TAOGLAS®

Datasheet

Raptor X Series
MA890.A.BIVW.001

Description

4-in-1 Permanent Mount 5G/4G MIMO (600-6000MHz)

With 3m TGC-200 Cable and SMA(M) Connectors

Features:

Low-profile Housing with Permanent Screw Mount
4x 5G/4G MIMO
Covering 600 to 6000MHz
Covers Worldwide 5G/4G Bands including 3G/ 2G Fallback
Robust IP67 & IP69K Waterproof Enclosure
Dimensions: 350mm x 70mm x 40mm
Robust IK10 Rated Enclosure
Cables: 3m Low Loss TGC-200
Connectors: SMA(M)
Custom Cables and Connectors Available
RoHS & Reach Compliant

Ireland & USA
ISO 9001:2015
Certified

Taiwan
ISO 9001:2015
Certified

1. Introduction

The Taoglas MA890 is a permanent mount antenna designed to cover 5G and 4G cellular bands between 617MHz up to 6GHz. The MA890 is a 4-in-1 antenna with 4 5G MIMO Antennas in one compact enclosure, which has been designed with the future of 5G cellular connectivity in mind. With 5G becoming more prevalent in use it is important to have an antenna that can cover multiple different frequency bands for various uplink and downlink requirements, increasing throughput for a device.

Typical applications include:

- Digital Signage
- Transportation and Autonomous Vehicles
- Private 5G Networks
- Public Safety and First Responders

The MA890 has a robust IK10 rated enclosure for applications which may require installation in harsh environments. It is also IP69K waterproof rated so it is ideal for mounting in areas not protected from rainfall such as on the roof of a bus stop or a digital display.

For further information, please contact your regional Taoglas customer support team.

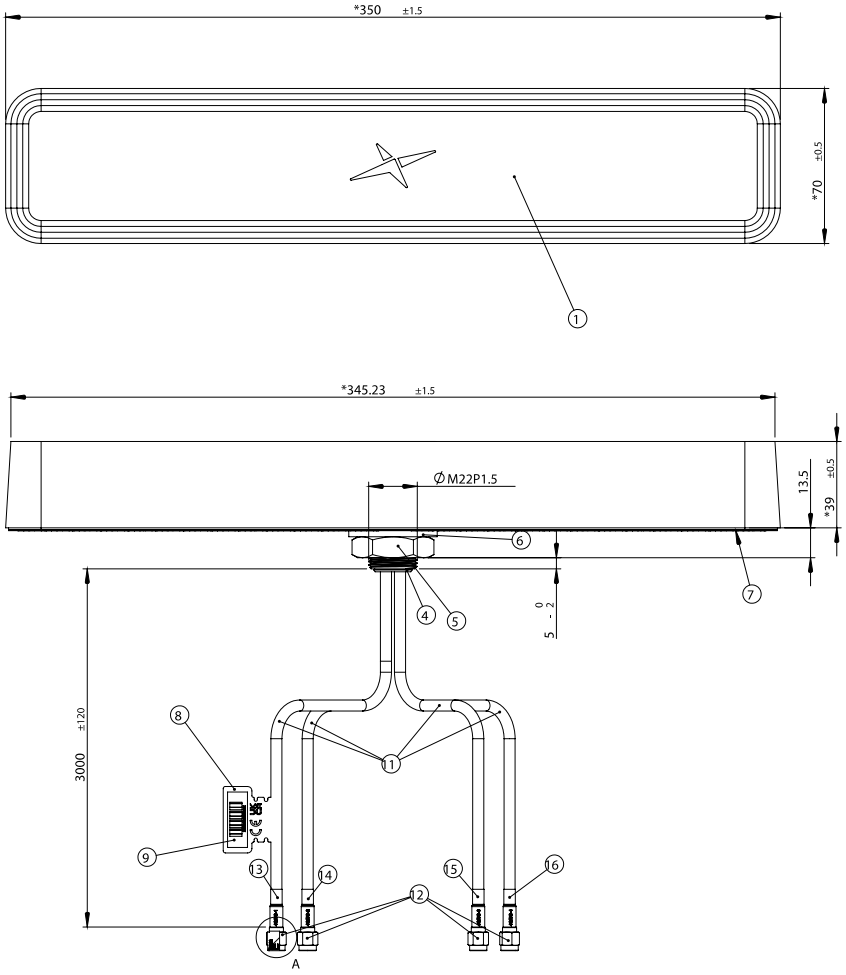
2. Specification

LTE Electrical									
Band	Frequency (MHz)	Measurement	Efficiency (%)	Average Gain (dB)	Peak Gain (dBi)	Impedance	Polarization	Radiation Pattern	Max. input power
5GNR/4G Band71	617-698	4G5G-1	49.8	-3.03	0.87	50 Ω	Linear	Omni	2W to 10W
		4G5G-2	36.6	-4.37	0.91				
		4G5G-3	36.4	-4.38	1.03				
		4G5G-4	44.5	-3.52	2.25				
4G/3G Band 12,13,14,17,28,29	698-824	4G5G-1	49.7	-3.04	2.94				
		4G5G-2	39.5	-4.03	2.11				
		4G5G-3	35.4	-4.51	1.97				
		4G5G-4	50.3	-2.99	2.25				
4G/3G/NB-IoT/Cat M Band 5,8,18,19,20,26,27	824-960	4G5G-1	50.8	-2.94	2.64				
		4G5G-2	43.7	-3.60	2.18				
		4G5G-3	37.5	-4.26	2.17				
		4G5G-4	48.0	-3.19	2.25				
5GNR/4G Band 21,32,74,75,76	1427-1518	4G5G-1	27.9	-5.54	1.01				
		4G5G-2	27.8	-5.56	1.21				
		4G5G-3	24.5	-6.10	1.11				
		4G5G-4	26.7	-5.74	0.99				
4G/3G Band 1,2,3,4,9,23,25,35,39, 66	1710-2200	4G5G-1	47.7	-3.21	5.15				
		4G5G-2	53.7	-2.70	5.44				
		4G5G-3	51.2	-2.91	5.63				
		4G5G-4	42.5	-3.72	4.65				
4G/3G Band 7,30,38,40,41	2300-2690	4G5G-1	45.2	-3.45	6.16				
		4G5G-2	56.8	-2.45	6.97				
		4G5G-3	52.6	-2.79	6.72				
		4G5G-4	47.0	-3.28	6.15				
5GNR/4G Band 22,42,48,77,78,79	3300-5000	4G5G-1	58.9	-2.30	6.23				
		4G5G-2	58.9	-2.30	6.78				
		4G5G-3	57.3	-2.42	7.74				
		4G5G-4	55.6	-2.55	5.97				
LTE5200/Wi-Fi5800	5150-5925	4G5G-1	48.9	-3.11	5.76				
		4G5G-2	41.2	-3.86	4.93				
		4G5G-3	43.5	-3.62	6.48				
		4G5G-4	40.1	-3.97	4.44				
***Tested with 0.3m of Cable**									

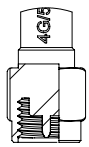
Mechanical	
Dimensions	350 x 70 x 40mm
Weight	950g
Connector	PC
Cable	TGC-200
Dimensions	350 x 70 x 40mm
Enclosure Impact Rating	IK10

Environmental	
Waterproof Rating	IP67 & IP69K
Temperature Range	-40°C~85°C

3. Mechanical Drawing

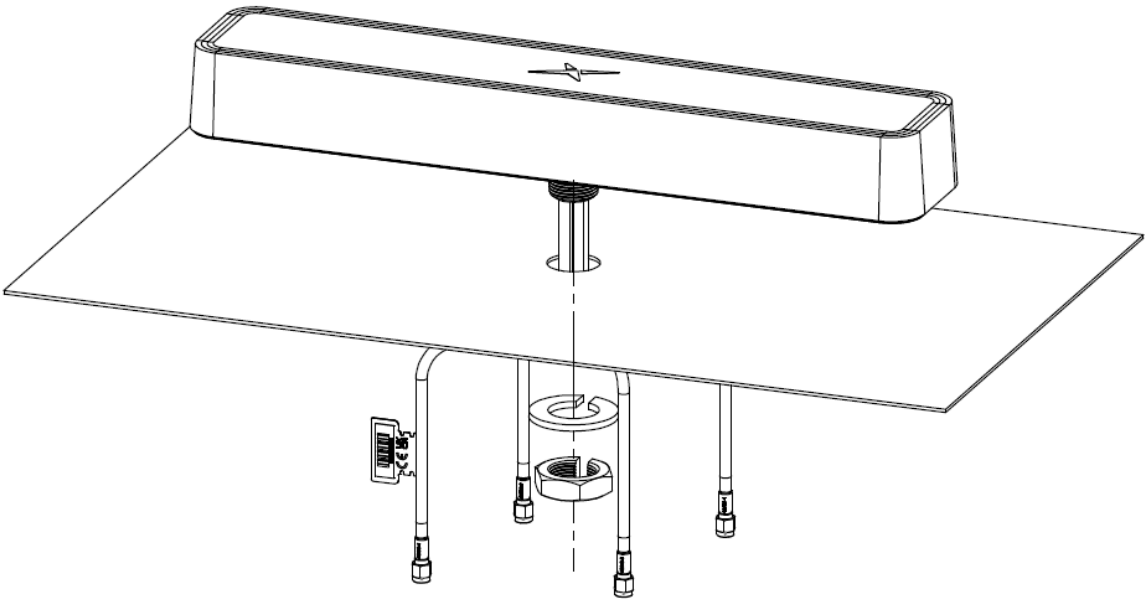


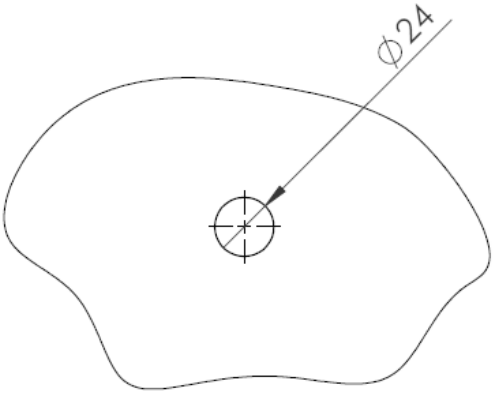
	Name	Material	Finish	QTY
1	Top Housing	PC	Black	1
2	Bottom Housing	PC	Black	1
3	Metal Stem	Zinc Alloy	Ni Plated	1
4	Grommet	Silicone Rubber	Black	1
5	Nut_M22x1.5P	Steel	Ni-Zn Plated	1
6	Washer_M22	Steel	Ni-Zn Plated	1
7	Double Side Adhesive	3M 9448HK + CR430S 2t	Black	1
8	CE,WEEE and UKCA mark Label	PEPA	White	1
9	Barcode Label	PET	White	1
10	Screw	SUS	N/A	20
11	TGC200 Coaxial Cable	PE	Black	4
12	SMA(M)ST	Brass	Au Plated	4
13	Heat Shrink Tube(LTE-1)	PE	Red Tube/White Text	1
14	Heat Shrink Tube(LTE-2)	PE	Red Tube/White Text	1
15	Heat Shrink Tube(LTE-3)	PE	Red Tube/White Text	1
16	Heat Shrink Tube(LTE-4)	PE	Red Tube/White Text	1



