TAOGLAS®



Datasheet

Part No:
ADGVLB356.A.001

Description

GPS/GLONASS/BeiDou/IRNSS L1 + L5 Active Dual Cable Stacked Patch 2 Stage LNA Antenna 45 x 45 mm PCB 100 mm Black/Gray 1.13 IPEX MHFI(U.FL)

Features:

Dual GNSS Signal Output
Covering Bands
– GPS L1 & L5
– BeiDou B1I
– GLONASS G1
Dual Stage LNA
4 Screw Holes For Integration
Dimensions: 45.0 x 45.0 x 10.1 mm
Cable: 2x 100 mm of Ø1.13 mm (Black/Gray)
Connector: IPEX.MHFI (U.FL compatible)
RoHS & REACH Compliant

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1. Introduction



The Taoglas **ADGVLB356.A.001** is a dual-output active GNSS antenna designed for systems where multiple GNSS receivers require access to a shared antenna. Featuring a stacked ceramic patch with integrated LNA and filtering, it supports GPS L1 and L5, BeiDou B1I, GLONASS G1 and IRNSS L5 bands for multi-constellation positioning and navigation applications.

The **dual-output architecture incorporates an integrated RF splitter, allowing a single GNSS antenna to provide signals to two independent GNSS receivers or subsystems**. This helps simplify antenna integration in devices where multiple functions require simultaneous access to GNSS signals, reducing the need for separate GNSS antenna installations.

Measuring 45.0 × 45.0 × 10.1 mm, the antenna combines RHCP polarization with integrated amplification, filtering, and ESD protection to support reliable system integration. The antenna is characterized on a 70 × 70 mm ground plane and is supplied with two 100 mm 1.13 mm coaxial cables terminated with **IPEX MHFI (U.FL compatible)** connectors.

Note: Each feed carries the multiband signal, it is not a split between L1 and L5.

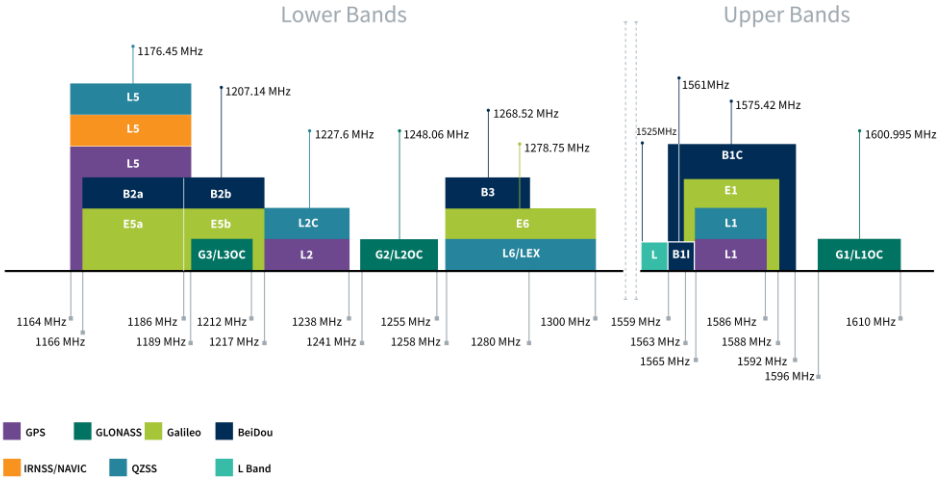
Typical Applications Include:

- Multi-Receiver GNSS Systems
- Telematics and Tracking Equipment
- Transportation and Fleet Management Systems
- Industrial IoT and Gateways
- Robotics and Autonomous Equipment
- Navigation and Positioning Systems
- Security and Monitoring Systems

The cable and connector are fully customizable, contact your regional Taoglas customer support team to request these services or additional support to integrate and test this antenna's performance in your device.

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

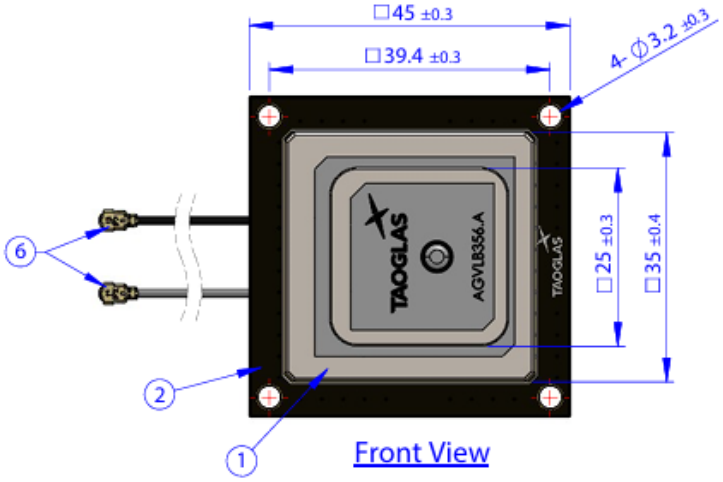
GNSS Electrical				
Frequency (MHz)	**1176.45**	**1561**	**1575.42**	**1602**
VSWR (max.)	2:1	2:1	2:1	2:1
Passive Efficiency (%)	59.0	68.5	67.6	63.2
Passive Antenna Peak Gain (dBi)	3.46	4.50	4.50	4.32
Passive Antenna Average Gain (dB)	-2.29	-1.64	-1.70	-1.99
PCO_x (cm)	-1.88	0.3	0.19	0.07
PCO_y (cm)	-1.74	-1.7	-1.97	-1.87
PCV (cm)	0.03	0.01	0.01	0.02
Polarization	RHCP			
Impedance	50 Ω			
Testing completed on a 70.0 x 70.0mm Ground Plane				

LNA and Filter Electrical Properties					
Frequency (MHz)	**Port**	**1176.45**	**1561**	**1575.42**	**1602**
Gain (dB)	**Port 1**	26.4	30.6	29.8	30.7
	Port 2	26.4	30.7	29.9	30.8
Nosie Figure (dB)	**Port 1**	3.03	3.09	2.09	2.70
	Port 2	3.06	3.08	2.91	2.76
Group Delay (ns)	**Port 1**	26.6	30.8	26.6	30.3
	Port 2	27.2	30.1	25.5	30.2
Out Of Band Rejection (dB)	> 70dB @ 600-1000 MHz > 75dB @ 1700-6000 MHz				
ESD Protection (IEC61000-4-2)	Contact: ±20kV, Air: ±25kV discharge				
Current Consumption (mA)	< 18				
Input Voltage (V)	+ 1.8 to 5.5				

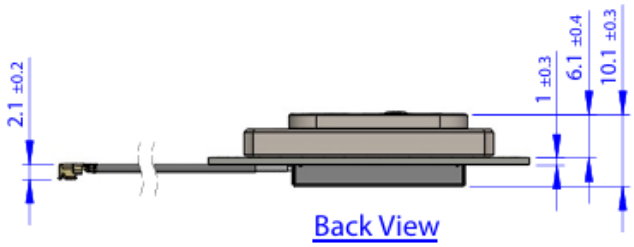
Mechanical	
Dimensions	45.0 mm x 45.0 mm x 10.1 mm
Weight	30g
Material	Ceramic
Connector	IPEX.MHFI (U.FL Compatible)
Cable	100mm 1.13 Coaxial Cable (Black/ Gray)

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

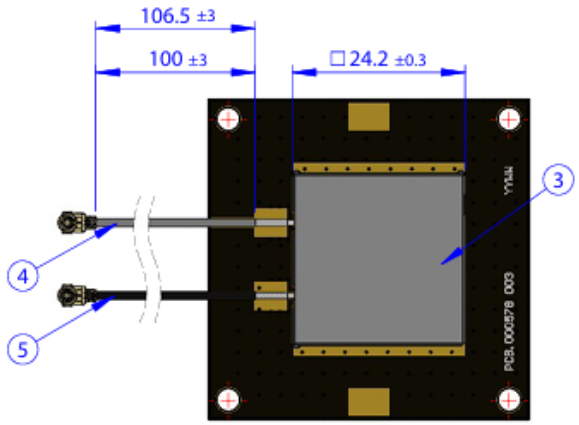
3. Mechanical Drawing



Front View



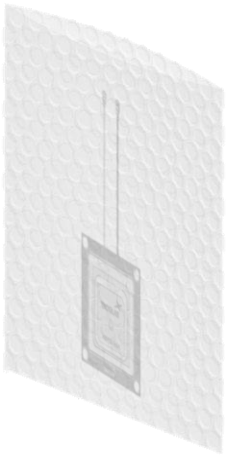
Back View



Side View

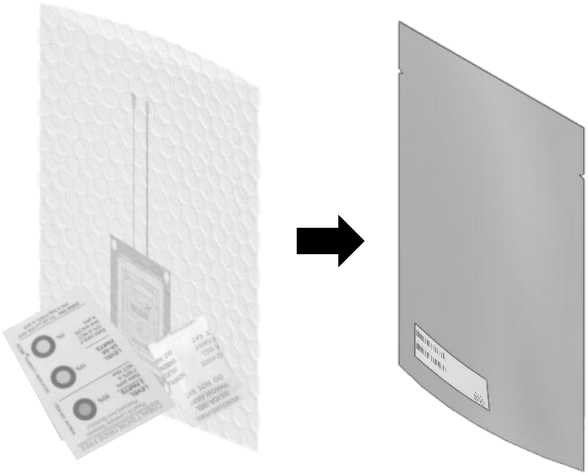
	Name	Material	Finish	Qty
1	Patch	Ceramic	Clean	1
2	PCB	NP-140	Black	1
3	Shielding Case	SPTE	Tin plated	1
4	1.13 Coaxial cable	FEP	Gray	1
5	1.13 Coaxial cable	FEP	Black	1
6	IPEX.MHFHT	Composite	Au Plated	2

