



TAOGLAS®



Datasheet

Accura Series Stacked Patch Antenna

Part No:
AGVLB.25B.07.0060A

Description:

Embedded Active GNSS L1/GPS L5 Stacked Patch Antenna

Features:

Single Feed Stacked Patch Assembly

Covering Bands

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

Excellent Out-of-Band Rejection

2 stage LNA and SAW filter

Dimensions: 25*25*8.12mm

Cable: 60mm of \varnothing 1.13mm

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

RoHS & REACH Compliant

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Changelog

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1. Introduction



The Taoglas Accura AGVLB.25B, 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.25B 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

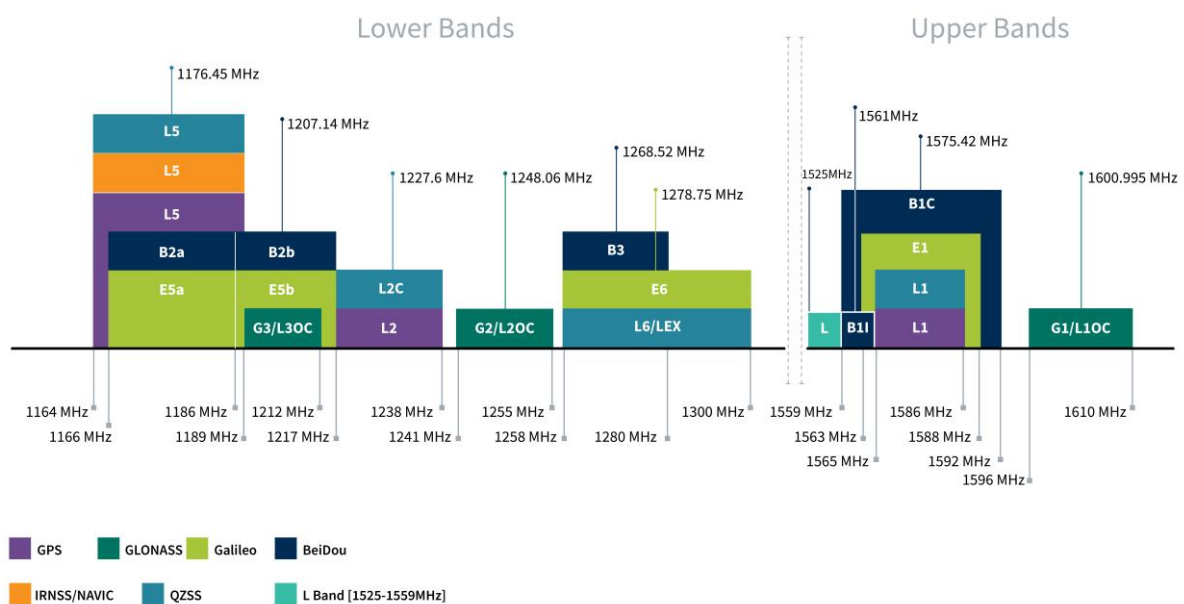
The AGVLB.25A has been tuned and tested on a 70 x 70 mm ground plane and exhibits omnidirectional radiation patterns at both bands.

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)	GPS L5	BeiDou_B1	GPS_L1C	GLONASS_L1
	1166-1186	1559-1563	1563-1587	1593-1610
Efficiency (%)				
AGVLB.25B	58.5	68.5	60.7	62.5
Average Gain (dB)				
AGVLB.25B	-2.33	-1.64	-2.17	-2.04
Peak Gain (dBi)				
AGVLB.25B	2.31	2.94	2.87	3.08
Impedance	50 Ω			
Polarization	Right-Hand Circularly Polarized (RHCP)			
Radiation Pattern	Directional			

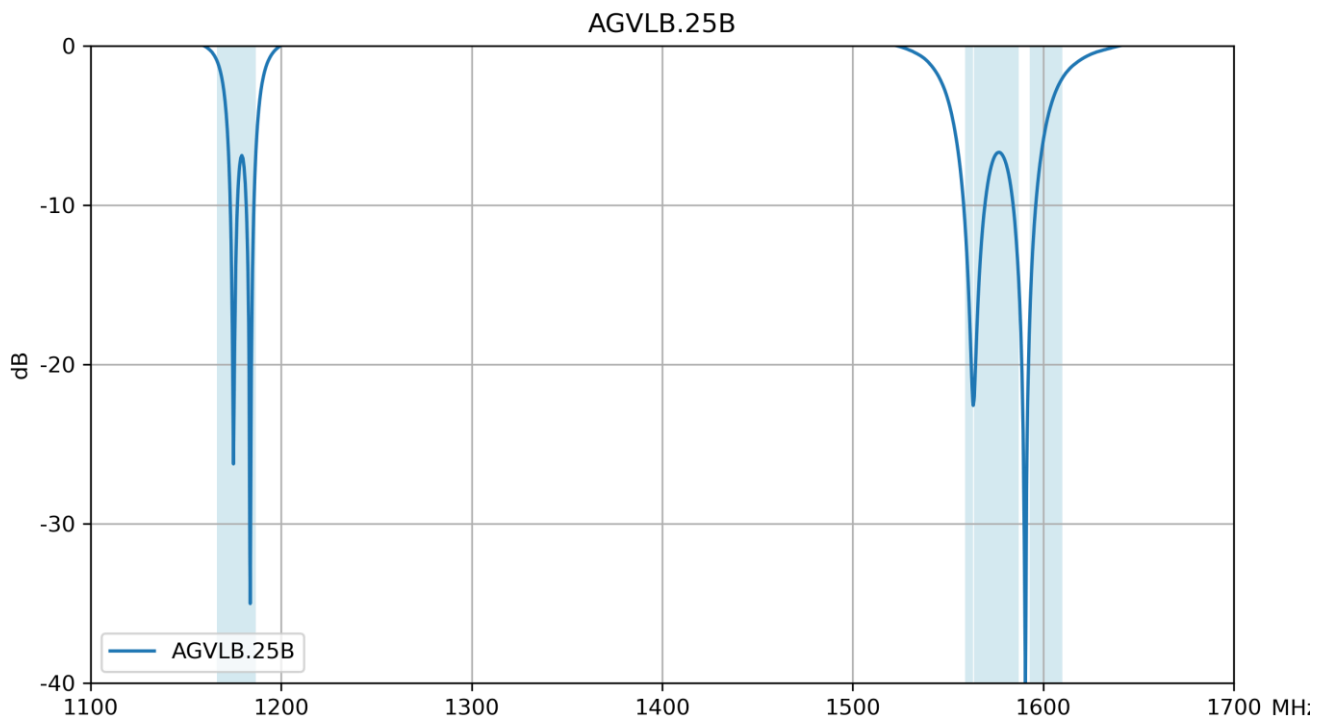
LNA and Filter Electrical Specifications				
Frequency (MHz)	GPS_L5	BeiDou_B1	GPS_L1	GLONASS
	1166-1186	1559-1563	1563-1587	1593-1610
LNA Gain (dB)				
AGVLB.25B	30.3	28.2	28.3	28.3
Noise Figure (dB)				
AGVLB.25B	2.6	2.8	2.8	2.4
Return Loss (dB)	< -8			
Input Voltage (V)	+ 1.8 to 5.5			
Current consumption (mA)	10 \pm 3			
Outer Band Attenuation (dB)	> 70dB @ LTE low band; > 65dB @ LTE high band			

