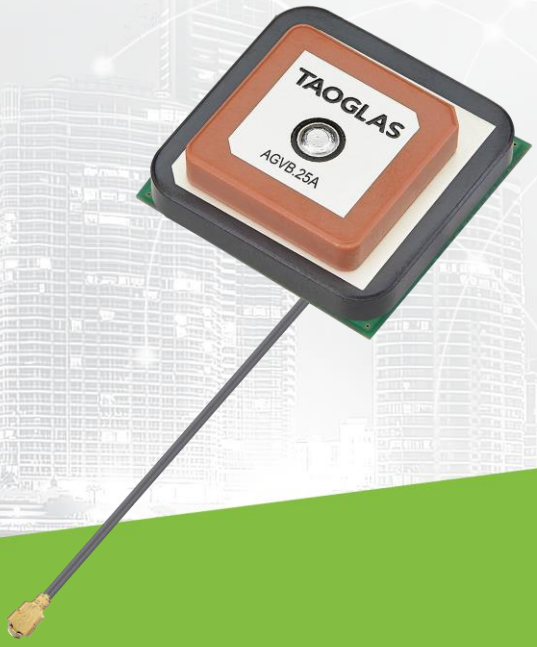


Datasheet

Accura Series Stacked Patch Antenna

Part No:
AGVB.25A.07.0060A

Description:

GPS L1 / L5 & BeiDou B1 Active Stacked Patch Antenna

Features:

Single Feed Stacked Patch Assembly

Covering Bands

- GPS L1 & L5
- BeiDou B1
- IRNSS L5

Low Axial Ratio

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

1. Introduction

The Taoglas Accura AGVB.25A, is a multi-band GPS, 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 AGVB.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 customer 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

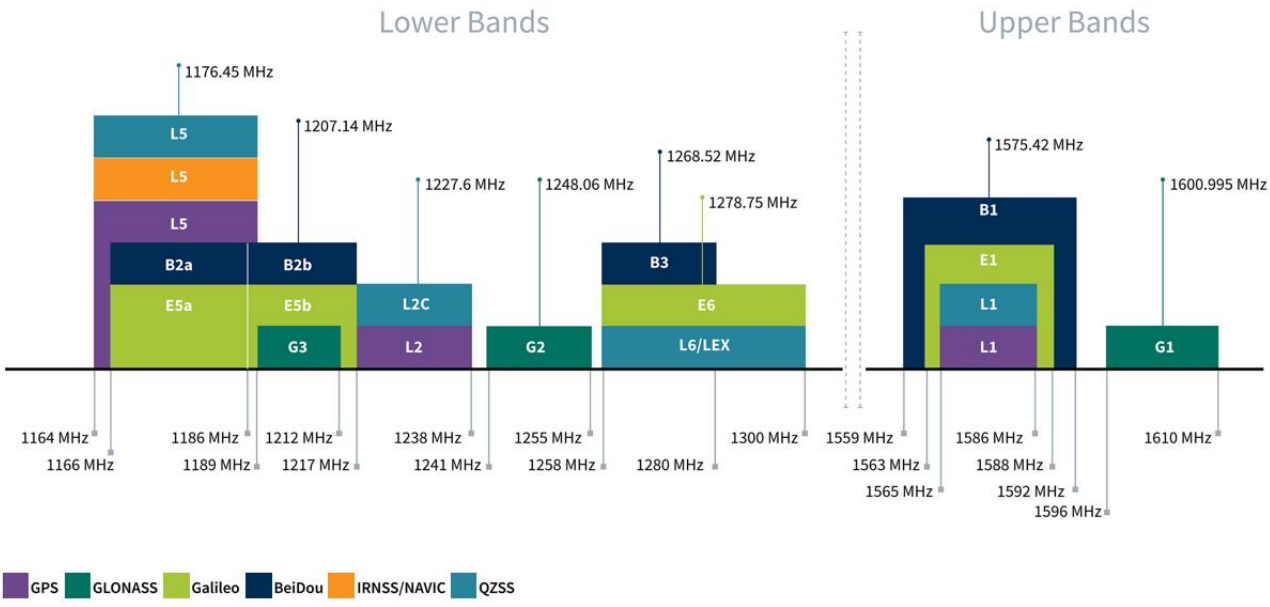
The AGVB.25A has been tuned and tested on a 70 x 70 mm ground plane and exhibits omnidirectional radiation patterns at both bands.

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), EGNOSS(E1/E5a), SDCM(G1/G2/G3), SNAS(B1,B2a), GAGAN(L1/L5), QZSS(L1/L5), KAZZ(L1/L5).



GNSS Electrical			
Frequency (MHz)	**1176.45**	**1561**	**1575.42**
VSWR (max.)	2:1	2:1	2:1
Efficiency (%)	60.8	63.9	59.6
Peak Gain (dBi)	2.5	3.4	3.1
Average Gain (dB)	-3	-2	-2.3
Axial Ratio (dB)	11	2	10.5
Polarization	Linear		
Impedance	50Ω		
Radiation Pattern	Omni-Directional		
Input Power	50 W		

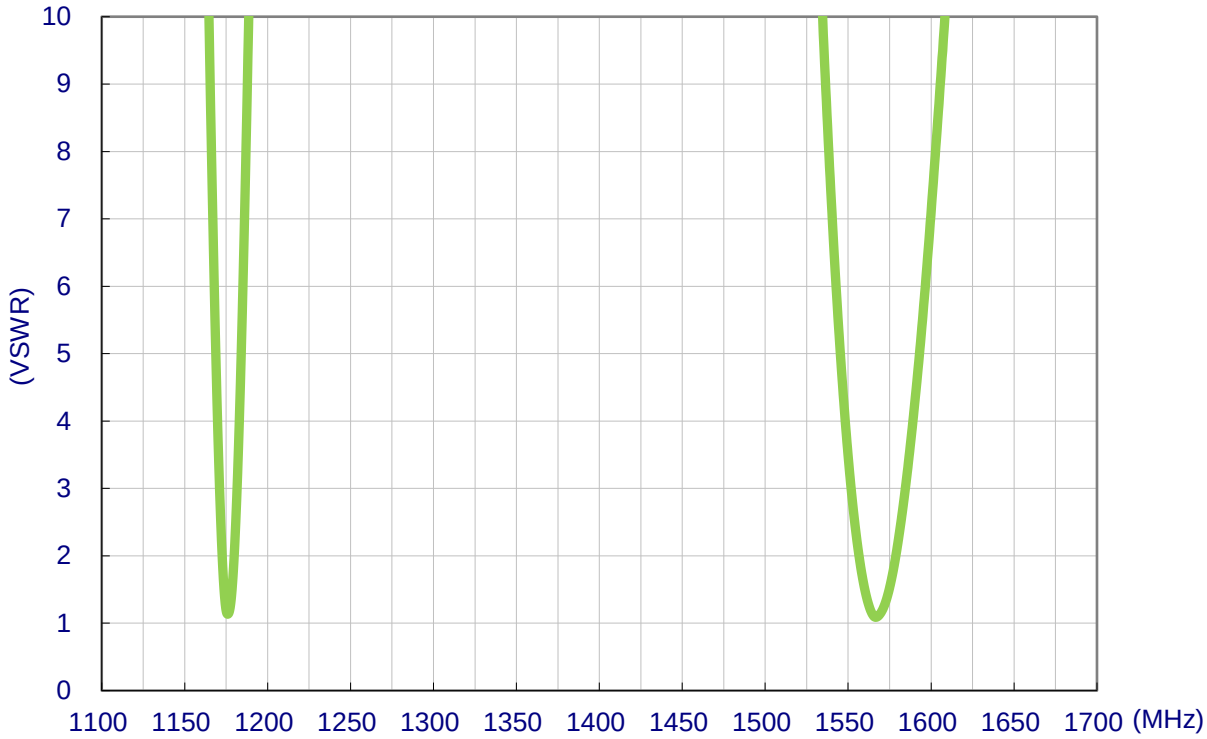
LNA Specifications			
Frequency (MHz)	**1176.45**	**1561**	**1575.42**
Impedance	50Ω		
Return Loss (dB)	<-10	<-10	<-10
Gain @1.8V	12dB	10dB	10dB
Gain @3.0V	12dB	10dB	10dB
Gain @5.5V	12dB	10dB	10dB
DC Power Input	3.0V		
Noise Figure@3V	2.39dB	2.6dB	2.9dB
Power Consumption	9.8mA		

