



TAOGLAS®



Datasheet

Colosseum

Part No:
MA841.A.BI.002

Description

2in1 5G/4G MIMO Permanent Mount Antenna

Features:

- 2* 5G/4G MIMO 600~6000MHz
- Screw-Mount [Permanent Mount]
- Worldwide 5G/4G Bands
- IP67 Rated Enclosure
- Dimensions: Diameter: 94.3mm, Height: 57.4 mm
- 1m RG-316 with SMA(M) connectors as standard
- Custom Cables and Connectors Available
- RoHS & Reach Compliant

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1. Introduction



The **Colosseum MA841** antenna is a low profile, heavy-duty, fully IP67 waterproof external M2M antenna for use in worldwide telematics applications which require best in class 5G/4G LTE MIMO performance.

This unique product, only 57.4mm height, delivers powerful worldwide 5G/4G MIMO antenna technology from 600 to 6000MHz, so it provides coverage to all bands within that spectrum to maintain a stable connection over the lifetime of your system.

Typical applications:

- Remote Asset and Pipeline Monitoring
- Digital Signage
- HD Video over LTE
- First Responder and Emergency Services
- Automotive Vehicle Tracking and Telematics

5G/4G applications demand high speed data uplink and downlink. High efficiency and high gain MIMO antennas are necessary to achieve the required signal to noise ratio and throughput required to solve these challenges. Taoglas also takes care to have high isolation between the two MIMO antennas to prevent self-interference. Low loss cables are used to keep efficiency high over long cable lengths. In contrast, smaller MIMO antennas with poorer quality thinner cables will have much reduced efficiency and isolation, which would lead to a large drop in system throughput or drops and may indeed not make a system connection at all.

Cable length and connector types are customizable. Contact your regional Taoglas customer support team for installation instructions or further support.

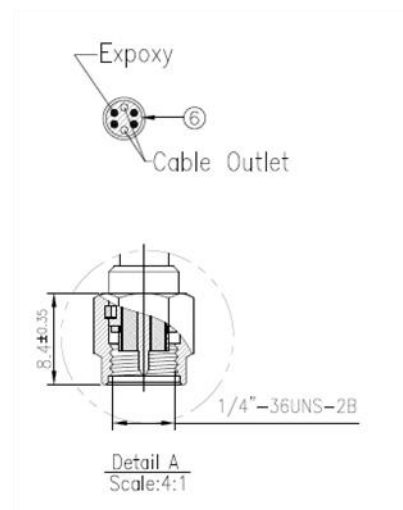
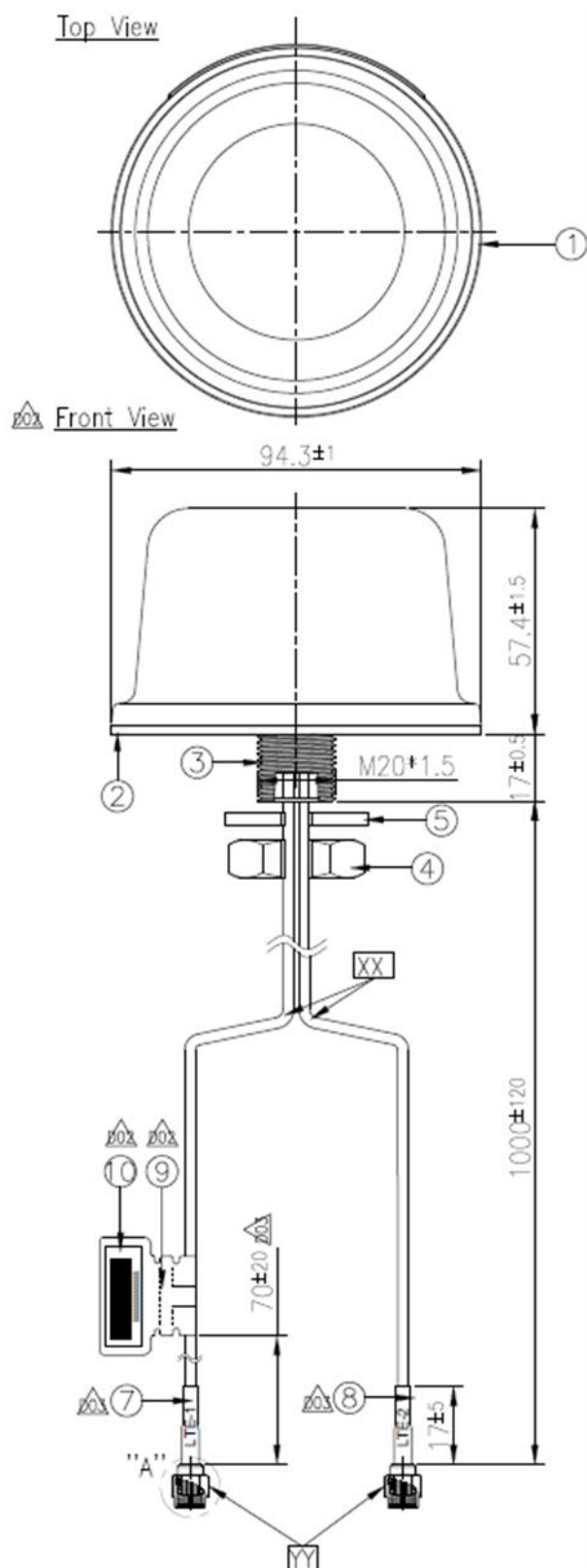
2. Specification

Electrical									
Band	Frequency (MHz)	Measurement	Efficiency (%)	Average Gain (dB)	Peak Gain (dBi)	Impedance	Polarization	Radiation Pattern	Max. input power
5G NR/4G Band 71	617-698	LTE 1 - 30x30cm Ground Plane	48.9	-3.11	2.57	50 Ω	Linear	Omni directional	10W
		LTE 1 - Free Space	40.7	-3.90	1.84				
		LTE 2 - 30x30cm Ground Plane	27.3	-5.64	3.09				
		LTE 2 - Free Space	37.2	-4.29	1.93				
4G/3G Band 12,13,14,17,28,29	698-824	LTE 1 - 30x30cm Ground Plane	26.6	-5.75	1.73				
		LTE 1 - Free Space	25.8	-5.88	1.53				
		LTE 2 - 30x30cm Ground Plane	21.8	-6.62	2.20				
		LTE 2 - Free Space	33.6	-4.73	3.21				
4G/3G/NB-IoT/Cat M Band 5,8,18,19,20,26,27	824-960	LTE 1 - 30x30cm Ground Plane	33.2	-4.79	2.20				
		LTE 1 - Free Space	31.3	-5.04	1.39				
		LTE 2 - 30x30cm Ground Plane	29.3	-5.34	1.89				
		LTE 2 - Free Space	37.1	-4.30	2.58				
5G NR/4G Band 21,32,74,75,76	1427-1518	LTE 1 - 30x30cm Ground Plane	38.3	-4.17	2.29				
		LTE 1 - Free Space	35.7	-4.48	1.93				
		LTE 2 - 30x30cm Ground Plane	30.2	-5.20	0.68				
		LTE 2 - Free Space	40.5	-3.93	3.14				
4G/3G Band 1,2,3,4,9,23,25,35,39,66	1710-2200	LTE 1 - 30x30cm Ground Plane	42.0	-3.77	4.65				
		LTE 1 - Free Space	38.3	-4.17	3.70				
		LTE 2 - 30x30cm Ground Plane	36.2	-4.41	3.26				
		LTE 2 - Free Space	39.0	-4.09	3.28				
4G/3G Band 7,30,38,40,41	2300-2690	LTE 1 - 30x30cm Ground Plane	40.5	-3.93	5.00				
		LTE 1 - Free Space	44.9	-3.47	3.66				
		LTE 2 - 30x30cm Ground Plane	34.7	-4.60	4.79				
		LTE 2 - Free Space	45.8	-3.39	3.14				
5G NR/4G Band 22,42,48,77,78,79	3300-5000	LTE 1 - 30x30cm Ground Plane	40.5	-3.93	4.70				
		LTE 1 - Free Space	43.5	-3.61	3.54				
		LTE 2 - 30x30cm Ground Plane	38.7	-4.13	4.70				
		LTE 2 - Free Space	44.6	-3.51	3.45				
LTE5200/Wi-Fi5800	5150-5925	LTE 1 - 30x30cm Ground Plane	27.9	-5.54	3.42				
		LTE 1 - Free Space	28.0	-5.54	3.16				
		LTE 2 - 30x30cm Ground Plane	29.8	-5.26	3.61				
		LTE 2 - Free Space	31.0	-5.08	2.98				
Tested with 1m of RG316									

Mechanical	
Dimensions	Diameter: 94.3mm, Height: 57.4 mm
Casing	ASA
Base and thread	Zinc Alloy
Weight	250g
Ingress Protection Rating	IP69K
Maximum Assembly Torque	30 N•m
Cable	1m RG-316
Connectors	SMA(M)

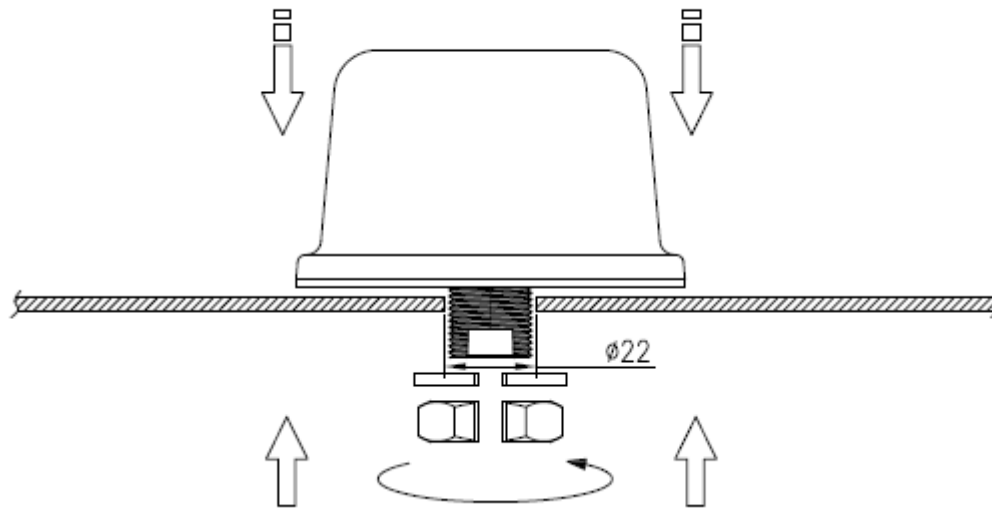
Environmental	
Operation Temperature	-40°C to 85°C
Storage Temperature	-40°C to 85°C
Humidity	Non-condensing 65°C 95% RH

3. Mechanical Drawing



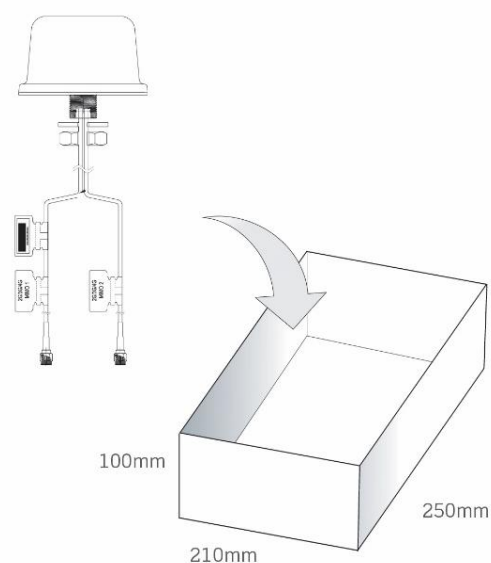
	Name	P/N	Material	Finish	QTY
1	Mini ST Short Case	000114K000092A	ASA	Black	1
2	Adhesive Foam Mini ST(3rd Foam)	001015C020000A	3M9448+CR 4305	White Liner	1
3	Mini ST Base	000314K000092A	Zinc Alloy	Ni Plated	1
4	Nut_M20x1.5Px10H_Cut	000413E030061A	Steel Carbon	Zn-Ni Plated	1
5	Washer_Cut	000413E040061A	Steel Carbon	Zn-Ni Plated	1
6	Cable Rubber	000713K000064A	Silicone	Black	1
7	Heat Shrink Tube (LTE-1)	001316C040000A	PE	Red Tube/White Text	1
8	Heat Shrink Tube (LTE-2)	001316C050000A	PE	Red Tube/White Text	1
9	Empty Label	001015G000000A	PEPA	White	1
10	Barcode Label	001015G010000A	PET	White	1
	Name	P/N	Material	Finish	QTY
XX	Cable Type	301615C000000A	RG316	Brown	2
YY	Connector Type	200212G000013A	SMA(M)/ST	Au Plated	2

4. Installation Recommendation

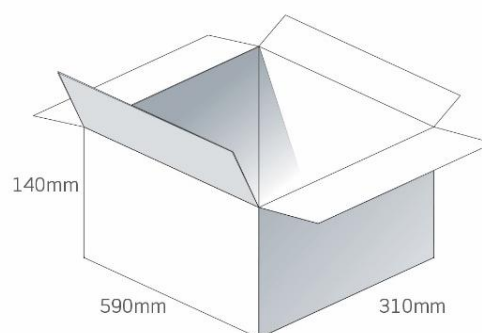


5. Packaging

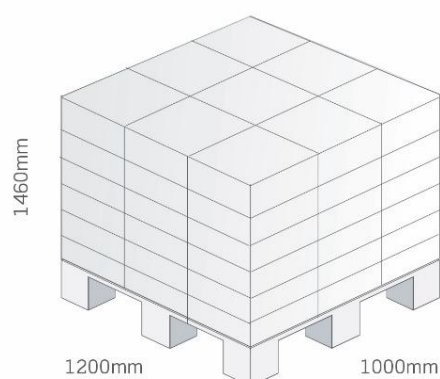
1 No. MA841.A.BI.002 per small box
Box Dimensions - 133 x 133 x 135mm
Weight - 350g



1 Outer Carton
Carton Dimensions - 590 x 310 x 140mm
8 pcs MA841.A.BI.002 per carton
Weight - 3.5Kg



Pallet Dimensions 1200*1000*1460mm
54 Cartons per Pallet
9 Cartons per layer
6 Layers



