



TAOGLAS®



Datasheet

Part No:
GPSFB356.A

Description

Multiband GNSS Single Feed 35 x 35 x 6mm Stacked Patch
With GPS L1 / L2, GLONASS G1 and BeiDou B1

Features:

GPS/GLONASS/BeiDou Single Feed Stacked Patch
Covering: L1:1575MHz
L2:1227.6MHz
B1:1561MHz
G1:1602MHz
Dims: 35 x 35 x 6.12mm
RoHS & Reach Compliant

| | | |
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| | Changelog | ?? |

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1. Introduction



The Taoglas GPSFB356.A multiband GNSS stacked ceramic patch is a high-performance, precision engineered passive patch antenna covering GPS L1 and L2, Galileo E1 and GLONASS G1, and also the additional B1 BeiDou band. The base 35 x 35mm patch and the upper 25 x25mm patch have a single pin feed output that combines both L1 and L2 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 GPSFB356.A exhibits very good gain and radiation pattern stability on both L1 and L2 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:

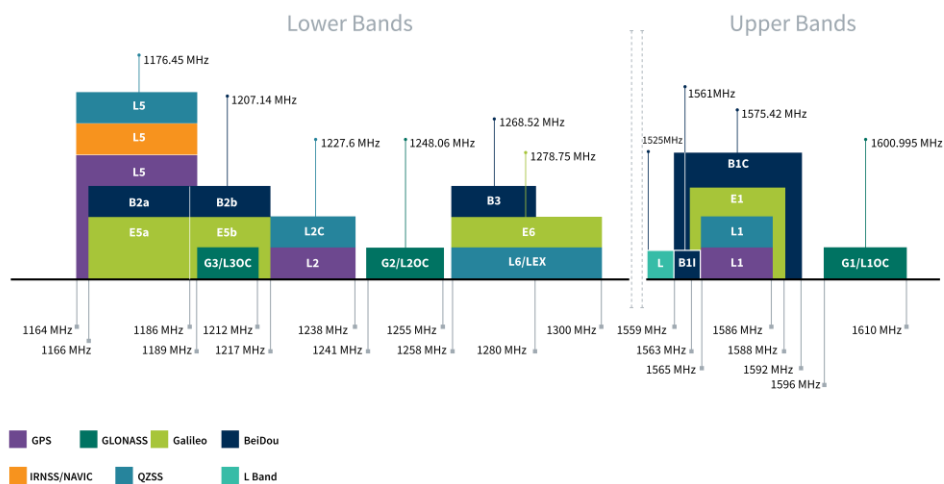
- High accuracy positioning and navigation systems
- UAVs, Robotics & Autonomous Vehicles
- Mapping & GIS
- Transportation & Telematics
- Precision Agriculture
- Public Safety, Search & Rescue
- RTK Systems

This patch is tuned specifically for a 70*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 GPSFB356.A can be combined with the Taoglas [TFM.100A](#) 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 |
| | ■ | □ | ■ | □ | □ |



