TAOGLAS

Datasheet

Part No:
AGVLB208.A.07.0100AO

Description

GNSS L1 + L5 Single Feed Stacked Active Patch 2 Stage LNA Antenna, 100mm 1.13 Micro Coax IPEX MHFI

Features:

Single Feed Stacked Active GNSS Patch
Covering L1 & L5
Dims: 20 x 20 x 8mm
Cable: 100mm of 1.13 Micro Coax
Connector: IPEX MHFI
RoHS & Reach Compliant

1. Introduction

The Taoglas AGVLB208.A.07.0100AO is a compact, high-performance GNSS L1 and L5 stacked active patch antenna designed to deliver robust, reliable positioning in space-constrained applications. Featuring a single-feed stacked ceramic patch structure and an integrated two-stage LNA, this antenna provides strong signal reception, excellent out-of-band filtering, and stable performance across the 1176.45 MHz (L5) and 1575.42 MHz (L1) bands.

Engineered for applications requiring precise multi-band GNSS performance—including GPS, Galileo, GLONASS, BeiDou, QZSS, and SBAS—the antenna offers improved multipath rejection, enhanced gain characteristics, and consistent RHCP polarization to support high-accuracy navigation and timing systems. Its low-profile 20 × 20 × 11.9 mm form factor, combined with a 100 mm 1.13 mm micro-coaxial cable terminated with an IPEX MHFI connector, enables seamless integration into modern GNSS-enabled devices.

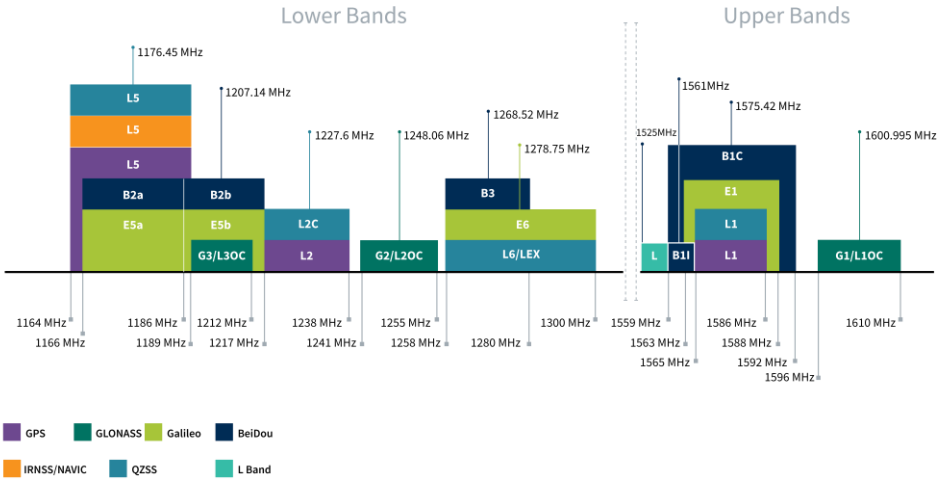
With optimized efficiency, low noise performance, and excellent out-of-band rejection, the AGVLB208.A.07.0100AO is ideally suited for demanding positioning applications in industrial, automotive, UAV, robotics, asset tracking, and other environments where reliable dual-frequency GNSS is essential.

Typical Applications Include:

- High-Accuracy Navigation & Positioning
- Automotive & Transportation
- Drones, UAVs, and Robotics
- Industrial, Infrastructure & Timing
- Consumer and Commercial Devices
- Marine & Outdoor Applications
- Aviation & Safety Systems
- Smart Cities & IoT

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**	**1575.42**
Efficiency (%)	45.6	37.7
Average Gain (dB)	-3.4	-4.2
Peak Gain (dBi)	0.01	0.15
Axial Ratio (dB)	5.49	4.14
Polarization	RHCP	
Impedance	50 Ω	

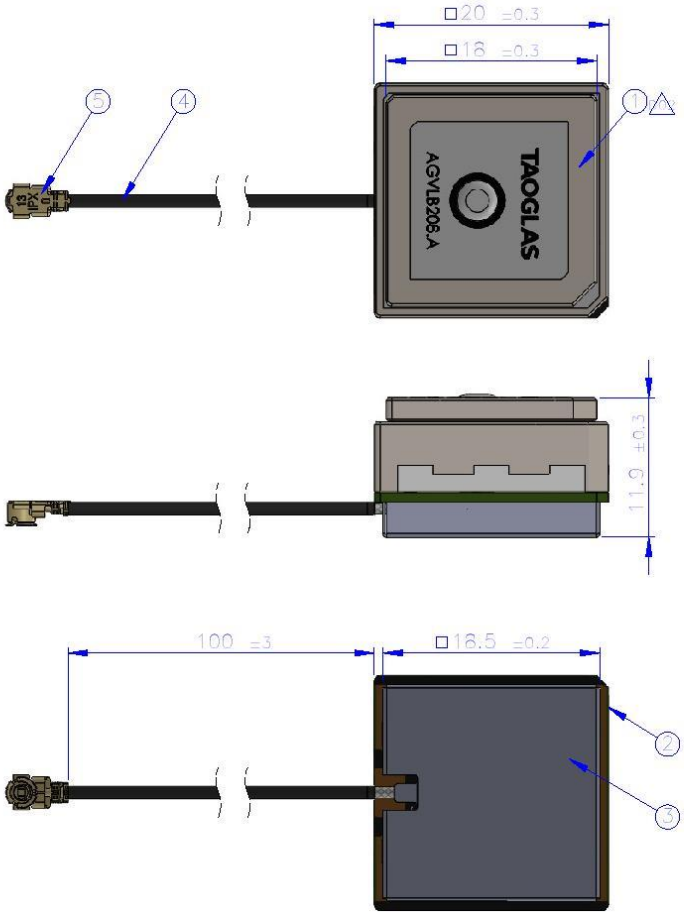
LNA and Filter Electrical Properties		
Frequency (MHz)	**1176.45**	**1575.42**
VSWR (max.)	2:1	1.5:1
Gain(dB)	30.3	28.9
Noise (dB)	2.9	2.9
Out Of Band Rejection	>65dB @617-960 MHz; >55dB @1.8-6 GHz	
SD Protection (IEC61000-4-2)	Contact: ±20kV, Air: ±25kV discharge	
Current Consumption (mA)	17 ± 2	
Input Voltage (V)	3	

Mechanical	
Dimensions	20 x 20 x 11.9mm
Weight	TBD
Material	Ceramic
Connector	IPEX MHFI
Cable	100mm of 1.13 Micro Coaxial

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

NOTES:
1. All material must be RoHS compliant.
2.Use this drawing together with the corresponding 3D CAD database file to fully describe the part.
3.The connector orientation has a fixed position to the antenna as per drawing.