Mechanical	
Dimensions	25*25*12mm
Weight	18g
Material	Ceramic
Connector	IPEX MHF I U.FL Compatible
Cable	1.13 Coaxial Cable

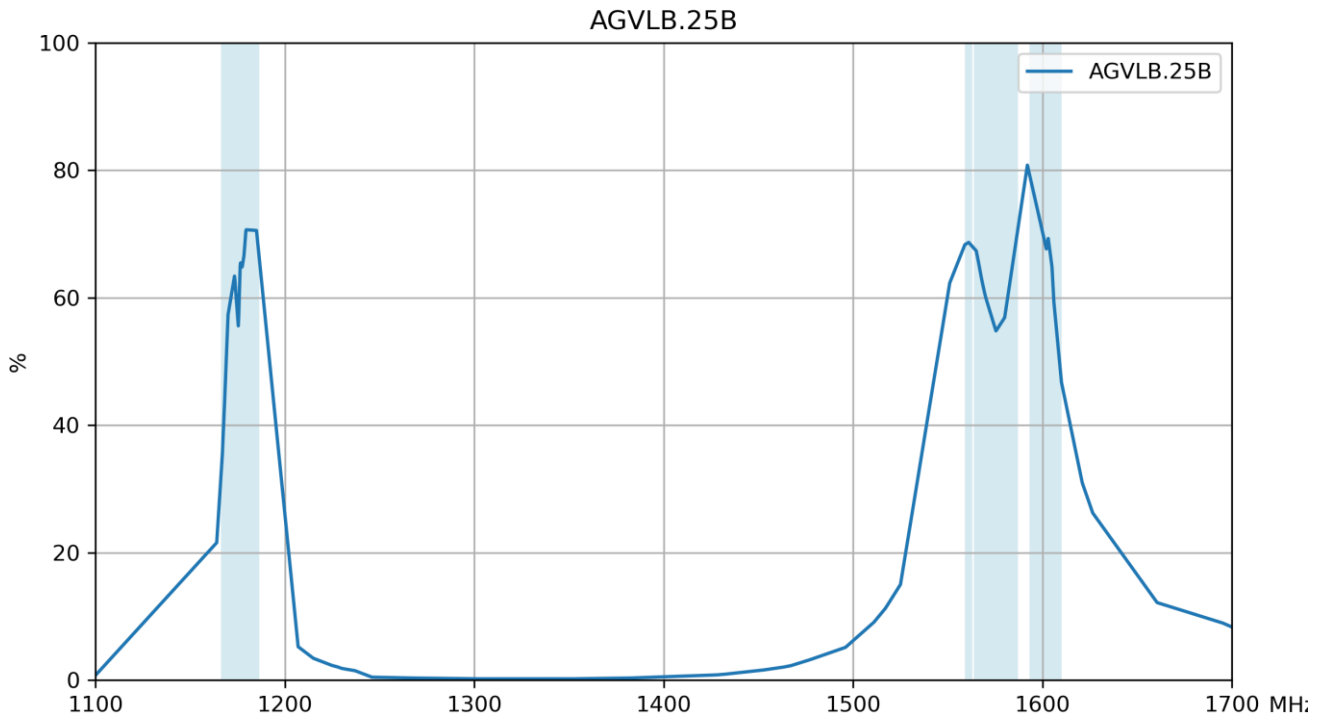
Environmental	
Temperature Range	40°C to 85°C
Humidity	Non-condensing 65°C 95% RH