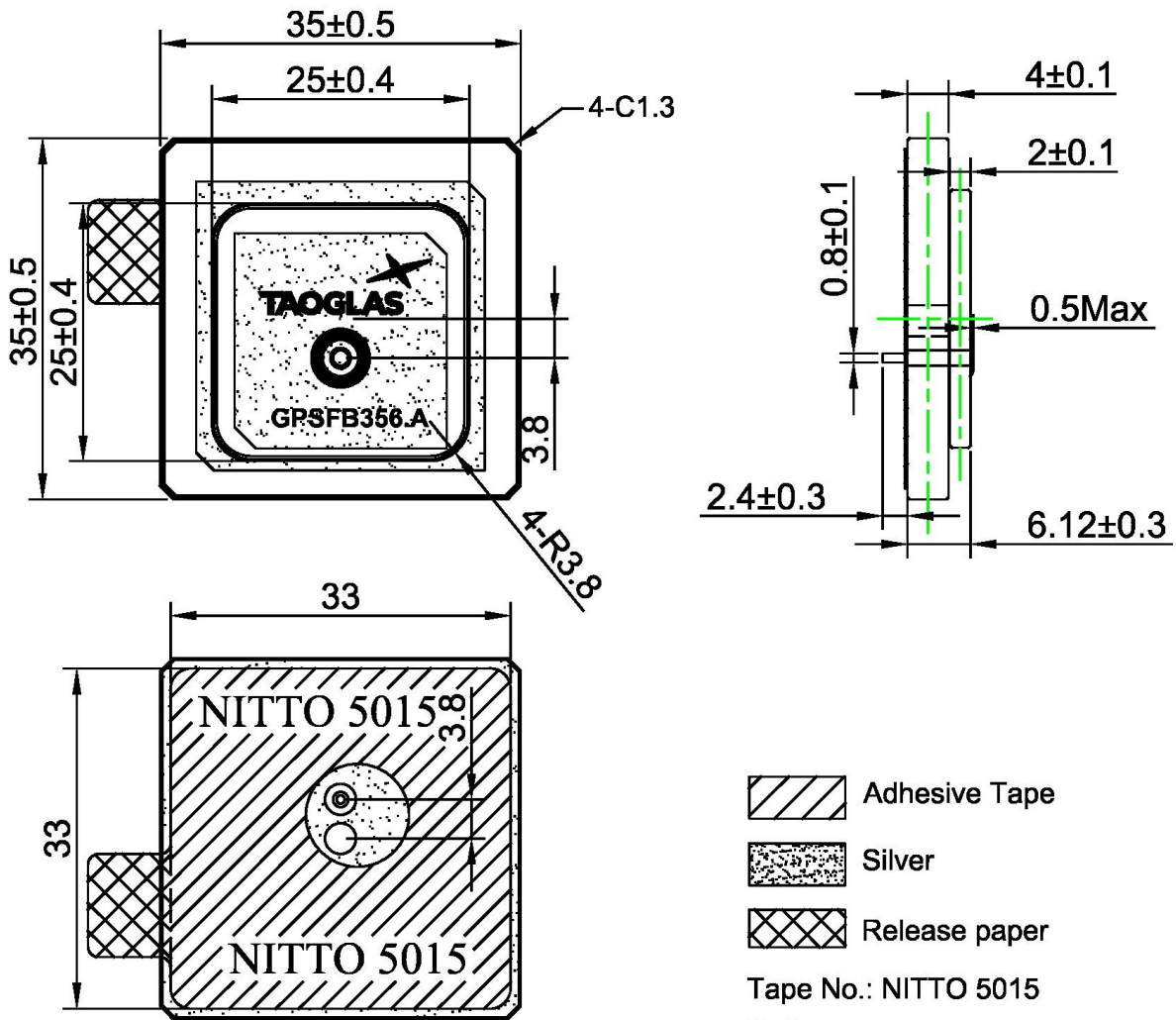
GNSS Bands and Constellations

| GNSS Electrical | | | | |
|---------------------------------------|--------|-------|---------|-------|
| Frequency (MHz) | 1227.6 | 1561 | 1575.42 | 1603 |
| VSWR (max.) | 4:1 | 2:1 | 2:1 | 2:1 |
| Passive Antenna Efficiency (%) | 56.11 | 79.3 | 67.16 | 63.57 |
| Passive Antenna Gain at Zenith (dBic) | 3.54 | 3.02 | 3.19 | 3.19 |
| Axial Ratio (dB) | 9.03 | 17.09 | 11.49 | 11.96 |
| Polarization | RHCP | | | |
| Impedance | 50 Ω | | | |

| Mechanical | |
|------------|------------------|
| Dimensions | 35 x 35 x 6.12mm |
| Weight | 20g |
| Material | Ceramic |
| Pin Length | 2.4mm |

