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Datasheet

Part No:
PC60.07.0180AQ

Description

Wideband Cellular 90x15mm PCB Antenna (617-6000MHz) with Black 180mm 1.37 Cable and I-PEX MHF1

Features:

High-performance PCB Cellular Antenna
Global Cellular Coverage: 617-6000MHz
Peel and Stick Adhesive or Hole Mounting Options
Dims: 90 x 15 x 1.06mm
Cable: 180mm of 1.37 Coaxial Cable (Black)
Connector: I-PEX MHF1
RoHS & Reach Compliant

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1. Introduction



The Taoglas PC60 is a high-performance PCB antenna specifically designed for 5G/4G cellular IoT devices and applications. Covering the full bandwidth from 617-6000MHz, the small footprint and super slim design offer exceptional integration capabilities. At just 90 x 15mm, it is easily installed with minimal design requirements. Engineered for seamless integration, either on or off the main device PCB, the 3M peel and stick adhesive on the back makes it easy to integrate. Small through holes allow for an alternative mounting option where adhesive might not be appropriate. The design eliminates the need for complex matching or tuning, allowing for quick and easy installation, minimizing your overall design cycle.

This antenna features a 1.37mm diameter RF cable equipped with an I-PEX MHF1 connector, ensuring reliable and robust connection to the device. With a frequency range of 617-6000MHz, the antenna supports a wide range of 5G, LTE, and other global cellular bands, delivering high efficiency to assist with PTCRB certification.

Typical applications for the PC60 antenna include:

- Network devices, Gateways and Routers
- Remote Monitoring and CCTV Cameras
- Point of Sale Terminals
- Digital Signage

The antenna's compact design includes a 180mm cable feed, making it an ideal solution for applications where space is limited without compromising on performance. Whether for IoT devices, cellular modules, or other wireless communication products, this antenna ensures optimized performance across a wide range of frequencies. For an alternative mounting option, the PC66.07.0150Q with long end side feed is also available.

Contact your regional Taoglas customer support team for samples or for further information.

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2. Specification

Cellular Specifications									
Band	Frequency (MHz)	Measurement	Efficiency (%)	Average Gain (dB)	Peak Gain (dBi)	Impedance	Polarization	Radiation Pattern	Max. input power
5GNR/4G Band71	617-698	Cable Feed Left	28.6	-5.44	-0.33	50 Ω	Linear	Omni directional	10W
		Cable Feed Right	29.3	-5.33	0.09				
		Cable Feed Straight	26.4	-5.79	0.07				
4G/3G Band 12,13,14,17,28,29	698-806	Cable Feed Left	45.4	-3.43	0.62				
		Cable Feed Right	46.9	-3.28	1.71				
		Cable Feed Straight	47.7	-3.22	1.09				
4G/3G/NB-IoT/Cat M Band 5,8,18,19,20,26,27	824-960	Cable Feed Left	44.5	-3.51	0.84				
		Cable Feed Right	46.9	-3.29	2.47				
		Cable Feed Straight	49.6	-3.05	1.33				
5GNR/4G Band 21,32,74,75,76	1427-1518	Cable Feed Left	54.2	-2.66	1.84				
		Cable Feed Right	57.2	-2.42	2.64				
		Cable Feed Straight	57.4	-2.41	2.01				
4G/3G Band 1,2,3,4,9,23,25,35,39, 66	1710-2200	Cable Feed Left	59.5	-2.25	3.66				
		Cable Feed Right	60.6	-2.18	3.42				
		Cable Feed Straight	58.4	-2.34	3.18				
4G/3G Band 7,30,38,40,41	2300-2690	Cable Feed Left	58.8	-2.30	4.59				
		Cable Feed Right	59.6	-2.25	3.66				
		Cable Feed Straight	59.4	-2.26	3.68				
5GNR/4G Band 22,42,48,77,78,79	3300-5000	Cable Feed Left	51.8	-2.86	5.64				
		Cable Feed Right	51.5	-2.88	5.94				
		Cable Feed Straight	50.5	-2.97	6.00				
LTE5200/Wi-Fi5800	5150-5925	Cable Feed Left	48.5	-3.14	6.21				
		Cable Feed Right	45.5	-3.42	5.14				
		Cable Feed Straight	46.0	-3.38	4.71				

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5G/4G Band Coverage					
Band Number	**5GNR / FR1 / LTE / LTE-Advanced / WCDMA / HSPA / HSPA+ / TD-SCDMA / NTN**				
	Uplink	**Downlink**	**Cable Feed Left**	**Cable Feed Right**	**Cable Feed Straight**
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 / n23	2000 to 2020	2180 to 2200	✓	✓	✓
B24 / n255	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	✗	✗	✗
n256	1980 to 2010	2170 to 2200	✓	✓	✓

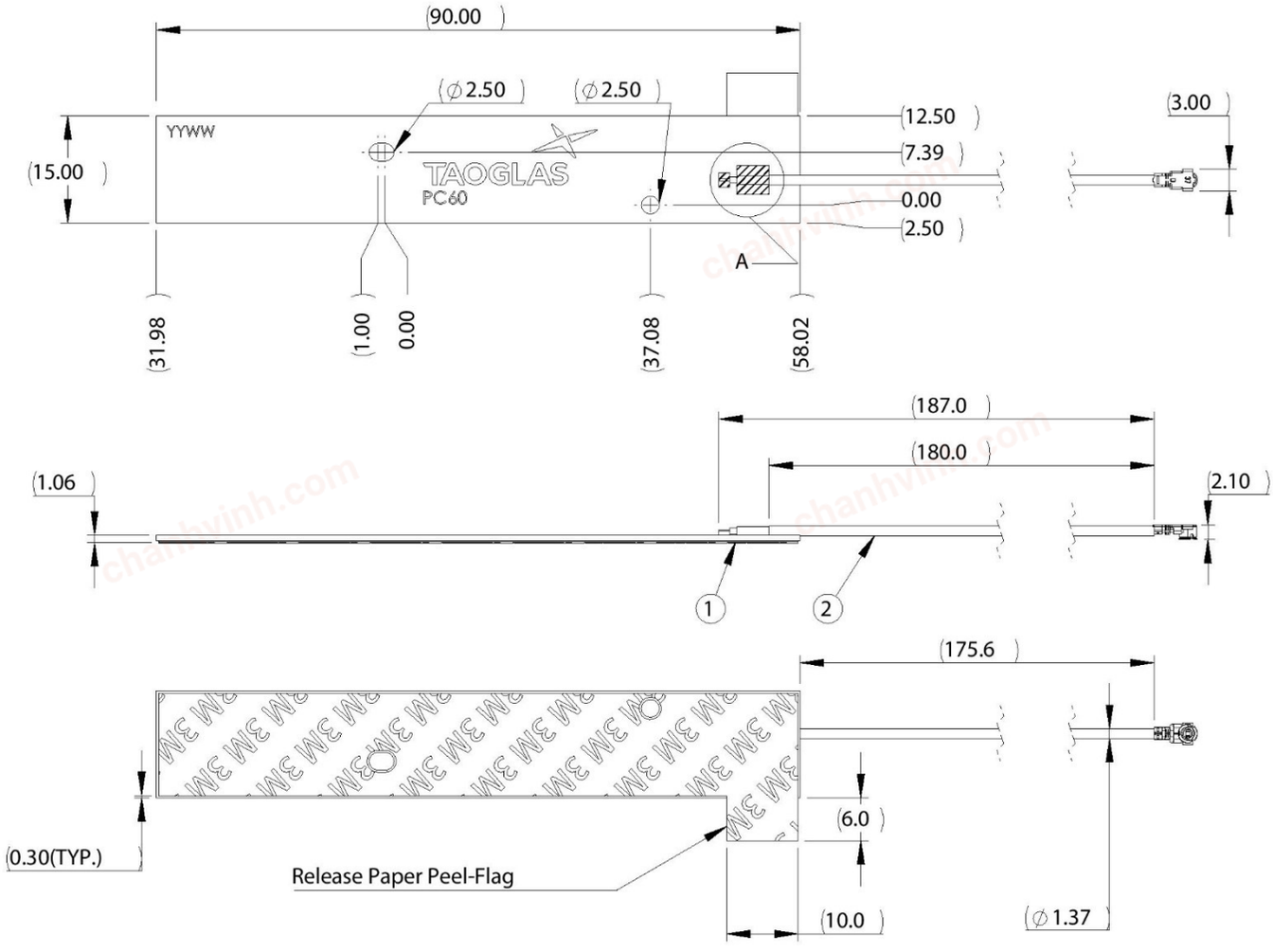
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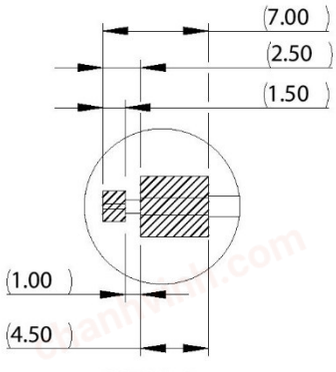
Mechanical	
Dimensions	90 x 15 x 1.06mm
Weight	5g
Material	Rigid PCB
Connector	IPEX MHF1
Cable	180mm of 1.37 Coaxial

Environmental	
Operation Temperature	-40°C to 85°C
Storage Temperature	-40°C to 85°C
Relative Humidity	Non-condensing 65°C 95% RH

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3. Mechanical Drawing





DETAIL A
SCALE 2 : 1

ITEM NO.	DESCRIPTION	Color	QTY.
1	Wideband Cellular 90x15x0.8mm PCB Antenna	Black	1
2	IPEX MHF 1 (U.FL Comp) 1.37,180MM,Open/Strip/Tin 1.5/1/4.5	Cable: Black, Connector: Golden	1

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4. Packaging

50pc per PE bag (1bundle/25pcs)
Bag dimensions: 230 x 330mm
Weight: 0.28Kg



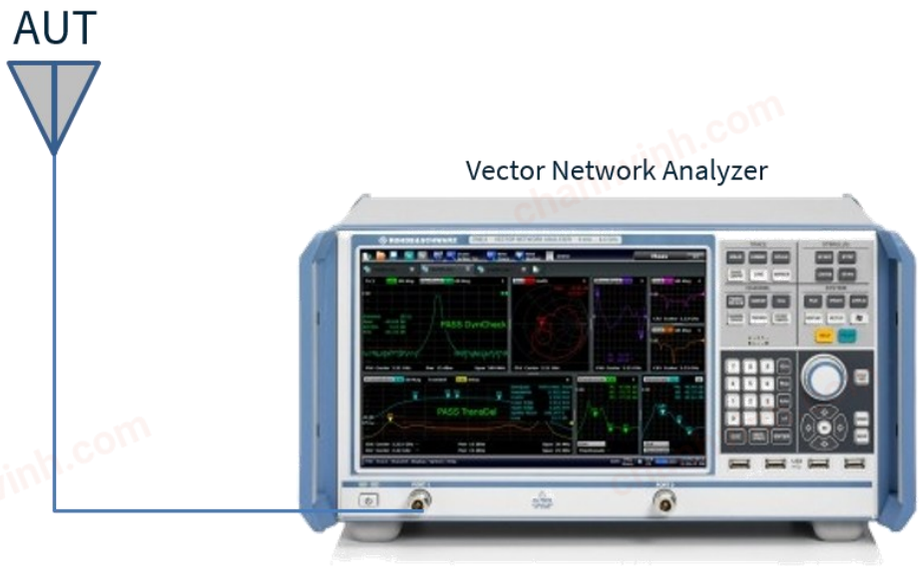
1000pcs per carton
Box dimensions: 320 x 250 x 290mm
Weight: 6.12Kg

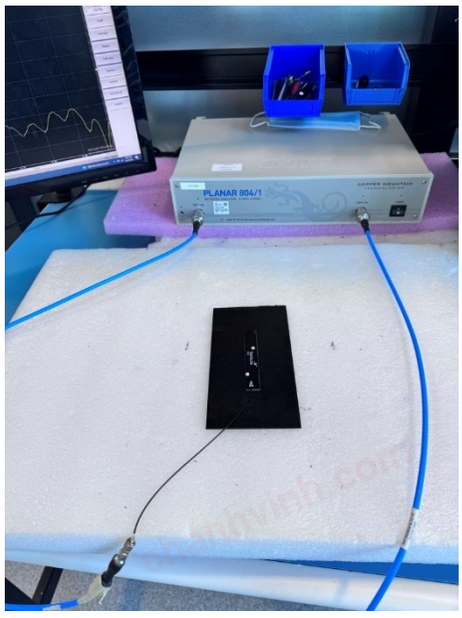


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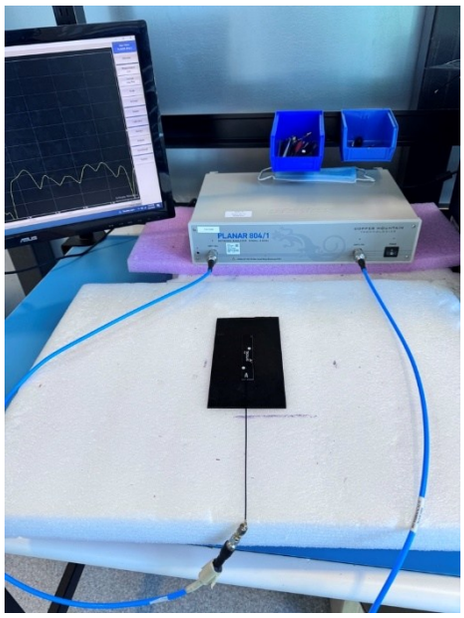
5. Antenna Characteristics

