



TAOGLAS®



Datasheet

Accura Series Stacked Patch Antenna

Part No:
AGVLB.25A.07.0060A

Description:

GNSS L1 / L5 Active Stacked Patch Antenna

Features:

Single Feed Stacked Patch Assembly

Covering Bands

- GPS L1 & L5
- Galileo E1 & E5a
- BeiDou B1 & B2a
- GLONASS G1
- IRNSS L5

Tuned for Centre Positioning on a 70*70mm Ground Plane

Dimensions: 25*25*12mm

Cable: 60mm of Ø1.13mm

Connector: I-PEX MHF® I (U.FL Compatible)

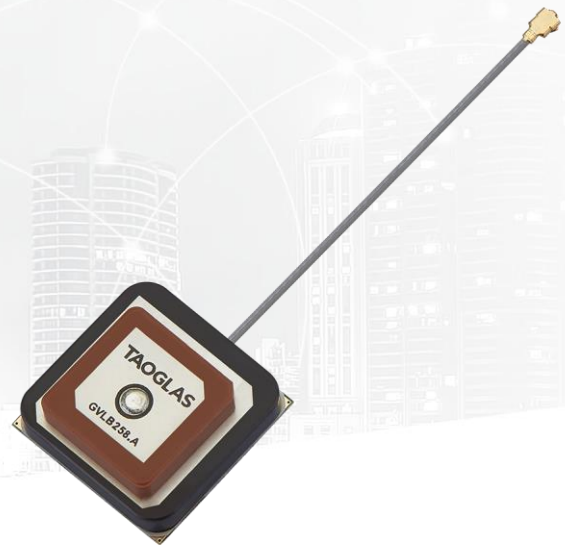
RoHS & REACH Compliant

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1. Introduction



The Taoglas Accura AGVLB.25A, is a multi-band GPS, GLONASS, BeiDou/Compass and IRNSS, high-performance GPS L1 / L5 & BeiDou B1 Active Stacked Patch Antenna for high precision GPS and BeiDou accuracy and fast positioning. It utilizes a 25*25*8mm advanced dual stacked ceramic patch antenna with optimized gain for GPS L1/L5, Galileo, IRNSS and BeiDou bands. Integration of IRNSS allows for better navigation accuracy and enables compliance with AIS-140 for tracking devices in India.

The AGVLB.25A has been designed for in-device mounting with a small size of just 25*25*12mm, it can fit in some of the most compact devices.

This compact antenna exhibits excellent radiation patterns on both GPS L1/L5 bands and with a low noise figure to preserve signal quality helps minimize time to first fix. It also features excellent out-of-band rejection to prevent out-of-band signals from overdriving or damaging its LNAs.

Typical Applications Include:

- RTK
- Navigation
- Wearables
- Security
- Transportation
- Autonomous Vehicles
- Agriculture

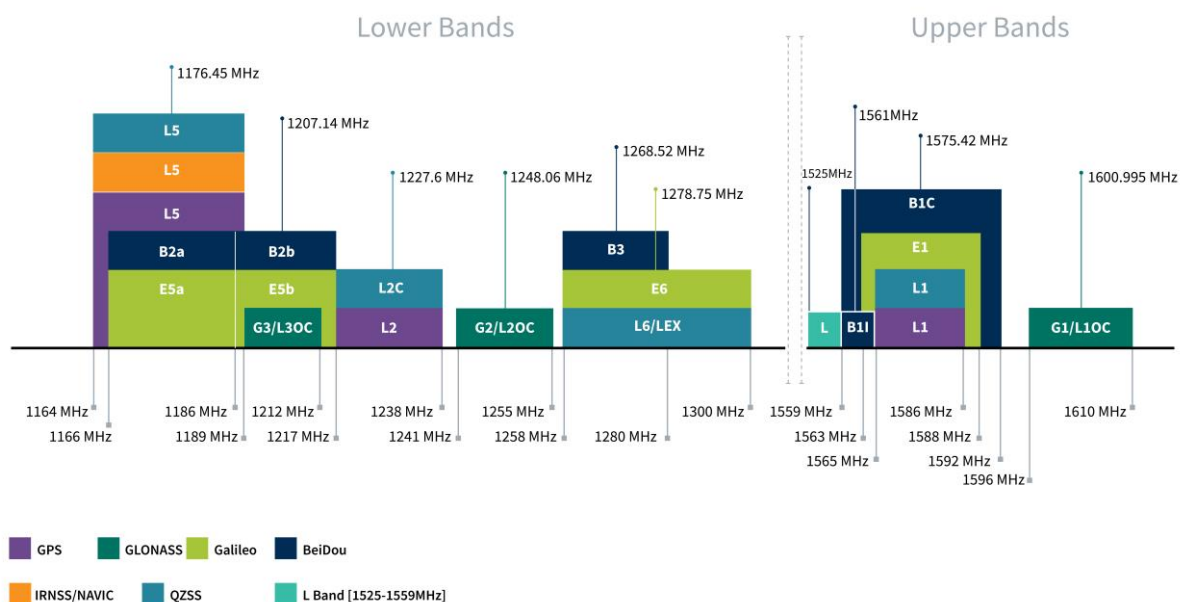
The AGVLB.25A has been tuned and tested on a 70 x 70 mm ground plane and exhibits omnidirectional radiation patterns at both bands.

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. Specifications

GNSS Frequency Bands Covered						
GPS	L1	L2	L5			
	■	□	■			
GLONASS	G1	G2	G3			
	■	□	□			
Galileo	E1	E5a	E5b	E6		
	■	■	□	□		
BeiDou	B1	B2a	B2b	B3		
	■	■	□	□		
QZSS (Regional)	L1	L2C	L5	L6		
	■	□	■	□		
IRNSS (Regional)	L5					
	■					
SBAS	L1/E1/B1	L5/B2a/E5a	G1	G2	G3	
	■	■	■	□	□	

*SBAS systems: WASS(L1/L5), EGNOS(E1/E5a), SDCM(G1/G2/G3), SNAS(B1,B2a), GAGAN(L1/L5), QZSS(L1/L5), KAZZ(L1/L5).



GNSS Electrical				
Frequency (MHz)	IRNSS/GPS L5	BeiDou	GPS/Galileo	GLONASS
	1166-1186	1559-1563	1563-1587	1593-1610
Efficiency (%)	58.5	68.5	60.7	62.5
Peak Gain (dBi)	2.3	2.9	2.9	3.1
Average Gain (dB)	-2.33	-1.64	-2.17	-2.04
Axial Ratio at Zenith	12.4	14.1	9.7	16.8
Polarization	RHCP			
Impedance	50Ω			
Radiation Pattern	Omni-Directional			
Input Power	50 W			

