TAOGLAS

Datasheet

Part No:
TG.13.5111

Description

5G Cellular Sub-1GHz and BLE Terminal Antenna with Fixed SMA(M) Plug Connector Ø10.7 x 135.9mm

Features:

Terminal Mount Antenna
Coverage: 5G Cellular Sub-1GHz and BLE
Dims: Ø10.7 x 135.9 mm
Connector: Fixed SMA(M) Plug
RoHS & Reach Compliant

1. Introduction

The Taoglas TG.13.5111 is a high-performance terminal mount antenna optimized for Sub-1GHz wireless applications, covering 617-960MHz to support a wide range of technologies including ISM, NB-IoT, LTE Cat-M1, LoRa, Wi-Fi HaLow, and private 900MHz cellular networks. In addition, it provides support for 2.4GHz Bluetooth® Low Energy (BLE), enabling applications where Wi-Fi HaLow and Bluetooth coexist in industrial and IoT deployments.

With a compact form factor of Ø10.7 x 135.9mm and a fixed SMA(M) plug connector, the TG.13.5111 is well-suited for space-constrained designs that demand robust, reliable connectivity across diverse wireless standards.

Extensively tested on multiple ground plane sizes as well as in free space (see performance table), the TG.13.5111 demonstrates excellent efficiency, gain, and omnidirectional radiation patterns, ensuring consistent coverage across deployment environments. Its linear polarization and stable impedance of 50Ω further enhance integration flexibility.

Designed for long-term reliability, the antenna is IP65-rated for water resistance and fully RoHS and REACH compliant, making it a durable solution for challenging environments and industrial-grade IoT systems.

Typical Applications Include:

- Industrial IoT Devices
- Smart Cities Infrastructure
- Consumer IoT Products
- Precision Agriculture
- Point-of-Sale (POS) Terminals
- Emergency Services & Public Safety Networks

For more information or integration support, please contact your local Taoglas support team.

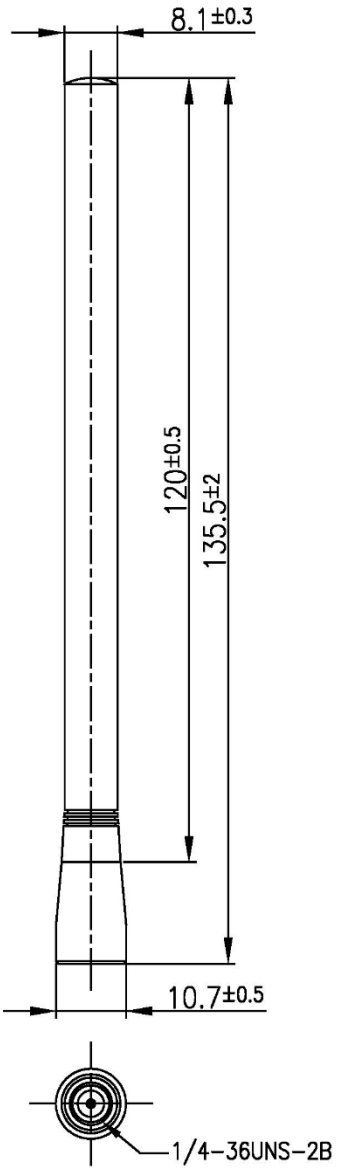
2. Specification

Electrical									
Band	Frequency (MHz)	Measurement	Efficiency (%)	Average Gain (dB)	Peak Gain (dBi)	Impedance	Polarization	Radiation Pattern	Max. input power
5GNR/4G Band71	617-698	15x9cm Ground Plane	54.5	-2.64	1.81	50 Ω	Linear	Omni directional	10W
		9x15cm Ground Plane	58.0	-2.36	1.98				
		Free Space	23.5	-6.28	-0.47				
5GNR/4G Band 5,12,13,14,17,71	698-894	15x9cm Ground Plane	74.9	-1.25	4.23				
		9x15cm Ground Plane	70.9	-1.50	3.32				
		Free Space	40.4	-3.93	2.37				
5GNR/4G Band 8	880-960	15x9cm Ground Plane	79.1	-1.02	3.60				
		9x15cm Ground Plane	70.4	-1.52	2.89				
		Free Space	40.8	-3.89	2.15				
5GNR/4G Band 30,40,41	2300-2400	15x9cm Ground Plane	53.3	-2.73	5.20				
		9x15cm Ground Plane	53.2	-2.74	4.77				
		Free Space	34.1	-4.67	2.62				
5GNR/4G Band 7,38,41	2484-2690	15x9cm Ground Plane	47.5	-3.23	4.70				
		9x15cm Ground Plane	44.1	-3.56	4.60				
		Free Space	31.4	-5.04	2.31				
5GNR/4G Band 22,42,43,48,77,78,79	3300-4200	15x9cm Ground Plane	39.1	-4.08	4.97				
		9x15cm Ground Plane	41.2	-3.85	4.06				
		Free Space	29.6	-5.29	1.93				

Mechanical	
Dimensions	Ø10.7 x 135.5mm
Weight	14.3g
Material	Top: Polyurethane Base: ABS
Connector	SMA Plug

Environmental	
Waterproof Rating	IP 65
Operation Temperature	-40˚C to +85˚C
Storage Temperature	-40˚C to +85˚C

3. Mechanical Drawing



4. Packaging

☑ 1 PCS / Small PE Bag

☑ Small PE Bag (mm): 210x30 (Ref)

☑ Weight (g): 14.3 ±3%

☑ 25 PCS / PE Bag

☑ PE Bag(mm): 300x210 (Ref)