DETAIL A
SCALE 2 : 1

4. Installation Guide



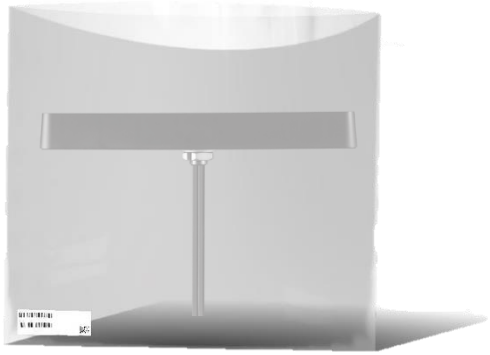


RECCOMMENDED HOLE SIZE FOR MOUNTING

MAX PANEL THICKNESS = 6MM

5. Packaging

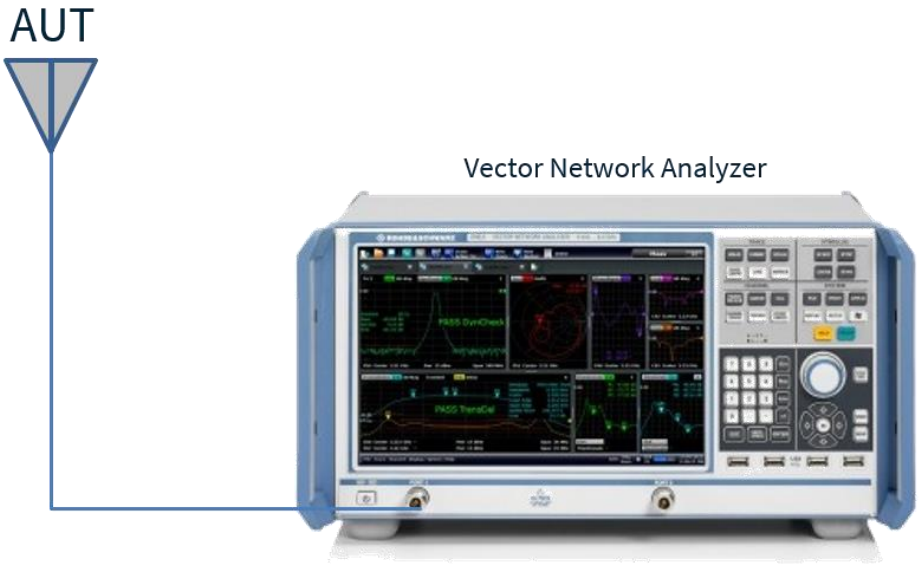
1pc MA890.A.BIVW.001 per PE Bag



10pcs MA890.A.BIVW.001 per carton
Dimensions 370 x 370 x 300mm

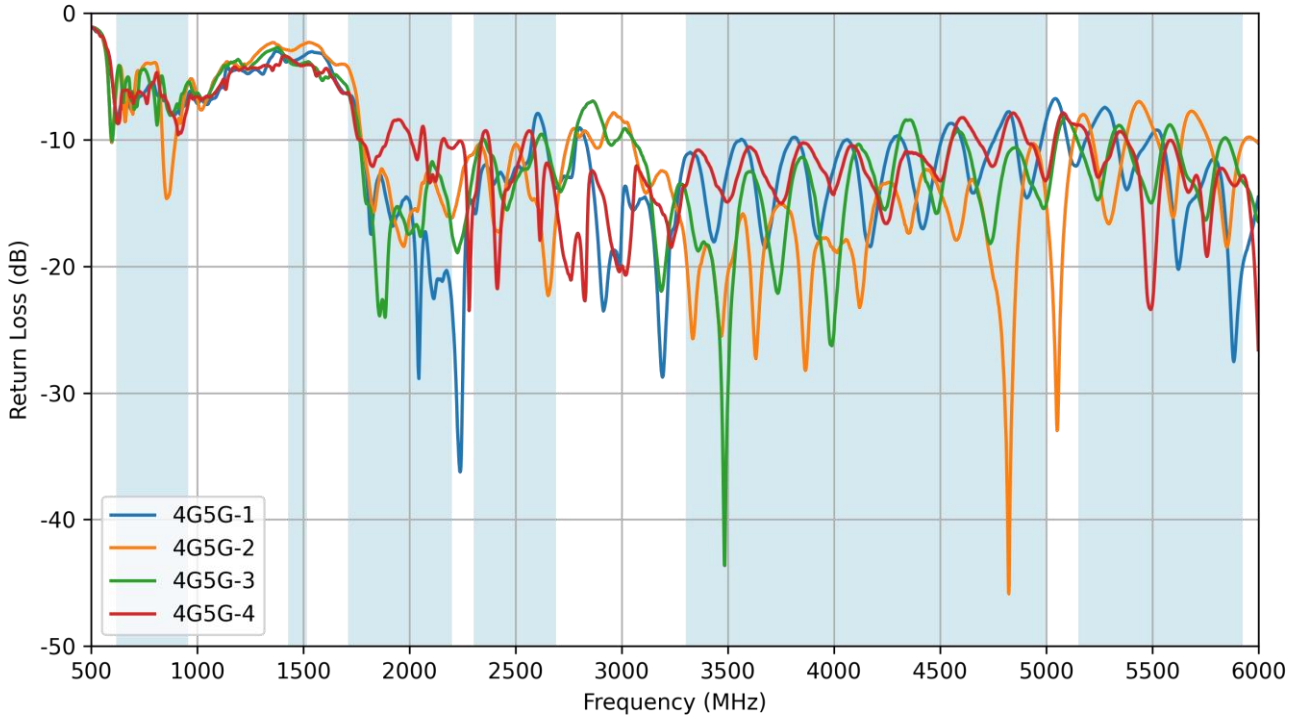
6. Antenna Characteristics

6.1 Test Setup

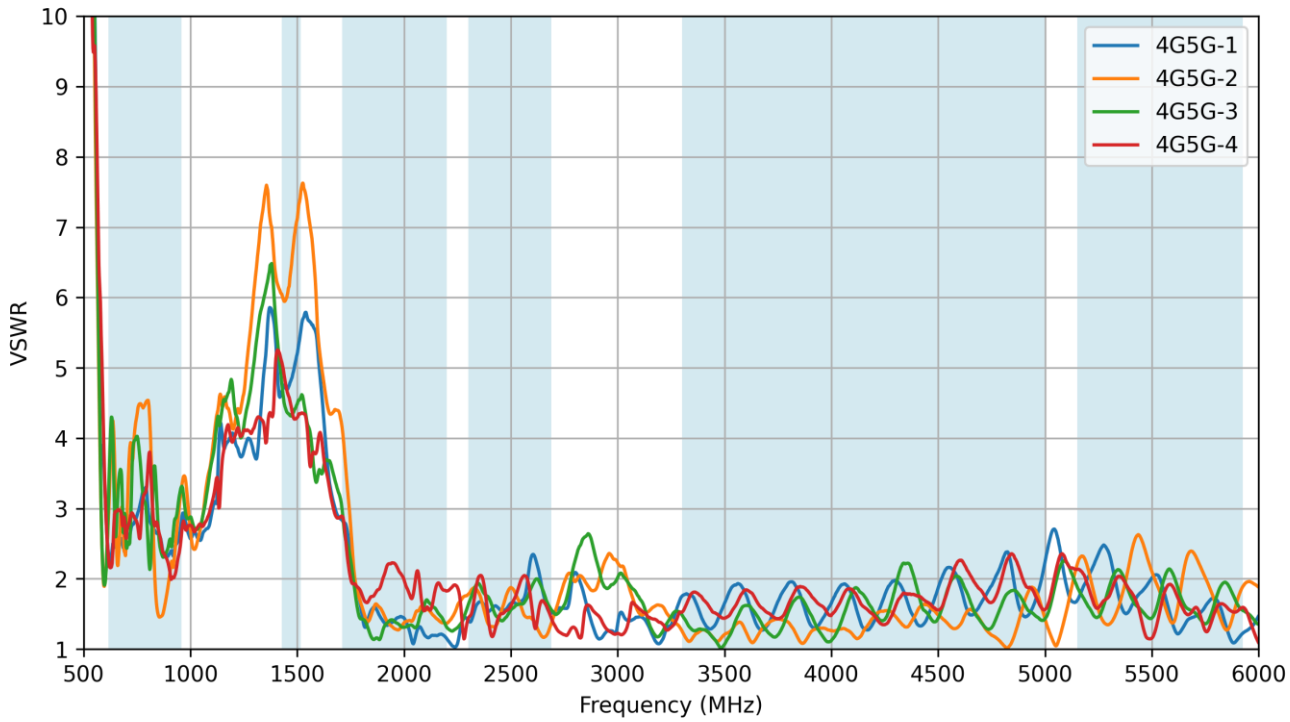


VNA Test Set up

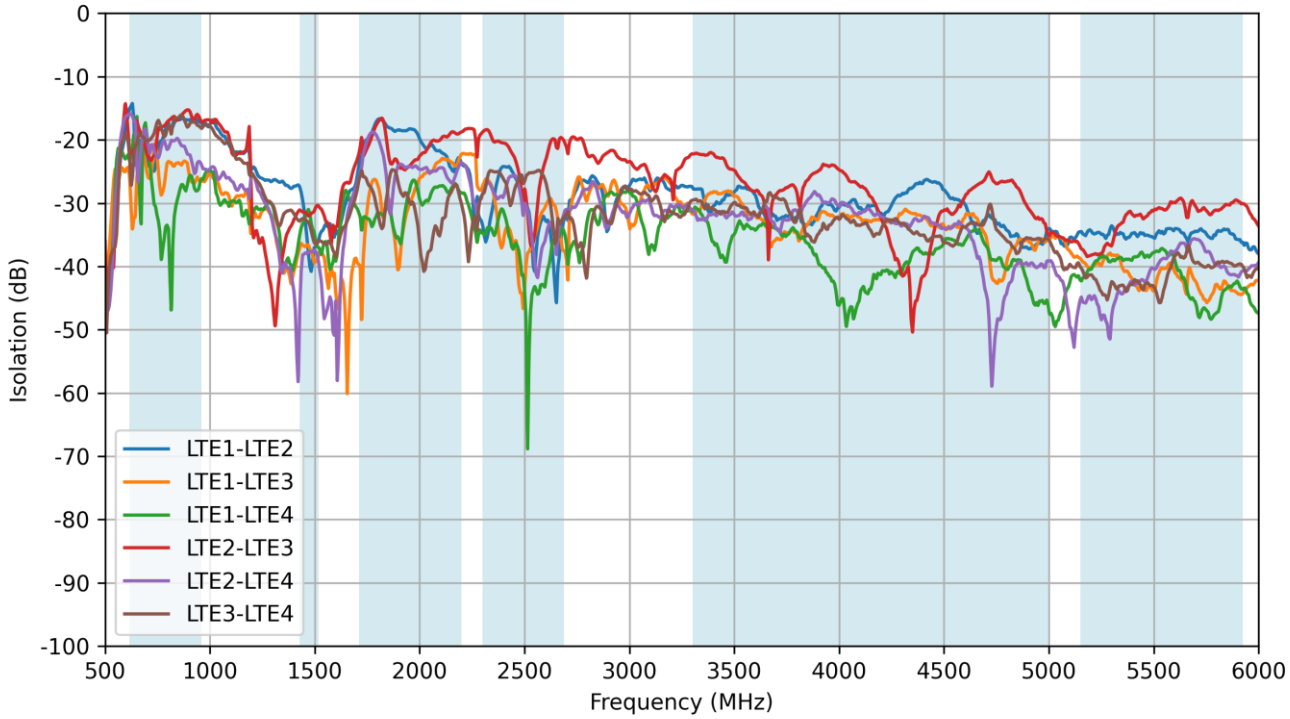
6.2 Return Loss



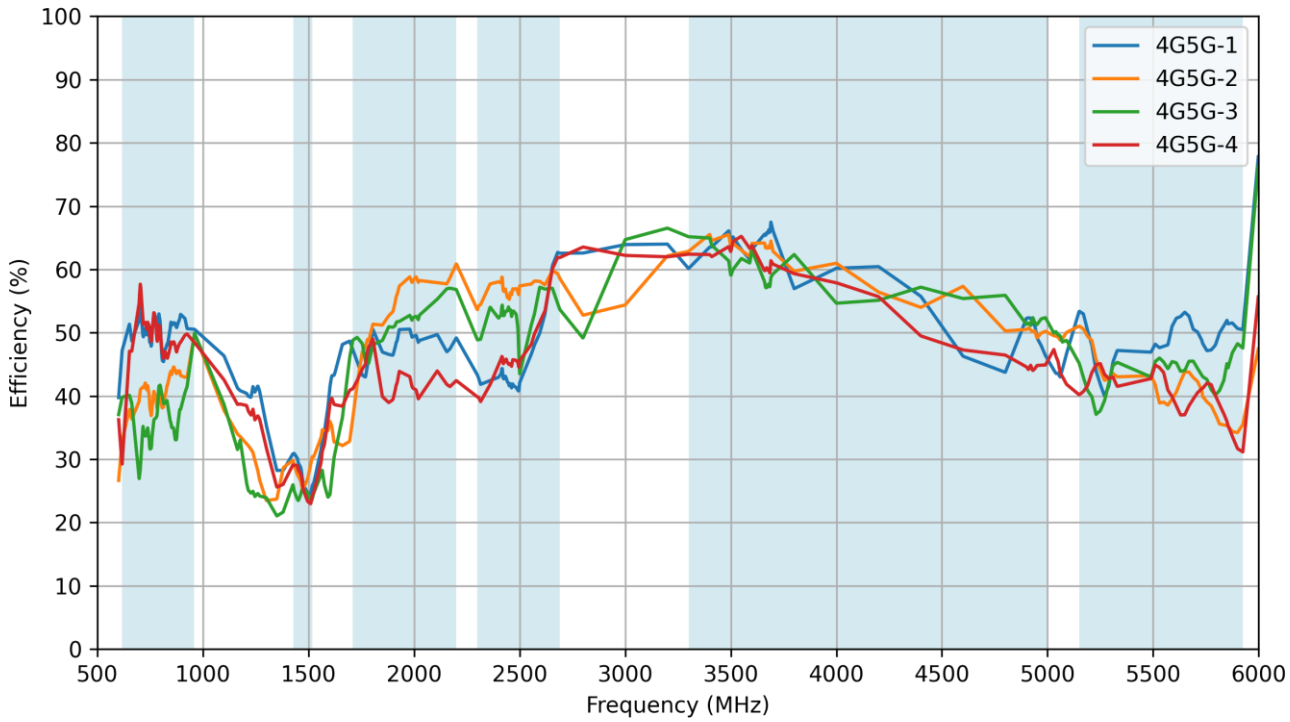
6.3 VSWR



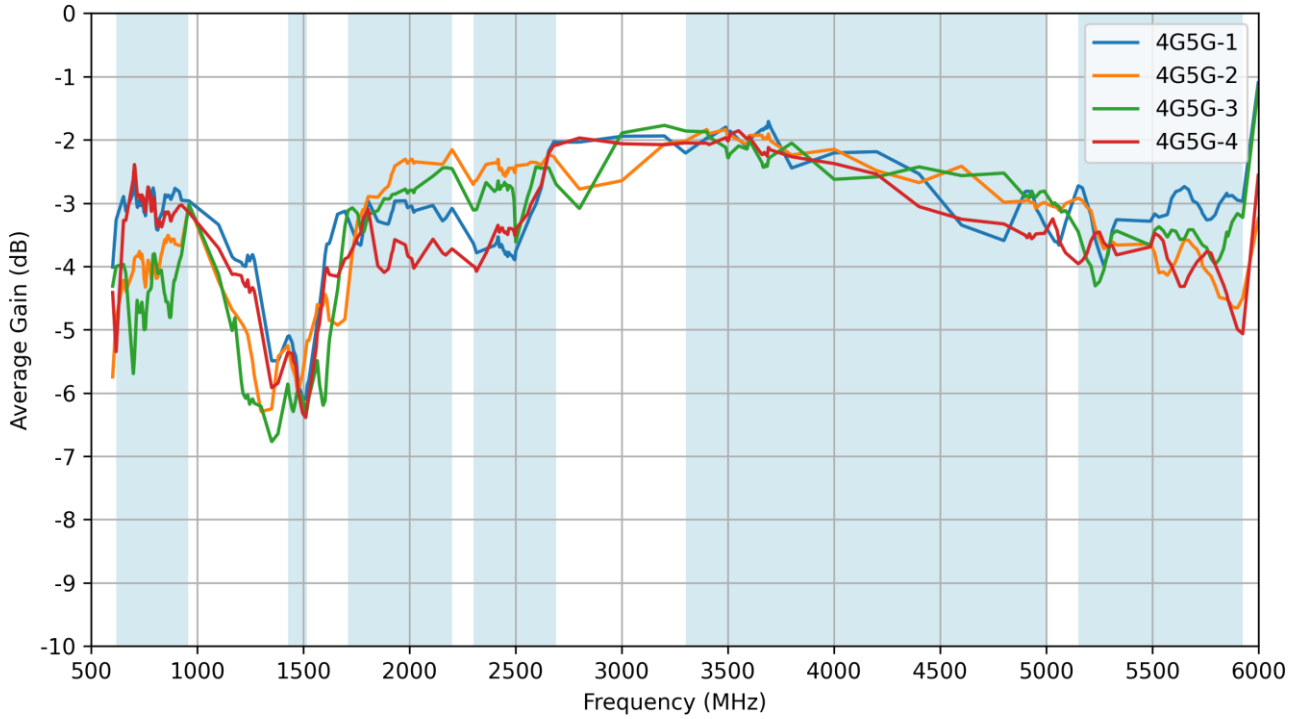
6.4 Isolation



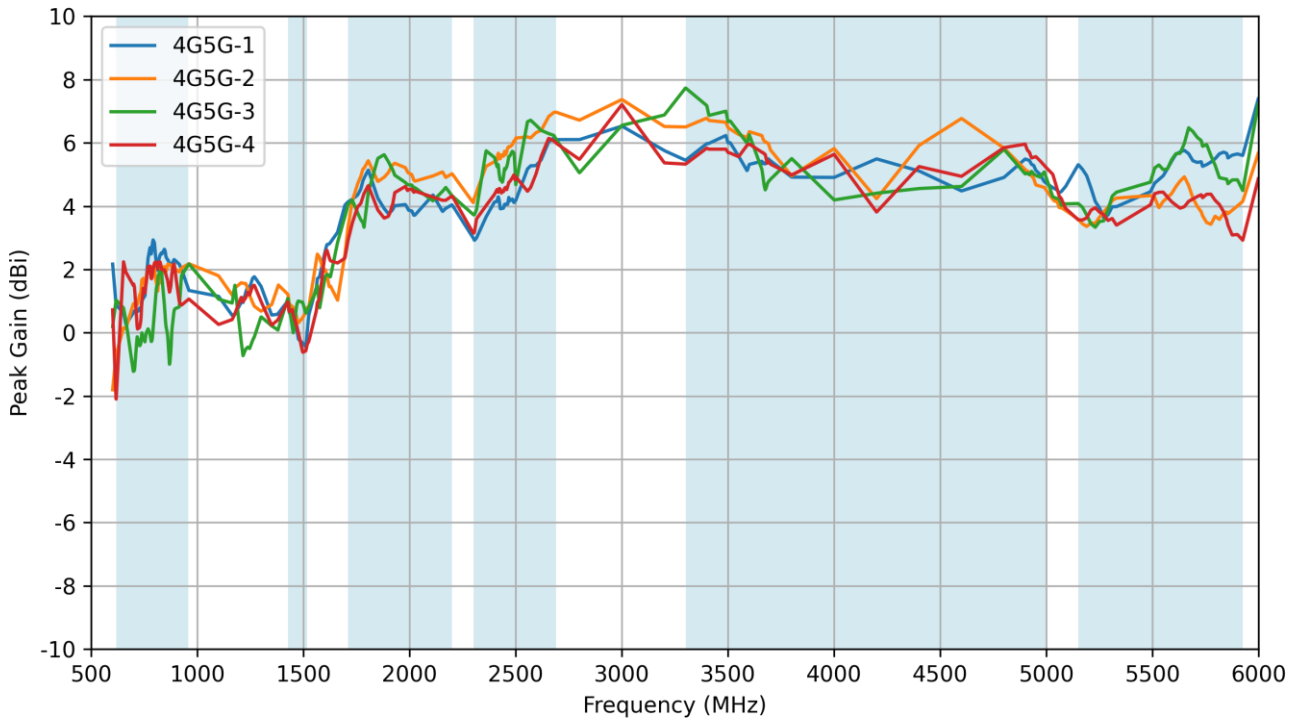
6.5 Efficiency



6.6 Average Gain

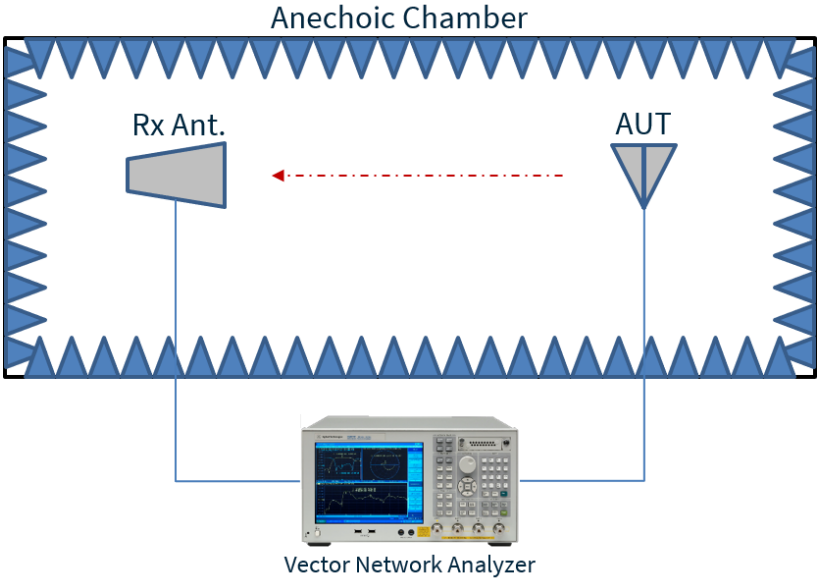


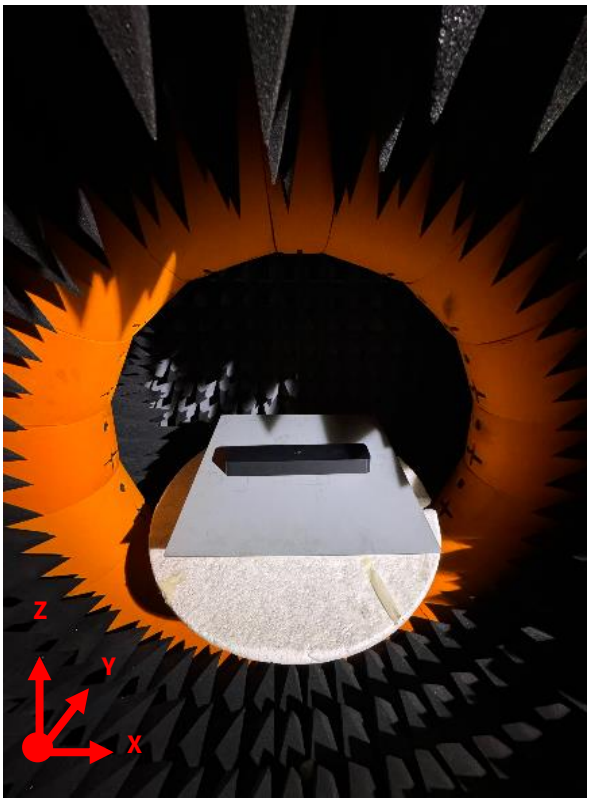
6.7 Peak Gain (Gtotal)