4. Packaging



☑ 1 PCS / Bubble bag

weight without packaging (g): 30 ±3%

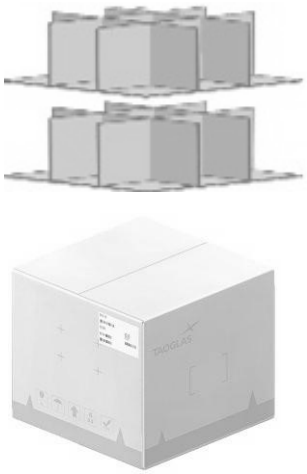


☑ 1 PCS / Vacuum bag

☑ 1 PCS / 3g Desiccant

☑ Weight (g): 42 ±3%

☑ SPQ Label



☑ 90 PCS / Carton

☑ 2 PCS / Frame

☑ 2 PCS / Bulkhead Board

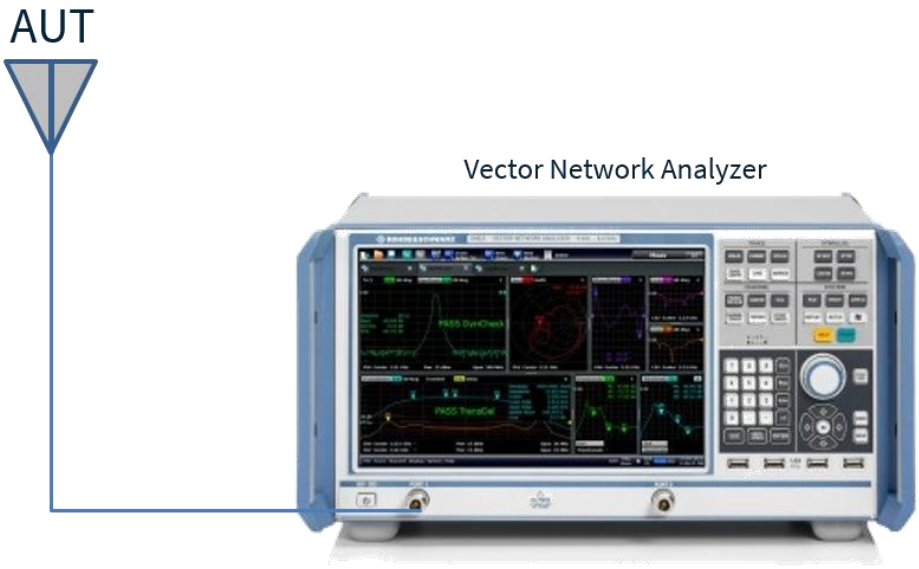
☑ Carton(mm): 370x370x300

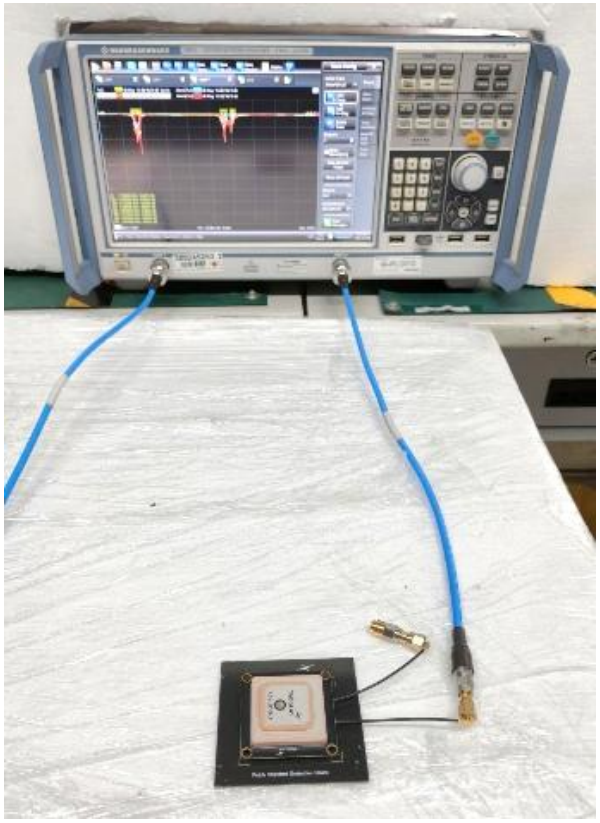