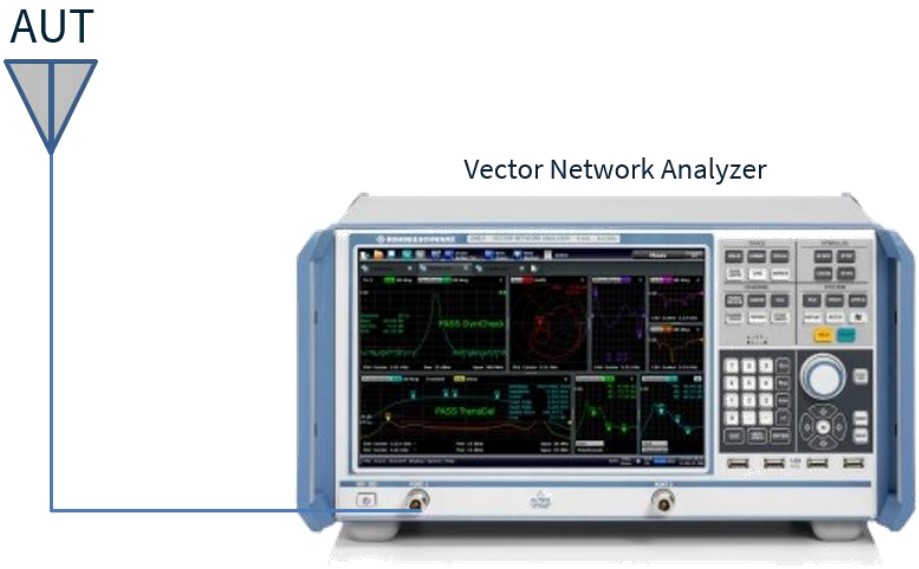
	Name	Material	Finish	Qty
1	Patch	Ceramics	Clean	1
2	PCB	NP-140	Black	1
3	Shielding Case	SECC	Tin Plated	1
4	1.13 Coaxial cable	FEP	Black	1
5	IPEX.MHFI	Composite	Au Plated	1

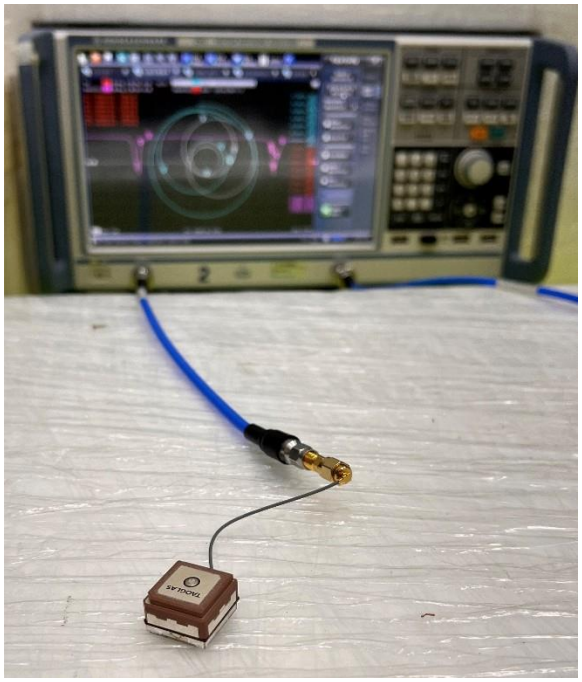
4. Packaging

Full information under review and will be added once finalized.

