TAOGLAS®

Datasheet

Part No:
GVLB356.A

Description

GPS/GLONASS/BeiDou Single Feed Stacked Patch L1:1575MHz L5:1176.45MHz B1:1561MHz G1:1602MHz

Features:

Single Feed Stacked Patch Assembly
Covering Bands:
-GPS L1:1575MHz
-GPS L5:1176.45MHz
-BeiDou B1:1561MHz
-GLONASS G1:1602MHz
Pin and Adhesive Mount
Dims: 35 x 35 x 6.12mm
RoHS & Reach Compliant

1. Introduction

The Taoglas GVLB356.A multiband GNSS stacked ceramic patch is a high-performance, precision engineered passive patch antenna covering GPS L1 and L5, Galileo E1, E5a and GLONASS G1, and also the additional B1 and B2 BeiDou bands. The base 35 x 35mm patch and the upper 25 x 25mm patch have a single pin feed output that combines both L1 and L5 signals into one to simplify the overall design of the device receiver which lowers power consumption, saves on the number of electronic components which in turn saves on costs and reduces PCB space.

At just 6mm in height it is a great option for devices requiring a compact multiband GNSS patch. The GVLB356.A exhibits very good gain and radiation pattern stability on both L1 and L5 bands, improved reliability of a GPS fix in urban areas, better receive signal reception with more satellites acquired, and a quicker time to first fix.

Typical applications include:

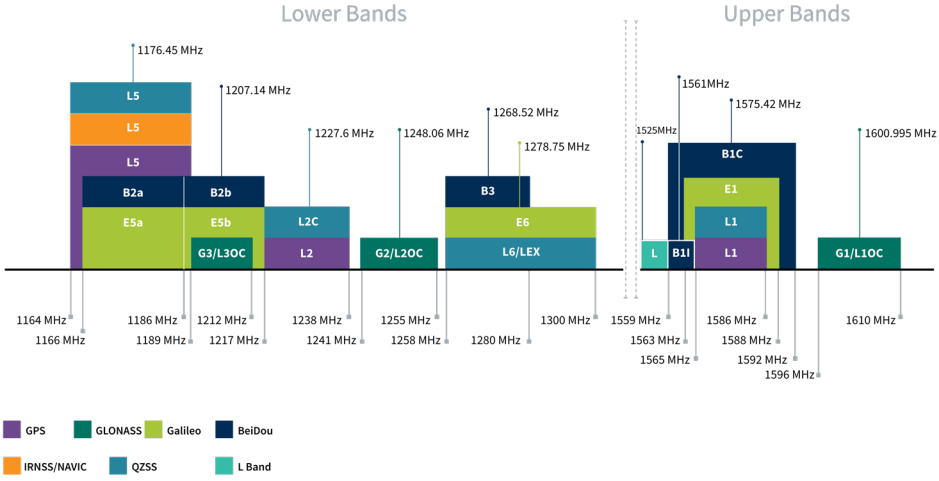
- High accuracy positioning and navigation systems
- UAVs, Robotics & Autonomous Vehicles
- Mapping & GIS
- Transportation & Telematics
- Precision Agriculture
- Public Safety, Search & Rescue
- RTK Systems

This patch is tuned specifically for a 70 x 70mm ground plane however patch antennas can also be tuned to customer-specific device environments, subject to NRE and MOQ. If active electronics are required, the GVLB356.A can be combined with the Taoglas TFM.100B GNSS Front End Module that features a SAW/LNA/SAW/LNA topology in both the low and high band signal paths to prevent unwanted out-of-band interference from overdriving the GNSS LNAs or receiver. Including the active.

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. 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
	■	■	■	□	□



