TAOGLAS®

Datasheet

Maximus

Part No:
FXUB66.54.0150C

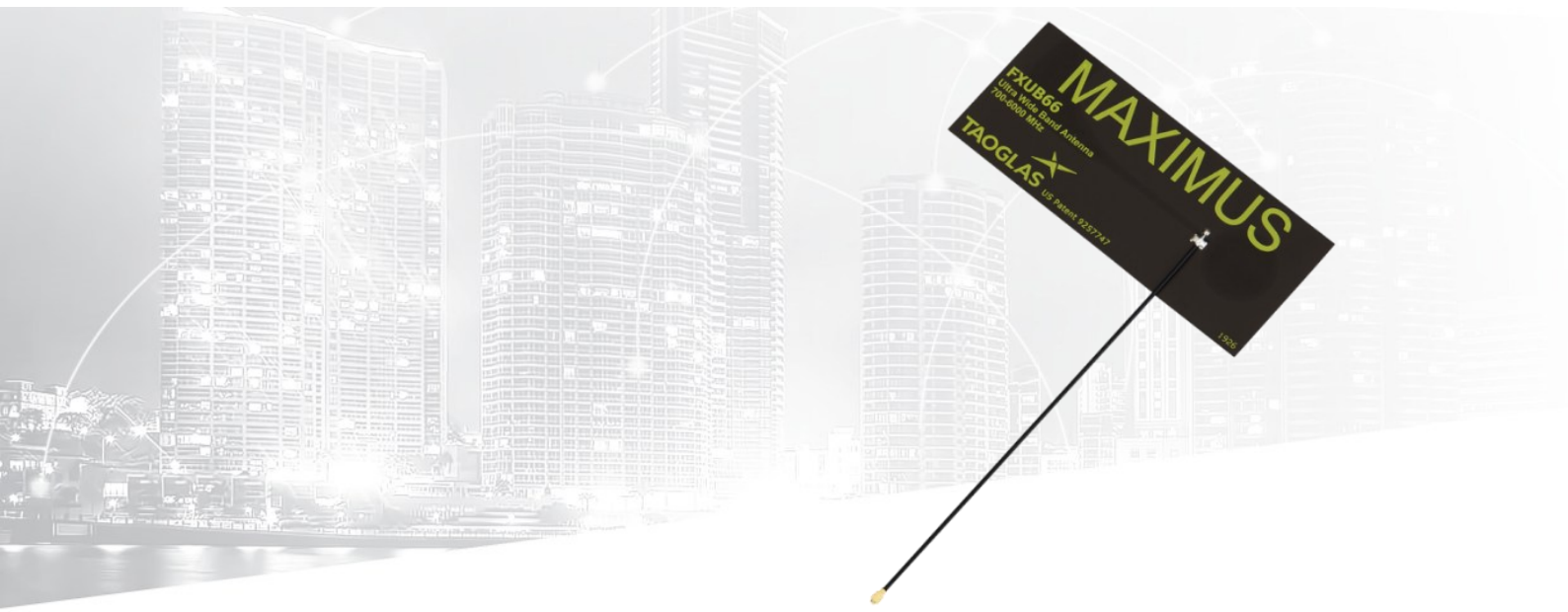
Description

Flexible Wide Band 5G/4G Antenna 600MHz - 8000MHz

Features:

Ground Plane Independent
600MHz - 8000MHz Wideband
5G/4G fully operational
Efficiencies up to 75% on all cellular bands (600-8000MHz)
120.4 x 50.4 x 0.2 mm size
Connector: I-PEX MHF®4L HSC Compatible
Cable: 150mm of Ø1.37
CE Certified
RoHS & REACH Compliant

1. Introduction



The Maximus FXUB66 flexible wideband antenna has been designed to cover all working frequencies in the 600-8000 MHz spectrum, including all Cellular(5G/4G/3G/2G), NB-IoT, Cat-M, Wi-Fi, ISM and GNSS bands. Its use in a device improves substantially the radiated power and sensitivity, and enables the highest throughput rates of today's broadband devices.

The antenna is delivered with a flexible body with ground breaking high efficiencies on all bands, ground-plane independent, with a cable and connector for easy installation. It is made of durable flexible polymer, with efficiency up 75% across all cellular bands and is designed to be mounted directly onto a plastic or glass enclosure / cover.

At 120.4x50.4x0.2mm, the antenna is ultra thin. It is assembled by a simple “peel and stick” process, attaching securely to non-metal surfaces via 3M adhesive. It enables designers to use only one antenna that covers all frequencies and future proofs device design for 5G and 4G globally. It is also the ideal antenna to fit in devices that are being retrofitted with wireless functionality, as it will cover non cellular applications such as 868, 915MHz or Zigbee applications. Its inherently wide bandwidth is more resistant to detuning than traditional small but narrow-band legacy antennas.

The Maximus antenna has a unique hybrid design. Within one antenna structure the electromagnetic waves travel in two predominant propagation modes- one for lower frequencies, (e.g. 5G/4G at 600 MHz) and the other for higher 5G/4G and Wi-Fi frequencies up to 8GHz.

It is an ideal choice for any device maker that needs to keep manufacturing costs down over the lifetime of a product, as the same antenna can be used if the radio module is upgraded to work on a different frequency band.

The FXUB66 uses a future proof I-PEX MHF® 4L connector for 5G applications to match the many module providers new 5G modules who utilize this smaller receptacle.

Cables and Connectors are fully customizable, subject to MOQ, for further information please contact your regional Taoglas Customer support team.

2. Specification

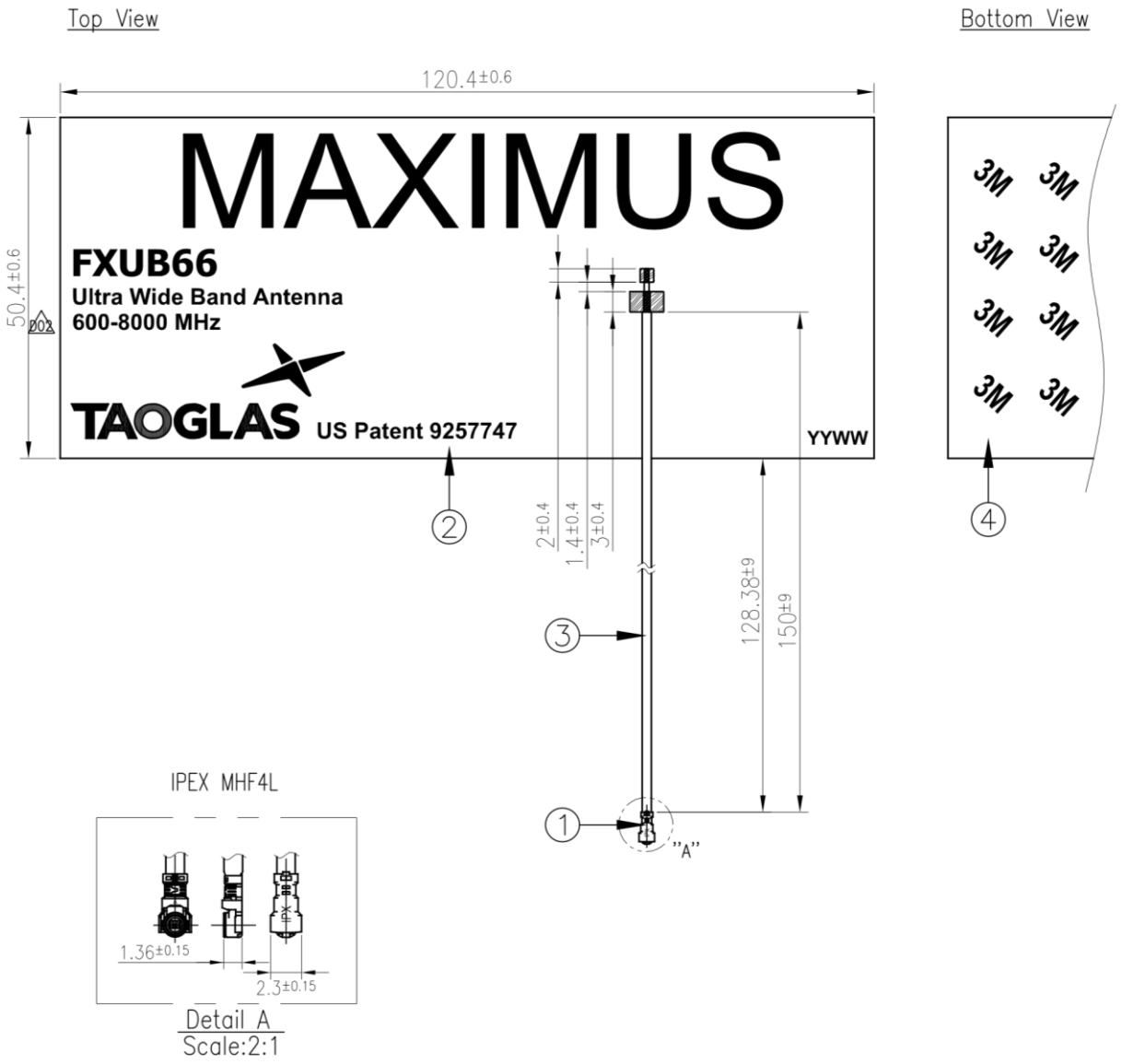
Electrical								
Band	Frequency (MHz)	Efficiency (%)	Average Gain (dB)	Peak Gain (dBi)	Impedance	Polarization	Radiation Pattern	Max. input power
5GNR/4G Band71	617-698	38.5	-4.14	-0.31	50 Ω	Linear	Omni	2W
4G/3G Band 12,13,14,17,28,29	698-806	65.6	-1.83	1.96				
4G/3G/NB-IoT/Cat M Band 5,8,18,19,20,26,27	824-960	75.2	-1.24	2.53				
5GNR/4G Band 21,32,74,75,76	1427-1518	58.2	-2.35	3.97				
4G/3G Band 1,2,3,4,9,23,25,35,39,66	1710-2200	60.2	-2.21	4.19				
4G/3G Band 7,30,38,40,41	2300-2690	58.8	-2.31	2.92				
5GNR/4G Band 22,42,48,77,78,79	3300-3850	57.8	-2.38	5.98				
LTE5200/Wi-Fi5800	5150-5925	45.6	-3.41	5.45				
6-8GHz	6000-8000	53.0	-2.76	7.85				