7. Radiation Patterns

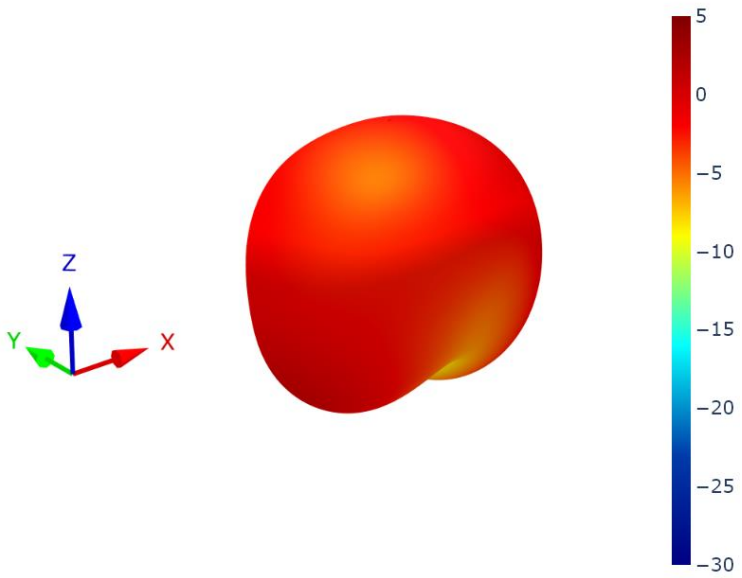
7.1 Test Setup



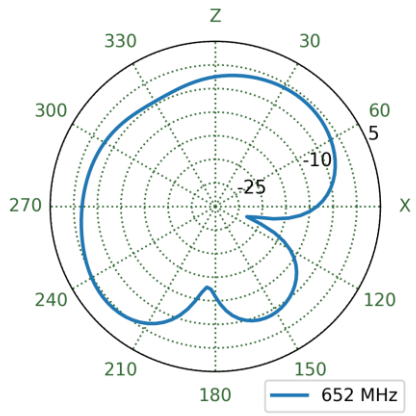


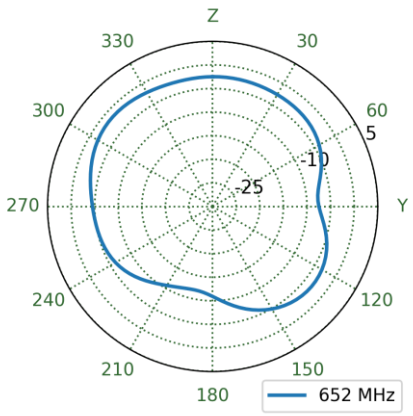
Chamber Test Set up

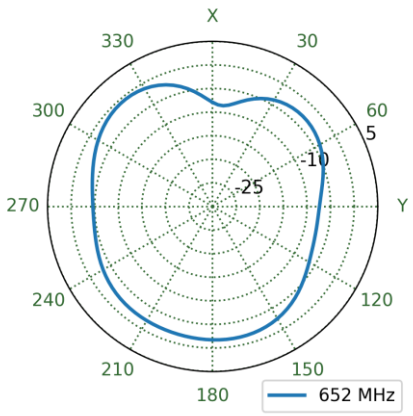
7.2 4G5G-1 Patterns at 652 MHz



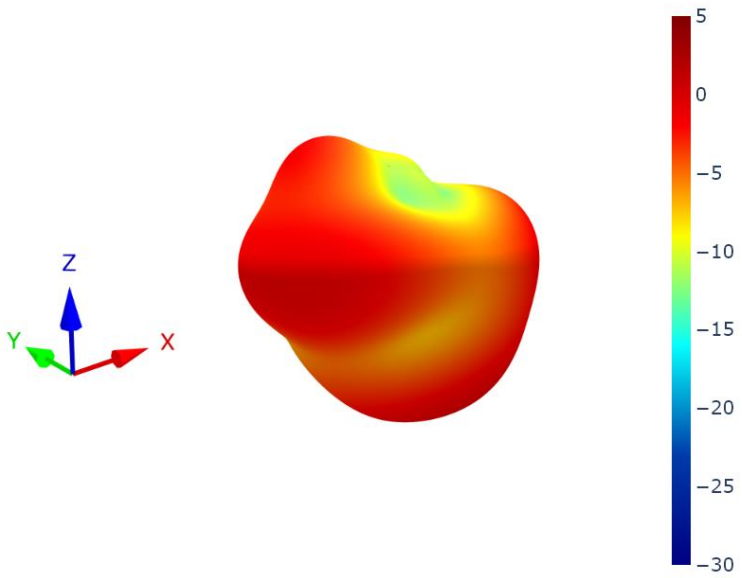
XZ Plane	YZ Plane	XY Plane



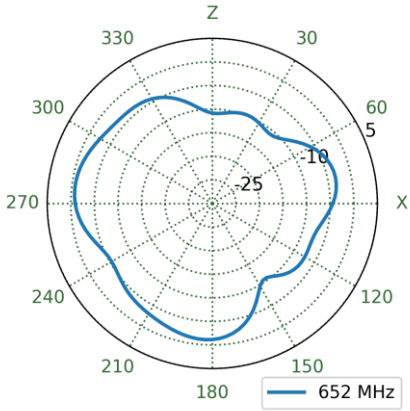


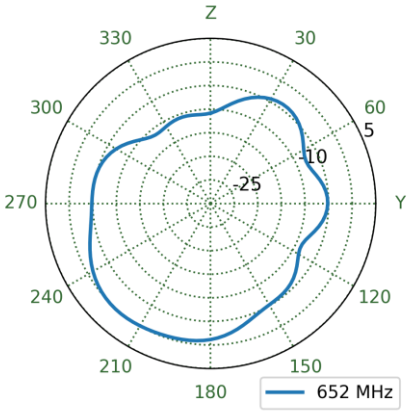


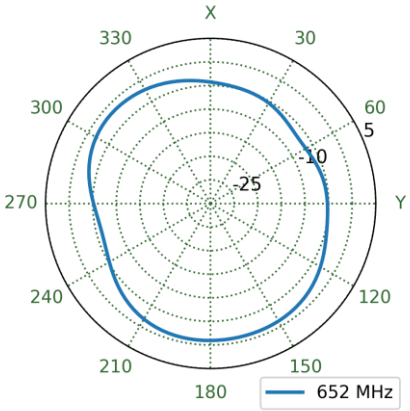
7.3 4G5G-2 Patterns at 652MHz



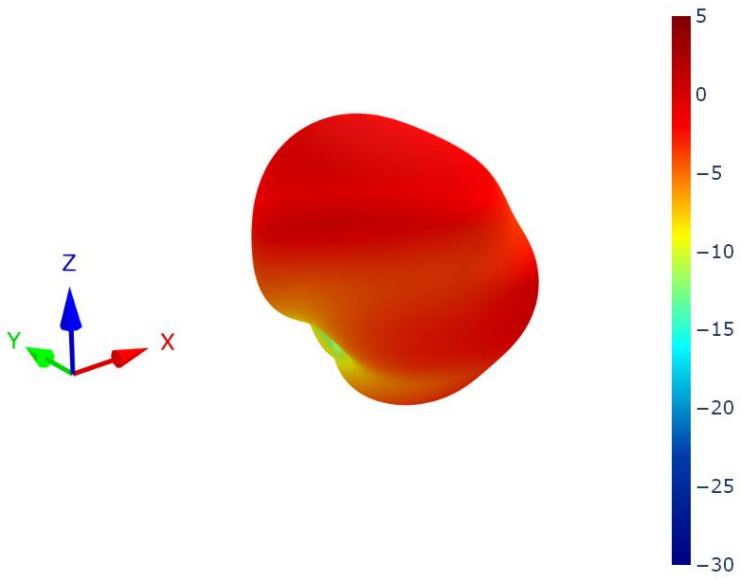
XZ Plane	YZ Plane	XY Plane



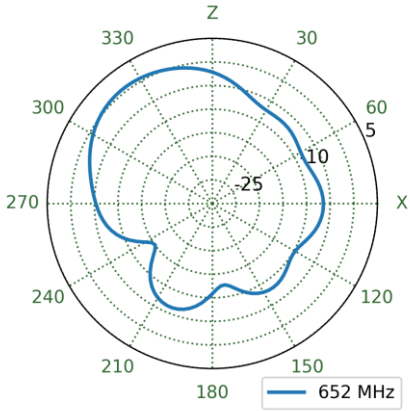


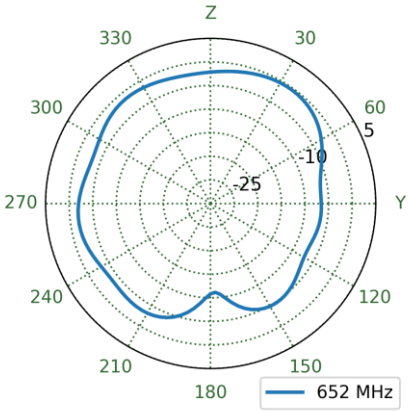


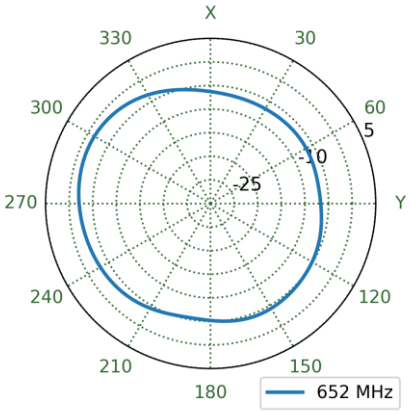
7.4 4G5G-3 Patterns at 652MHz



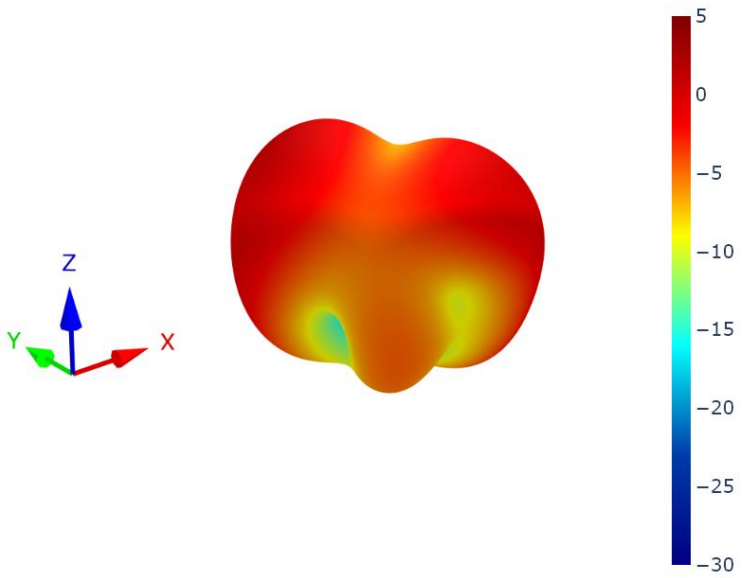
XZ Plane	YZ Plane	XY Plane



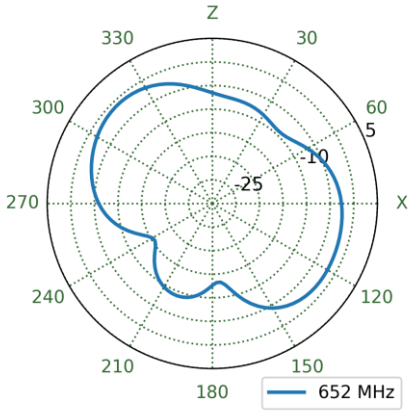


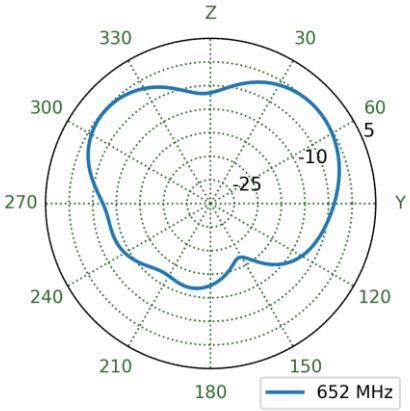


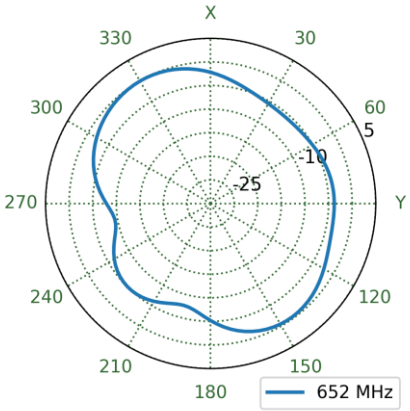
7.5 LTE 4G5G-4 Patterns at 652MHz



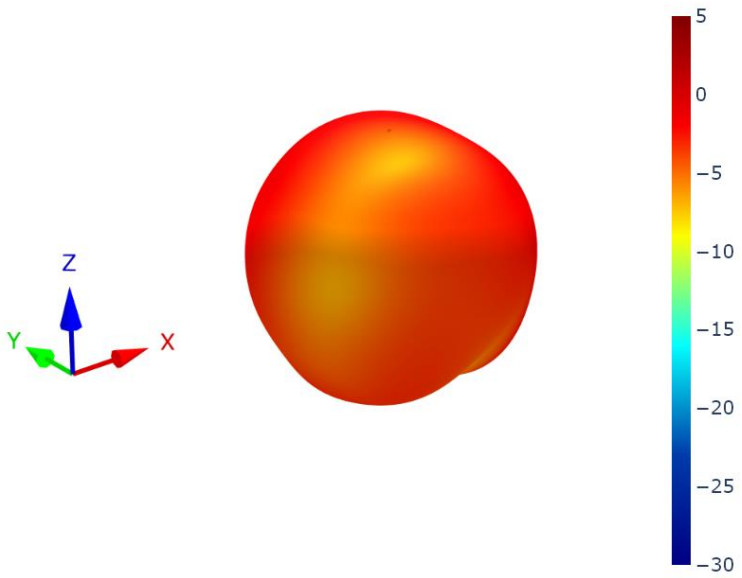
XZ Plane	YZ Plane	XY Plane



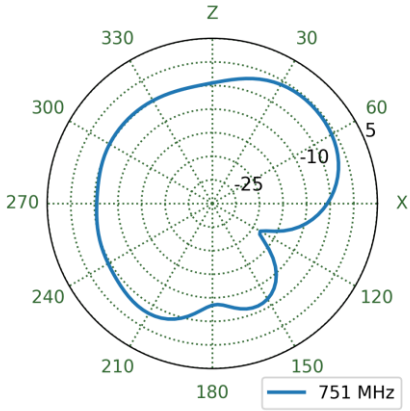


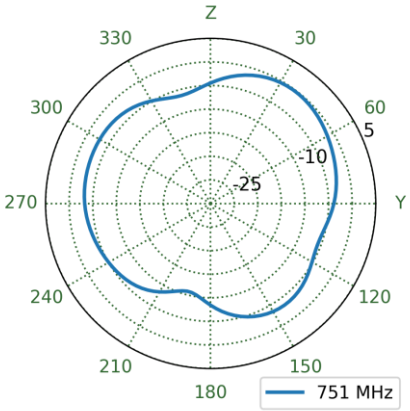


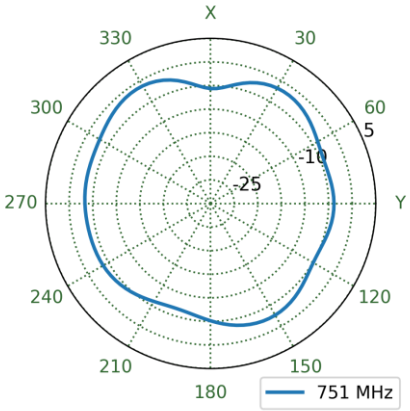
7.6 4G5G-1 Patterns at 751MHz



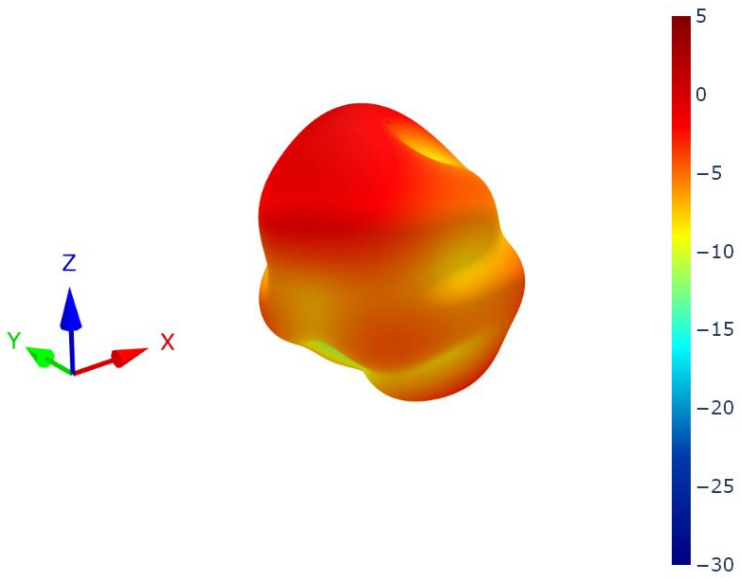
XZ Plane	YZ Plane	XY Plane



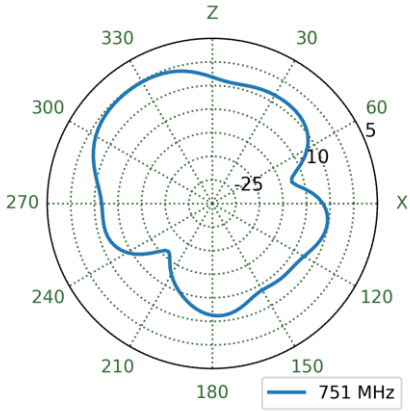


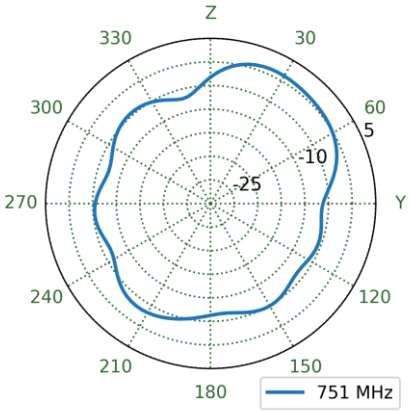


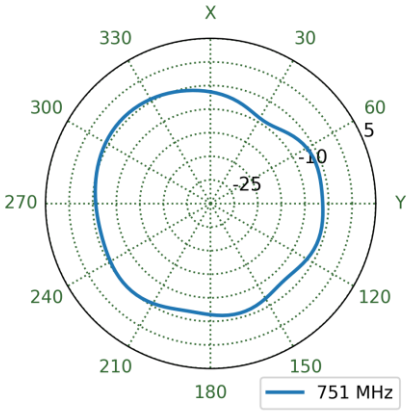
7.7 4G5G-2 Patterns at 751MHz



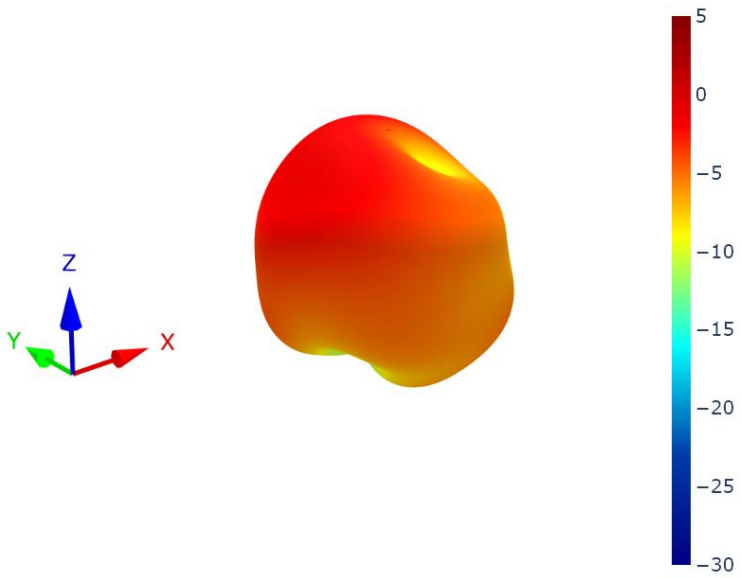
XZ Plane	YZ Plane	XY Plane



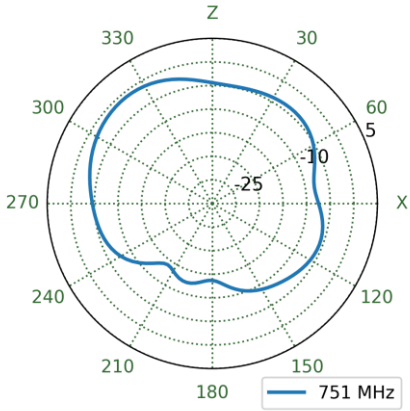


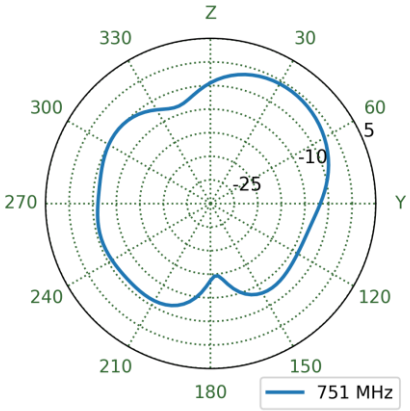


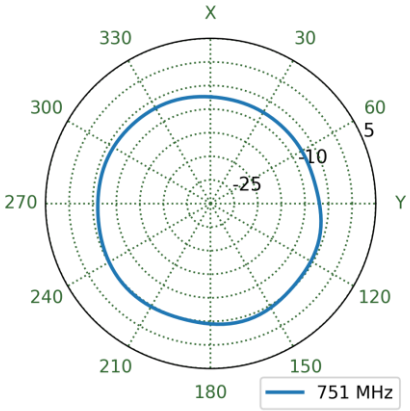
7.8 4G5G-3 Patterns at 751MHz



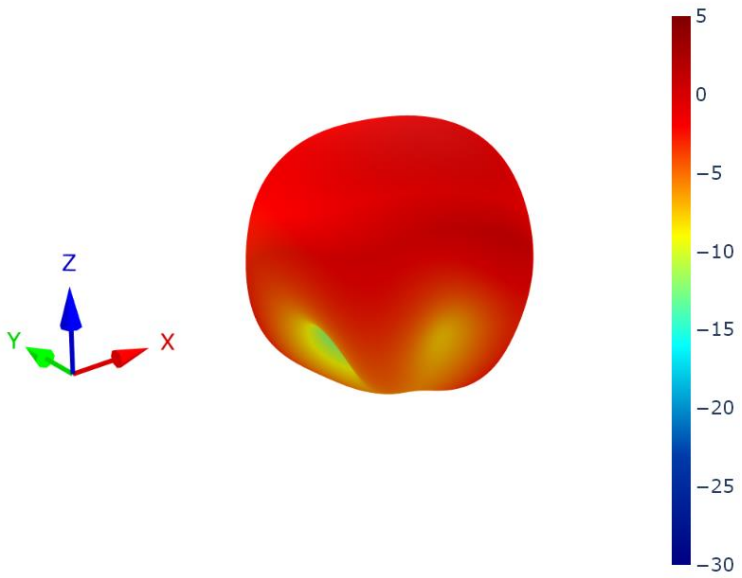
XZ Plane	YZ Plane	XY Plane



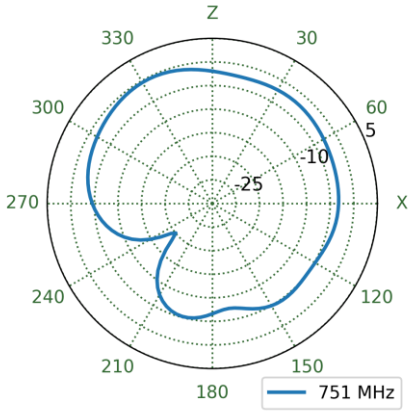


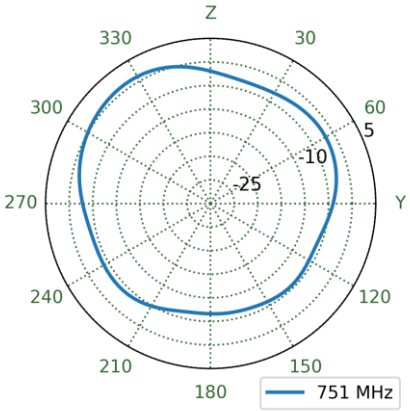


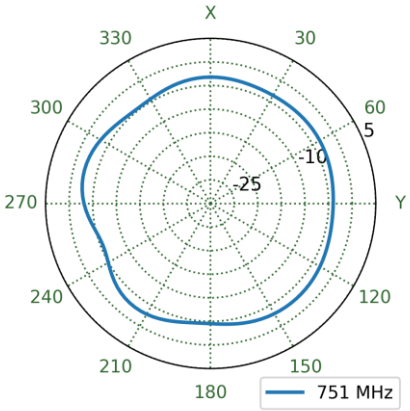
7.9 4G5G-4 Patterns at 751MHz



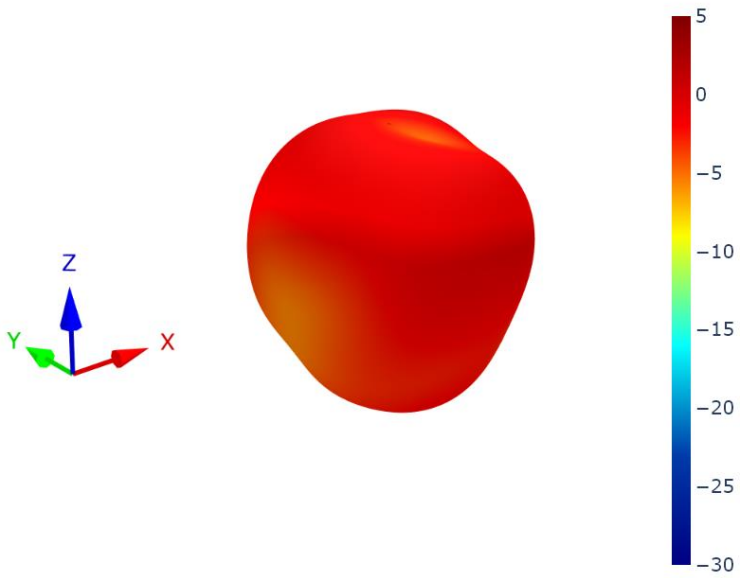
XZ Plane	YZ Plane	XY Plane



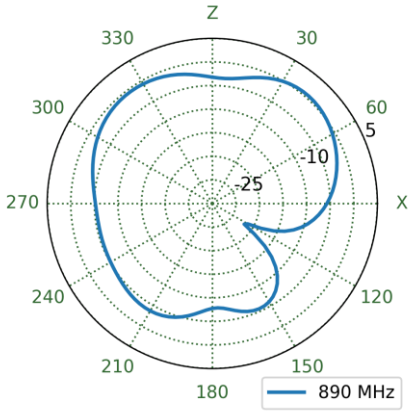


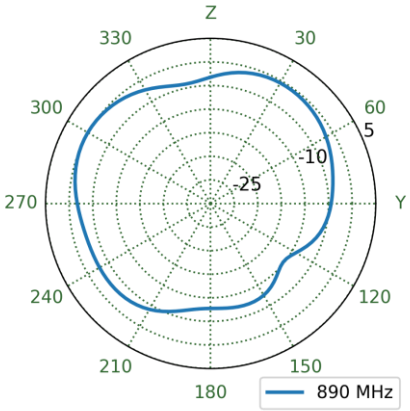


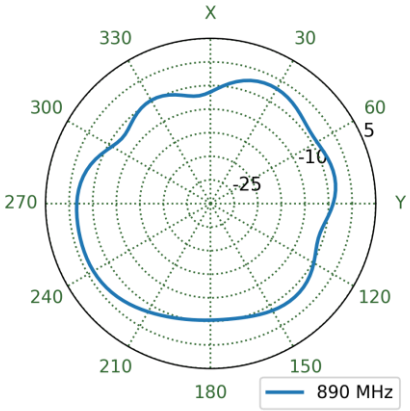
7.10 4G5G-1 Patterns at 890MHz



