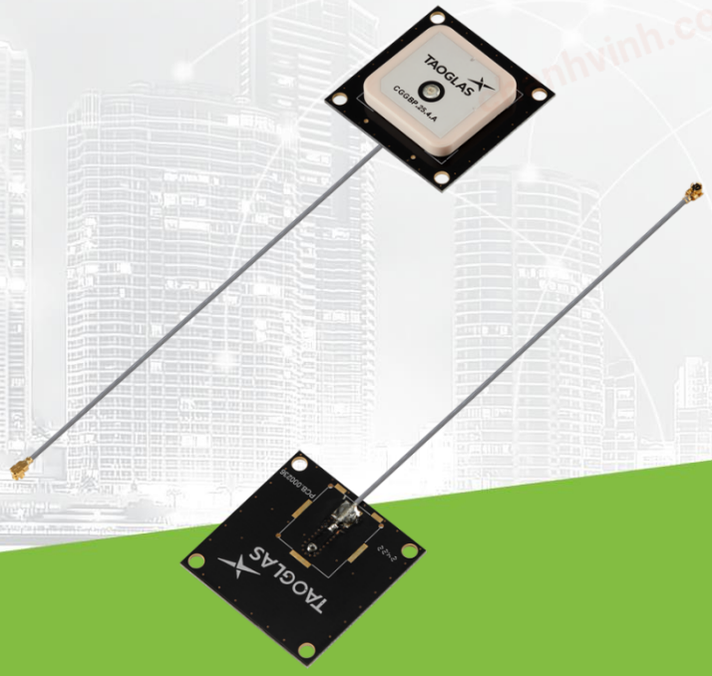
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Datasheet

Part No:
CGGBP254.07.0100A

Description

25 x 25 x 4mm GPS/GLONASS/BeiDou Passive Patch on PCB with 100mm 1.13 and I-PEX™ MHFI Connector

Features:

High-performance Ceramic Patch Antenna
Covering Bands GPS(L1), GLONASS(G1) and BeiDou(B1I)
Covering Frequencies 1561, 1575 and 1602MHz
Customizable Cable & Connector
Dimensions: 25 x 25 x 4mm
RoHS and REACH Compliant

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2.	Specification	4
3.	Mechanical Drawing	6
4.	Packaging	7
5.	Antenna Characteristics	8
6.	Radiation Patterns	15
	Changelog	22

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1. Introduction



At just 25mm squared the embedded CGGBP254 ceramic GPS/GLONASS/Galileo/BeiDou patch antenna is a compact, high-performance solution covering the 1561/1575/1602MHz frequencies. It is supplied on a 35x35mm PCB making it easy to mechanically integrate into devices requiring a reliable GPS/GLONASS/GALILEO Patch antenna.

Supplied with 100mm of 1.13 micro-coaxial cable with an I-PEX™ MHFI connector, both of which can be customized to suit your application.

The CGGBP254 offers improved positioning accuracy with low power consumption. The antenna's compatibility with multiple satellite systems provides reliable location accuracy making it suitable for a wide range of applications including:

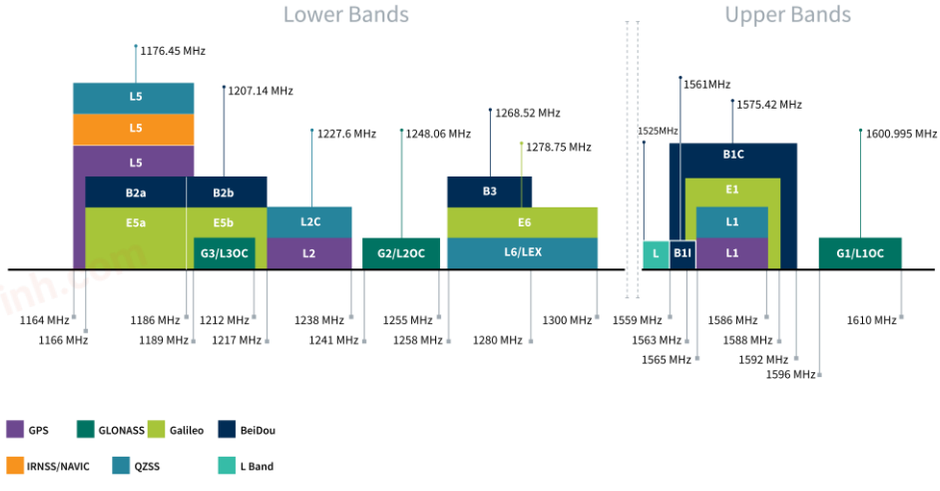
- Vehicle Positioning Systems
- Asset Tracking
- Geospatial Surveying and Mapping
- Drones and UAVs
- Logistics and Supply Chain Monitoring

For more information on how to integrate the CGGBP254 into your device, or for a sample, reach out to your local Taoglas customer service team.

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2. Specification

GNSS Frequency Bands					
GPS	L1 1575.42 MHz	L2 1227.6 MHz	L5 1176.45 MHz		
	■	□	□		
GLONASS	G1 1602 MHz	G2 1248 MHz	G3 1207 MHz		
	■	□	□		
Galileo	E1 1575.24 MHz	E5a 1176.45 MHz	E5b 1201.5 MHz	E6 1278.75 MHz	
	■	□	□	□	
BeiDou	B1C 1575.42 MHz	B1I 1561 MHz	B2a 1176.45 MHz	B2b 1207.14 MHz	B3 1268.52 MHz
	■	■	□	□	□
L-Band	L-Band 1542 MHz				
	■				
QZSS (Regional)	L1 1575.42 MHz	L2C 1227.6 MHz	L5 1176.45 MHz	L6 1278.75e6	
	■	□	□	□	
IRNSS (Regional)	L5 1176.45 MHz				
	□				
SBAS	L1/E1/B1 1575.42 MHz	L5/B2a/E5a 1176.45 MHz	G1 1602 MHz	G2 1248 MHz	G3 1207 MHz
	■	□	■	□	□



GNSS Bands and Constellations

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GNSS Electrical			
Frequency (MHz)	**1561**	**1575.42**	**1603**
VSWR (max.)	2:1	2:1	2:1
Antenna Efficiency (%)	57.77	63.98	63.58
Antenna Gain at Zenith (dBi)	1.12	1.74	0.89
Axial Ratio (dB)	20.36	17.3	3.94
PCO_x (cm)	2.15	2.15	1.5
PCO_y (cm)	0.93	0.4	0.68
PCV (cm)	0.0	0.0	0.02
Group Delay Mean (ns)	14.93	14.97	16.06
Group Delay Variation (ns)	4	4	3
Polarization	RHCP		
Impedance	50 Ω		

Mechanical	
Dimensions	25x25x4mm
Weight	15g
Material	Ceramic + PCB
Connector	IPEX MHF I
Cable	100mm 1.13 Coaxial Cable

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

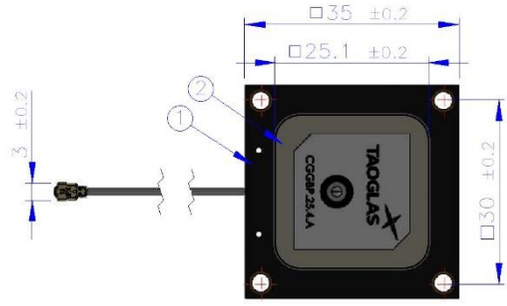
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3. Mechanical Drawing

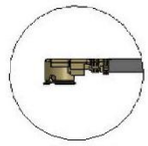
ISO NO.: EDW.002232
STATE: Release
NOTES:

* All material must be RoHS compliant.
* Use this drawing together with the corresponding 3D CAD database file to fully describe the part.
* The connector orientation has a fixed position to the antenna as per drawing.
"*" "**" Critical Dimensions."

