



# 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

|           |                                |           |
|-----------|--------------------------------|-----------|
| <b>1.</b> | <b>Introduction</b>            | <b>3</b>  |
| <b>2.</b> | <b>Specification</b>           | <b>4</b>  |
| <b>3.</b> | <b>Mechanical Drawing</b>      | <b>6</b>  |
| <b>4.</b> | <b>Packaging</b>               | <b>7</b>  |
| <b>5.</b> | <b>Antenna Characteristics</b> | <b>8</b>  |
| <b>6.</b> | <b>Radiation Patterns</b>      | <b>12</b> |
| <hr/>     |                                |           |
|           | Changelog                      | 17        |

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# 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:

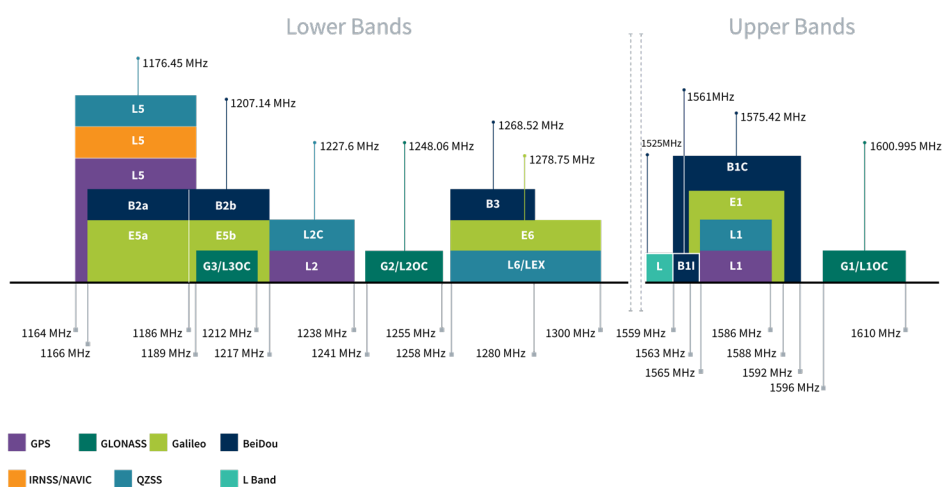
- High accuracy positioning and navigation systems
- UAVs, Robotics & Autonomous Vehicles
- Mapping & GIS
- Transportation & Telematics
- Precision Agriculture
- Public Safety, Search & Rescue
- RTK Systems

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<br>1575.42 MHz       | L2<br>1227.6 MHz          | L5<br>1176.45 MHz  |                    |                   |
|                      | ■                       | □                         | ■                  |                    |                   |
| GLONASS              | G1<br>1602 MHz          | G2<br>1248 MHz            | G3<br>1207 MHz     |                    |                   |
|                      | ■                       | □                         | □                  |                    |                   |
| Galileo              | E1<br>1575.24 MHz       | E5a<br>1176.45 MHz        | E5b<br>1201.5 MHz  | E6<br>1278.75 MHz  |                   |
|                      | ■                       | ■                         | □                  | □                  |                   |
| BeiDou               | B1C<br>1575.42 MHz      | B1I<br>1561 MHz           | B2a<br>1176.45 MHz | B2b<br>1207.14 MHz | B3<br>1268.52 MHz |
|                      | ■                       | ■                         | ■                  | □                  | □                 |
| L-Band               | L-Band<br>1542 MHz      |                           |                    |                    |                   |
|                      | ■                       |                           |                    |                    |                   |
| QZSS (Regional)      | L1<br>1575.42 MHz       | L2C<br>1227.6 MHz         | L5<br>1176.45 MHz  | L6<br>1278.75e6    |                   |
|                      | ■                       | □                         | ■                  | □                  |                   |
| IRNSS (Regional)     | L5<br>1176.45 MHz       |                           |                    |                    |                   |
|                      | ■                       |                           |                    |                    |                   |
| SBAS                 | L1/E1/B1<br>1575.42 MHz | L5/B2a/E5a<br>1176.45 MHz | G1<br>1602 MHz     | G2<br>1248 MHz     | G3<br>1207 MHz    |
|                      | ■                       | ■                         | ■                  | □                  | □                 |