5.1 Test Setup

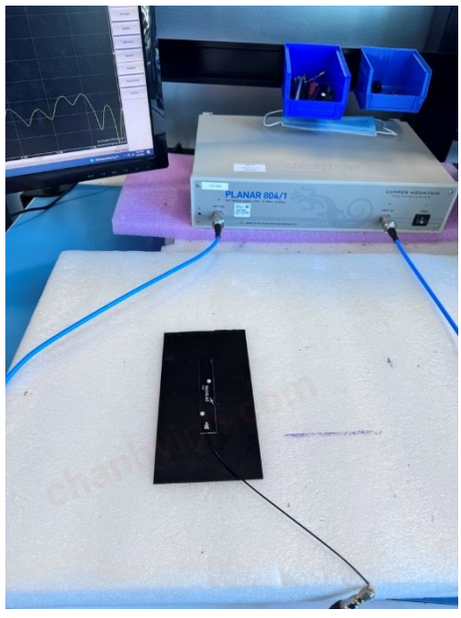




Cable Feed Left



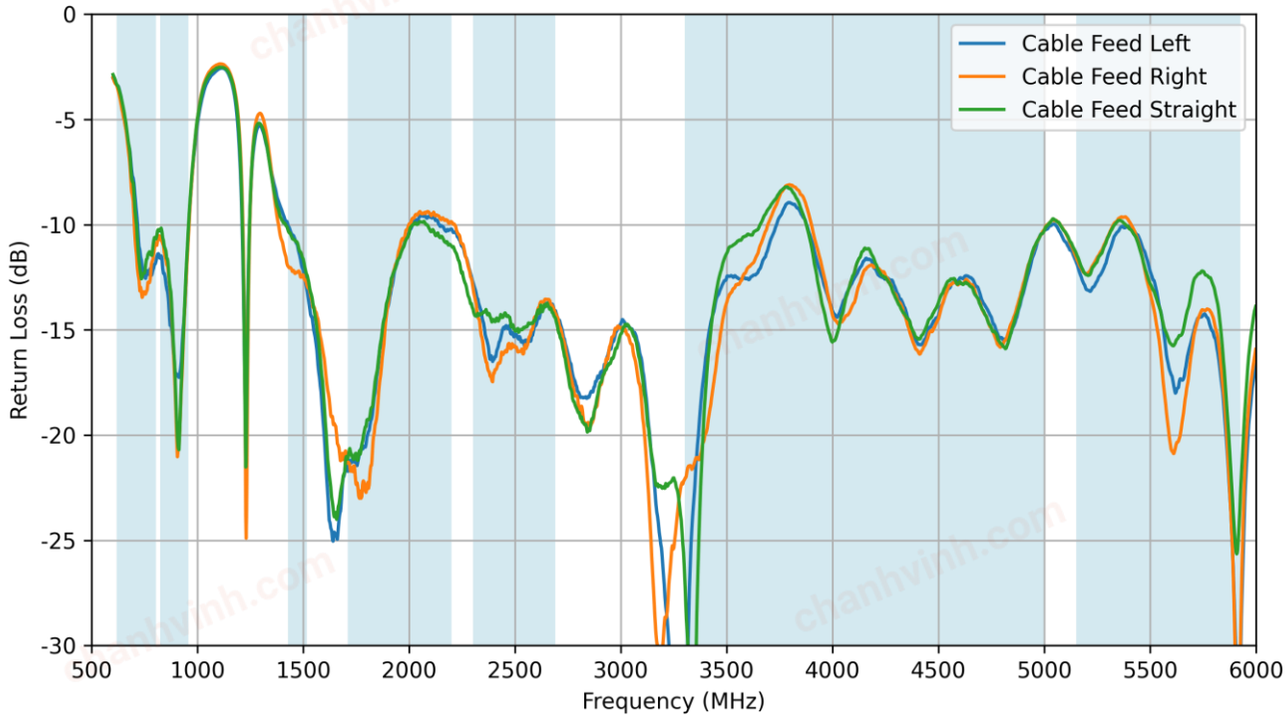
Cable Feed Straight



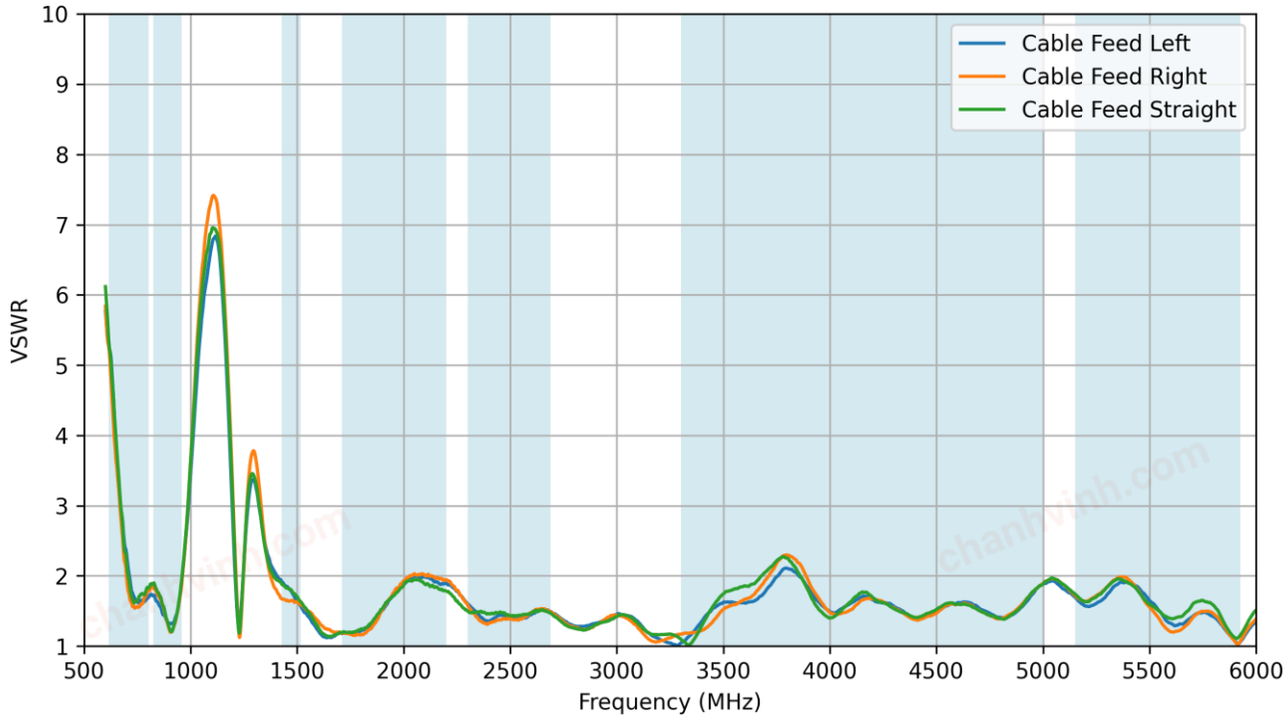
Cable Feed Right

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5.2 Return Loss

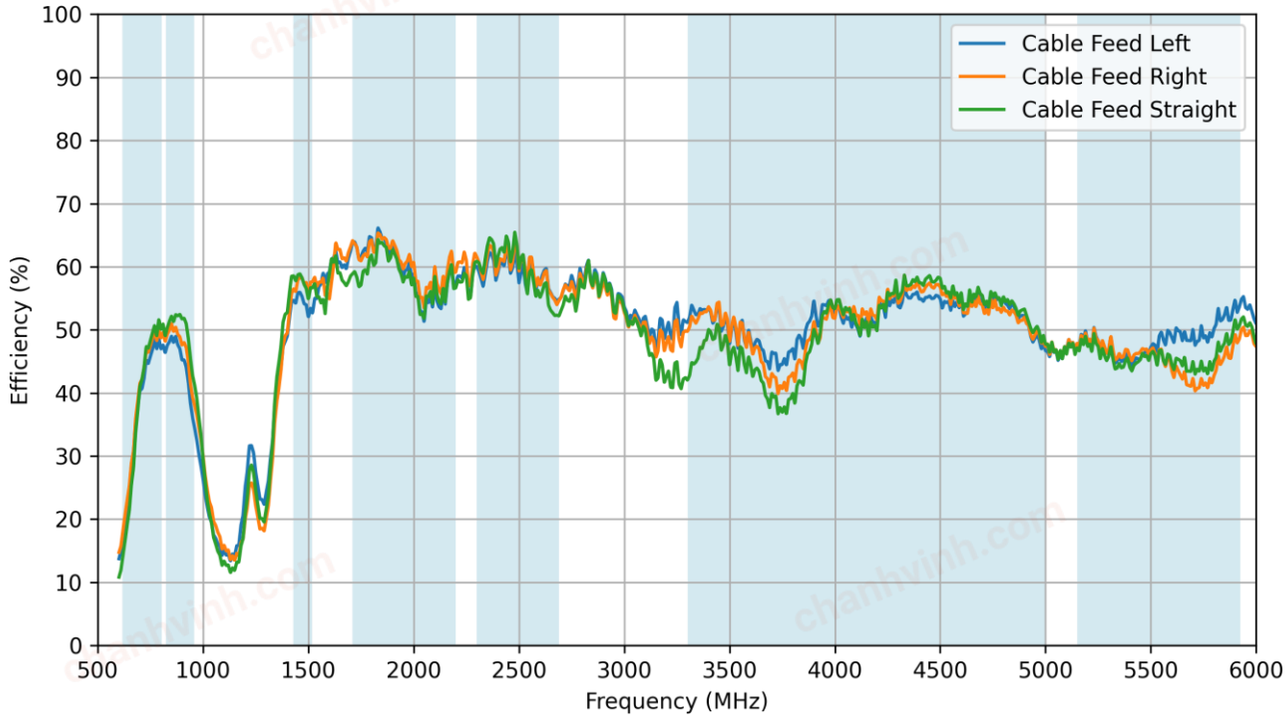


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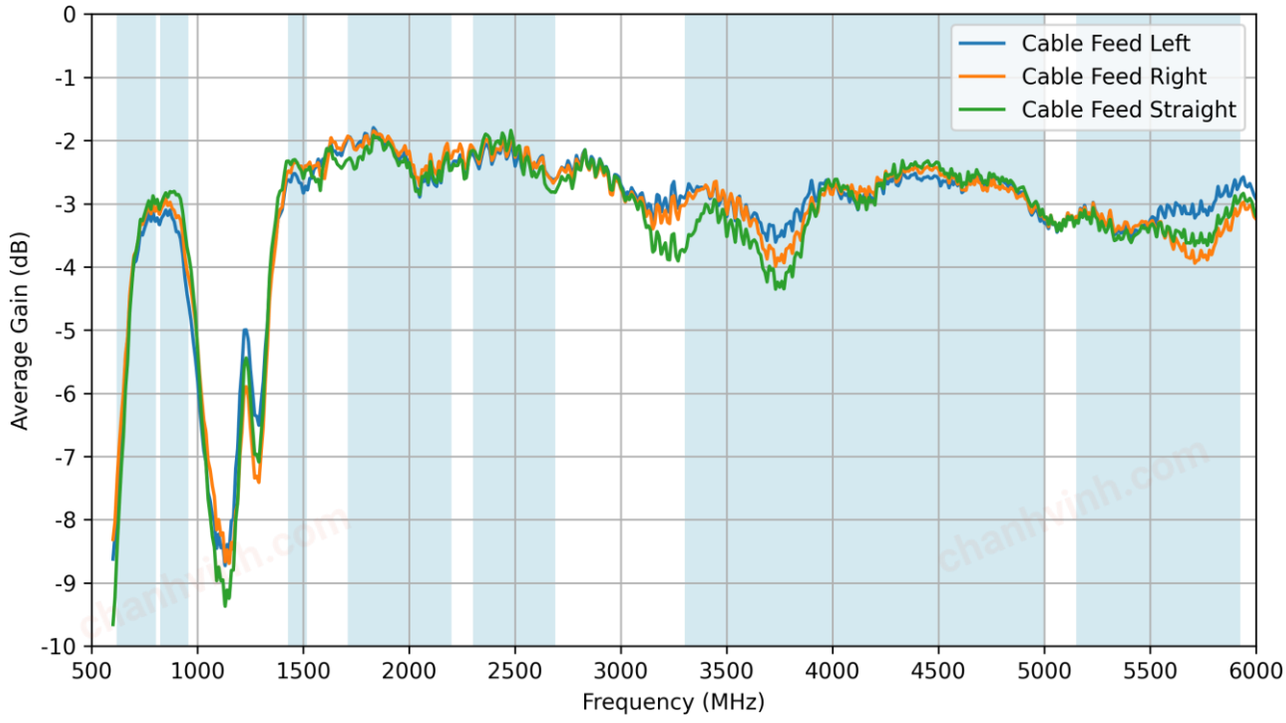


