



TAOGLAS®



Datasheet

FXP14 Flexible PCB Cellular Antenna

Part No:
FXP14.07.0100A

Description:

5G/4G Cellular Flexible PCB with 100mm 1.13 & IPEX MHFI Connector

Features:

- Flexible PCB Antenna
- Dimensions: 70x20x0.2mm
- Connector: I-PEX MHF® I (U.FL Compatible)
- Cable: 100mm of Ø1.13
- Peel and Stick Mounting
- 3M 467 Adhesive
- CE Certified
- RoHS & REACH Compliant

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1. Introduction



The Taoglas FXP14 Flexible Wideband Cellular Antenna covers all world-wide 5G/4G bands. The antenna has been designed in a flexible material with a rectangular form-factor and cable connection for an easy installation. The antenna works on different plastic materials and thickness. We have selected a piece of ABS with 2 mm of thickness as a baseline for testing.

Typical Applications Include:

- Security
- Remote Monitoring
- Connected Health

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 SMD cellular antennas is not available.

The antenna is mounted via automotive quality 3M 467 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.

For more information or installation instructions, please contact your regional Taoglas customer support team.

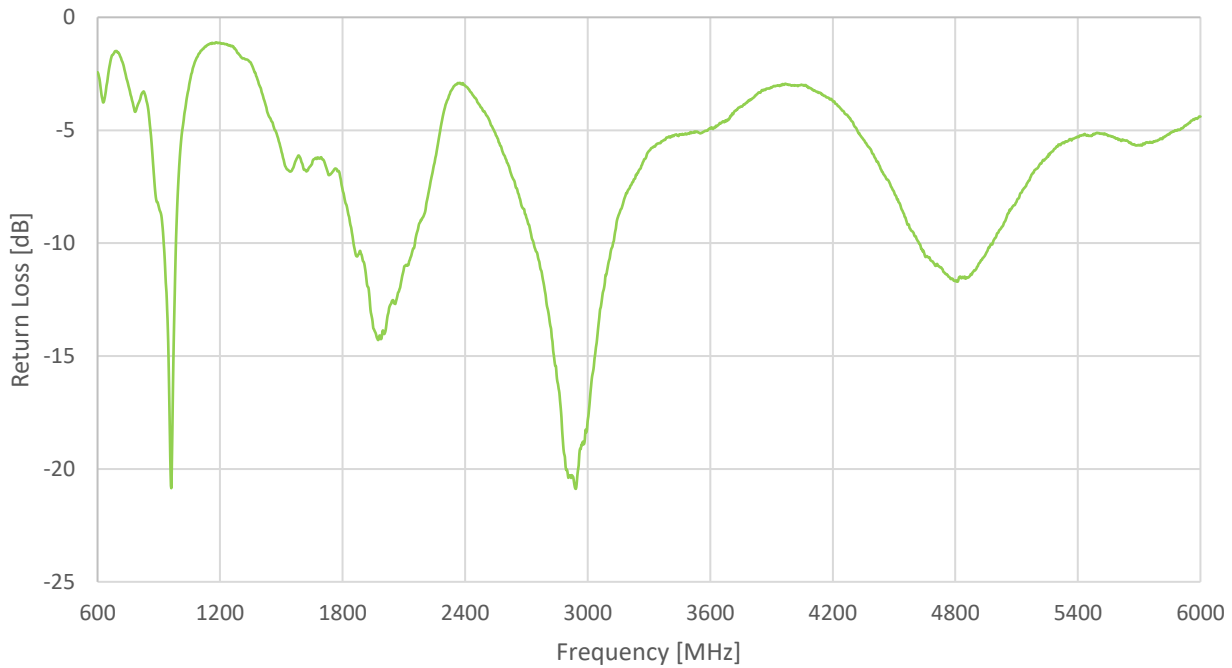
2. Specifications

5G/4G MIMO									
Band	Frequency (MHz)	Efficiency (%)	Average Gain (dB)	Peak Gain (dBi)	VSWR	Impedance	Polarization	Radiation Pattern	Input Power
5G NR/4G Band 5,8,12,13,14,17,18,20,26,27,28, 29,71	617~960	43	-3.9	3.8	<2.5:1	50Ω	Linear	Omni - Directional	5W
5G NR/4G Band 21,32,74,75,76	1427~1518	55	-2.7	2.8					
4G/3G Band 1,2,3,4,9,23,25,35,39,66	1710~2200	67	-1.8	5.5					
4G/3G Band 7,38,41	2490~2690	53	-2.8	3.8					
5G NR/4G Band 22,42,43,48,77,78,79	3300~5000	55	-2.8	5.5					
LTE5200/ Wi-Fi 5800	5150~5925	46	-3.4	5.2					
Mechanical									
Dimensions	70 x 20 x 0.2mm								
Weight	1.5g								
Cable	100mm 1.13 Black								
Connector	IPEX MHFI								
Adhesive	3M 467								
Environmental									
Temperature Range	-40°C to 85°C								
Humidity	Non-condensing 65°C 95% RH								

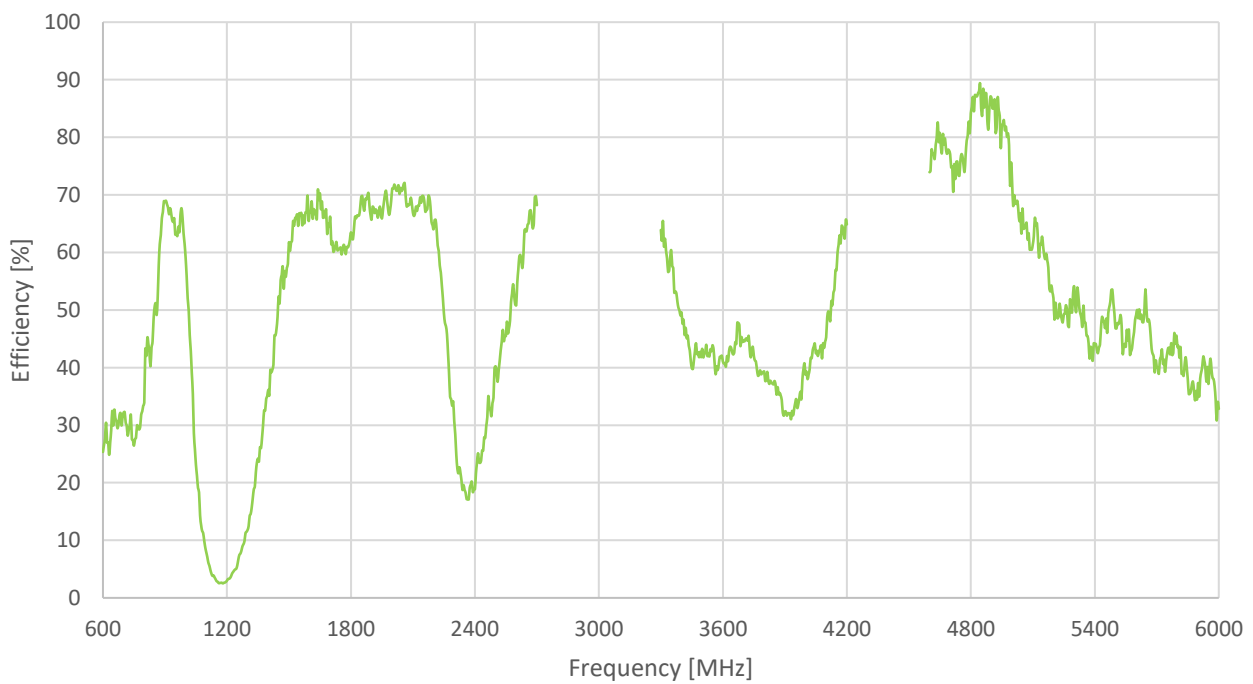
5G/4G Bands			
Band Number	5GNR / FR1 / LTE / LTE-Advanced / WCDMA / HSPA / HSPA+ / TD-SCDMA		
	Uplink	Downlink	Covered
1	UL: 1920 to 1980	DL: 2110 to 2170	✓
2	UL: 1850 to 1910	DL: 1930 to 1990	✓
3	UL: 1710 to 1785	DL: 1805 to 1880	✓
4	UL: 1710 to 1755	DL: 2110 to 2155	✓
5	UL: 824 to 849	DL: 869 to 894	✓
7	UL: 2500 to 2570	DL: 2620 to 2690	✓
8	UL: 880 to 915	DL: 925 to 960	✓
9	UL: 1749.9 to 1784.9	DL: 1844.9 to 1879.9	✓
11	UL: 1427.9 to 1447.9	DL: 1475.9 to 1495.9	✓
12	UL: 699 to 716	DL: 729 to 746	✓
13	UL: 777 to 787	DL: 746 to 756	✓
14	UL: 788 to 798	DL: 758 to 768	✓
17	UL: 704 to 716	DL: 734 to 746	✓
18	UL: 815 to 830	DL: 860 to 875	✓
19	UL: 830 to 845	DL: 875 to 890	✓
20	UL: 832 to 862	DL: 791 to 821	✓
21	UL: 1447.9 to 1462.9	DL: 1495.9 to 1510.9	✓
22	UL: 3410 to 3490	DL: 3510 to 3590	✓
23	UL: 2000 to 2020	DL: 2180 to 2200	✓
24	UL: 1625.5 to 1660.5	DL: 1525 to 1559	✓
25	UL: 1850 to 1915	DL: 1930 to 1995	✓
26	UL: 814 to 849	DL: 859 to 894	✓
27	UL: 807 to 824	DL: 852 to 869	✓
28	UL: 703 to 748	DL: 758 to 803	✓
29	UL: -	DL: 717 to 728	✓
30	UL: 2305 to 2315	DL: 2350 to 2360	✓
31	UL: 452.5 to 457.5	DL: 462.5 to 467.5	✗
32	UL: -	DL: 1452 - 1496	✓
35		1850 to 1910	✓
38		2570 to 2620	✓
39		1880 to 1920	✓
40		2300 to 2400	✓
41		2496 to 2690	✓
42		3400 to 3600	✓
43		3600 to 3800	✓
48		3550 to 3700	✓
66	UL: 1710-1780	DL: 2110-2200	✓
71		617 to 698	✓
74/75/76		1427 to 1518	✓
78		3300 to 3800	✓
79		4400 to 5000	✓
85	698-716	728-746	✓

