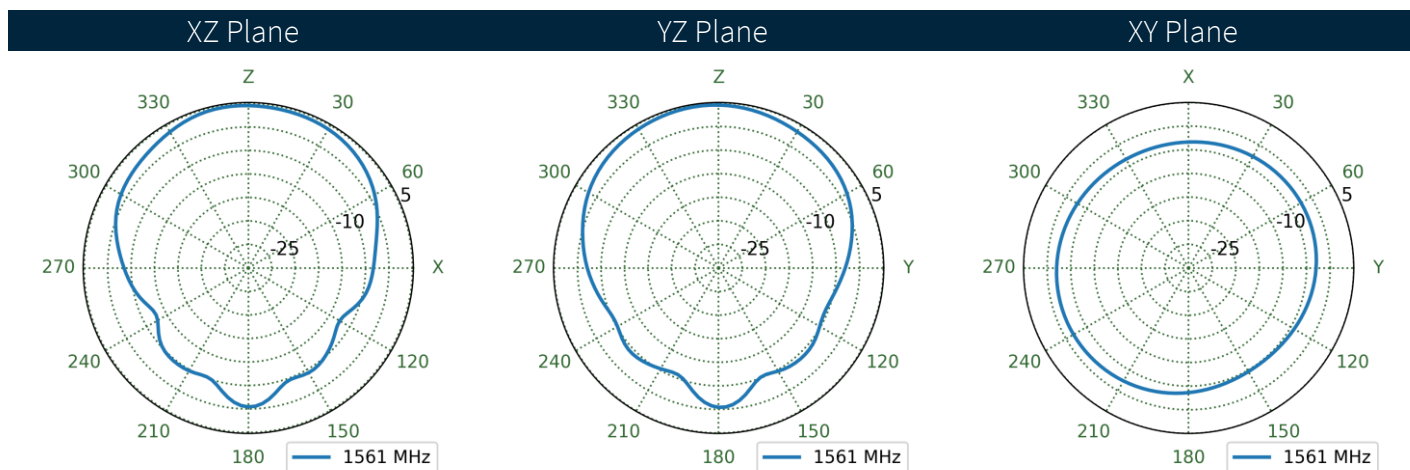
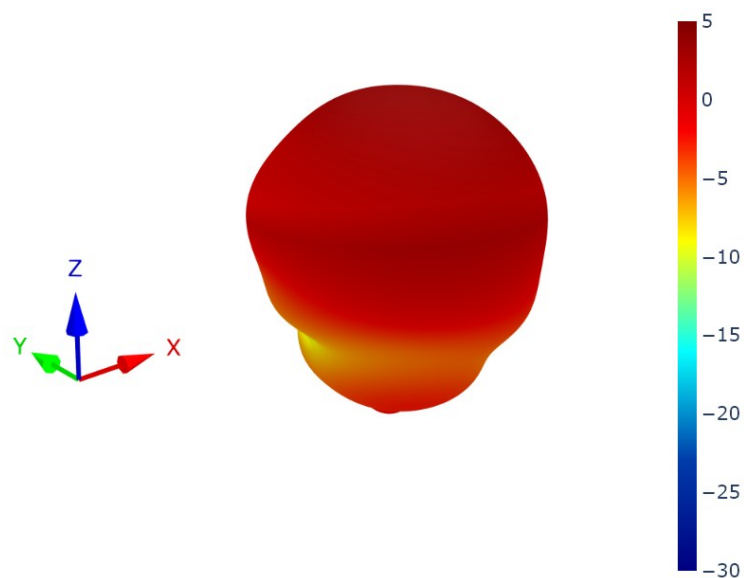
7. Radiation Patterns