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5.4 Efficiency

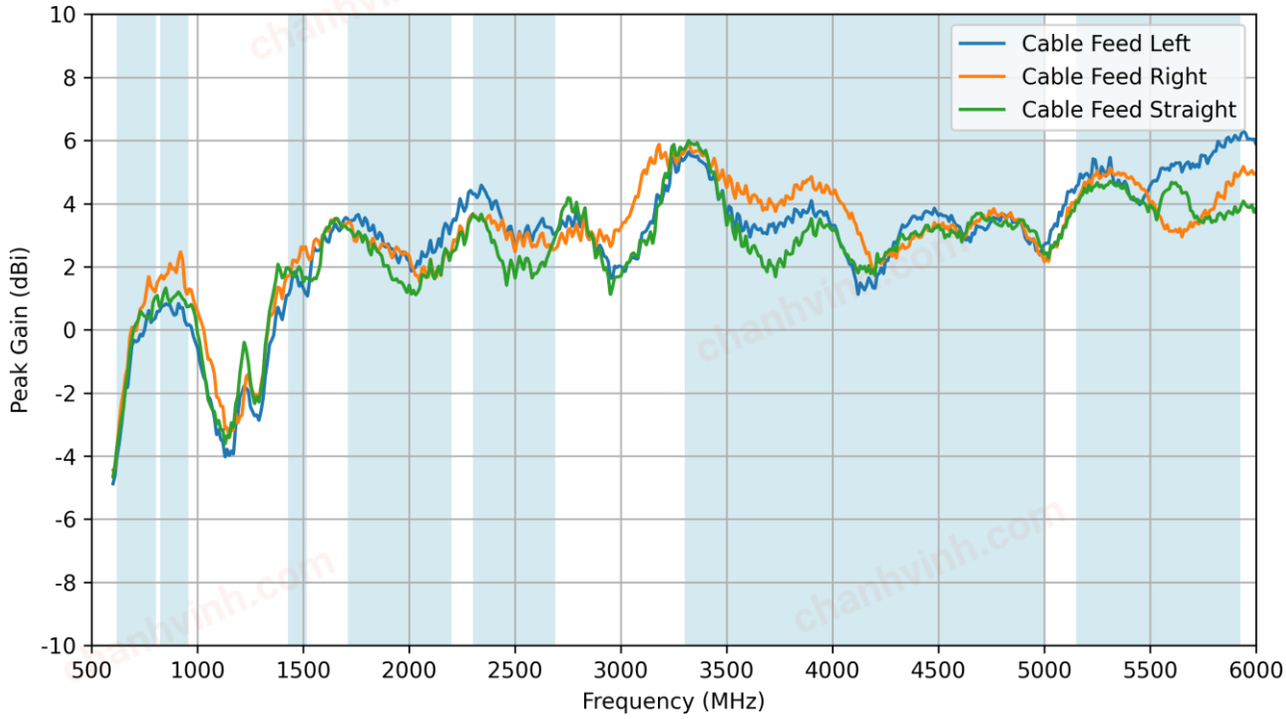


5.5 Average Gain



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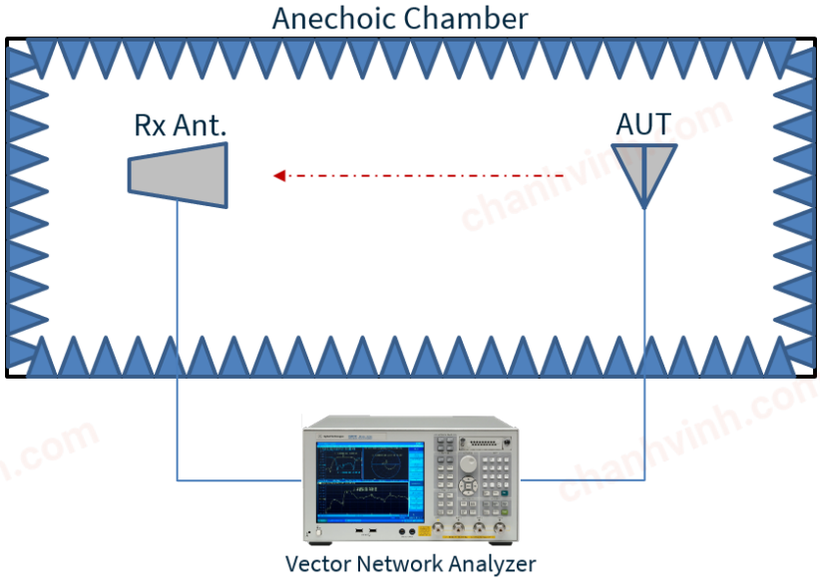
5.6 Peak Gain

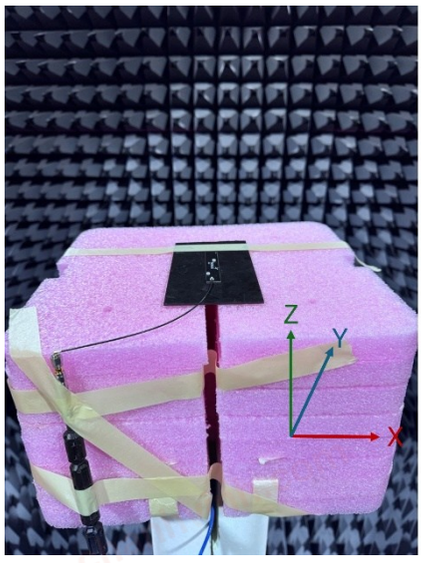


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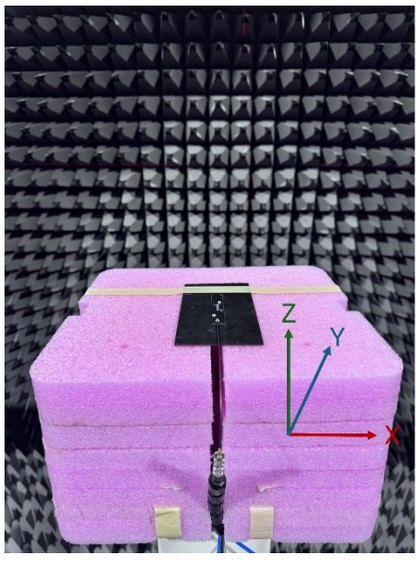
6. Radiation Patterns

6.1 Test Setup





Cable Feed Left



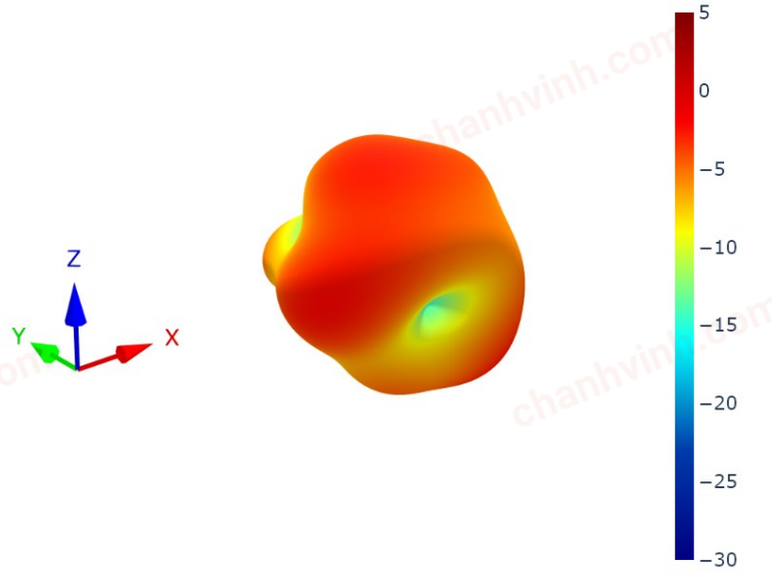
Cable Feed Straight

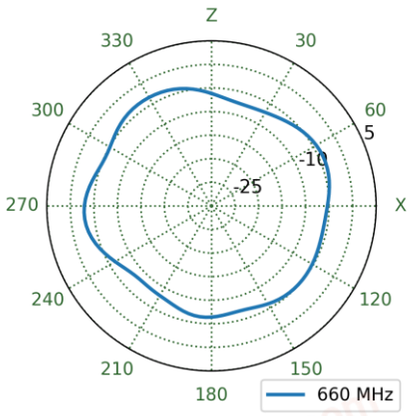
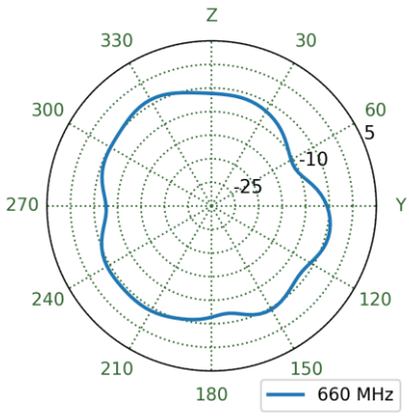
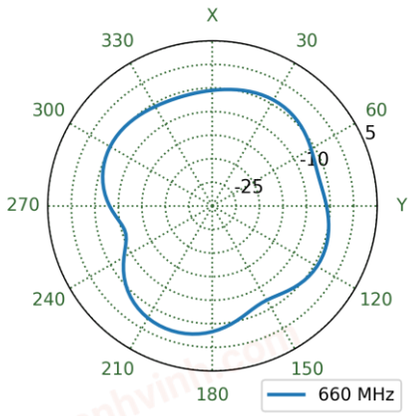


Cable Feed Right

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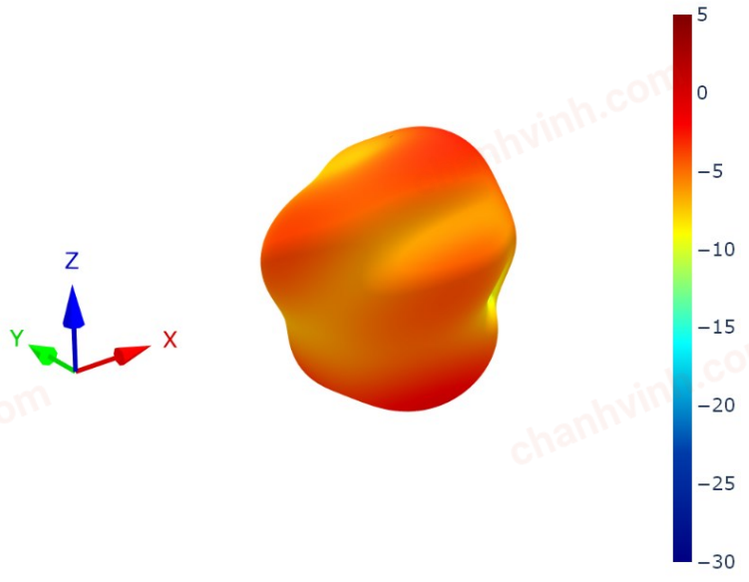
6.2 Cable Feed Left Patterns at 660 MHz



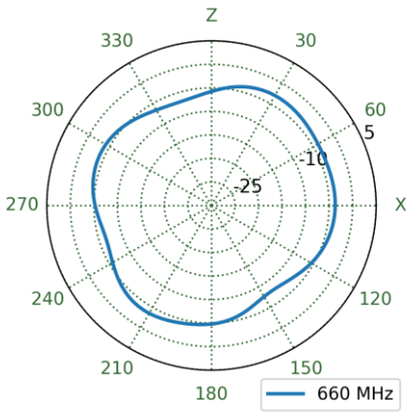
XZ Plane	YZ Plane	XY Plane
		

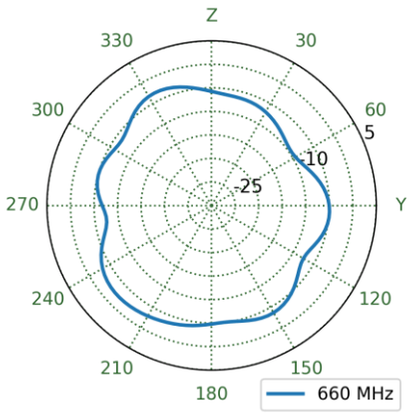
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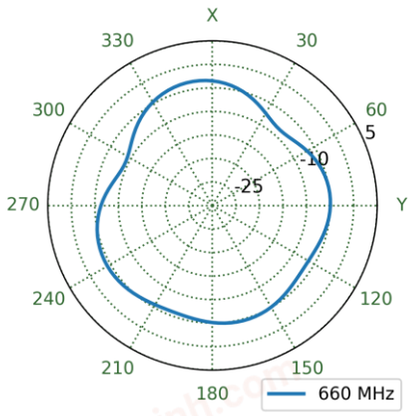
6.3 Cable Feed Right Patterns at 660 MHz



XZ Plane	YZ Plane	XY Plane

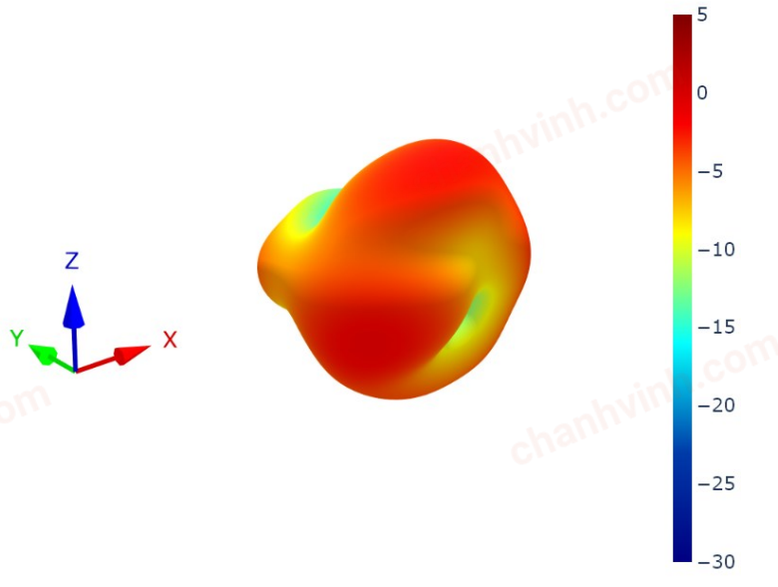




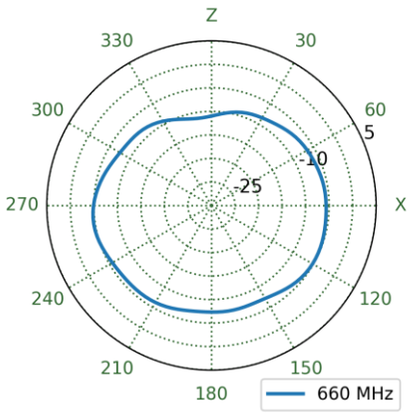


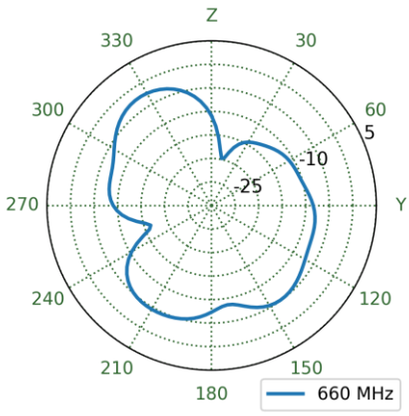
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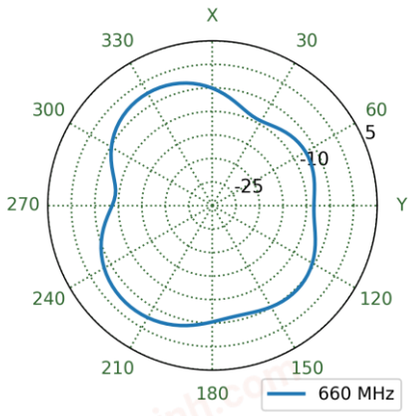
6.4 Cable Feed Straight Patterns at 660 MHz