3. Antenna Characteristics

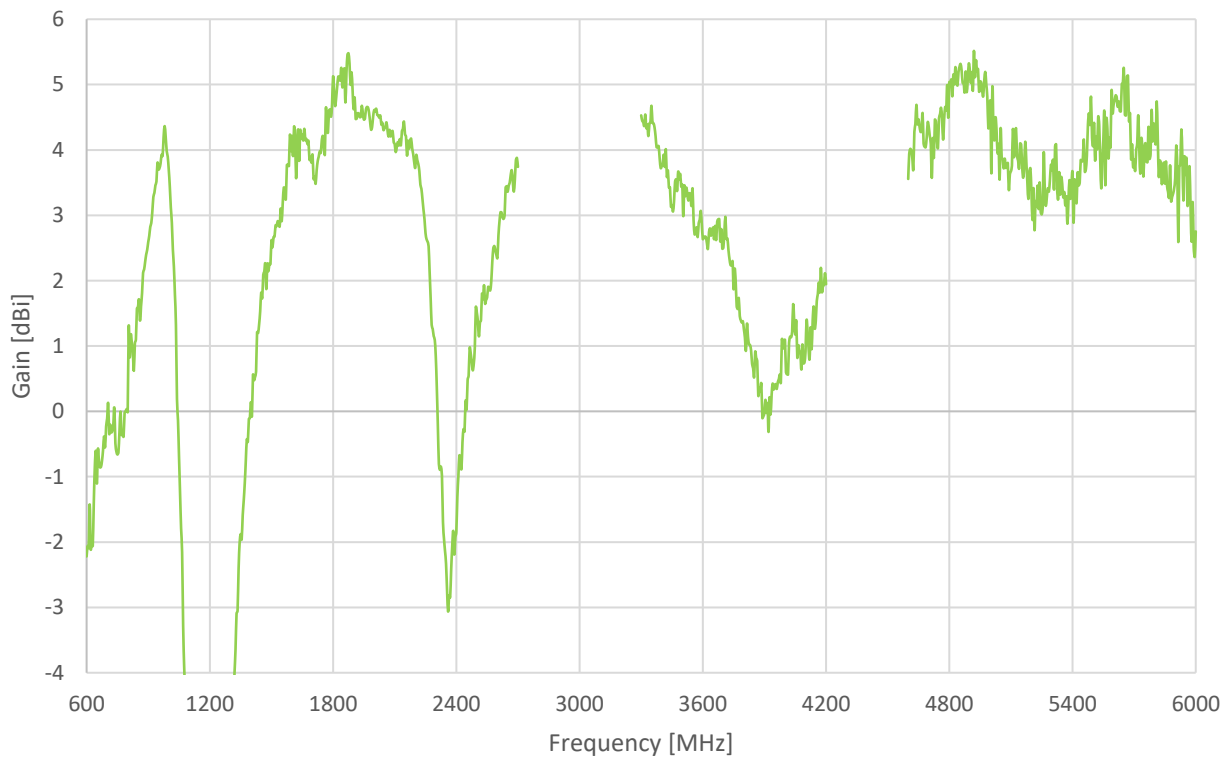
3.1 Return Loss



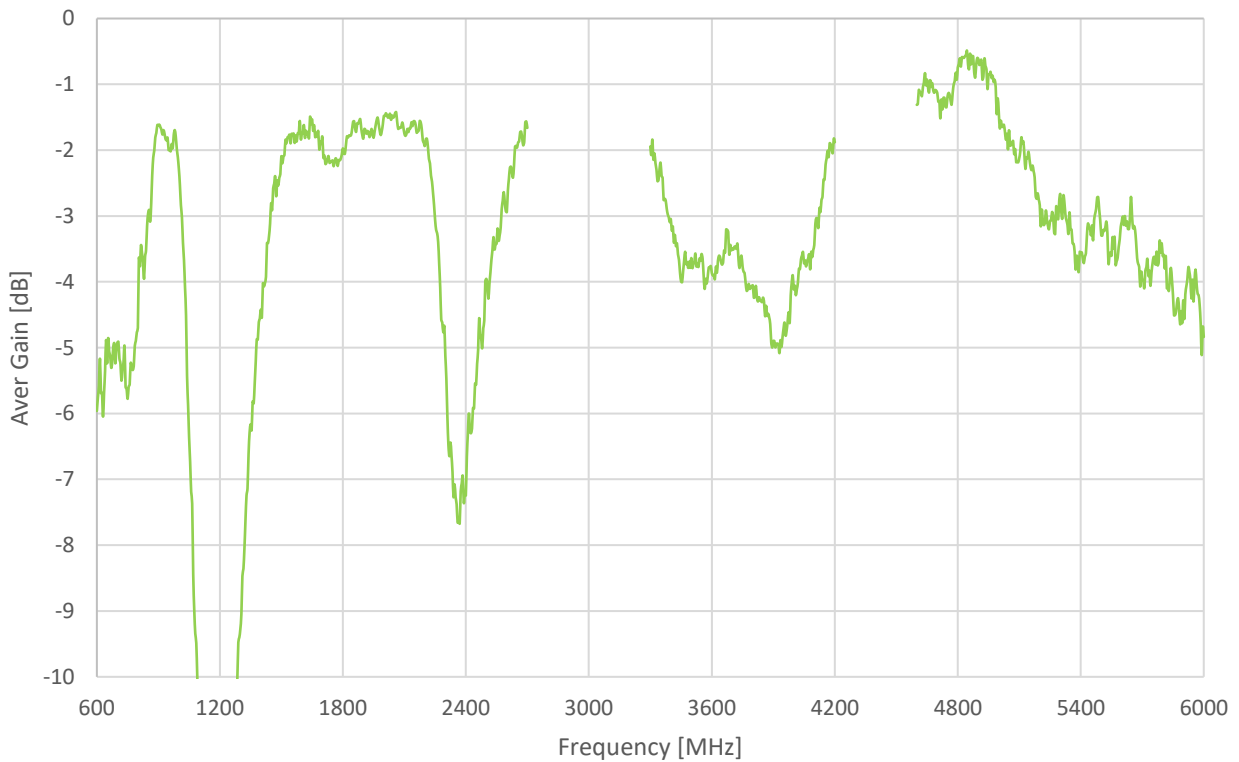
3.2 Efficiency



3.3 Peak Gain

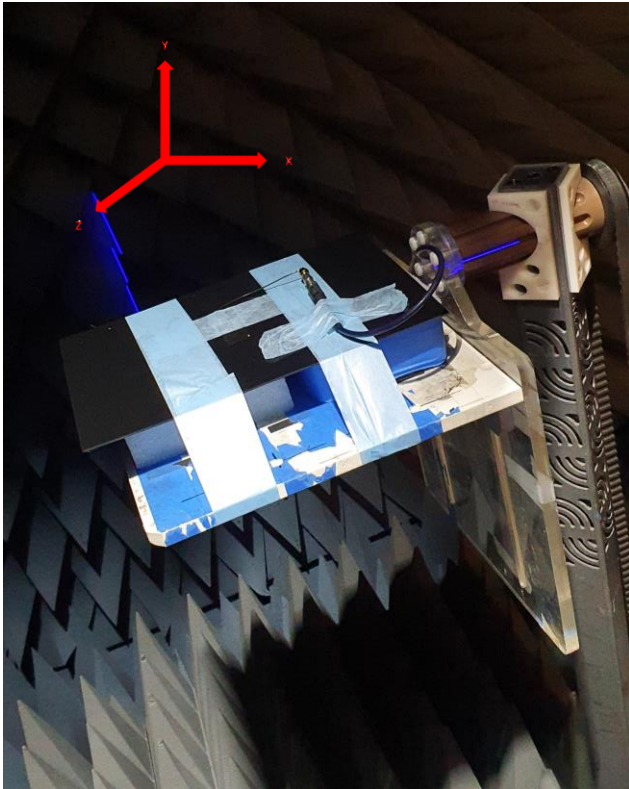


3.4 Average Gain

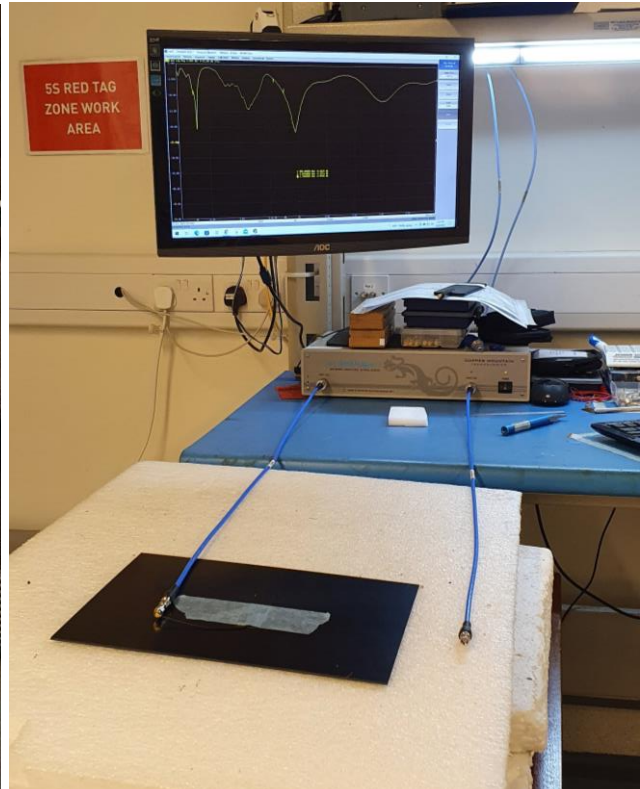


4. Radiation Patterns

4.1 Test Setup – 2mm ABS

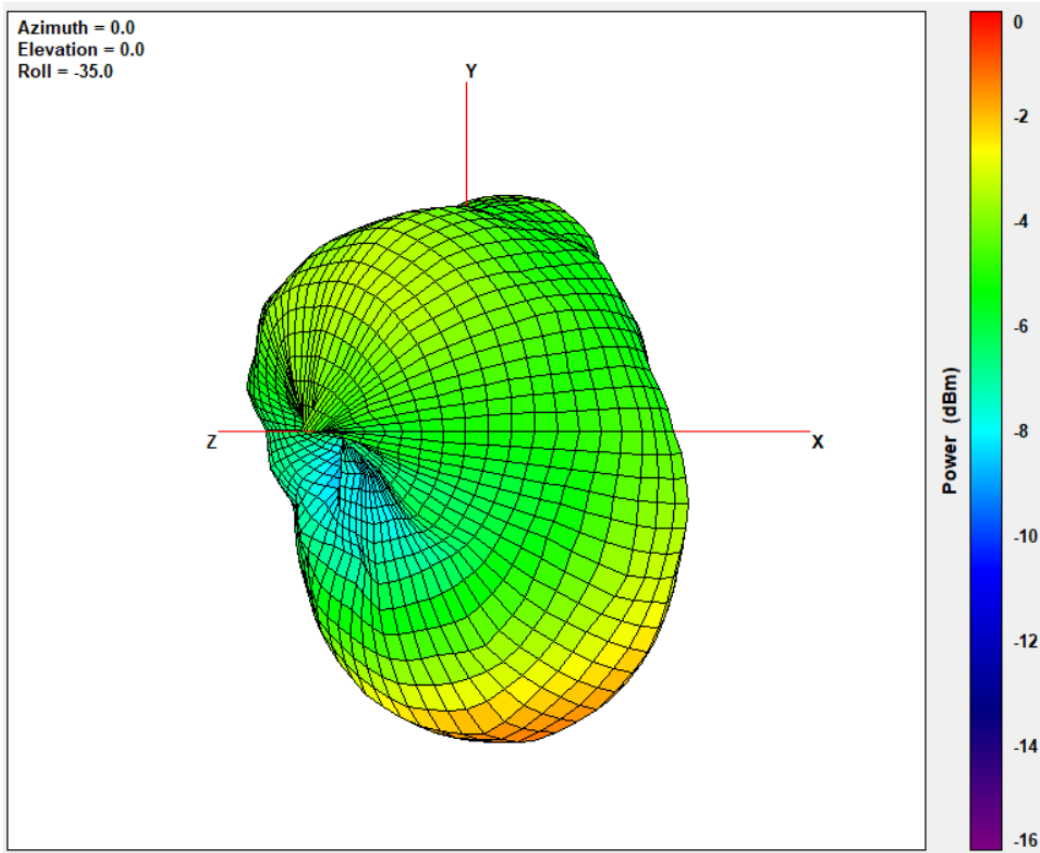


Chamber Setup



VNA Setup

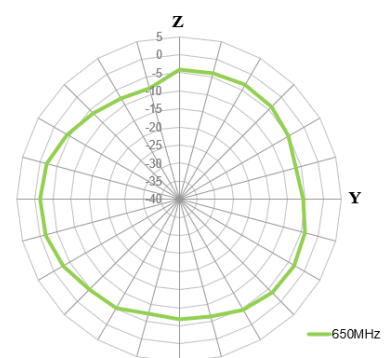
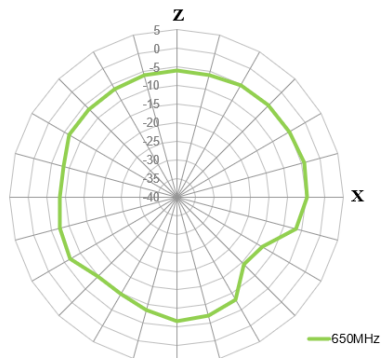