7.1 Test Setup

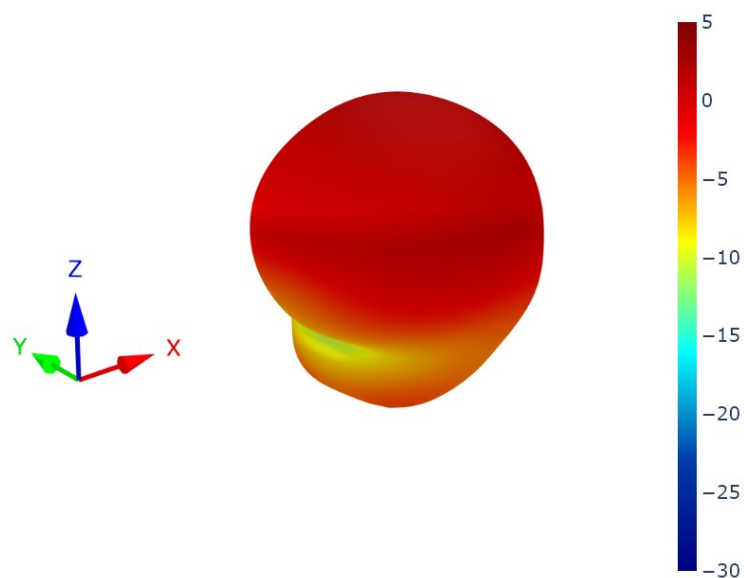


Chamber Test Set-up in Free Space

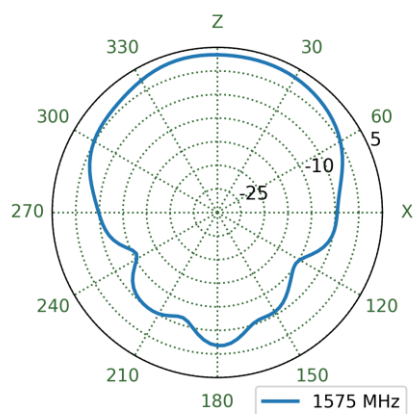
7.2 GNSS Patterns at 1561 MHz



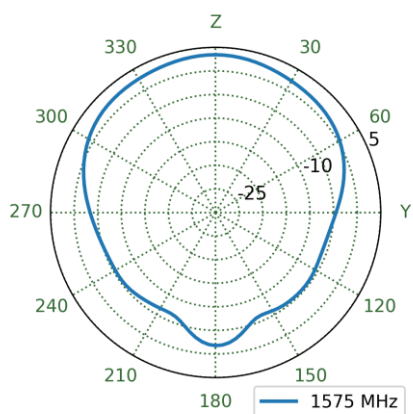
7.3 GNSS Patterns at 1575 MHz



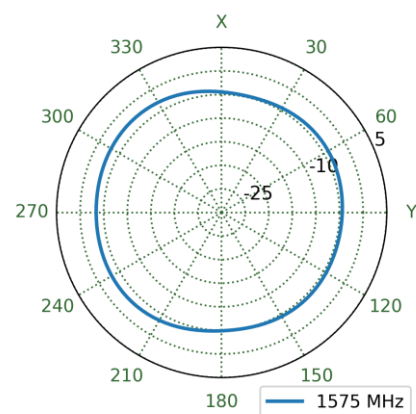
XZ Plane



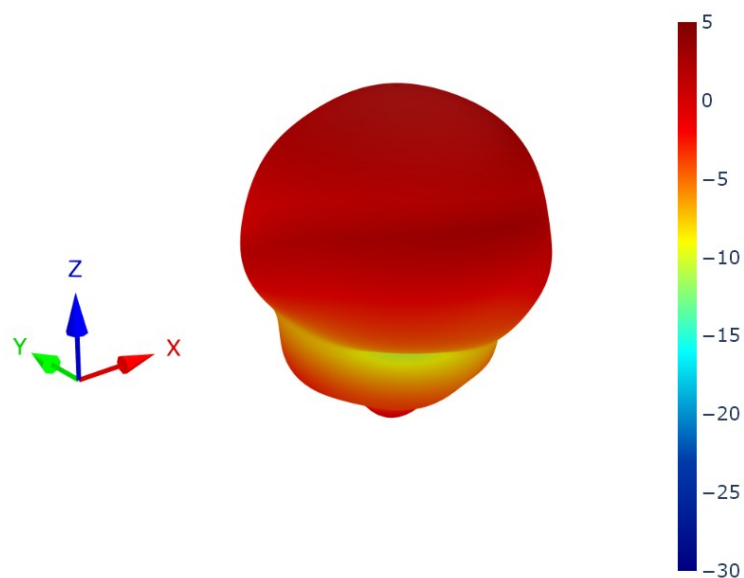
YZ Plane