XZ Plane	YZ Plane	XY Plane

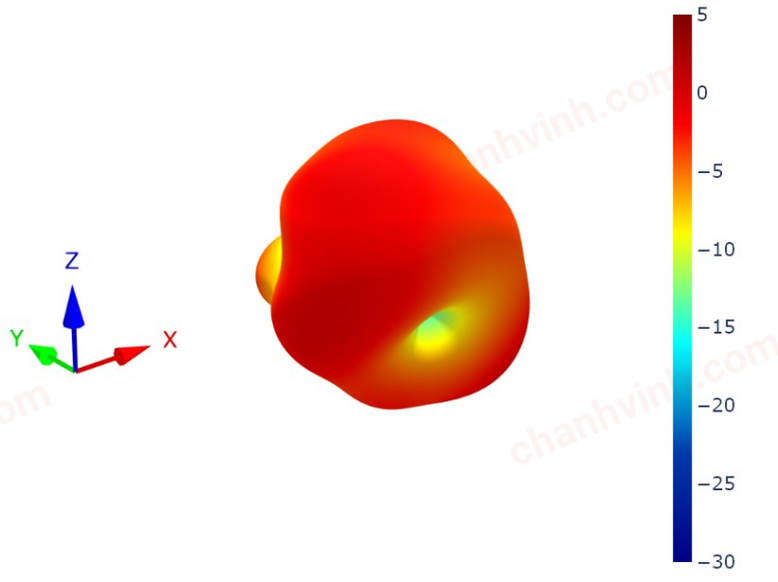




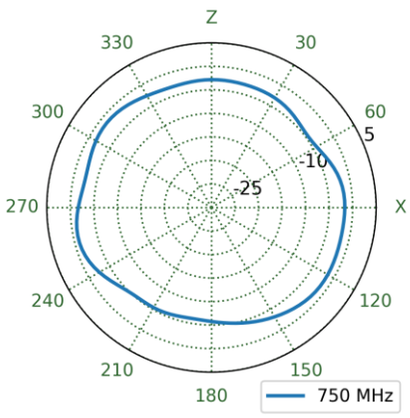


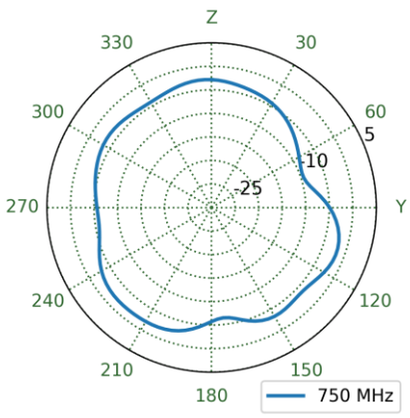
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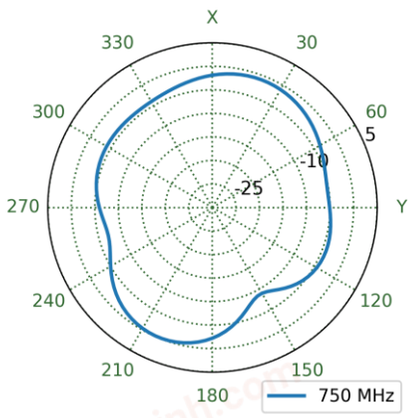
6.5 Cable Feed Left Patterns at 750 MHz



XZ Plane	YZ Plane	XY Plane

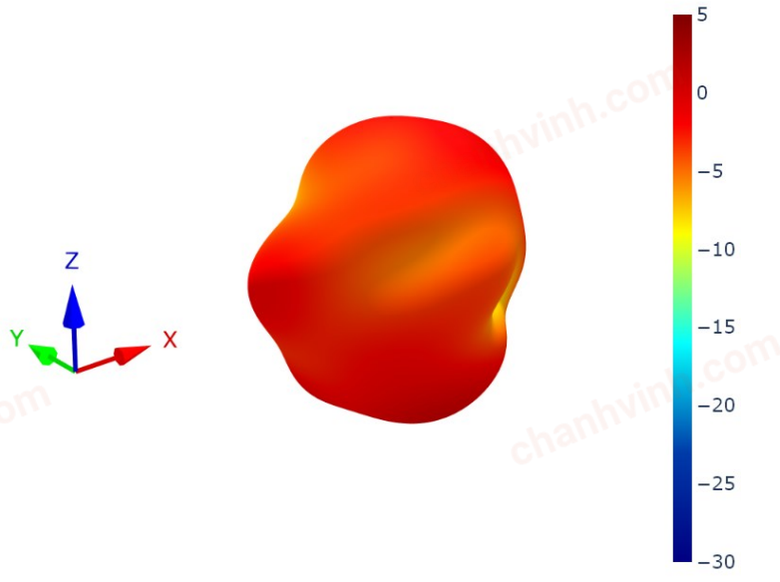




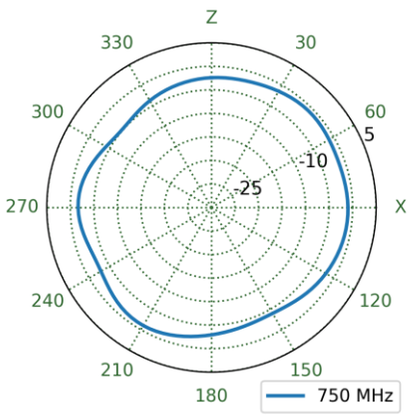


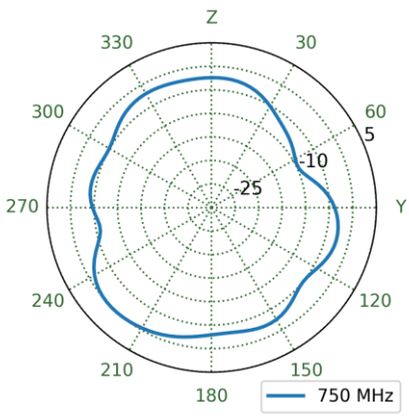
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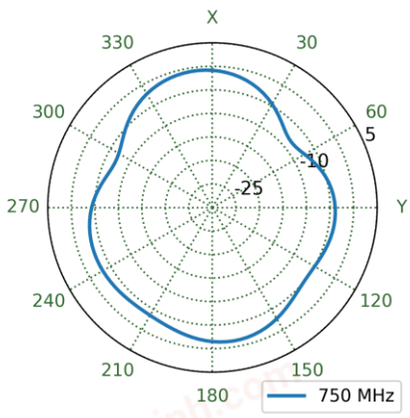
6.6 Cable Feed Right Patterns at 750 MHz



XZ Plane	YZ Plane	XY Plane

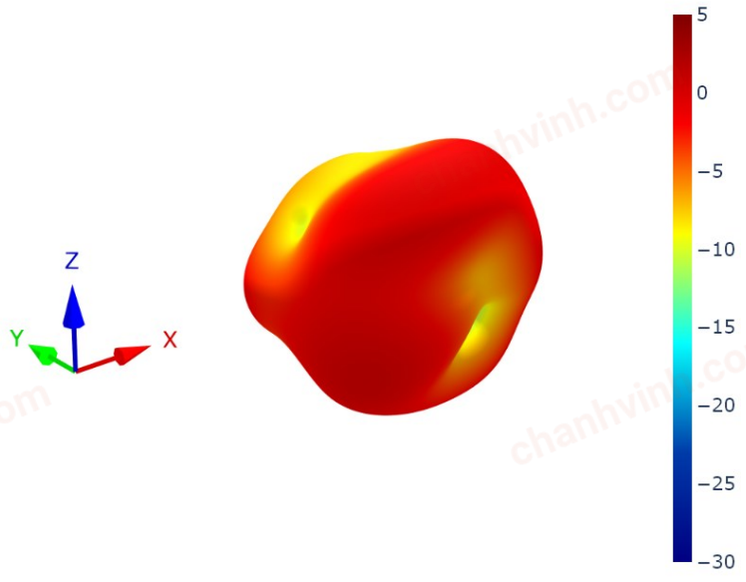




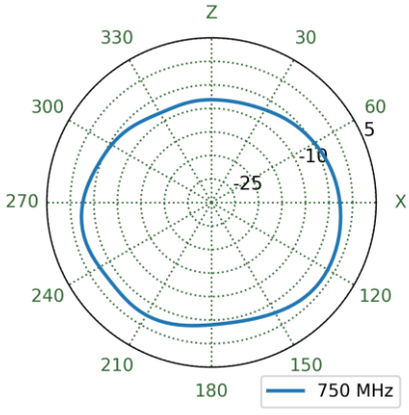


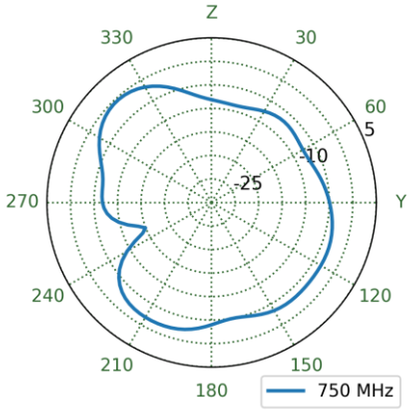
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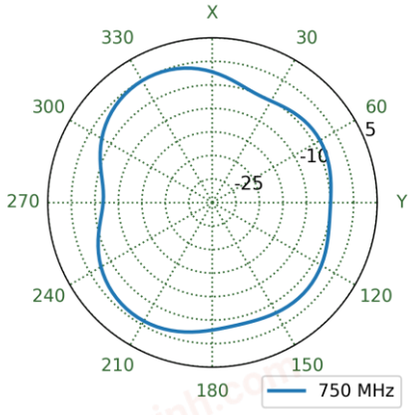
6.7 Cable Feed Straight Patterns at 750 MHz



XZ Plane	YZ Plane	XY Plane

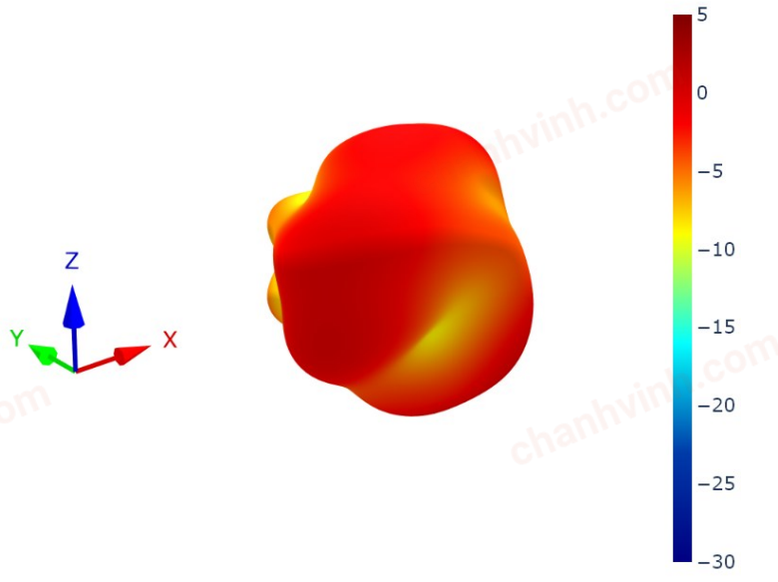




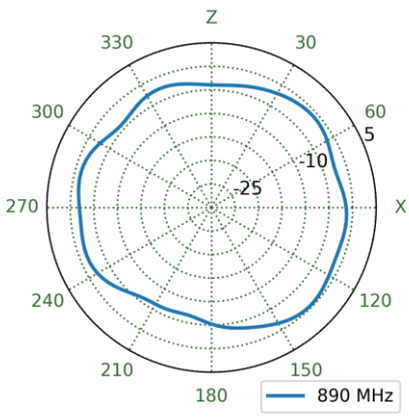


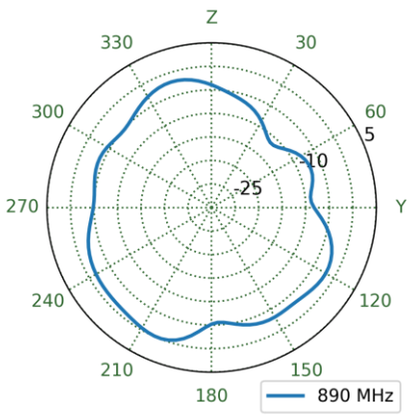
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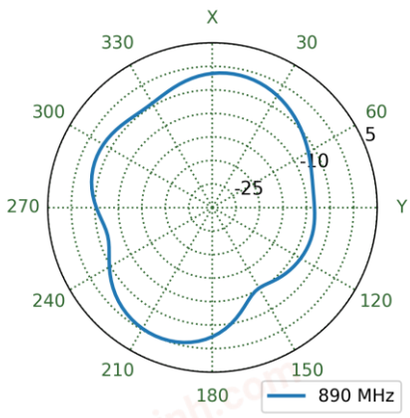
6.8 Cable Feed Left Patterns at 890 MHz