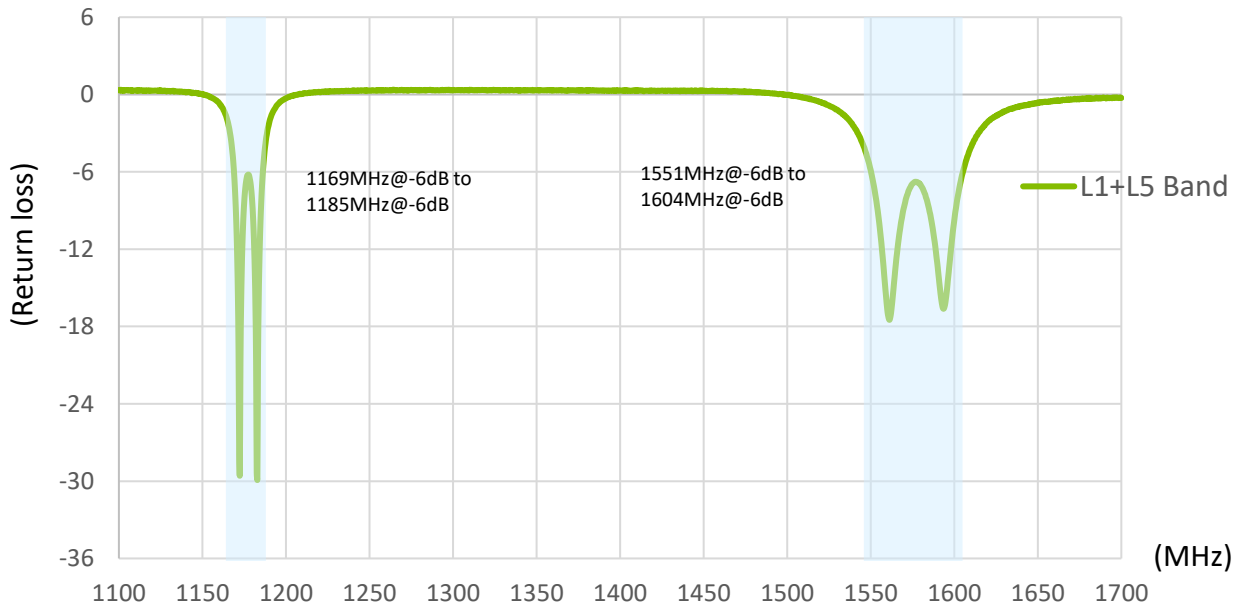
LNA Specifications				
Frequency (MHz)	IRNSS/GPS L5	BeiDou	GPS/Galileo	GLONASS
	1166-1186	1559-1563	1563-1587	1593-1610
Impedance				
Return Loss (dB)	< -10	< -10	< -10	< -10
Gain @3.0V	12.6	11.5	11.1	10.9
DC Power Input	1.8-5.5V			
Noise Figure@3V	2	2.2	2.6	2.2
Power Consumption	10mA +/- 3			
Outer Band Attenuation (dB) (reference level from 0dB)	40 @ Fc +/-100MHz 50 @ Fc +/-200MHz			

Mechanical	
Dimensions	25*25*12mm
Ground Plane Size	70*70mm
Weight	21g
Material	Ceramic
Cable	60mm of Ø1.13
Connector	I-PEX MHF® I (U.FL Compatible)

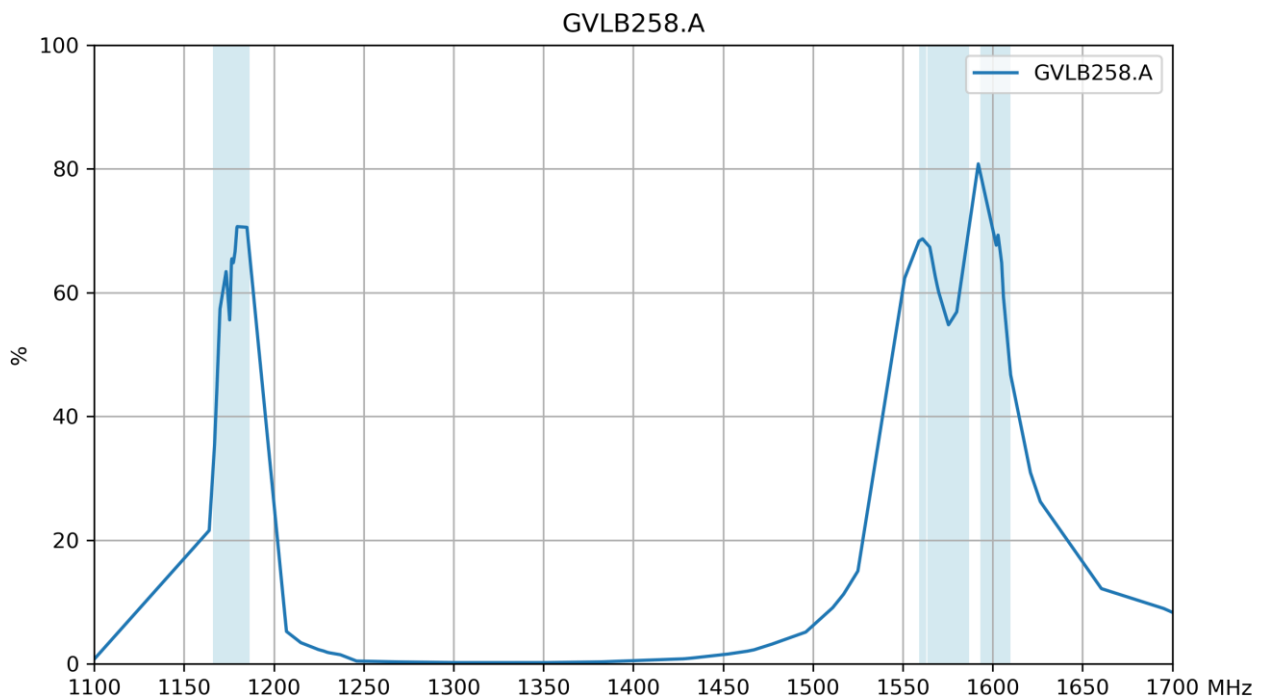
Environmental	
Temperature Range	-40°C to 85°C
Humidity	Non-condensing 65°C 95% RH