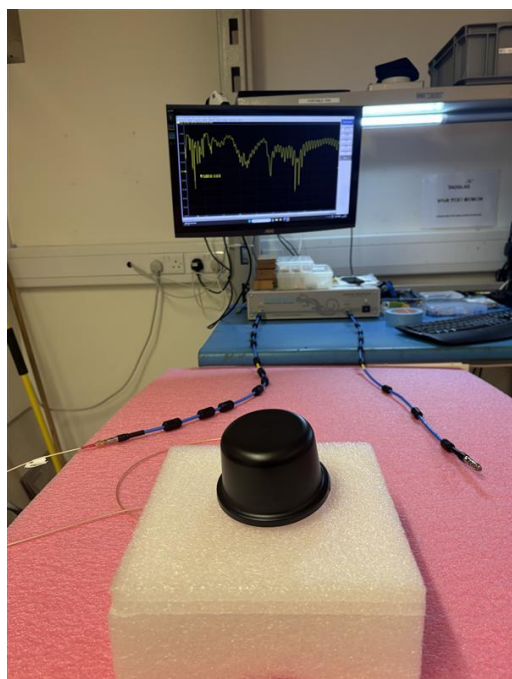
6. Antenna Characteristics

6.1 Test Setup

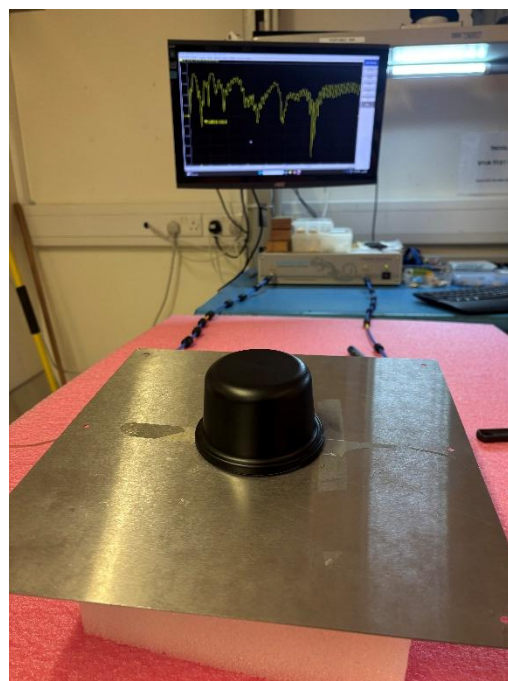
AUT



Vector Network Analyzer

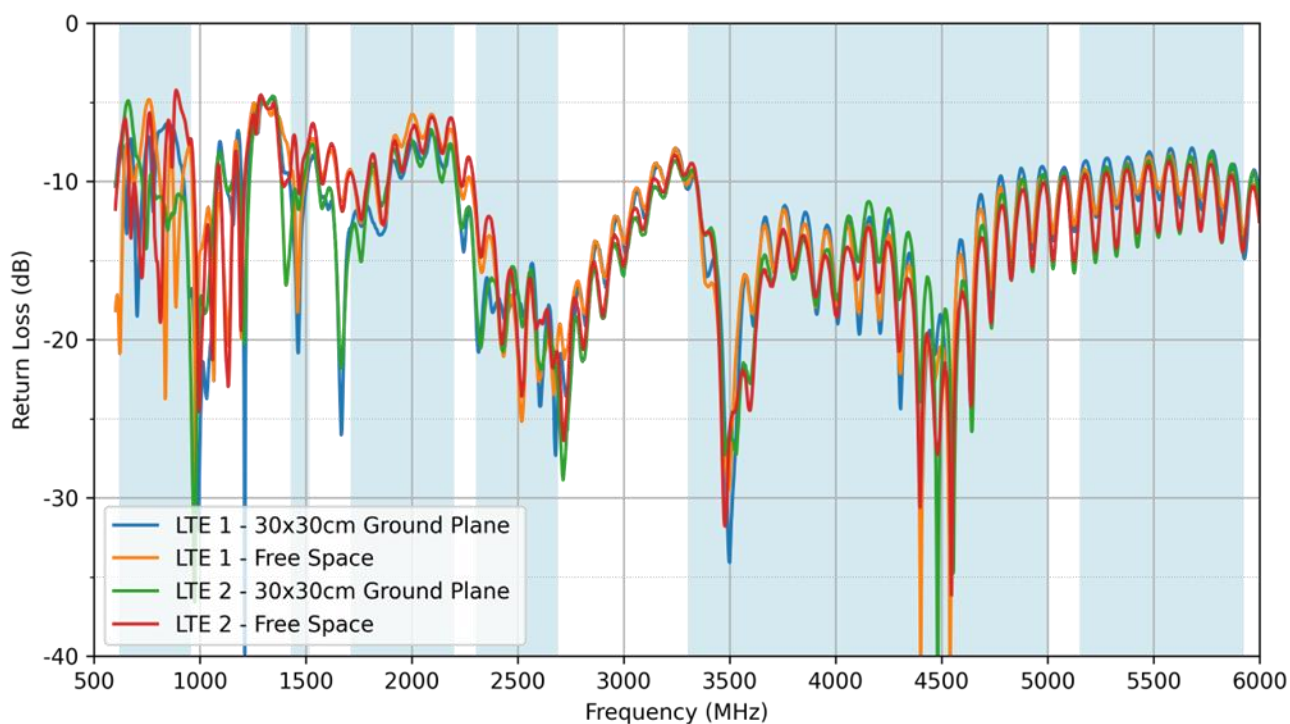


VNA Test Set-up in Free Space

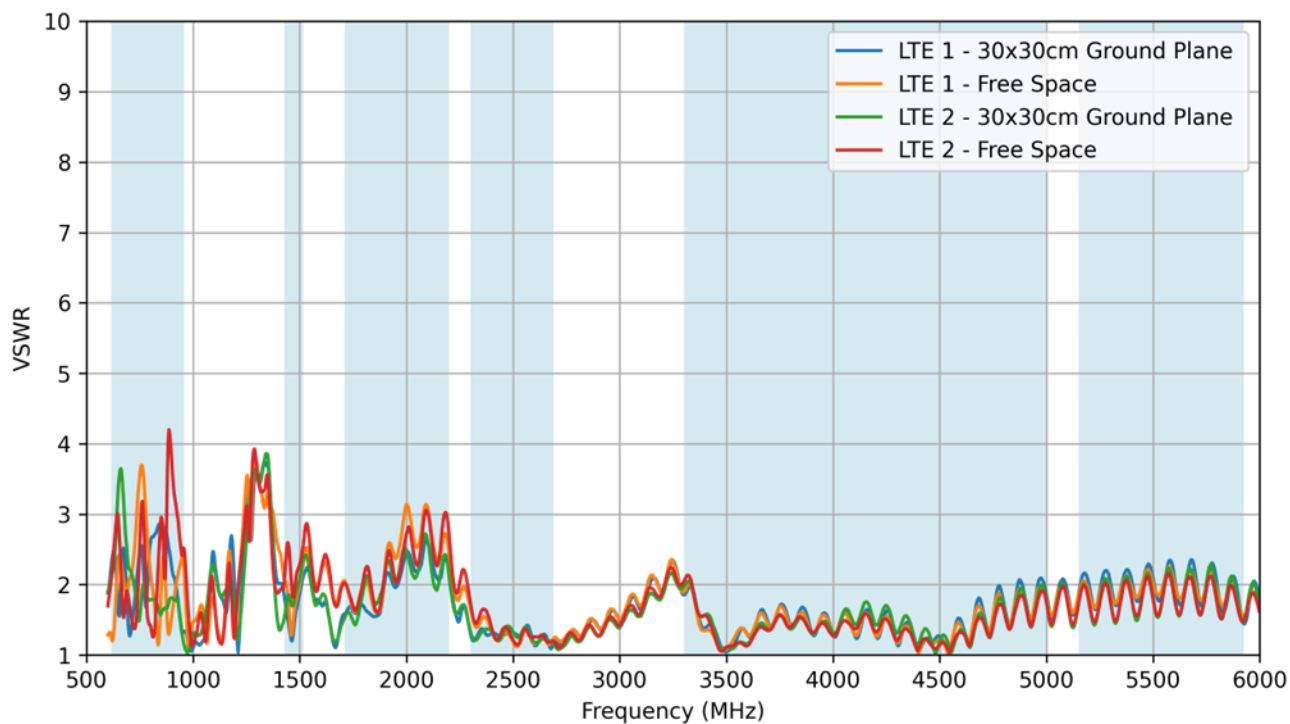


VNA Test Set-up on
30x30cm Ground Plane

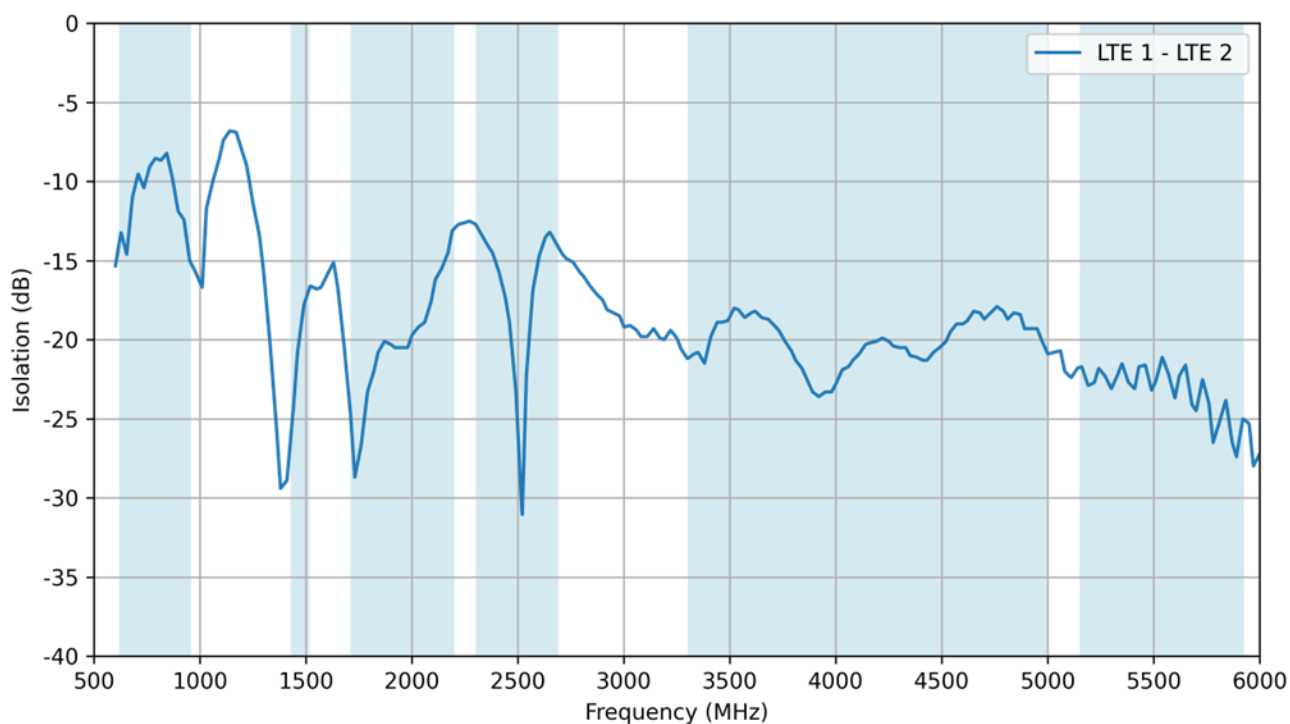
6.2 Return Loss



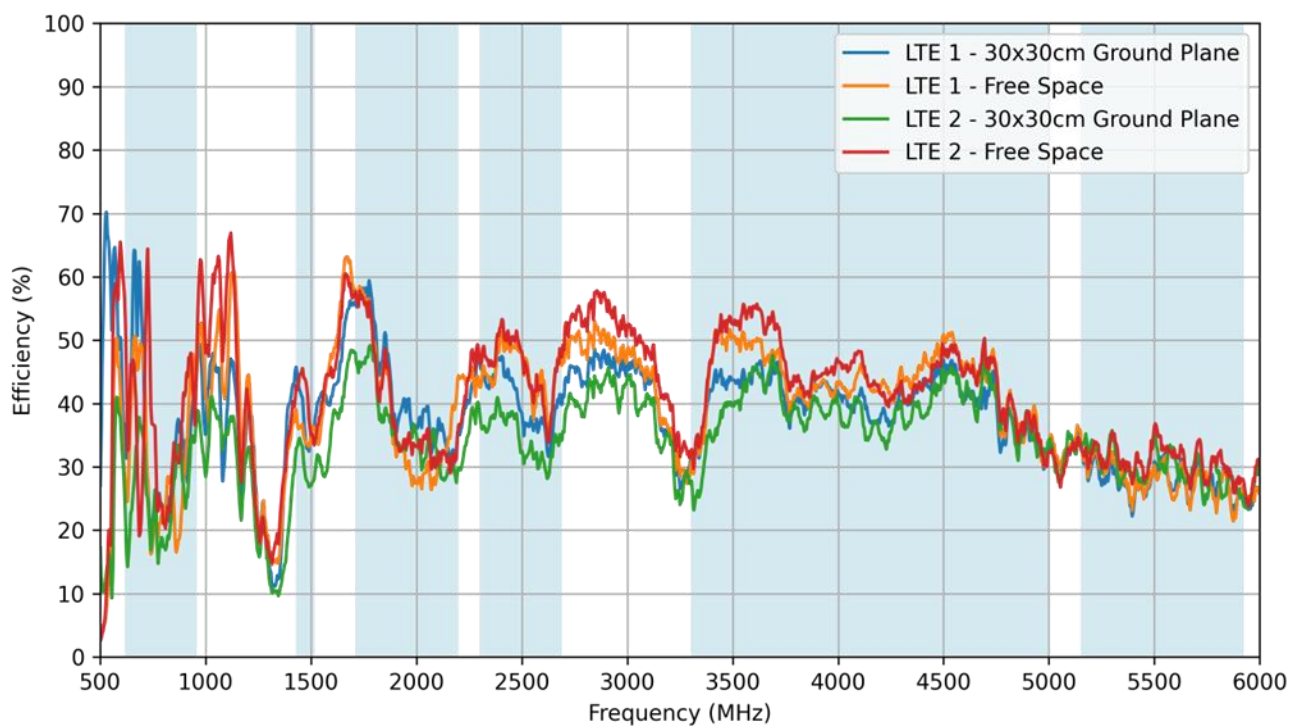
6.3 VSWR



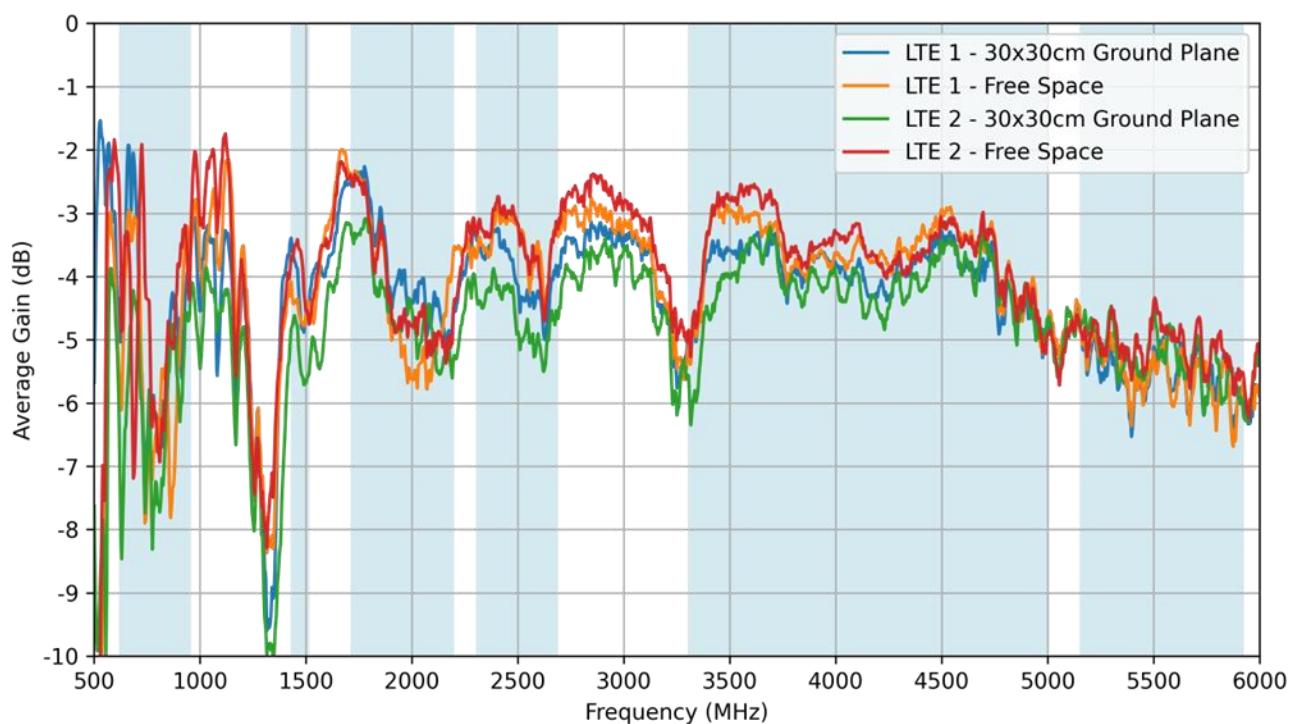
6.4 Isolation



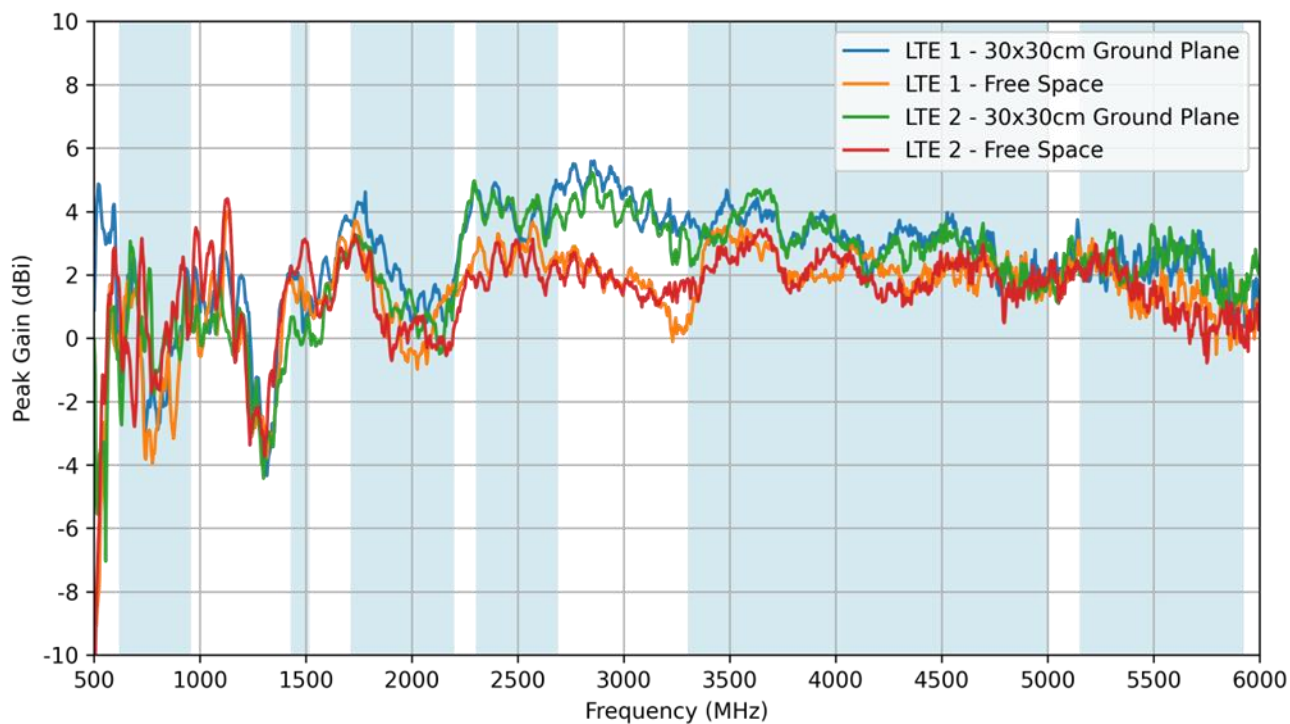
6.5 Efficiency



6.6 Average Gain



6.7 Peak Gain

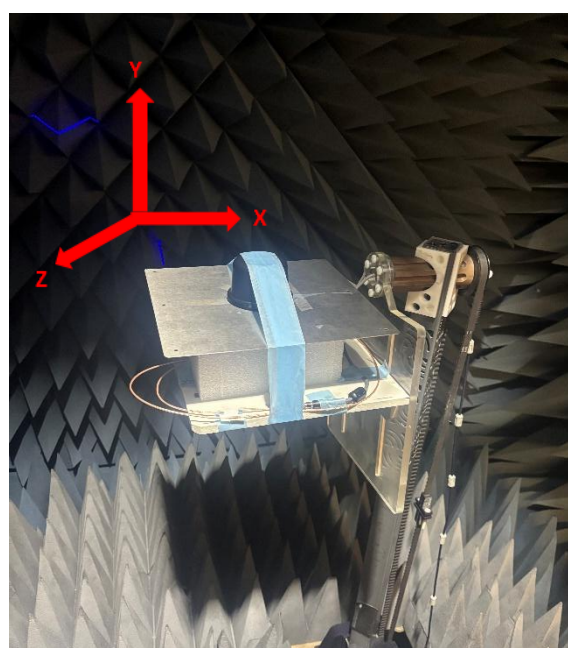


7. Radiation Patterns

7.1 Test Setup

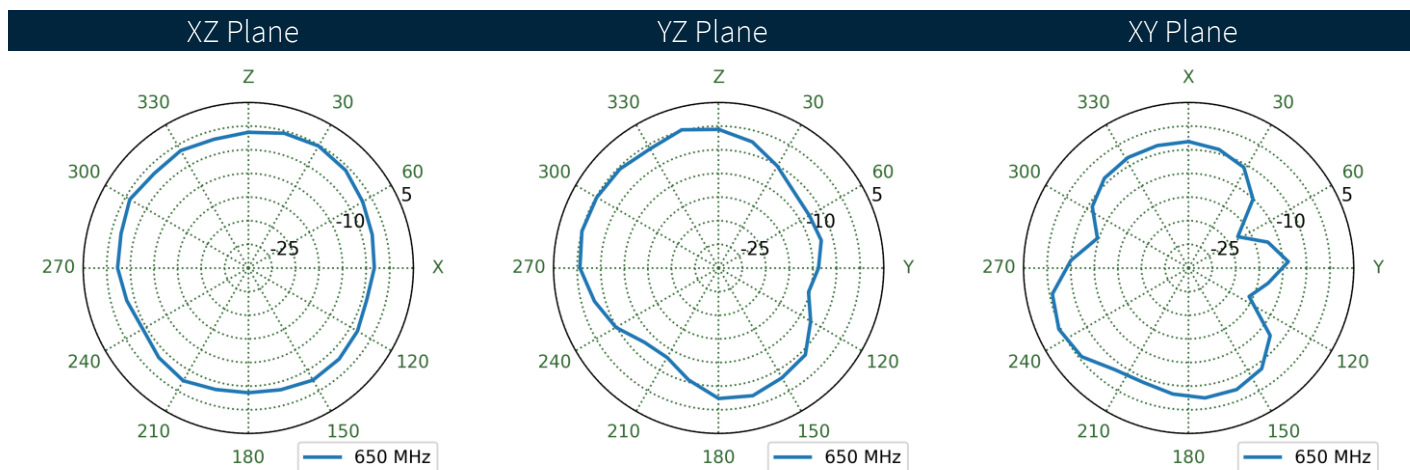
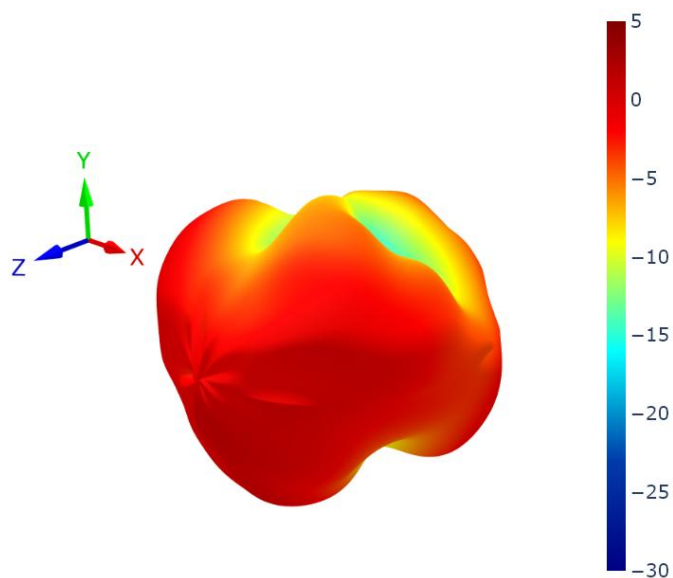


Chamber Test Set-up in Free Space

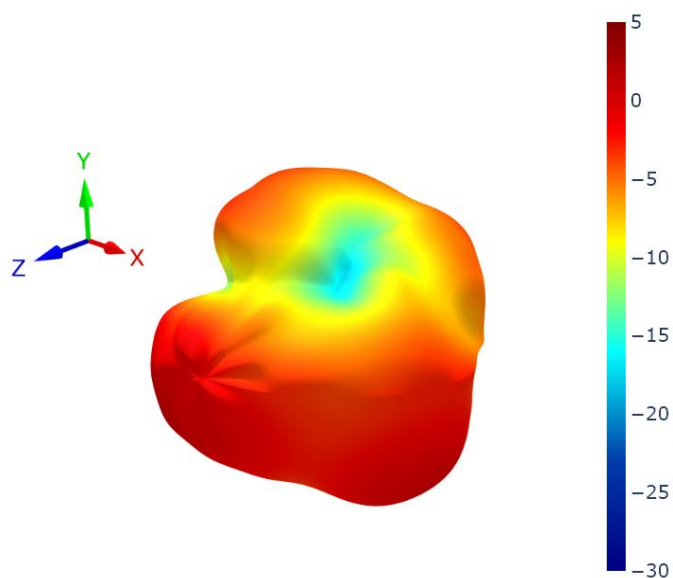


Chamber Test Set-up on
30x30cm Ground Plane

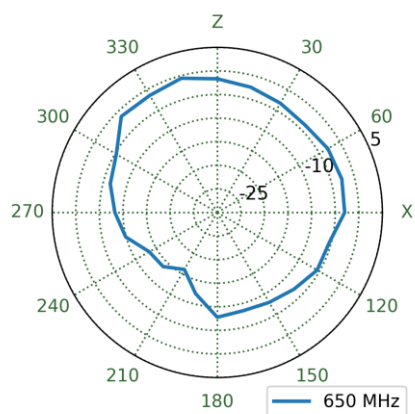