XZ Plane	YZ Plane	XY Plane

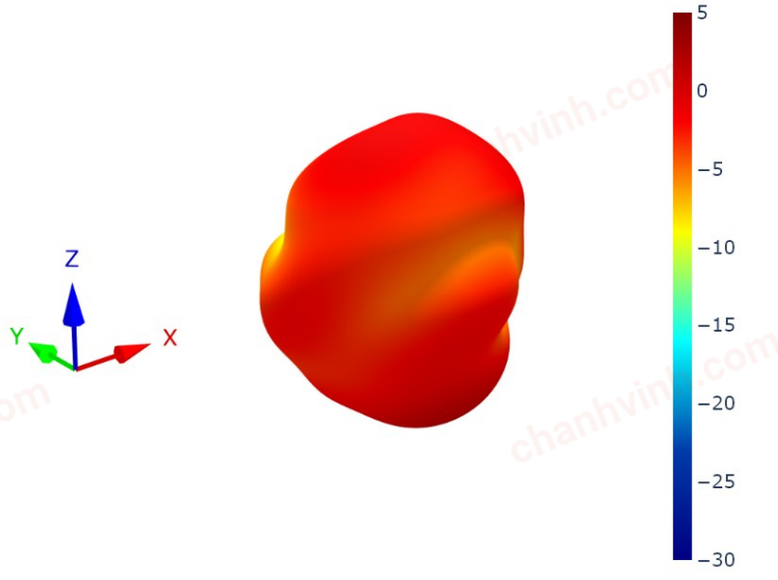




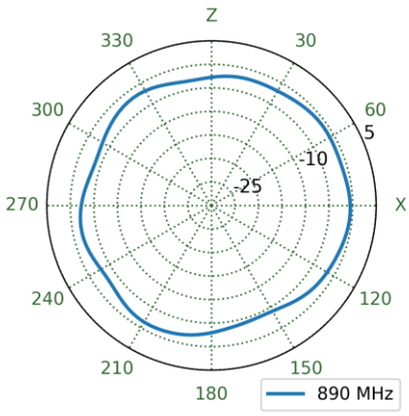


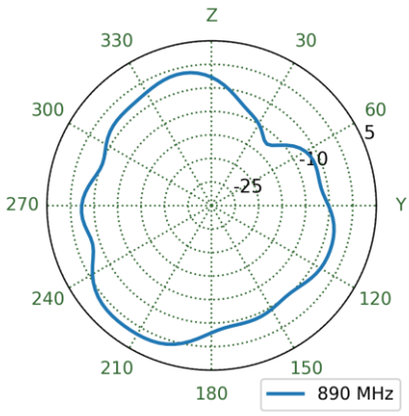
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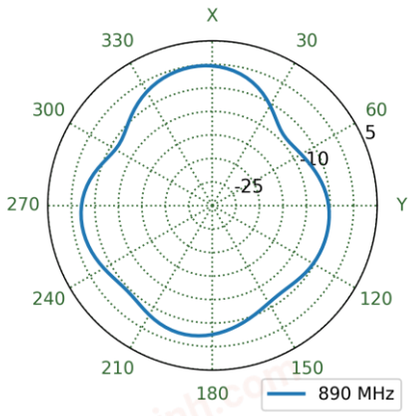
6.9 Cable Feed Right Patterns at 890 MHz



XZ Plane	YZ Plane	XY Plane

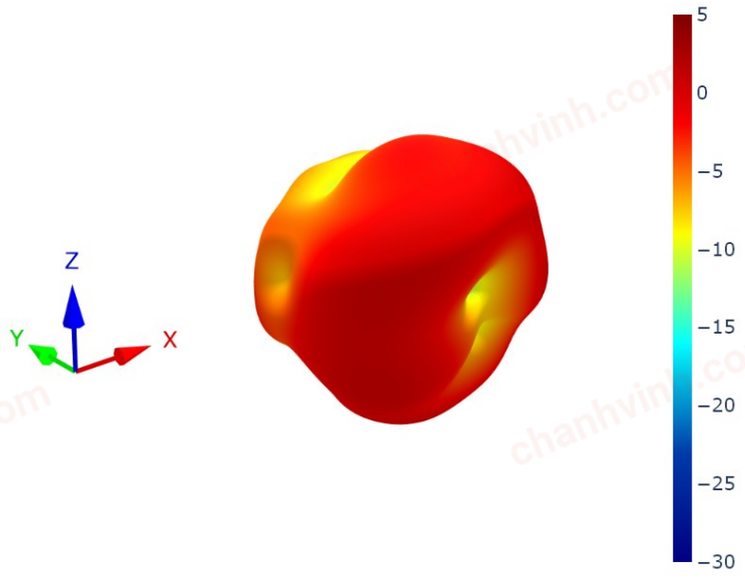




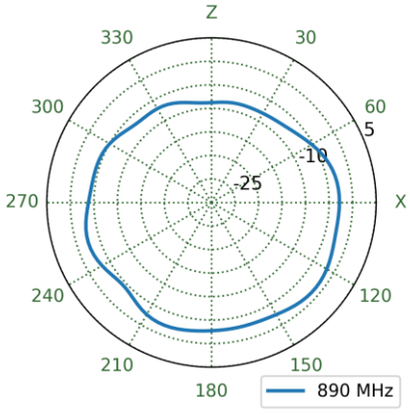


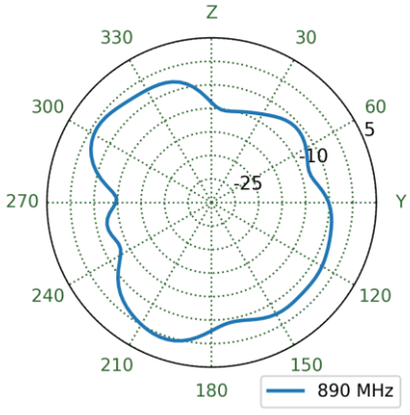
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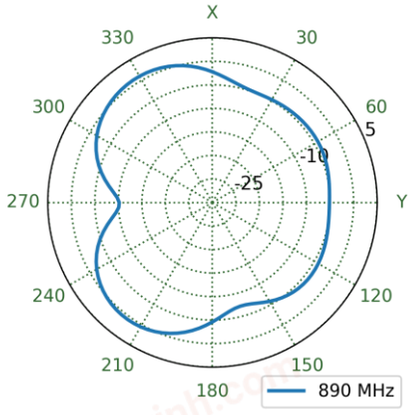
6.10 Cable Feed Straight Patterns at 890 MHz



XZ Plane	YZ Plane	XY Plane

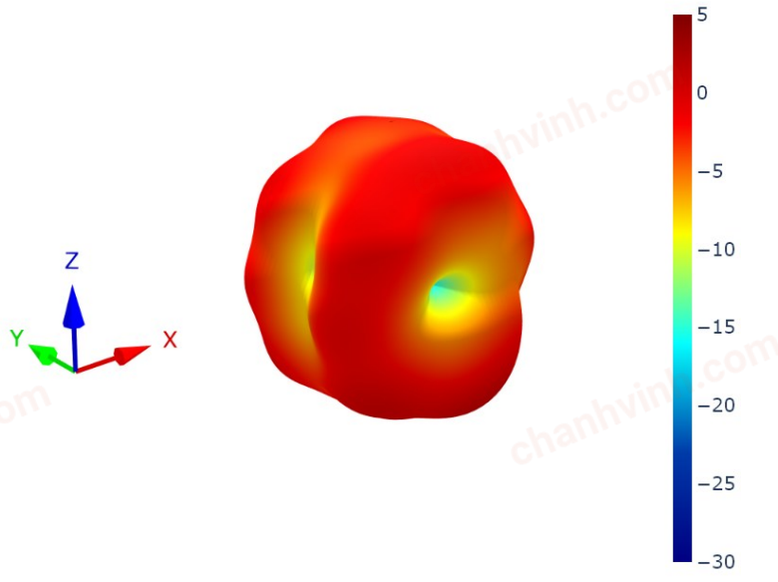


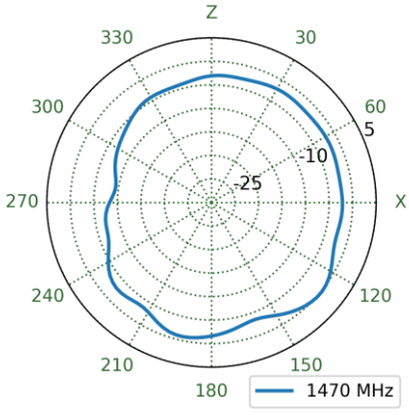
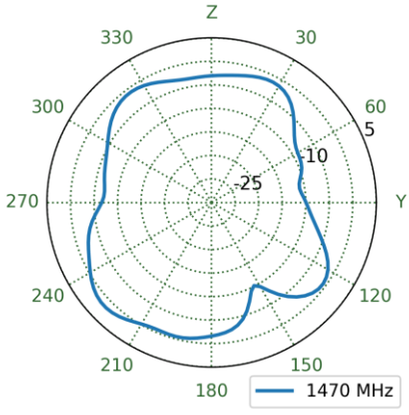
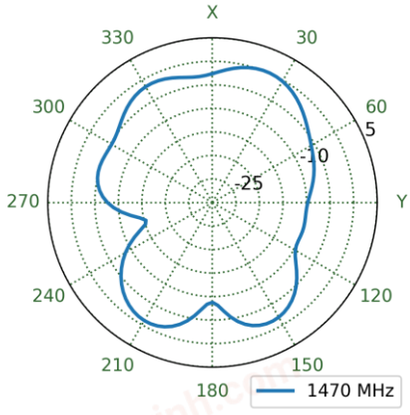




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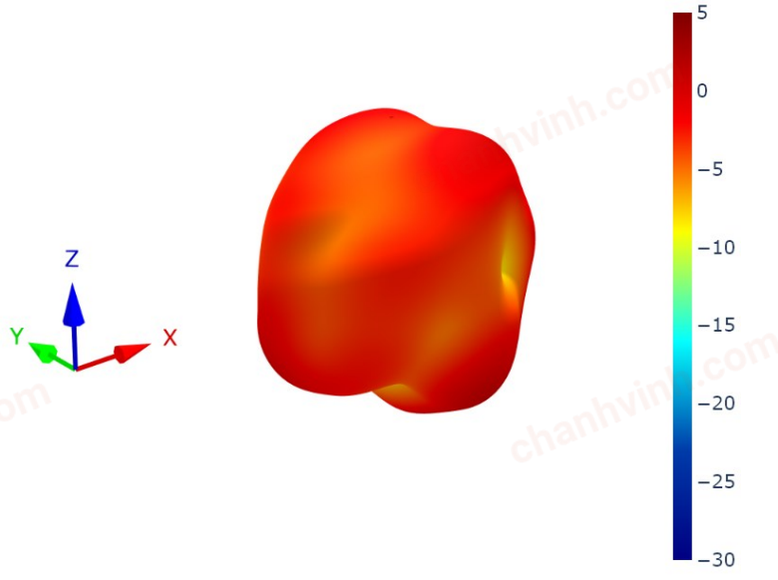
6.11 Cable Feed Left Patterns at 1470 MHz



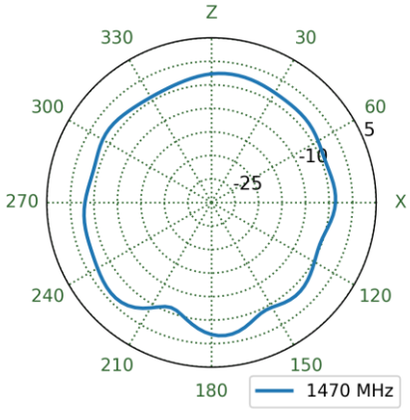
XZ Plane	YZ Plane	XY Plane
		

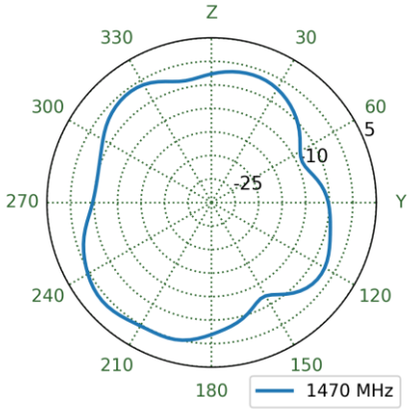
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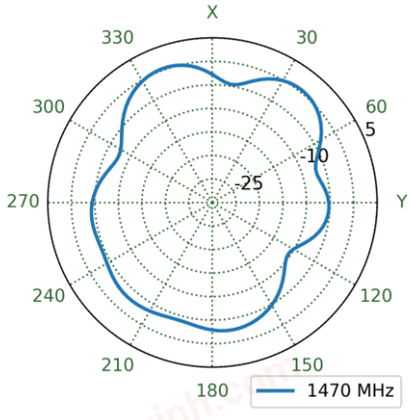
6.12 Cable Feed Right Patterns at 1470 MHz