Mechanical	
Dimensions	120.4 x 50.4 x 0.2 mm
Material	Flexible Polymer
Connector	I-PEX MHF® 4L HSC Compatible (Fully customizable)
Cable	150mm of Ø1.37 (Fully customizable)

Environmental	
Temperature Range	-40°C to 85°C
Relative Humidity	Non-condensing 65°C 95% RH
RoHs & REACH Compliant	Yes

5G/4G Bands			
Band Number	5GNR / FR1 / LTE / LTE-Advanced / WCDMA / HSPA / HSPA+ / TD-SCDMA		
	Uplink	Downlink	Covered
B1	1920 to 1980	2110 to 2170	✓
B2	1850 to 1910	1930 to 1990	✓
B3	1710 to 1785	1805 to 1880	✓
B4	1710 to 1755	2110 to 2155	✓
B5	824 to 849	869 to 894	✓
B7	2500 to 2570	2620 to 2690	✓
B8	880 to 915	925 to 960	✓
B9*	1749.9 to 1784.9	1844.9 to 1879.9	✓
B11	1427.9 to 1447.9	1475.9 to 1495.9	✓
B12	699 to 716	729 to 746	✓
B13	777 to 787	746 to 756	✓
B14	788 to 798	758 to 768	✓
B17	704 to 716	734 to 746	✓
B18	815 to 830	860 to 875	✓
B19	830 to 845	875 to 890	✓
B20	832 to 862	791 to 821	✓
B21	1447.9 to 1462.9	1495.9 to 1510.9	✓
B22*	3410 to 3490	3510 to 3590	✓
B23*	2000 to 2020	2180 to 2200	✓
B24	1626.5 to 1660.5	1525 to 1559	✓
B25	1850 to 1915	1930 to 1995	✓
B26	814 to 849	859 to 894	✓
B27*	807 to 824	852 to 869	✓
B28	703 to 748	758 to 803	✓
B29	717 to 728		✓
B30	2305 to 2315	2350 to 2360	✓
B31	452.5 to 457.5	462.5 to 467.5	✗
B32	1452 to 1496		✓
B34	2010 to 2025		✓
B35	1850 to 1910		✓
B36	1930 to 1990		✓
B37	1910 to 1930		✓
B38	2570 to 2620		✓
B39	1880 to 1920		✓
B40	2300 to 2400		✓
B41	2496 to 2690		✓
B42	3400 to 3600		✓
B43	3600 to 3800		✓
B45	1447 to 1467		✓
B46	5150 to 5925		✓
B47	5855 to 5925		✓
B48	3550 to 3700		✓
B49	3550 to 3700		✓
B50	1432 to 1517		✓
B51	1427 to 1432		✓
B52	3300 to 3400		✓
B53	2483.5 to 2495		✓
B65	1920 to 2010	2110 to 2200	✓
B66	1710 to 1780	2110 to 2200	✓
B68	698 to 728	753 to 783	✓
B69	2570 to 2620		✓
B70	1695 to 1710	1995 to 2020	✓
B71	663 to 698	617 to 652	✓
B72	451 to 456	461 to 466	✗
B73	450 to 455	460 to 465	✗
B74	1427 to 1470	1475 to 1518	✓
B75	1432 to 1517		✓
B76	1427 to 1432		✓
B77	3300 to 4200		✓
B78	3300 to 3800		✓
B79	4400 to 5000		✓
B85	698 to 716	728 to 746	✓
B87	410 to 415	420 to 425	✗
B88	412 to 417	422 427	✗

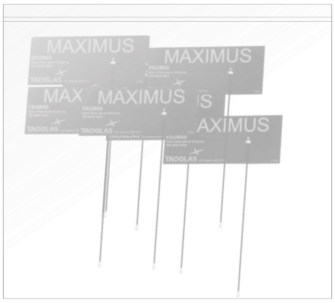
3. Mechanical Drawing



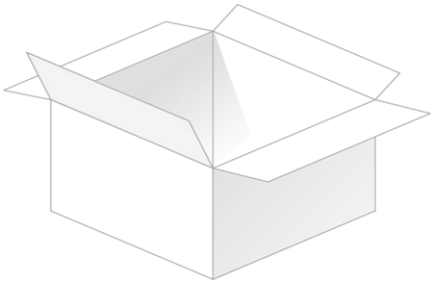
	Name	Material	Finish	QTY
1	IPEX MHF4L	Copper Alloy	Au/Ni Plated	1
2	FXUB66 FPCB	Polymer 0.24t	Black	1
3	1.37 Coaxial Cable	FEP	Black	1
4	Double-Sided Adhesive	3M 467	Brown Liner	1

4. Packaging

100pcs FXUB66.54.0150C per PE Bag
Weight – 380g



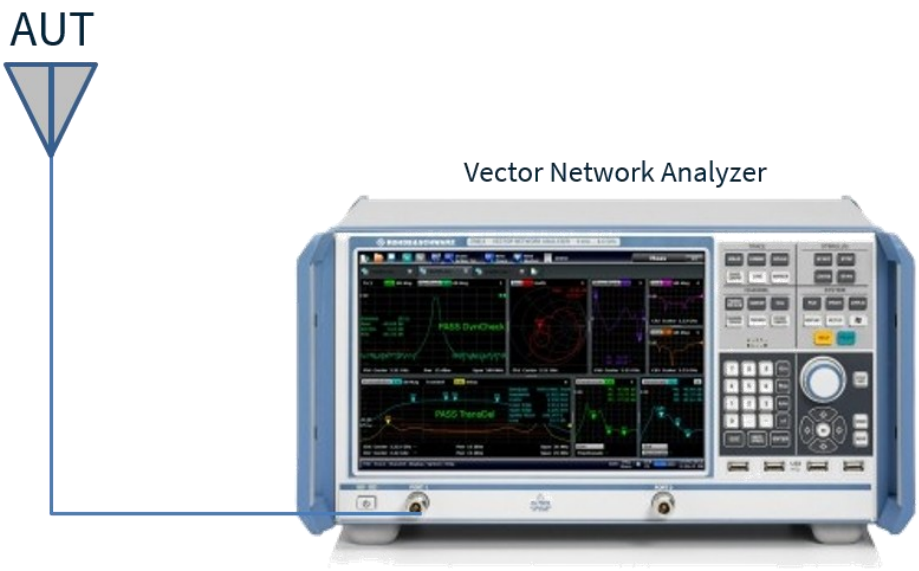
1000pcs FXUB66.54.0150C per carton
Dimensions - 370*320*180mm
Weight – 4.1Kg

