

Datasheet



TAOGLAS®

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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Changelog

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046
QUALITY MANAGEMENT SYSTEM
IATF16949



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

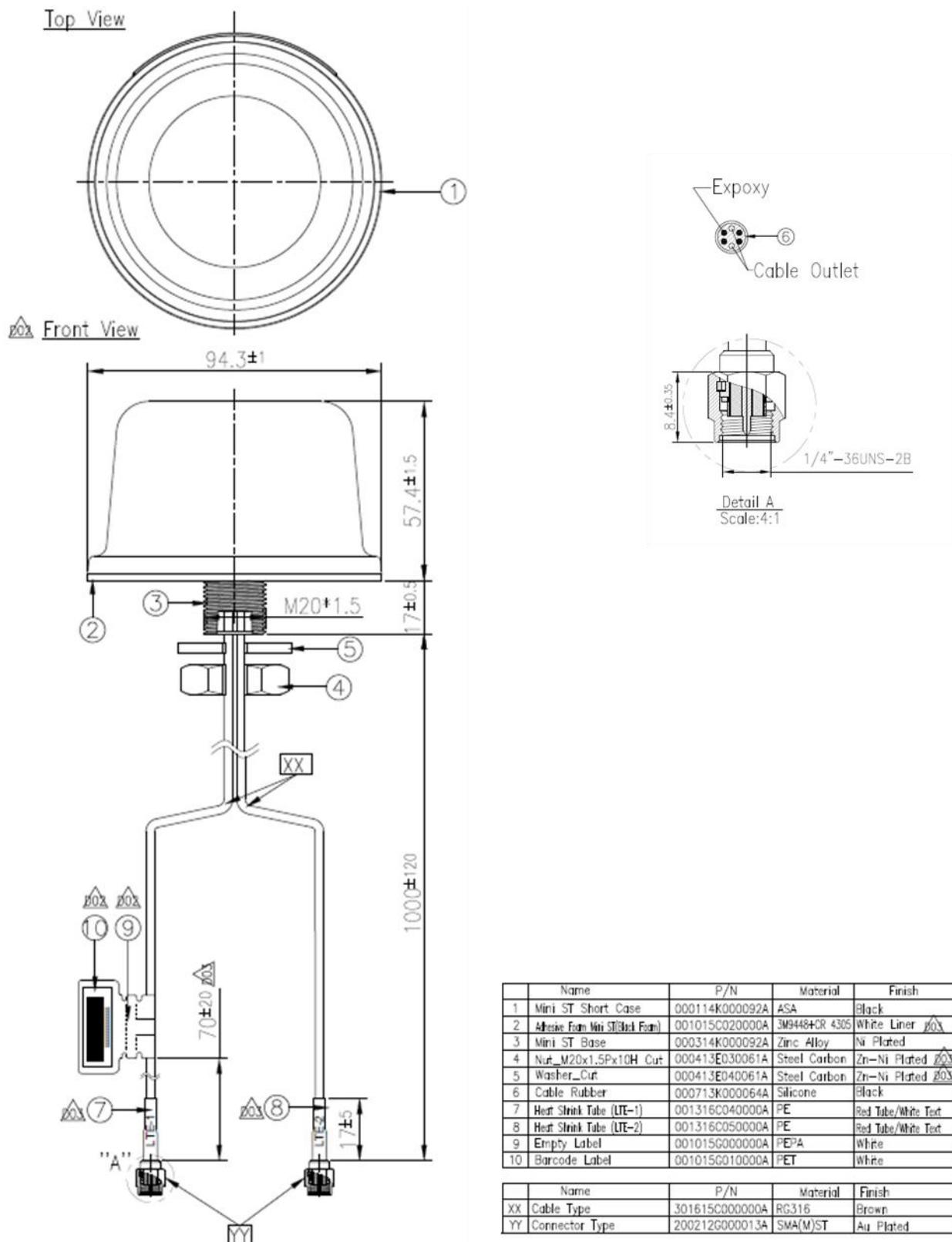
Electrical										
Band	Frequency (MHz)	Measurement	Efficiency (%)	Average Gain (dB)	Peak Gain (dBi)	Impedance	Polarization	Radiation Pattern	Max. input power	
5GNR/4G Band71	617-698	LTE 1 - 30x30cm Ground Plane	48.9	-3.11	2.57	50 Ω	Linear	Omni directional	10W	
		LTE 1 - Free Space	40.7	-3.90	1.84					
		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	50 Ω	Linear	Omni directional	10W	
		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	50 Ω	Linear	Omni directional	10W	
		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					
5GNR/4G Band 21,32,74,75,76	1427-1518	LTE 1 - 30x30cm Ground Plane	38.3	-4.17	2.29	50 Ω	Linear	Omni directional	10W	
		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	50 Ω	Linear	Omni directional	10W	
		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	50 Ω	Linear	Omni directional	10W	
		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					
5GNR/4G Band 22,42,48,77,78,79	3300-5000	LTE 1 - 30x30cm Ground Plane	40.5	-3.93	4.70	50 Ω	Linear	Omni directional	10W	
		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	50 Ω	Linear	Omni directional	10W	
		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

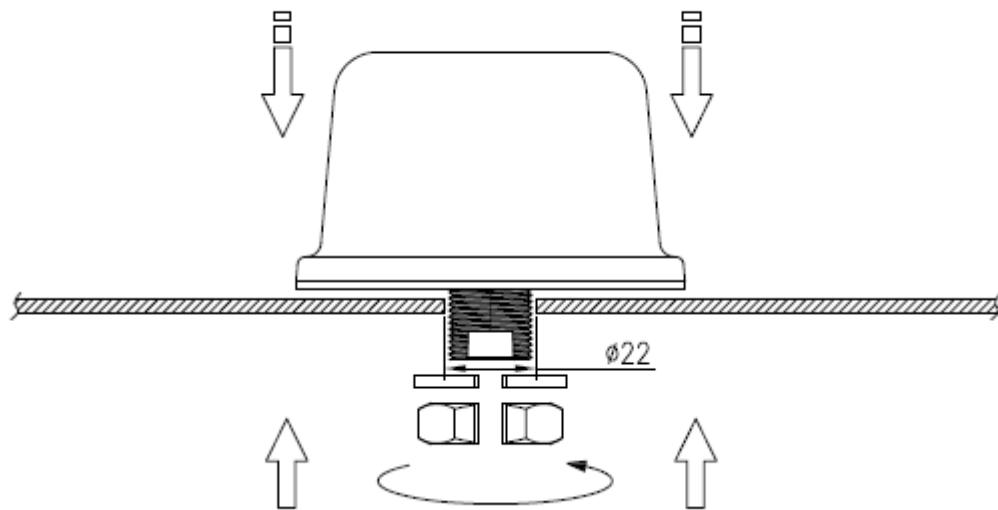
Mechanical	
Dimensions	Diameter: 94.3mm, Height: 57.4 mm
Casing	ASA
Base and thread	Zinc Alloy
Weight	250g
Ingress Protection Rating	IP69K
Maximum Assembly Torque	30 N•m
Cable	1m RG-316
Connectors	SMA(M)

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

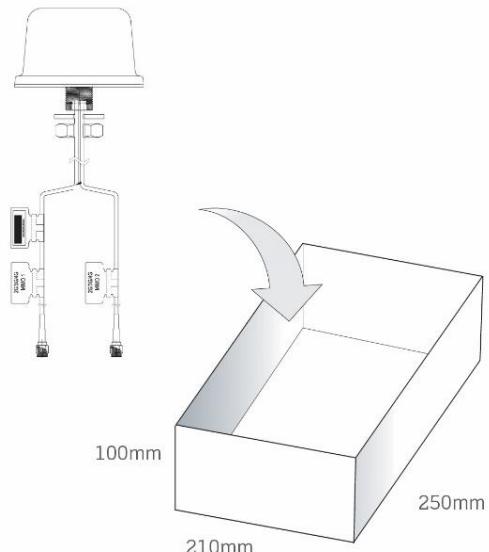


4. Installation Recommendation

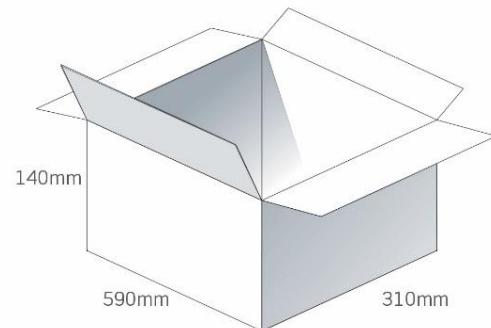


5. Packaging

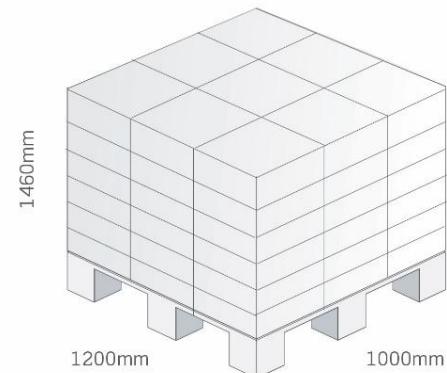
1 No. MA841.A.BI.002 per small box
 Box Dimensions - 133 x 133 x 135mm
 Weight - 350g



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

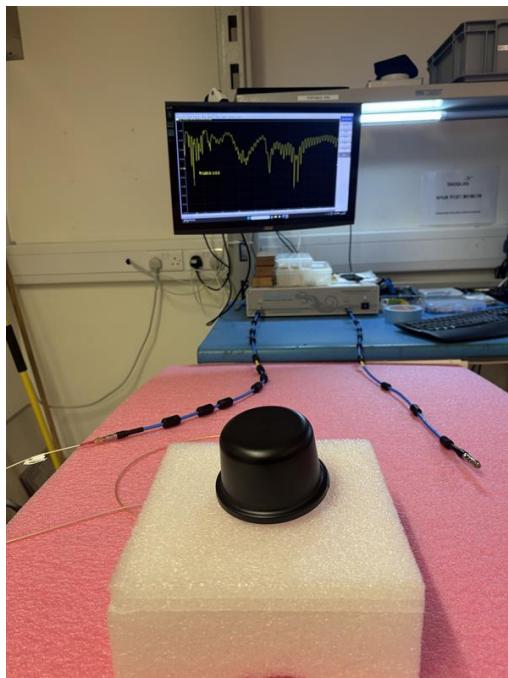
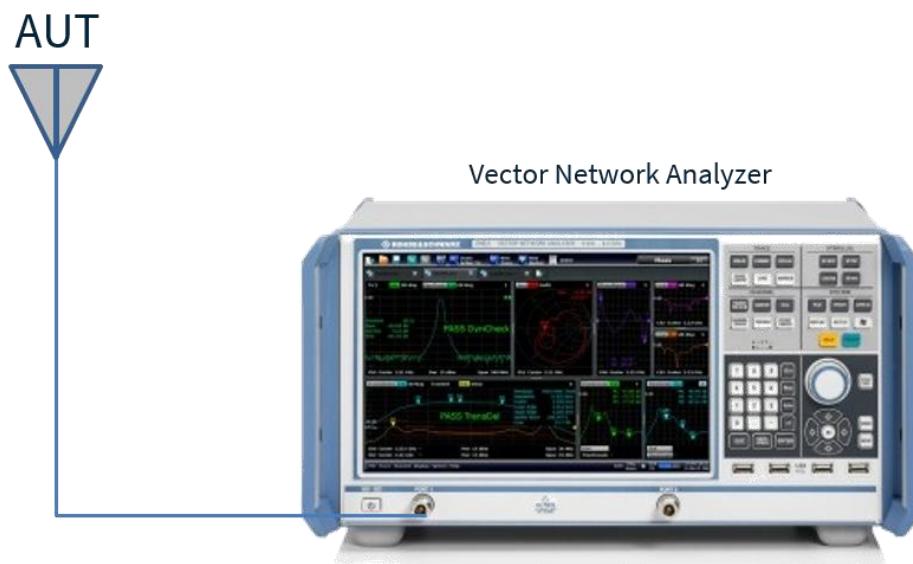


Pallet Dimensions 1200*1000*1460mm
 54 Cartons per Pallet
 9 Cartons per layer
 6 Layers