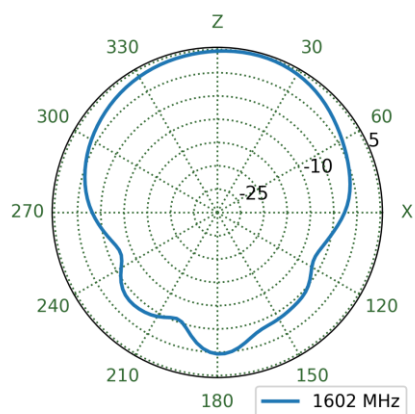
XY Plane



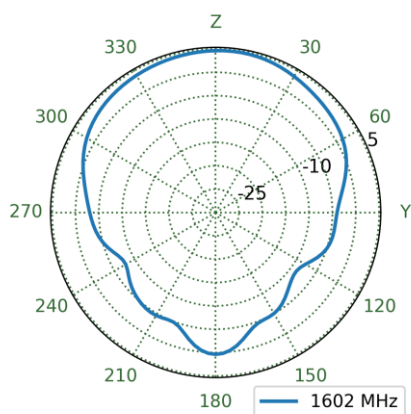
7.4 GNSS Patterns at 1602 MHz



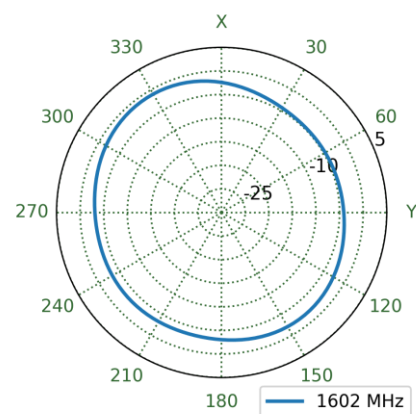
XZ Plane



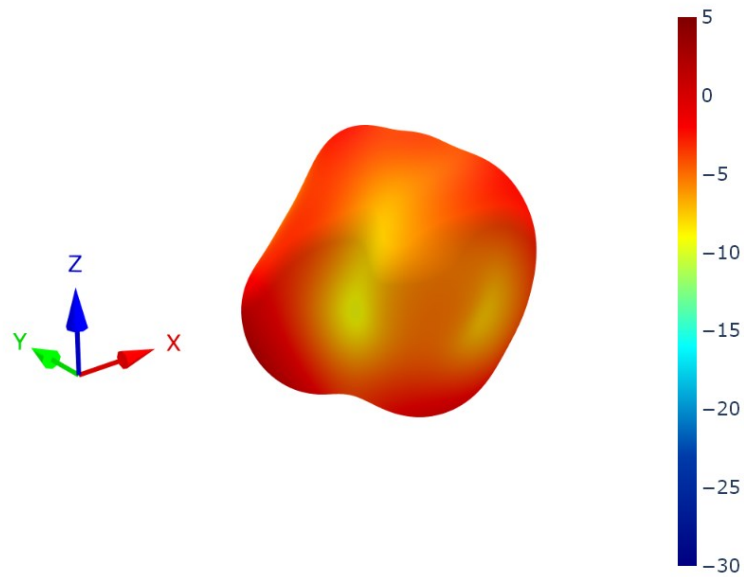
YZ Plane



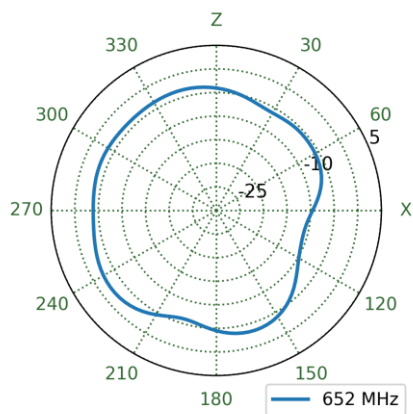
XY Plane



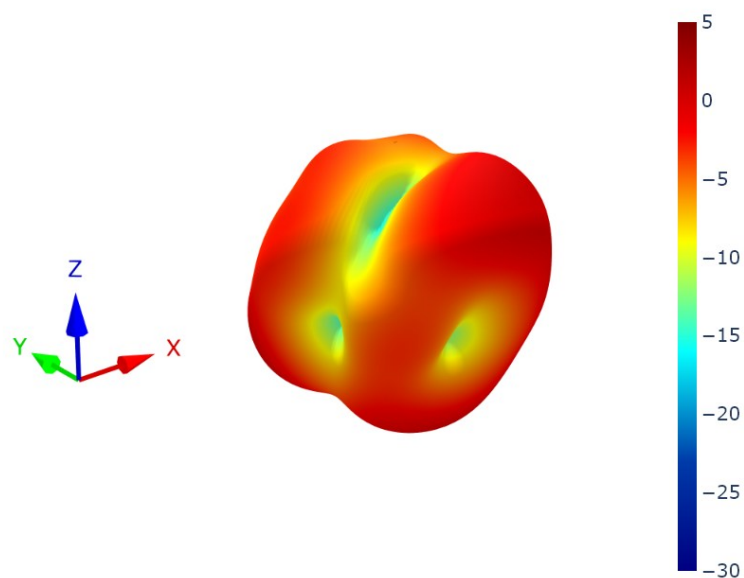
7.5 Cellular Patterns at 652 MHz