☑ Weight (g): 367.7 ±3%

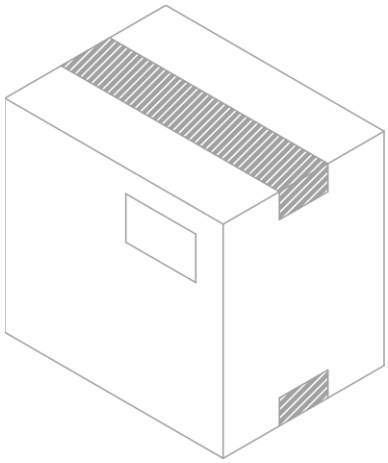
☑ SPQ Label

☑ 250 PCS / Box

☑ Box(mm): 290x210x120

☑ Weight (kg): 3.98 ±3%

☑ QTY Label



☑ 500 PCS / Carton

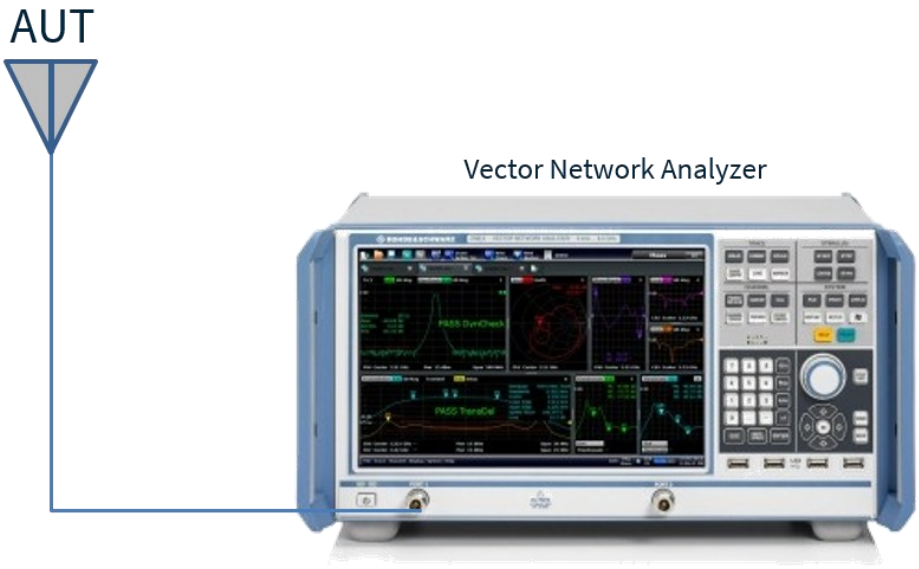
☑ Carton(mm): 312x230x290

☑ Weight (kg): 8.47 ±3%

☑ Carton Label

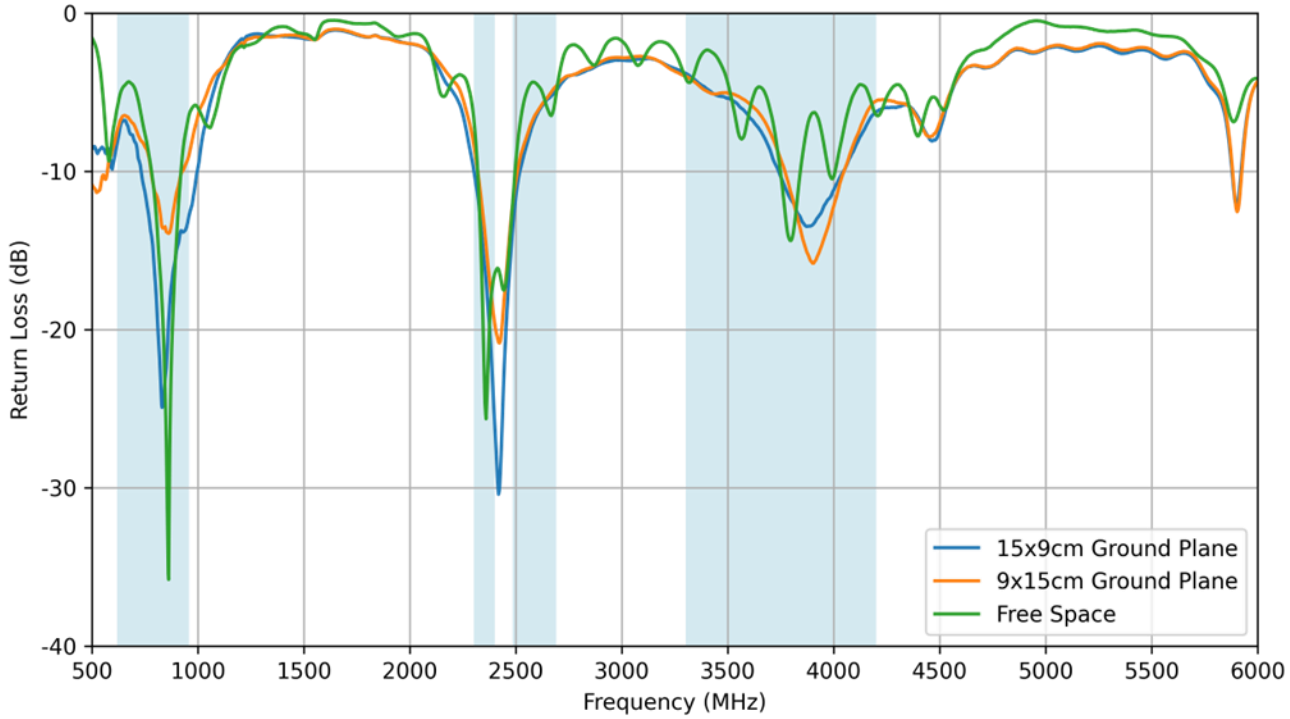
5. Antenna Characteristics

5.1 Test Setup



Free Space | 9x15cm Ground Plane | 15x9cm Ground Plane

5.2 Return Loss



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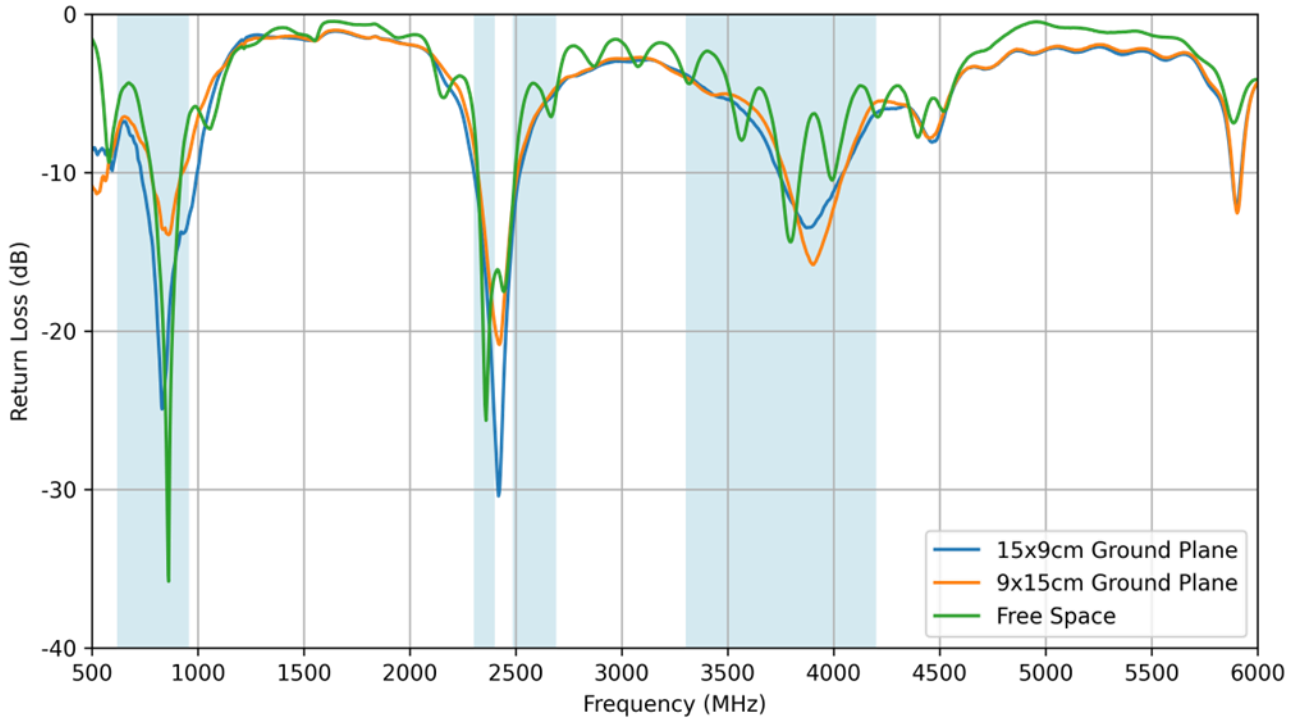
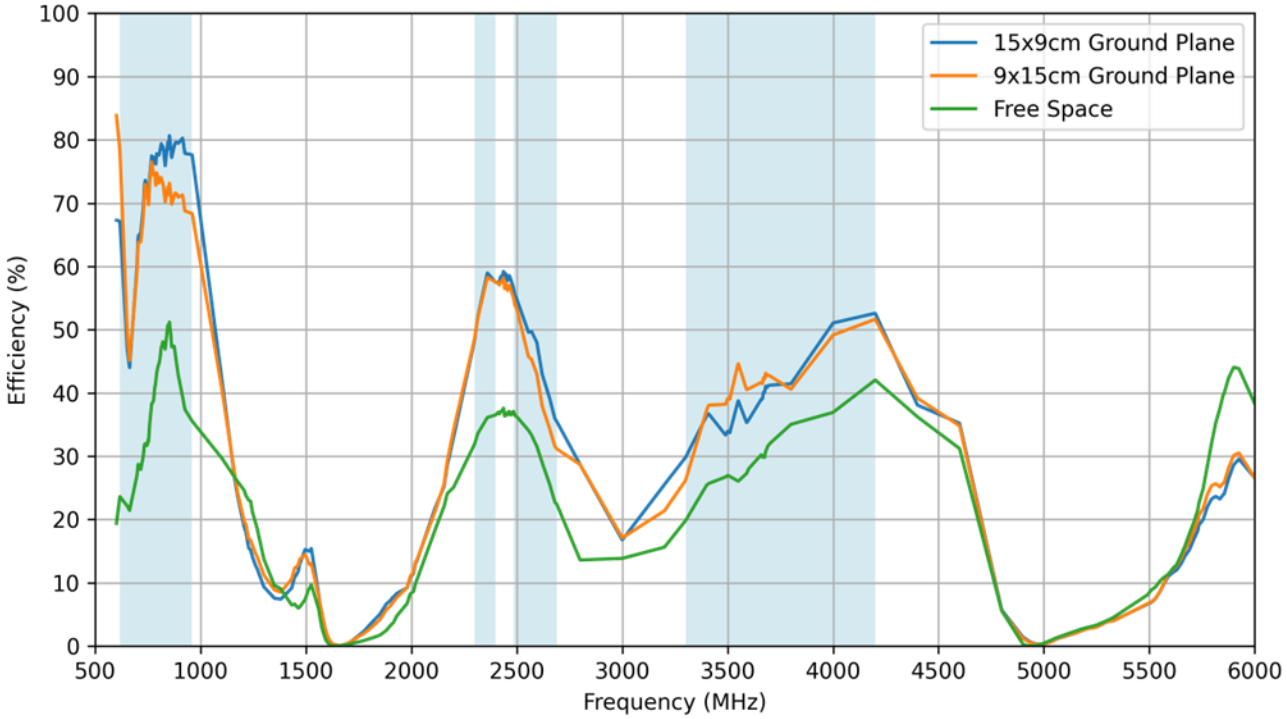
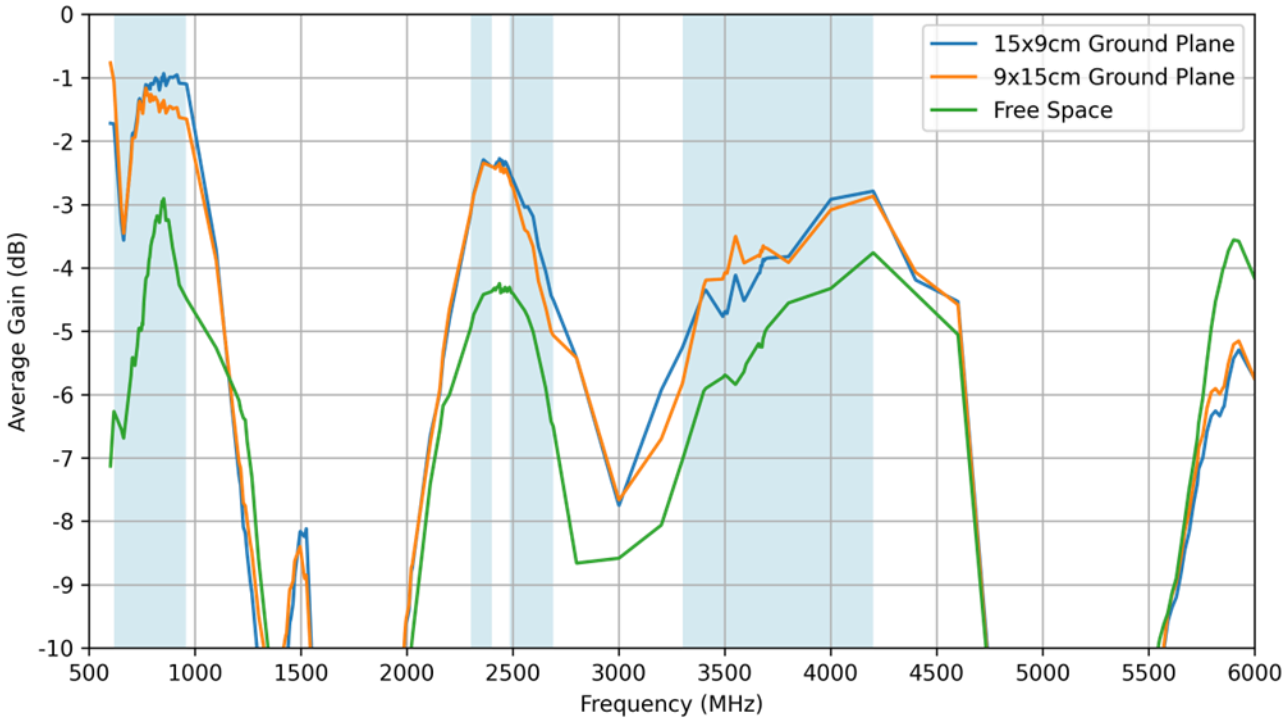