3. Antenna Characteristics

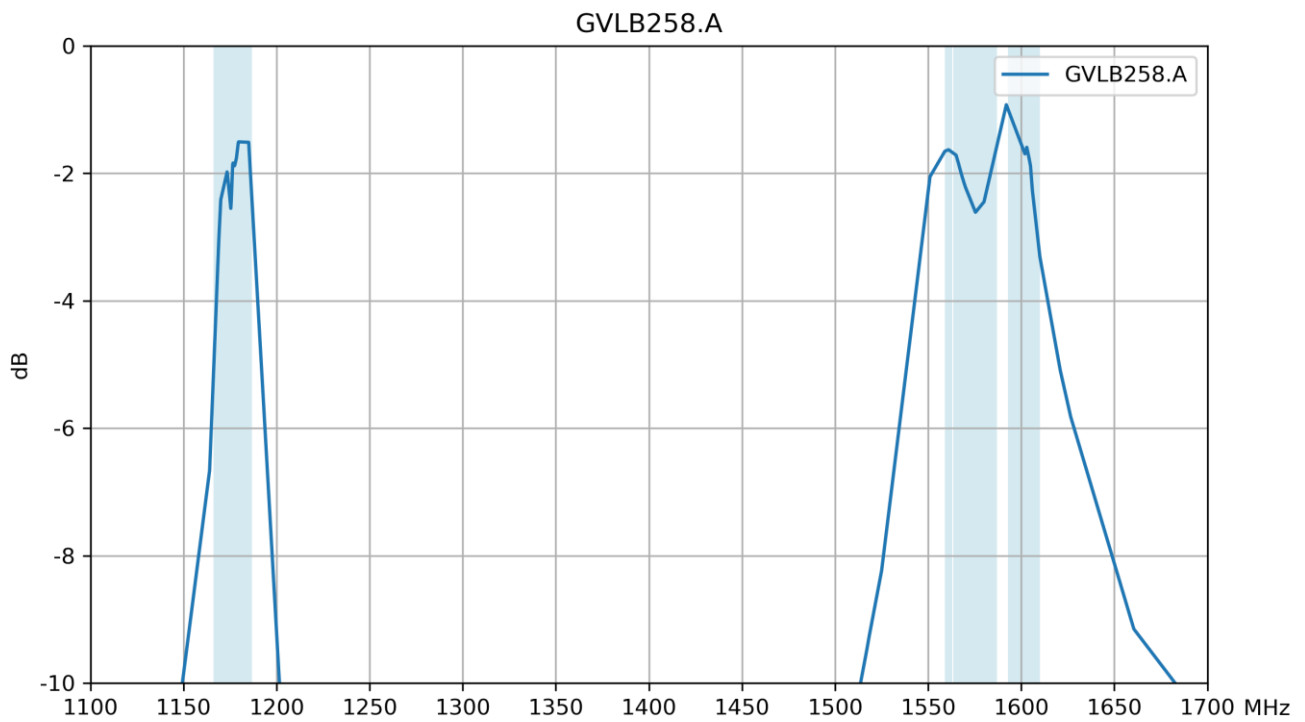
3.1 Return Loss



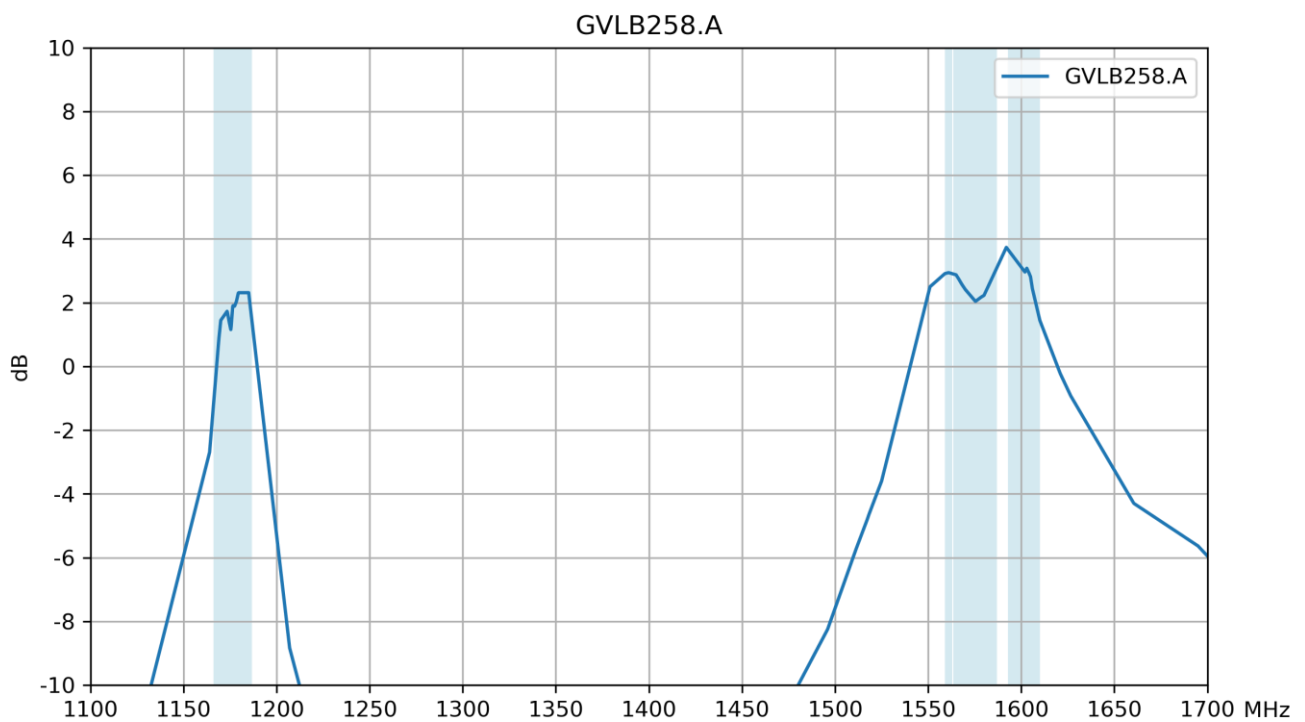
3.2 Efficiency



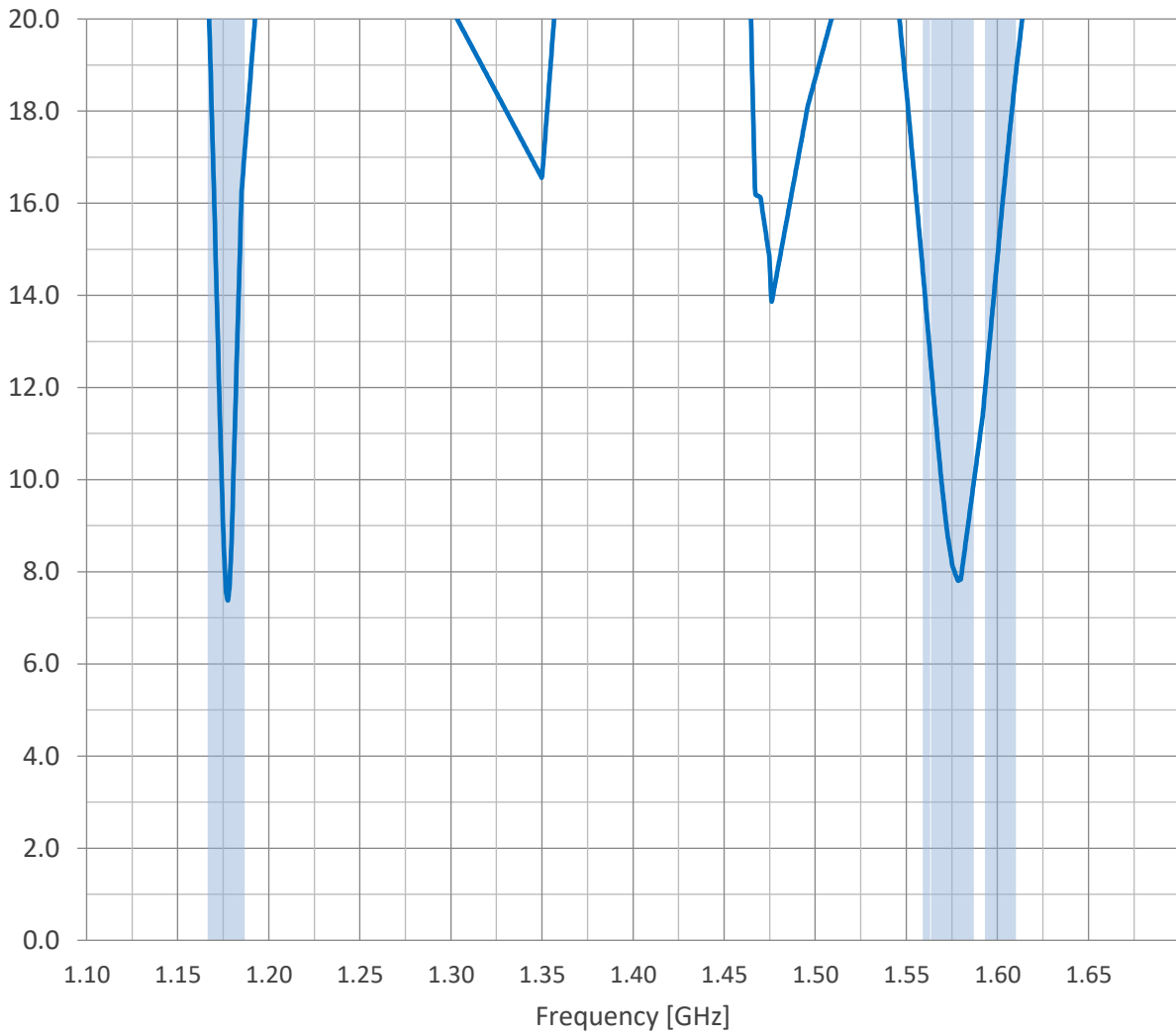
3.3 Average Gain



3.4 Peak Gain

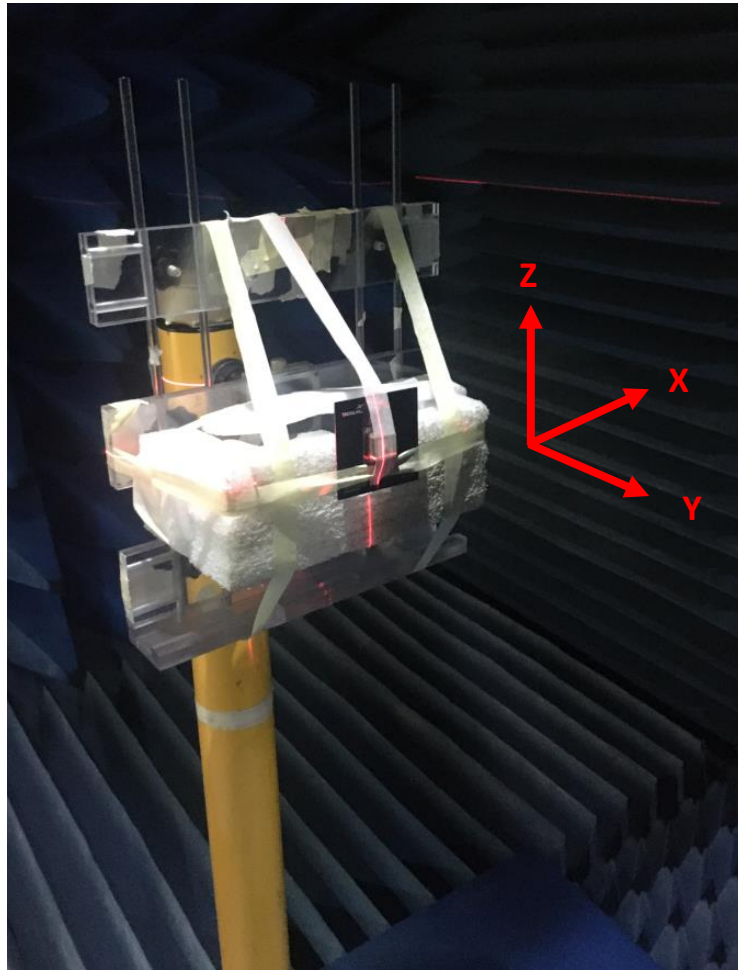


3.5 Axial Ratio