☑ Weight (Kg): 5.2 ±3%

☑ Carton Label

5. Antenna Characteristics

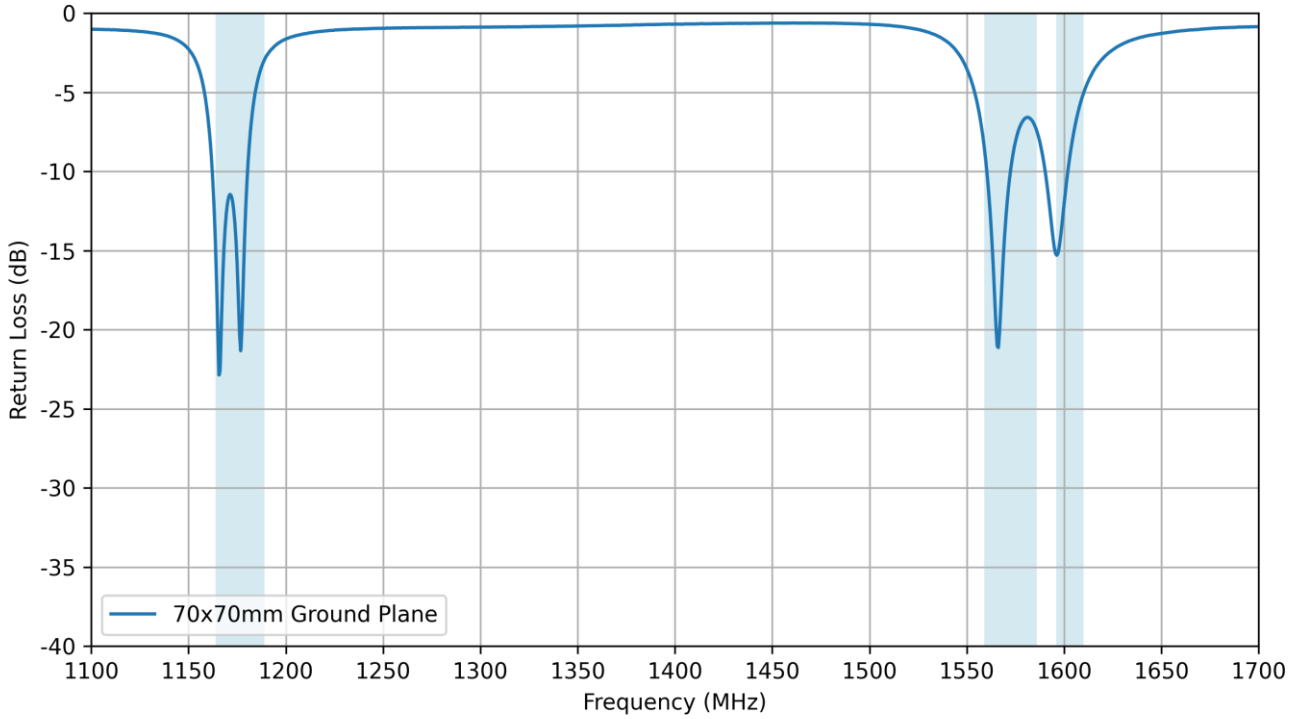
5.1 Test Setup



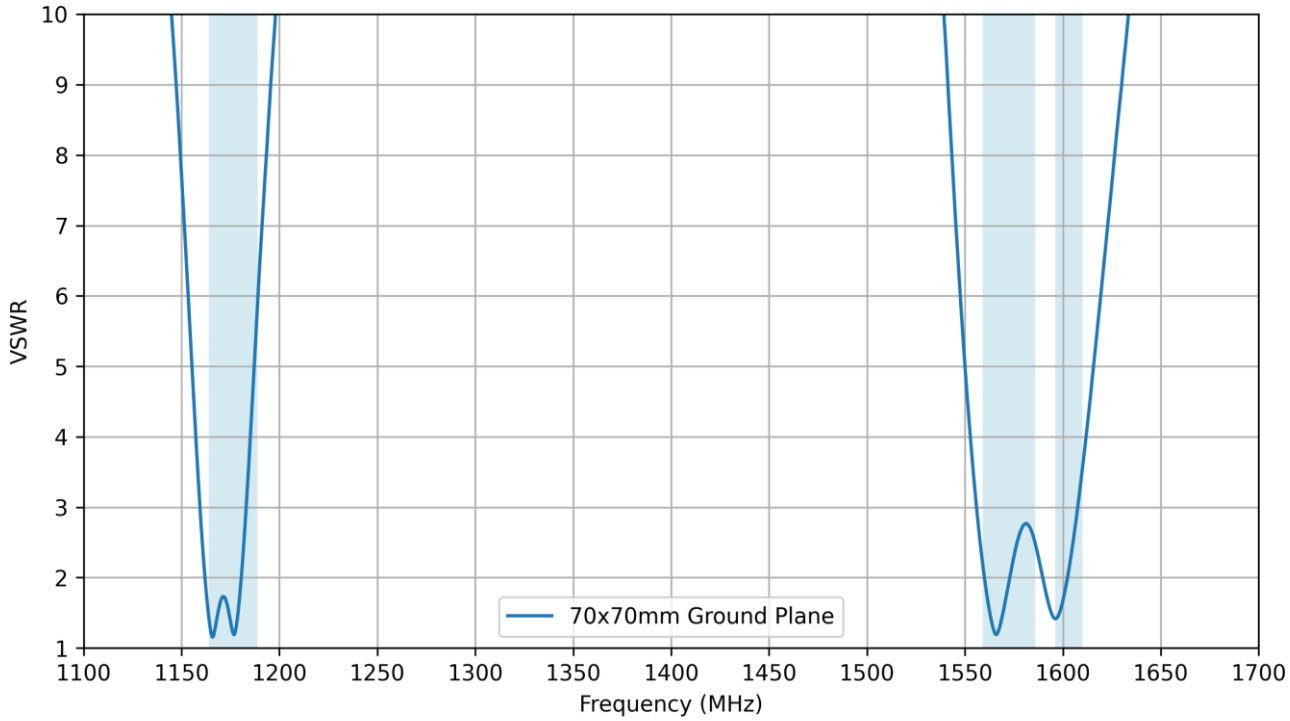


VNA Test Set-up on a 70x70mm Ground Plane

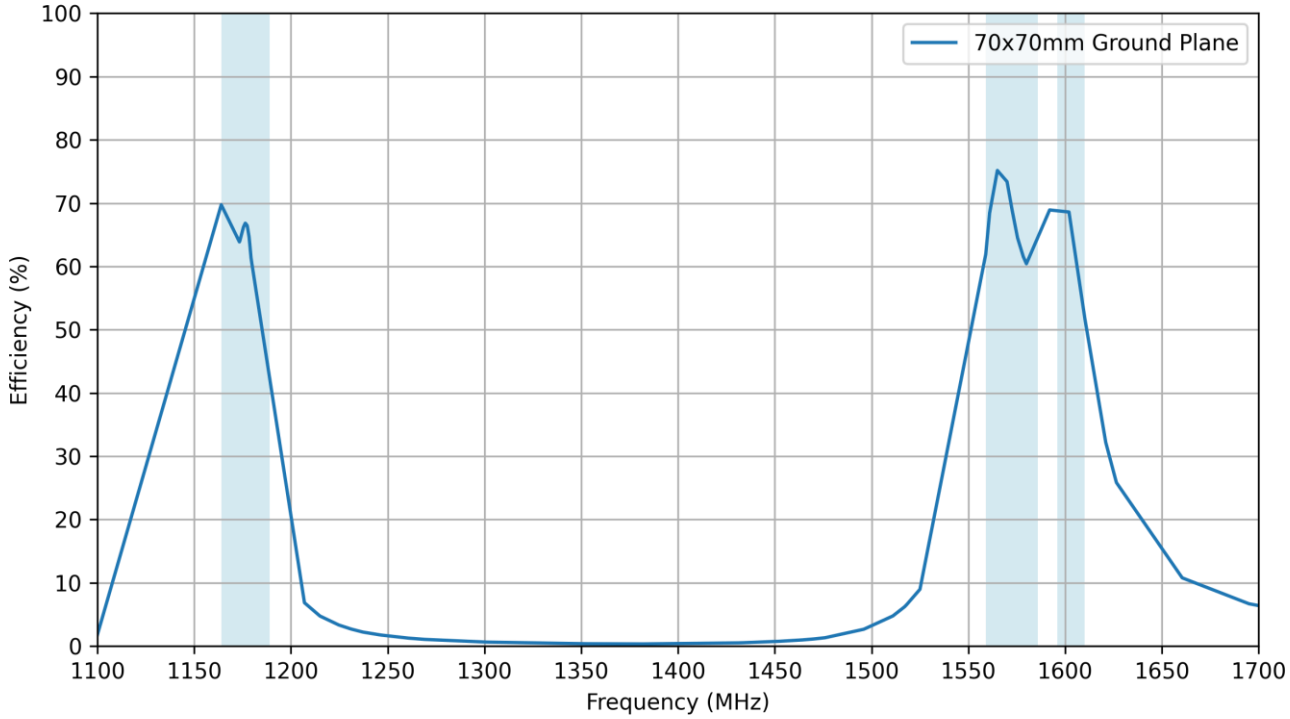
5.2 Return Loss



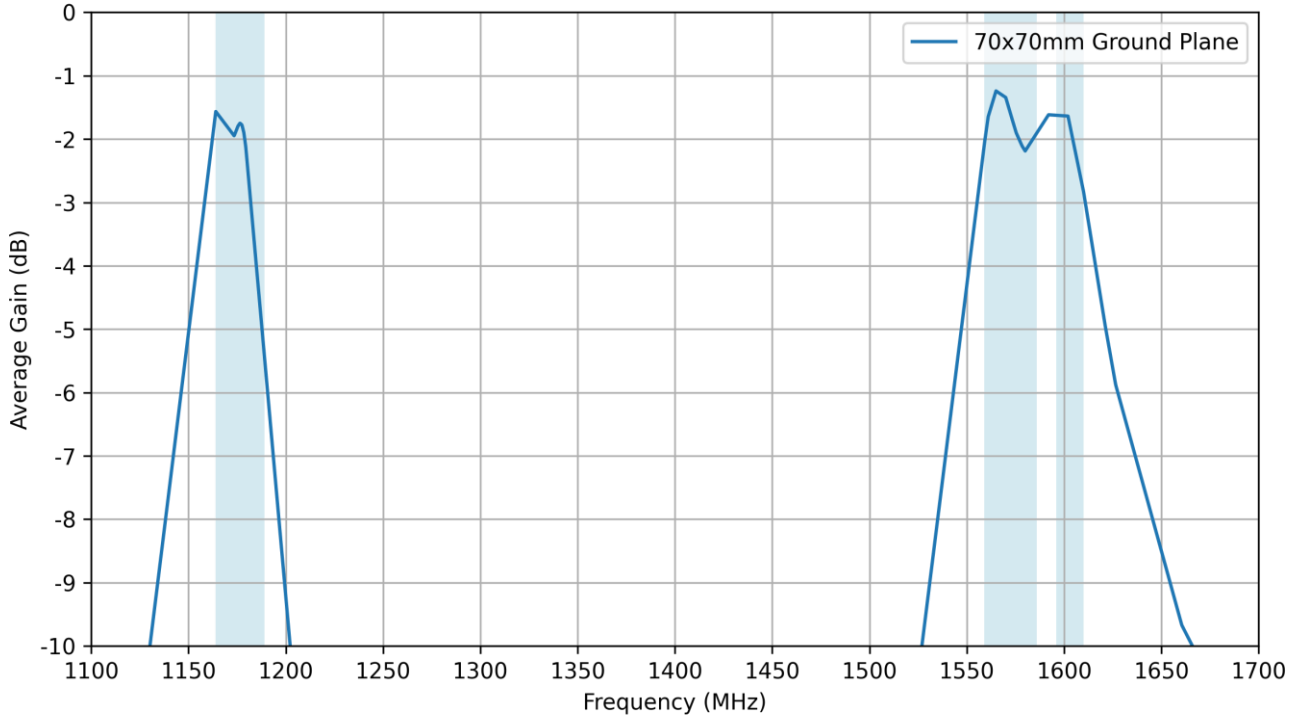
5.3 VSWR



