



Datasheet

CGGBP.25.4.A.02

Part No:
CGGBP.25.4.A.02

Description:

Embedded 25mm GPS/GLONASS/Galileo/BeiDou Patch Antenna,
1561/1575/1602MHz

Features:

- 25*25*4mm Ceramic patch
- High Gain (up to 3.5dBi)
- Excellent stability on the three GNSS systems
- Optimized radiation patterns
- Pin Mount
- RoHS and REACH Compliant

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1. Introduction



This 25mm square embedded ceramic GPS/GLONASS/Galileo/BeiDou patch antenna's wide band of operation leads to excellent gain and radiation pattern stability on all four common commercial GNSS systems worldwide.

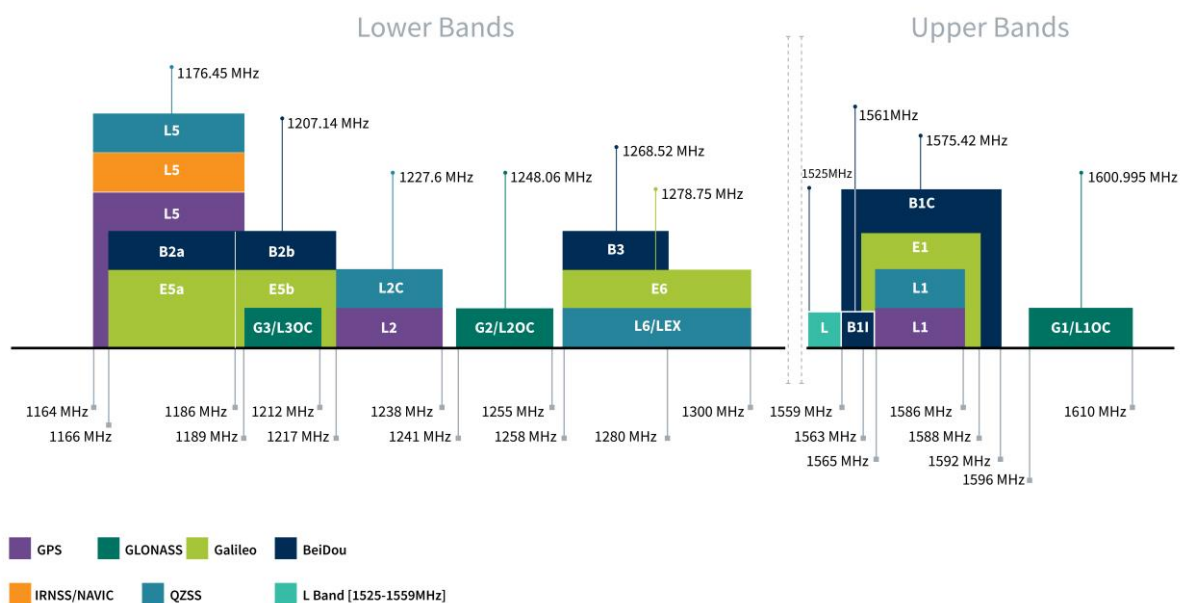
Compared to using a smaller antenna, this will translate into the GNSS system having much higher location accuracy, improved reliability of lock in urban areas, better signal reception, with more satellites acquired and a quicker time to first fix.

The patch is mounted via pin and double-sided adhesive. This patch can be tuned subject to NRE and MOQ, for further information please contact your regional Taoglas customer support team.

2. Specifications

GNSS Frequency Bands Covered

| | | | | | | | |
|-----------------|-------------------------------|---------------------------|------------------|--------------------|------------------|---------------|------------------|
| GPS/QZSS | L1 1575.42MHz | L2 1227.6MHz | L5 1176.45MHz | L6 1278.75MHz | | | |
| | ■ | □ | □ | □ | | | |
| GLONASS | L5R 1176.45MHz | L3PT 1201.5MHz | L2PT 1246MHz | L1CR 1575.42MHz | L1PT 1602MHz | | |
| | □ | □ | □ | ■ | ■ | | |
| Galileo | E5a 1176.45MHz | E5b 1201.5MHz | E4 1215MHz | E3 1256MHz | E6 1278.75MHz | E2 1561MHz | E1 1575.42MHz |
| | □ | □ | □ | □ | □ | ■ | ■ |
| BeiDou | B1 1561MHz | B2 1207.14MHz | B3 1268.52MHz | | | | |
| | ■ | □ | □ | | | | |
| Compass | E5B(B2)/ E6(B3) 1268.56MHz | E2(B1) 1561MHz | | | | | |
| | □ | ■ | | | | | |
| SBAS | Omnistar 1542.5MHz | WAAS/EGN OS 1575.42MHz | | | | | |
| | □ | ■ | | | | | |