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

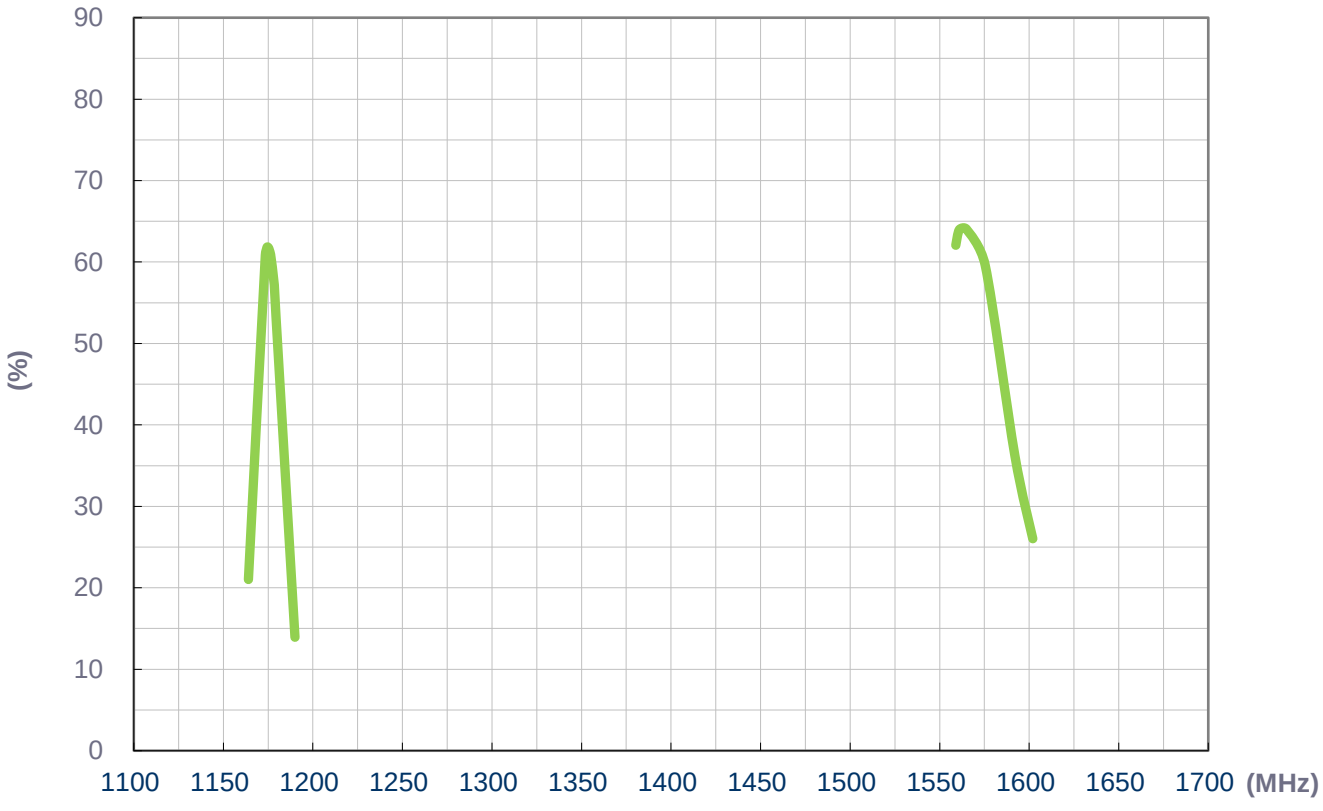
Environmental	
Temperature Range	-40°C to 85°C
Humidity	Non-condensing 65°C 95% RH