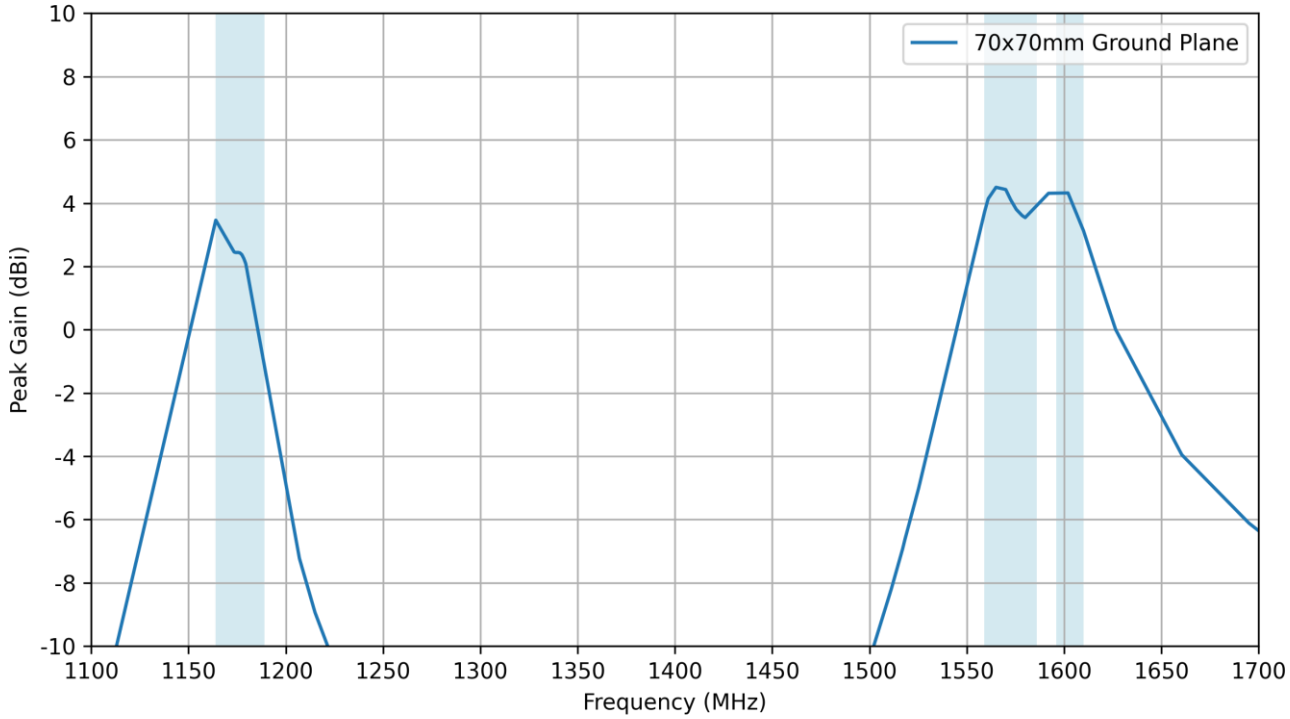
5.4 Efficiency



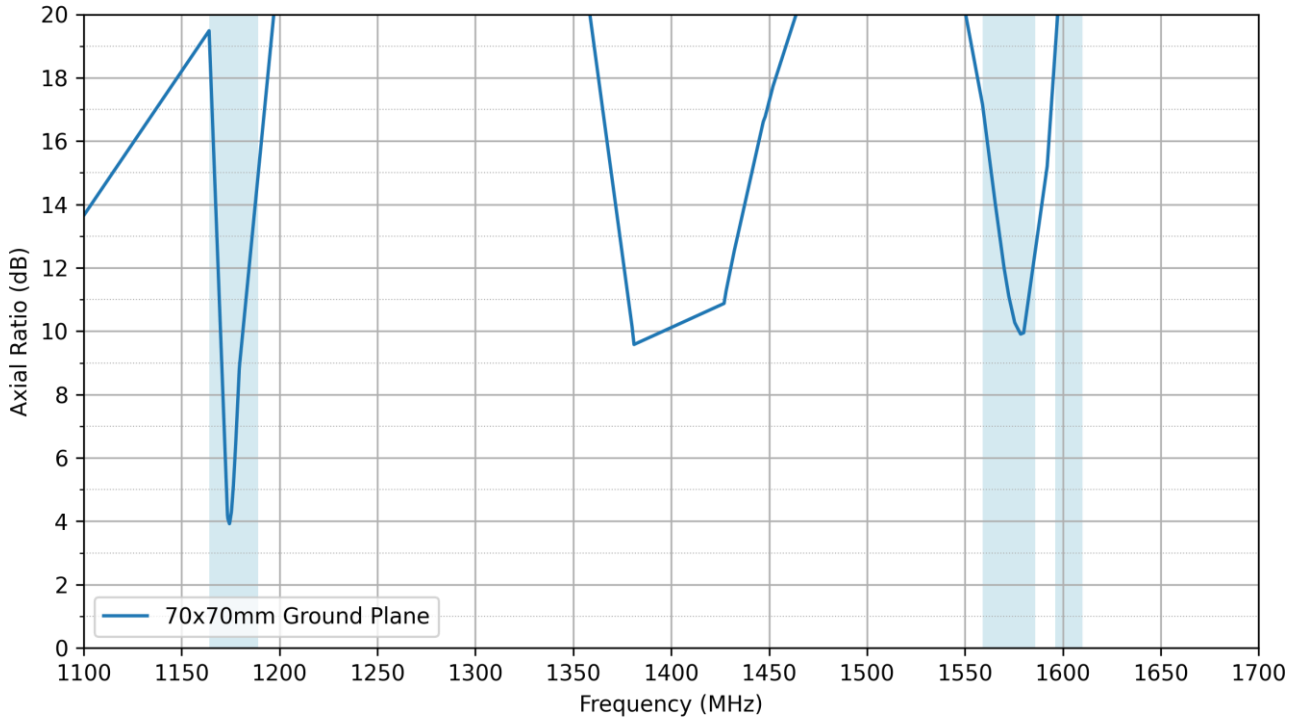
5.5 Average Gain



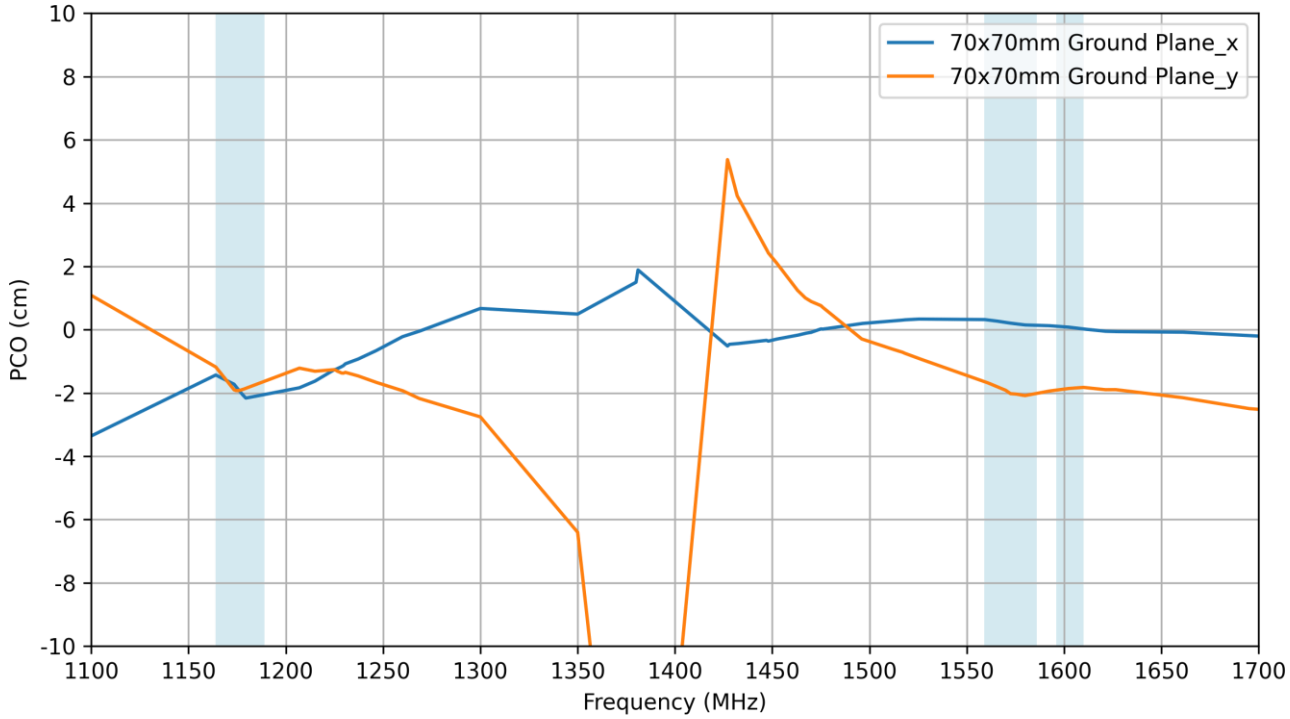
5.6 Peak Gain



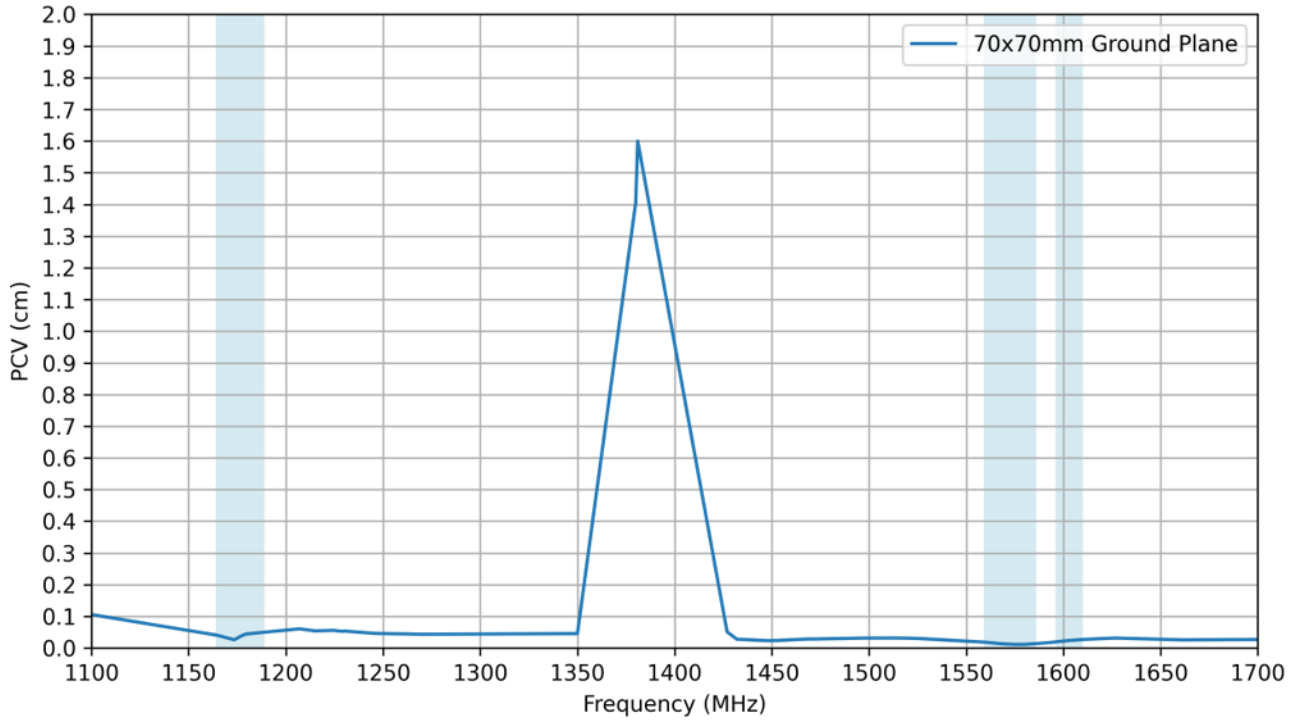
5.7 Axial Ratio



5.8 PCO

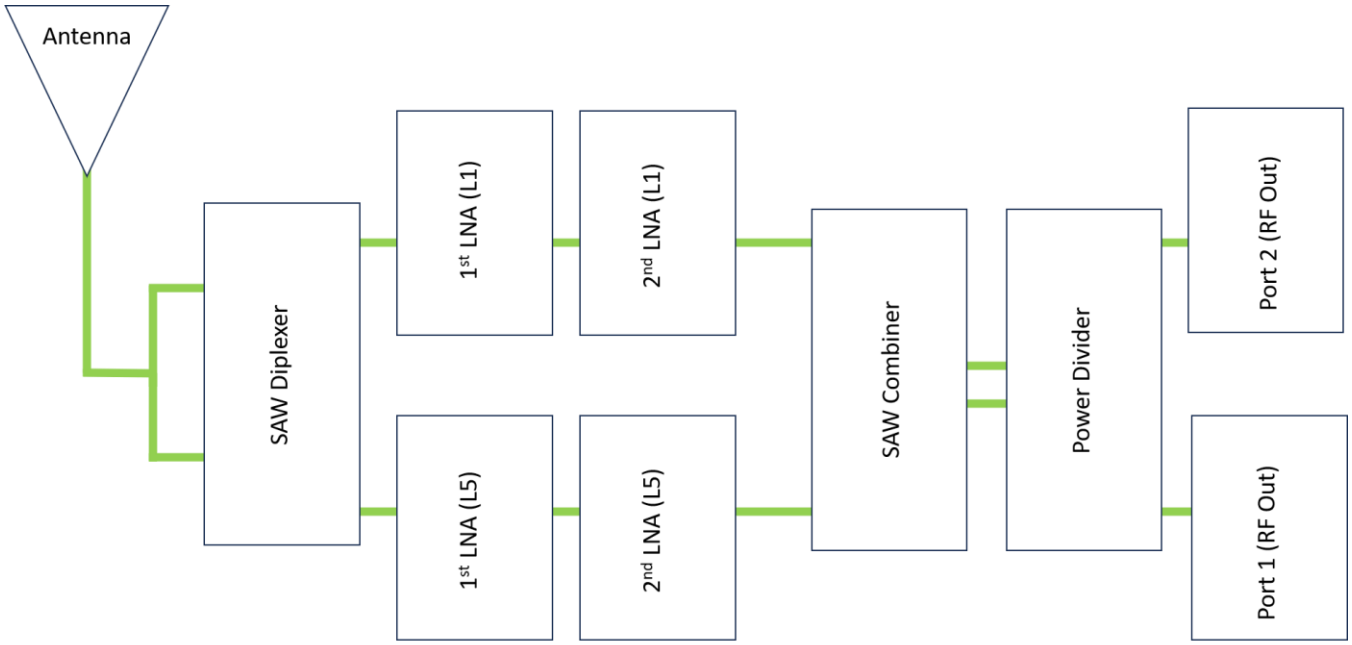

70x70mm Ground Plane_x
70x70mm Ground Plane_y
PCO (cm)
Frequency (MHz)