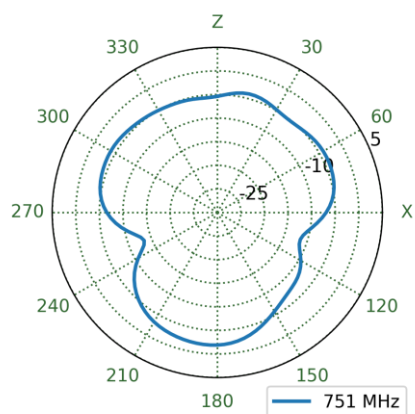
XZ Plane



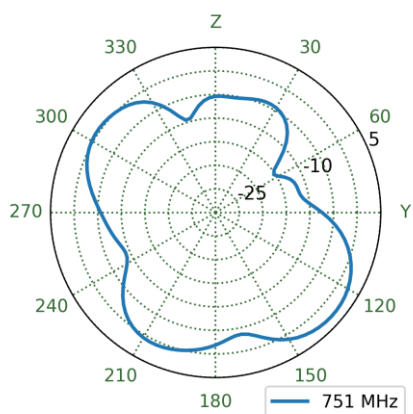
7.6 Cellular Patterns at 751 MHz



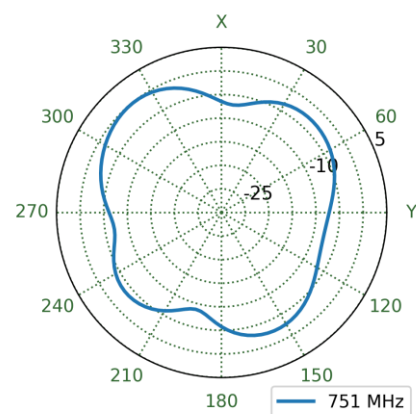
XZ Plane



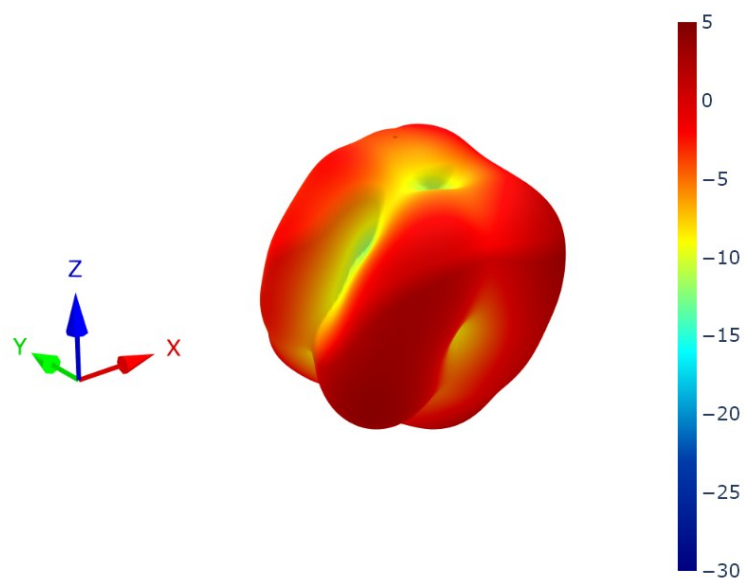
YZ Plane



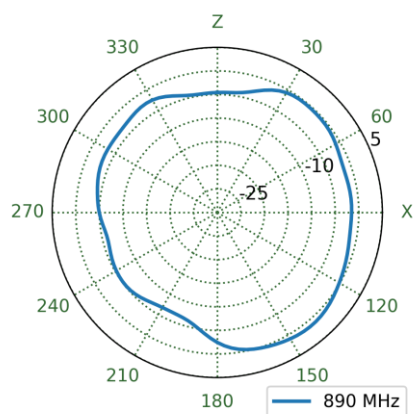
XY Plane



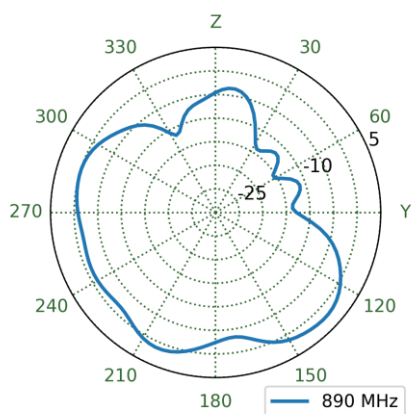
7.7 Cellular Patterns at 890 MHz