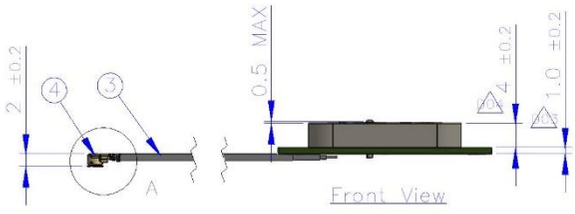
REV	ZONE	DESCRIPTION	ENG	APPROVED	DATE
D01	All	Initial design	Aron Yan	Aaron	2024/4/10
D02	All	Modify the drawing	Aron Yan	Aaron	2024/5/29
D03	All	Modify the drawing	Aron Yan	Aaron	2024/6/20
D04	All	Modify the drawing	Aron Yan	Aaron	2024/7/8



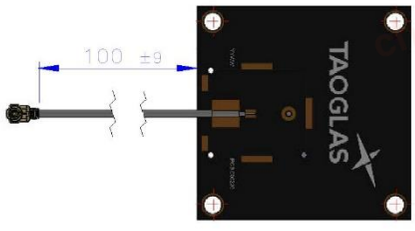
Top View



Detail A
Scale 2 : 1



Front View



Bottom View

	Name	Material	Finish	Qty
1	PCB	FR4	Black	1
2	Patch	Ceramic	Clean	1
3	1.13 Coaxial cable	FEP	Gray	1
4	IPEX.MHFHT	Composite	Au Plated	1

APPROVED BY: Chozen	TAOGLAS. TW Design Centre
CHECK BY: Aaron	This drawing is Taoglas Confidential Information and its inherent design concepts are property of Taoglas. This is not to be copied or shared with third parties without the prior written consent of Taoglas.
DRAWN BY: Aron Yan	
DATE: 2024/4/10	TITLE: GPS/GLONASS/GALILEO/BeiDou Passive Patch with 100mm 1.13 IPEX MHF
UNLESS OTHERWISE SPECIFIED TOLERANCES ON:	PART NO.: CGGBP254.07.0100A
THIRD ANGLE PROJECTION	UNIT: mm / SCALE: 1:1 / PAGES: 1/1 / REV: D04

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4. Packaging

12 PCS CGGBP254.07.0100A per Tray
12 PCS/Protective case
Weight: 0.18Kg



48 PCS CGGBP254.07.0100A per vacuum package
2 PCS 3g Desiccant
Weight – 0.77Kg



576 PCS CGGBP254.07.0100A per carton
Dimensions 540 x 370 x 300mm
Weight – 10.85Kg

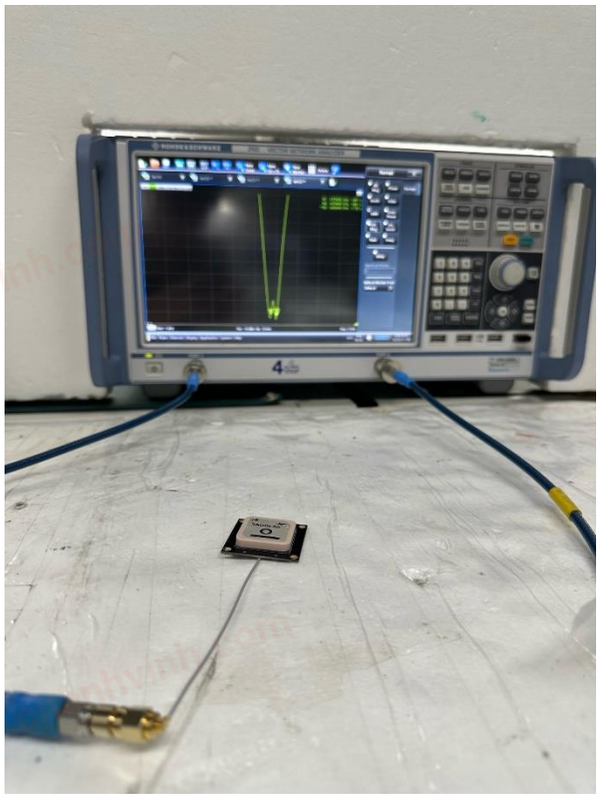


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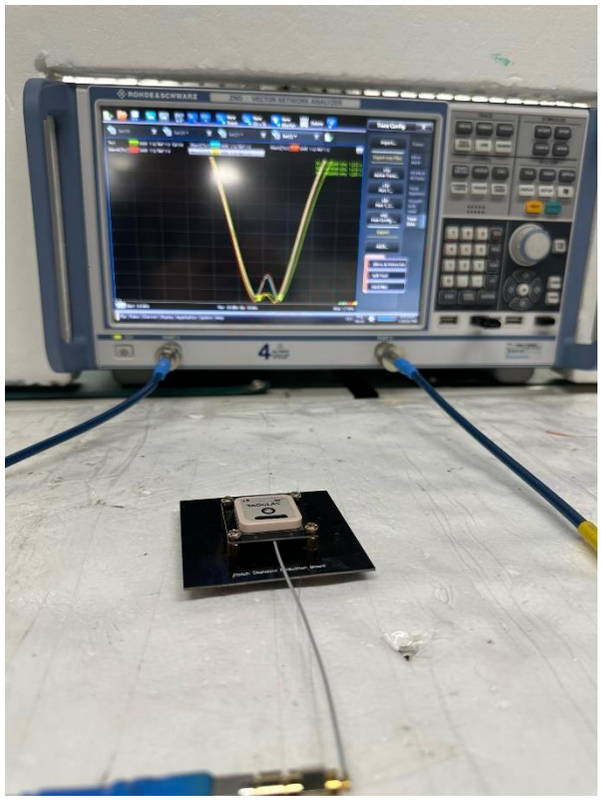
5. Antenna Characteristics

