

Datasheet



Part No:
TU.60.3H31

Description

Terminal Mount 3.5-8GHz 3dBi Ultra-wideband Antenna with N-Type Connector
For European and USA UWB Applications In Channels 2-7

Features:

Frequency: 3.5-8GHz
Covering USA and European UWB Channels 2-7
Dipole Antenna – No Ground Plane Required
Rugged ABS, IP67 Rated Enclosure
N Type Male Connector
Dimensions: Length 123.5mm, Ø22.8mm
CE Certified
RoHS & Reach Compliant

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Ireland & USA
ISO 9001:2015
Certified



Taiwan
ISO 9001:2015
Certified



046
QUALITY MANAGEMENT SYSTEM
IATF16949



1. Introduction



The Taoglas **TU.60.3H31** is a unique dipole terminal ultra-wideband (known as UWB) antenna designed to cover all worldwide UWB frequencies between 3.5 and 8 GHz. With excellent efficiency and an omnidirectional radiation pattern with 3 dBi gain, it provides strong, homogeneous coverage in all directions from the sensor. The TU.60 also shows excellent fidelity factor numbers and low group delay variation to preserve maximum signal integrity.

The potential of UWB is enabling a wave of applications that use highly accurate, ultra-reliable location and distance sensing to deliver new experiences and capabilities. It operates with low power for transmitting large amounts of digital data over a wide spectrum of frequency bands typically spanning more than 500MHz with very low power for short distances up to 250m with latency speeds as low as 1ms. The low power requirements of UWB results in increased battery life of sensors and tags which in turn reduces overall operational costs. The TU.60 exhibits exceptional efficiencies of up to 91% on specific bands.

Typical Applications Include:

- Indoor position location and tracking applications
- Smart home device control and entertainment systems
- Keyless entry systems
- Precision surveying

The TU.60 is a powerful antenna packaged in a small IP67 rated enclosure that is manufactured from ABS which makes it an ideal ruggedized solution for both indoor and outdoor environments. It comes with an N-Type connector as standard for robust and easy installation. The connector can be customized subject to NRE.

The TU.60 is one of several Taoglas-developed antennas designed for seamless integration and compatibility with any UWB sensor module on the market. Contact your regional Taoglas customer support team for further information.

2. Specification

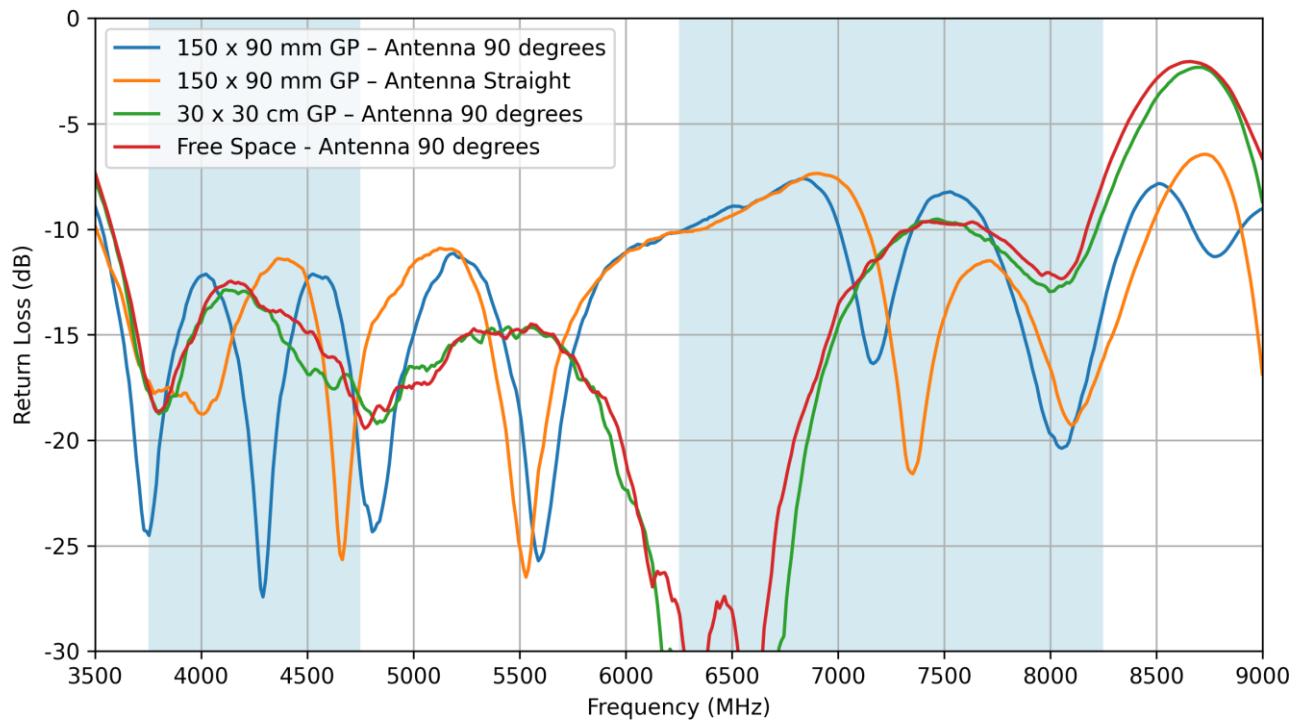
Electrical										
Band	Frequency (MHz)	Measurement	Efficiency (%)	Average Gain (dB)	Peak Gain (dBi)	Impedance	Polarization	Radiation Pattern	Max. input power	
UWB Channel 2	3750-4250	150 x 90 mm GP – Antenna 90 degrees	67.8	-1.69	1.56	50 Ω	Linear	Omni directional	30W	
		150 x 90 mm GP – Antenna Straight	66.8	-1.75	2.27					
		30 x 30 cm GP – Antenna 90 degrees	85.1	-0.70	5.46					
		Free Space – Antenna 90 degrees	86.1	-0.65	1.87					
UWB Channel 3	4250-4750	150 x 90 mm GP – Antenna 90 degrees	65.1	-1.87	4.19	50 Ω	Linear	Omni directional	30W	
		150 x 90 mm GP – Antenna Straight	60.4	-2.19	3.47					
		30 x 30 cm GP – Antenna 90 degrees	84.3	-0.74	6.23					
		Free Space – Antenna 90 degrees	85.5	-0.68	3.92					
UWB Channel 4	6250-6750	150 x 90 mm GP – Antenna 90 degrees	49.5	-3.06	1.53	50 Ω	Linear	Omni directional	30W	
		150 x 90 mm GP – Antenna Straight	45.8	-3.39	2.69					
		30 x 30 cm GP – Antenna 90 degrees	87.0	-0.60	5.59					
		Free Space – Antenna 90 degrees	85.9	-0.66	3.17					
UWB Channel 5	6750-7250	150 x 90 mm GP – Antenna 90 degrees	46.4	-3.34	3.11	50 Ω	Linear	Omni directional	30W	
		150 x 90 mm GP – Antenna Straight	43.5	-3.62	1.92					
		30 x 30 cm GP – Antenna 90 degrees	82.7	-0.83	6.09					
		Free Space – Antenna 90 degrees	82.1	-0.86	3.75					
UWB Channel 6	7250-7750	150 x 90 mm GP – Antenna 90 degrees	50.3	-2.98	2.36	50 Ω	Linear	Omni directional	30W	
		150 x 90 mm GP – Antenna Straight	55.2	-2.58	2.51					
		30 x 30 cm GP – Antenna 90 degrees	70.4	-1.53	4.86					
		Free Space – Antenna 90 degrees	69.6	-1.58	2.86					
UWB Channel 7	7750-8250	150 x 90 mm GP – Antenna 90 degrees	48.4	-3.15	1.96	50 Ω	Linear	Omni directional	30W	
		150 x 90 mm GP – Antenna Straight	52.0	-2.84	2.92					
		30 x 30 cm GP – Antenna 90 degrees	74.8	-1.26	4.86					
		Free Space – Antenna 90 degrees	73.8	-1.32	2.58					

Mechanical	
Dimensions	Length 123.5mm, Ø22.8mm
Ingress Protection Rating	IP67
Casing	ABS
Connector	N-Type (M)
Weight	52g

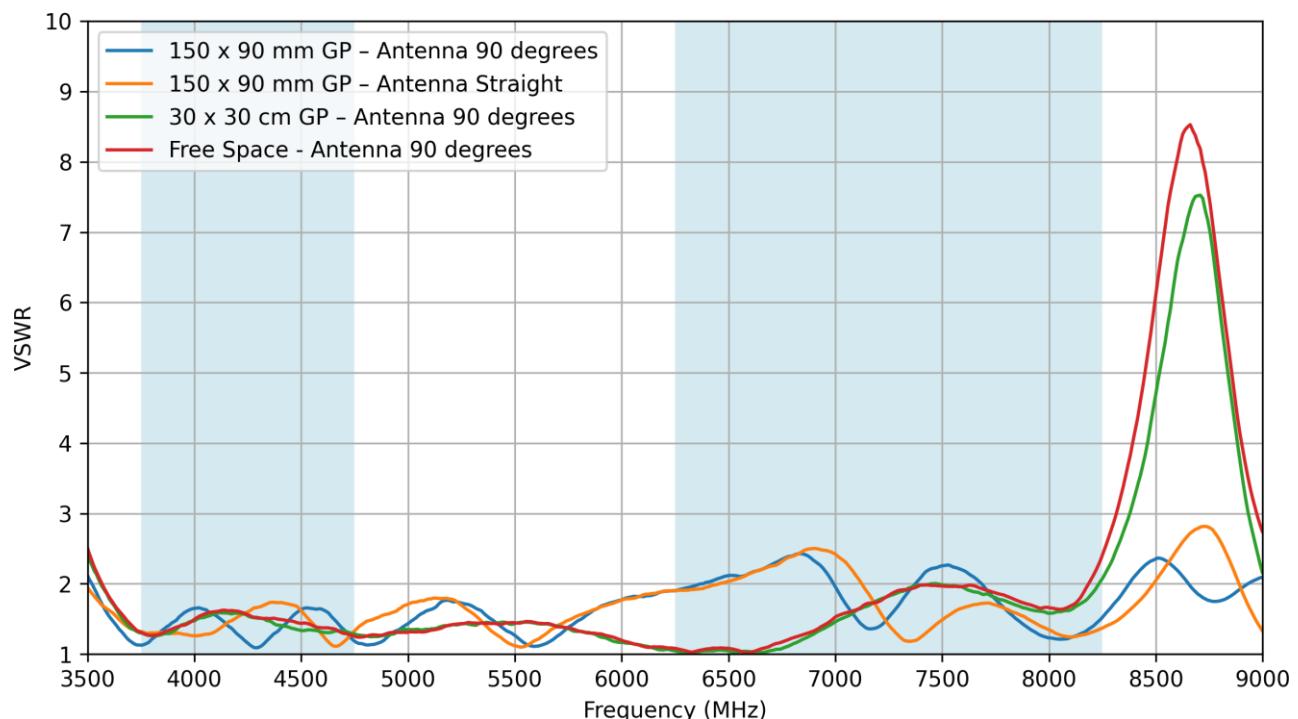
Environmental	
Operational Temp Range	-40°C to 85°C
Humidity	Non-condensing 65°C 95% RH
RoHS Compliant	Yes
REACH Compliant	Yes