4. Radiation Patterns

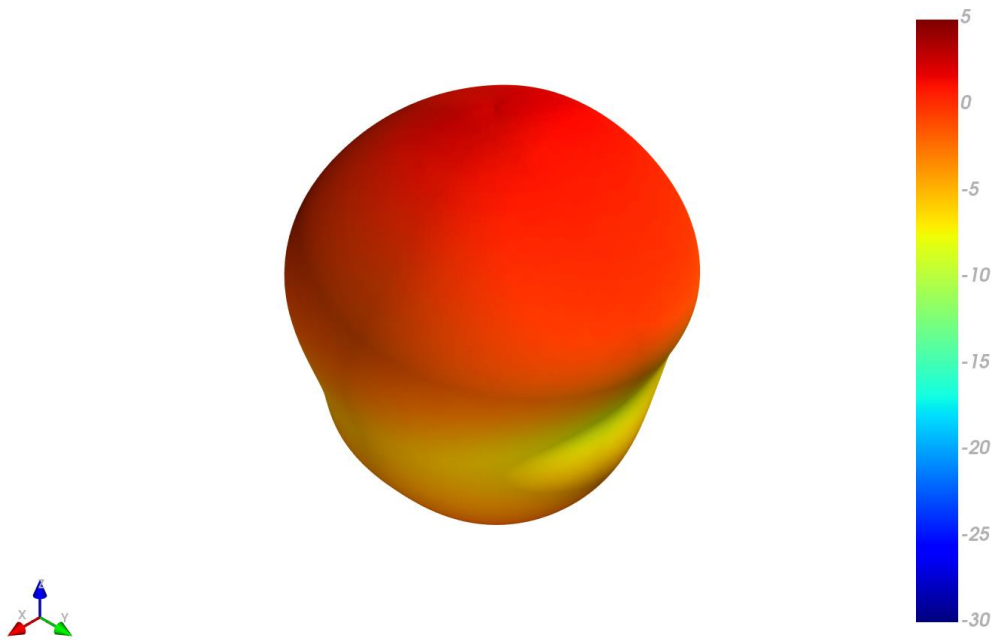
4.1 Test Setup



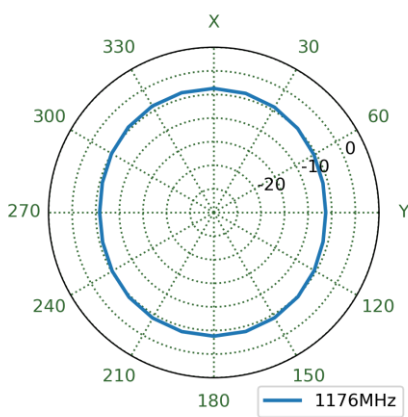
Tested on 70*70mm Ground Plane

4.2 3D and 2D Radiation Patterns

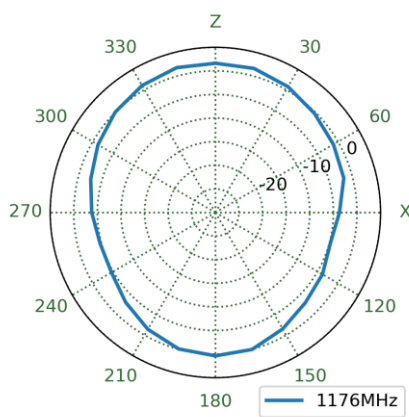
1176MHz



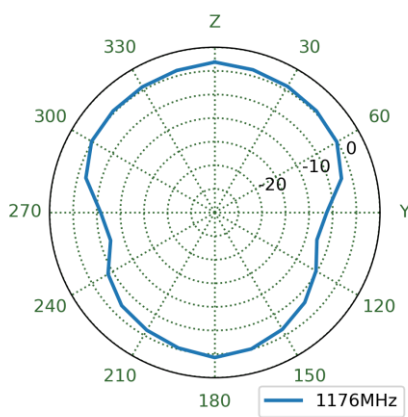
XY Plane



