Datasheet

FXP14R Hexa-Band Cellular Antenna

Part No:
FXP14R.A.07.0100A

Description

AntD© Shunt 10k Ohm Chip Resistor Inside

850/900/1700/1800/1900/2100MHz

100mm, Ø1.13 cable, I-PEX MHF® I (U.FL comp)

Dims: 70*20*0.1mm

Features:

IPEX MHF Connector (U.FL compatible)
100 mm 1.37 Cable
70*20*.01 mm
Flexible
Peel and Stick Mounting
AntD© Shunt 10k Ohm Chip Resistor Inside
Cable and Connector Customizable
RoHS compliant

1. Introduction

The Taoglas FXP14R Hexa Band Cellular Antenna with Integrated AntD© Resistor covers all world-wide 2G/3G bands (850 / 900 / 1700 / 1800 / 1900 / 2100 MHz). Common applications are in GSM / CDMA / DCS / PCS / WCDMA / UMTS/ HSPA / GPRS / EDGE.

The antenna has been designed using a super thin flexible polymer substrate with a rectangular form-factor and cable connection for ease of installation. The antenna radiates well on different plastic materials and thickness. We have selected ABS plastic mounting with 2 mm of thickness as a baseline for testing. Best in class efficiency on lower and upper bands (above 40%) make it an ideal antenna for devices where space for onboard SMT cellular antennas is not available. The antenna is mounted via automotive quality 3M 467MP adhesive and has excellent reliability. The FXP14 has its own ground-plane, therefore it does not need to connect to the ground-plane of the main-board of the device for improved radiation efficiency.

Taoglas unique AntD© technology allows connected radio products to perform diagnostics on the antenna. This includes detection that the proper antenna is connected and that the connection isn't shorted or broken. Contact Taoglas engineering for examples on how to implement AntD© antenna diagnostics in your product. Cable length and connector types are also customizable. Like all such antennas, care should be taken to mount the antenna at least 10mm from metal components or surfaces, and ideally 20mm for best radiation efficiency.

2. Specification

LTE Electrical								
Band	Frequency (MHz)	Efficiency (%)	Average Gain (dB)	Peak Gain (dBi)	Impedance	Polarization	Radiation Pattern	Max. input power
5GNR/4G Band71	617-698	19.8	-7.02	-2.47	50 Ω	Linear	Omni	2W
4G/3G Band 12,13,14,17,28,29	698-806	18.2	-7.39	-2.56				
4G/3G/NB-IoT/Cat M Band 5,8,18,19,20,26,27	824-960	38.6	-4.13	3.27				
5GNR/4G Band 21,32,74,75,76	1427-1518	47.0	-3.28	2.86				
4G/3G Band 1,2,3,4,9,23,25,35,39,66	1710-2200	64.0	-1.94	4.18				
4G/3G Band 7,30,38,40,41	2300-2690	34.4	-4.63	3.32				
5GNR/4G Band 22,42,48,77,78,79	3300-5000	60.5	-2.18	4.88				

Mechanical	
Dimensions	70*20*01mm
Connector	MHFII (U.FL Compatible)
Cable Standard	Mini-Coax 1.13mm
Cable Length and color	100 mm,Black

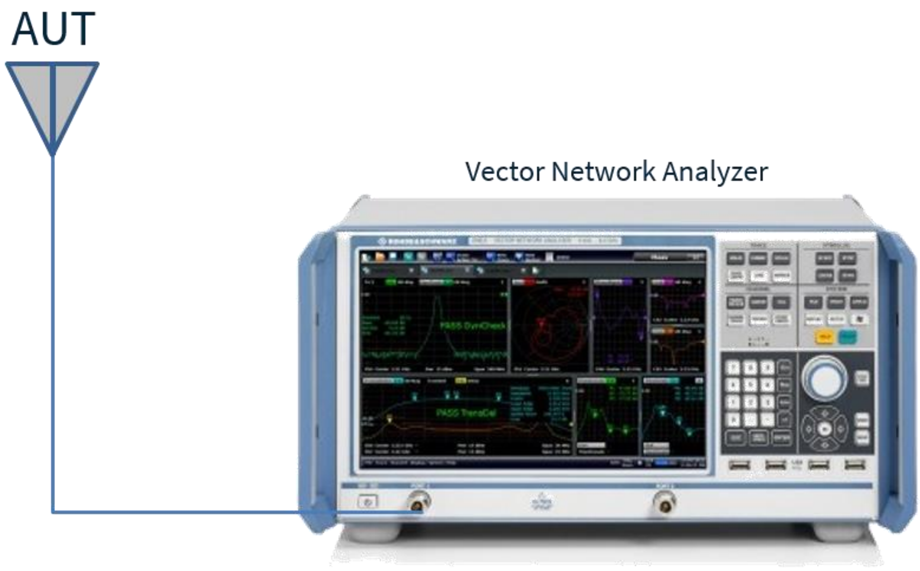
Environmental	
Temperature Range	-40°C to 85°C
Storage Temperature	-40°C to 85°C