5. Antenna Characteristics

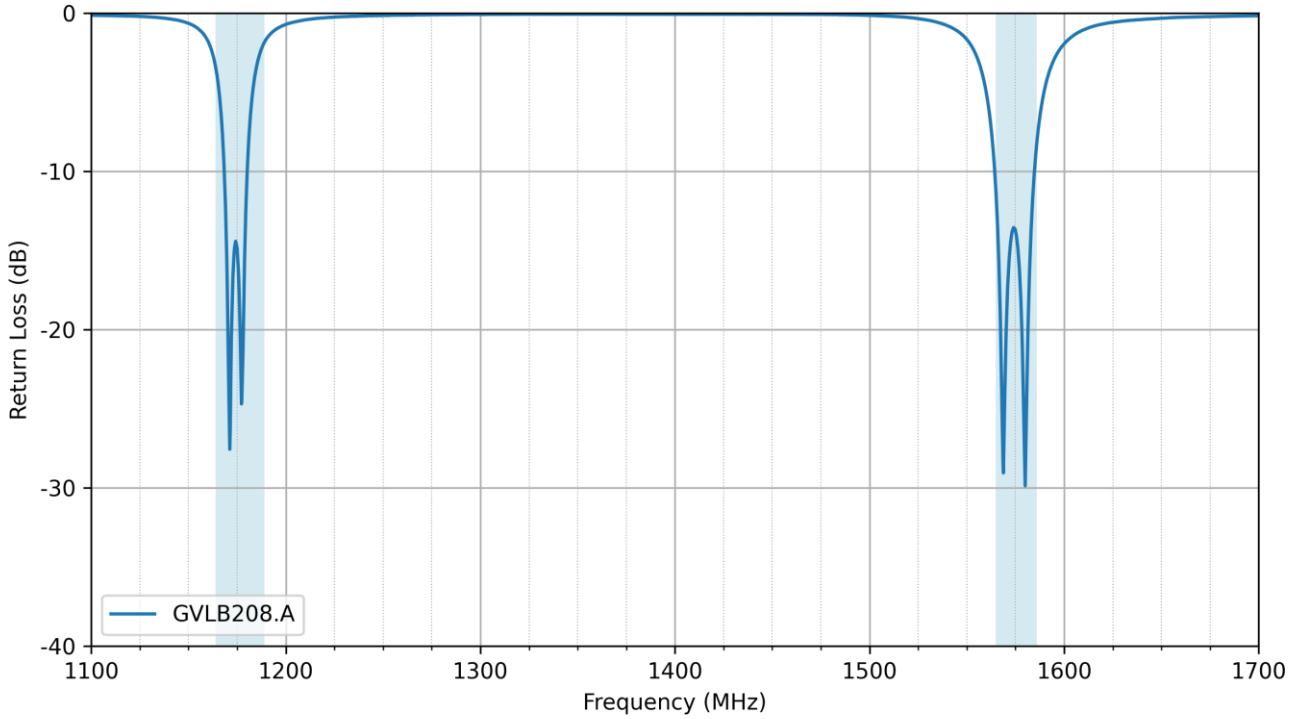
5.1 Test Setup



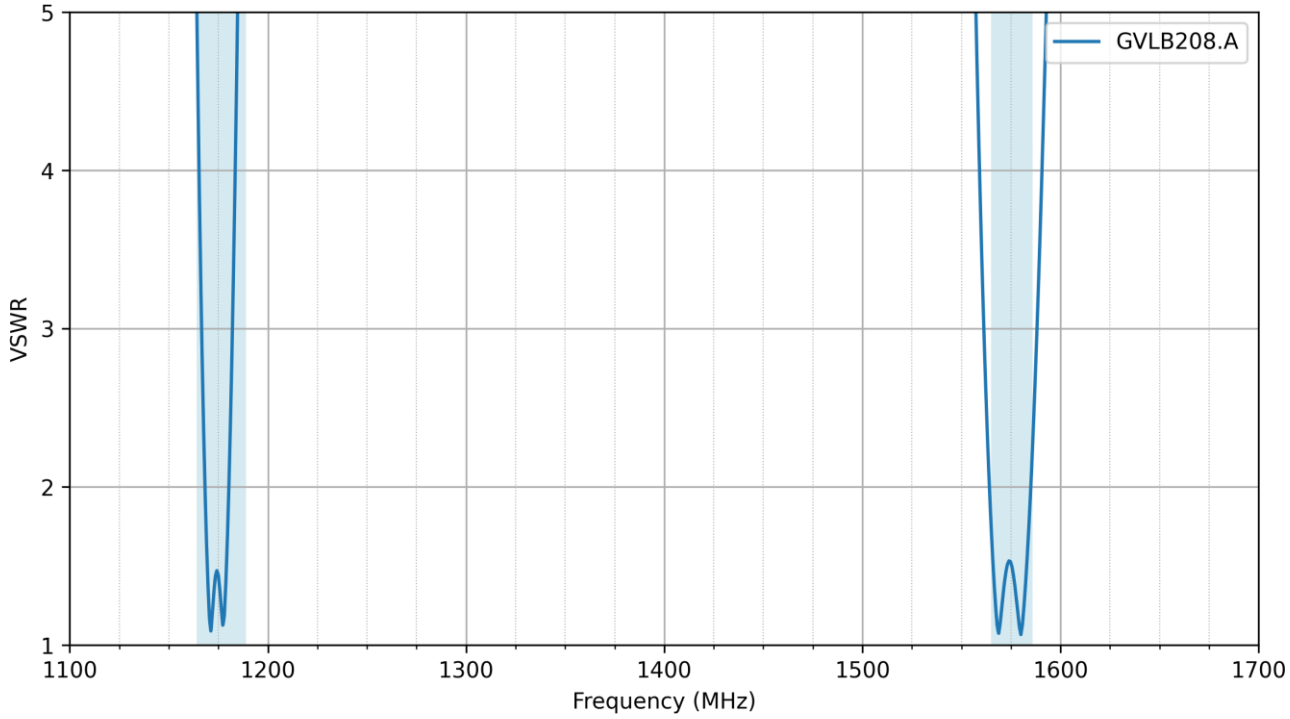


VNA Test Set-up

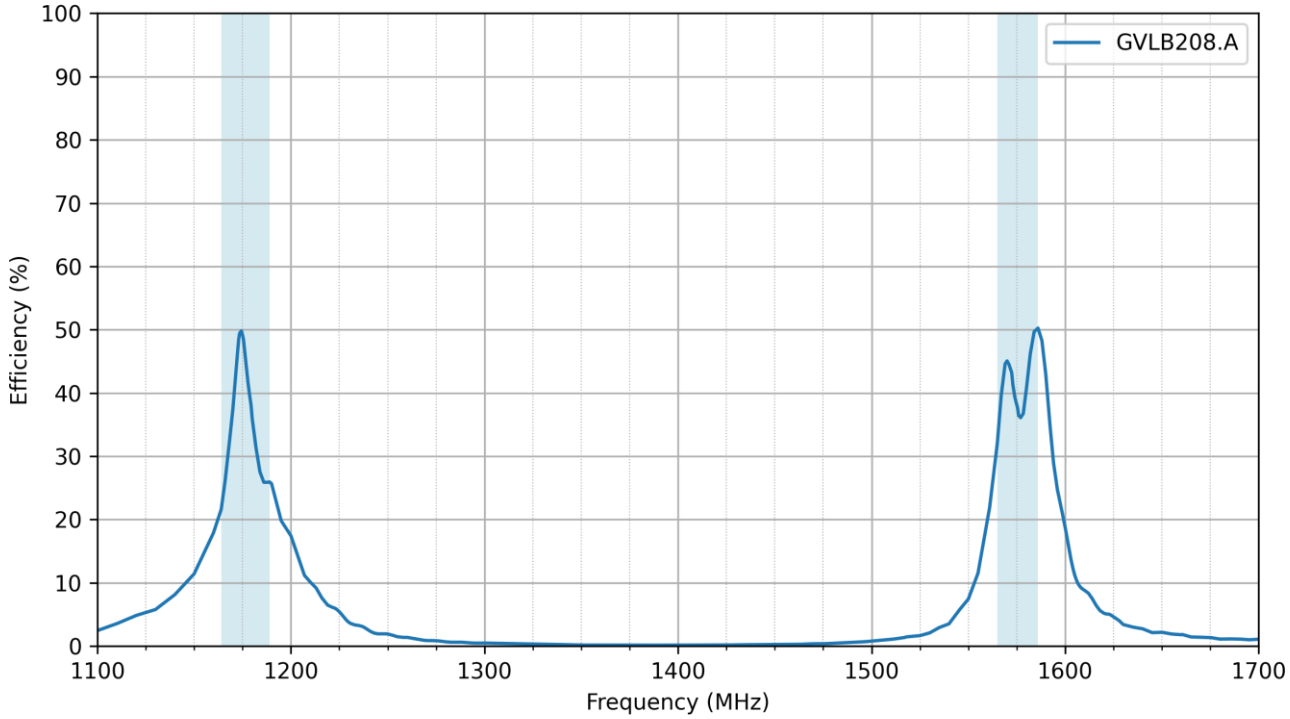
5.2 Return Loss



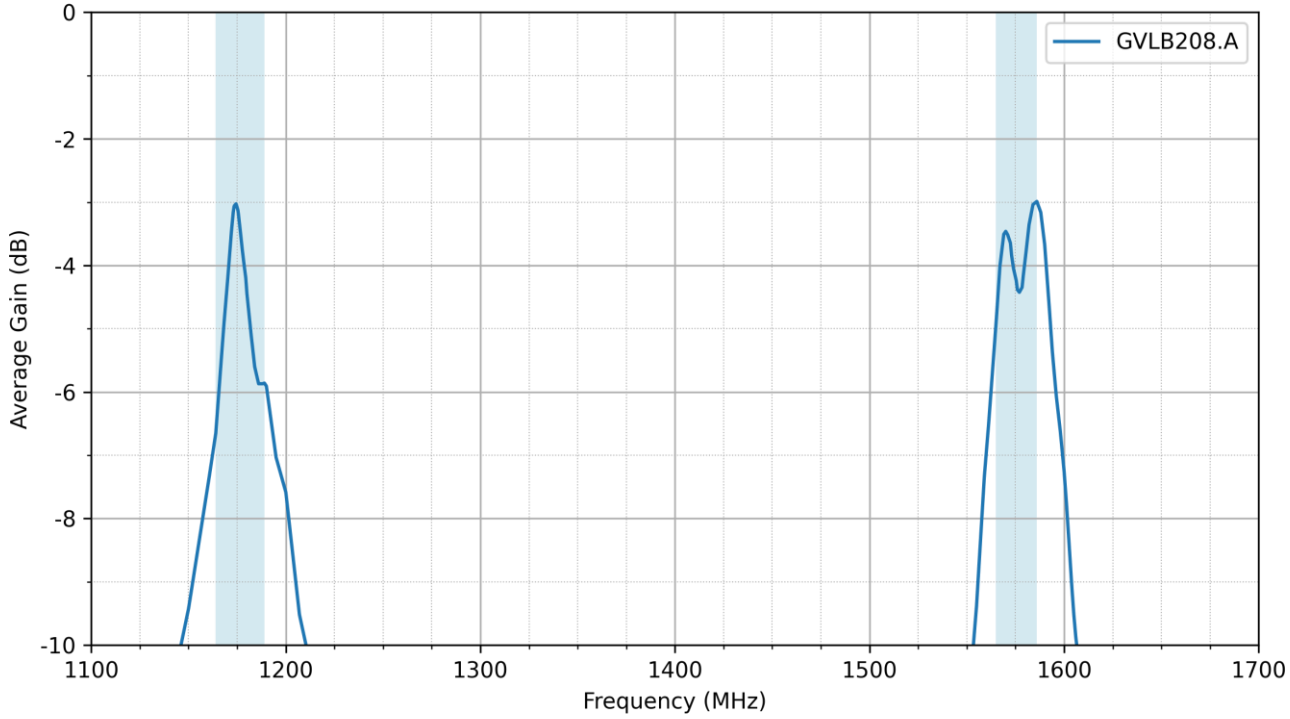
5.3 VSWR



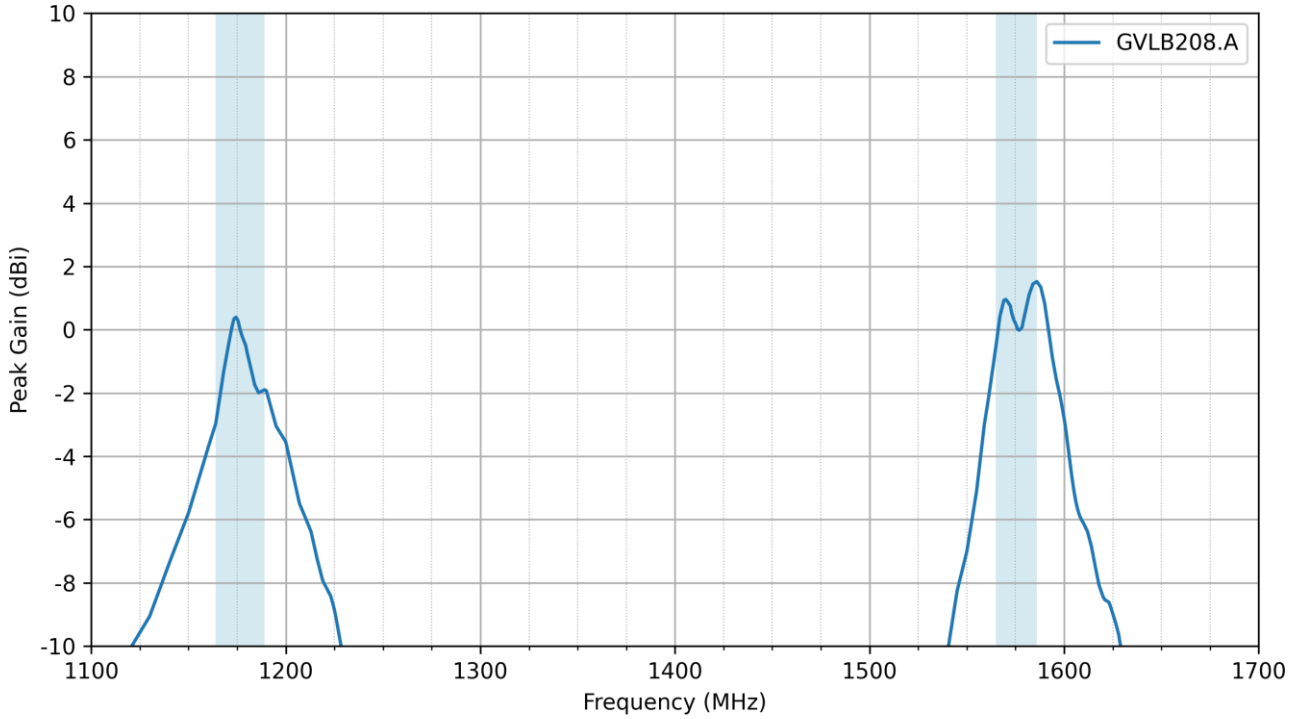