3. Antenna Characteristics

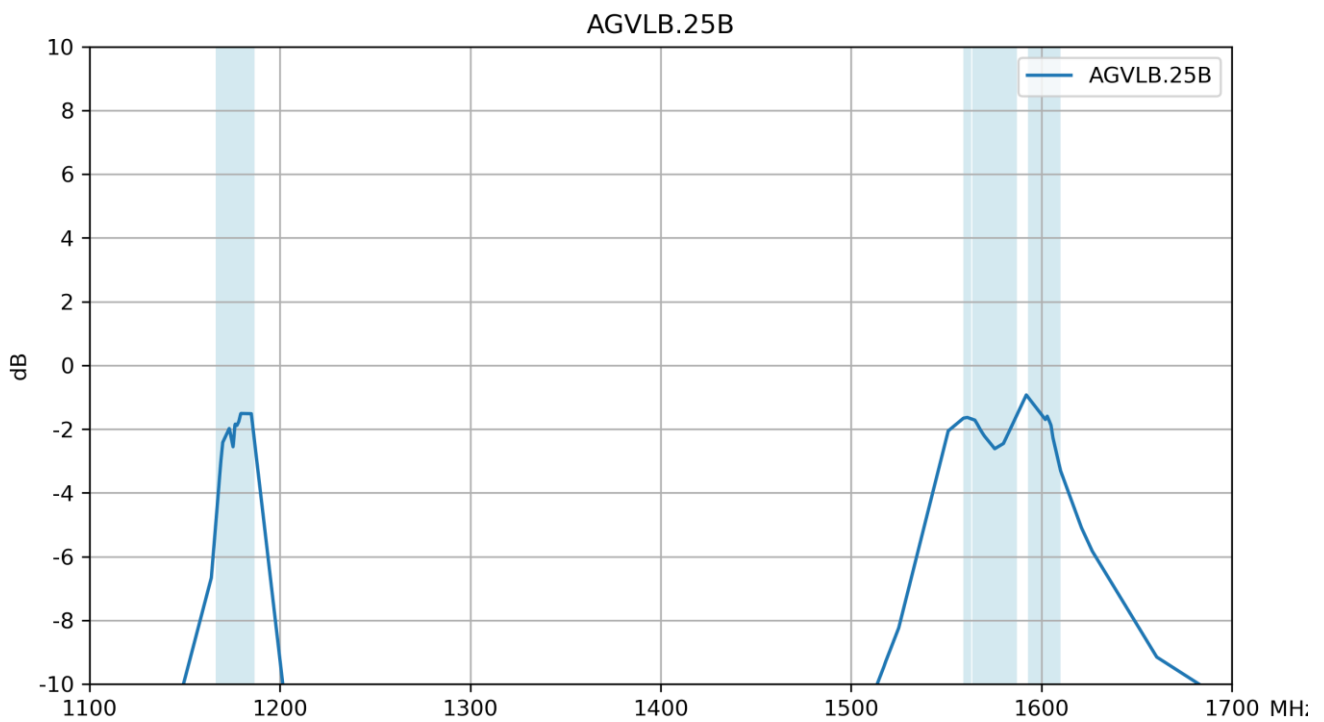
3.1 Return Loss



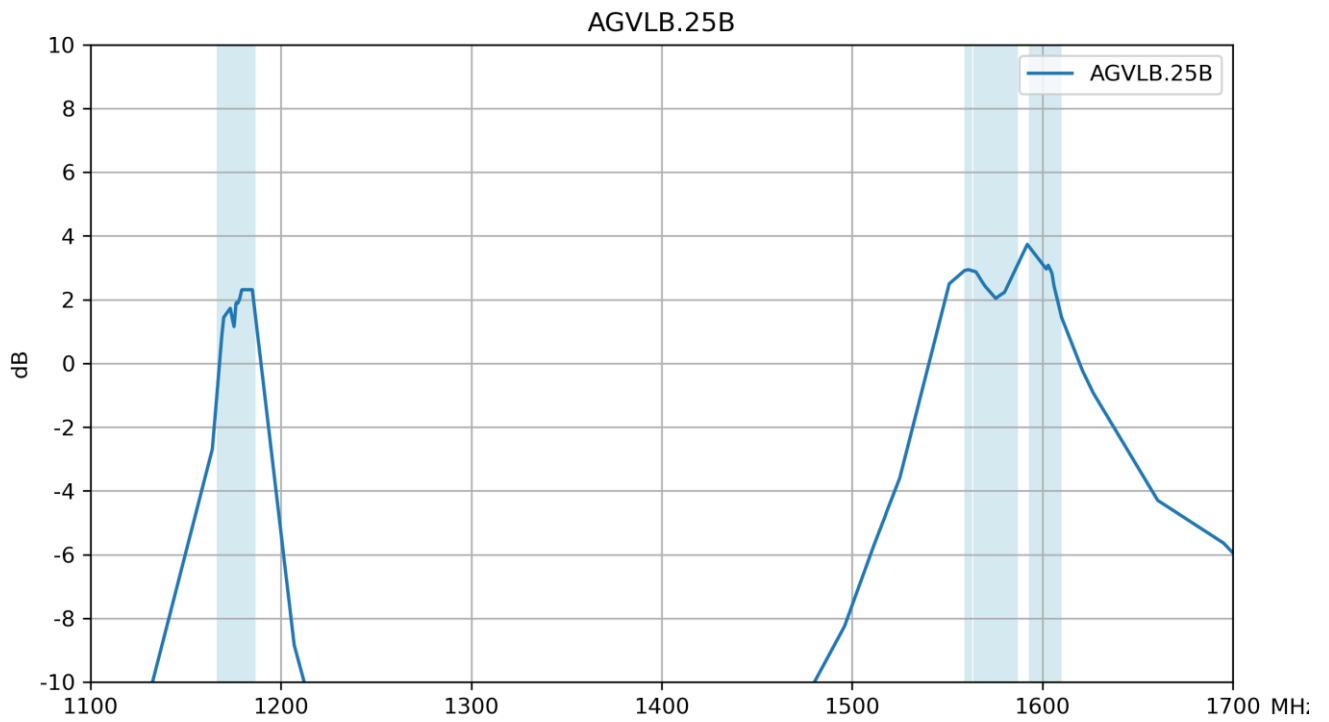
3.2 Efficiency



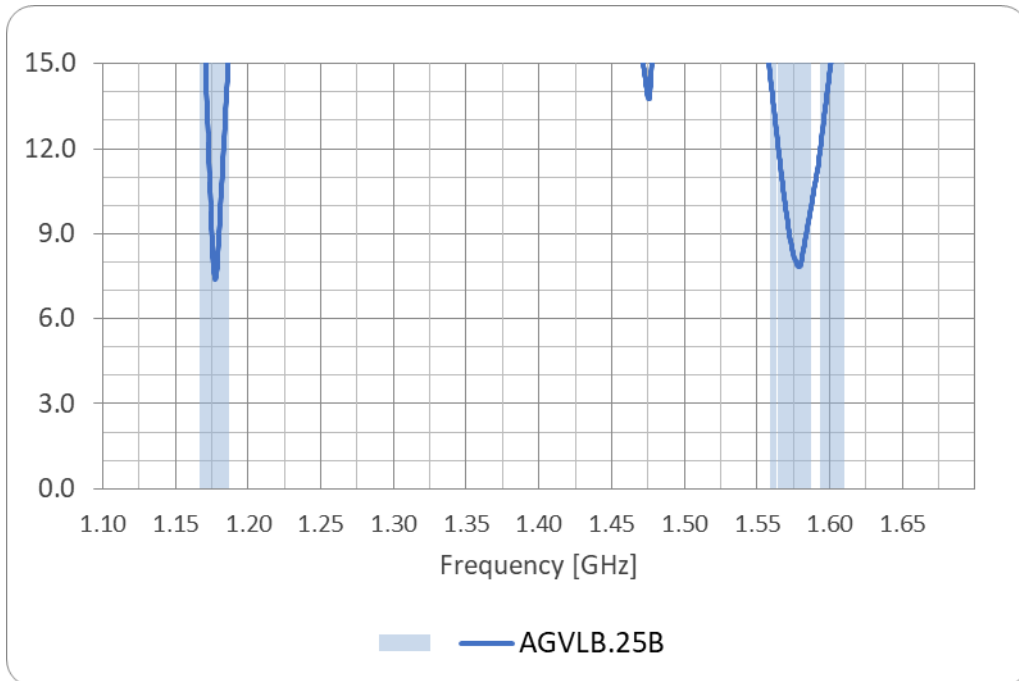
3.3 Average Gain



3.4 Peak Gain

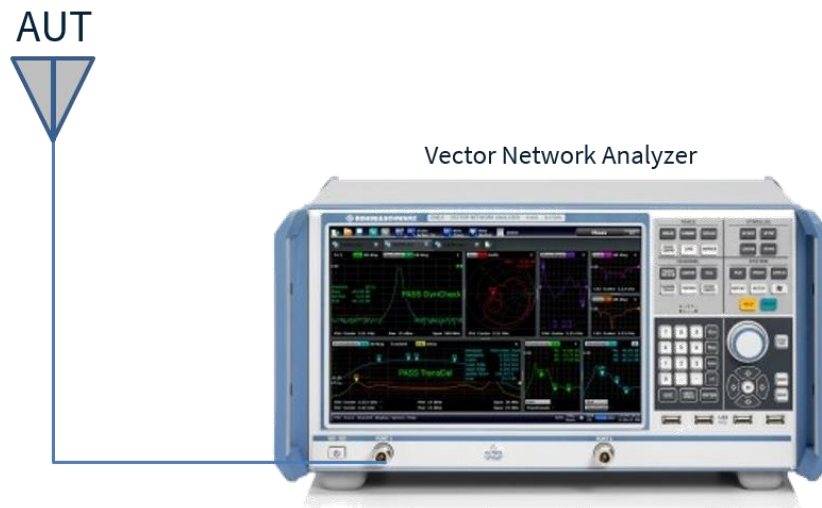


3.5 Axial Ratio