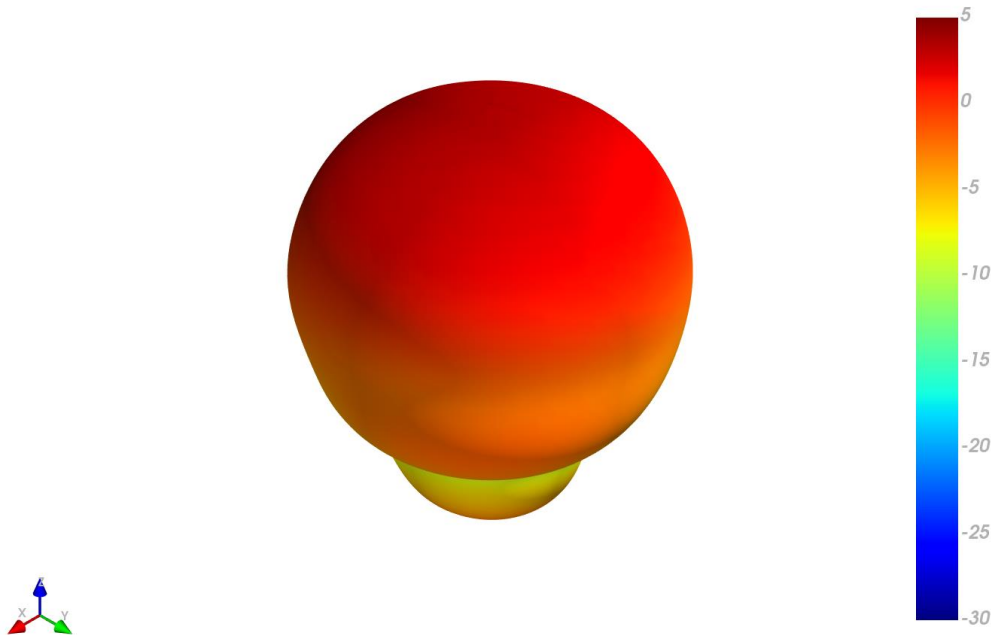
XZ Plane



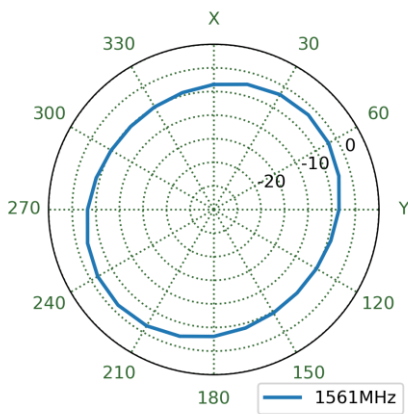
YZ Plane



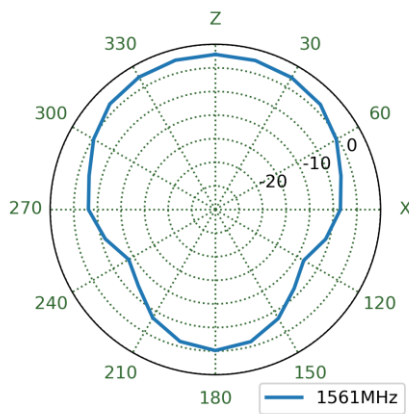
1561MHz



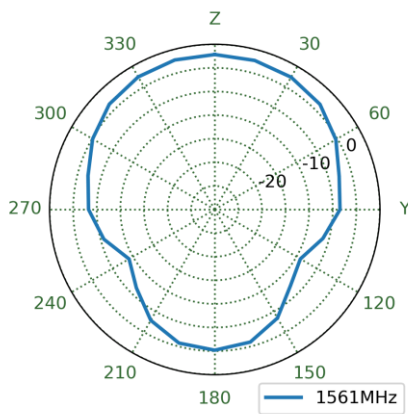
XY Plane



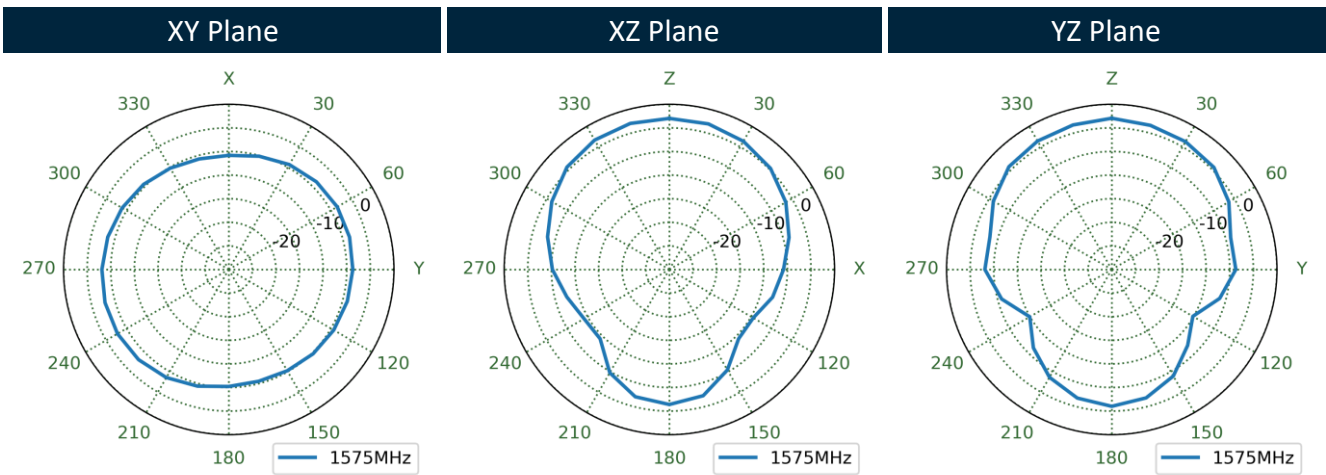
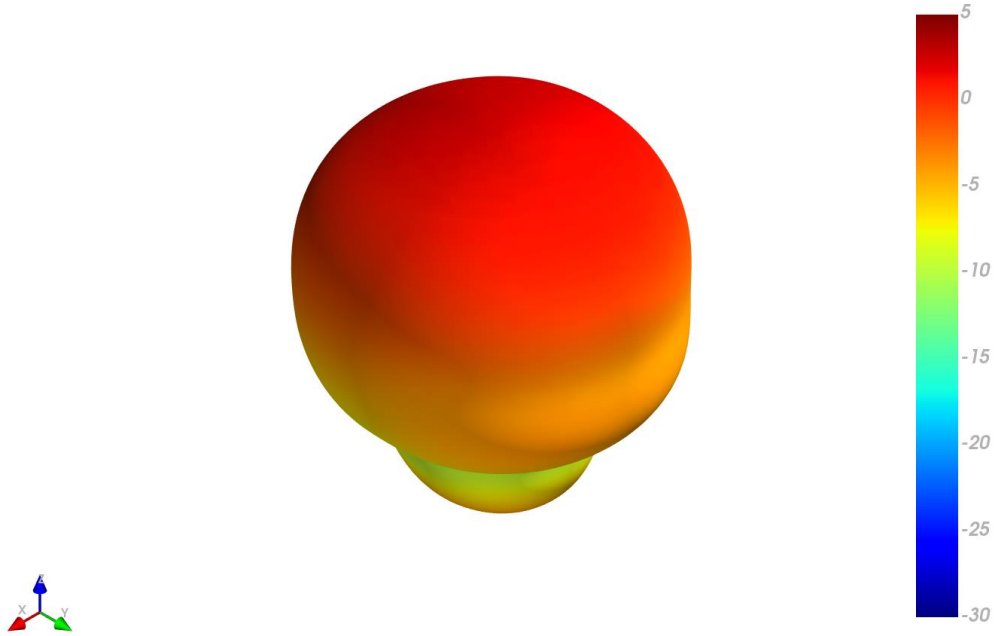
XZ Plane