3. Antenna Characteristics

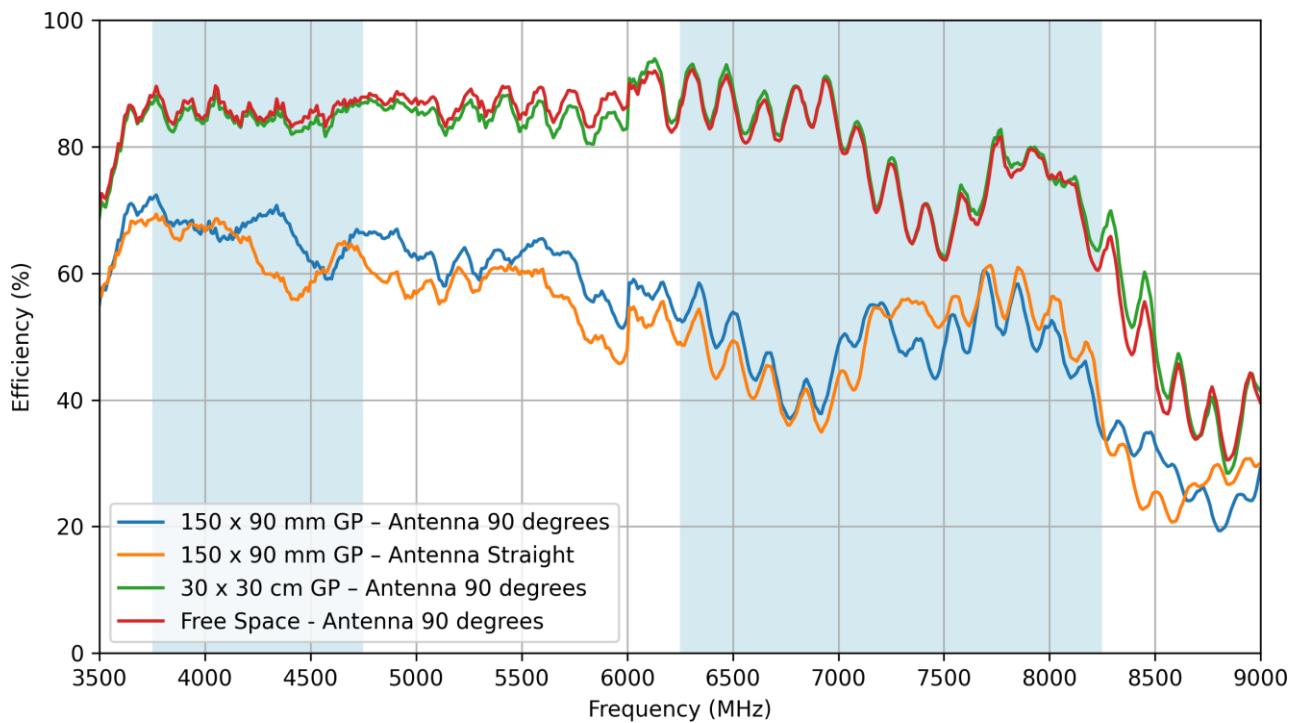
3.1 Return Loss



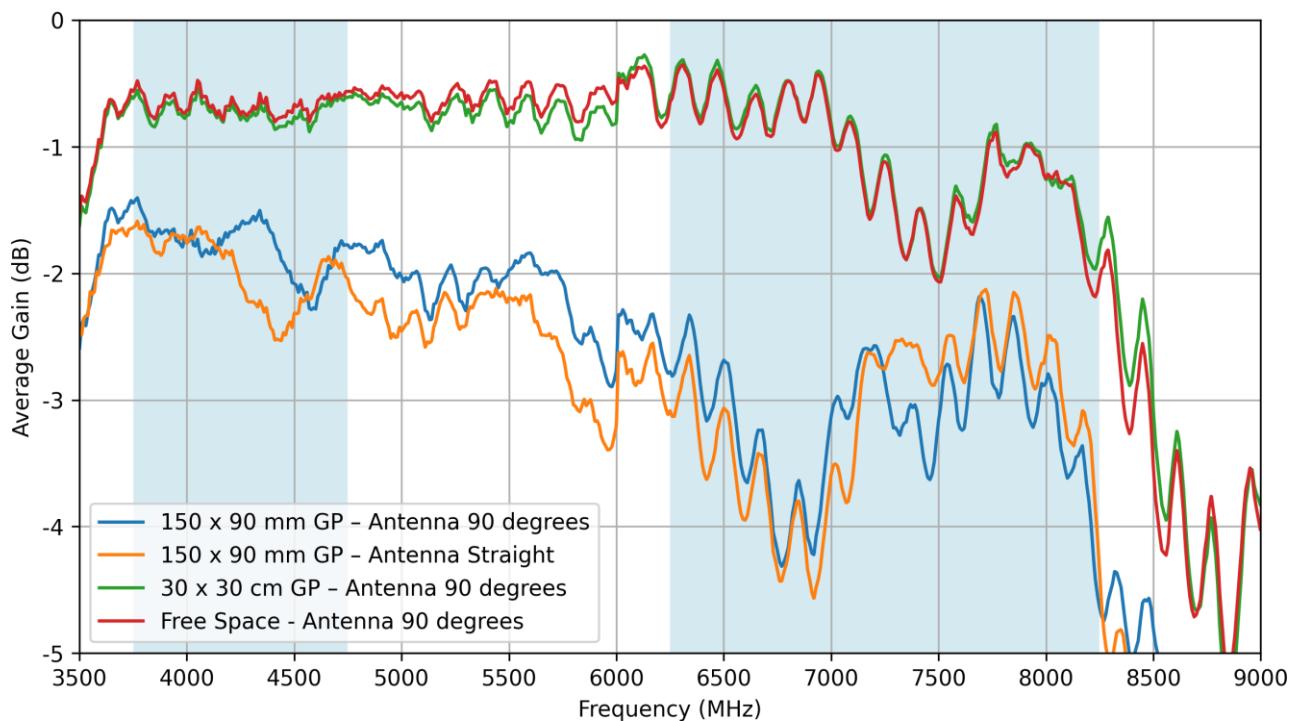
3.2 VSWR



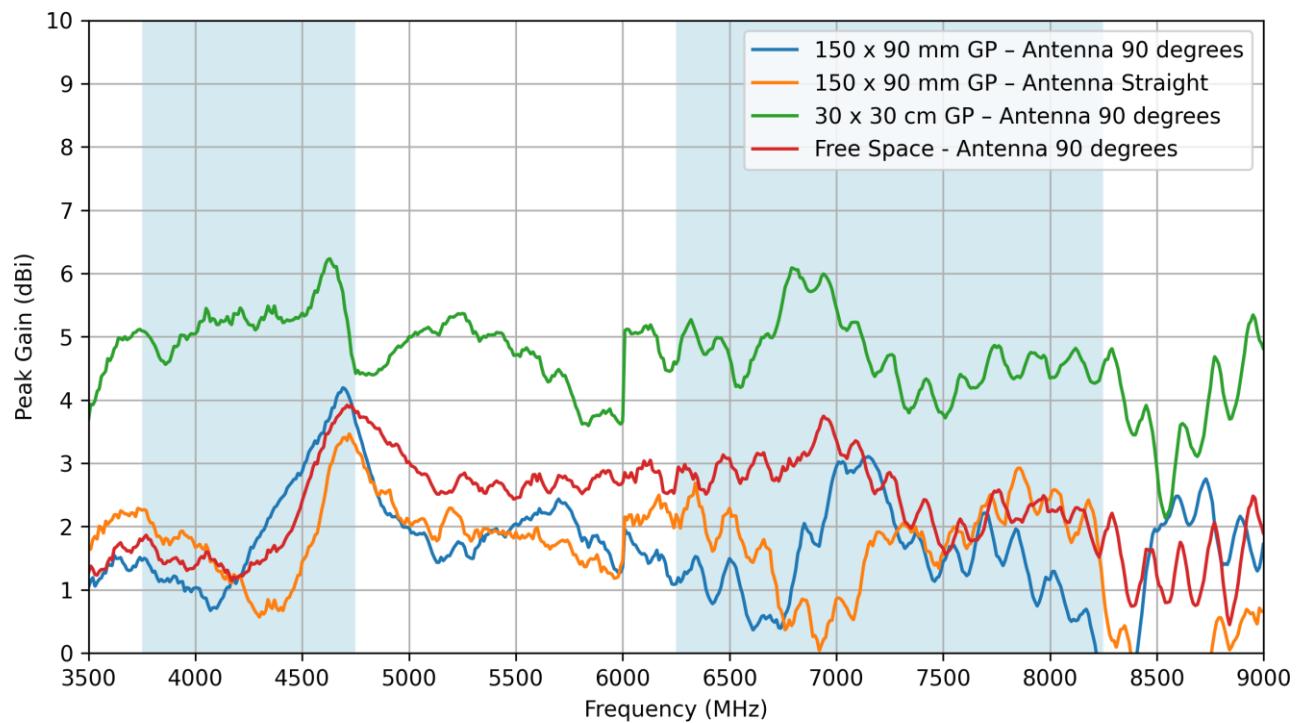
3.3 Efficiency



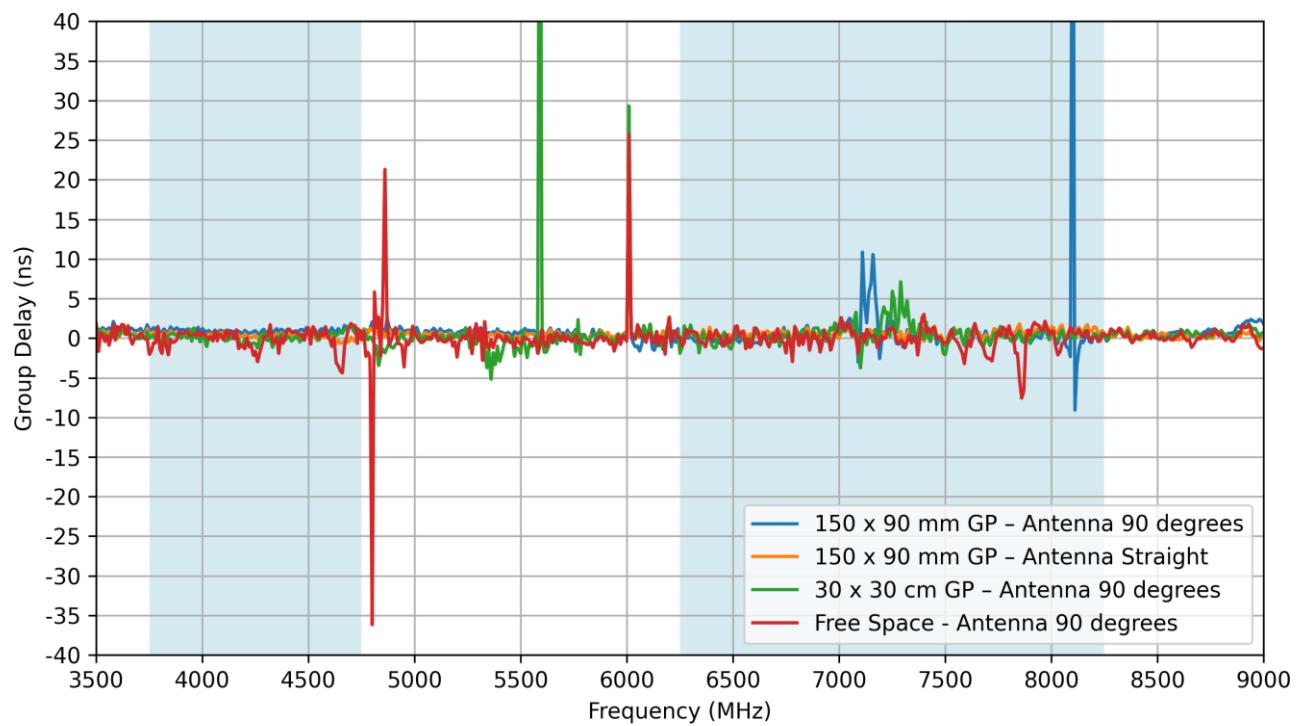
3.4 Average Gain



3.5 Peak Gain

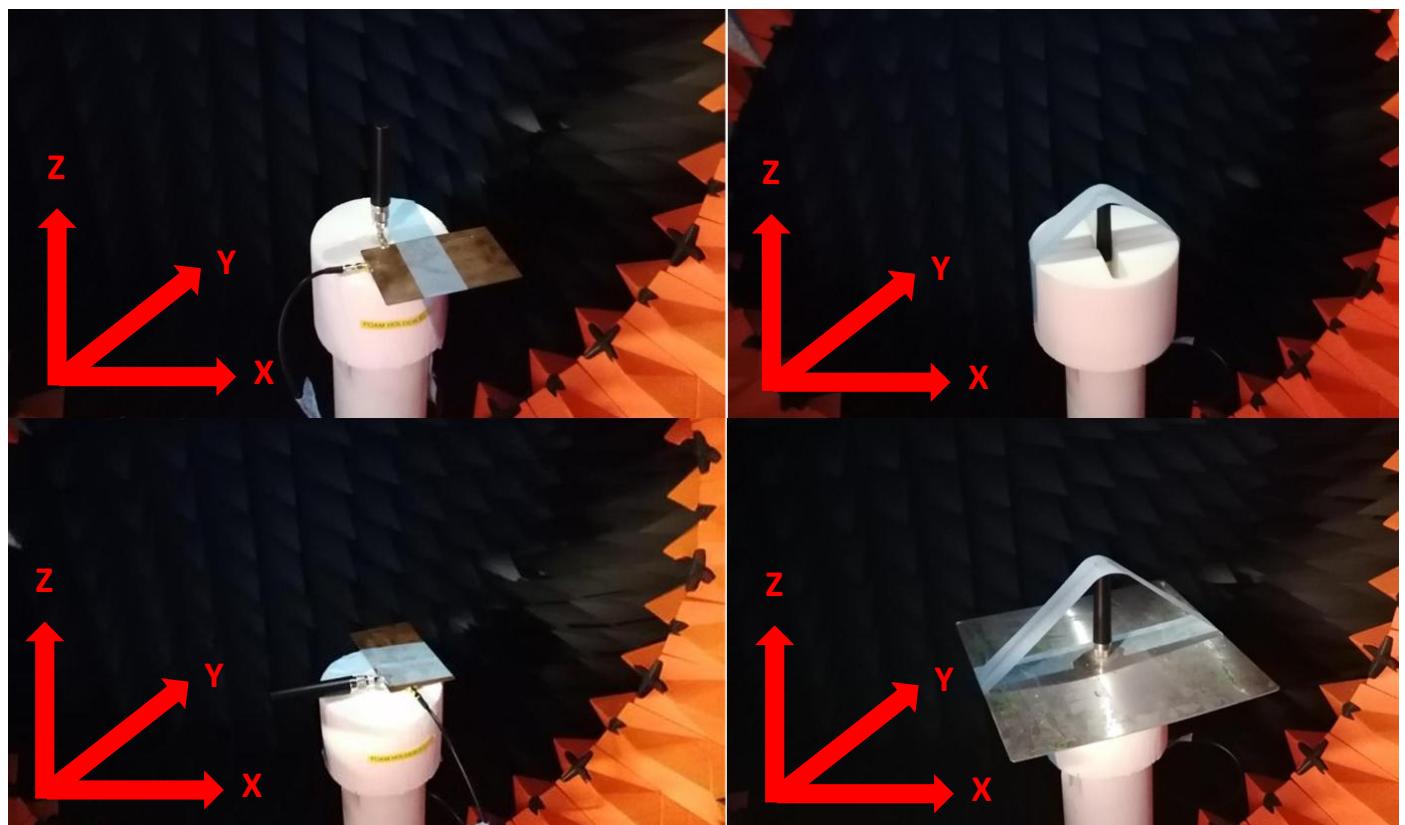
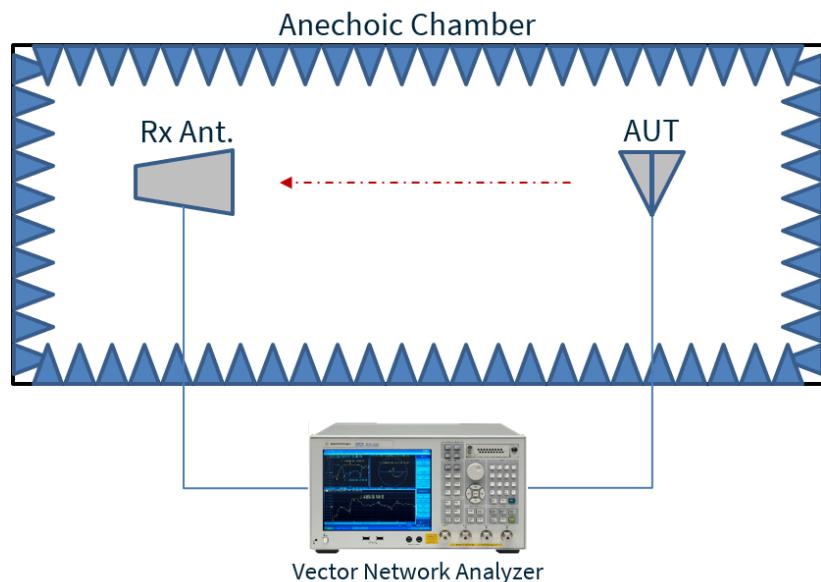


3.6 Group Delay

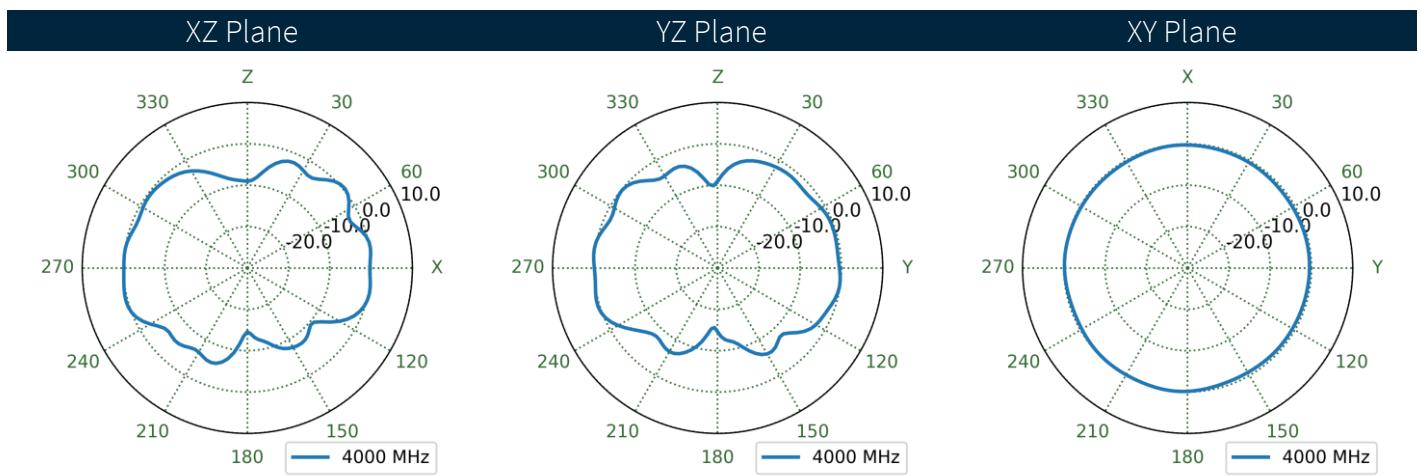
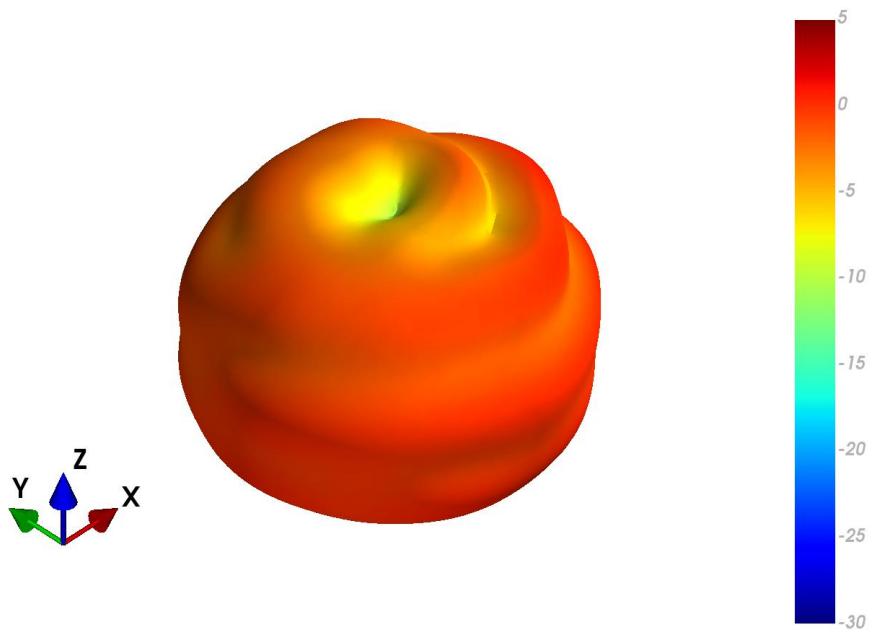