| 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

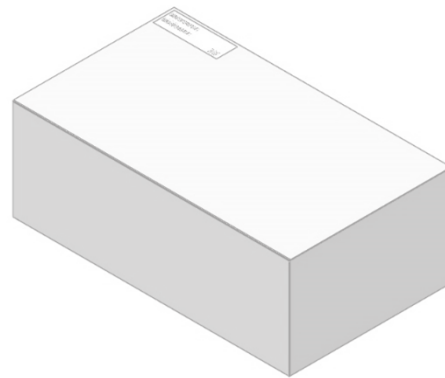


4. Packaging

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



72pcs per box
 Box dimensions: 261 x 15 x 118mm
 Weight: 1.9Kg



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



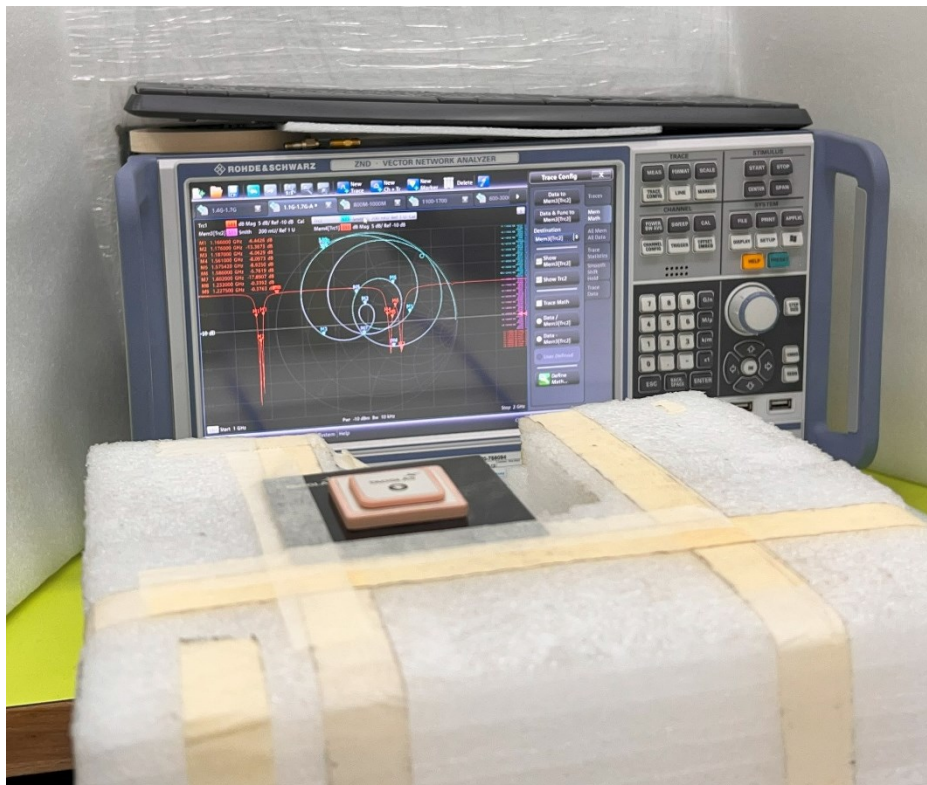
5. Antenna Characteristics

5.1 Test Setup

AUT

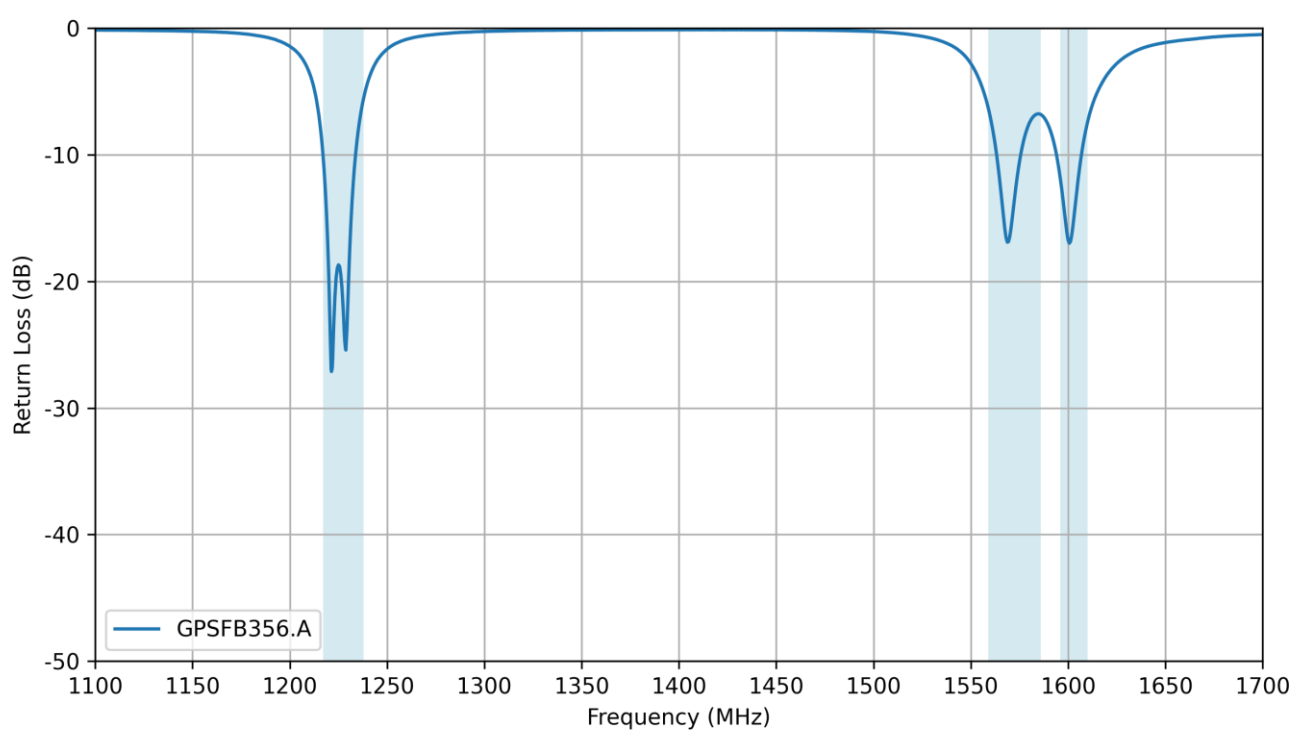


Vector Network Analyzer

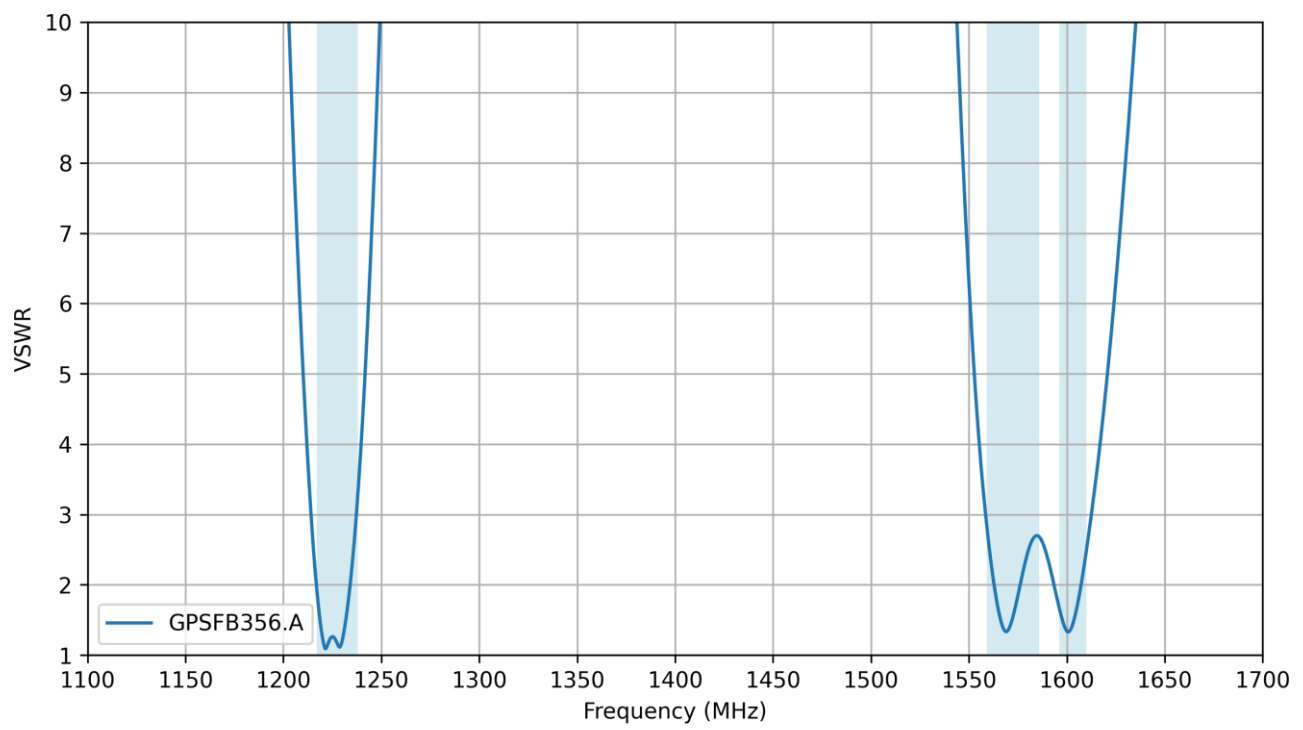


