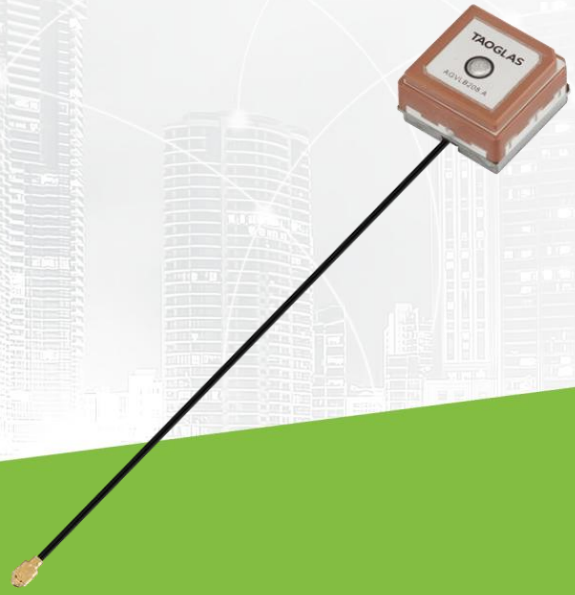
TAOGLAS®



Datasheet

Part No:
AGVLB208.A.07.0100AO

Description

GNSS L1 + L5 Single Feed Stacked Active Patch 2 Stage LNA Antenna,

100mm 1.13 Micro Coaxial 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: I-PEX MHFI
RoHS & Reach Compliant

1.	Introduction	3
2.	Specification	4
3.	Mechanical Drawing	6
4.	Packaging	7
5.	Antenna Characteristics	8
6.	LNA Characteristics	12
7.	Radiation Patterns	16
	Changelog	19

Taoglas makes no warranties based on the accuracy or completeness of the contents of this document and reserves the right to make changes to specifications and product descriptions at any time without notice. Taoglas reserves all rights to this document and the information contained herein. Reproduction, use or disclosure to third parties without express permission is strictly prohibited.

1. Introduction

The Taoglas **AGVLB208.A** is a super 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 I-PEX MHFI connector, enables seamless integration into modern GNSS-enabled devices.

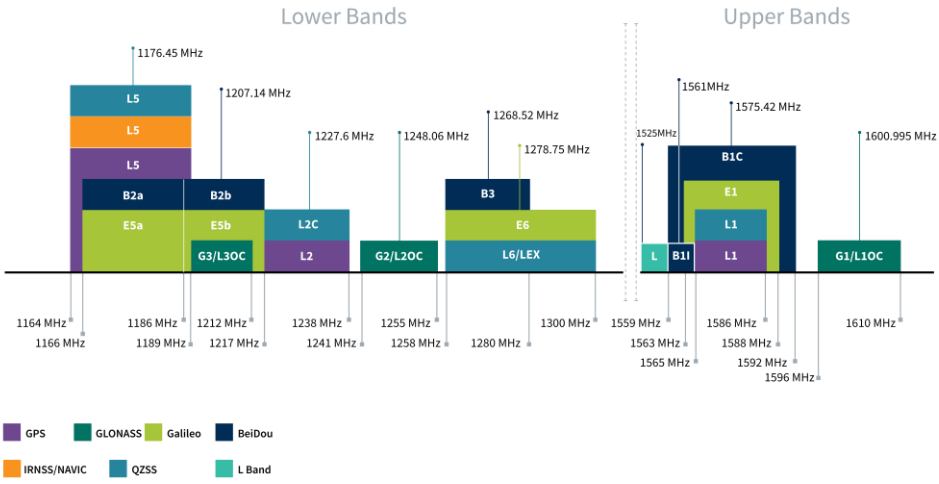
With optimized efficiency, low noise performance, and excellent out-of-band rejection, the AGVLB208.A. is ideally suited for demanding positioning applications in industrial, automotive, UAV, robotics, asset tracking, and other environments where reliable dual-frequency GNSS is essential.

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	

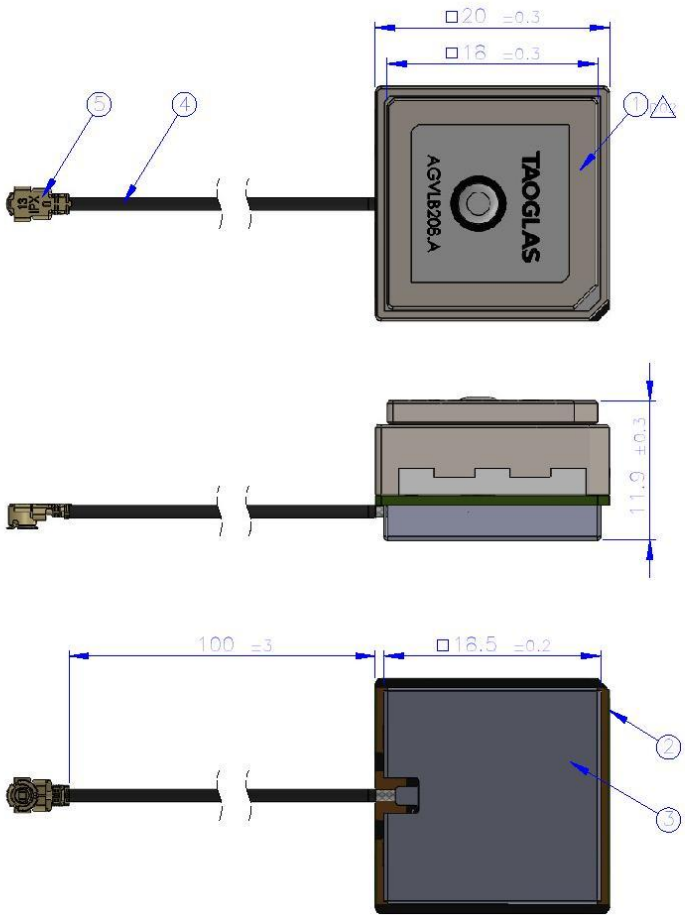
Mechanical	
Dimensions	20 x 20 x 11.9mm
Weight	16.8g
Material	Ceramic
Connector	IPEX MHFI
Cable	100mm of 1.13 Micro Coaxial

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:

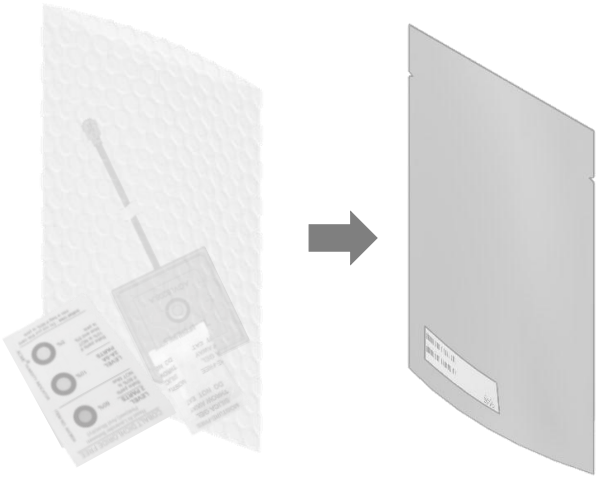
1. All material must be RoHS compliant.
2. Use this drawing together with the corresponding 3D CAD database file to fully describe the part.
3. The connector orientation has a fixed position to the antenna as per drawing.