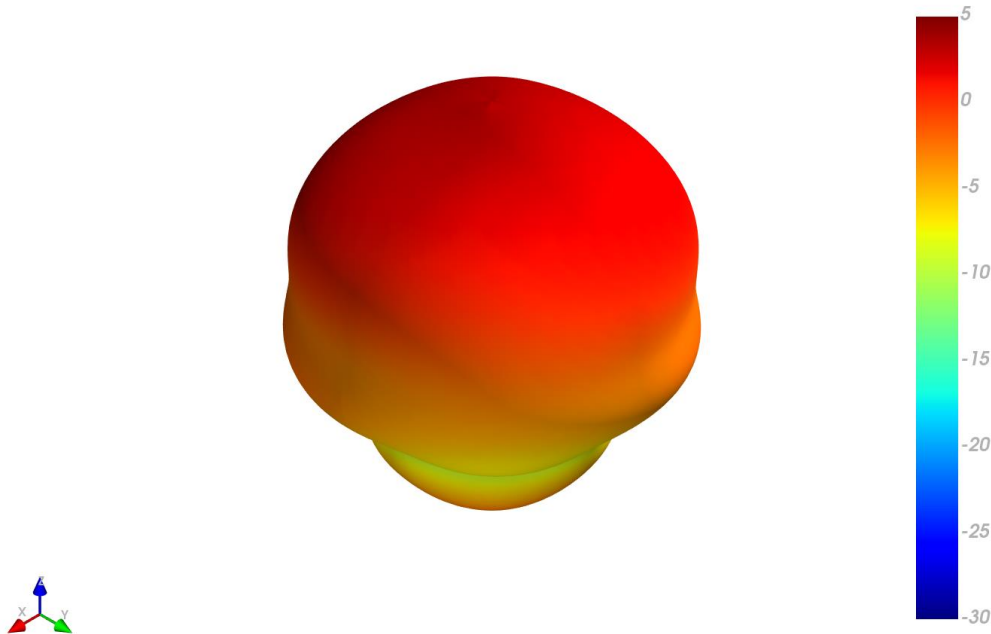
YZ Plane



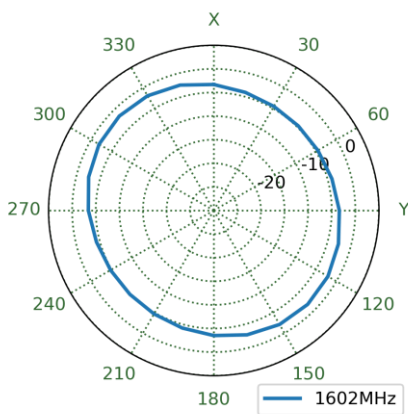
1575MHz



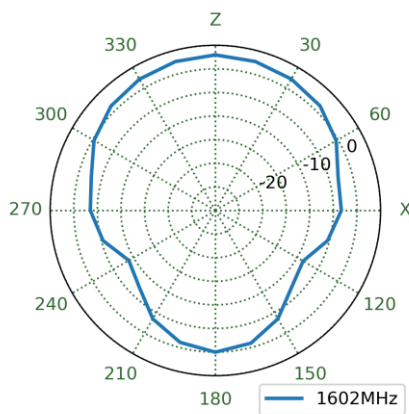
1602MHz



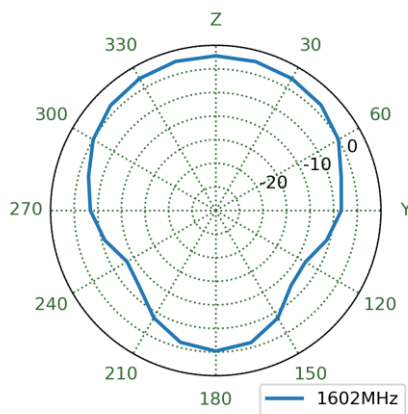
XY Plane



XZ Plane

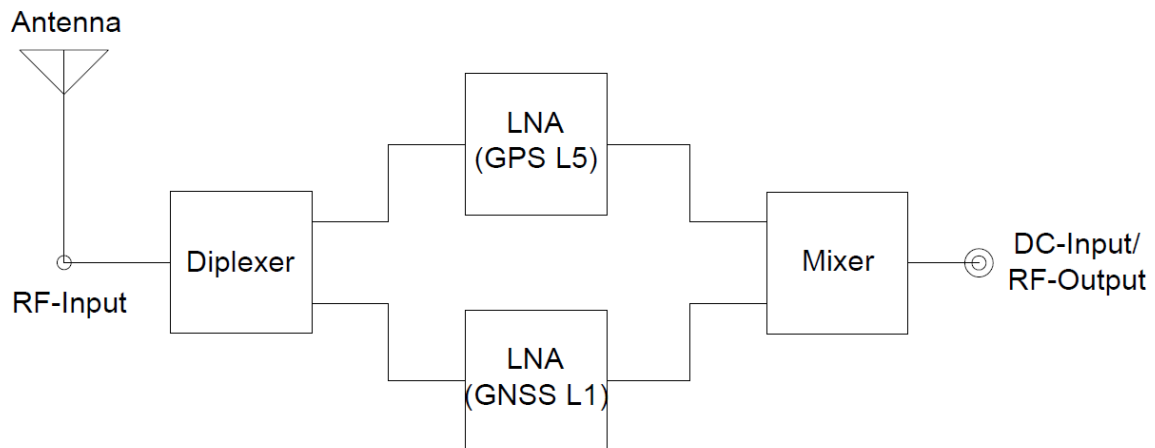


YZ Plane

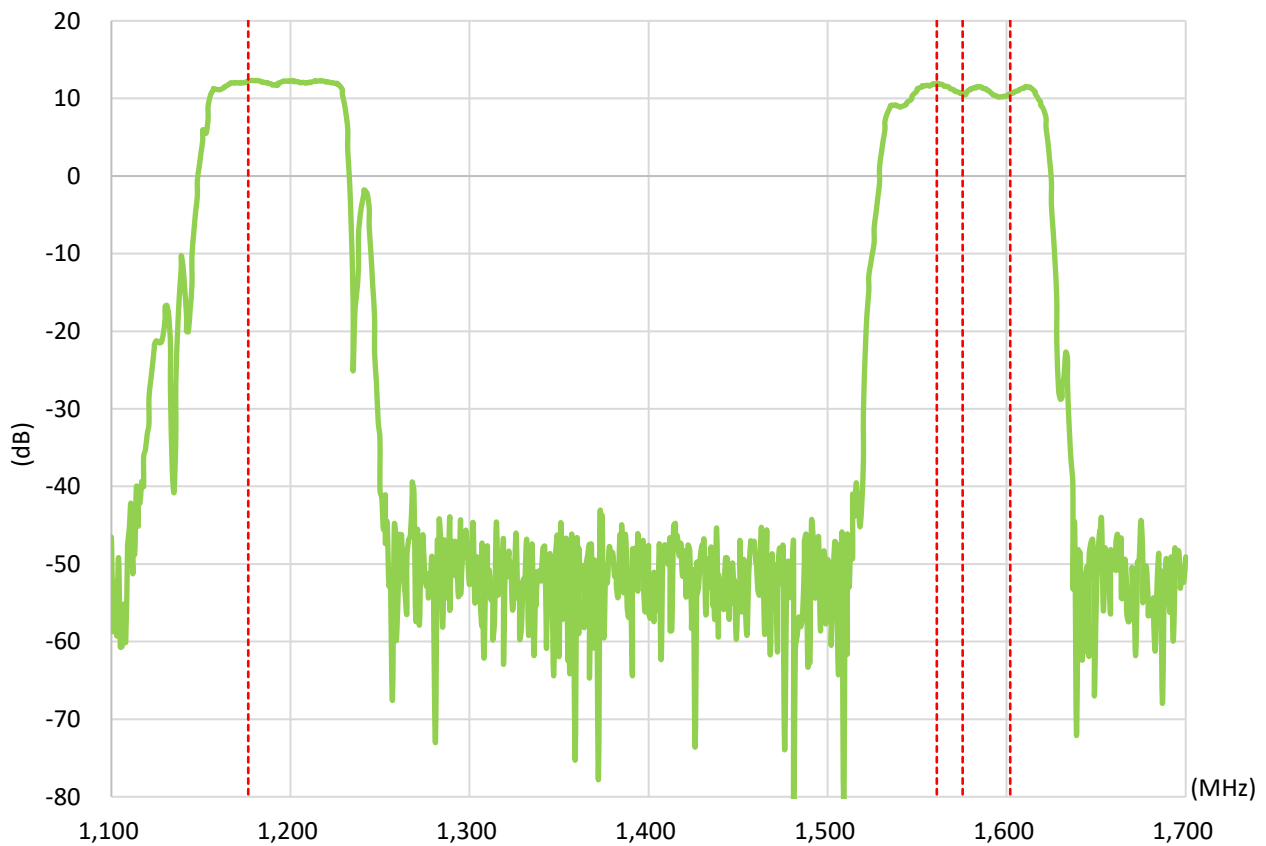


5. LNA Characteristics

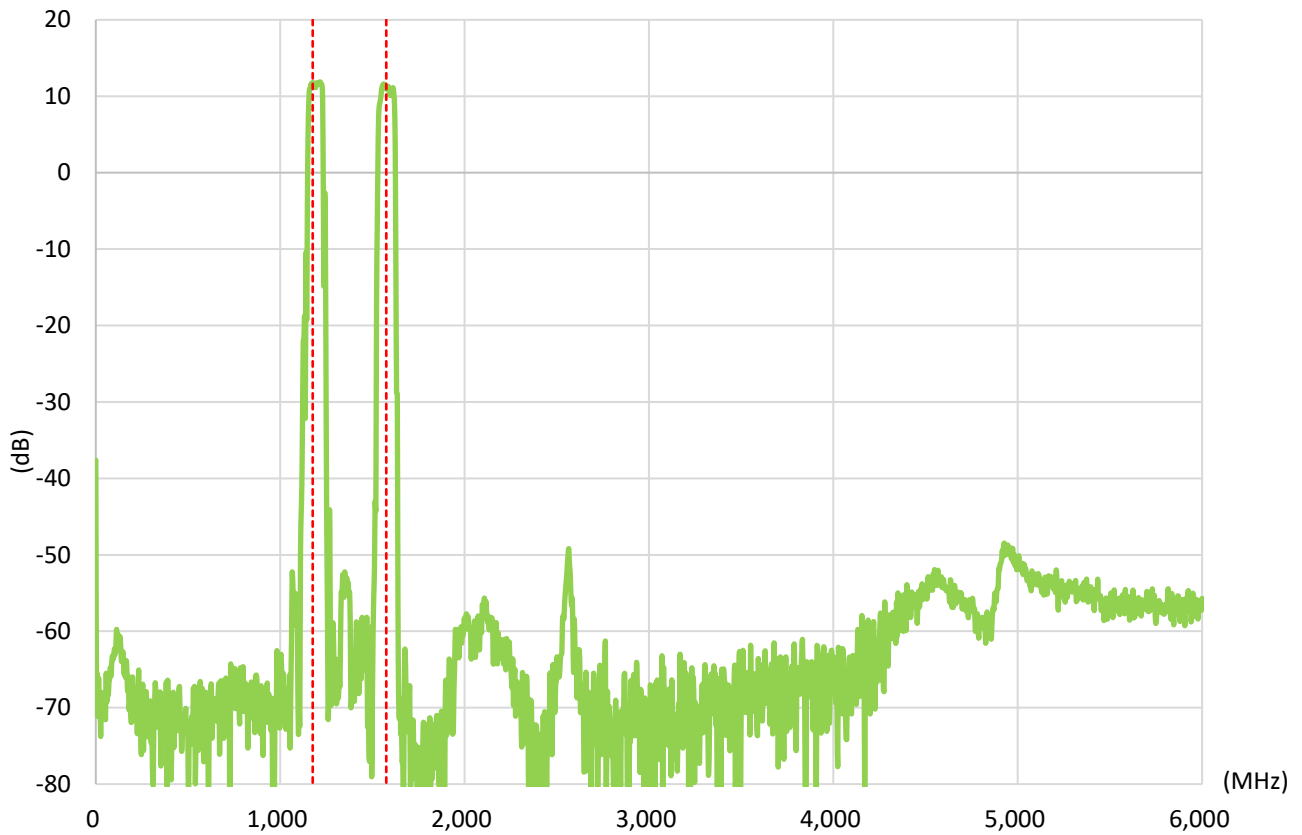
5.1 LNA Block Diagrams



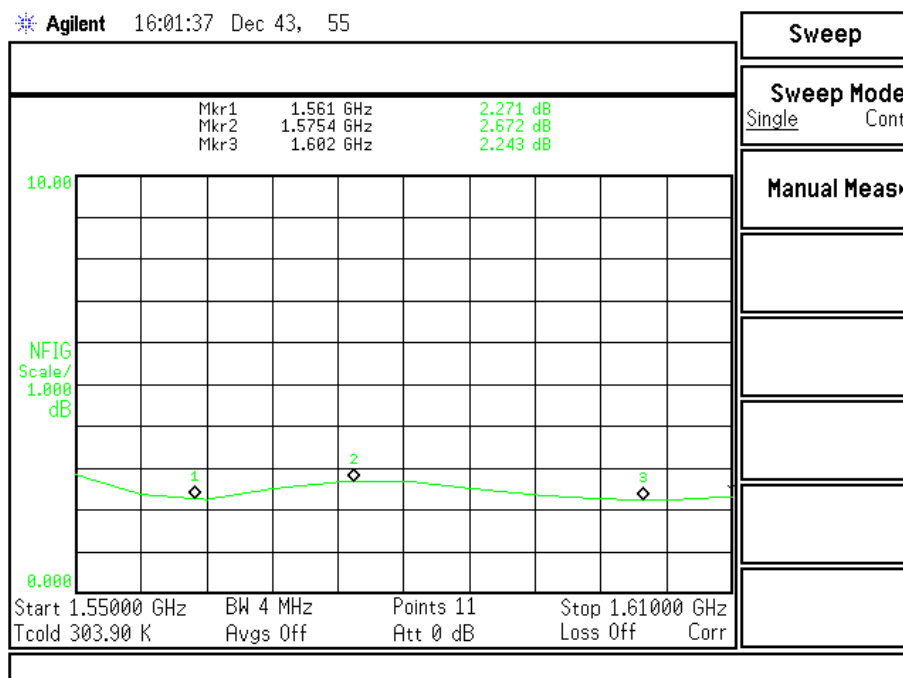
5.2 LNA Gain – Narrowband



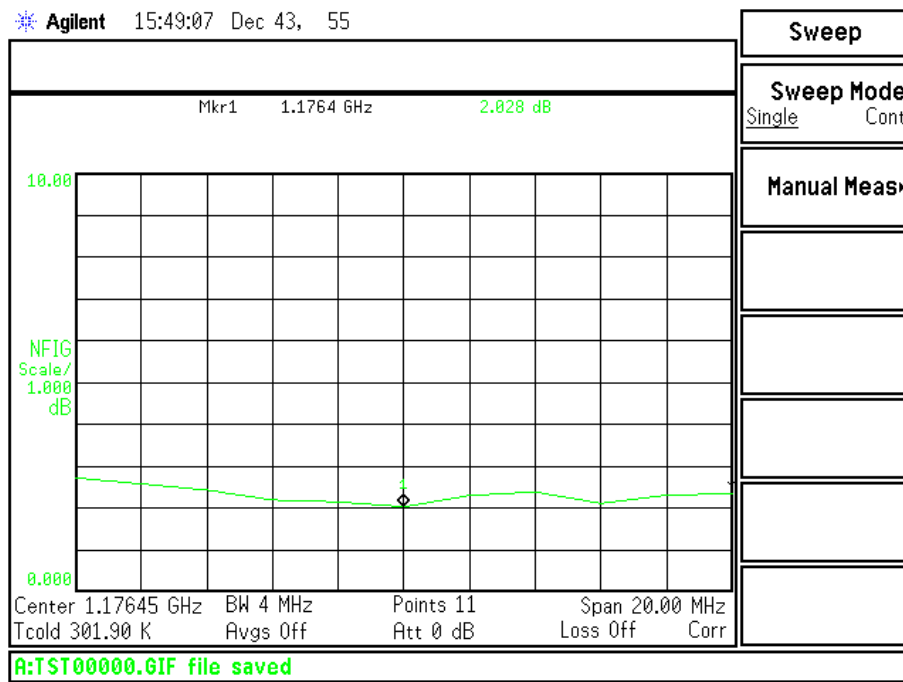
5.3 Out of Band Rejection



5.5 Noise – GNSS L1



5.6 Noise – GNSS L5



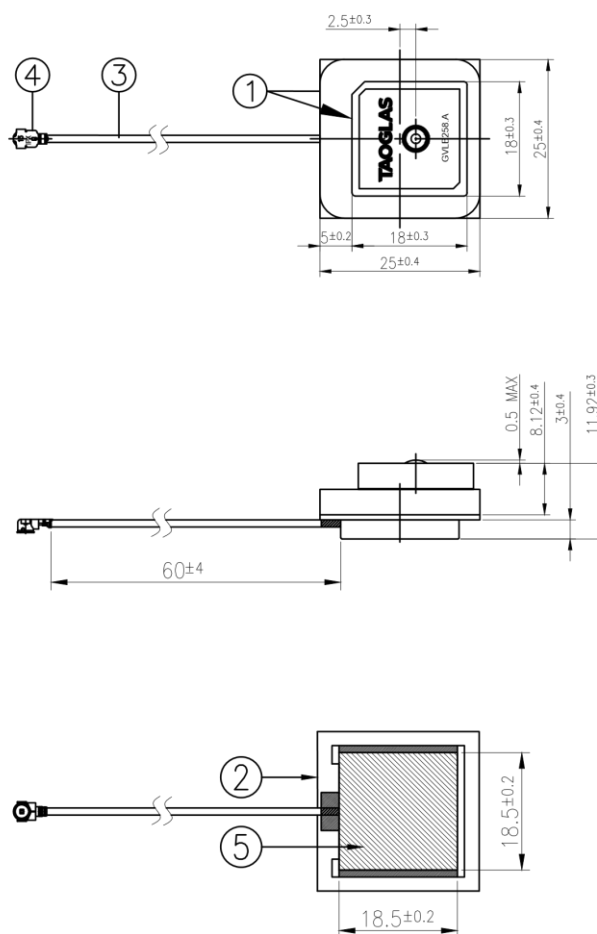
6. Mechanical Drawing (Units: mm)

ISO NO.: EDW-21-8-1079

STATE: Release

NOTES: 1. Soldered Area. 2. Soldermask Area.

REV.	DESCRIPTION	ENG.	APPROVED	DATE
001	Initial Design	Chi	Aaron	2021/09/07

