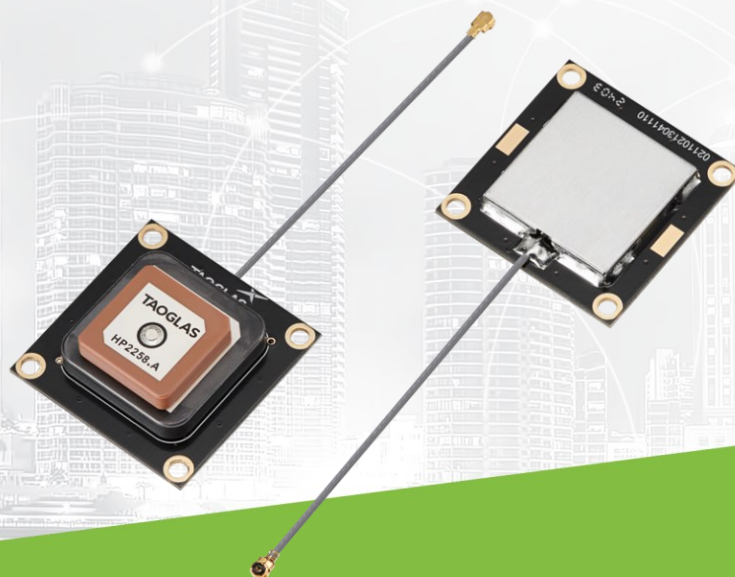




TAOGLAS®



Datasheet

Active L1, L2 GNSS High Precision Antenna

Part No:
AHP2258.07.0060A

Description

Active GNSS L1/L2 Band Antenna
25x25x8.1mm Dual Feed Stacked Patch

Features:

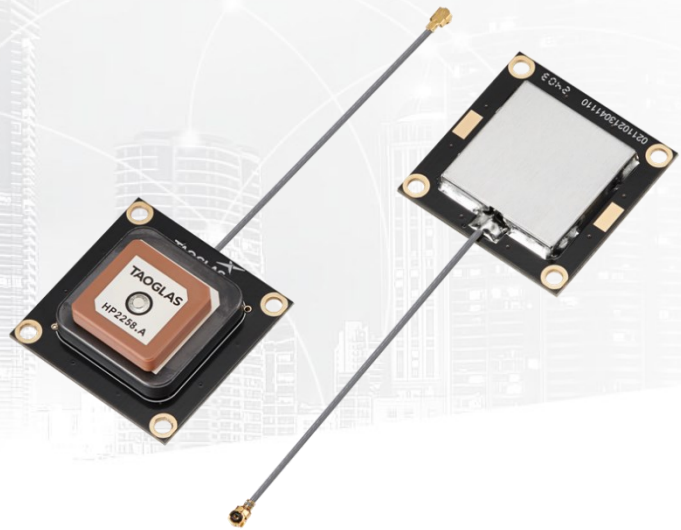
L1, L2, GNSS Bands Covered
Ceramic Patch Element
Cable: 60mm ϕ 1.13
Connector: IPEX MHFI (U.FL)
Dimensions: 25x25x8.1mm
RoHS & Reach Compliant

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1. Introduction



The Taoglas AHP2258, is a multi-band GNSS, high-performance directional antenna for high precision GNSS accuracy and fast positioning. It utilizes a 25 x 25 x 8.1mm advanced wide-band dual stacked ceramic patch antenna with optimized gain for GPS L1/L2, Galileo, GLONASS and BeiDou.

Typical Applications Include:

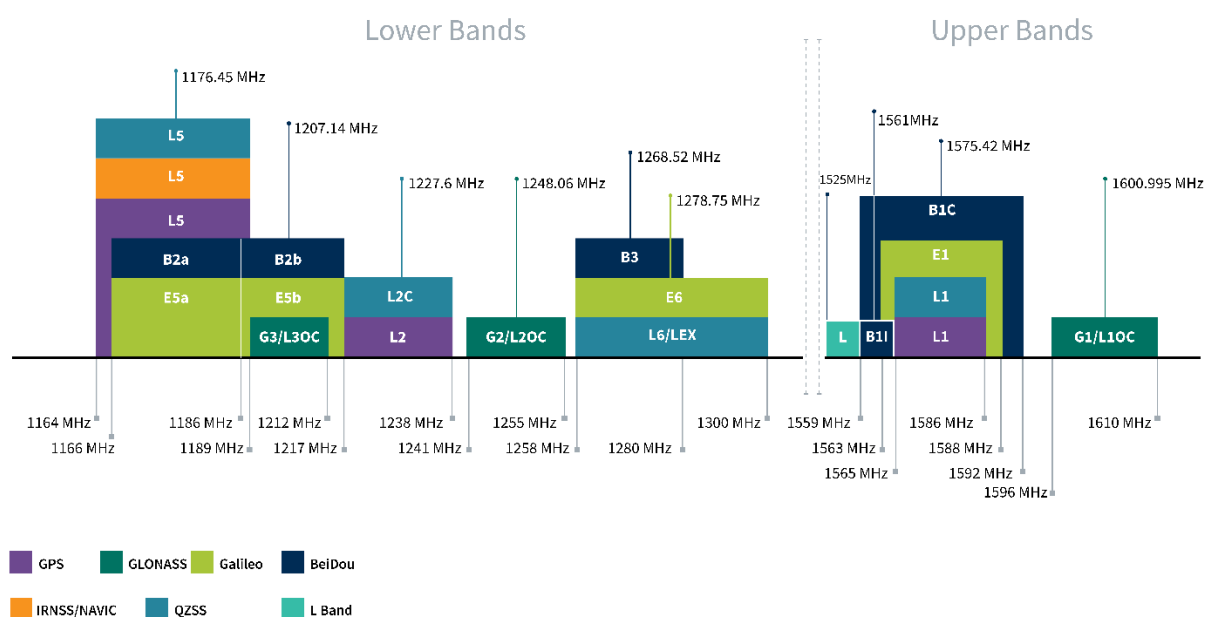
- Wearables
- Navigation
- Transportation
- Robotics
- Precision Agriculture
- Autonomous Vehicles

The AHP2258 has been tuned and tested on a 70 x 70 mm ground plane and exhibits excellent radiation patterns. The AHP2258 has been optimized to cover the bands required for the next generation of L1/L2 GNSS receivers that are currently on the market. It is supplied with 4 corner screw holes for easy installation in customer devices.