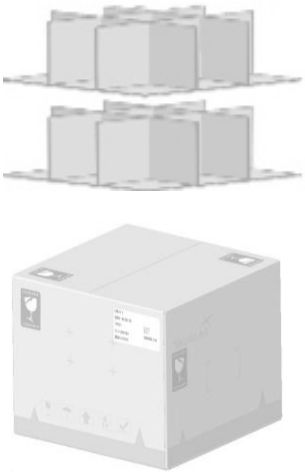
	Name	Material	Finish	Qty
1	Patch	Ceramics	Clean	1
2	PCB	NP-140	Black	1
3	Shielding Case	SECC	Tin Plated	1
4	1.13 Coaxial cable	FEP	Black	1
5	IPEX.MHFI	Composite	Au Plated	1

4. Packaging

- ☑ 1 PCS / Bubble bag
- ☑ Weight without packaging (g): 16.8 ±3%



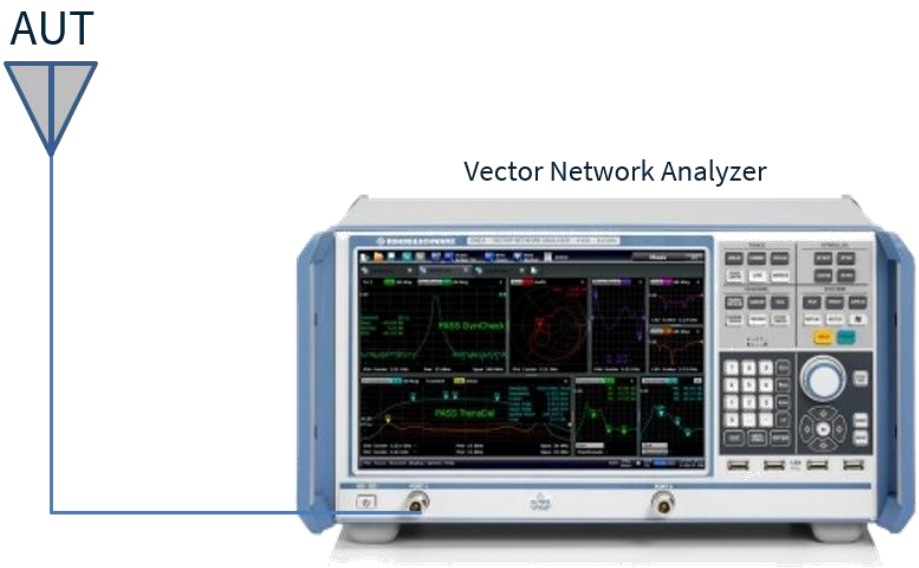
- ☑ 1 PCS / Vacuum bag
- ☑ 1 PCS / 3g Desiccant
- ☑ Weight (g): 29 ±3%

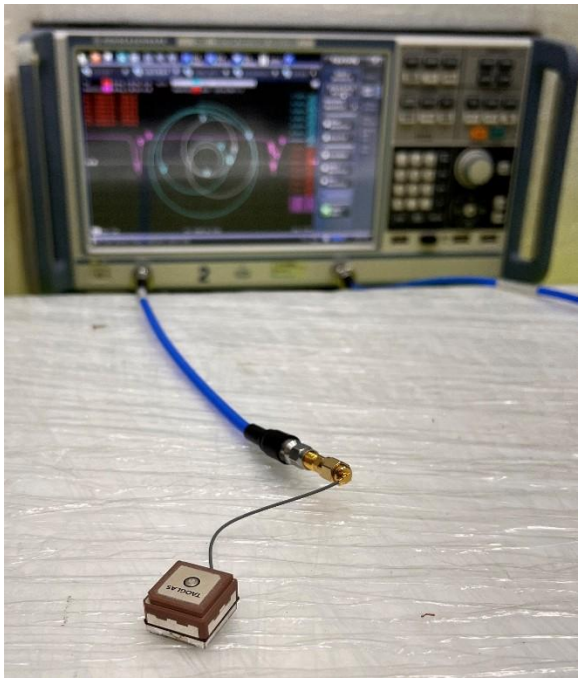


- ☑ 90 PCS / Carton
- ☑ 2 PCS / Frame
- ☑ 2 PCS / Bulkhead Board
- ☑ 6 PCS / Fragile sticker
- ☑ Carton(mm): 370x370x300
- ☑ Weight (Kg): 3.94 ±3%
- ☑ Carton Label