4. Radiation Patterns

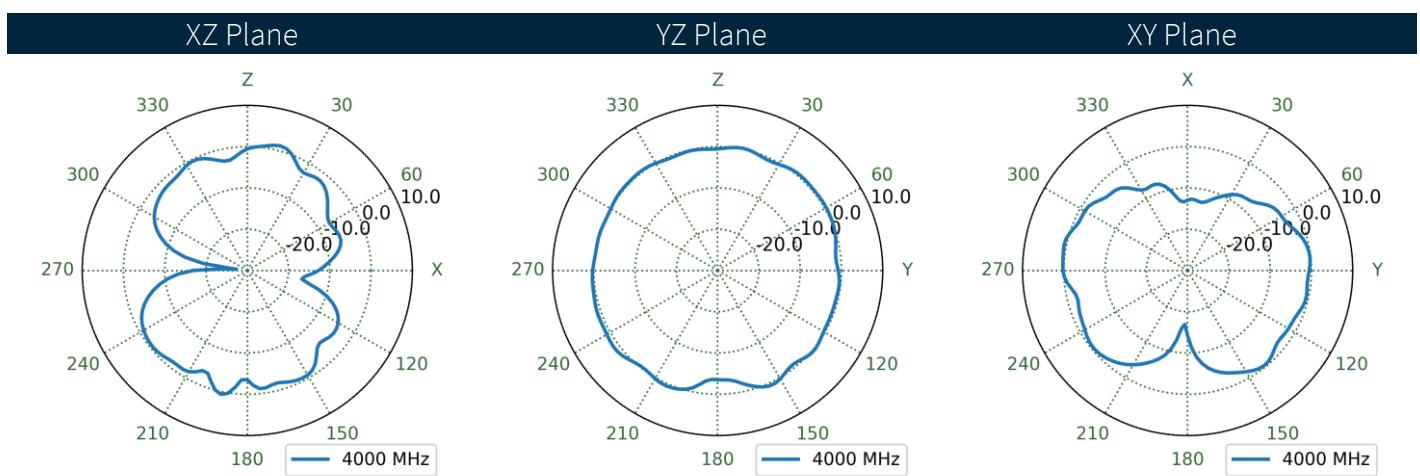
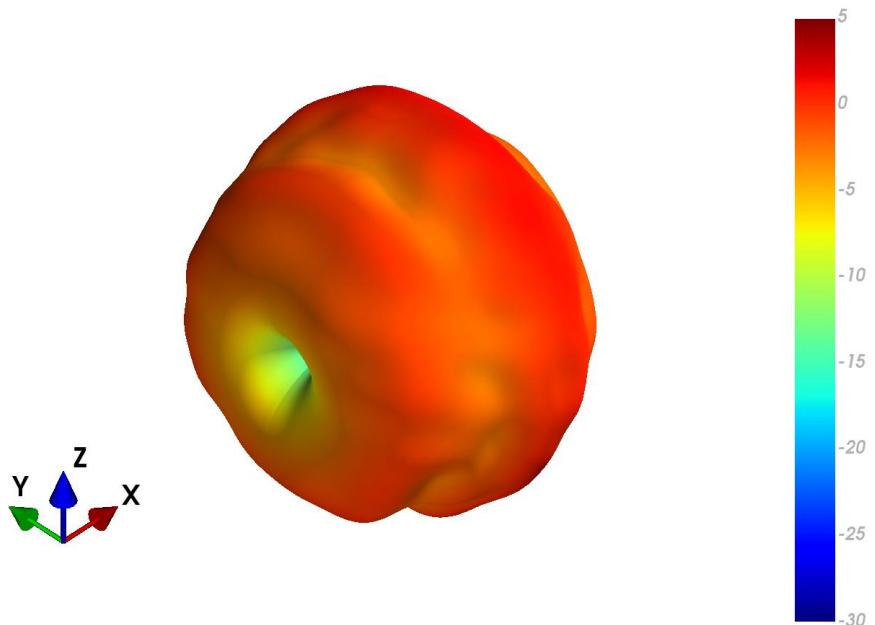
4.1 Test Setup



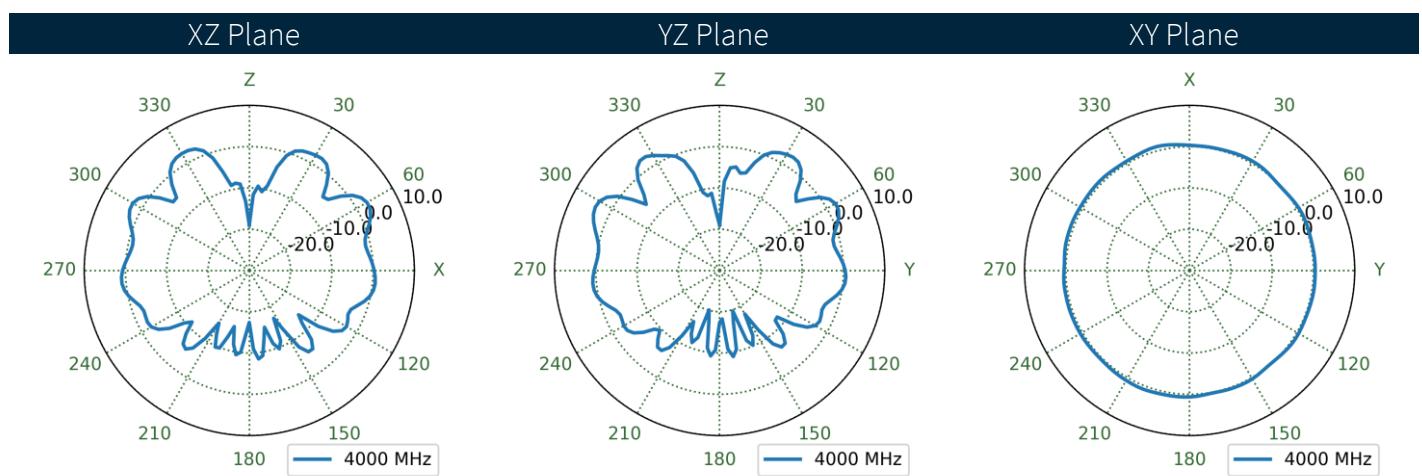
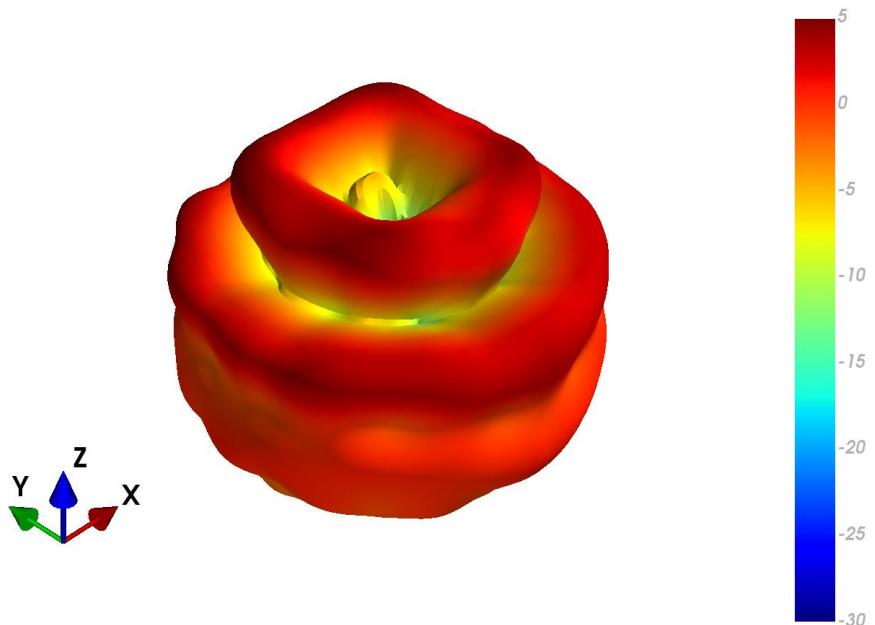
4.2 150 x 90 mm GP – Antenna 90 degrees Patterns at 4000 MHz



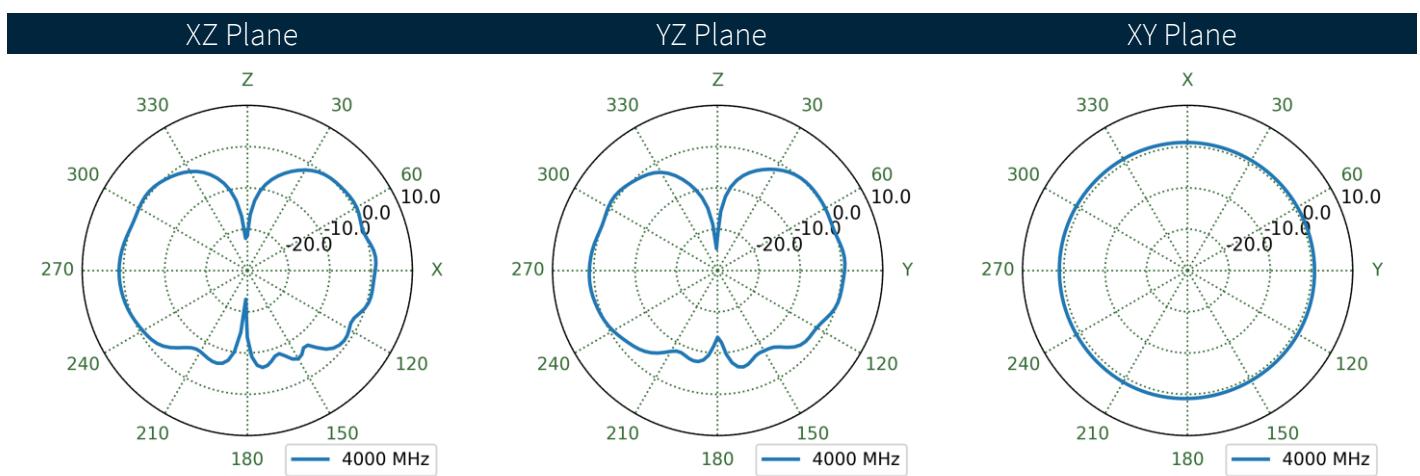
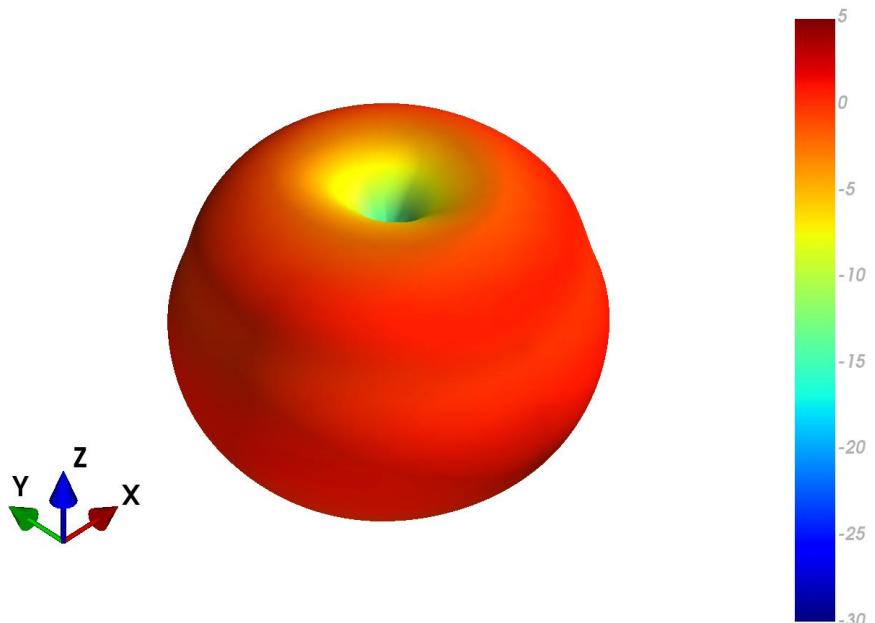
4.3 150 x 90 mm GP – Antenna Straight Patterns at 4000 MHz



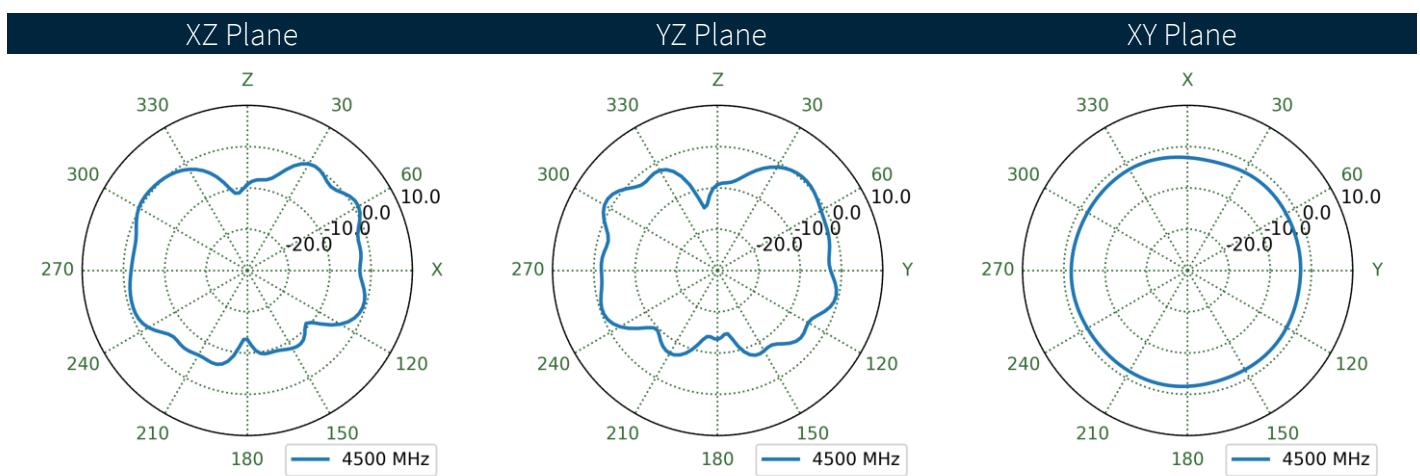
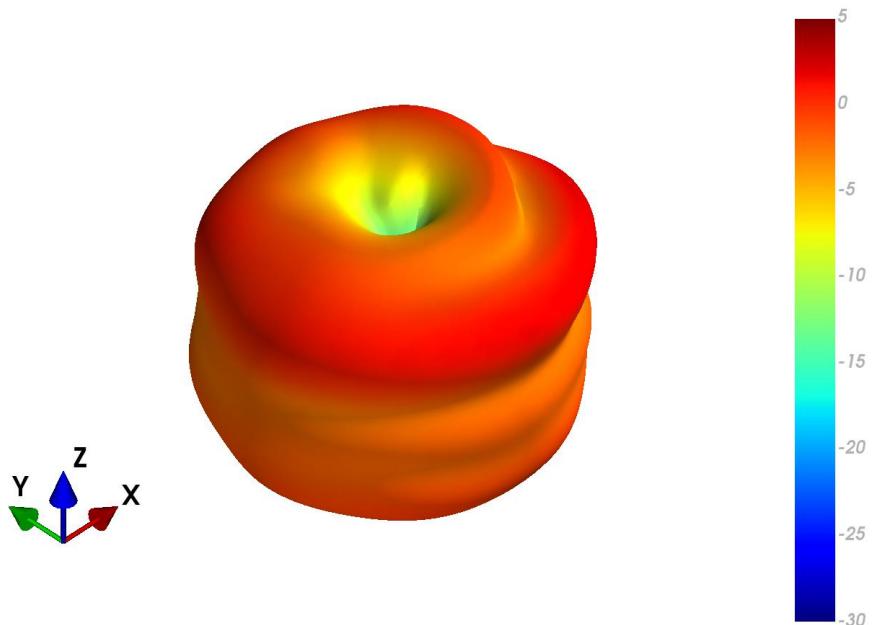
4.4 30 x 30 cm GP – Antenna 90 degrees Patterns at 4000 MHz