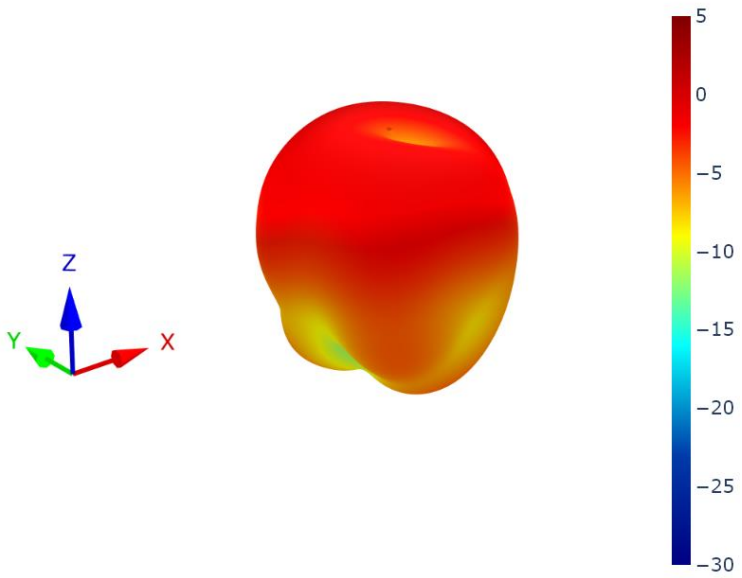
XZ Plane	YZ Plane	XY Plane



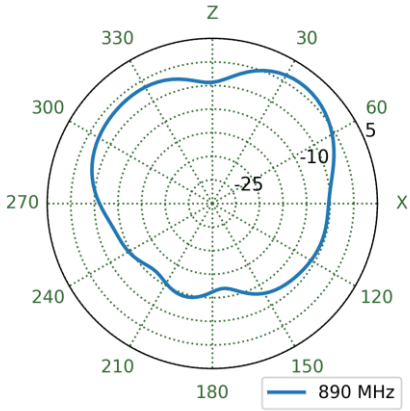


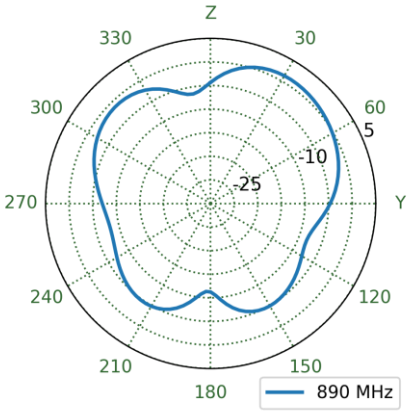


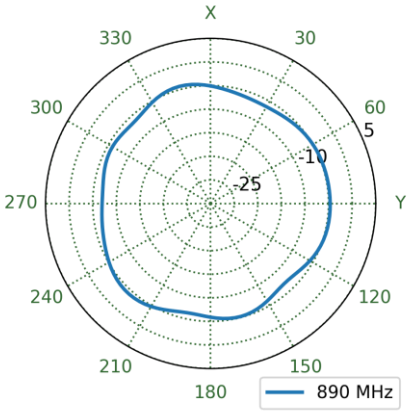
7.11 4G5G-2 Patterns at 890MHz



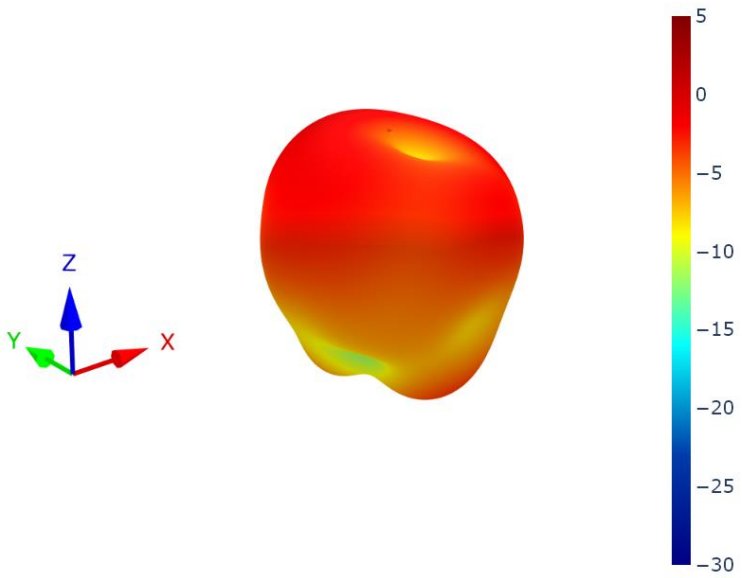
XZ Plane	YZ Plane	XY Plane



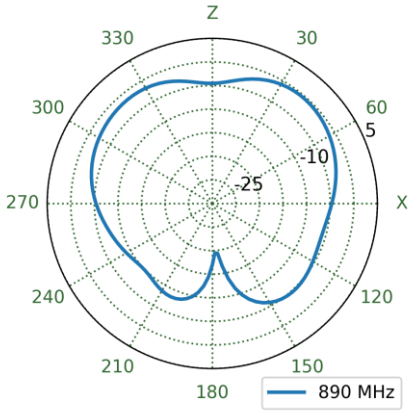


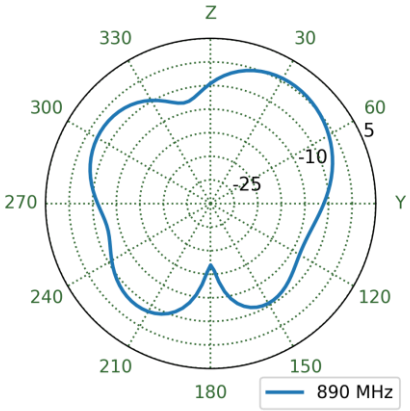


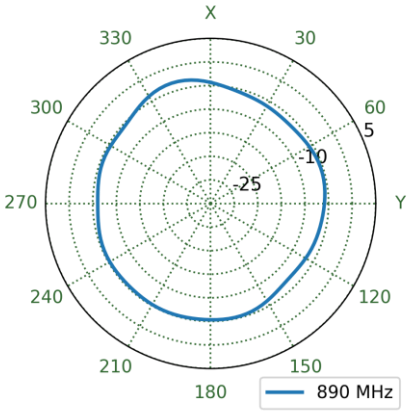
7.12 4G5G-3 Patterns at 890MHz



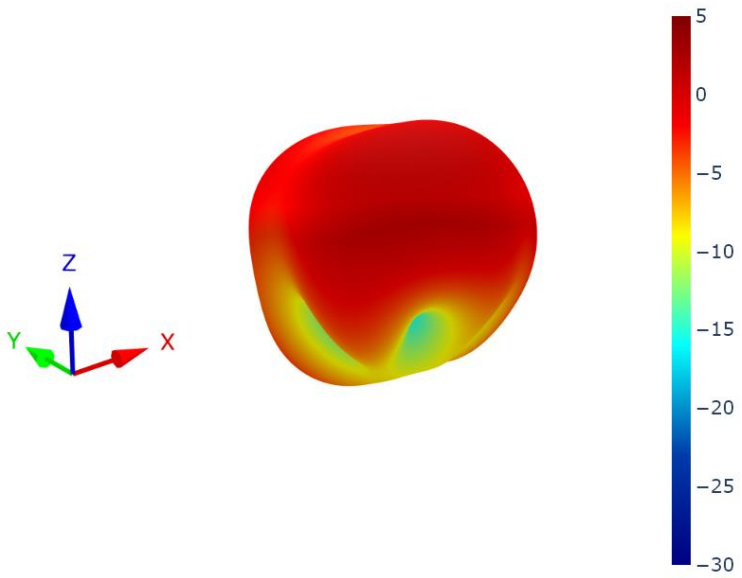
XZ Plane	YZ Plane	XY Plane



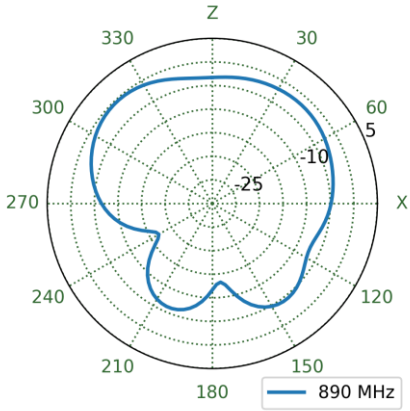


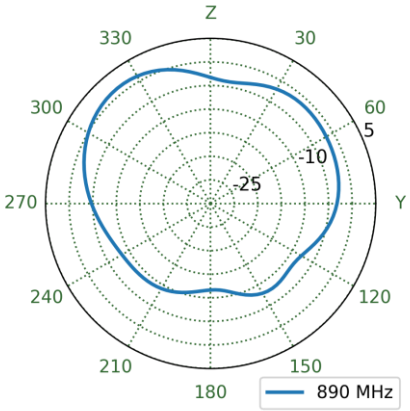


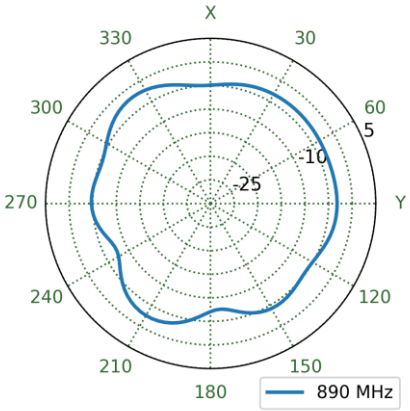
7.13 4G5G-4 Patterns at 890MHz



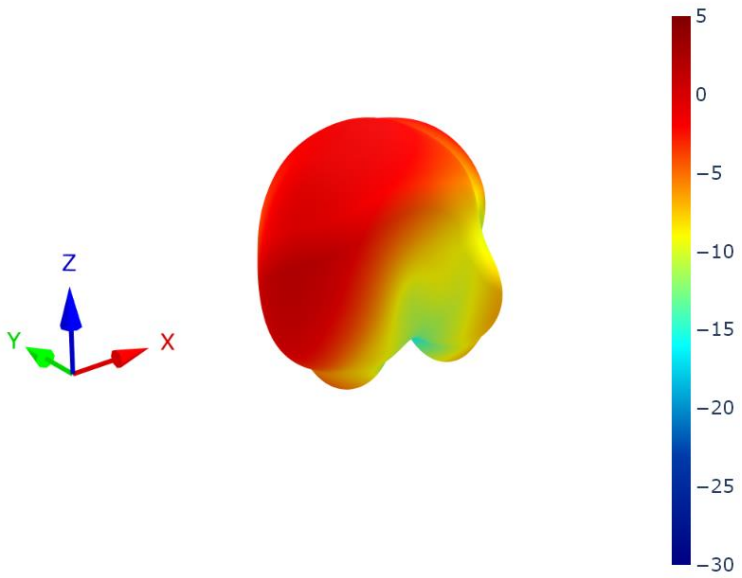
XZ Plane	YZ Plane	XY Plane



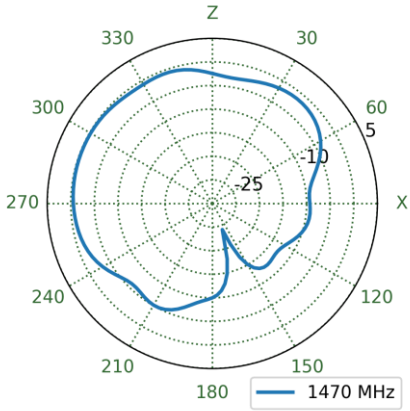


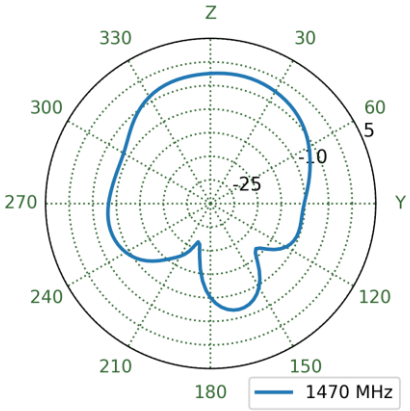


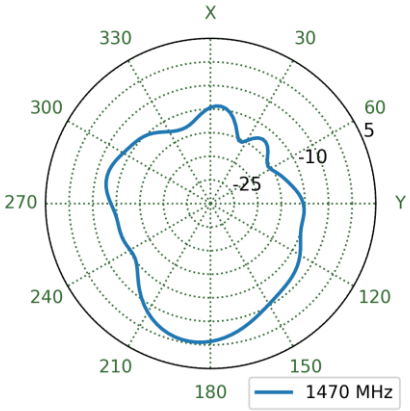
7.14 4G5G-1 Patterns at 1470MHz



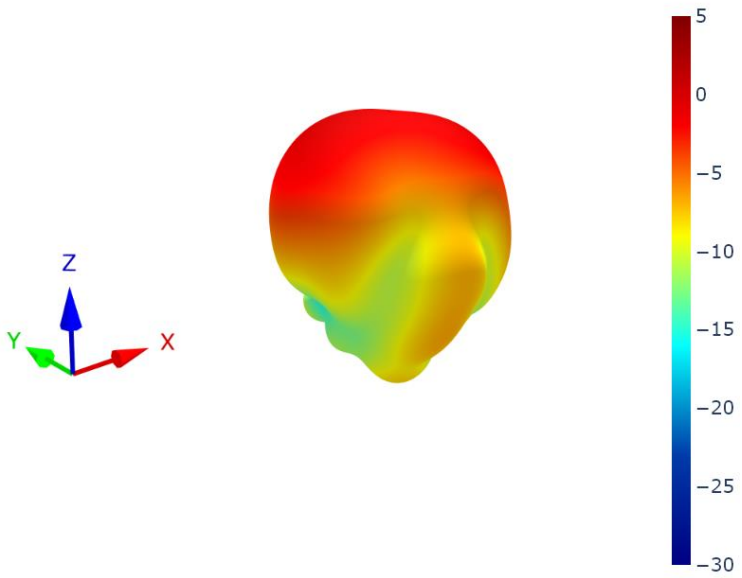
XZ Plane	YZ Plane	XY Plane



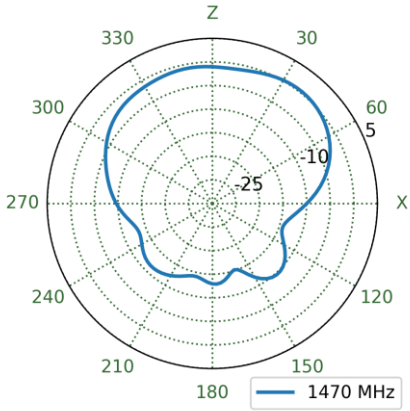


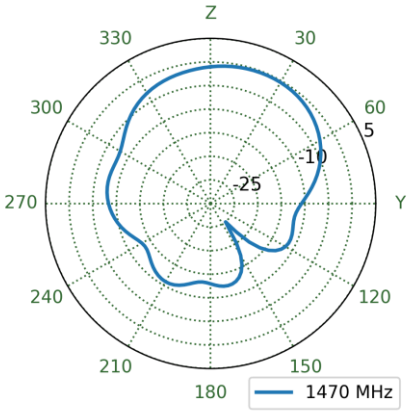


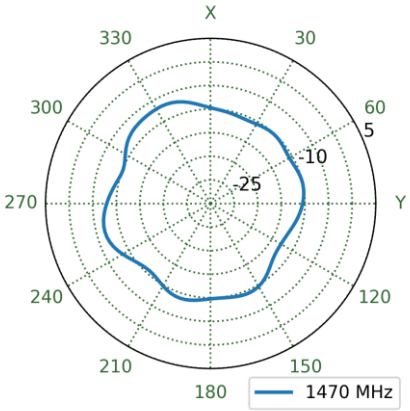
7.15 4G5G-2 Patterns at 1470MHz



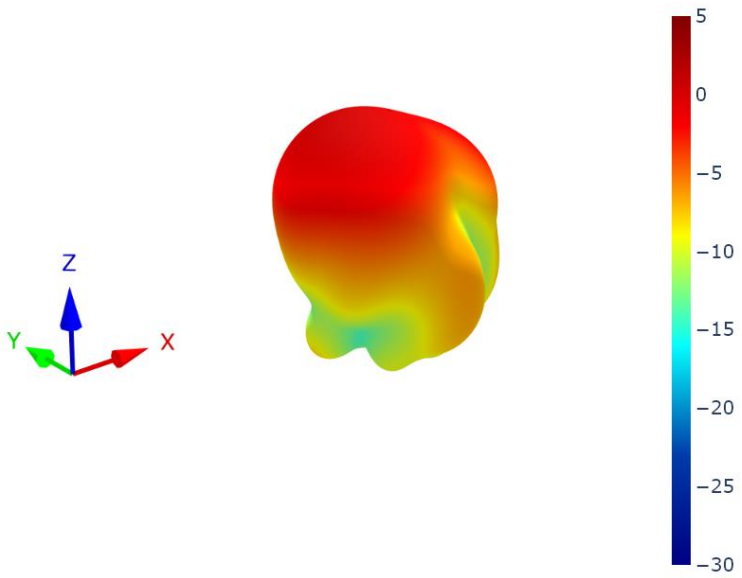
XZ Plane	YZ Plane	XY Plane



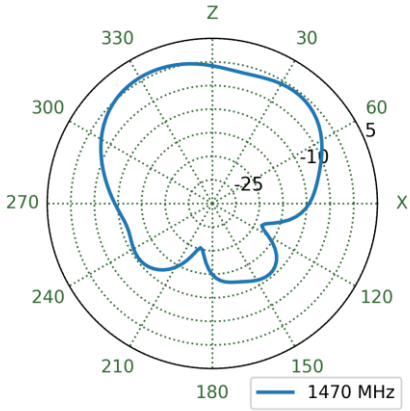


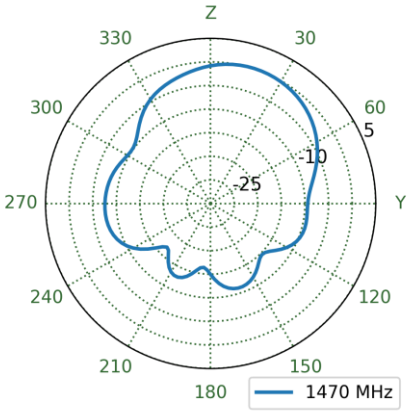


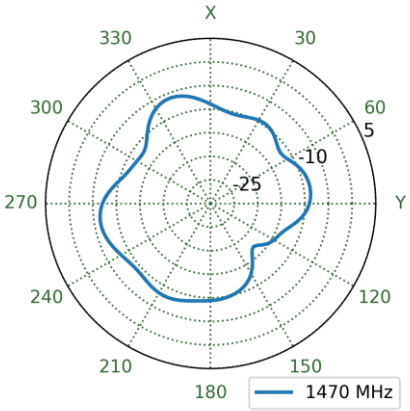
7.16 4G5G-3 Patterns at 1470MHz



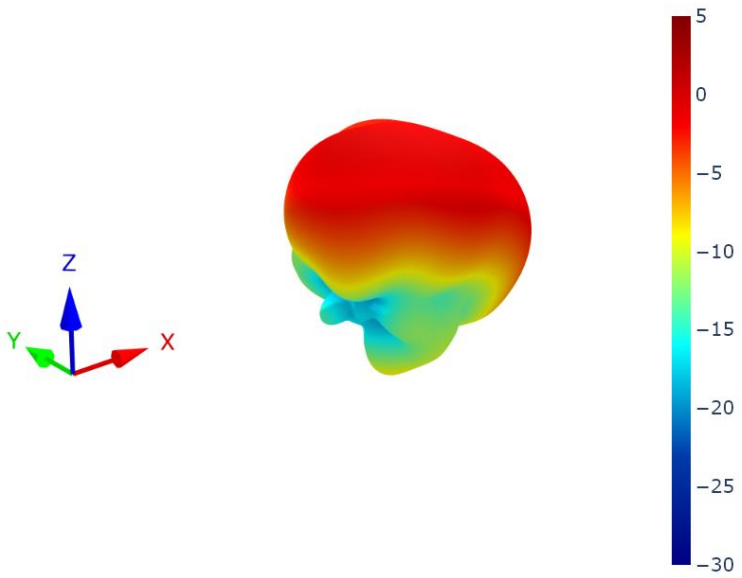
XZ Plane	YZ Plane	XY Plane



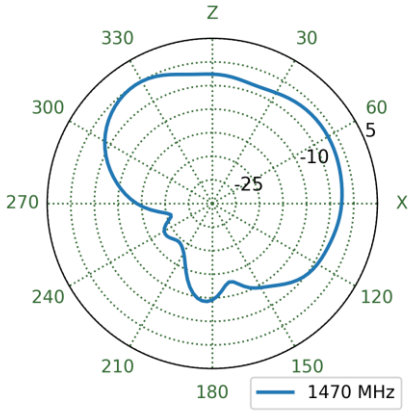


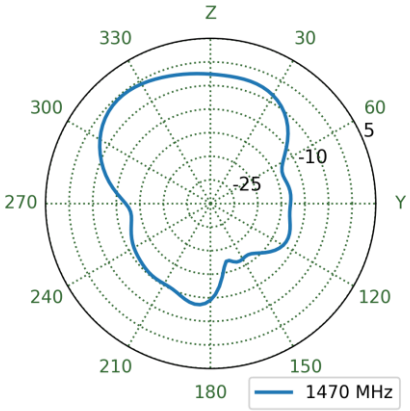


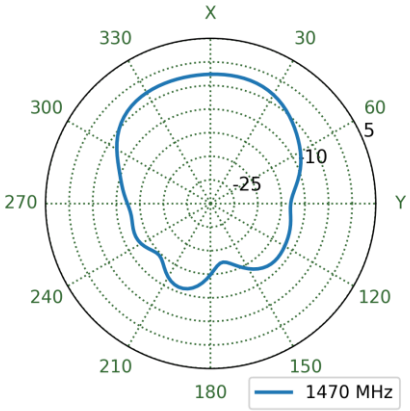
7.17 4G5G-4 Patterns at 1470MHz



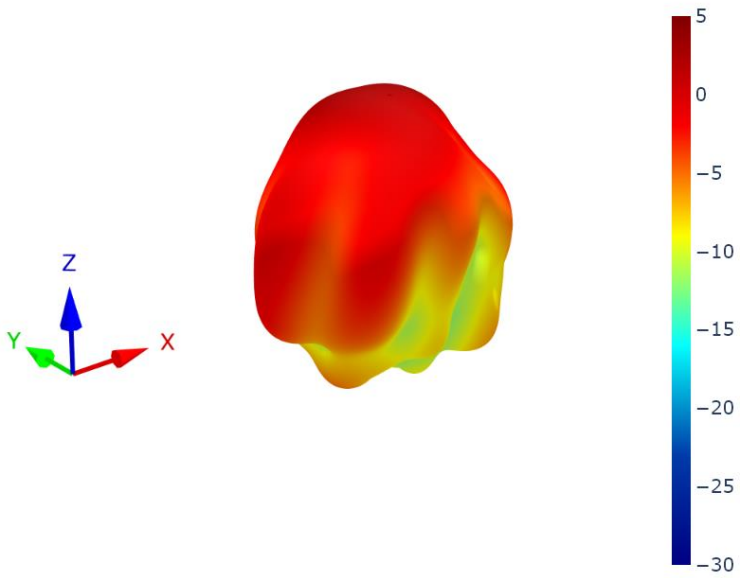
XZ Plane	YZ Plane	XY Plane



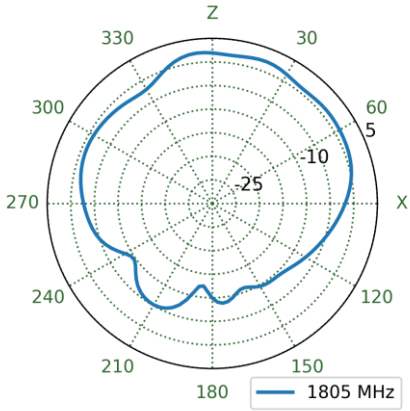


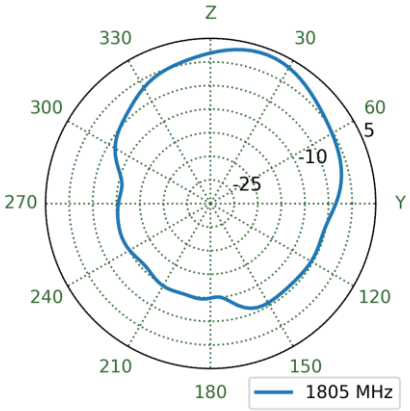


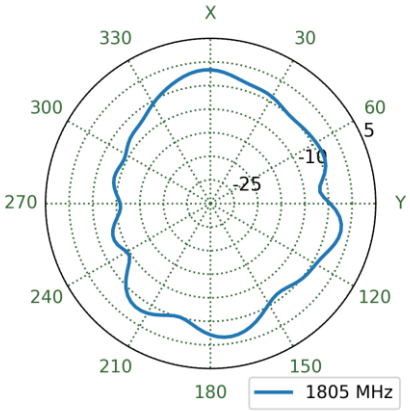
7.18 4G5G-1 Patterns at 1805MHz



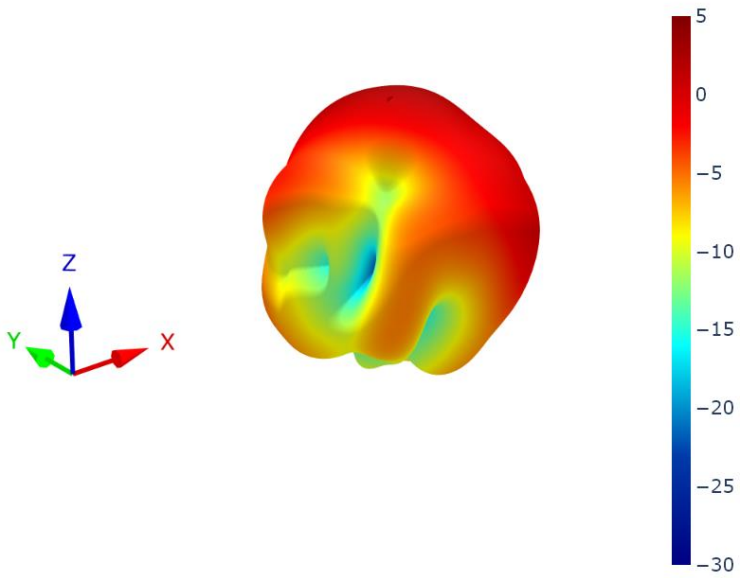
XZ Plane	YZ Plane	XY Plane



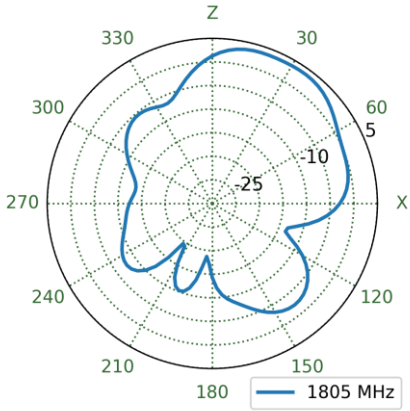


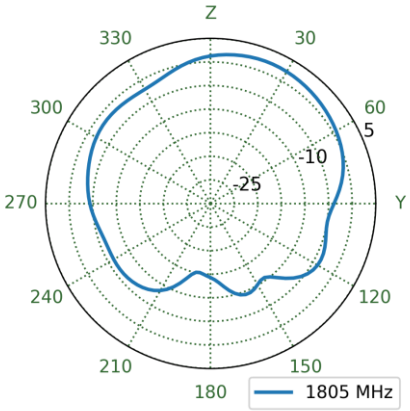


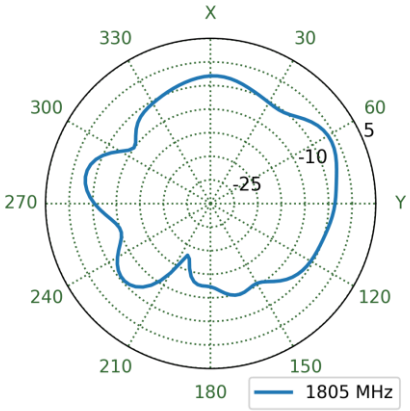
7.19 4G5G-2 Patterns at 1805MHz