5.1 Test Setup





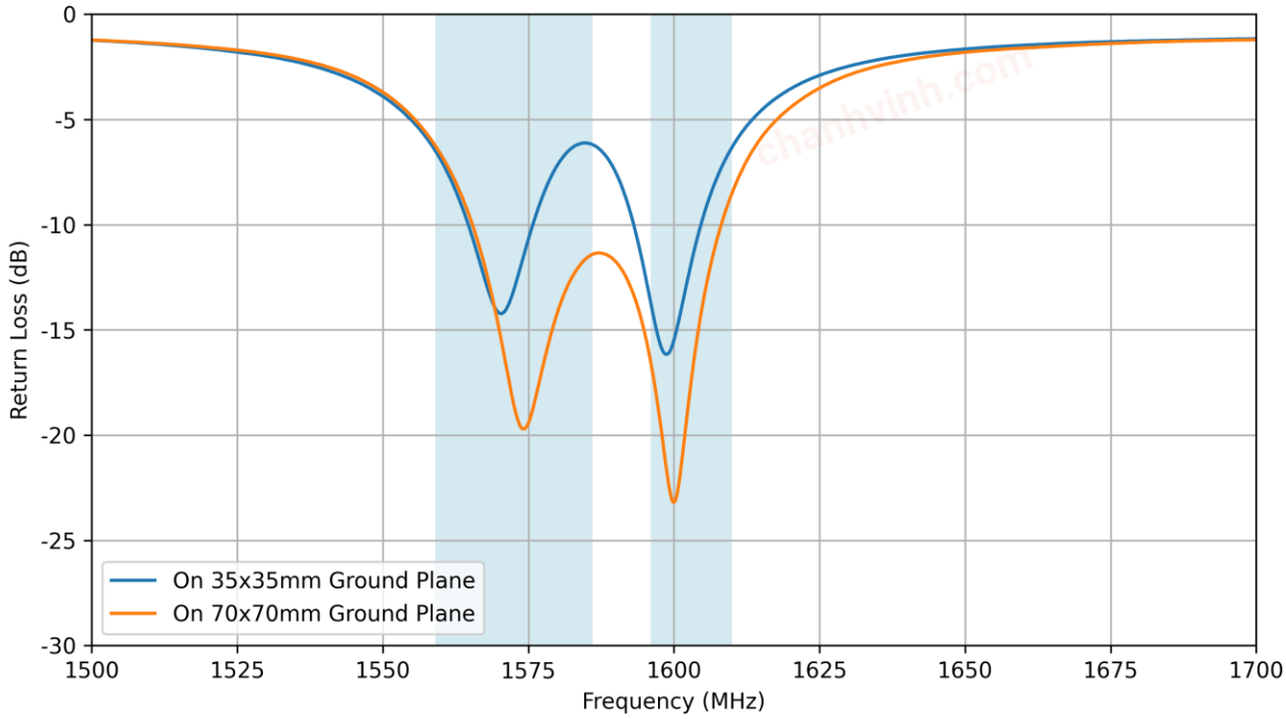
35x35mm Ground Plane VNA Set-up



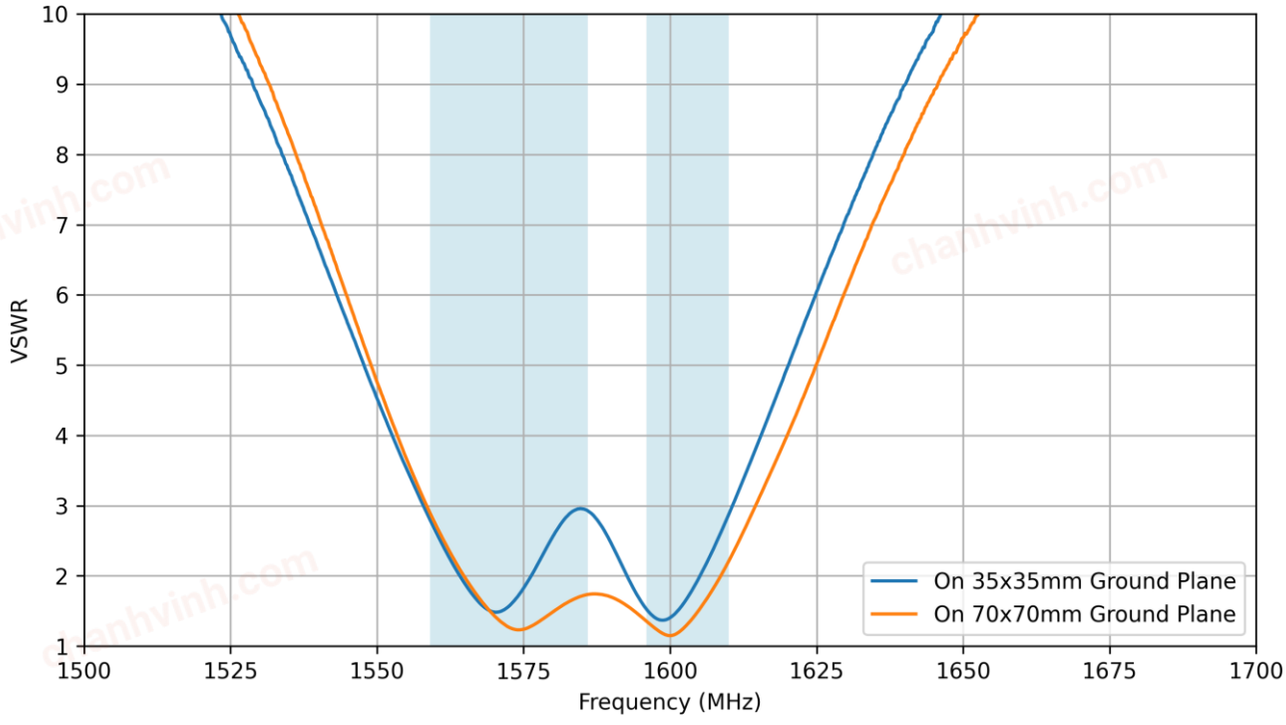
70x70mm Ground Plane VNA Set-up

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5.2 Return Loss

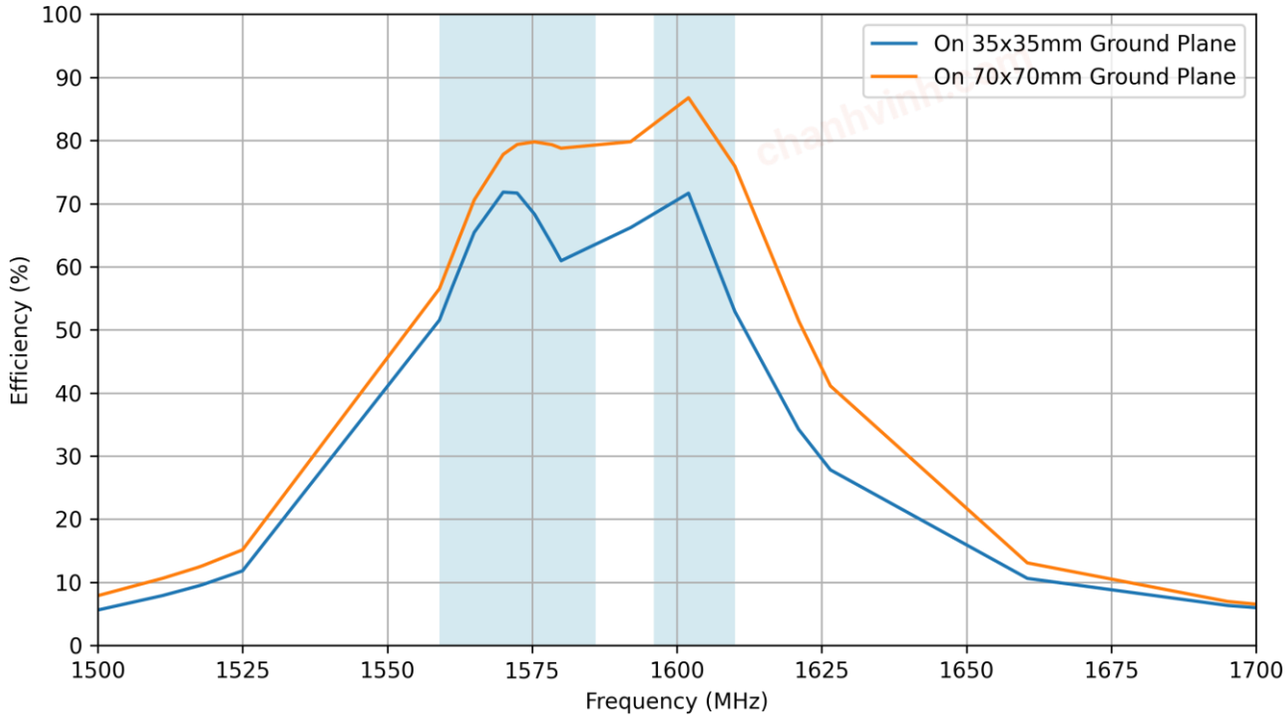


5.3 VSWR