The cable and connector are fully customizable, for further information please 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 Electrical					
Frequency (MHz)	GPS L2	GLONASS_G2	BeiDou_B1	GPS_L1	GLONASS_G1
	1217-1237	1241-1258	1559-1563	1563-1587	1569-1610
Efficiency (%)	47.9	49.6	44.5	56.5	56.2
Average Gain (dB)	-3.20	-3.04	-3.52	-2.48	-2.51
Peak Gain (dBi)	3.08	3.08	1.40	2.56	3.44
Impedance	50 Ω				
Polarization	RHCP				
Radiation Pattern	Directional				

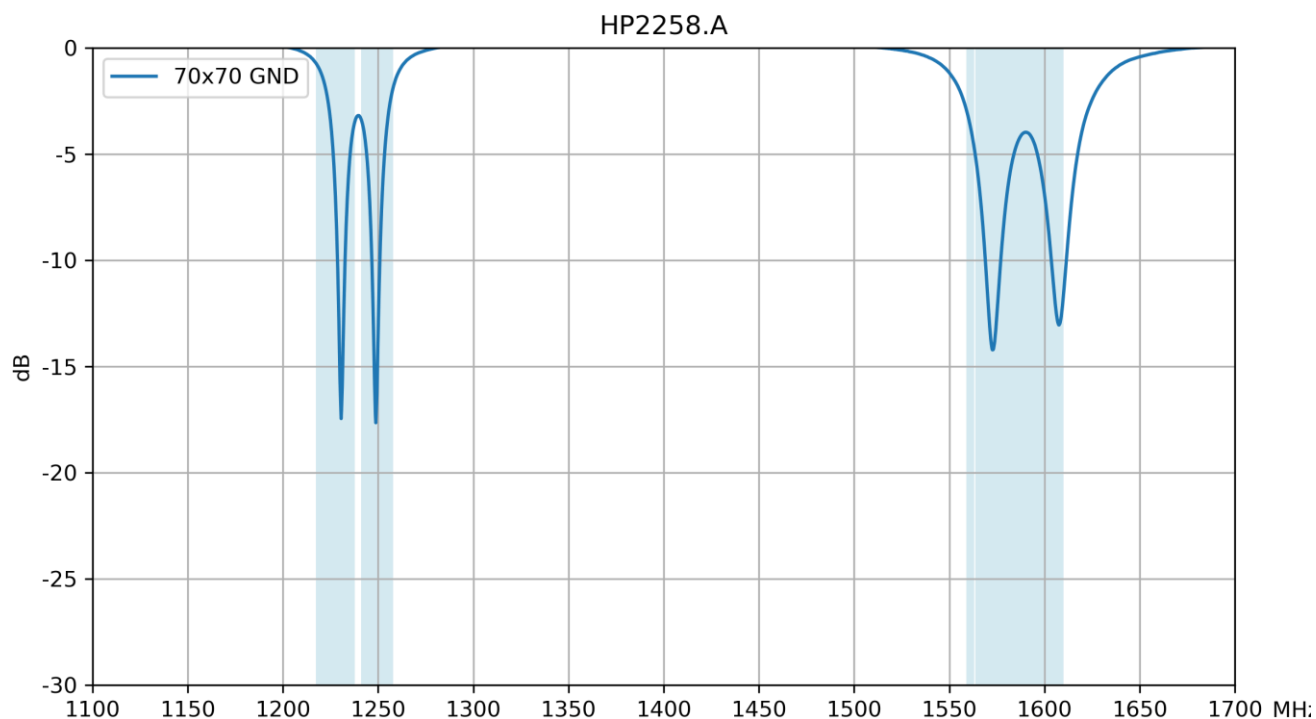
*Tested on 70x70 mm ground plane

LNA and Filter Electrical Properties					
Frequency (MHz)	GPS L2	GLONASS G2	BeiDou B1	GPS L1	GLONASS G1
	1215-1239	1237-1254	1559-1563	1563-1587	1593-1610
Noise Figure (dB)	2.1	2.4	3.2	3.3	3.5
Gain (dB)	29.5	28.2	25.7	25.5	24.3
Group Delay Variation (ns)	14.4		16.2		
Input Voltage (V)	+ 1.8 to 5.5				
Current consumption (mA)	5 ± 2				
Return Loss (dB)	< -8				
Outer Band Attenuation (dB)	> 45dB @ 600-960MHz ; > 50dB @ 1710-3000MHz				

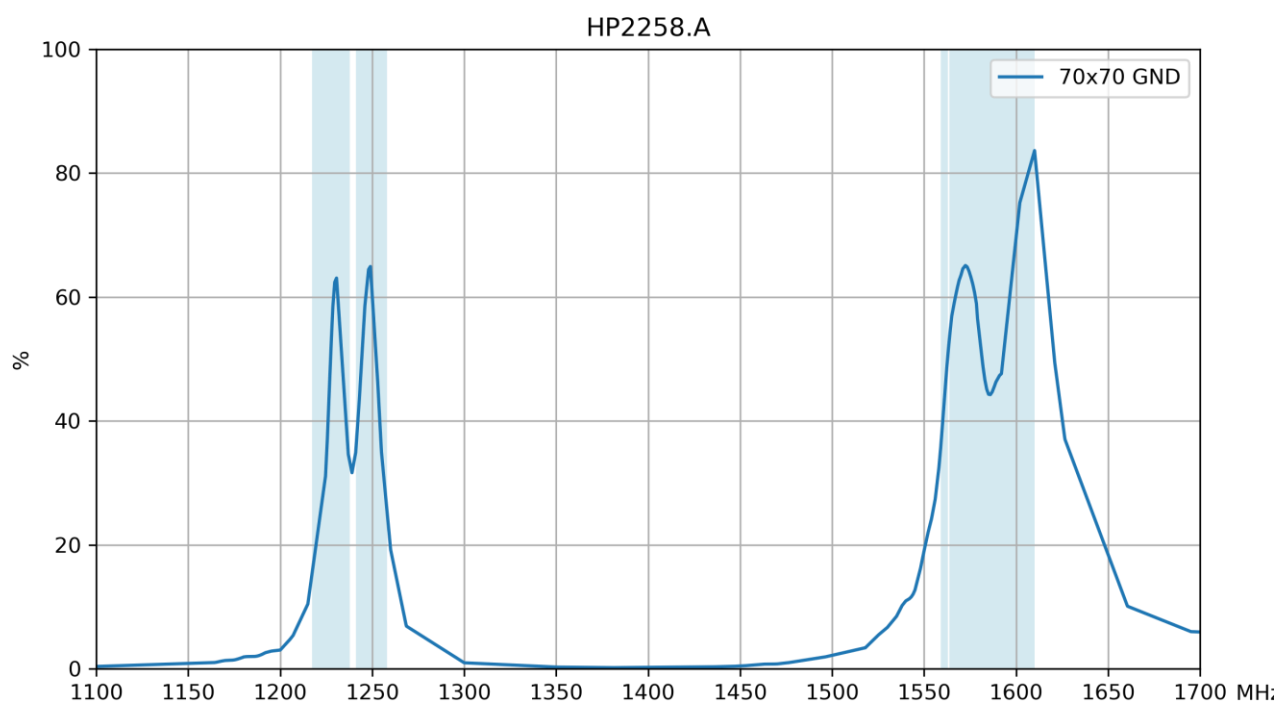
Mechanical	
Total Dimension (Including Shielding Case)	35x35x12.4mm
Connector	IPEX MHFI (U.FL)
Cable	60mm 1.13mm Coaxial Cable
Material	Ceramic
Weight	20g
Environmental	
Temperature Range	-40°C to 85°C
Humidity	Non-condensing 65°C 95% RH