7.2 LTE 1 - 30x30cm Ground Plane Patterns at 650 MHz



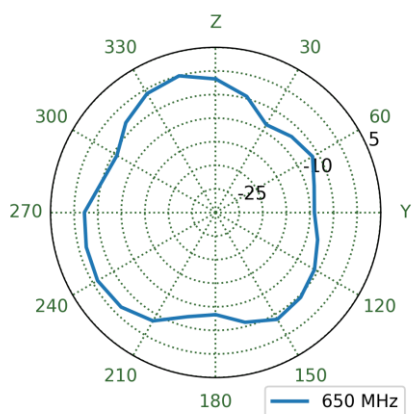
7.3 LTE 1 - Free Space Patterns at 650 MHz



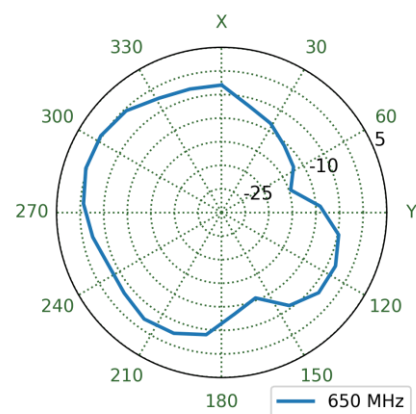
XZ Plane



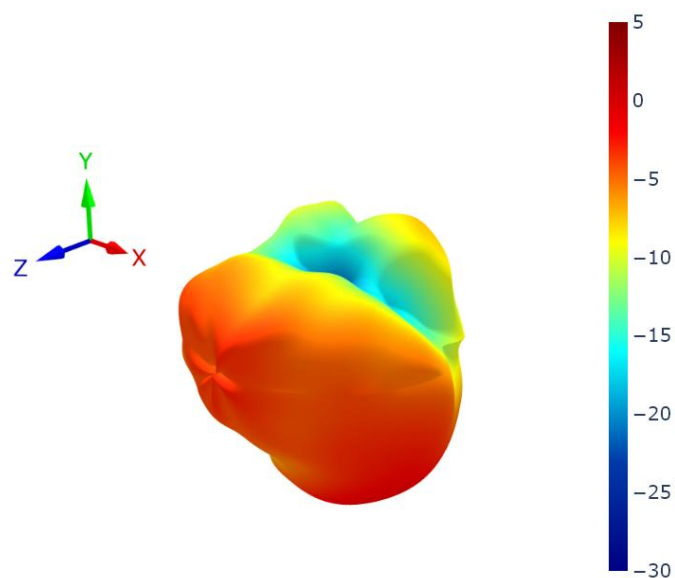
YZ Plane



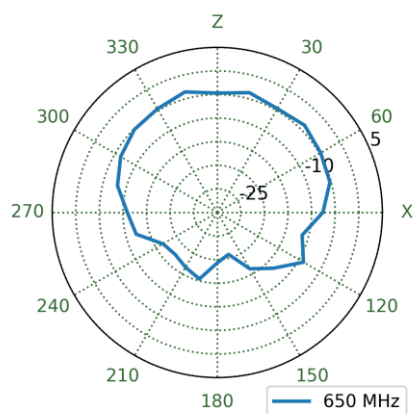
XY Plane



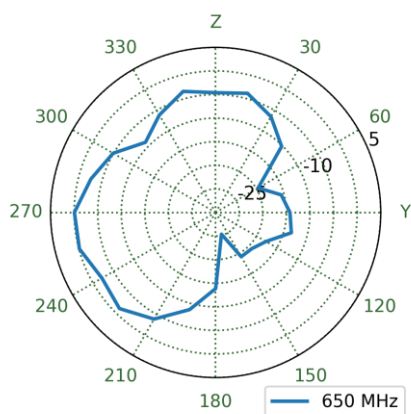
7.4 LTE 2 - 30x30cm Ground Plane Patterns at 650 MHz



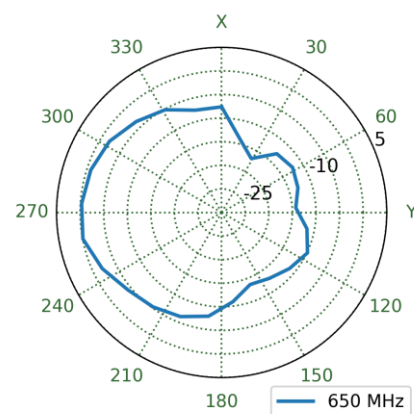
XZ Plane



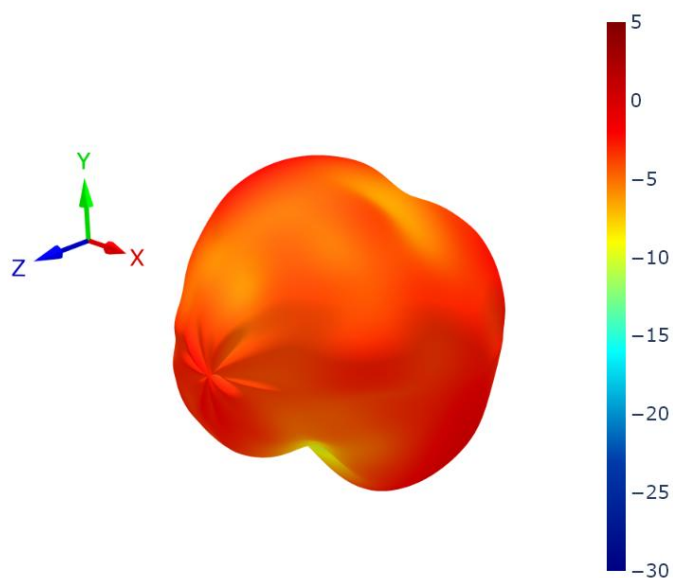
YZ Plane



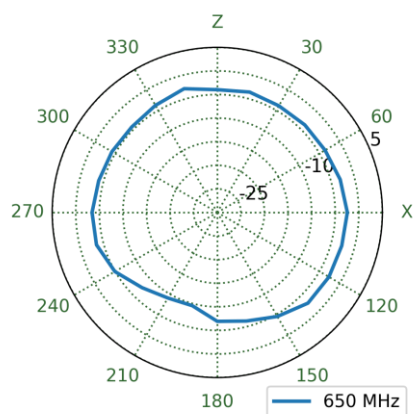
XY Plane



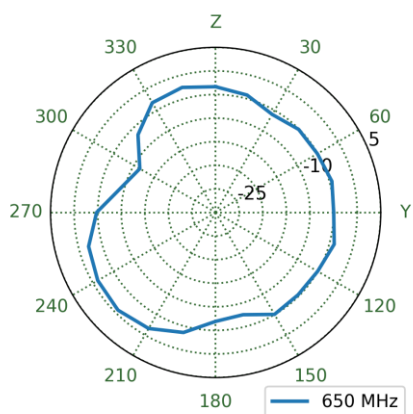
7.5 LTE 2 - Free Space Patterns at 650 MHz



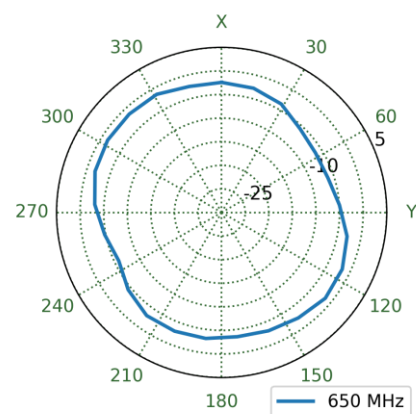
XZ Plane



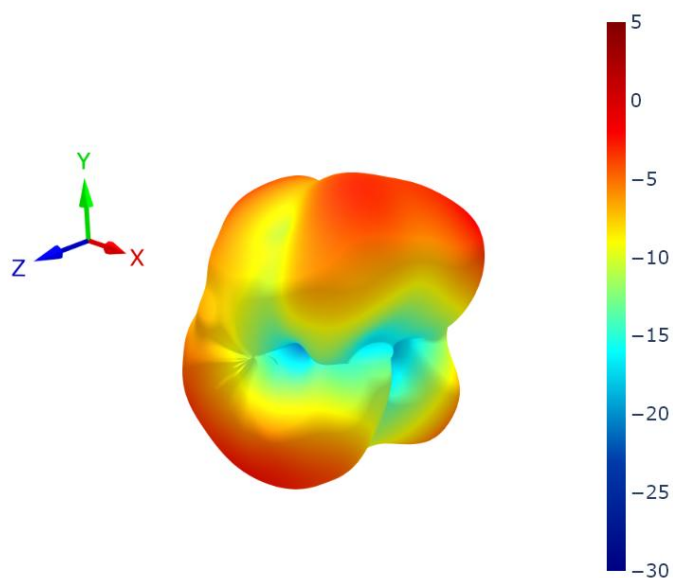
YZ Plane



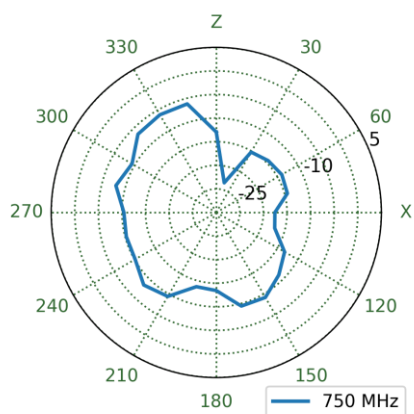
XY Plane



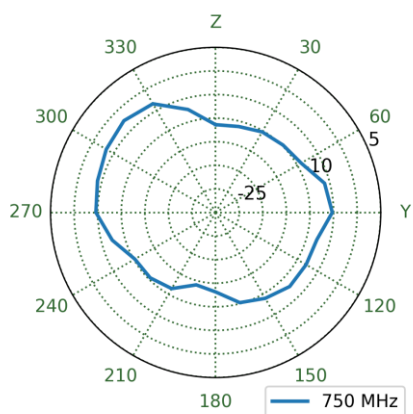
7.6 LTE 1 - 30x30cm Ground Plane Patterns at 750 MHz