5. Antenna Characteristics

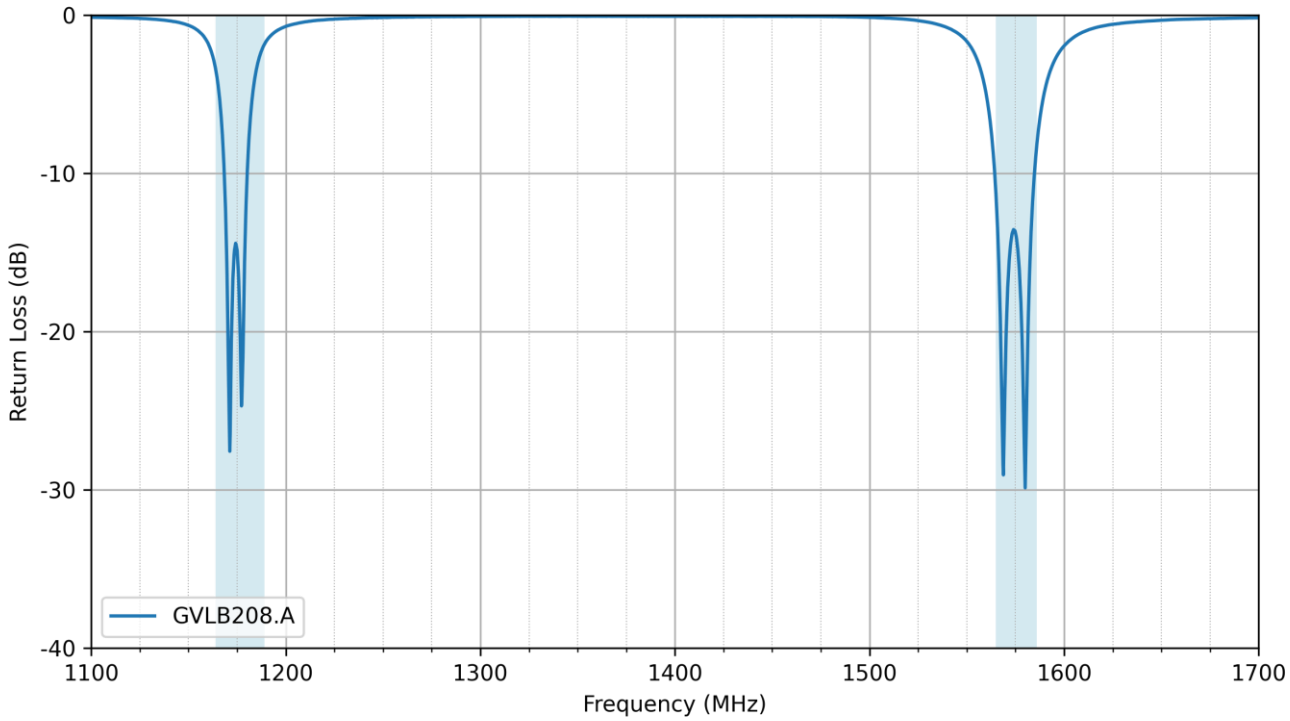
5.1 Test Setup



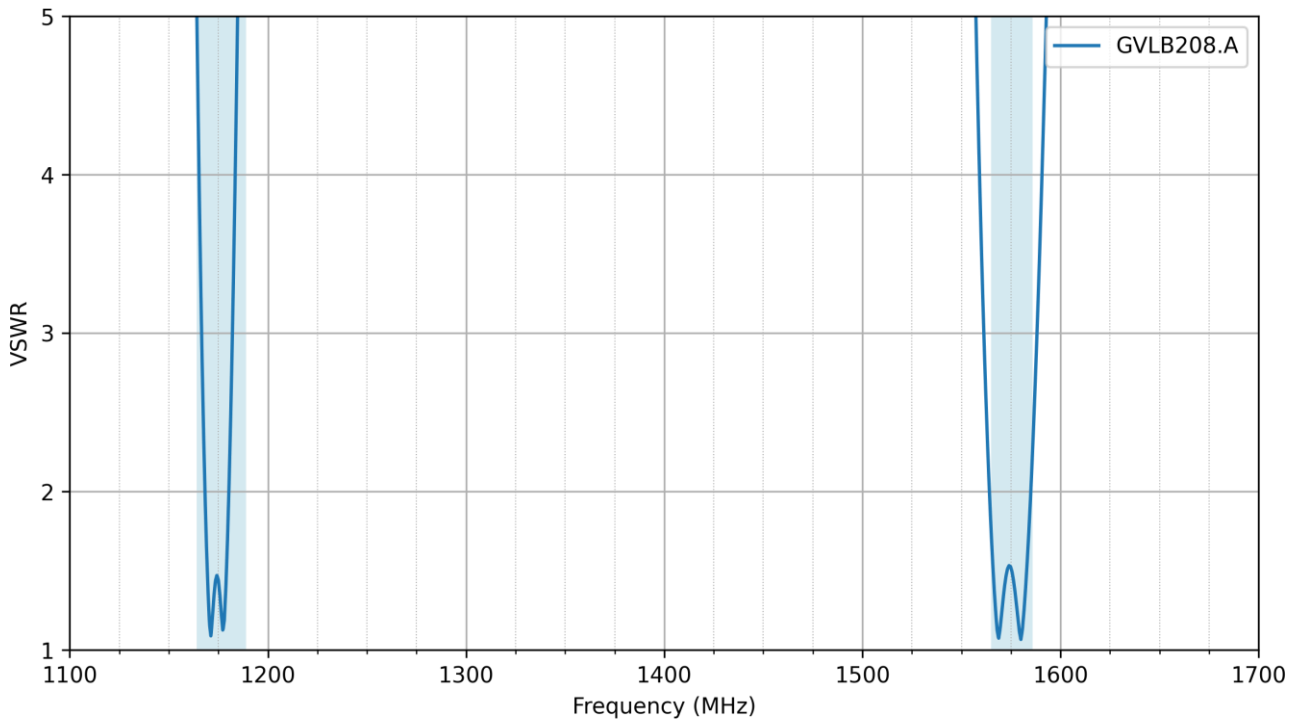


VNA Test Set-up

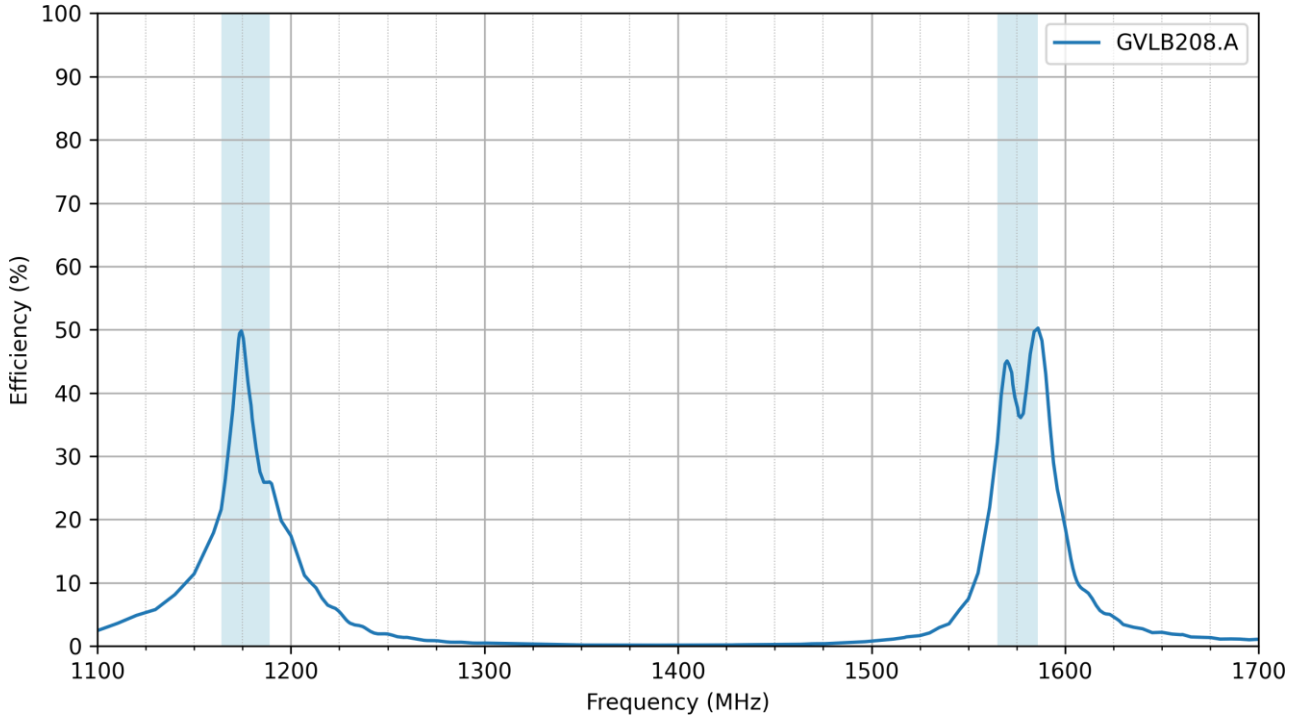
5.2 Return Loss



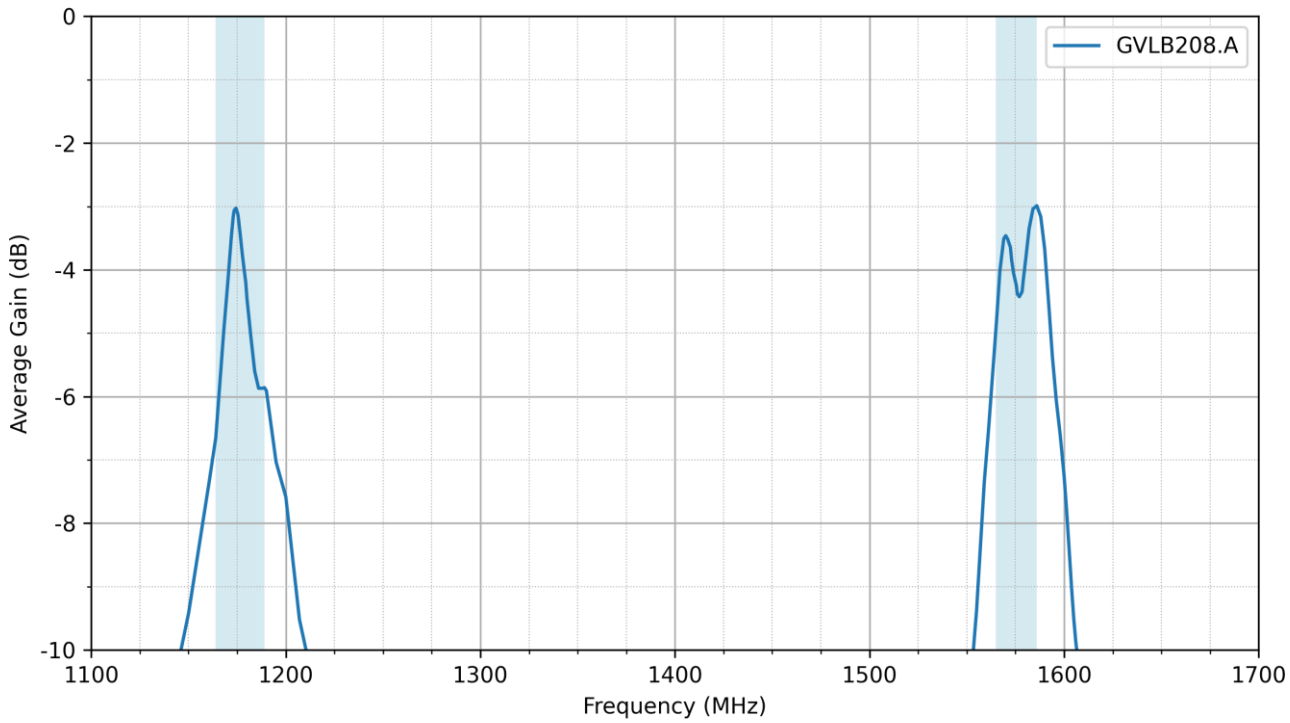
5.3 VSWR



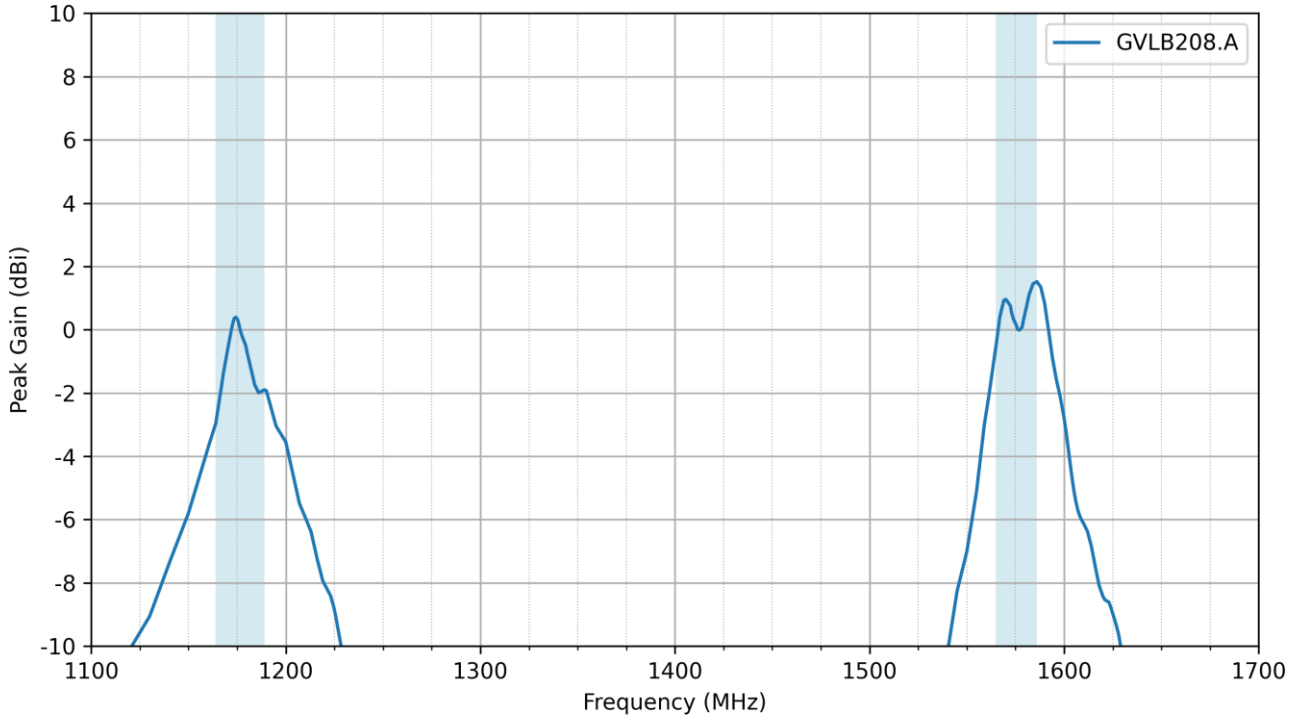
5.4 Efficiency



