



# TAOGLAS®



# Datasheet

## GPS & BeiDou Stacked Patch Multi-Band Antenna

**Part No:**  
GPVBSF.25.8.A

**Description:**

GPS L1 / L5 & BeiDou B1 Single Feed Stacked Patch Antenna

**Features:**

Single Feed Stacked Patch Assembly

Covering Bands

- GPS L1 & L5
- BeiDou B1

Low Axial Ratio

Pin Mount

Dimensions: 25\*25\*8.12mm

RoHS & REACH Compliant

|                            |    |
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# 1. Introduction



The GPVBSF.25.8.A, with Taoglas Sure Technology, is a multi-band GPS, BeiDou/Compass and IRNSS, high-performance directional antenna for high precision GPS and BeiDou accuracy and fast positioning. It utilizes a 25\*25\*8mm advanced wide-band dual stacked ceramic patch antenna with optimized gain for GPS L1/L5, Galileo and BeiDou bands.

Typical Applications Include:

- RTK
- Navigation
- Wearables
- Security
- Transportation
- Autonomous Vehicles
- Agriculture

The GPVBSF.25.8.A has been tuned and tested on a 70 x 70 mm ground plane and exhibits excellent radiation patterns.

Patch antennas can be specifically tuned to customer-specific device environments, subject to NRE and MOQ. 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. Specifications

| GNSS Frequency Bands Covered |                 |             |            |            |            |         |            |
|------------------------------|-----------------|-------------|------------|------------|------------|---------|------------|
| GPS/QZSS                     | L1              | L2          | L5         | L6         |            |         |            |
|                              | 1575.42MHz      | 1227.6MHz   | 1176.45MHz | 1278.75MHz |            |         |            |
|                              | ■               | □           | ■          | □          |            |         |            |
| GLONASS                      | L5R             | L3PT        | L2PT       | L1CR       | L1PT       |         |            |
|                              | 1176.45MHz      | 1201.5MHz   | 1246MHz    | 1575.42MHz | 1602MHz    |         |            |
|                              | ■               | □           | □          | ■          | □          |         |            |
| Galileo                      | E5a             | E5b         | E4         | E3         | E6         | E2      | L1         |
|                              | 1176.45MHz      | 1201.5MHz   | 1215MHz    | 1256MHz    | 1278.75MHz | 1561MHz | 1575.42MHz |
|                              | ■               | □           | □          | □          | □          | ■       | ■          |
| BeiDou                       | B1              | B2          | B3         |            |            |         |            |
|                              | 1561MHz         | 1207.14MHz  | 1268.52MHz |            |            |         |            |
|                              | ■               | □           | □          |            |            |         |            |
| Compass                      | E5B(B2)/ E6(B3) | E2(B1)      |            |            |            |         |            |
|                              | 1268.56MHz      | 1561MHz     |            |            |            |         |            |
|                              | □               | ■           |            |            |            |         |            |
| SBAS                         | Omnistar        | WAAS/EGN OS |            |            |            |         |            |
|                              | 1542.5MHz       | 1575.42MHz  |            |            |            |         |            |
|                              | □               | ■           |            |            |            |         |            |

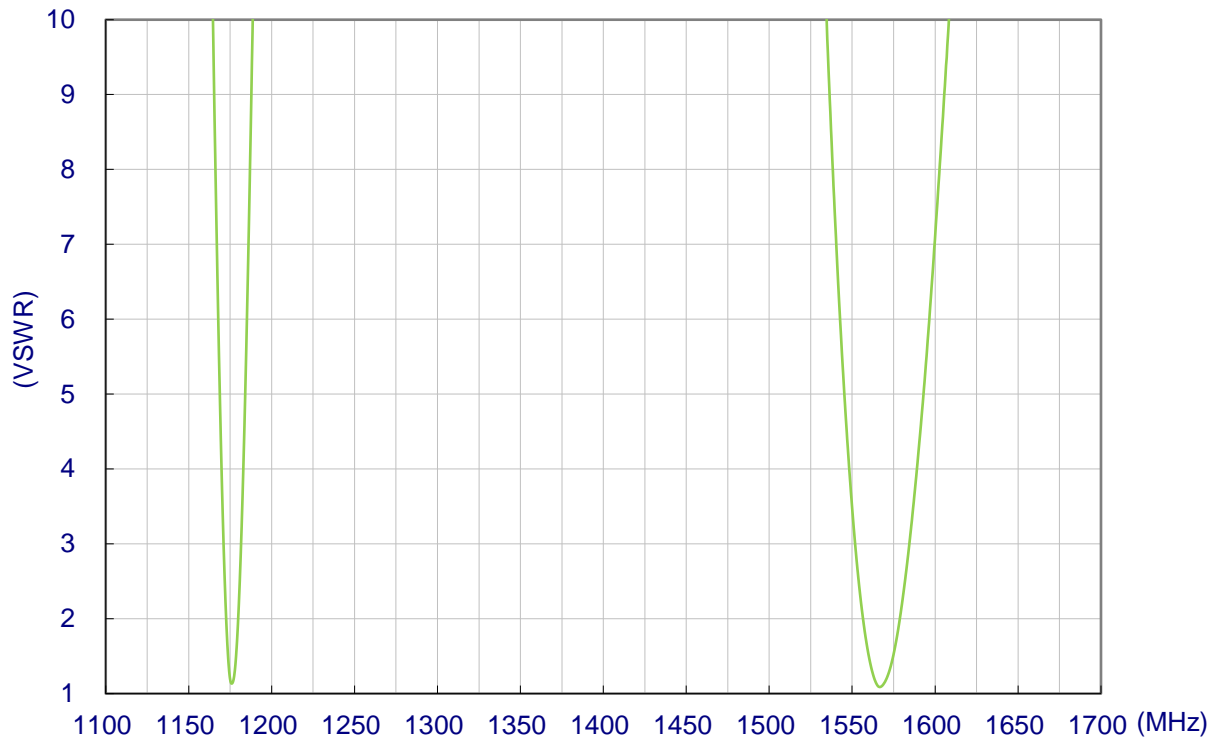
| GNSS Electrical  |          |      |         |
|------------------|----------|------|---------|
| Frequency (MHz)  | 1176.45  | 1561 | 1575.42 |
| VSWR (max.)      | 2:1      | 2:1  | 2:1     |
| Efficiency (%)   | 60.8     | 63.9 | 59.6    |
| Peak Gain(dBi)   | 2.5      | 3.4  | 3.1     |
| Average Gain(dB) | -3       | -2   | -2.3    |
| Polarization     | R.H.C.P. |      |         |

| Mechanical        |                      |
|-------------------|----------------------|
| Planner Dimension | 25*25*8mm            |
| Ground Plane      | 70*70mm              |
| Connection Type   | Pin & Adhesive Mount |