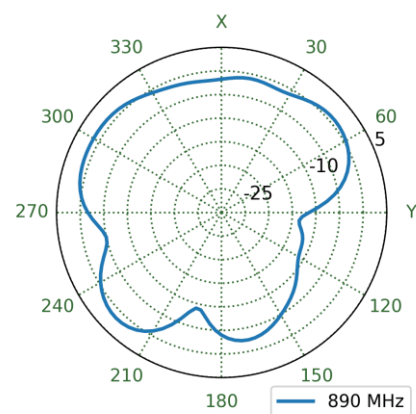
XZ Plane



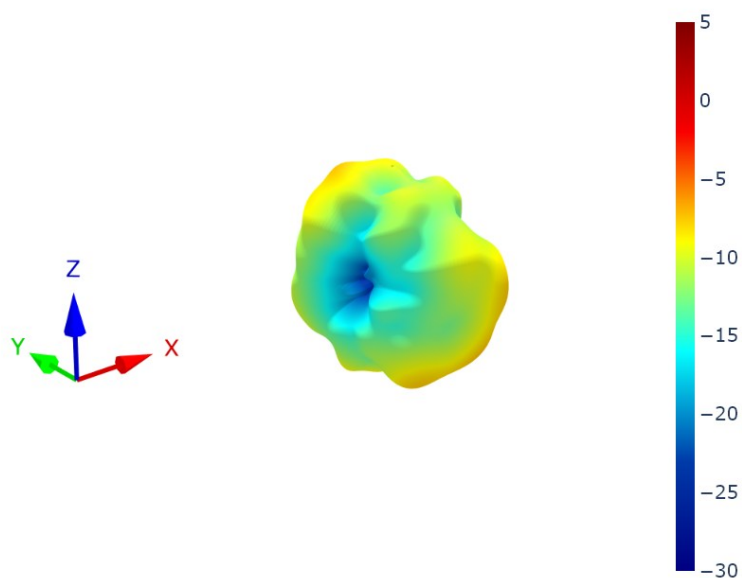
YZ Plane



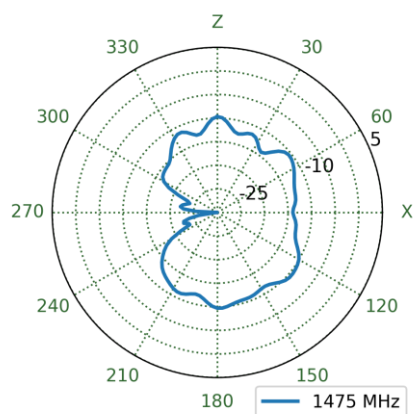
XY Plane



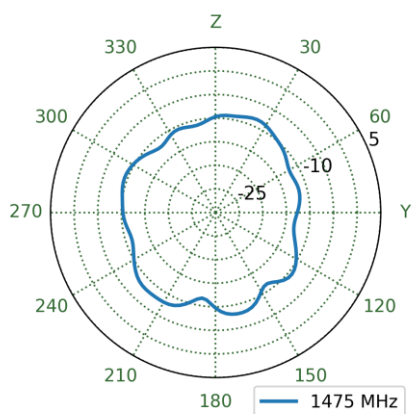
7.8 Cellular Patterns at 1475 MHz



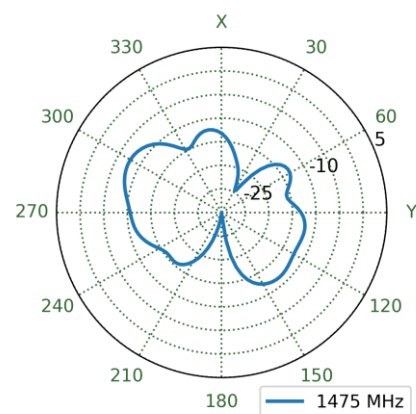
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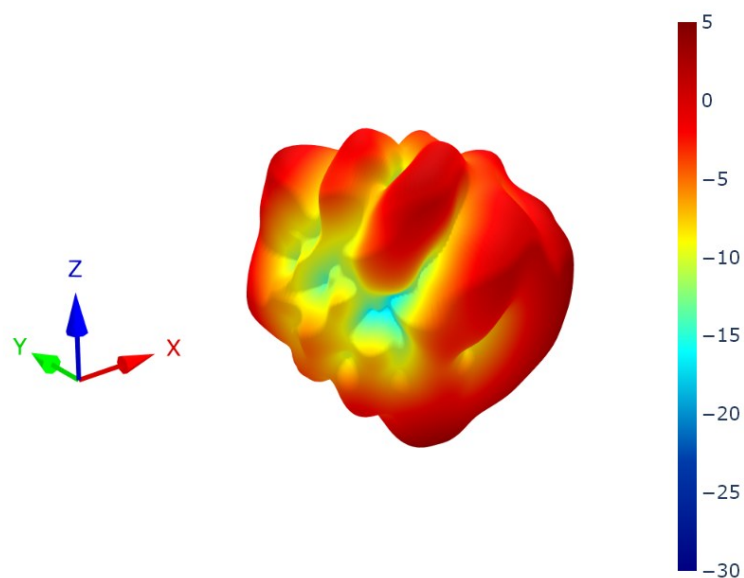
YZ Plane