4. Radiation Patterns

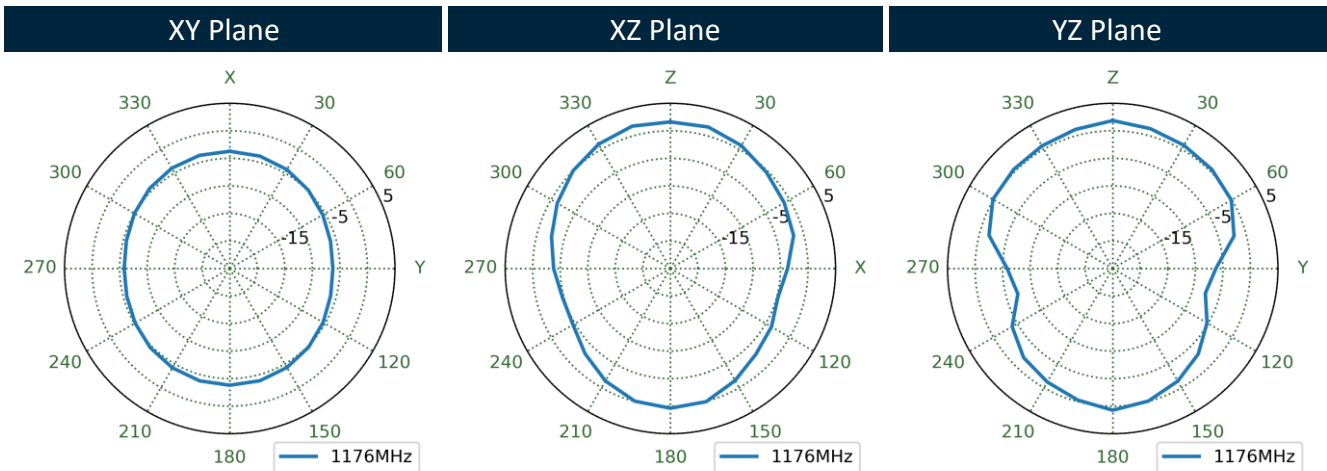
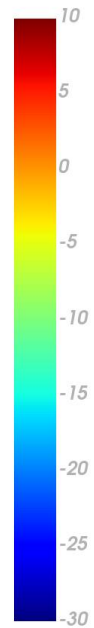
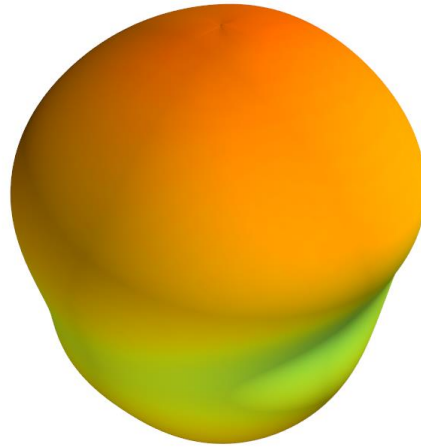
4.1 Test Setup



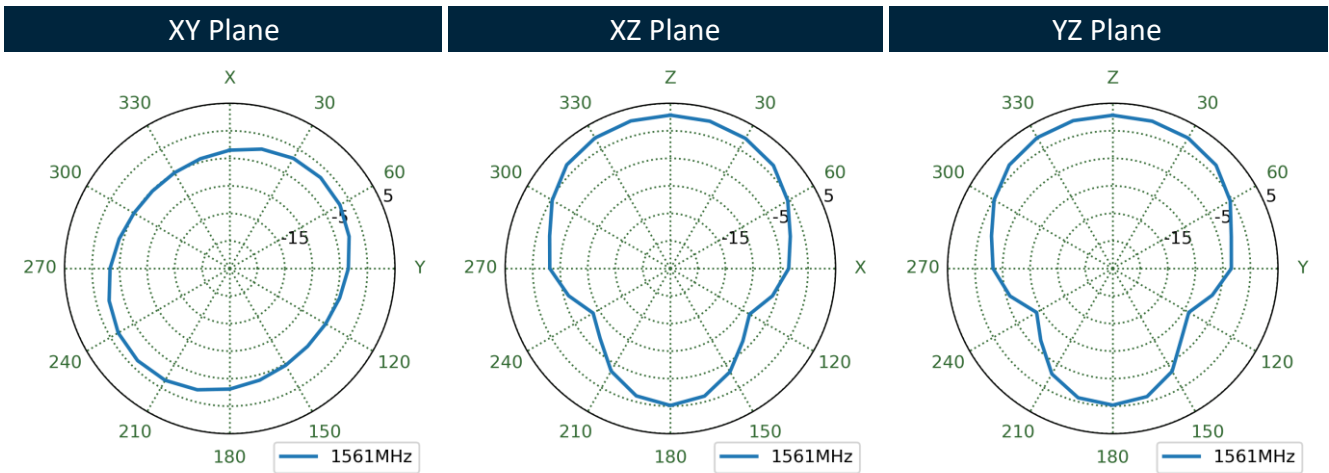
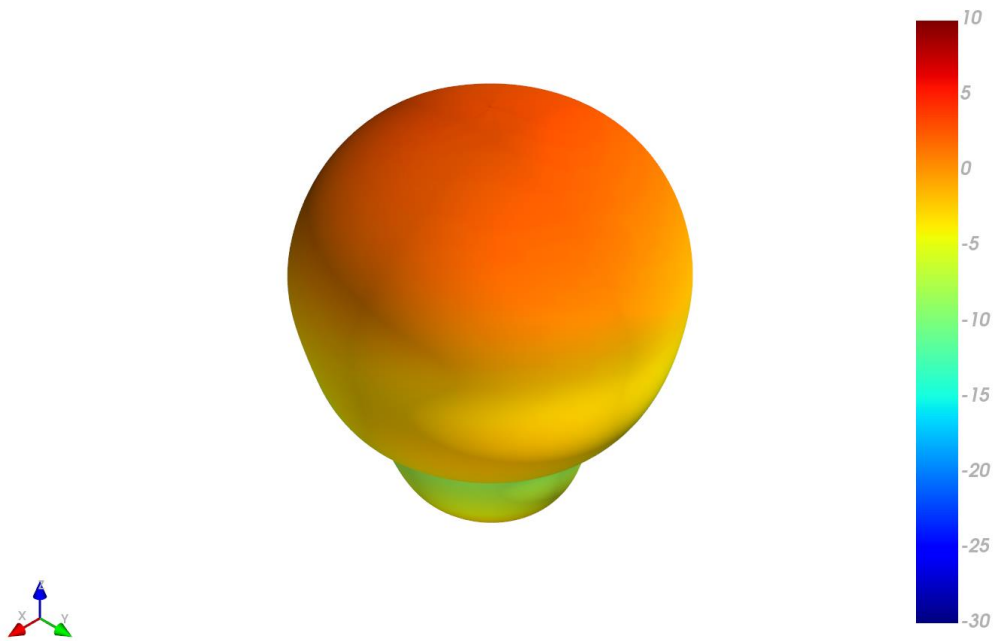
Tested on 70*70mm Ground Plane