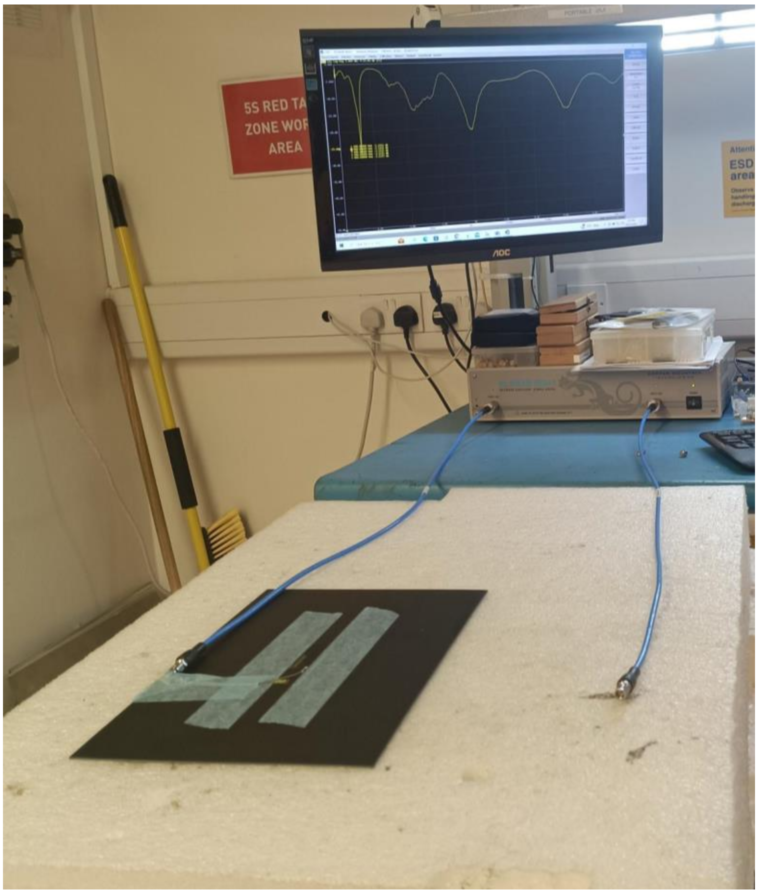
5G/4G Bands

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 to 427	×

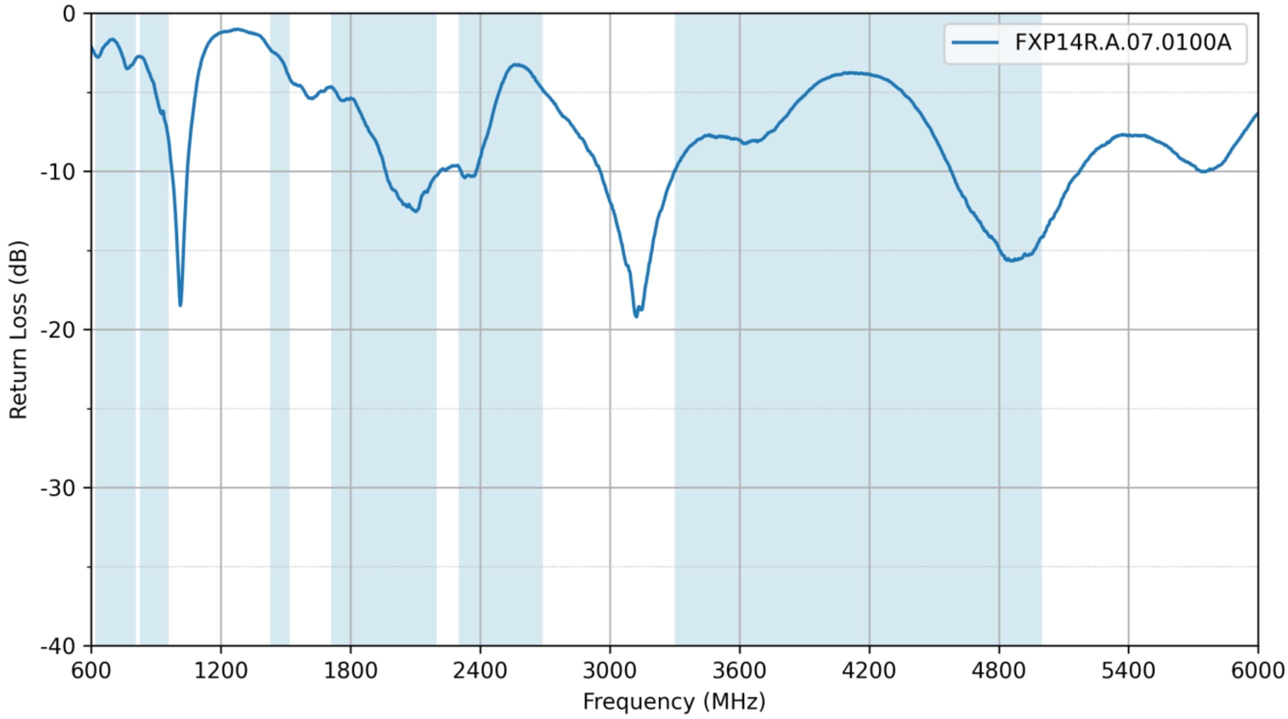
3. Antenna Characteristics

3.1 Test Setup