5.4 Efficiency



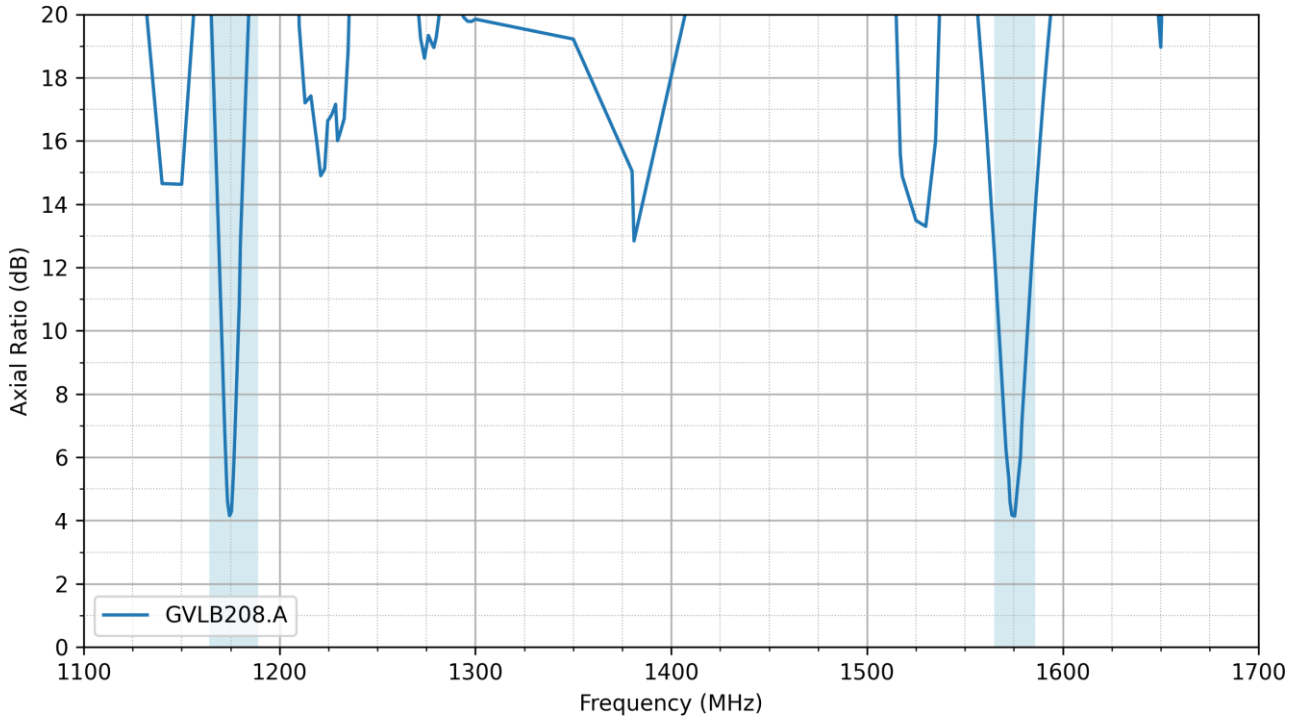
5.5 Average Gain



5.6 Peak Gain

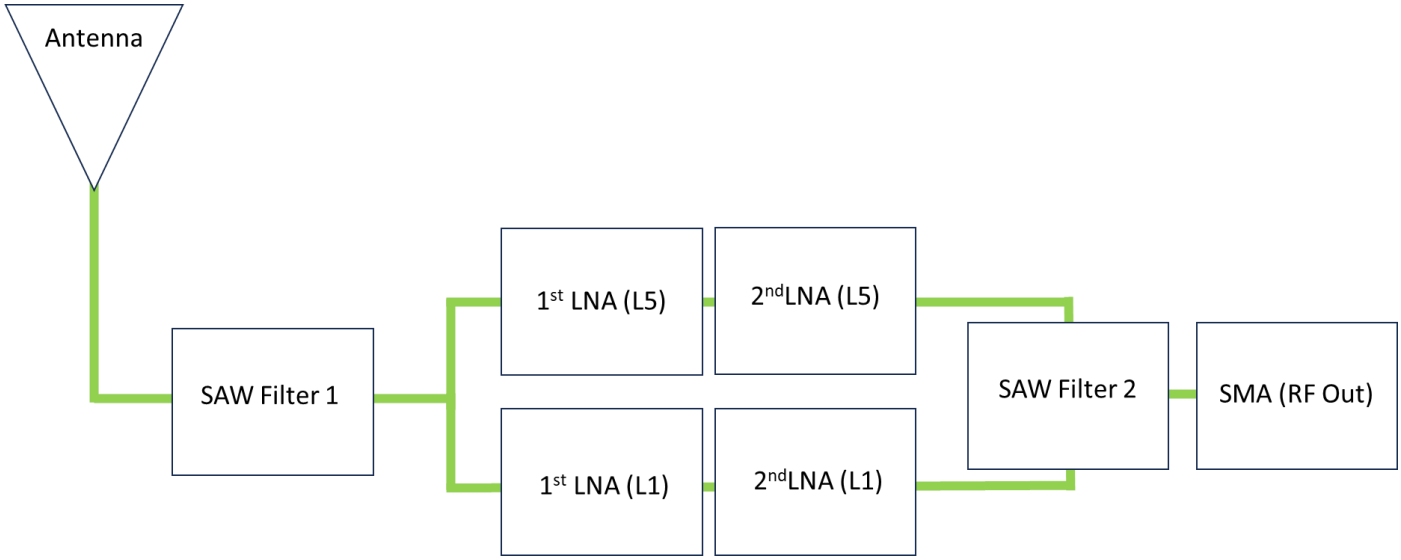


5.7 Axial Ratio

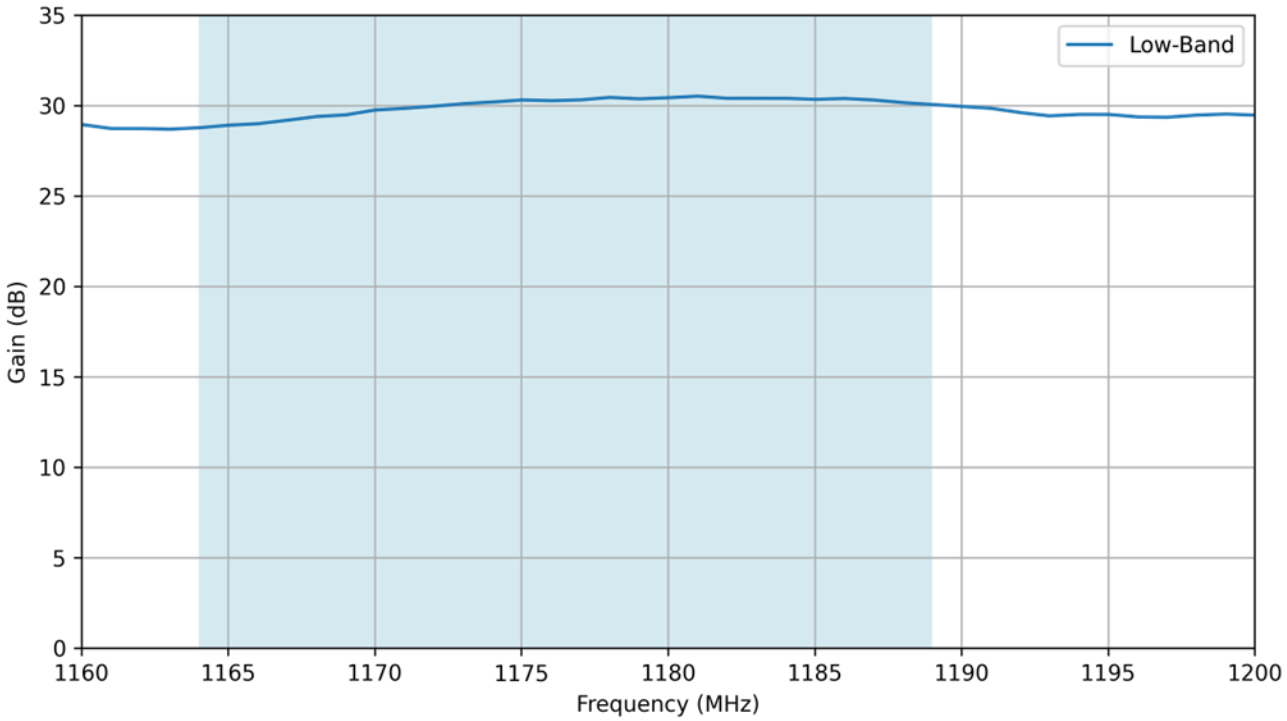


6. LNA Characteristics

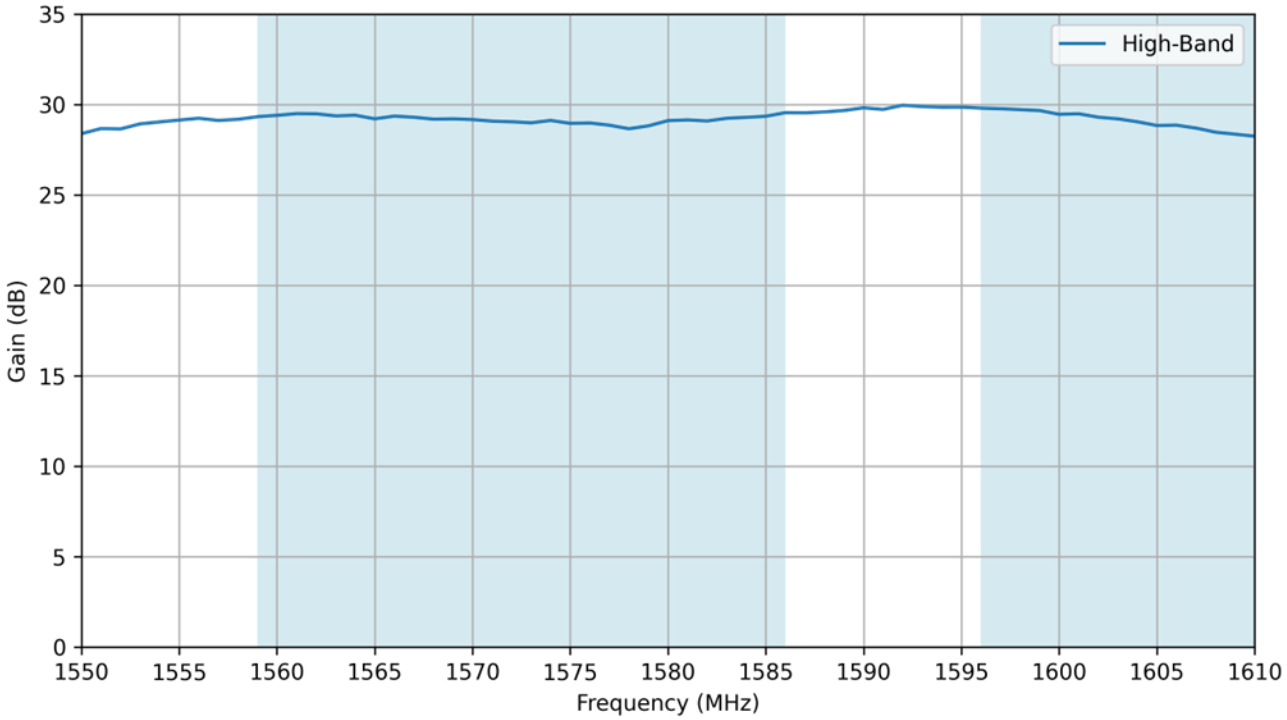
6.1 Block Diagram



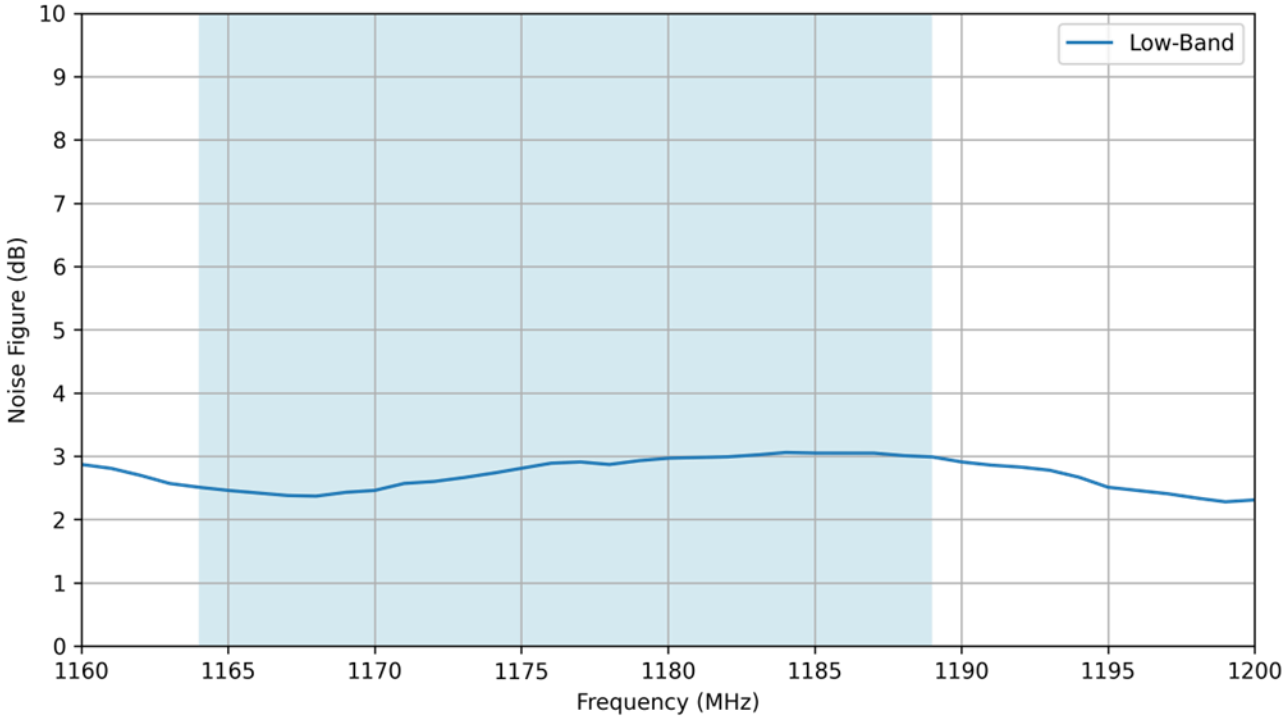