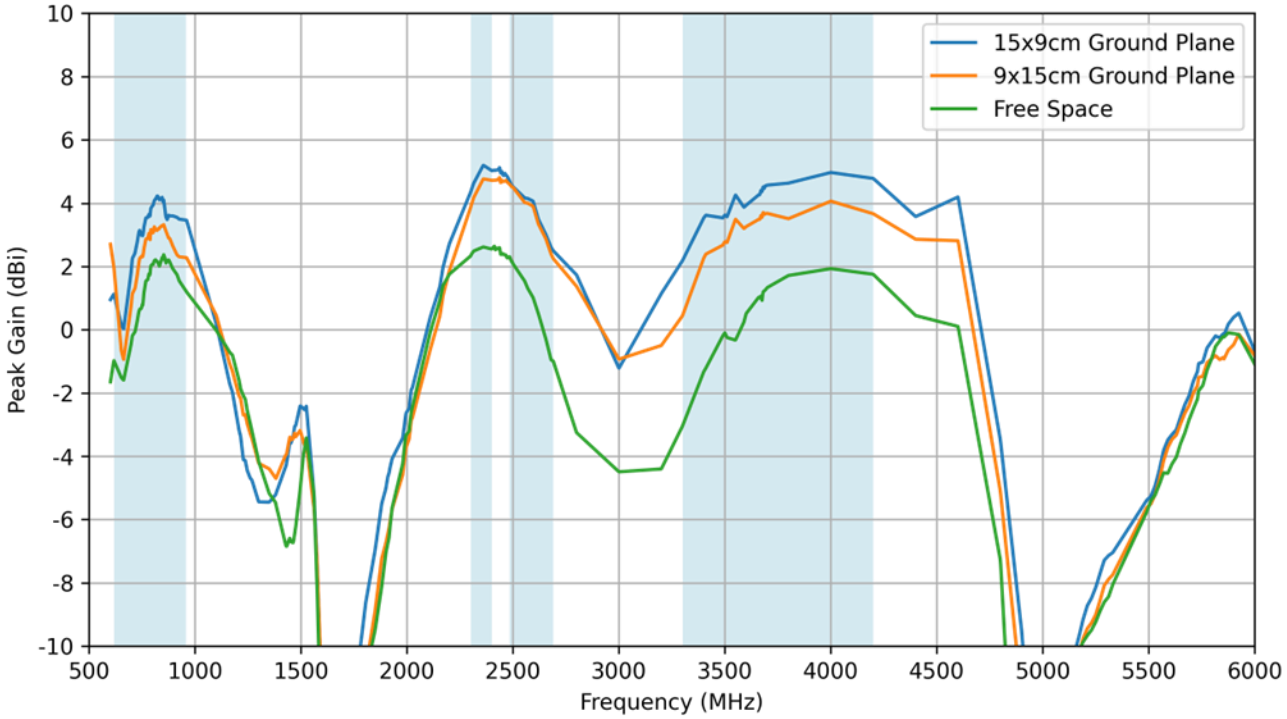
5.4 Efficiency



5.5 Average Gain

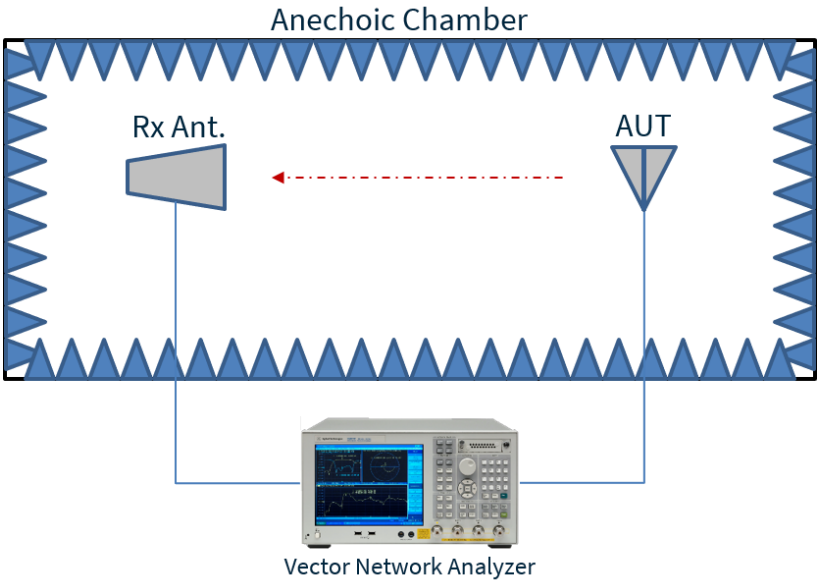


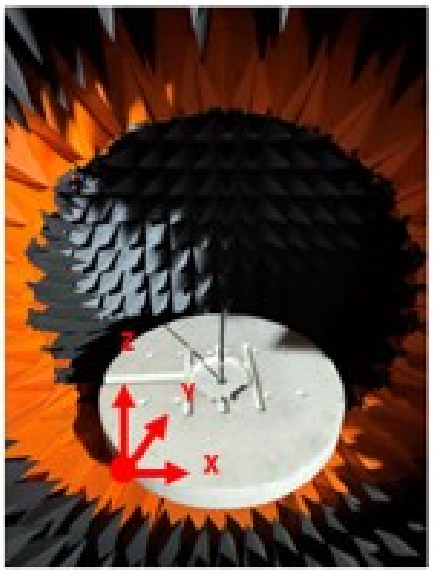
5.6 Peak Gain


15x9cm Ground Plane
9x15cm Ground Plane
Free Space
Peak Gain (dBi)
Frequency (MHz)
10
8
6
4
2
0
-2
-4
-6
-8
-10
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000

6. Radiation Patterns

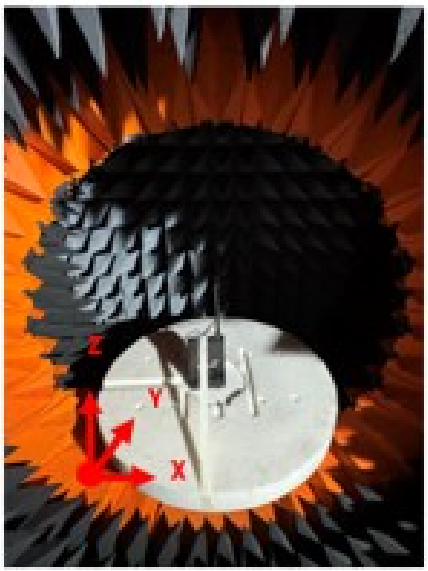
6.1 Test Setup





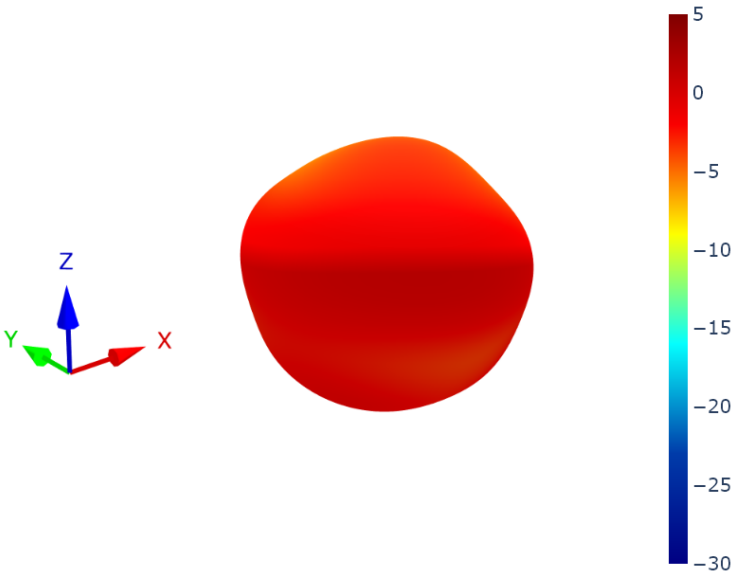
Free Space

9x15cm Ground Plane

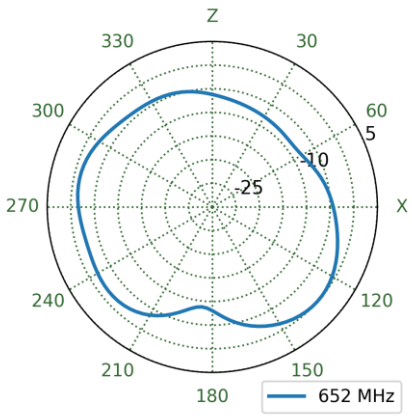


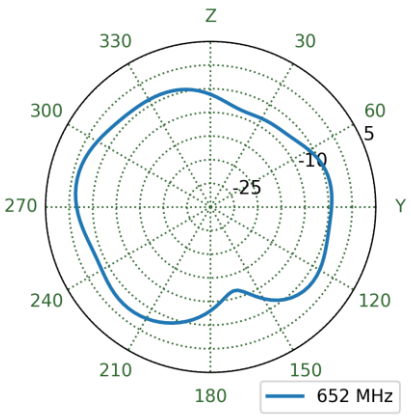
15x9cm Ground Plane

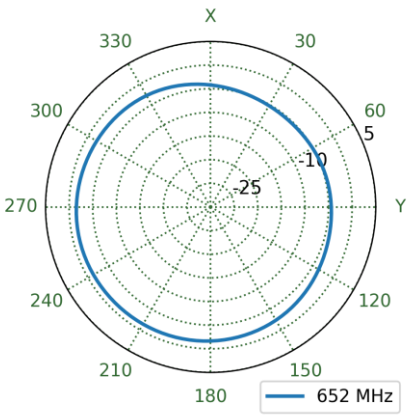
6.2 15x9cm Ground Plane Patterns at 650 MHz



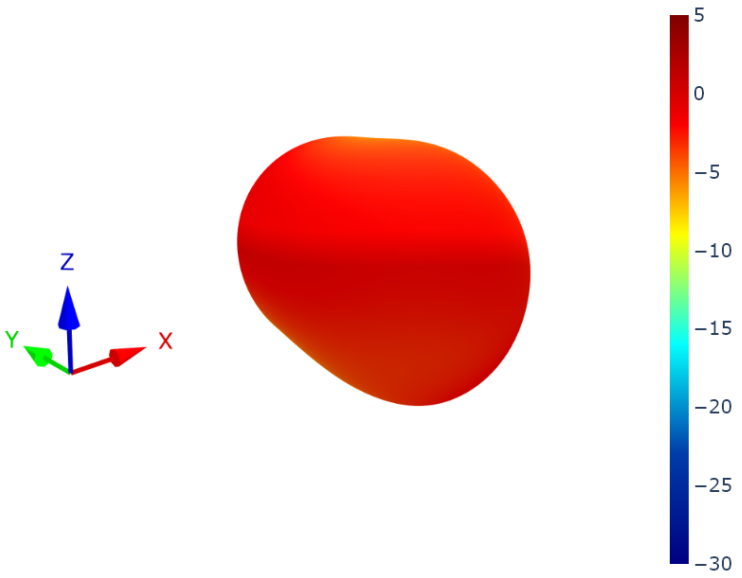
XZ Plane	YZ Plane	XY Plane

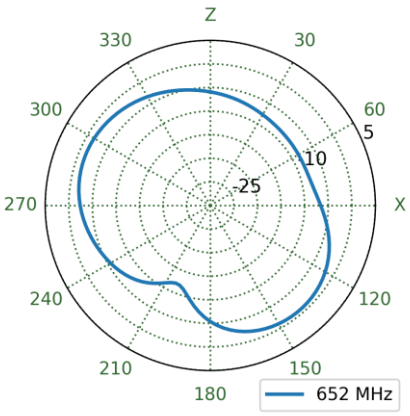
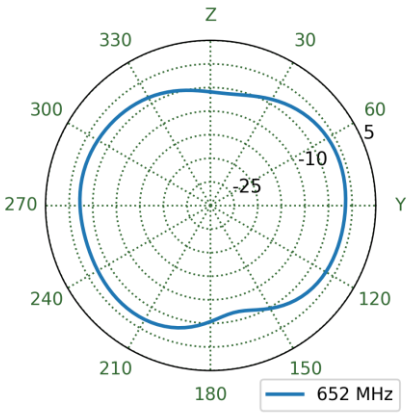
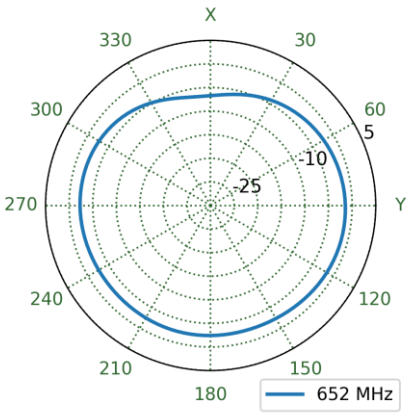