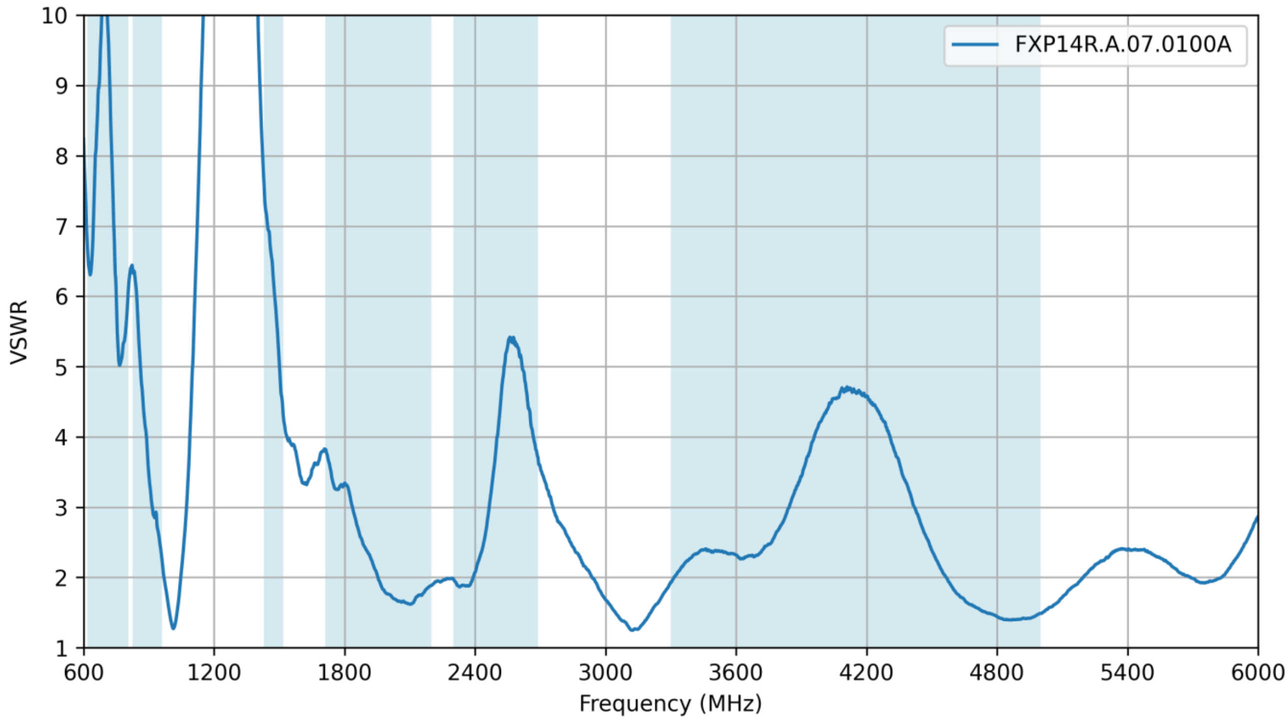




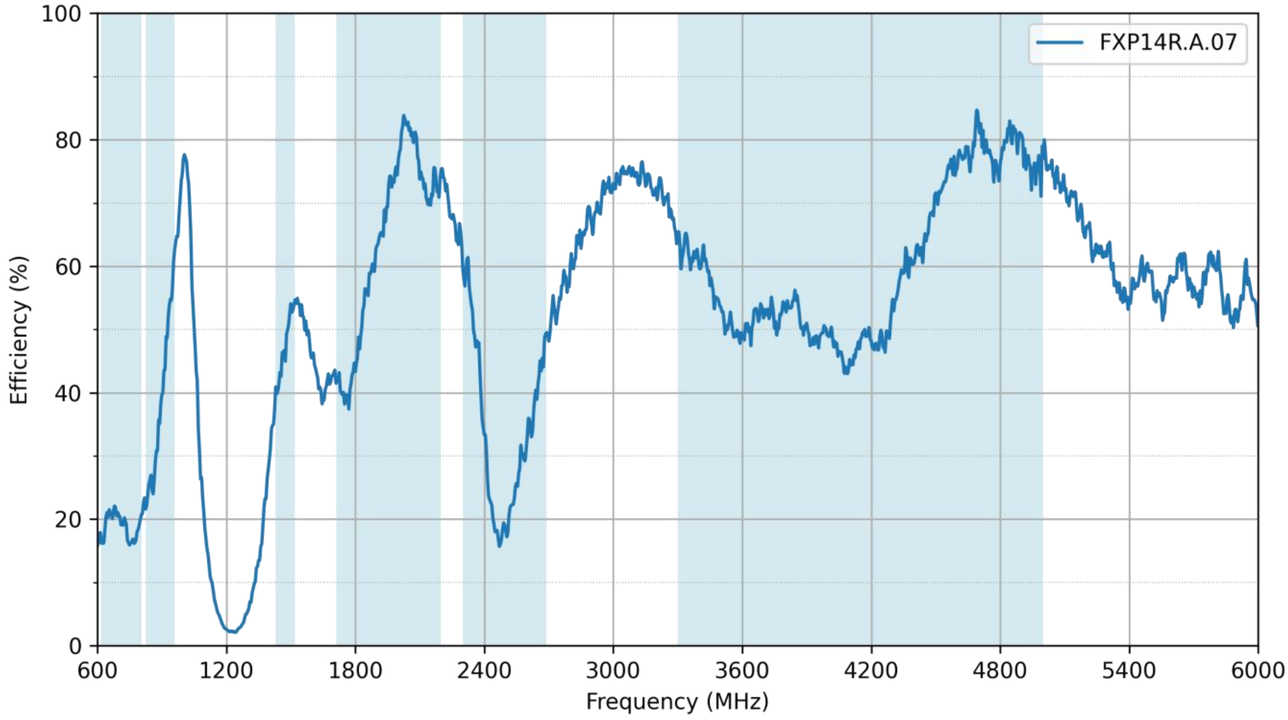
3.2 Return Loss



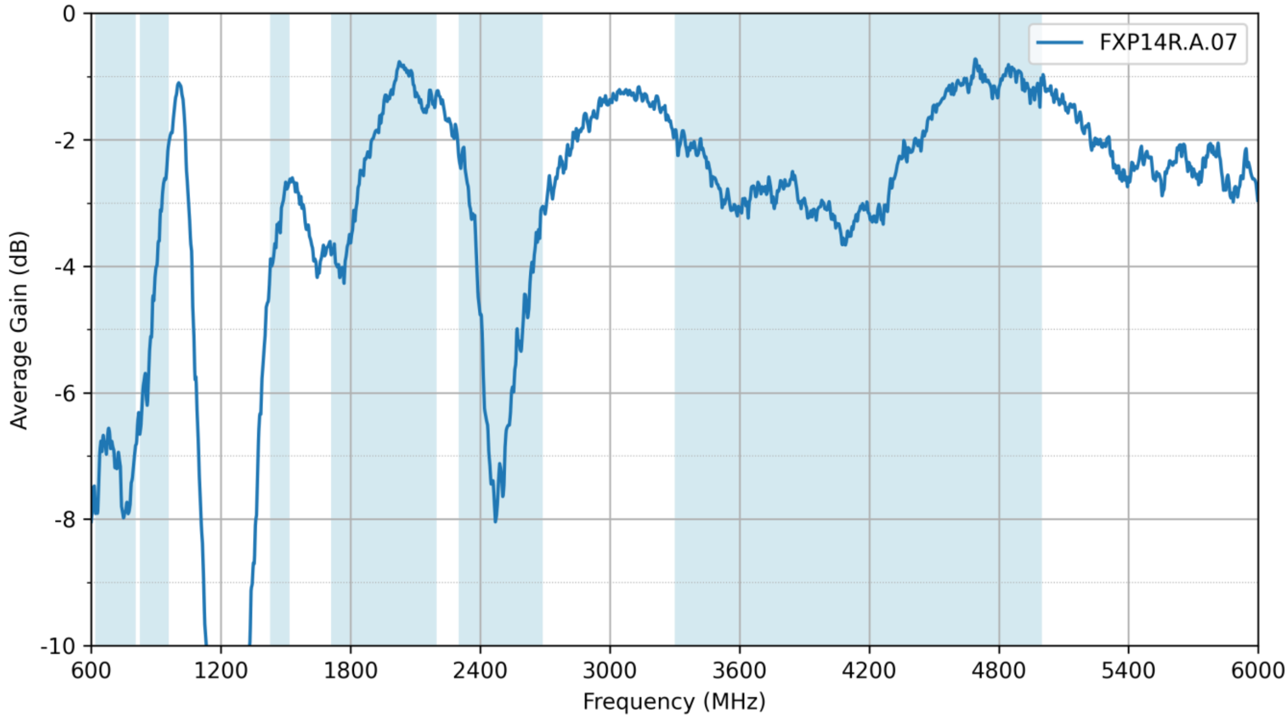
3.3 VSWR



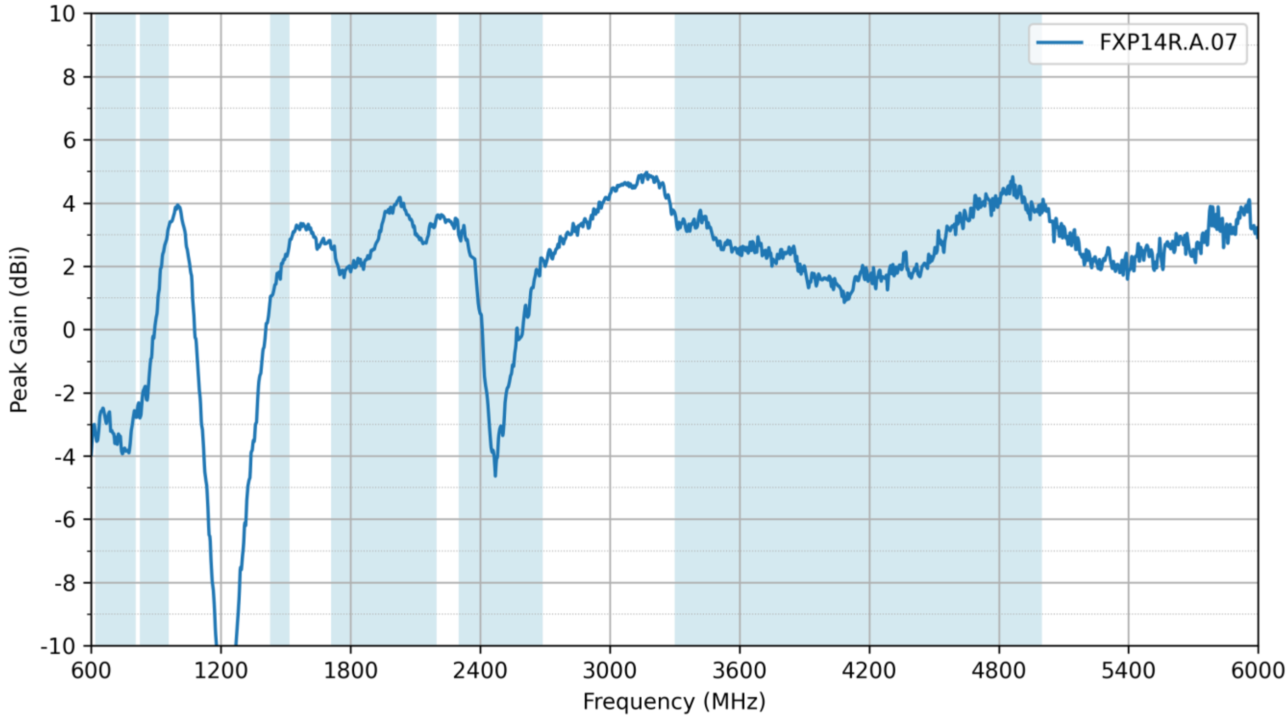
3.4 Efficiency



3.5 Average Gain