10
8
6
4
2
0
-2
-4
-6
-8
-10
1100
1150
1200
1250
1300
1350
1400
1450
1500
1550
1600
1650
1700

5.9 PCV

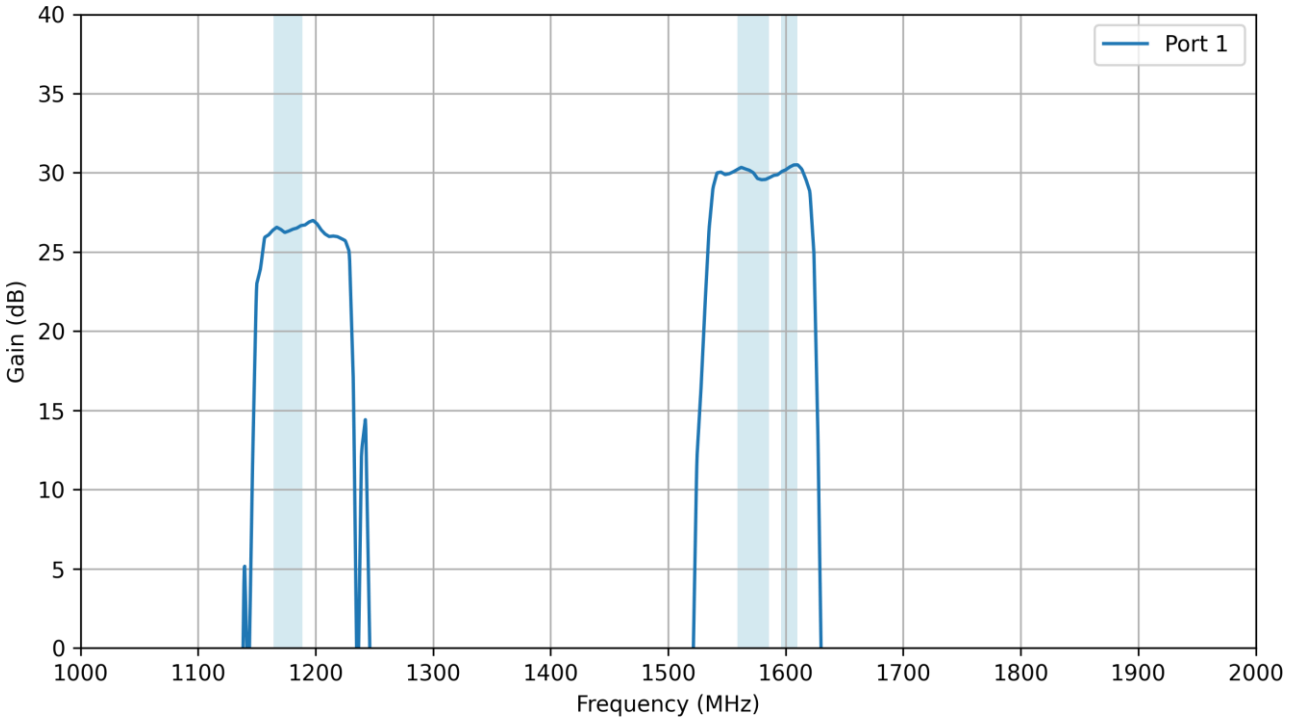

70x70mm Ground Plane
PCV (cm)
Frequency (MHz)
2.0
1.9
1.8
1.7
1.6
1.5
1.4
1.3
1.2
1.1
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
1100
1150
1200
1250
1300
1350
1400
1450
1500
1550
1600
1650
1700