3. Antenna Characteristics

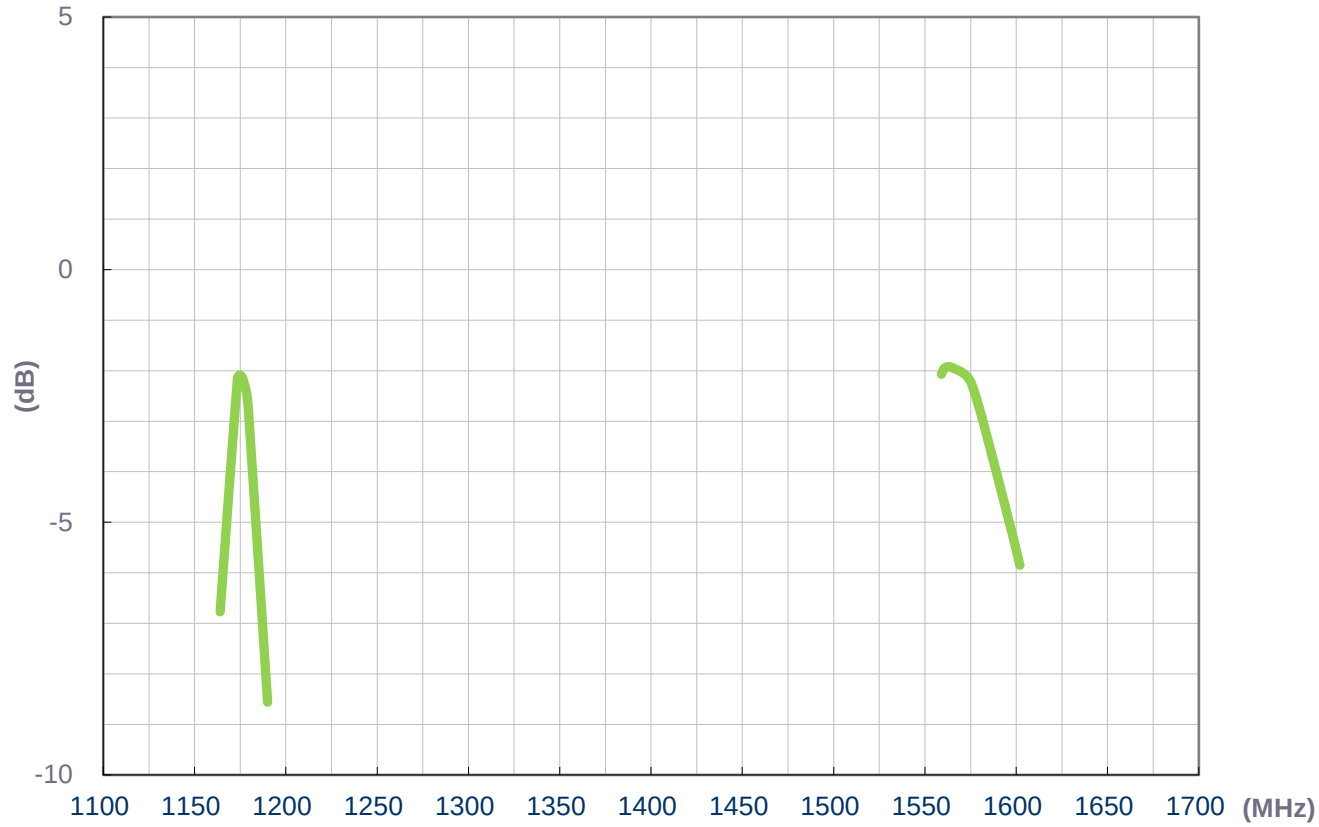
3.1 VSWR



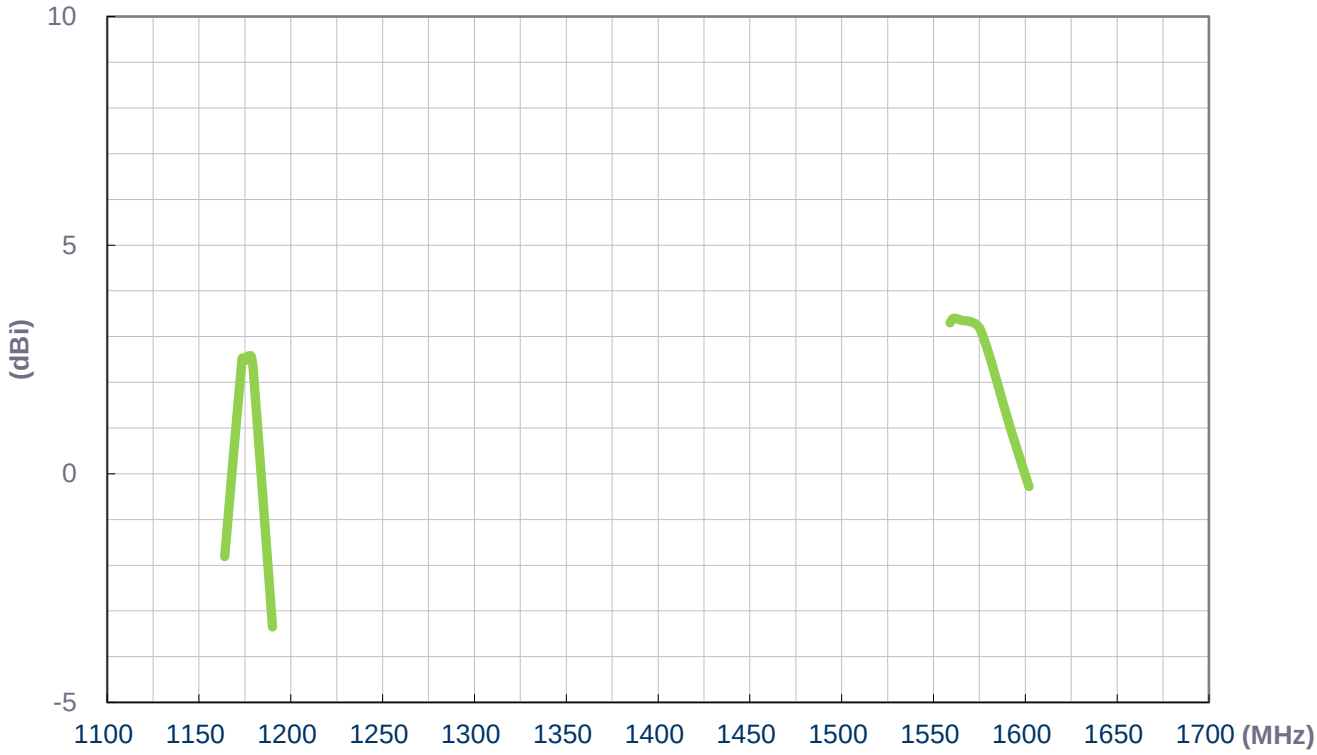
3.2 Efficiency



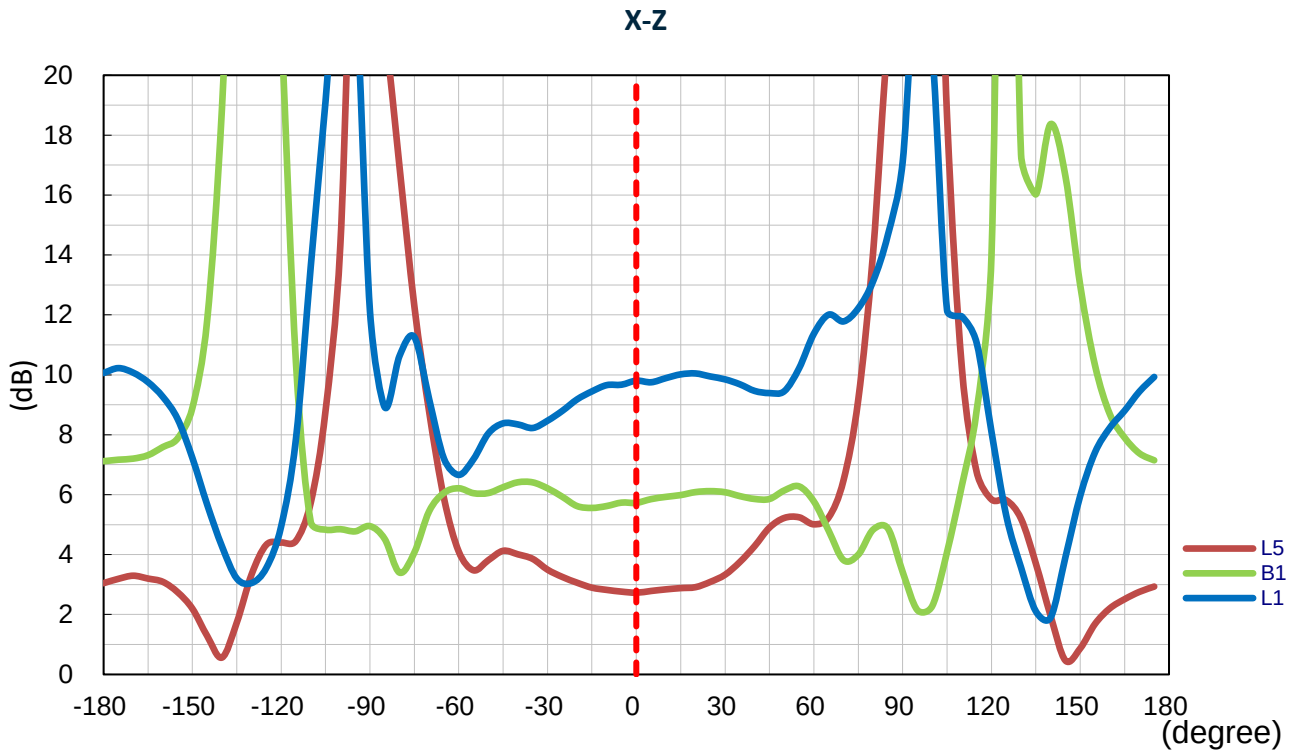