3. Antenna Characteristics

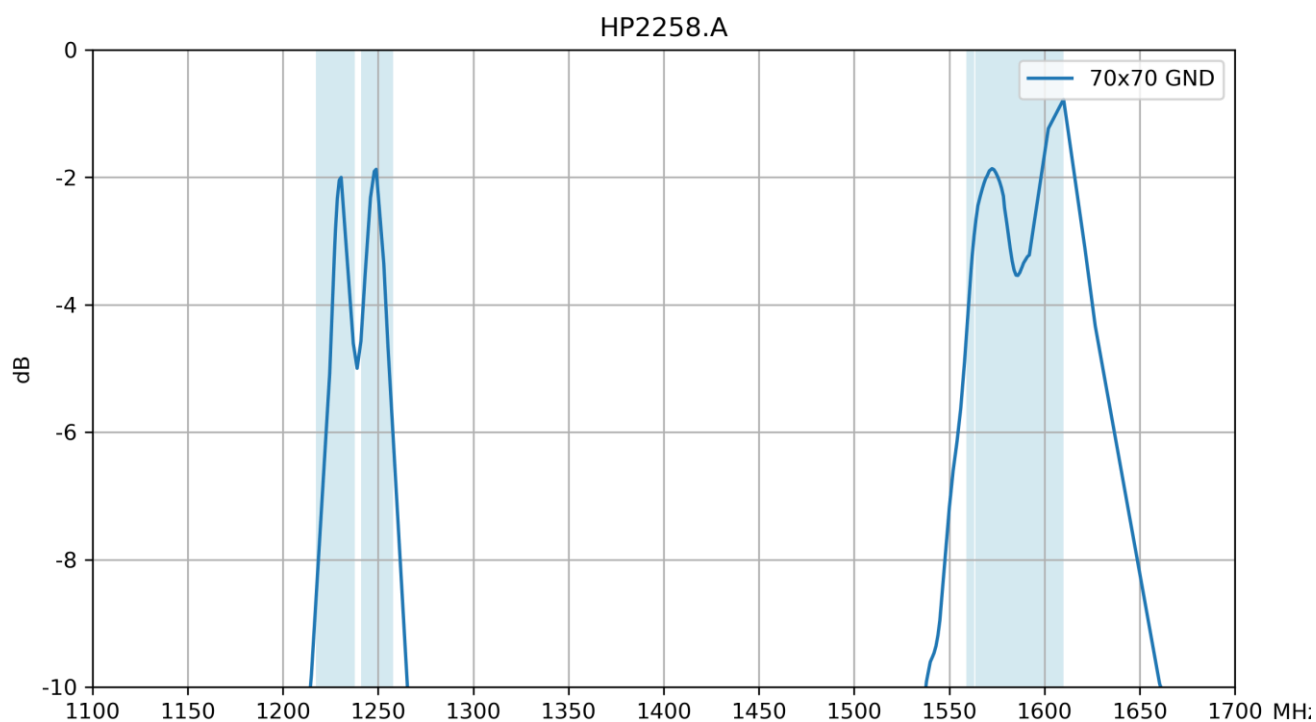
3.1 Return Loss



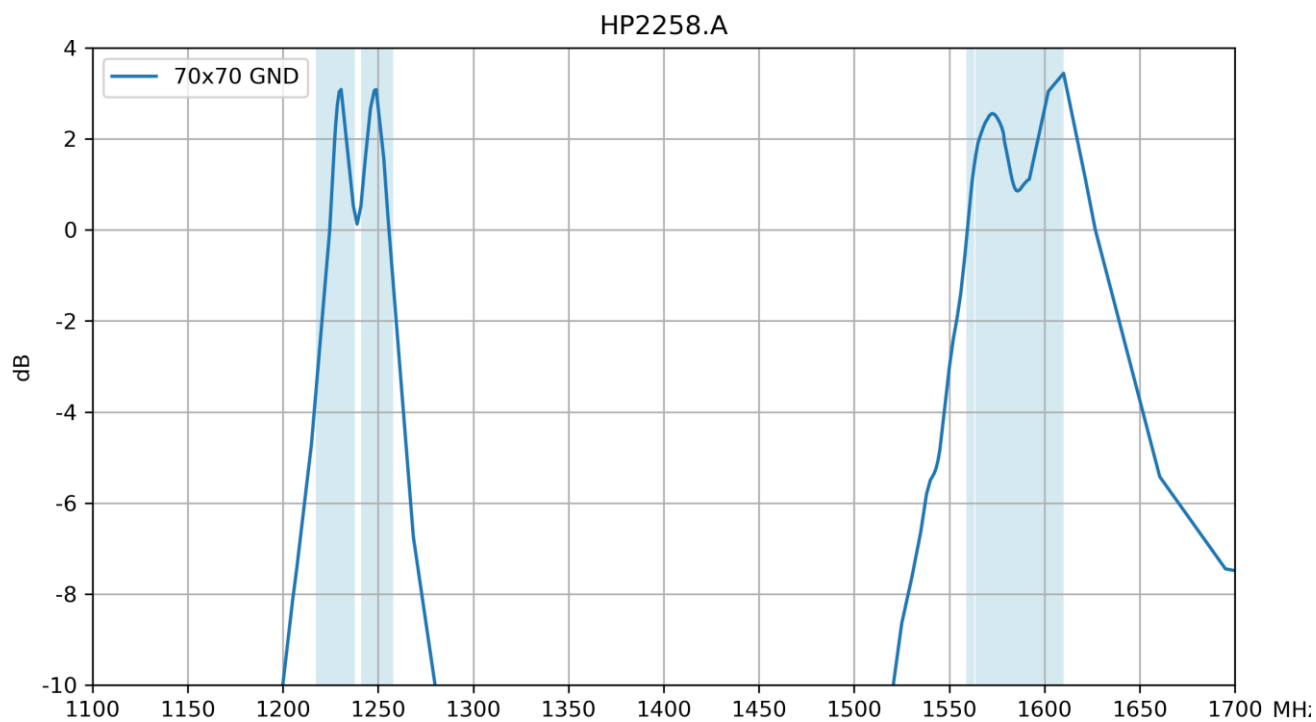
3.2 Efficiency



3.3 Average Gain

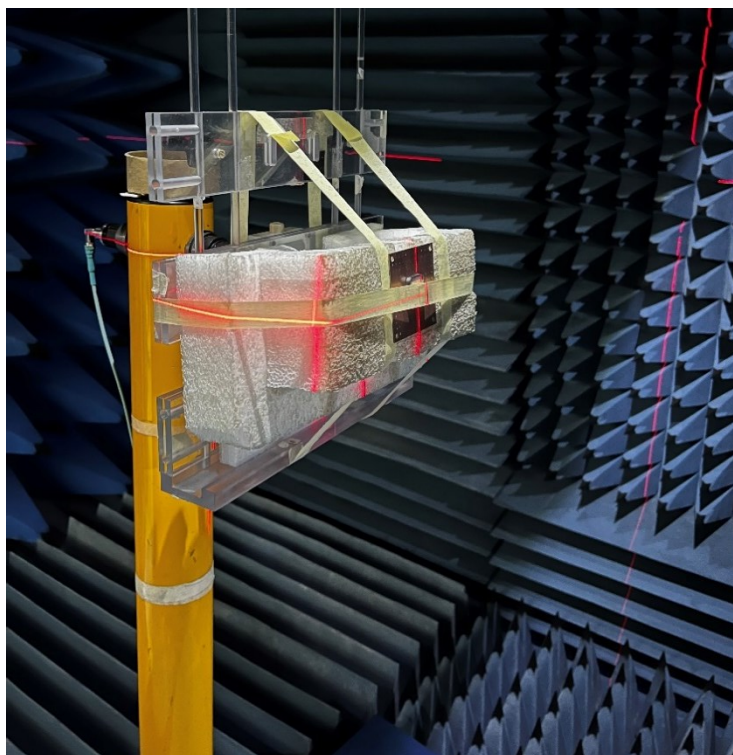
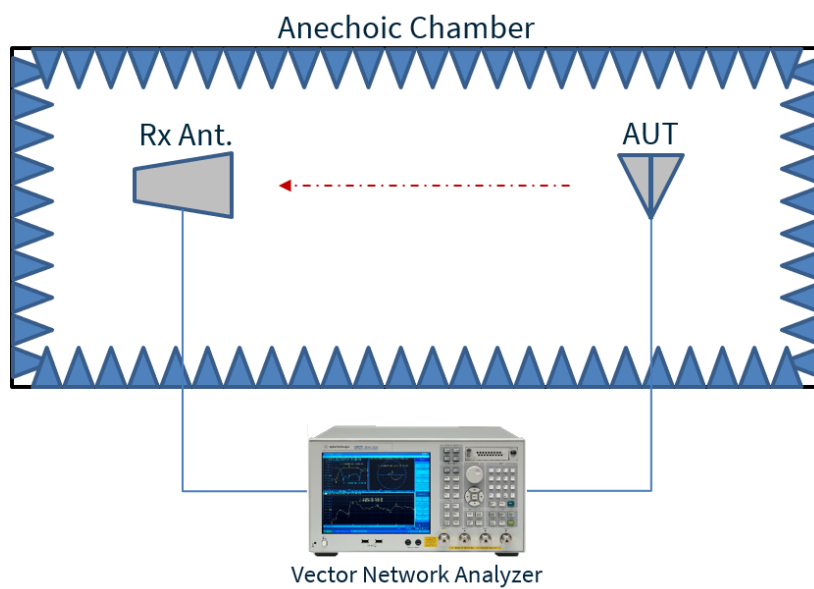