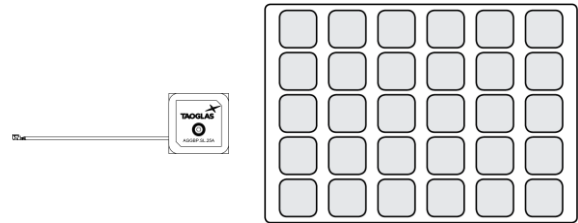


	Name	P/N	Material	Finish	QTY
1	Patch(18*18*4) & (25*25*4)	01348CAW00101D	Ceramic	Clear	1
2	PCB(25*25)	02110212250000	Composite 0.8t	Green	1
3	1.13 Coaxial Cable	3001150010000A	FEP	Gray	1
4	IPEX MHF1(2027B-11ZE-13)	2041110000000A	Brass	Au Plated	1
5	Shielding Case	000512J000007A	SPTF	Sn Plated	1

APPROVED BY: Aaron	<p>TAOGLAS. TW Design Centre This drawing and its inherent design concepts are property of Taoglas. Not to be copied or given to third parties without the written consent of Taoglas.</p>
CHECK BY: Amos	
DRAWN BY: Chi	
DATE: 2021/09/07	
UNLESS OTHERWISE SPECIFIED TOLERANCES ON:	XX±0.5 X±0.3 .X±0.2 .XX±0.1 .XXX±0.05
THIRD ANGLE PROJECTION	TITLE : AGVLB.25A.07.0060A-GPS/GLONASS/BeiDou/IRNSS L1+L5 Stacked Active Patch Antenna on 25x25mm PCB with 60mm 1.13 IPEX MHF1(U.FL) PART NO. : AGVLB.25A.07.0060A UNIT: mm SCALE: 1:1 PAGES: 1/1 REV. D01