3.3 Average Gain



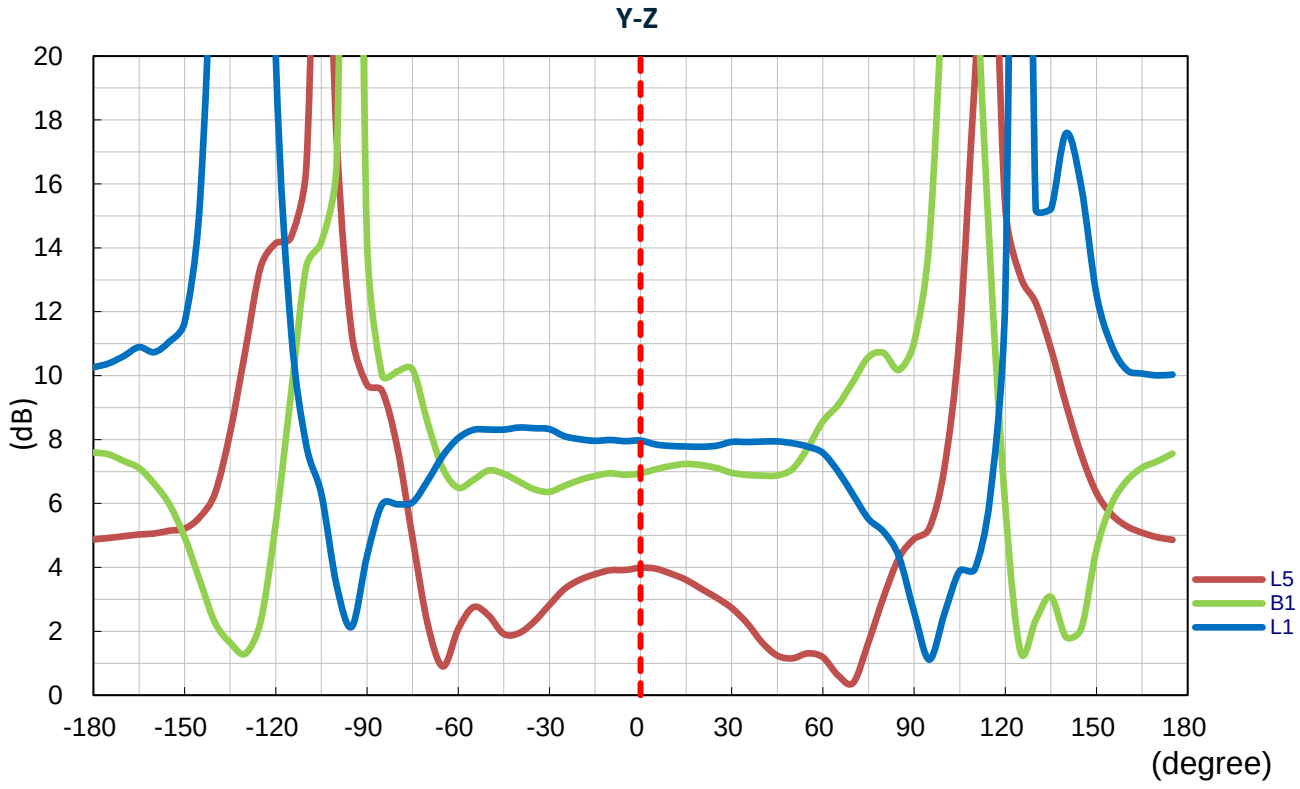
3.4 Peak Gain



3.5 Axial Ratio – X-Z

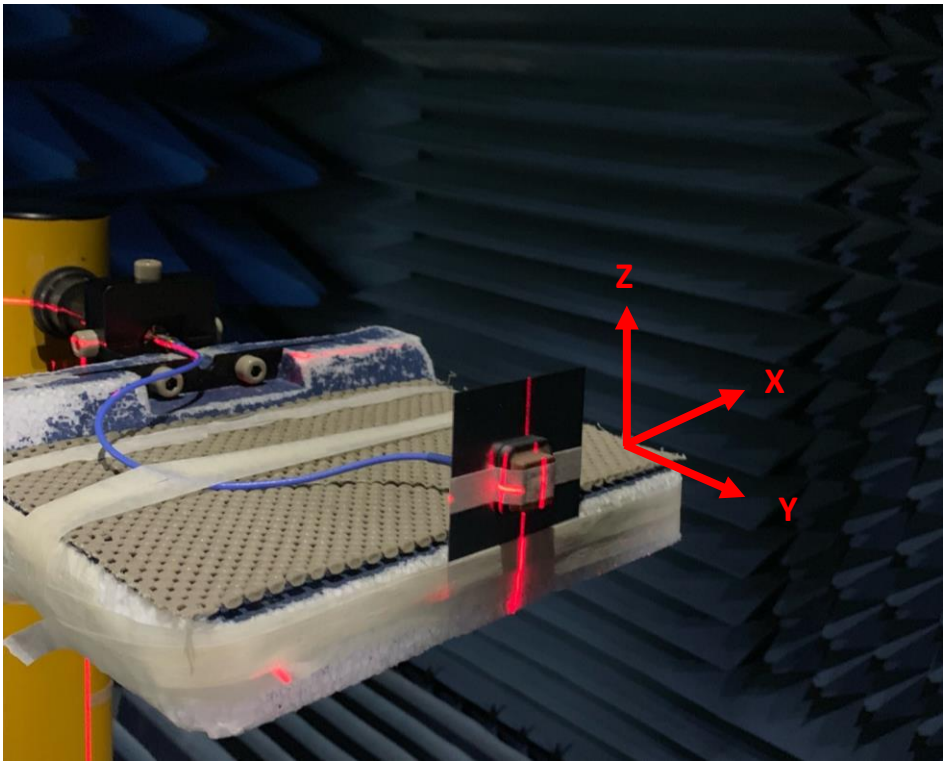


3.6 Axial Ratio – Y-Z