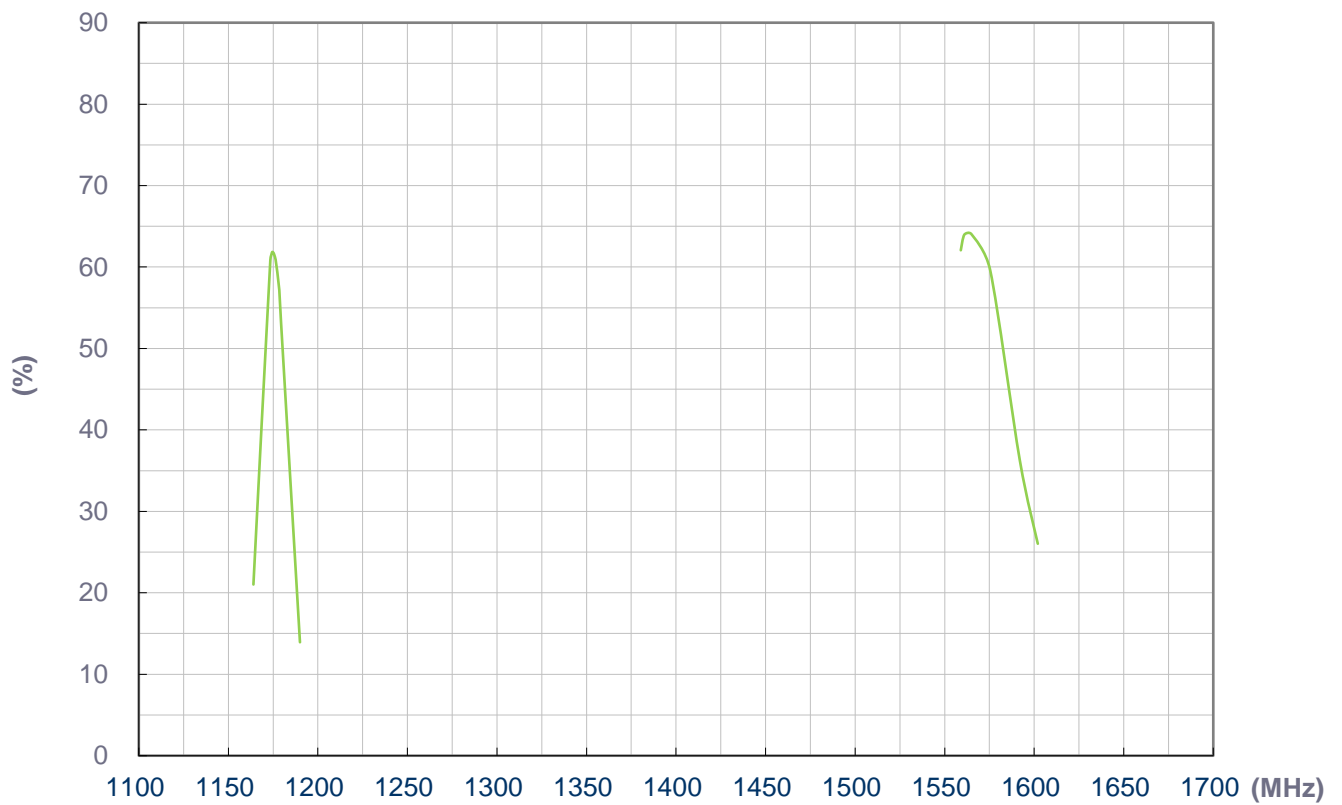
| Environmental     |                            |
|-------------------|----------------------------|
| Temperature Range | -40°C to 85°C              |
| Humidity          | Non-condensing 65°C 95% RH |