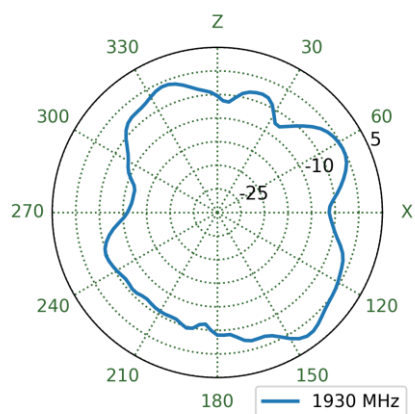
XY Plane



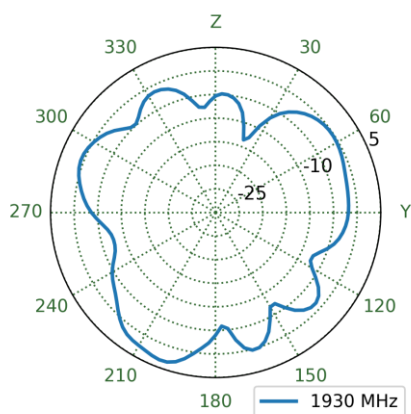
7.9 Cellular Patterns at 1930 MHz



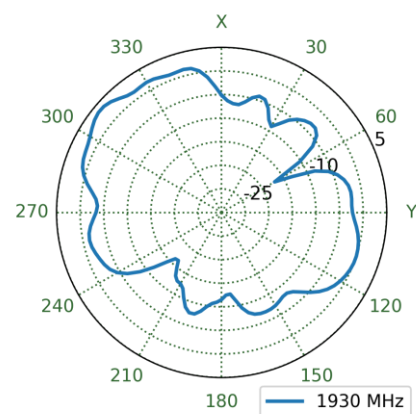
XZ Plane



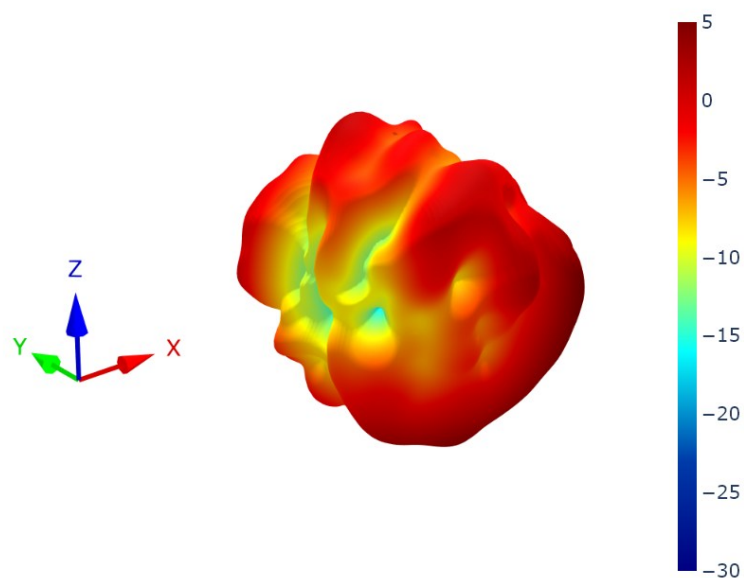
YZ Plane



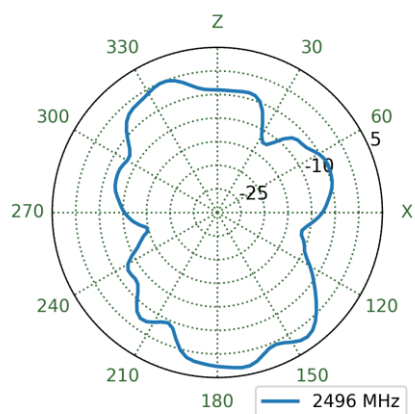
XY Plane



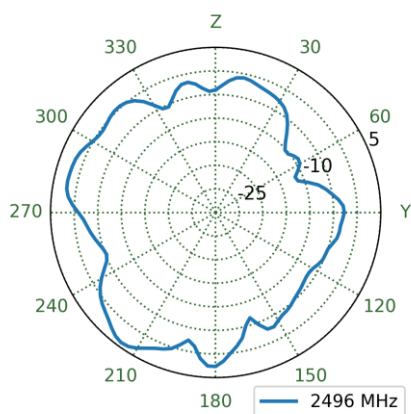
7.10 Cellular Patterns at 2496 MHz



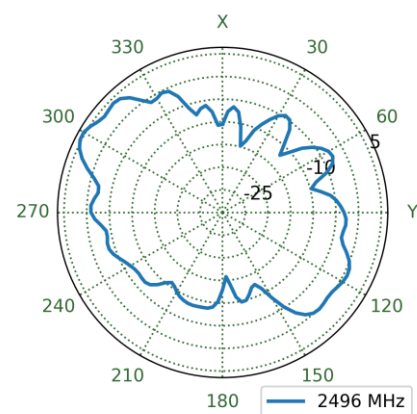
XZ Plane



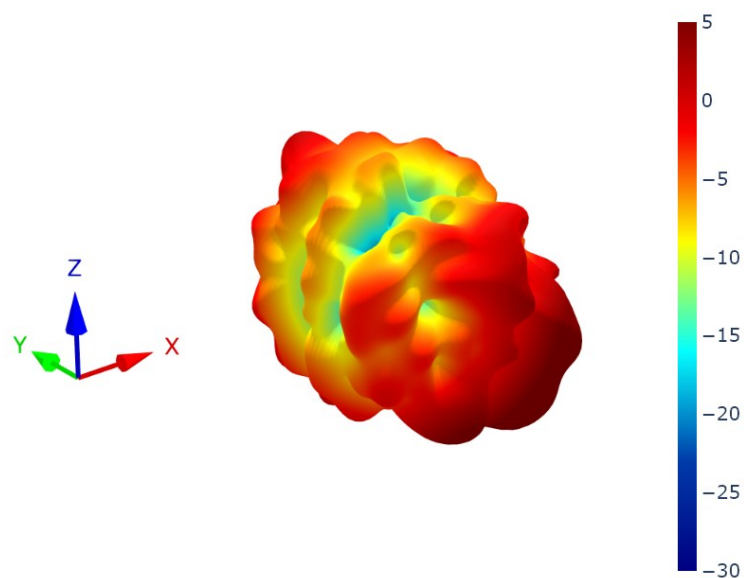
YZ Plane