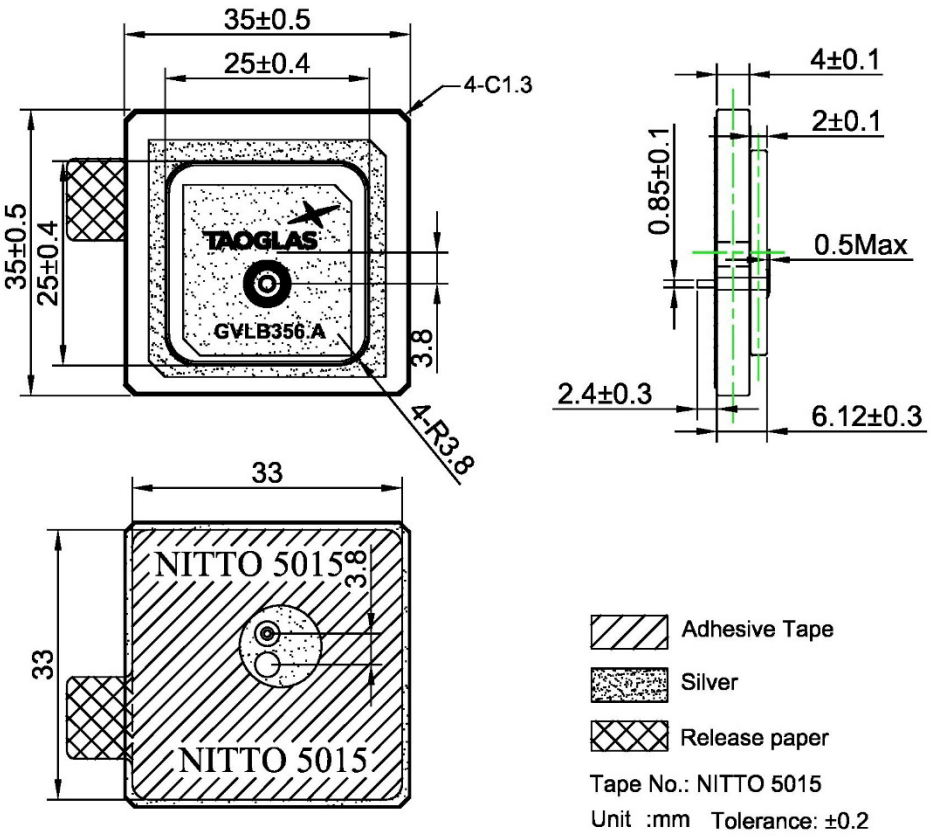
GNSS Bands and Constellations

GNSS Electrical				
Frequency (MHz)	**1176.45**	**1561**	**1575.42**	**1603**
VSWR (max.)	4:1	2:1	3:1	2:1
Efficiency (%)	75.43	79.93	69.33	70.75
Peak Gain(dBi)	4.03	2.73	2.73	3.08
Axial Ratio (dB)	11.2	17.04	11.44	12.82
Polarization	RHCP			
Impedance	50 Ω			
Radiation Pattern	Omni directional			

Mechanical	
Patch Dimensions	35 x 35 x 6.12mm
Ground Plane Dimensions	70x70mm
Patch Material	Ceramic
Connection Type	Pin & Adhesive
Weight	26g

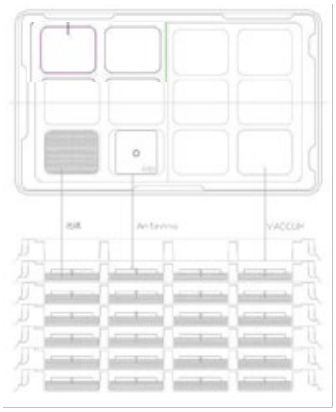
Environmental	
Operation Temperature	-40°C to 85°C
Storage Temperature	-40°C to 85°C
Relative Humidity	Non-condensing 65°C 95% RH

3. Mechanical Drawing

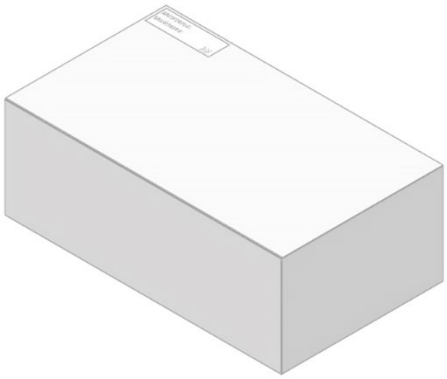


4. Packaging

12pc per tray
6 Trays per vacuum package
2 pcs desiccant 3g



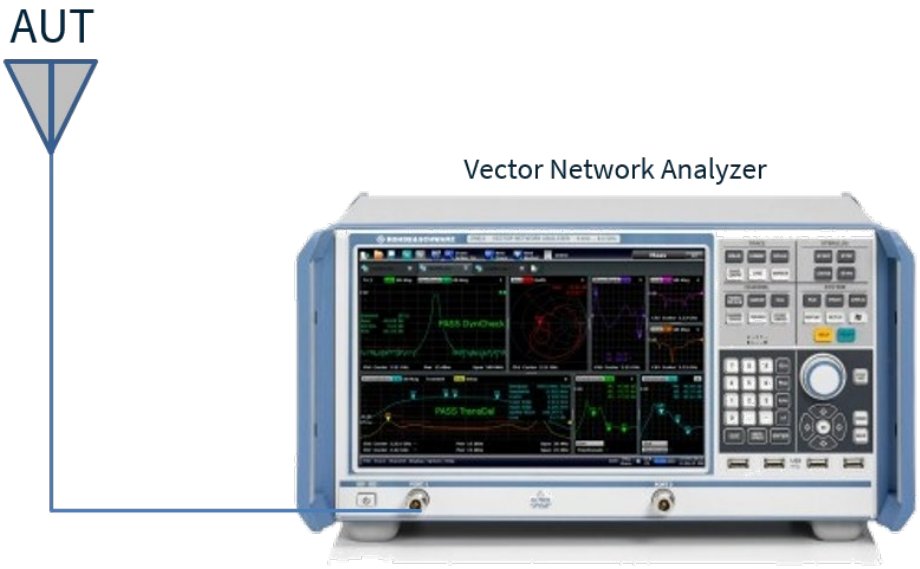
72pcs per box
Box dimensions: 261 x 152 x 118mm
Weight: 1.9Kg