VNA Test Setup on a 70 x 70mm Ground Plane

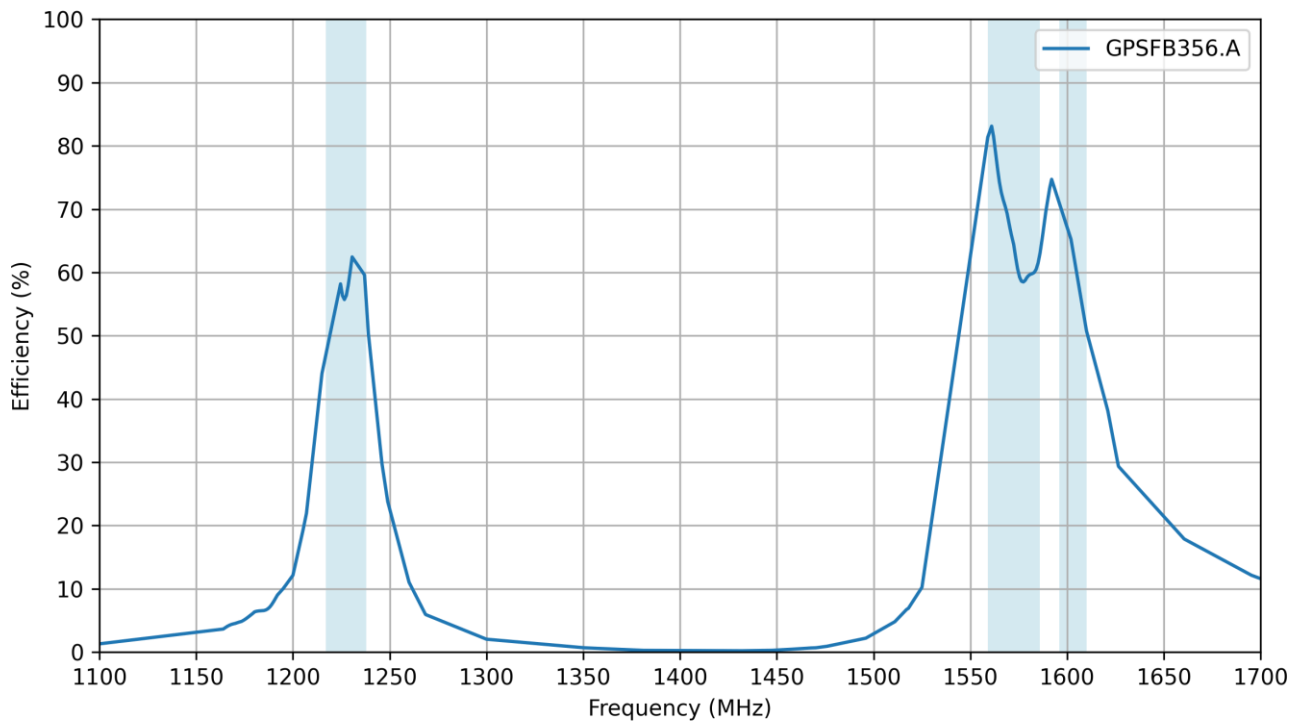
5.2 Return Loss



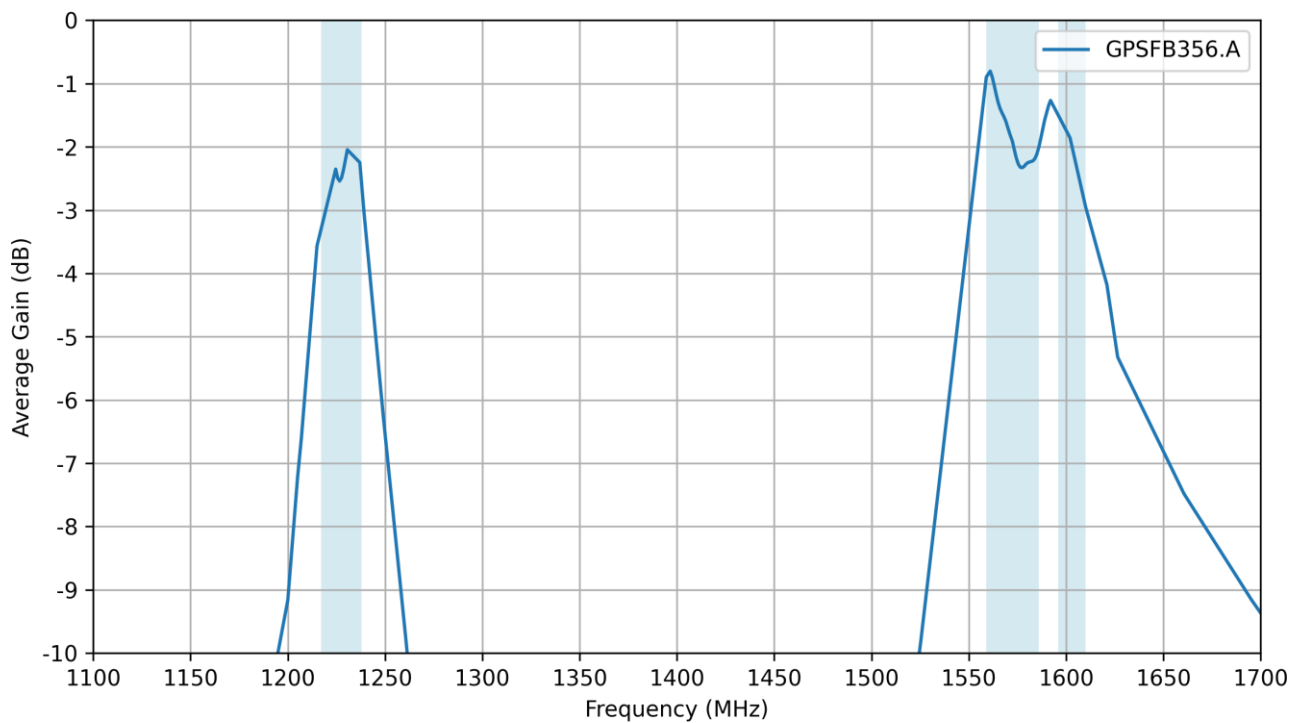
5.3 VSWR



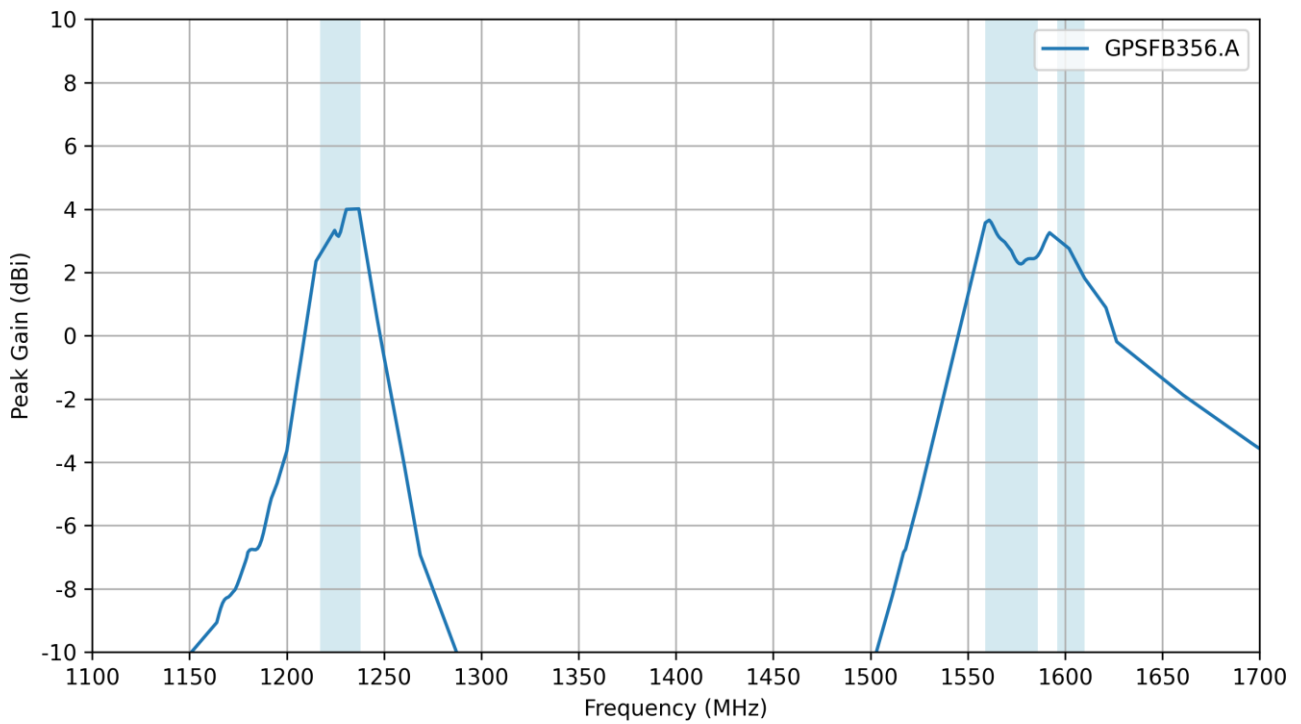
5.4 Efficiency



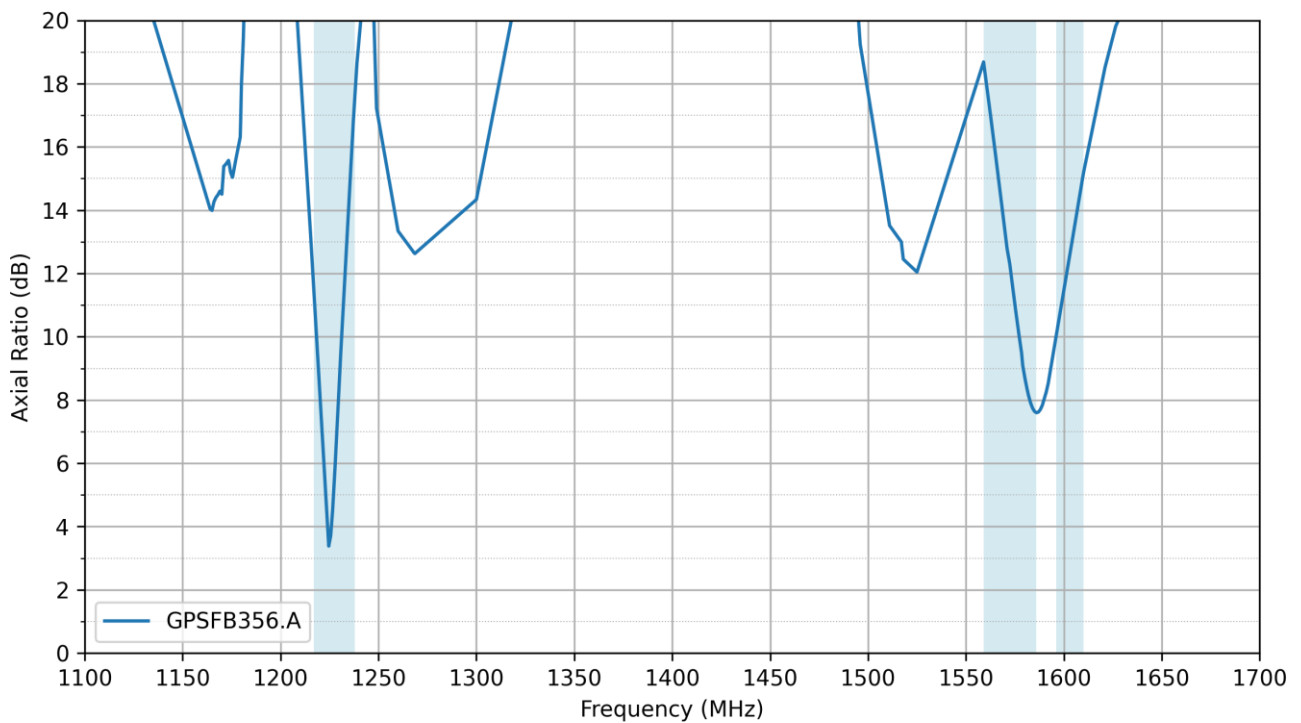