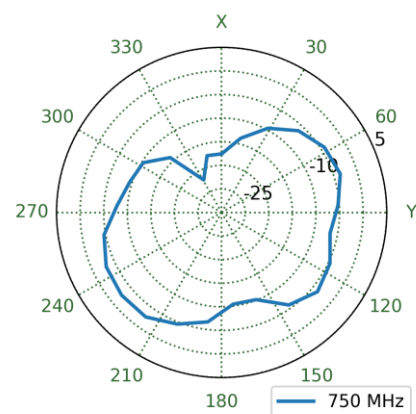
XZ Plane



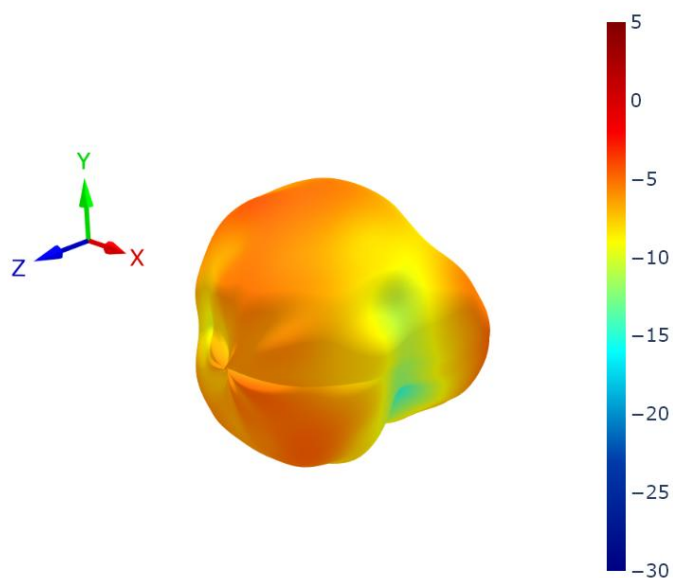
YZ Plane



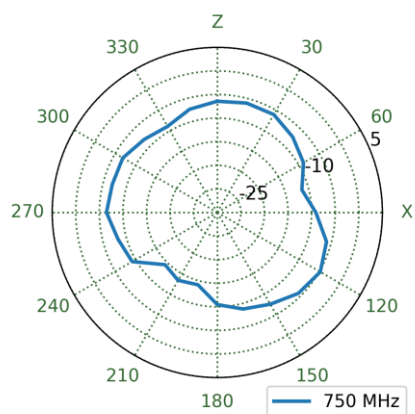
XY Plane



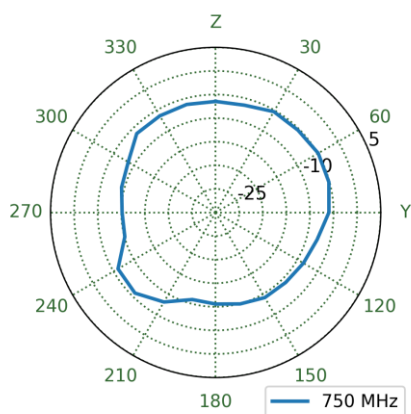
7.7 LTE 1 - Free Space Patterns at 750 MHz



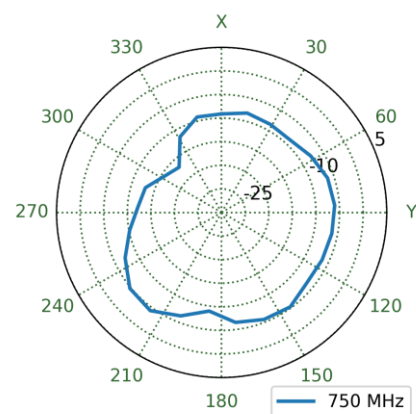
XZ Plane



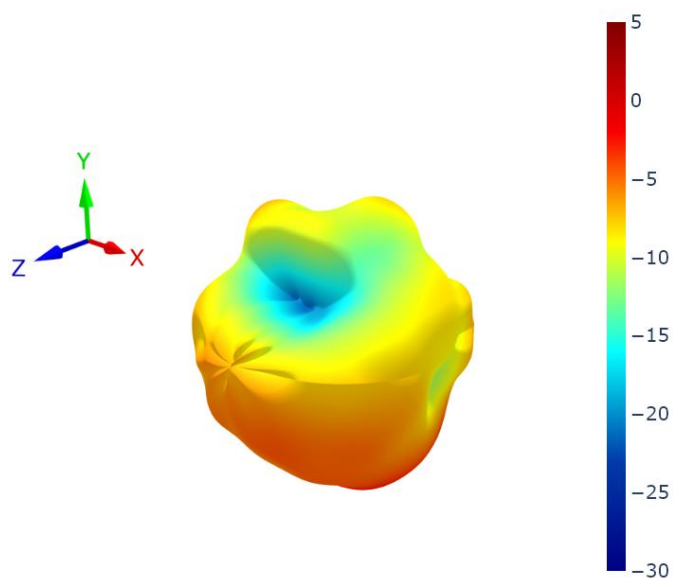
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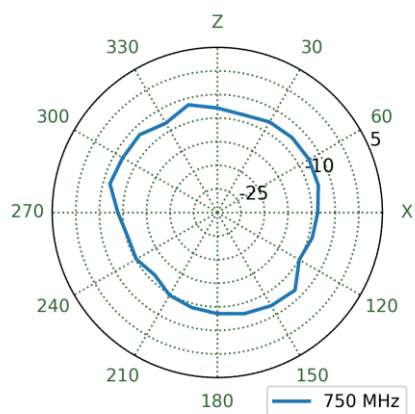
XY Plane



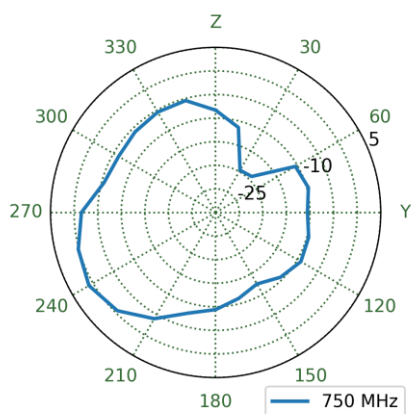
7.8 LTE 2 - 30x30cm Ground Plane Patterns at 750 MHz



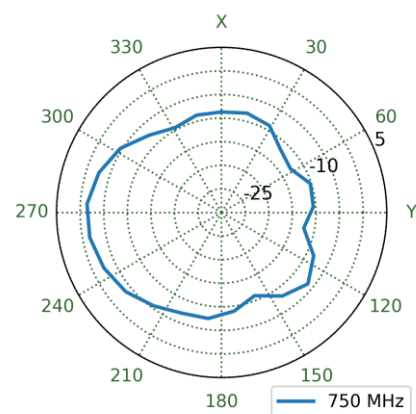
XZ Plane



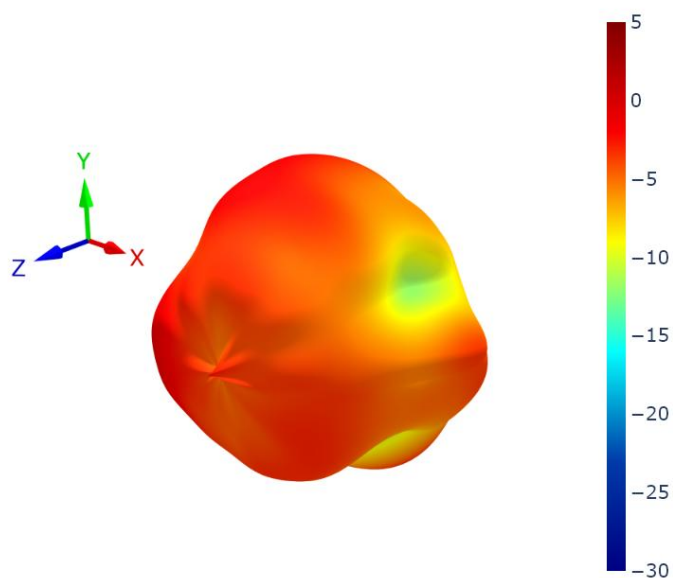
YZ Plane



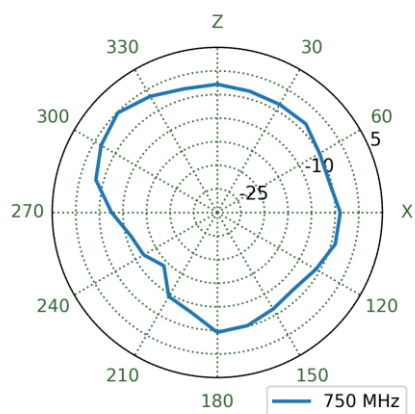
XY Plane



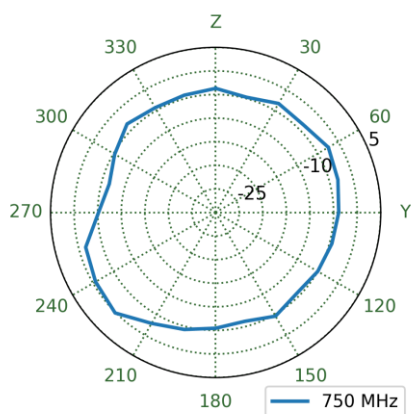
7.9 LTE 2 - Free Space Patterns at 750 MHz



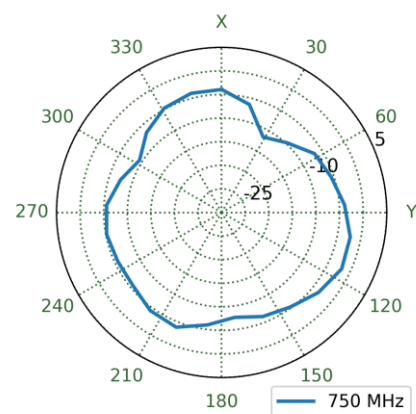
XZ Plane



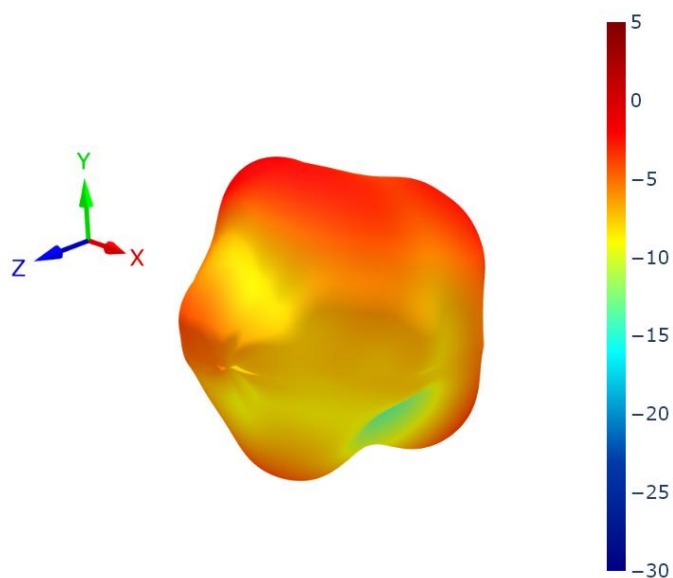
YZ Plane



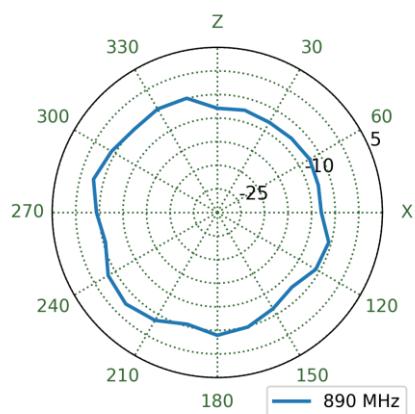
XY Plane



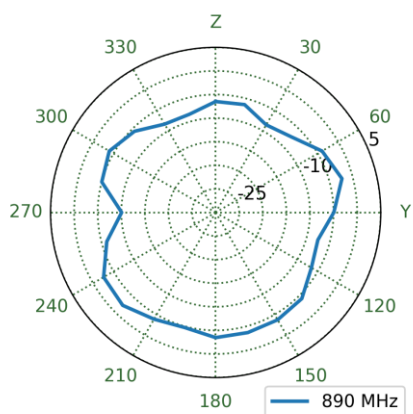
7.10 LTE 1 - 30x30cm Ground Plane Patterns at 890 MHz



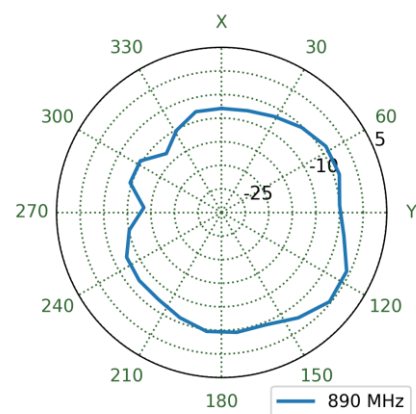
XZ Plane



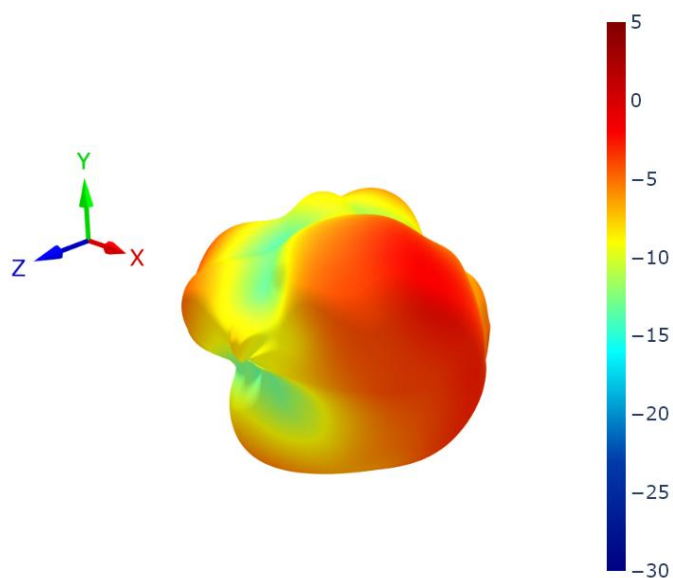
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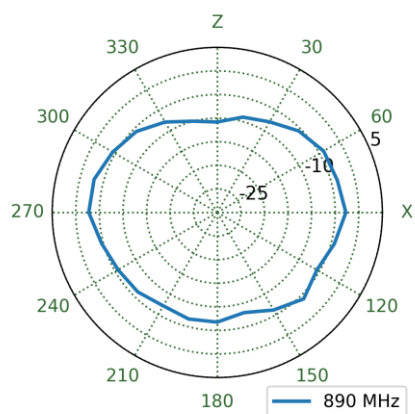
XY Plane



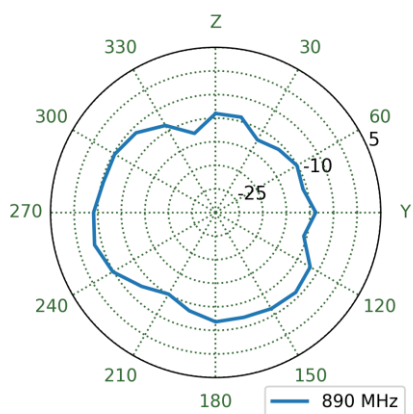
7.11 LTE 1 - Free Space Patterns at 890 MHz