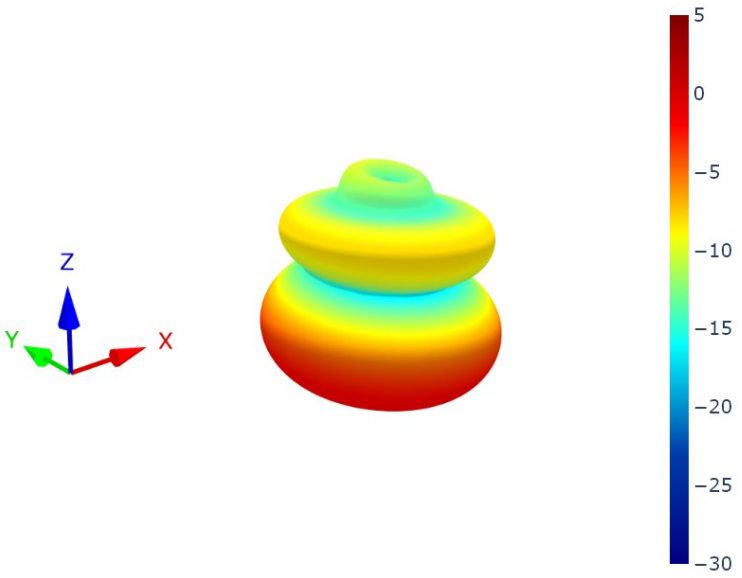


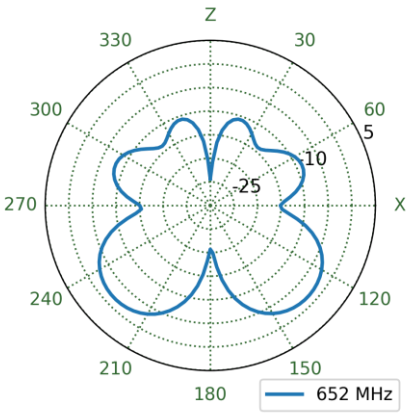
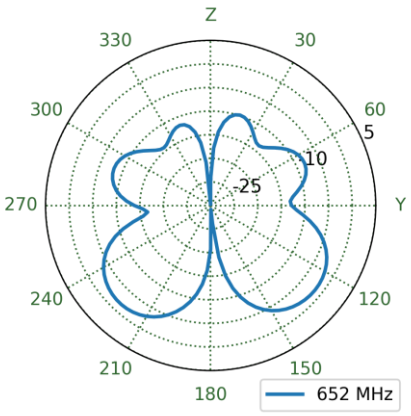
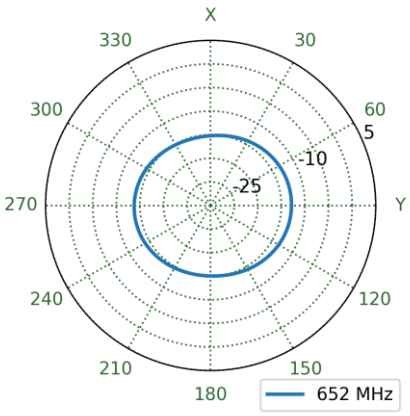
6.3 9x15cm Ground Plane Patterns at 650 MHz



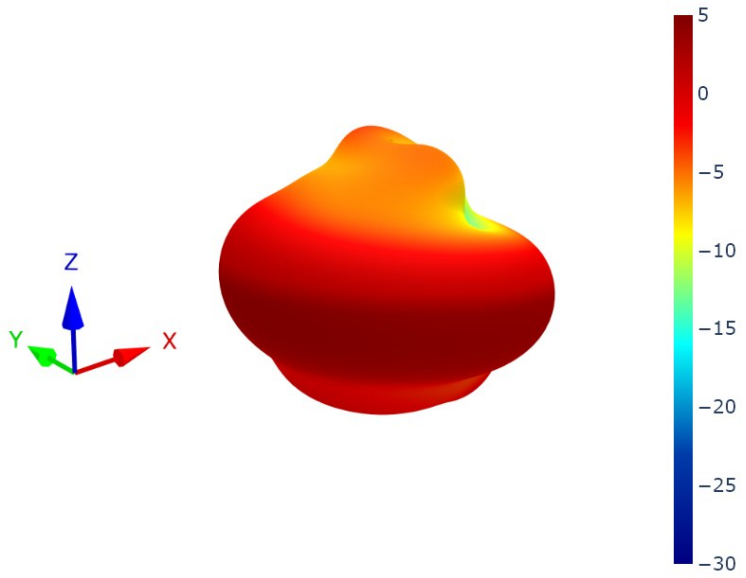
XZ Plane	YZ Plane	XY Plane
		

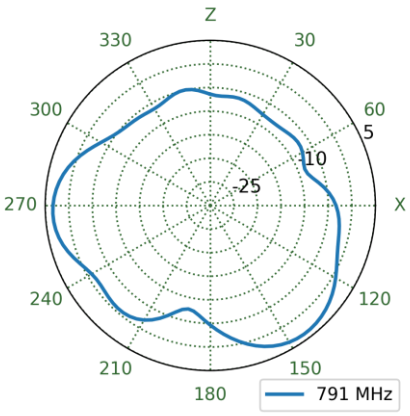
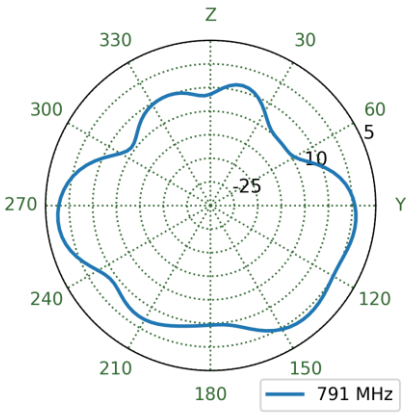
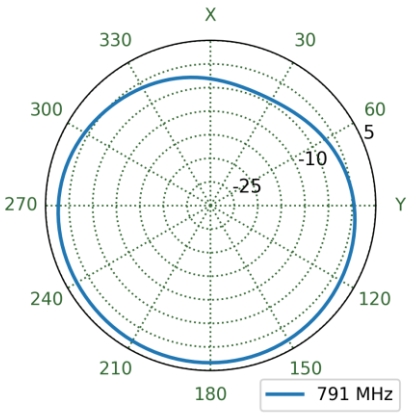
6.4 Free Space Patterns at 650 MHz



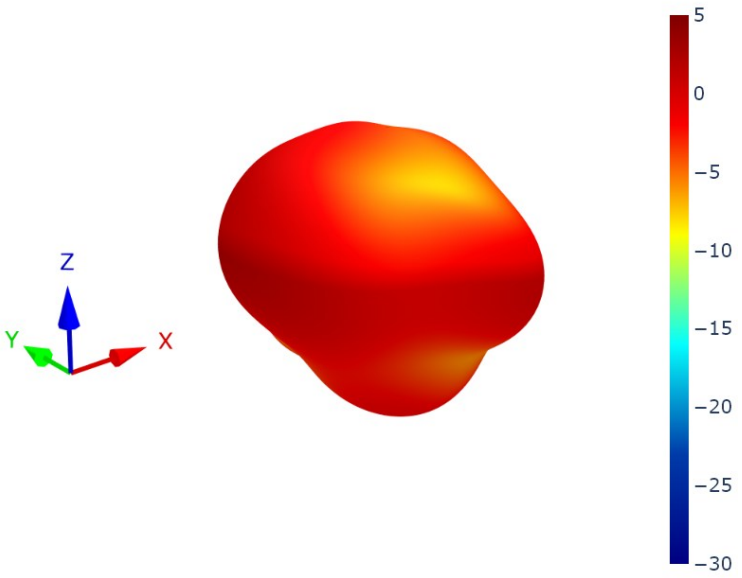
XZ Plane	YZ Plane	XY Plane
		

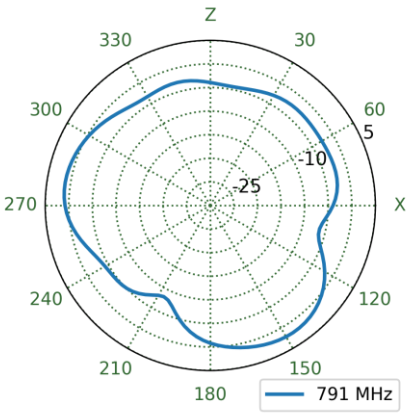
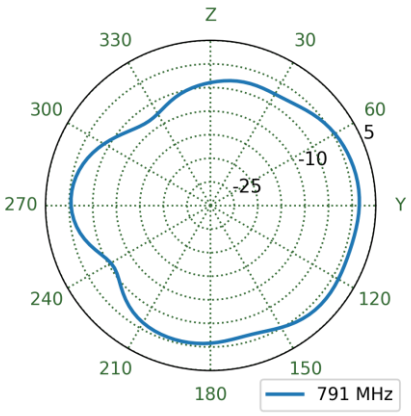
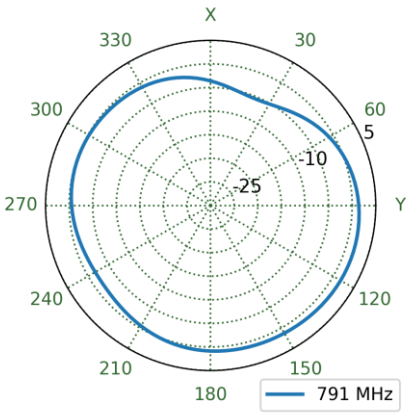
6.5 15x9cm Ground Plane Patterns at 790 MHz