5.5 Average Gain



5.6 Peak Gain

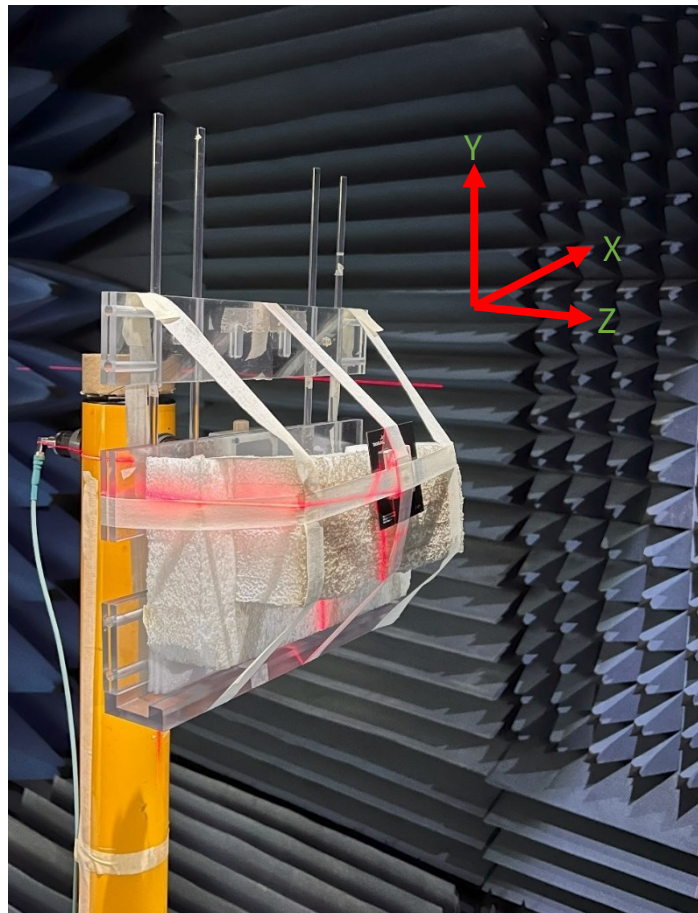
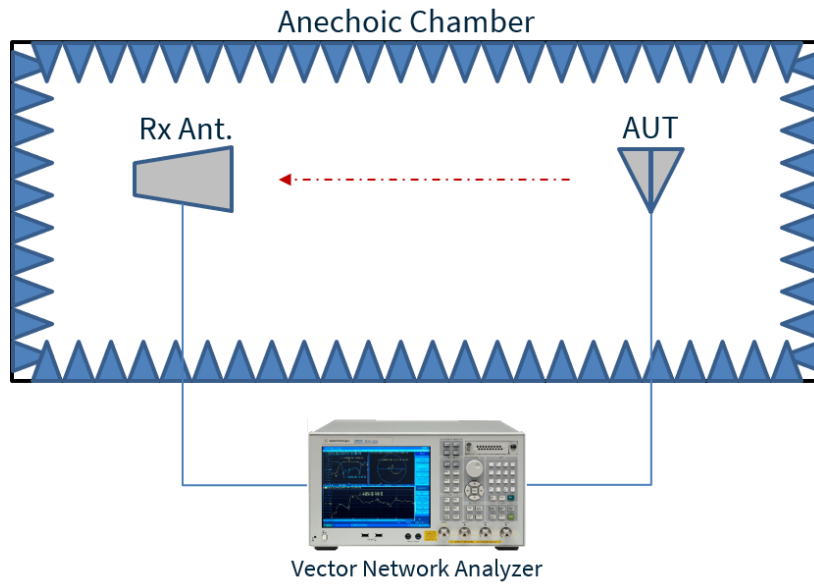


5.7 Axial Ratio



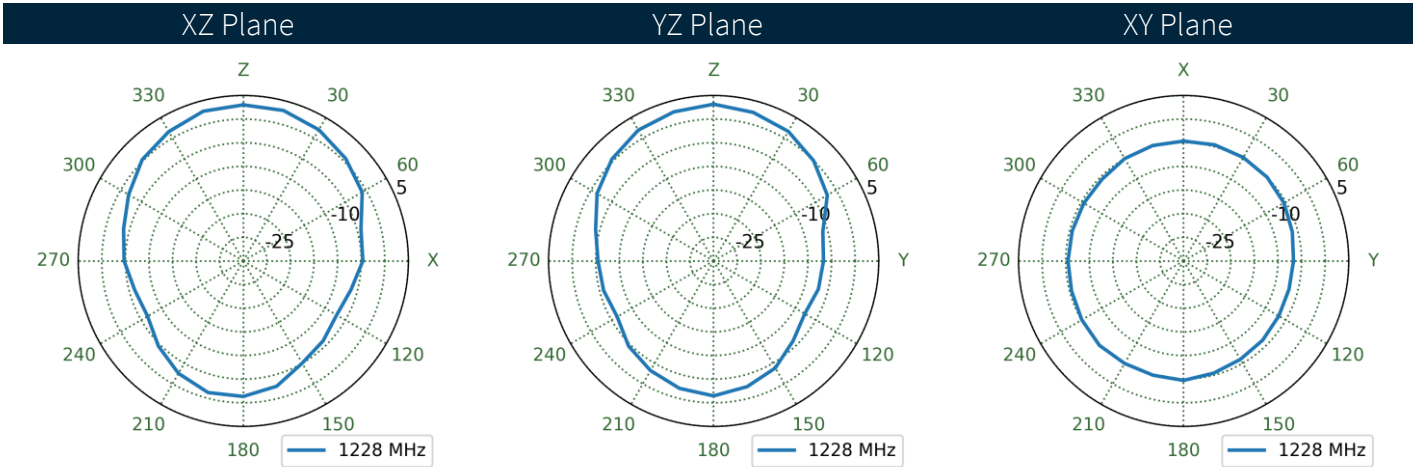
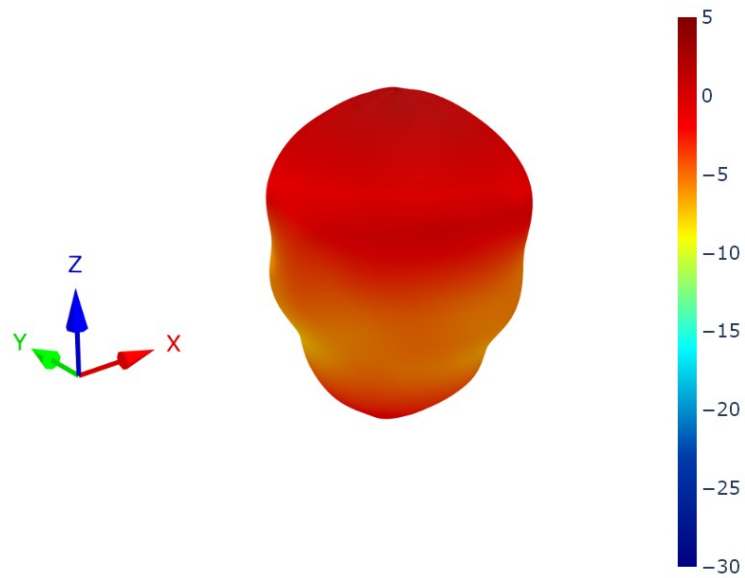
6. Radiation Patterns