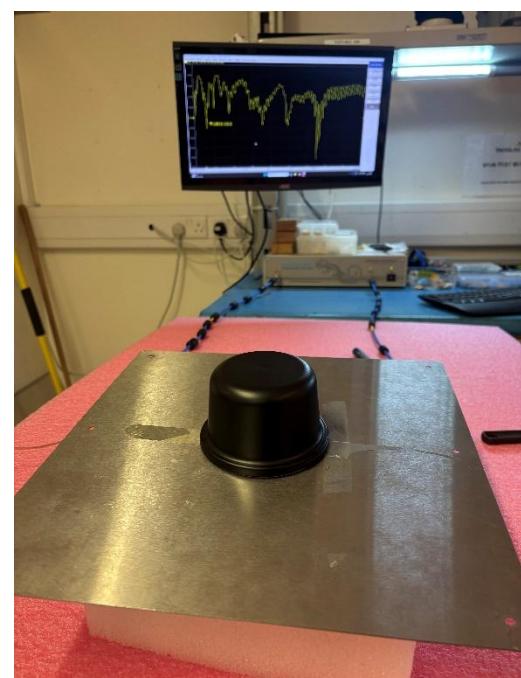


6. Antenna Characteristics

6.1 Test Setup

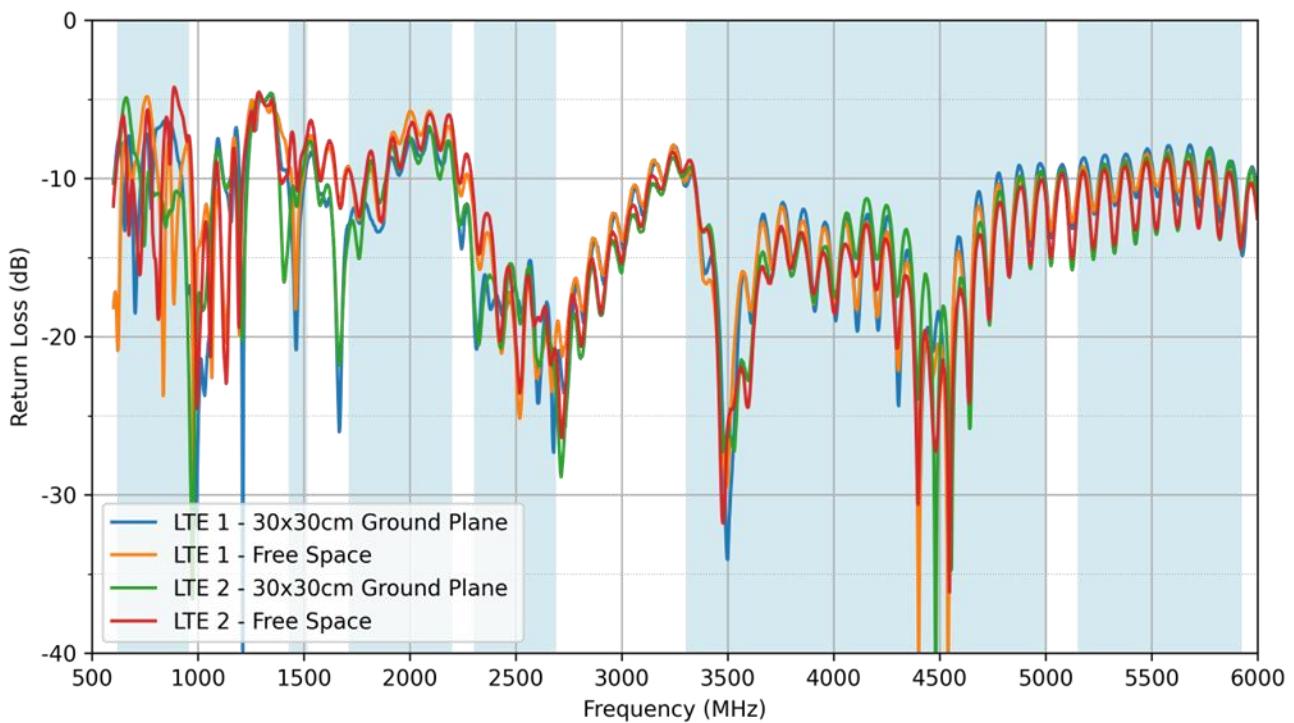


VNA Test Set-up in Free Space

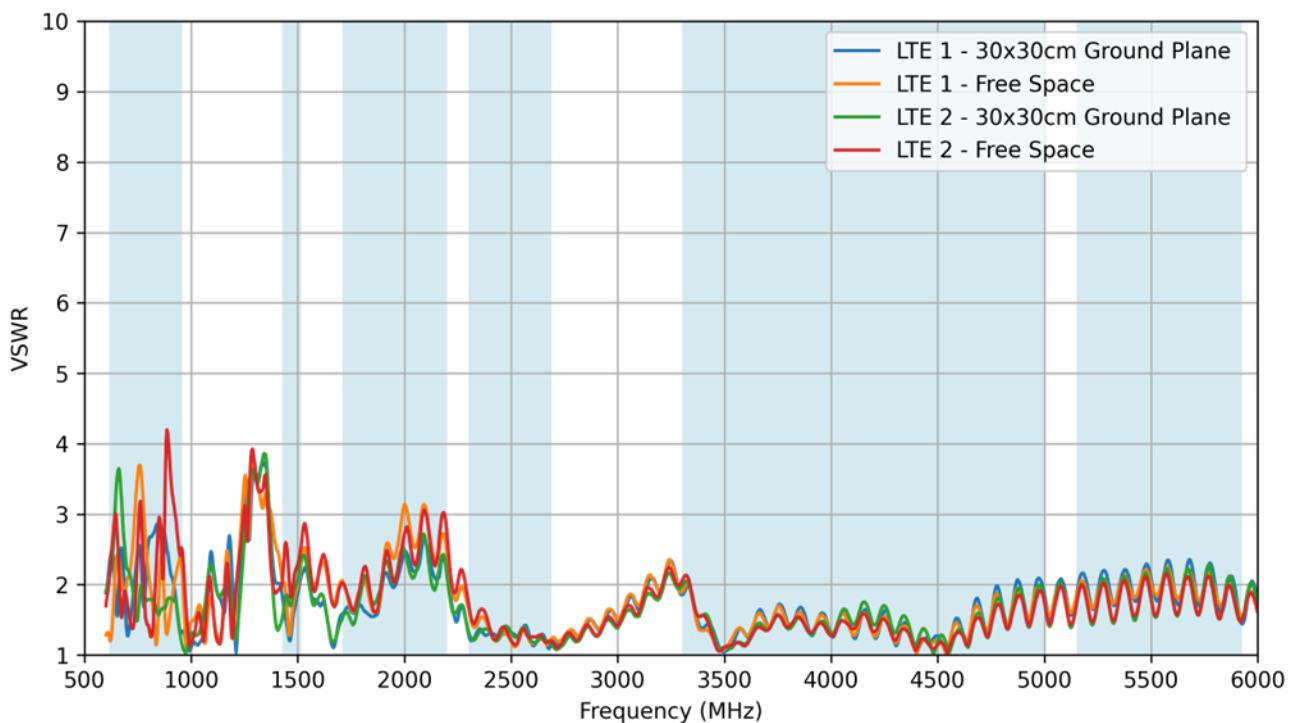


VNA Test Set-up on
30x30cm Ground Plane

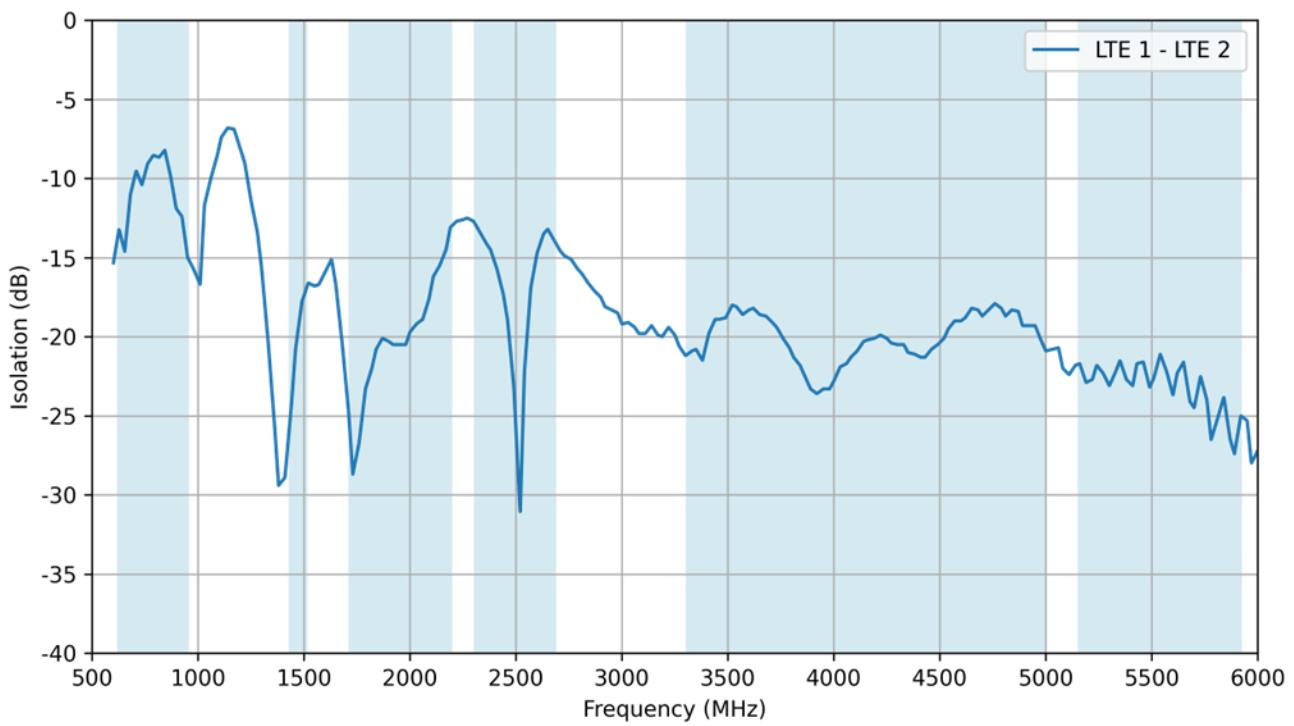
6.2 Return Loss



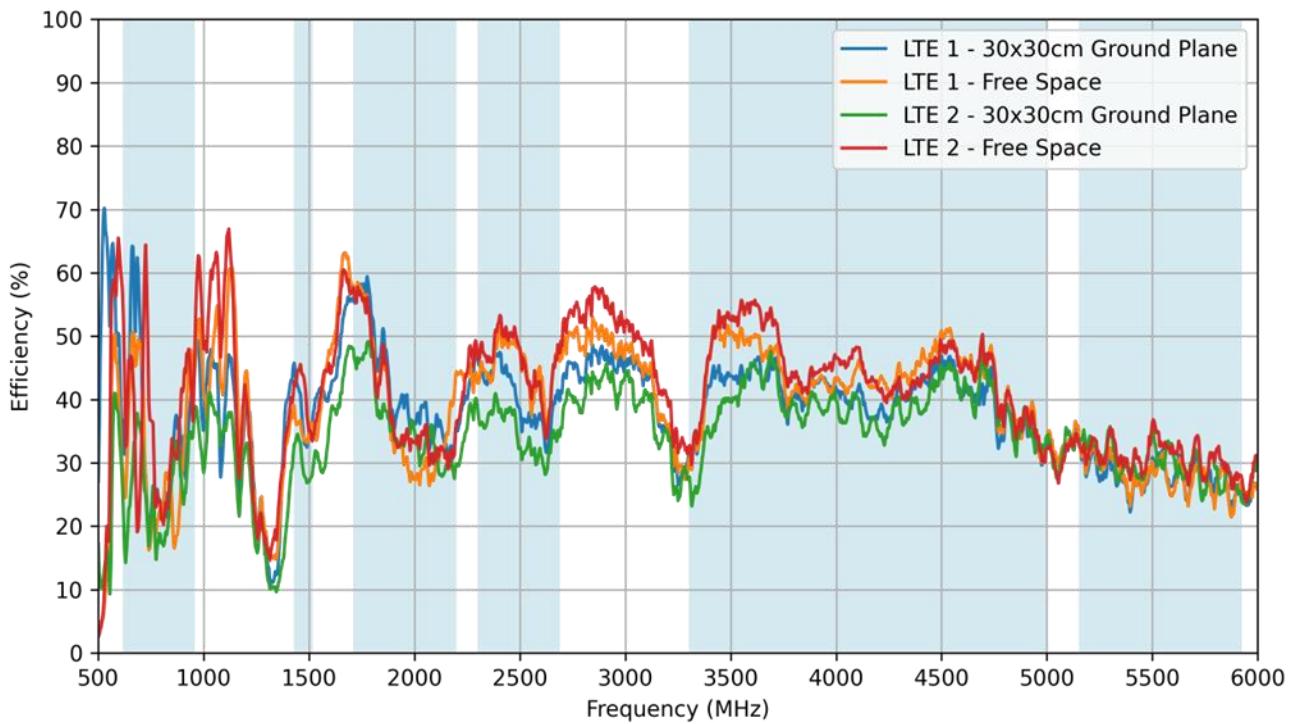
6.3 VSWR



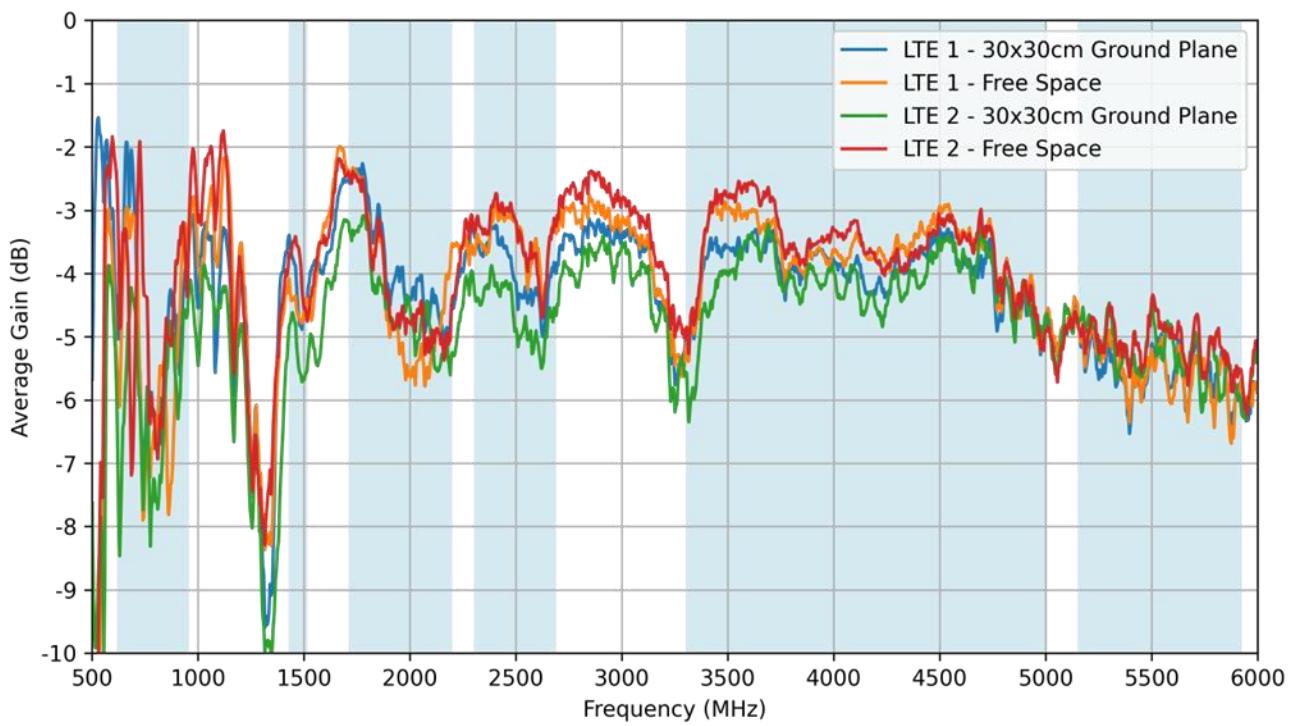
6.4 Isolation



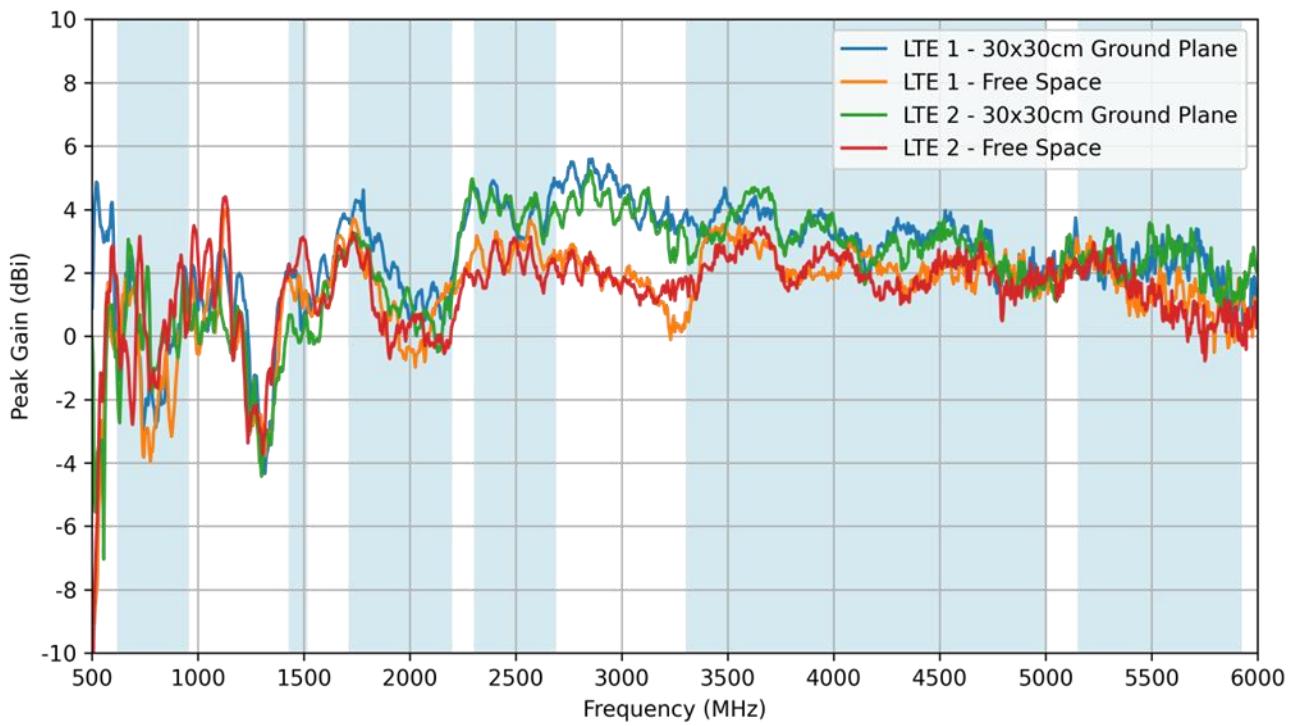
6.5 Efficiency



6.6 Average Gain

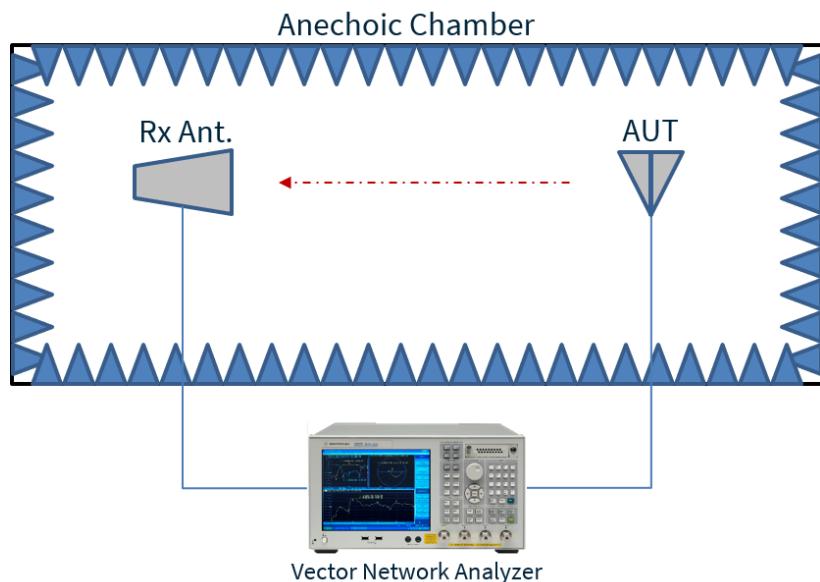


6.7 Peak Gain

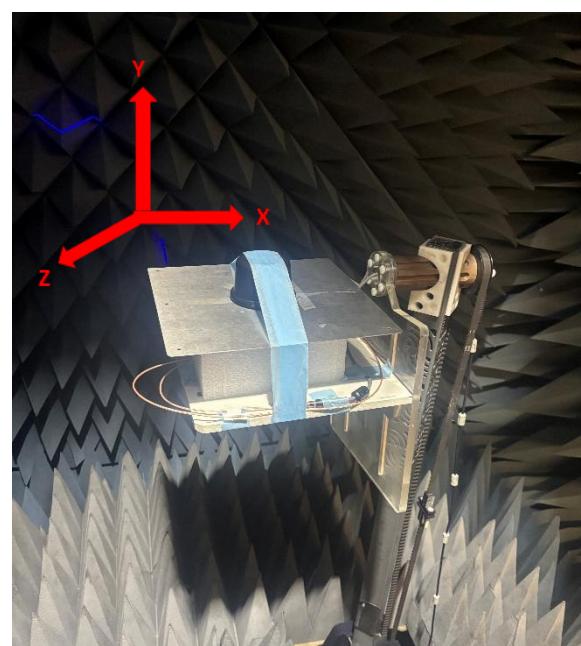


7. Radiation Patterns

7.1 Test Setup

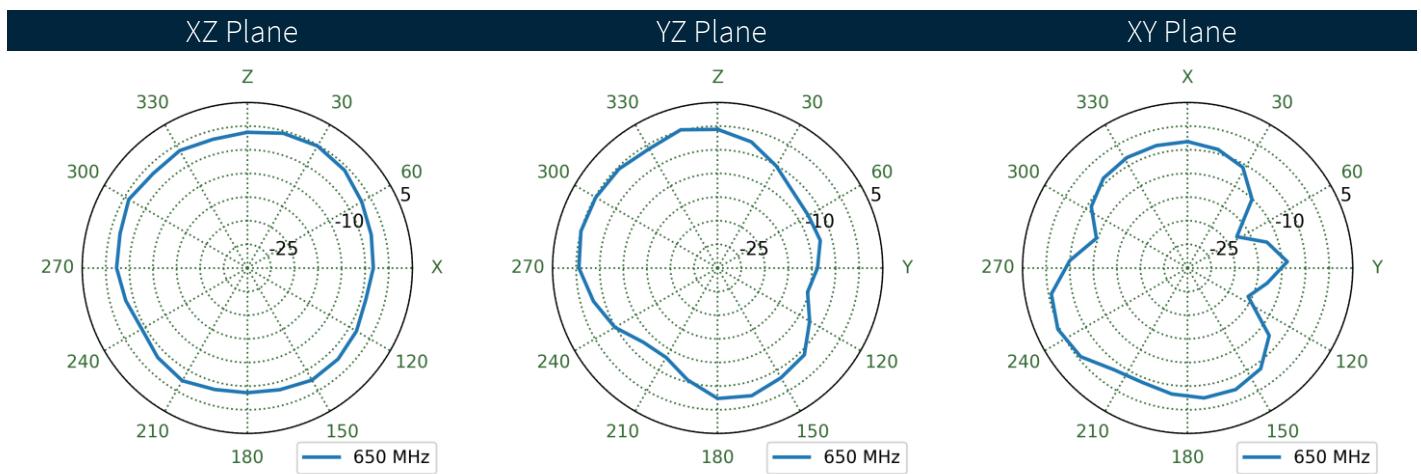
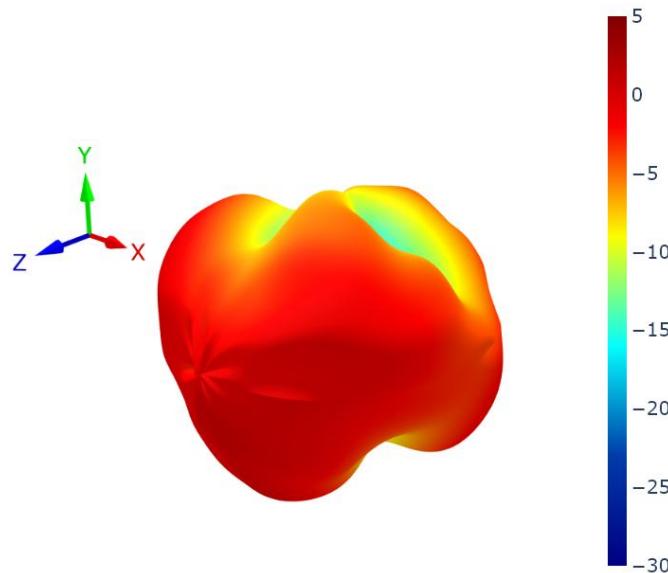