288pcs per carton
Carton dimensions: 330 x 280 x 270mm
Weight: 8.1Kg

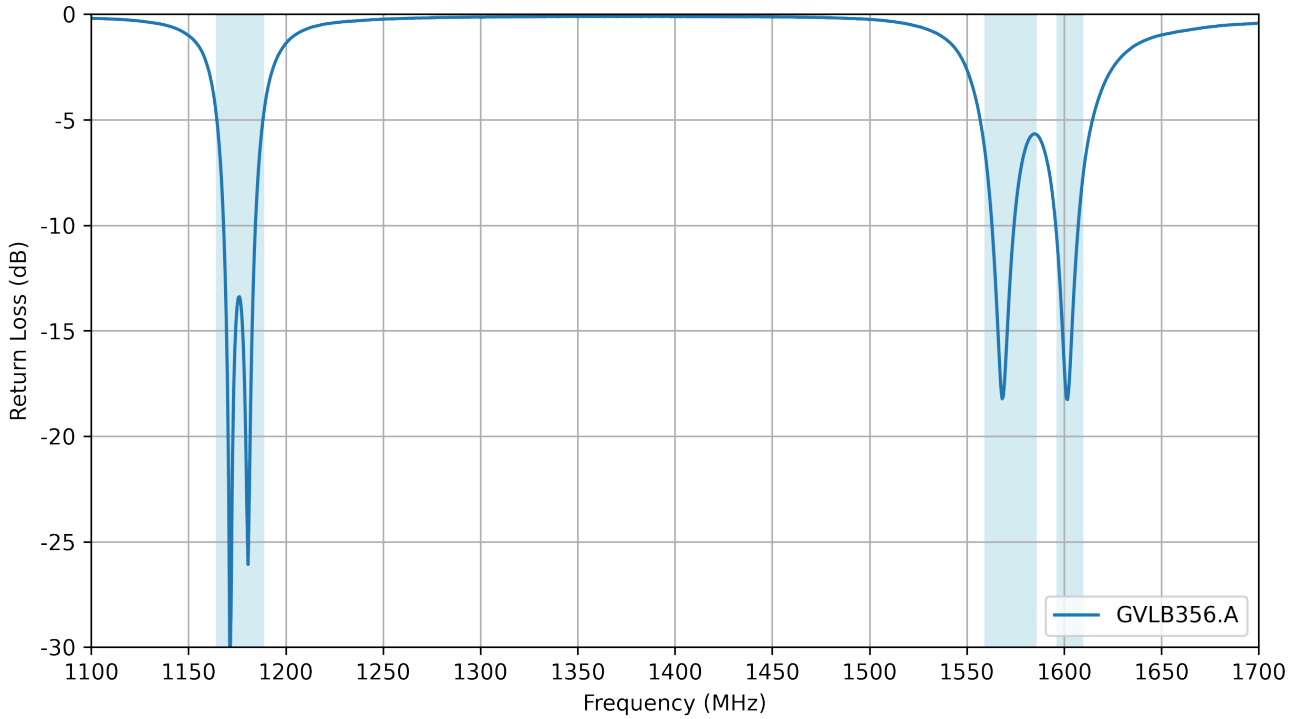
5. Antenna Characteristics

5.1 Test Setup

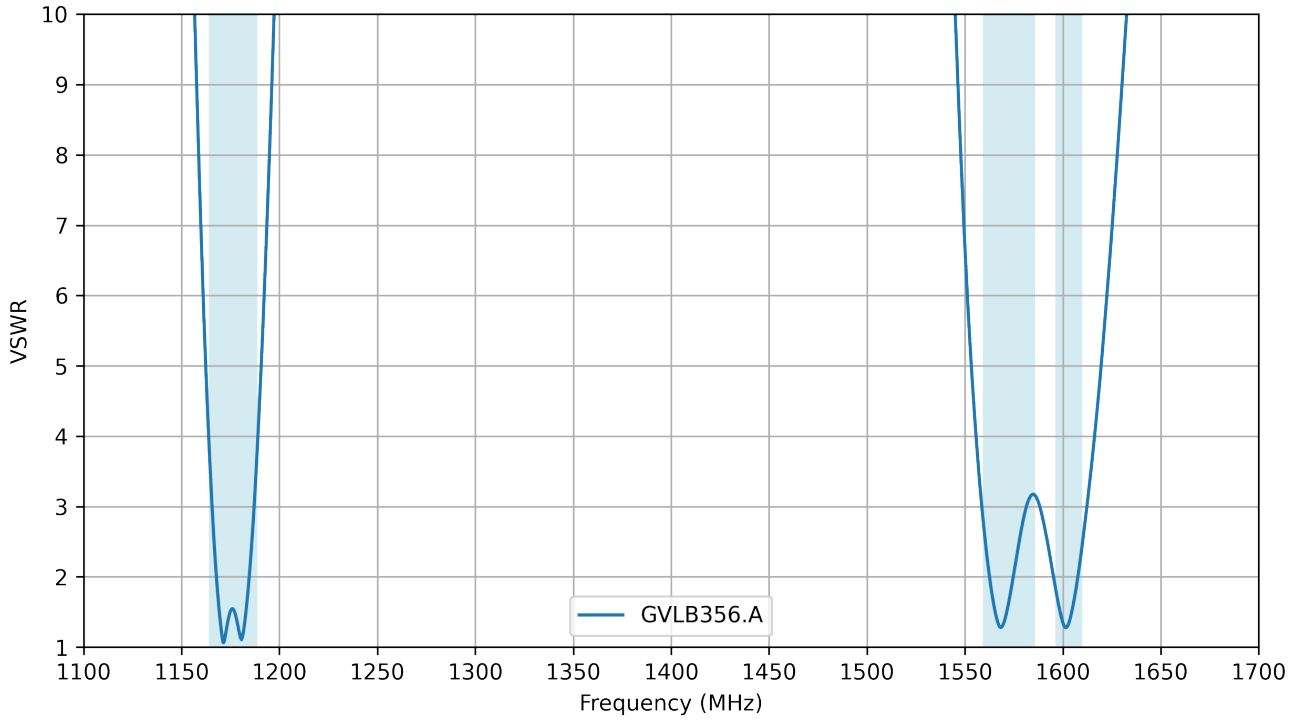