6.1 Test Setup

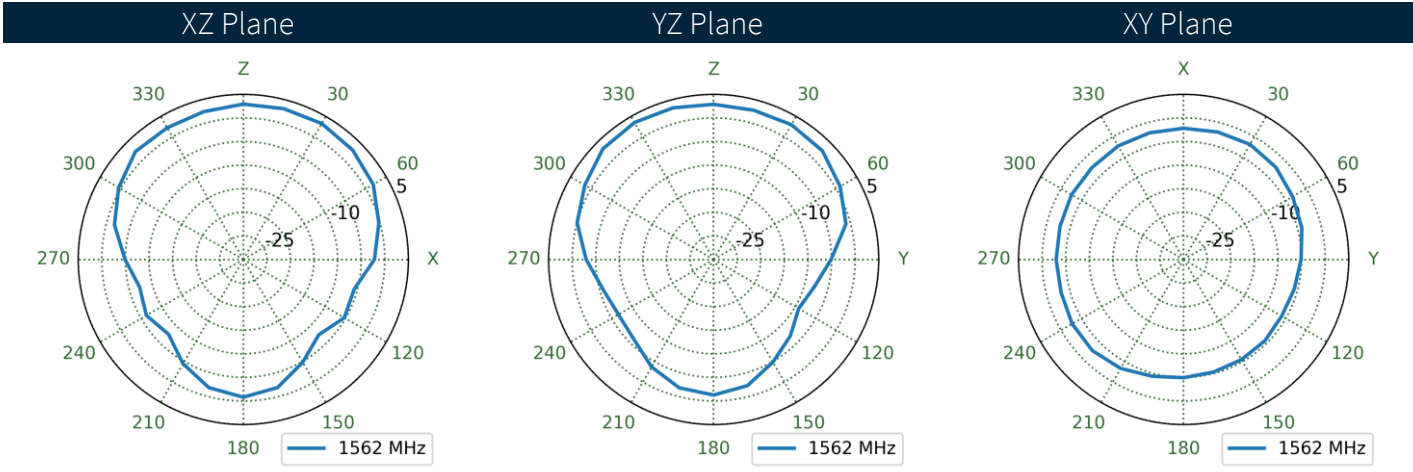
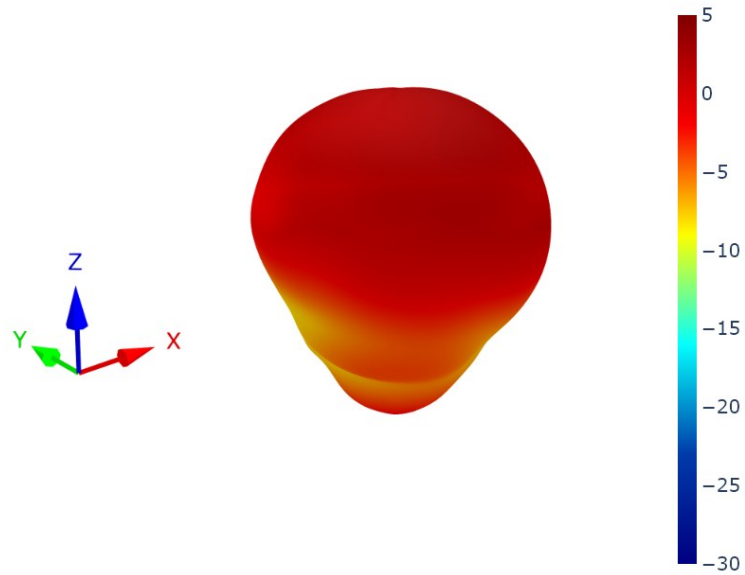