XZ Plane	YZ Plane	XY Plane

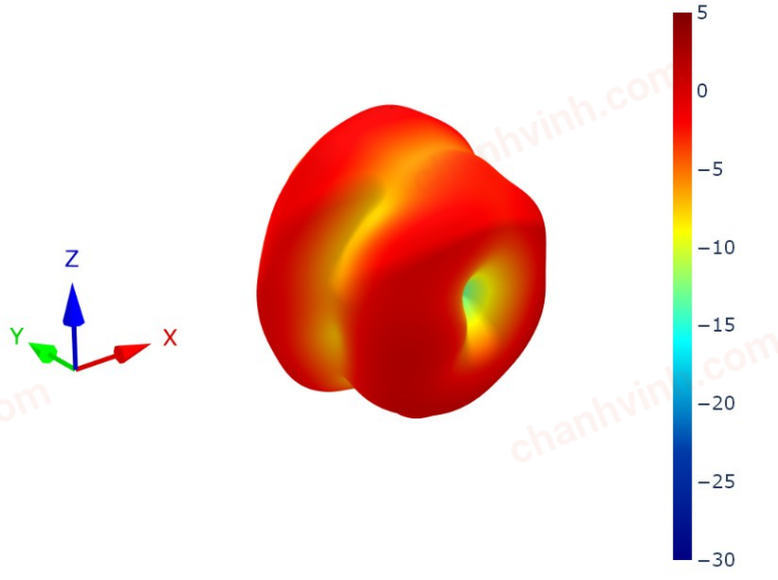




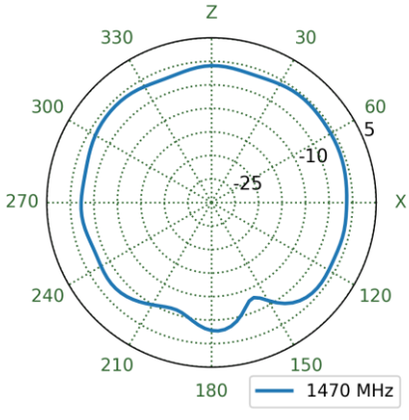


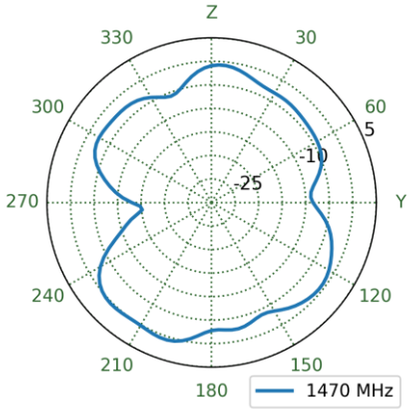
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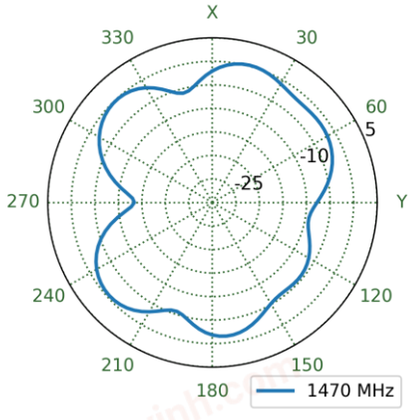
6.13 Cable Feed Straight Patterns at 1470 MHz



XZ Plane	YZ Plane	XY Plane

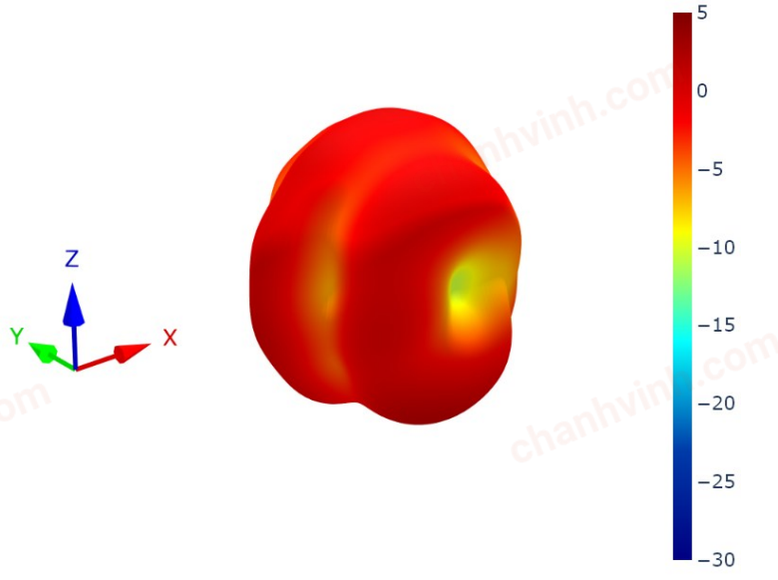


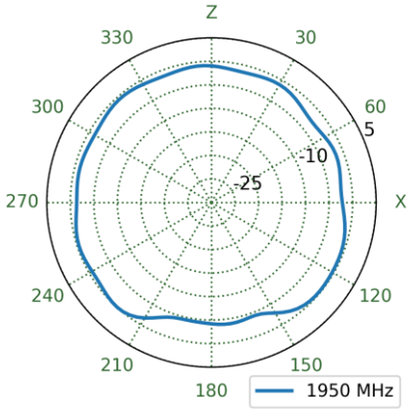
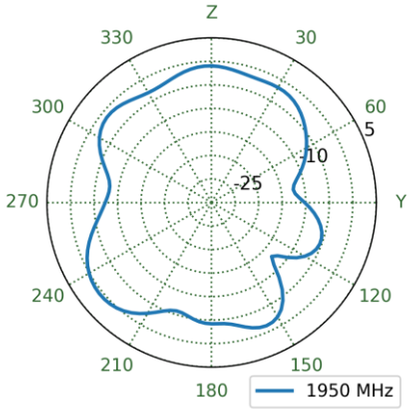
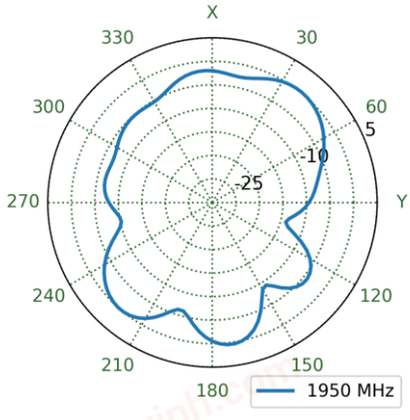




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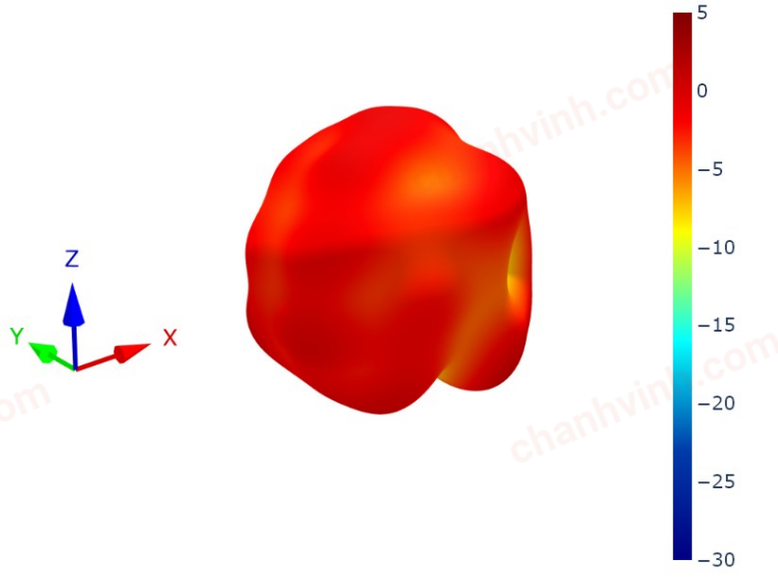
6.14 Cable Feed Left Patterns at 1950 MHz



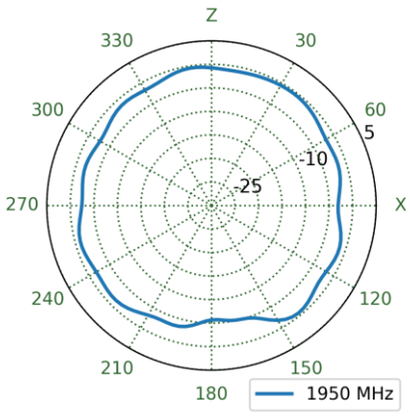
XZ Plane	YZ Plane	XY Plane
		

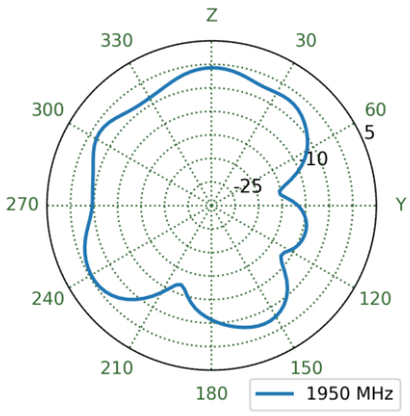
chanhvinh.com

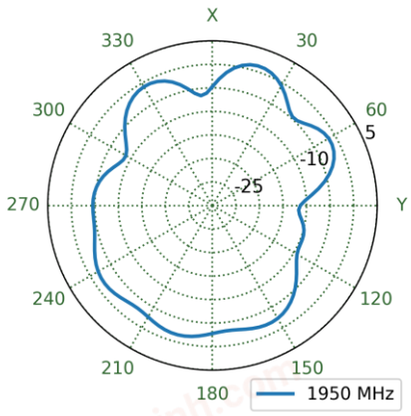
6.15 Cable Feed Right Patterns at 1950 MHz



XZ Plane	YZ Plane	XY Plane

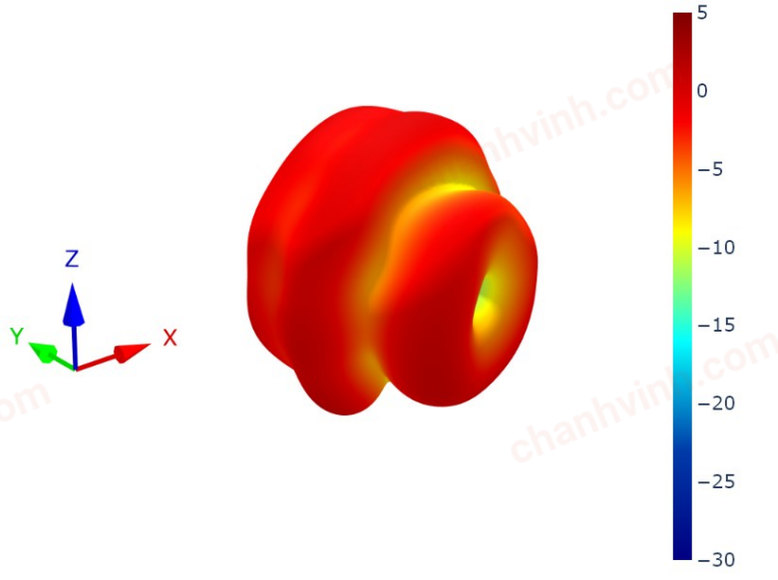




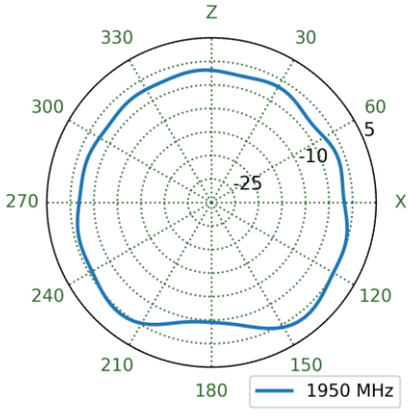


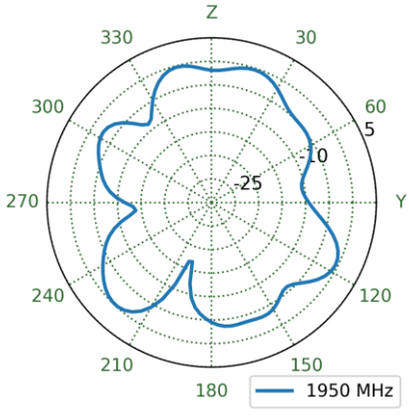
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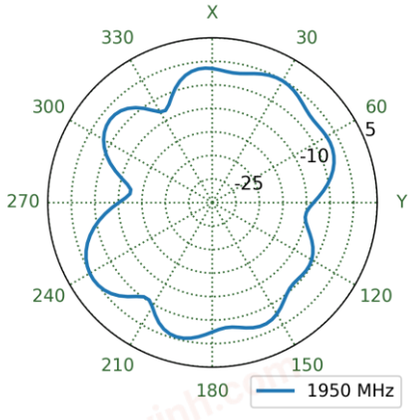
6.16 Cable Feed Straight Patterns at 1950 MHz