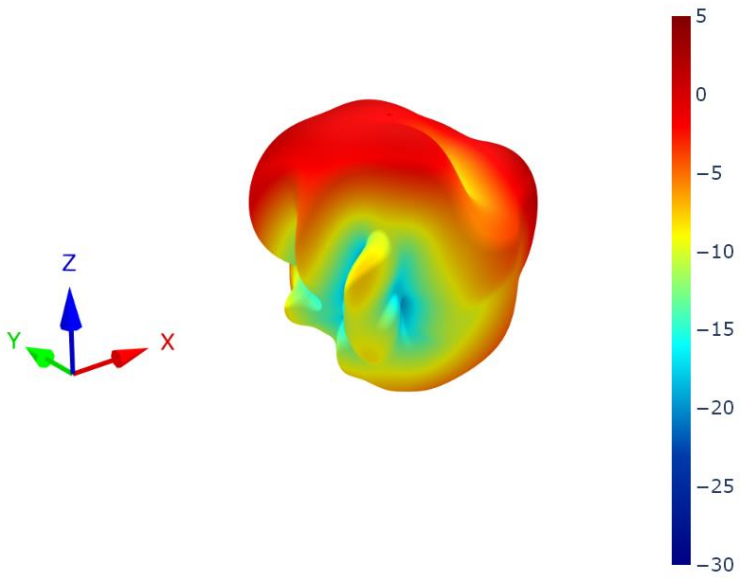
XZ Plane	YZ Plane	XY Plane



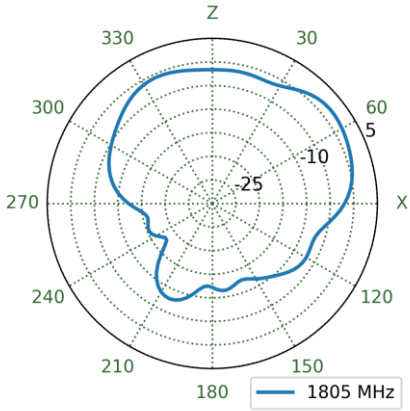


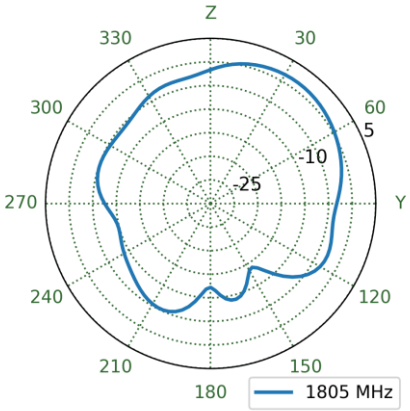


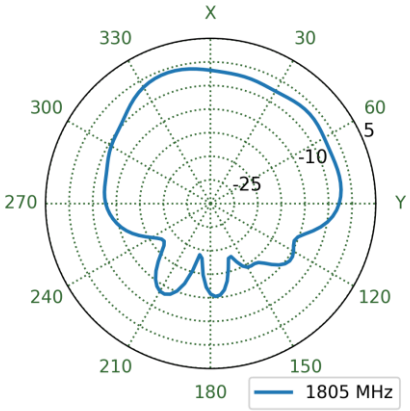
7.20 4G5G-3 Patterns at 1805MHz



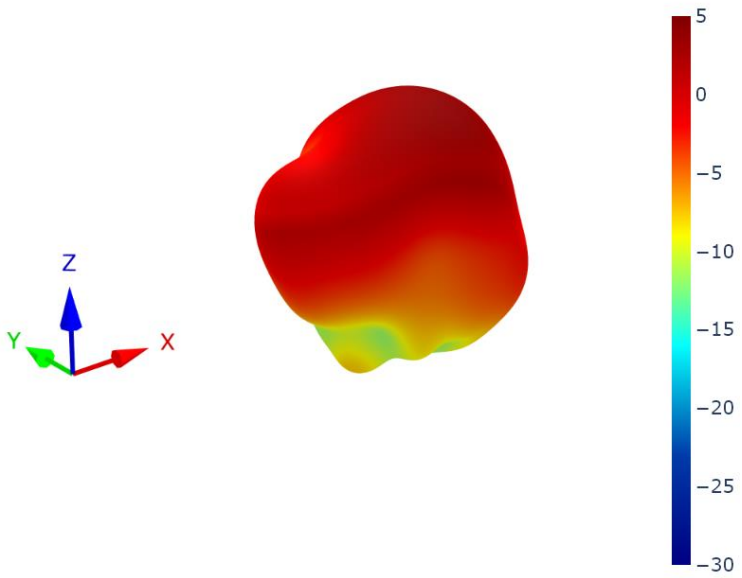
XZ Plane	YZ Plane	XY Plane



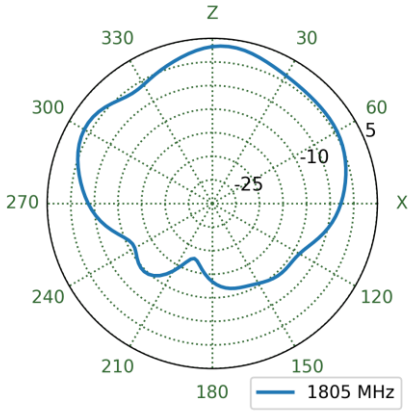


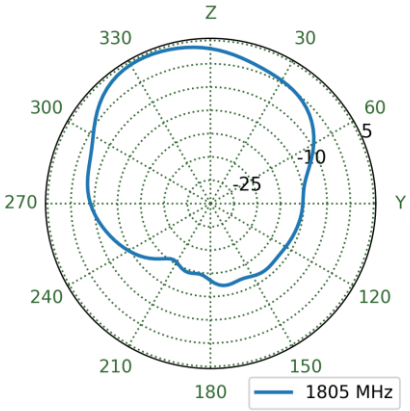


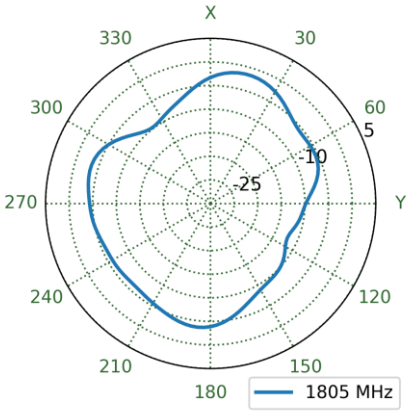
7.21 4G5G-4 Patterns at 1805MHz



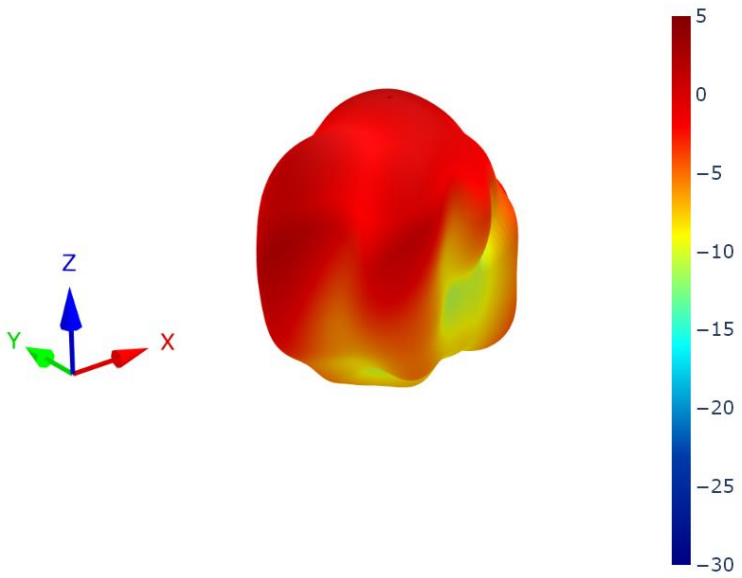
XZ Plane	YZ Plane	XY Plane



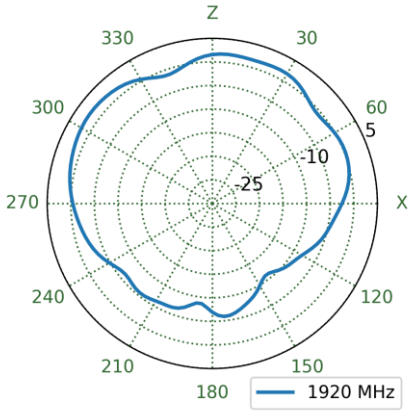


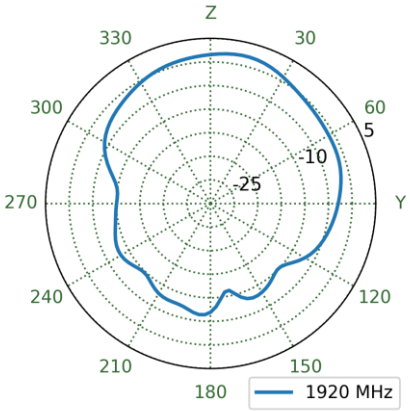


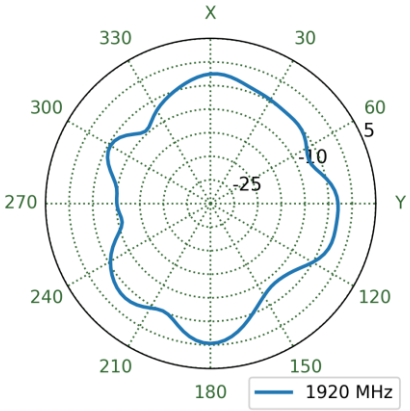
7.22 4G5G-1 Patterns at 1920MHz



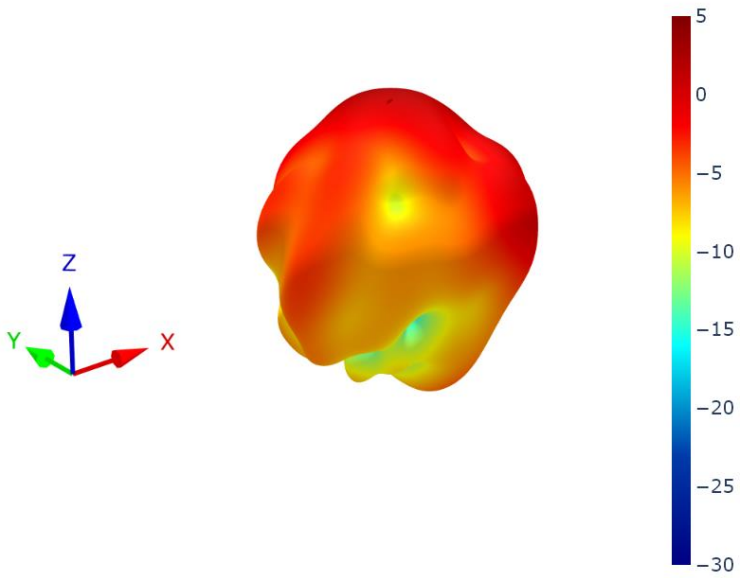
XZ Plane	YZ Plane	XY Plane



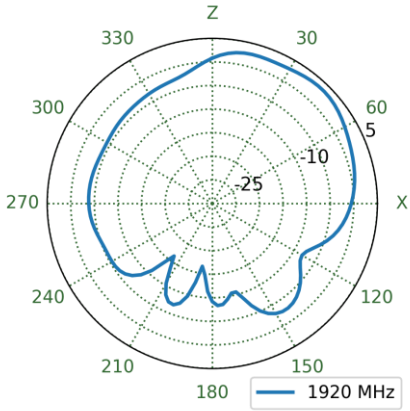


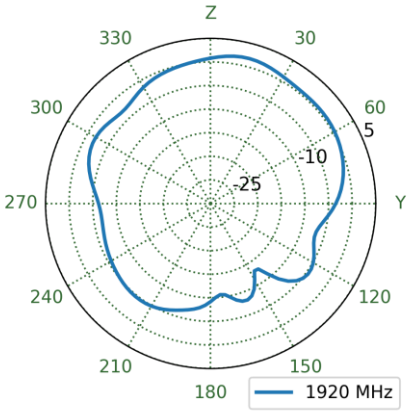


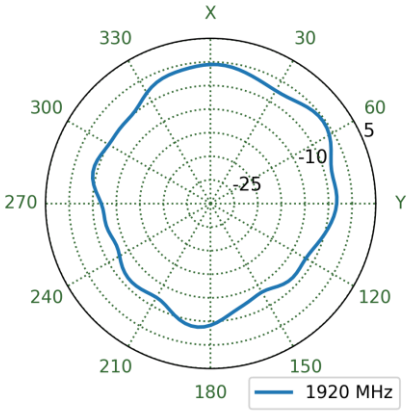
7.23 4G5G-2 Patterns at 1920MHz



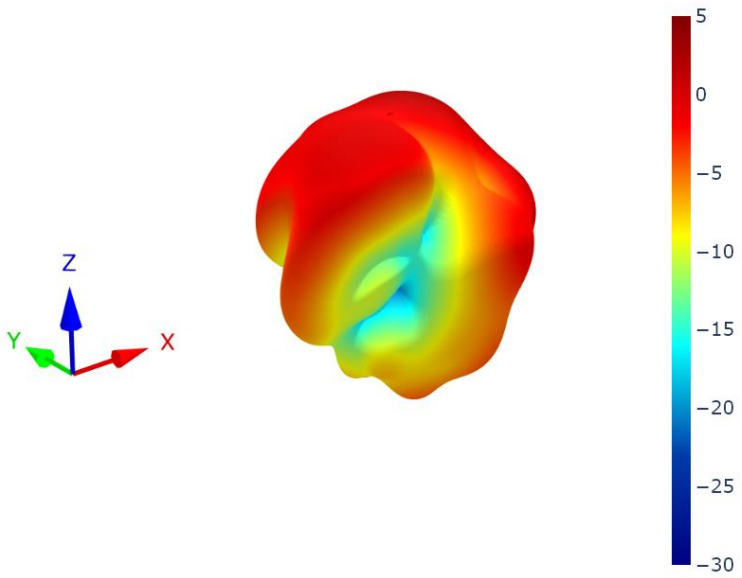
XZ Plane	YZ Plane	XY Plane



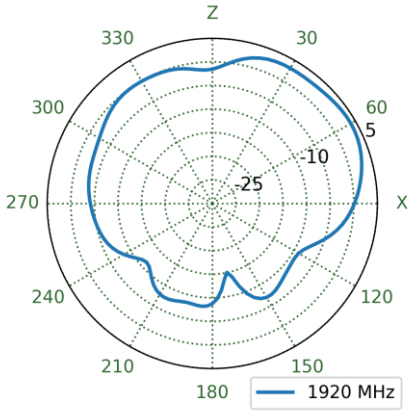


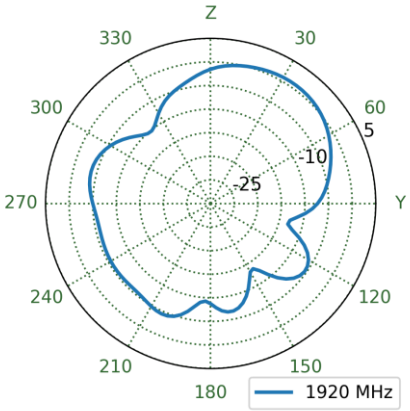


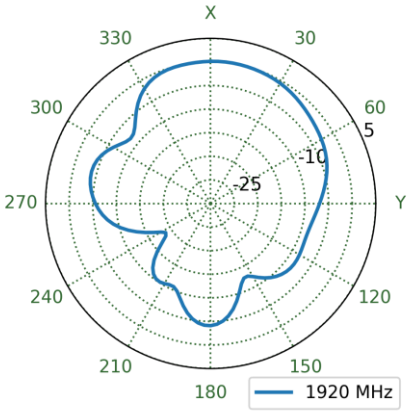
7.24 4G5G-3 Patterns at 1920MHz



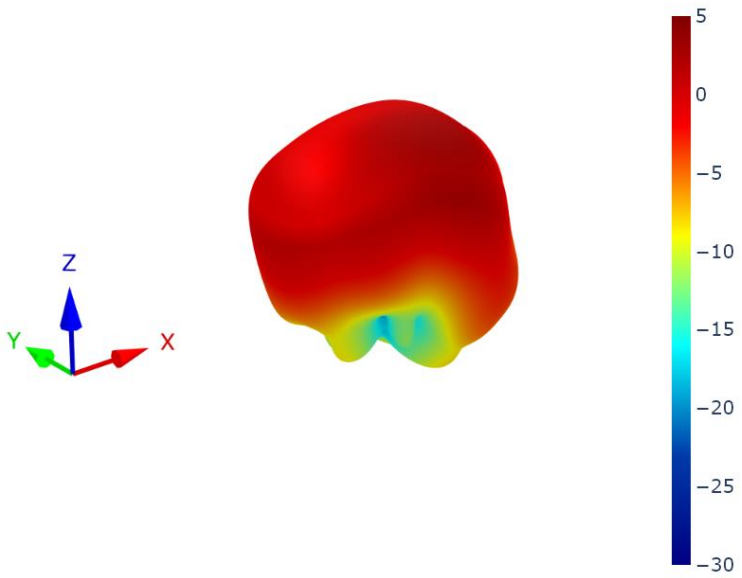
XZ Plane	YZ Plane	XY Plane



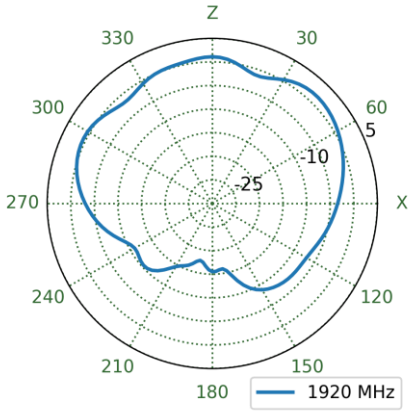


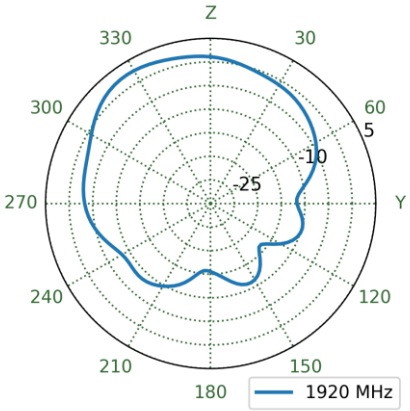


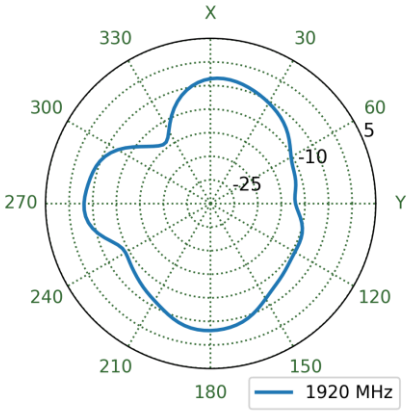
7.25 4G5G-4 Patterns at 1920MHz



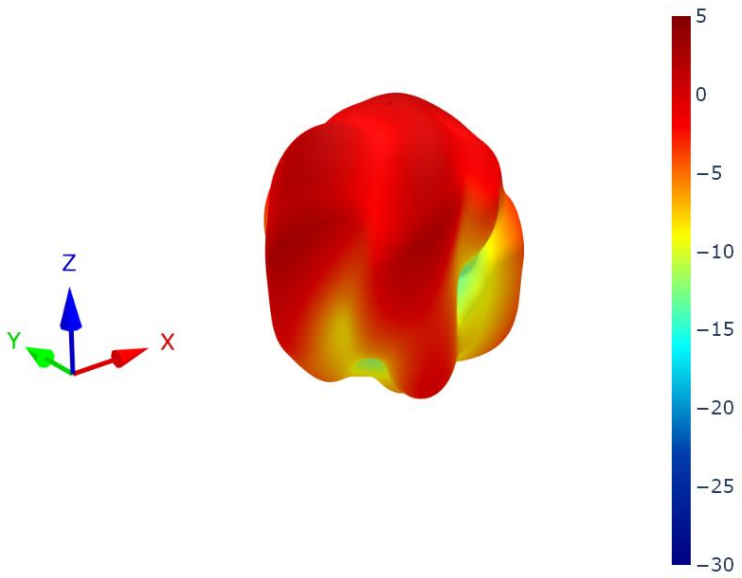
XZ Plane	YZ Plane	XY Plane



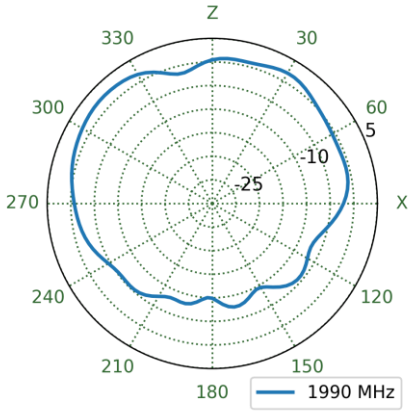


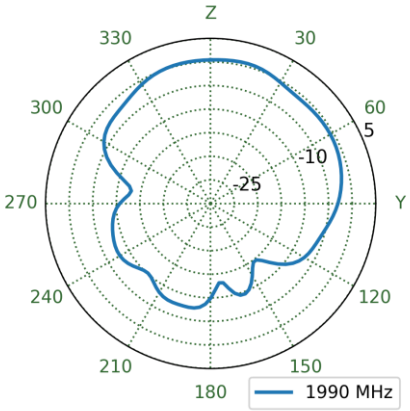


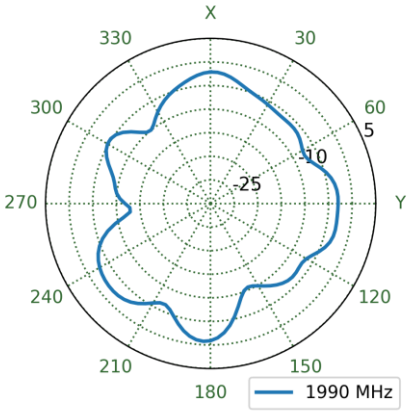
7.26 4G5G-1 Patterns at 1990MHz



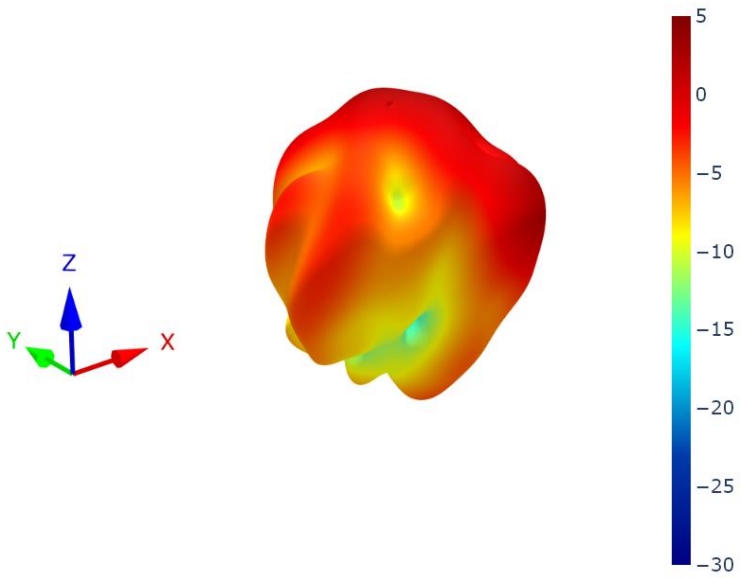
XZ Plane	YZ Plane	XY Plane



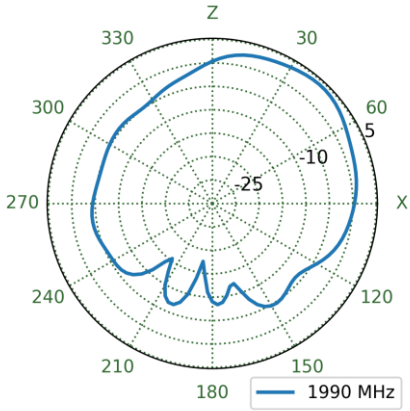


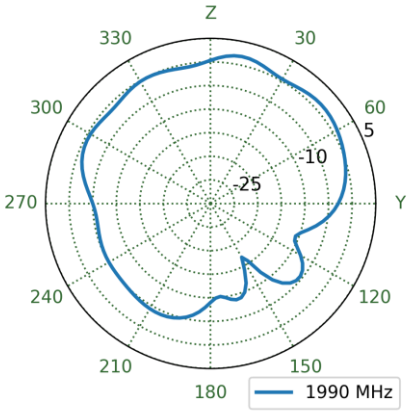


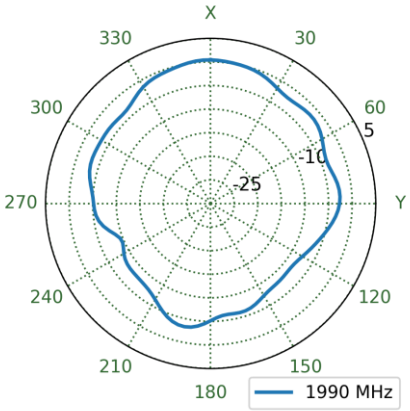
7.27 4G5G-2 Patterns at 1990MHz



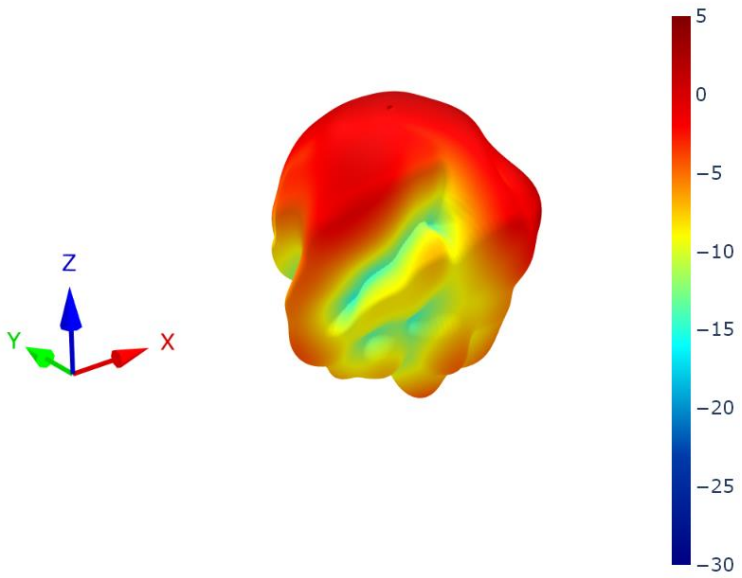
XZ Plane	YZ Plane	XY Plane



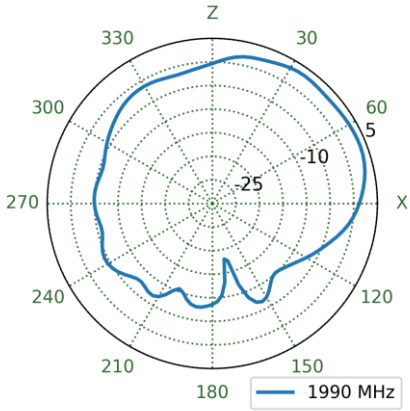


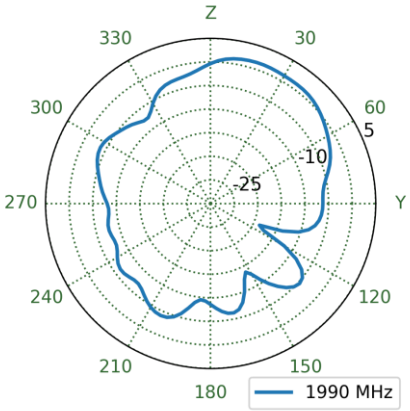


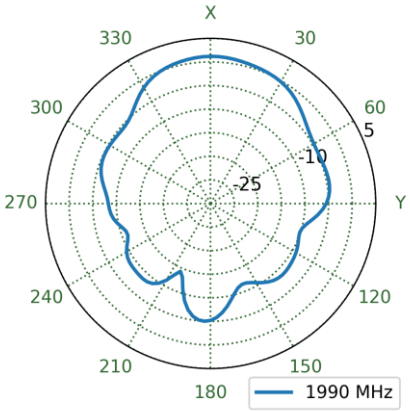
7.28 4G5G-3 Patterns at 1990MHz



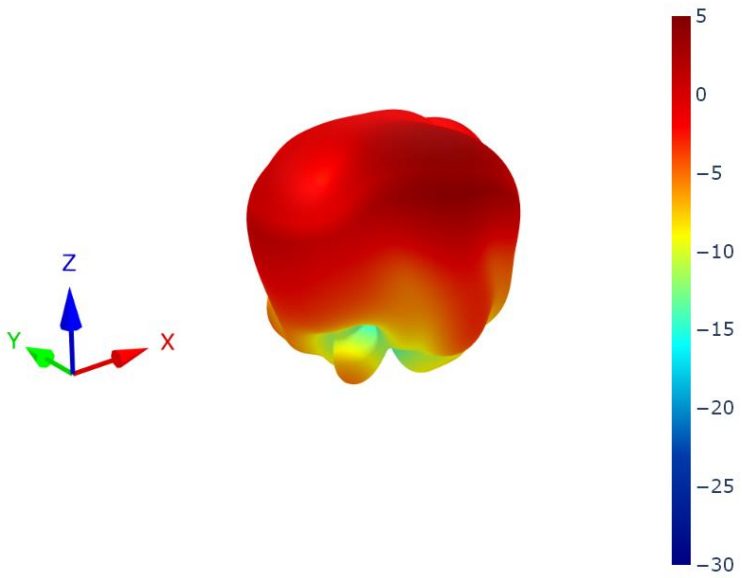