4. Radiation Patterns

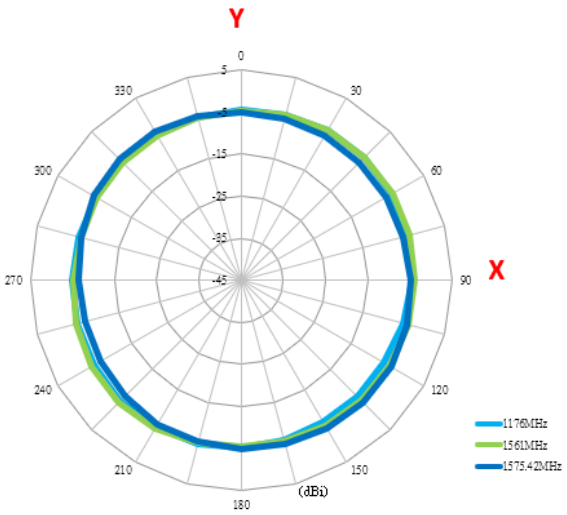
4.1 Test Setup



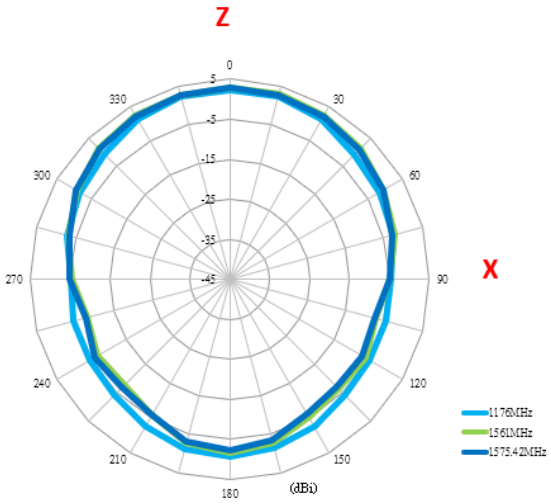
Tested on 70*70mm Ground Plane Evaluation Board