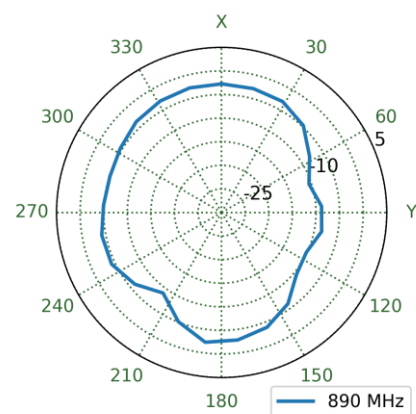
XZ Plane



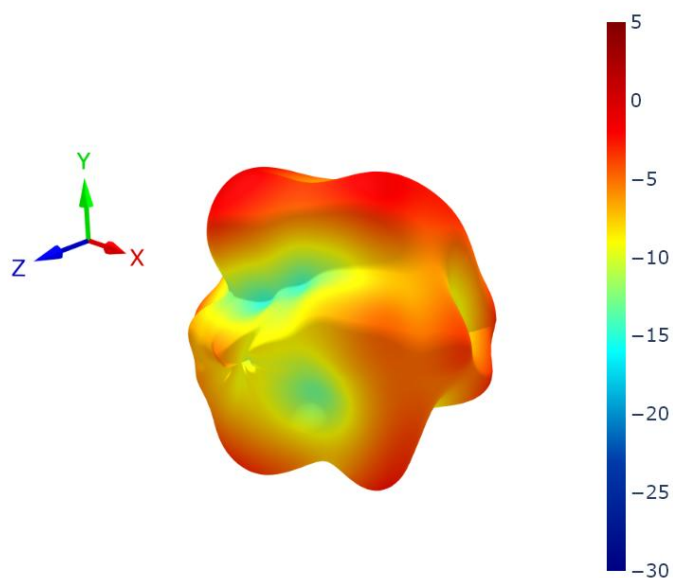
YZ Plane



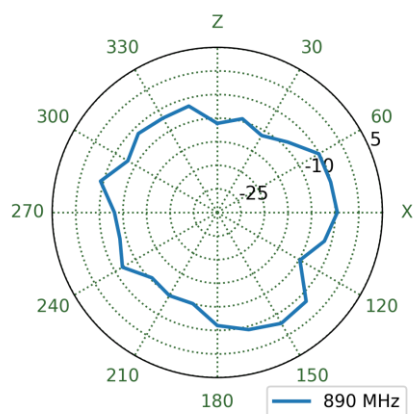
XY Plane



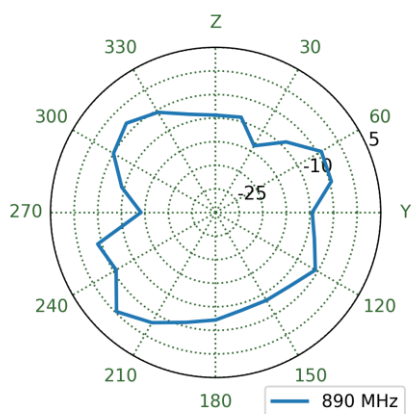
7.12 LTE 2 - 30x30cm Ground Plane Patterns at 890 MHz



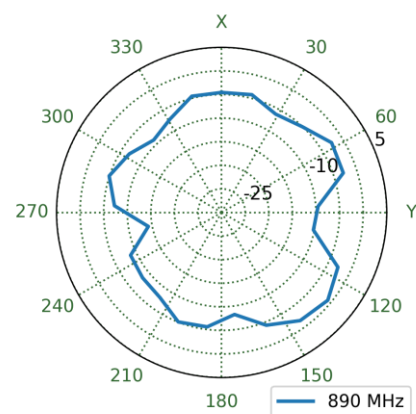
XZ Plane



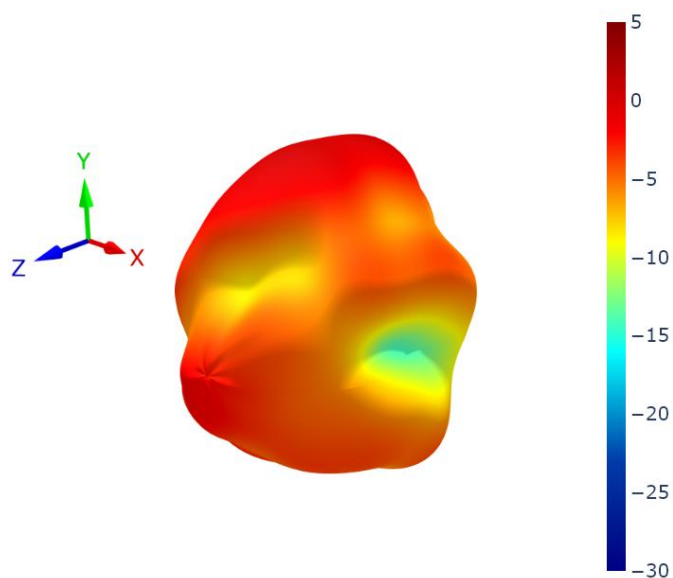
YZ Plane



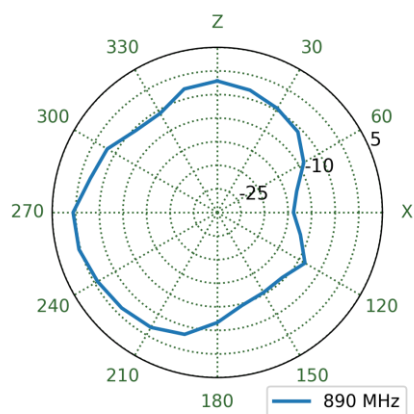
XY Plane



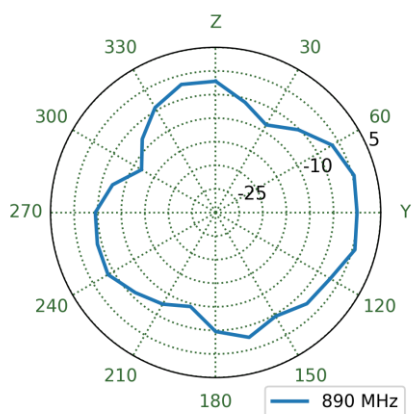
7.13 LTE 2 - Free Space Patterns at 890 MHz



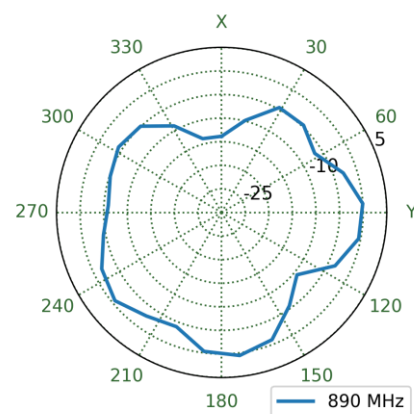
XZ Plane



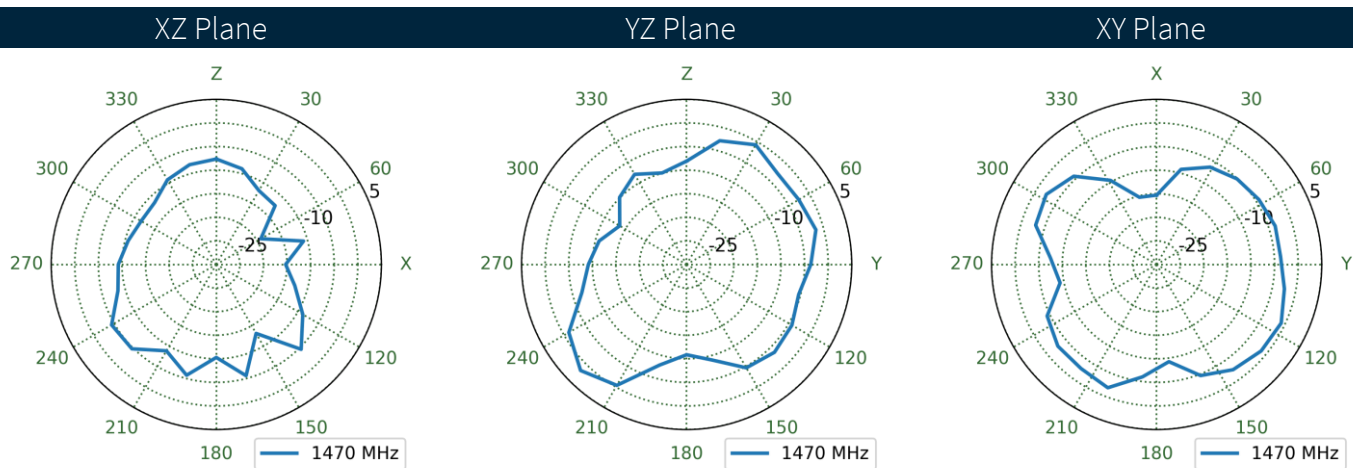
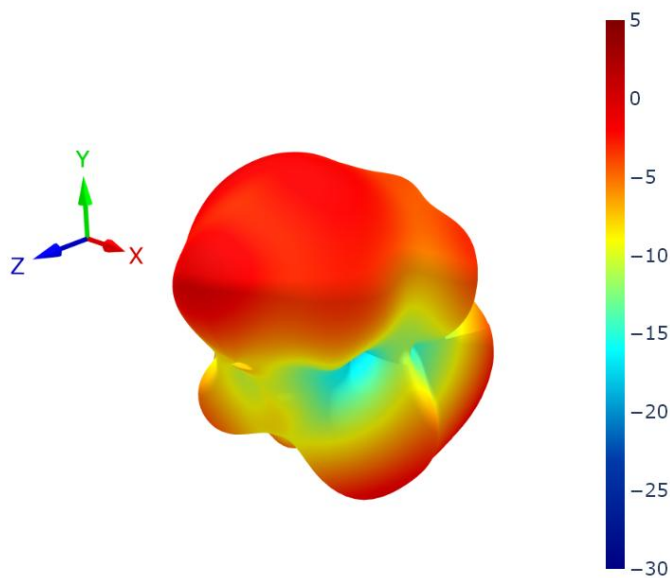
YZ Plane



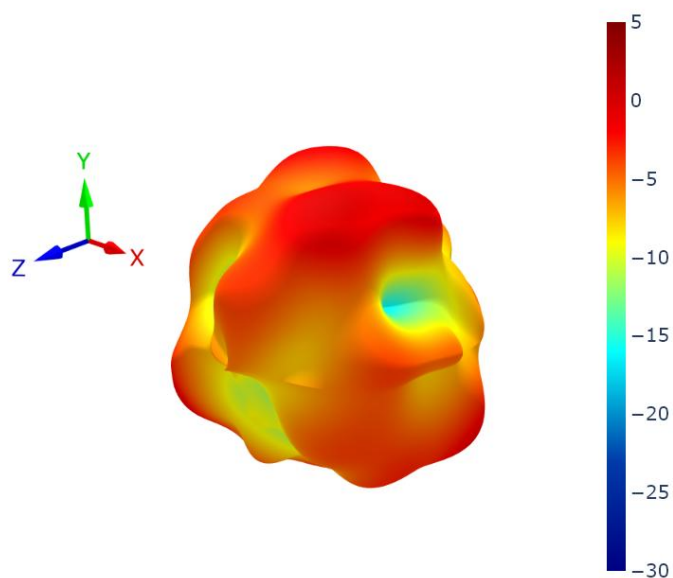
XY Plane



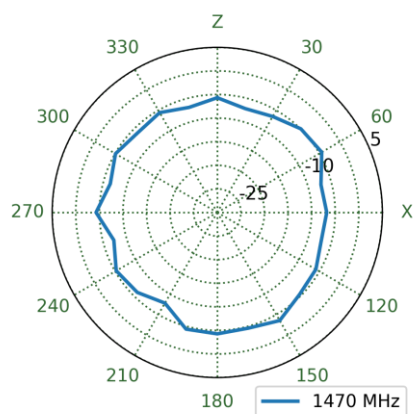
7.14 LTE 1 - 30x30cm Ground Plane Patterns at 1470 MHz



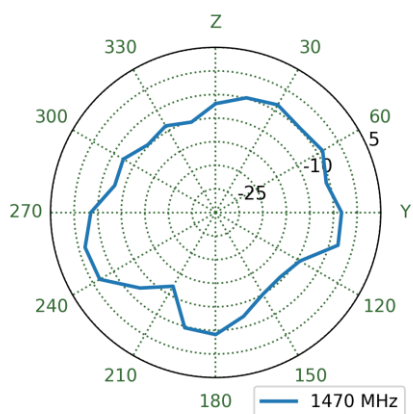
7.15 LTE 1 - Free Space Patterns at 1470 MHz



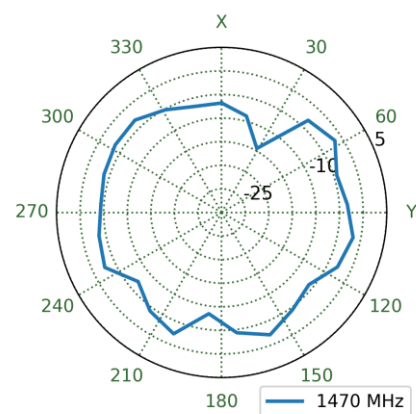
XZ Plane



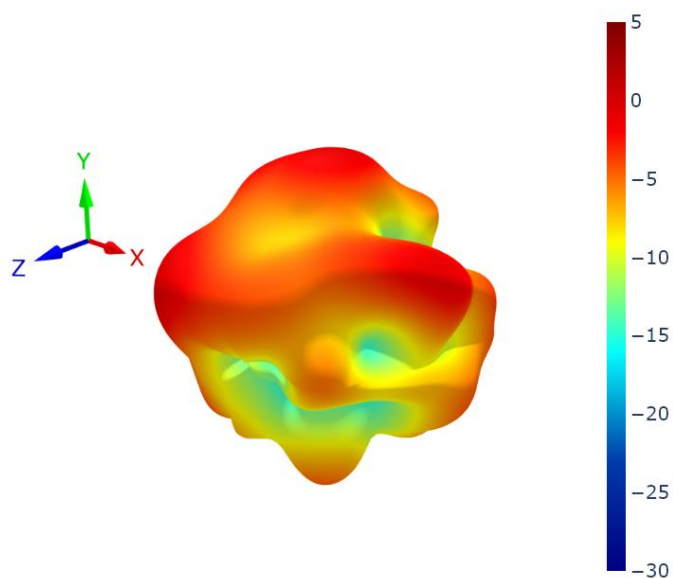
YZ Plane



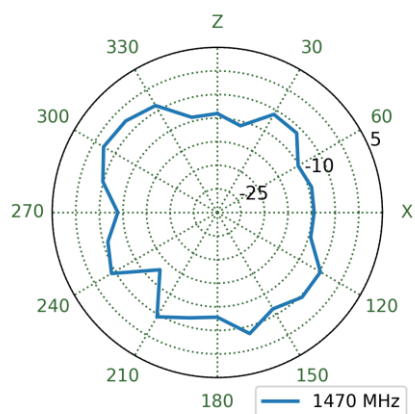
XY Plane



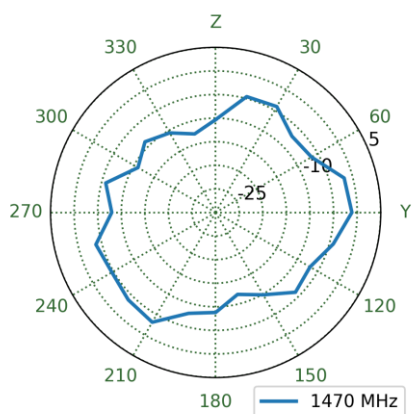
7.16 LTE 2 - 30x30cm Ground Plane Patterns at 1470 MHz



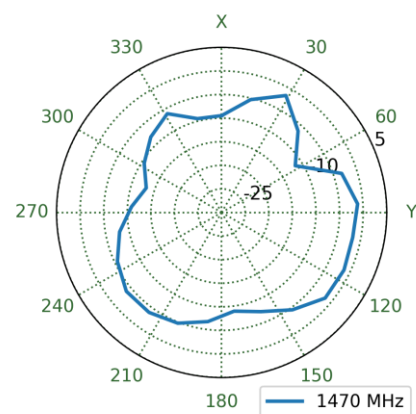
XZ Plane



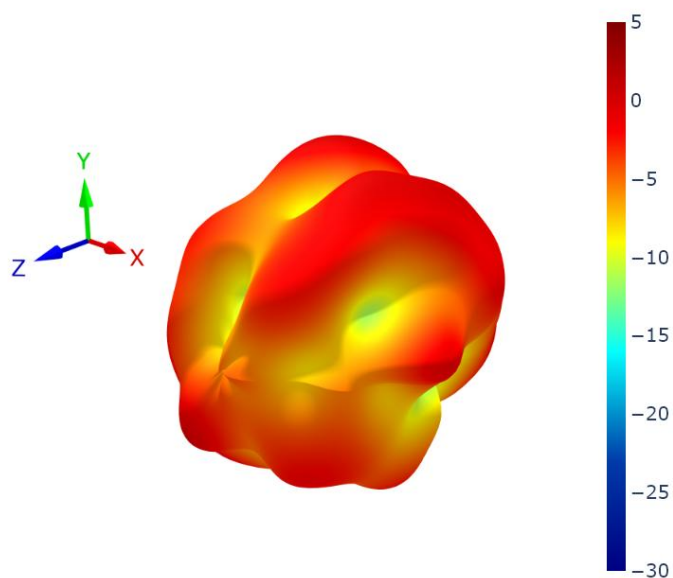
YZ Plane



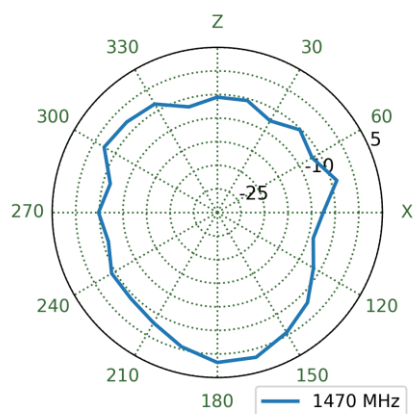
XY Plane



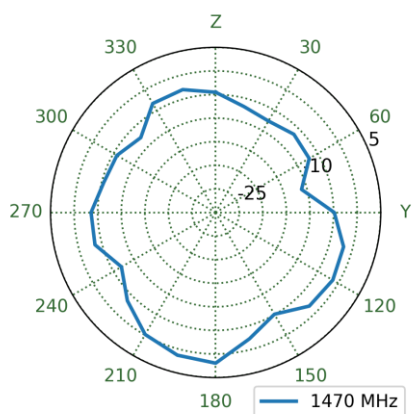
7.17 LTE 2 - Free Space Patterns at 1470 MHz