6.2 Gain – Low-Band



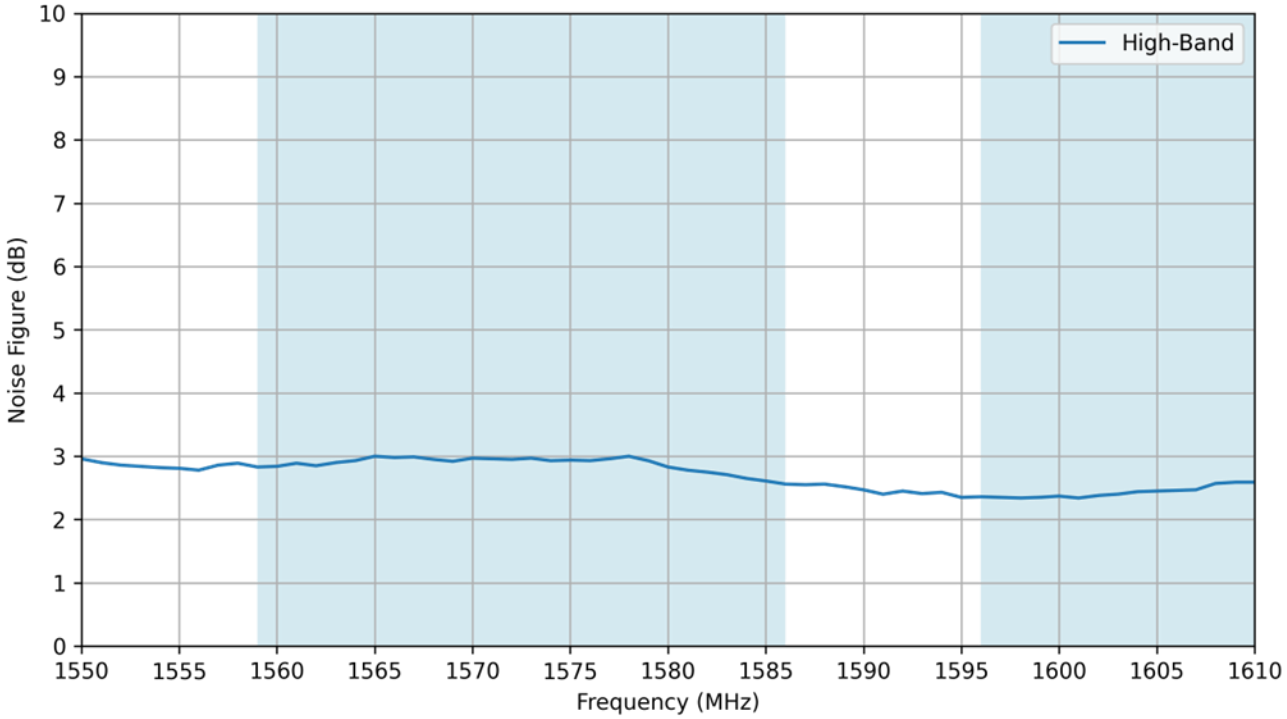
6.3 Gain – High-Band



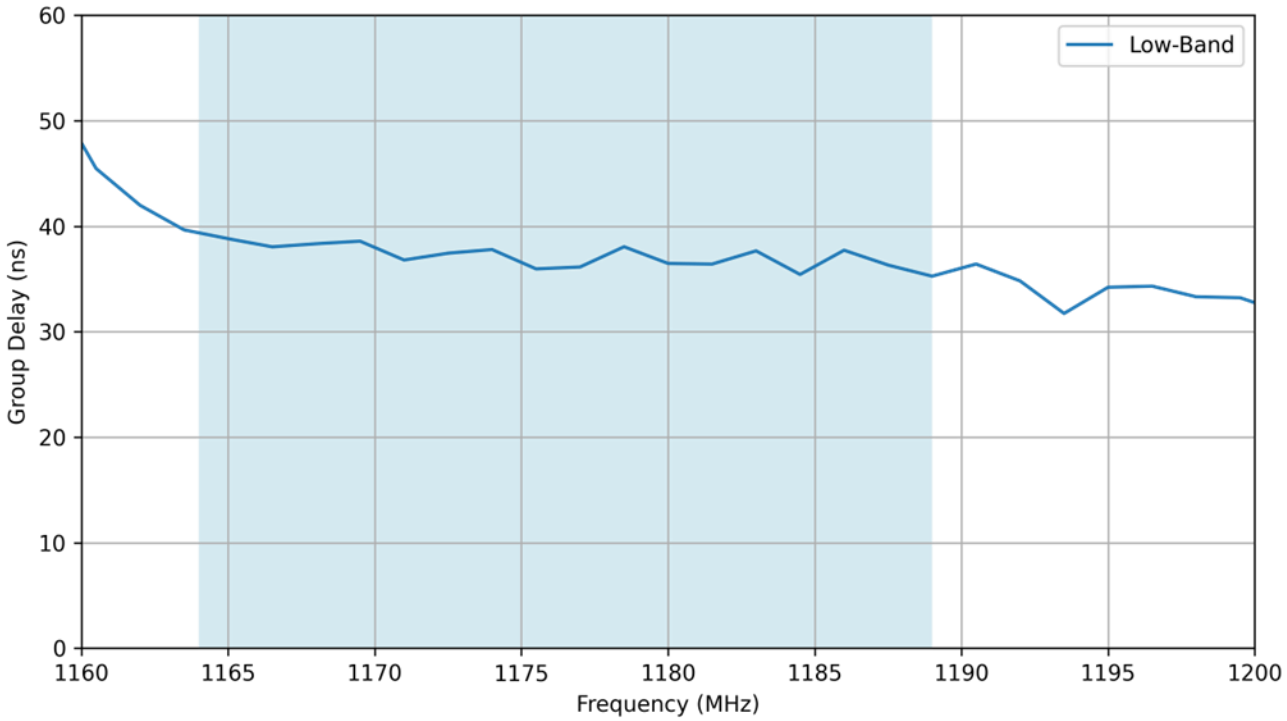
6.4 Noise Figure – Low-Band



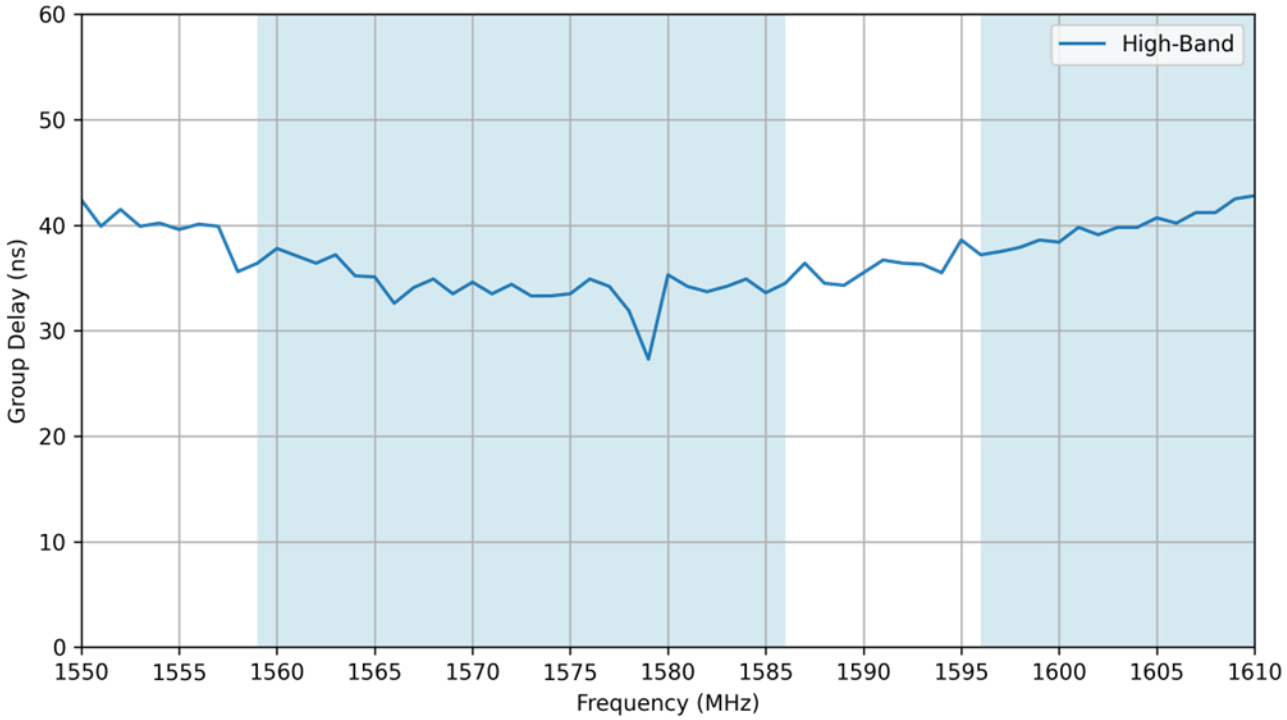
6.5 Noise Figure – High-Band



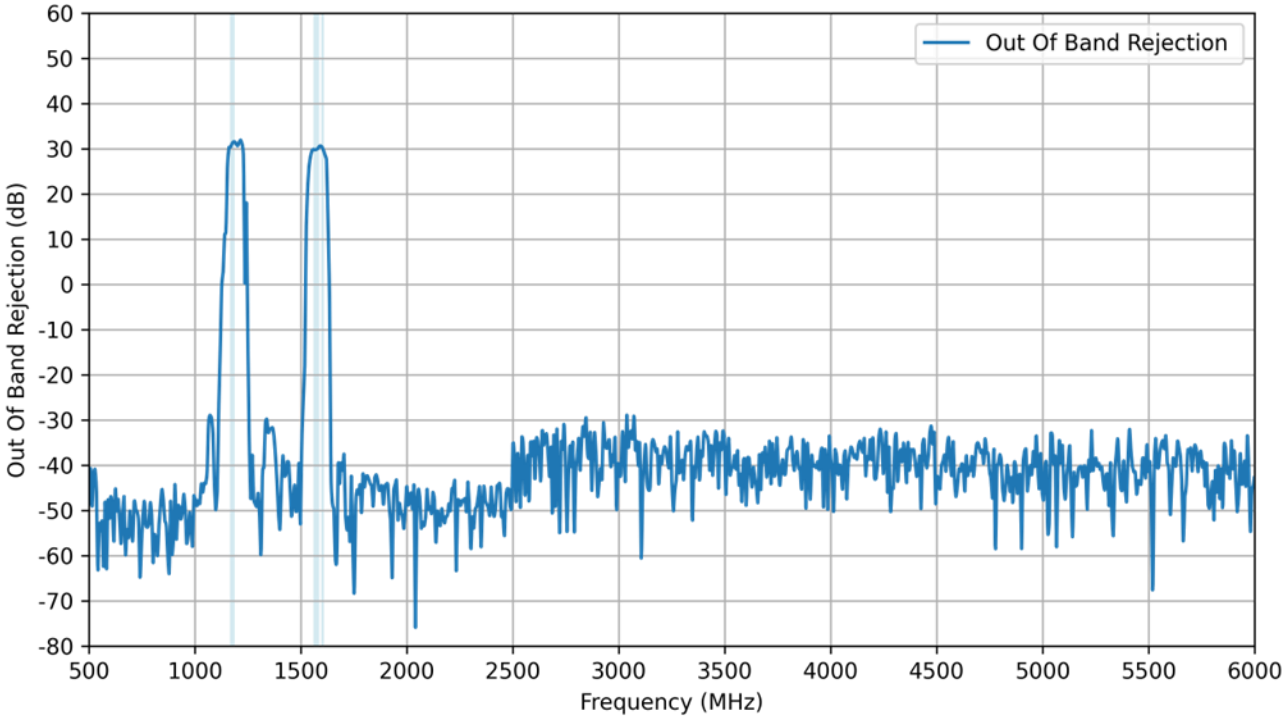