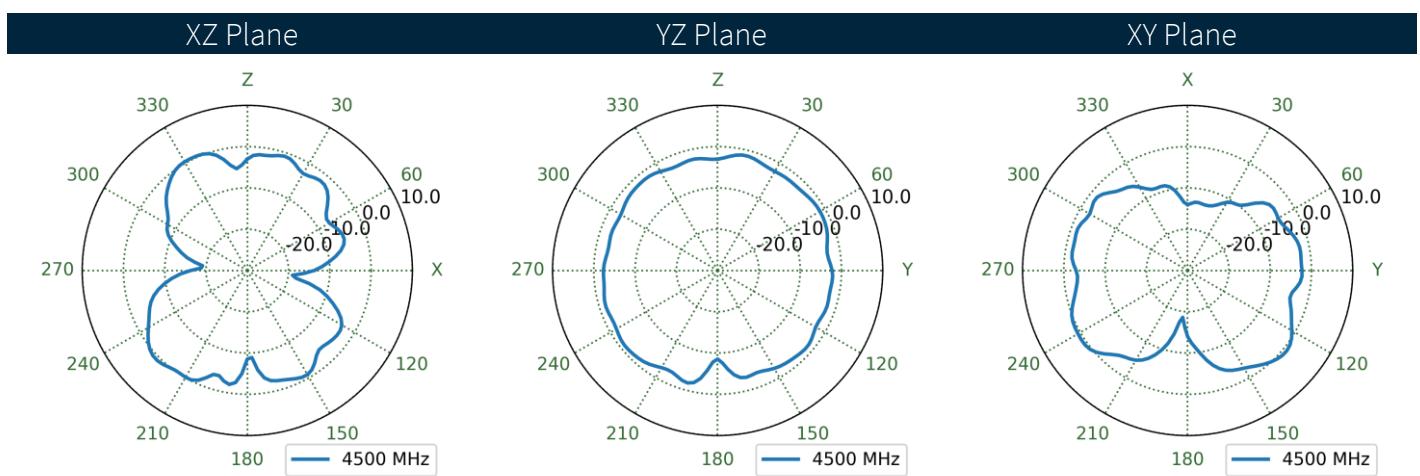
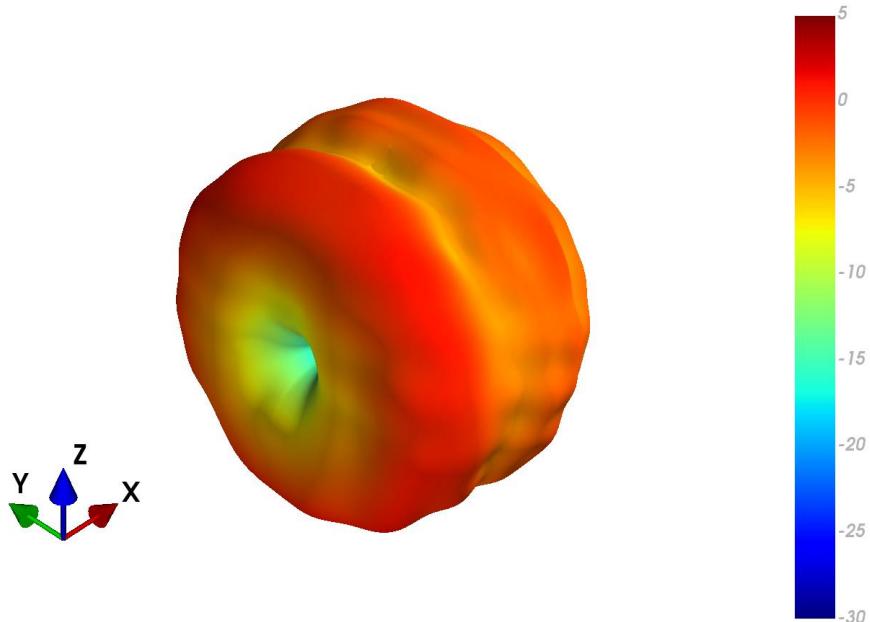
4.5 Free Space - Antenna 90 degrees Patterns at 4000 MHz



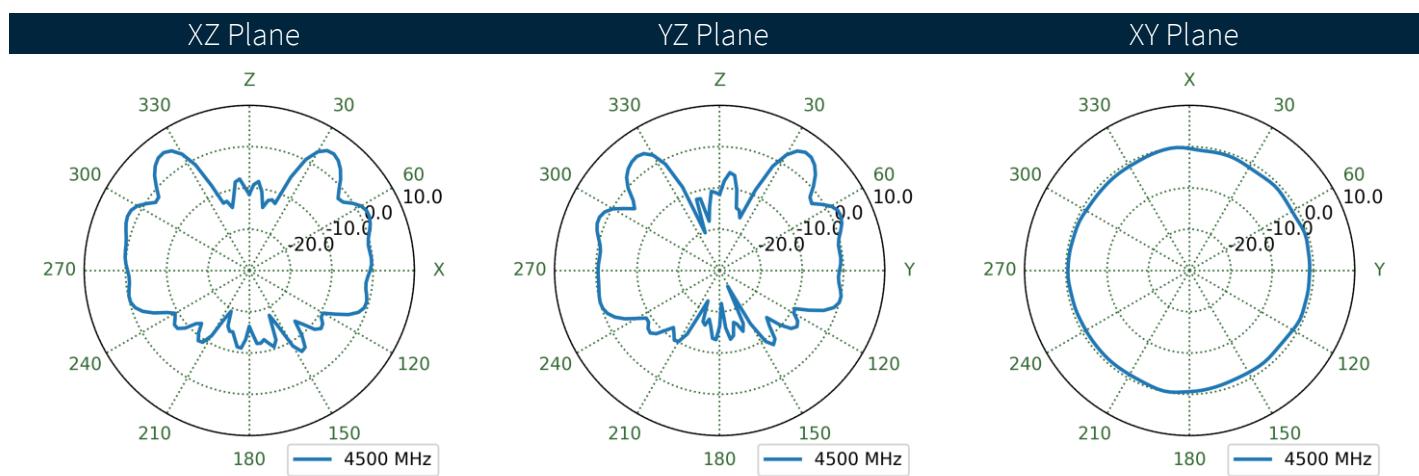
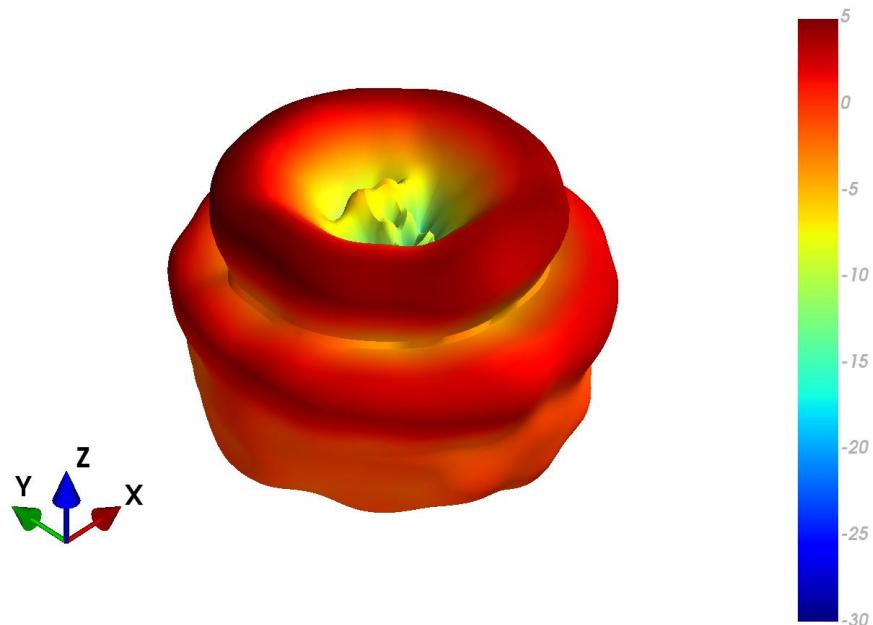
4.6 150 x 90 mm GP – Antenna 90 degrees Patterns at 4500 MHz



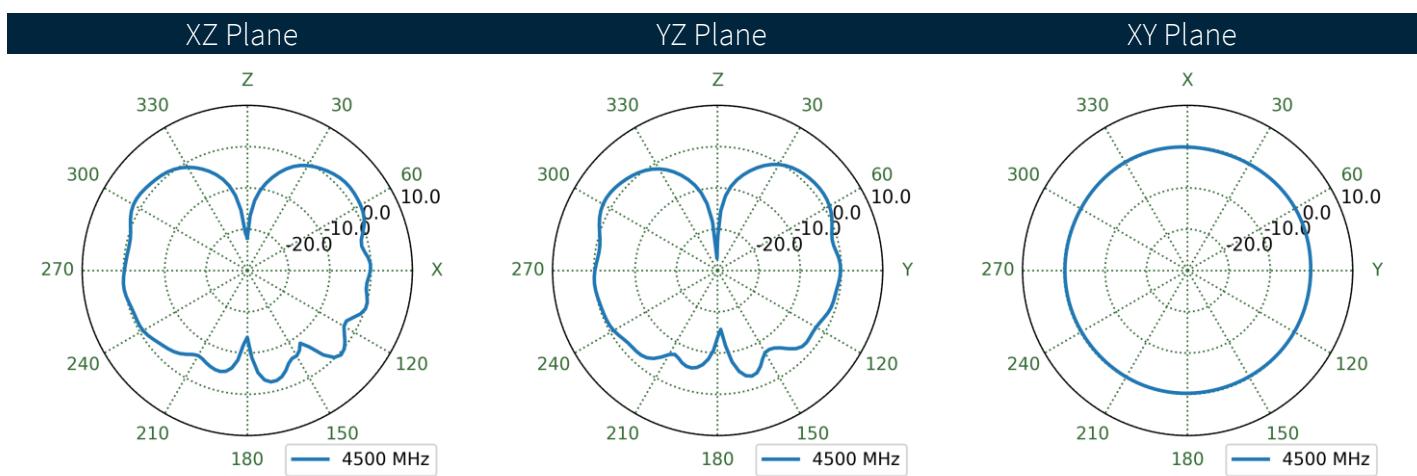
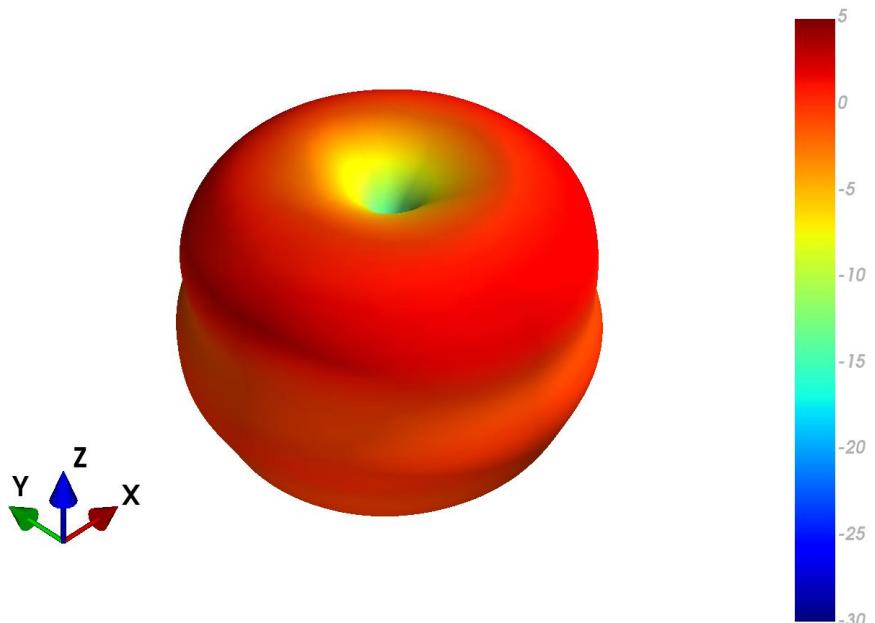
4.7 150 x 90 mm GP – Antenna Straight Patterns at 4500 MHz



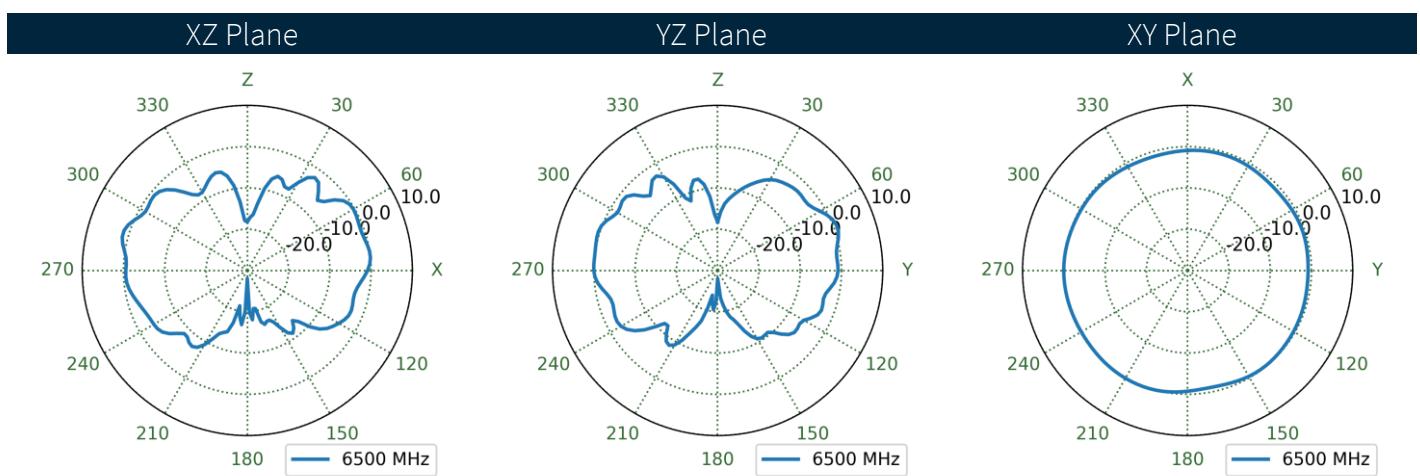
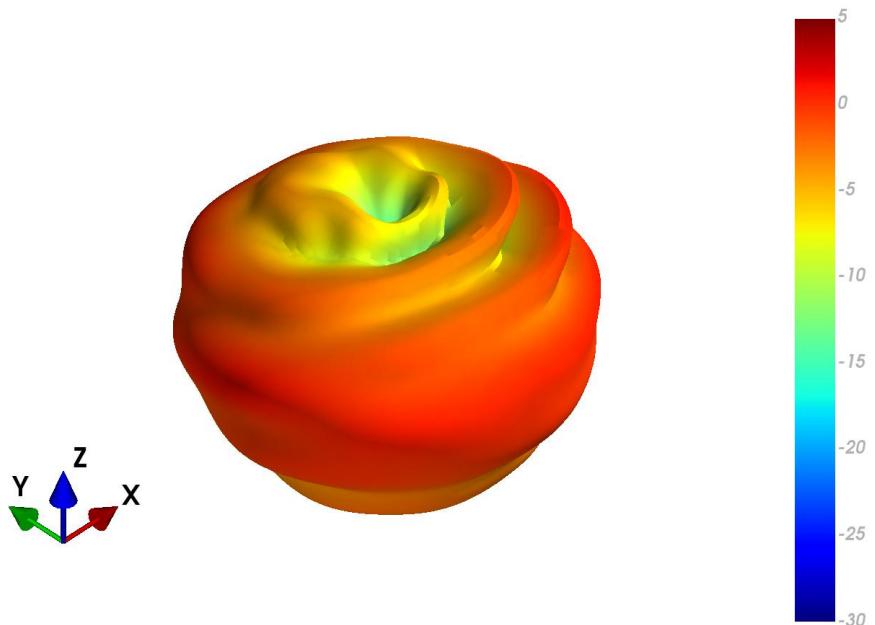
4.8 30 x 30 cm GP – Antenna 90 degrees Patterns at 4500 MHz