6. LNA Characteristics

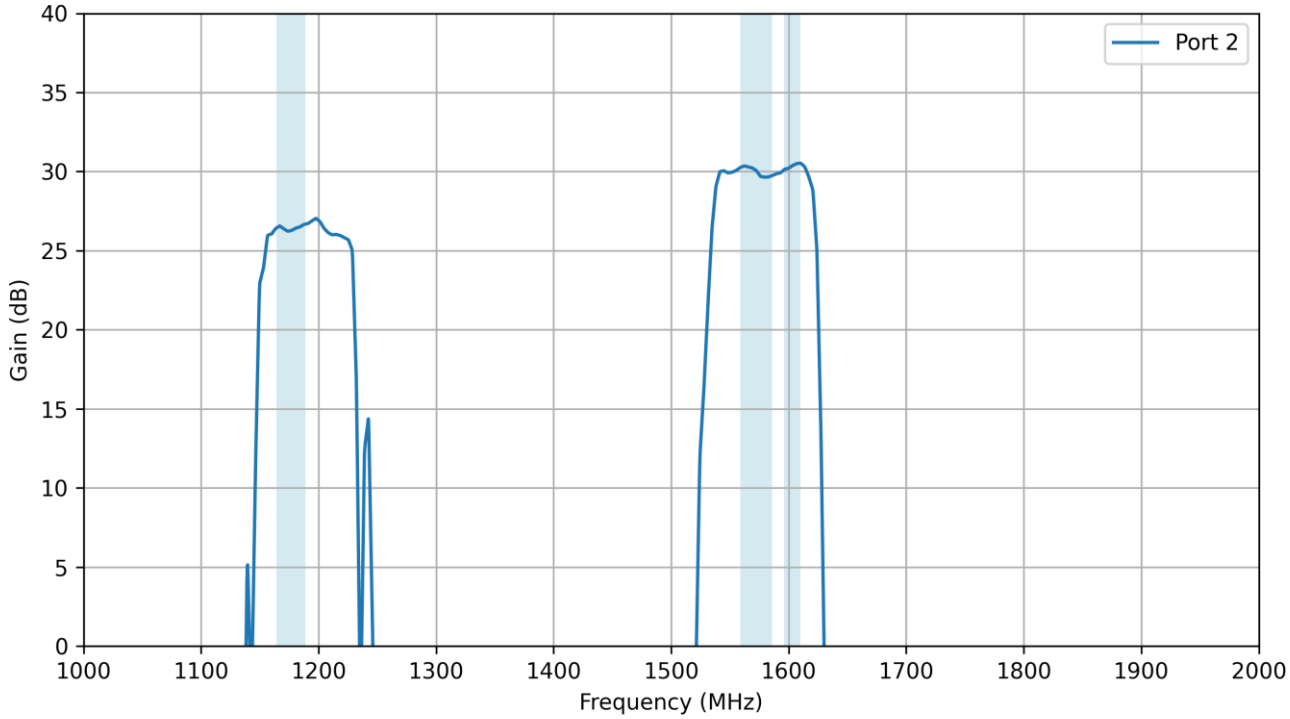
6.1 Block Diagram



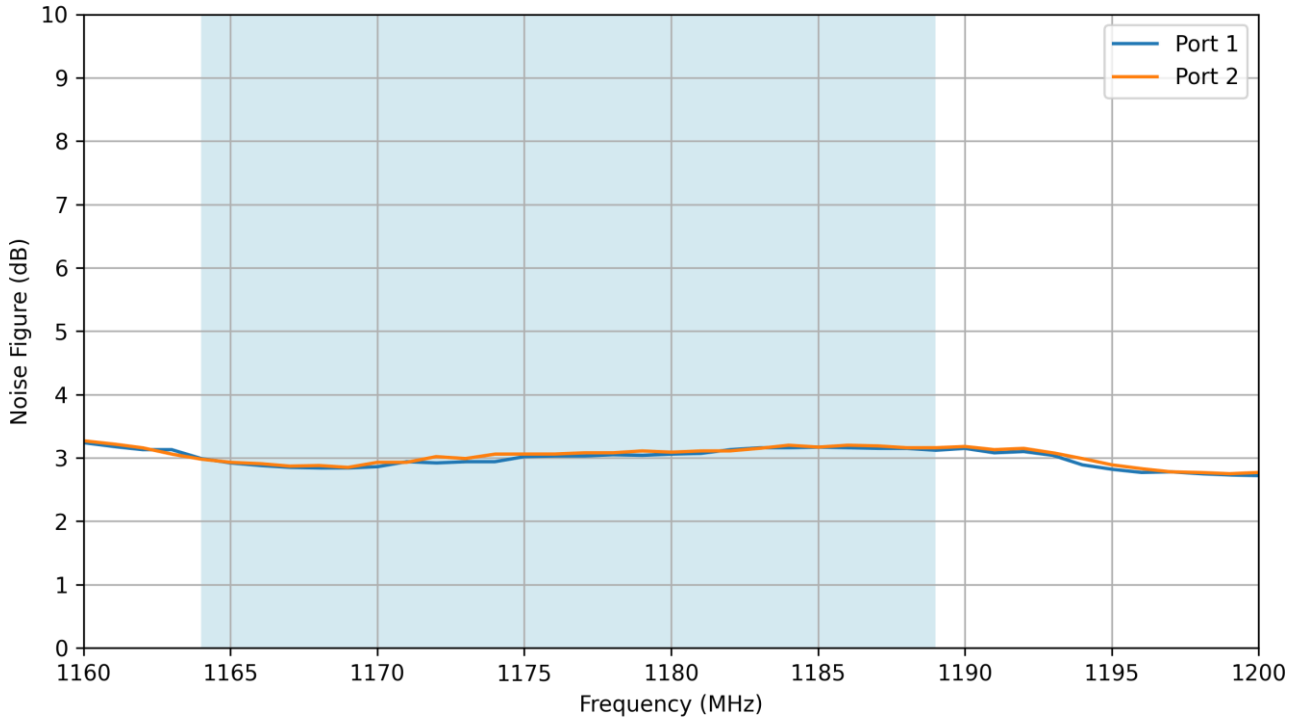
6.2 Gain – Port 1



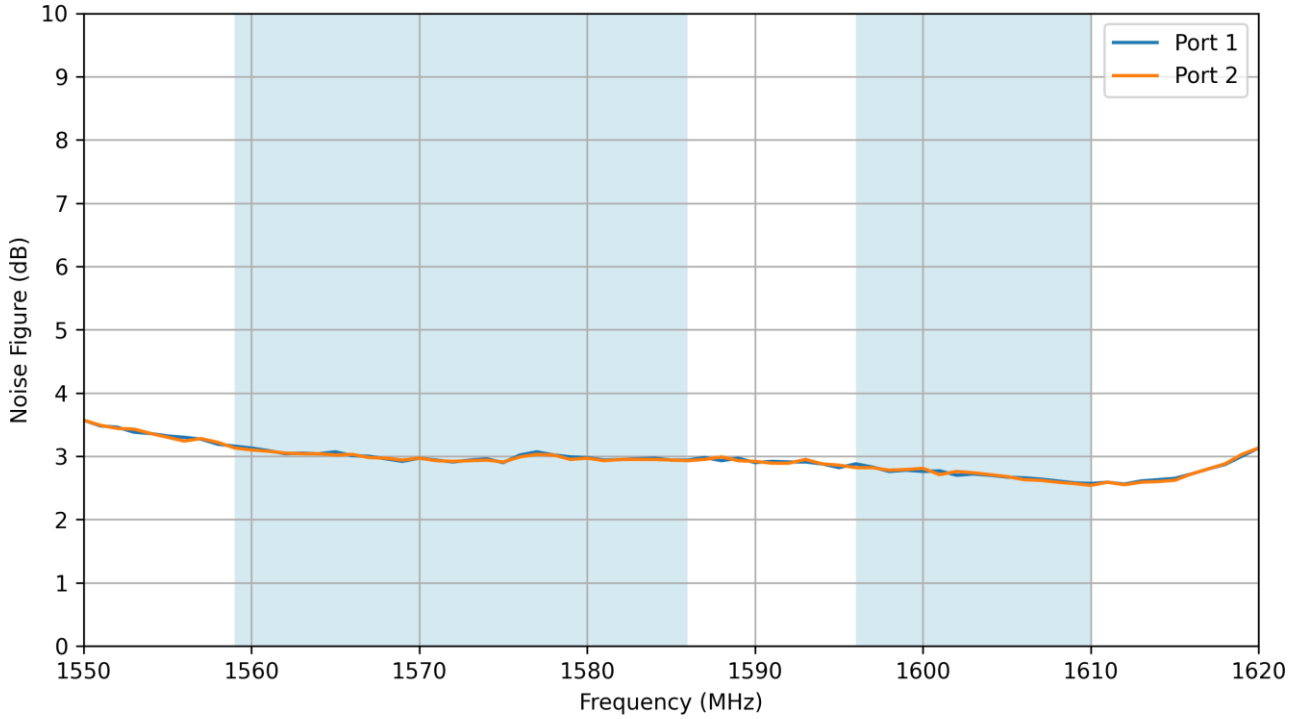
6.3 Gain – Port 2



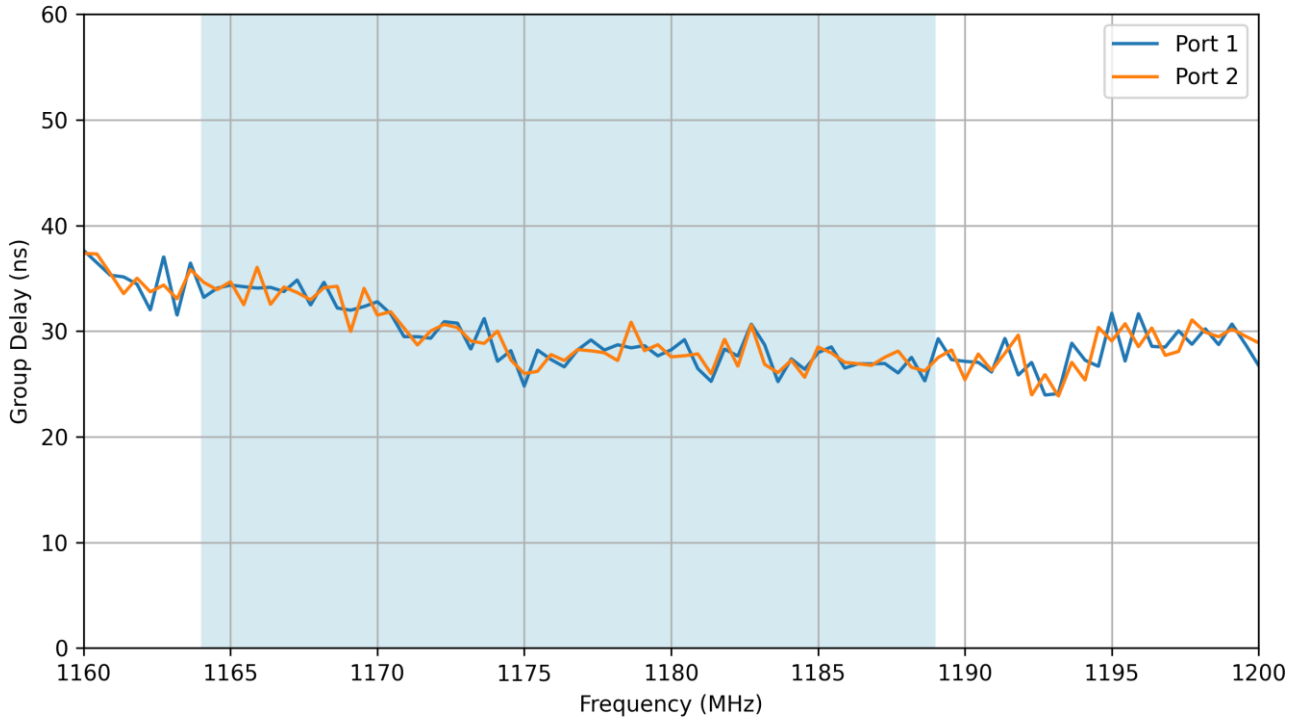
6.4 Noise Figure – Low-Band



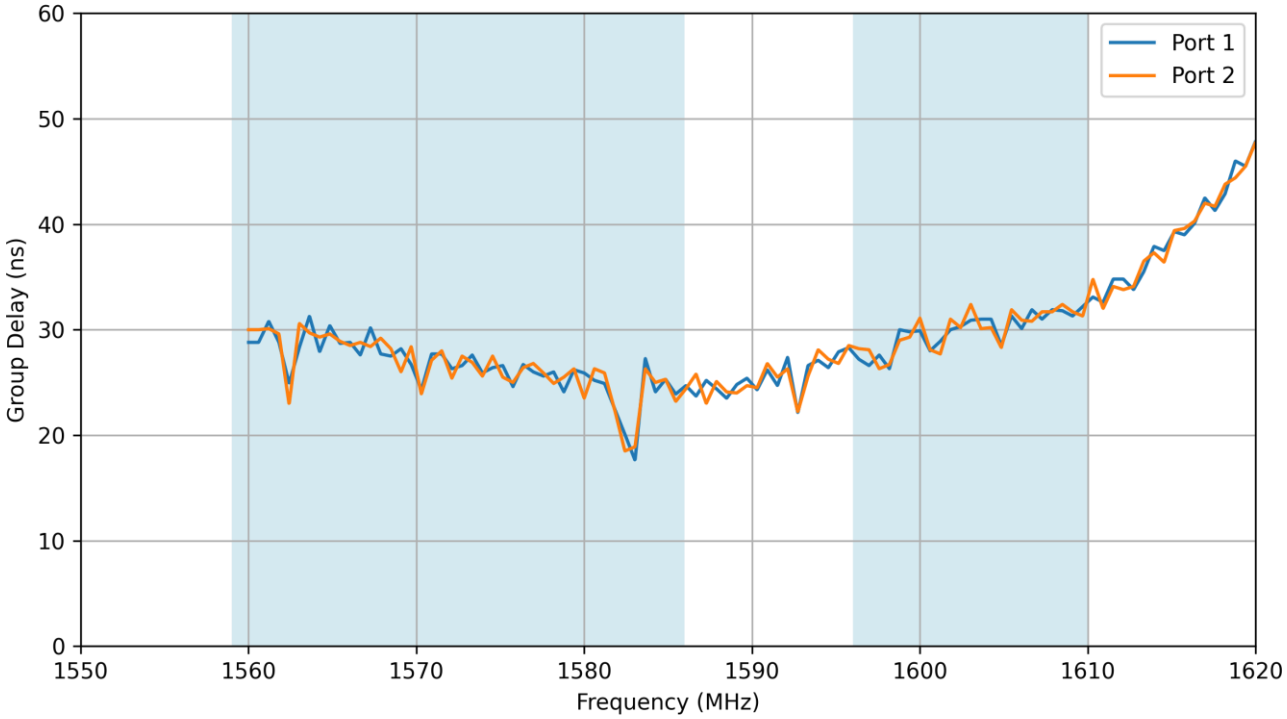
6.5 Noise Figure - High-Band



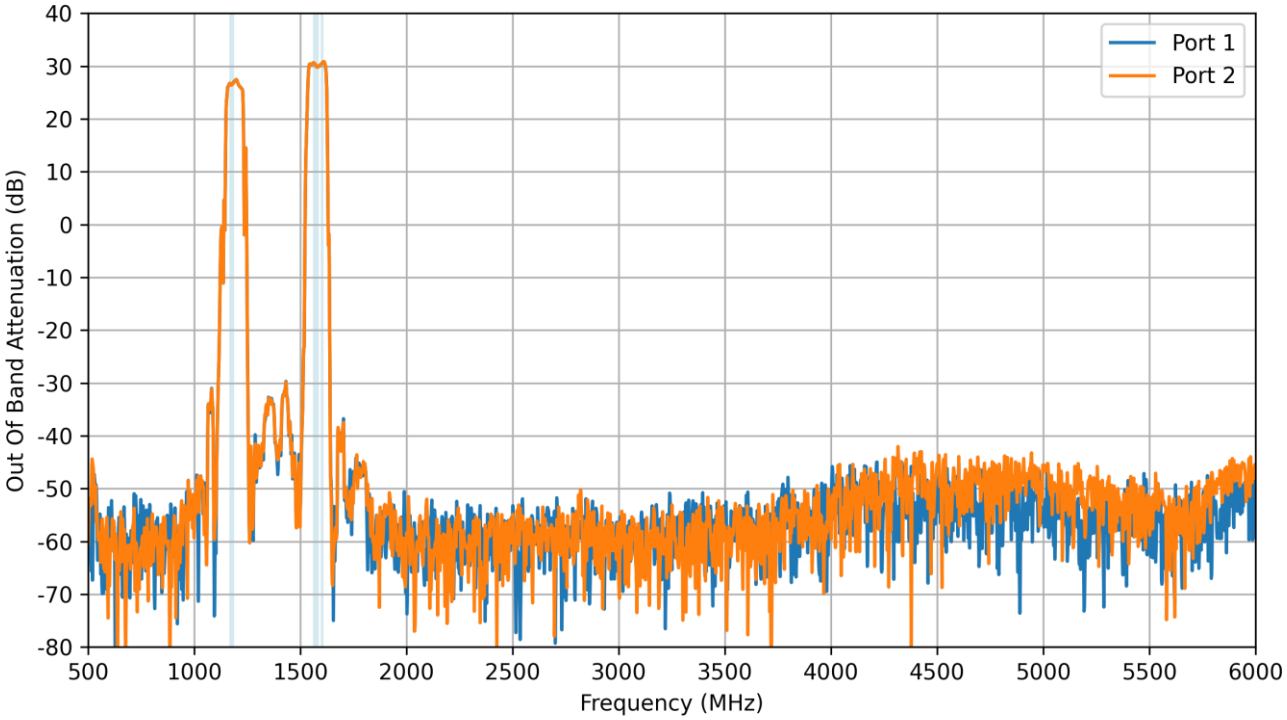