4.2 3D and 2D Radiation Patterns

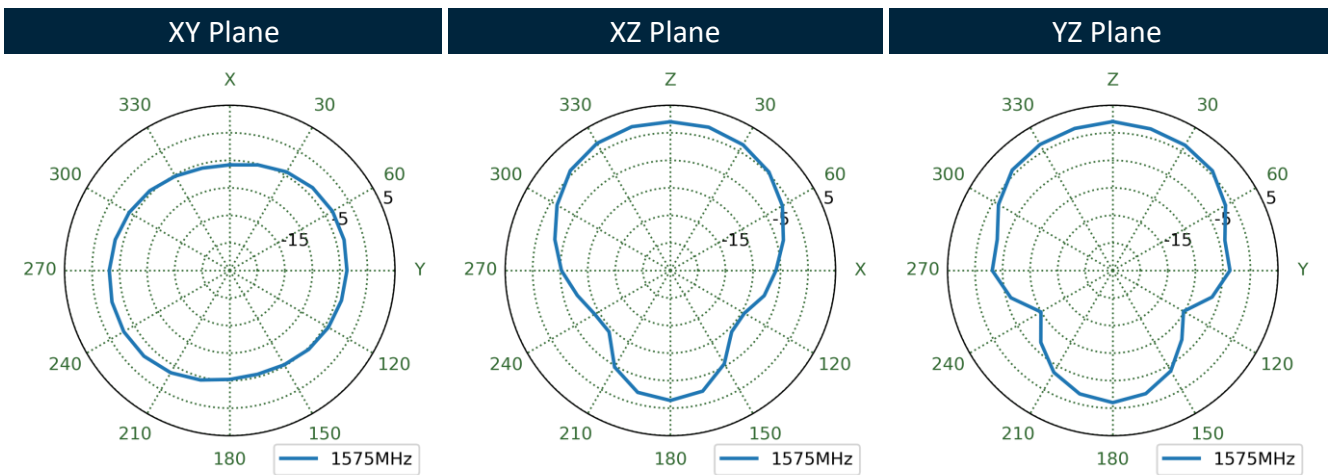
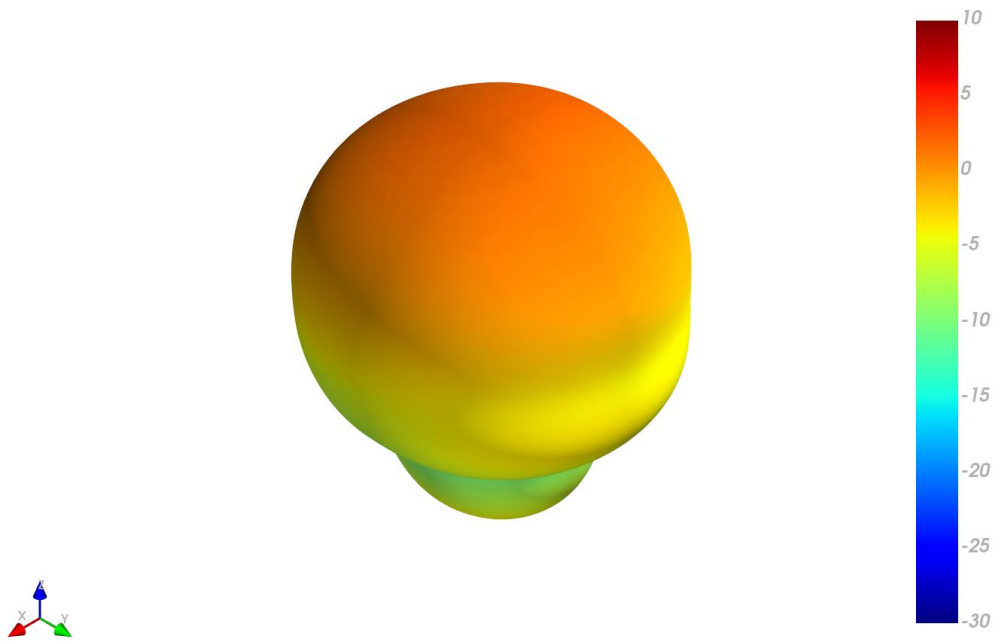
1176MHz