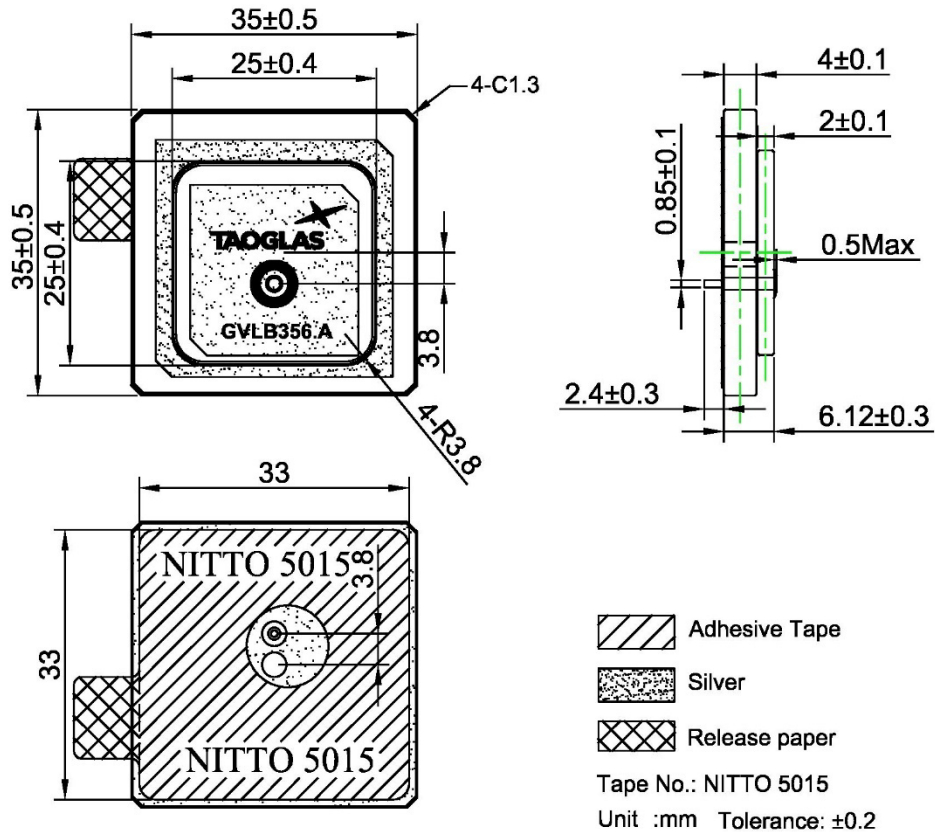
GNSS Bands and Constellations

| 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 $\Omega$      |       |         |       |
| 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              |

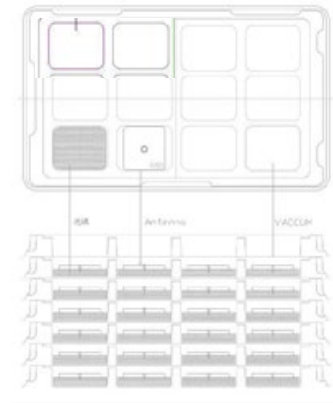
| Environmental         |                            |
|-----------------------|----------------------------|
| Operation Temperature | -40°C to 85°C              |
| Storage Temperature   | -40°C to 85°C              |
| Relative Humidity     | Non-condensing 65°C 95% RH |