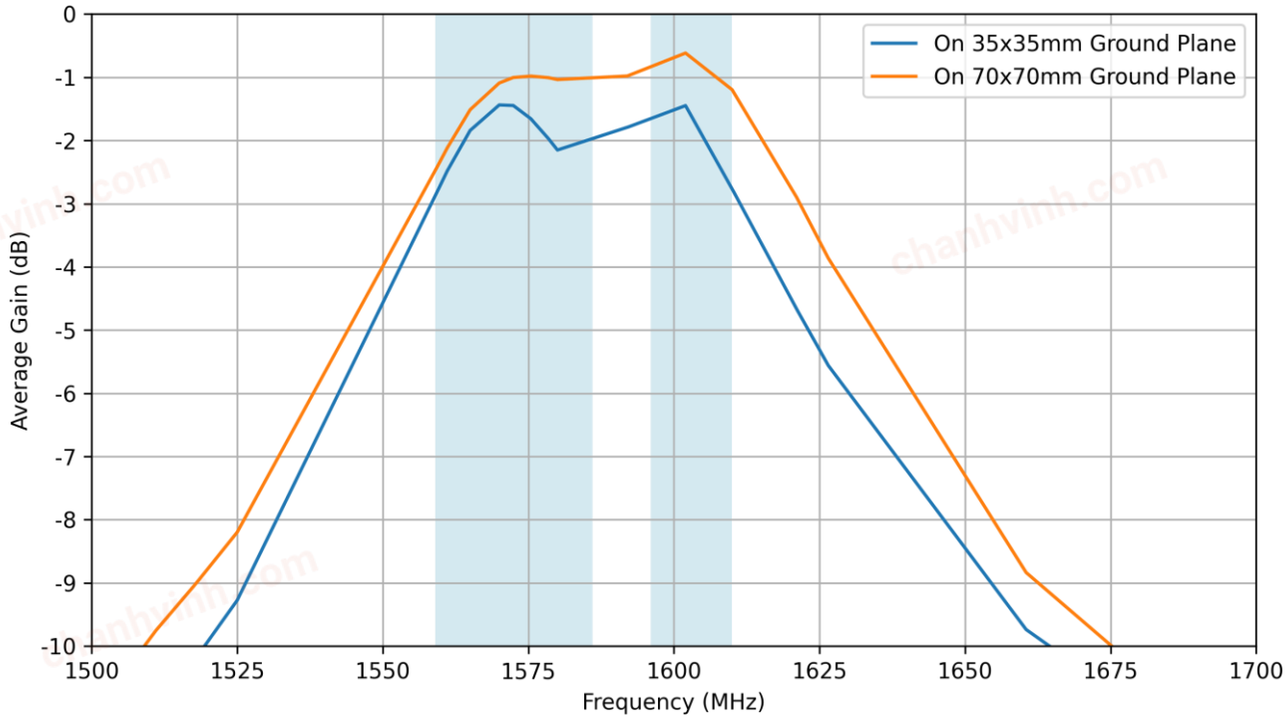


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5.4 Efficiency

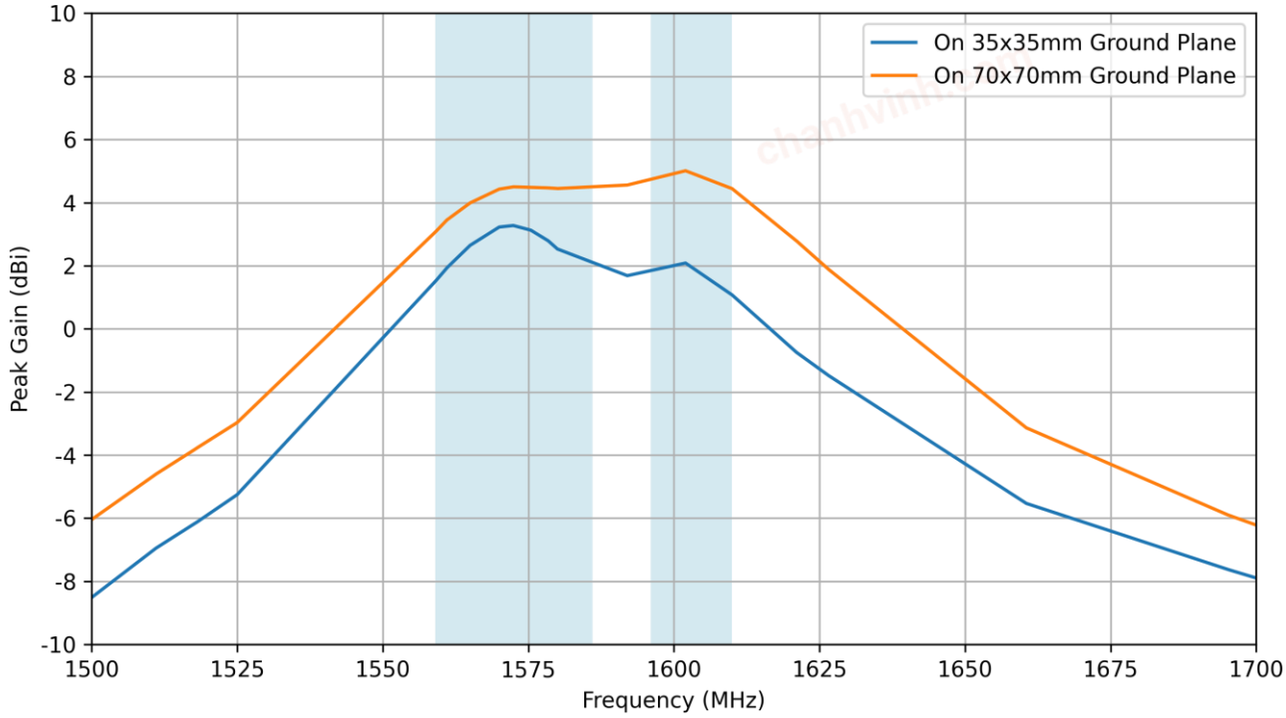


5.5 Average Gain

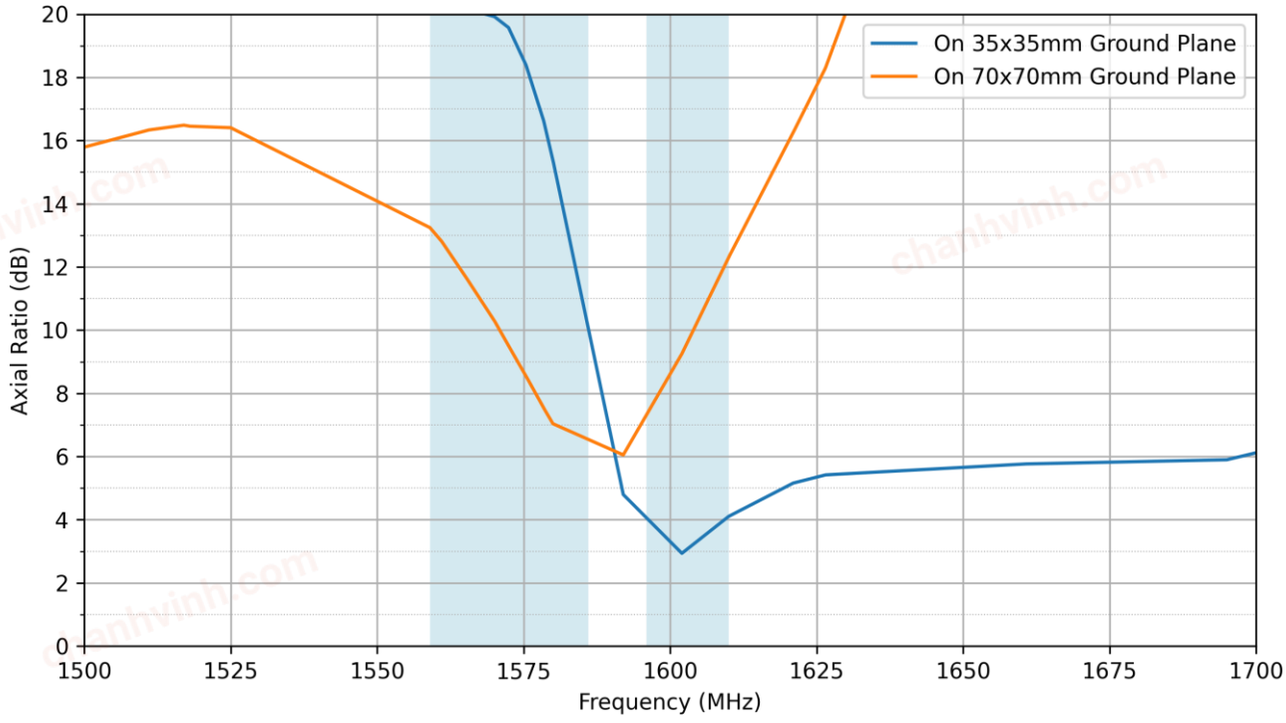


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5.6 Peak Gain (Gtotal)