Chamber Test Set-up in Free Space

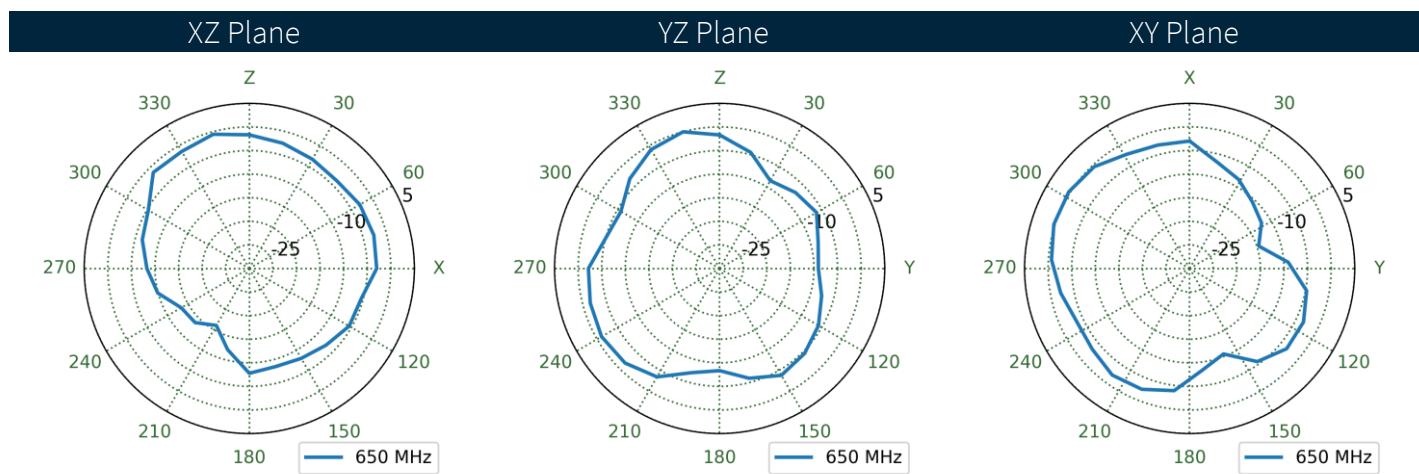
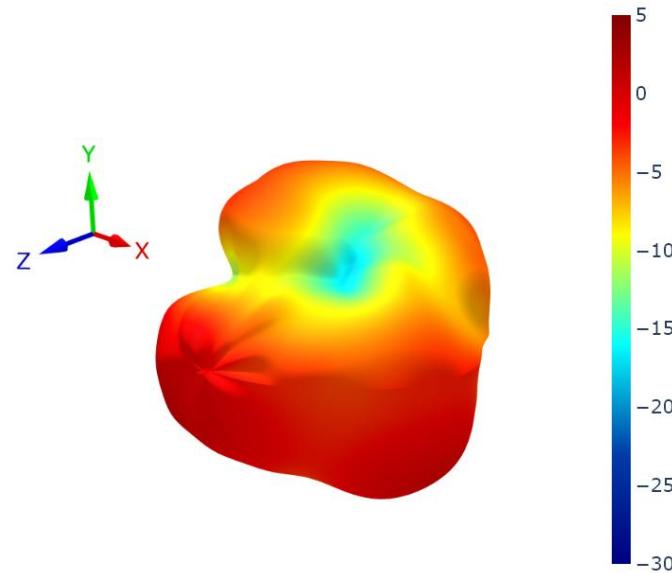


Chamber Test Set-up on
30x30cm Ground Plane

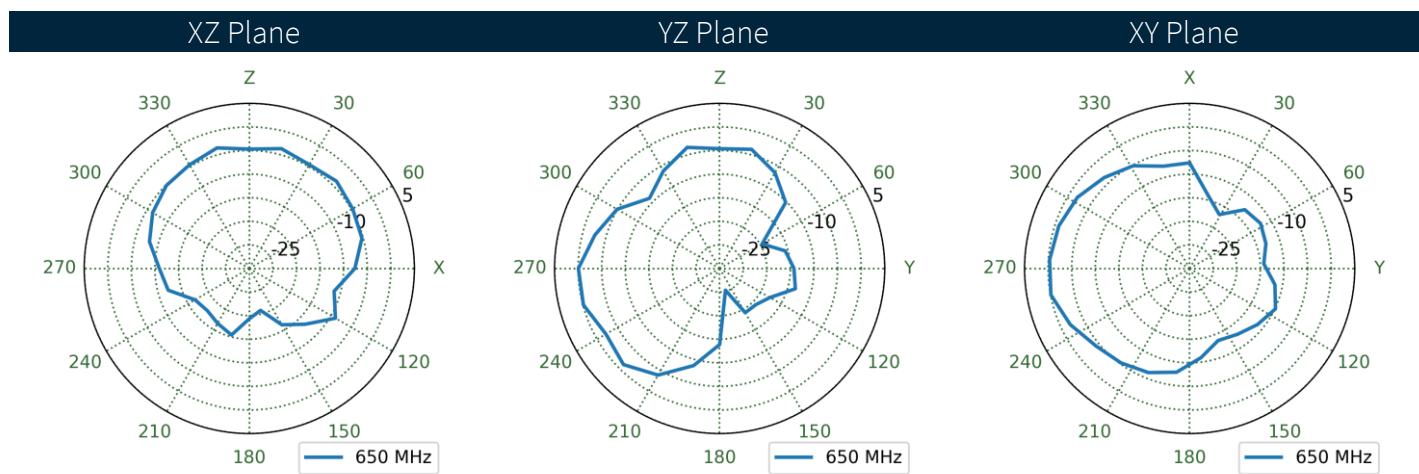
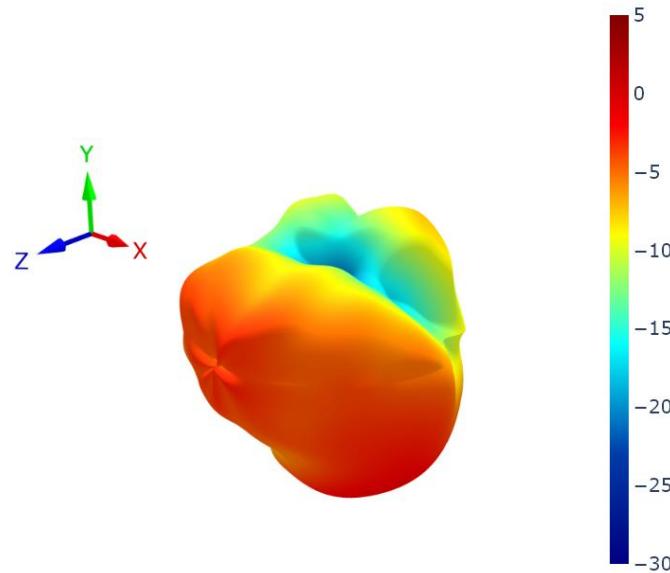
7.2 LTE 1 - 30x30cm Ground Plane Patterns at 650 MHz



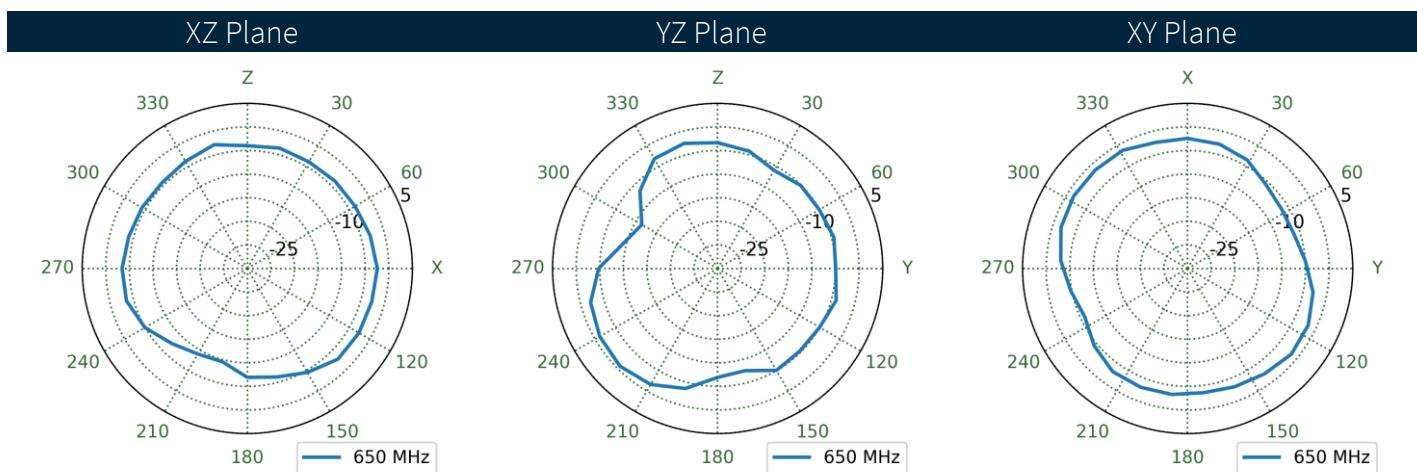
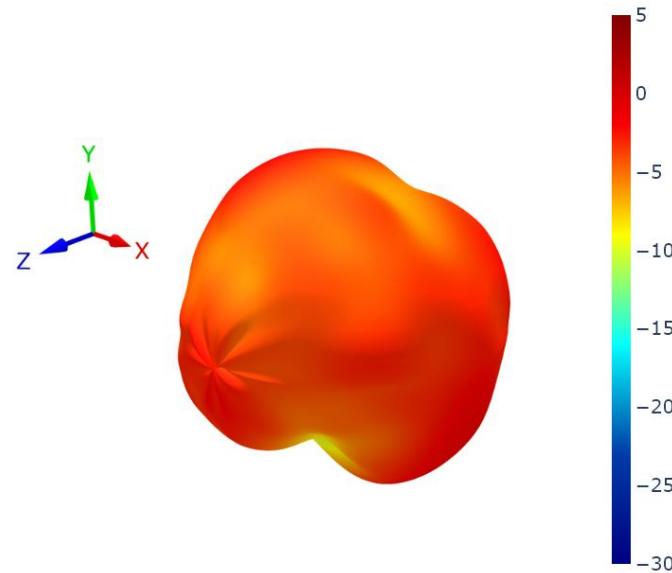
7.3 LTE 1 - Free Space Patterns at 650 MHz



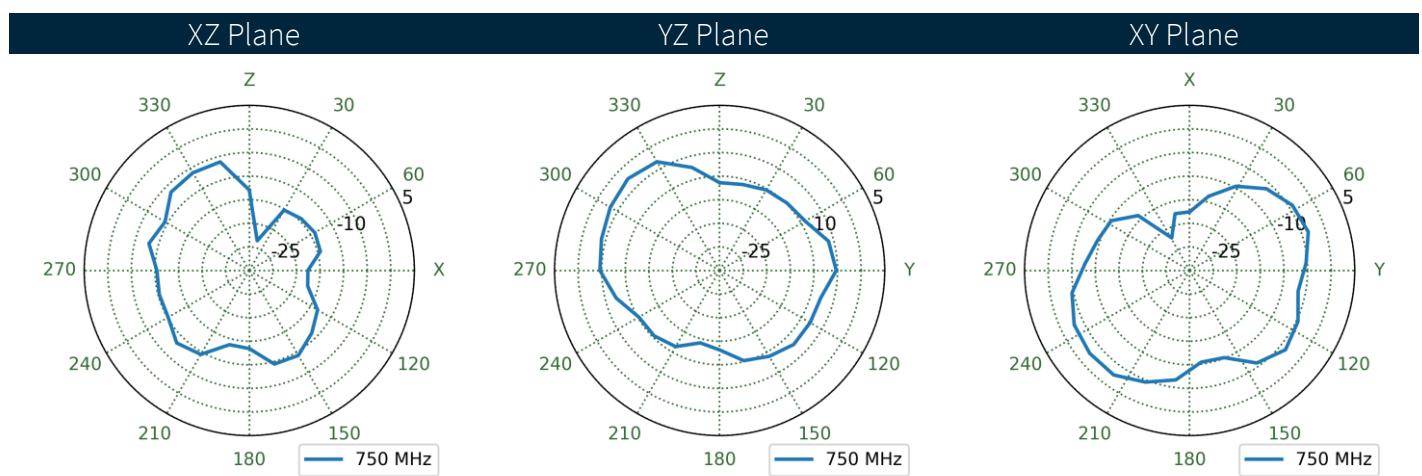
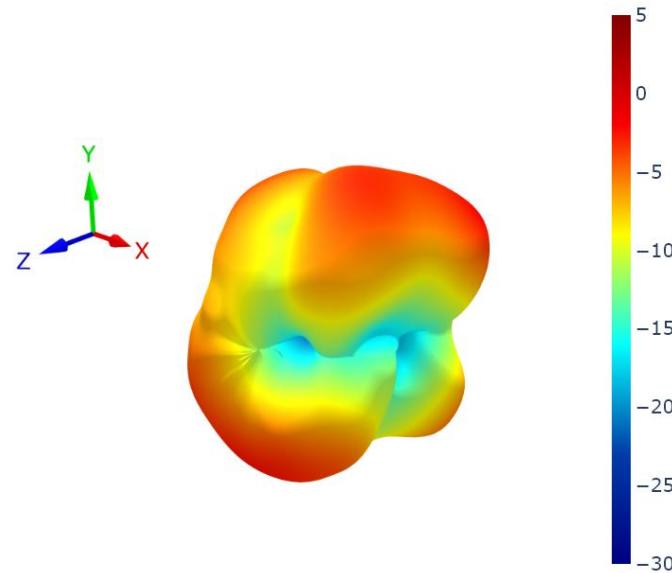
7.4 LTE 2 - 30x30cm Ground Plane Patterns at 650 MHz



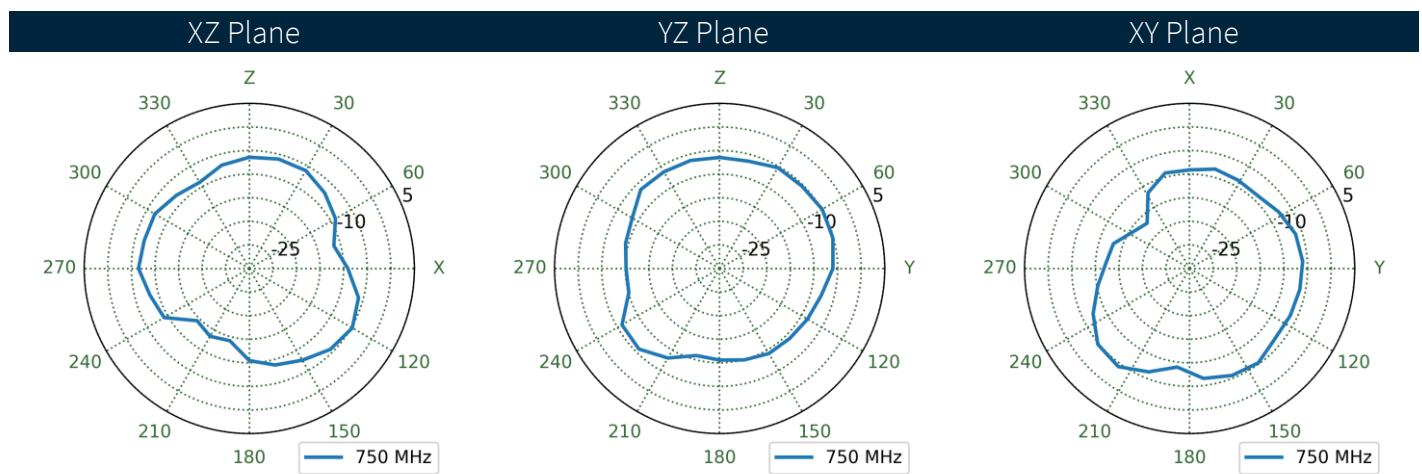
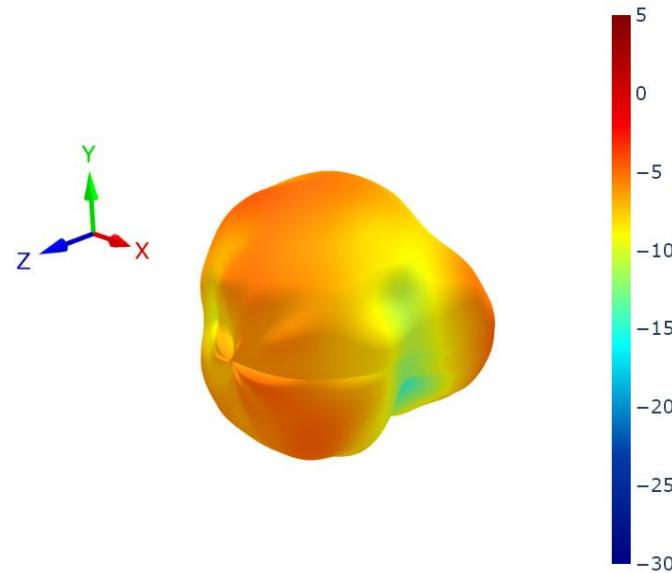
7.5 LTE 2 - Free Space Patterns at 650 MHz