### 3. Mechanical Drawing

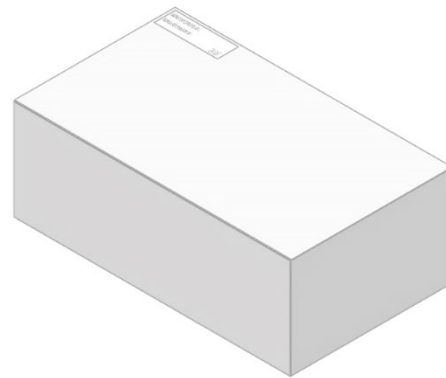


## 4. Packaging

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

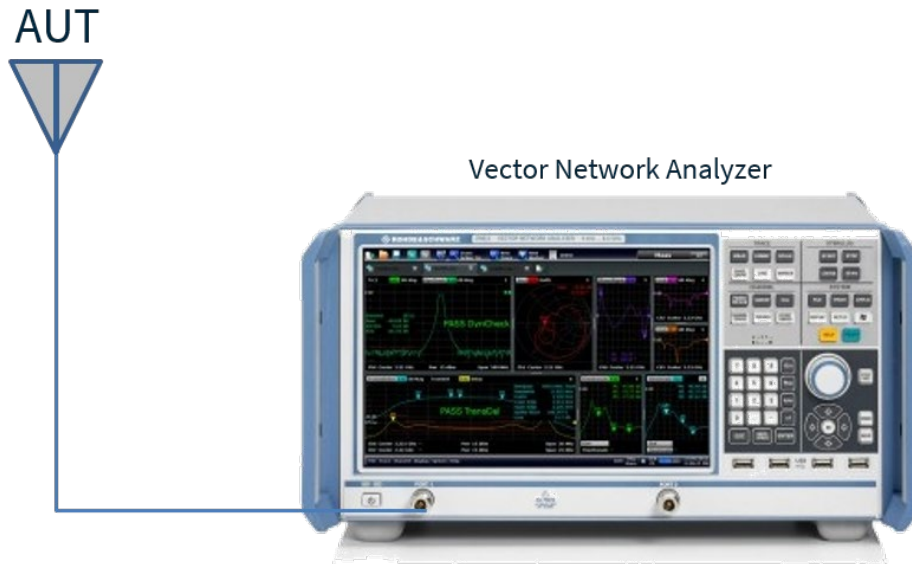


288pcs per carton  
 Carton dimensions: 330 x 280 x 270mm  