### 3. Antenna Characteristics

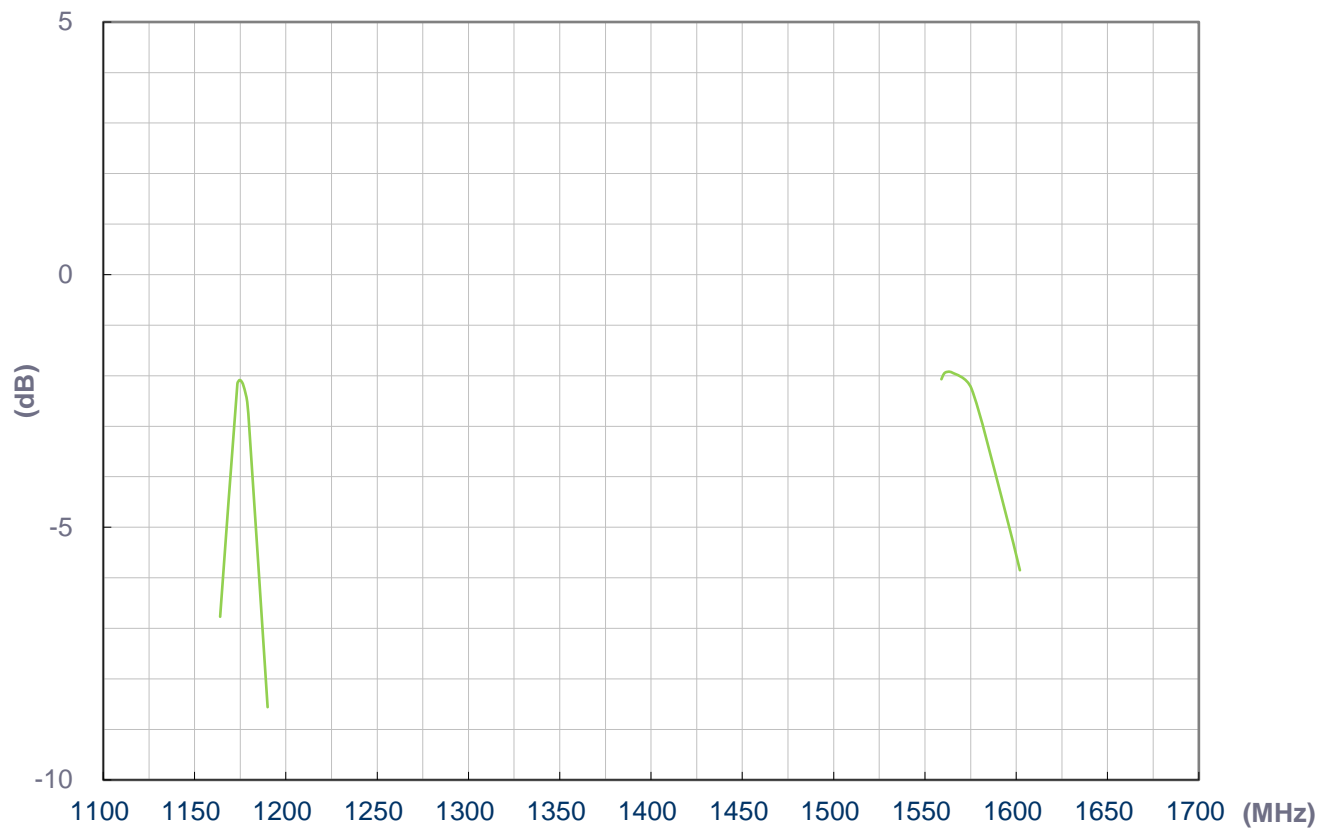
#### 3.1 VSWR



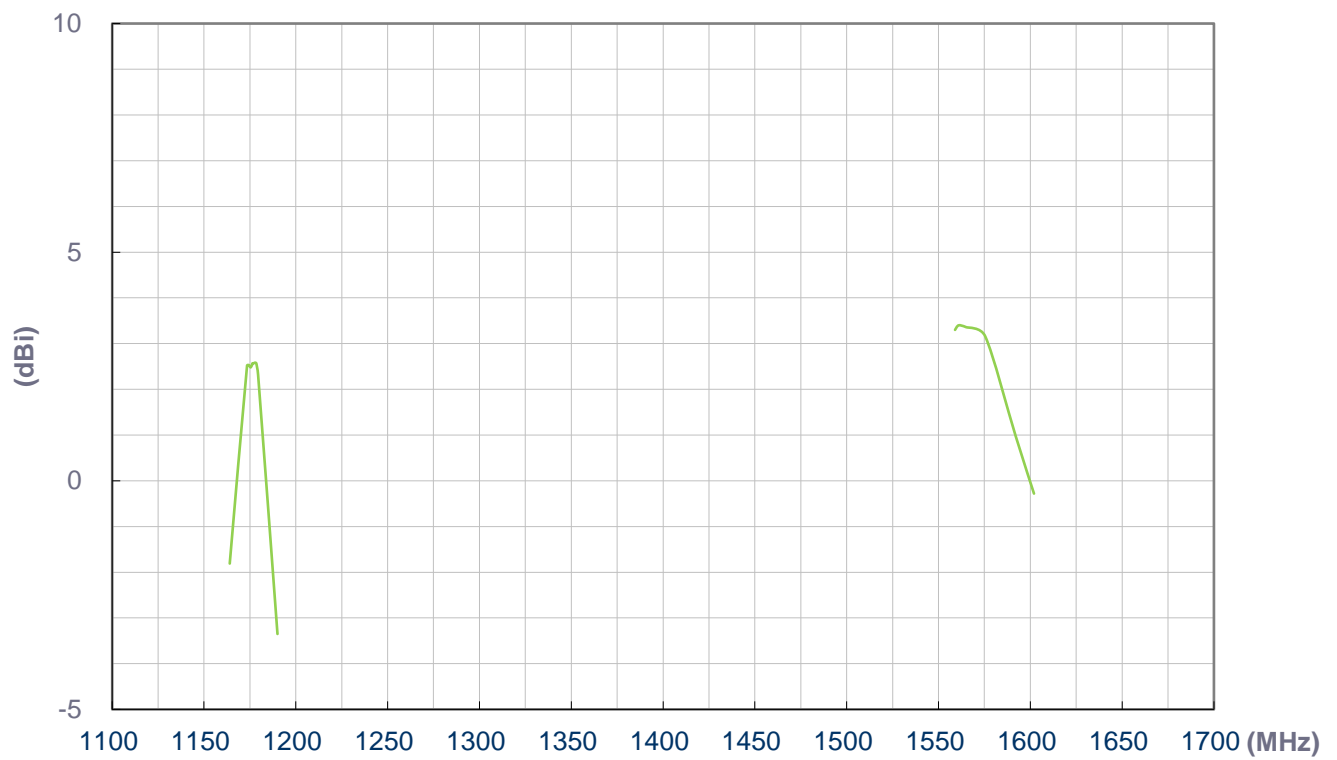
#### 3.2 Efficiency



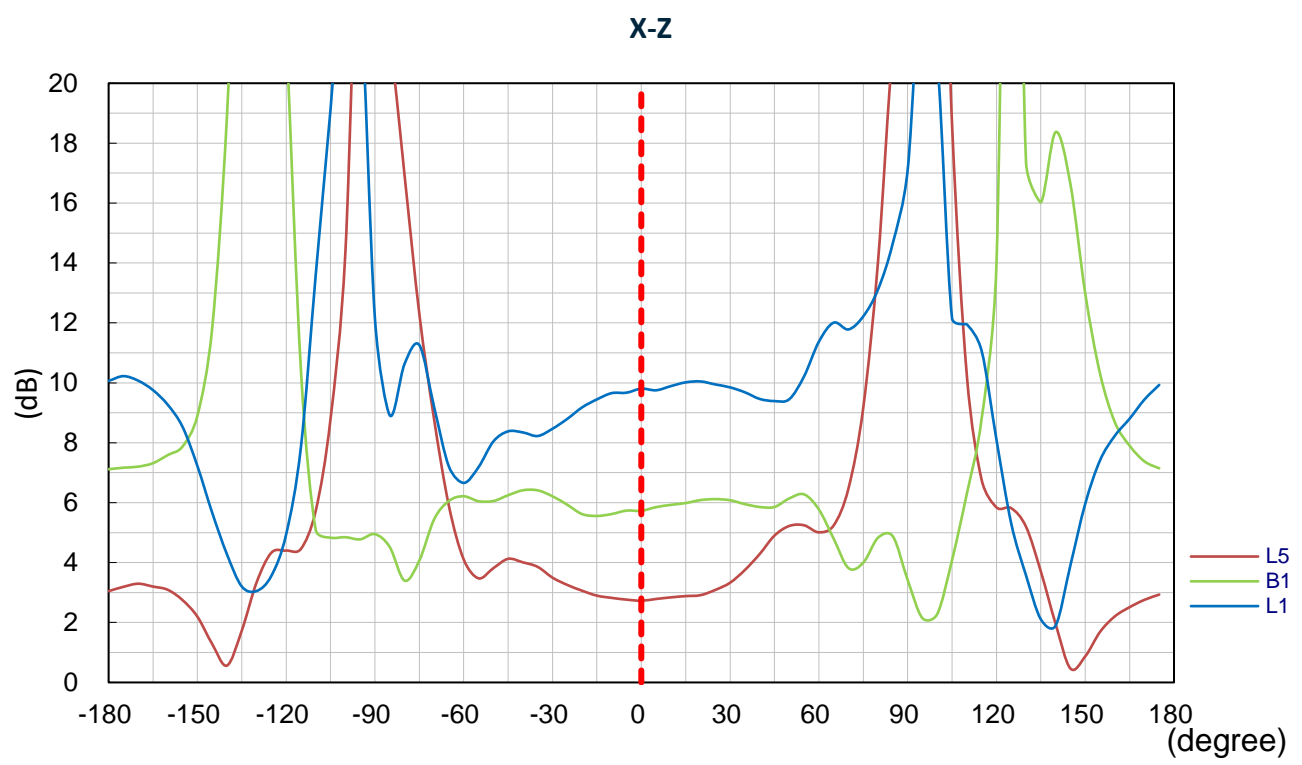
### 3.3 Average Gain



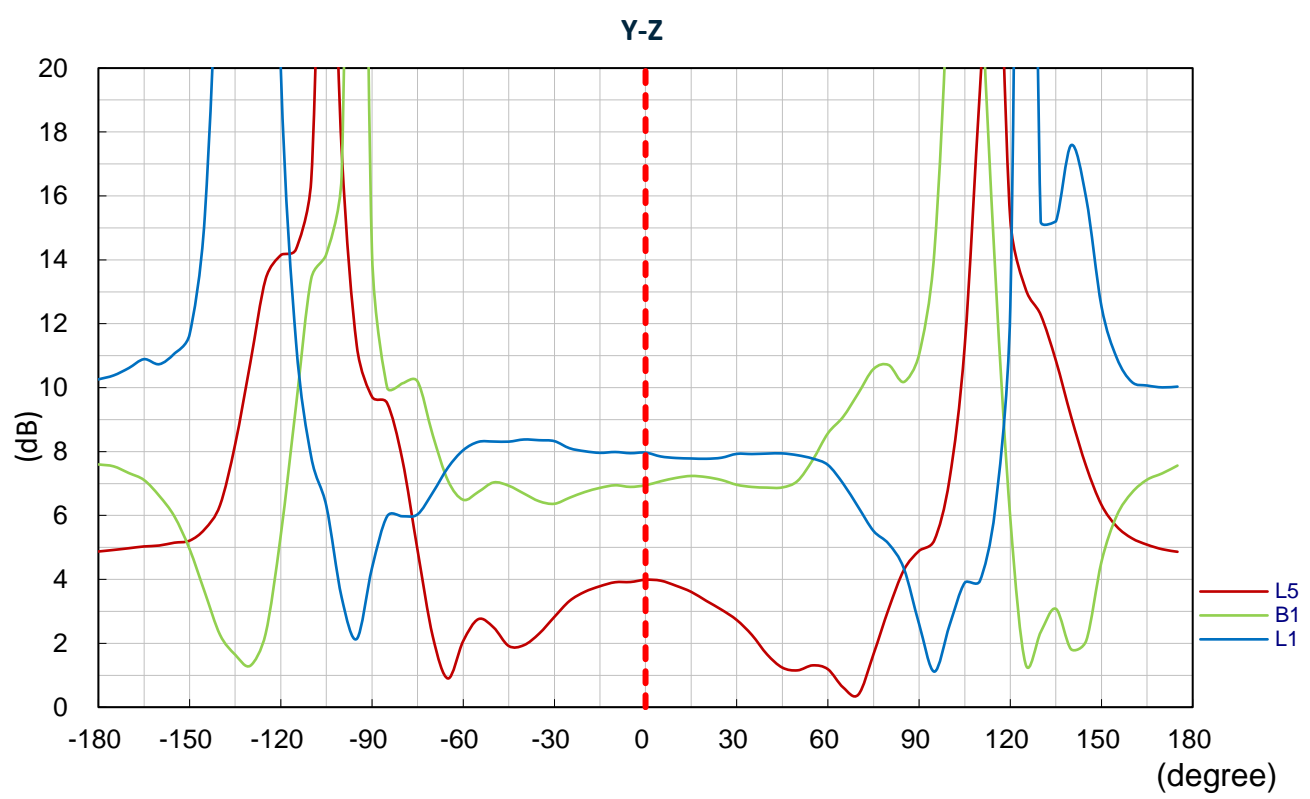