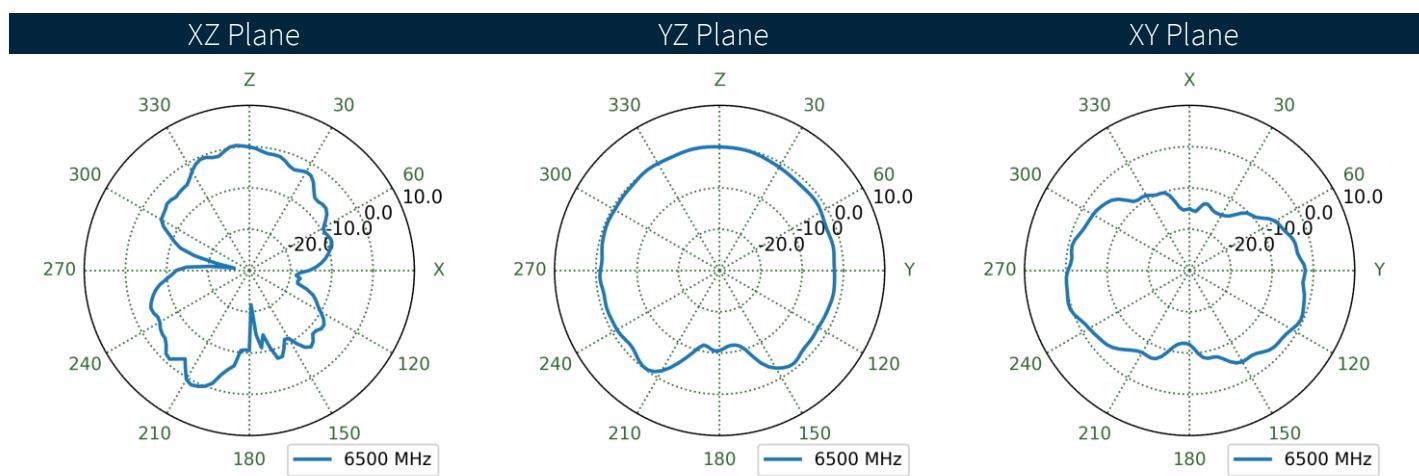
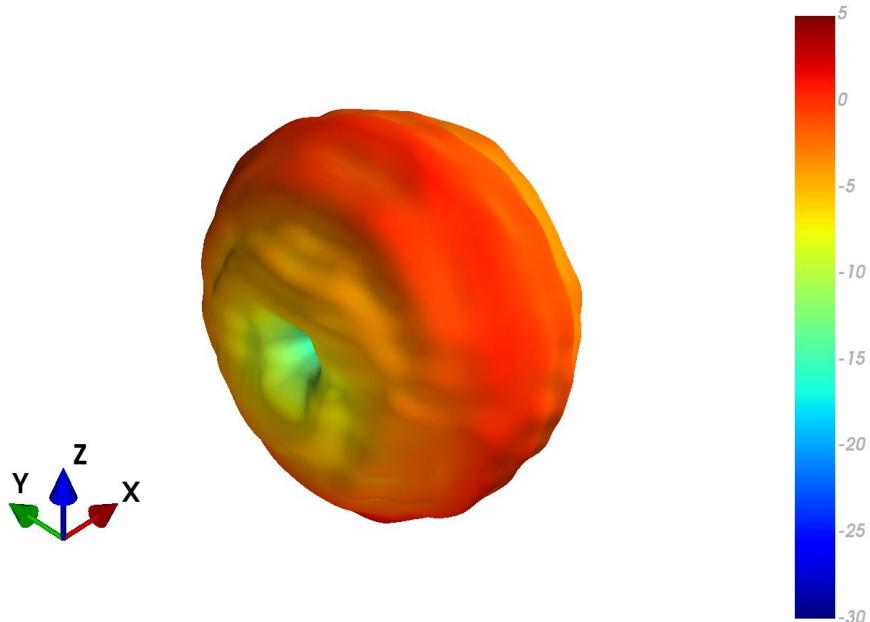
4.9 Free Space - Antenna 90 degrees Patterns at 4500 MHz



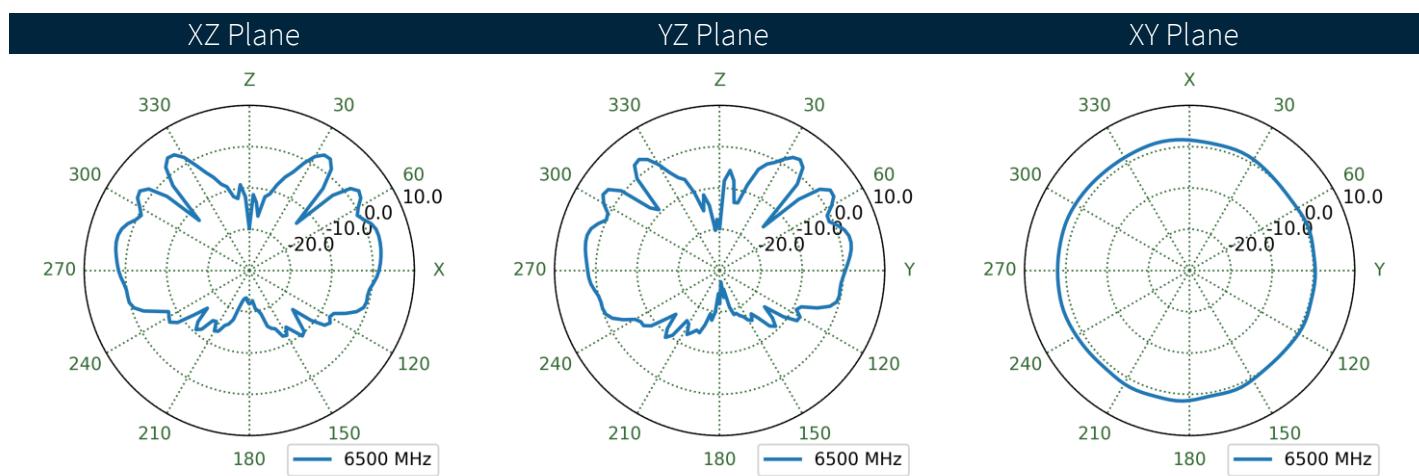
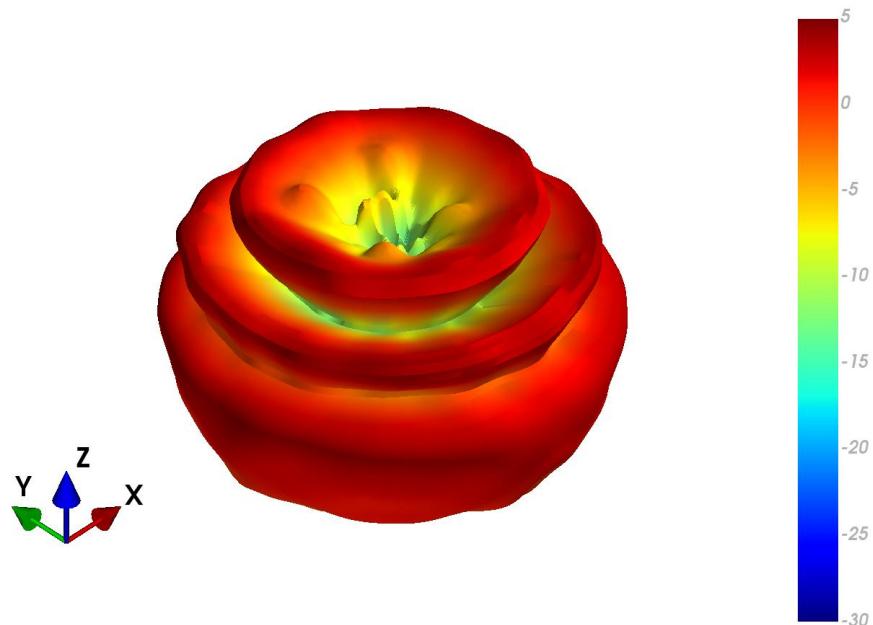
4.10 150 x 90 mm GP – Antenna 90 degrees Patterns at 6500 MHz



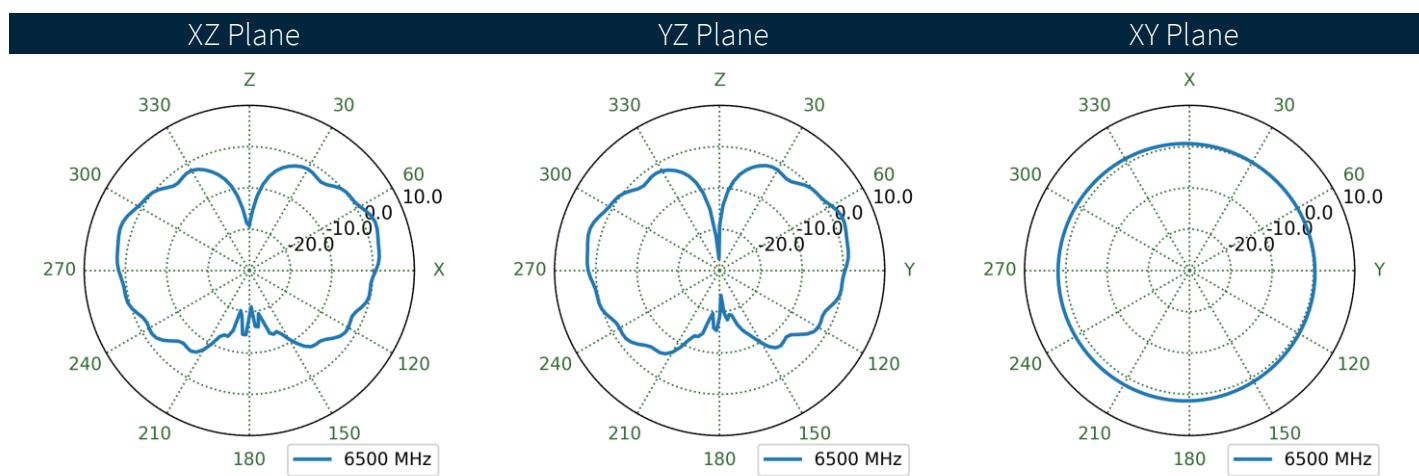
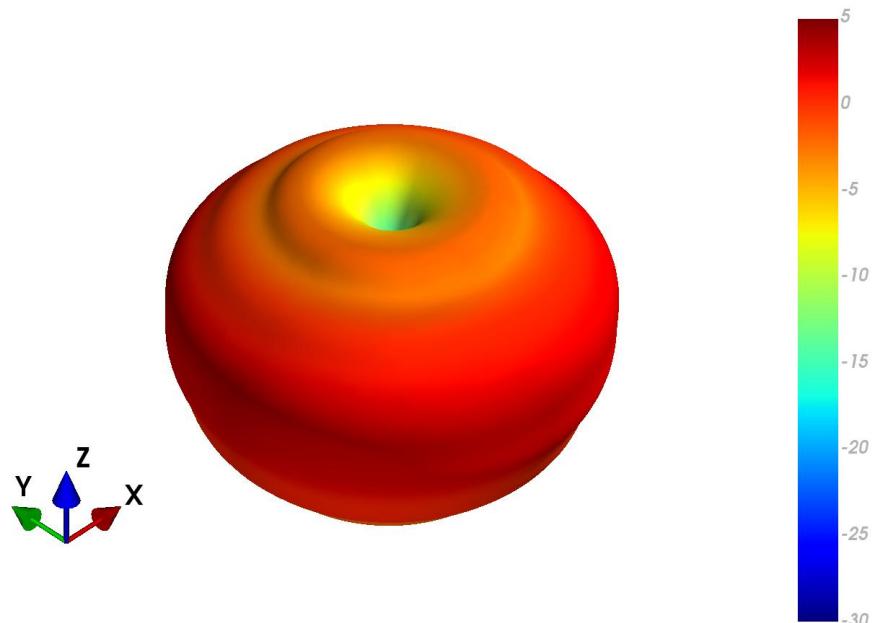
4.11 150 x 90 mm GP – Antenna Straight Patterns at 6500 MHz



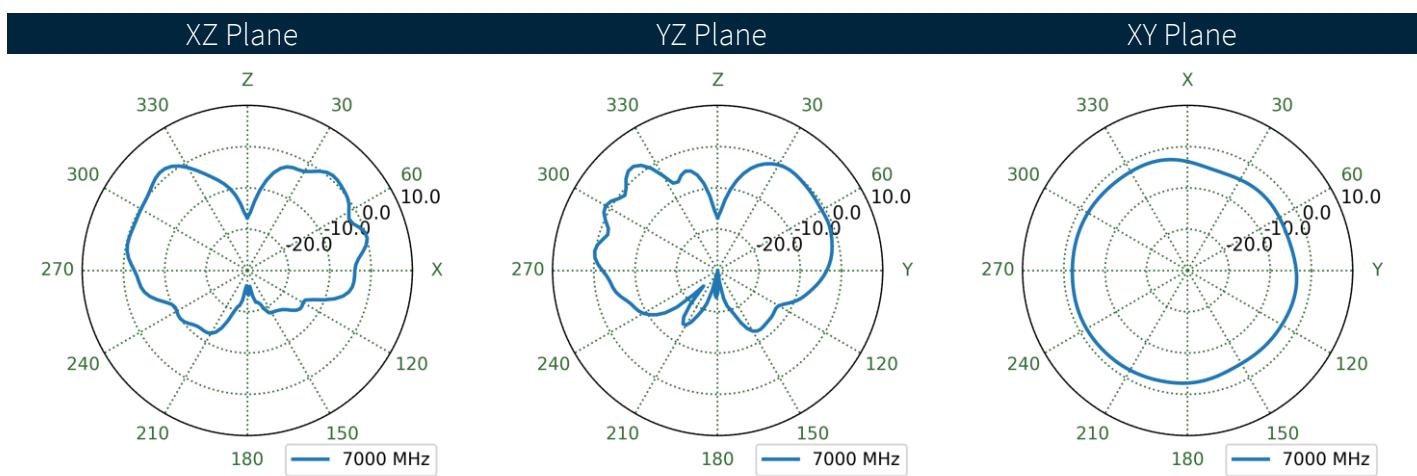
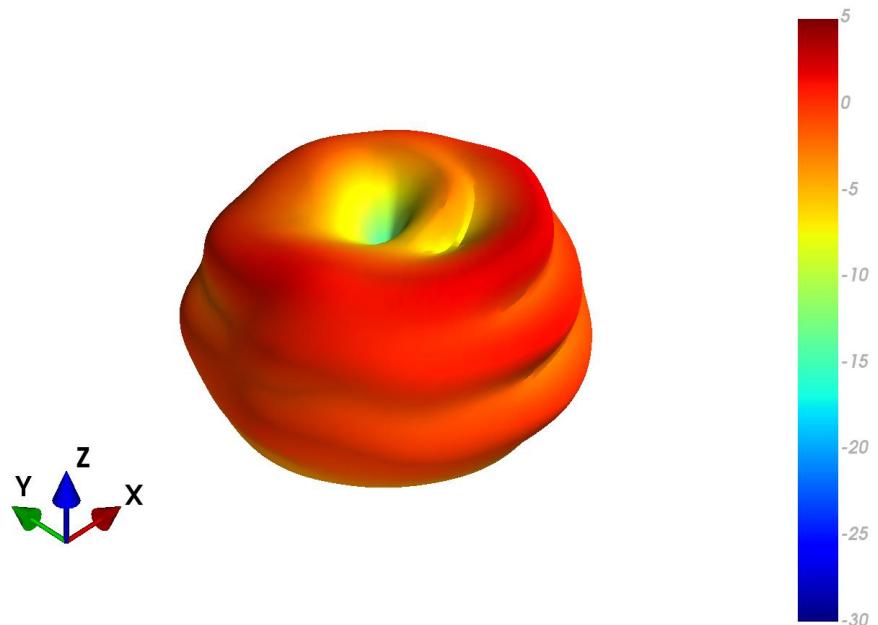
4.12 30 x 30 cm GP – Antenna 90 degrees Patterns at 6500 MHz