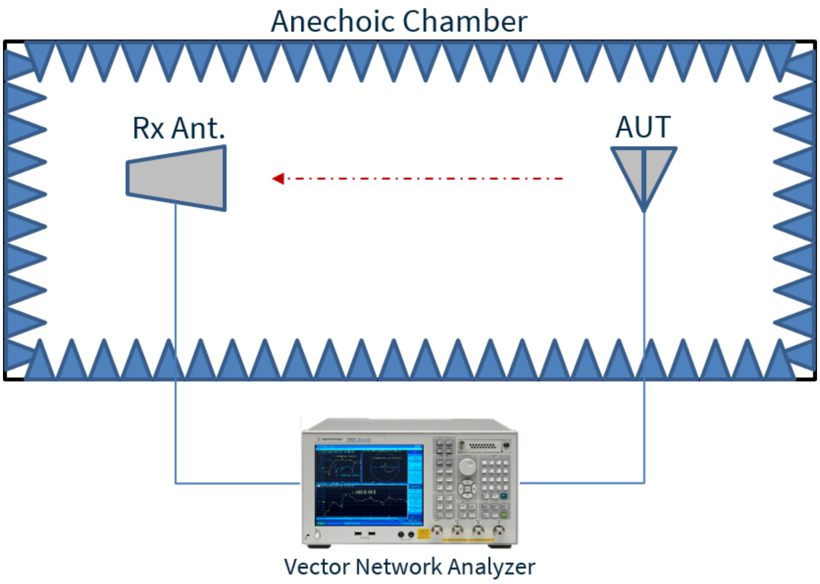
3.6 Peak Gain

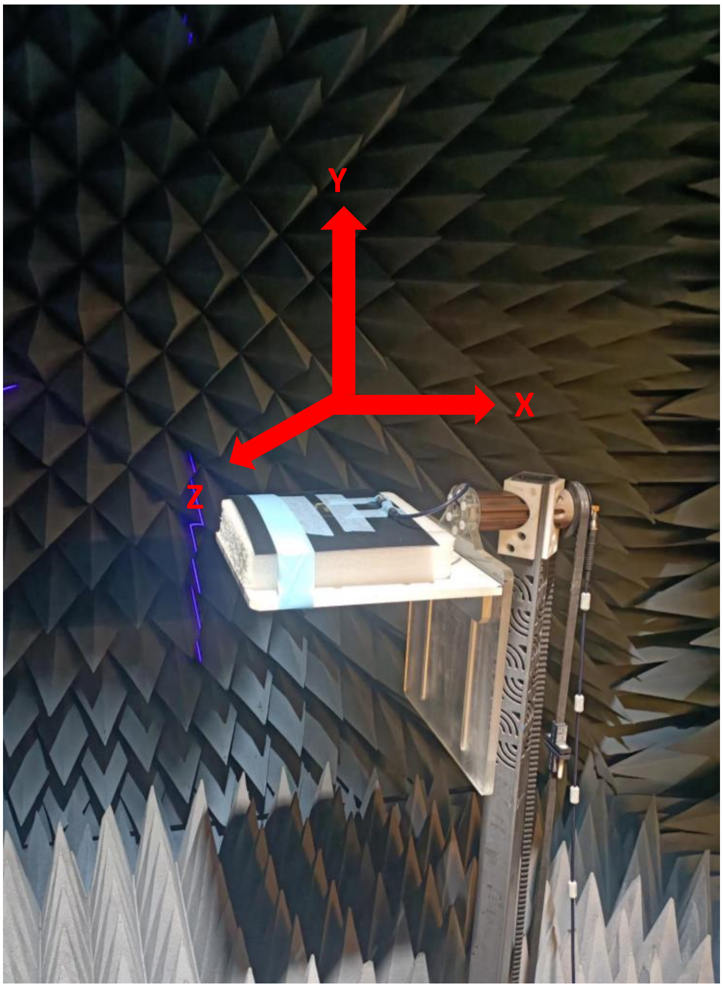


10
8
6
4
2
0
-2
-4
-6
-8
-10
Peak Gain (dBi)
600
1200
1800
2400
3000
3600
4200
4800
5400
6000
Frequency (MHz)
FXP14R.A.07