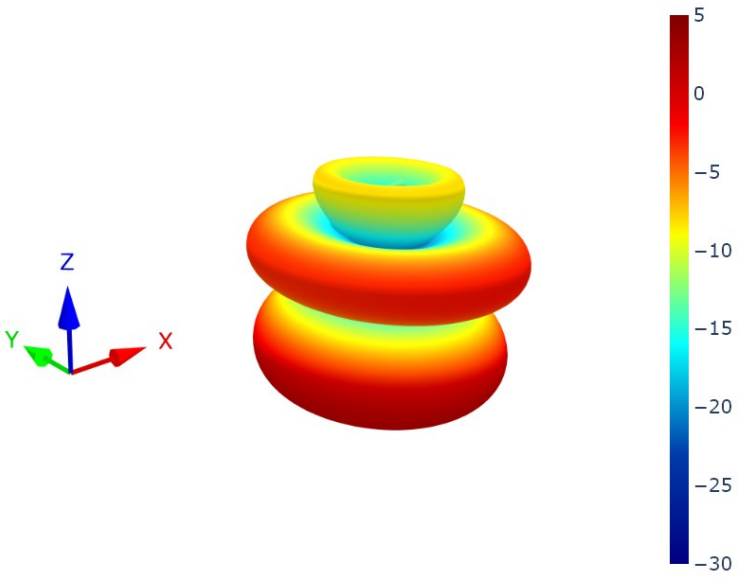
XZ Plane	YZ Plane	XY Plane
		

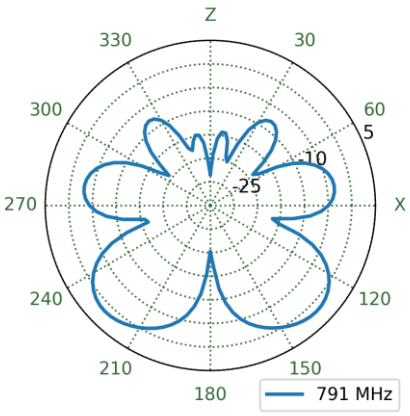
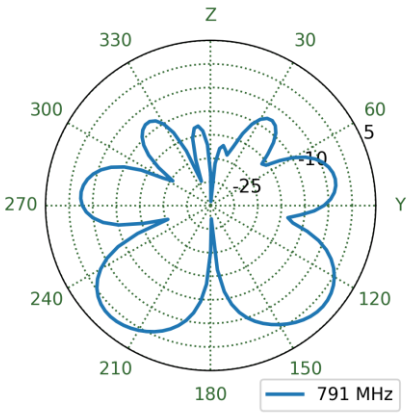
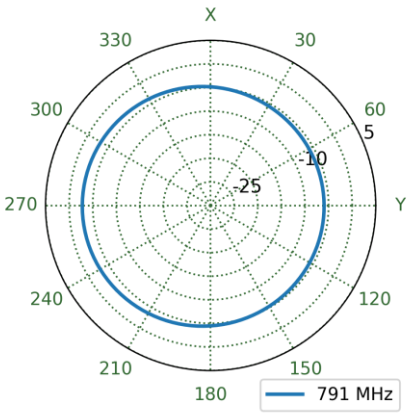
6.6 9x15cm Ground Plane Patterns at 790 MHz



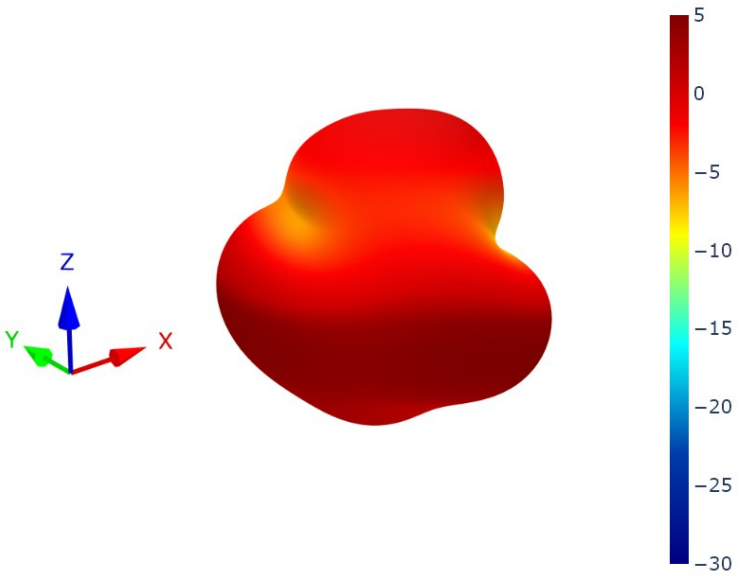
XZ Plane	YZ Plane	XY Plane
		

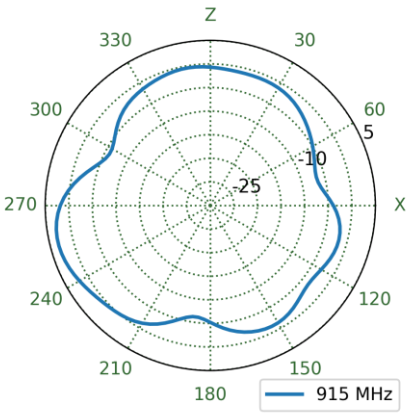
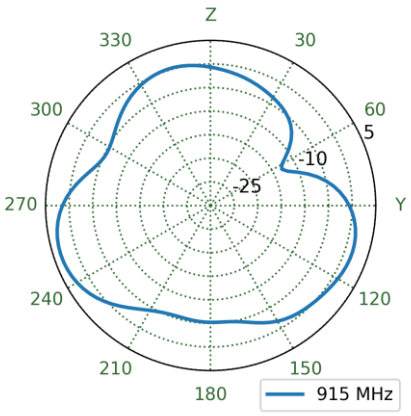
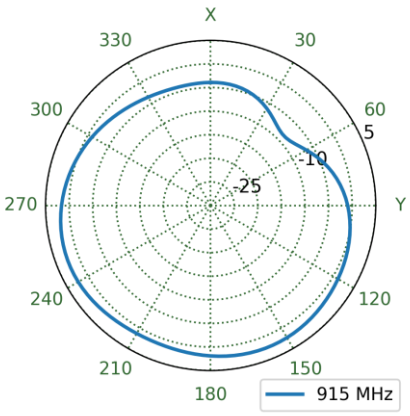
6.7 Free Space Patterns at 790 MHz



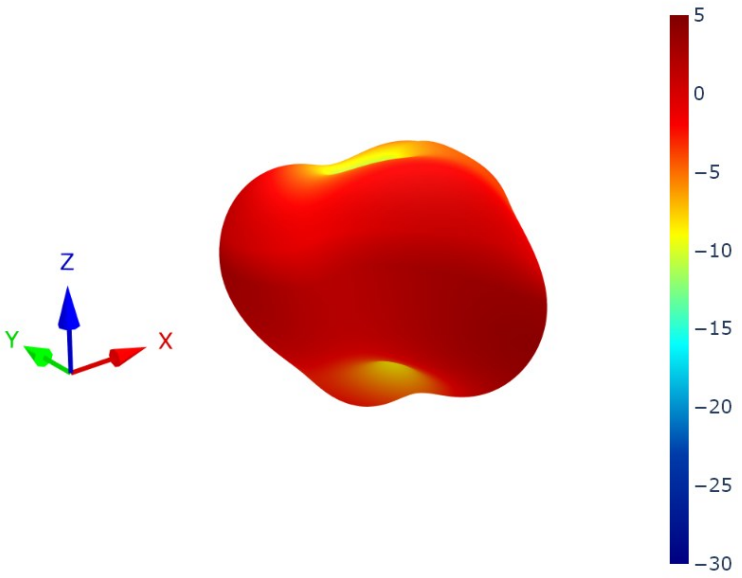
XZ Plane	YZ Plane	XY Plane
		

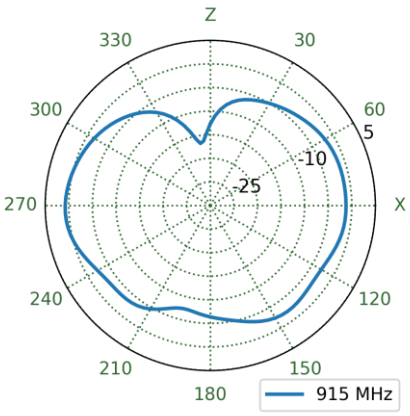
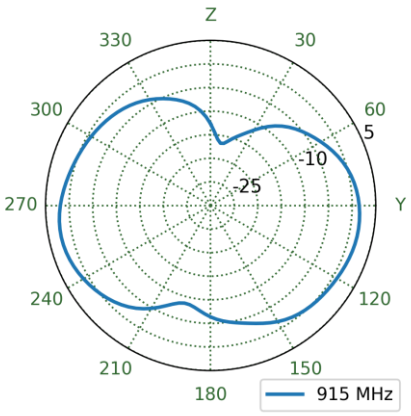
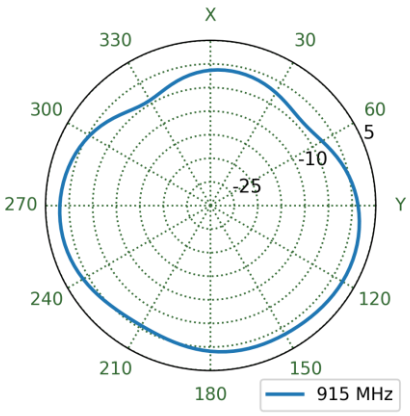
6.8 15x9cm Ground Plane Patterns at 920 MHz