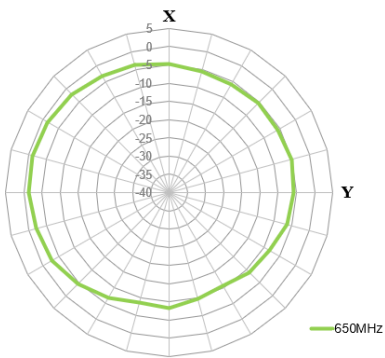
650MHz



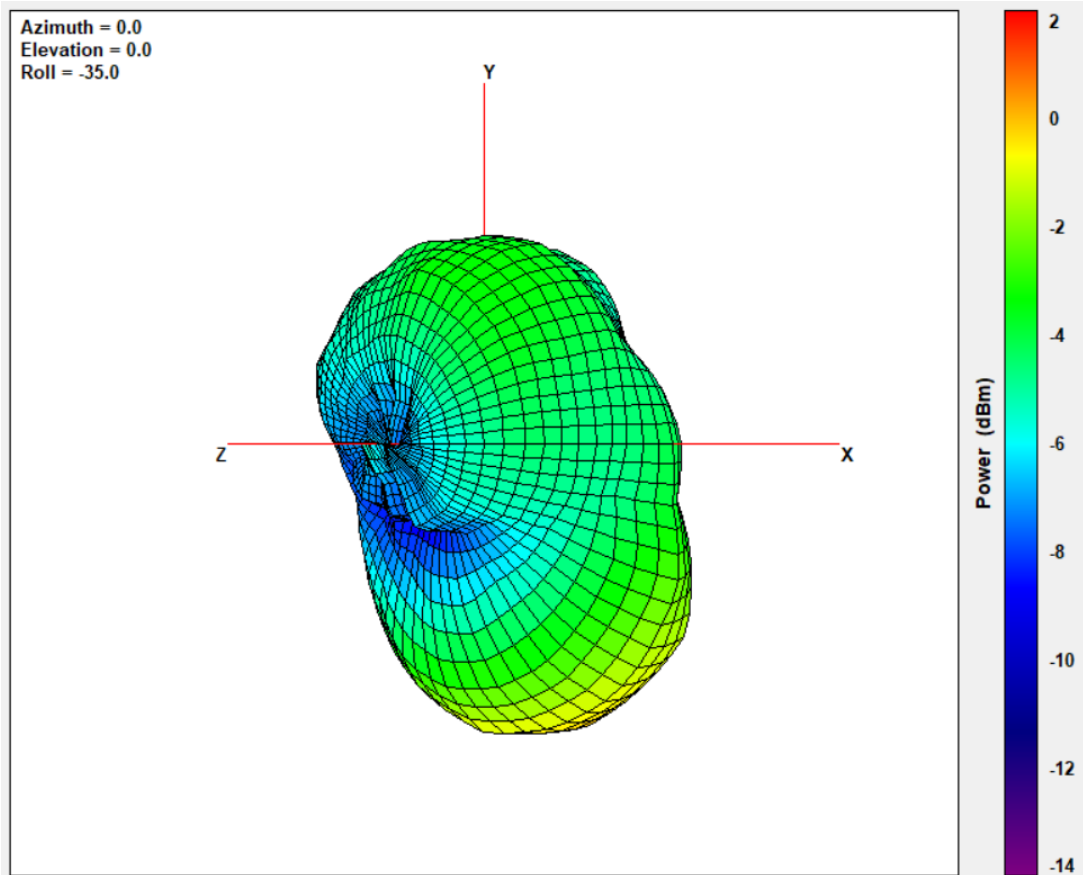
XY Plane

XZ Plane

YZ Plane



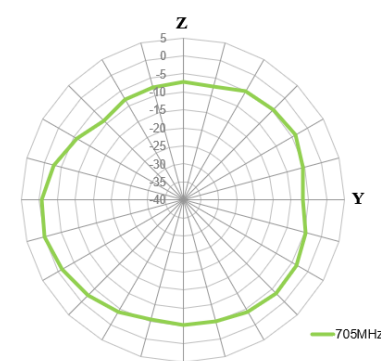
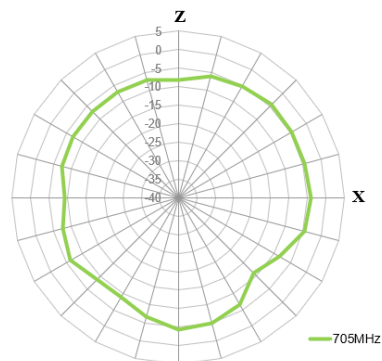
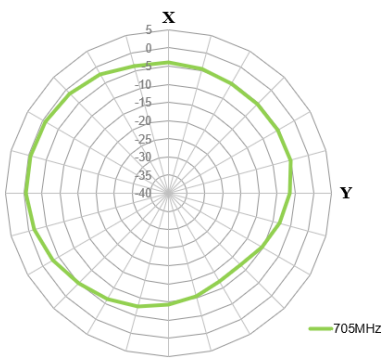
705MHz



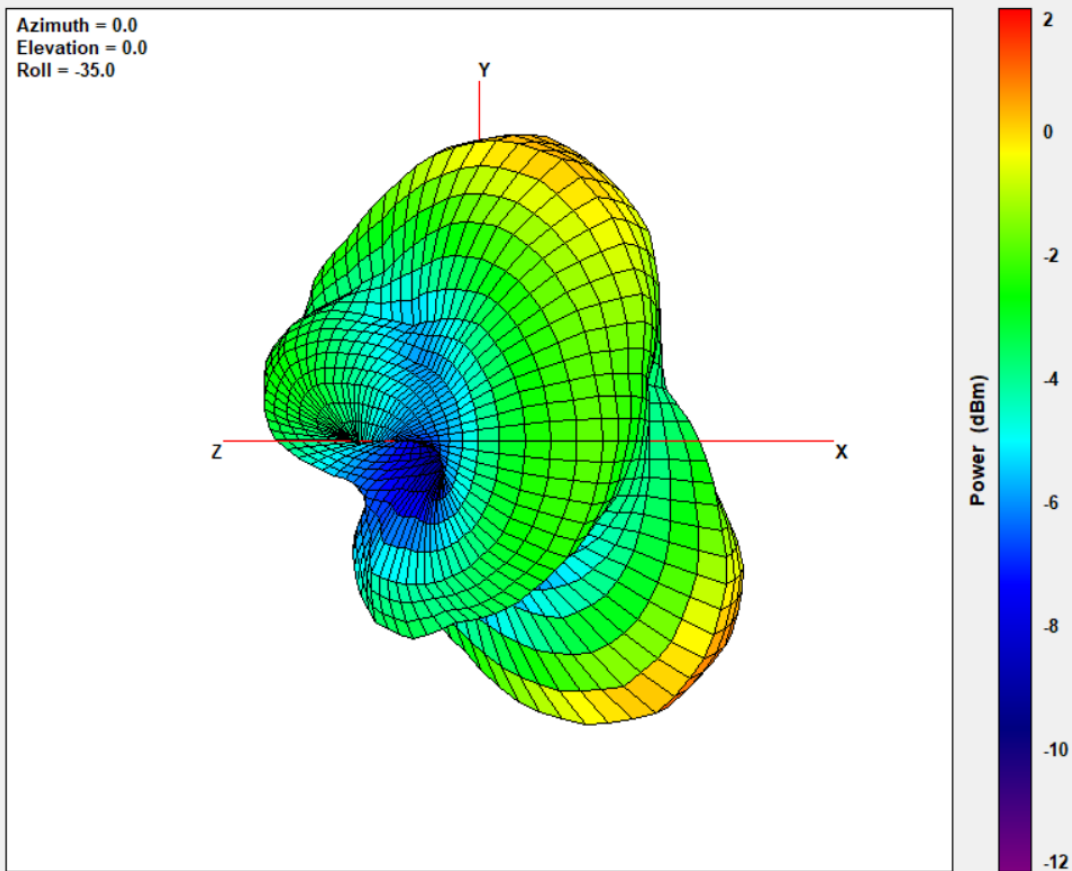
XY Plane

XZ Plane

YZ Plane



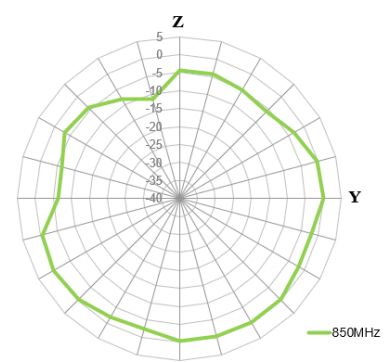
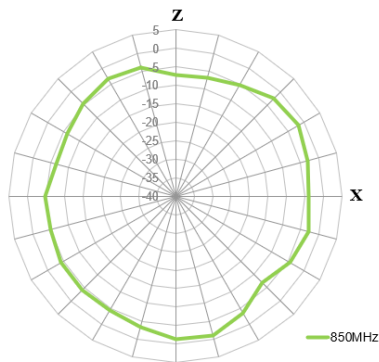
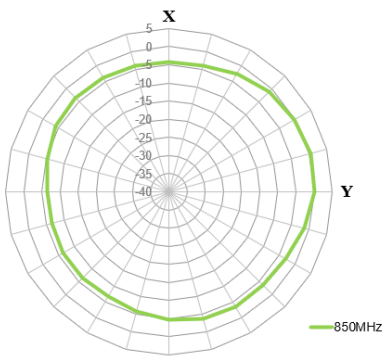
850MHz