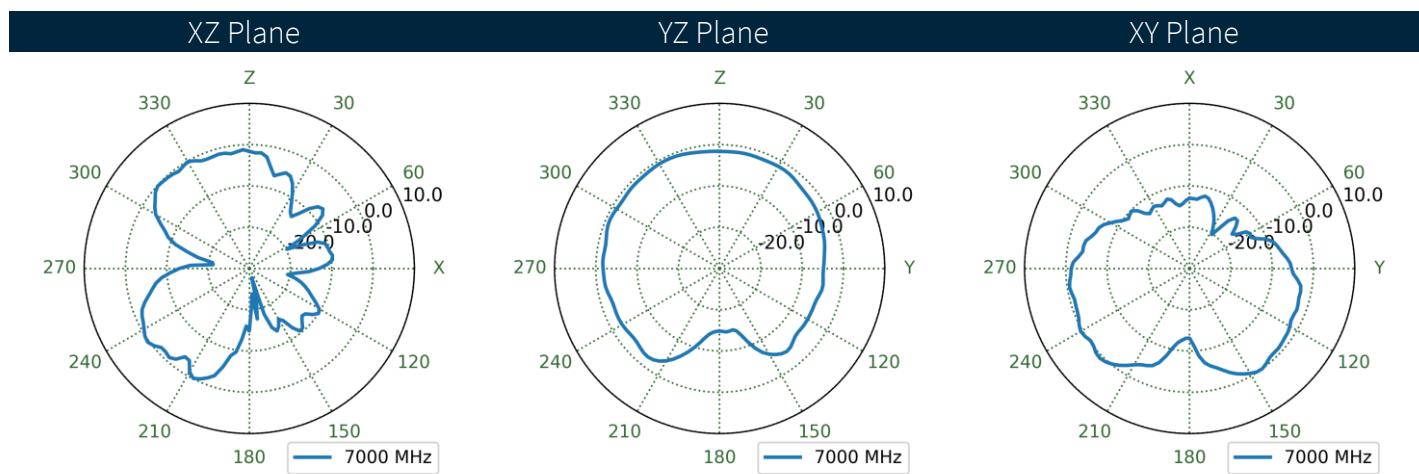
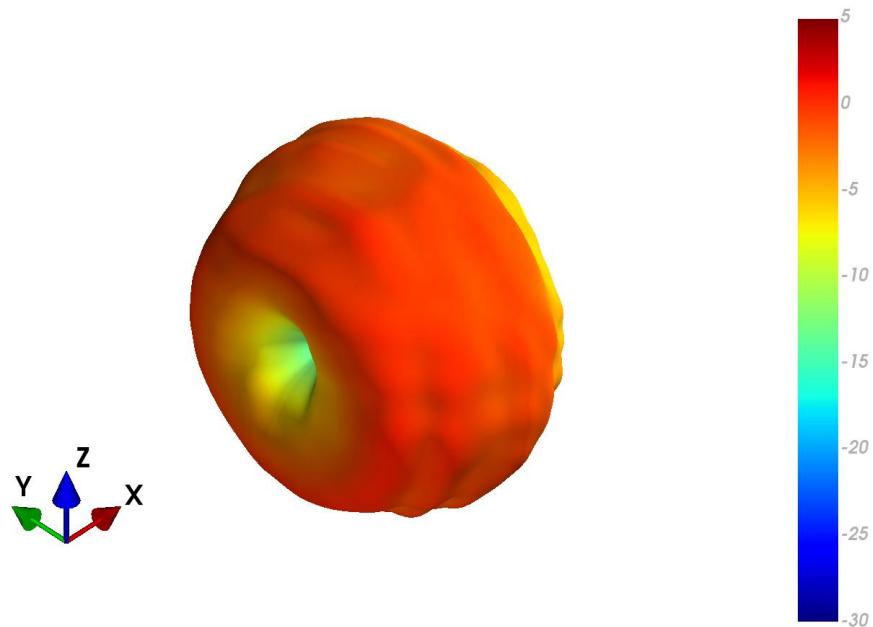
4.13 Free Space - Antenna 90 degrees Patterns at 6500 MHz

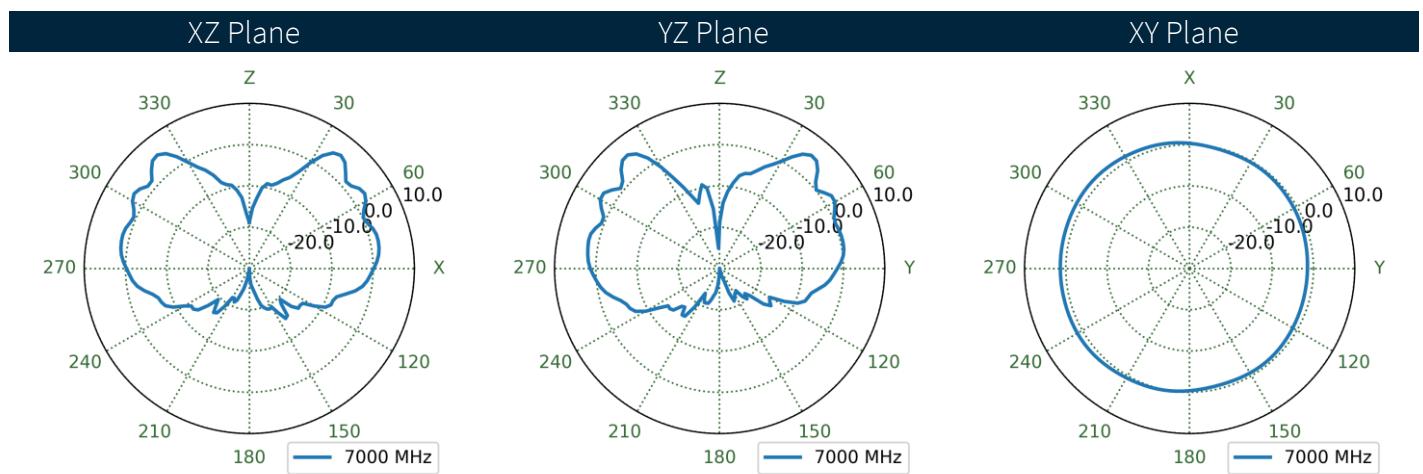
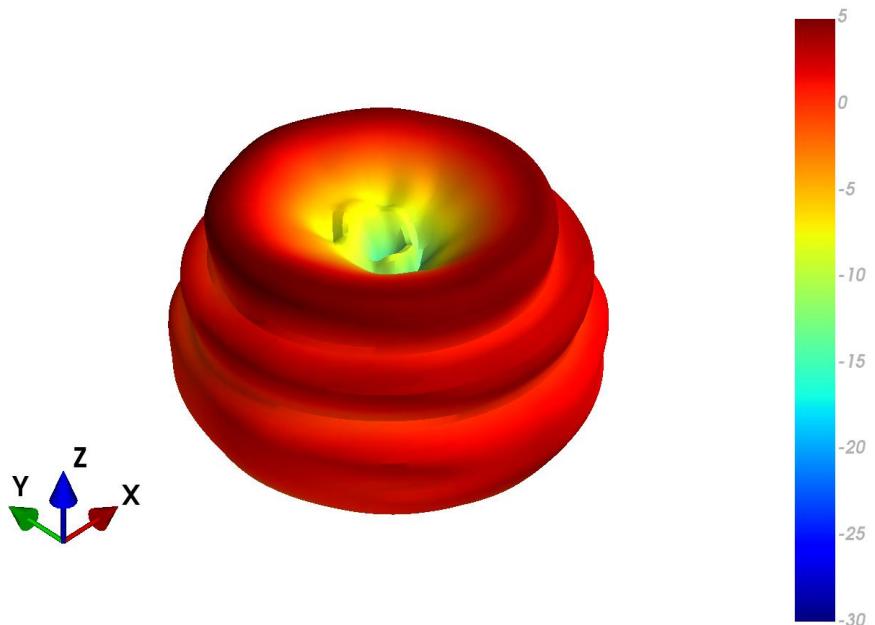


4.14 150 x 90 mm GP – Antenna 90 degrees Patterns at 7000 MHz

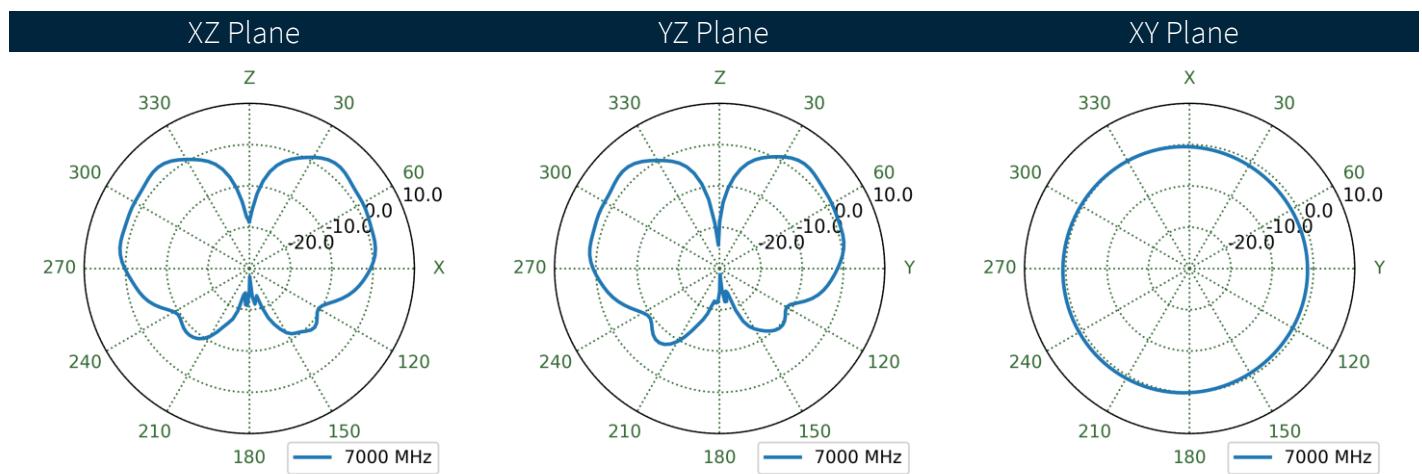
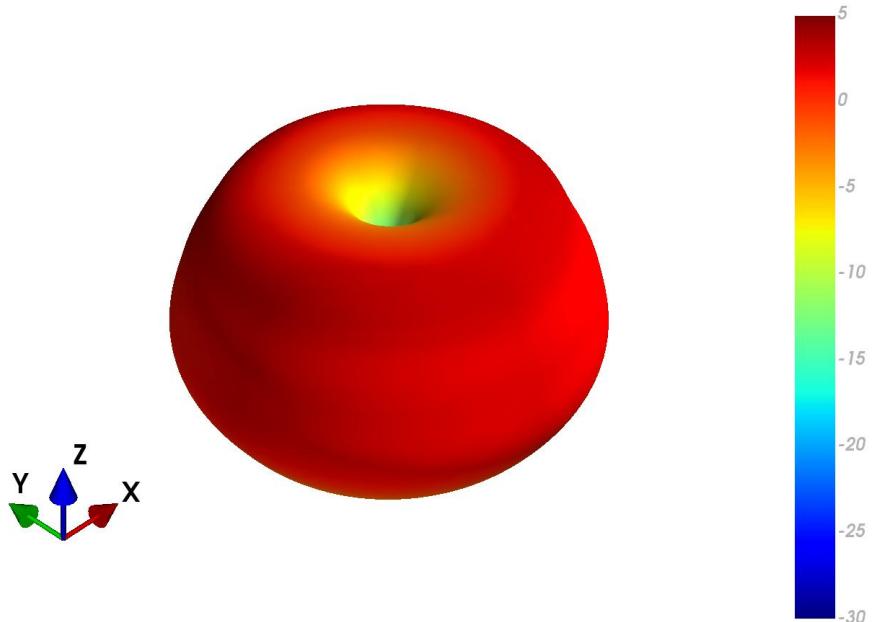


4.15 150 x 90 mm GP – Antenna Straight Patterns at 7000 MHz

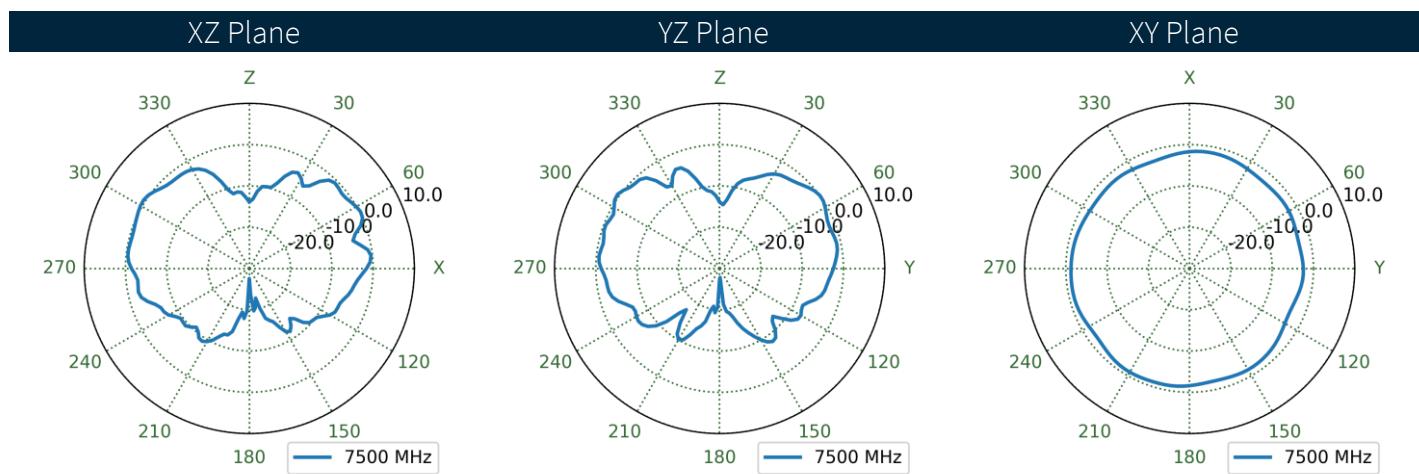
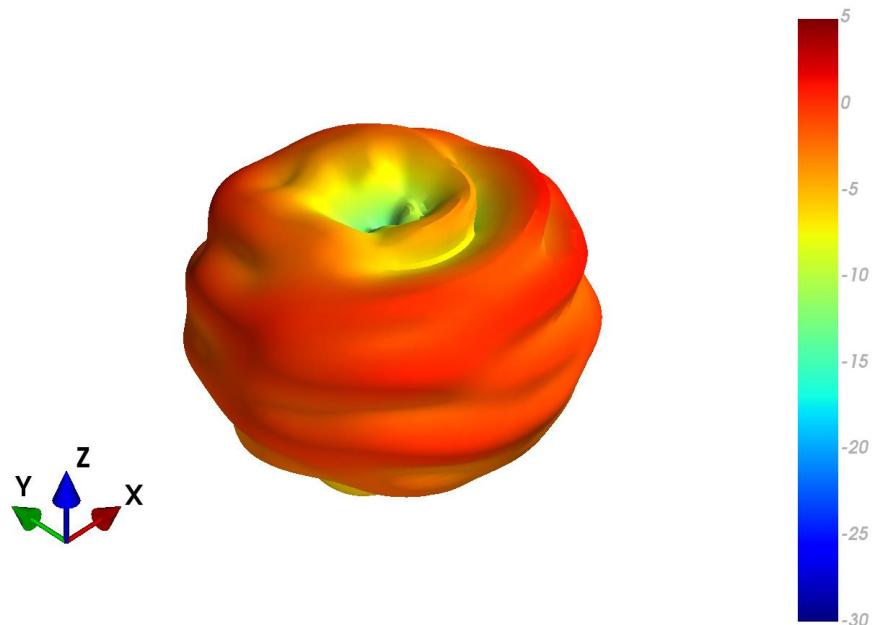


4.16 30 x 30 cm GP – Antenna 90 degrees Patterns at 7000 MHz


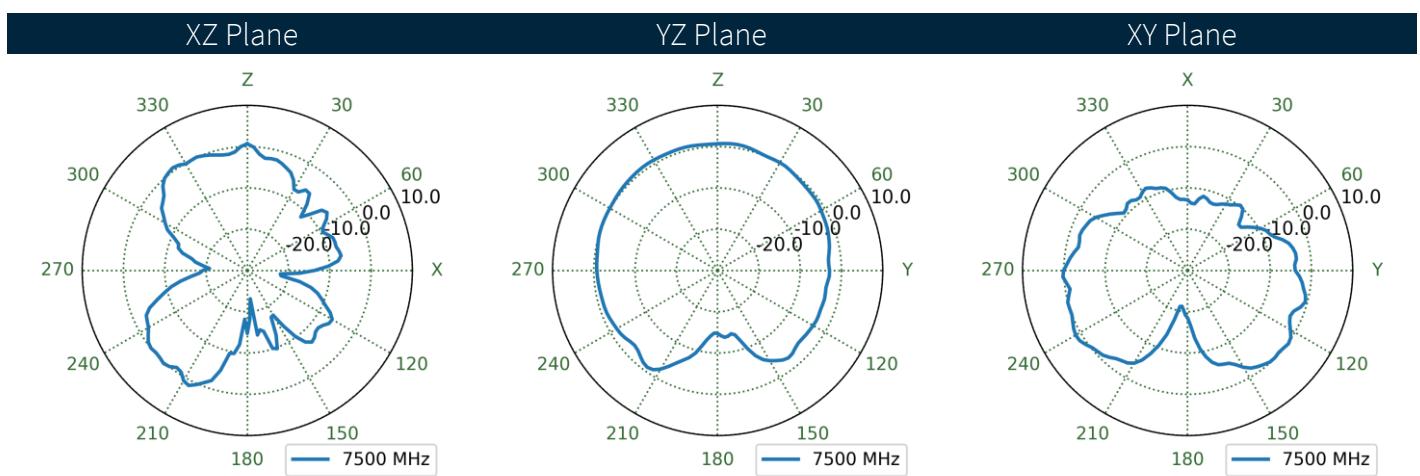
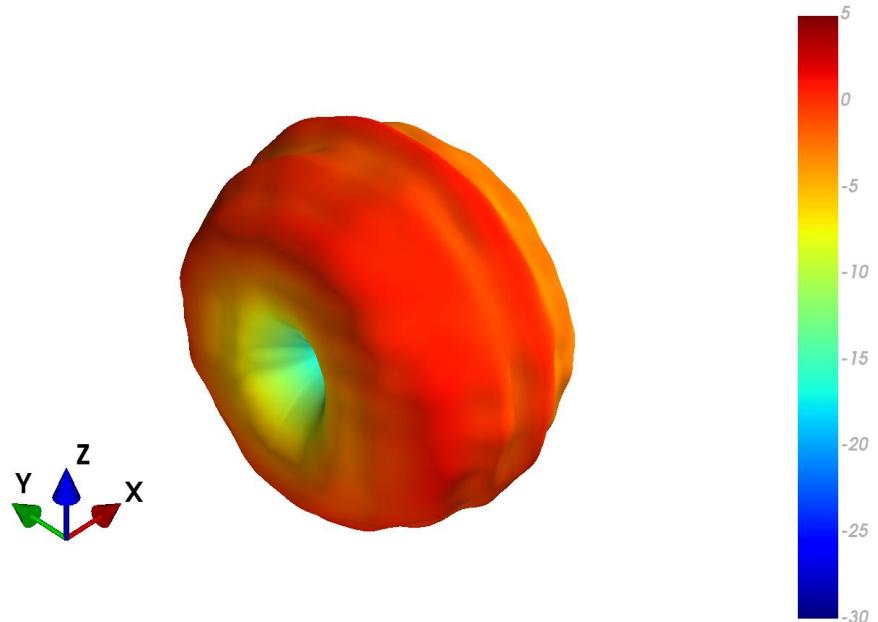
4.17 Free Space - Antenna 90 degrees Patterns at 7000 MHz