6.6 Group Delay - Low-Band



6.7 Group Delay - High-Band

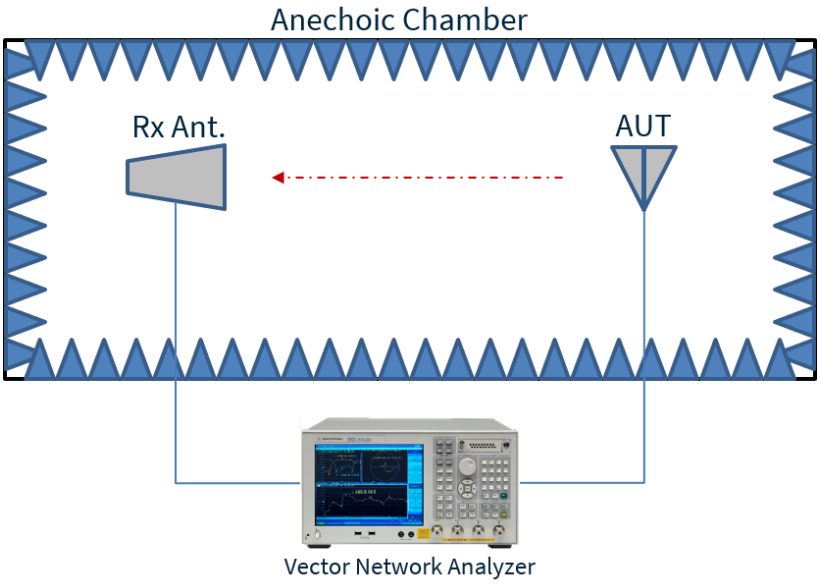


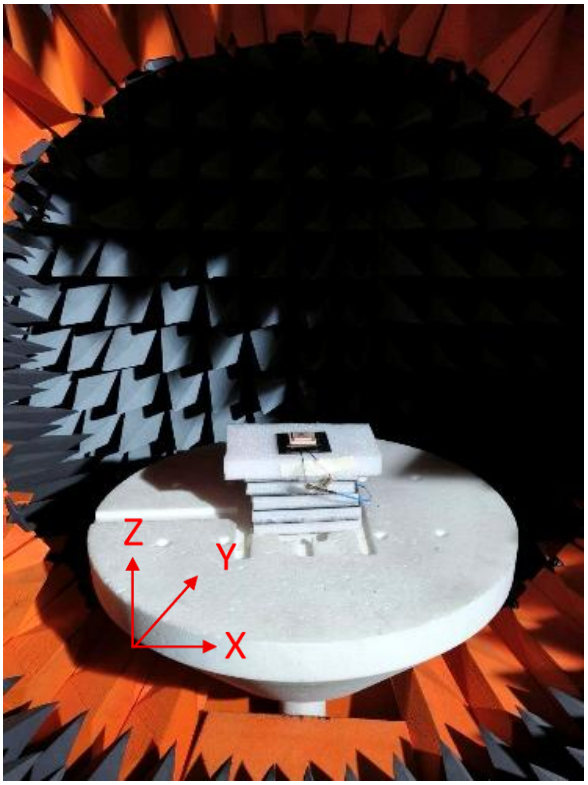
6.8 Out Of Band Rejection



7. Radiation Patterns

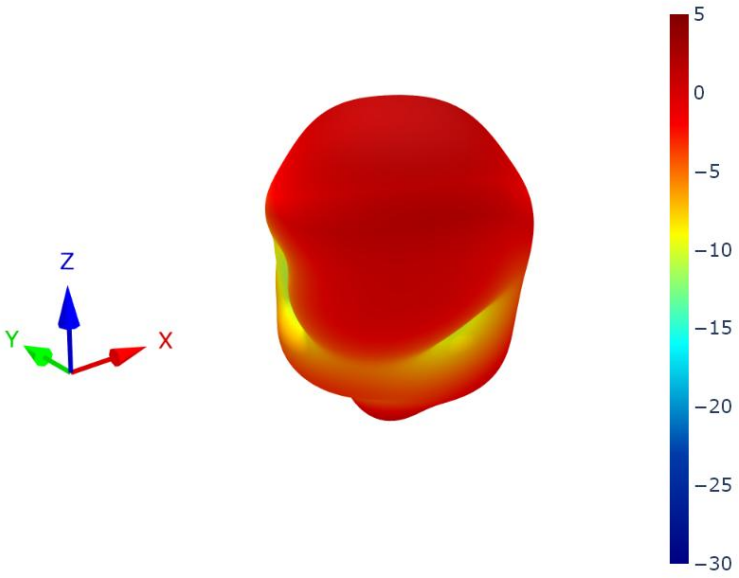
7.1 Test Setup



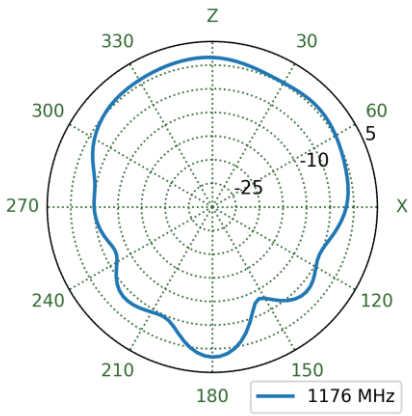


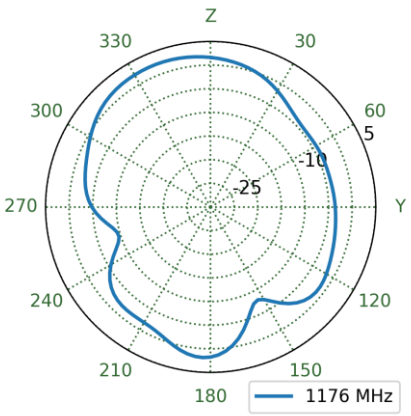
Chamber Test Set-up on a 70x70mm Ground Plane