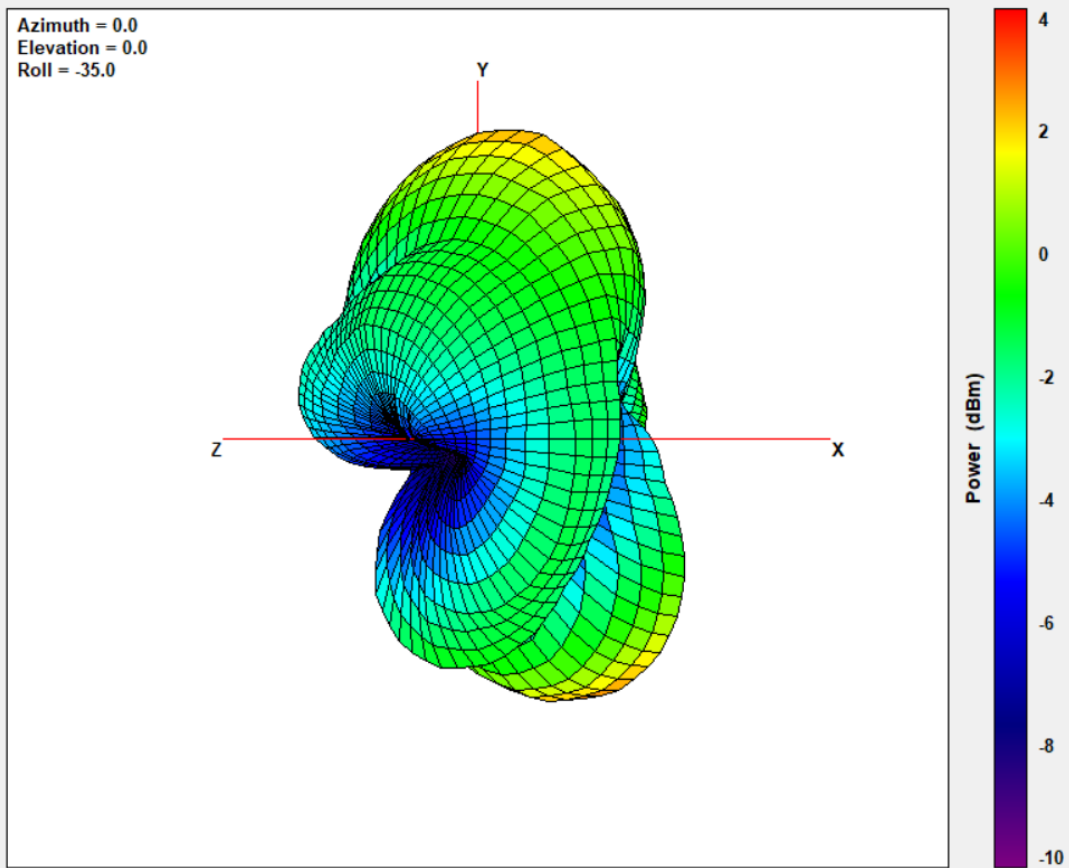
XY Plane

XZ Plane

YZ Plane



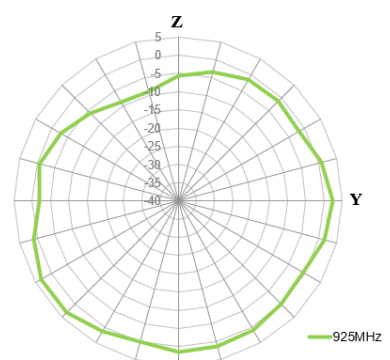
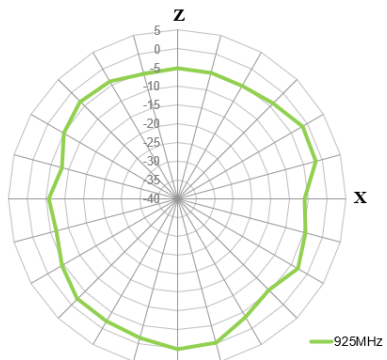
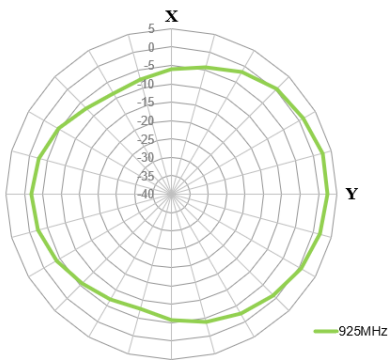
925MHz



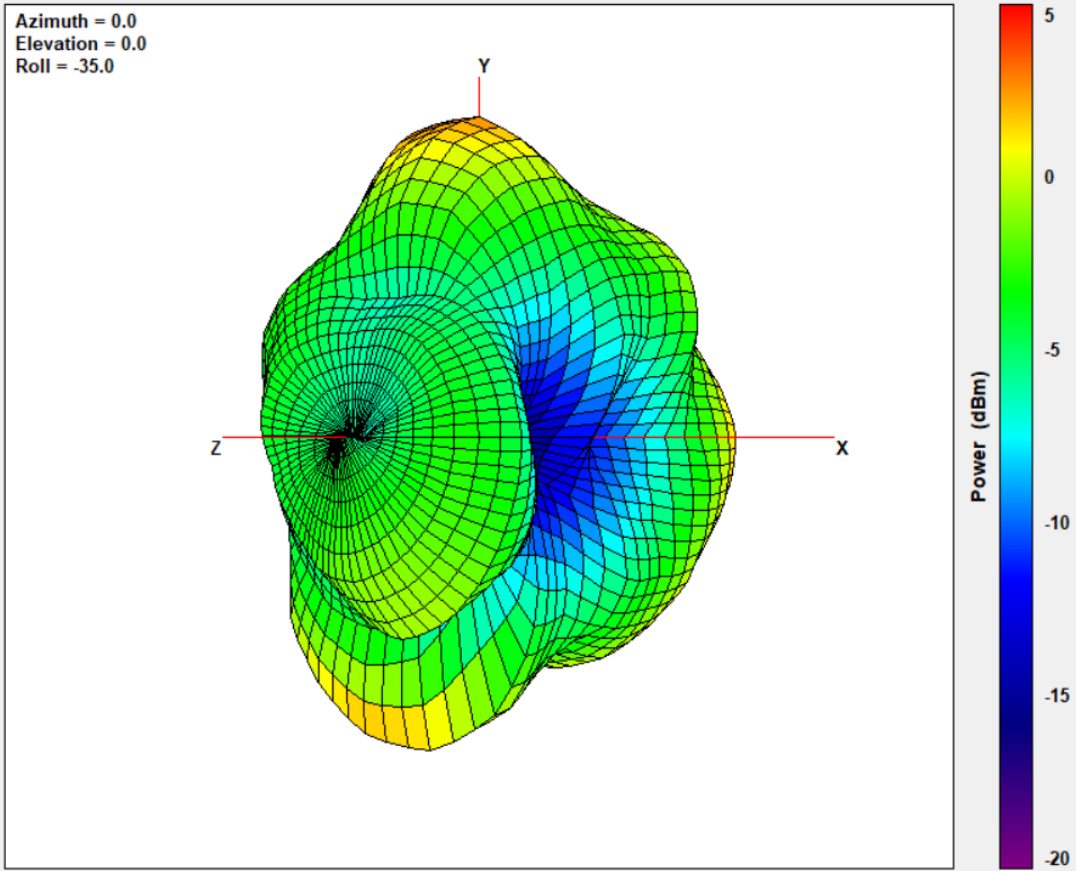
XY Plane

XZ Plane

YZ Plane



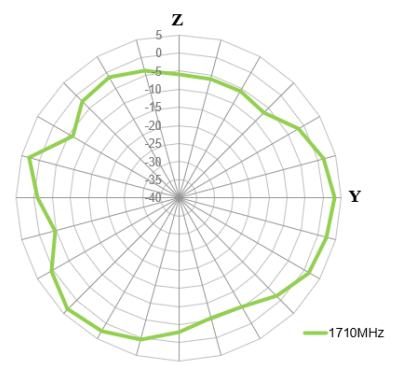
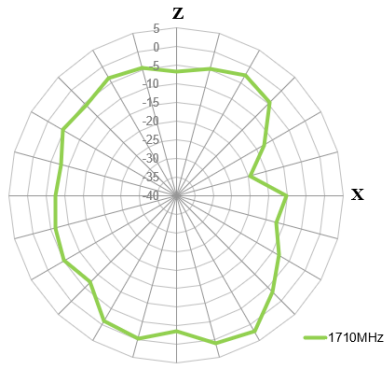
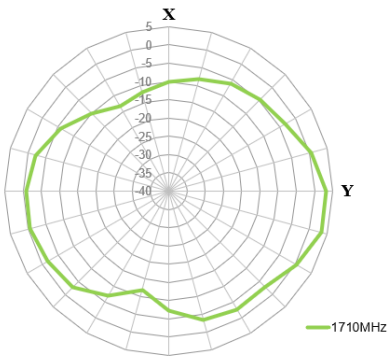
1710MHz