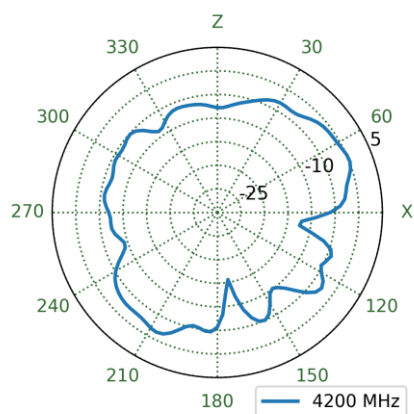
XY Plane



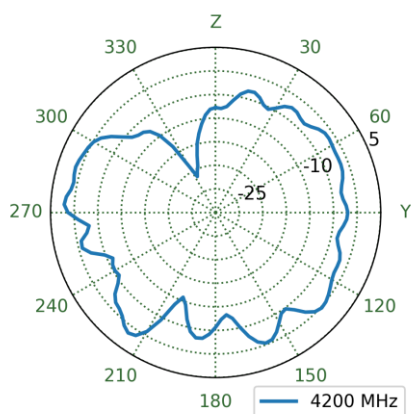
7.11 Cellular Patterns at 4200 MHz



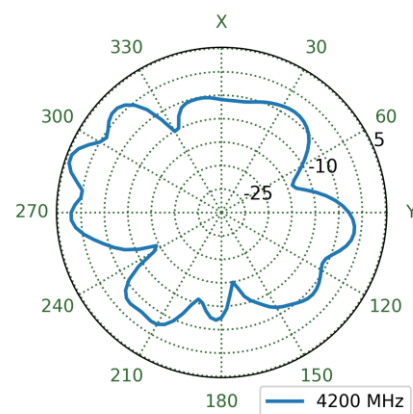
XZ Plane



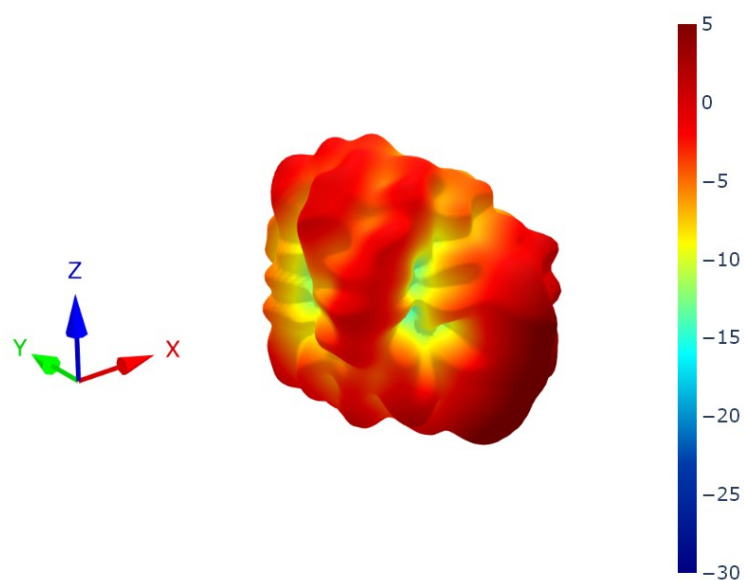
YZ Plane



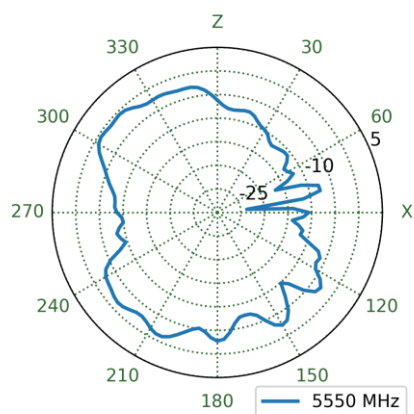
XY Plane



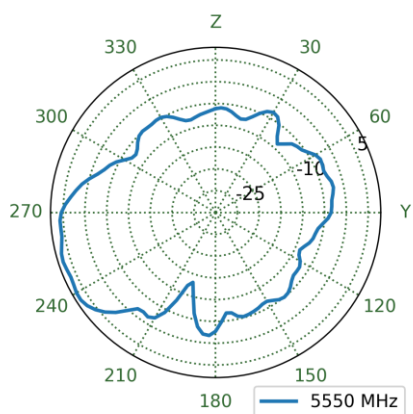
7.12 Cellular Patterns at 5550 MHz



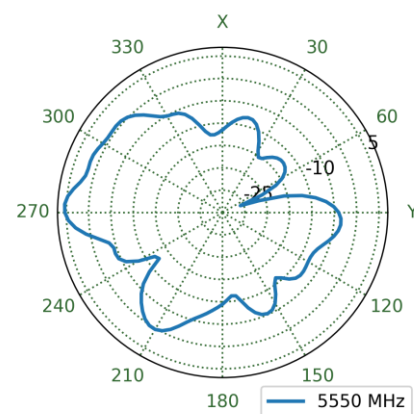
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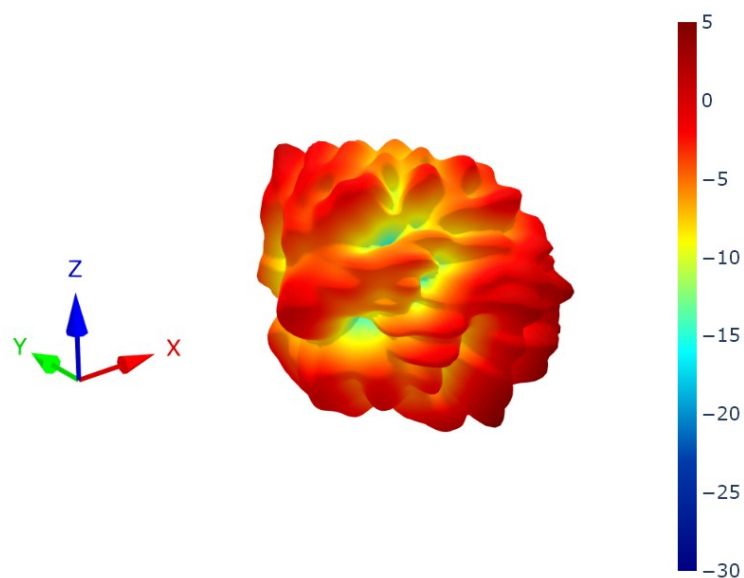