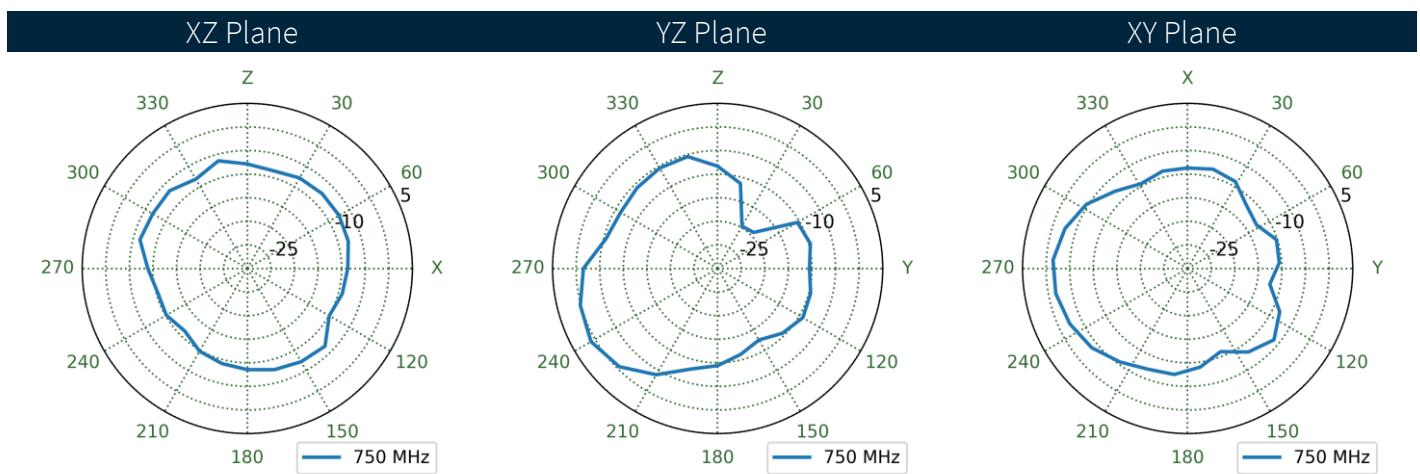
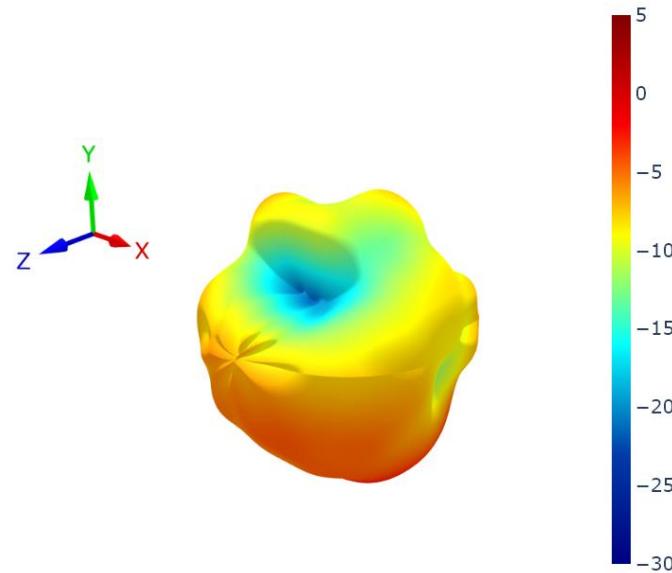
7.6 LTE 1 - 30x30cm Ground Plane Patterns at 750 MHz



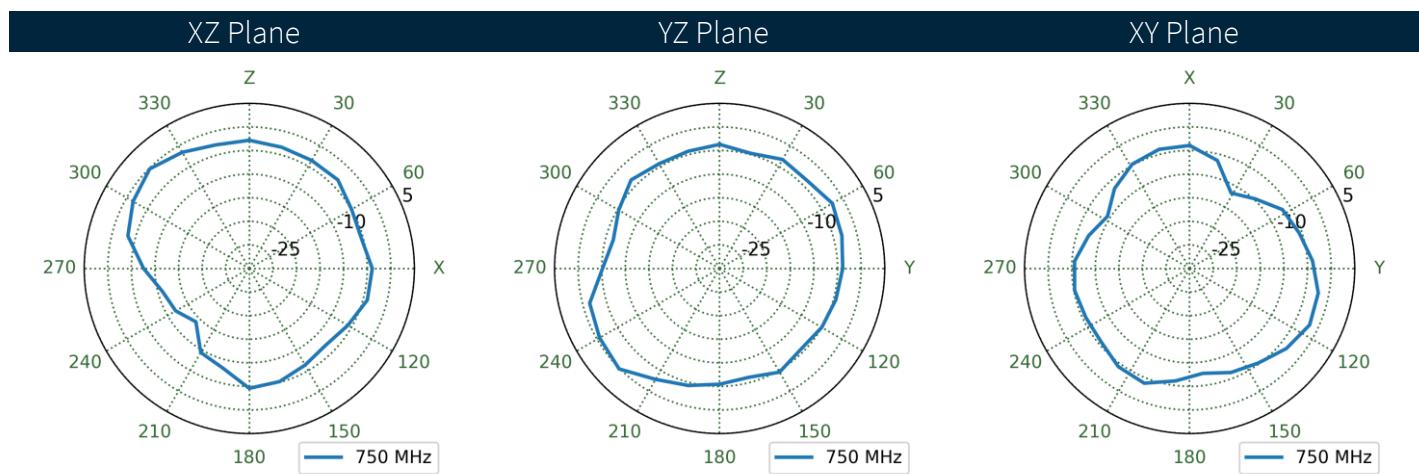
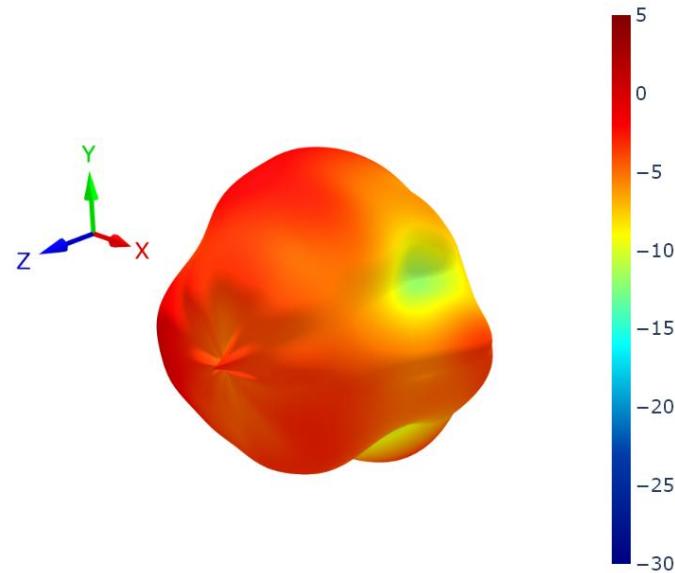
7.7 LTE 1 - Free Space Patterns at 750 MHz



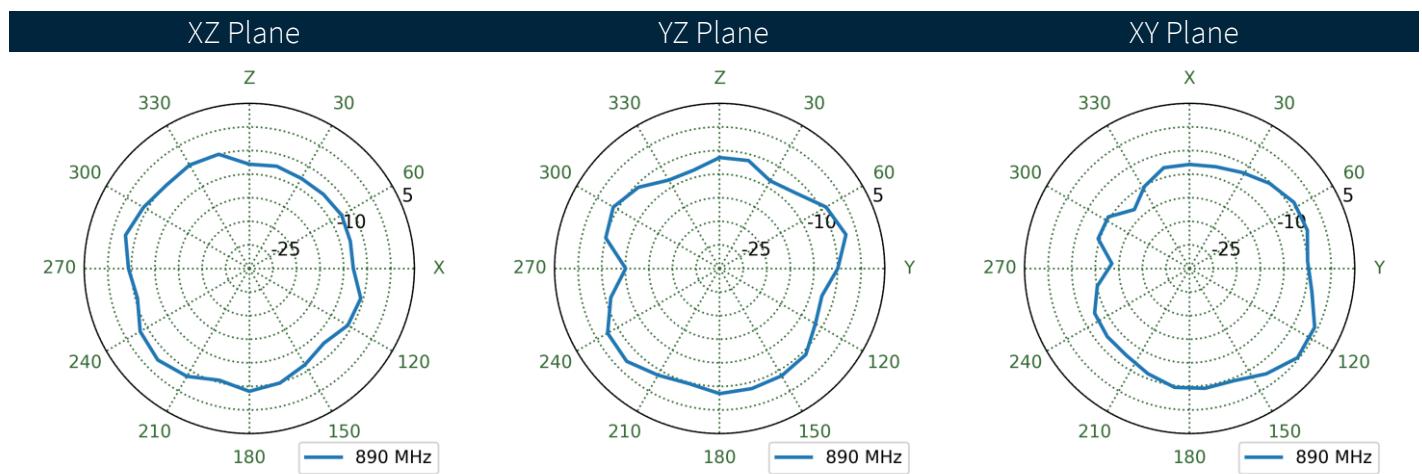
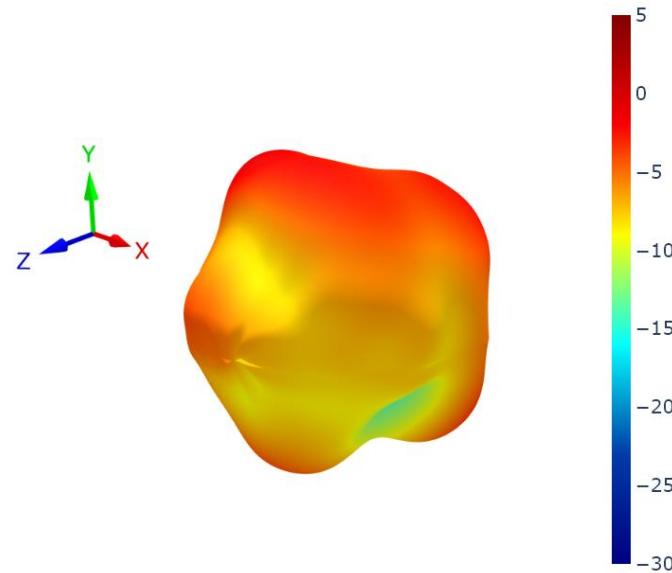
7.8 LTE 2 - 30x30cm Ground Plane Patterns at 750 MHz



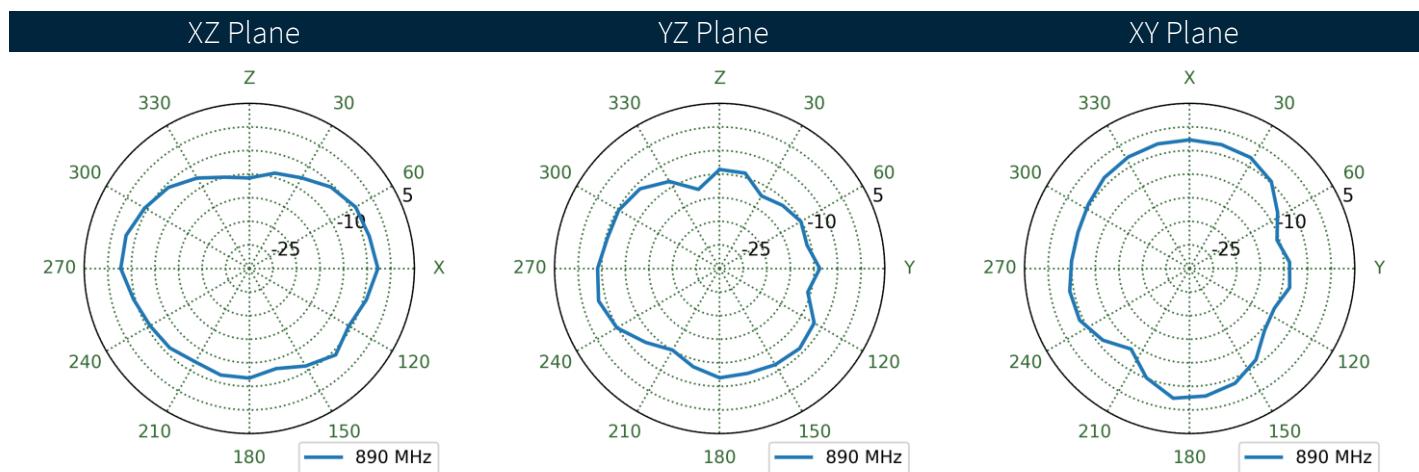
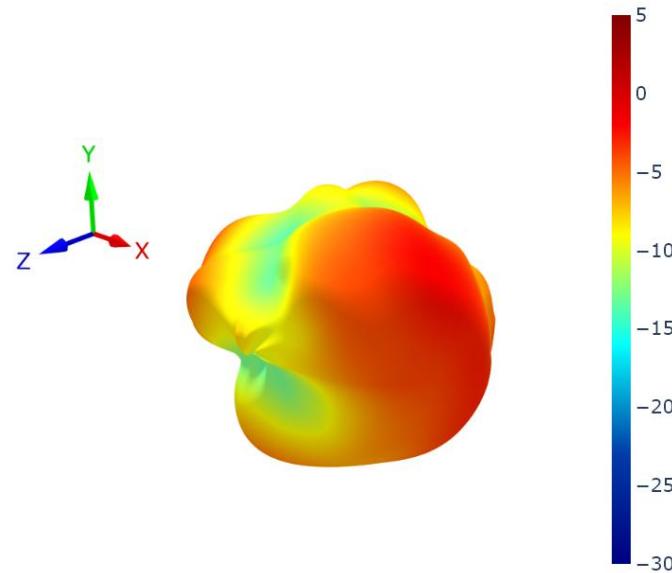
7.9 LTE 2 - Free Space Patterns at 750 MHz



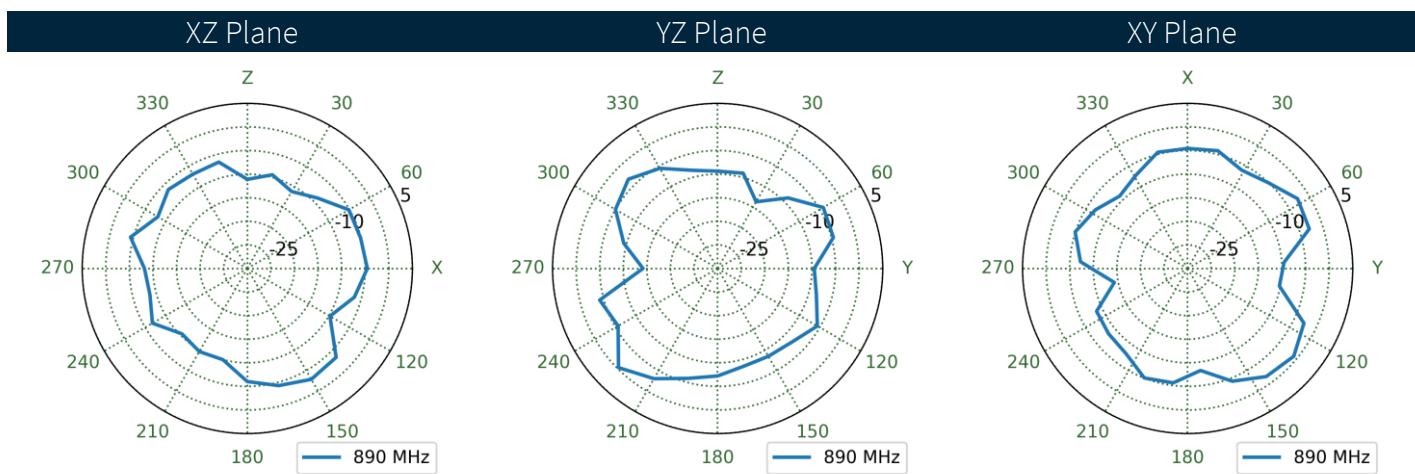
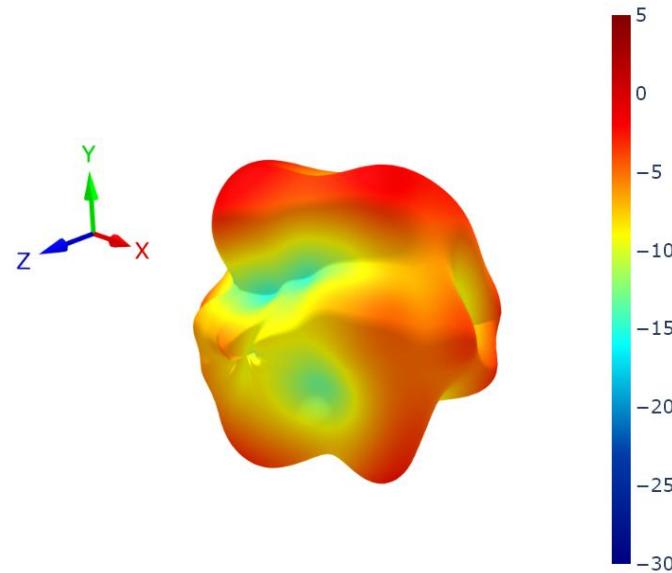
7.10 LTE 1 - 30x30cm Ground Plane Patterns at 890 MHz