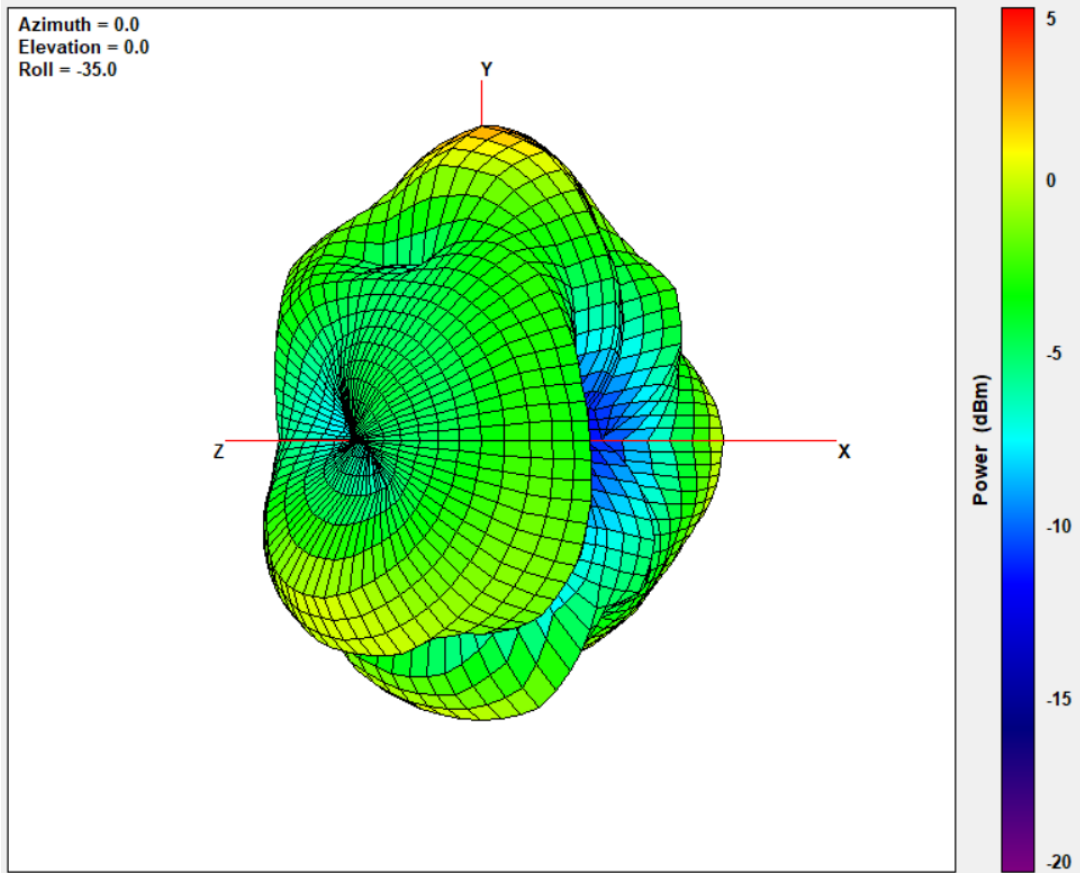
XY Plane

XZ Plane

YZ Plane



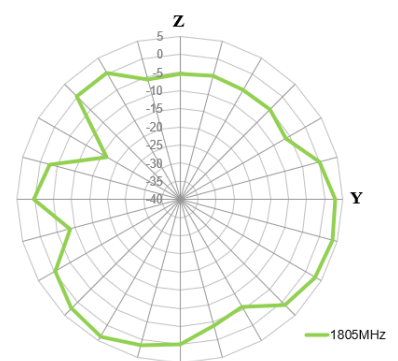
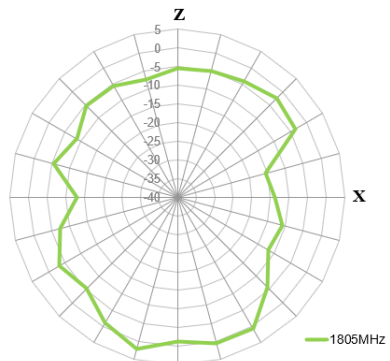
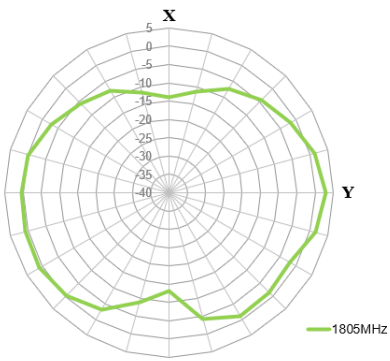
1805MHz



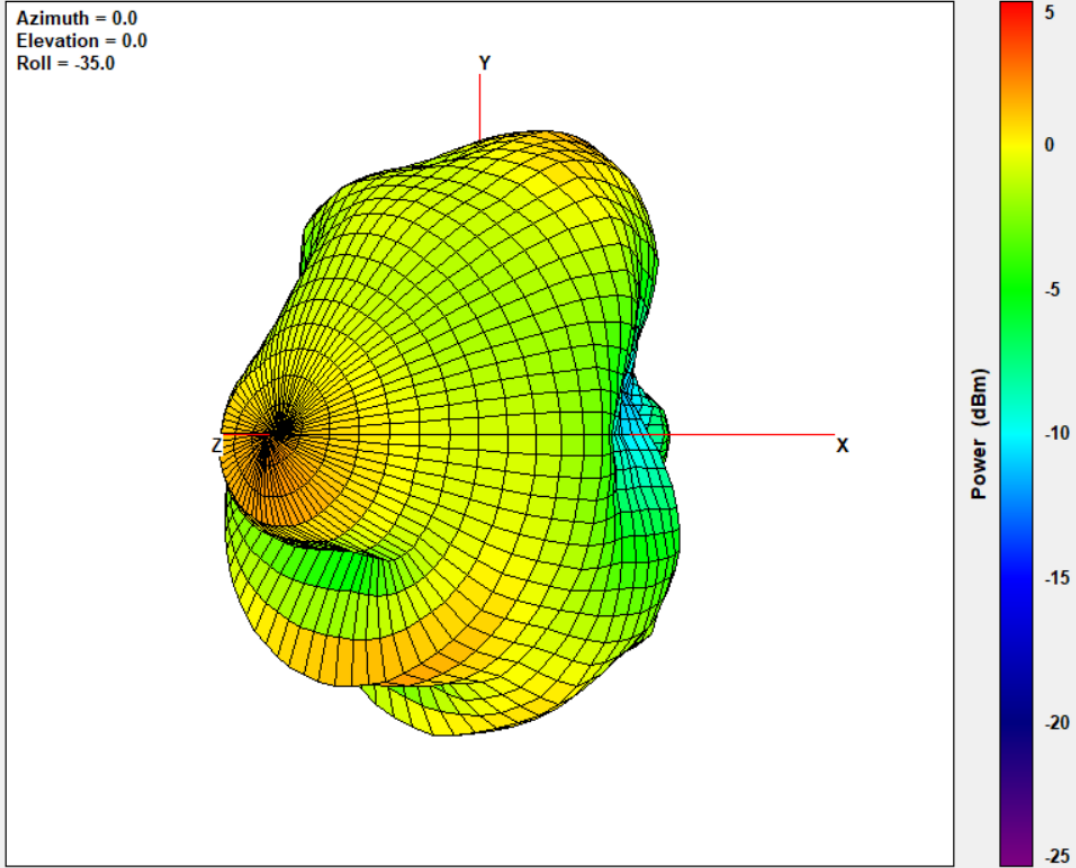
XY Plane

XZ Plane

YZ Plane



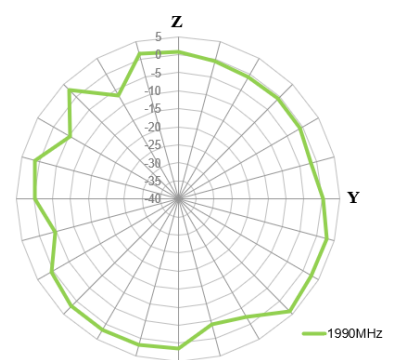
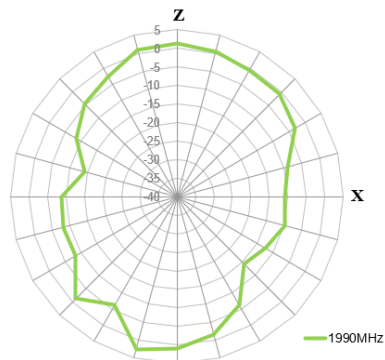
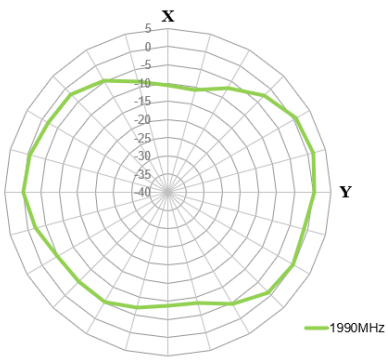
1990MHz



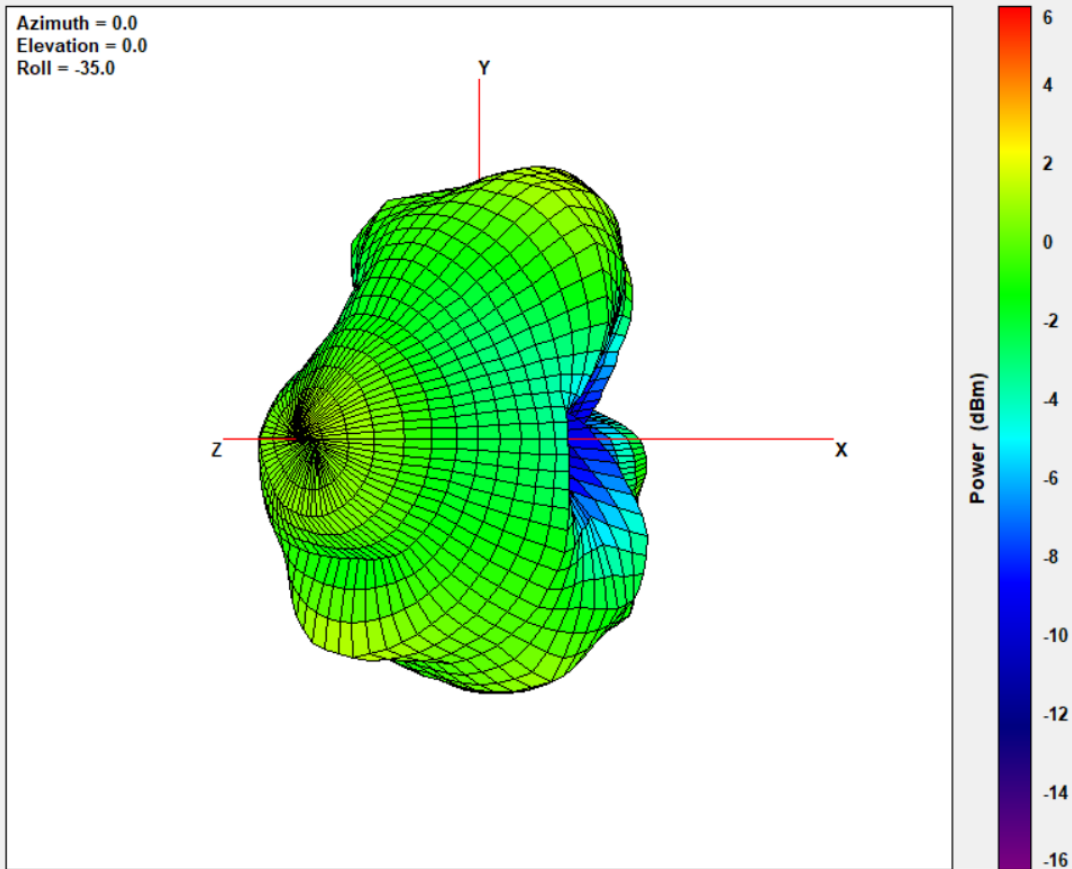
XY Plane

XZ Plane

YZ Plane



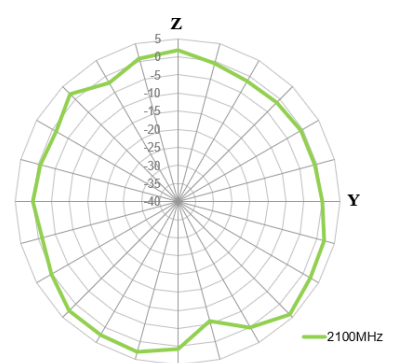
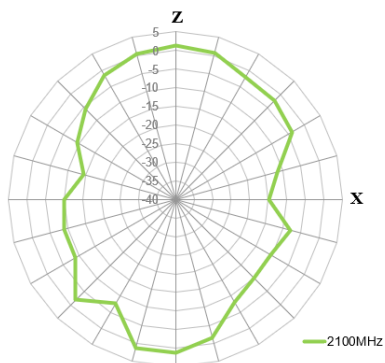
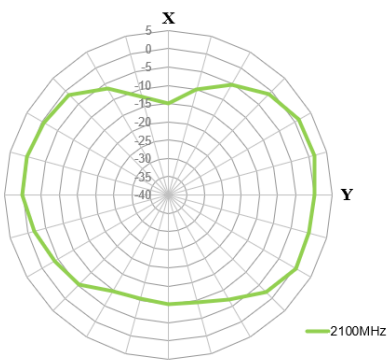
2100MHz