 Weight: 8.1Kg



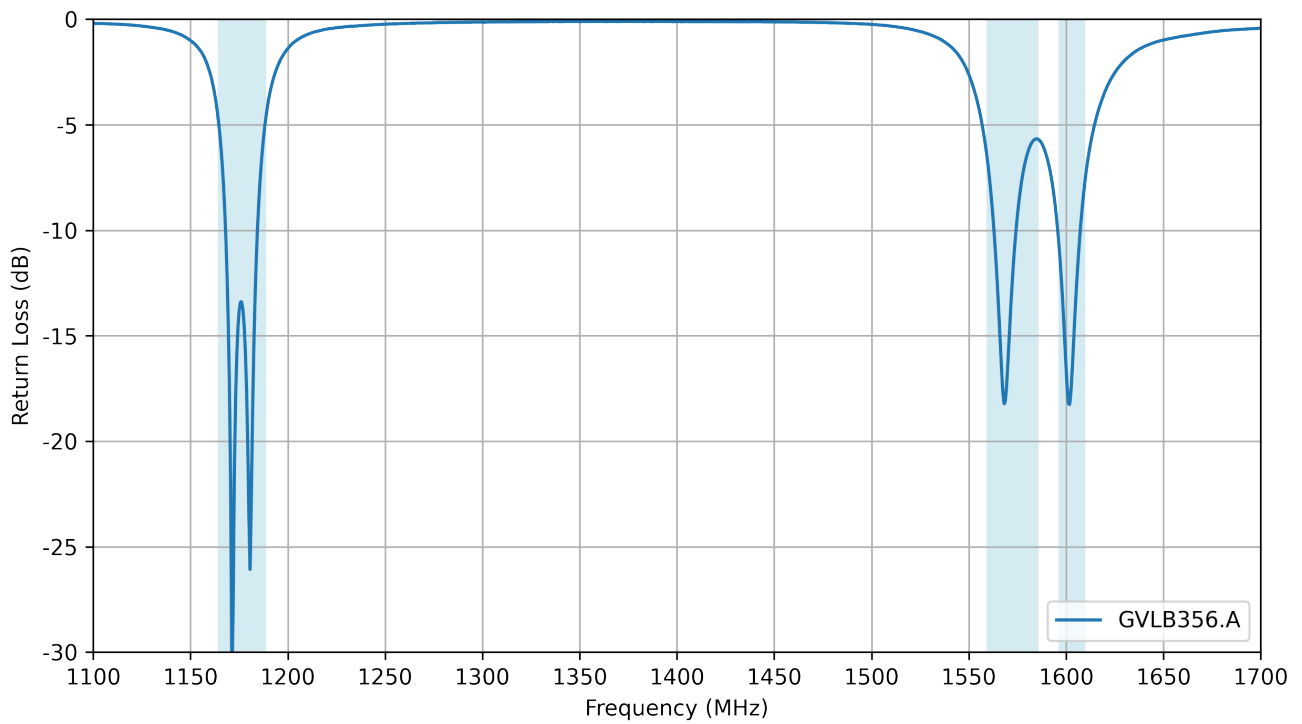
## 5. Antenna Characteristics

### 5.1 Test Setup

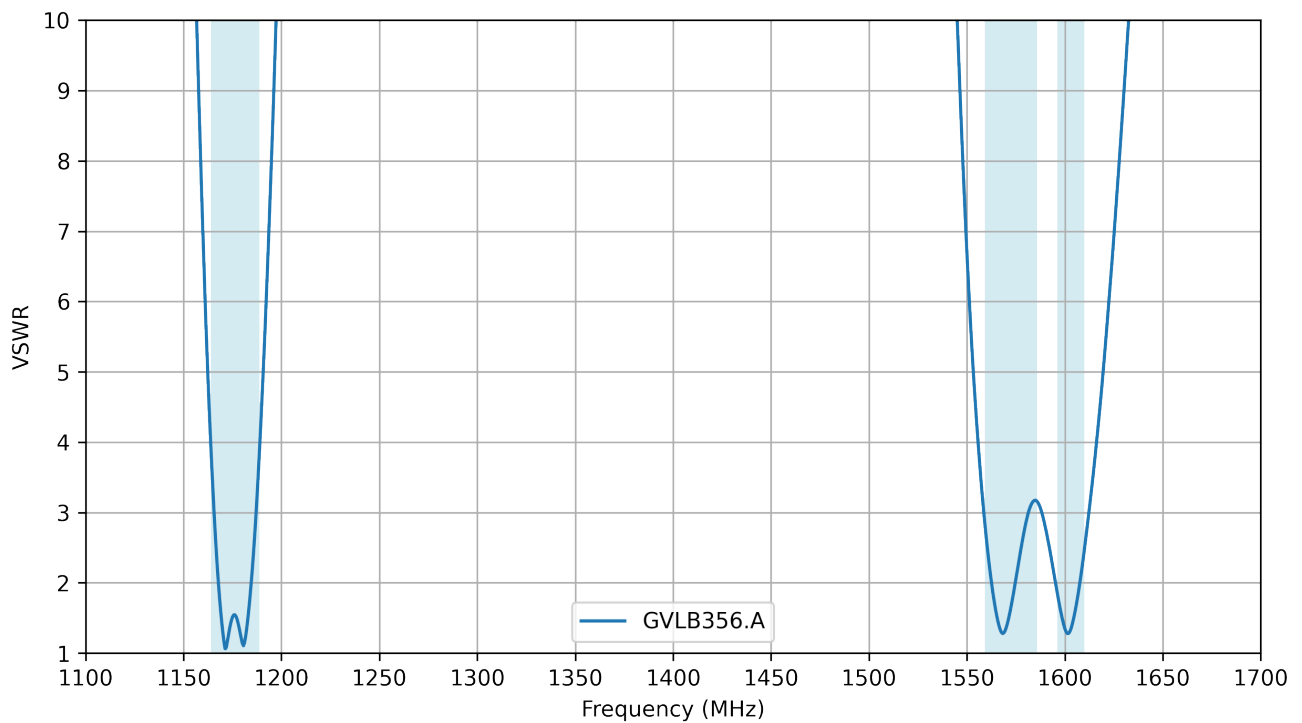


VNA Test Setup on 70x70mm Ground Plane