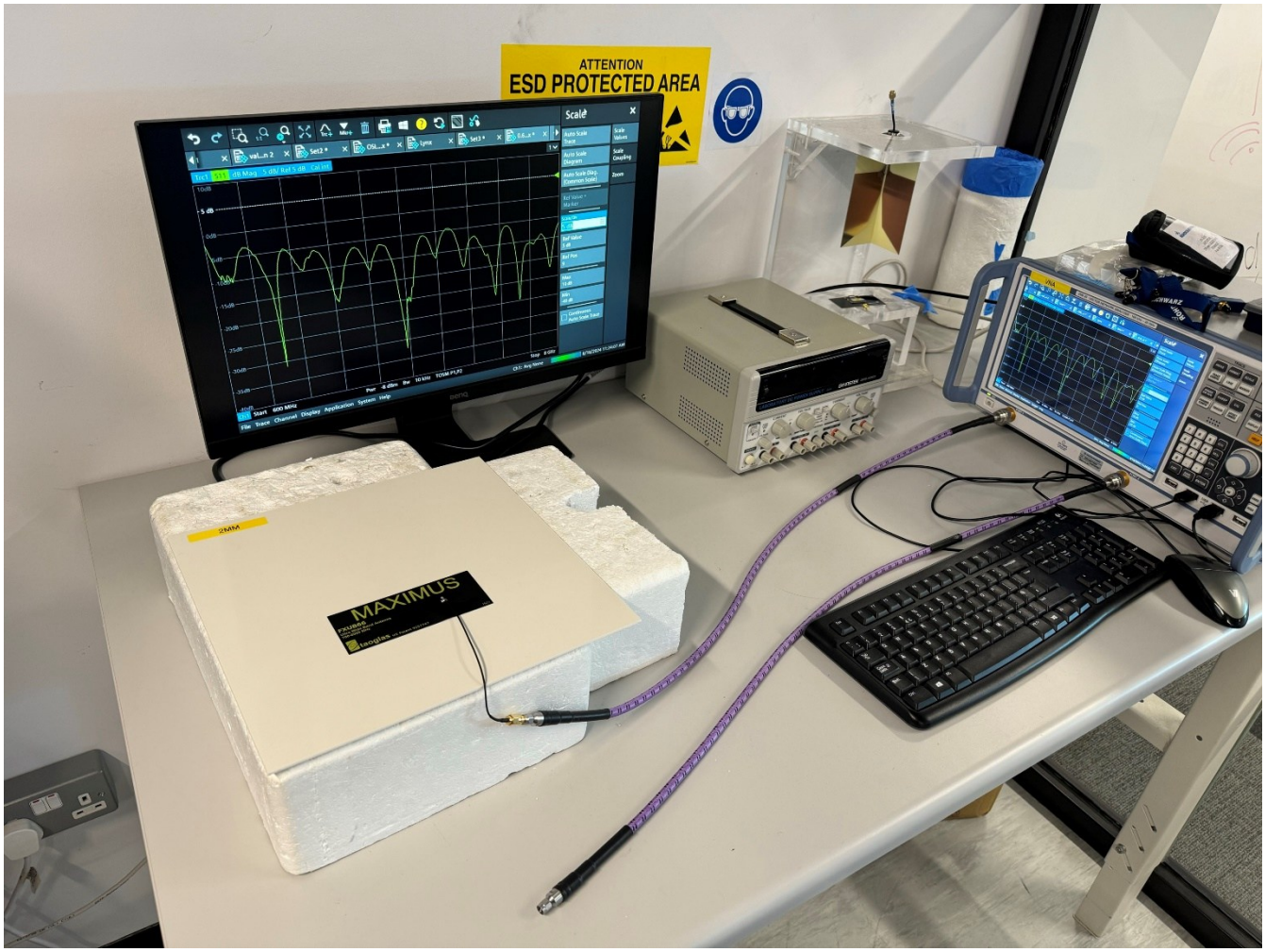


Pallet Dimensions 1200*1000*1460mm
63 Cartons per Pallet
9 Cartons per layer
7 Layers