VNA Test Setup on 70x70mm Ground Plane

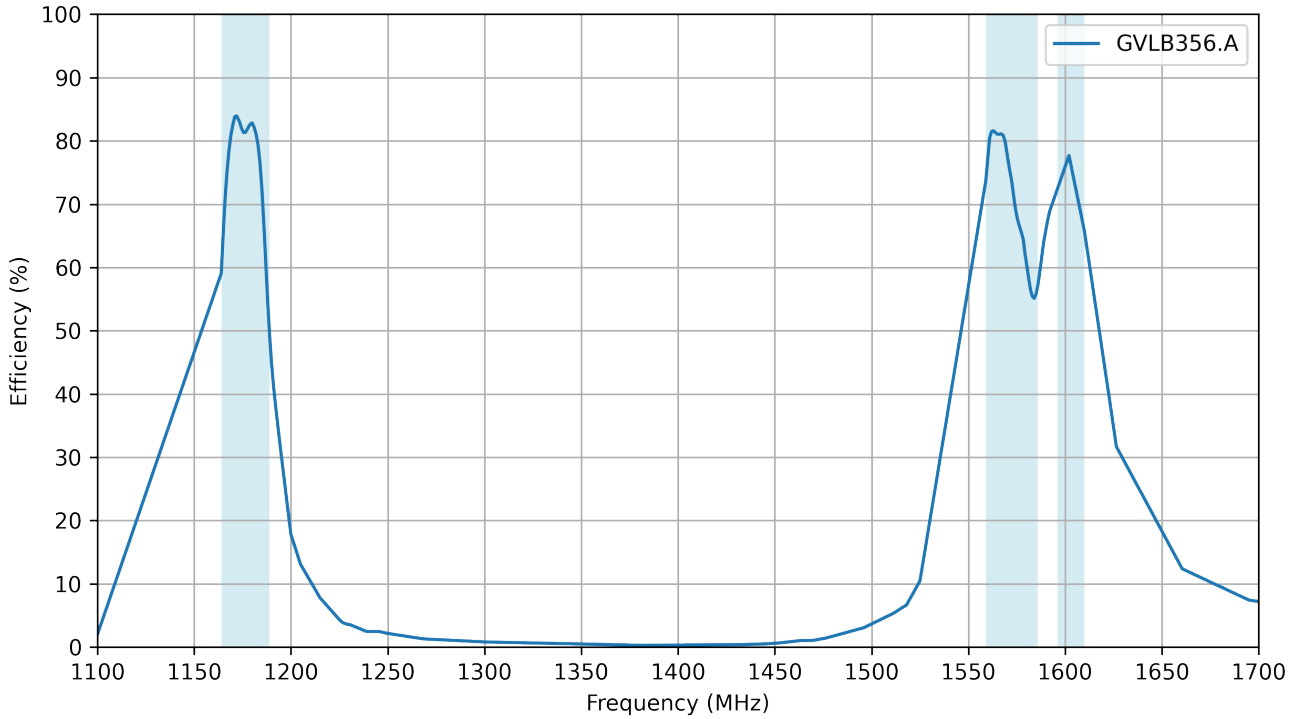
5.2 Return Loss



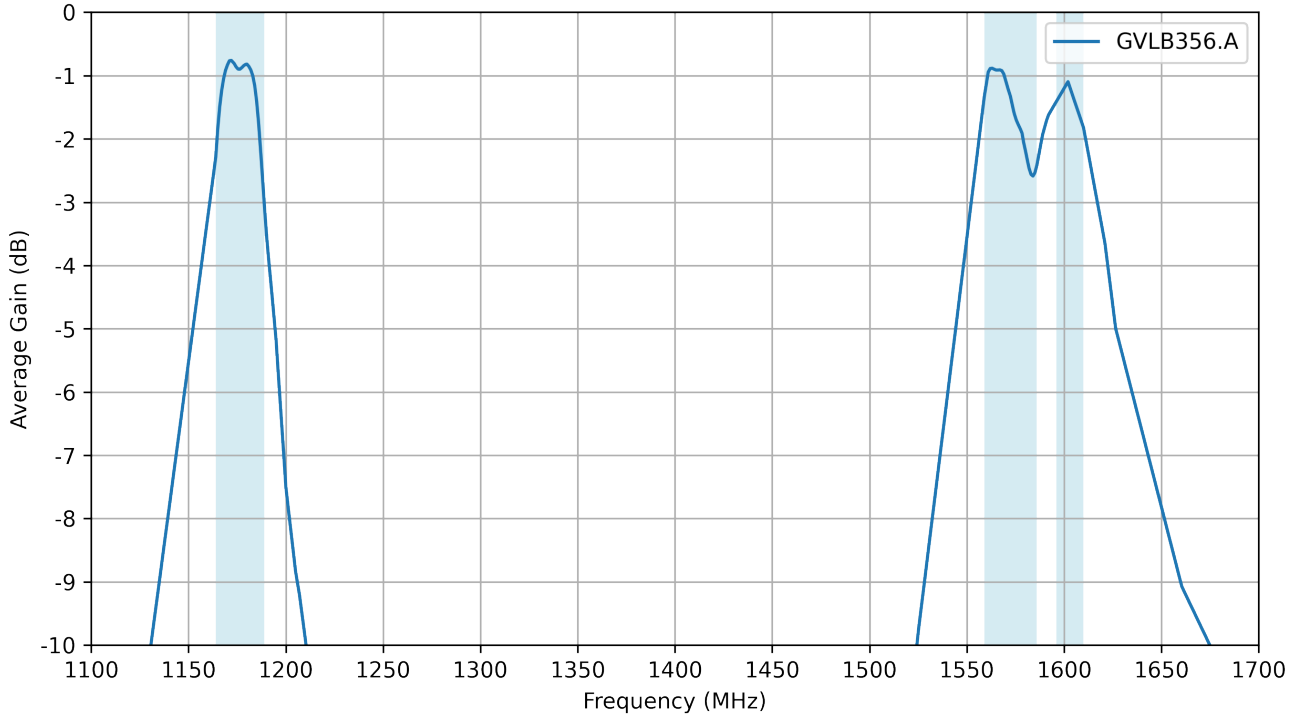
5.3 VSWR



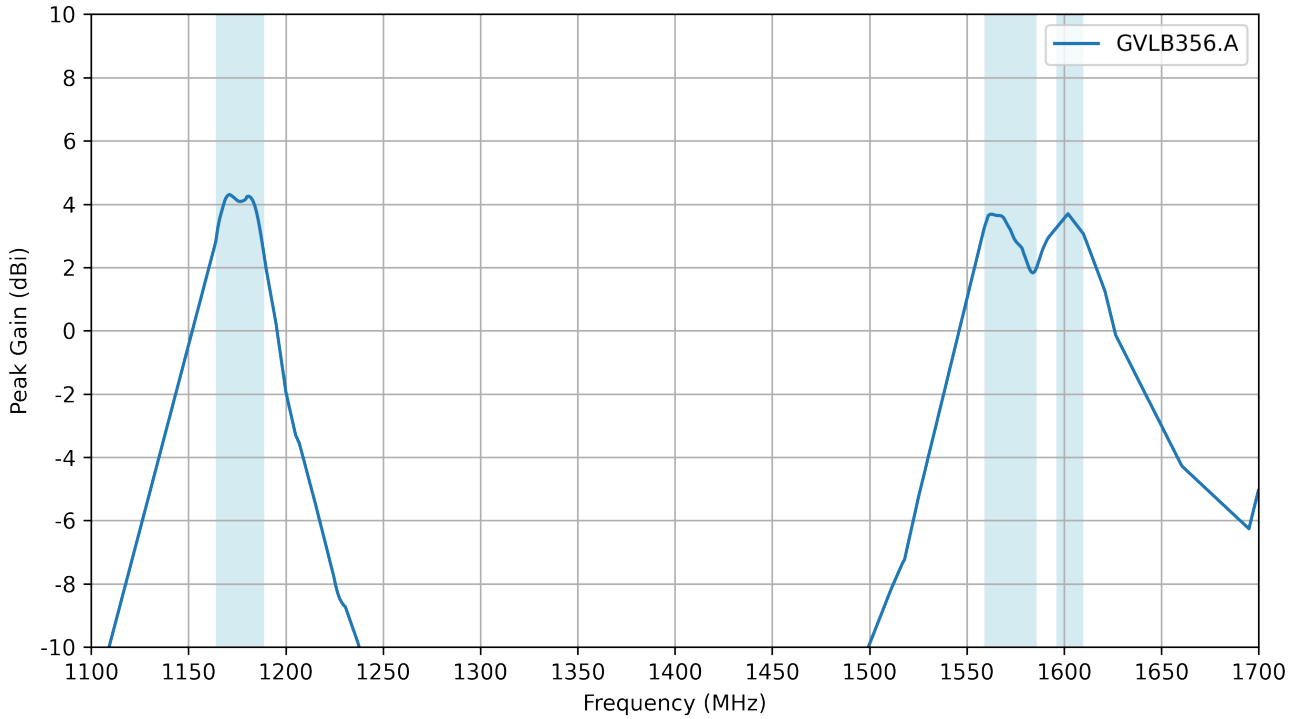