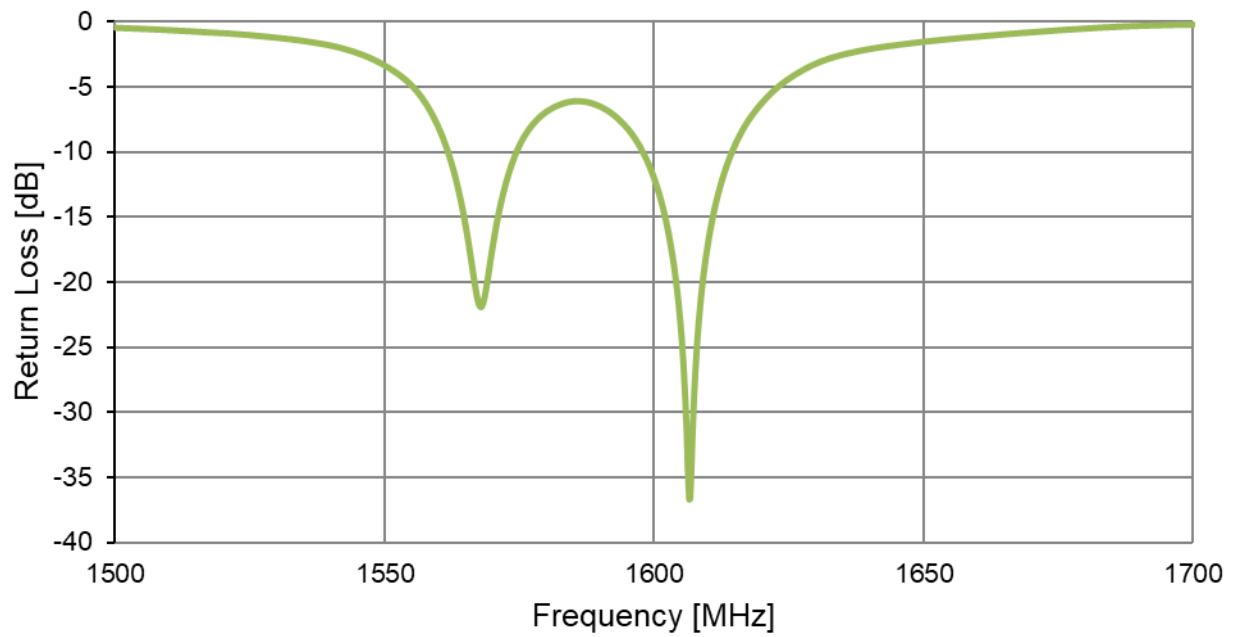
GNSS Bands and Constellations

| GNSS Electrical | | | |
|------------------|-------|-------|-------|
| Frequency (MHz) | 1561 | 1575 | 1602 |
| VSWR (max.) | 2.5 | 2.2 | 2.1 |
| Efficiency (%) | 82.15 | 85.45 | 79.76 |
| Peak Gain | 4.96 | 4.99 | 5.48 |
| Average Gain | -0.85 | -0.68 | -0.38 |
| Centre Frequency | | | |
| Impedance | | | |