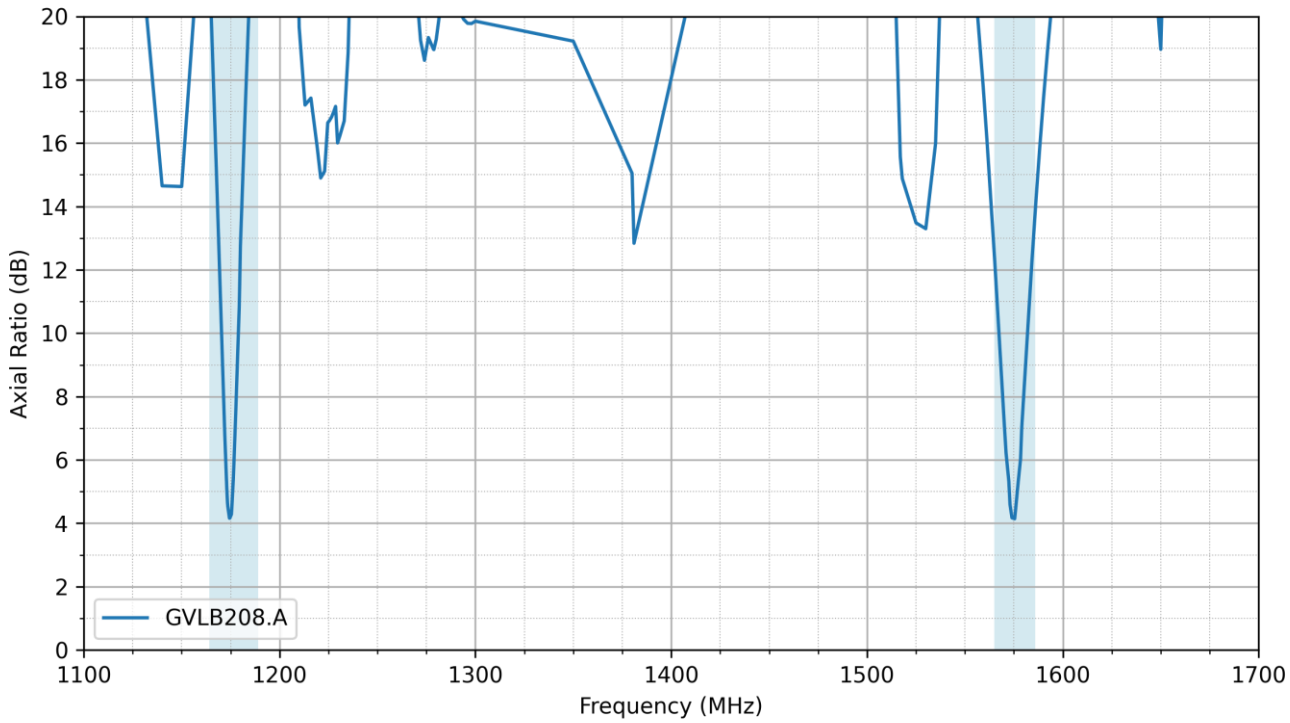
5.5 Average Gain



5.6 Peak Gain

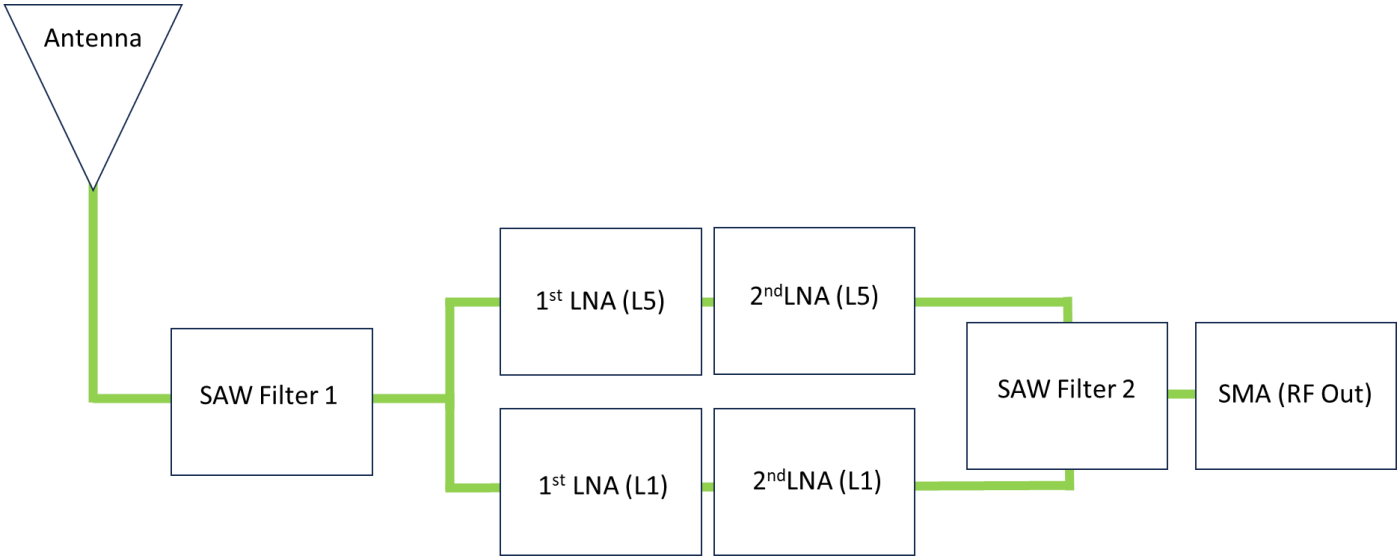


5.7 Axial Ratio

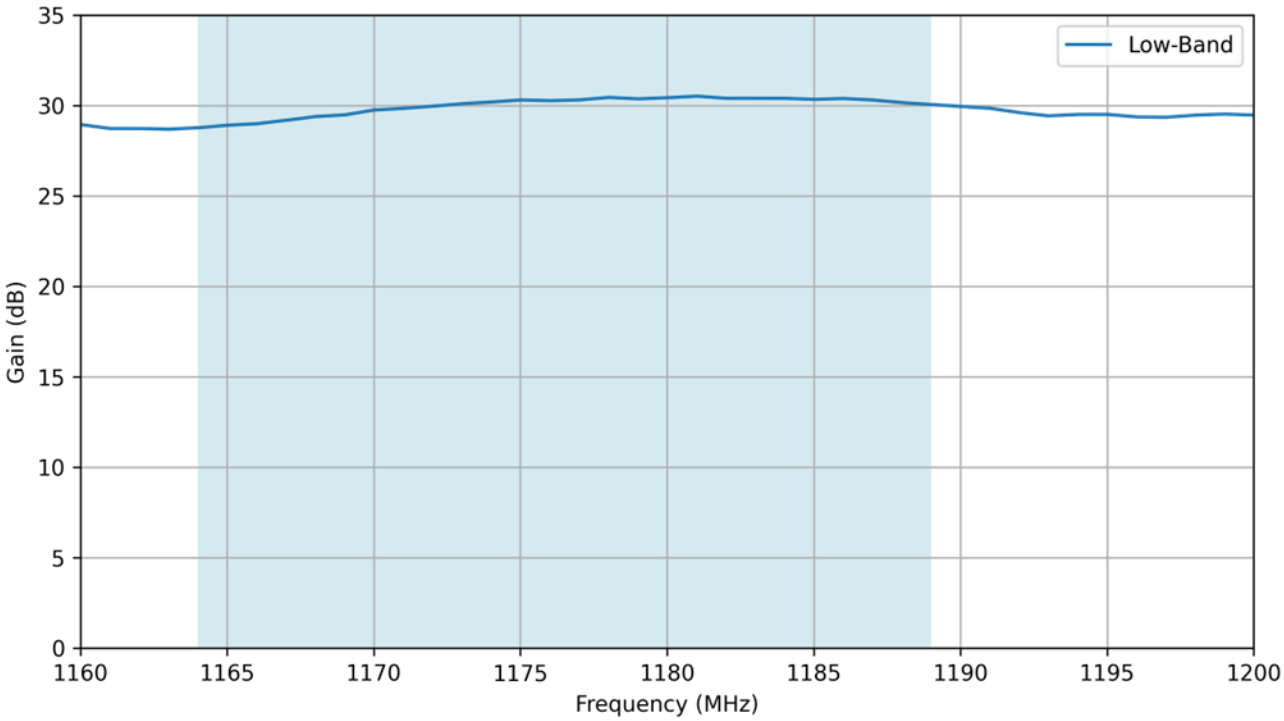


6. LNA Characteristics

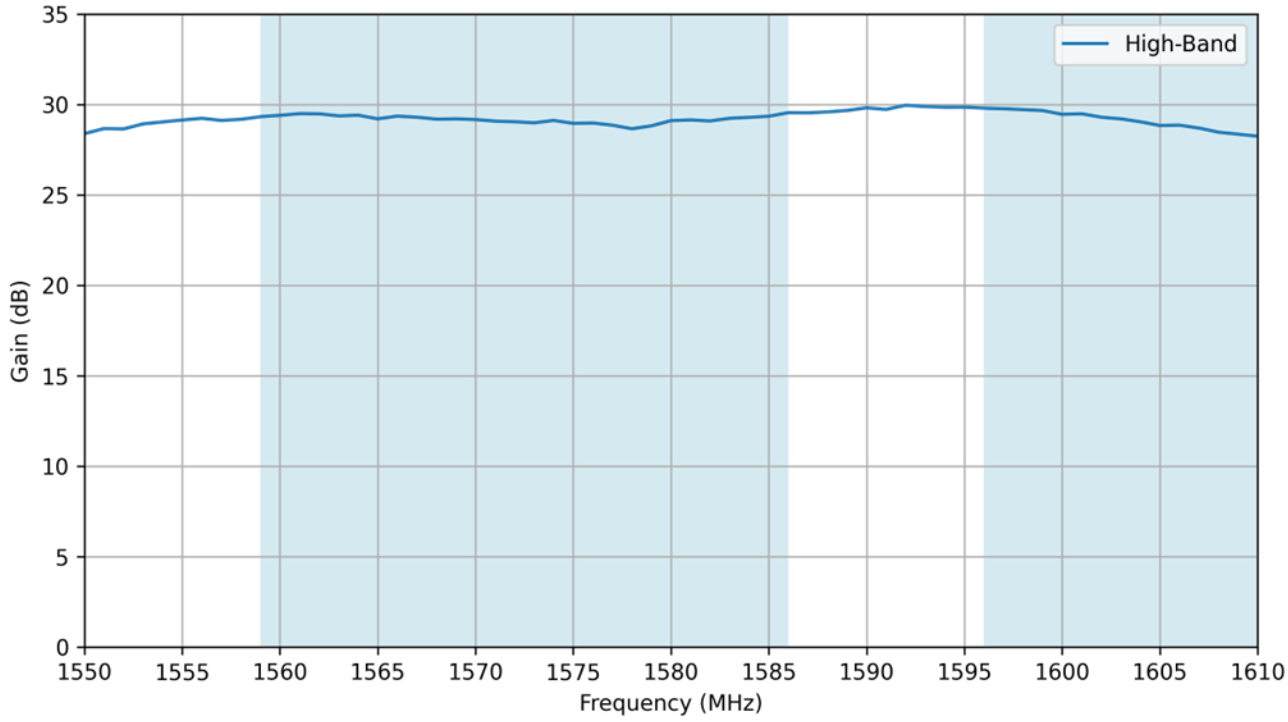
6.1 Block Diagram



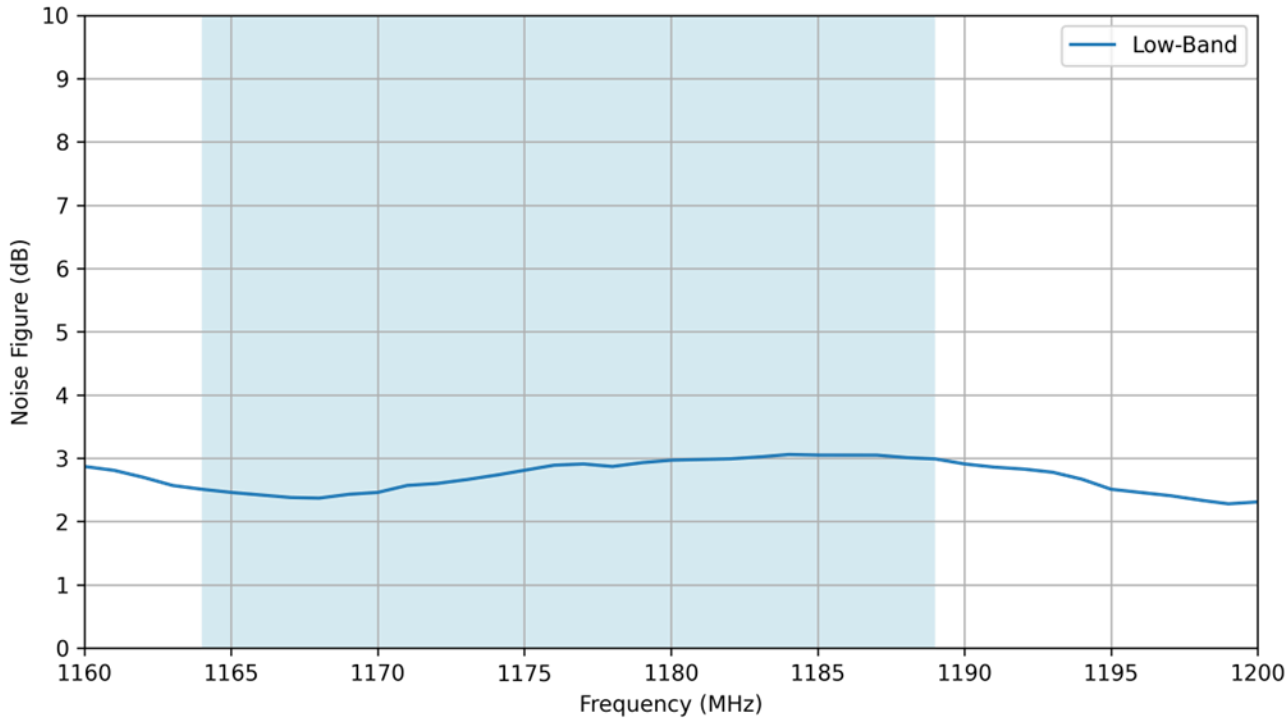
6.2 Gain – Low-Band