XZ Plane	YZ Plane	XY Plane



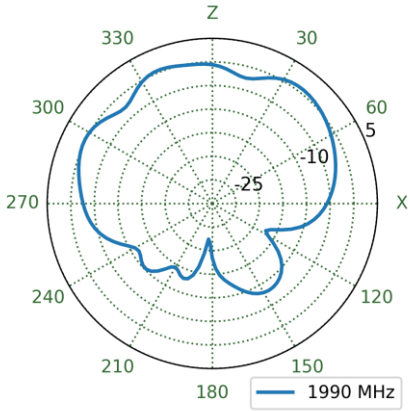


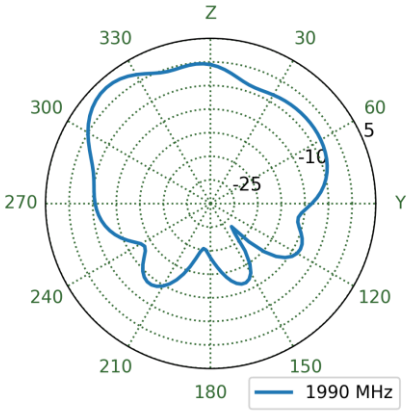


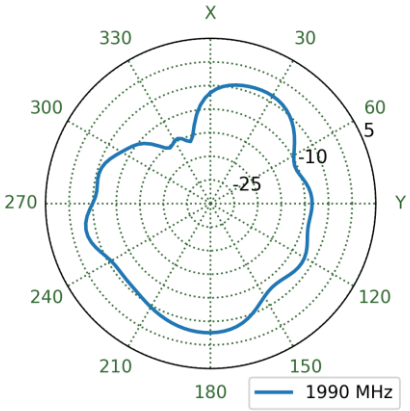
7.29 4G5G-4 Patterns at 1990MHz



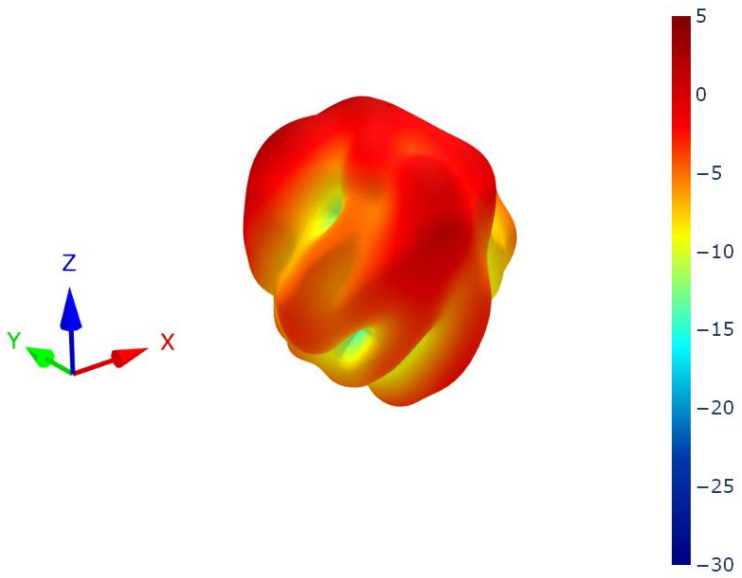
XZ Plane	YZ Plane	XY Plane



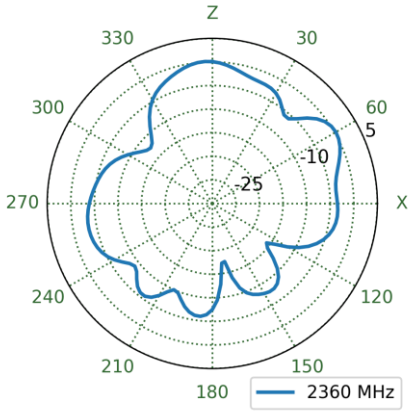


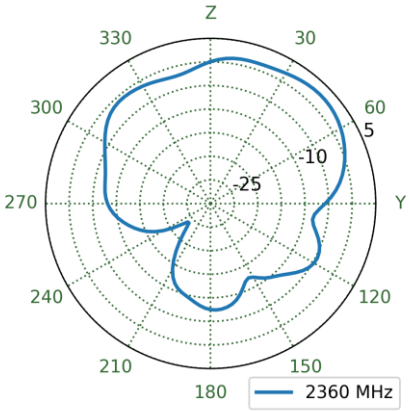


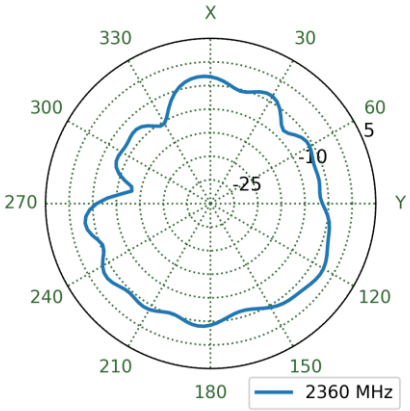
7.30 4G5G-1 Patterns at 2360MHz



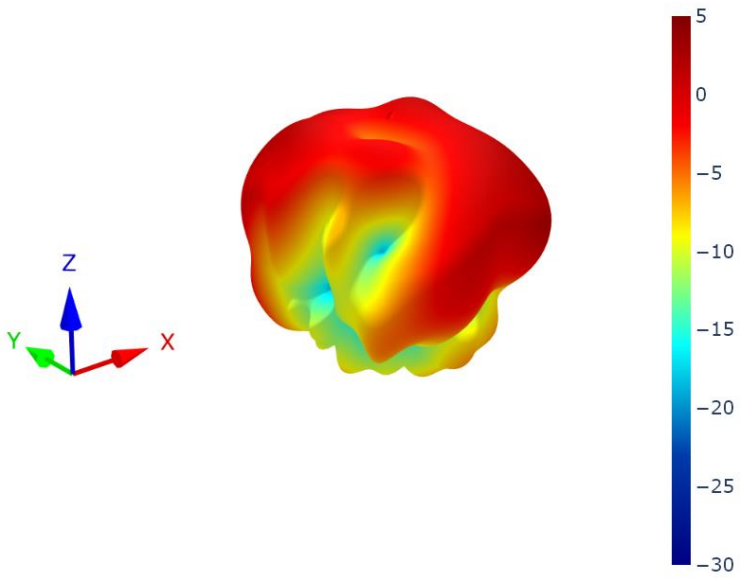
XZ Plane	YZ Plane	XY Plane



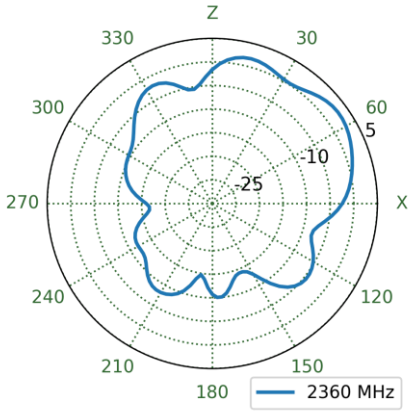


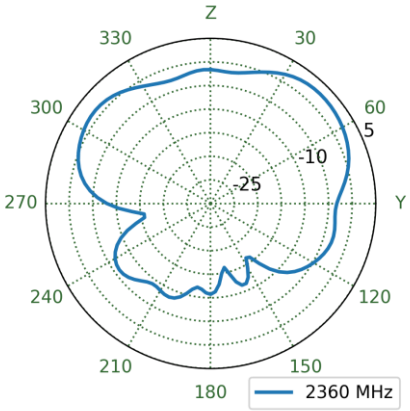


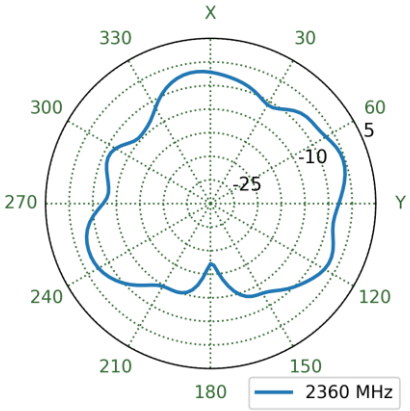
7.31 4G5G-2 Patterns at 2360MHz



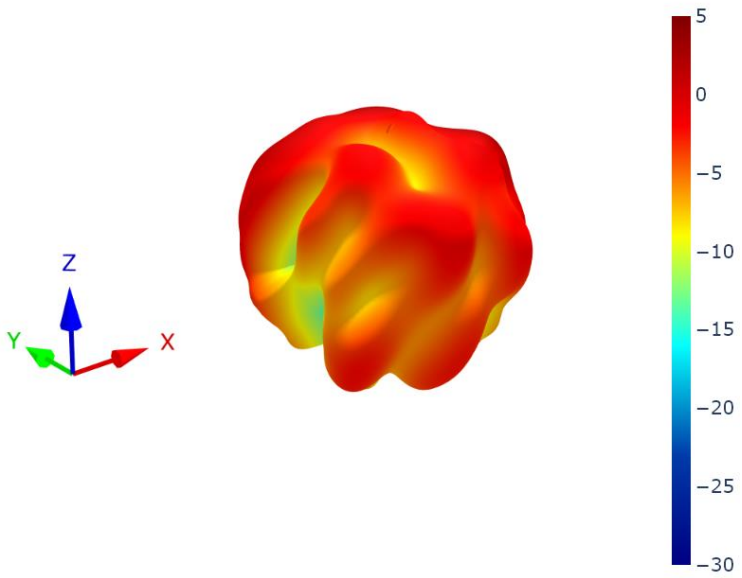
XZ Plane	YZ Plane	XY Plane



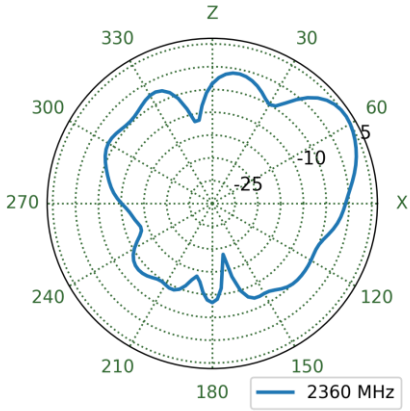


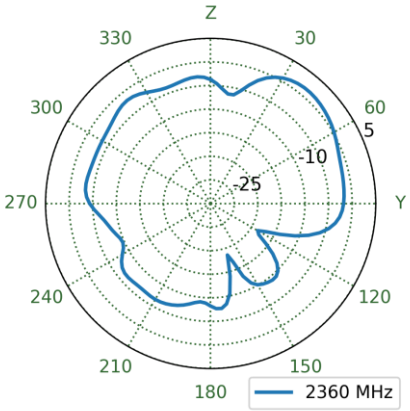


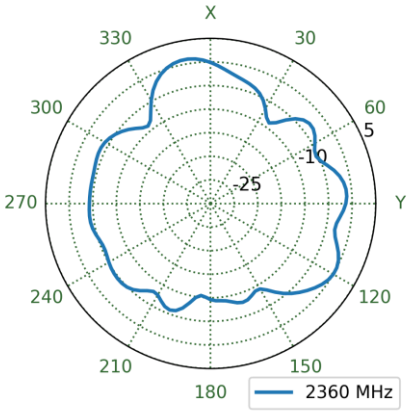
7.32 4G5G-3 Patterns at 2360MHz



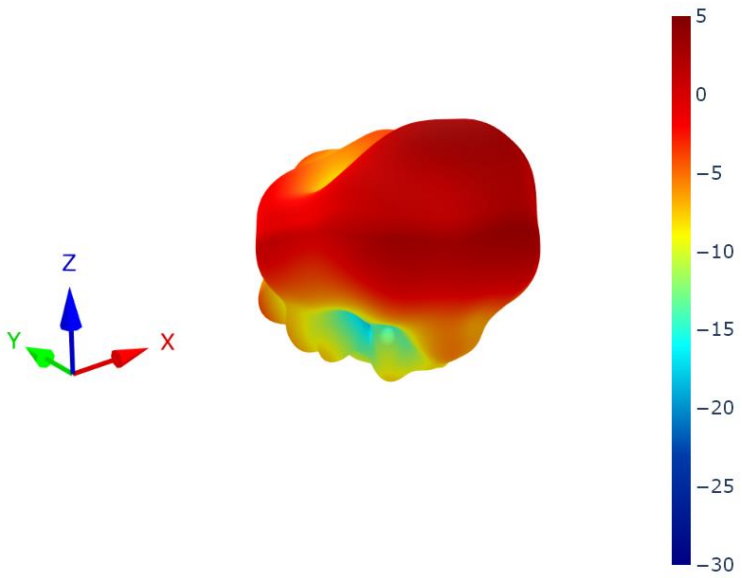
XZ Plane	YZ Plane	XY Plane



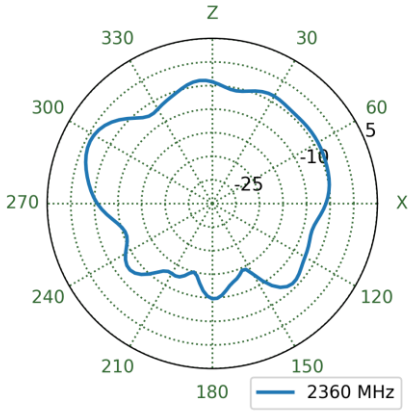


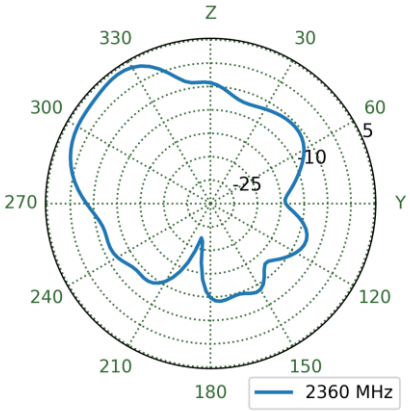


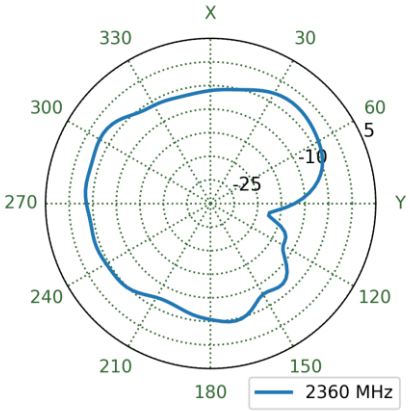
7.33 4G5G-4 Patterns at 2360MHz



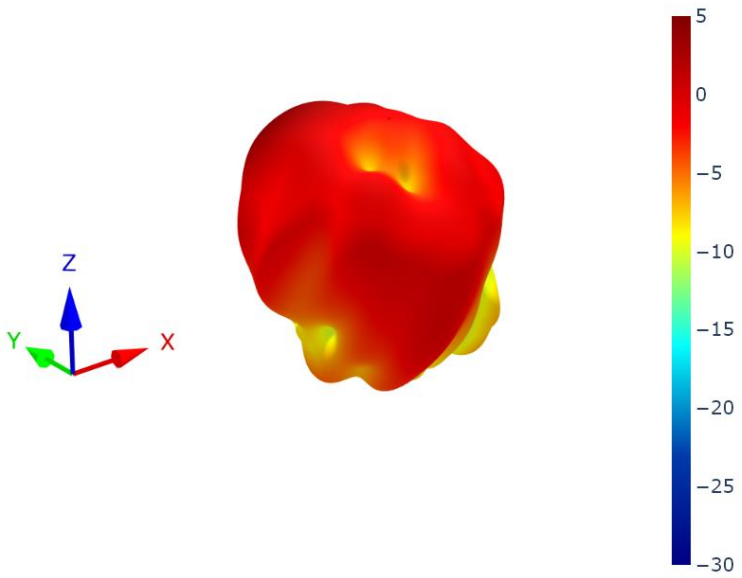
XZ Plane	YZ Plane	XY Plane



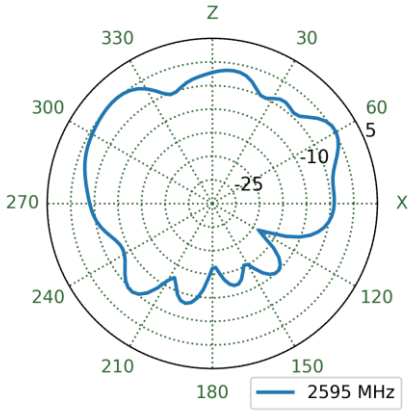


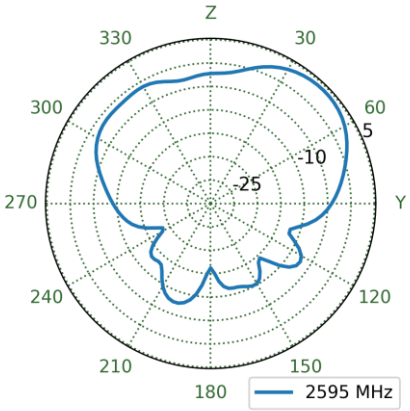


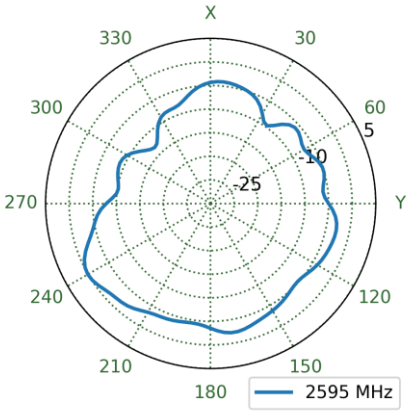
7.34 4G5G-1 Patterns at 2595MHz



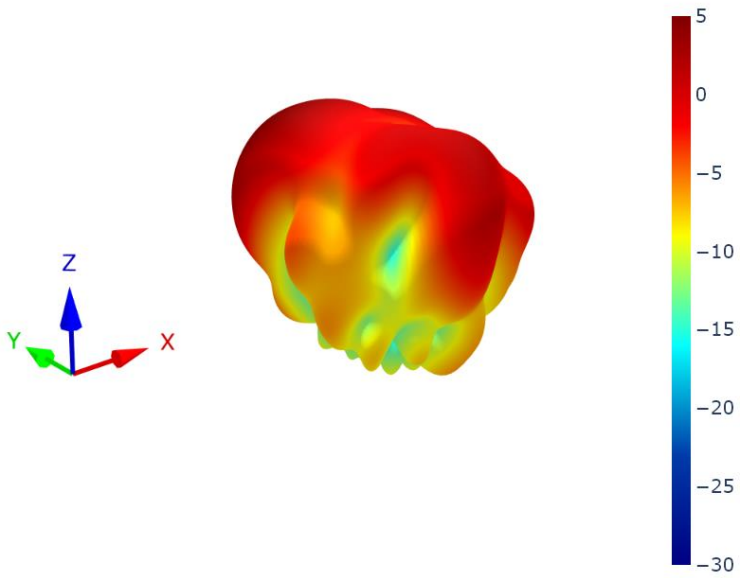
XZ Plane	YZ Plane	XY Plane



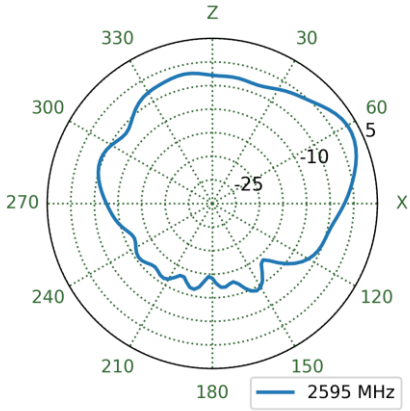


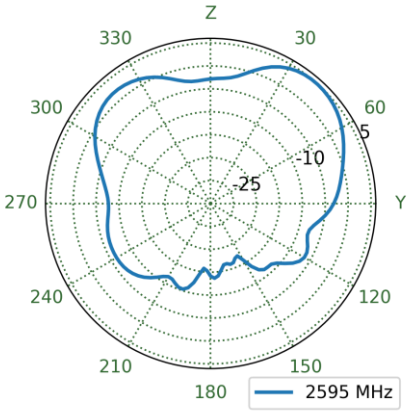


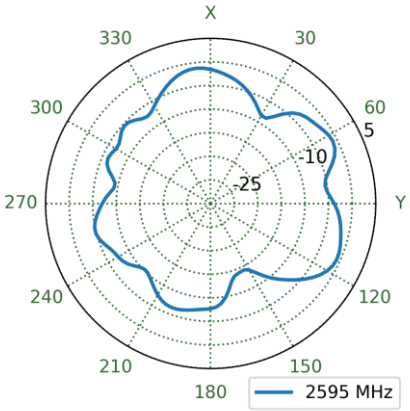
7.35 4G5G-2 Patterns at 2595MHz



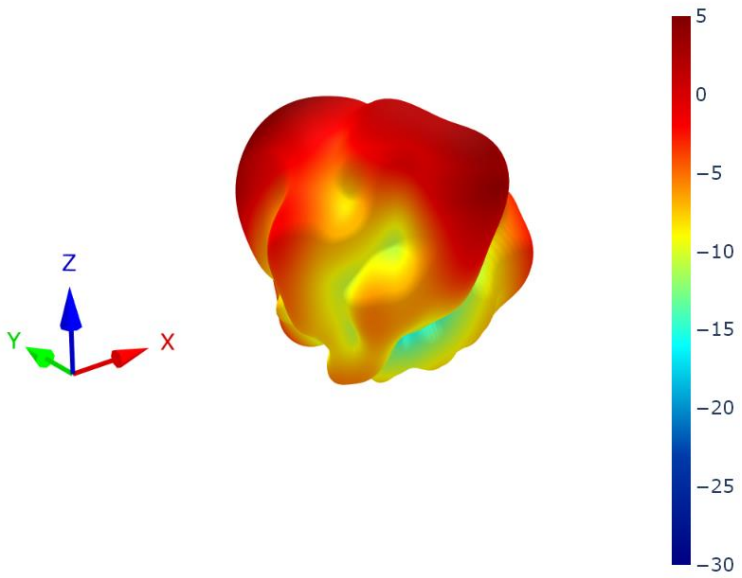
XZ Plane	YZ Plane	XY Plane



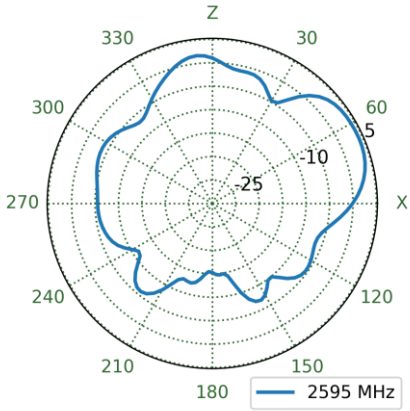


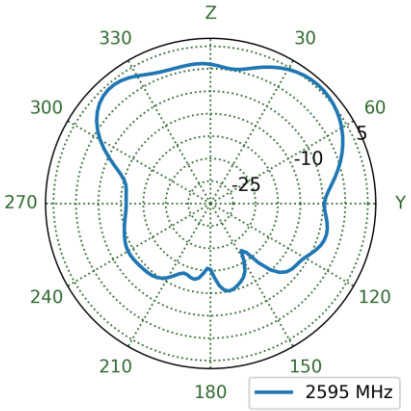


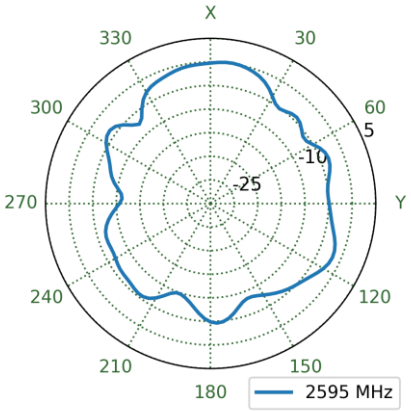
7.36 4G5G-3 Patterns at 2595MHz



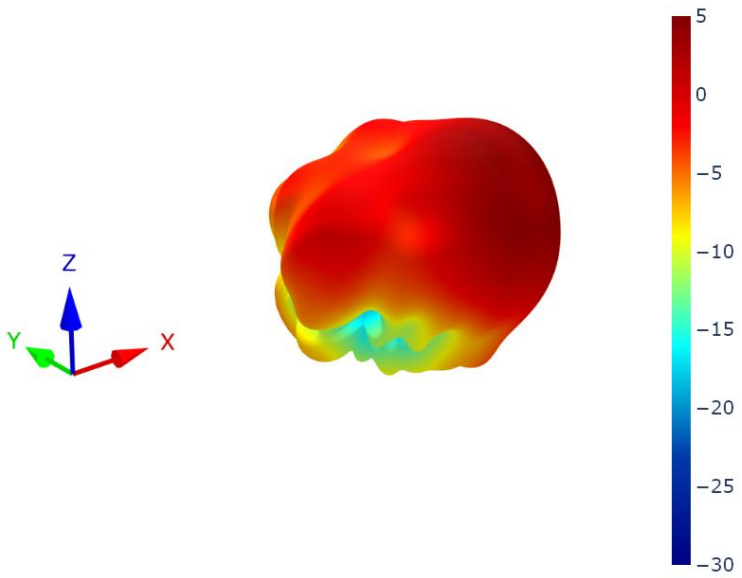
XZ Plane	YZ Plane	XY Plane



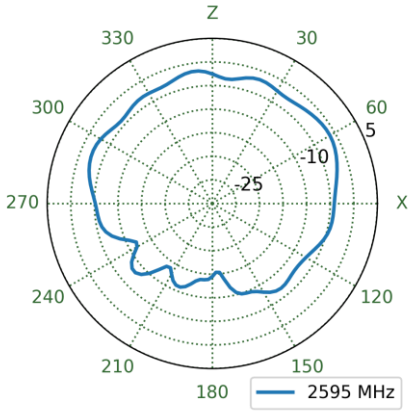


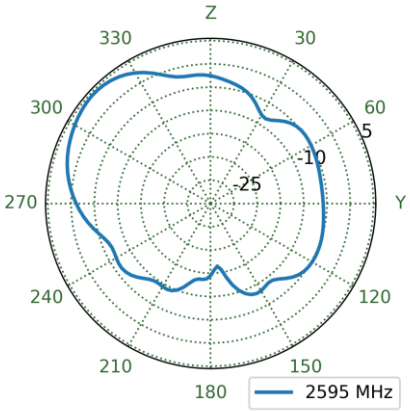


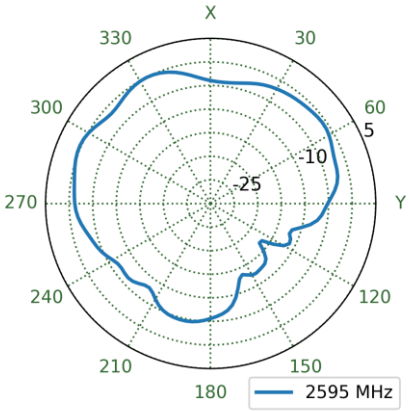
7.37 4G5G-4 Patterns at 2595MHz



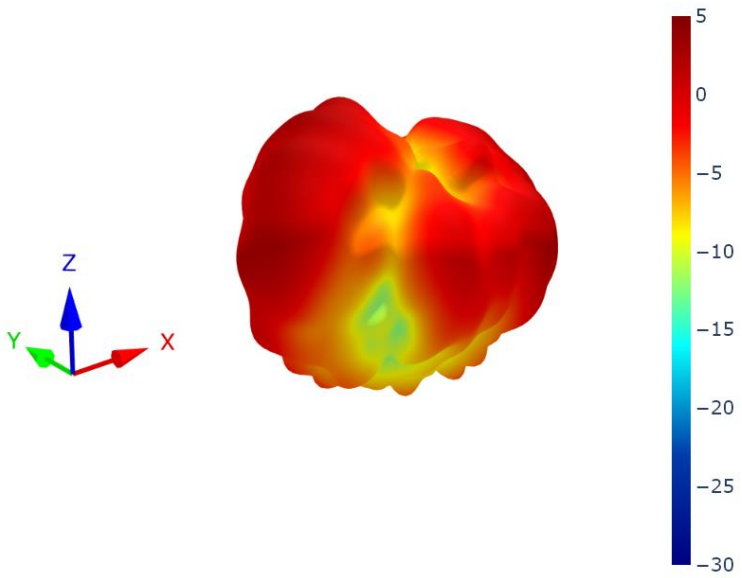