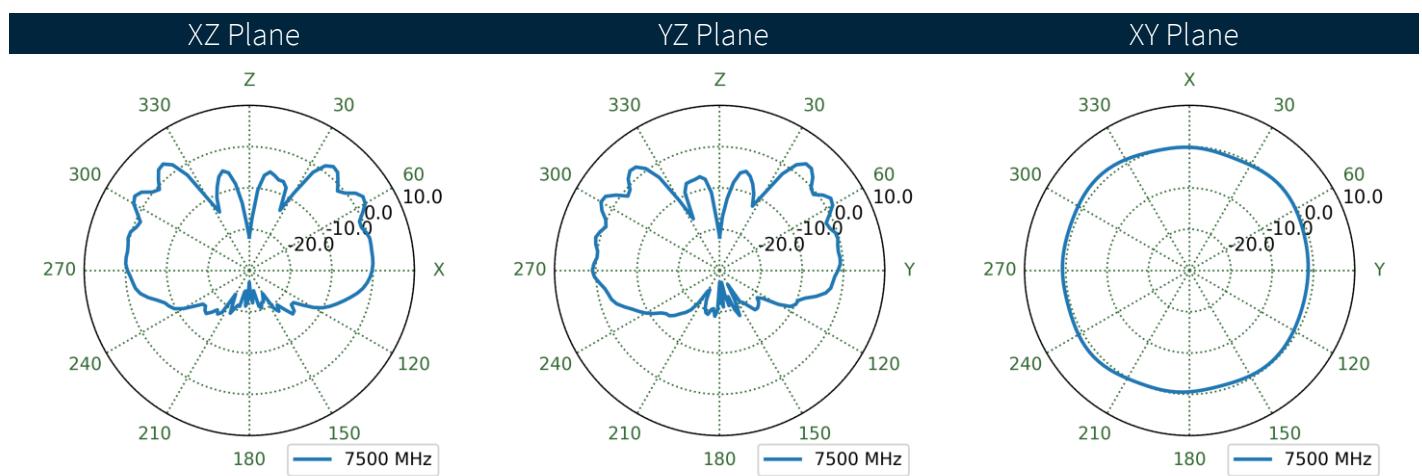
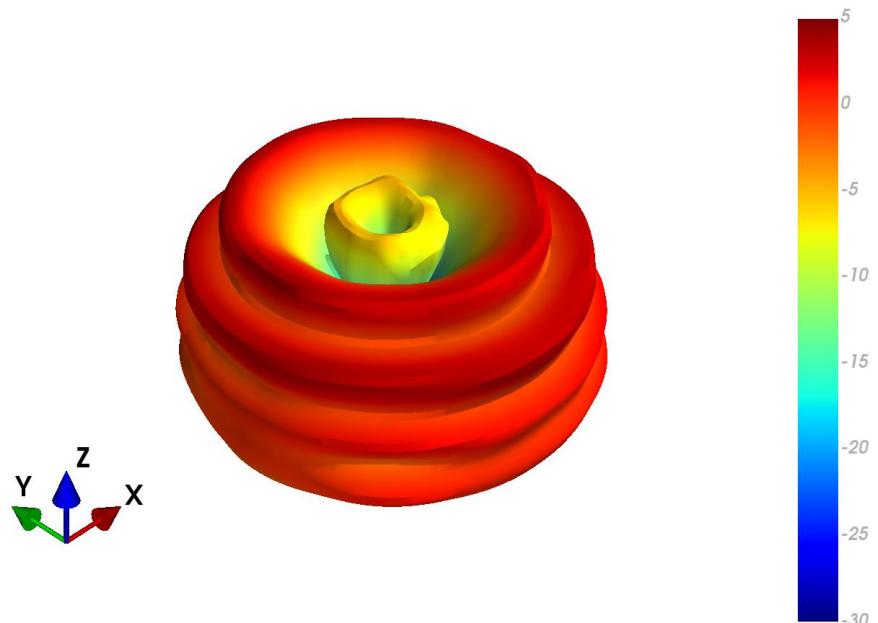
4.18 150 x 90 mm GP – Antenna 90 degrees Patterns at 7500 MHz



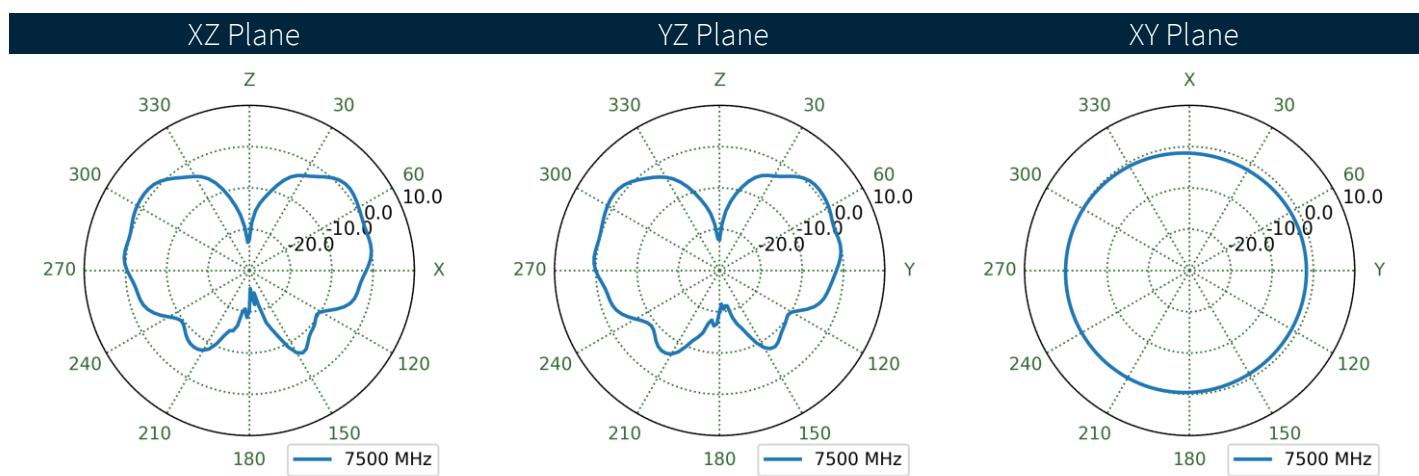
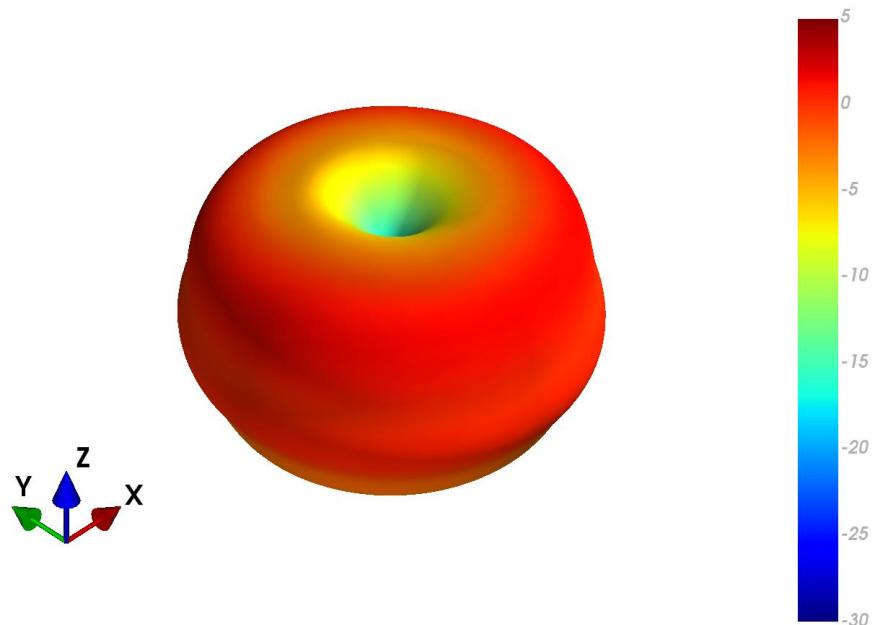
4.19 150 x 90 mm GP – Antenna Straight Patterns at 7500 MHz



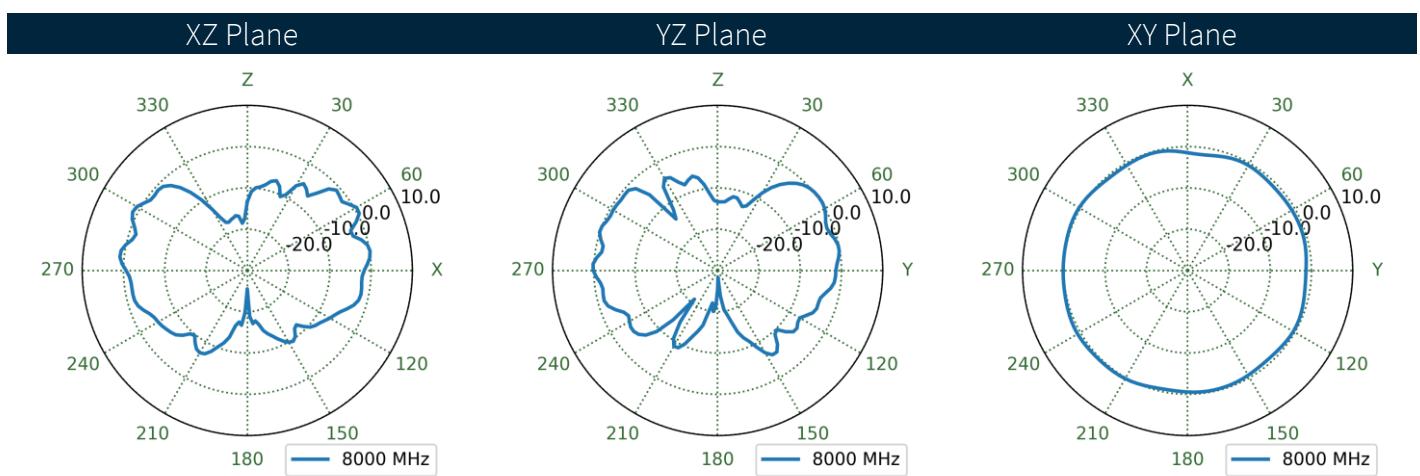
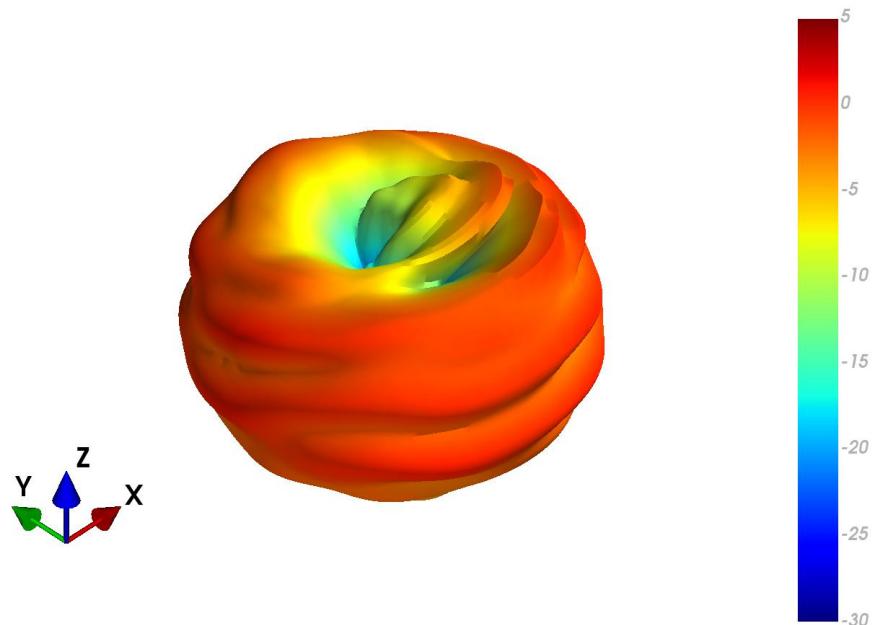
4.20 30 x 30 cm GP – Antenna 90 degrees Patterns at 7500 MHz



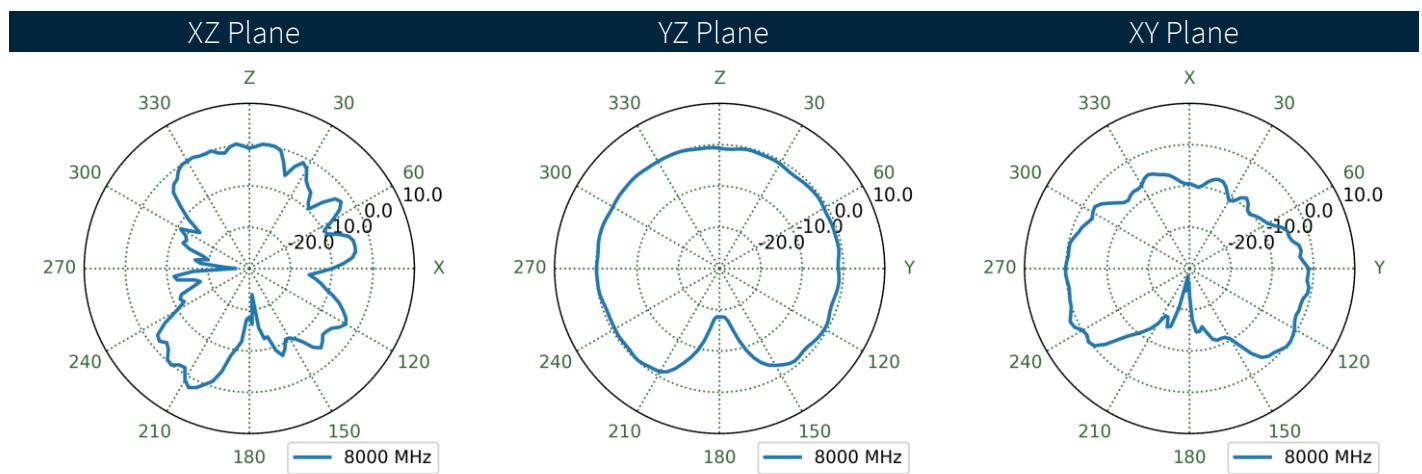
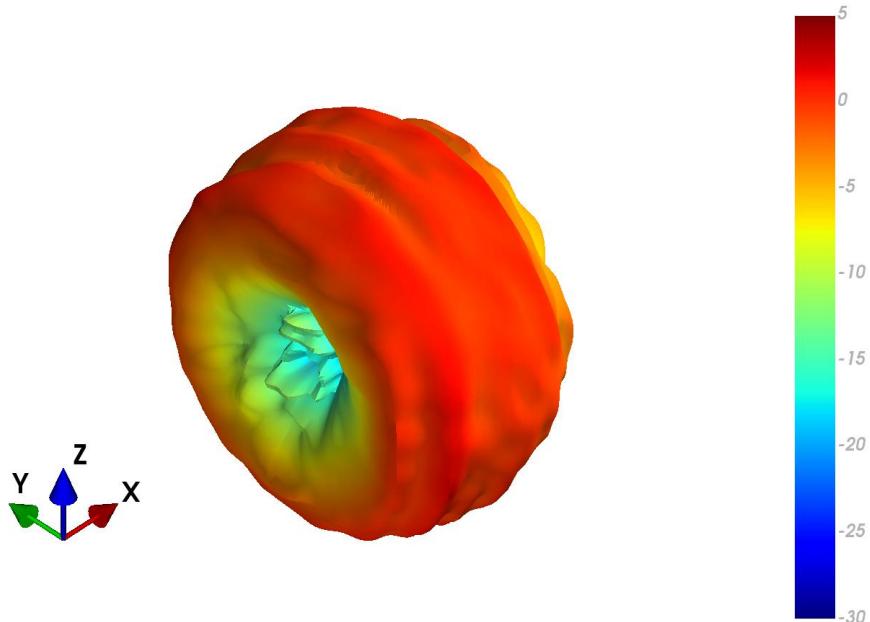
4.21 Free Space - Antenna 90 degrees Patterns at 7500 MHz