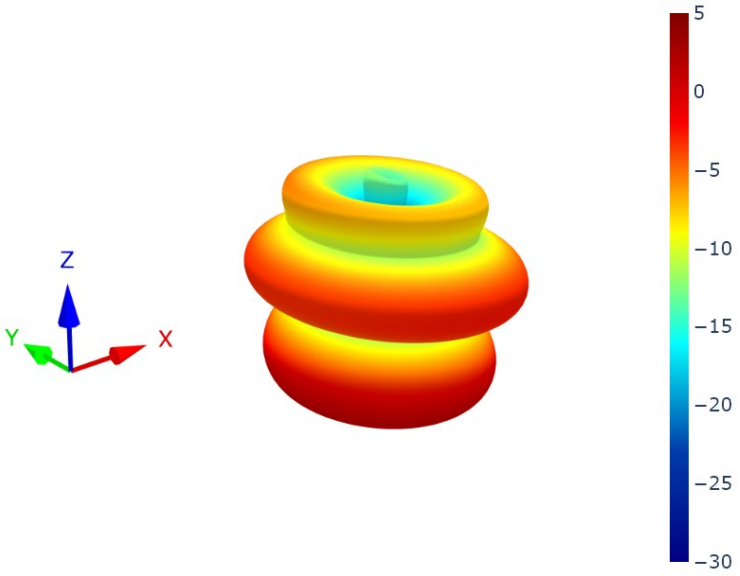
XZ Plane	YZ Plane	XY Plane
		

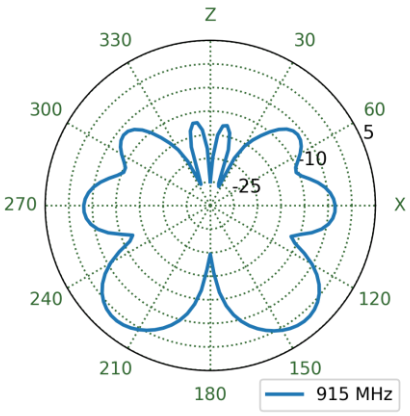
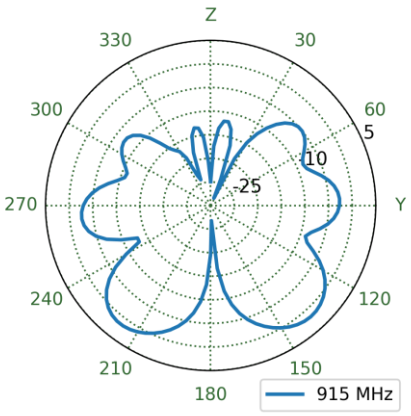
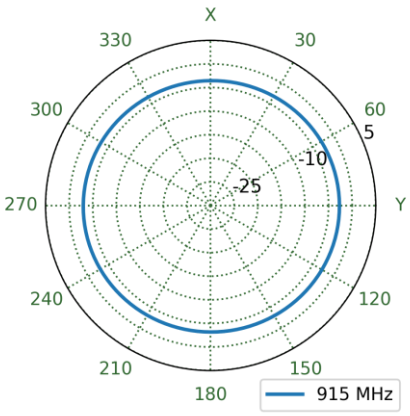
6.9 9x15cm Ground Plane Patterns at 920 MHz



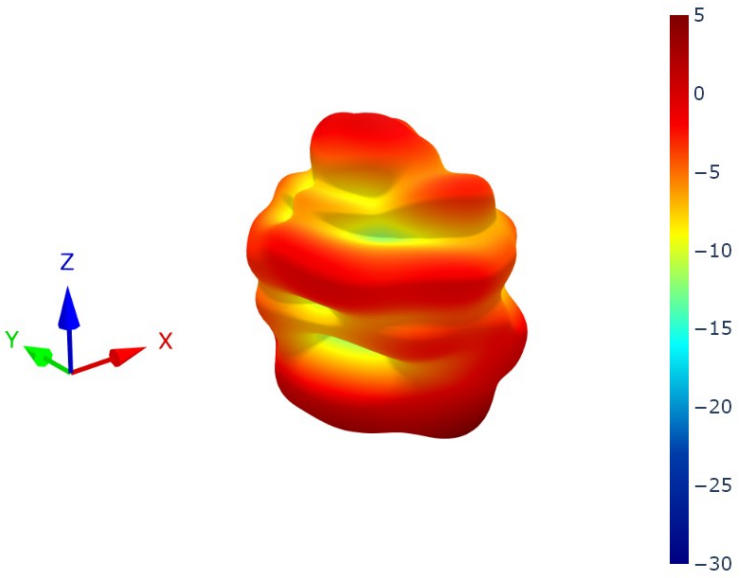
XZ Plane	YZ Plane	XY Plane
		

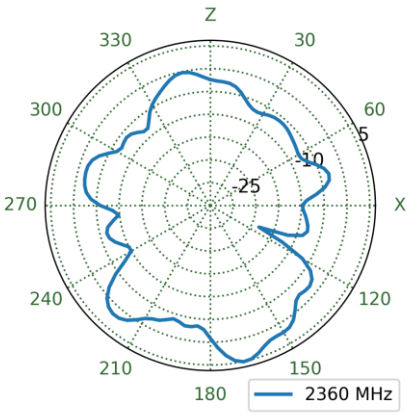
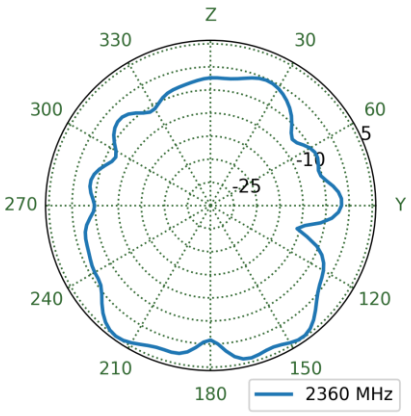
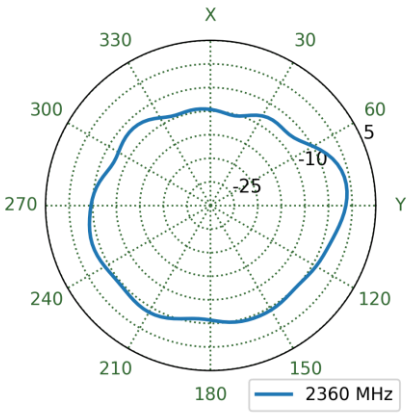
6.10 Free Space Patterns at 920 MHz



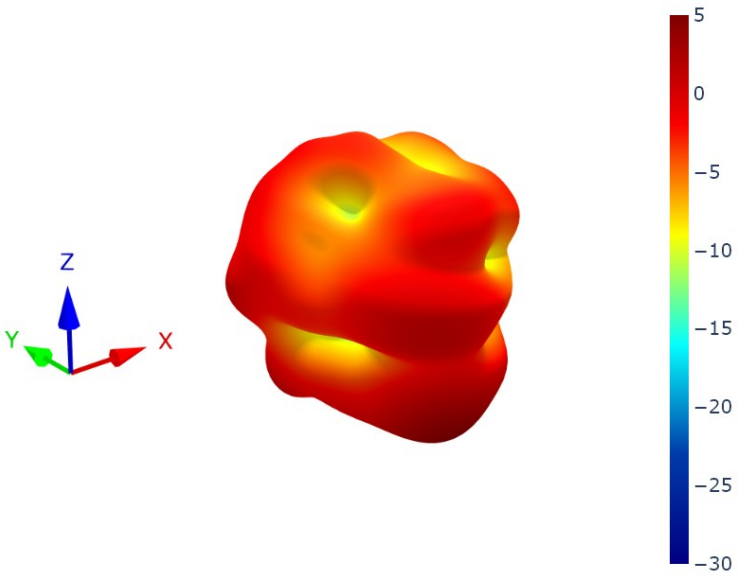
XZ Plane	YZ Plane	XY Plane
		

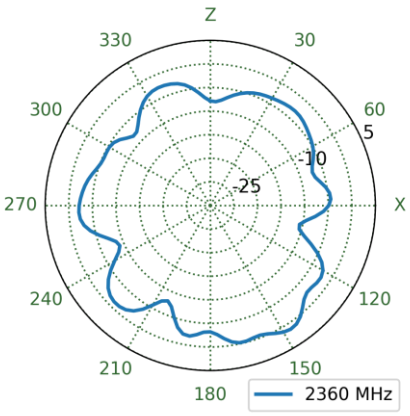
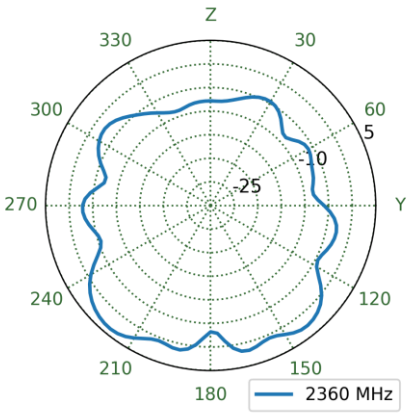
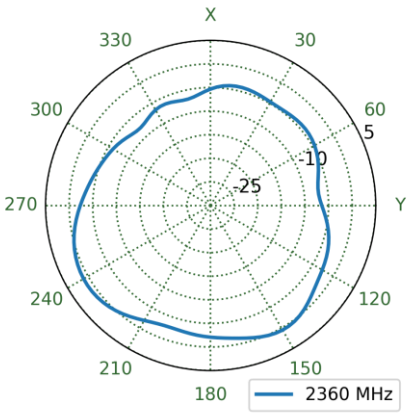
6.11 15x9cm Ground Plane Patterns at 2350 MHz



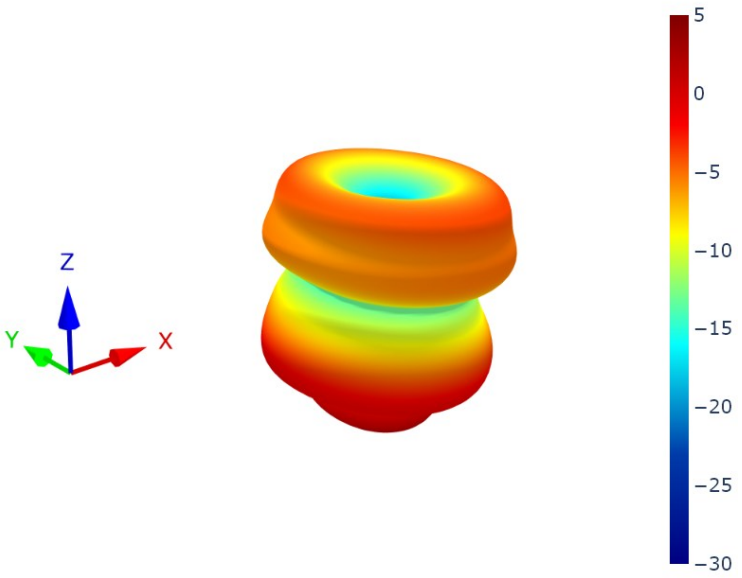
XZ Plane	YZ Plane	XY Plane
		

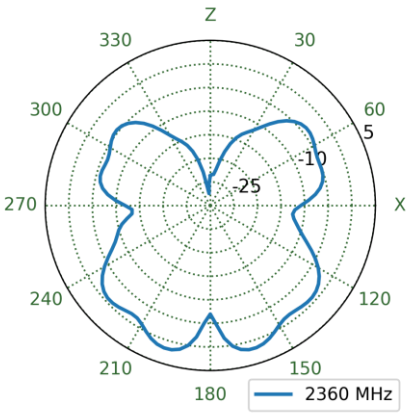
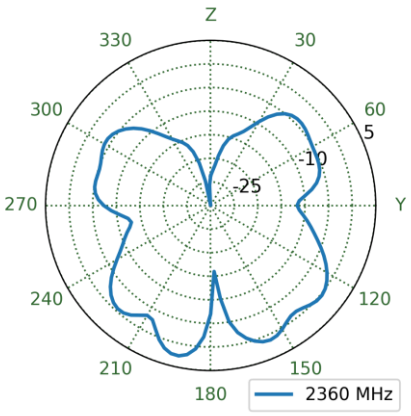
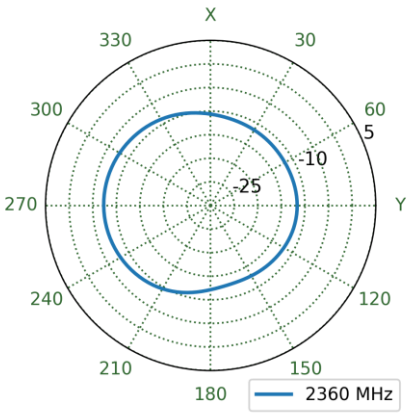
6.12 9x15cm Ground Plane Patterns at 2350 MHz