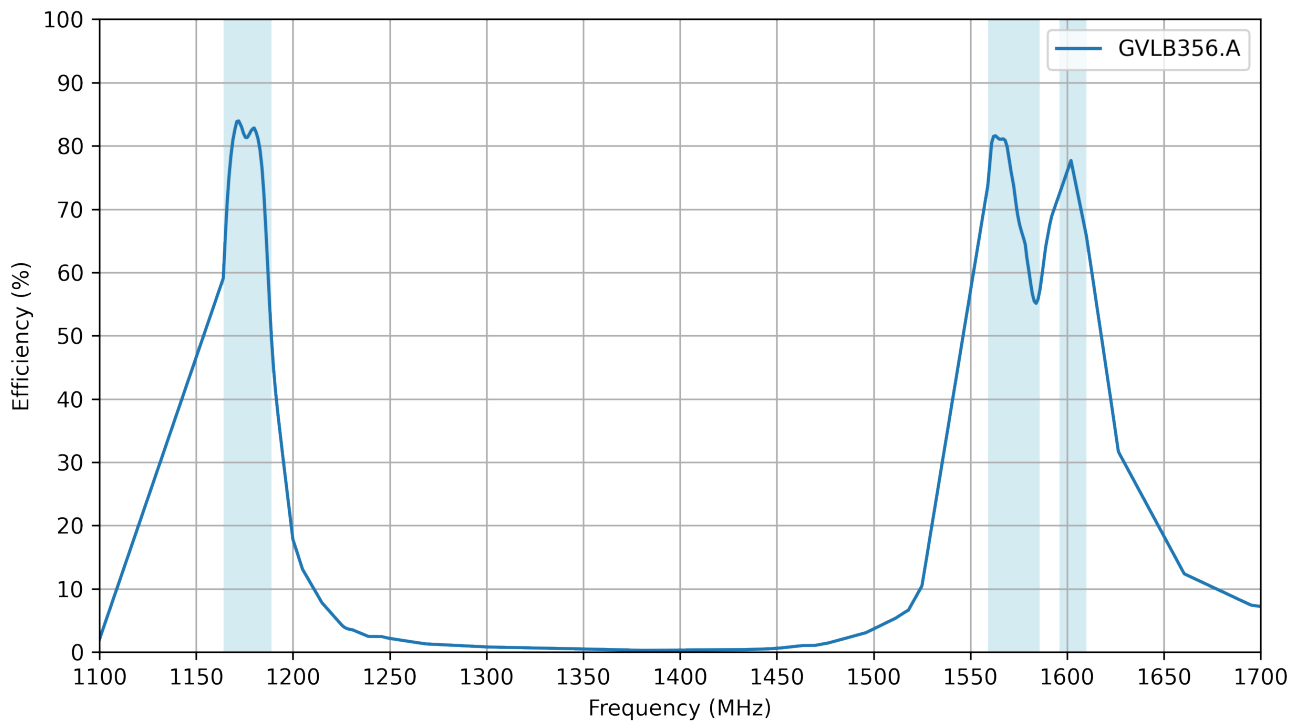
## 5.2 Return Loss



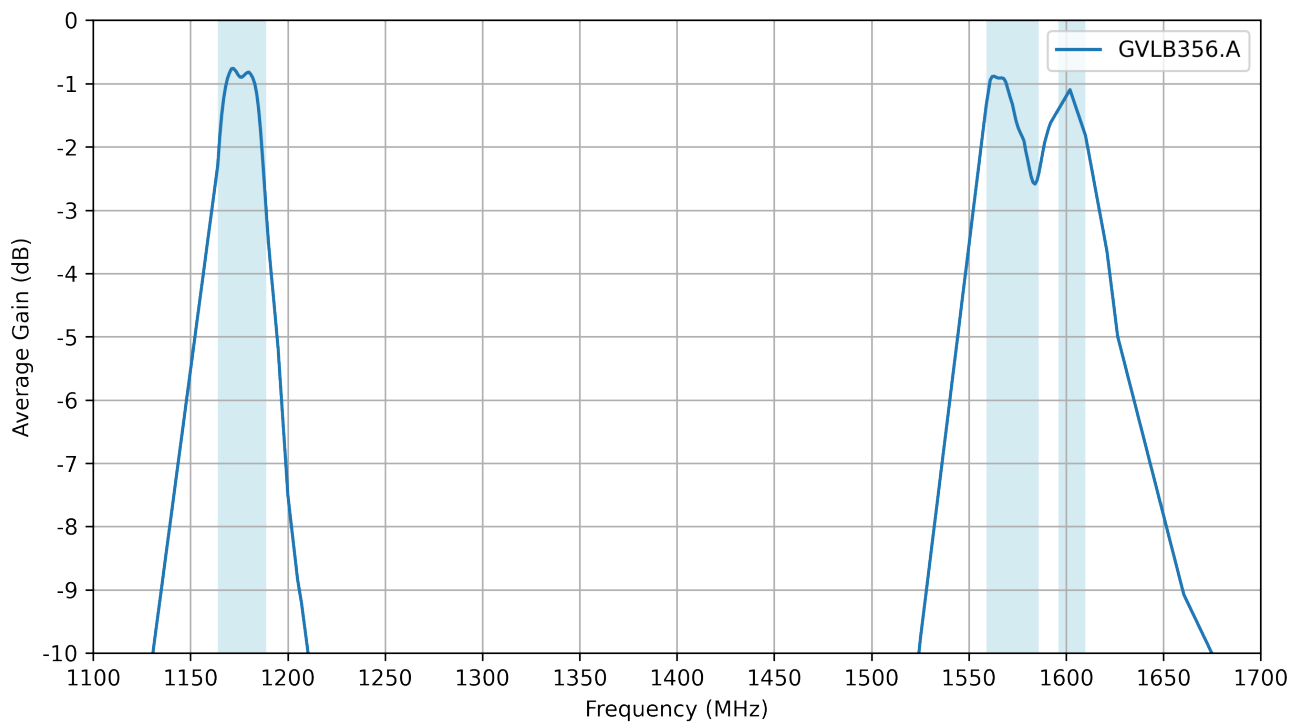
## 5.3 VSWR



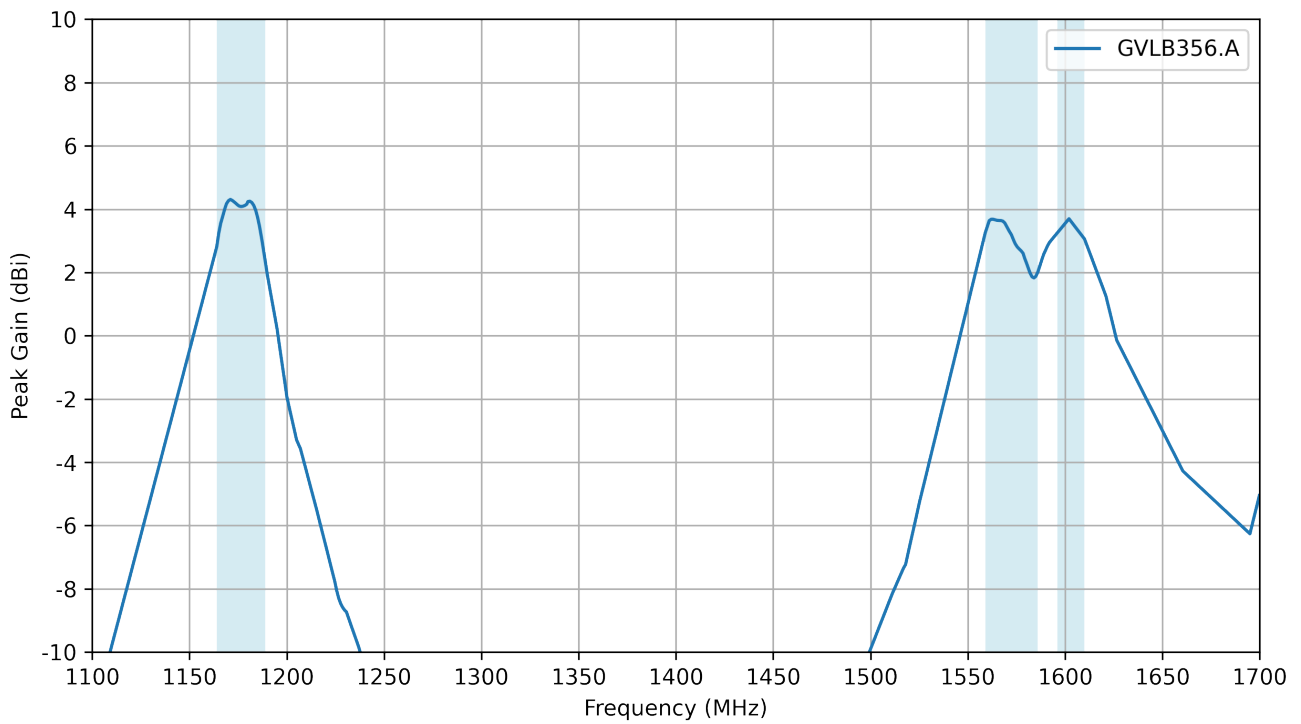
## 5.4 Efficiency



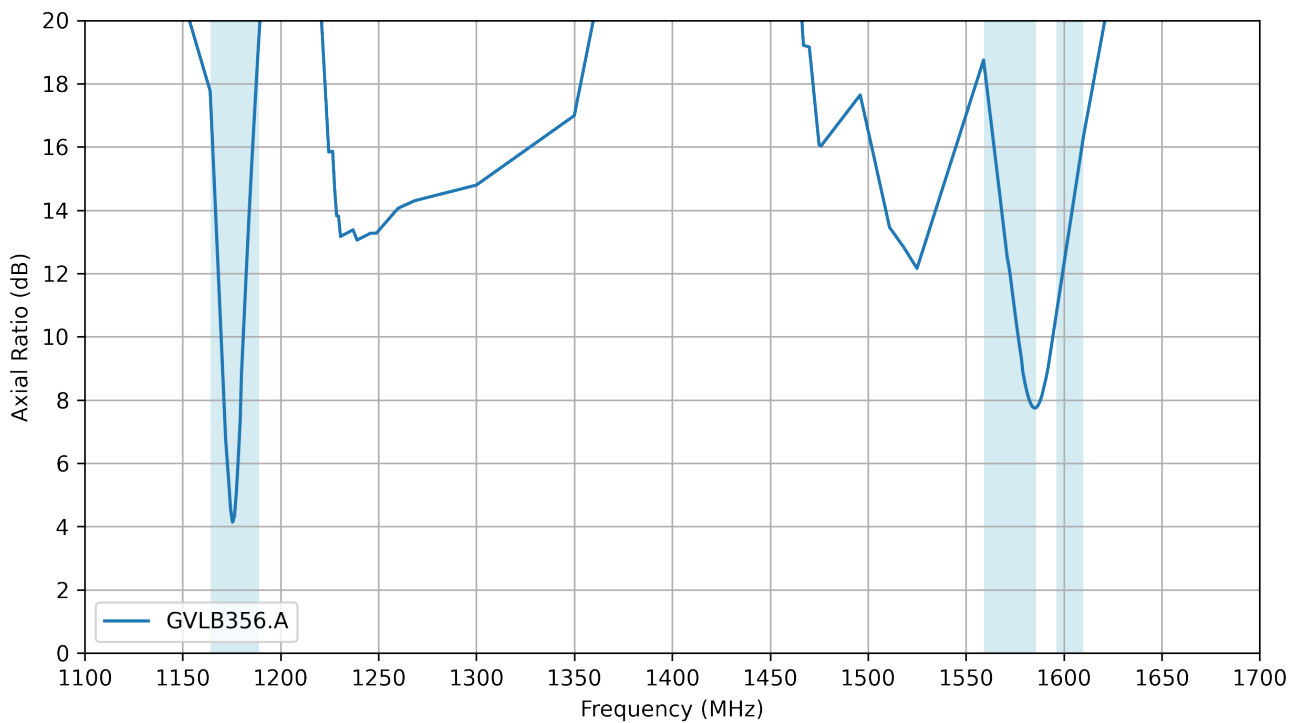