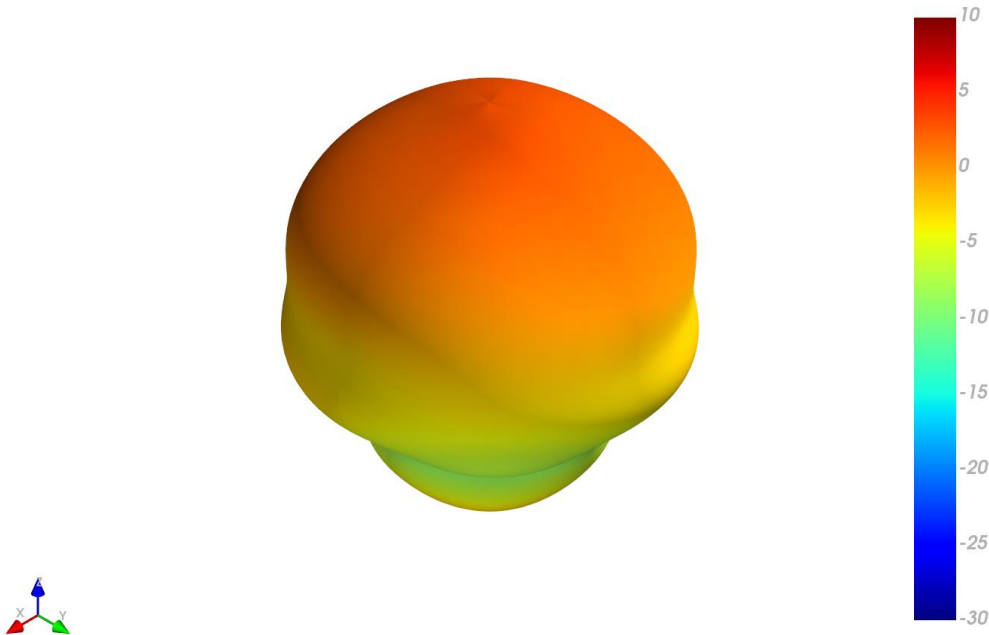
1561MHz



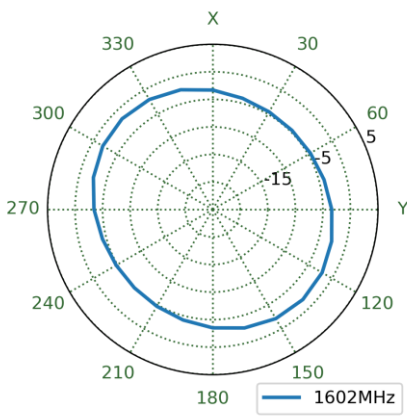
1575MHz



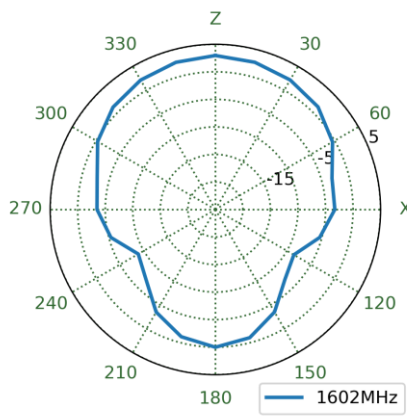
1602MHz



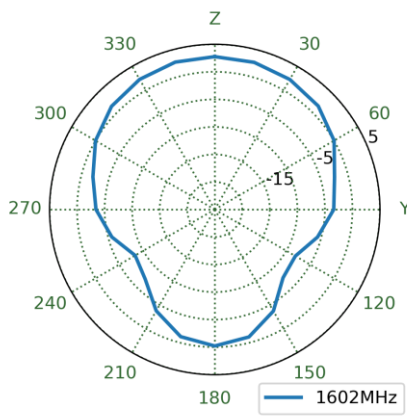
XY Plane



XZ Plane

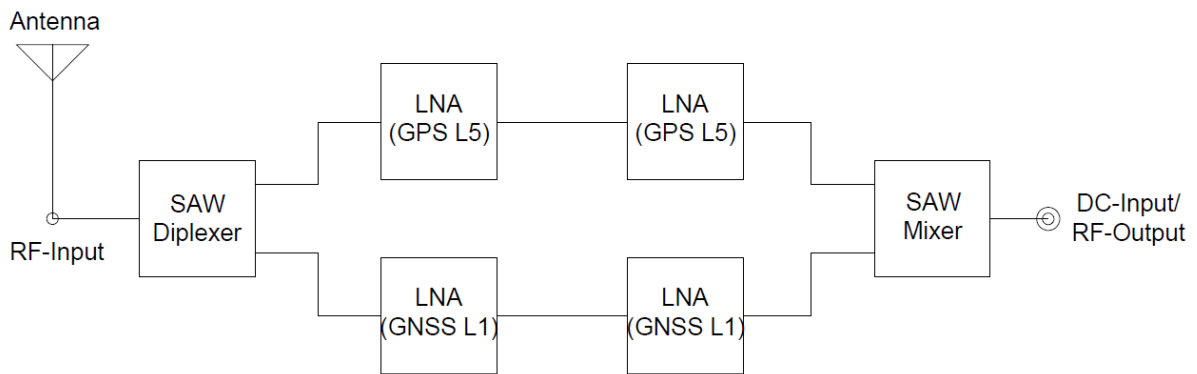


YZ Plane

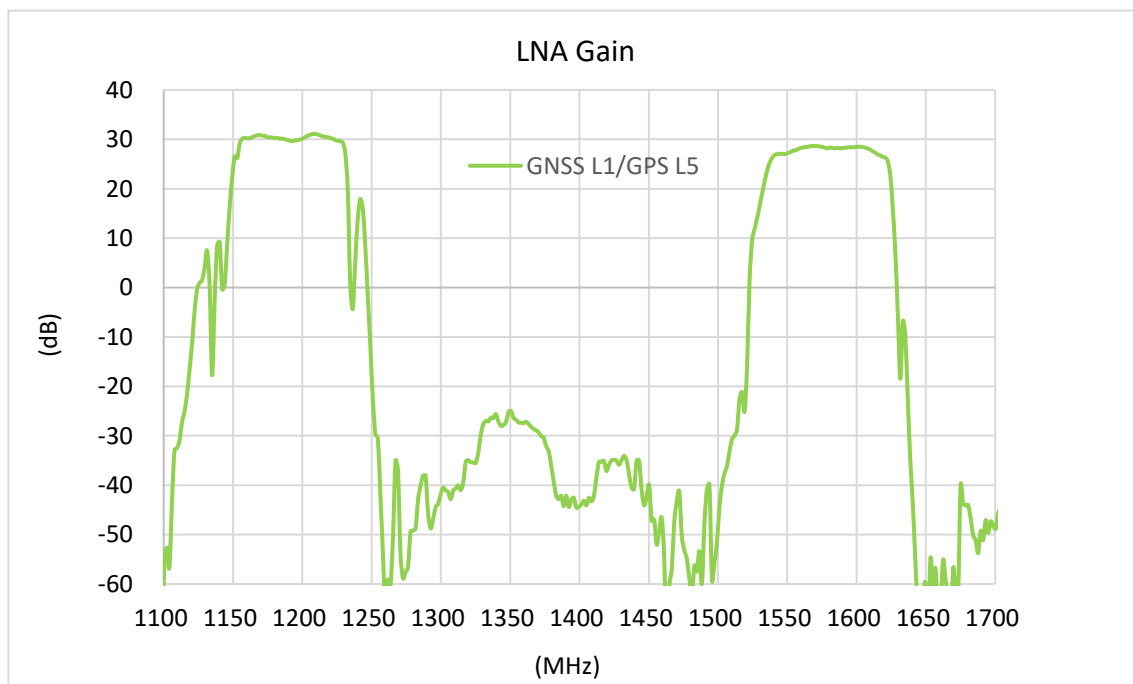


5. LNA Characteristics

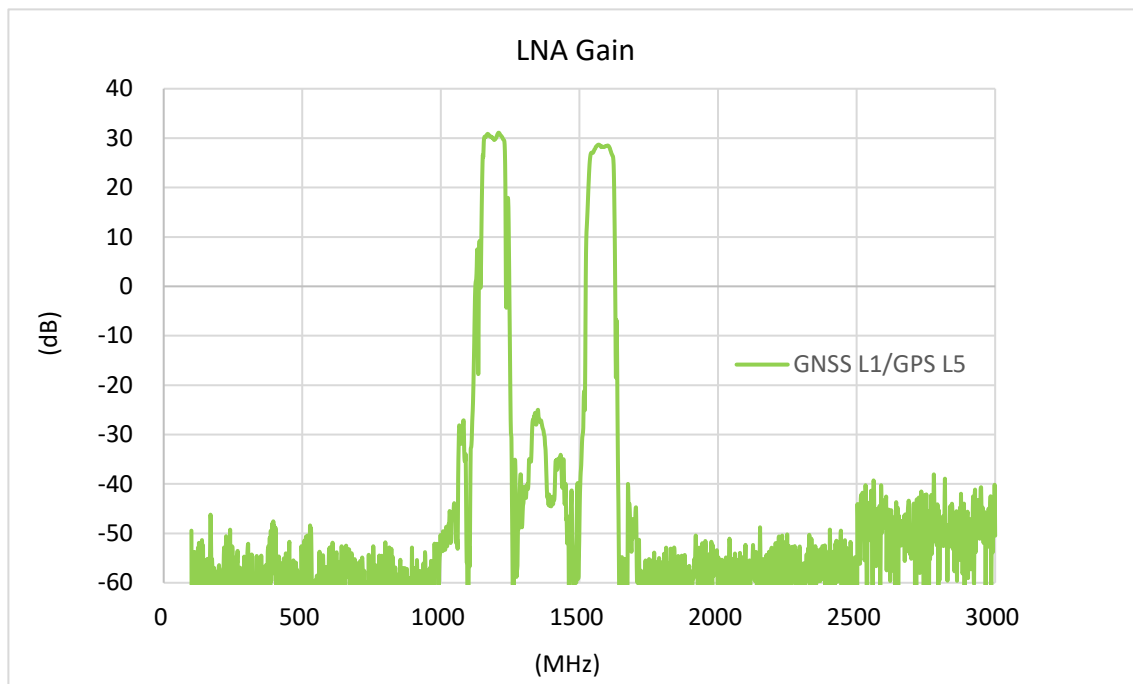
5.1 LNA Block Diagrams



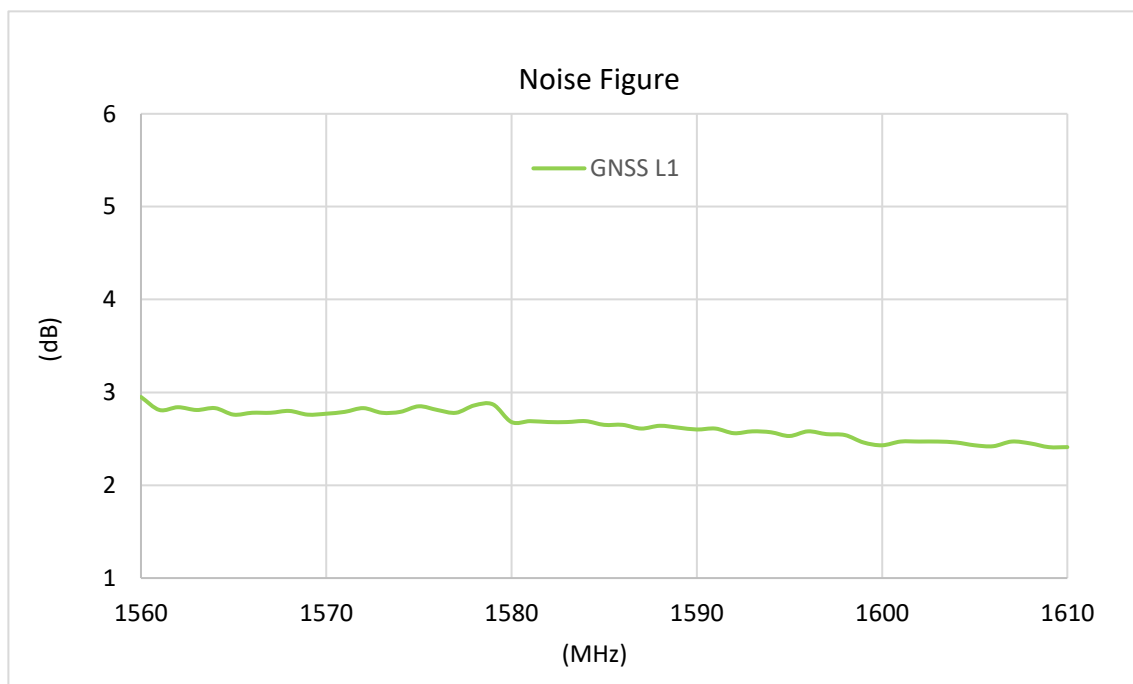
5.2 LNA Gain



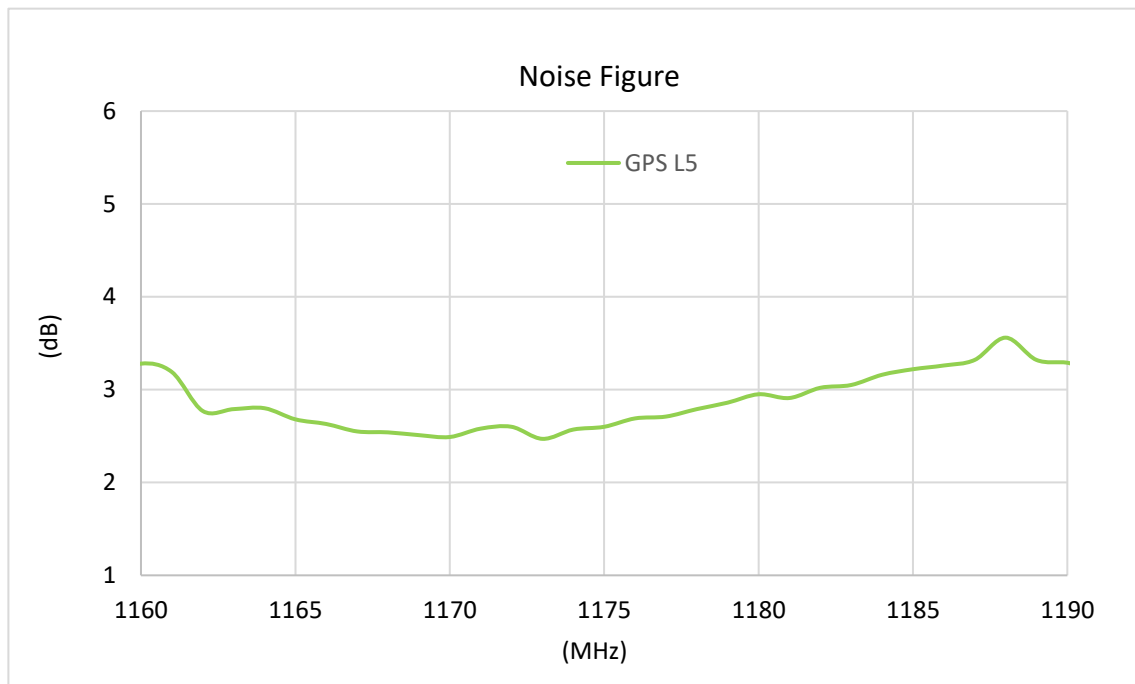
5.3 Out of Band Rejection



5.5 Noise – GNSS L1



5.6 Noise – GNSS L5



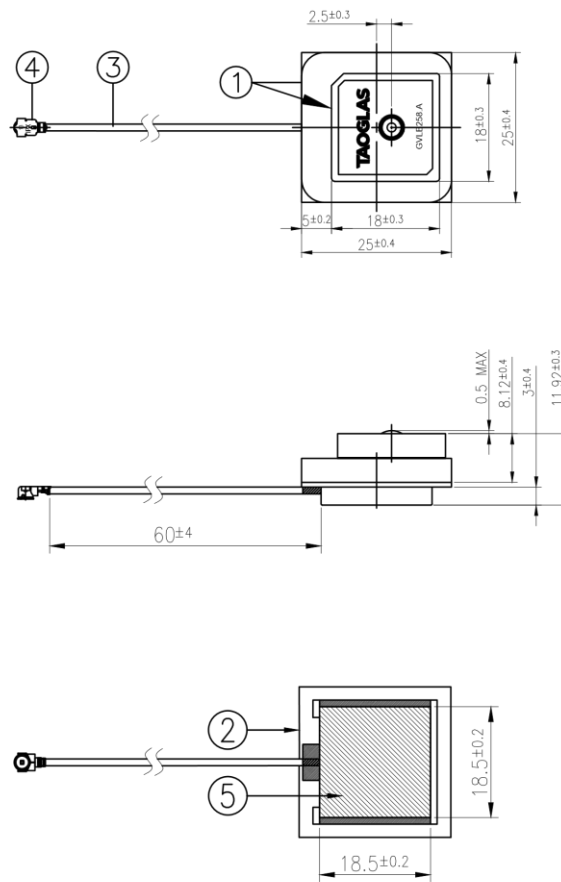