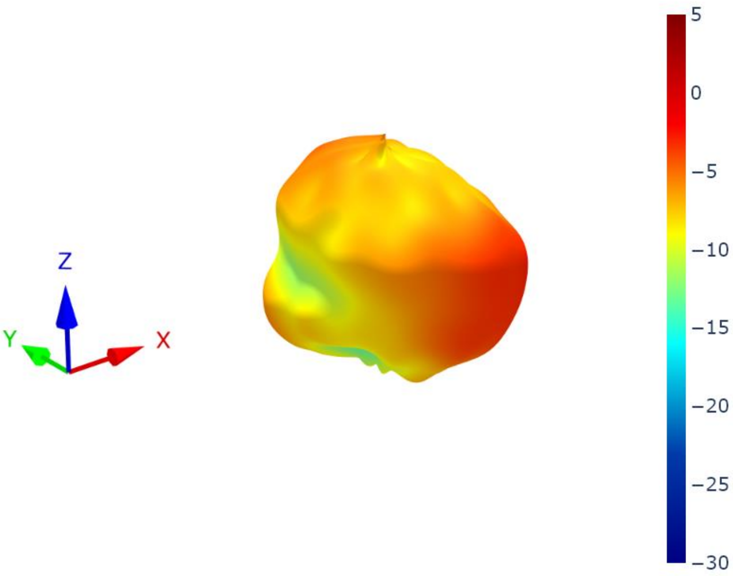
4. Radiation Patterns

4.1 Test Setup

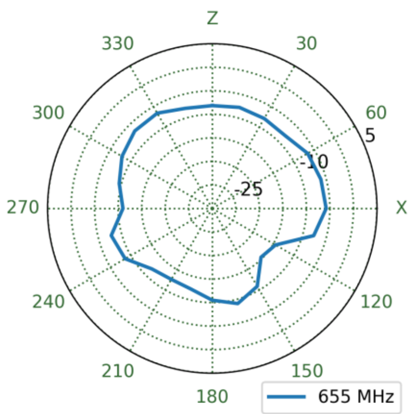


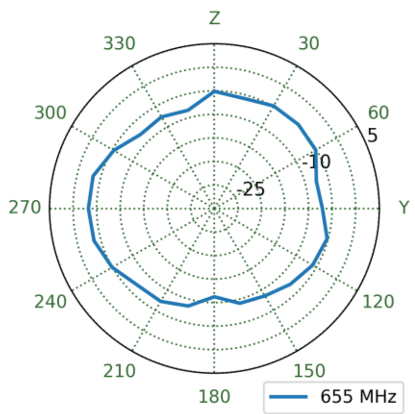


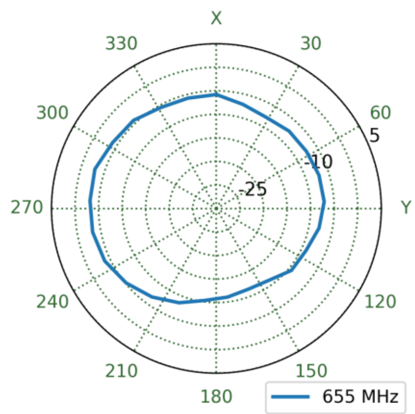
4.2 Patterns at 658 MHz



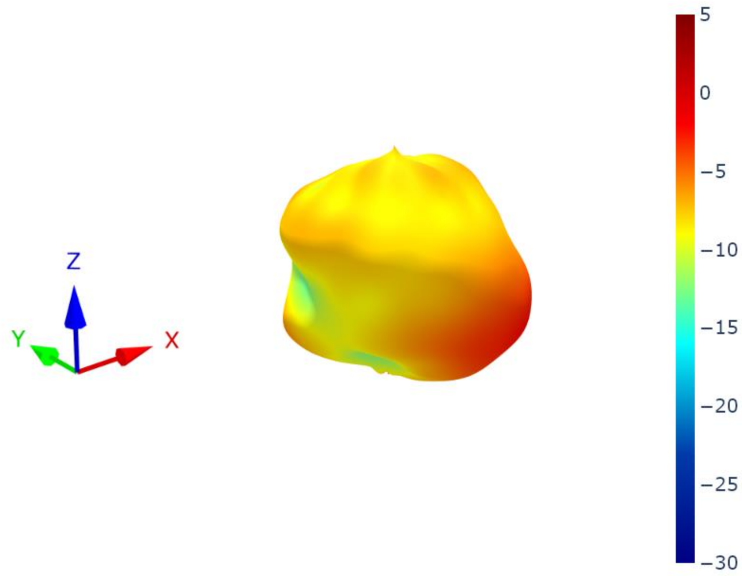
XZ Plane	YZ Plane	XY Plane

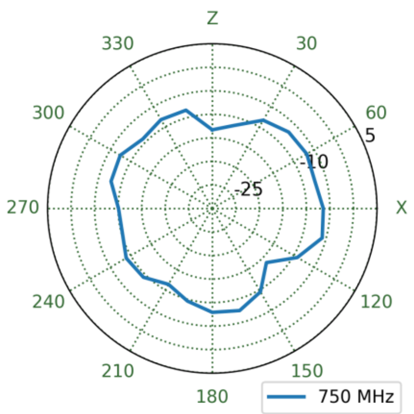
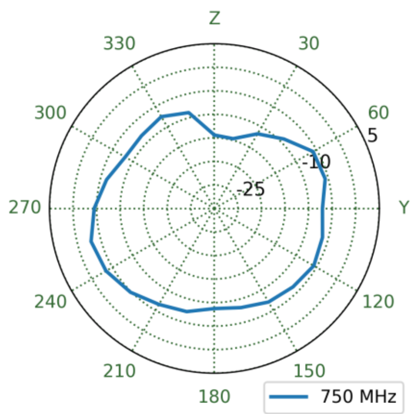
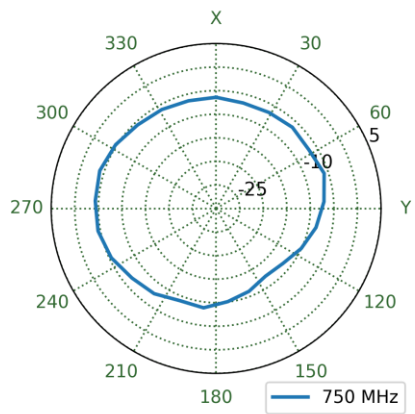




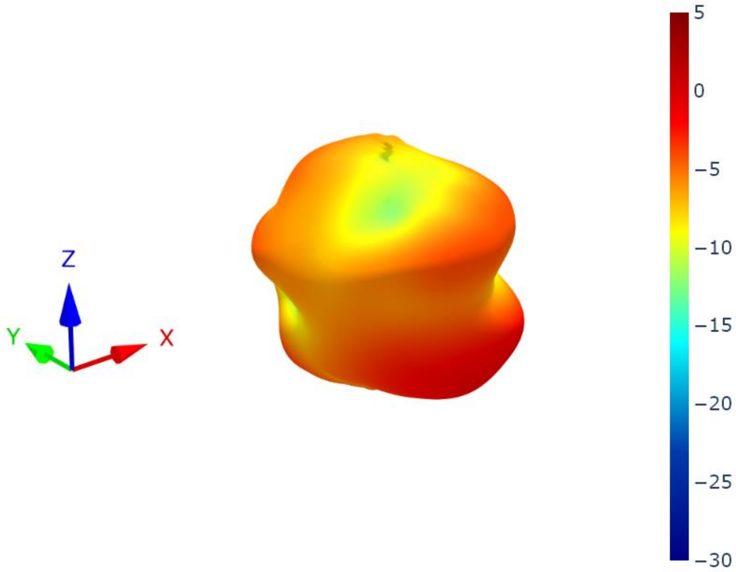


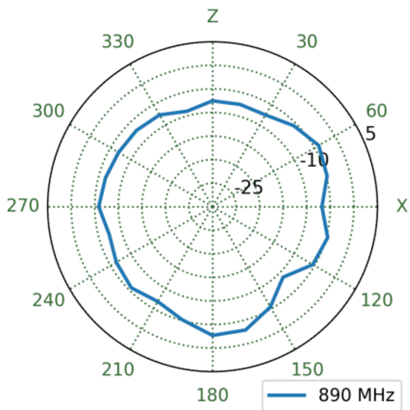
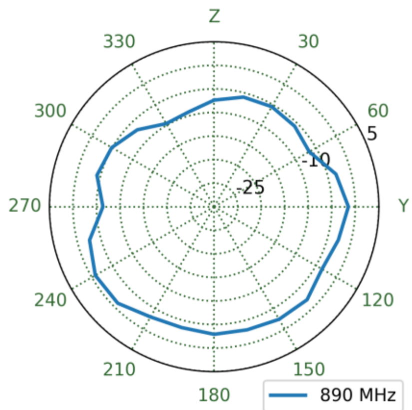
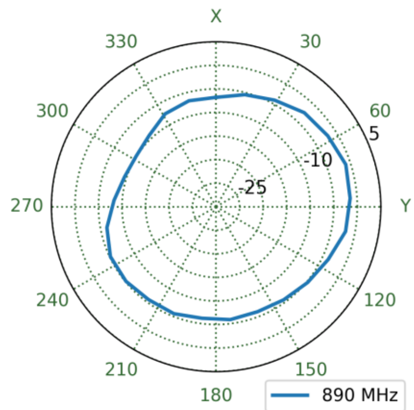
4.3 Patterns at 752 MHz