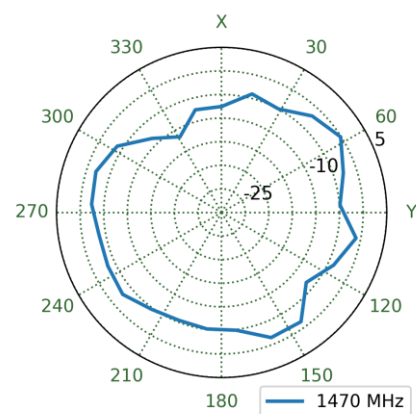
XZ Plane



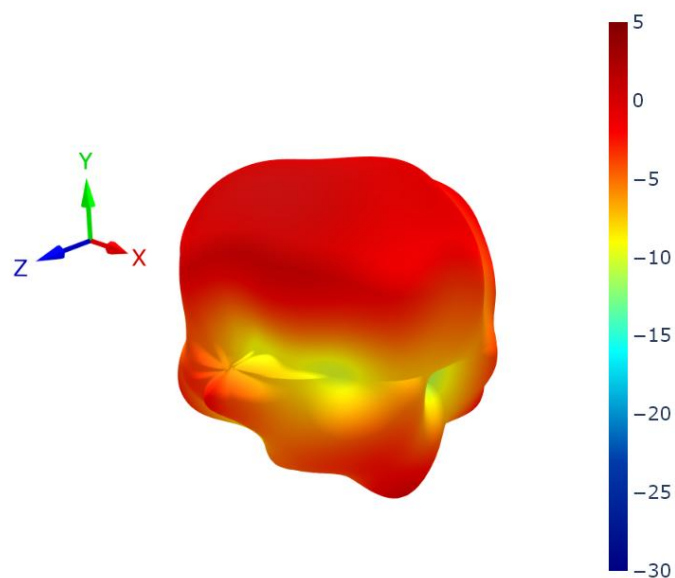
YZ Plane



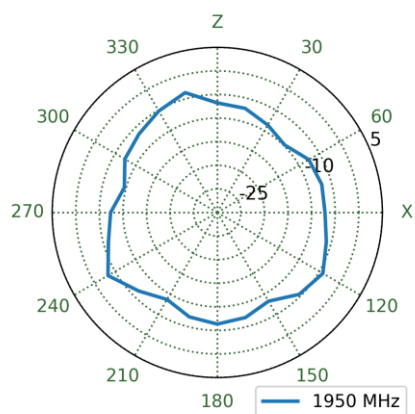
XY Plane



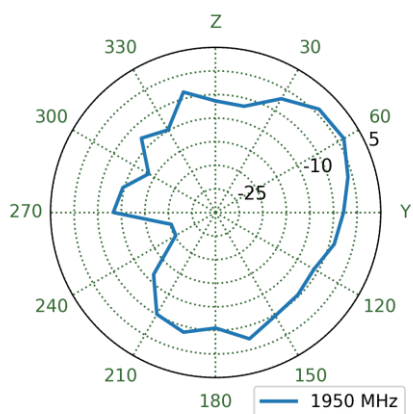
7.18 LTE 1 - 30x30cm Ground Plane Patterns at 1950 MHz



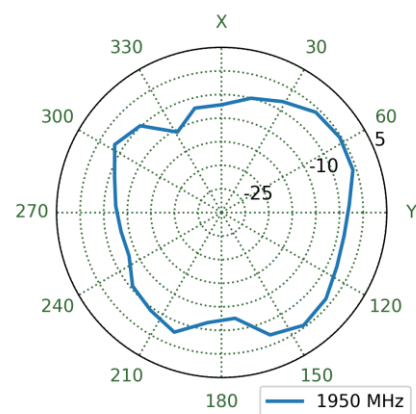
XZ Plane



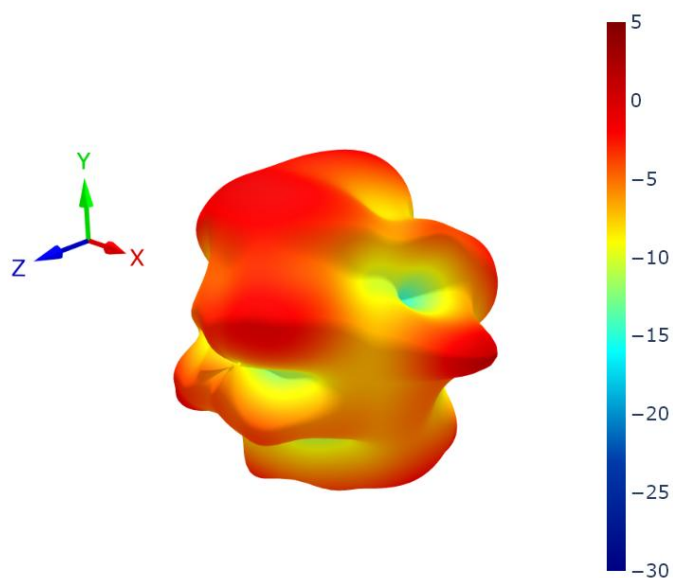
YZ Plane



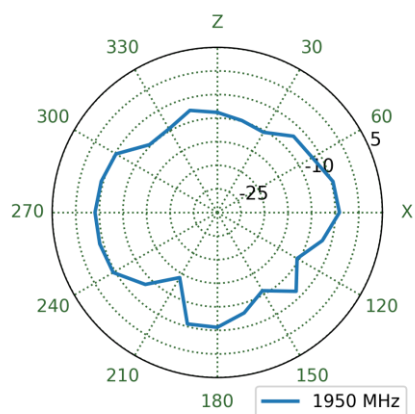
XY Plane



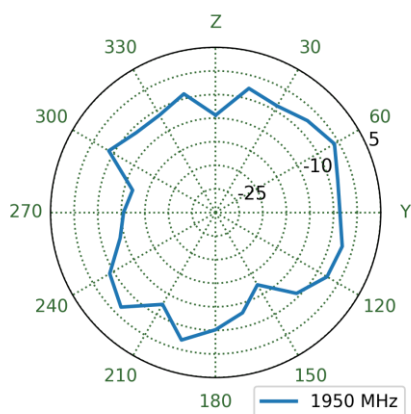
7.19 LTE 1 - Free Space Patterns at 1950 MHz



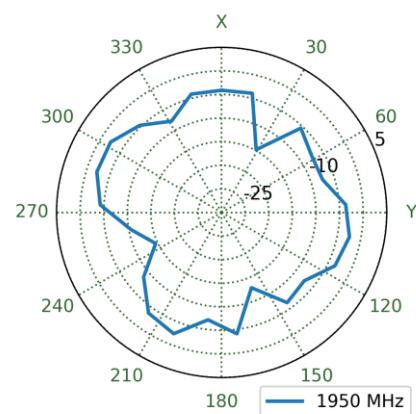
XZ Plane



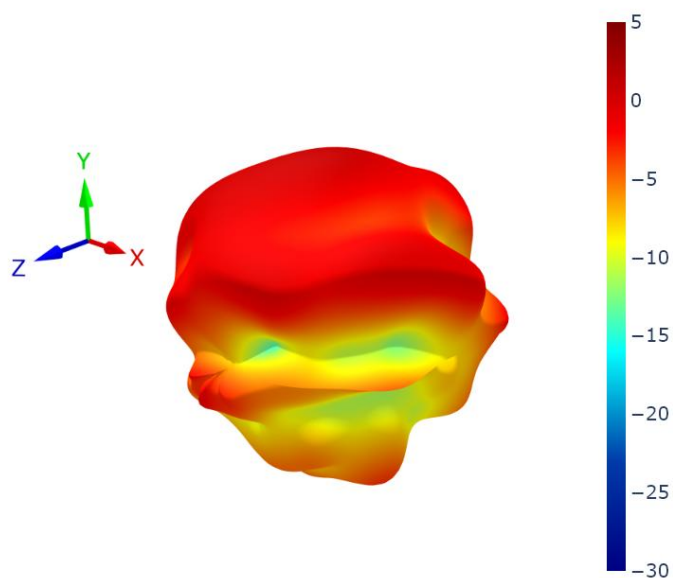
YZ Plane



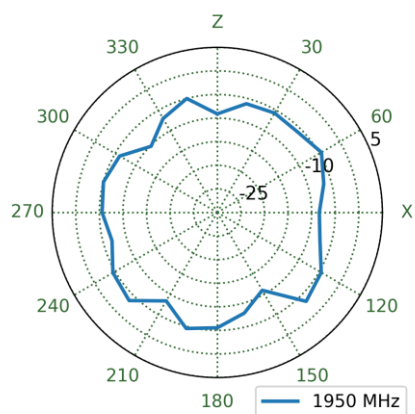
XY Plane



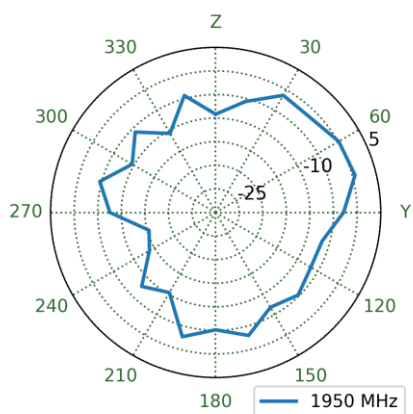
7.20 LTE 2 - 30x30cm Ground Plane Patterns at 1950 MHz



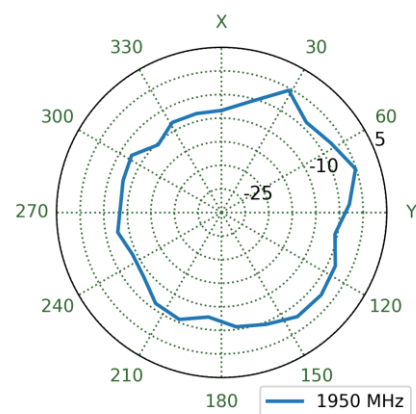
XZ Plane



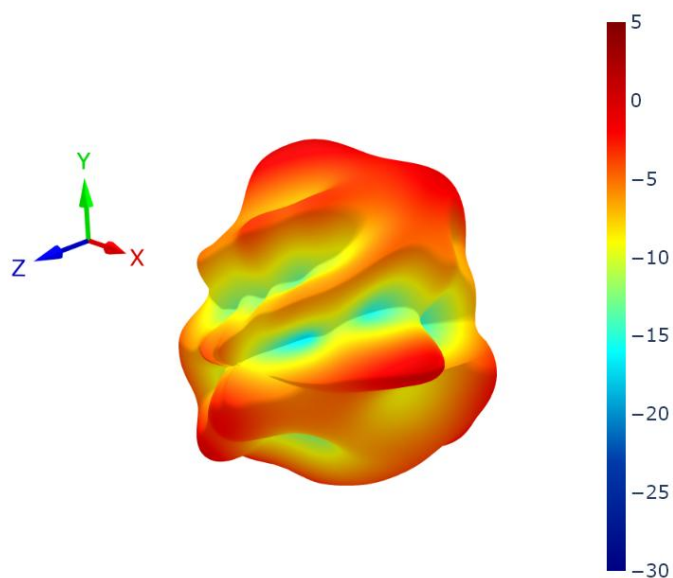
YZ Plane



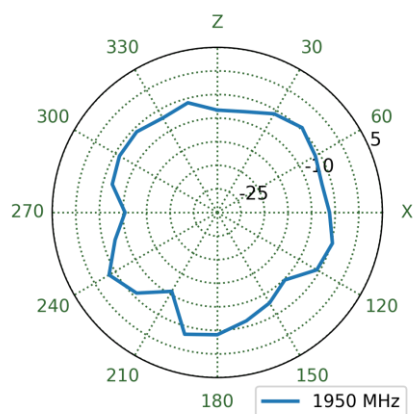
XY Plane



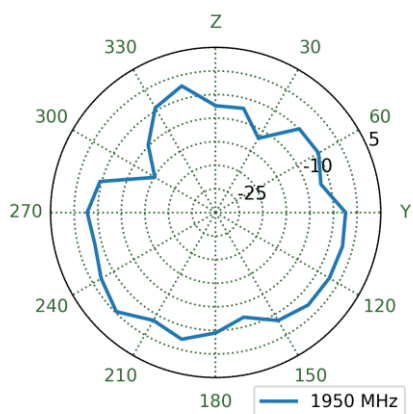
7.21 LTE 2 - Free Space Patterns at 1950 MHz



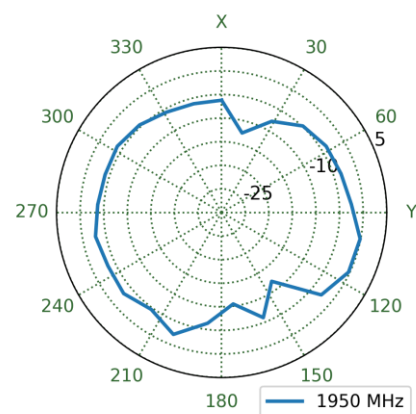
XZ Plane



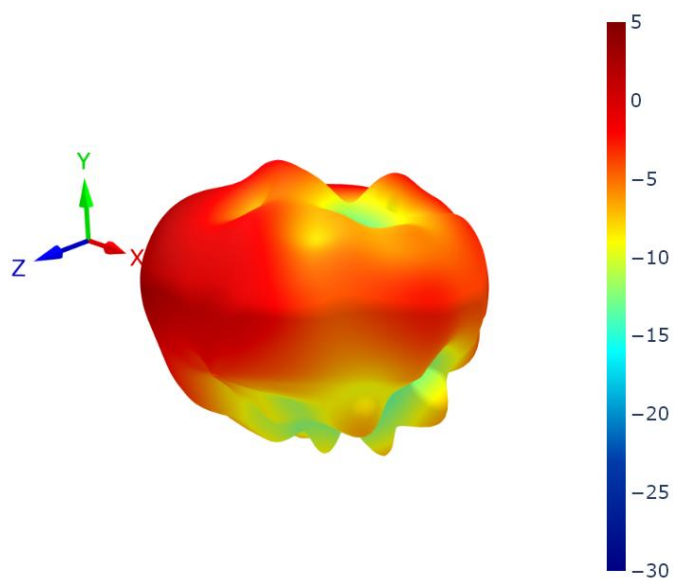
YZ Plane



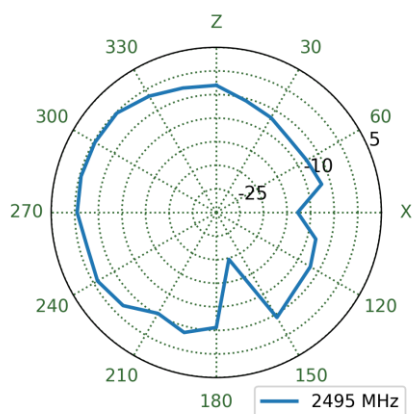
XY Plane



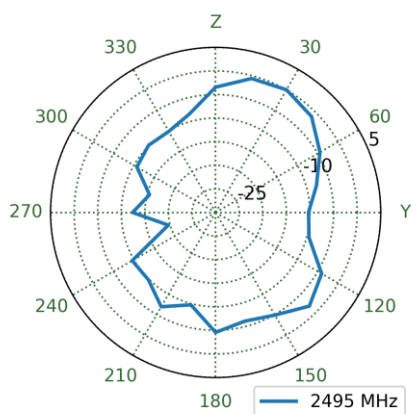
7.22 LTE 1 - 30x30cm Ground Plane Patterns at 2495 MHz