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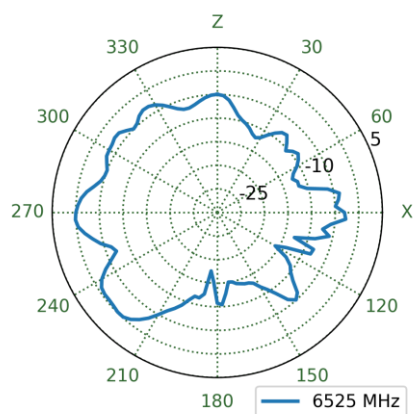
XY Plane



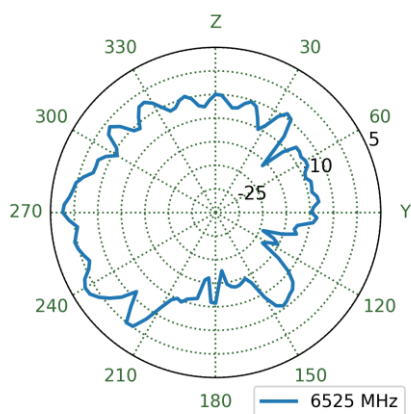
7.13 Cellular Patterns at 6525 MHz



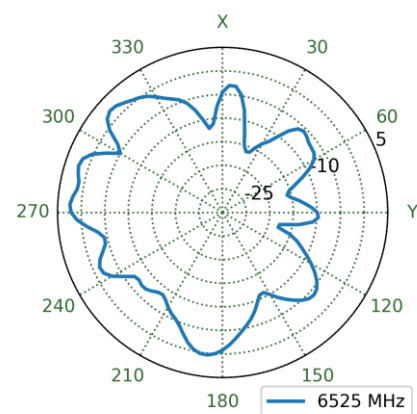
XZ Plane



YZ Plane



XY Plane



Changelog for the datasheet

SPE-26-8-043 – MA290.A.001_MA290.W.001

Revision: A (Original First Release)	
Date:	2026-03-02
Notes:	Initial Release
Author:	Gary West

Previous Revisions



www.taoglas.com