7. Packaging

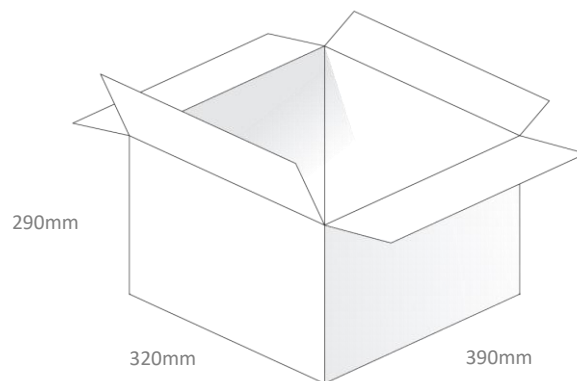
30pcs AGVLB.25A.07.0060A per Tray
 Weight: 800g



120pcs AGVLB.25A.07.0060A per PE Bag
 Weight: 3.4Kg



360pcs AGVLB.25A.07.0060A per carton
 Dimensions: 390*320*290mm
 Weight: 10.5Kg



Changelog for the datasheet

SPE-21-8-127 – AGVLB.25A.07.0060A

Revision: D (Current Version)

Date:	2022-11-22
Changes:	Updated GNSS Bands & Constellations Graphics
Changes Made by:	Cesar Sousa

Previous Revisions

Revision: C

Date:	2022-12-19
Changes:	Weight added
Changes Made by:	Cesar Sousa

Revision: B

Date:	2022-10-10
Changes:	Updated specifications
Changes Made by:	Cesar Sousa

Revision: A (Original First Release)

Date:	2021-12-20
Notes:	Initial Release
Author:	Jack Conroy