4.2 2D Radiation Patterns

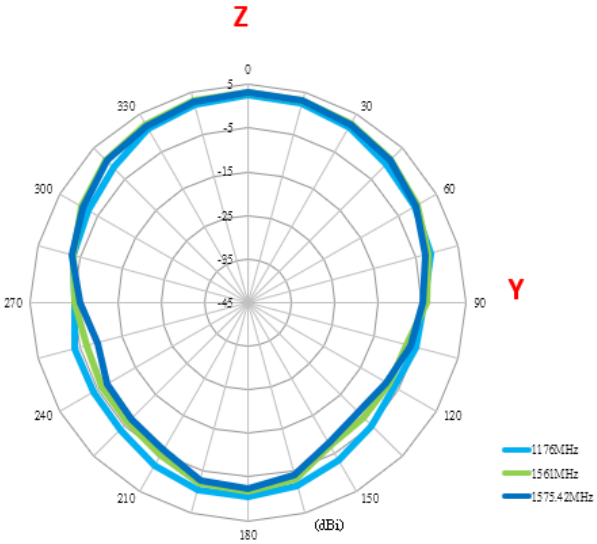
XY Plane



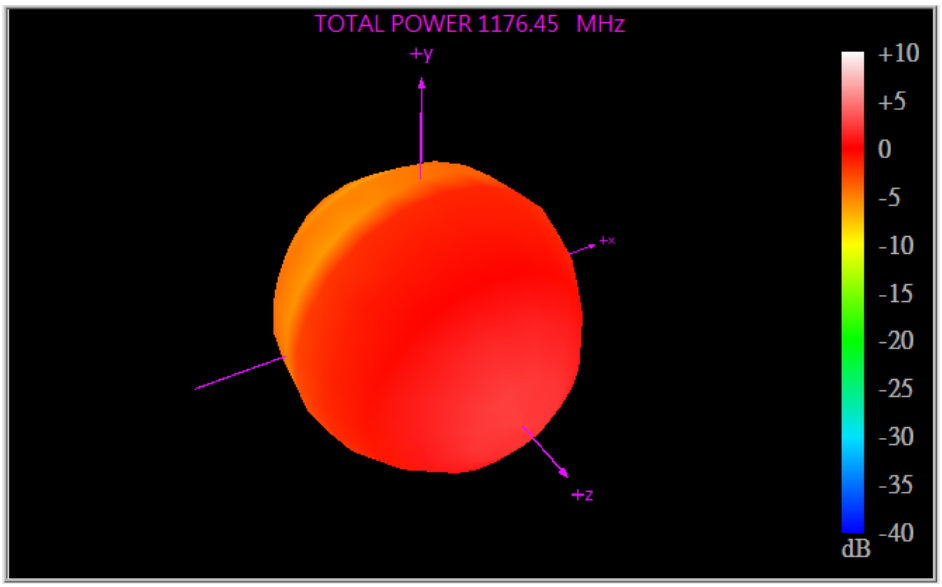
XZ Plane

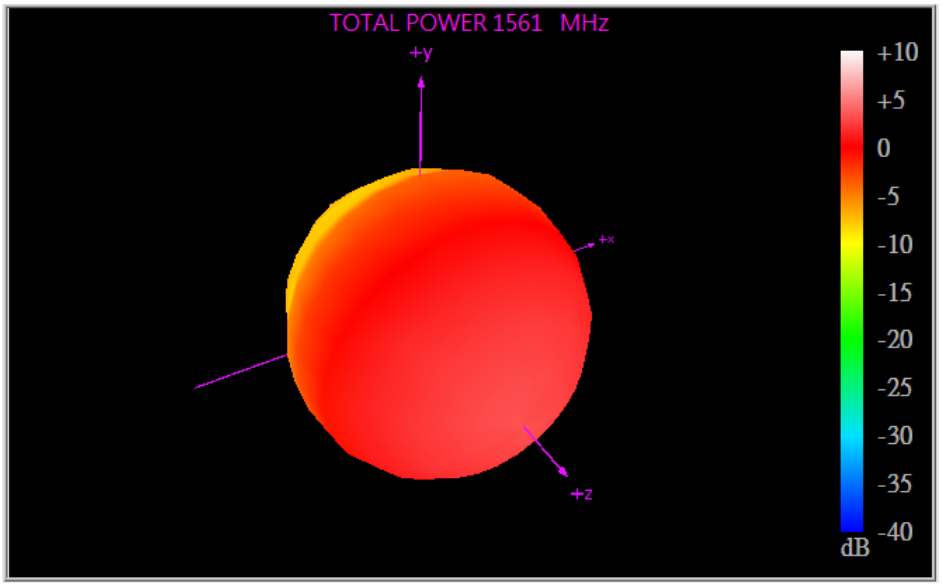


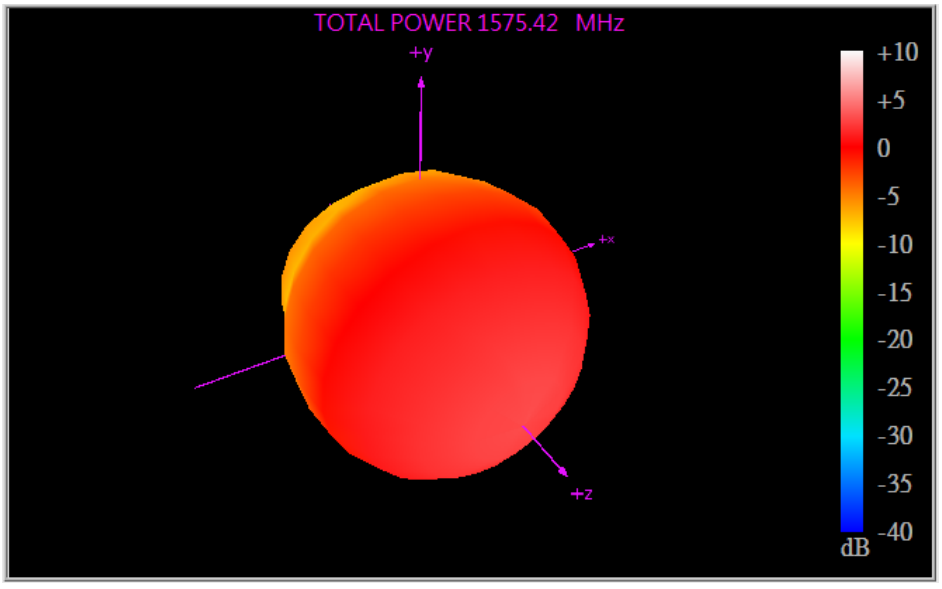
YZ Plane



4.3 3D Radiation Patterns

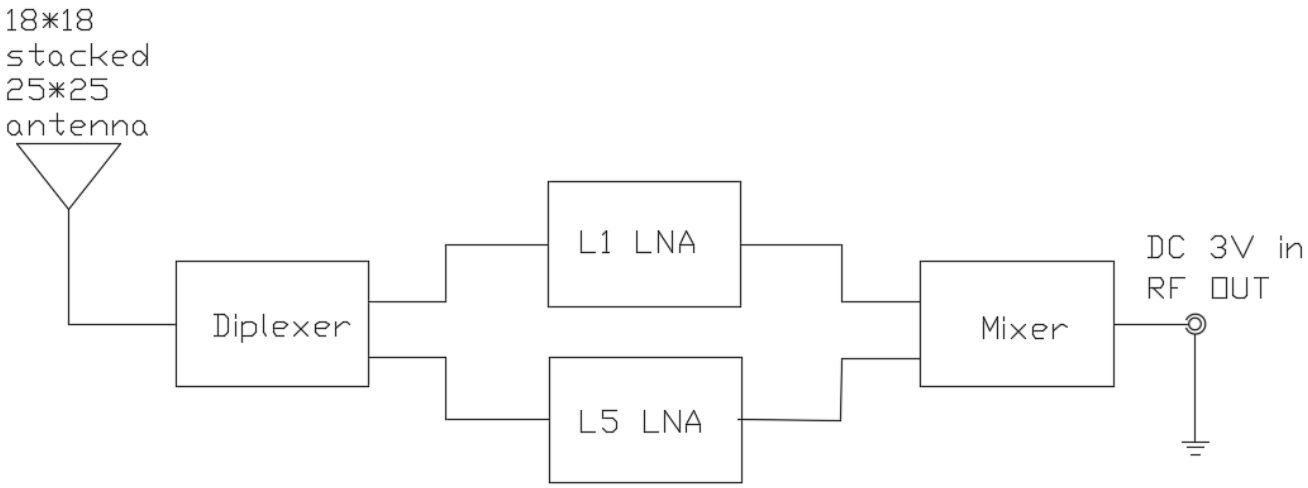




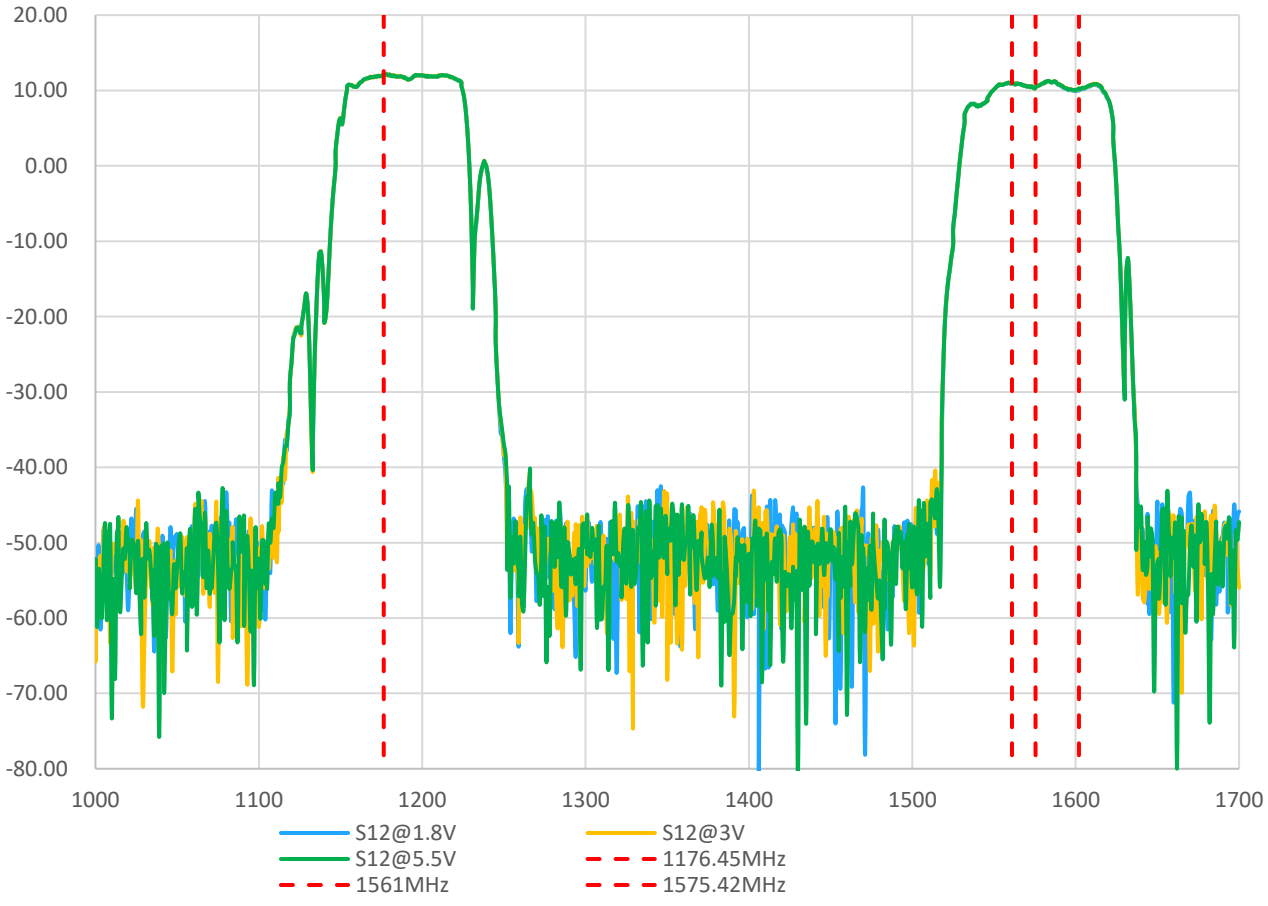


5. LNA Characteristics

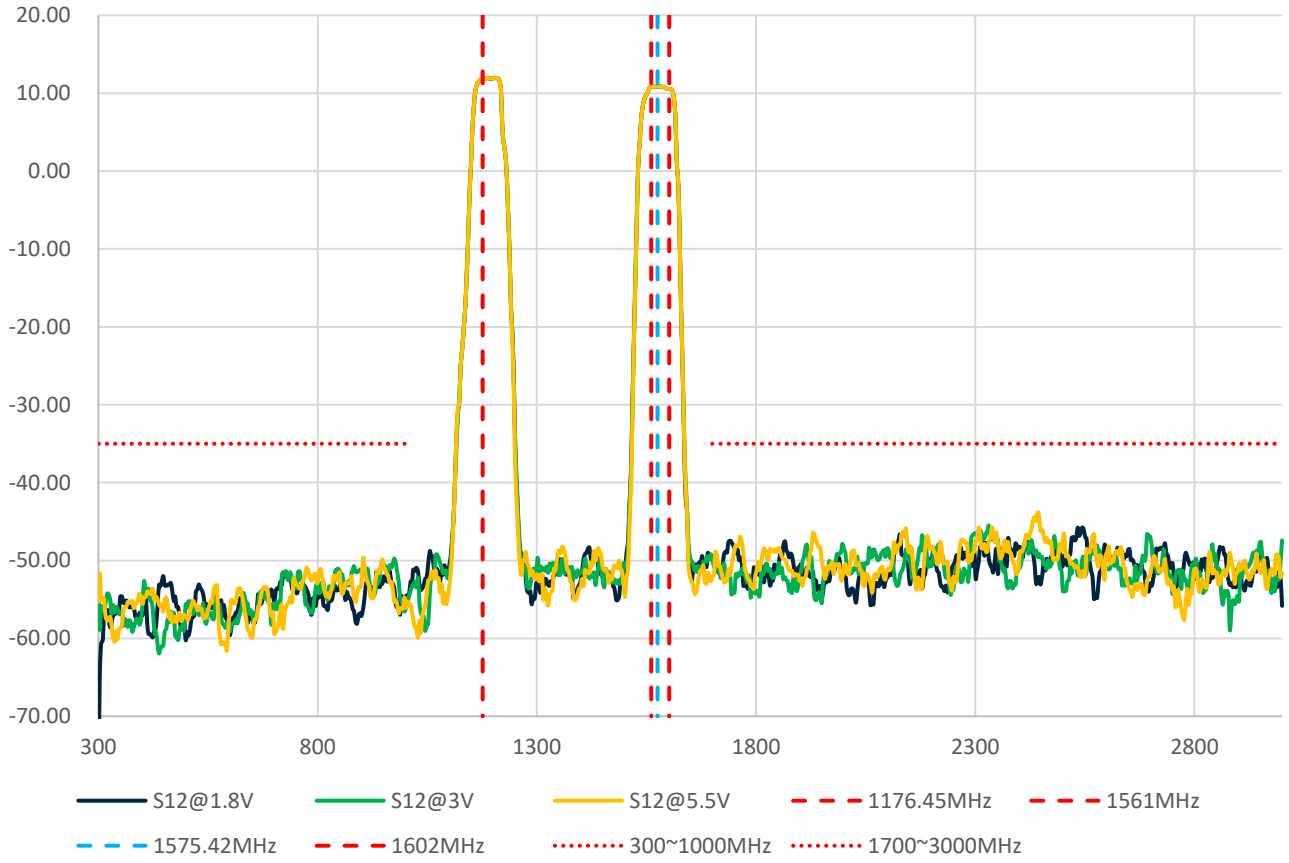
5.1 LNA Block Diagrams



5.2 LNA Gain – Narrowband

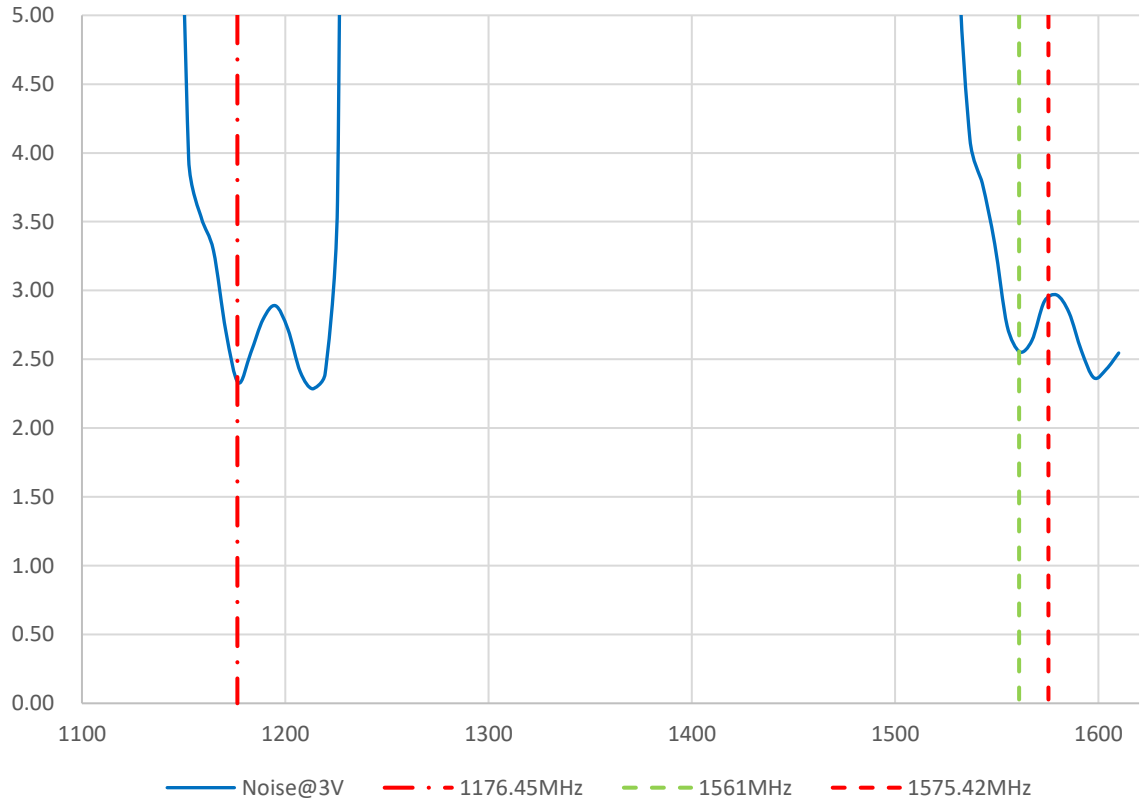


5.3 LNA Gain – Wideband



5.4 S11 – Narrowband

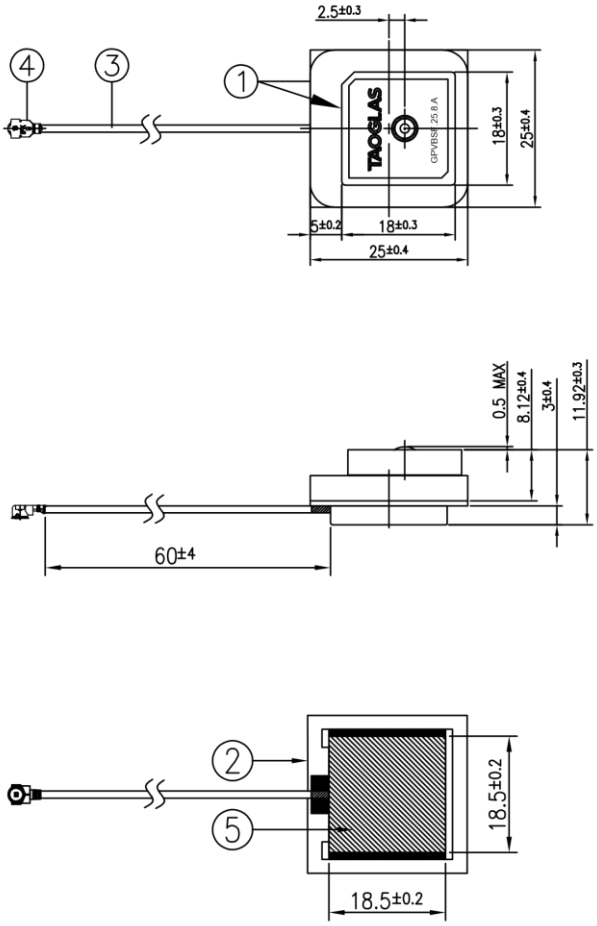
5.5 Noise


5.00
4.50
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00
1100
1200
1300
1400
1500
1600
Noise@3V