5.4 Efficiency



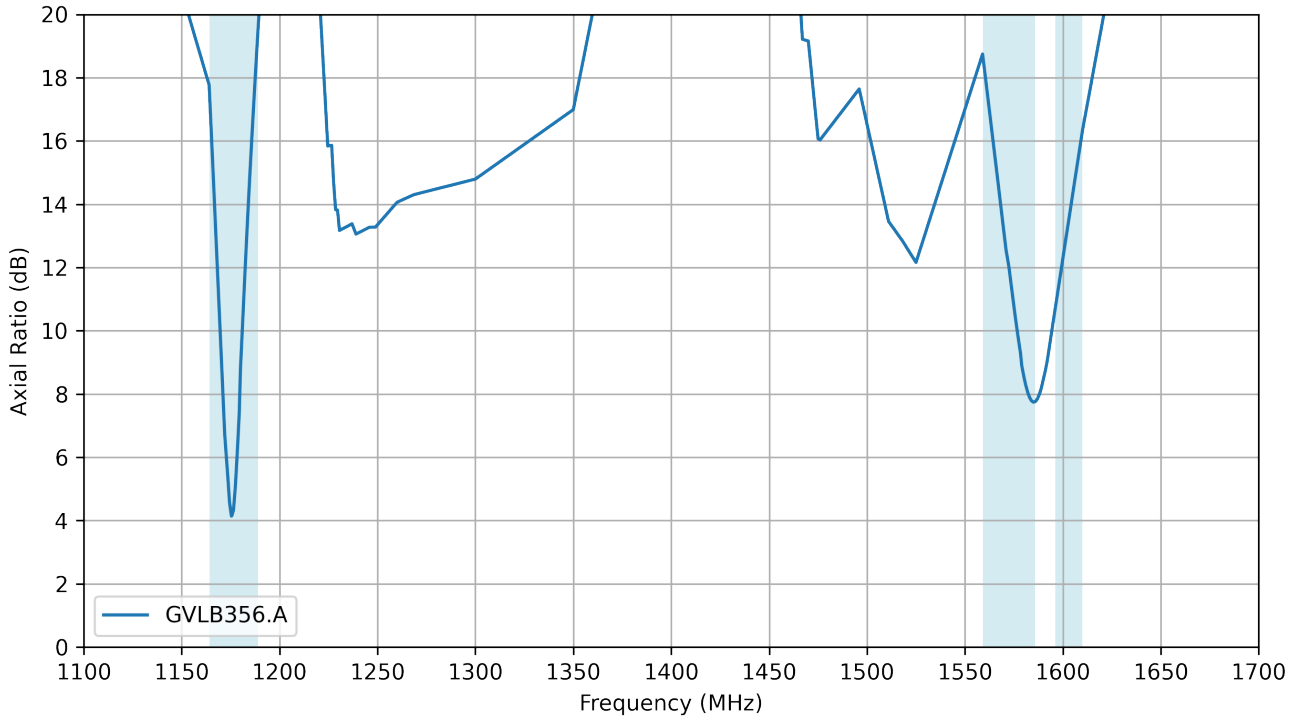
5.5 Average Gain



5.6 Peak Gain

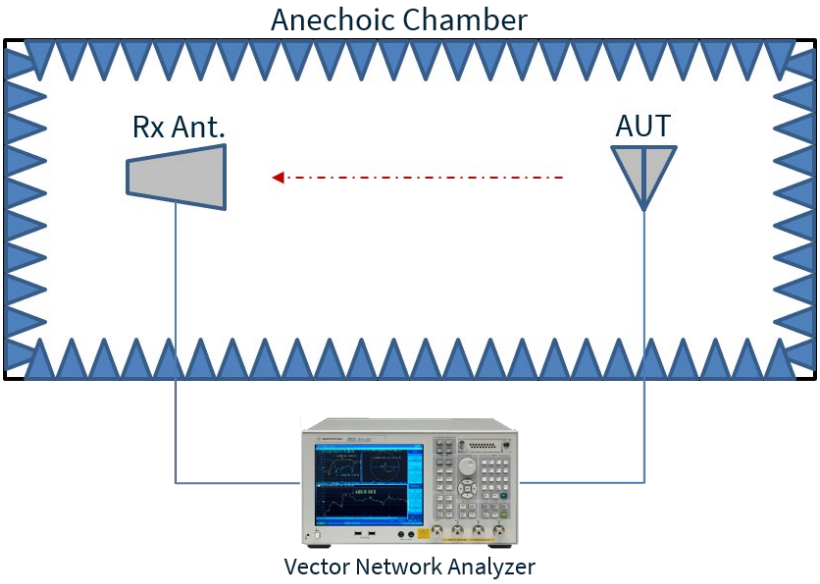


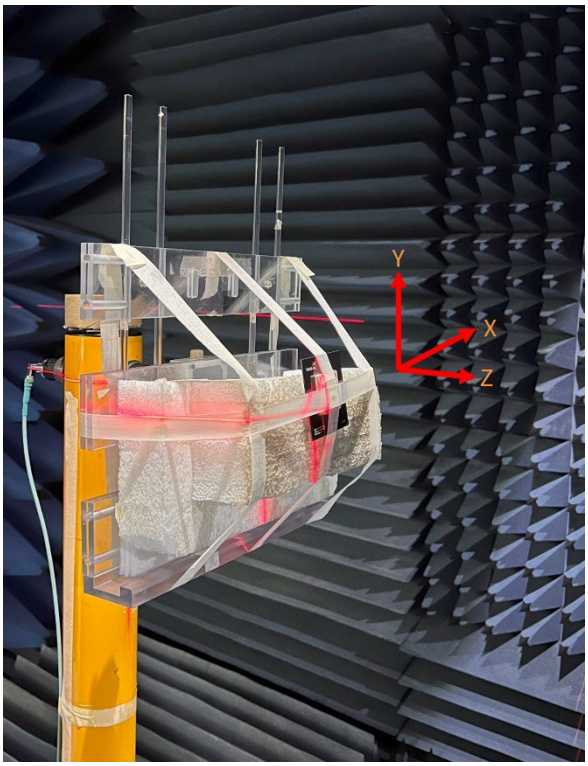
5.7 Axial Ratio