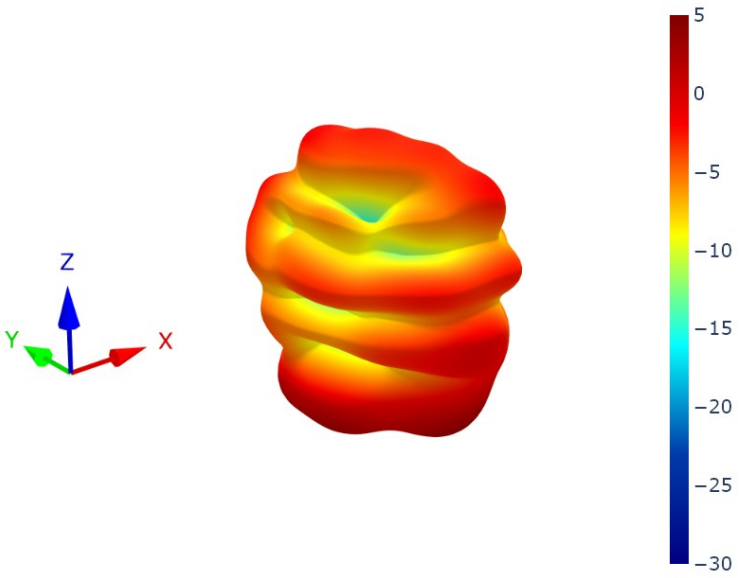
XZ Plane	YZ Plane	XY Plane
		

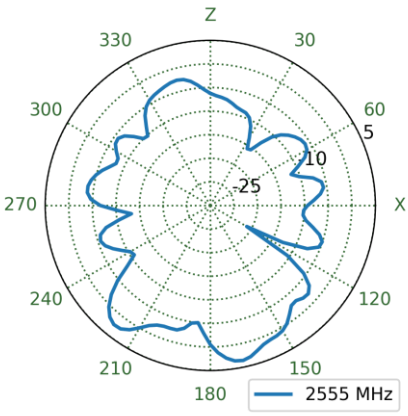
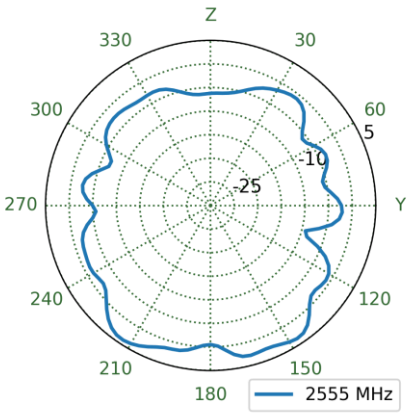
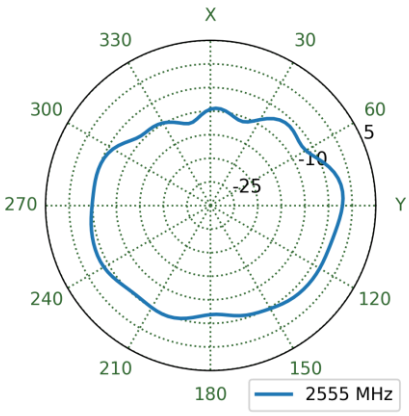
6.13 Free Space Patterns at 2350 MHz



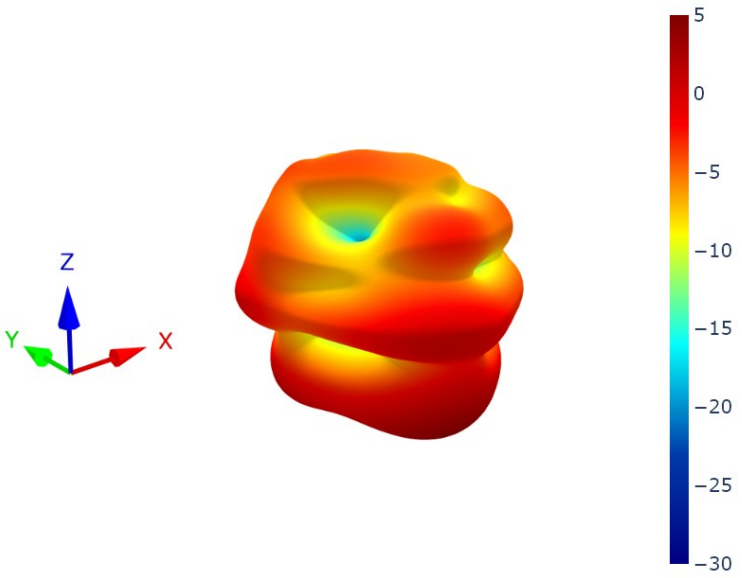
XZ Plane	YZ Plane	XY Plane
		

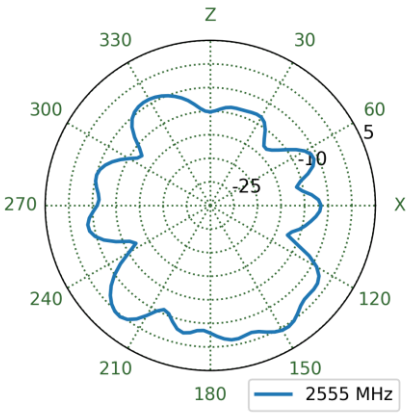
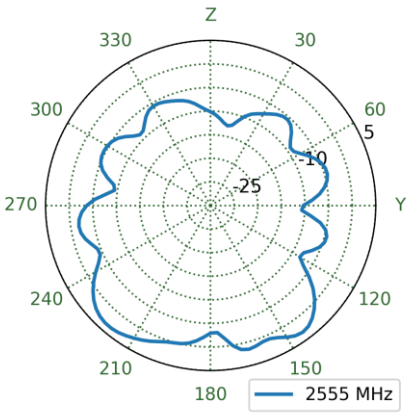
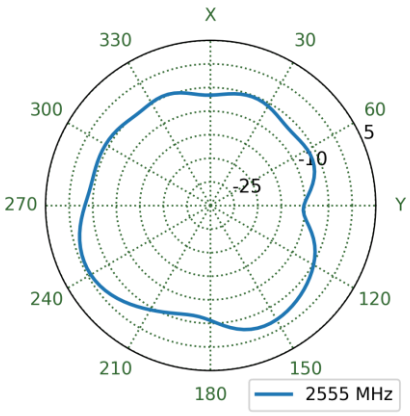
6.14 15x9cm Ground Plane Patterns at 2550 MHz



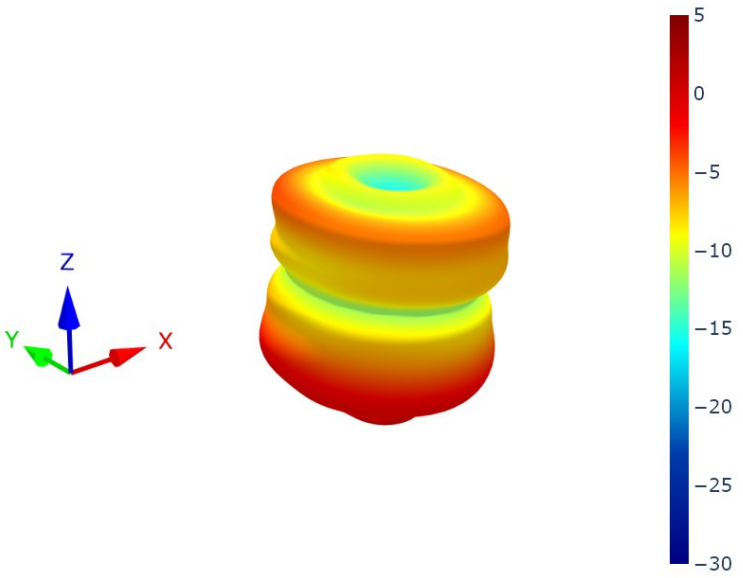
XZ Plane	YZ Plane	XY Plane
		

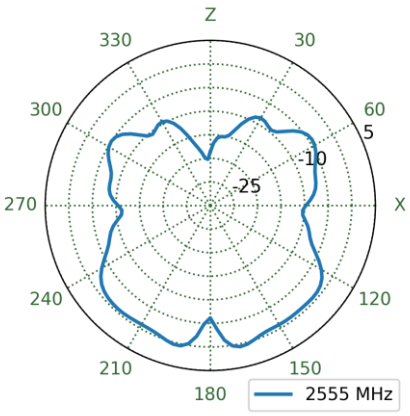
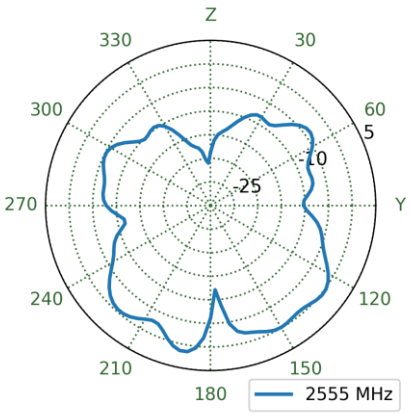
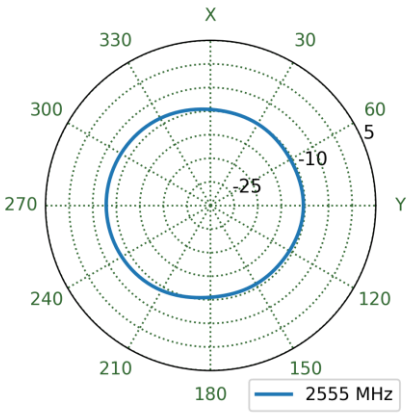
6.15 9x15cm Ground Plane Patterns at 2550 MHz