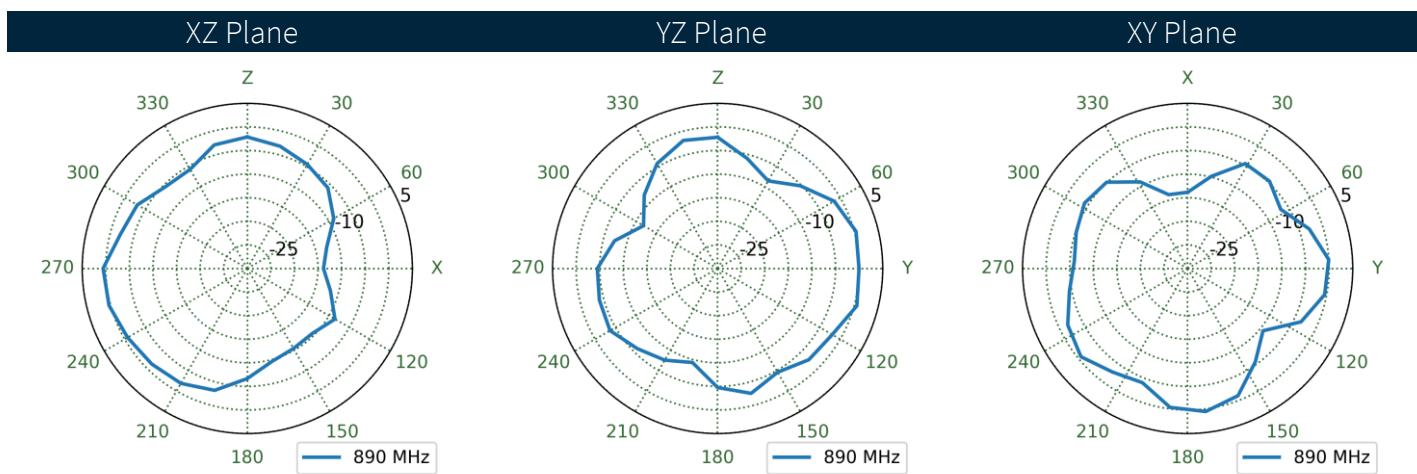
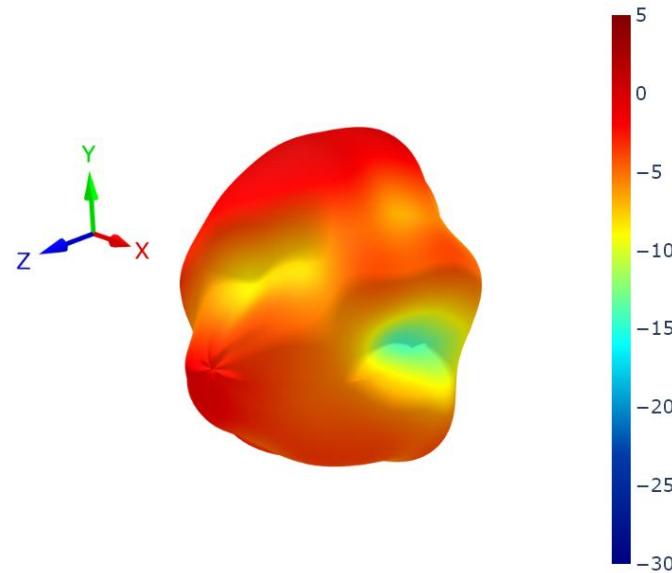
7.11 LTE 1 - Free Space Patterns at 890 MHz



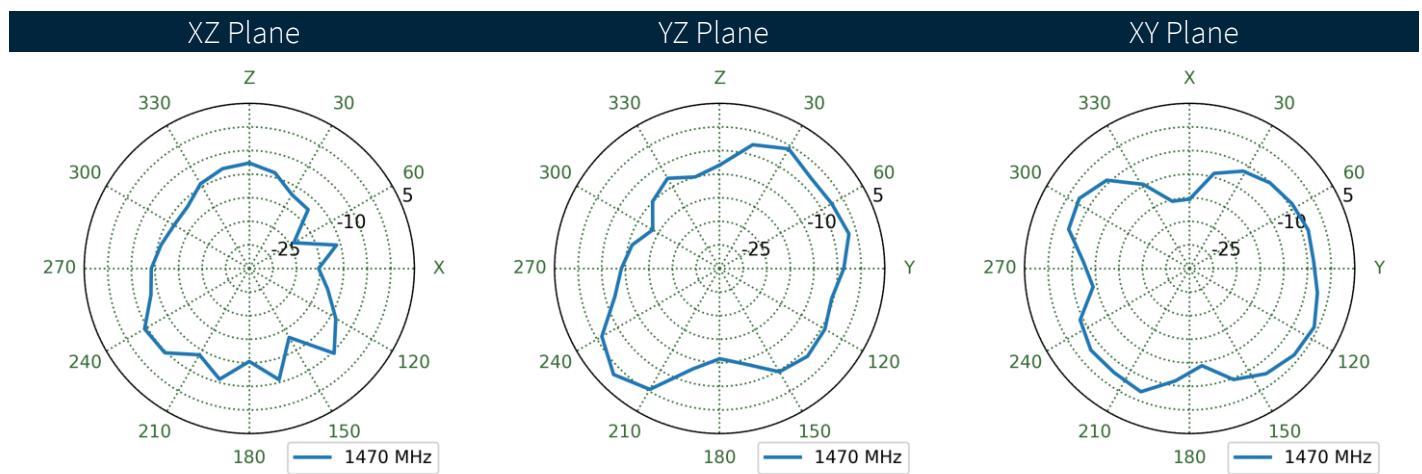
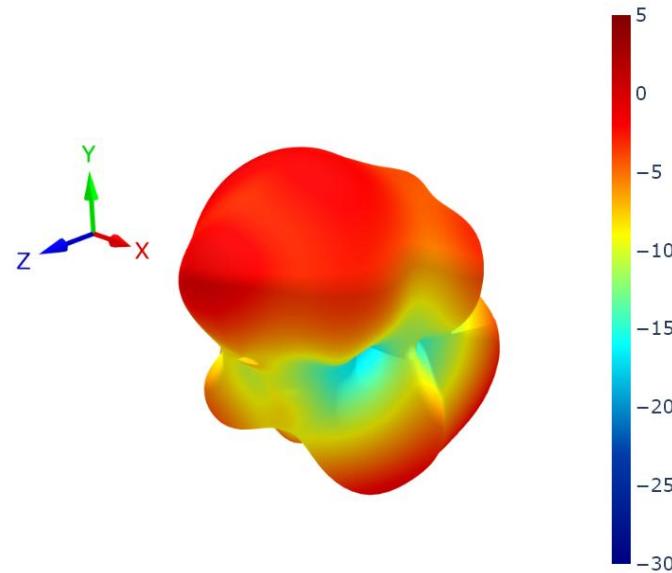
7.12 LTE 2 - 30x30cm Ground Plane Patterns at 890 MHz



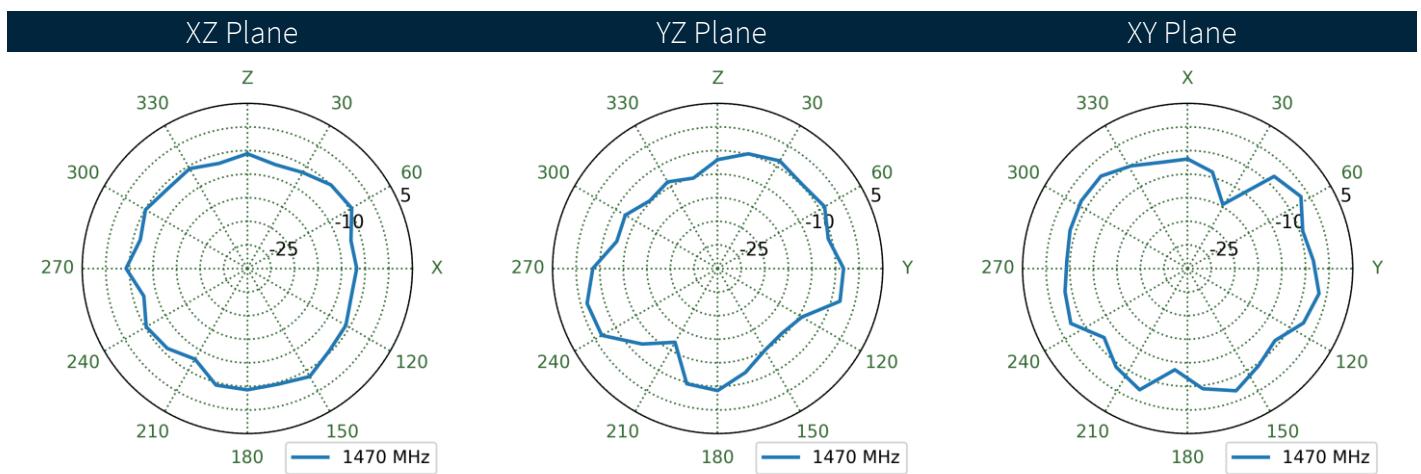
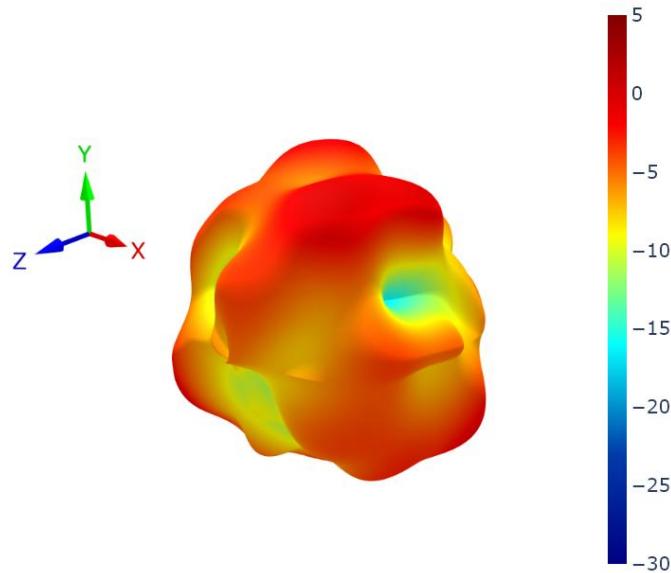
7.13 LTE 2 - Free Space Patterns at 890 MHz



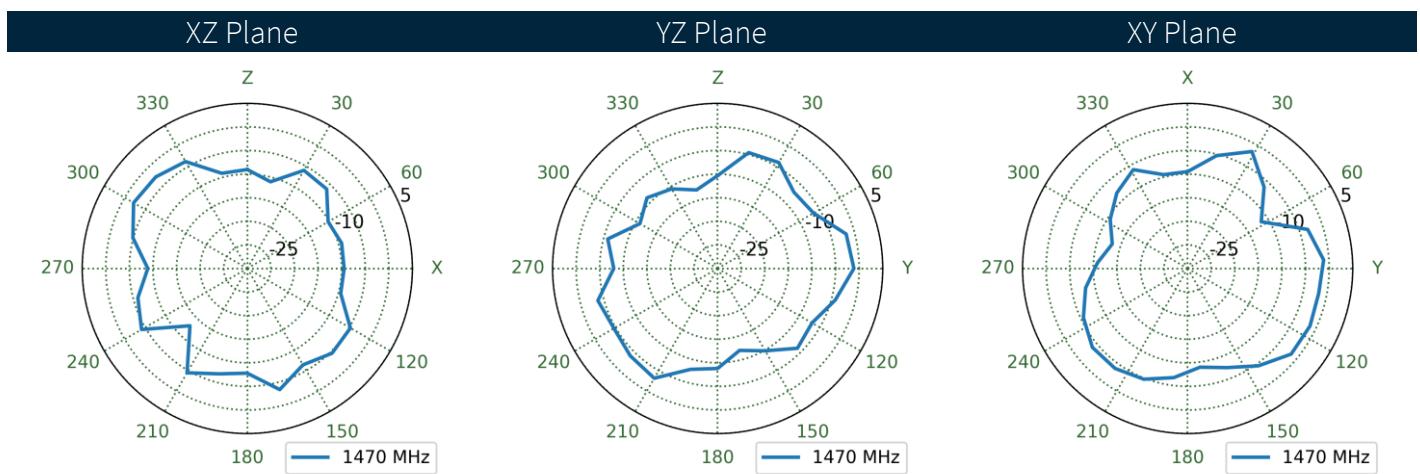
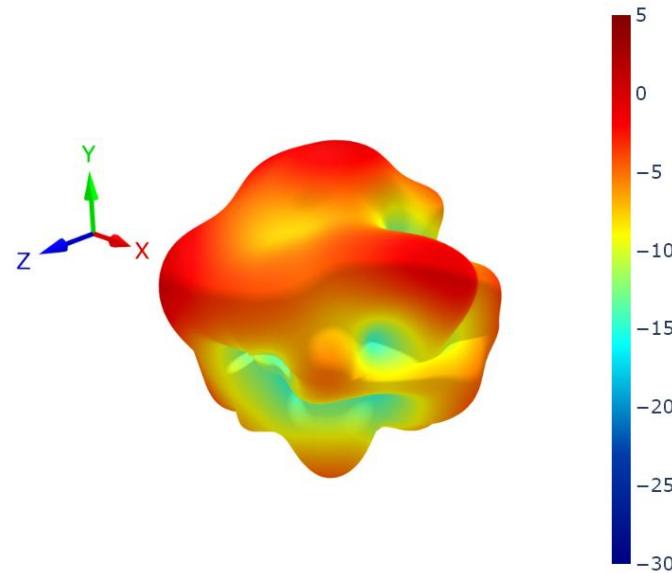
7.14 LTE 1 - 30x30cm Ground Plane Patterns at 1470 MHz



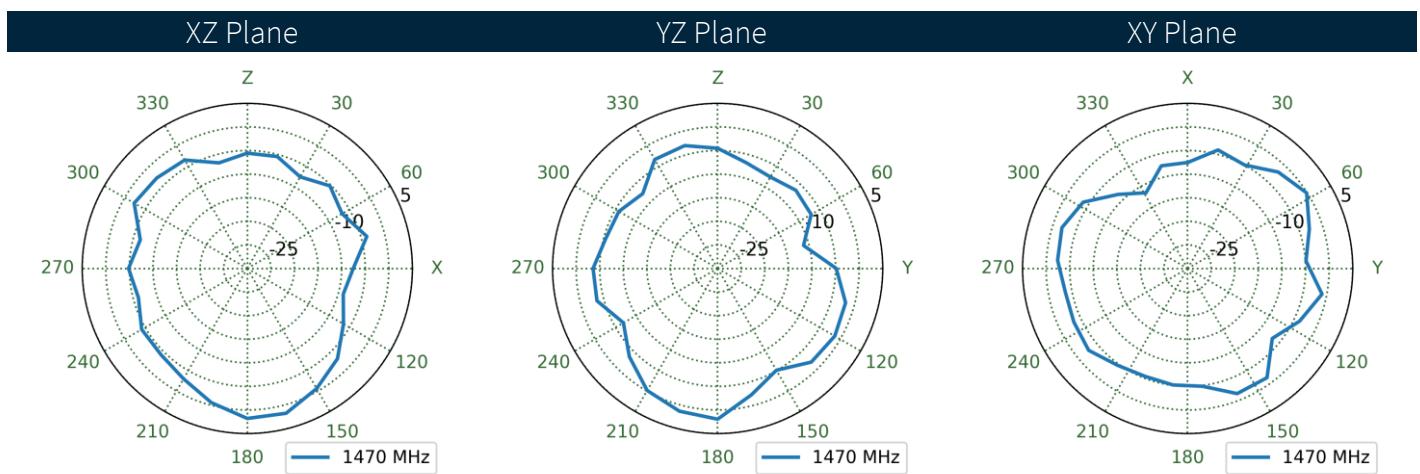
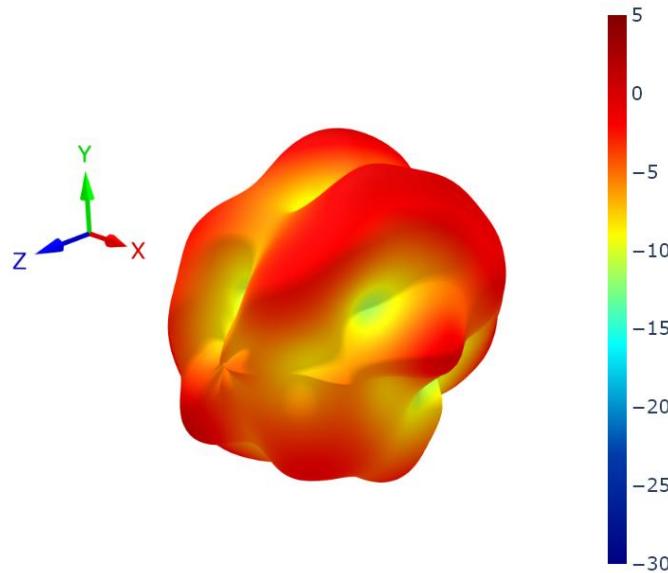
7.15 LTE 1 - Free Space Patterns at 1470 MHz