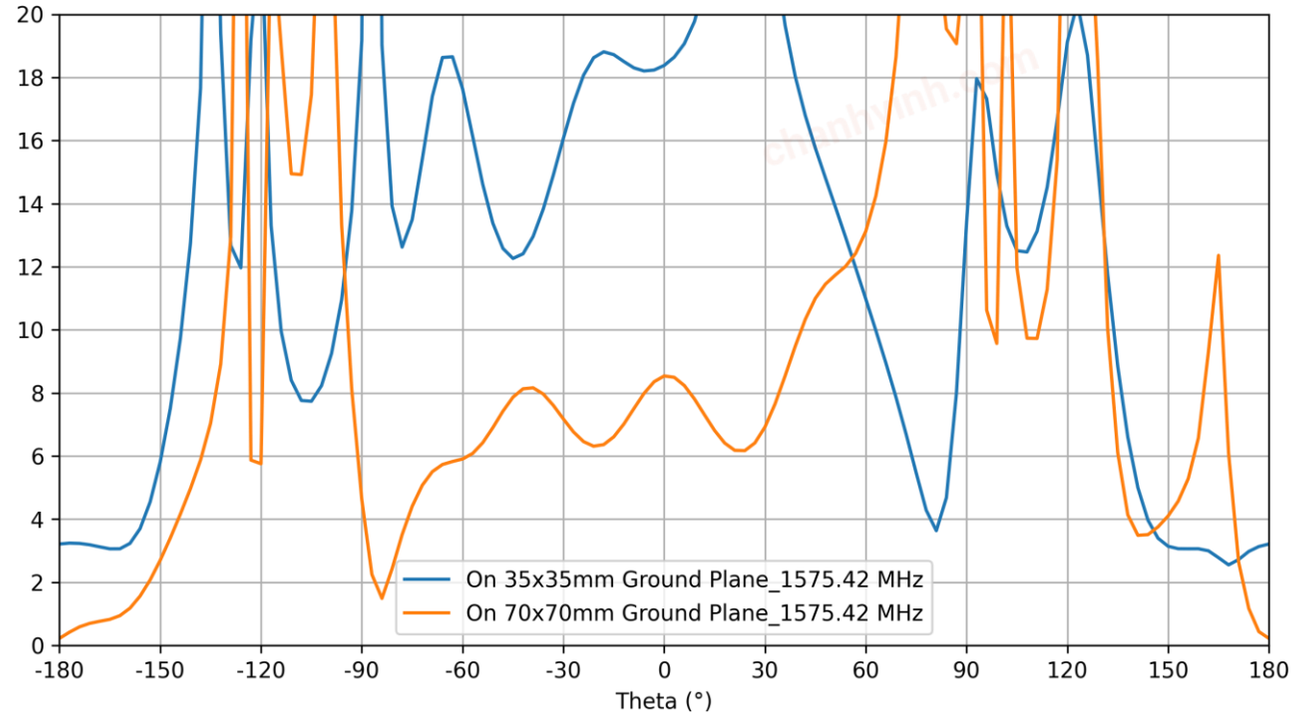


5.7 Axial Ratio

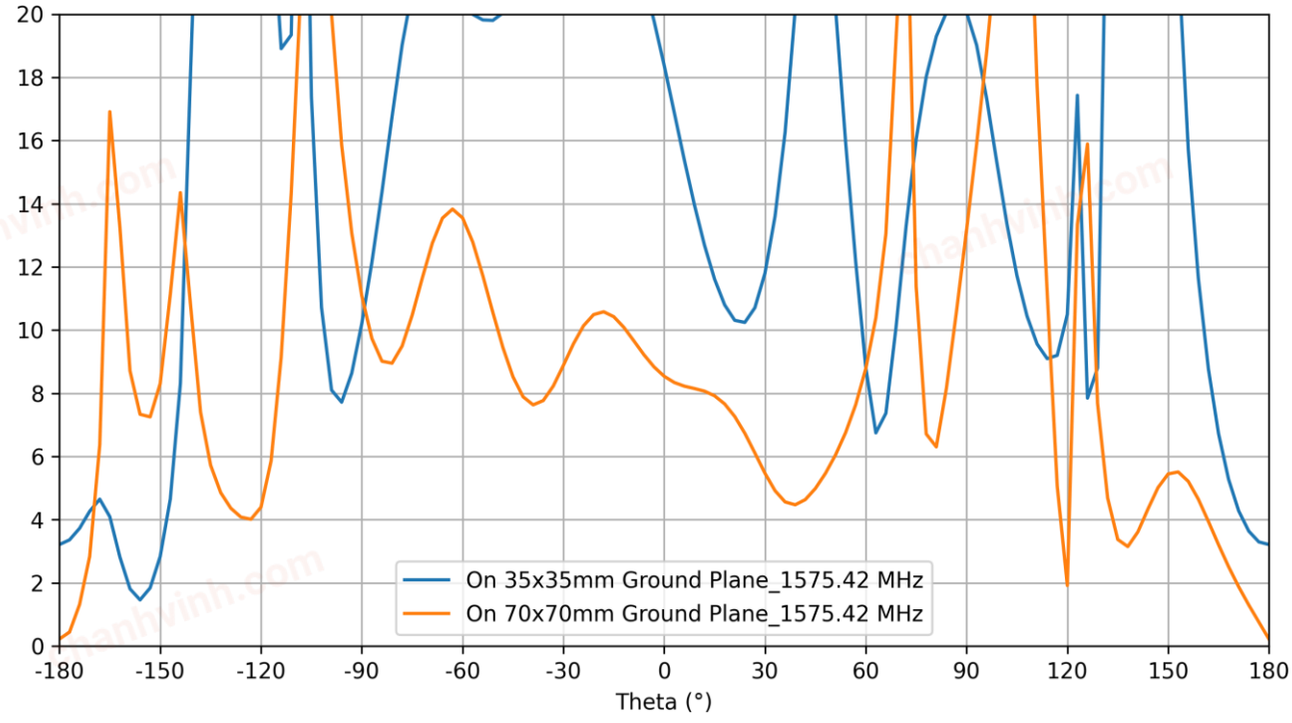


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5.8 AR vs Angle for Phi=0

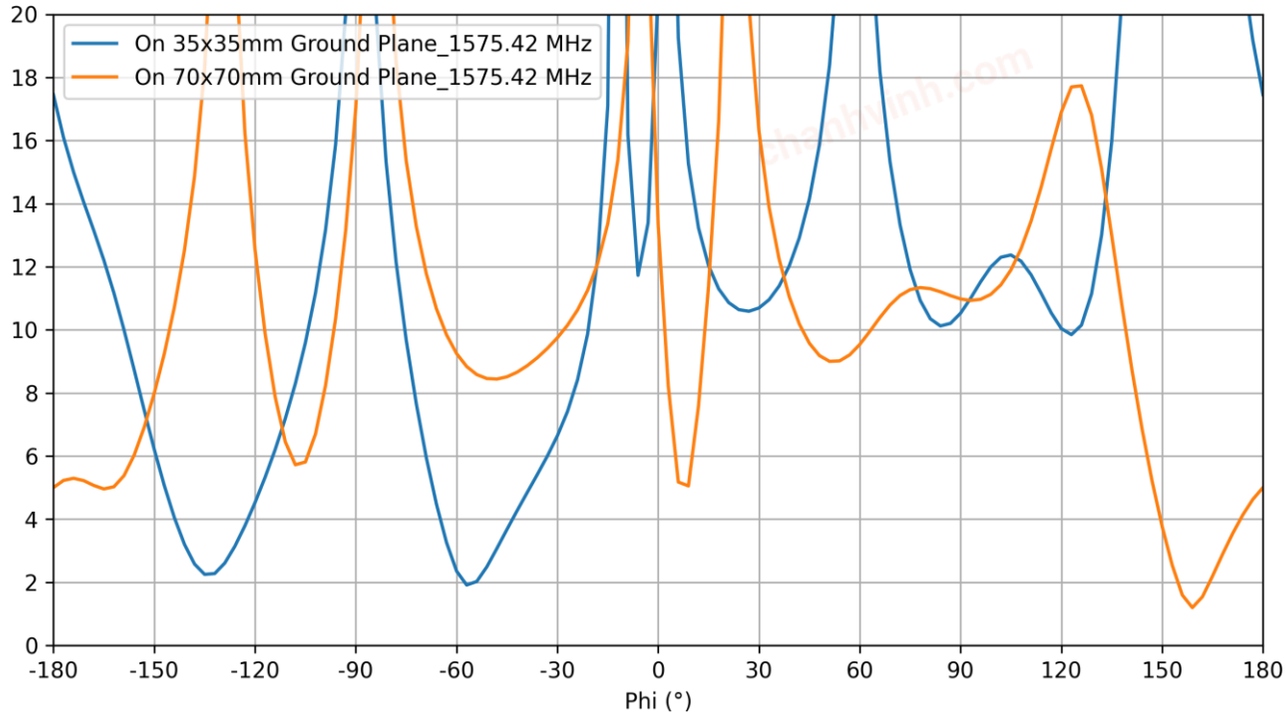


5.9 AR vs Angle for Phi=90

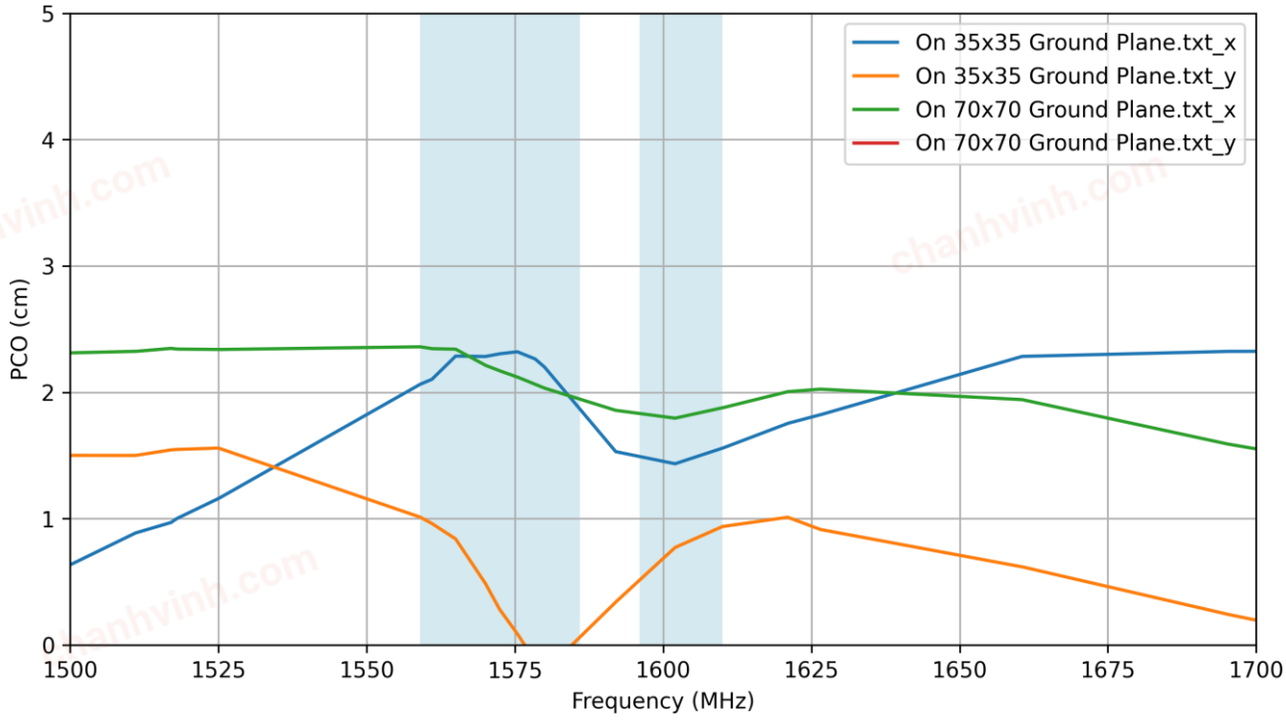


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5.10 AR vs Angle for Theta=90