### 3.4 Peak Gain



### 3.5 Axial Ratio – X-Z

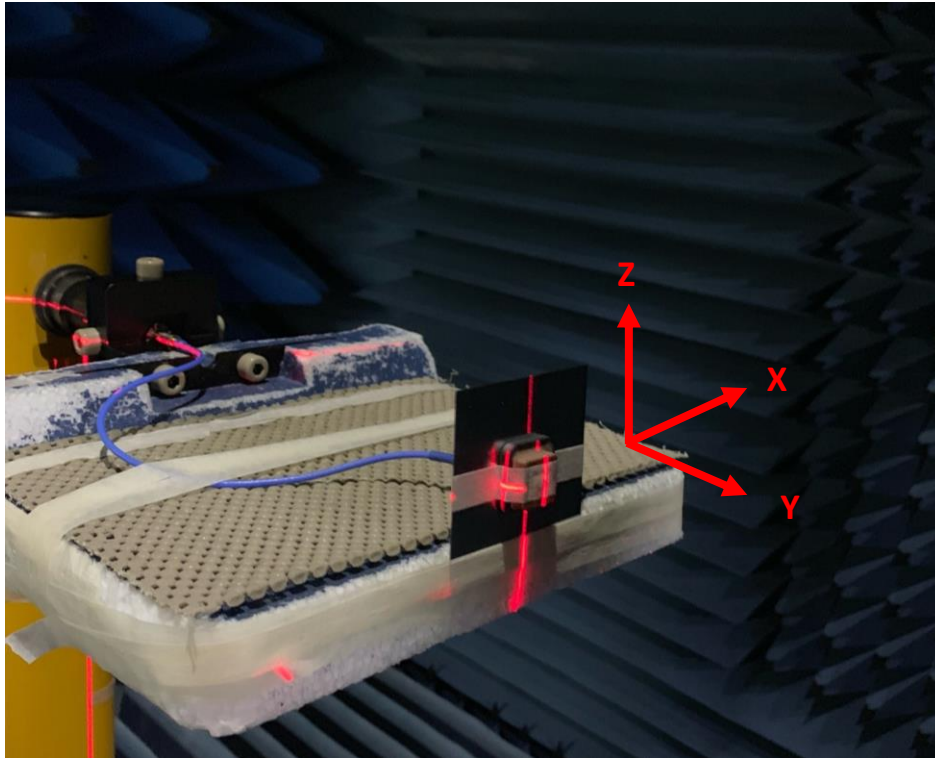


### 3.6 Axial Ratio – Y-Z



## 4. Radiation Patterns

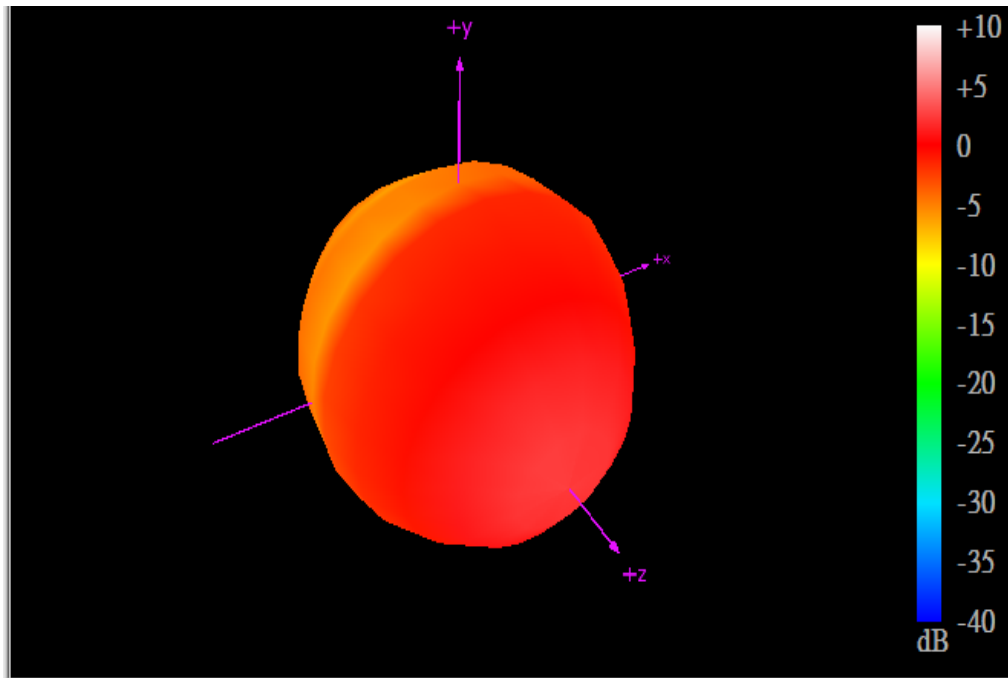