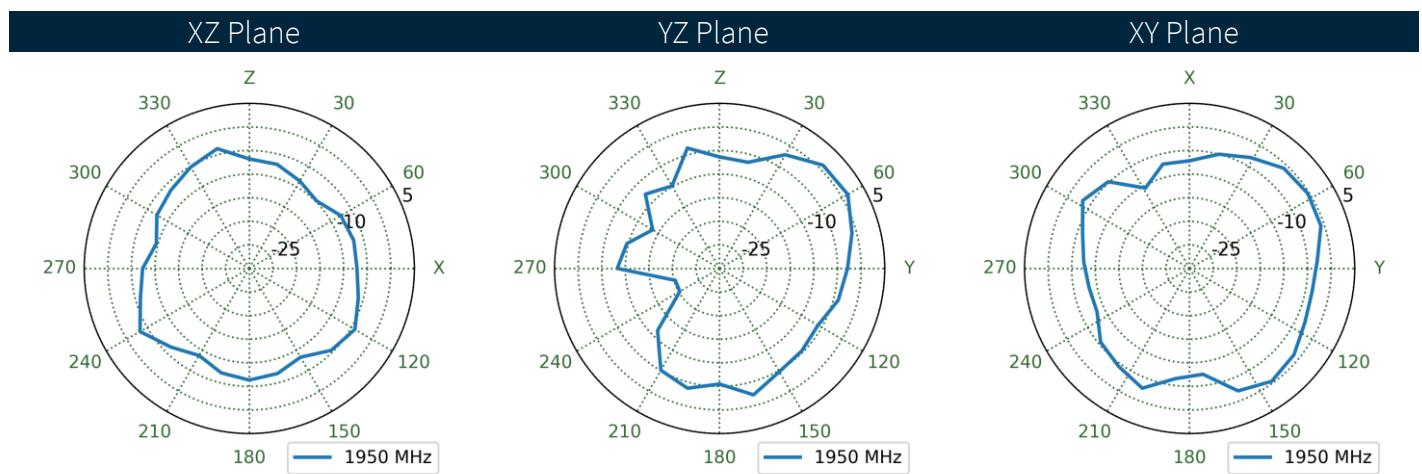
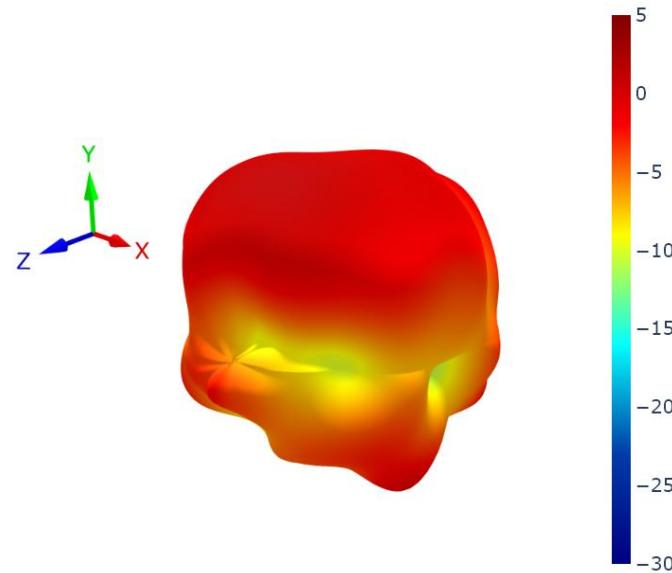
7.16 LTE 2 - 30x30cm Ground Plane Patterns at 1470 MHz



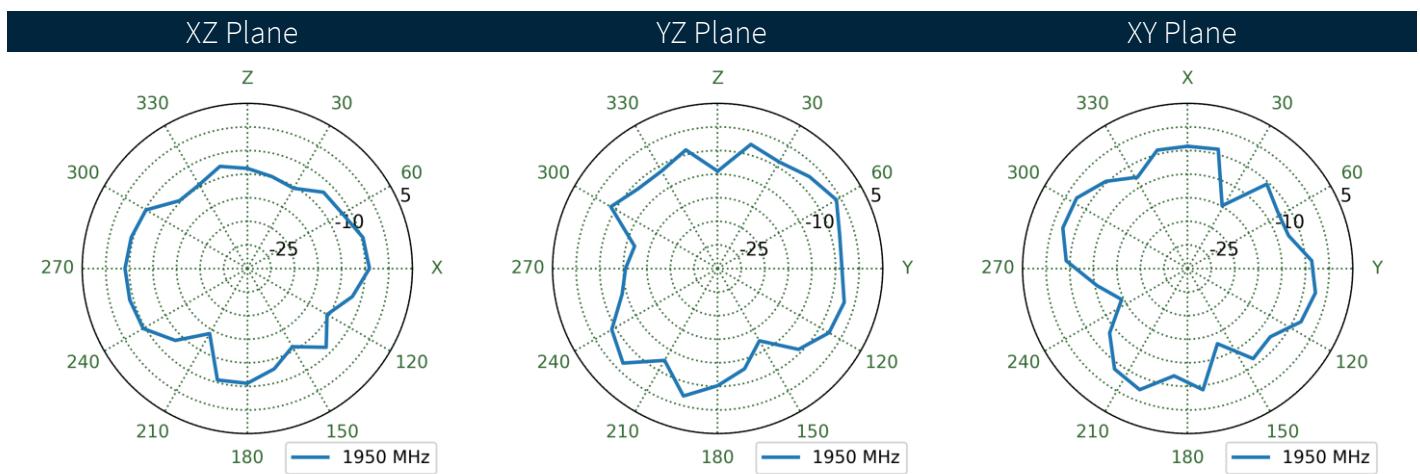
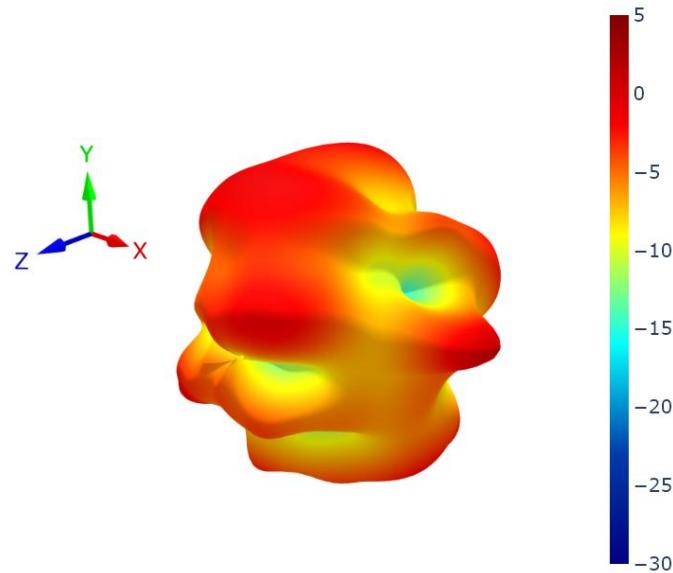
7.17 LTE 2 - Free Space Patterns at 1470 MHz



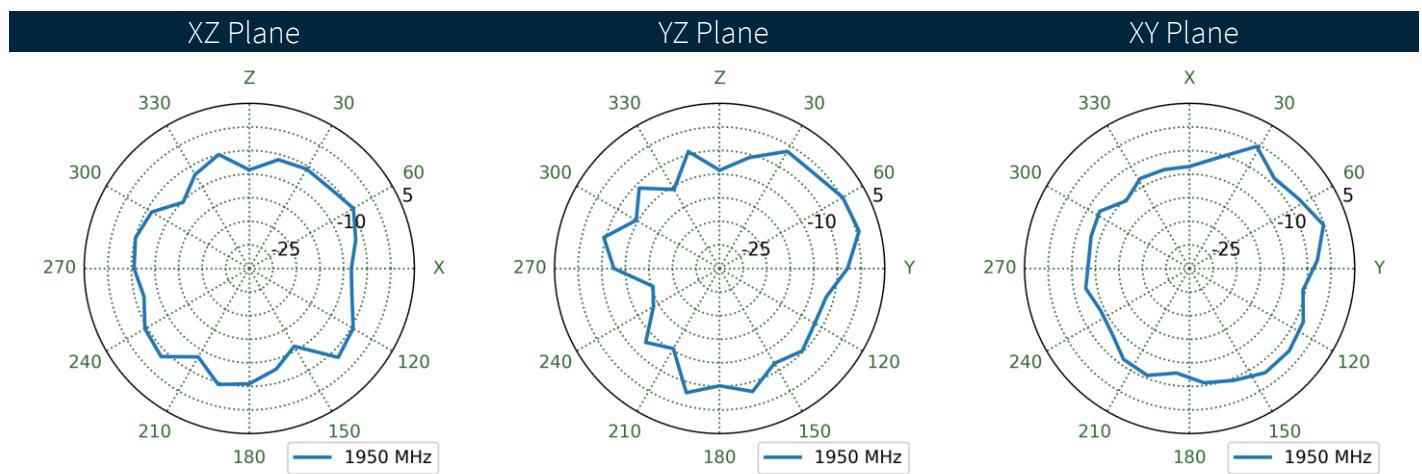
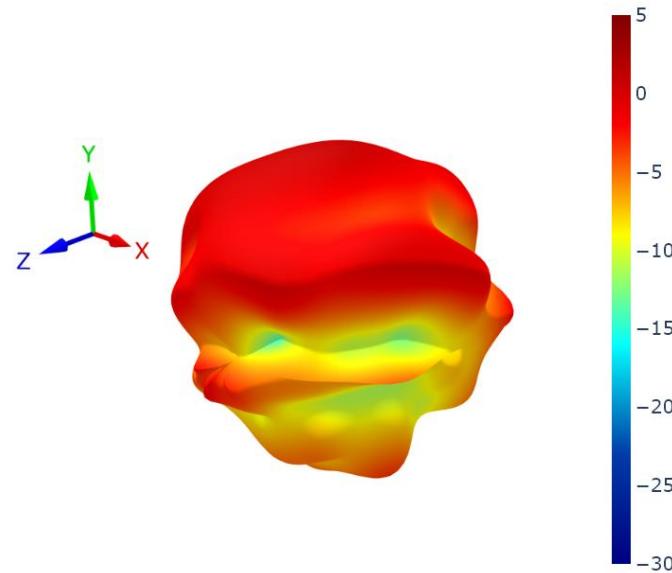
7.18 LTE 1 - 30x30cm Ground Plane Patterns at 1950 MHz



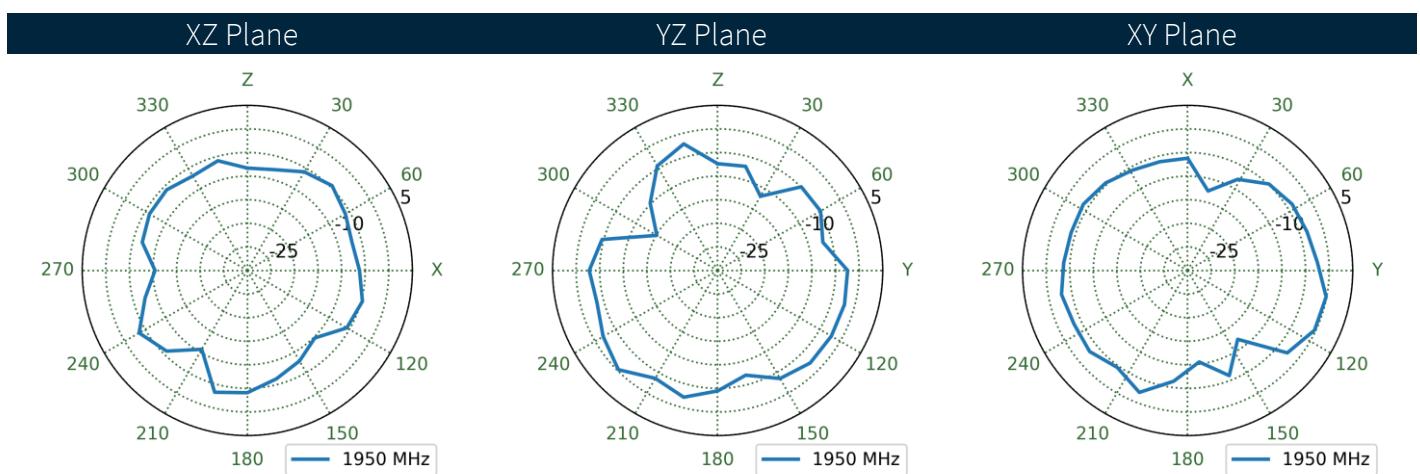
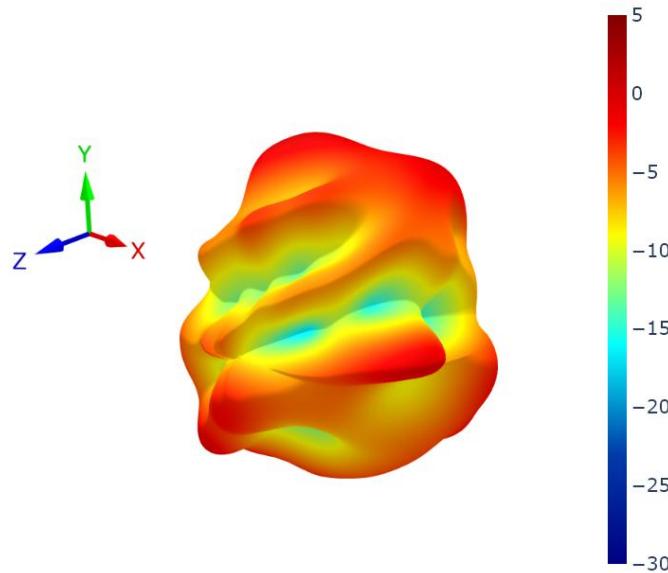
7.19 LTE 1 - Free Space Patterns at 1950 MHz



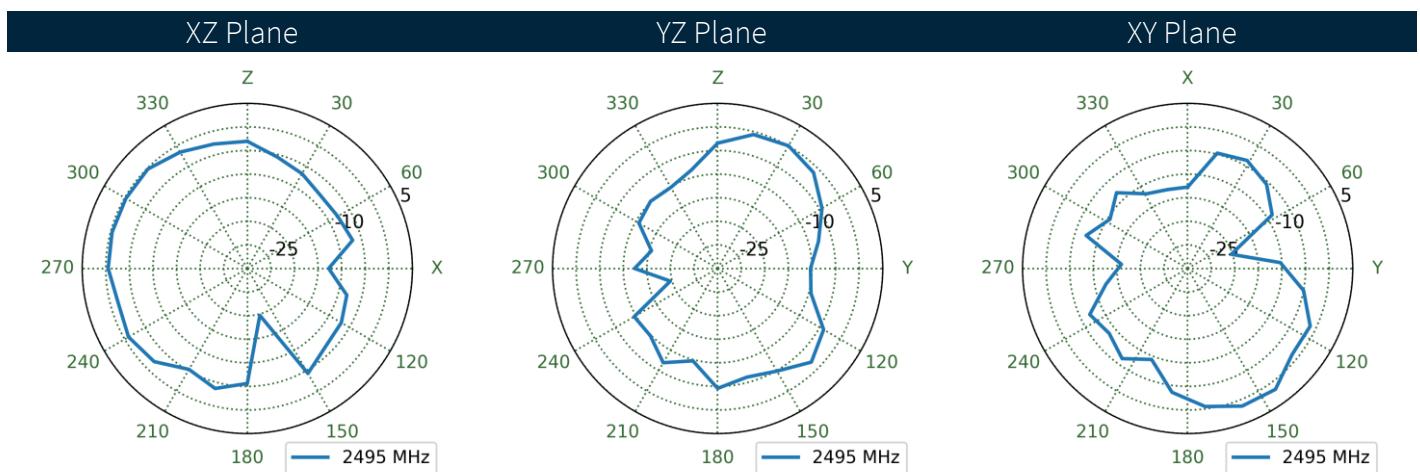
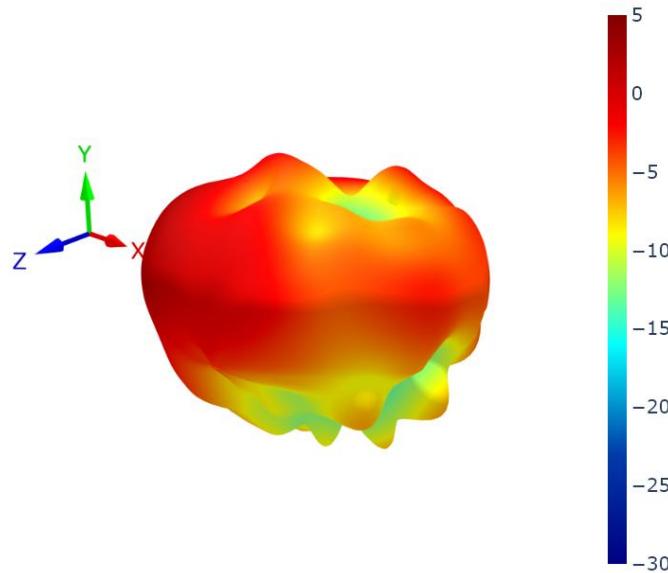
7.20 LTE 2 - 30x30cm Ground Plane Patterns at 1950 MHz



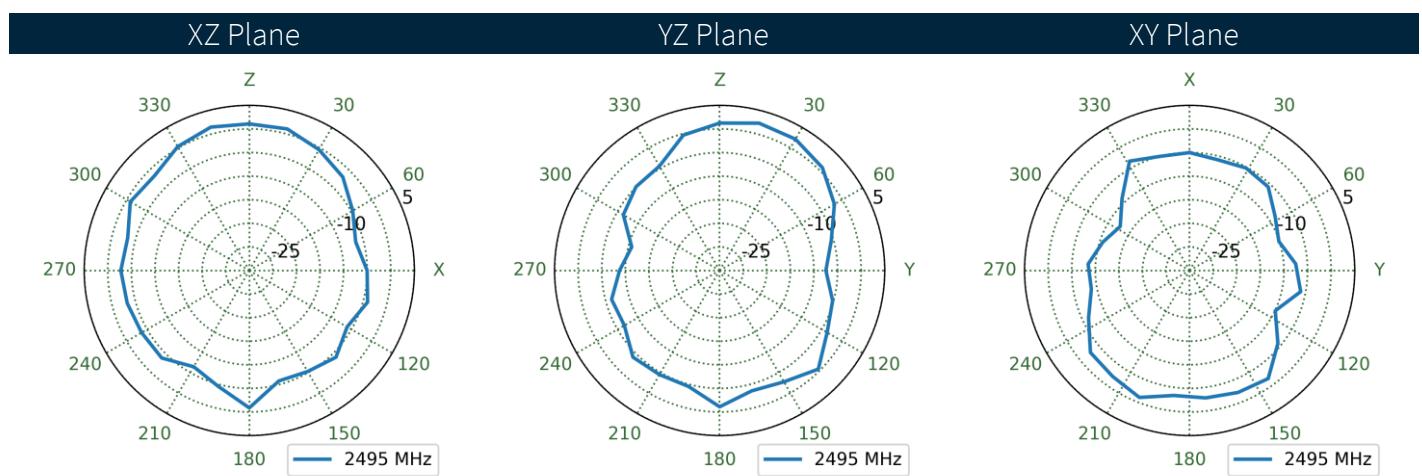
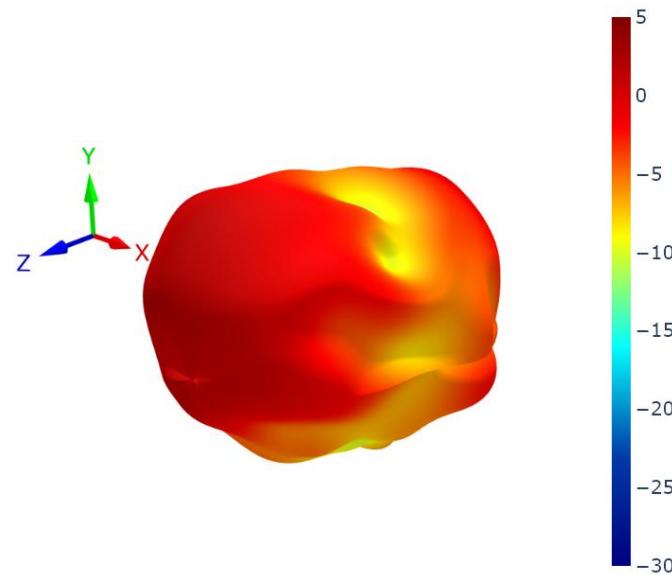
7.21 LTE 2 - Free Space Patterns at 1950 MHz