## 5.5 Average Gain



## 5.6 Peak Gain

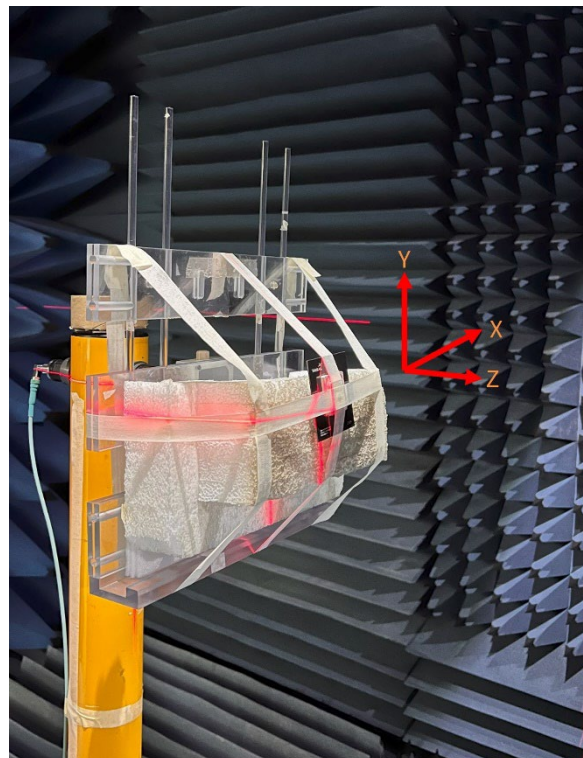
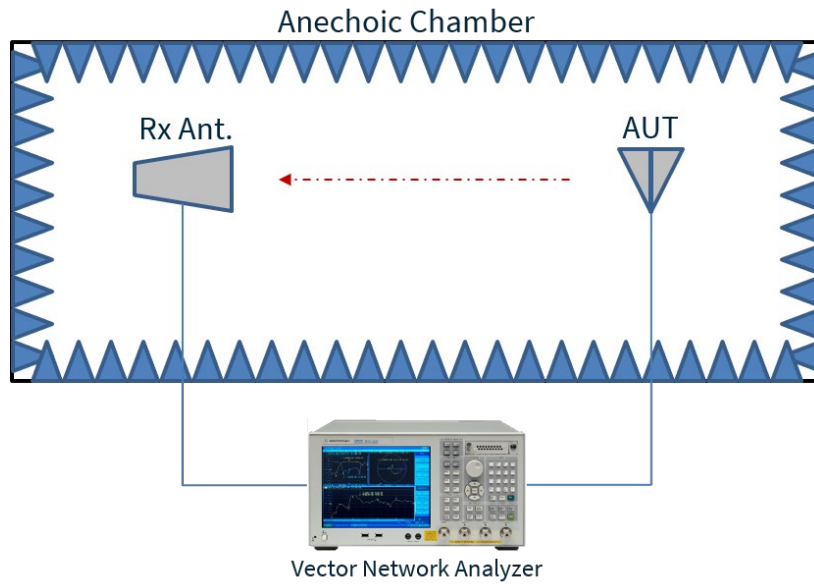


## 5.7 Axial Ratio



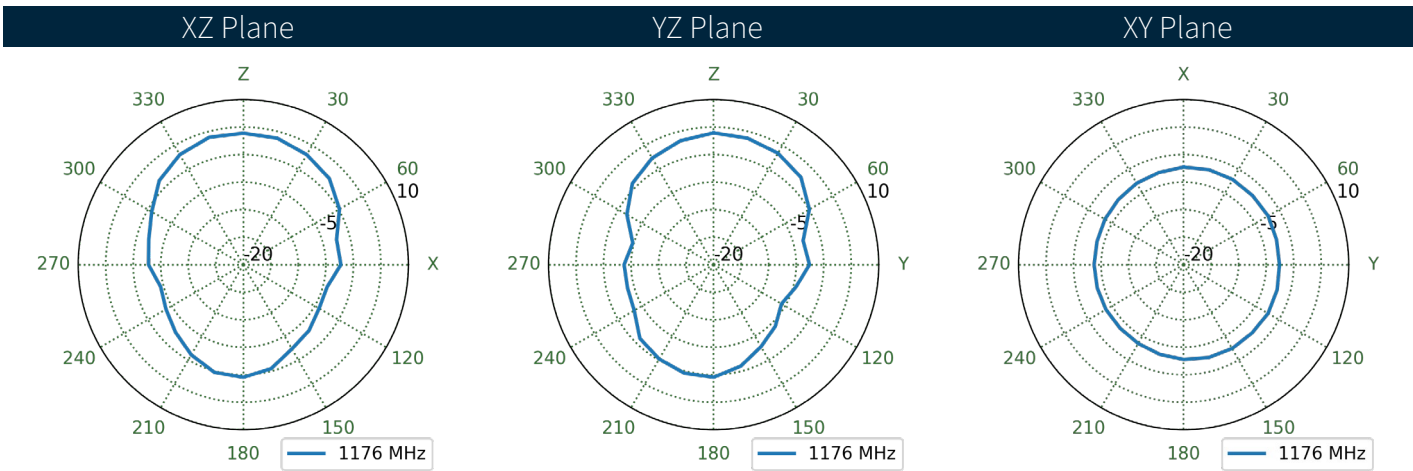
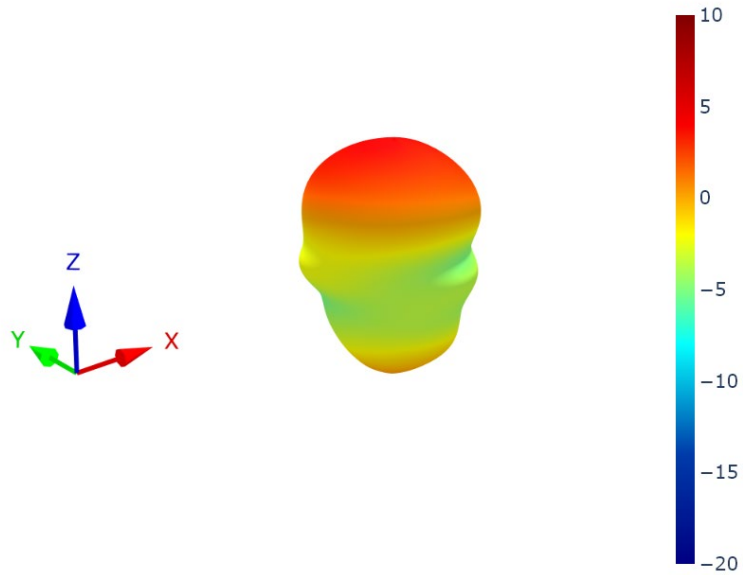
## 6. Radiation Patterns