6.6 Group Delay – Low-Band



6.7 Group Delay – High-Band

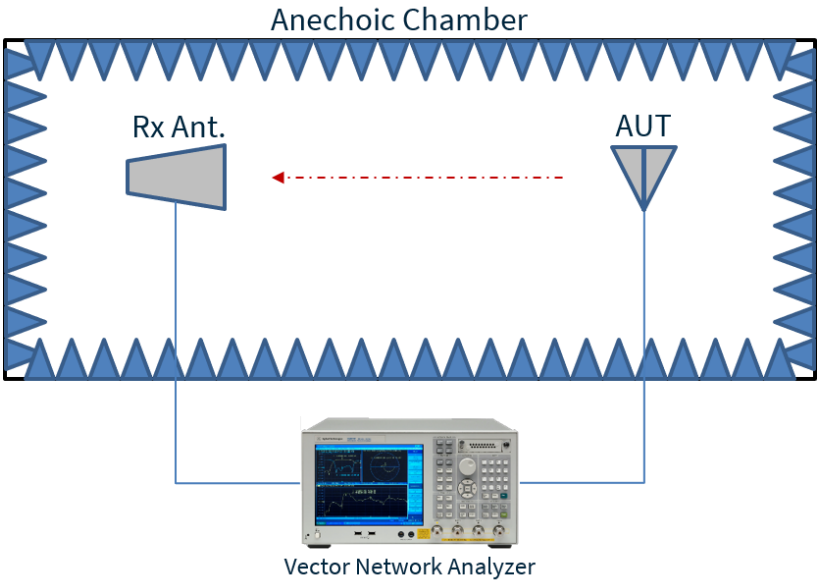


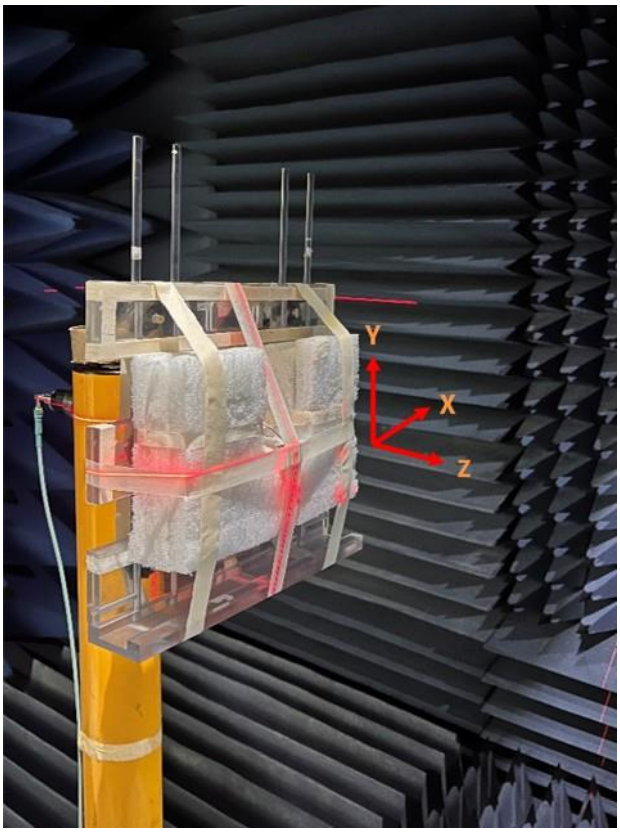
6.8 Out Of Band Rejection



7. Radiation Patterns

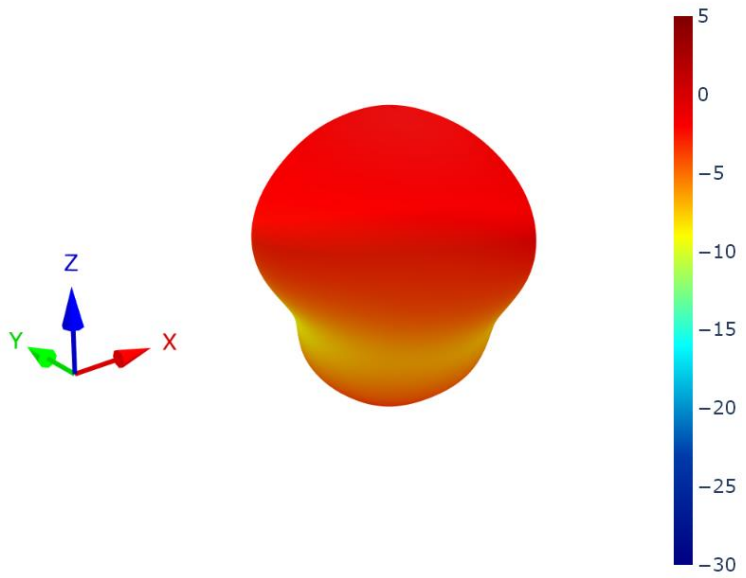
7.1 Test Setup



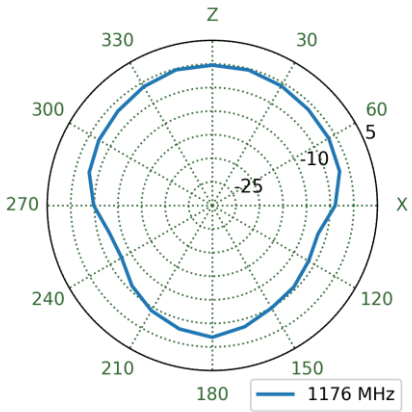