XZ Plane	YZ Plane	XY Plane



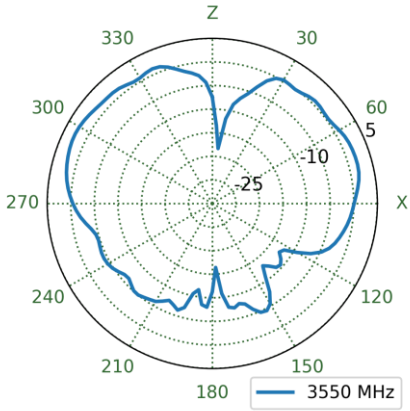


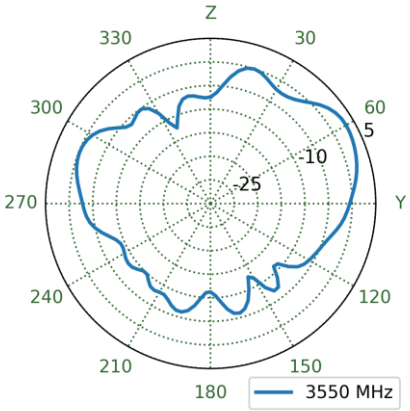


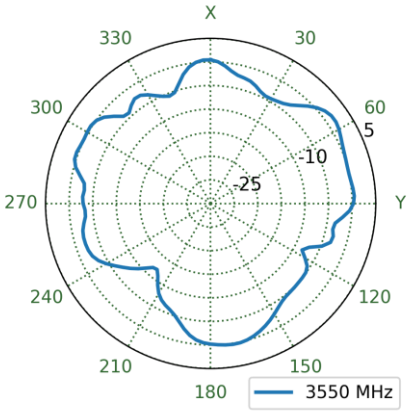
7.38 4G5G-1 Patterns at 3550MHz



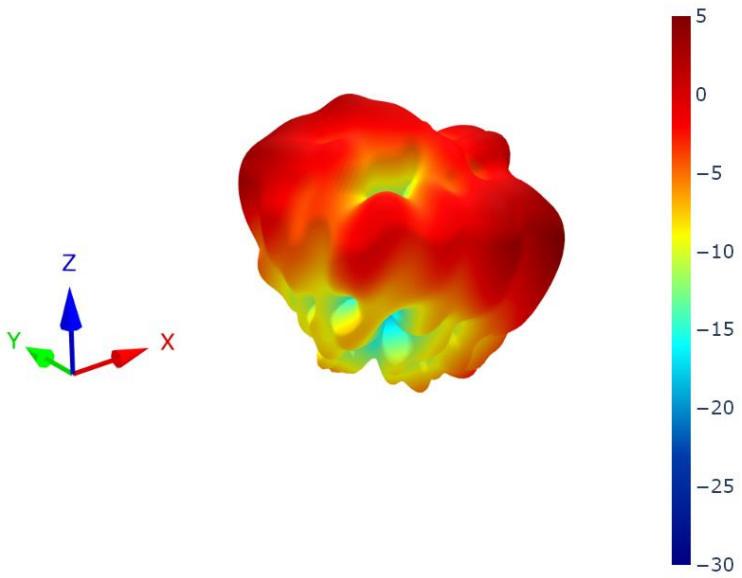
XZ Plane	YZ Plane	XY Plane



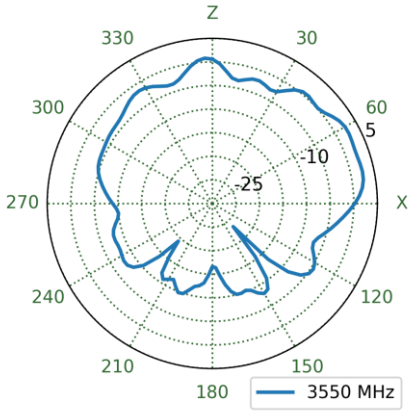


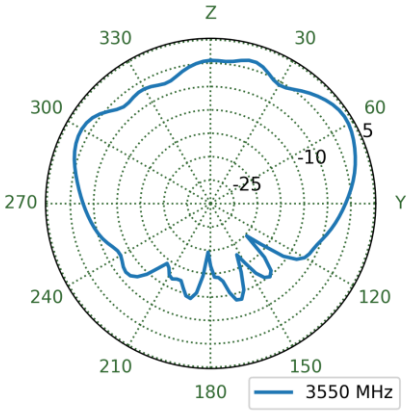


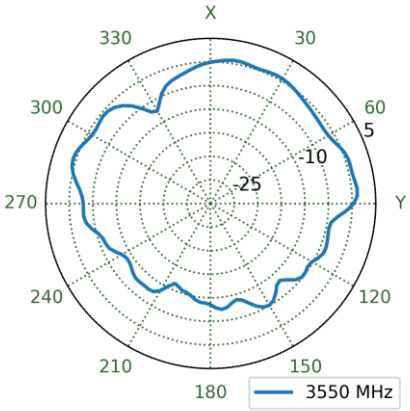
7.39 4G5G-2 Patterns at 3550MHz



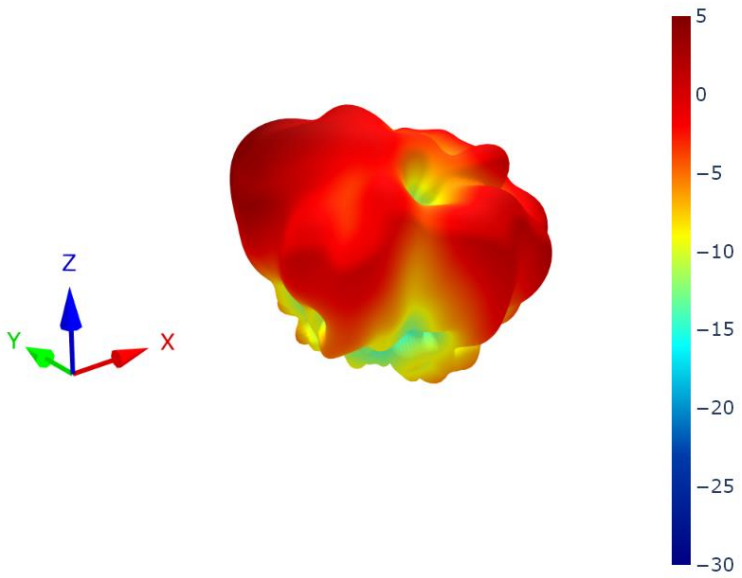
XZ Plane	YZ Plane	XY Plane



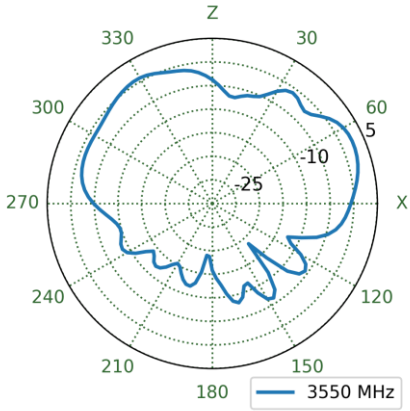


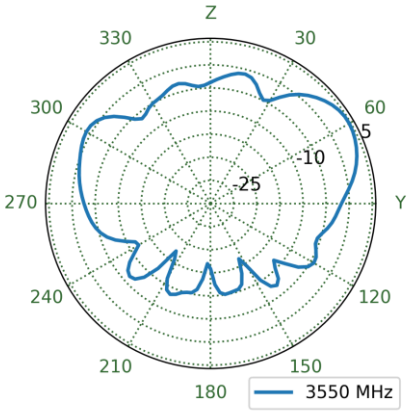


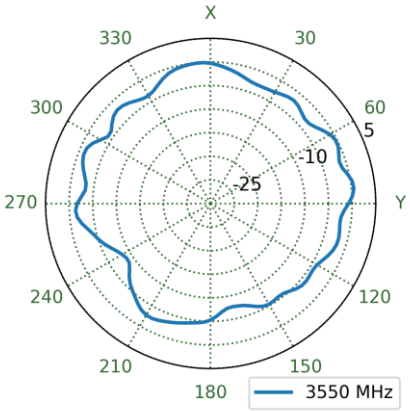
7.40 4G5G-3 Patterns at 3550MHz



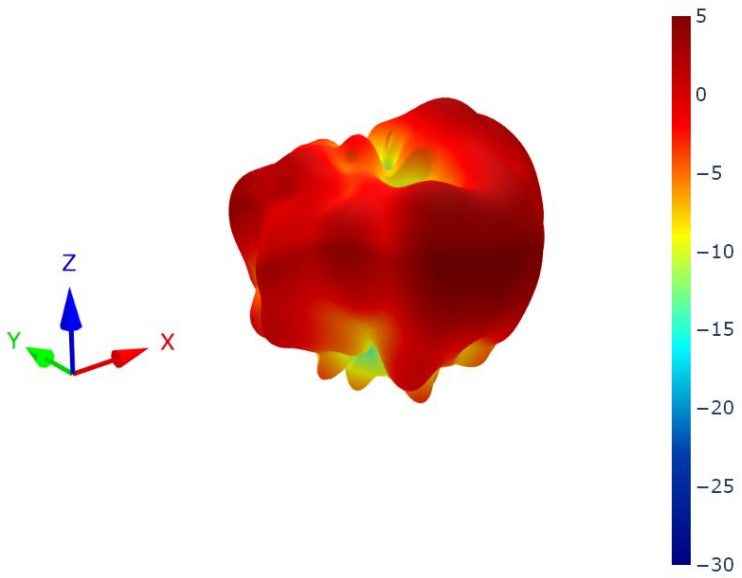
XZ Plane	YZ Plane	XY Plane



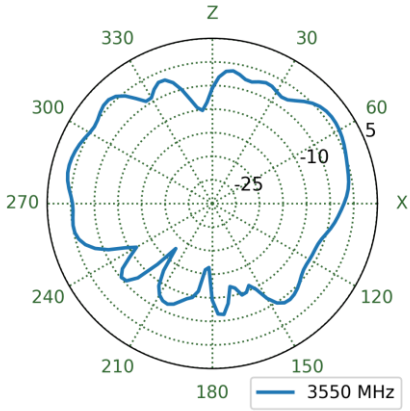


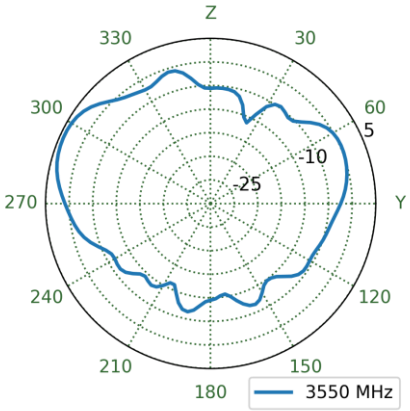


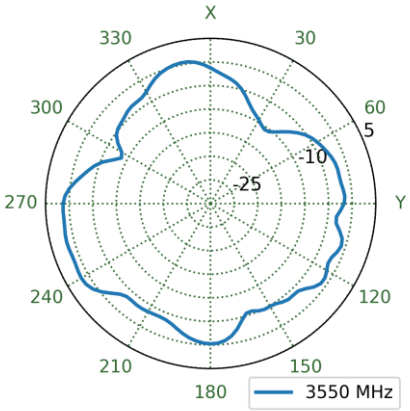
7.41 4G5G-4 Patterns at 3550MHz



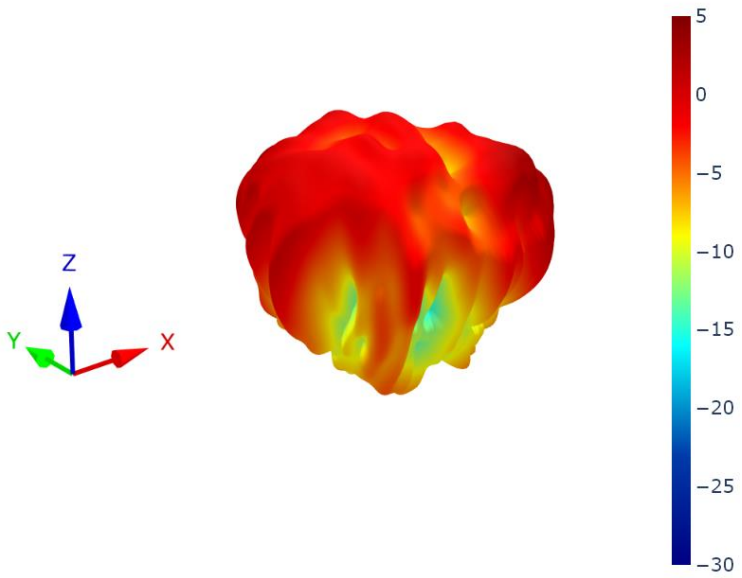
XZ Plane	YZ Plane	XY Plane



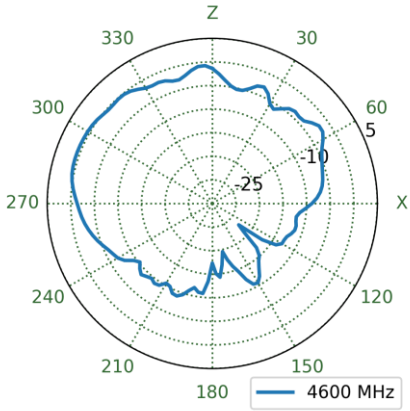


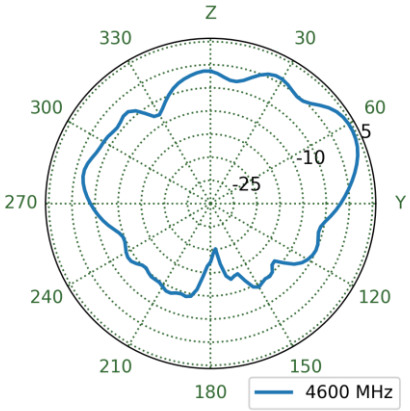


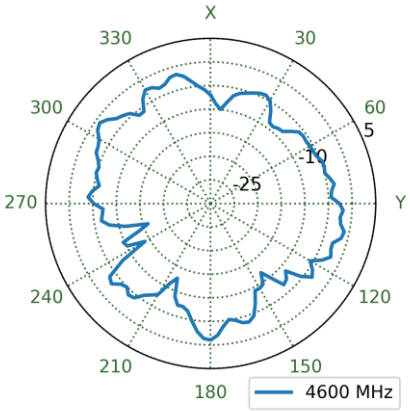
7.42 4G5G-1 Patterns at 4600MHz



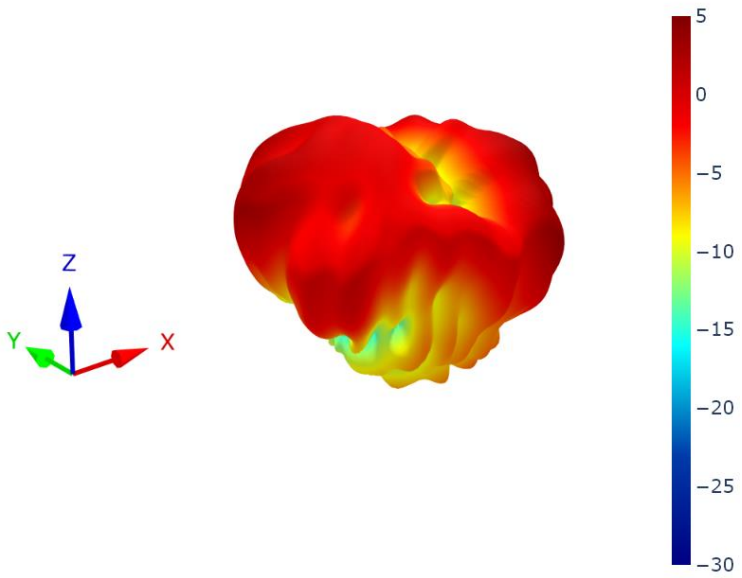
XZ Plane	YZ Plane	XY Plane



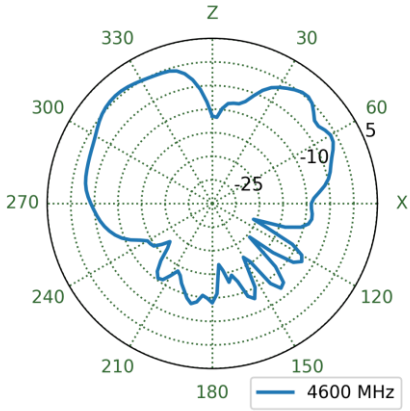


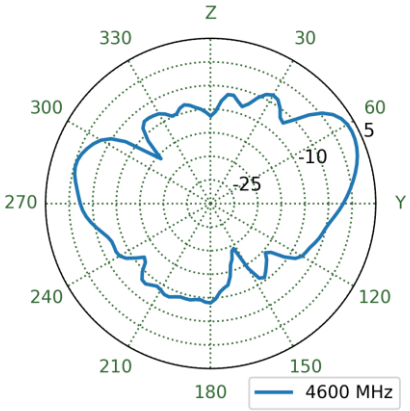


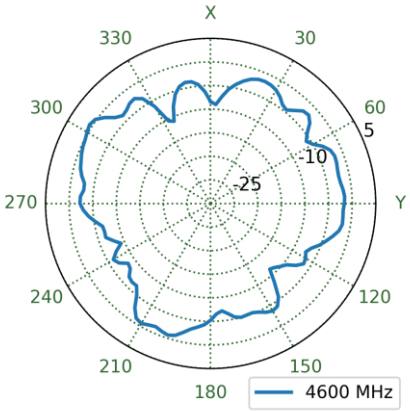
7.43 4G5G-2 Patterns at 4600MHz



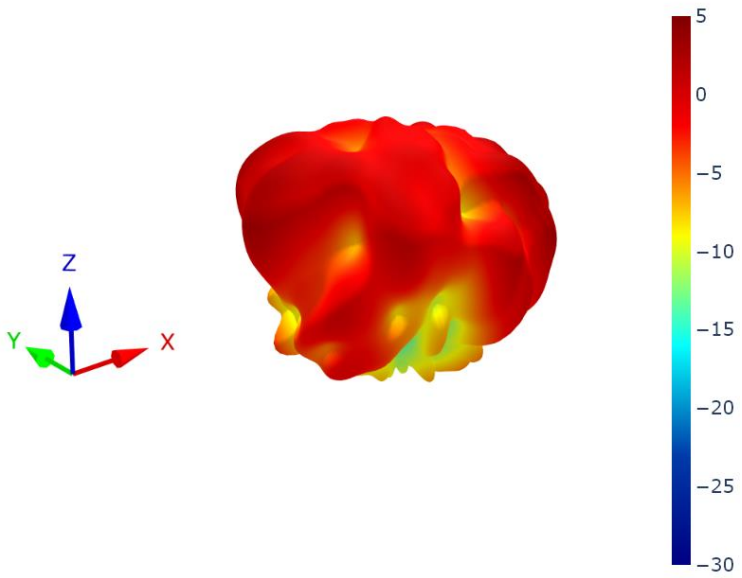
XZ Plane	YZ Plane	XY Plane



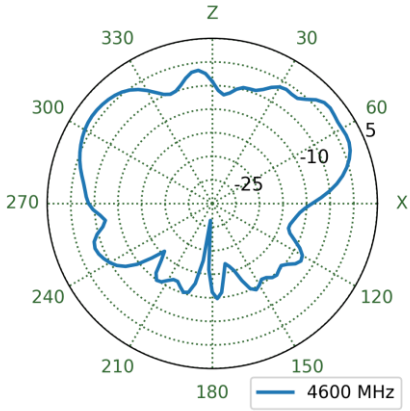


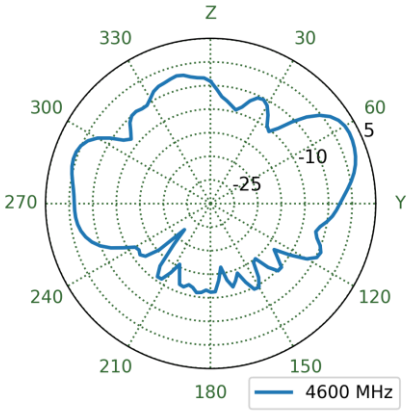


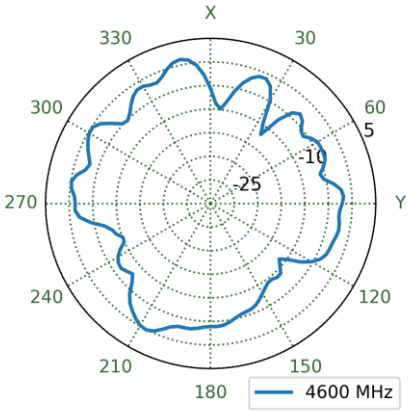
7.44 4G5G-3 Patterns at 4600MHz



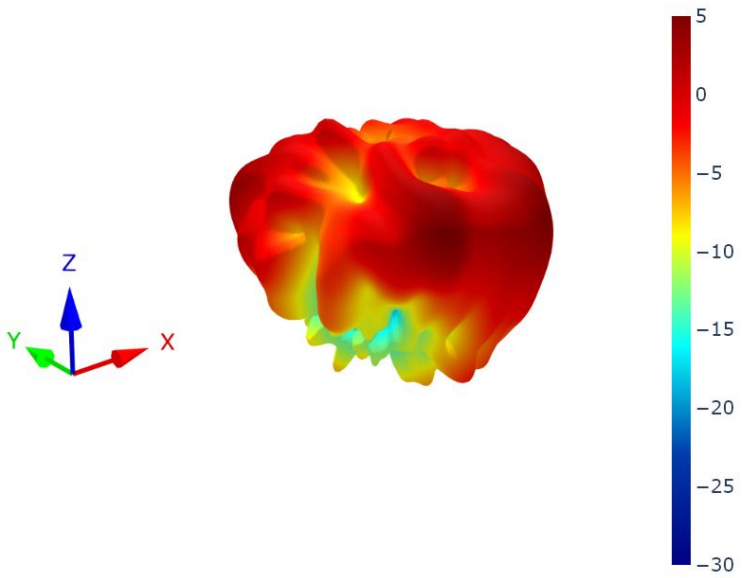
XZ Plane	YZ Plane	XY Plane



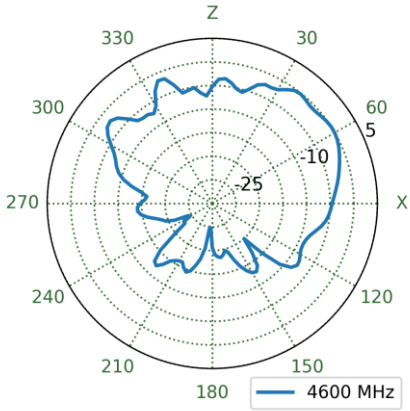


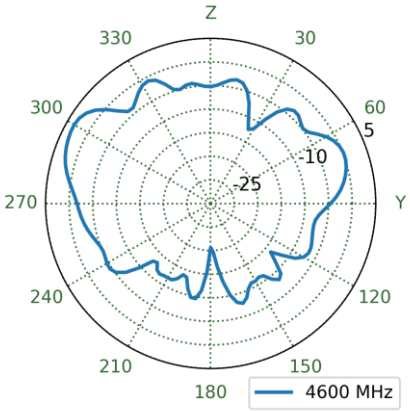


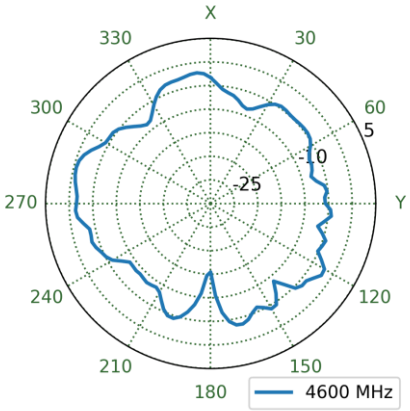
7.45 4G5G-4 Patterns at 4600MHz



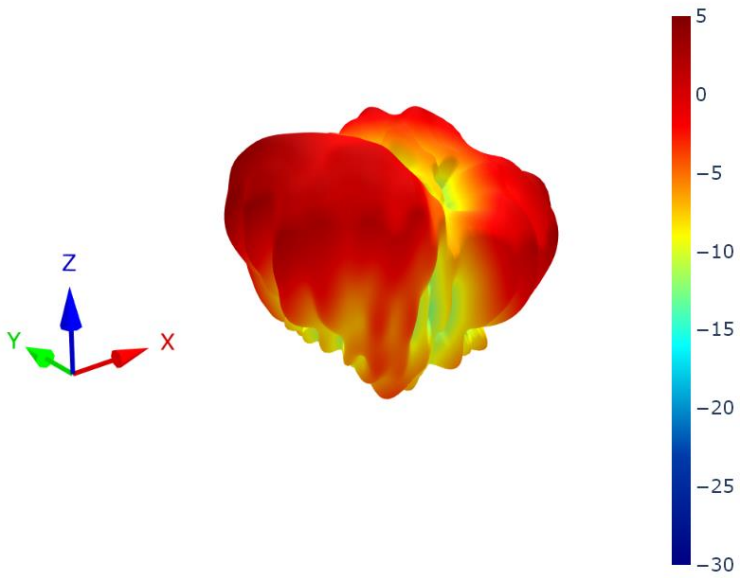
XZ Plane	YZ Plane	XY Plane



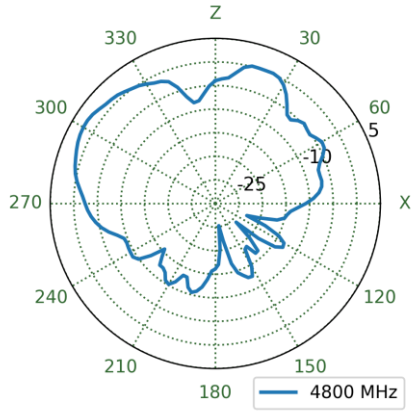


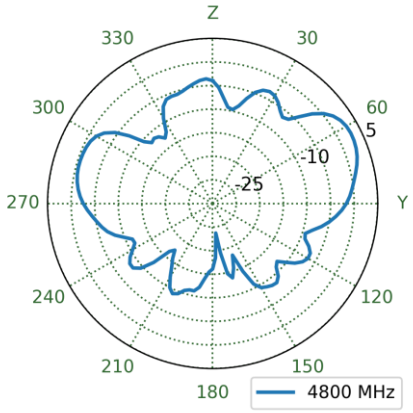


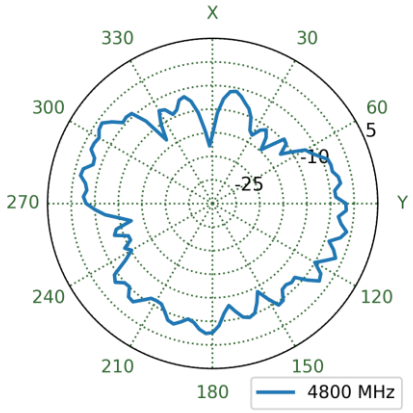
7.46 4G5G-1 Patterns at 4800MHz



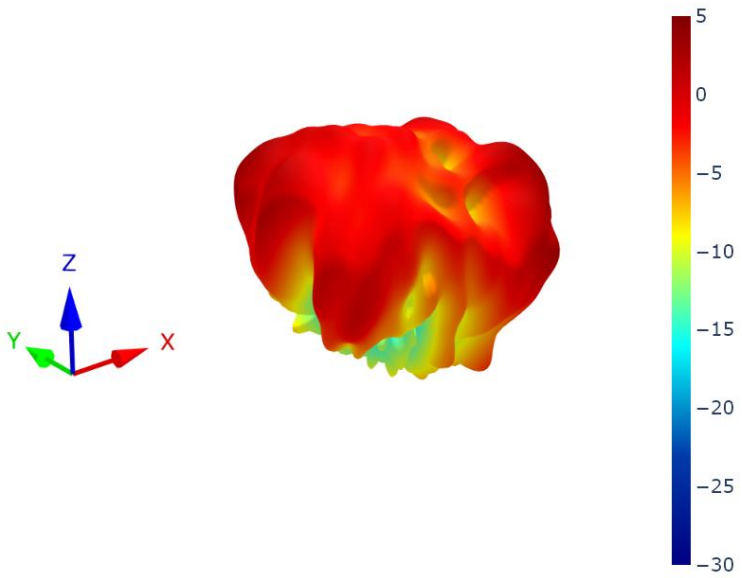
XZ Plane	YZ Plane	XY Plane