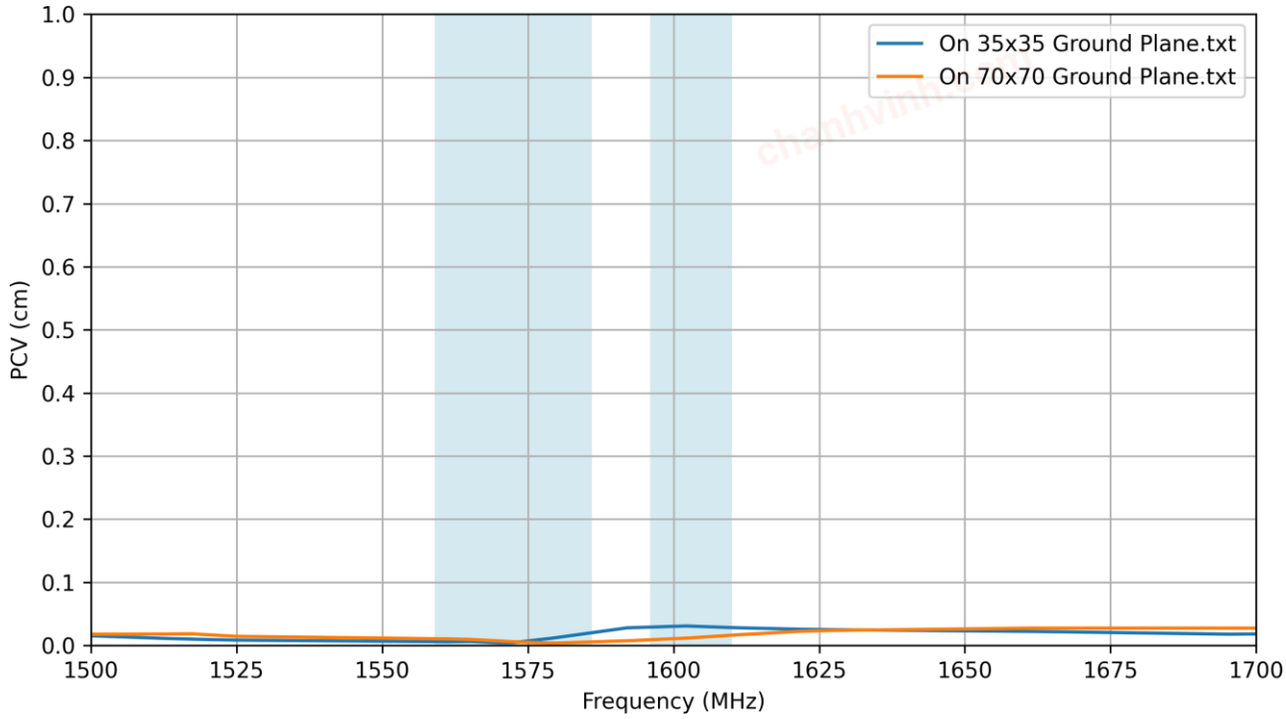


5.11 PCO



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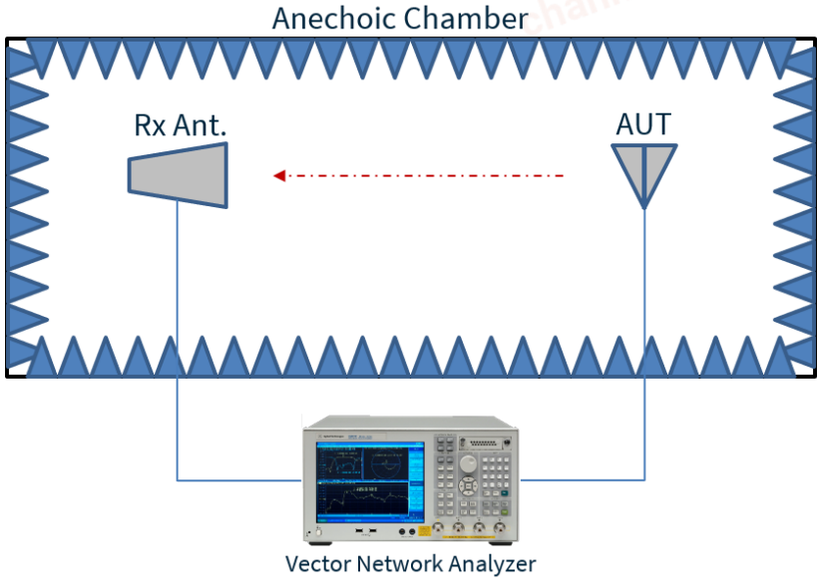
5.12 PCV

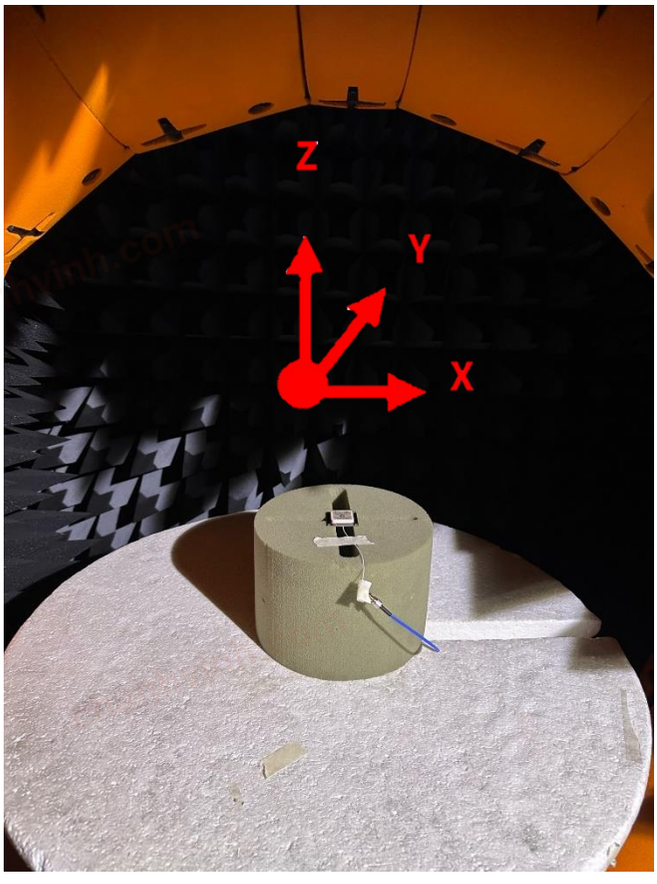


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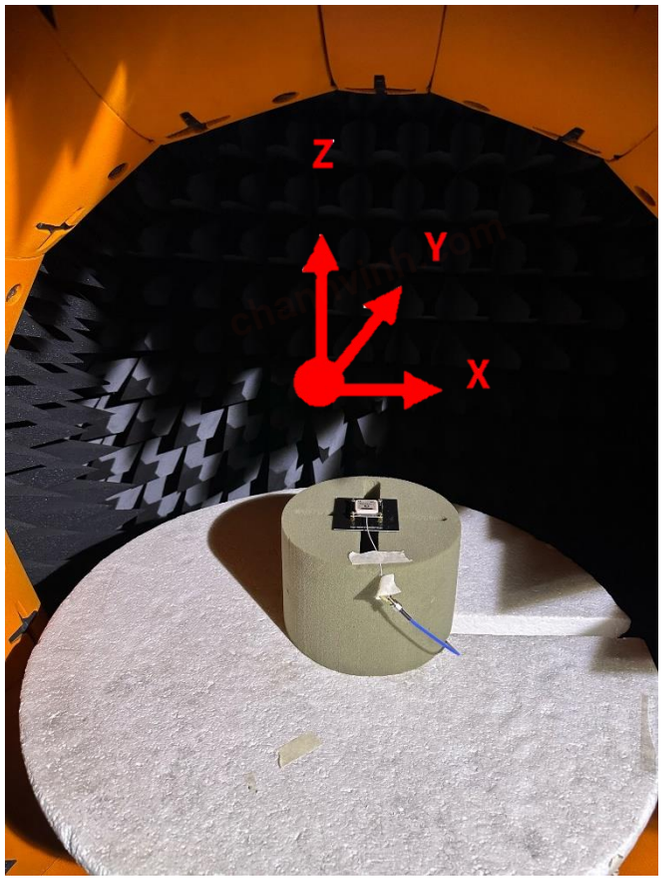
6. Radiation Patterns