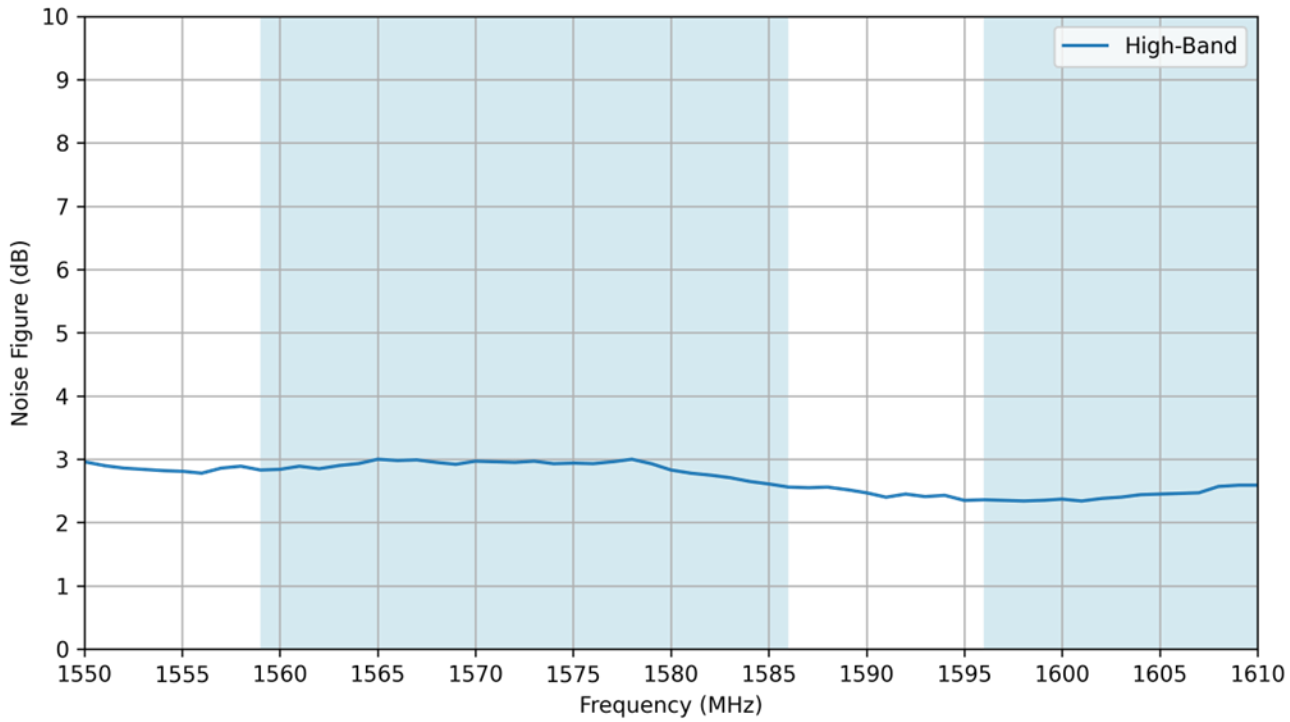
6.3 Gain – High-Band



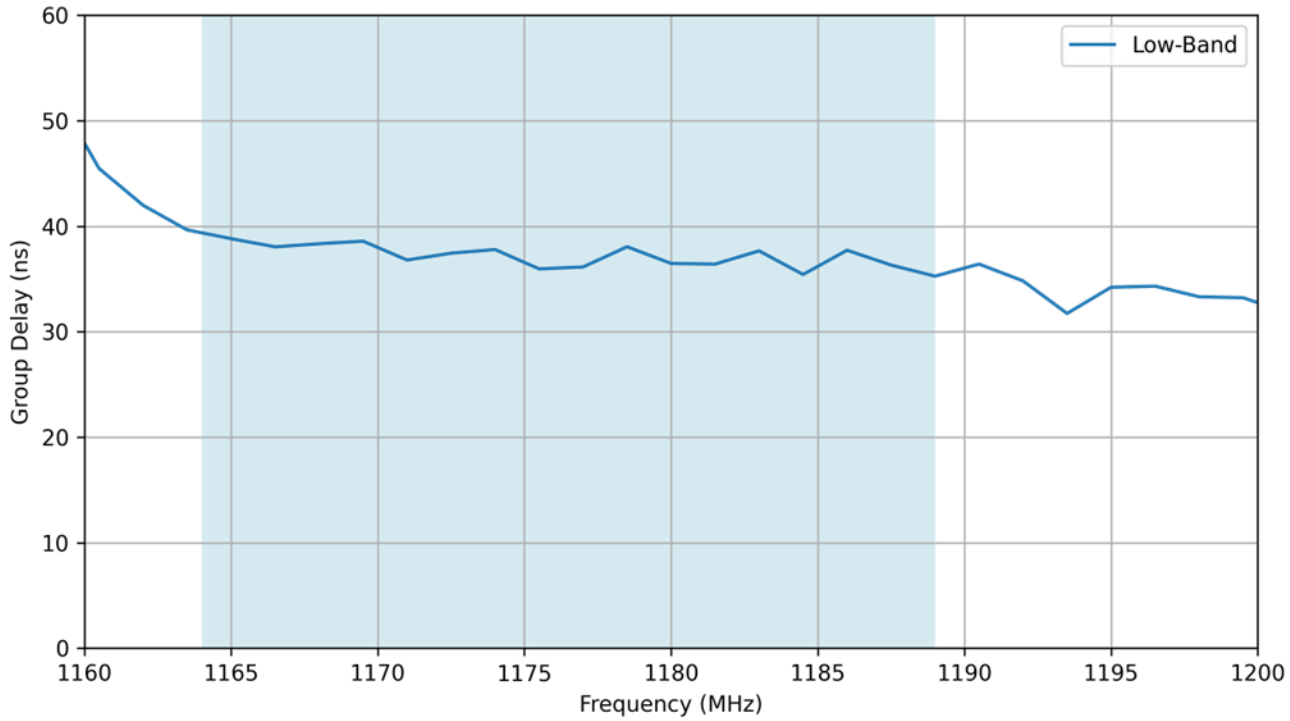
6.4 Noise Figure – Low-Band



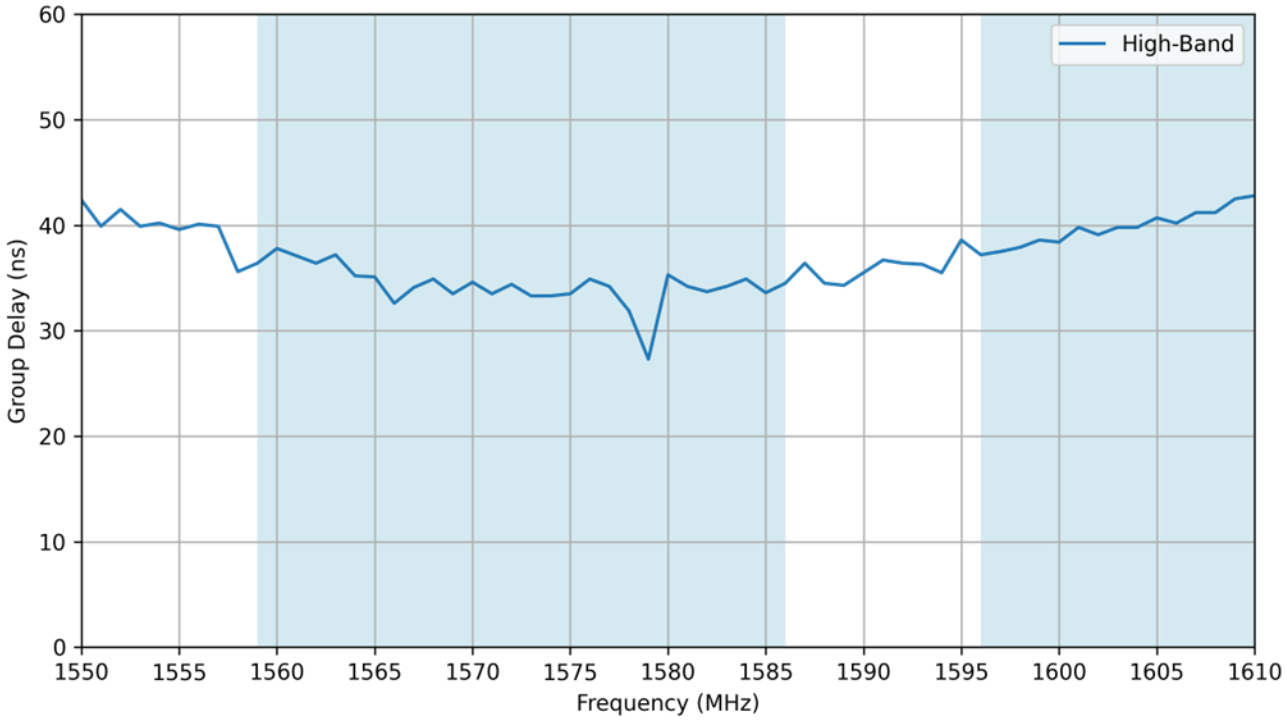
6.5 Noise Figure – High-Band



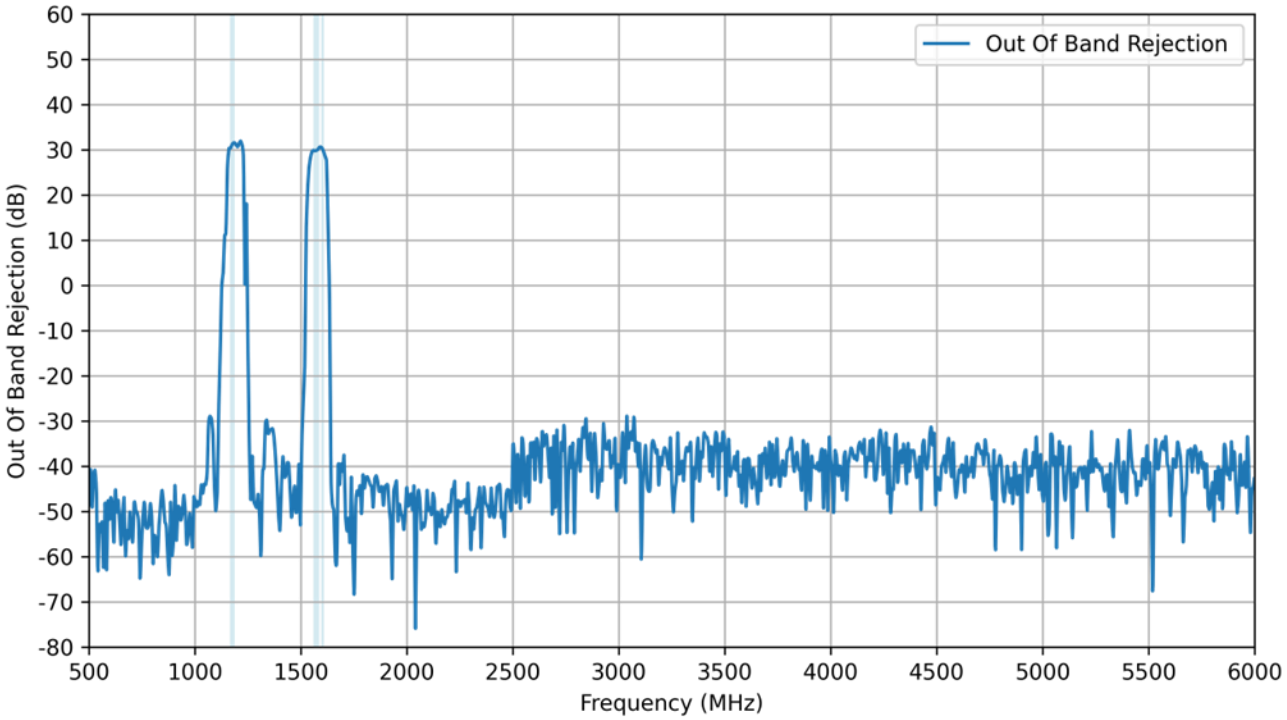
6.6 Group Delay – Low-Band



6.7 Group Delay – High-Band

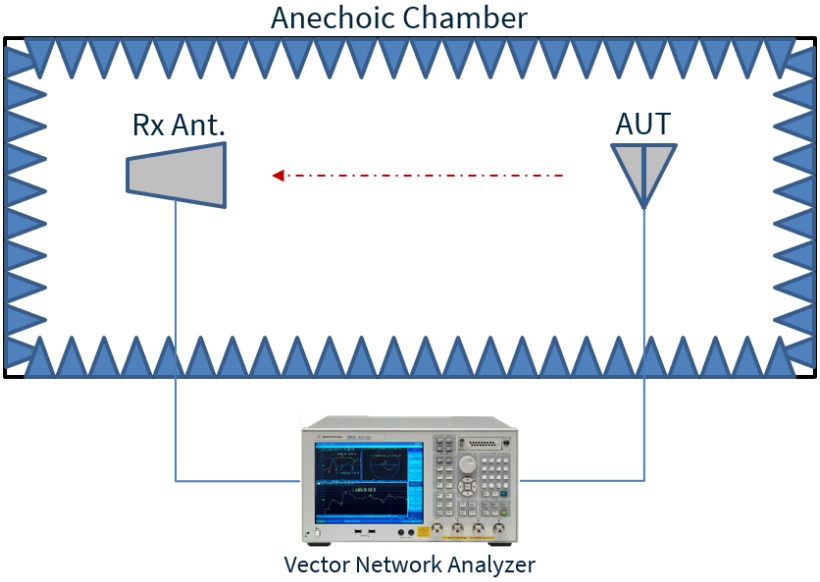