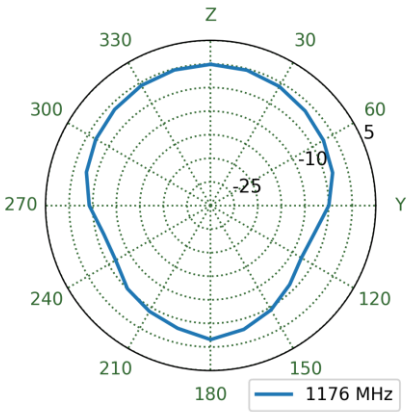
Chamber Test Set-up

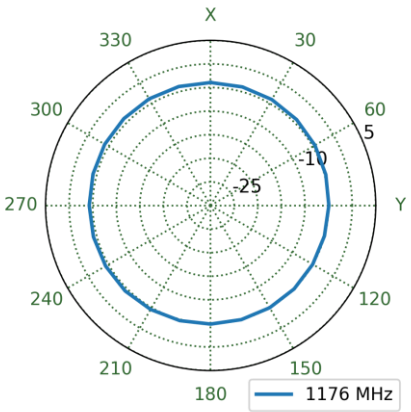
7.2 Patterns at 1176 MHz



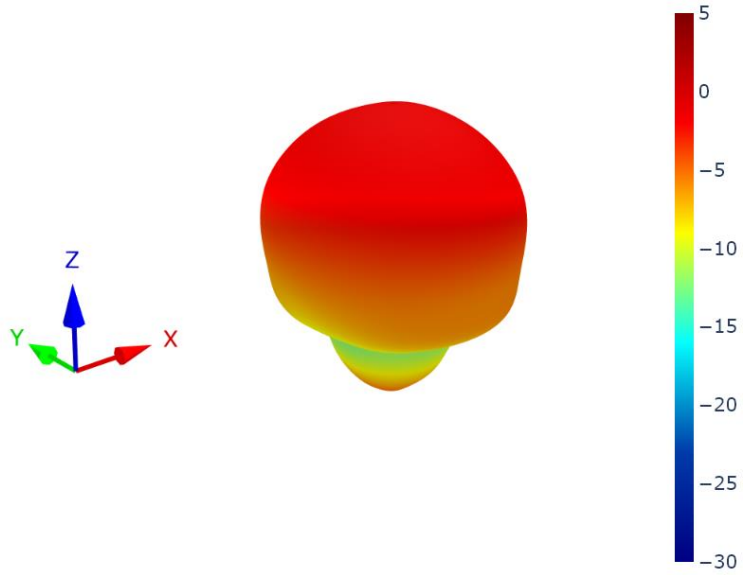
XZ Plane	YZ Plane	XY Plane



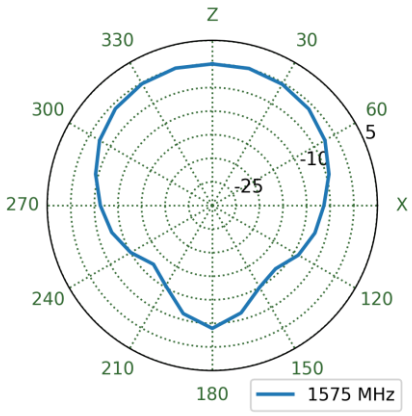


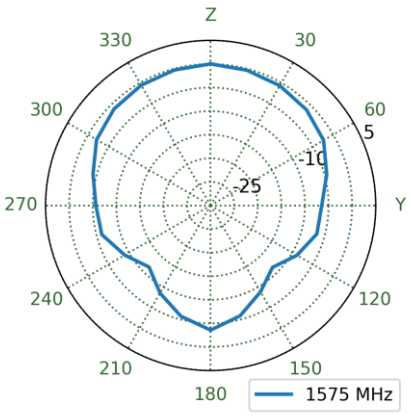


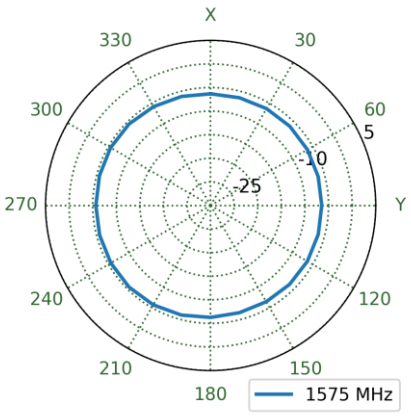
7.3 Patterns at 1575 MHz



XZ Plane	YZ Plane	XY Plane







Changelog for the datasheet

SPE-25-8-320– AGVLB208.A.07.0100AO

Revision: A (Original First Release)	
Date:	2025-11-26
Notes:	Initial Release
Author:	Gary West

Previous Revisions

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