3.4 Peak Gain

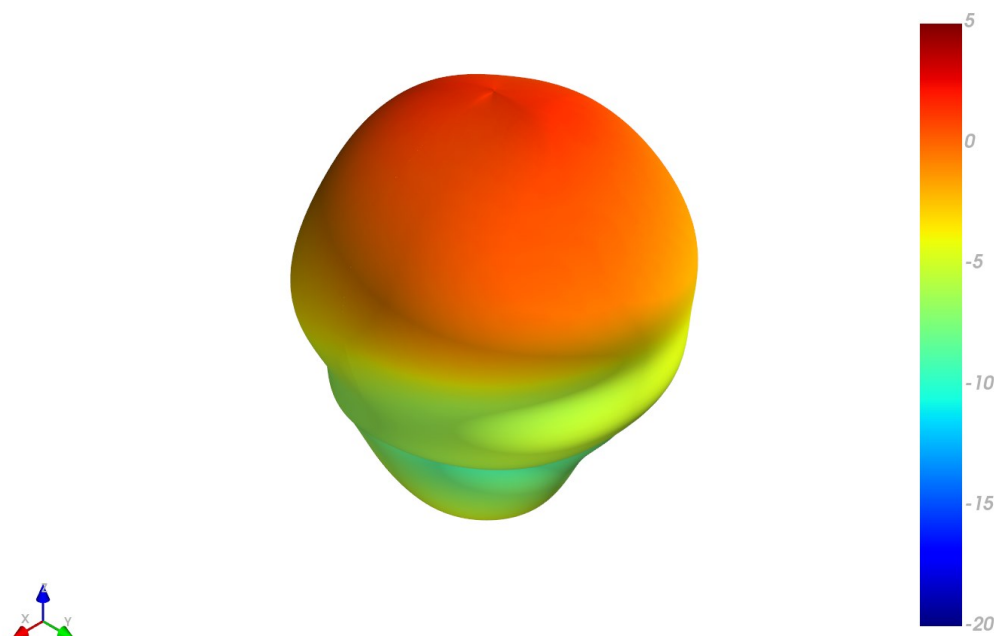


4. Radiation Patterns

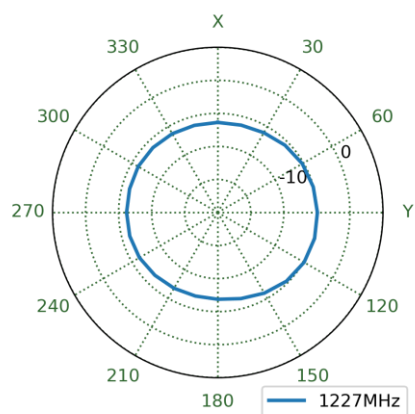
4.1 Test Setup



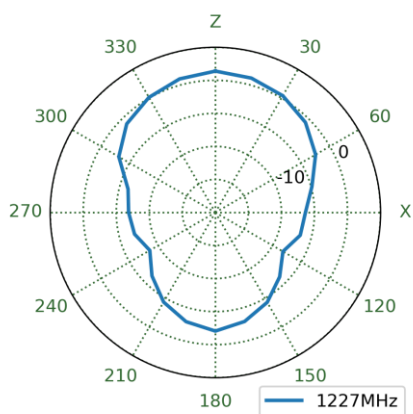
4.2 3D and 2D Radiation Patterns at 1227 MHz