6.1 Test Setup





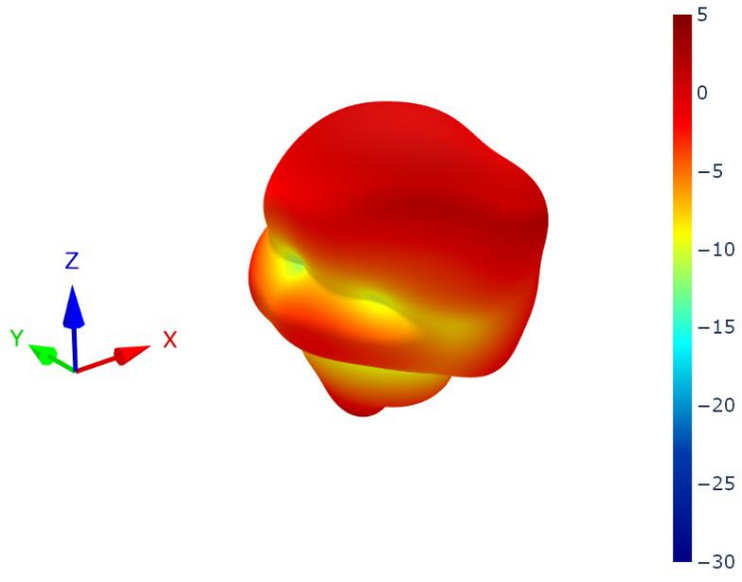
35x35mm Ground Plane Chamber Set-up

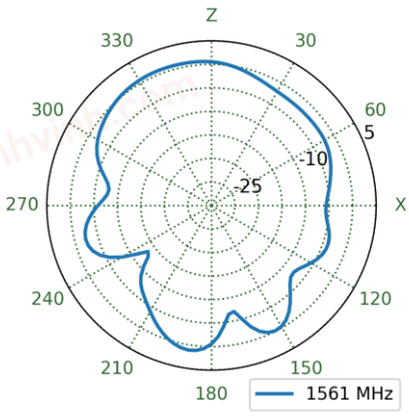
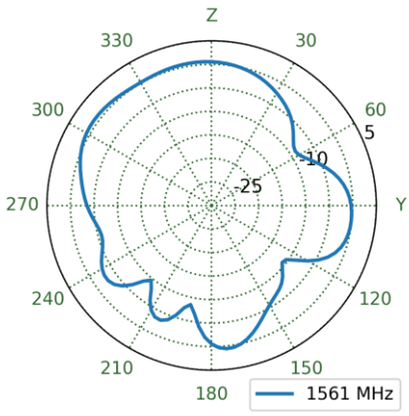
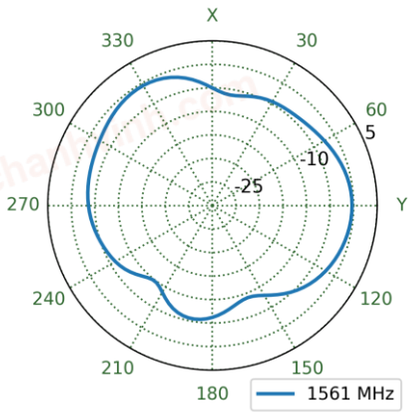


70x70mm Ground Plane Chamber Set-up

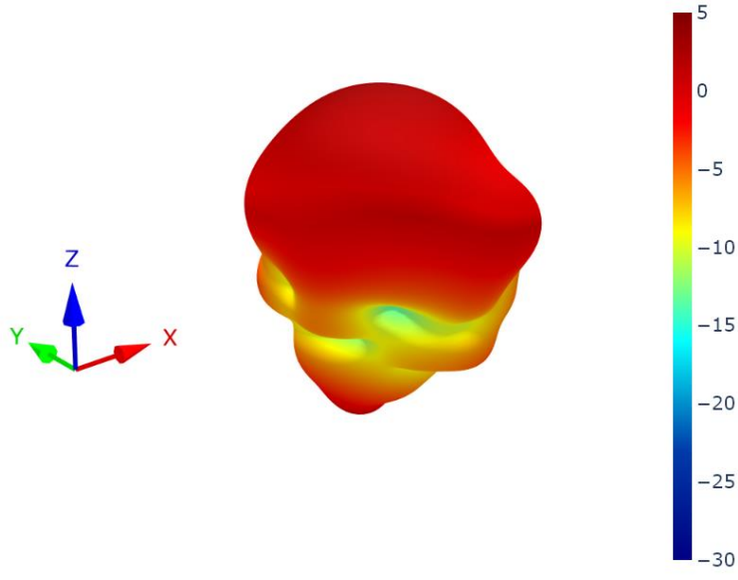
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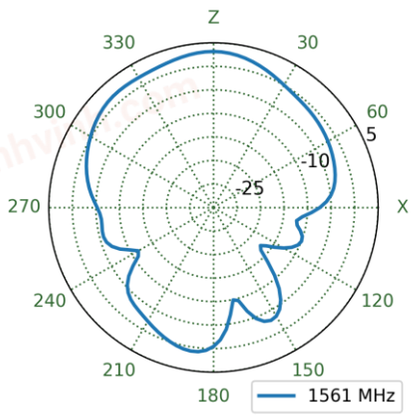
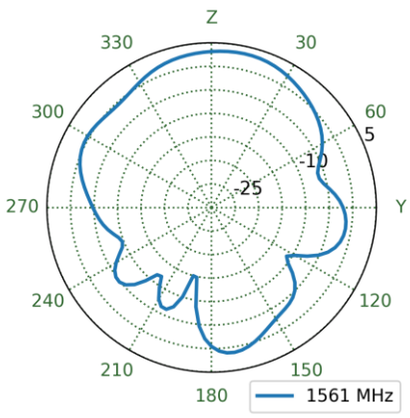
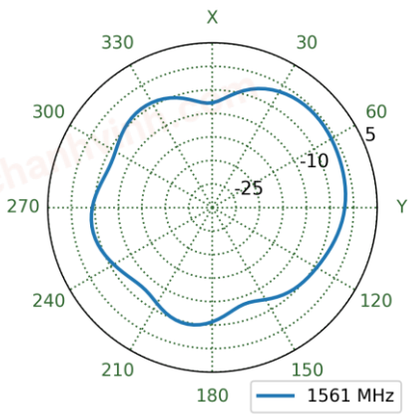
6.2 On 35x35mm Ground Plane Patterns at 1561 MHz



XZ Plane	YZ Plane	XY Plane
		

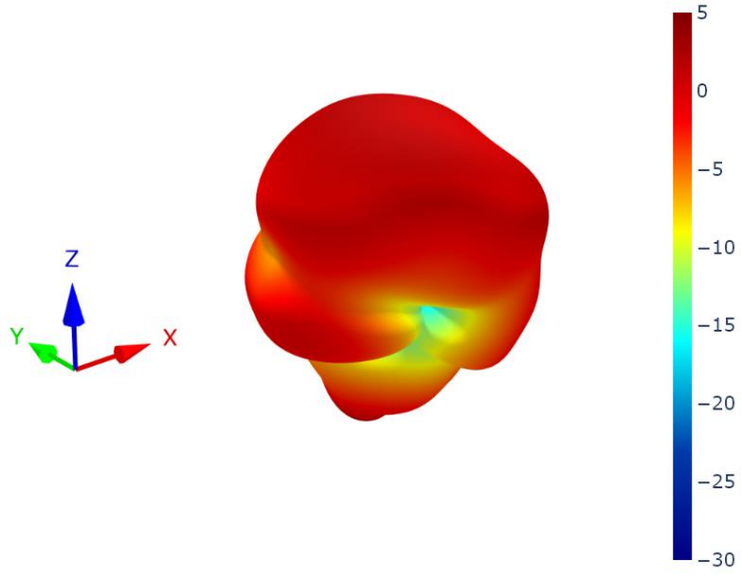
6.3 On 70x70mm Ground Plane Patterns at 1561 MHz

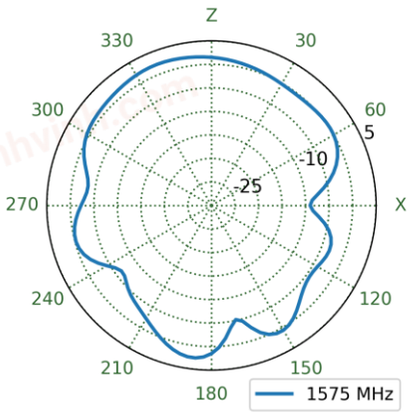
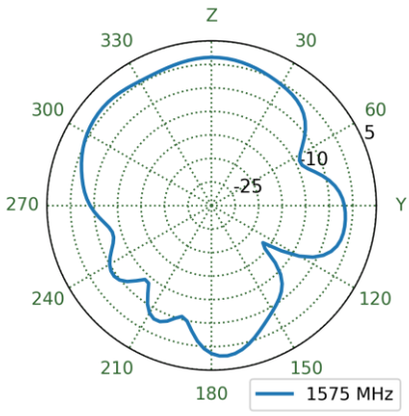
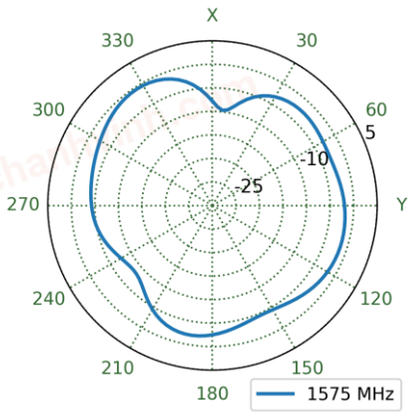


XZ Plane	YZ Plane	XY Plane
		

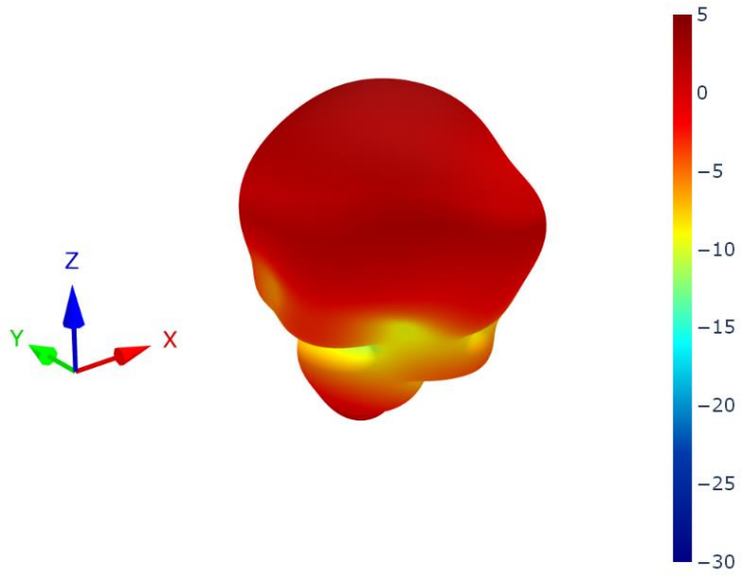
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6.4 On 35x35mm Ground Plane Patterns at 1575 MHz