XZ Plane	YZ Plane	XY Plane

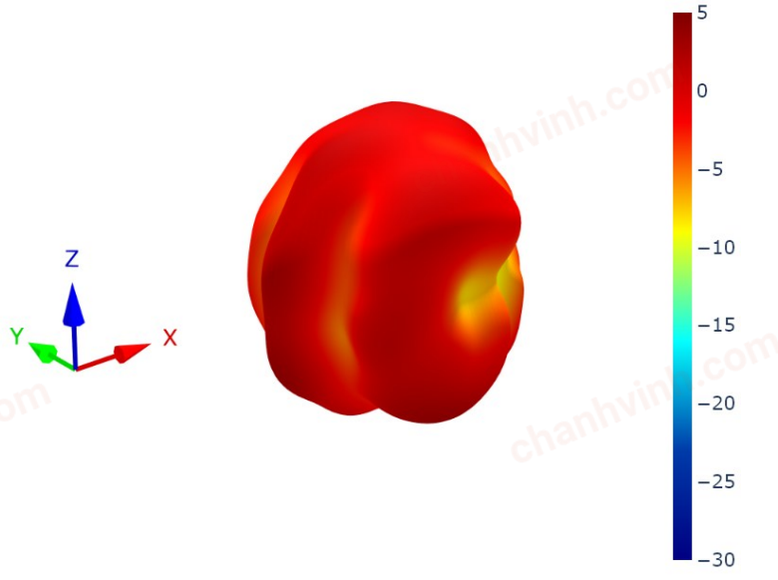




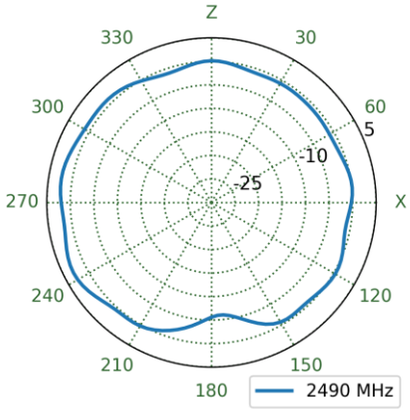


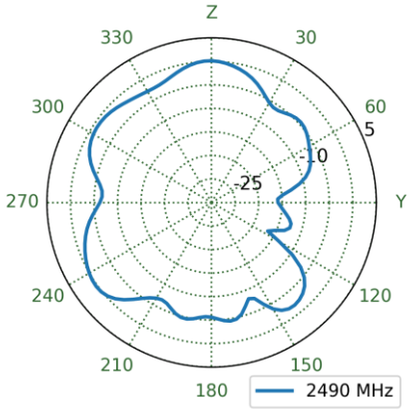
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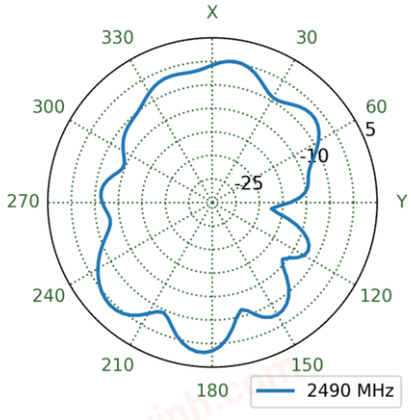
6.17 Cable Feed Left Patterns at 2490 MHz



XZ Plane	YZ Plane	XY Plane

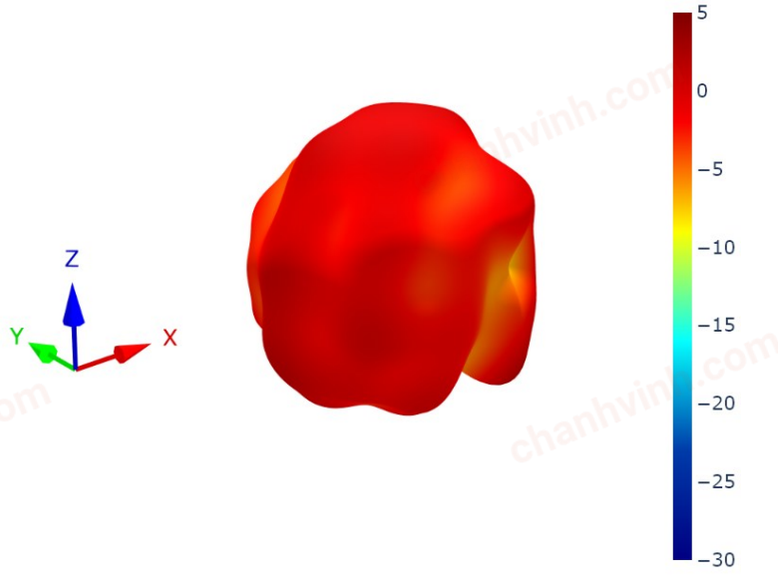




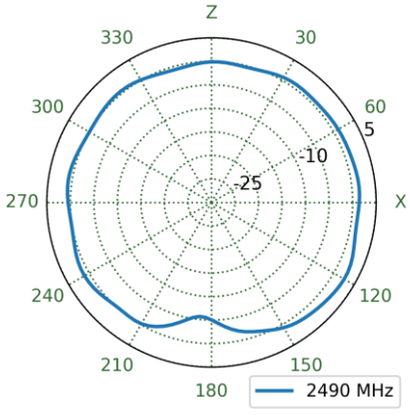


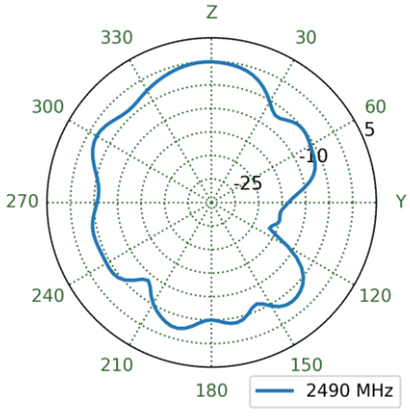
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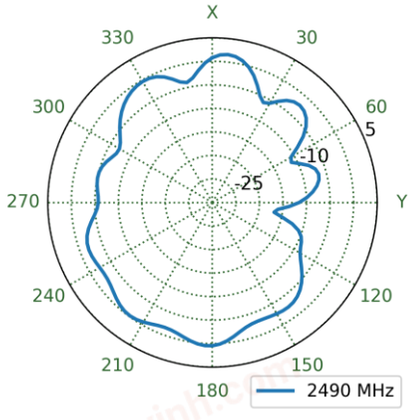
6.18 Cable Feed Right Patterns at 2490 MHz



XZ Plane	YZ Plane	XY Plane

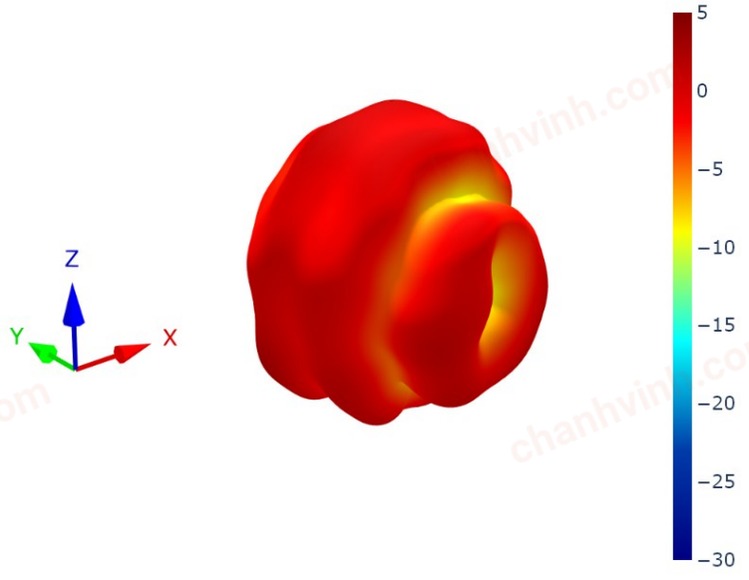




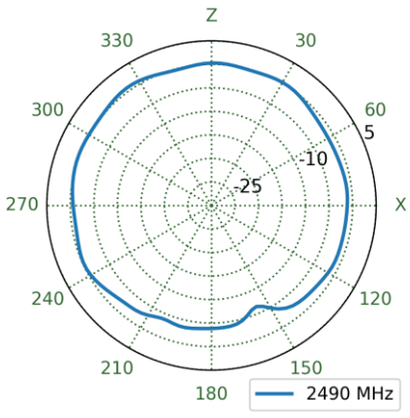


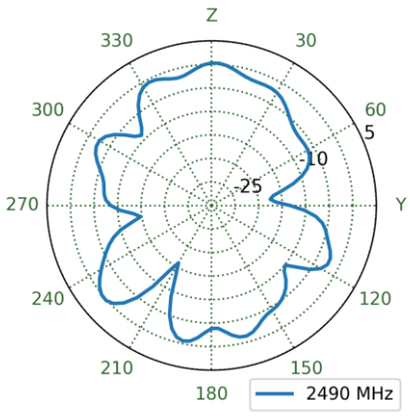
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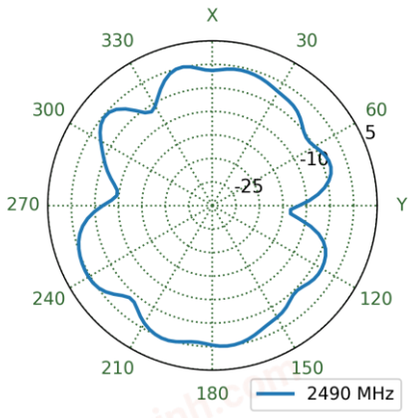
6.19 Cable Feed Straight Patterns at 2490 MHz



XZ Plane	YZ Plane	XY Plane

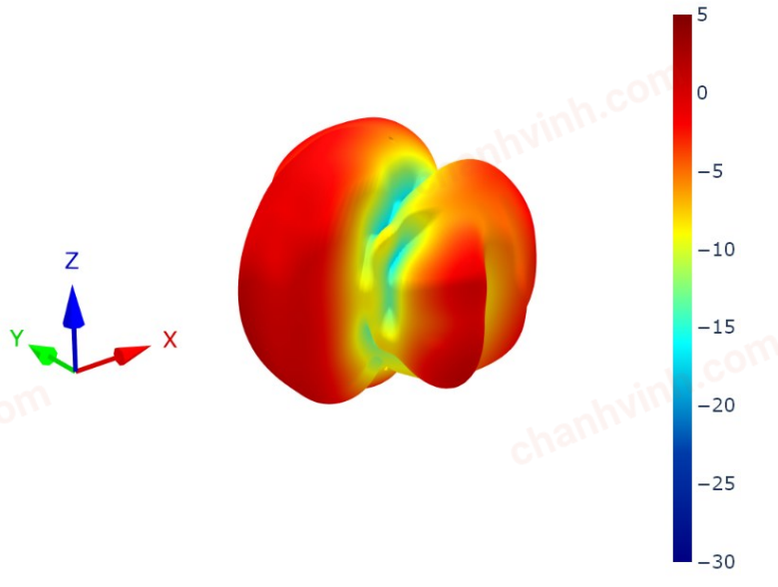




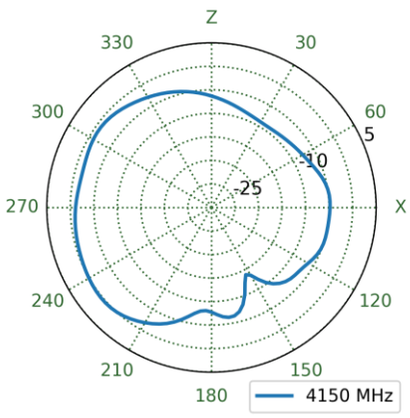


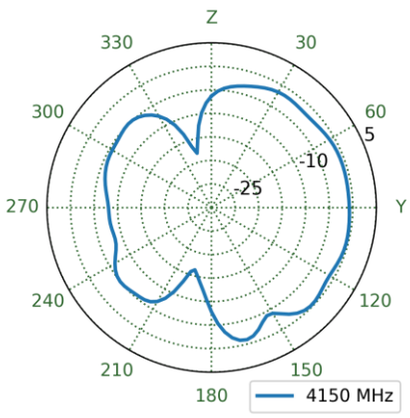
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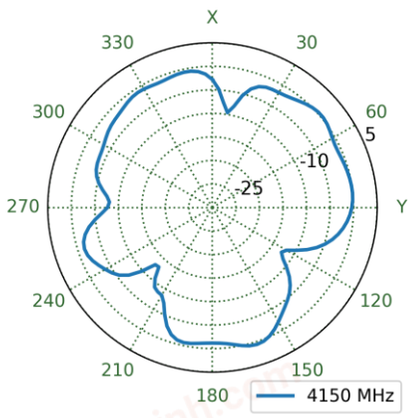
6.20 Cable Feed Left Patterns at 4150 MHz



XZ Plane	YZ Plane	XY Plane

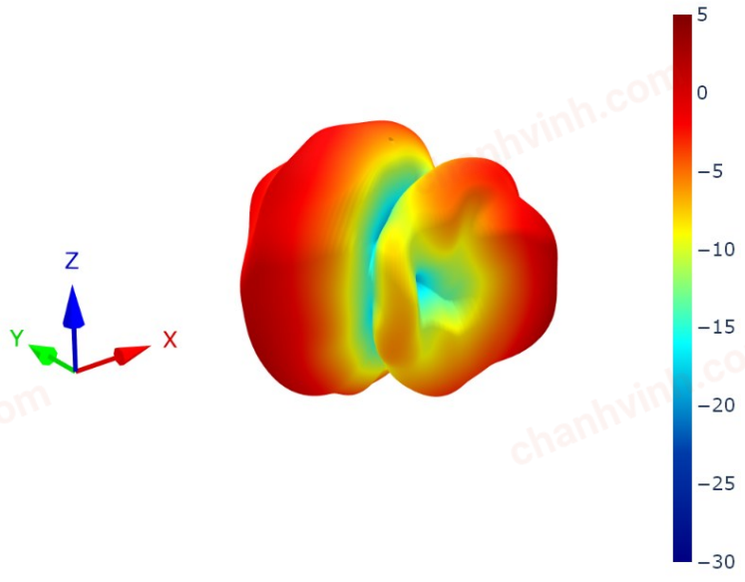




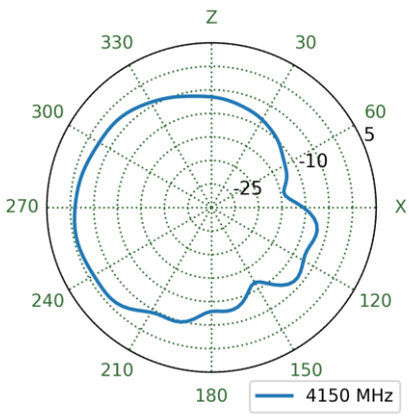


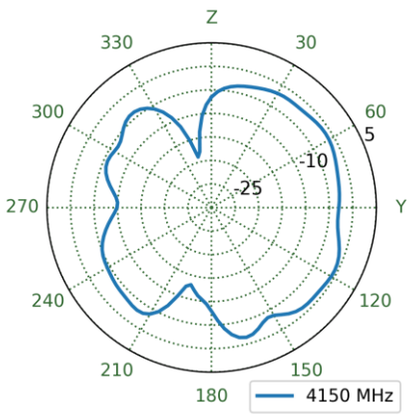
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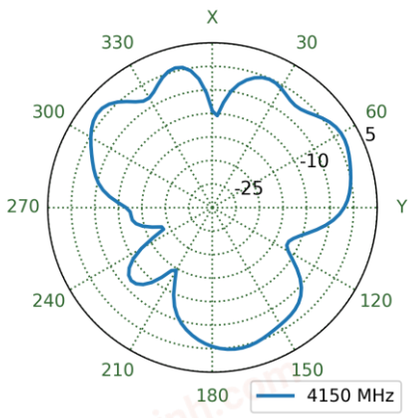
6.21 Cable Feed Right Patterns at 4150 MHz