6. Mechanical Drawing (Units: mm)

ISO NO.: EDW-23-8-0679

STATE: Release

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

REV.	DESCRIPTION	ENG.	APPROVED	DATE
001	Initial Design	Karry	Aaron	2023/05/25

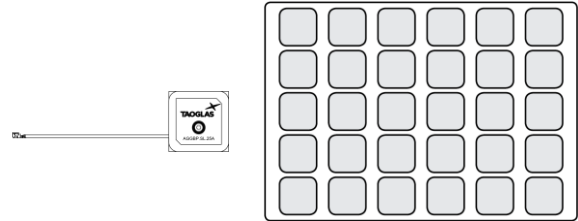


	Name	Material	Finish	QTY
1	Patch(18*18*4)±(25*25*4)	Ceramic	Clear	1
2	PCB(25*25)	Composite 0.8	Green	1
3	1.13 Coaxial Cable	FEP	Gray	1
4	IPEX MHF1	Brass	Au Plated	1
5	Shielding Case	SFTE	Sn Plated	1

APPROVED BY: Aaron	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.
CHECK BY: Aaron	
DRAWN BY: Karry	
DATE: 2023/05/25	TITLE : GPS/GLONASS/BeiDou/IRNSS L1 + L5 Stacked Active Patch 2 Stage LNA Antenna 25x25mm PCB 60mm 1.13 IPEX MHF1(U.FL)