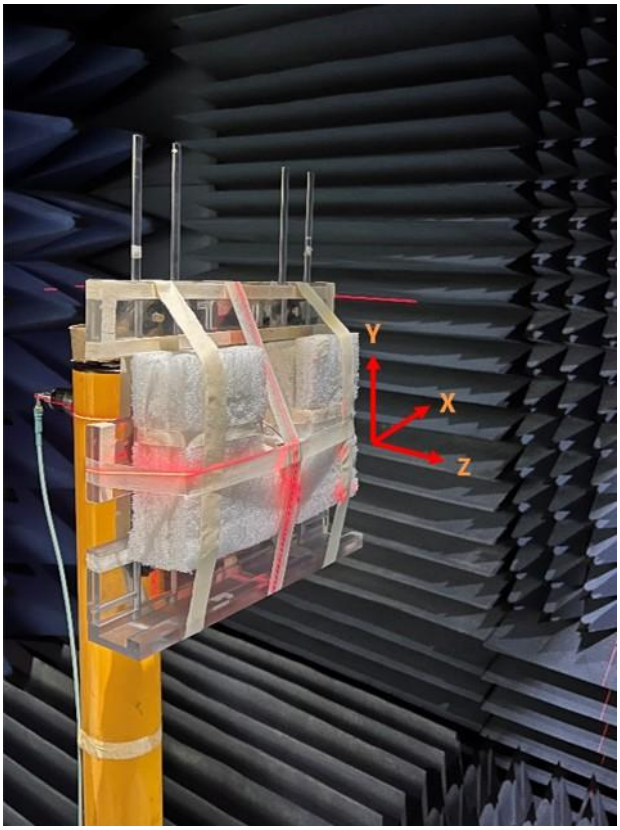
6.8 Out Of Band Rejection



7. Radiation Patterns

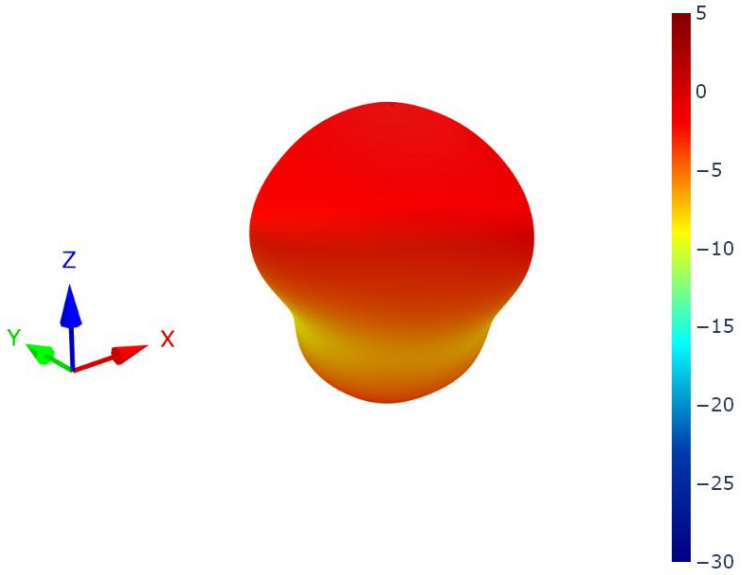
7.1 Test Setup



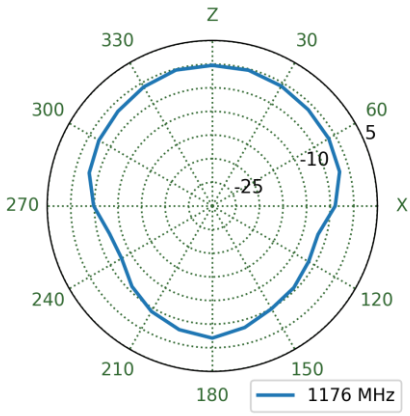


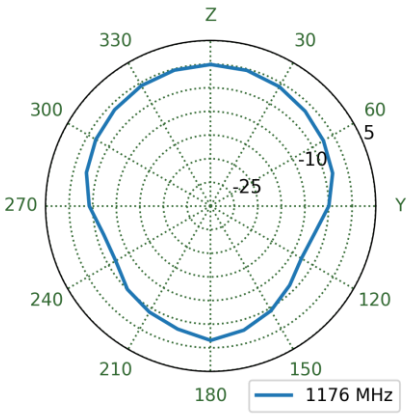
Chamber Test Set-up

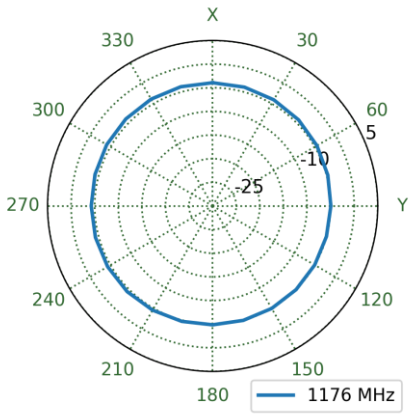