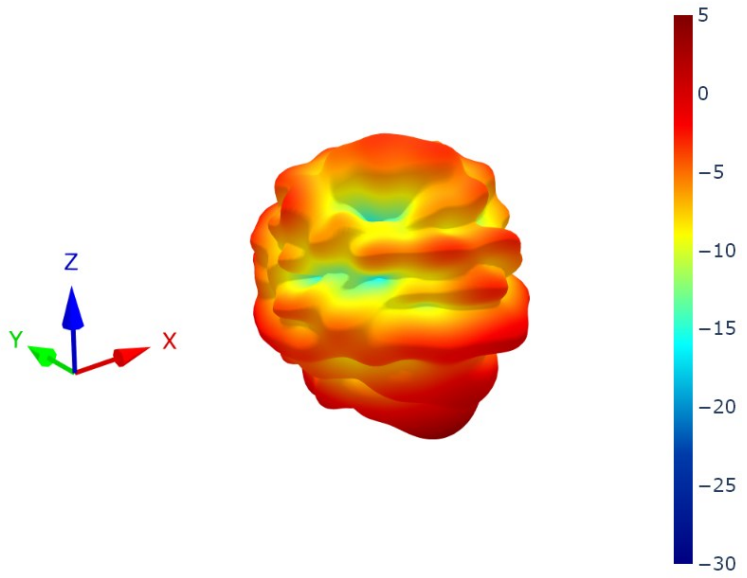
XZ Plane	YZ Plane	XY Plane
		

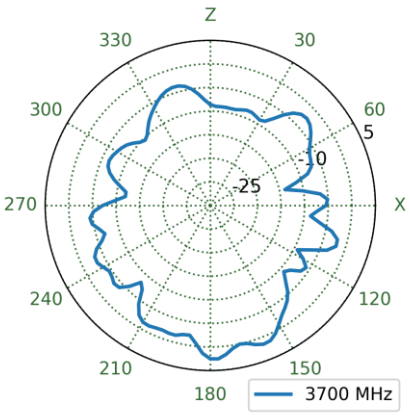
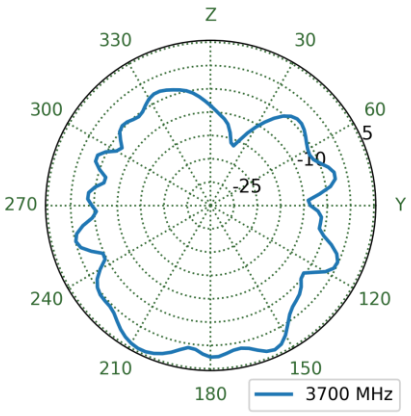
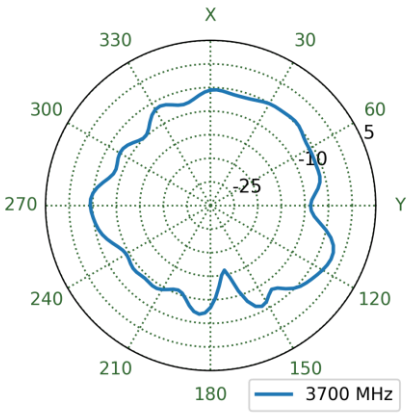
6.16 Free Space Patterns at 2550 MHz



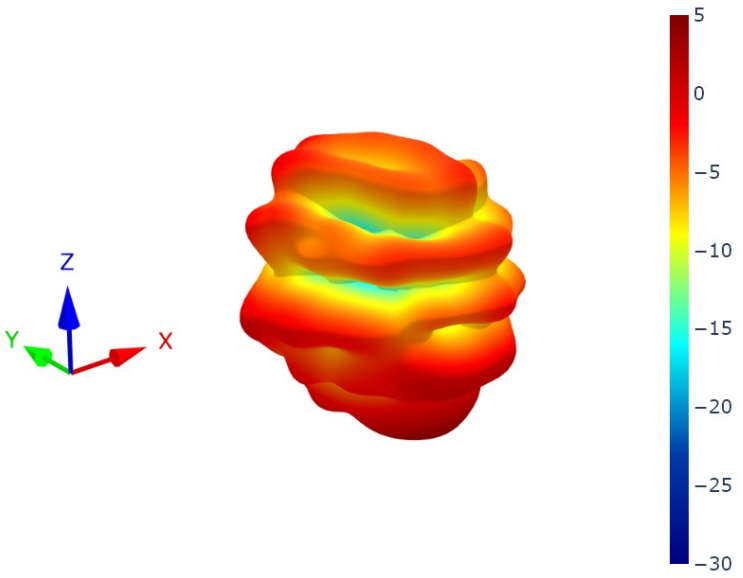
XZ Plane	YZ Plane	XY Plane
		

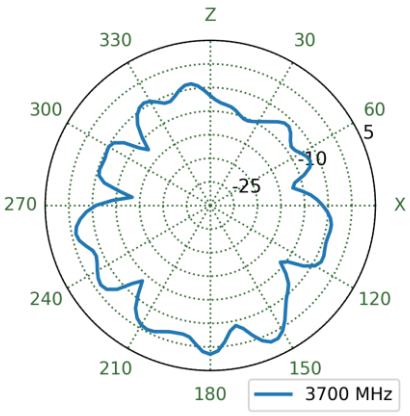
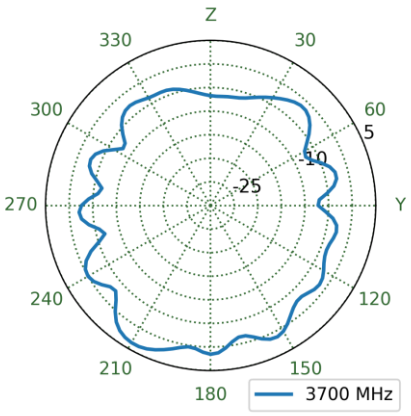
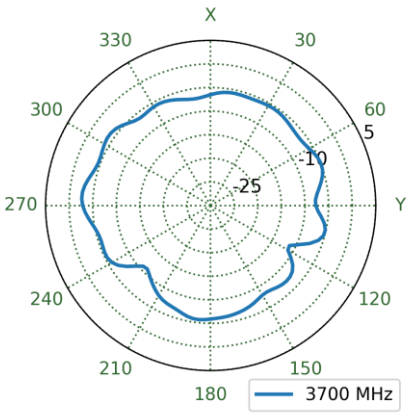
6.17 15x9cm Ground Plane Patterns at 3750 MHz



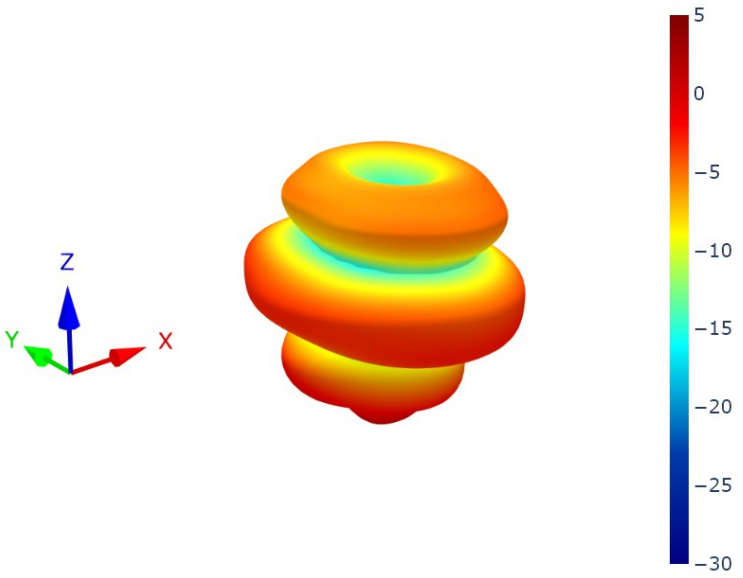
XZ Plane	YZ Plane	XY Plane
		

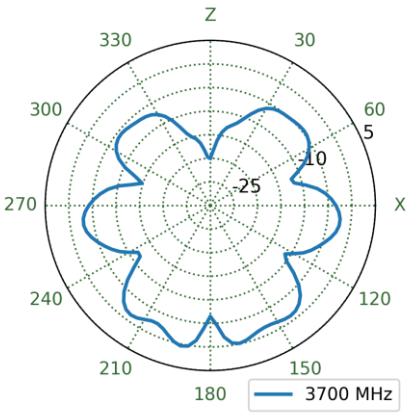
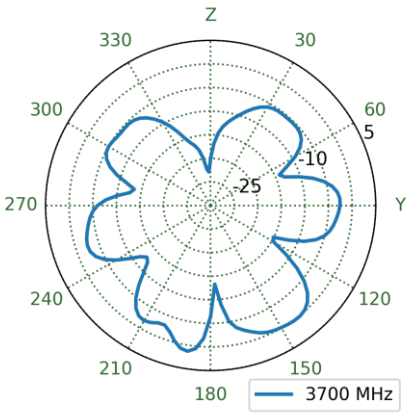
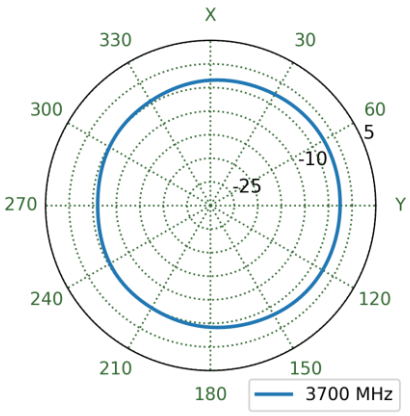
6.18 9x15cm Ground Plane Patterns at 3750 MHz



XZ Plane	YZ Plane	XY Plane
		

6.19 Free Space Patterns at 3750 MHz



XZ Plane	YZ Plane	XY Plane
		

Changelog for the datasheet

SPE-25-8-213 - TG.13.5111

Revision: A (Initial Release)	
Date:	2025-07-22
Notes:	Initial Datasheet Release
Author:	Gary West

Previous Revisions

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