XZ Plane	YZ Plane	XY Plane

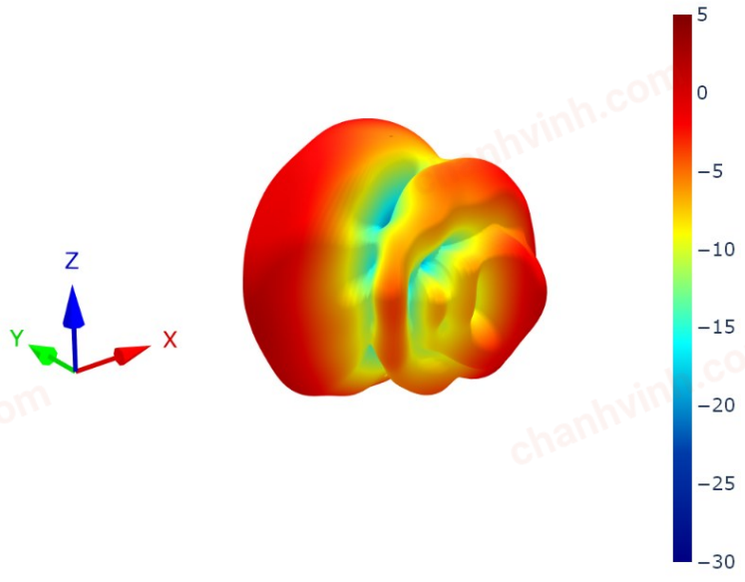




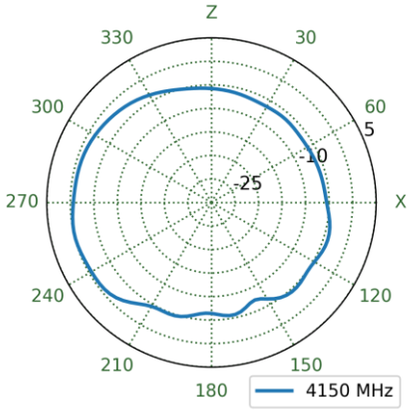


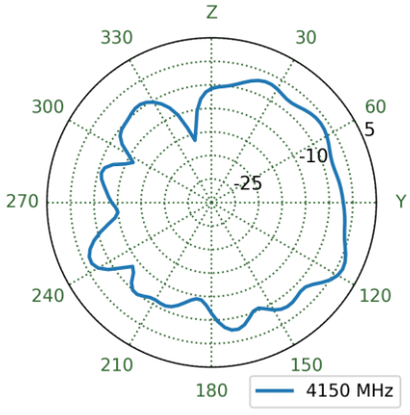
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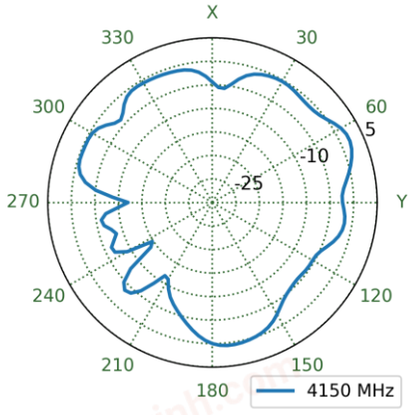
6.22 Cable Feed Straight Patterns at 4150 MHz



XZ Plane	YZ Plane	XY Plane

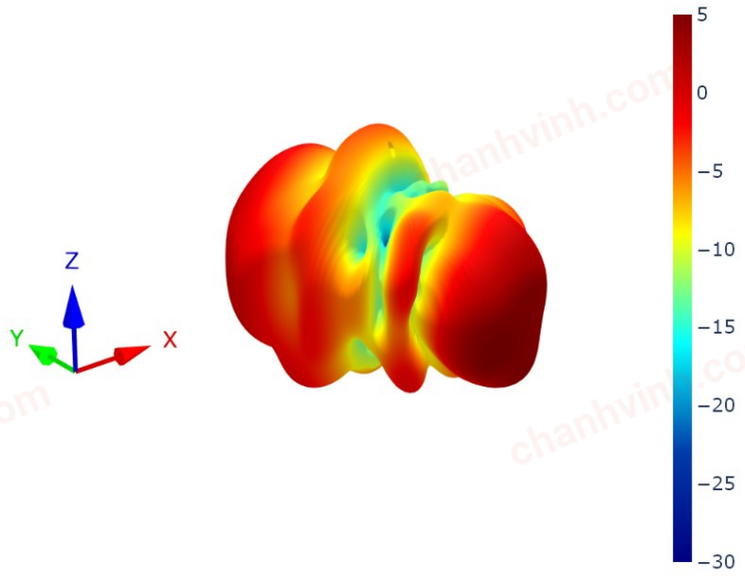




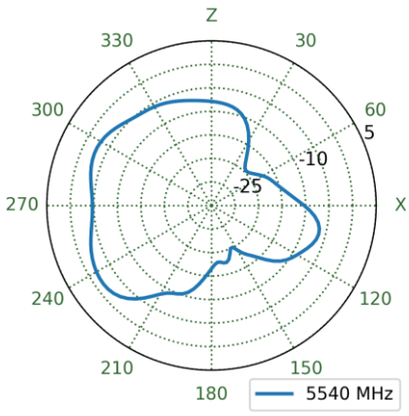


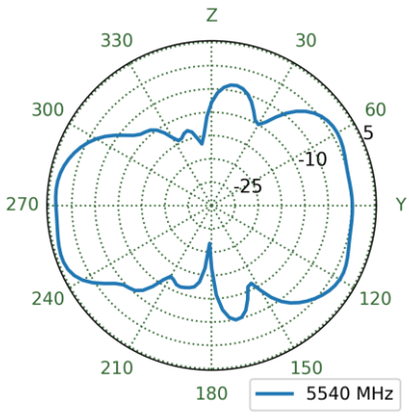
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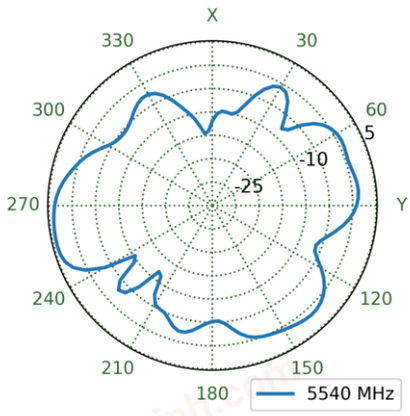
6.23 Cable Feed Left Patterns at 5540 MHz



XZ Plane	YZ Plane	XY Plane

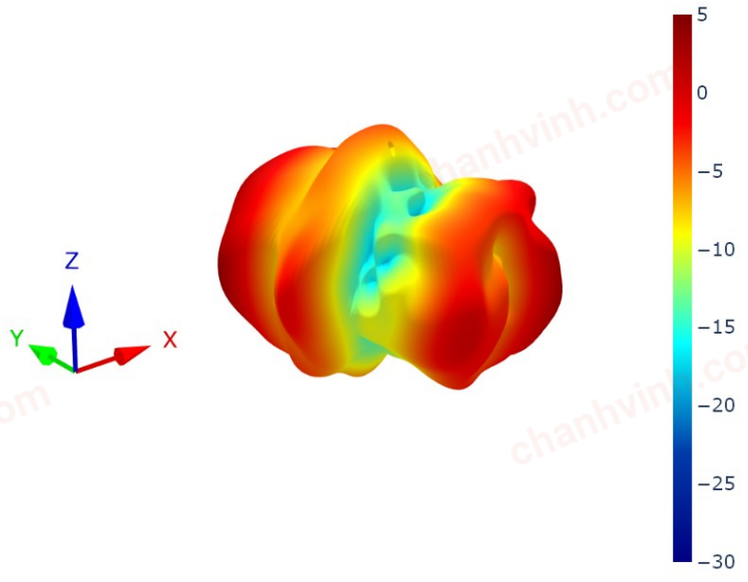




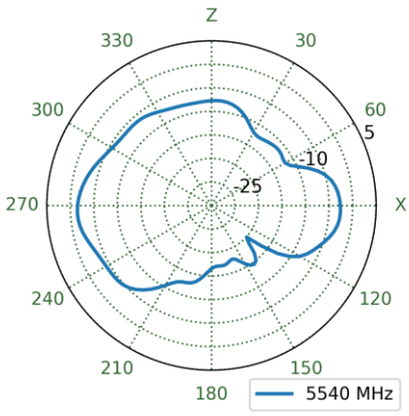


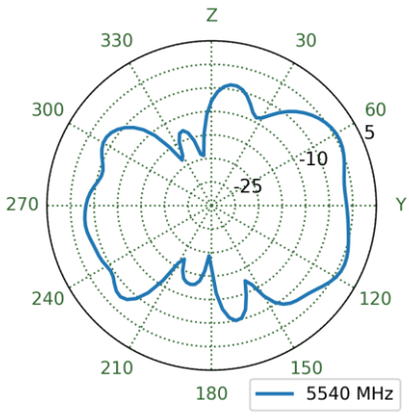
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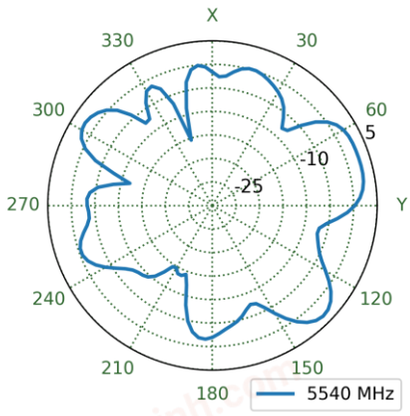
6.24 Cable Feed Right Patterns at 5540 MHz



XZ Plane	YZ Plane	XY Plane

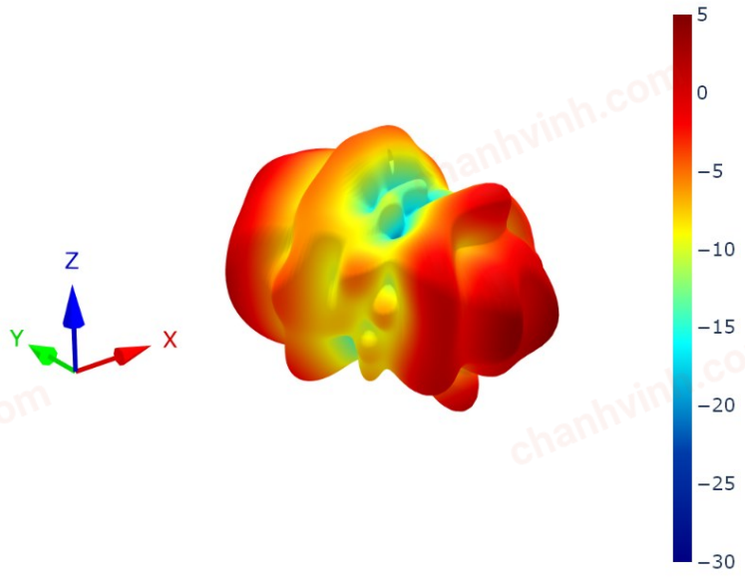


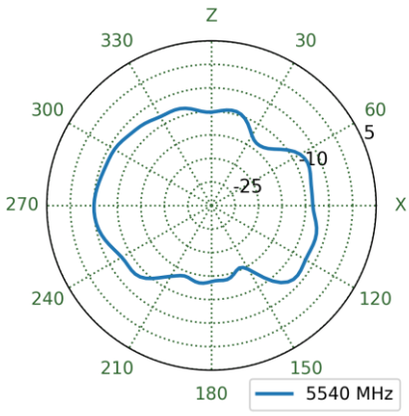
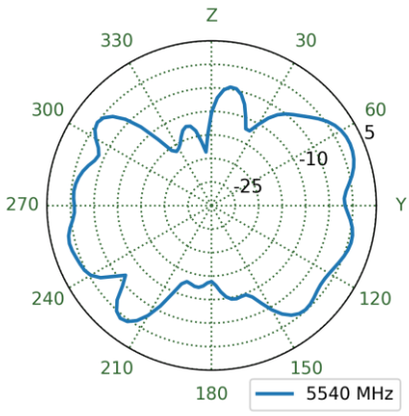
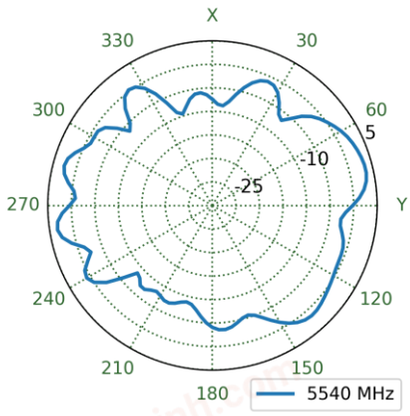




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6.25 Cable Feed Straight Patterns at 5540 MHz



XZ Plane	YZ Plane	XY Plane
		

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Changelog for the datasheet

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Notes:	Initial Datasheet Release
Author:	Gary West

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