### 4.1 Test Setup



Tested on 70\*70mm Ground Plane Evaluation Board



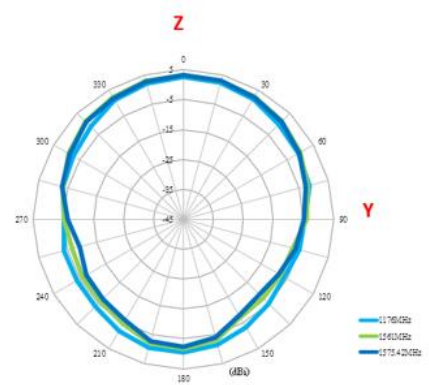
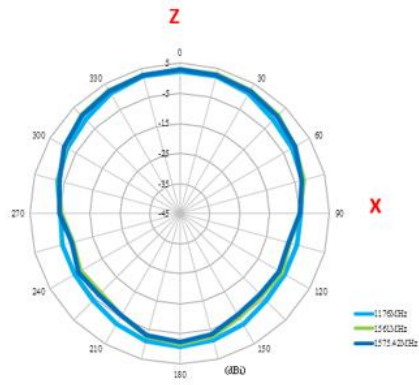
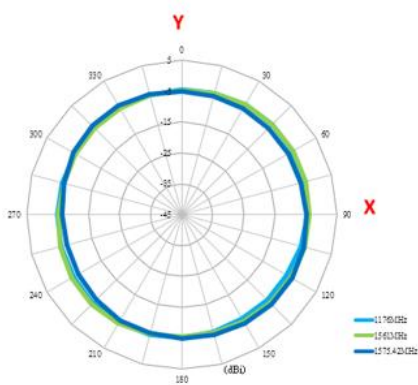
4.2 1176.45MHz - 2D & 3D Radiation Patterns