6. Radiation Patterns

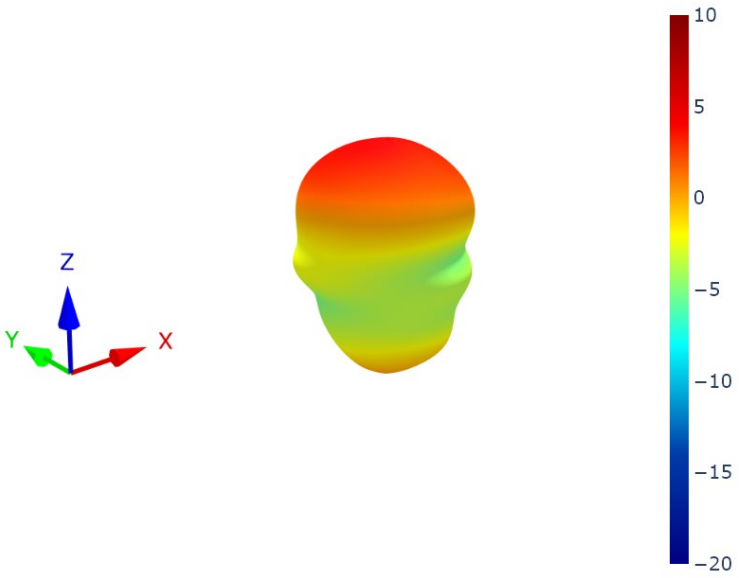
6.1 Test Setup



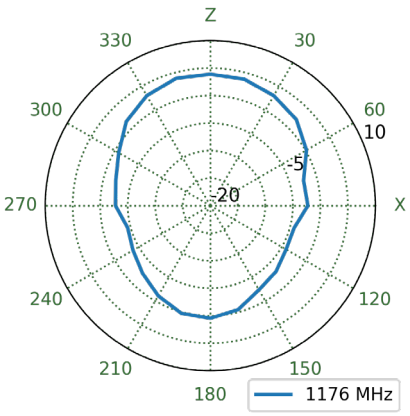


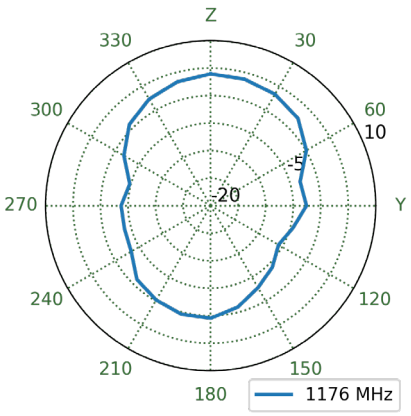
Chamber Test Setup on 70x70mm Ground Plane