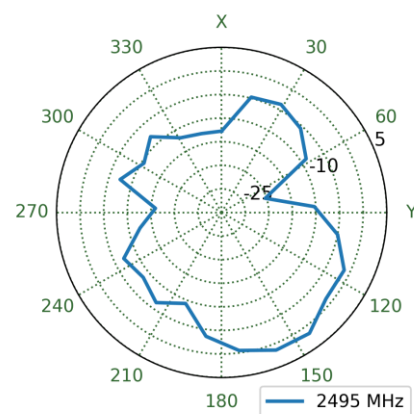
XZ Plane



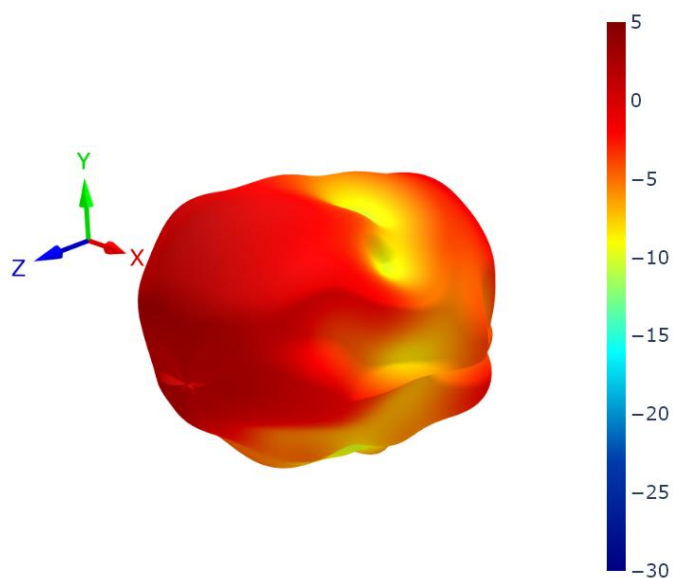
YZ Plane



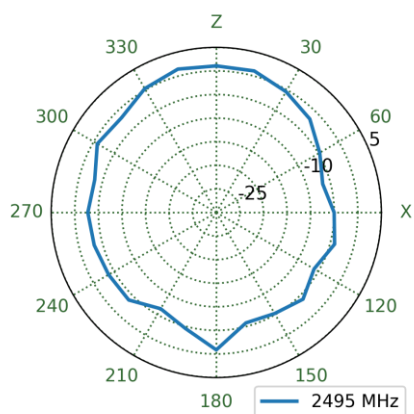
XY Plane



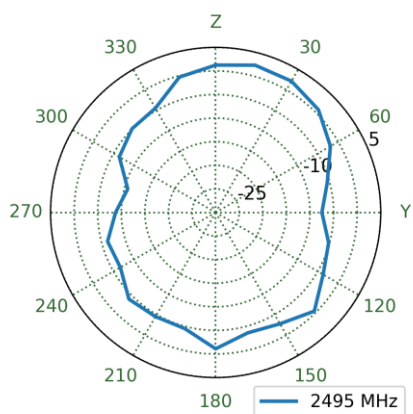
7.23 LTE 1 - Free Space Patterns at 2495 MHz



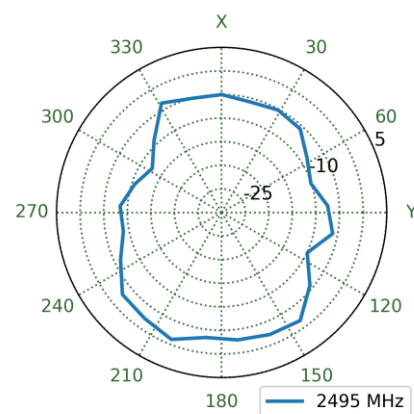
XZ Plane



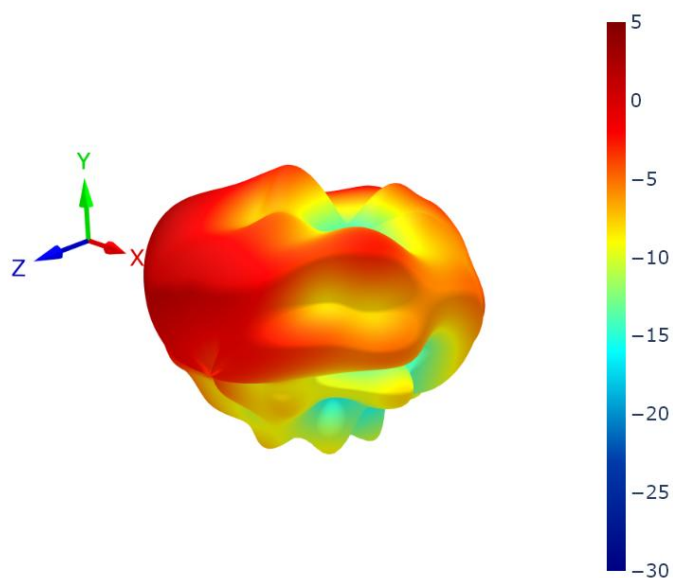
YZ Plane



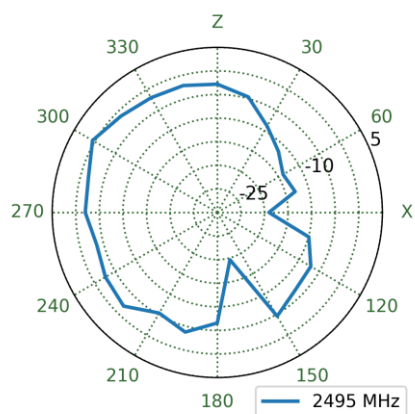
XY Plane



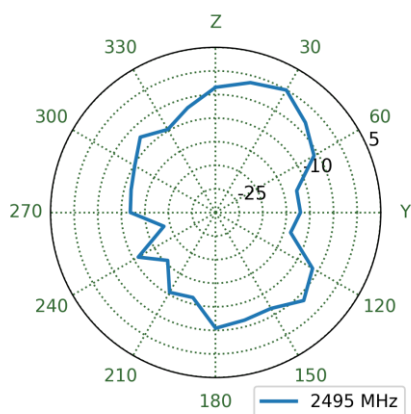
7.24 LTE 2 - 30x30cm Ground Plane Patterns at 2495 MHz



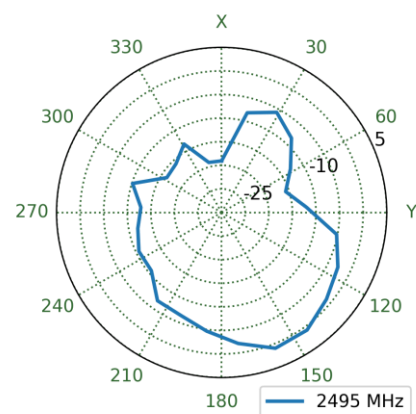
XZ Plane



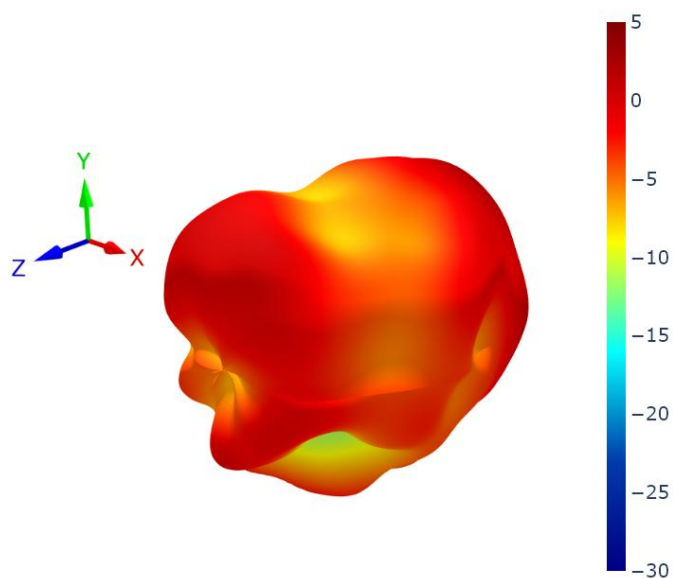
YZ Plane



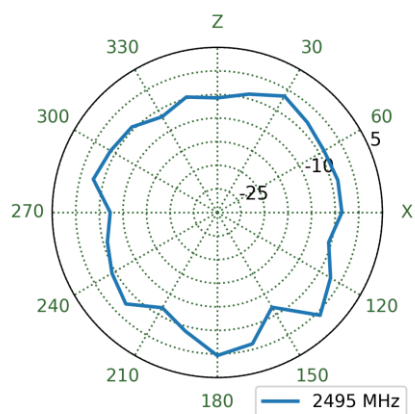
XY Plane



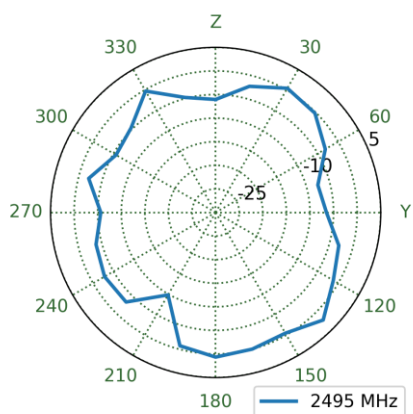
7.25 LTE 2 - Free Space Patterns at 2495 MHz



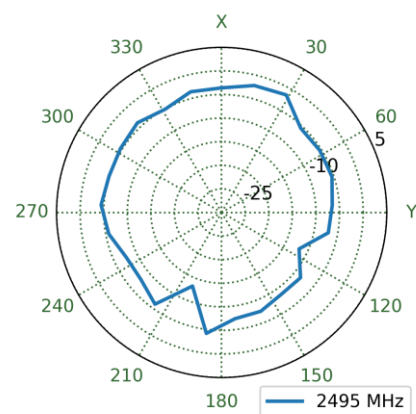
XZ Plane



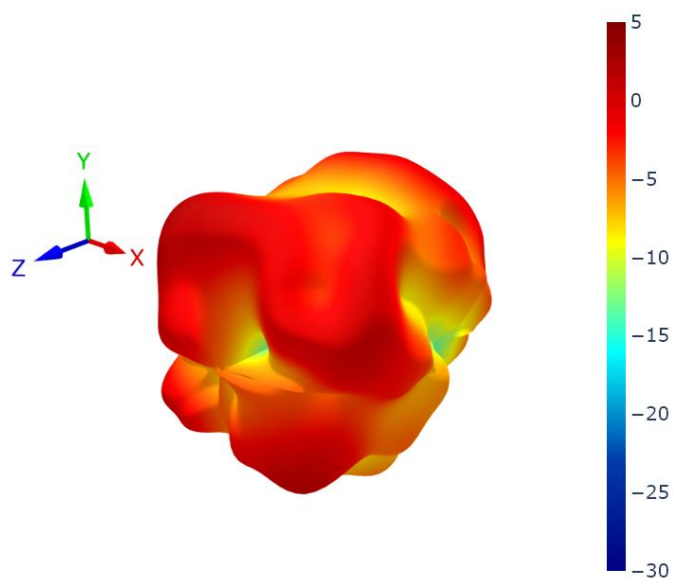
YZ Plane



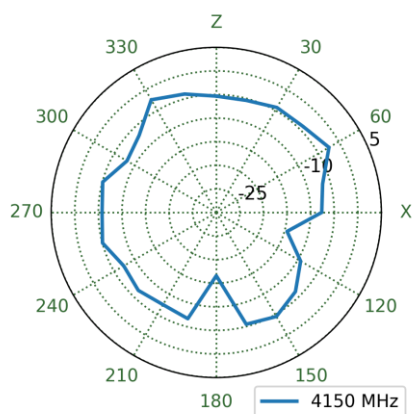
XY Plane



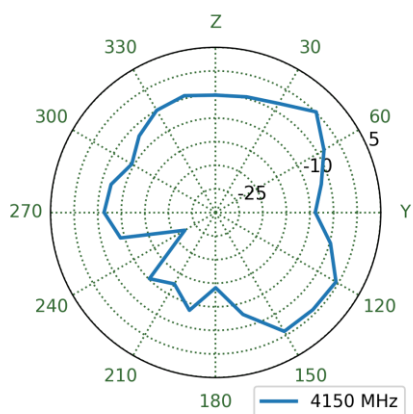
7.26 LTE 1 - 30x30cm Ground Plane Patterns at 4150 MHz



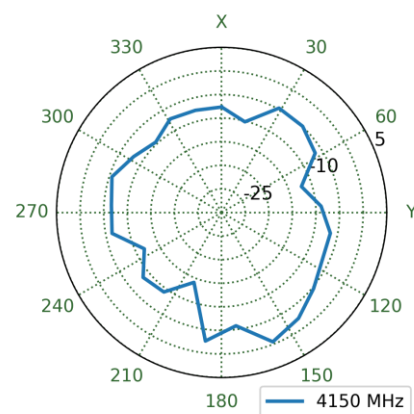
XZ Plane



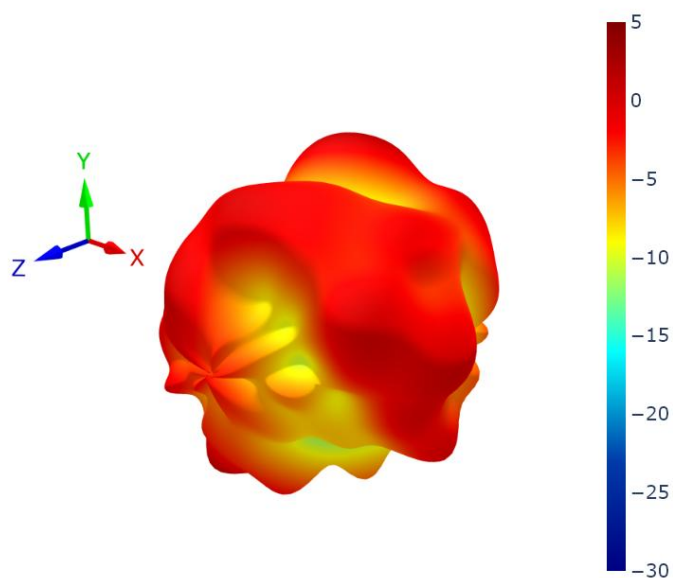
YZ Plane



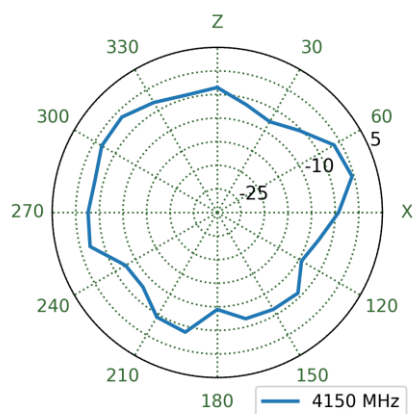
XY Plane



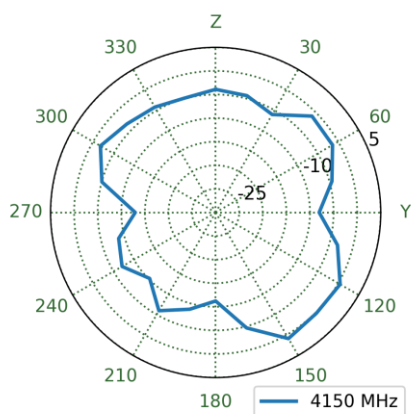
7.27 LTE 1 - Free Space Patterns at 4150 MHz



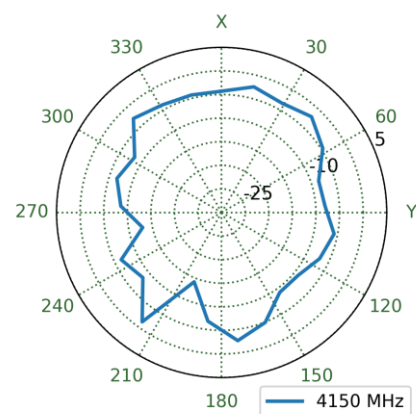
XZ Plane



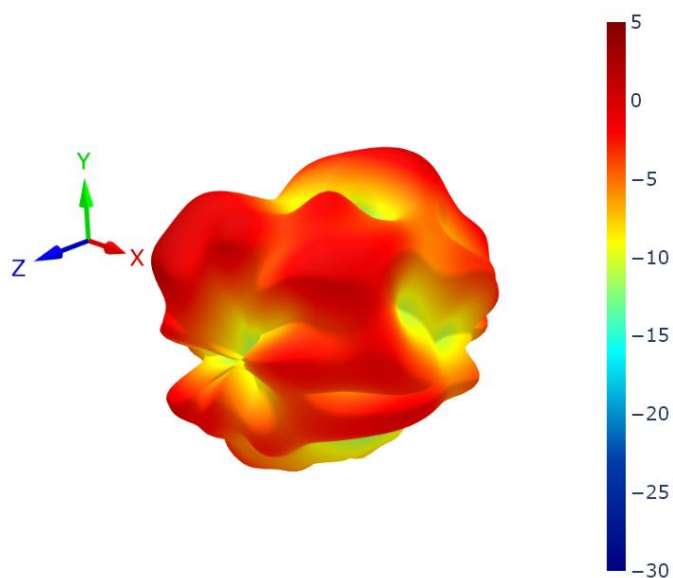
YZ Plane



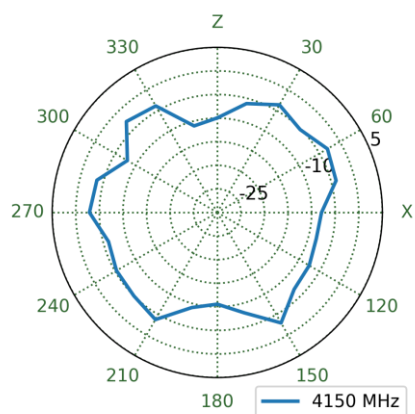
XY Plane



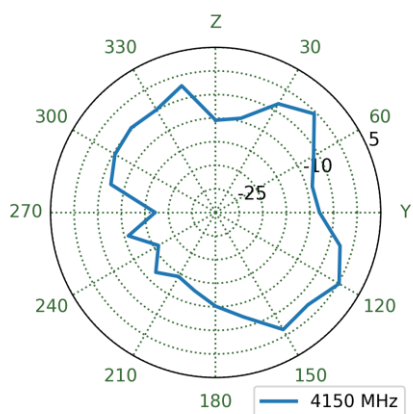
7.28 LTE 2 - 30x30cm Ground Plane Patterns at 4150 MHz