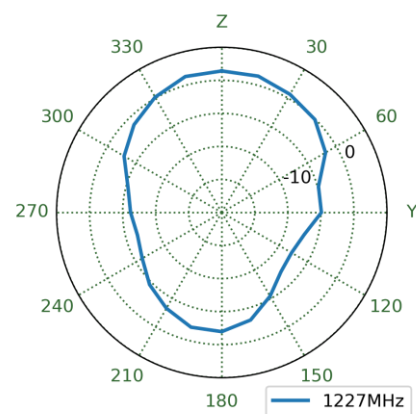
XY Plane



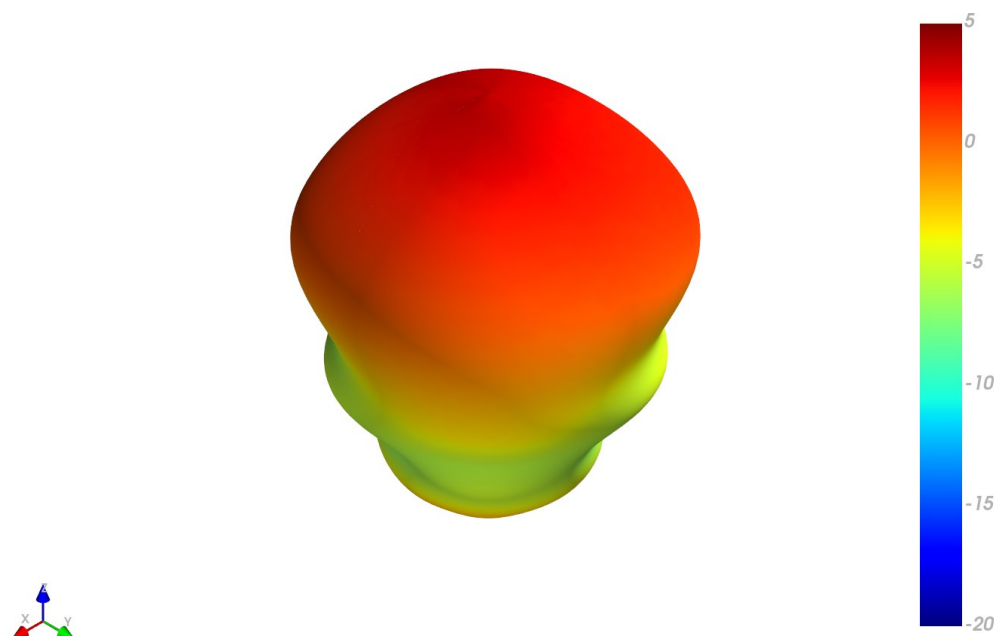
XZ Plane



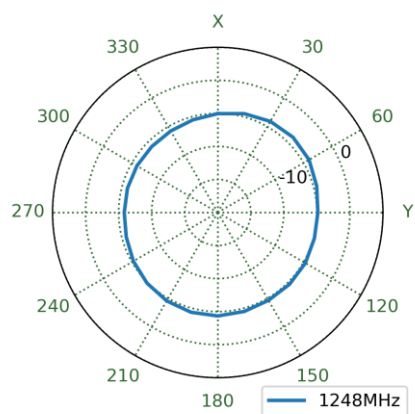
YZ Plane



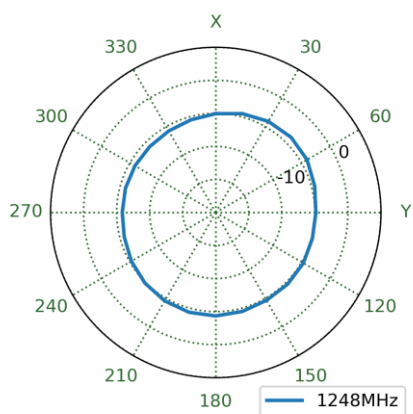
4.3 3D and 2D Radiation Patterns at 1248 MHz



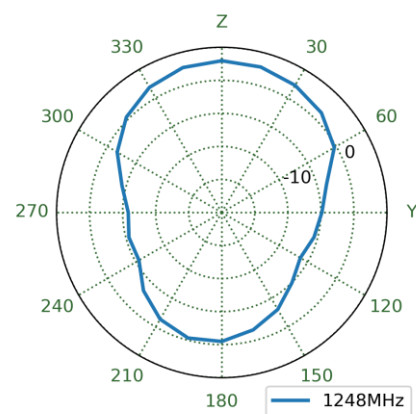
XY Plane



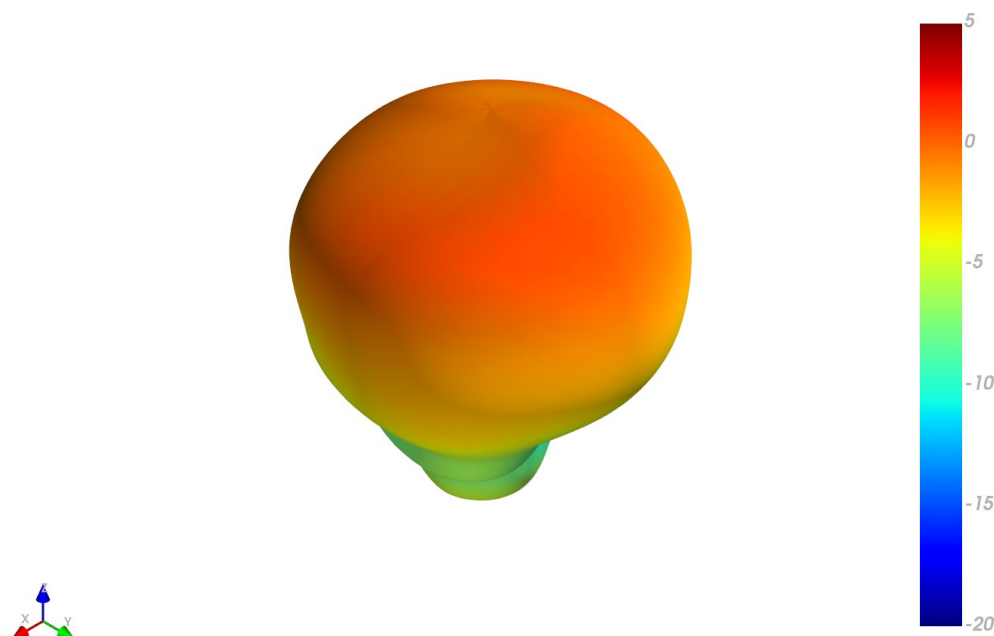
XZ Plane



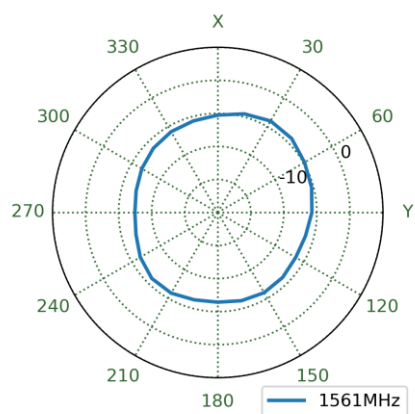
YZ Plane



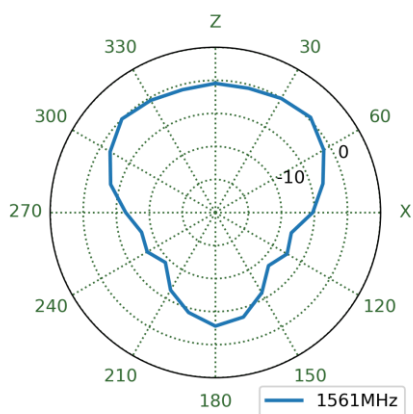
4.4 3D and 2D Radiation Patterns at 1561 MHz