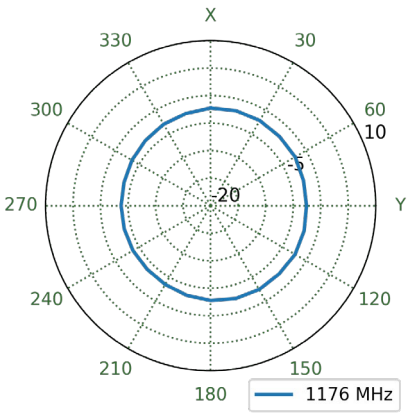
6.2 Patterns at 1176 MHz



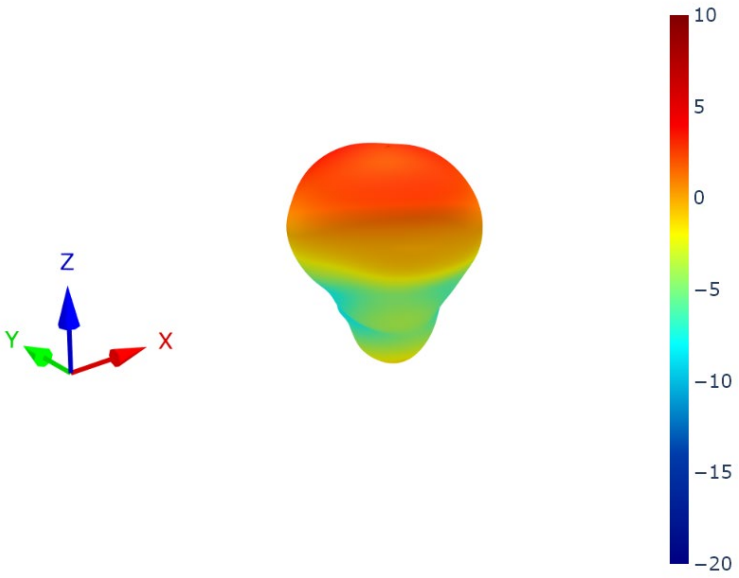
XZ Plane	YZ Plane	XY Plane



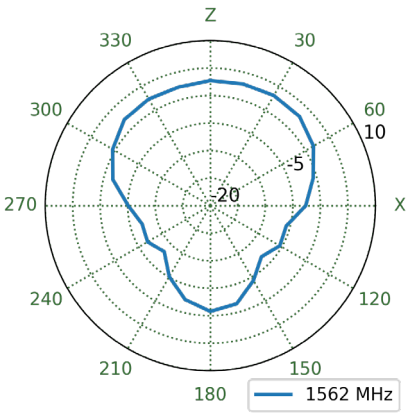


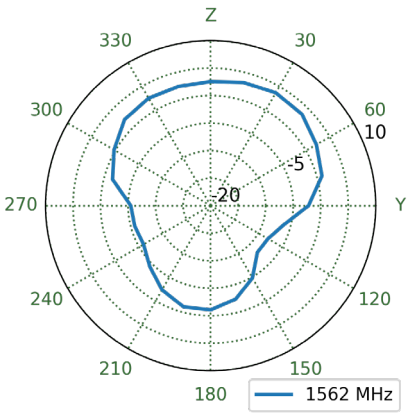


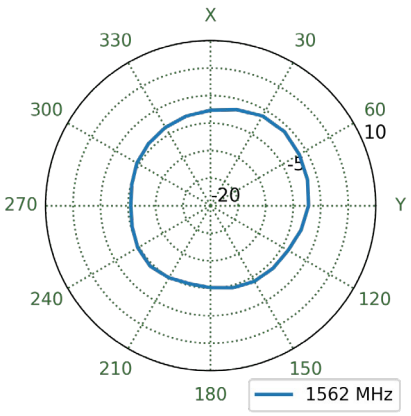
6.3 Patterns at 1562 MHz



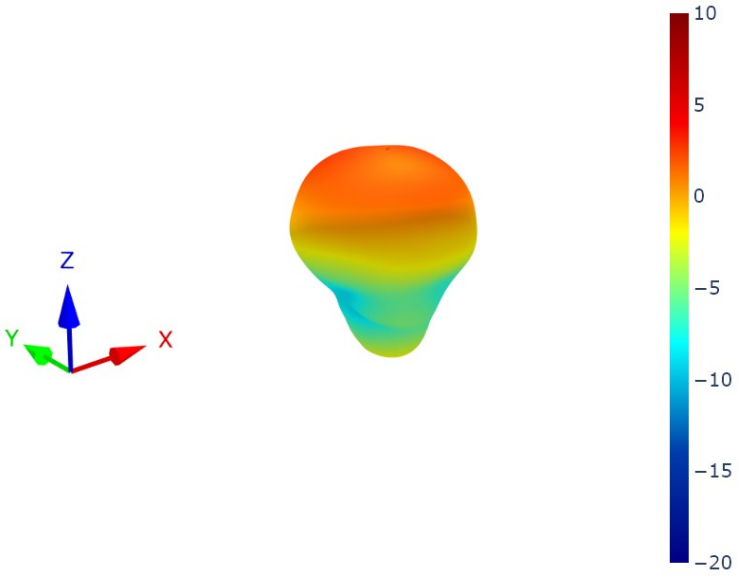
XZ Plane	YZ Plane	XY Plane

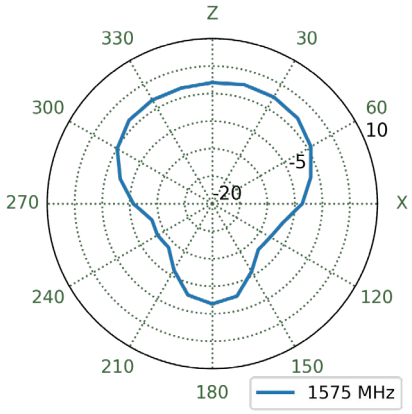
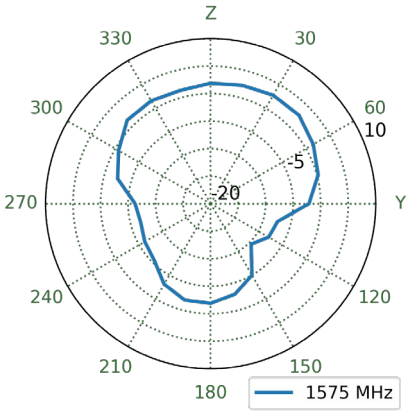
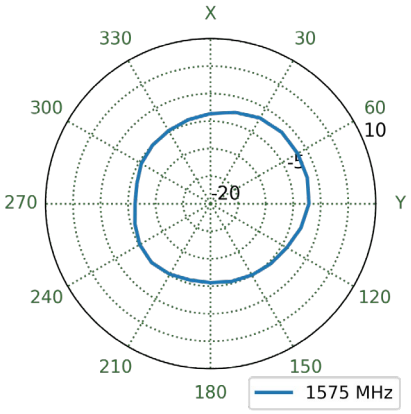