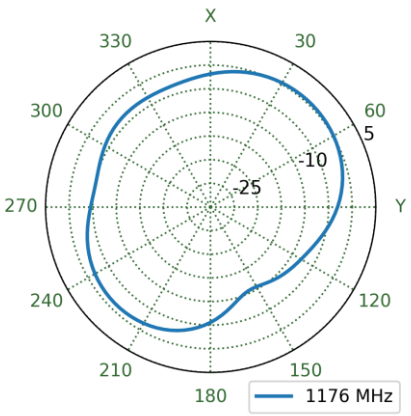
7.2 Patterns at 1176 MHz



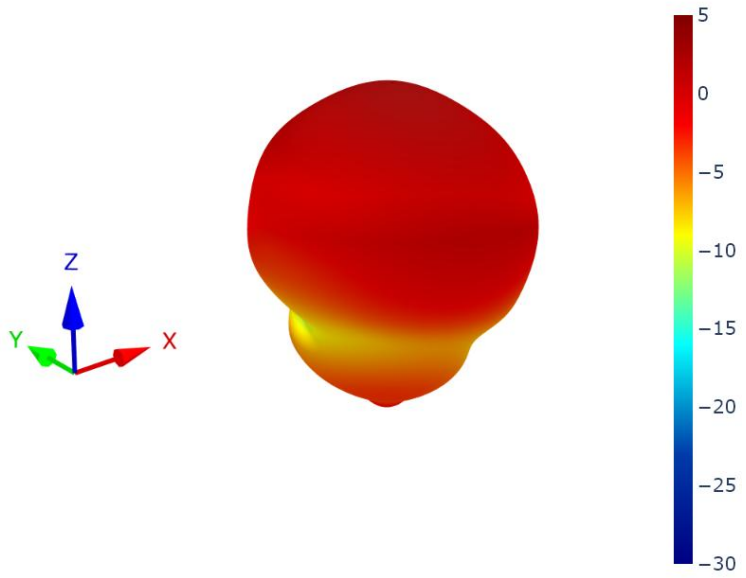
XZ Plane	YZ Plane	XY Plane

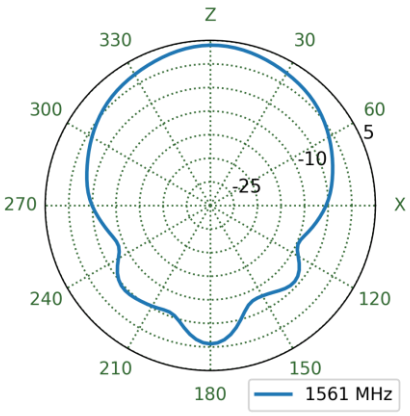
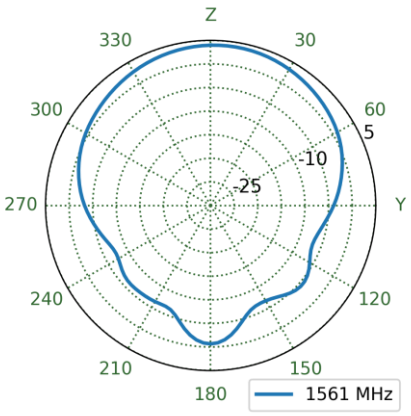
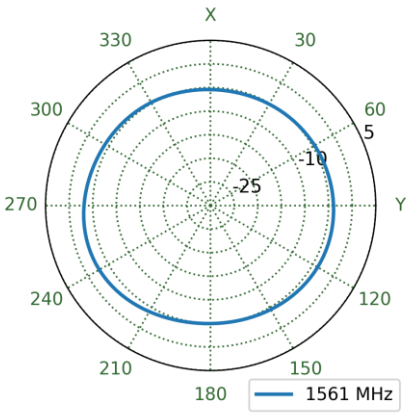




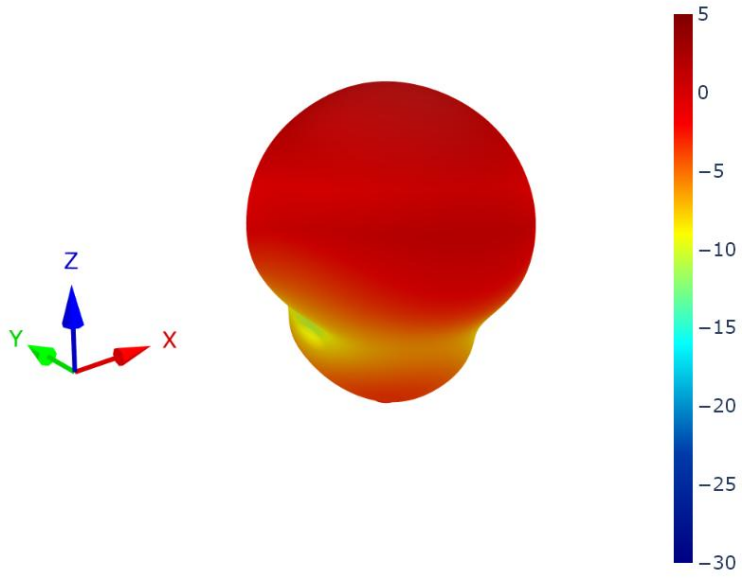


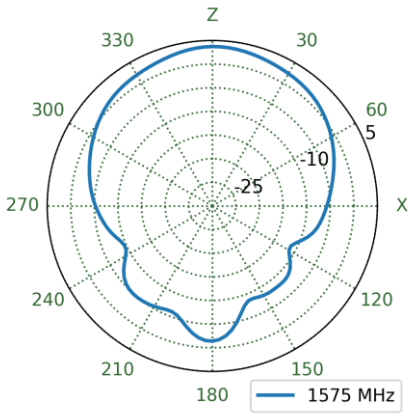
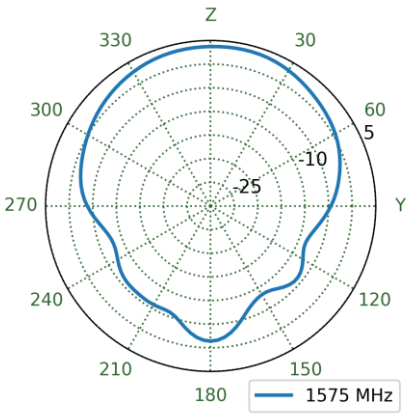
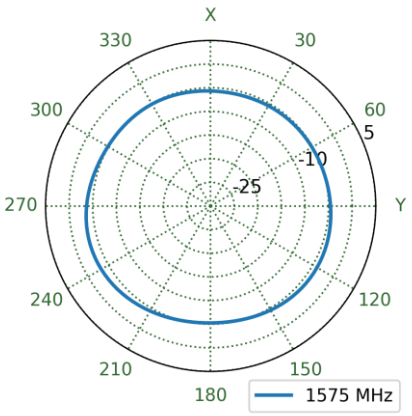
7.3 Patterns at 1561 MHz



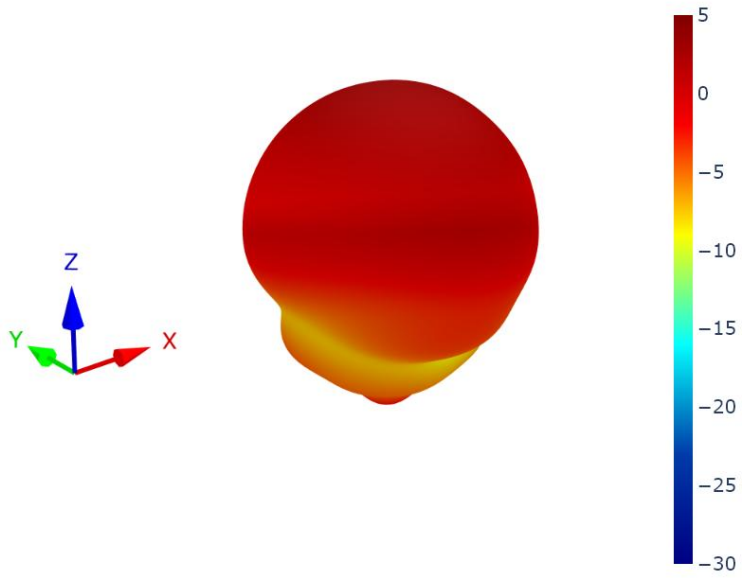
XZ Plane	YZ Plane	XY Plane
		

7.4 Patterns at 1575 MHz

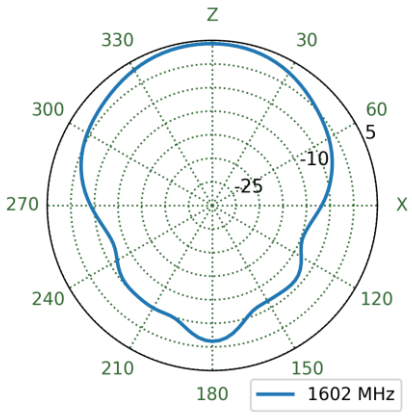


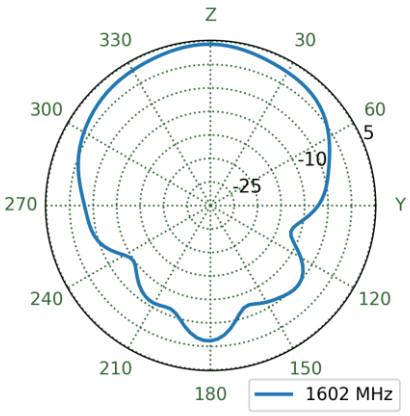
XZ Plane	YZ Plane	XY Plane
		

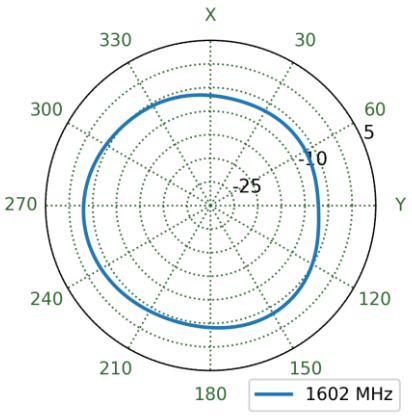
7.5 Patterns at 1602 MHz



XZ Plane	YZ Plane	XY Plane







Changelog for the datasheet

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