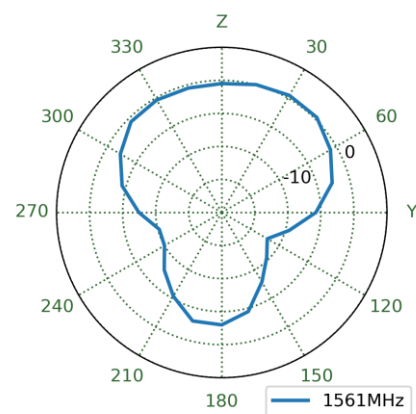
XY Plane



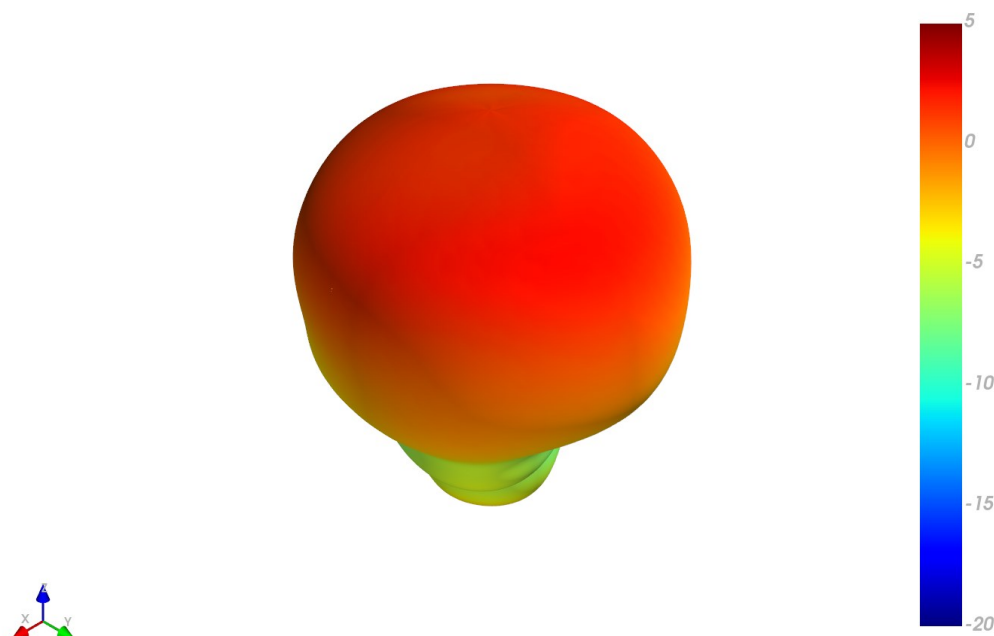
XZ Plane



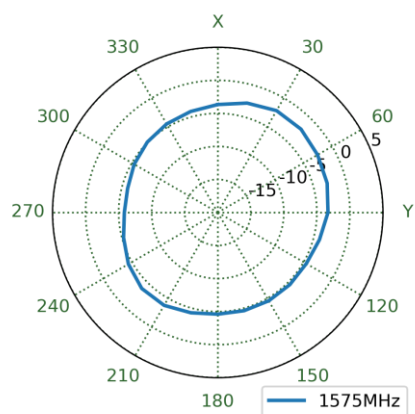
YZ Plane



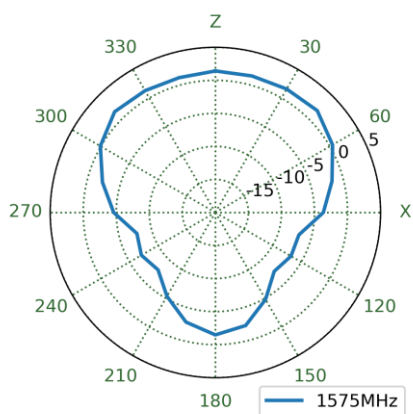
4.5 3D and 2D Radiation Patterns at 1575 MHz



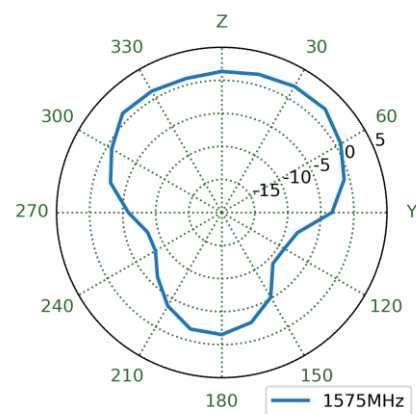
XY Plane



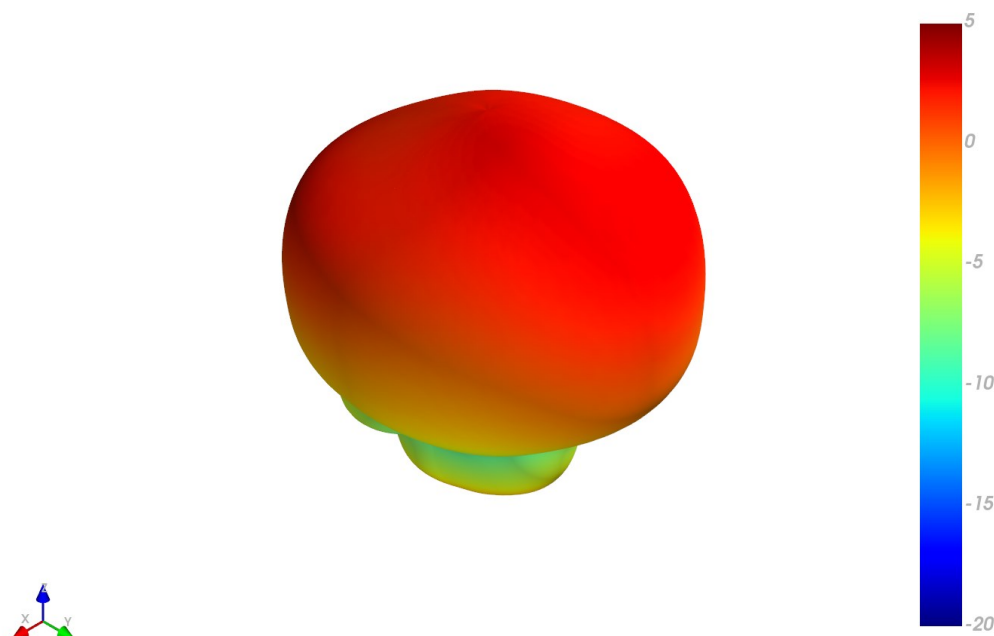
XZ Plane



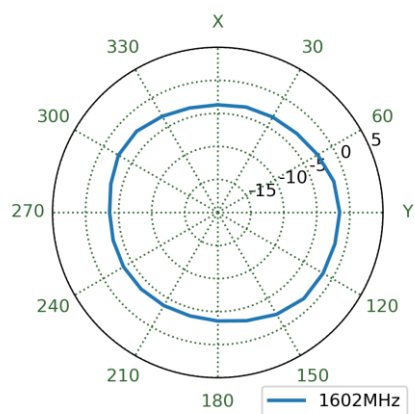
YZ Plane



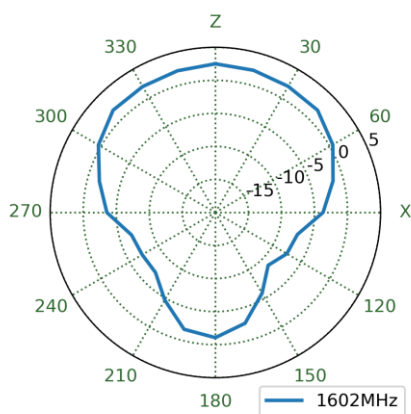
4.6 3D and 2D Radiation Patterns at 1602 MHz