1176.45MHz
1561MHz
1575.42MHz

6. Mechanical Drawing (Units: mm)

ISO NO.: EDW-21-8-0205
STATE: Release
NOTES: 1. Soldered Area.
2. Soldermask Area.

REV.	DESCRIPTION	ENG.	APPROVED	DATE
D01	Initial Design	Archer	Buluto	2020/12/28



	Name	P/N	Material	Finish	QTY
1	Patch(18*18*4)&(25*25*4)	013A8CAW000000	Ceramic	Clear	1
2	PCB(25*25)	02110212250000	Composite 0.8t	Green	1
3	1.13 Coaxial Cable	300115C010000A	FEP	Gray	1
4	IPEX MHF1(20278-112E-13)	20411G000000A	Brass	Au Plated	1
5	Shielding Case	000512J000007A	SPTE	Sn Plated	1

APPROVED BY:	Buluto
CHECK BY:	Archer
DRAWN BY:	Archer
DATE:	2020/12/28
UNLESS OTHERWISE SPECIFIED TOLERANCES ON:	XX.±0.5 X.±0.3 .X±0.2 .XX±0.1 .XXX±0.05
THIRD ANGLE PROJECTION	

TAOGLAS. TW Design Centre

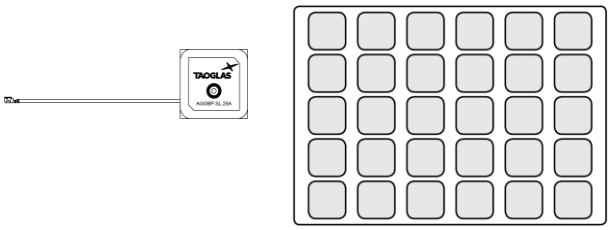
TITLE : AGVB.25A.07.0060A – GNSS/IRNSS L1 + L5 Stacked Active Patch Antenna on 25x25mm PCB with 60mm 1.13 IPEX MHF(U.FL)

PART NO. : AGVB.25A.07.0060A

UNIT:	SCALE:	PAGES:	REV.
mm	1:1	1/1	D01

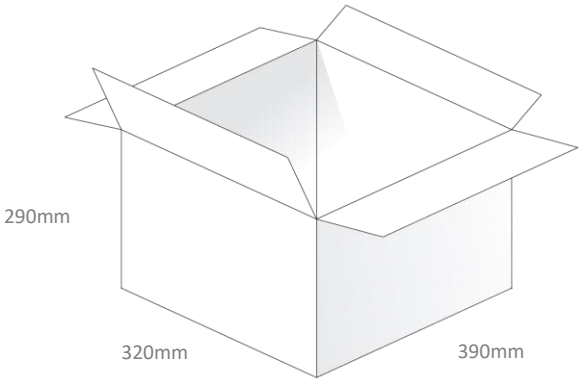
7. Packaging

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



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

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



Changelog for the datasheet

SPE-21-8-030 – AGVB.25A.07.0060A

Revision: A (Original First Release)	
Date:	2021-05-19
Notes:	Initial Release
Author:	Jack Conroy

Previous Revisions

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