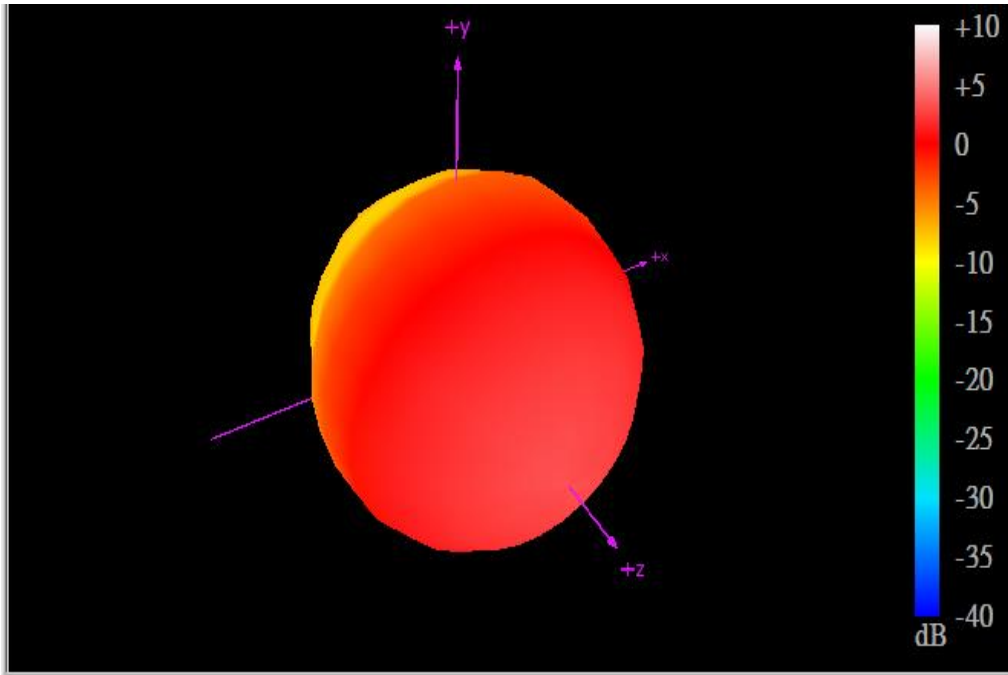
XY Plane

XZ Plane

YZ Plane



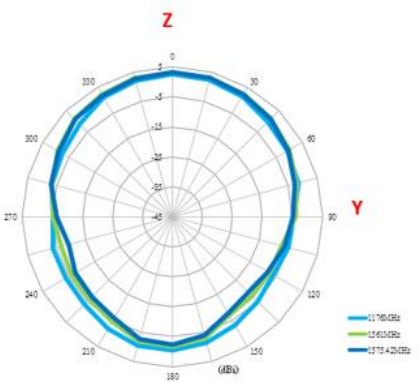
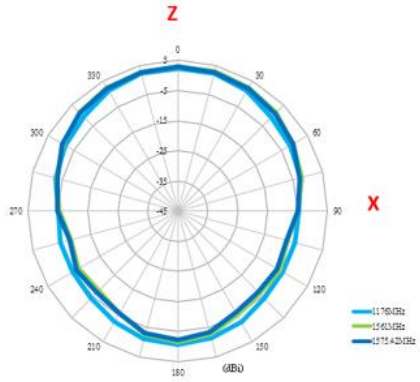
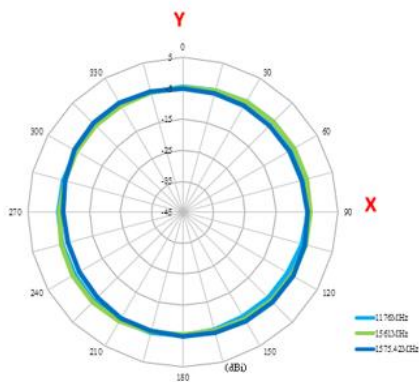
1561MHz