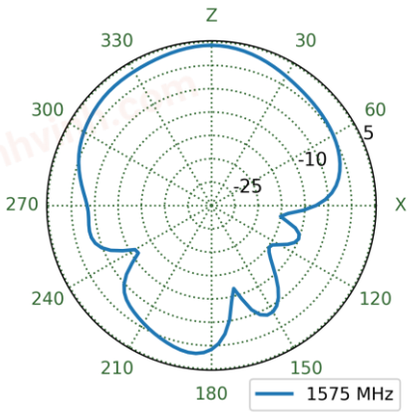


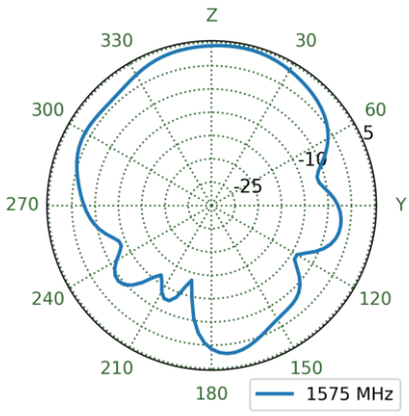
XZ Plane	YZ Plane	XY Plane
		

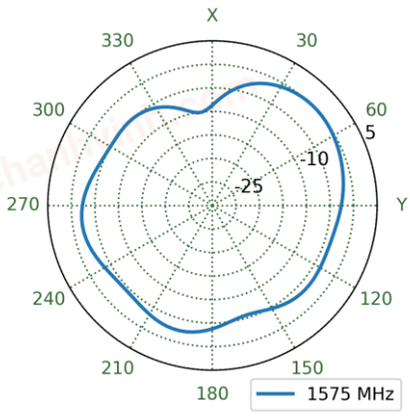
6.5 On 70x70mm Ground Plane Patterns at 1575 MHz



XZ Plane	YZ Plane	XY Plane

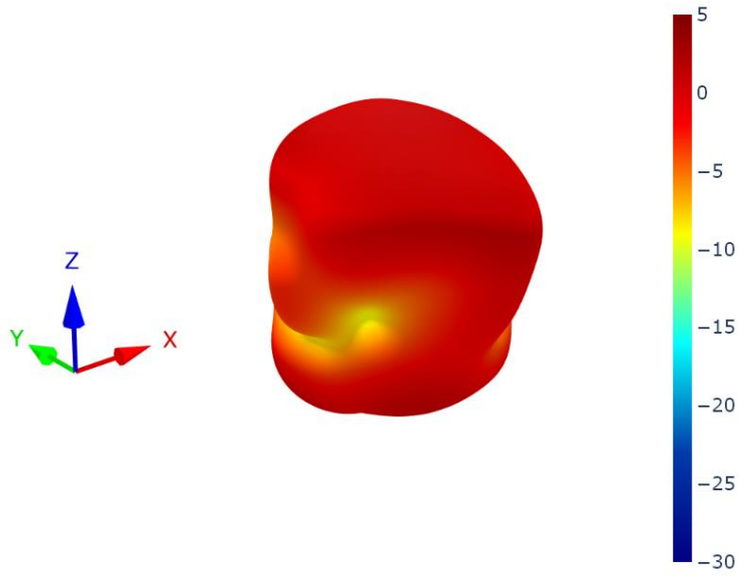


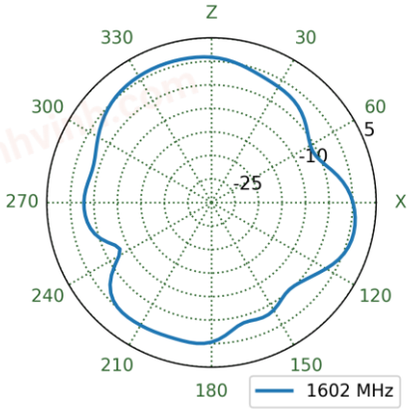
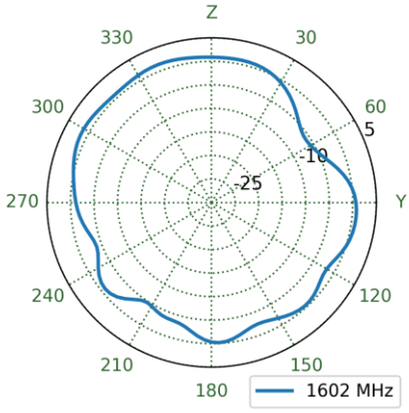
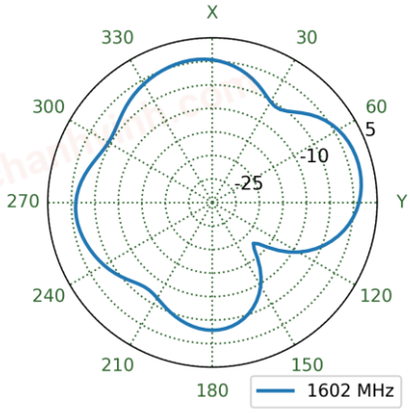




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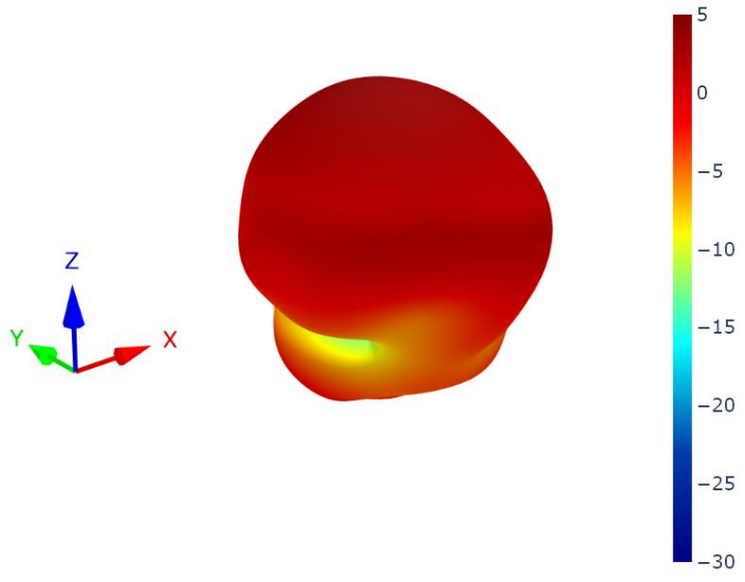
6.6 On 35x35mm Ground Plane Patterns at 1602 MHz



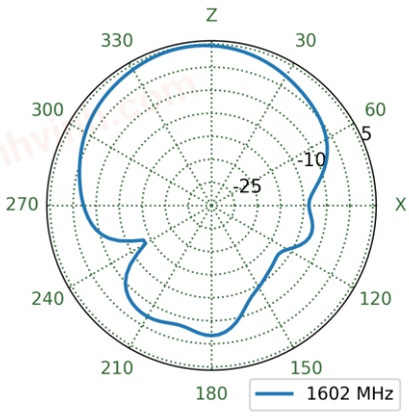
XZ Plane	YZ Plane	XY Plane
		

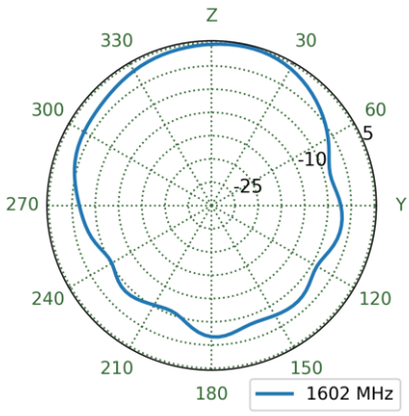
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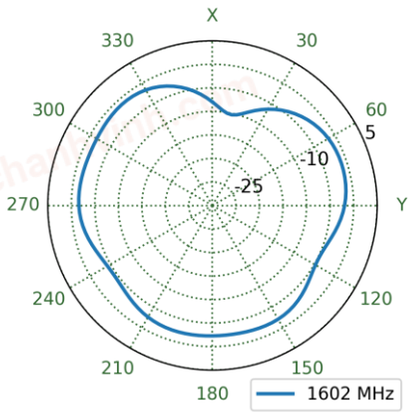
6.7 On 70x70mm Ground Plane Patterns at 1602 MHz



XZ Plane	YZ Plane	XY Plane







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Changelog for the datasheet

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Previous Revisions

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