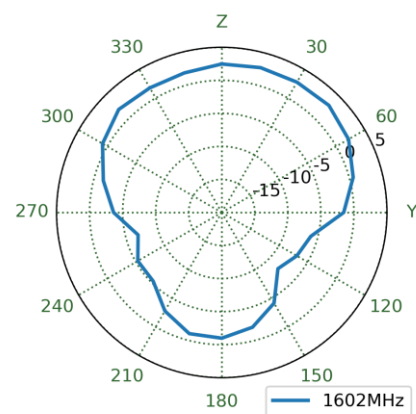
XY Plane



XZ Plane



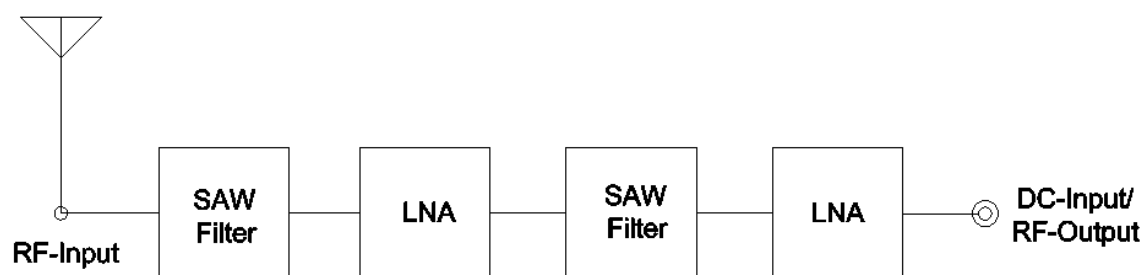
YZ Plane



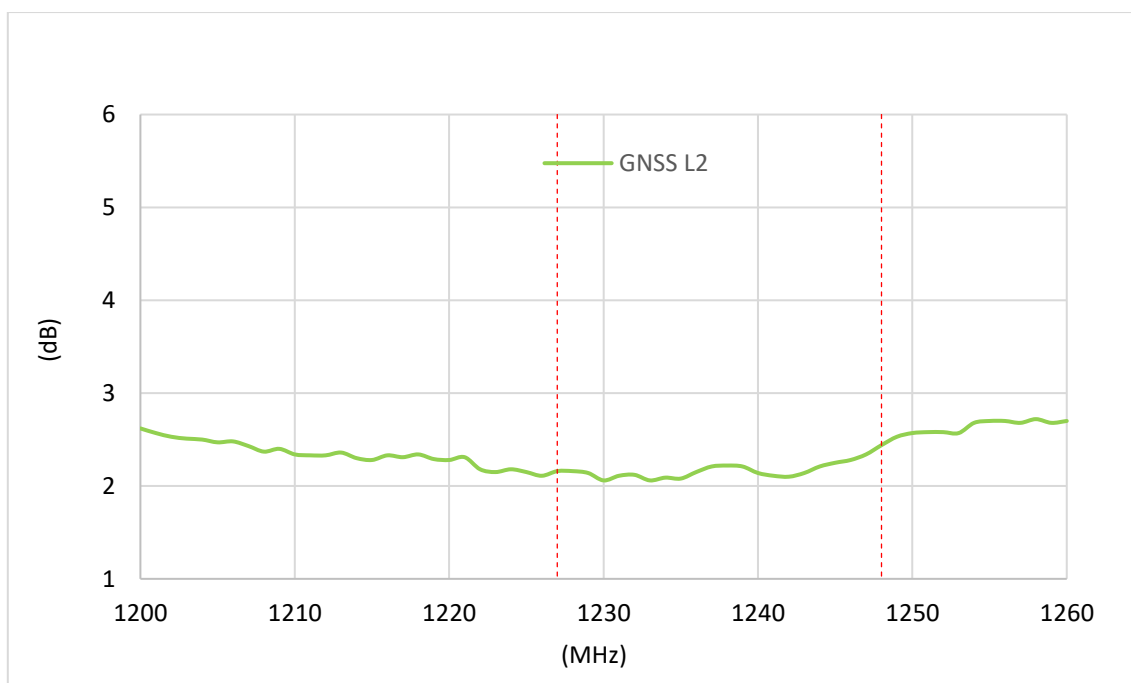
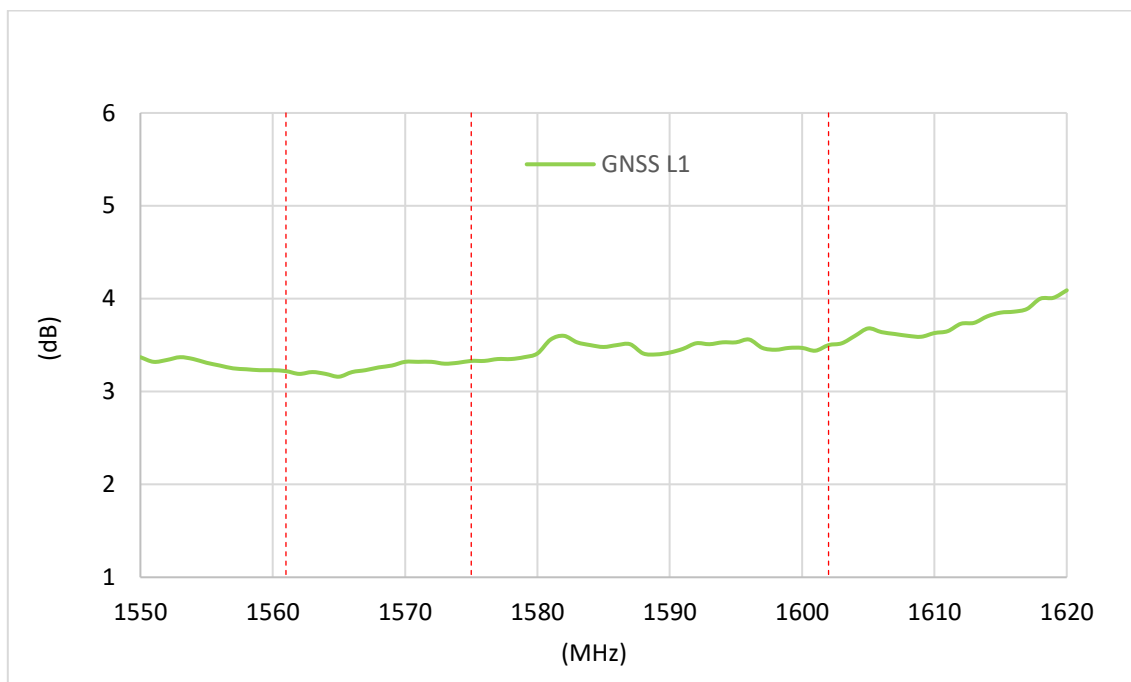
5. LNA Characteristics