5. Antenna Characteristics

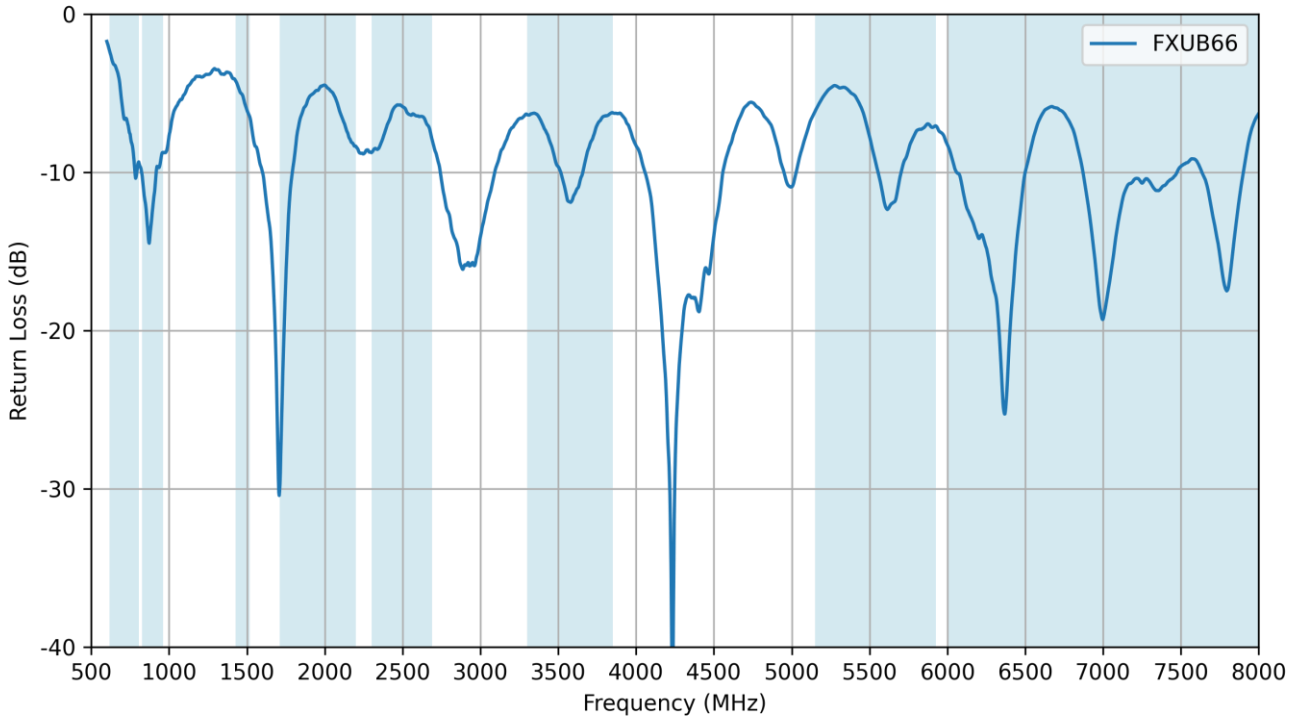
5.1 Test Setup



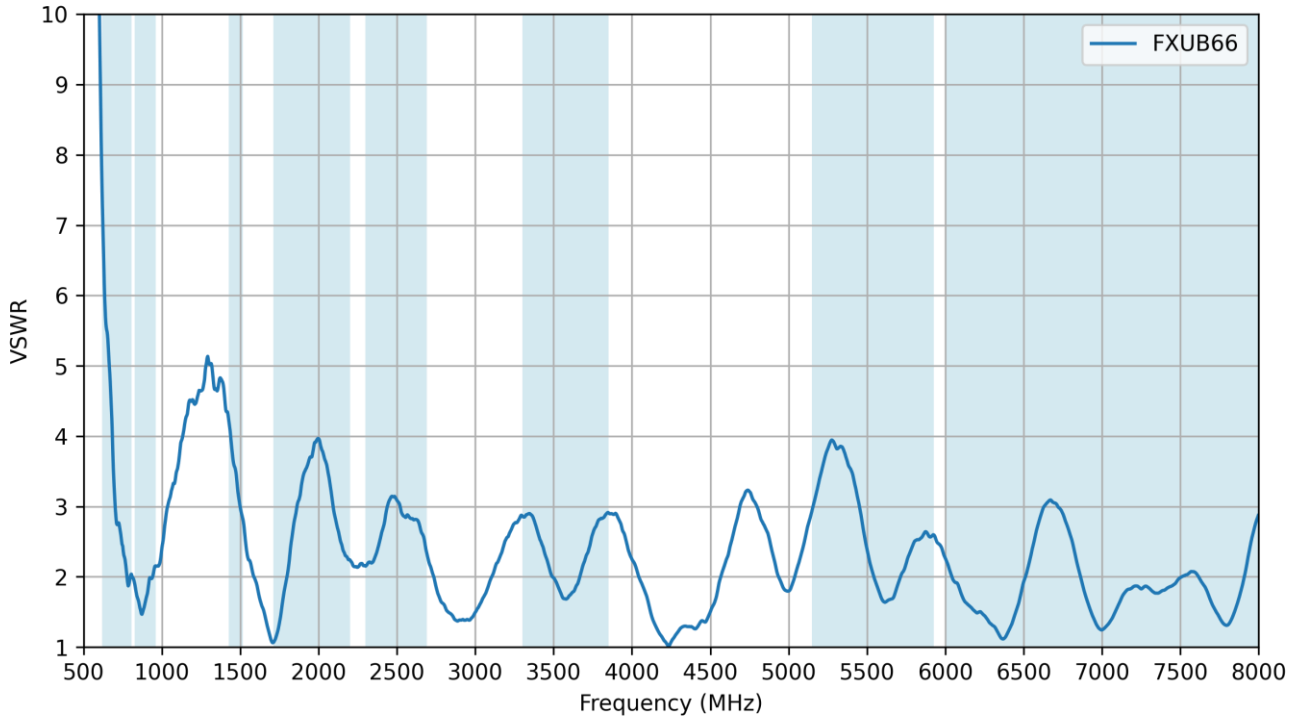


VNA Test Setup on ABS

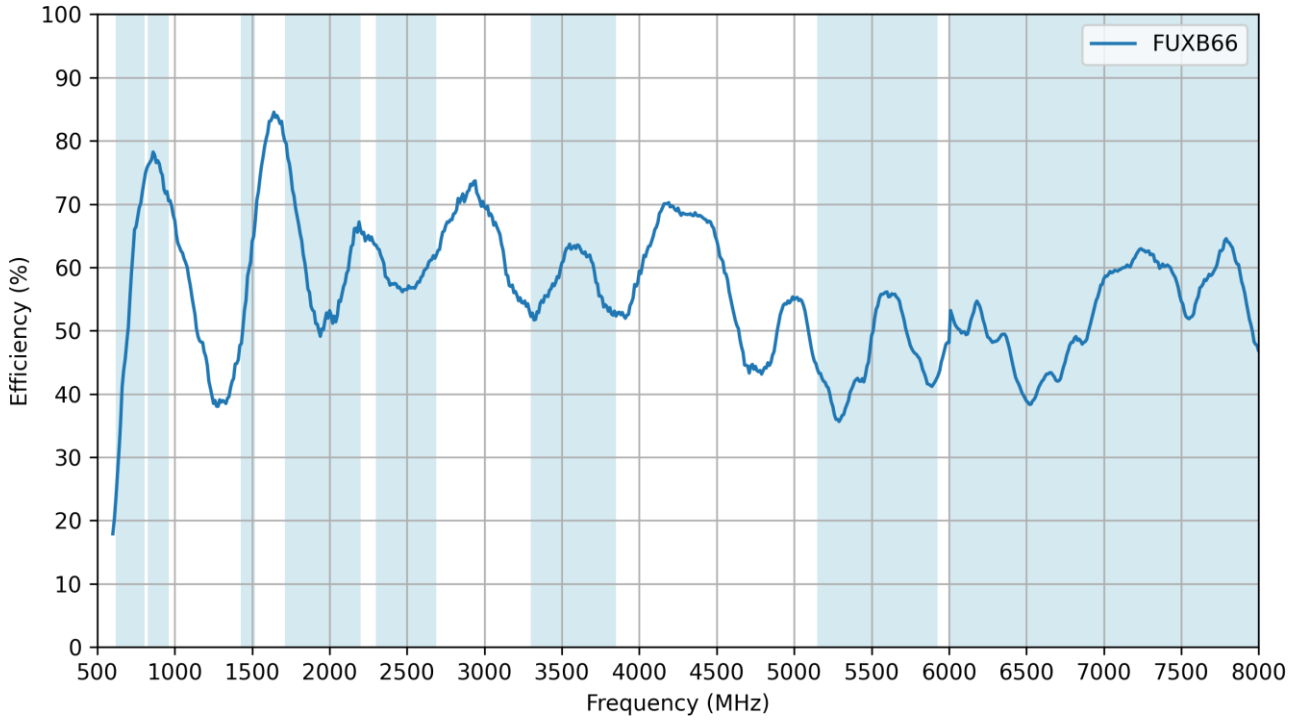
5.2 Return Loss



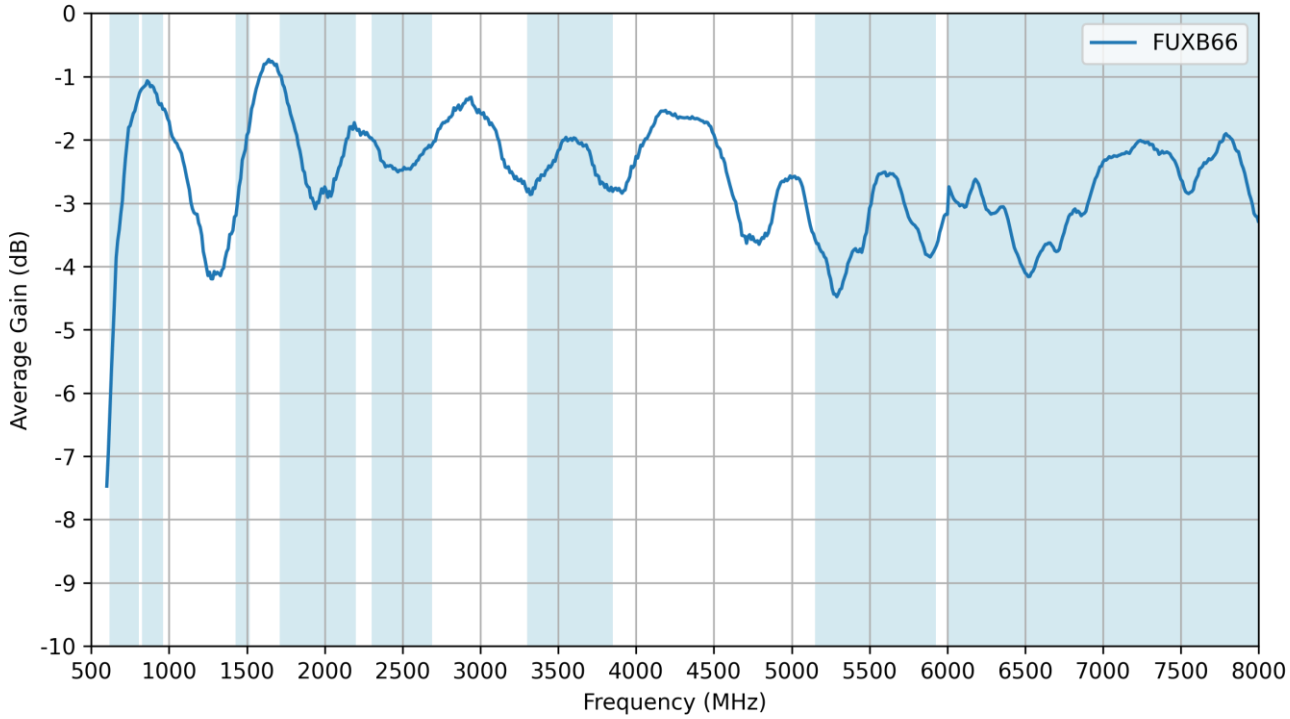
5.3 VSWR



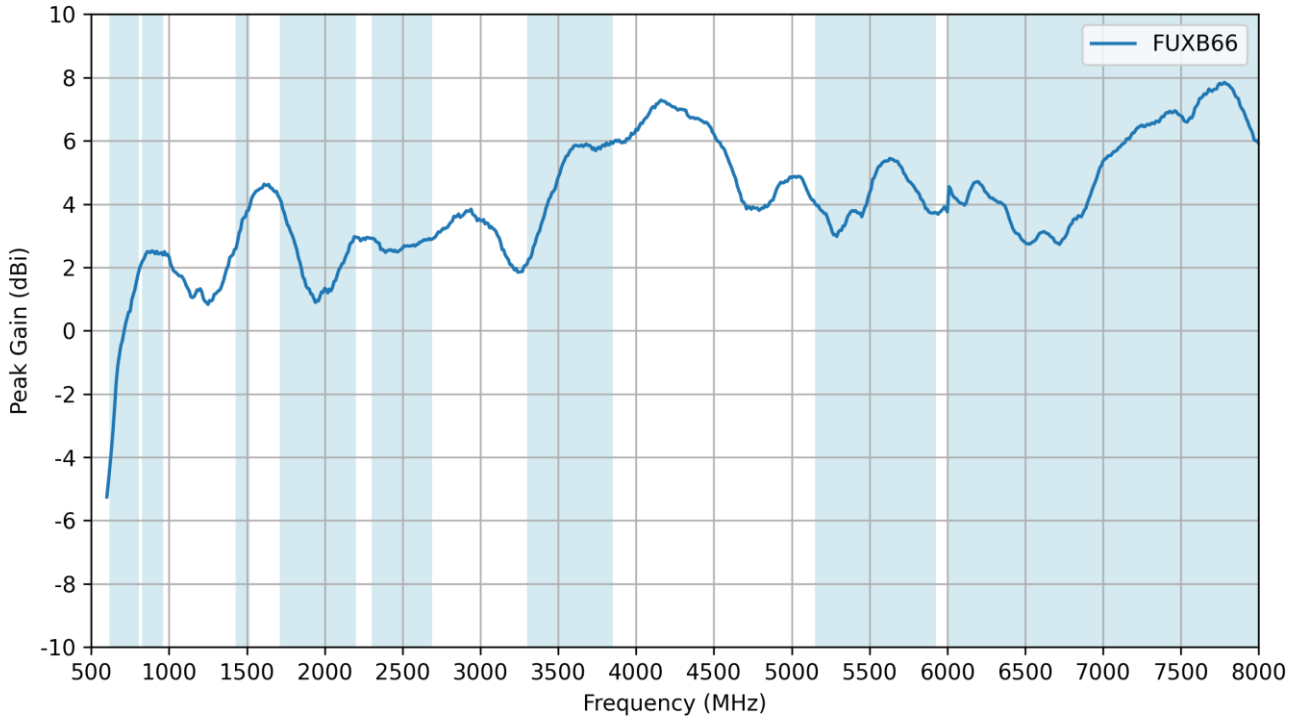
5.4 Efficiency



5.5 Average Gain

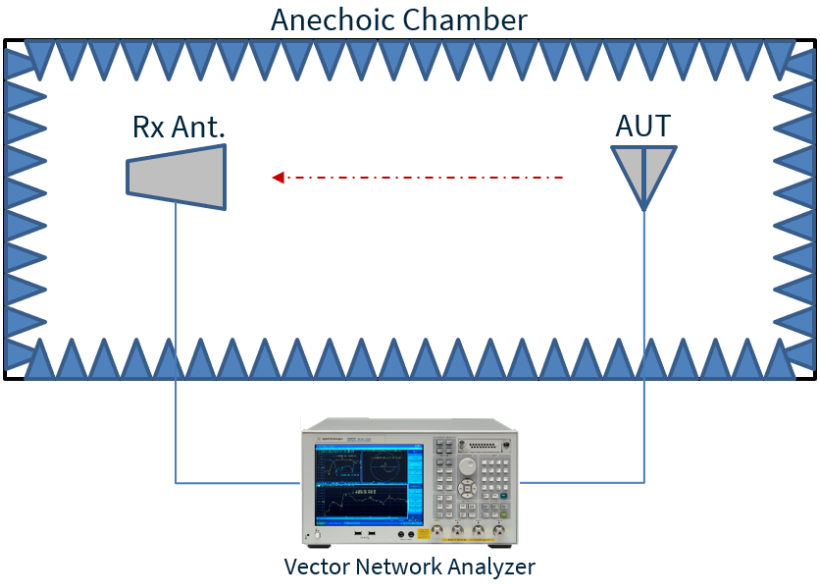


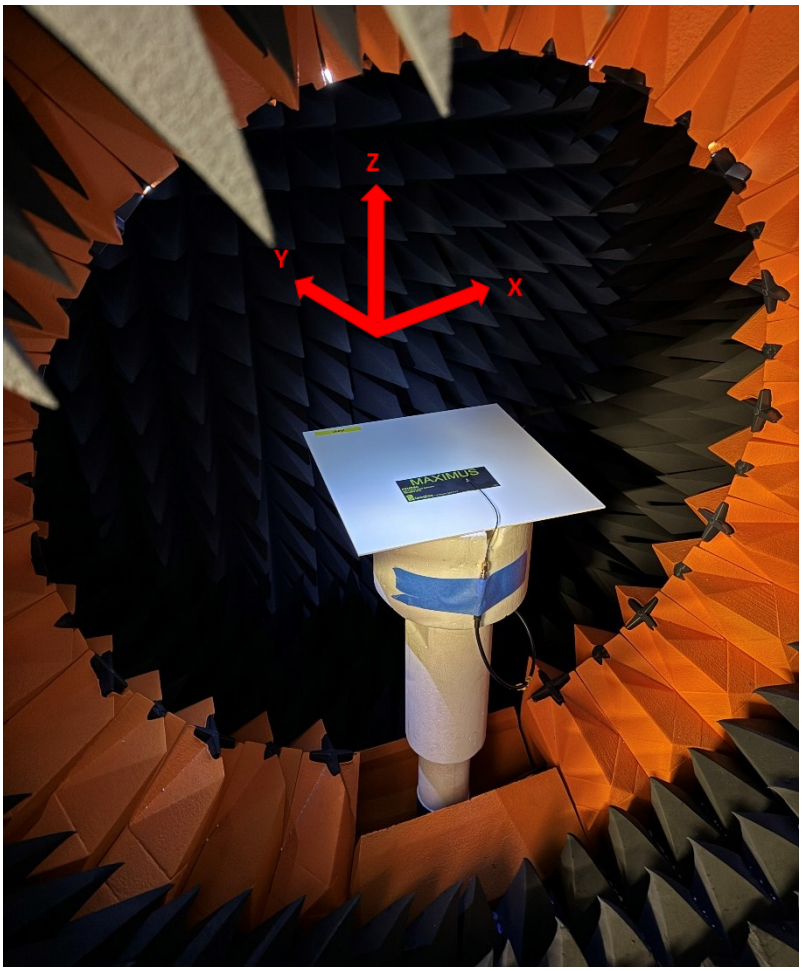
5.6 Peak Gain


FUXB66
Peak Gain (dBi)
10
8
6
4
2
0
-2
-4
-6
-8
-10