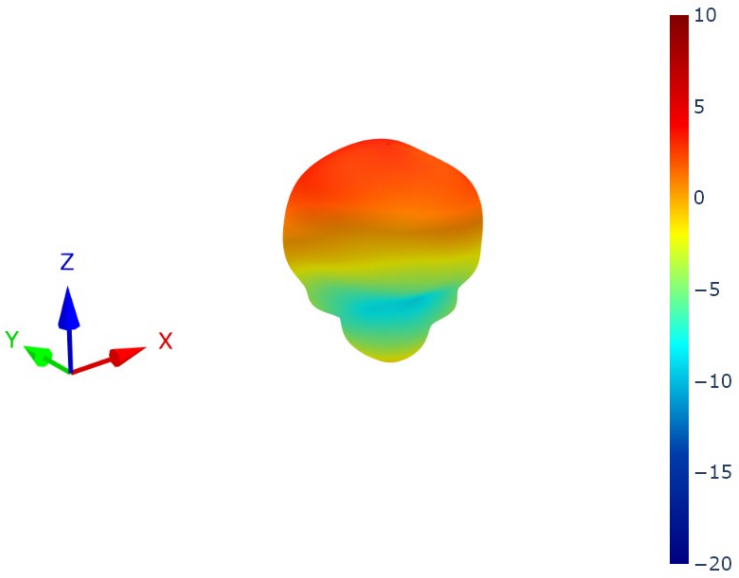


6.4 Patterns at 1575 MHz

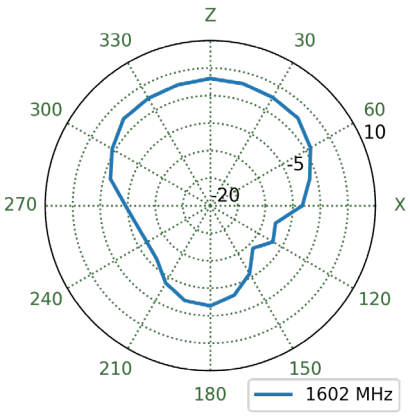


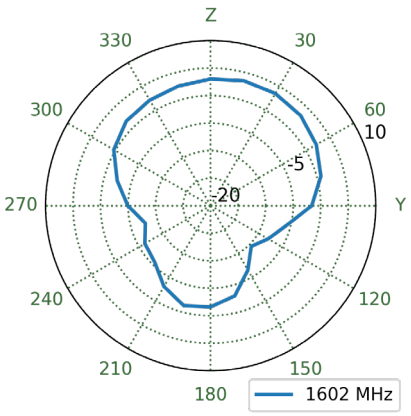
XZ Plane	YZ Plane	XY Plane
		

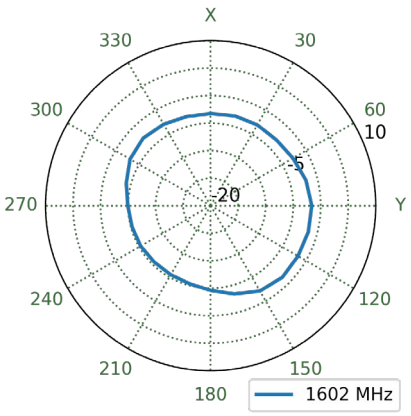
6.5 Patterns at 1602 MHz



XZ Plane	YZ Plane	XY Plane







Changelog for the datasheet

SPE-24-8-245 – GVLB356.A

Revision: A (Initial Release)	
Date:	2024-09-30
Notes:	Initial Datasheet Release
Author:	Gary West

Previous Revisions

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