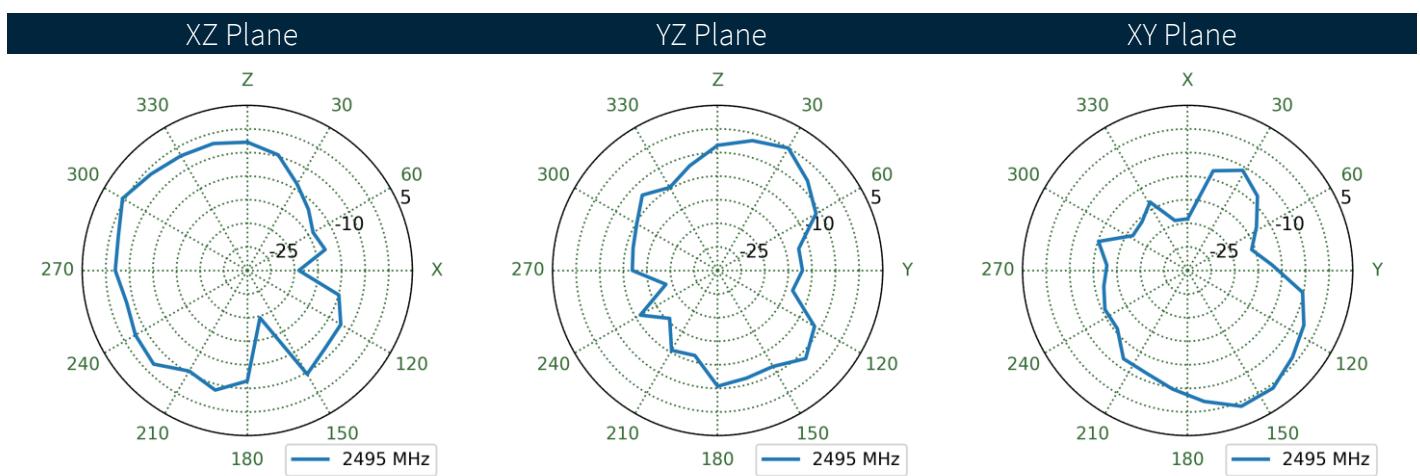
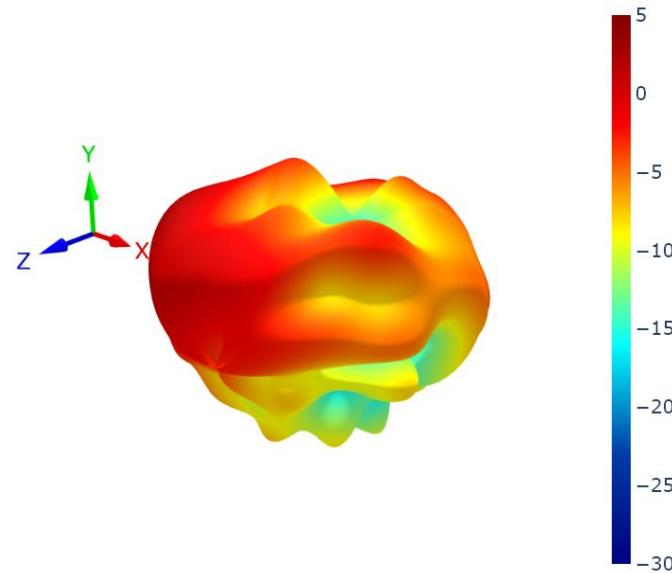
7.22 LTE 1 - 30x30cm Ground Plane Patterns at 2495 MHz



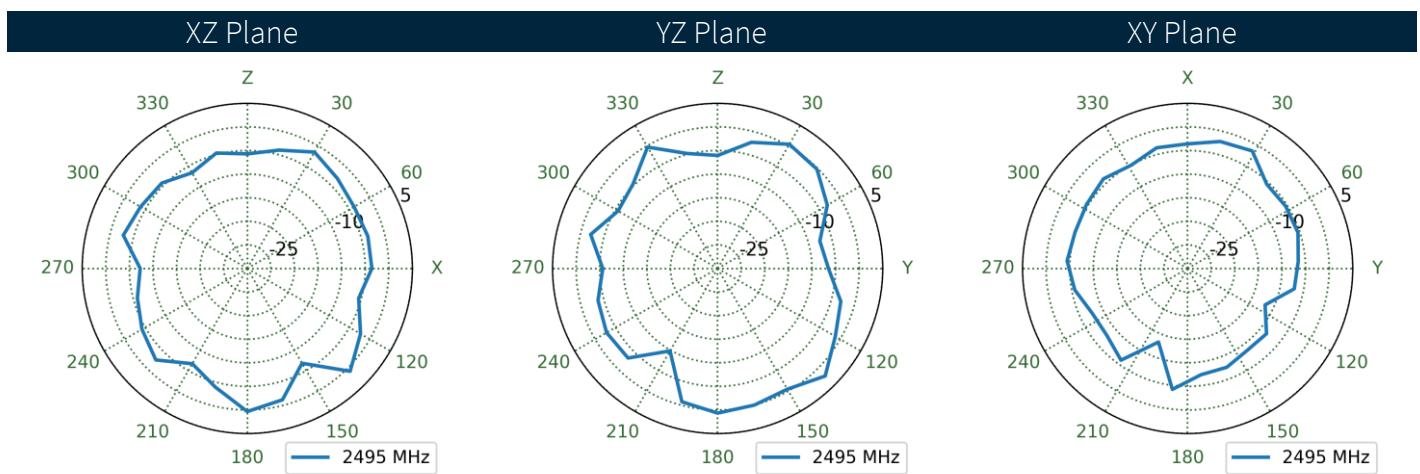
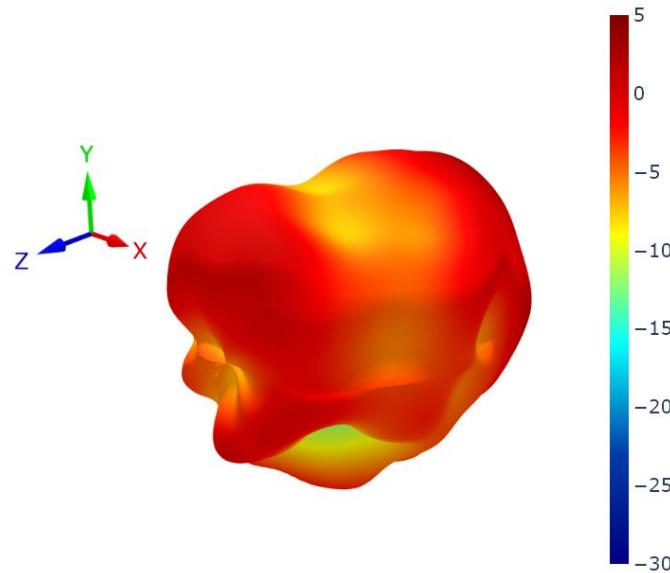
7.23 LTE 1 - Free Space Patterns at 2495 MHz



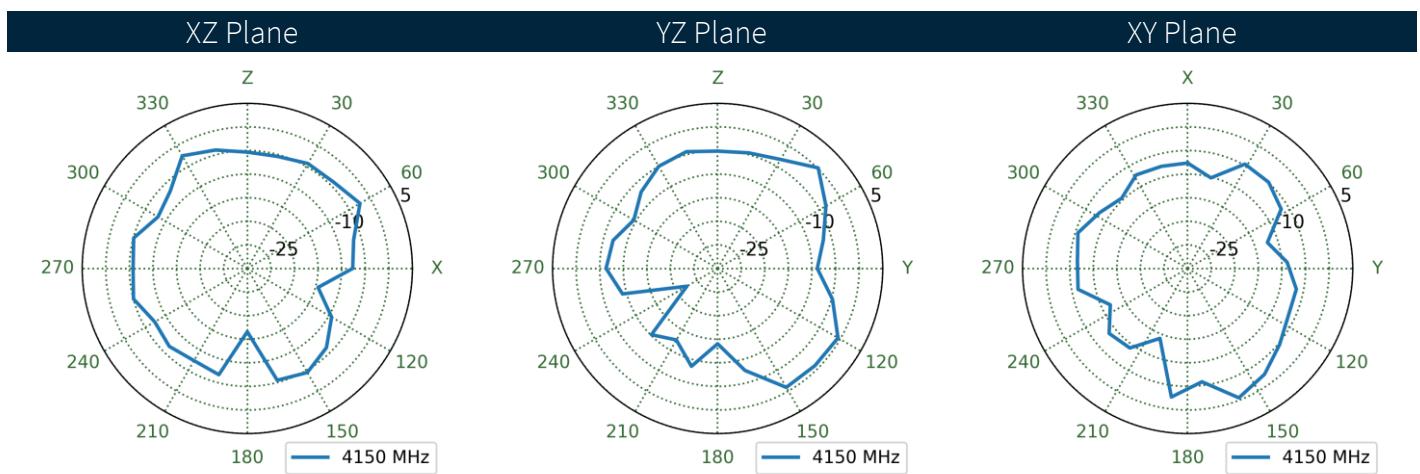
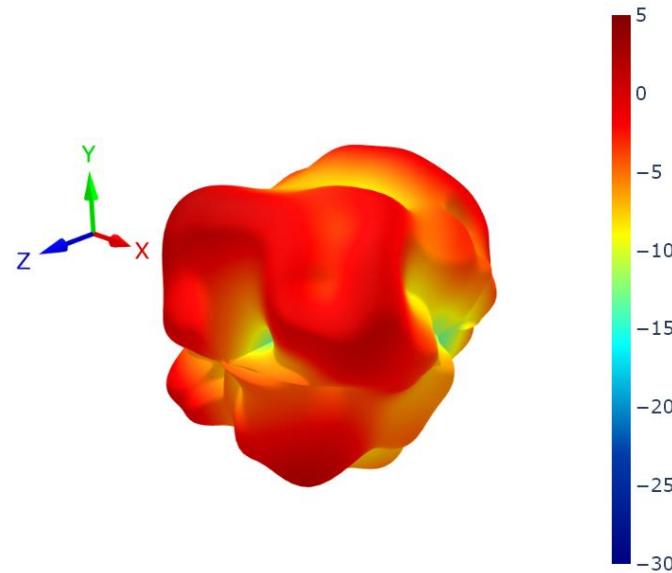
7.24 LTE 2 - 30x30cm Ground Plane Patterns at 2495 MHz



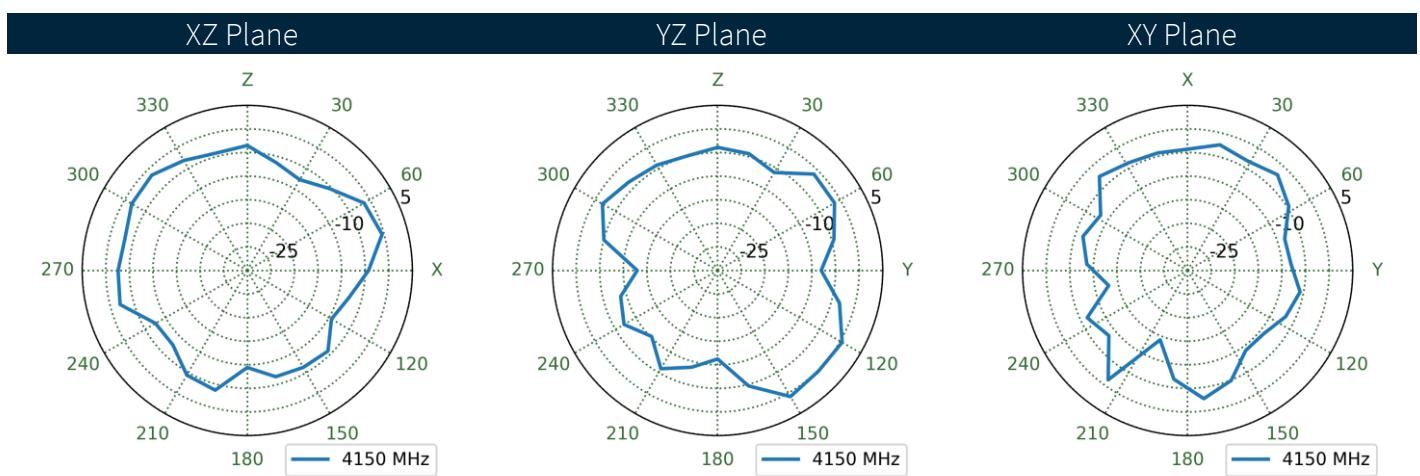
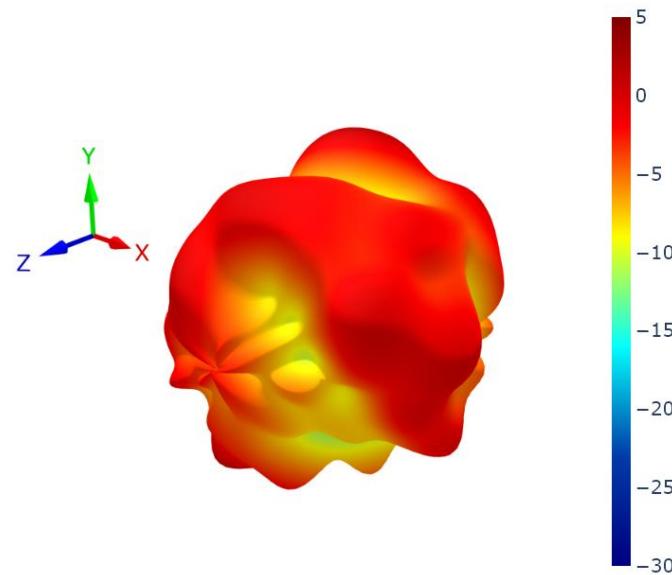
7.25 LTE 2 - Free Space Patterns at 2495 MHz



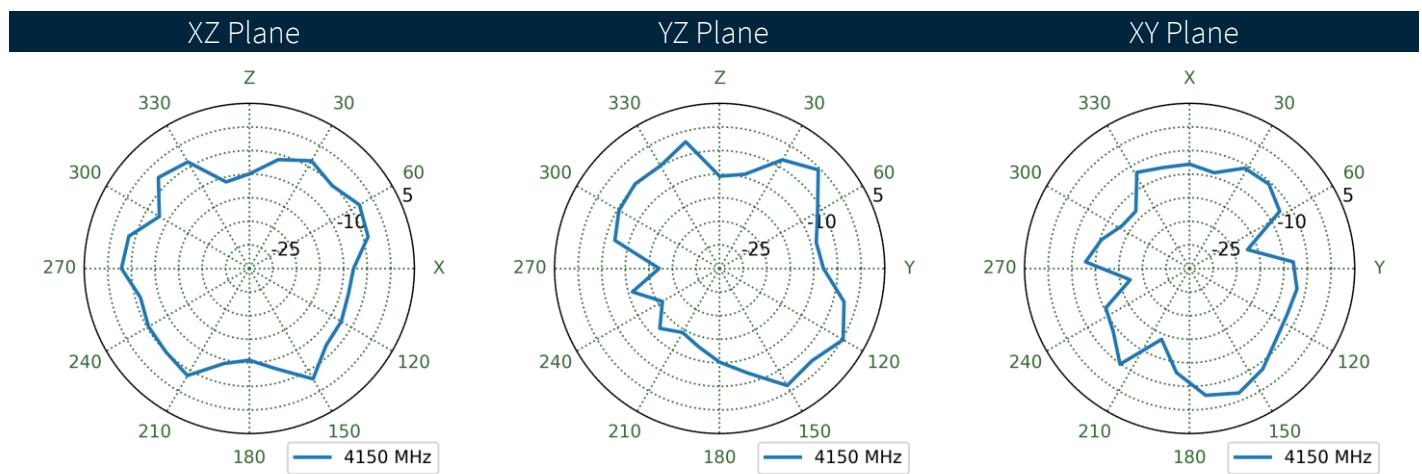
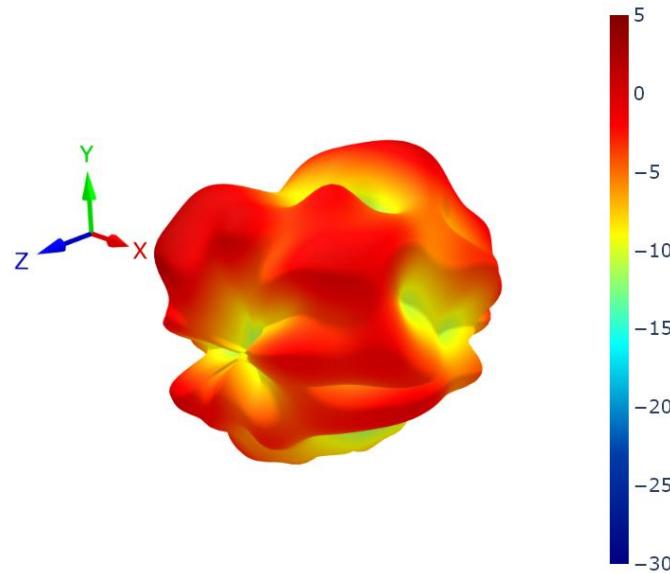
7.26 LTE 1 - 30x30cm Ground Plane Patterns at 4150 MHz