### 6.1 Test Setup

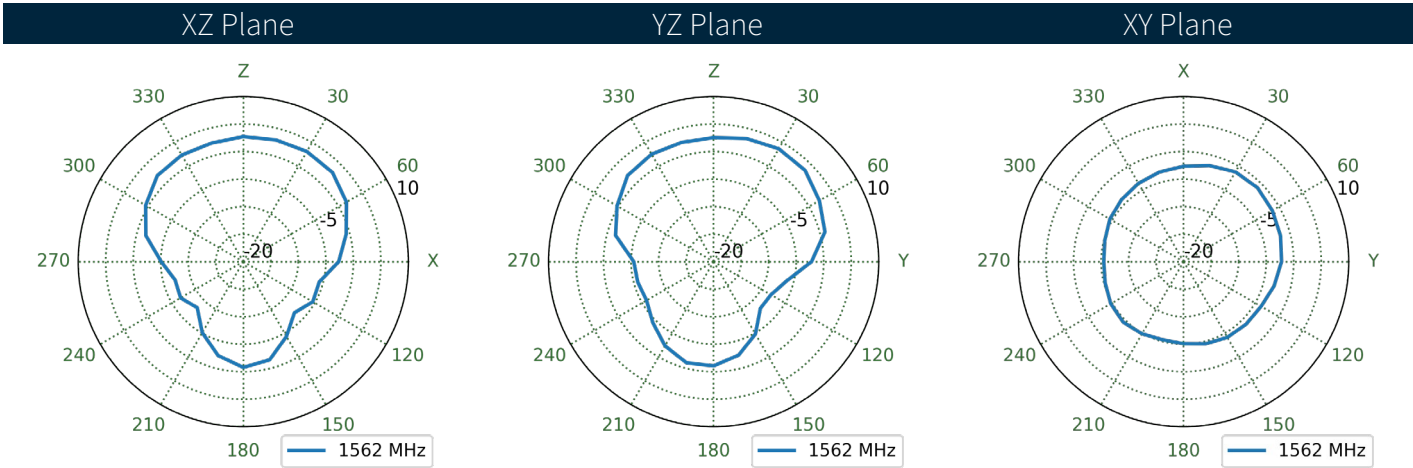
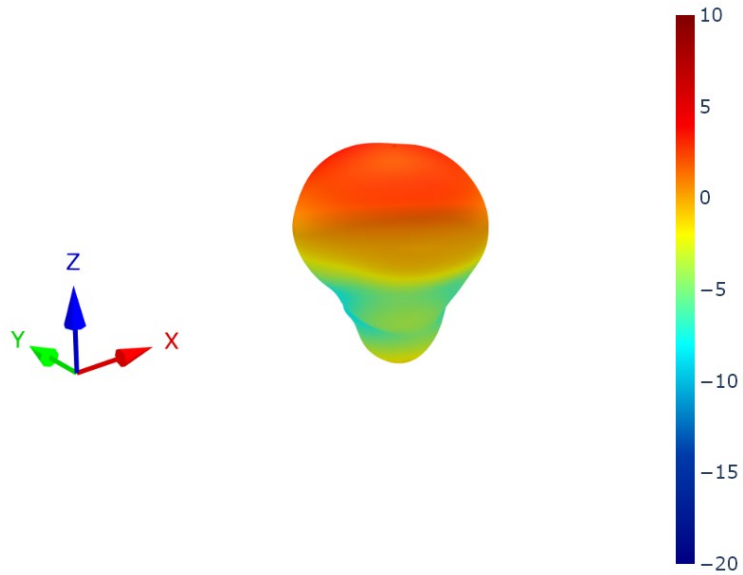