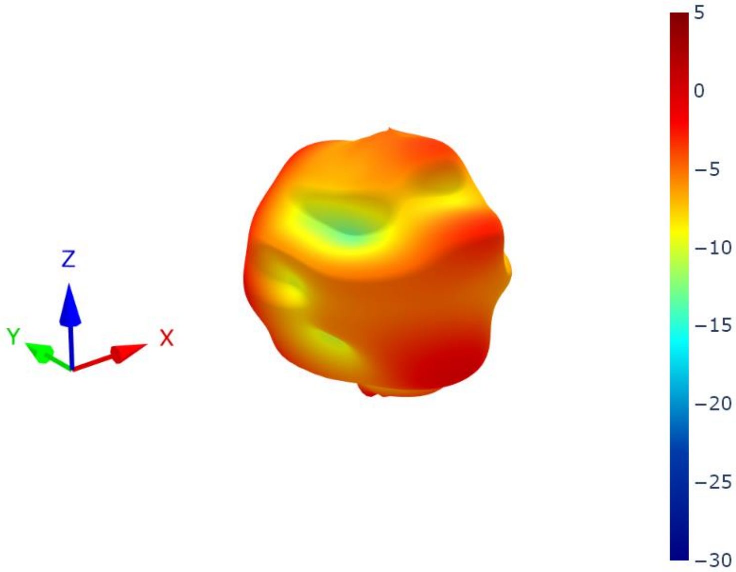
XZ Plane	YZ Plane	XY Plane
		

4.4 Patterns at 892 MHz

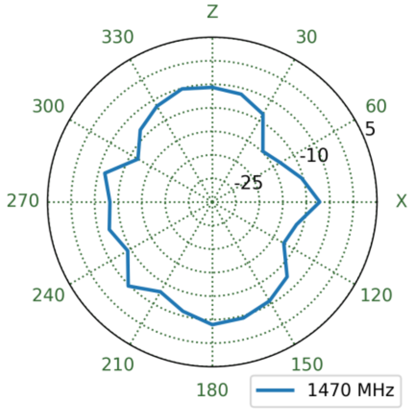


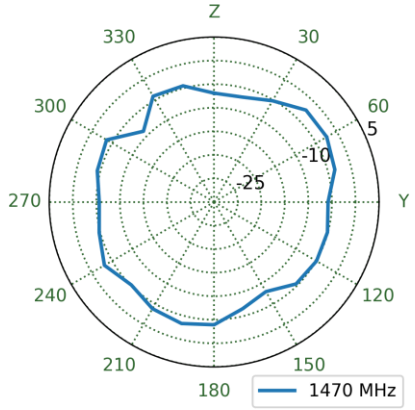
XZ Plane	YZ Plane	XY Plane
		

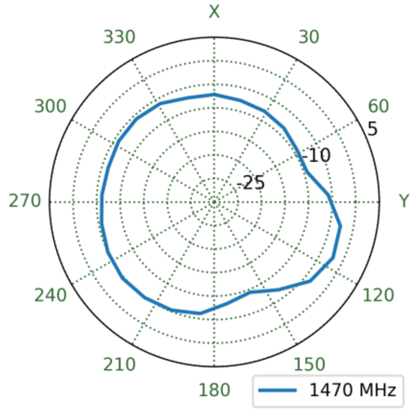
4.5 Patterns at 1473 MHz



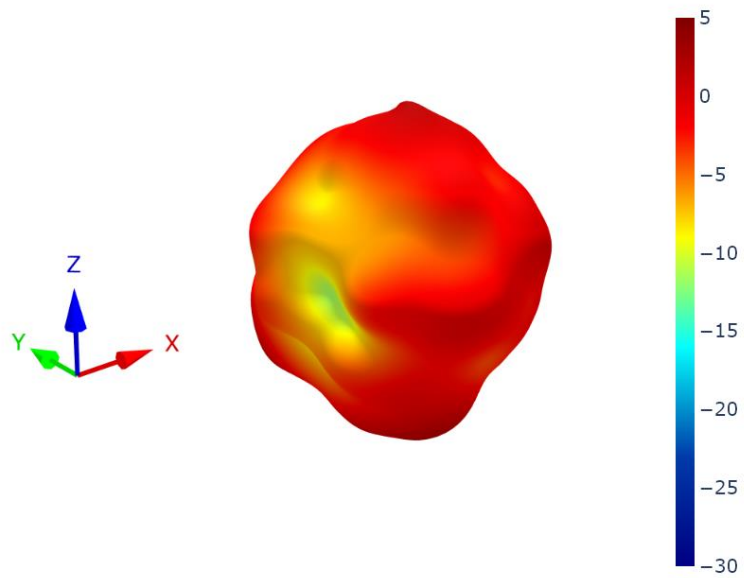
XZ Plane	YZ Plane	XY Plane



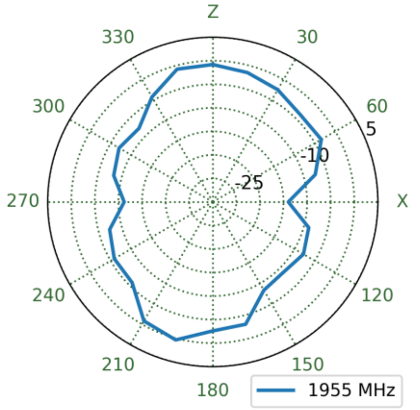


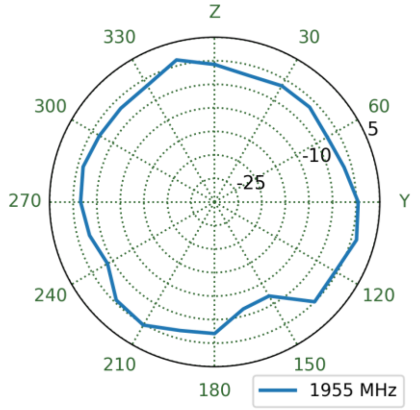


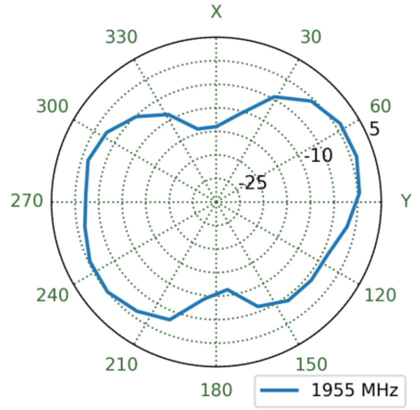
4.6 Patterns at 1955 MHz



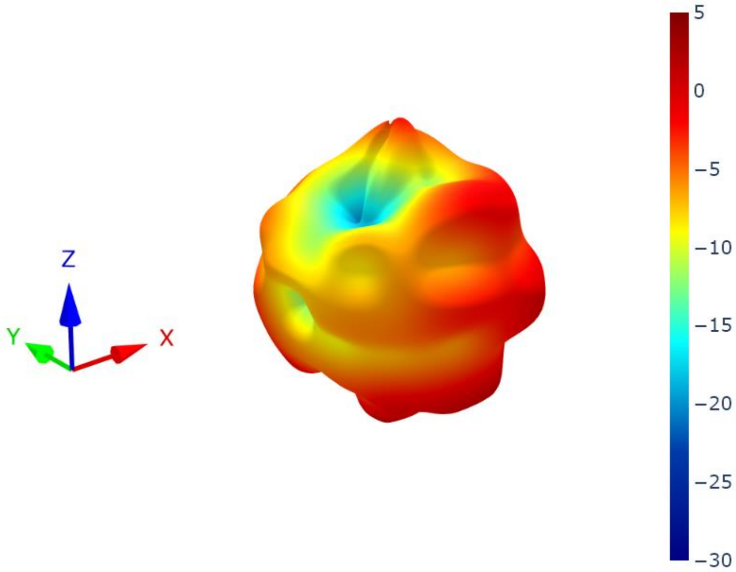
XZ Plane	YZ Plane	XY Plane



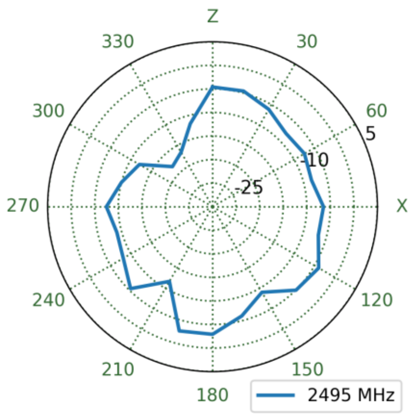