7.2 Patterns at 1176 MHz



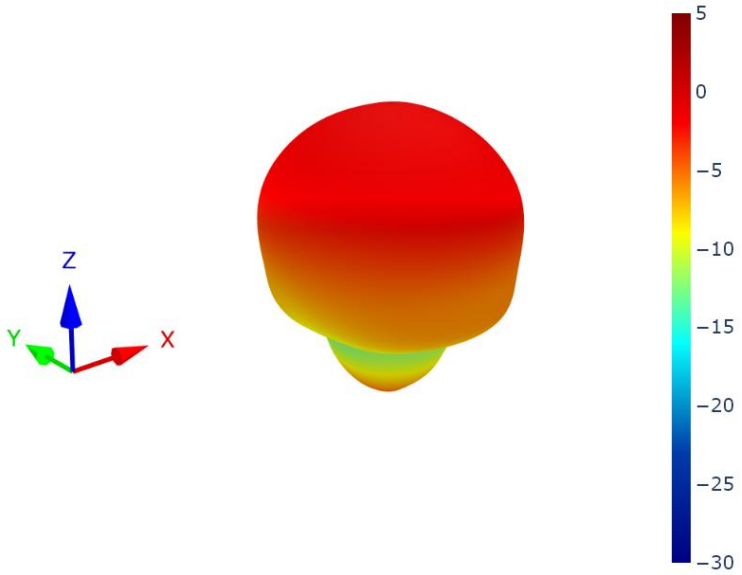
XZ Plane	YZ Plane	XY Plane



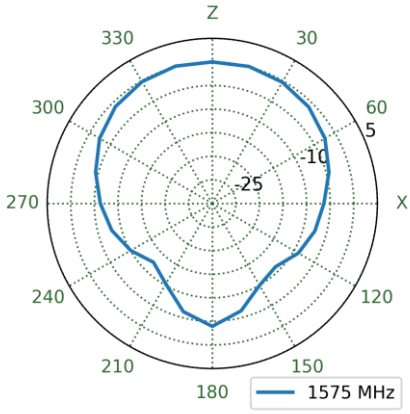


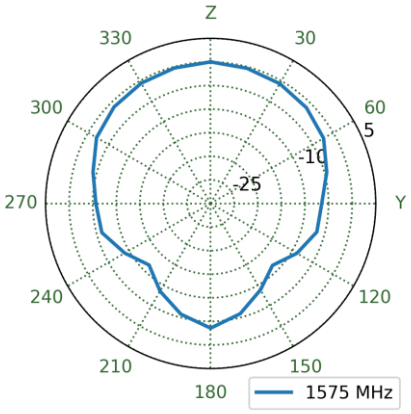


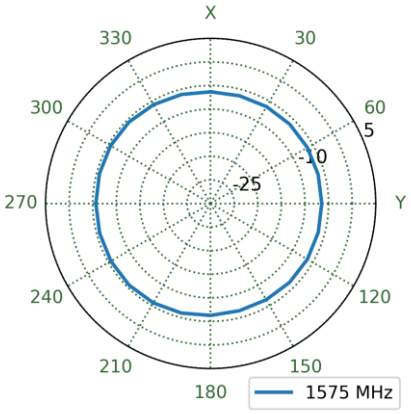
7.3 Patterns at 1575 MHz



XZ Plane	YZ Plane	XY Plane







Changelog for the datasheet

SPE-25-8-320– AGVLB208.A.07.0100AO

Revision: C (Current Version)	
Date:	2026-03-26
Changes:	Added product weight.
Changes Made by:	Gary West

Previous Revisions

Revision: B	
Date:	2026-02-16
Changes:	Added Packaging Information.
Changes Made by:	Gary West

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

TAOGLAS

TAOGLAS®

www.taoglas.com