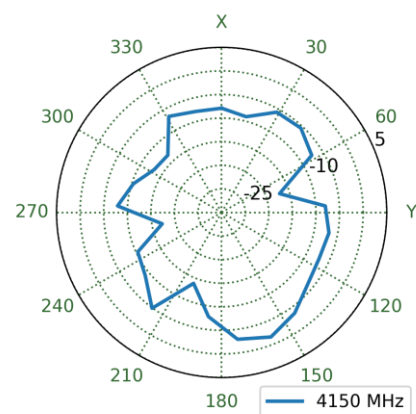
XZ Plane



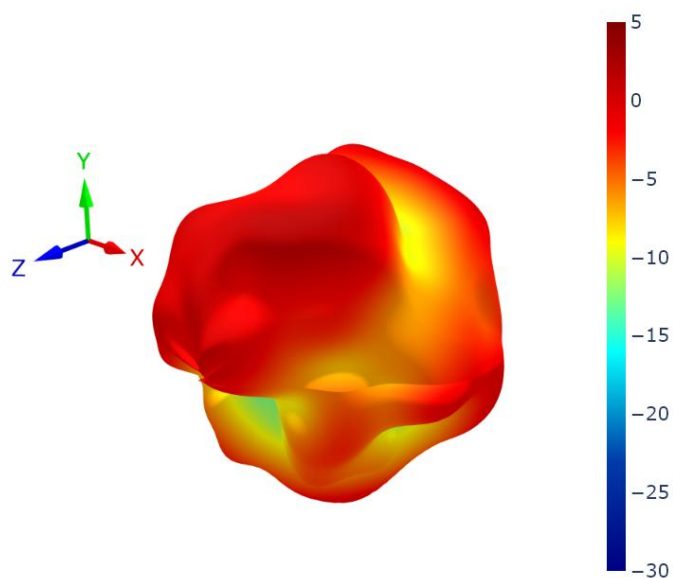
YZ Plane



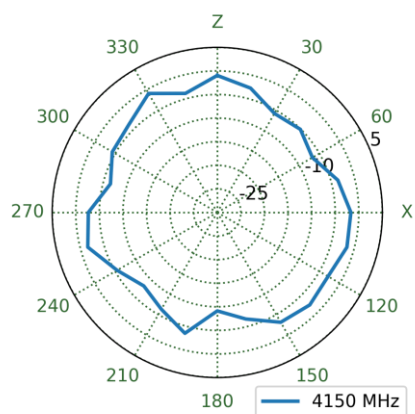
XY Plane



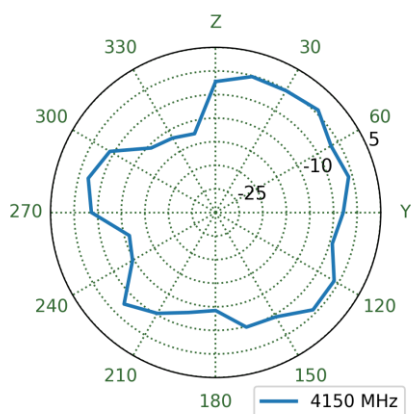
7.29 LTE 2 - Free Space Patterns at 4150 MHz



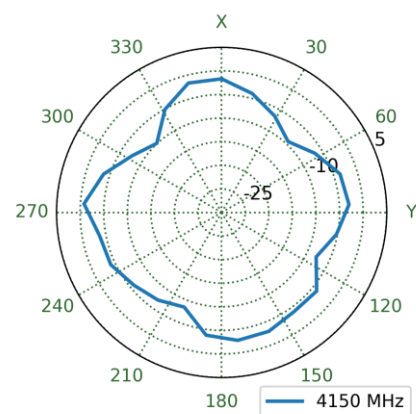
XZ Plane



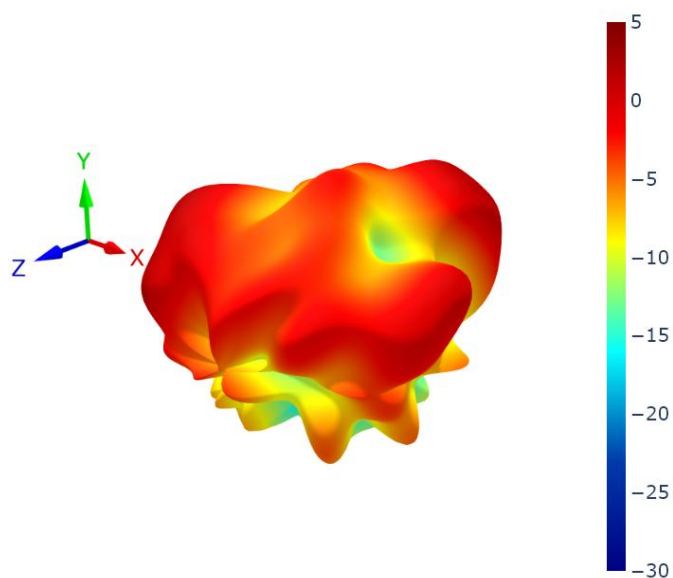
YZ Plane



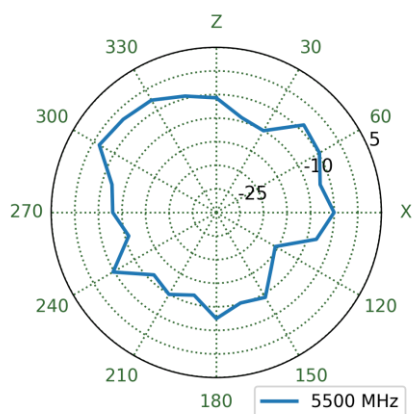
XY Plane



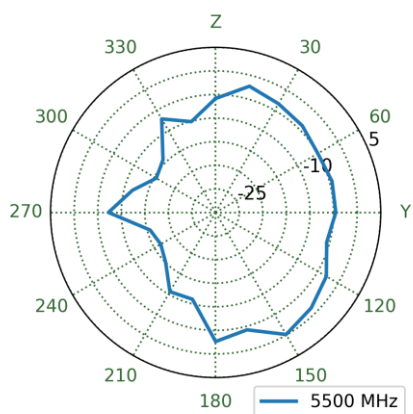
7.30 LTE 1 - 30x30cm Ground Plane Patterns at 5500 MHz



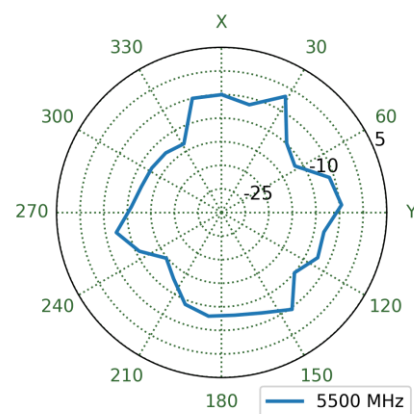
XZ Plane



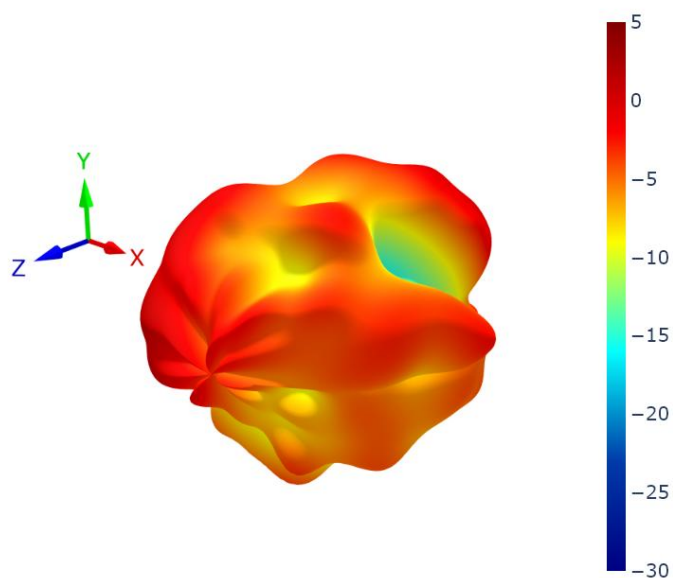
YZ Plane



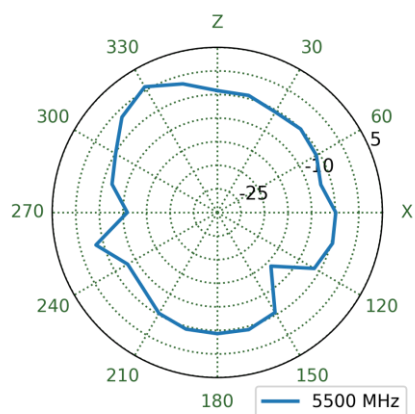
XY Plane



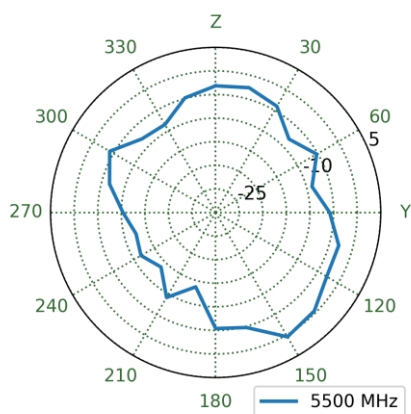
7.31 LTE 1 - Free Space Patterns at 5500 MHz



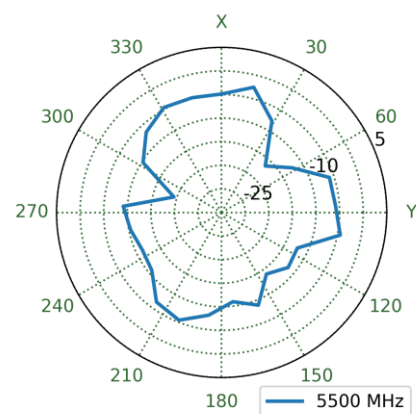
XZ Plane



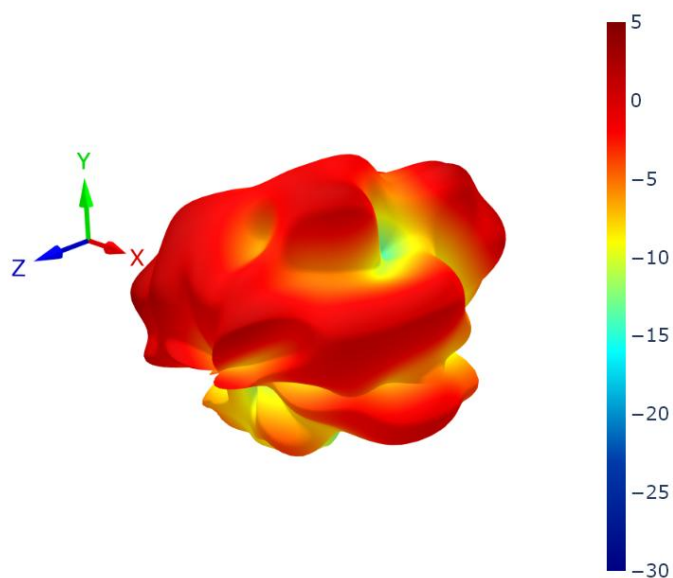
YZ Plane



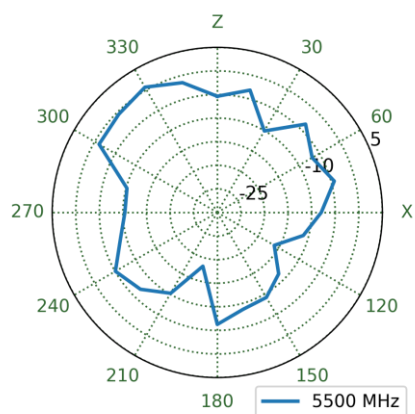
XY Plane



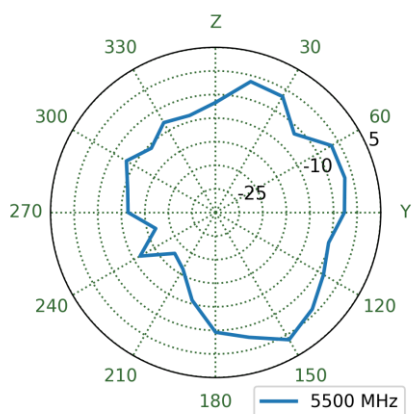
7.32 LTE 2 - 30x30cm Ground Plane Patterns at 5500 MHz



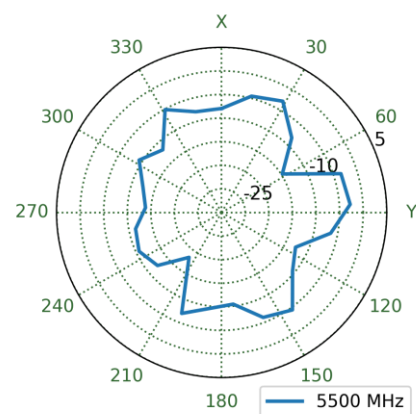
XZ Plane



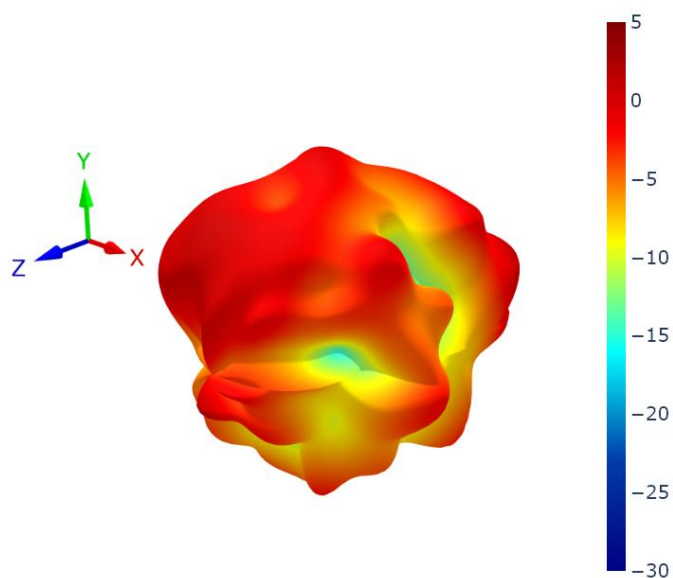
YZ Plane



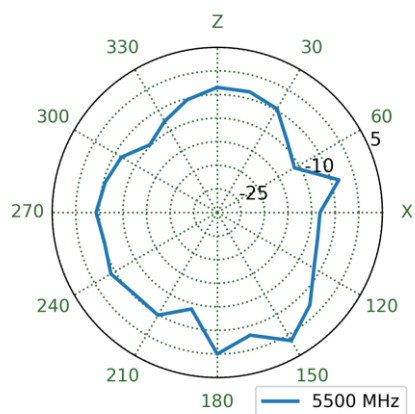
XY Plane



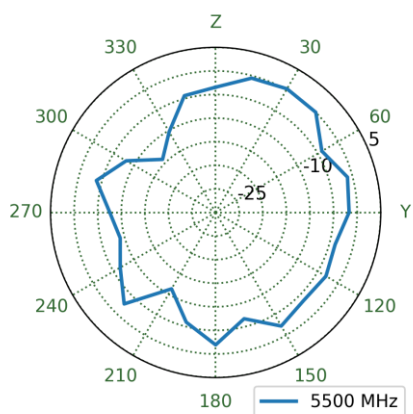
7.33 LTE 2 - Free Space Patterns at 5500 MHz



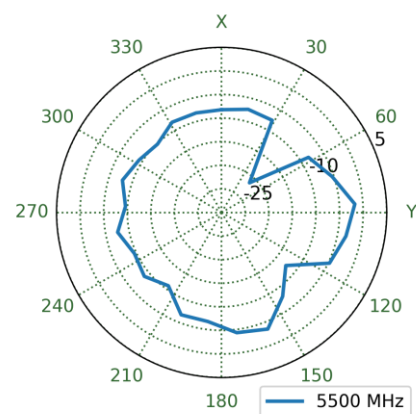
XZ Plane



YZ Plane



XY Plane



Changelog for the datasheet

SPE-19-8-152 – MA841.A.BI.002

Revision: F (Current Version)

Date:	2025-02-13
Notes:	Full datasheet update
Author:	Gary West

Previous Revisions

Revision: E (Current Version)

Date:	2025-02-13
Notes:	Updated recommended max torque figure.
Author:	Conor McGrath

Revision: D

Date:	2023-10-20
Notes:	Full update – Added ground plane test data.
Author:	Gary West

Revision: C

Date:	2023-07-25
Notes:	Updated specifications
Author:	Cesar Sousa

Revision: B

Date:	2022-02-18
Notes:	Updated data, Coverage up to 6GHz.
Author:	Gary West

Revision: A (Original First Release)

Date:	2019-12-09
Notes:	
Author:	Jack Conroy



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