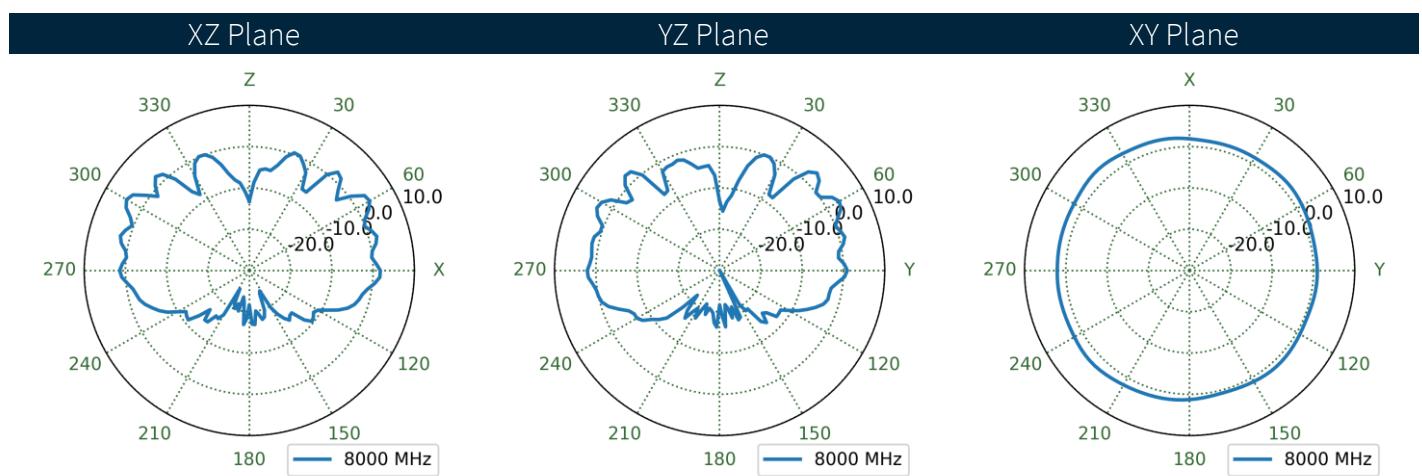
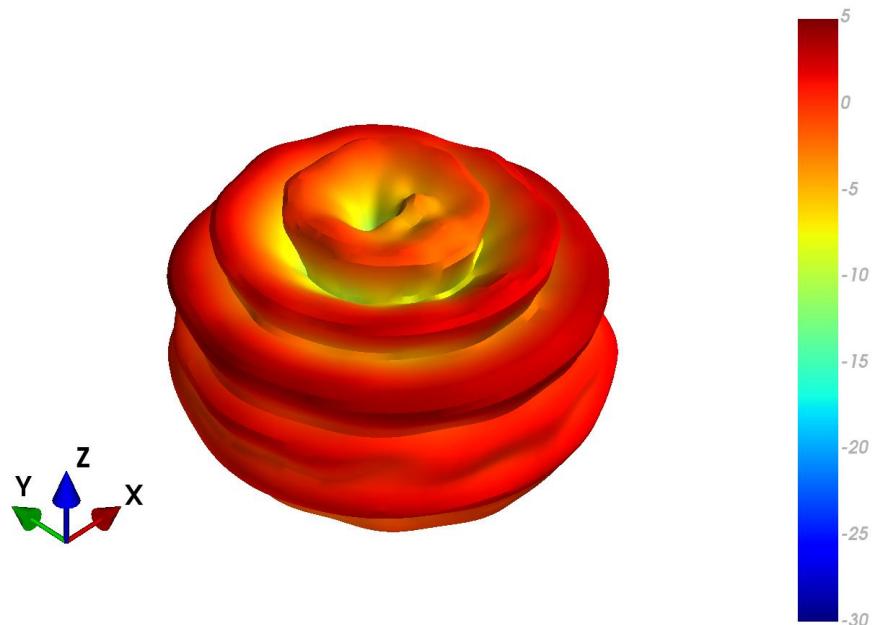
4.22 150 x 90 mm GP – Antenna 90 degrees Patterns at 8000 MHz



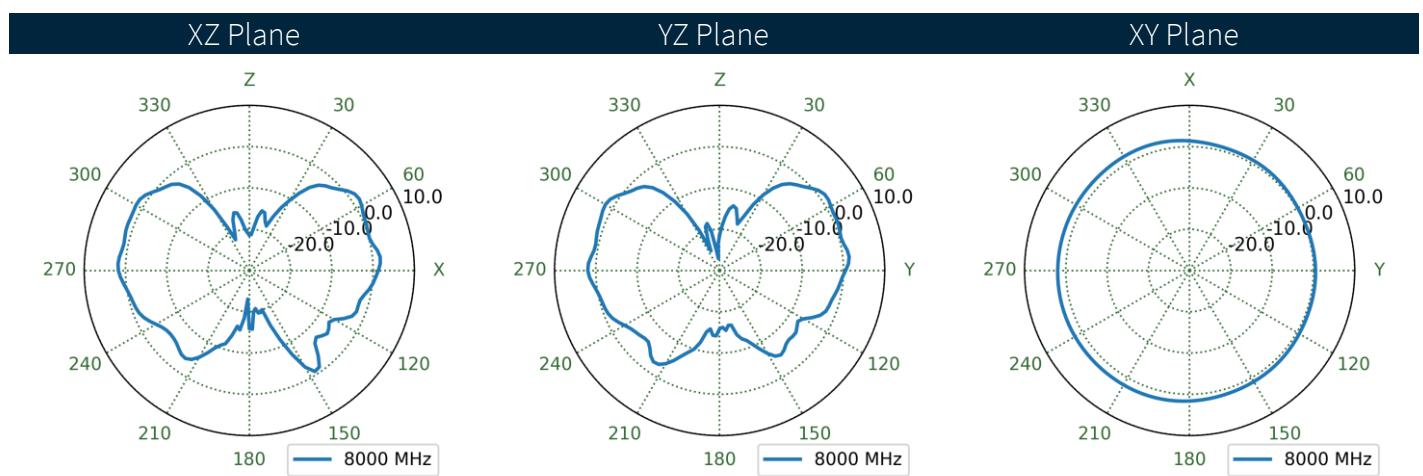
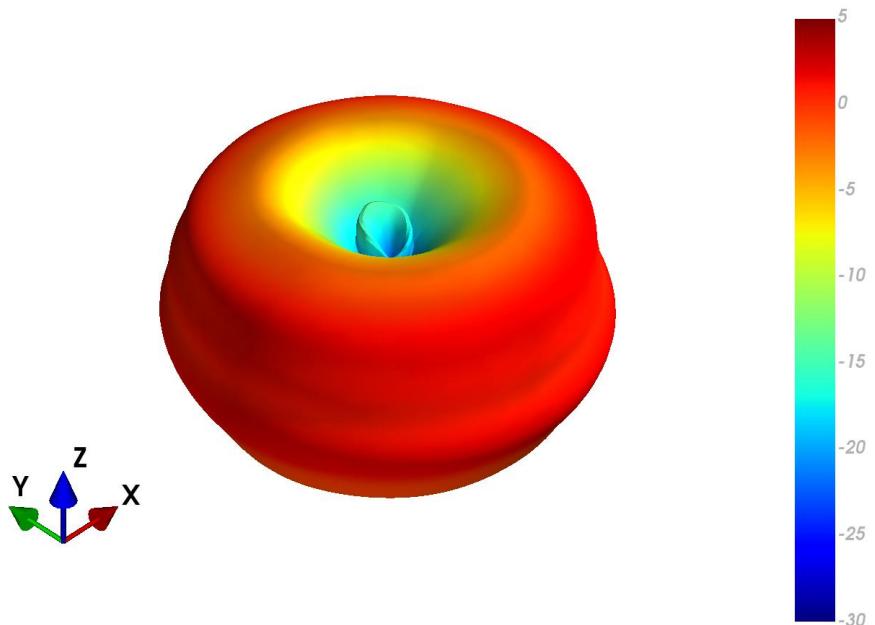
4.23 150 x 90 mm GP – Antenna Straight Patterns at 8000 MHz



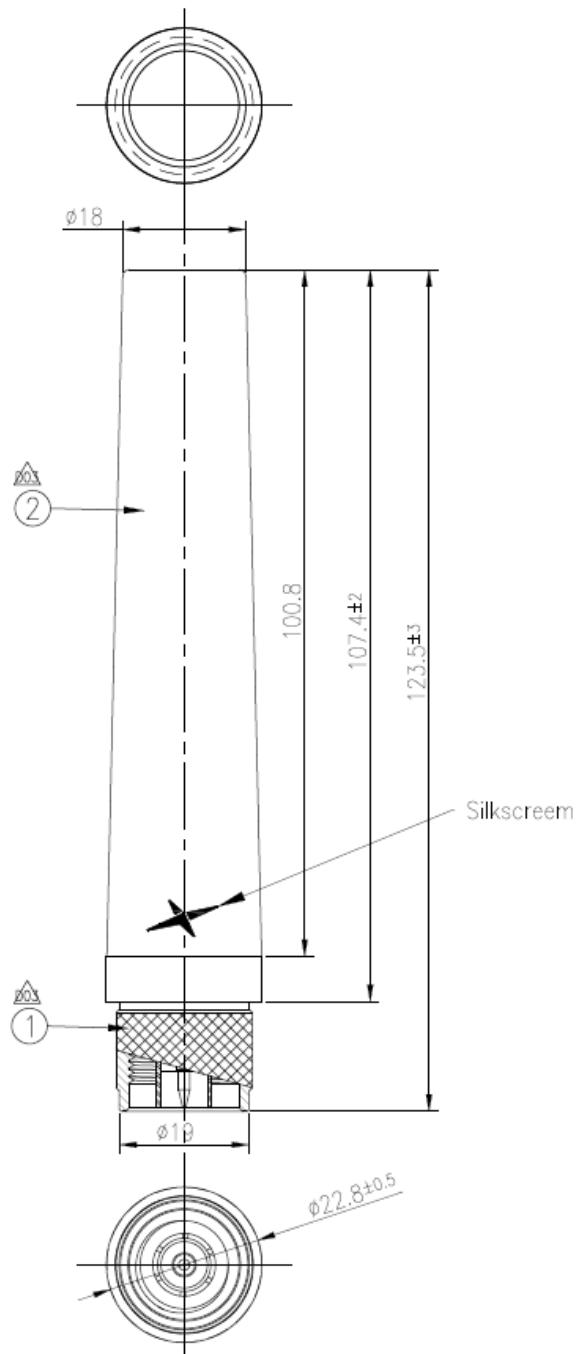
4.24 30 x 30 cm GP – Antenna 90 degrees Patterns at 8000 MHz



4.25 Free Space - Antenna 90 degrees Patterns at 8000 MHz



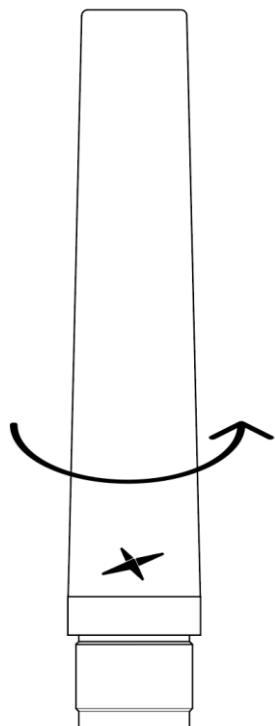
5. Mechanical Drawing



	Name	Material	Finish	GT
1	N-Type(N)	Brass	Ni plated	1
2	TU.60 Housing	ABS+PC	Black	1

APPROVED BY: Clark	 TAOGLAS. TW Design Centre <small>This drawing and its inherent design concepts are property of Taoglas. Not to be copied or given to third parties without the written consent of Taoglas.</small>		
CHECK BY: Aaron			
DRAWN BY: Joey			
DATE: 2020/01/16			
UNLESS OTHERWISE SPECIFIED TOLERANCES ON: THIRD ANGLE PROJECTION	XX±0.5 X±0.3 X±0.2 X±0.1 X±0.05		
TITLE: Terminal Mount 3-8GHz 3dBi Ultra Wideband Antenna with N-Type Connector - Logo			
PART NO.: TU.60.3H31			
UNIT: mm	SCALE: 1:1	PAGES: 1/1	REV. D03

6. Installation Recommendation

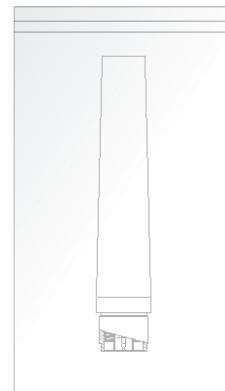


The recommended mounting torque for the TU.60 is 5 Nm

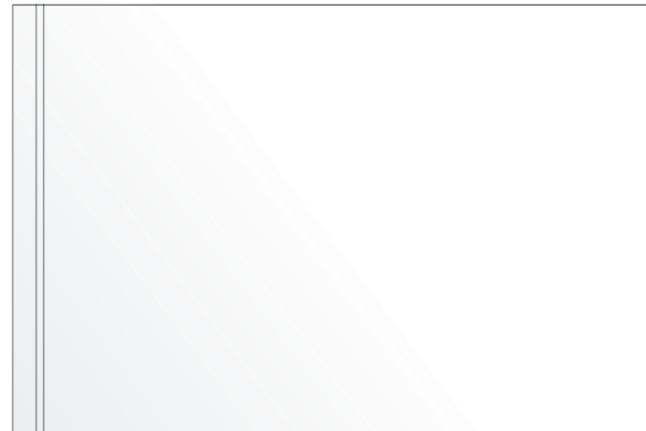
The maximum torque that can be applied is 15 Nm.
Anything in excess of this value may cause damage to the product.

7. Packaging

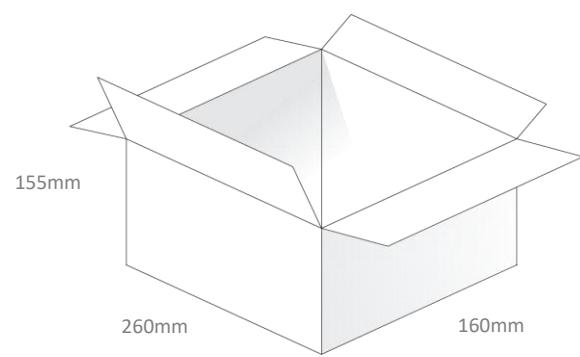
1pc TU.60.3H31 per PE Bag
Weight: 52g



10pcs TU.60.3H31 per Large PE Bag
Weight: 540g



100pcs TU.60.3H31 per Carton
Dimensions: 260*160*155mm
Weight: 5.8Kg



Changelog for the datasheet

SPE-20-8-032 – TU.60.3H31**Revision: C (Current Version)**

Date:	2025-12-16
Notes:	Updated max power input and iso logo on page 2.
Author:	Gary West

Previous Revisions**Revision: B**

Date:	2023-01-16
Notes:	Retest and full datasheet update.
Author:	Gary West

Revision: A (Initial Release)

Date:	2020-05-19
Notes:	Initial Datasheet Release
Author:	Jack Conroy



TAOGLAS[®]

www.taoglas.com