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
6500
7000
7500
8000
Frequency (MHz)

6. Radiation Patterns

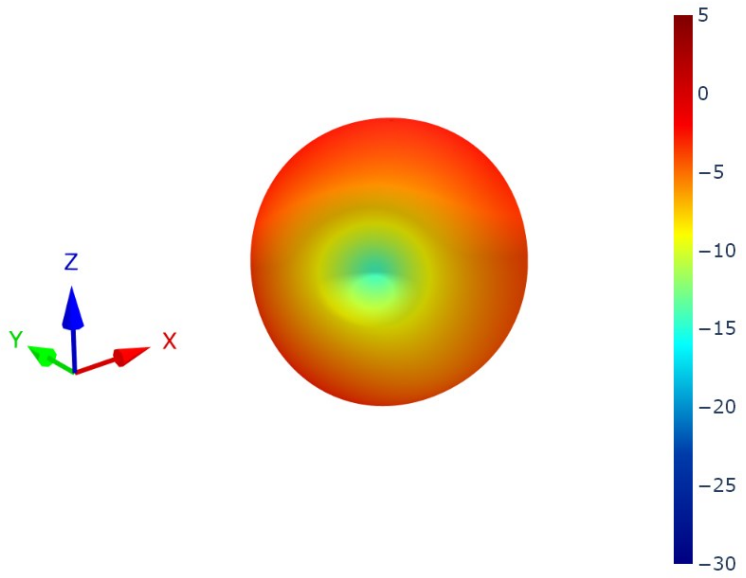
6.1 Test Setup

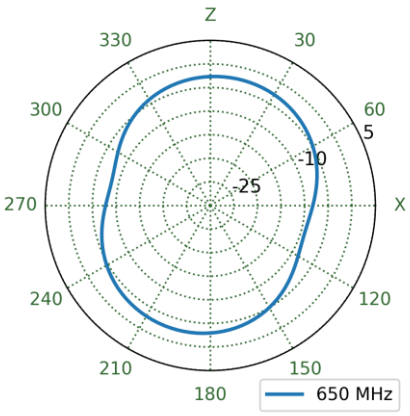
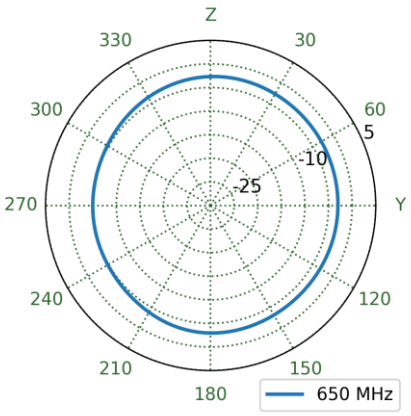
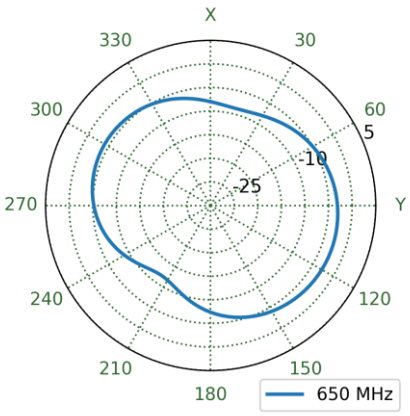




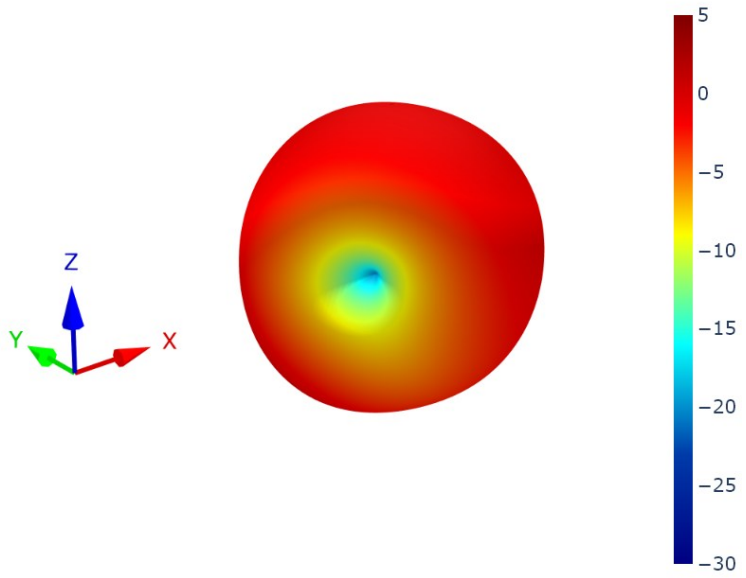
Chamber Test Setup on ABS

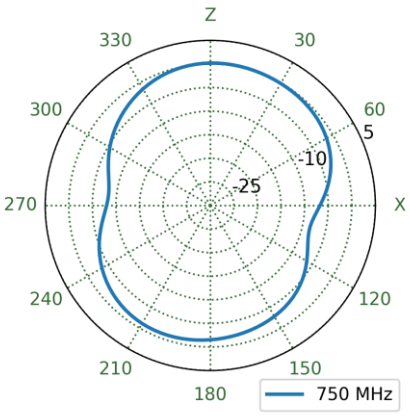
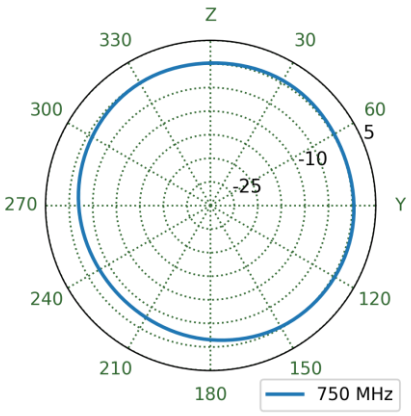
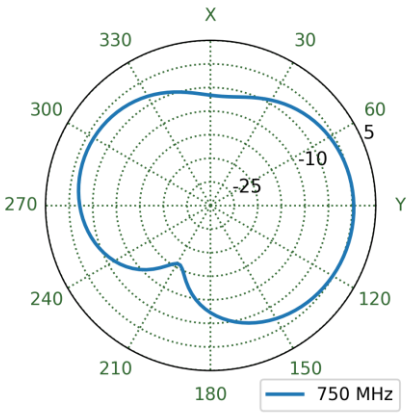
6.2 Patterns at 650 MHz