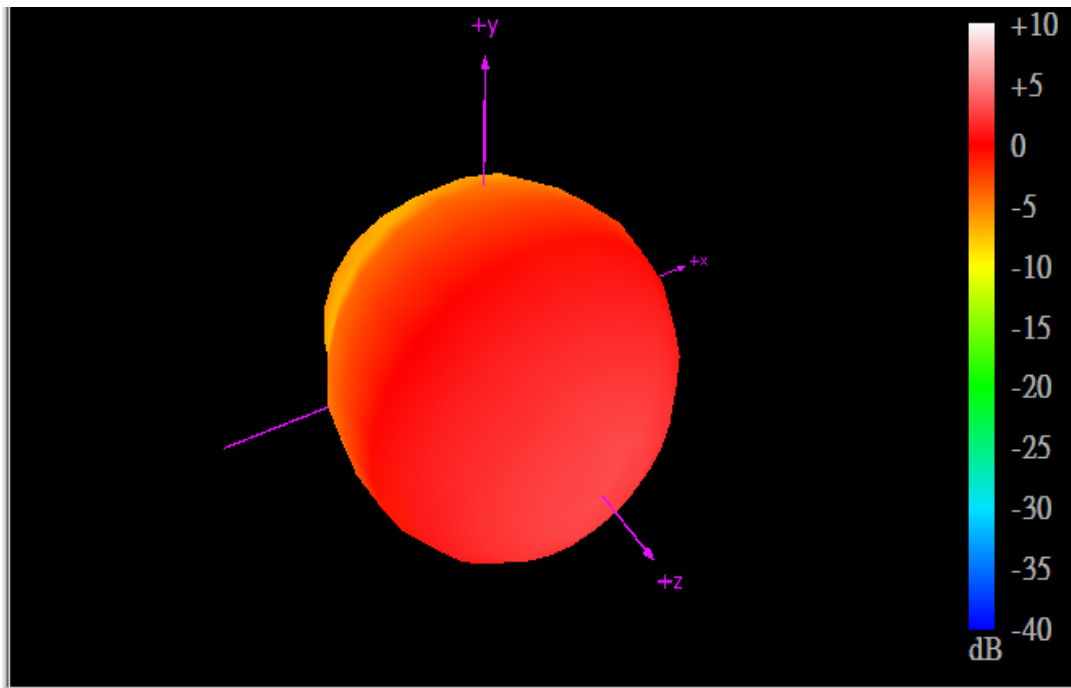
XY Plane

XZ Plane

YZ Plane



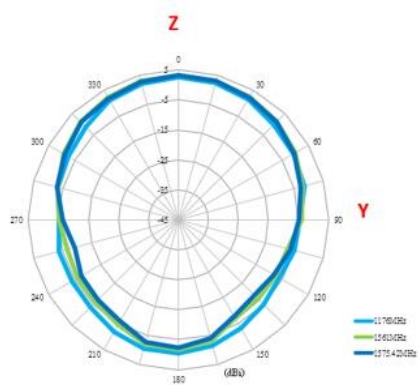
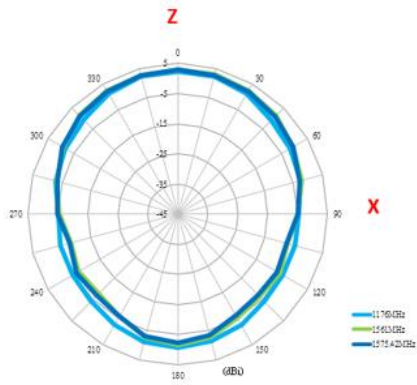
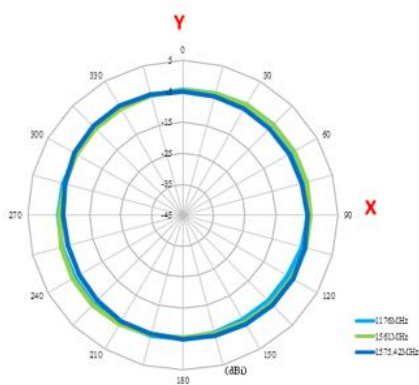
1575.42MHz