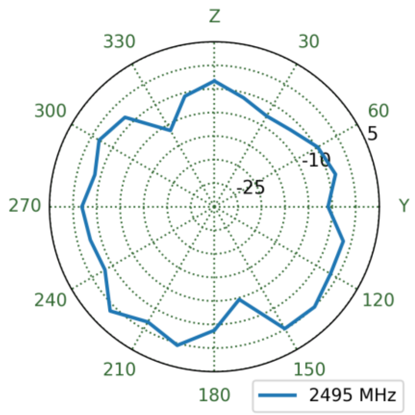


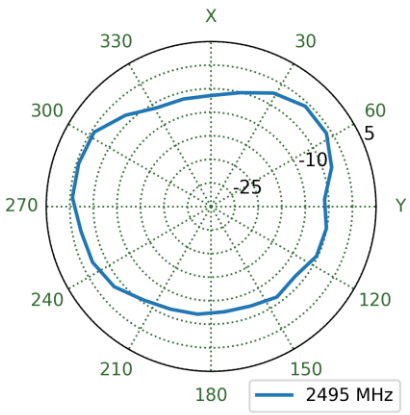
4.7 Patterns at 2495 MHz



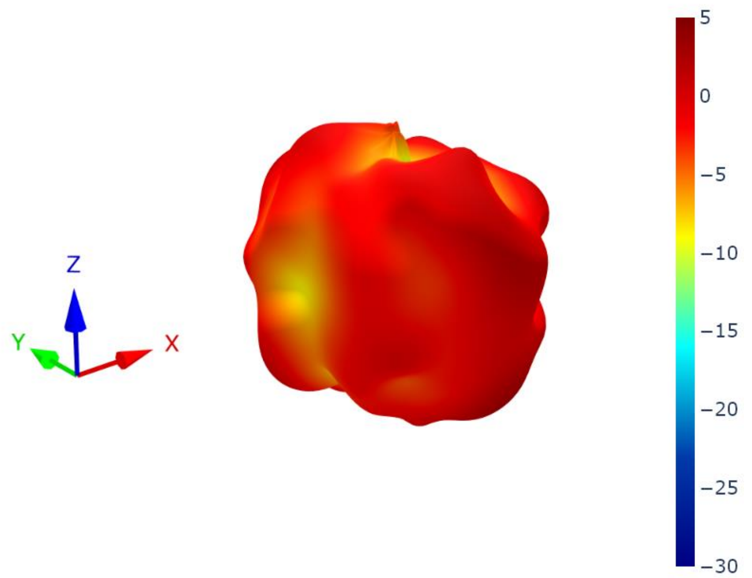
XZ Plane	YZ Plane	XY Plane



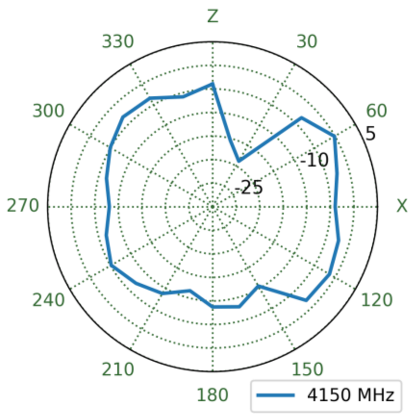


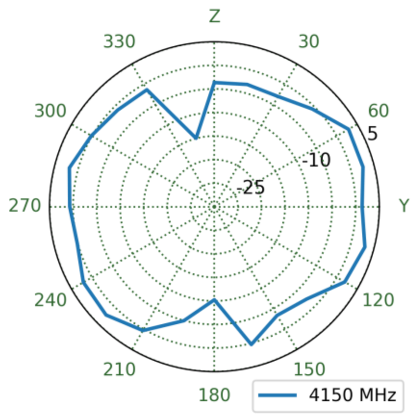


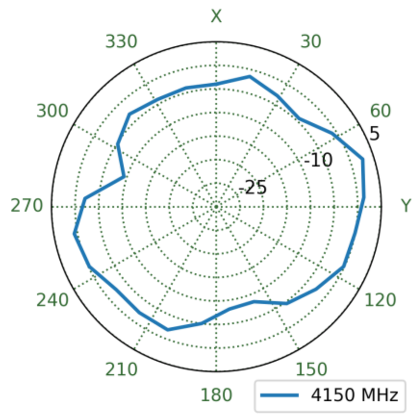
4.8 Patterns at 4150 MHz



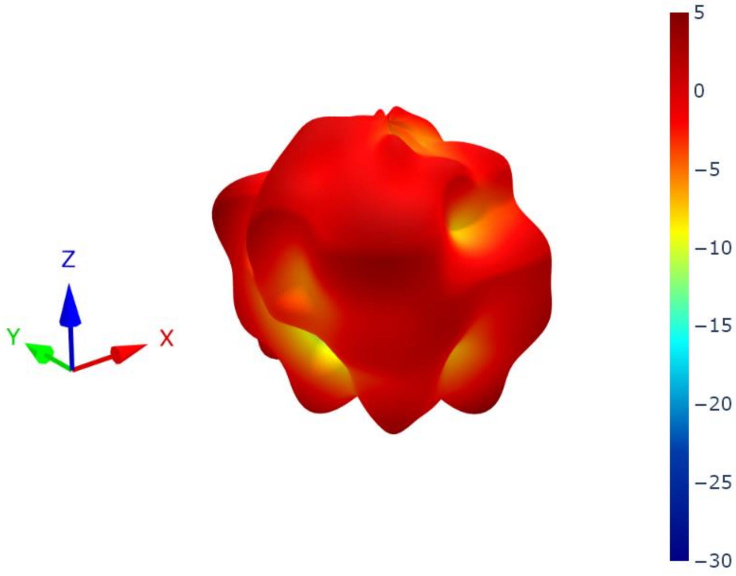
XZ Plane	YZ Plane	XY Plane

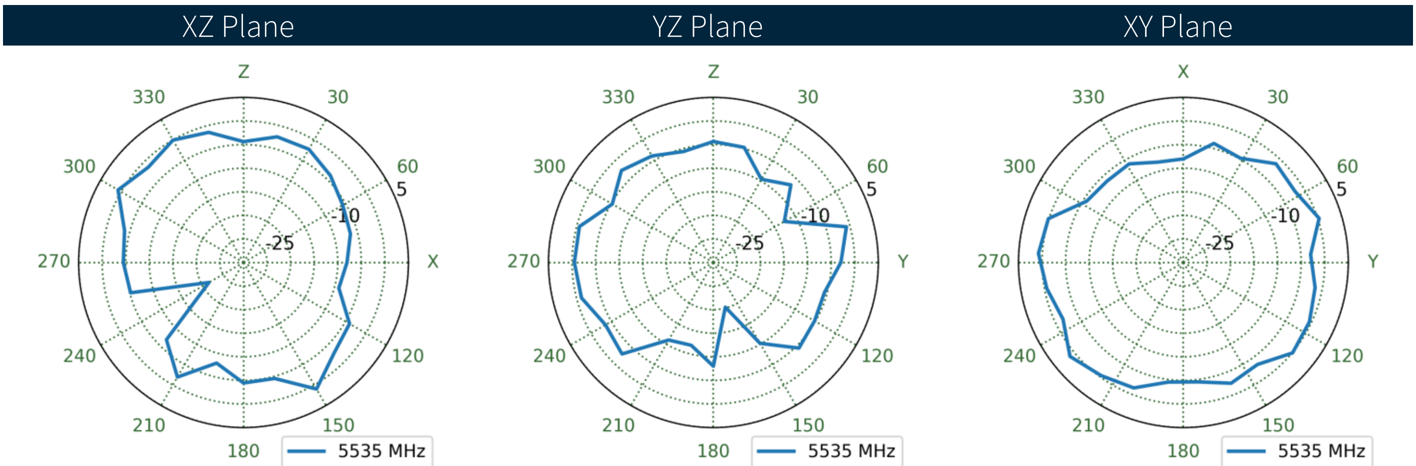






4.9 Patterns at 5538 MHz





5. Mechanical Drawing

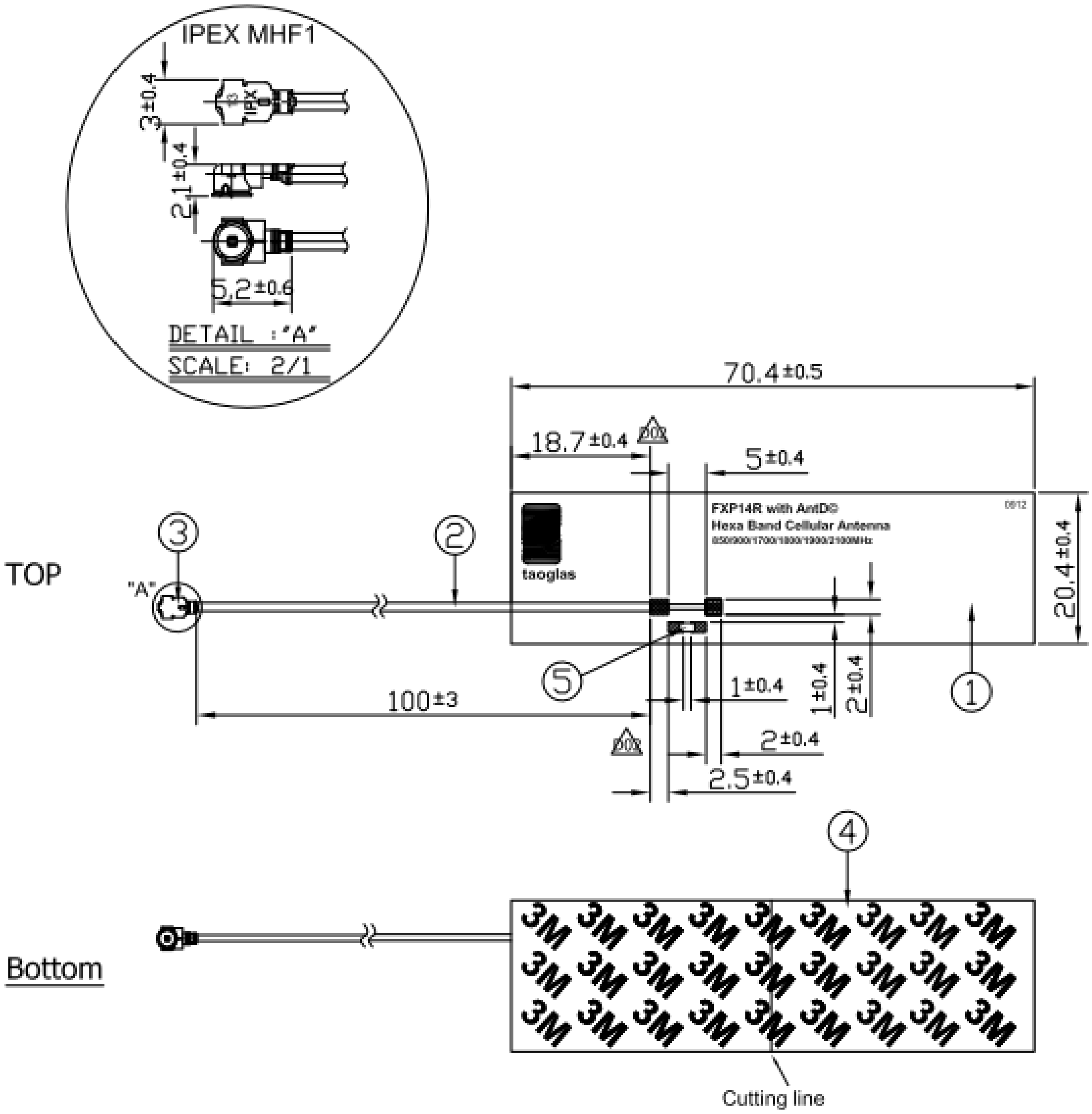
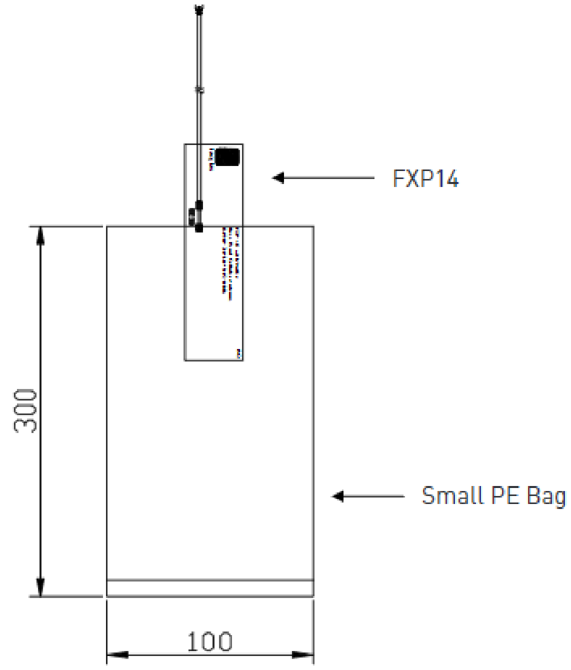


Figure 9.Mechanical Drawing for the FXP14 Antenna

	Name	Material	Finish	QTY
1	FXP14R FPCB	FPCB 0.1t	Black	1
2	1.13 Coaxial Cable	FEP	Black	1
3	IPEX MHF1	Brass	Gold	1
4	Double-Sided Adhesive	3M 467	Brown Liner	1
5	Resistor (R=10k Ohm)	Ceramic	N/A	1

6. Packaging

100pcs FXP14R.07.0100A per PE Bag
Dimensions - 300*100mm
Weight - 150g



Changelog for the datasheet

SPE-13-8-074– FXP14.07.0100A

Revision: B (Current Version)	
Date:	2023-11-14
Changes:	Full datasheet update. (New test results showing 600-6000MHz)
Changes Made by:	Aswin Biju

Previous Revisions

Revision: A	
Date:	2013-10-11
Changes:	Initial Release
Changes Made by:	Peter Knaz

www.taoglas.com