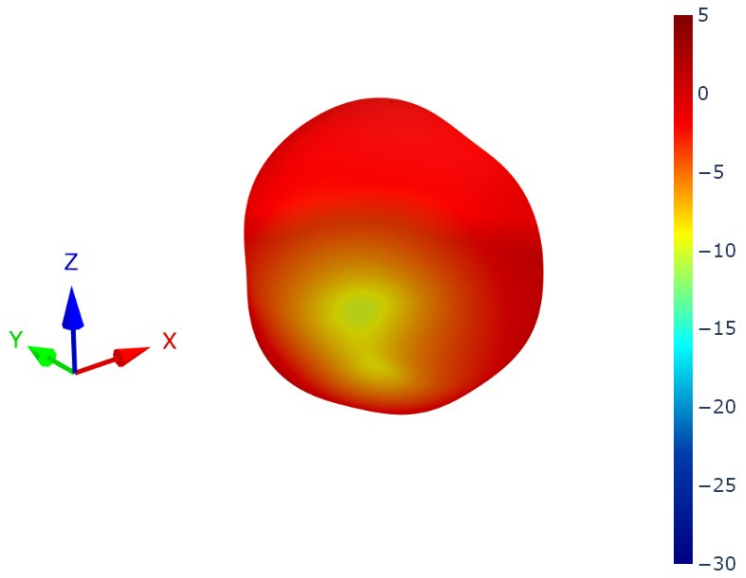
XZ Plane	YZ Plane	XY Plane
		

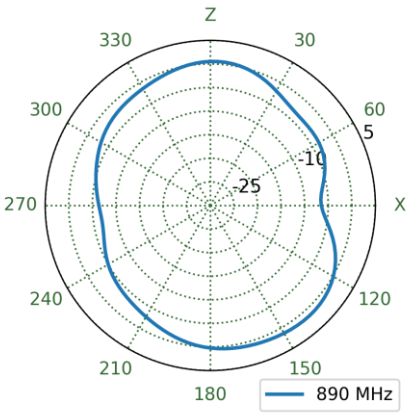
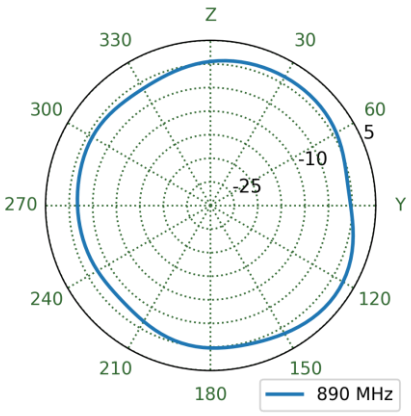
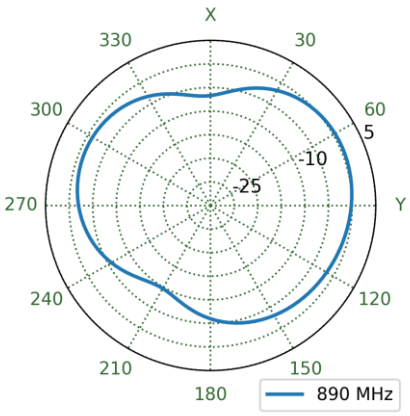
6.3 Patterns at 750 MHz



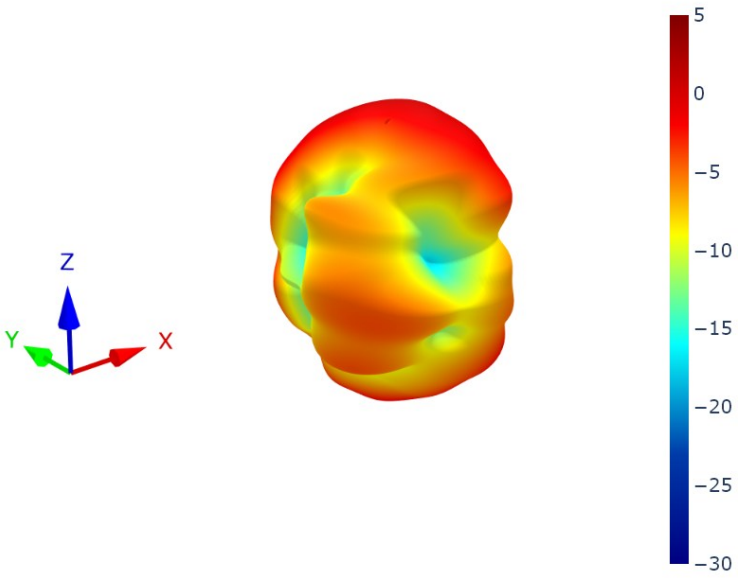
XZ Plane	YZ Plane	XY Plane
		

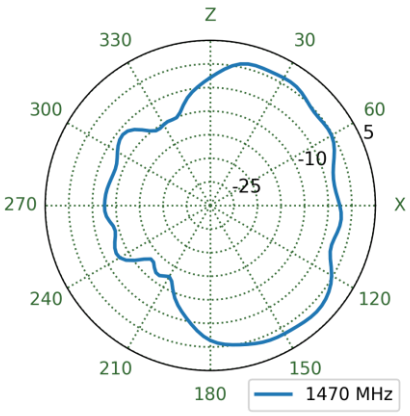
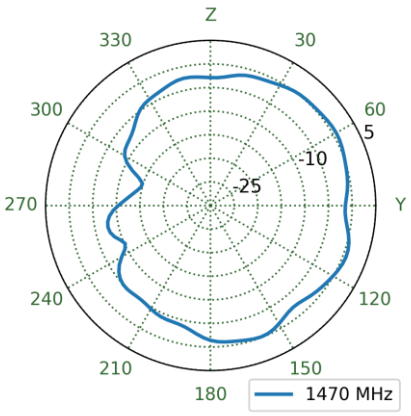
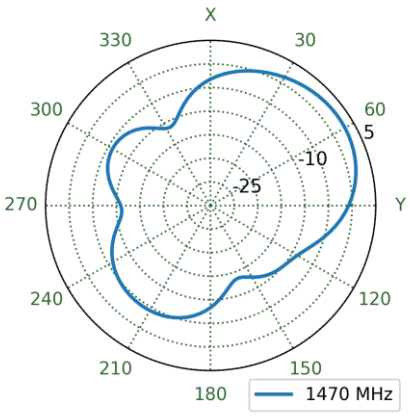
6.4 Patterns at 890 MHz



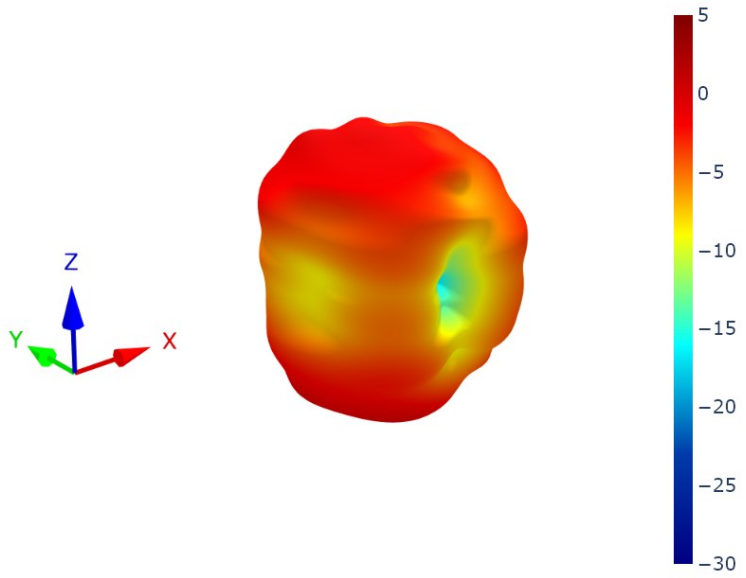
XZ Plane	YZ Plane	XY Plane
		

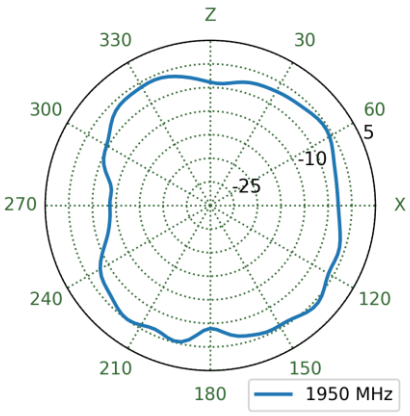
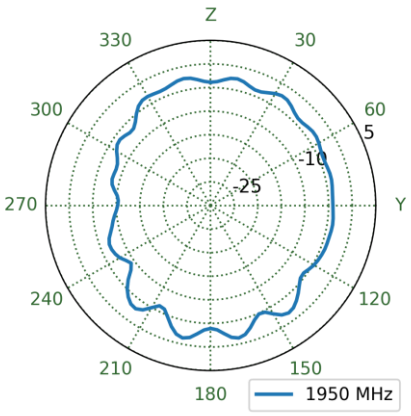
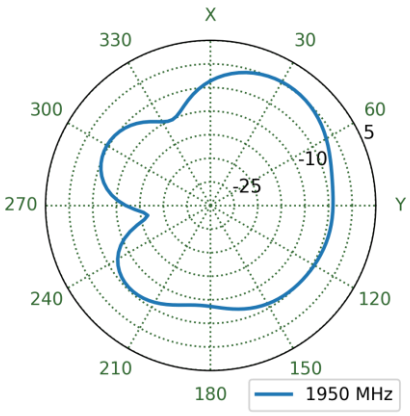
6.5 Patterns at 1475 MHz