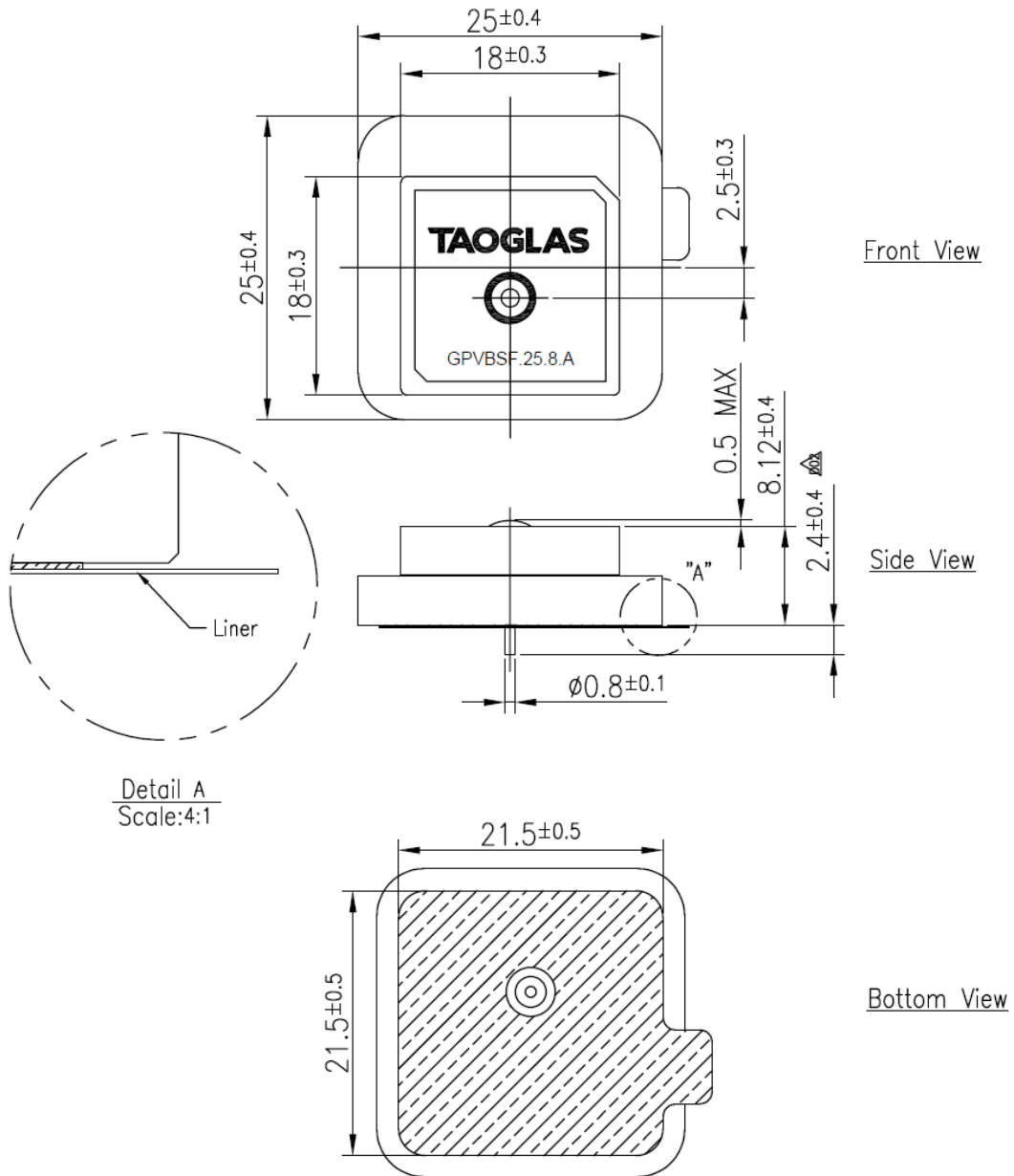
XY Plane

XZ Plane

YZ Plane



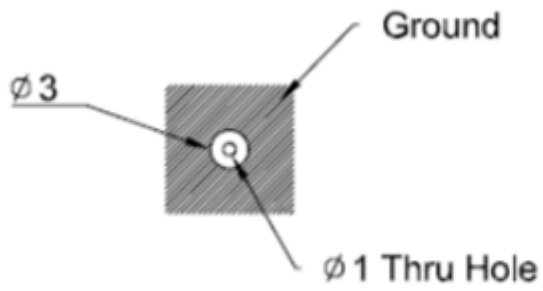
# 5. Mechanical Drawing (Units: mm)



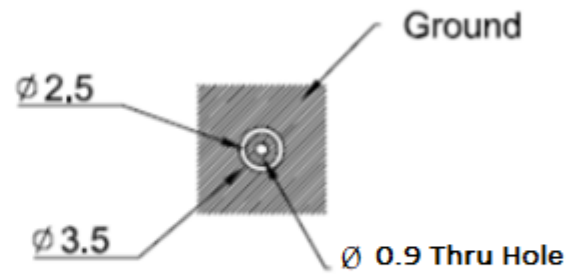
|   | Name           | P/N            | Material | Finish | QTY |
|---|----------------|----------------|----------|--------|-----|
| 1 | Patch(18*18*4) | 013ABCAW000000 | Ceramic  | Clear  | 1   |
| 2 | Patch(25*25*4) | 013ABCAW000000 | Ceramic  | Clear  | 1   |

## 6. Footprint

Top View



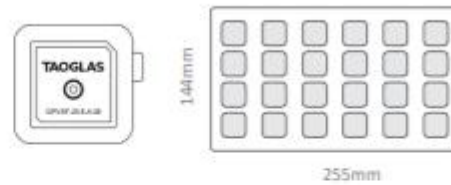
Bottom View



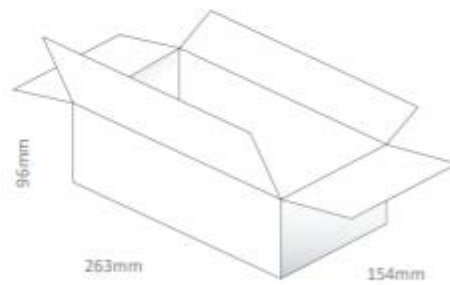
Tolerance: +/- 0,20  
Unit:mm

## 7. Packaging

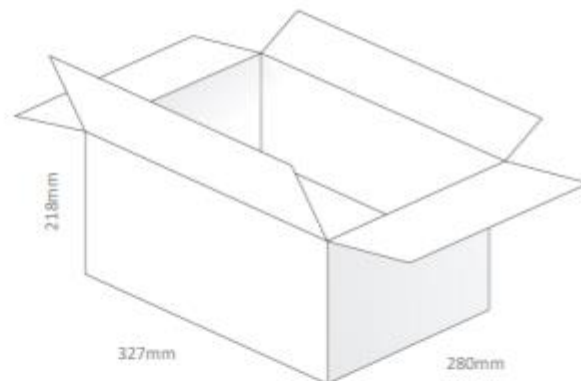
24pcs GPVBSF.25.8.A per Tray  
 Tray Dimensions: 255\*144\*8mm  
 Weight: 0.460Kg



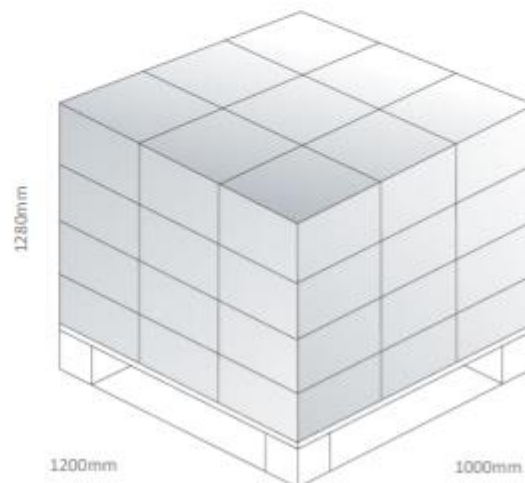
96pcs GPVBSF.25.8.A per Inner Carton  
 Dimensions: 263\*154\*96mm  
 Weight: 2Kg



384pcs GPVBSF.25.8.A per Large Carton  
 Dimensions: 327\*280\*218mm  
 Weight: 9Kg



Pallet Dimensions:  
 1200\*1000\*1280mm  
 36 Cartons Per Pallet  
 9 Cartons Per Layer, 4 Layers



Changelog for the datasheet

**SPE-19-8-139 – GPVBSF.25.8.A**

**Revision: C (Current Version)**

|         |                                 |
|---------|---------------------------------|
| Date:   | 2022-06-17                      |
| Notes:  | Updated some formatting issues. |
| Author: | Gary West                       |

**Previous Revisions**

**Revision: B**

|         |  |
|---------|--|
| Date:   | 2021-06-19                                     |
| Notes:  | Updated Pin Length to 2.4mm<br>Updated Drawing |
| Author: | Dan Cantwell                                   |

**Revision: A (Original First Release)**

|         |                 |
|---------|-----------------|
| Date:   | 2019-11-07      |
| Notes:  | Initial Release |
| Author: | Jack Conroy     |



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