UNLESS OTHERWISE SPECIFIED TOLERANCES ON:	PART NO. : AGVLB.25B.07.0060A
THIRD ANGLE PROJECTION	UNIT: mm SCALE: 1:1 PAGES: 1/1 REV: D01

7. Packaging

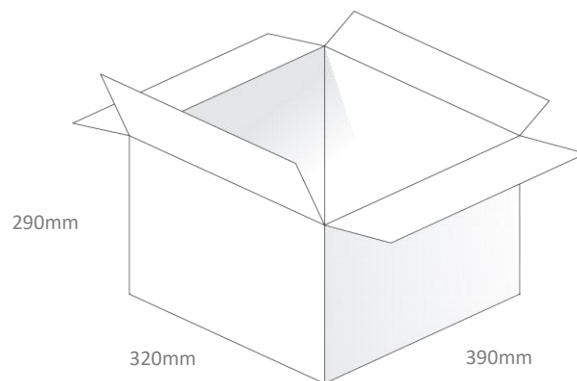
30pcs AGVLB.25B.07.0060A per Tray
Weight: 800g



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



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



Changelog for the datasheet

SPE-23-8-223 – AGVLB.25B.07.0060A

Revision: A (Original First Release)	
Date:	2023-07-13
Notes:	Initial Release
Author:	Cesar Sousa

Previous Revisions



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