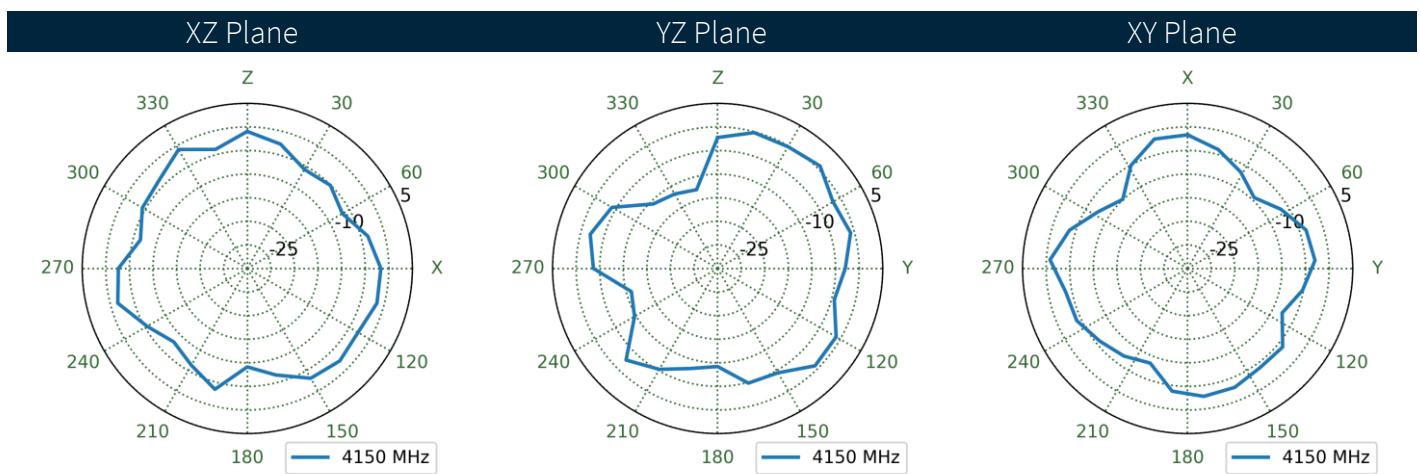
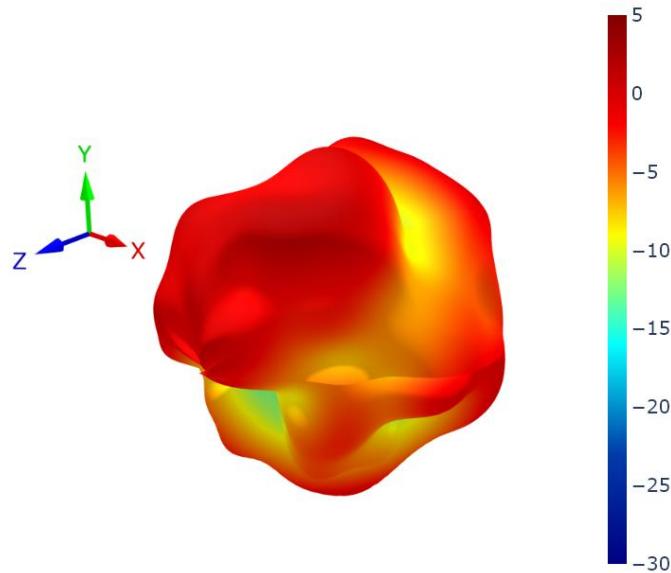
7.27 LTE 1 - Free Space Patterns at 4150 MHz



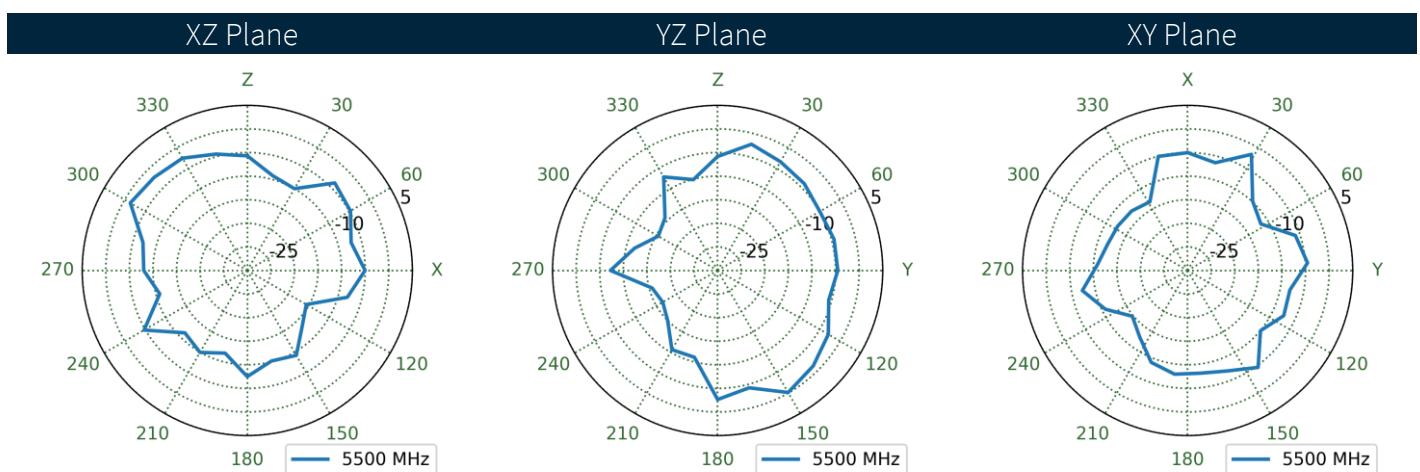
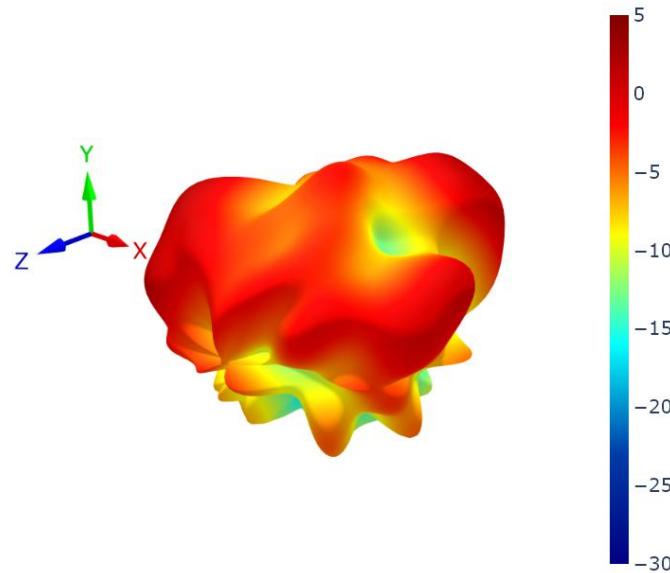
7.28 LTE 2 - 30x30cm Ground Plane Patterns at 4150 MHz



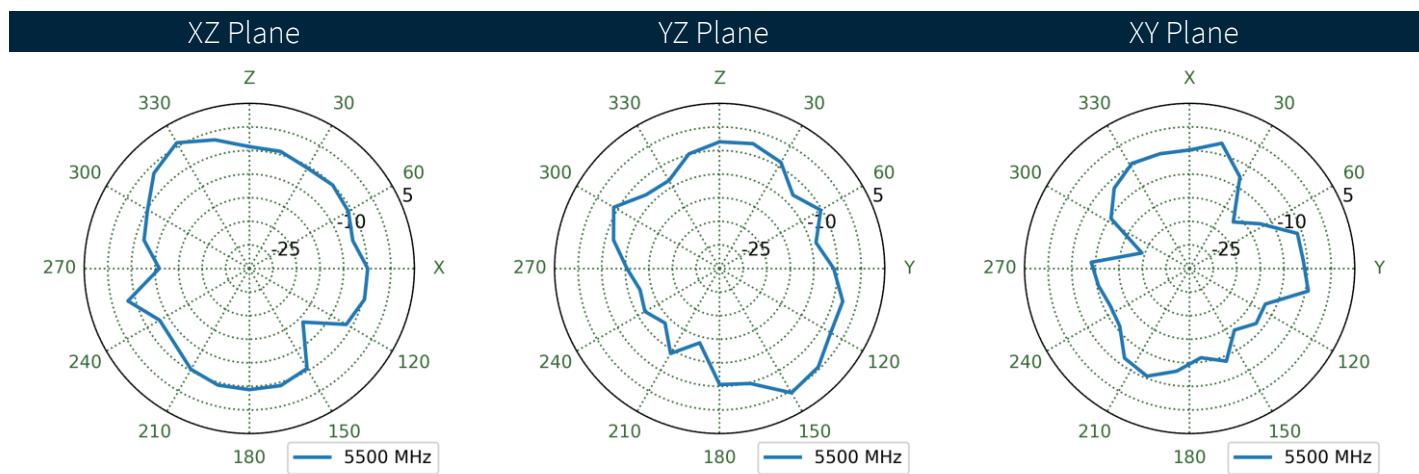
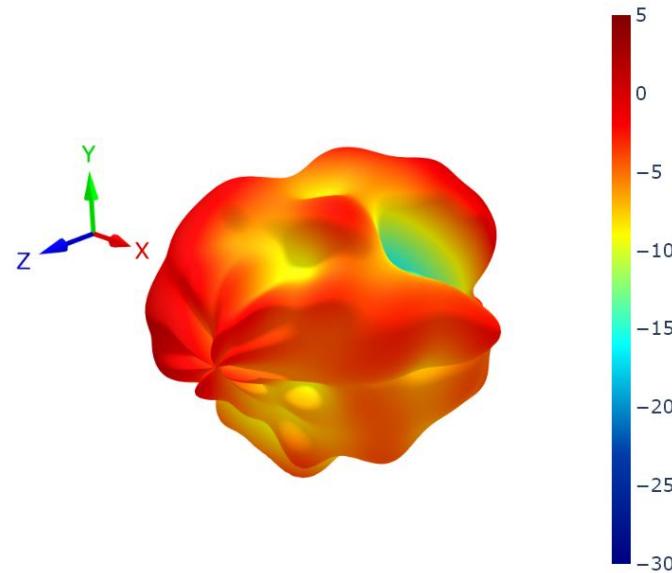
7.29 LTE 2 - Free Space Patterns at 4150 MHz



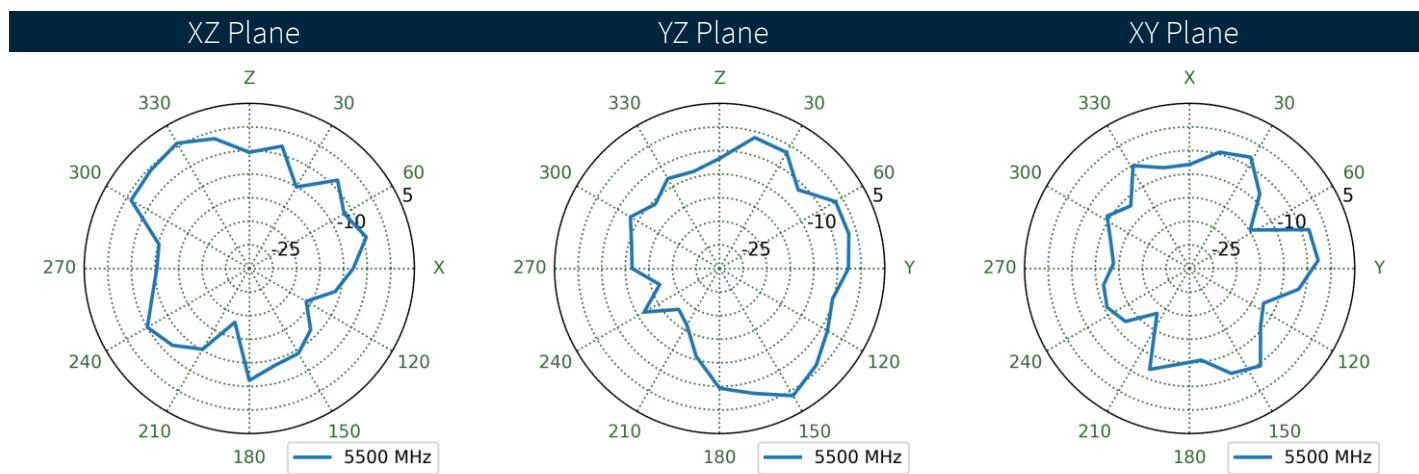
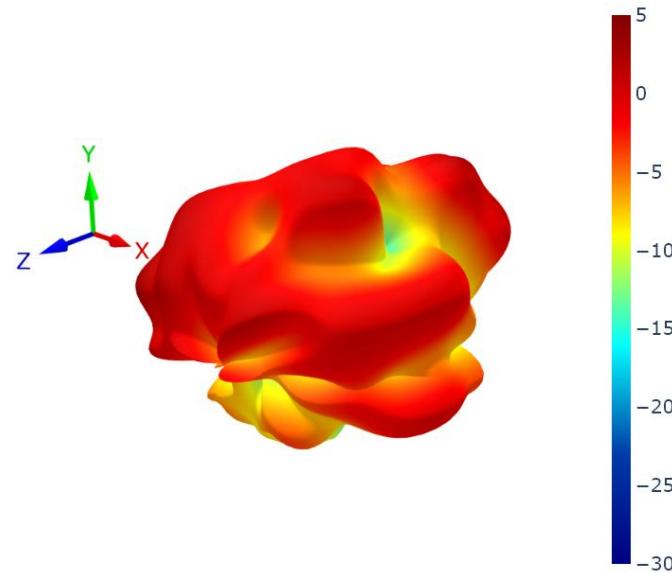
7.30 LTE 1 - 30x30cm Ground Plane Patterns at 5500 MHz



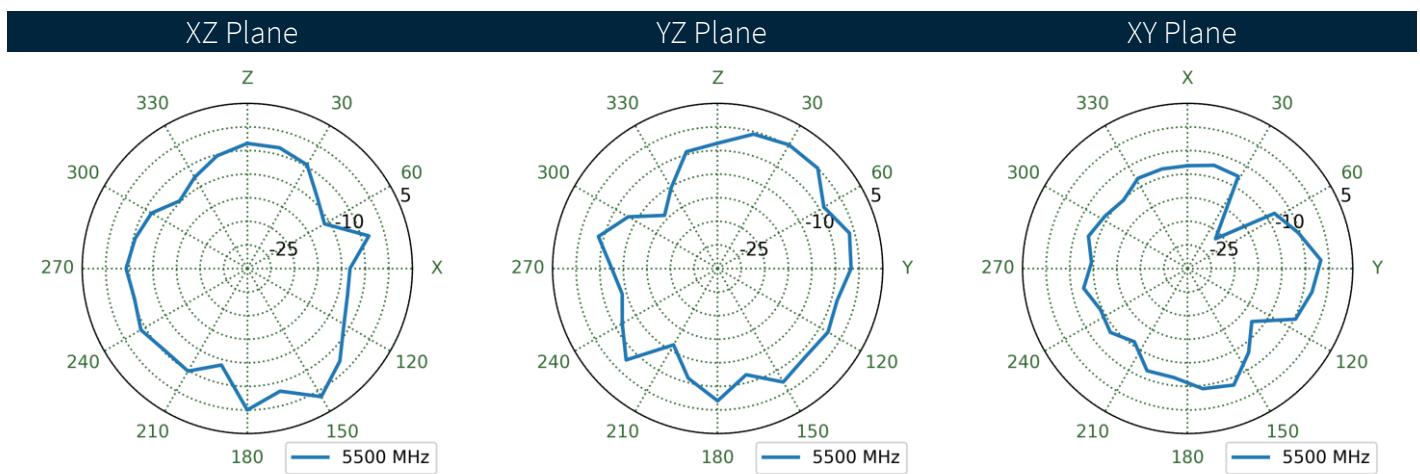
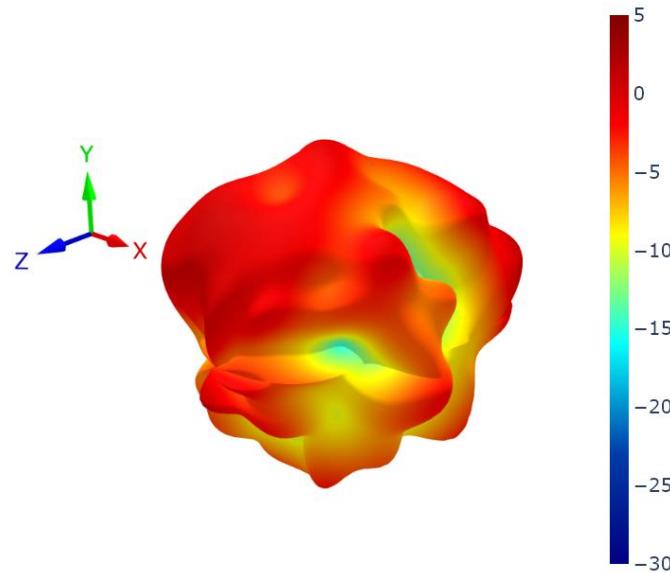
7.31 LTE 1 - Free Space Patterns at 5500 MHz



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



7.33 LTE 2 - Free Space Patterns at 5500 MHz



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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