Chamber Test Setup on 70x70mm Ground Plane

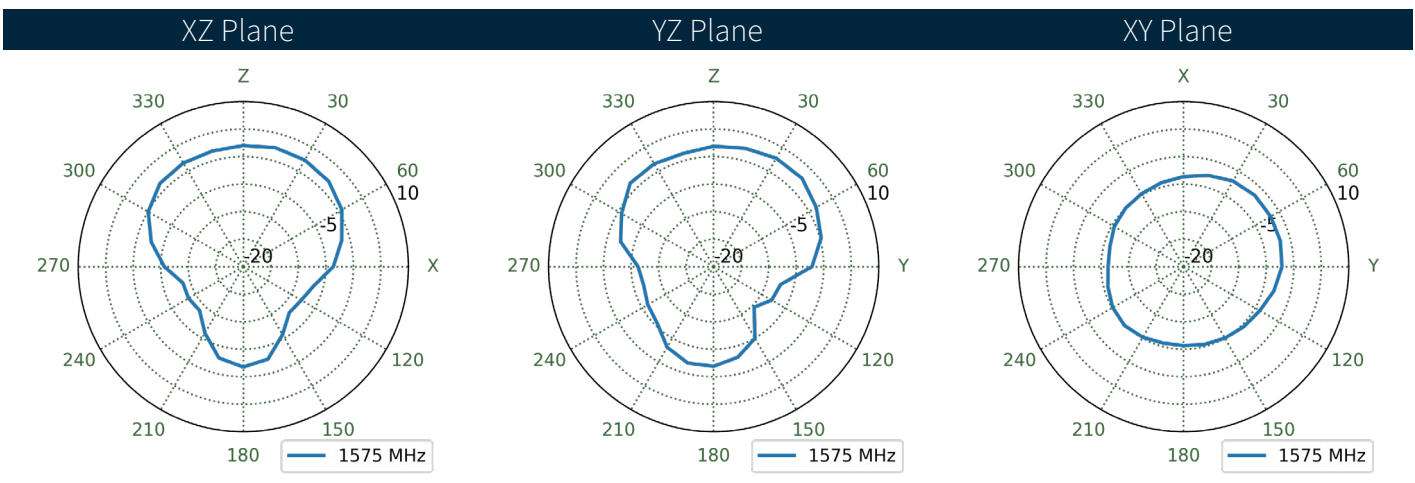
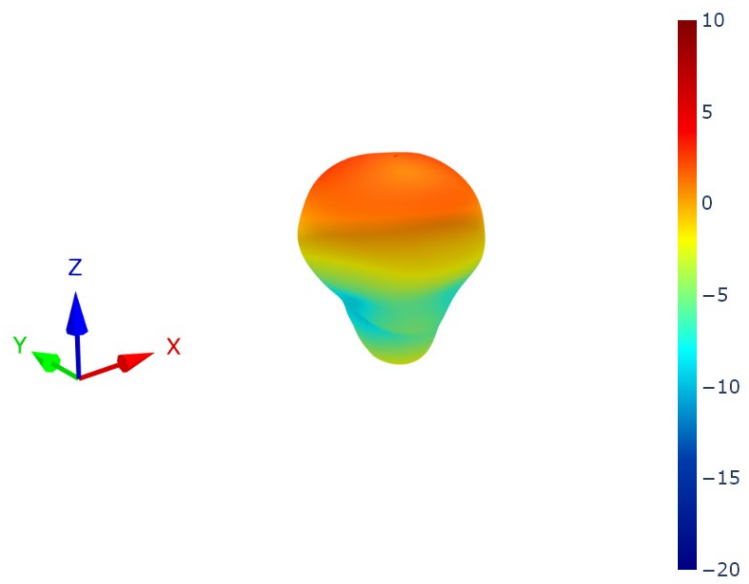
6.2 Patterns at 1176 MHz



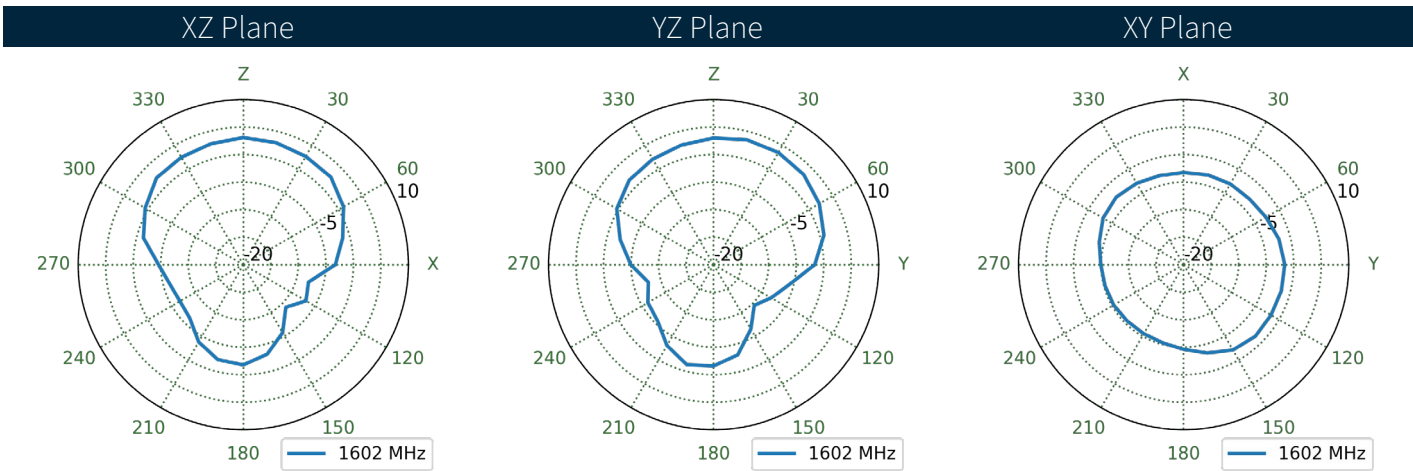
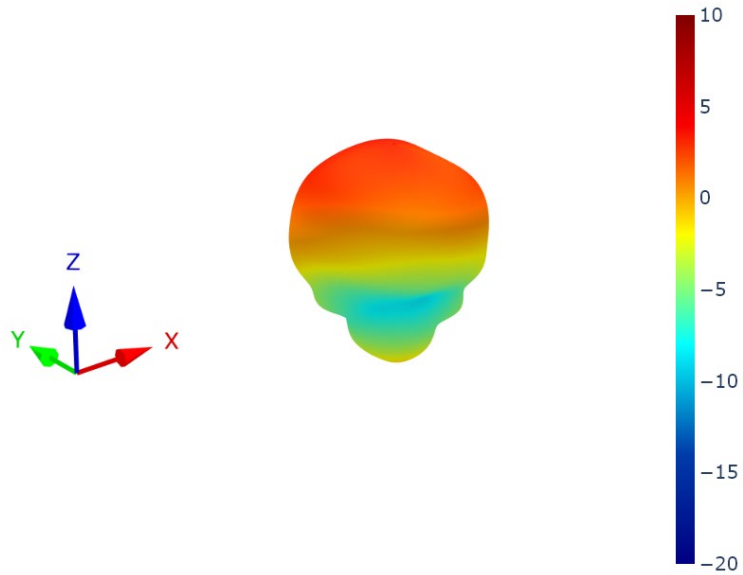
6.3 Patterns at 1562 MHz



6.4 Patterns at 1575 MHz



6.5 Patterns at 1602 MHz



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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