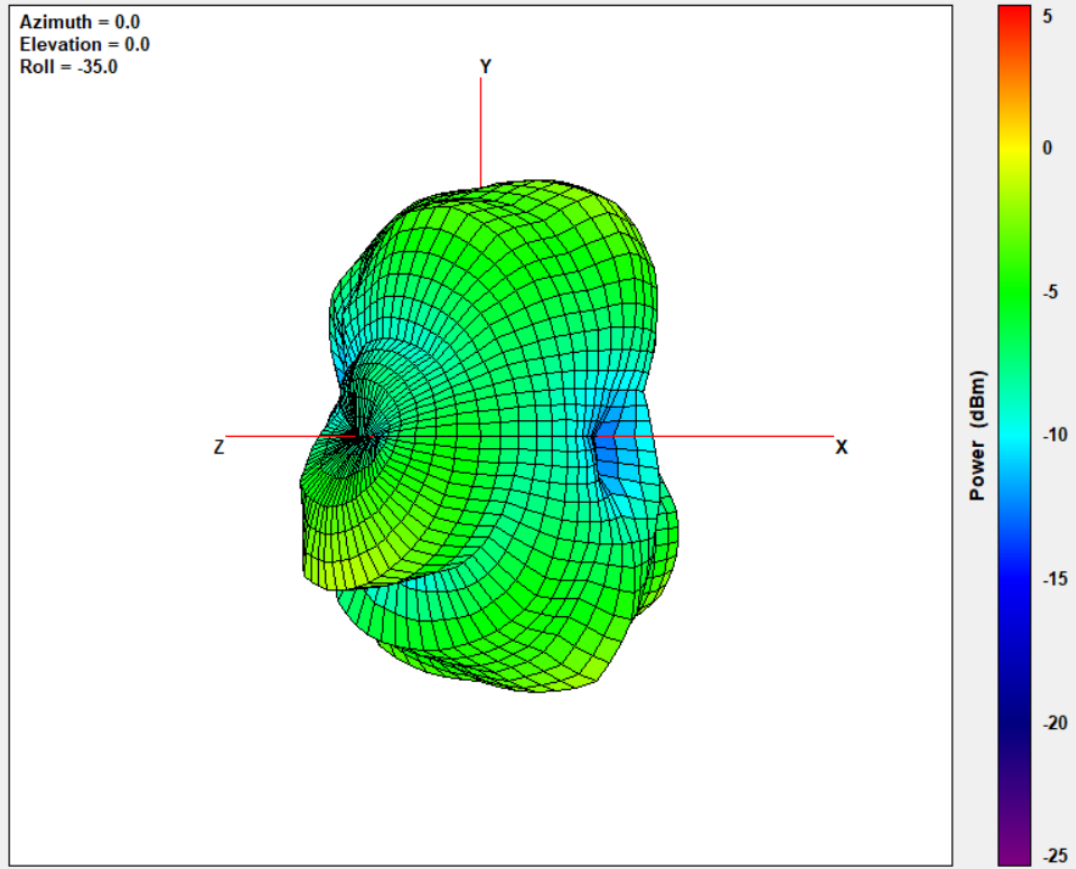
XY Plane

XZ Plane

YZ Plane



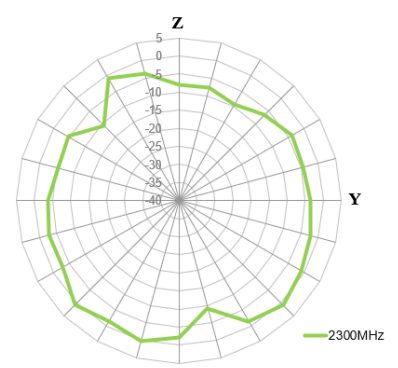
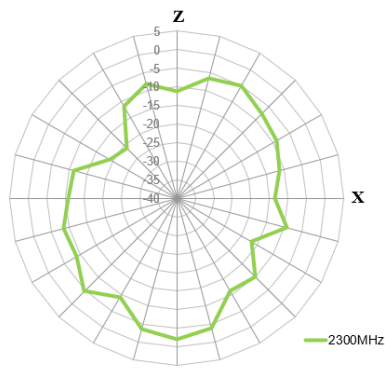
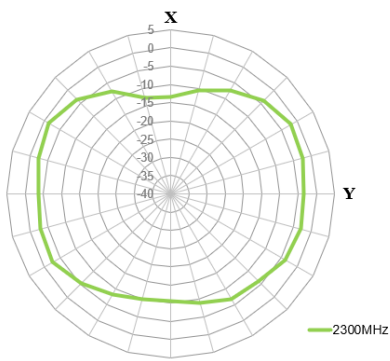
2300MHz



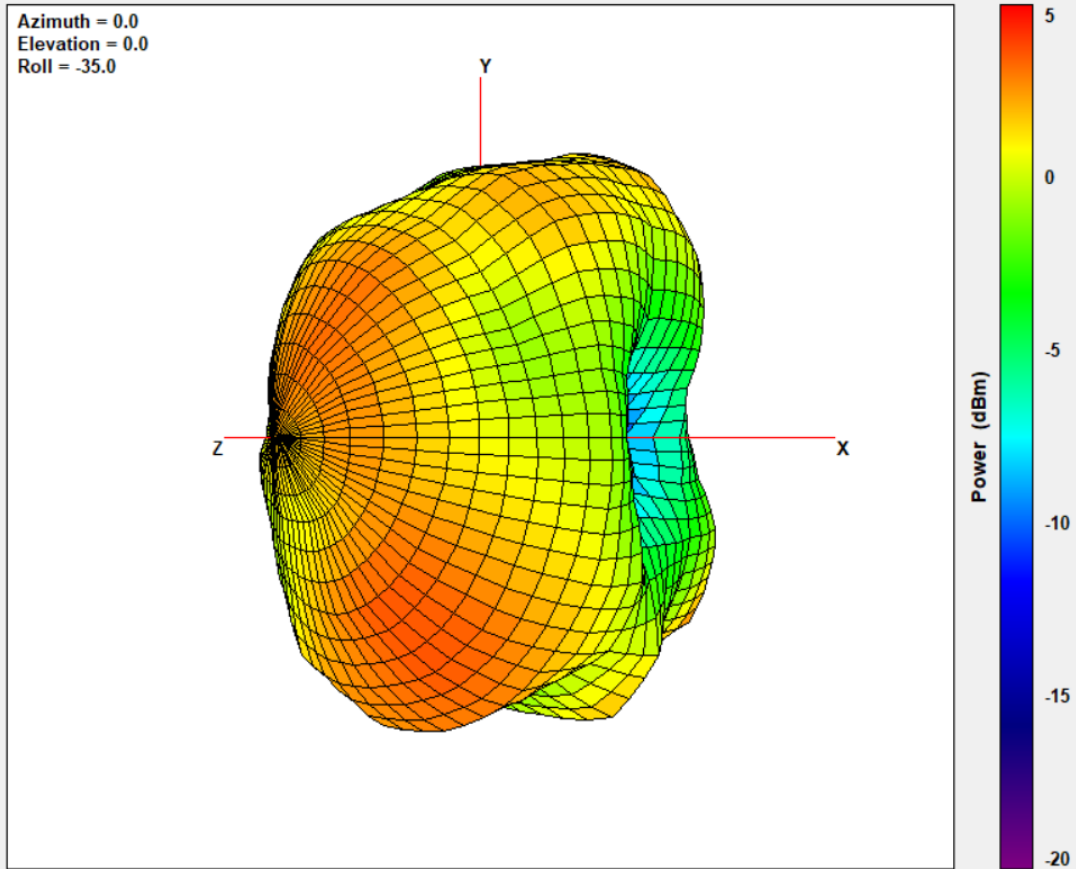
XY Plane

XZ Plane

YZ Plane



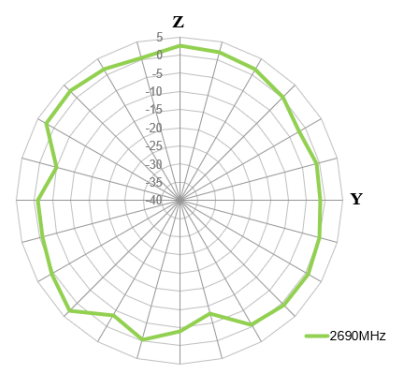
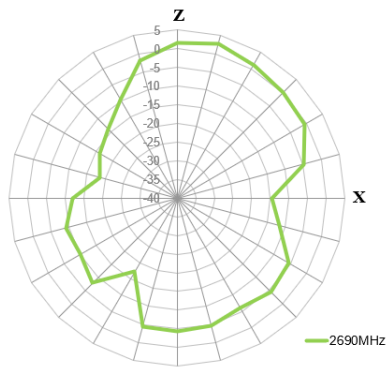
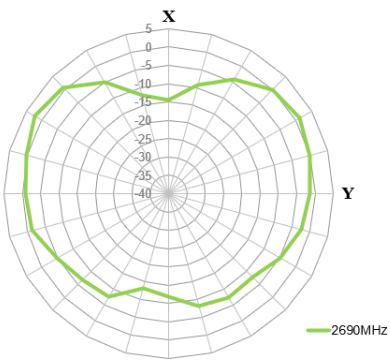
2690MHz