Chamber Test Set-up on a 70 x 70mm Ground Plane

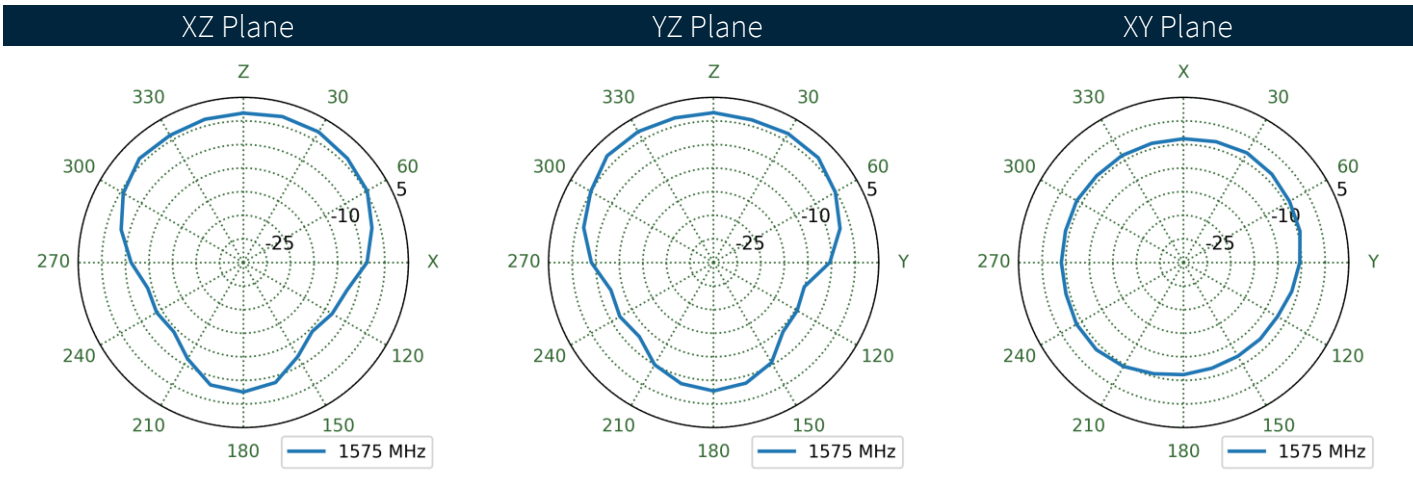
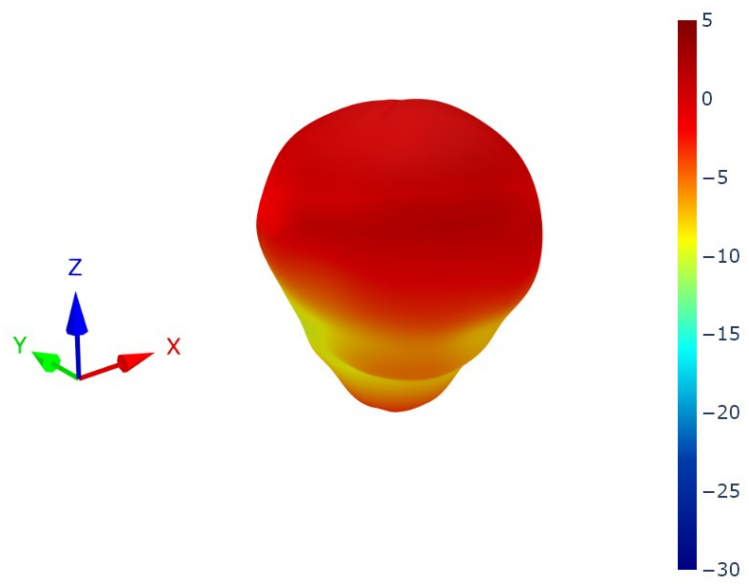
6.2 Patterns at 1228 MHz



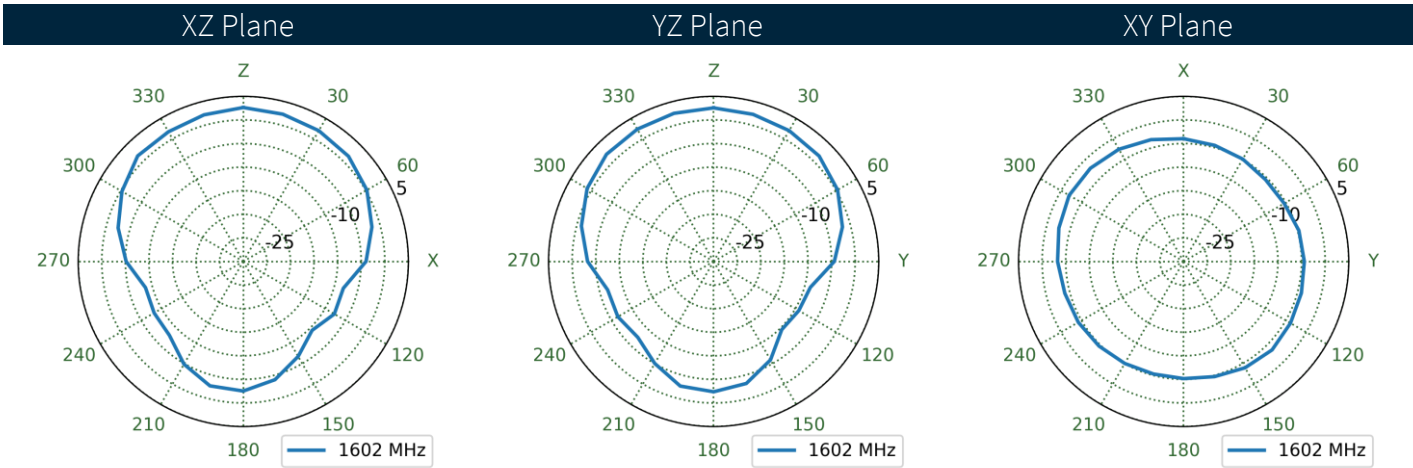
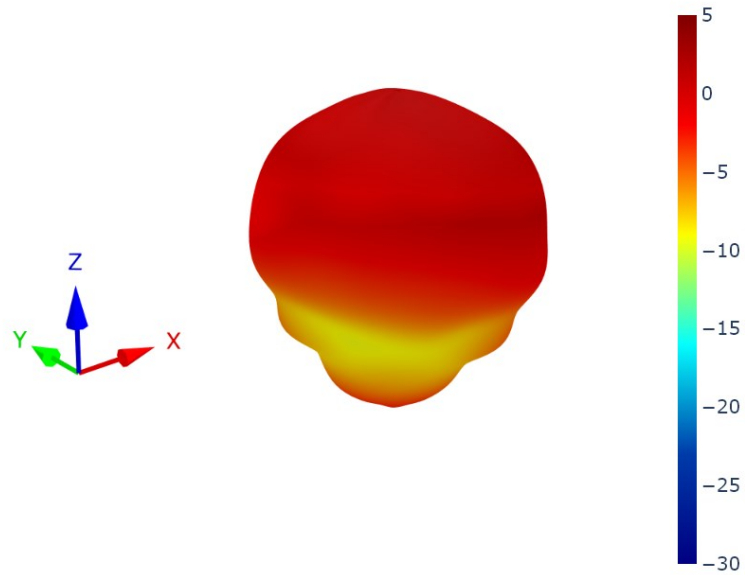
6.3 Patterns at 1562 MHz



6.4 Patterns at 1575 MHz



6.5 Patterns at 1602 MHz



Changelog for the datasheet

SPE-24-8-234 – GPSFB356.A

Revision: A (Initial Release)

| | |
|---------|---------------------------|
| Date: | 2024-09-24 |
| Notes: | Initial Datasheet Release |
| Author: | Gary West |

Previous Revisions

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