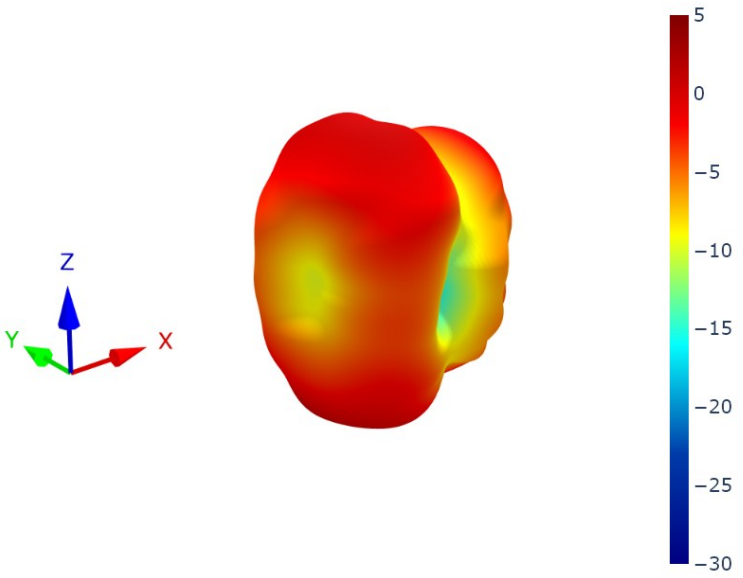
XZ Plane	YZ Plane	XY Plane
		

6.6 Patterns at 1955 MHz

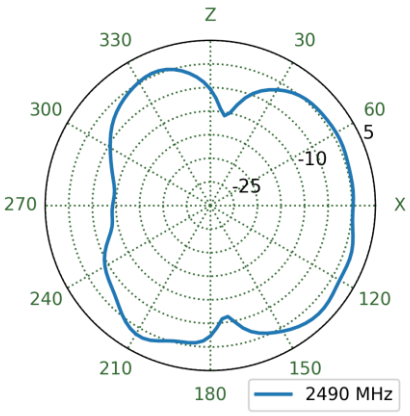


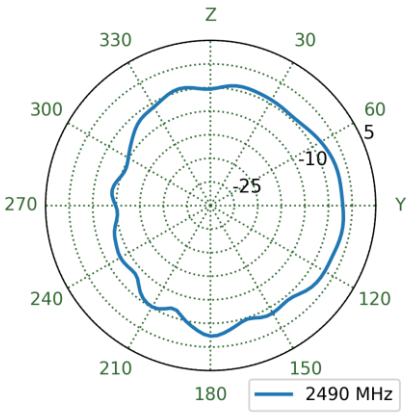
XZ Plane	YZ Plane	XY Plane
		

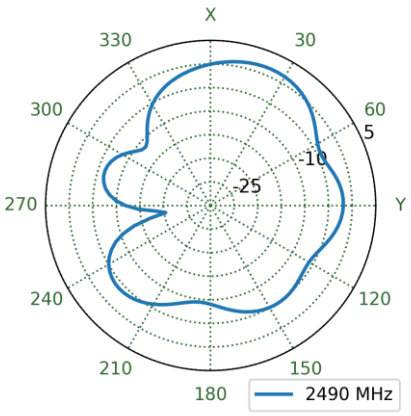
6.7 Patterns at 2495 MHz



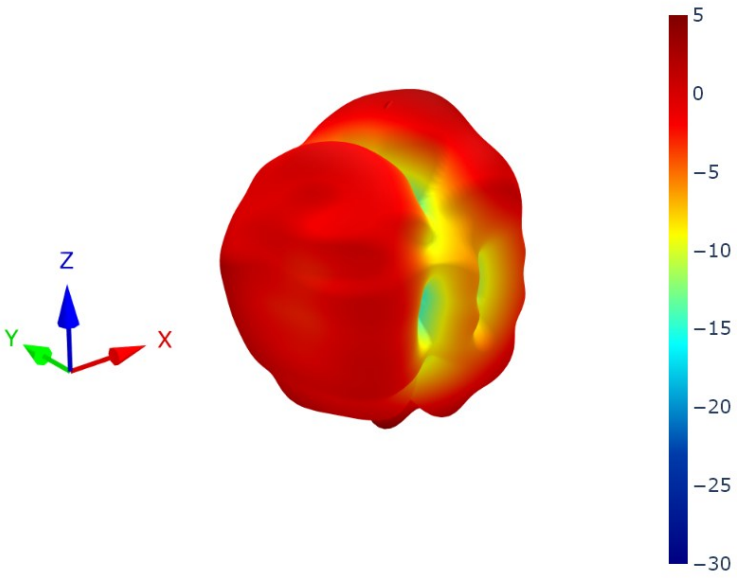
XZ Plane	YZ Plane	XY Plane

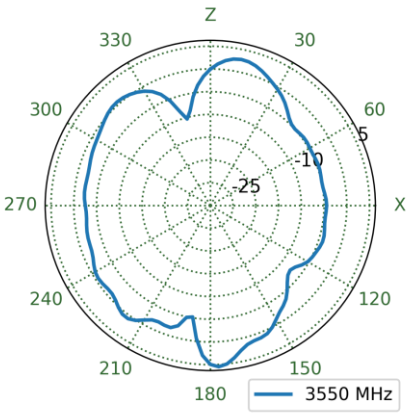
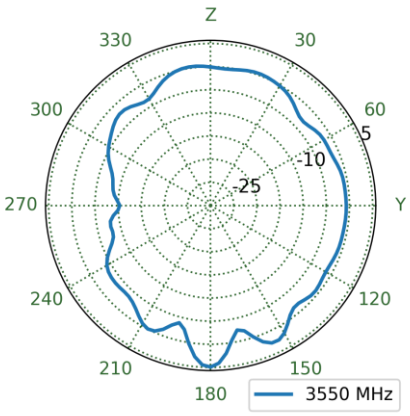
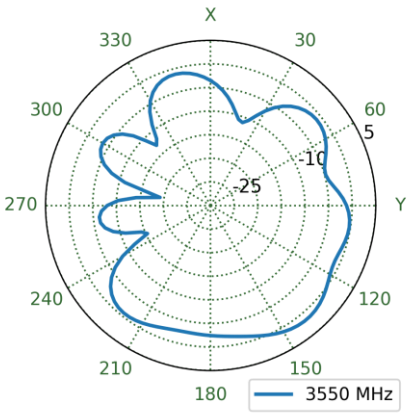




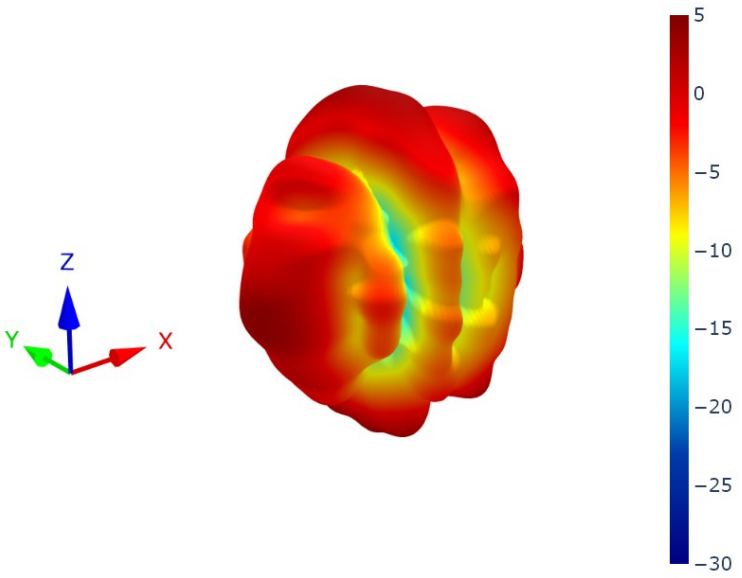


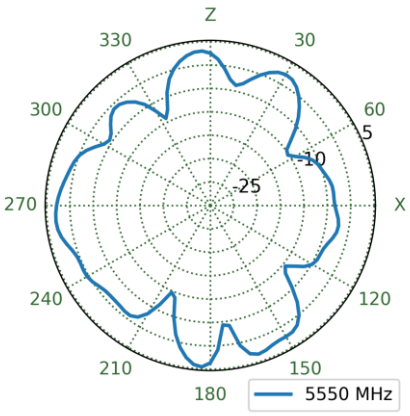
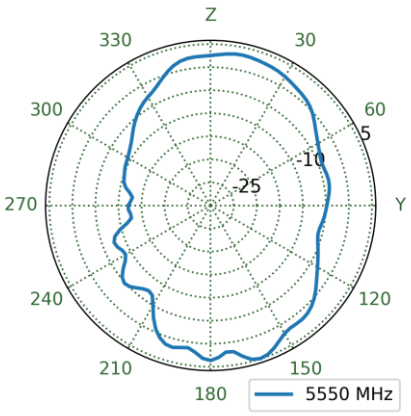
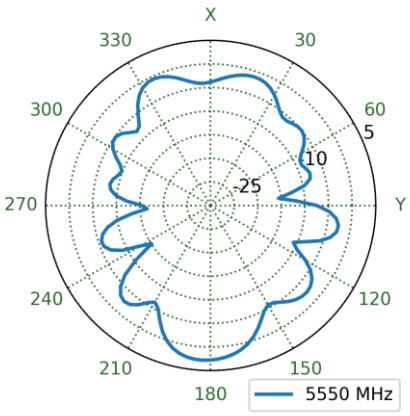
6.8 Patterns at 3550 MHz