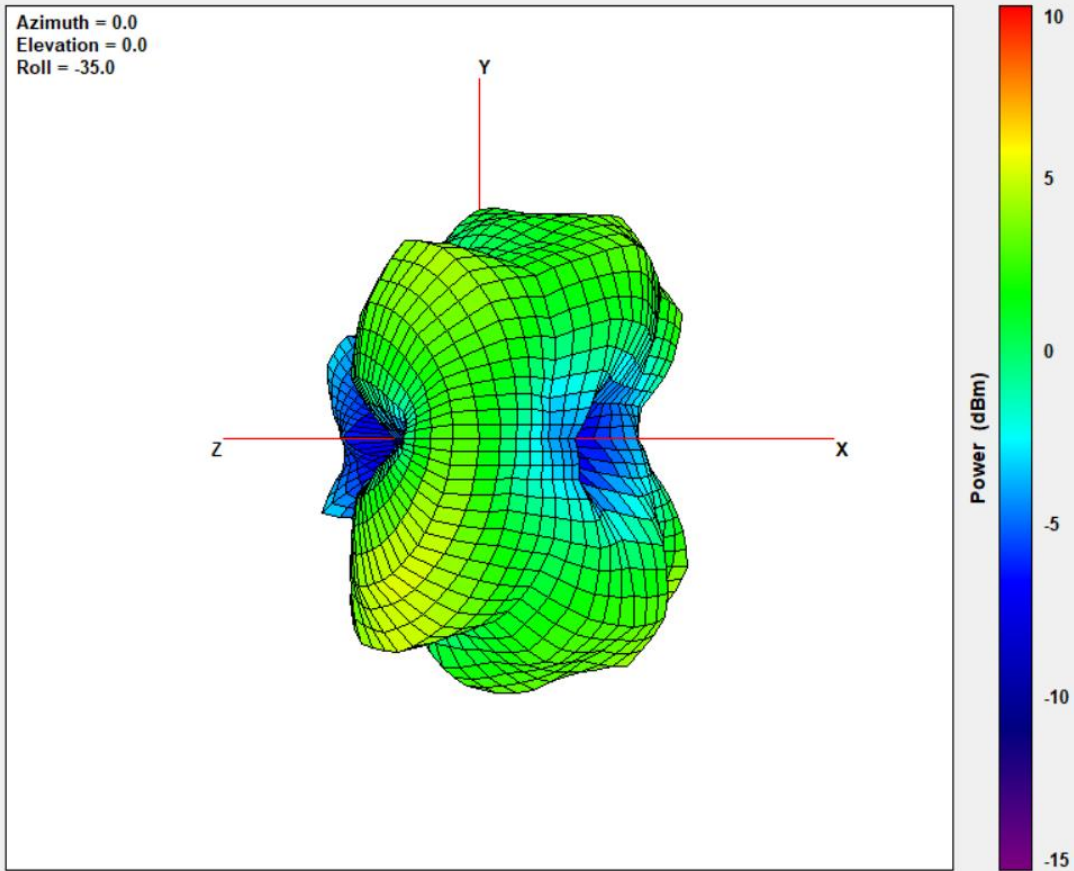
XY Plane

XZ Plane

YZ Plane



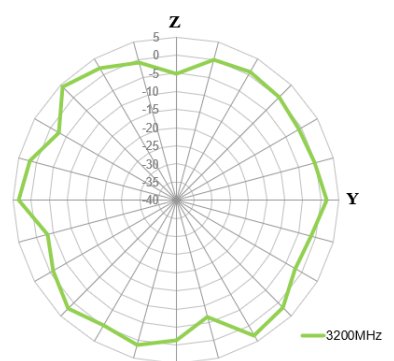
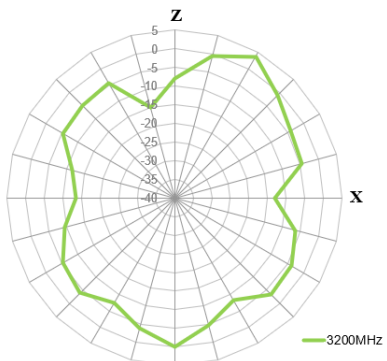
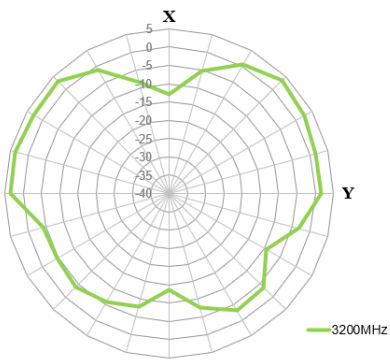
3200MHz



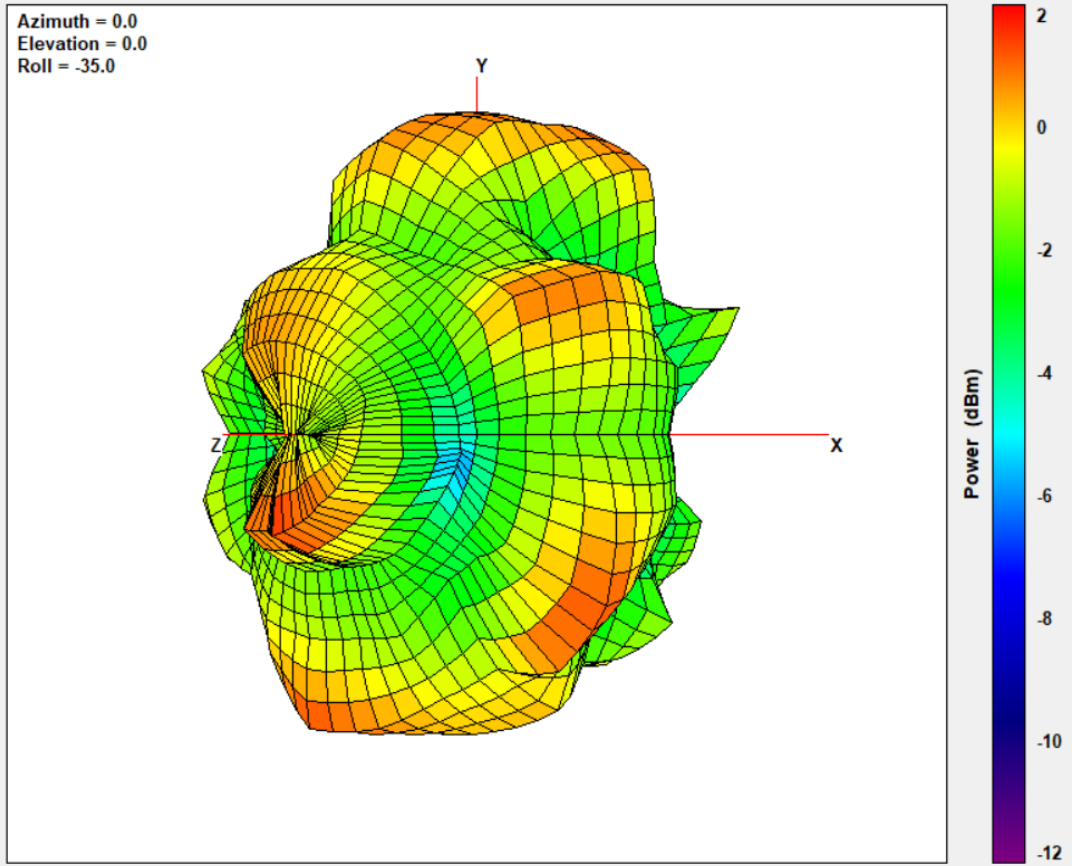
XY Plane

XZ Plane

YZ Plane



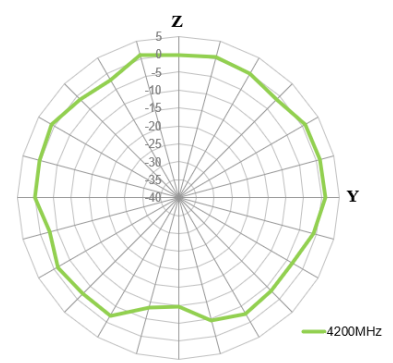
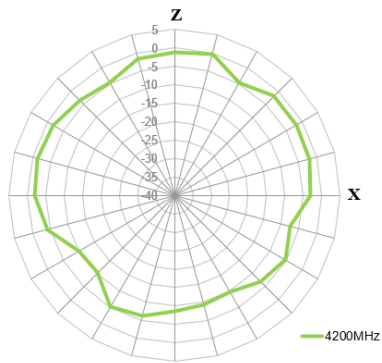
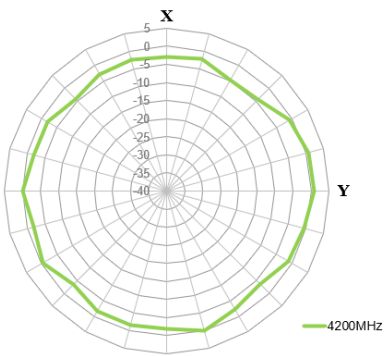
4200MHz



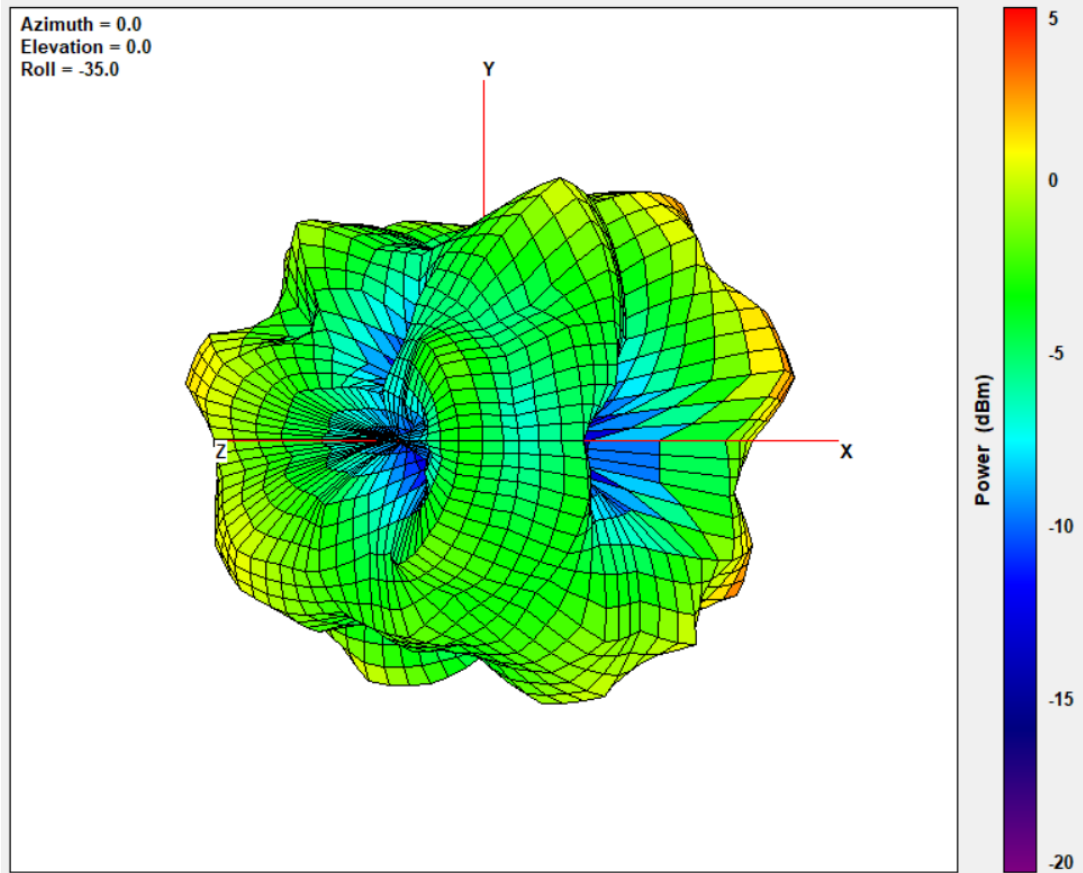
XY Plane

XZ Plane

YZ Plane



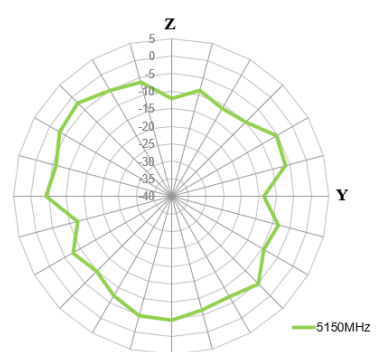
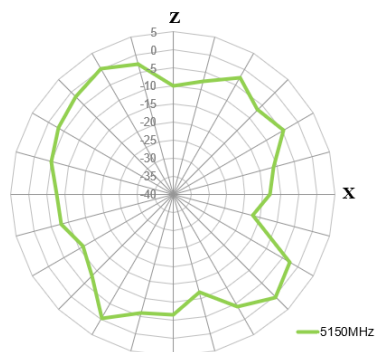
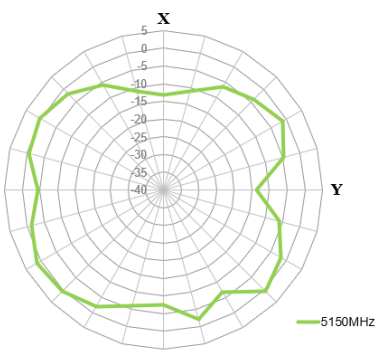
5150MHz