5.1 Block Diagram

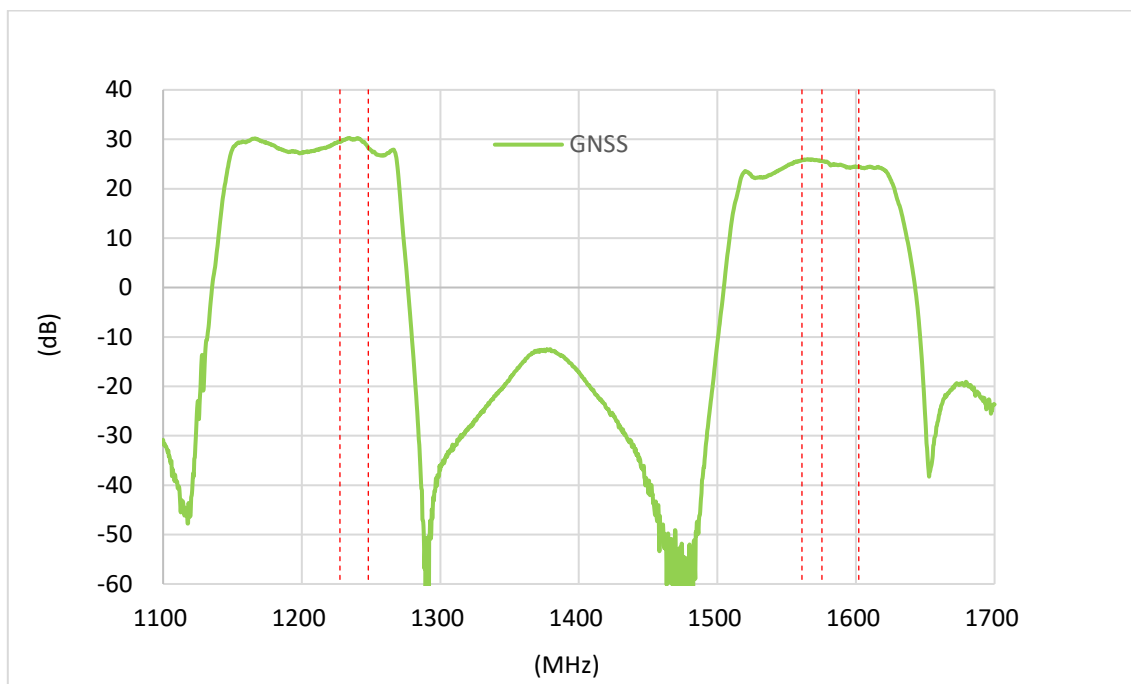
GNSS L1/L2 Antenna



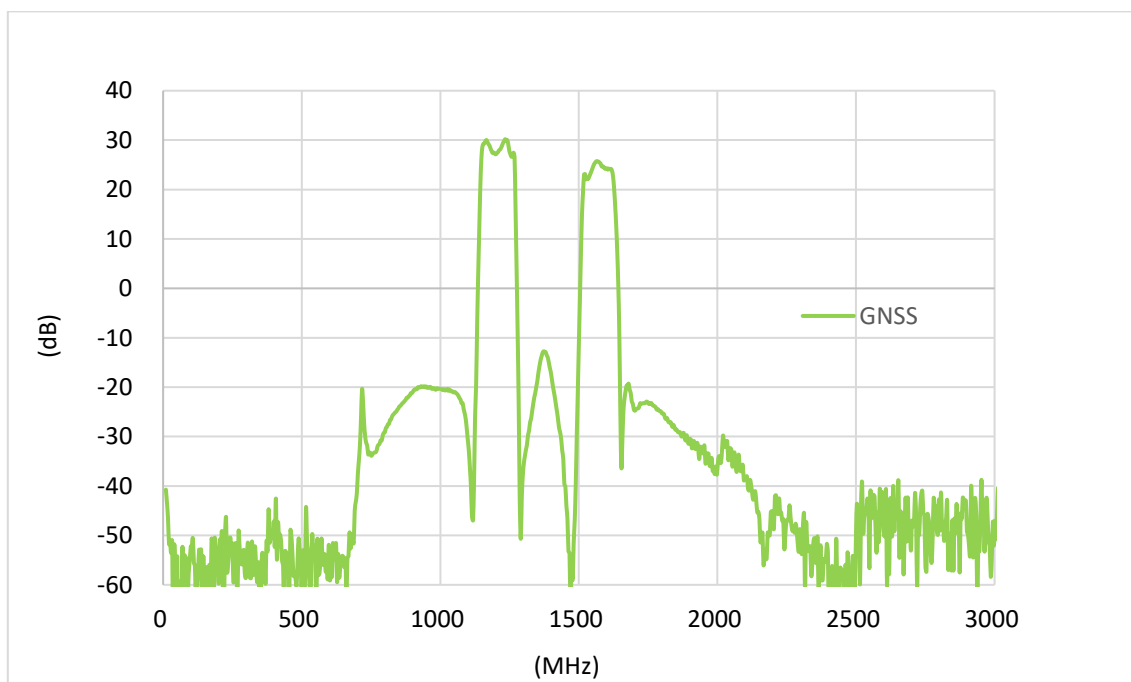
5.2 Noise Figure



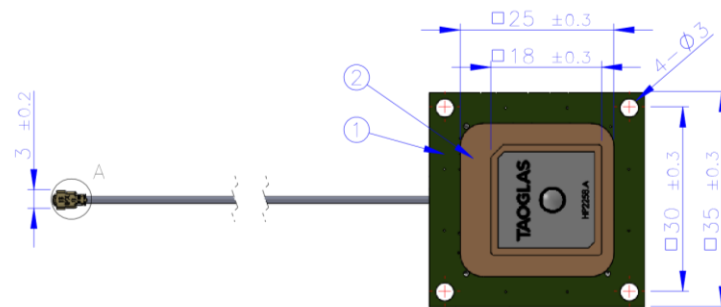
5.3 LNA Gain



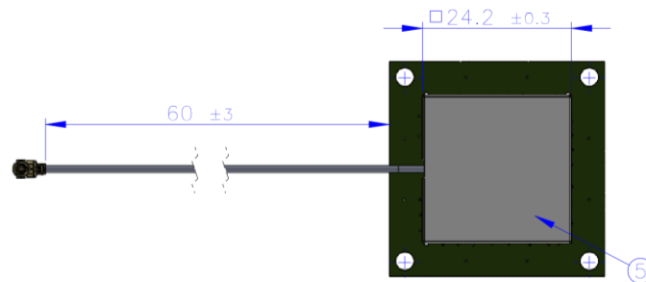
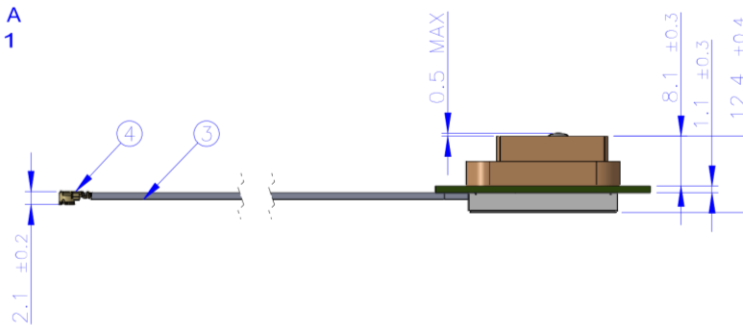
5.4 Out-band rejection



6. Mechanical Drawing



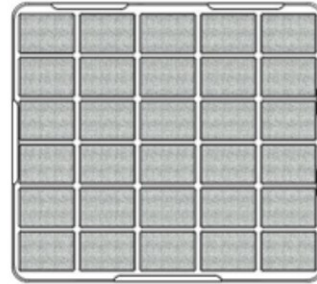
細部放大圖 A
縮放 2 : 1



	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
5	Shielding Case	SECC	Nature	1

7. Packaging

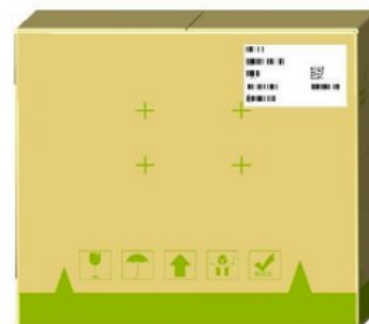
1 pcsAHP2258 per Tray
30 pcs per Foam



120 pcs per Vacuum package
2 pcs / 3g desiccant



360 pcs per Carton
Dimensions: 370x370x300mm



Changelog for the datasheet

SPE-23-8-383 – AHP2258.07.0060A

Revision: A (Original First Release)

Date:	2023-12-20
Notes:	Initial Release
Author:	Cesar Sousa

Previous Revisions



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