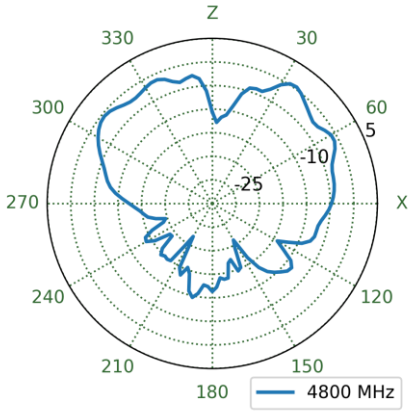


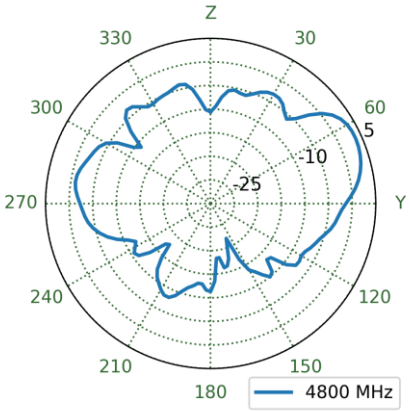


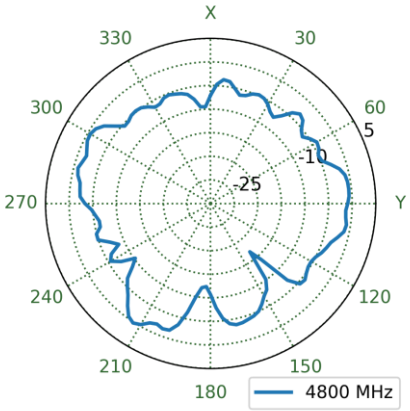
7.47 4G5G-2 Patterns at 4800MHz



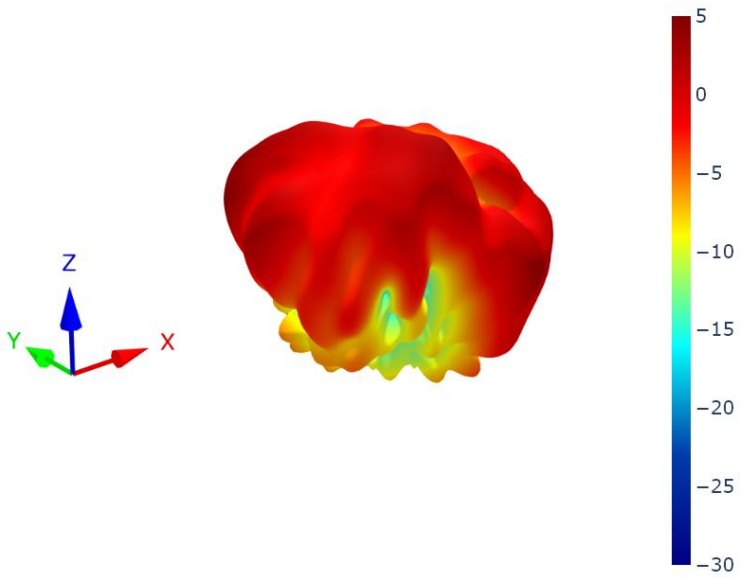
XZ Plane	YZ Plane	XY Plane



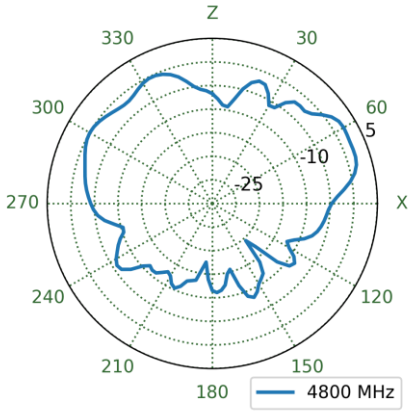


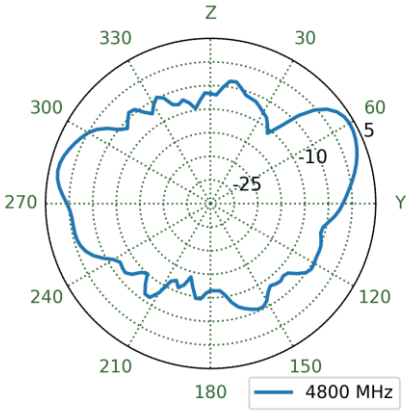


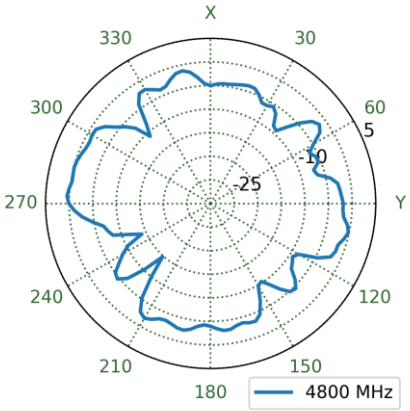
7.48 4G5G-3 Patterns at 4800MHz



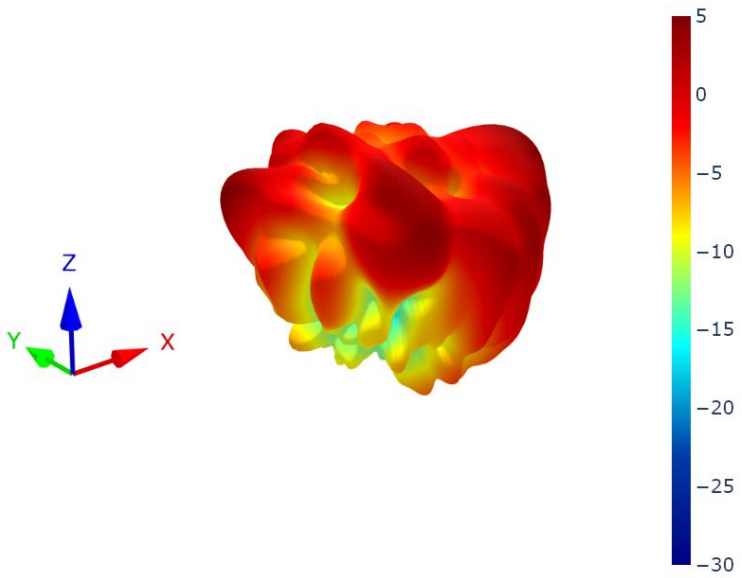
XZ Plane	YZ Plane	XY Plane



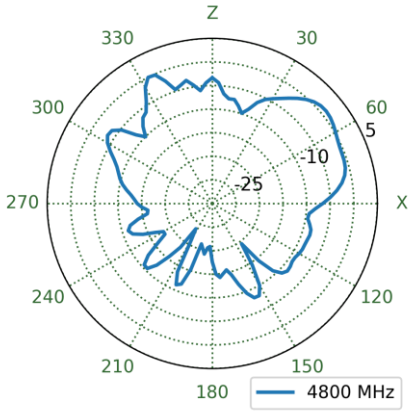


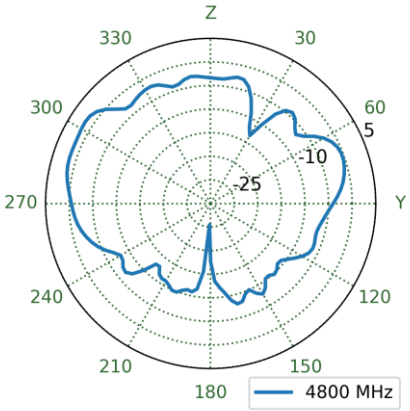


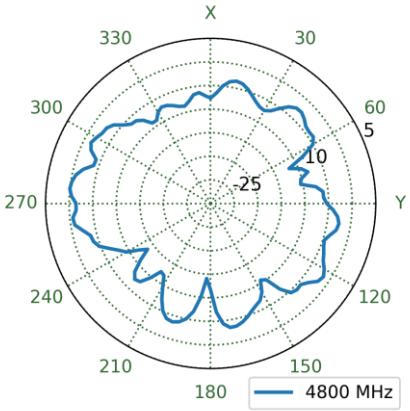
7.49 4G5G-4 Patterns at 4800MHz



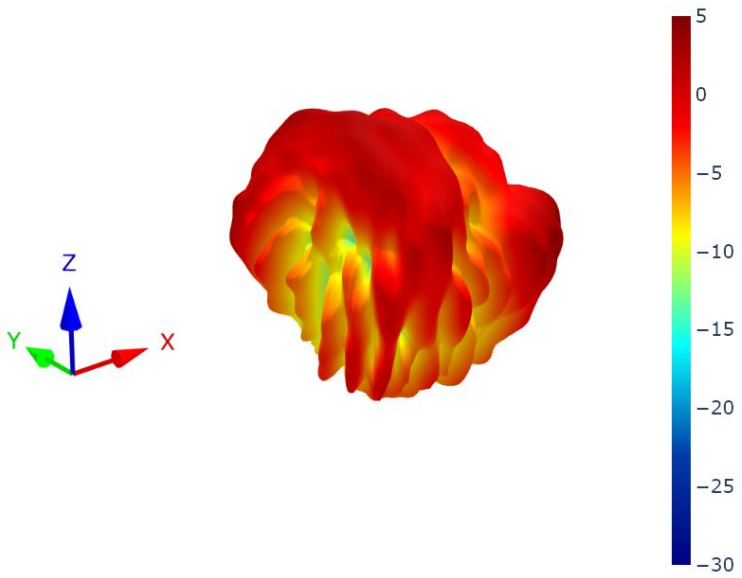
XZ Plane	YZ Plane	XY Plane



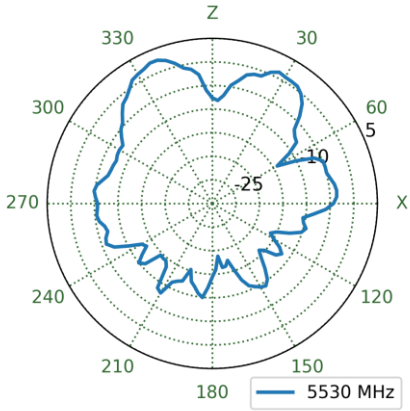


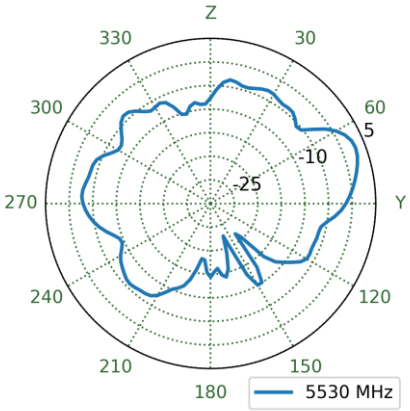


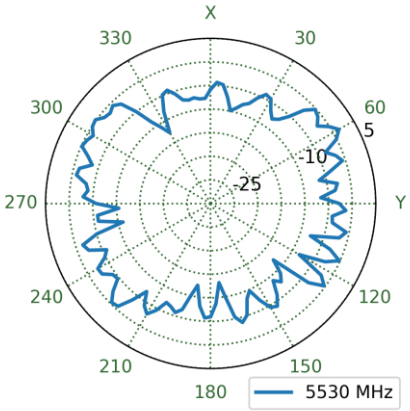
7.50 4G5G-1 Patterns at 5530MHz



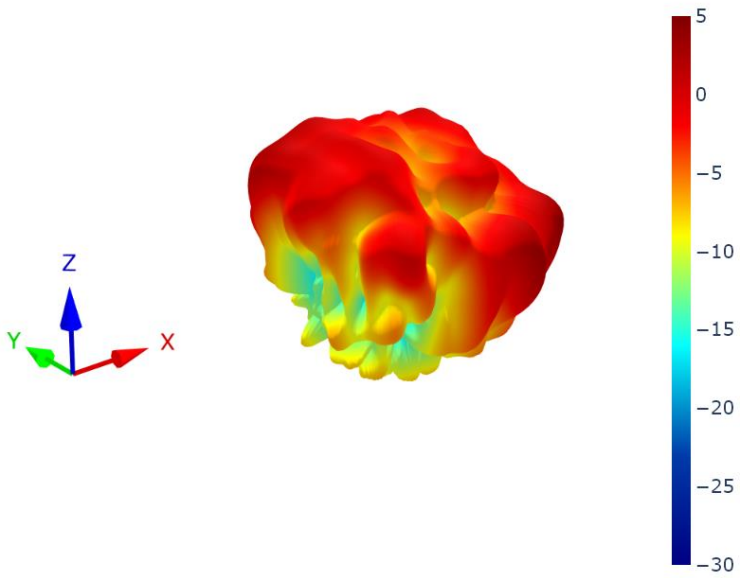
XZ Plane	YZ Plane	XY Plane



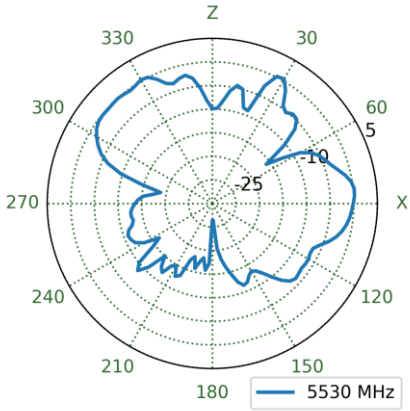


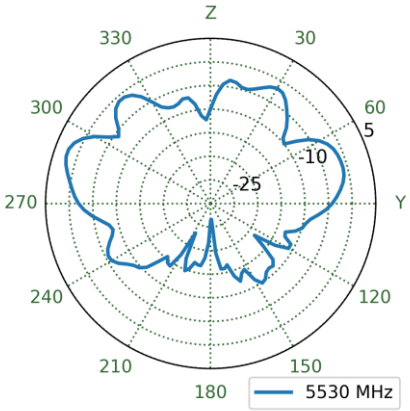


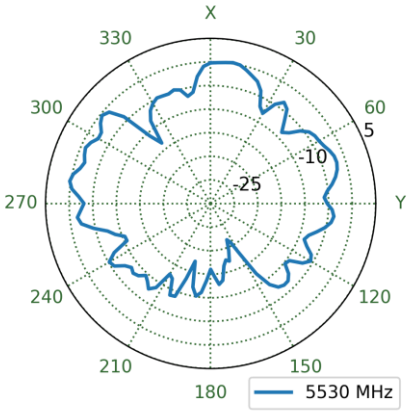
7.51 4G5G-2 Patterns at 5530MHz



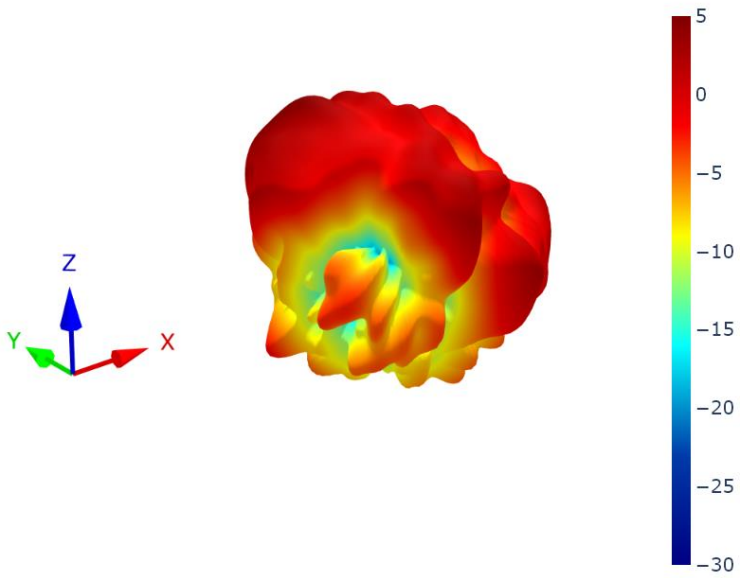
XZ Plane	YZ Plane	XY Plane



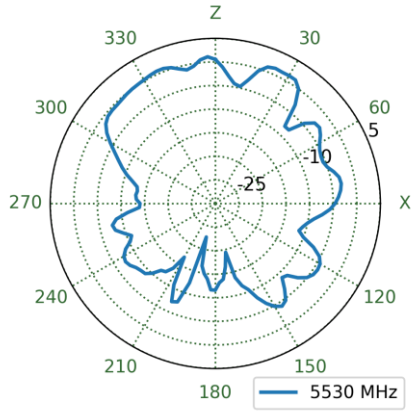


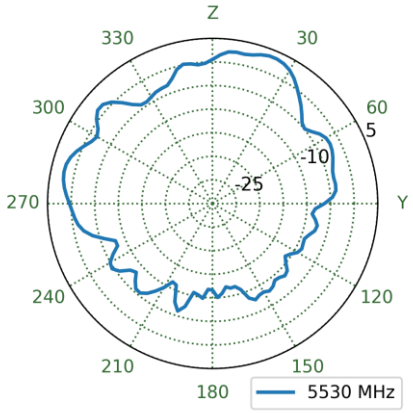


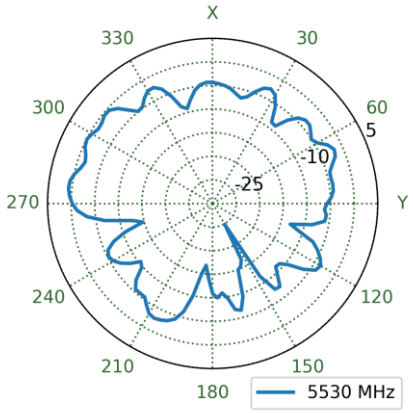
7.52 4G5G-3 Patterns at 5530MHz



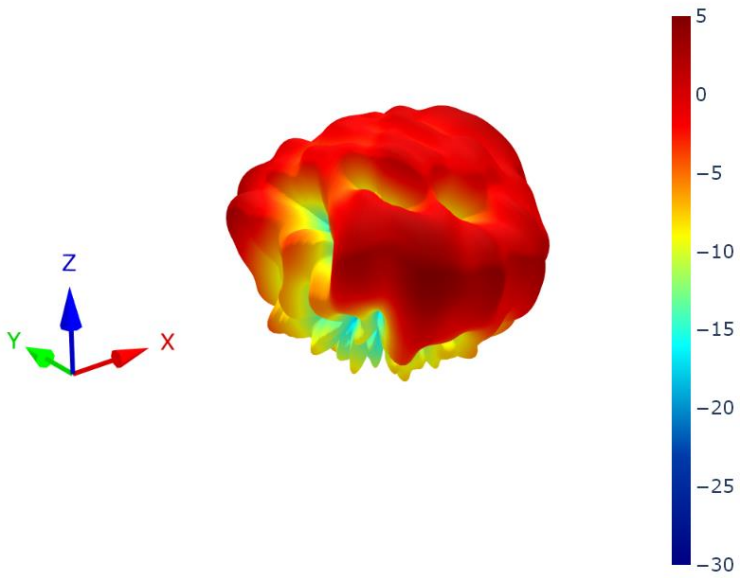
XZ Plane	YZ Plane	XY Plane



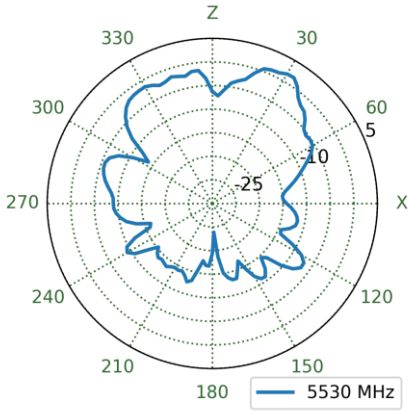


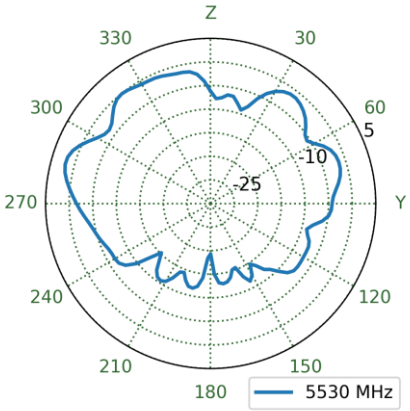


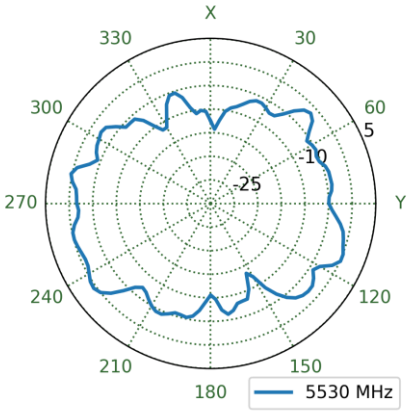
7.53 4G5G-4 Patterns at 5530MHz



XZ Plane	YZ Plane	XY Plane







Changelog for the datasheet

SPE-22-8-107 – MA890.A.BIVW.001

Revision: C (Current Version)	
Date:	2025-01-13
Notes:	Updated reference to IK10 rating, product description, reference of PC material on the enclosure, IK69 rating.
Author:	Conor McGrath

Previous Revisions

Revision: B	
Date:	2024-05-09
Notes:	Full update including datasheet flow.
Author:	Gary West

Revision: A (Original First Release)	
Date:	2022-09-19
Notes:	Initial Release
Author:	Gary West

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