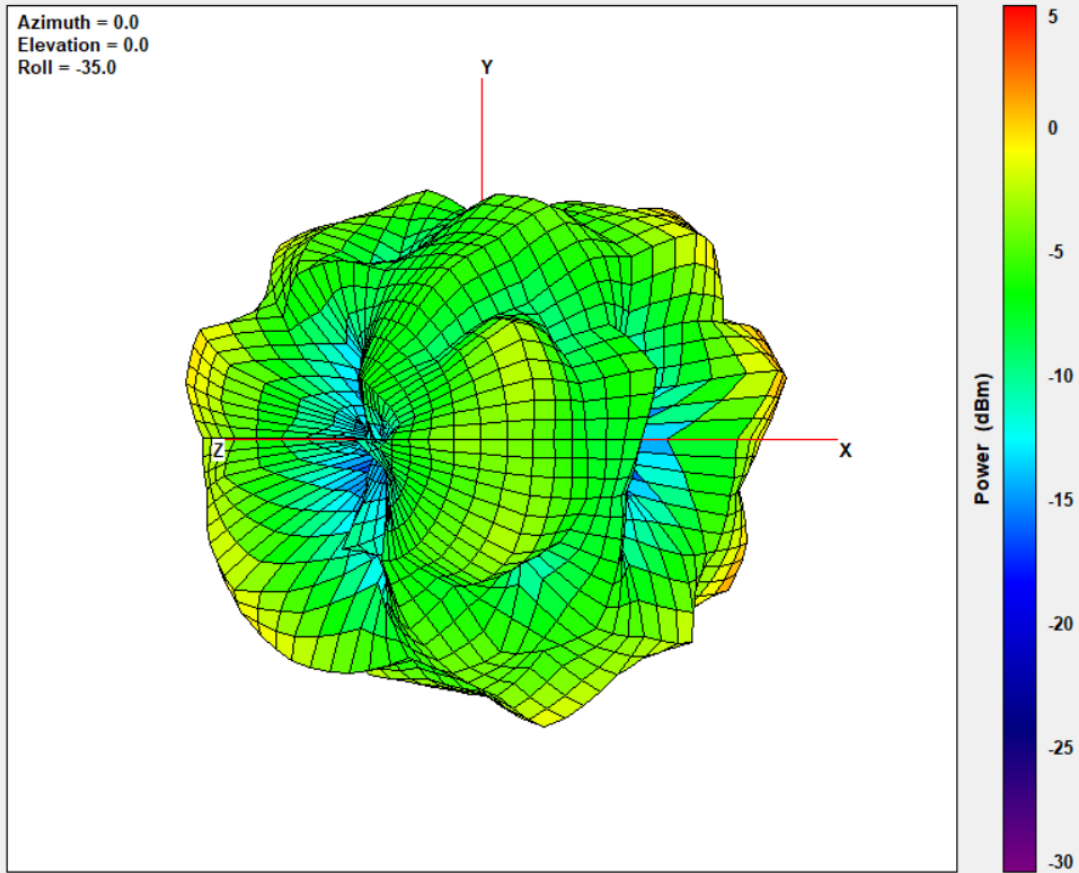
XY Plane

XZ Plane

YZ Plane



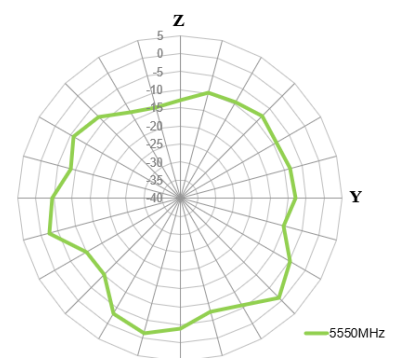
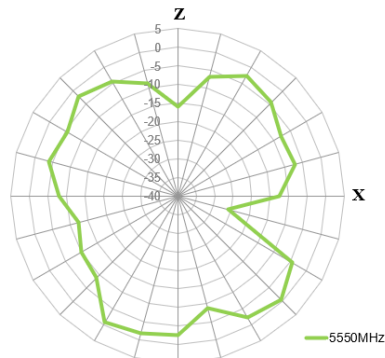
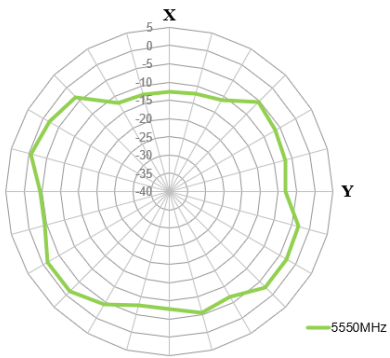
5550MHz



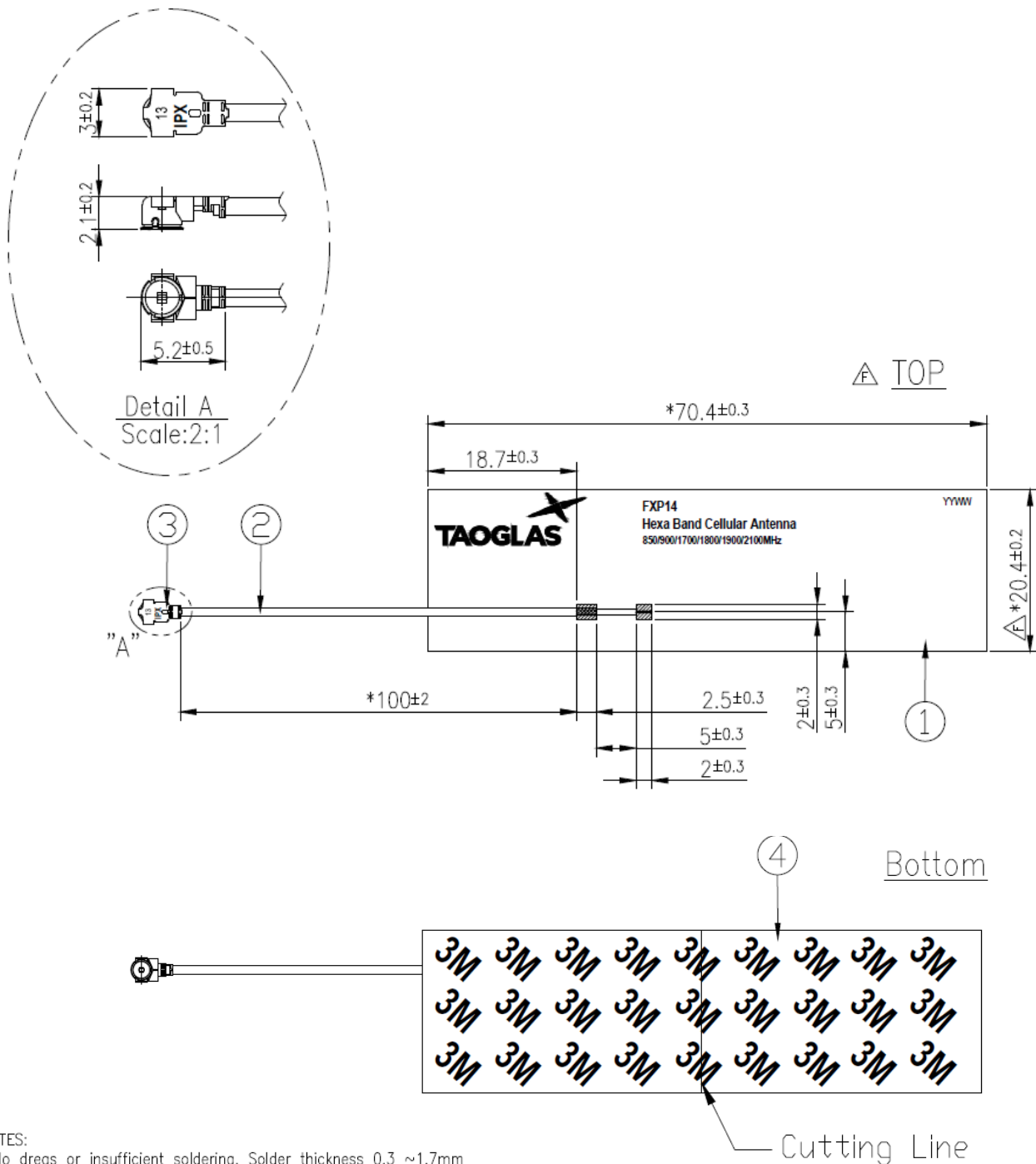
XY Plane

XZ Plane

YZ Plane



5. Mechanical Drawing (Units: mm)



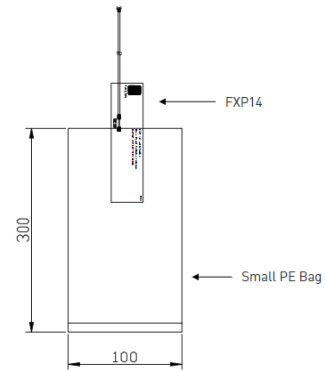
NOTES:

- 1.No dregs or insufficient soldering. Solder thickness 0.3 ~1.7mm
- 2.The solder must be smooth and full to the edges of the pad.
The solder must not extend outside of the pad area.
- 3.The connector position has special orientation to the PCB as per drawing.
- 4.All material must be RoHS compliant.
- 5.Open/short QC, VSWR required.
- 6.Soldered area.
- 7."*" Critical Dimensions.

	Name	P/N	Material	Finish	QTY
1	FXP14 FPCB	100113A000033A	Polymer 0.24t	Black	1
2	1.13 Coaxial Cable	300215C020000A	FEP	Black	1
3	IPEX MHF1(20278-112R-13)	204111G000000A	Brass	Au Plated	1
4	Double-Sided Adhesive	100113A000033A	3M 467	Brown Liner	1

6. Packaging

100pcs FXP14.07.0100A per PE Bag
 Dimensions - 300*100mm
 Weight - 150g



Changelog for the datasheet

SPE-12-8-050 – FXP14.07.0100A

Revision: F	
Date:	2022-06-15
Changes:	Retest data, verify & updated
Changes Made by:	Evan Murphy

Previous Revisions

Revision: E	
Date:	2019-11-14
Changes:	Updated Images
Changes Made by:	Russell Meyler

Revision: D	
Date:	2019-07-12
Changes:	Updated EDW
Changes Made by:	Jack Conroy

Revision: C	
Date:	2014-08-12
Changes:	Amended IPEX
Changes Made by:	Aine Doyle

Revision: B	
Date:	2013-09-17
Changes:	Updated EDW
Changes Made by:	Aine Doyle

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