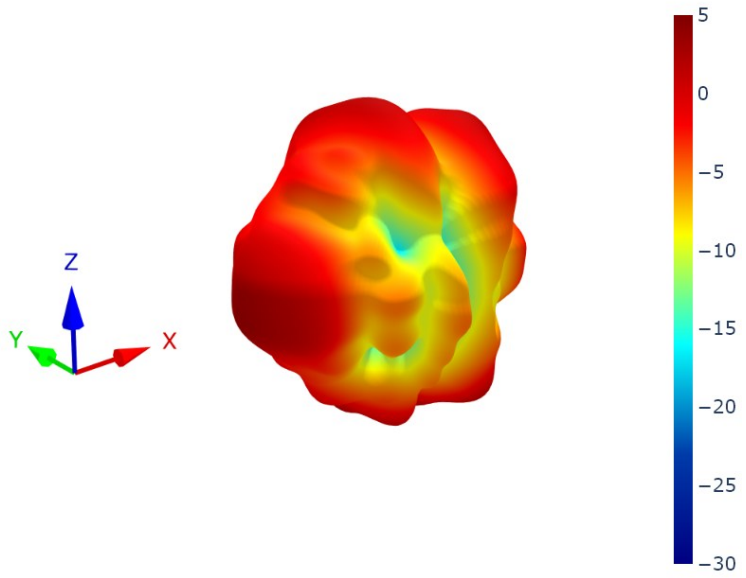
XZ Plane	YZ Plane	XY Plane
		

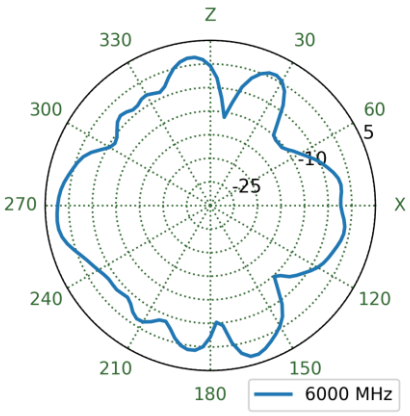
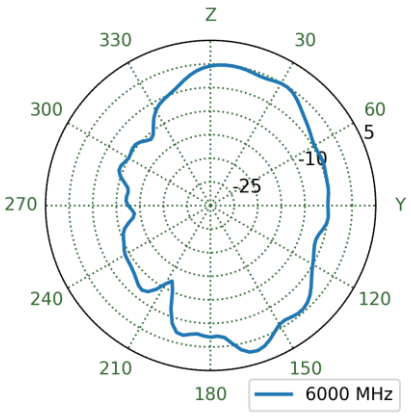
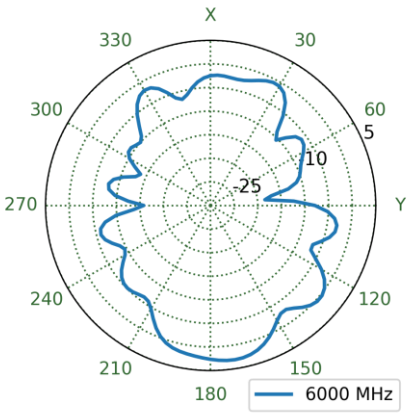
6.9 Patterns at 5550 MHz



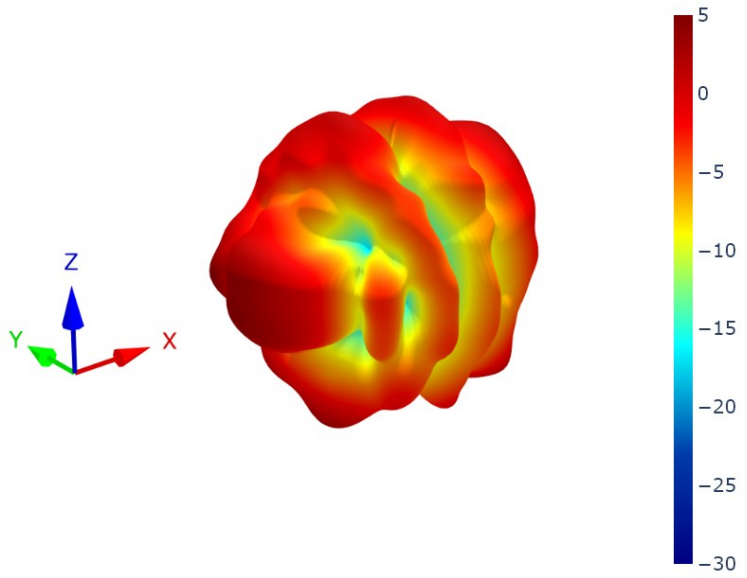
XZ Plane	YZ Plane	XY Plane
		

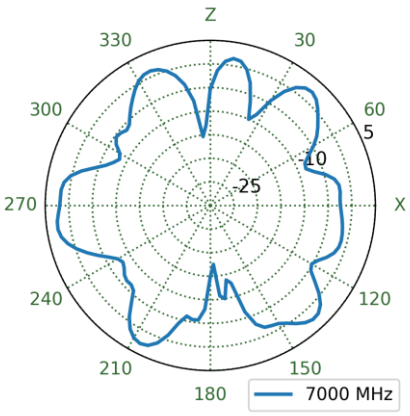
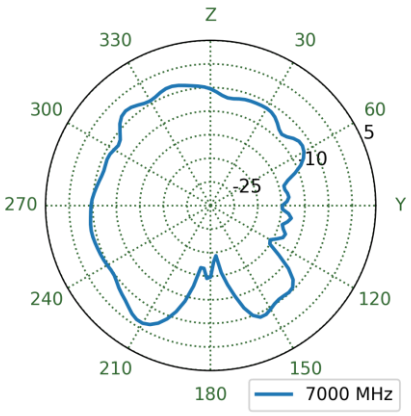
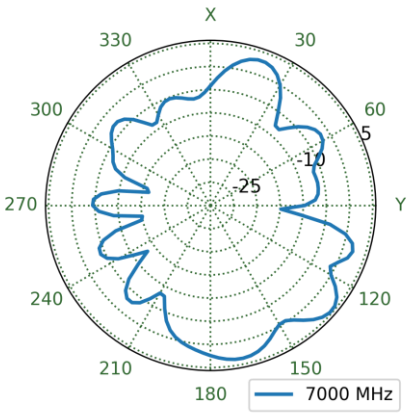
6.10 Patterns at 6000 MHz



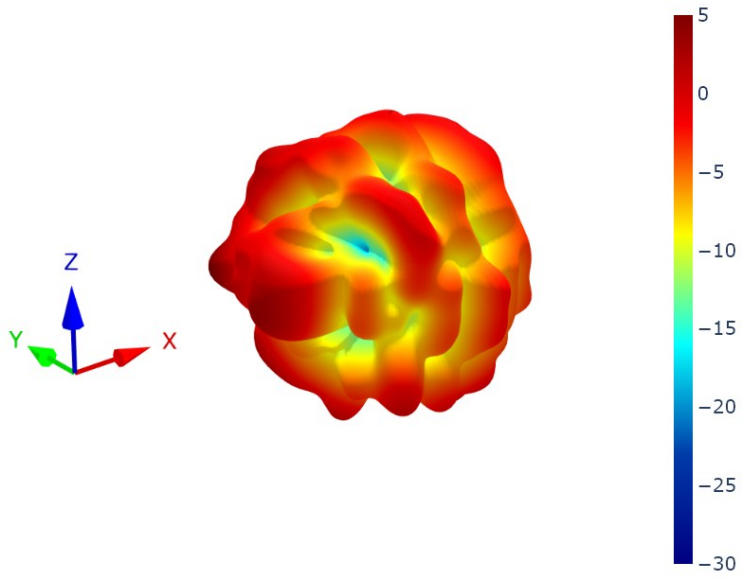
XZ Plane	YZ Plane	XY Plane
		

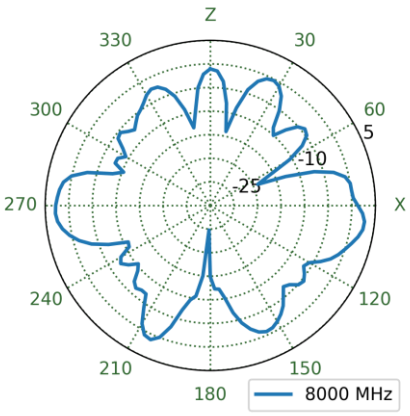
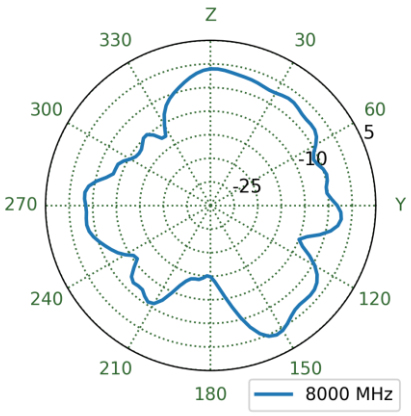
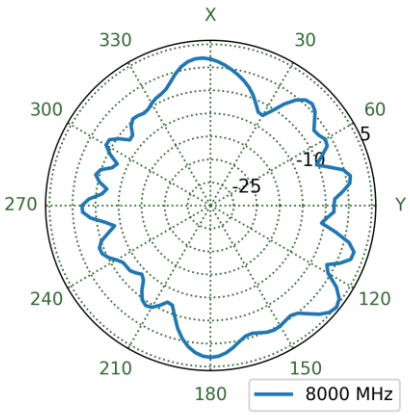
6.11 Patterns at 7000 MHz



XZ Plane	YZ Plane	XY Plane
		

6.12 Patterns at 8000 MHz



XZ Plane	YZ Plane	XY Plane
		

Changelog for the datasheet

SPE-21-8-014- FXUB66.54.0150C

Revision: B (Current Version)	
Date:	2024-08-09
Notes:	Full datasheet update to include 6-8GHz.
Author:	Gary West

Previous Revisions

Revision: A (Original First Release)	
Date:	2021-03-18
Notes:	Initial Release
Author:	Jack Conroy

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