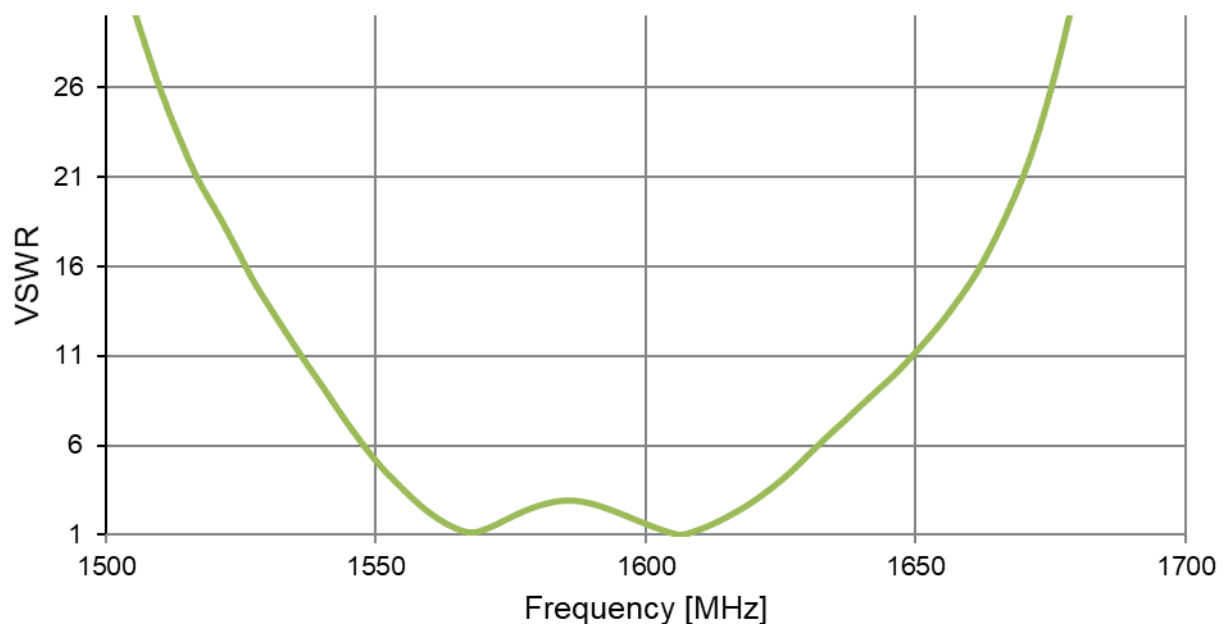
| Mechanical | |
|-----------------------|----------------------------|
| Height | 4 mm |
| Planner Dimension | 25 x 25 mm |
| Casing | Ceramic |
| Pin Diameter | 0.9 mm |
| Pin Length | 2.4 mm |
| Environmental | |
| Operation Temperature | -40°C to 85°C |
| Storage Temperature | -40°C to 85°C |
| Humidity | Non-condensing 65°C 95% RH |

3. Antenna Characteristics

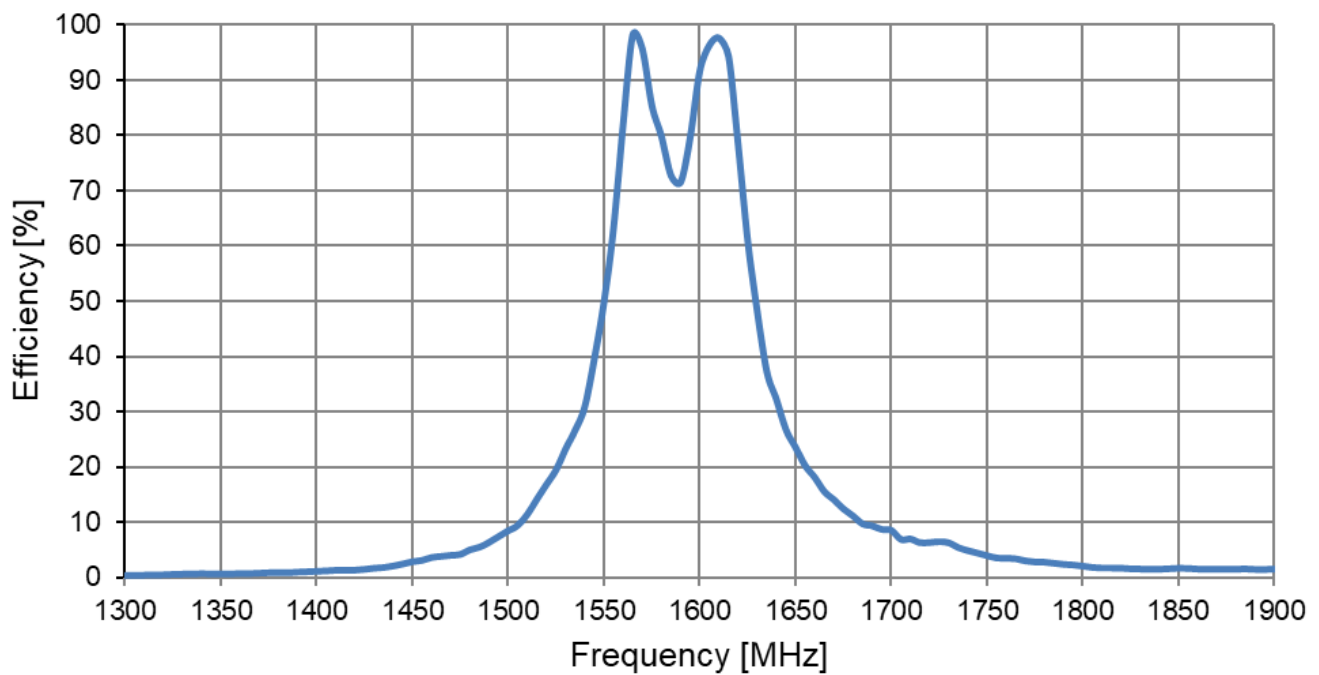
3.1 Return Loss



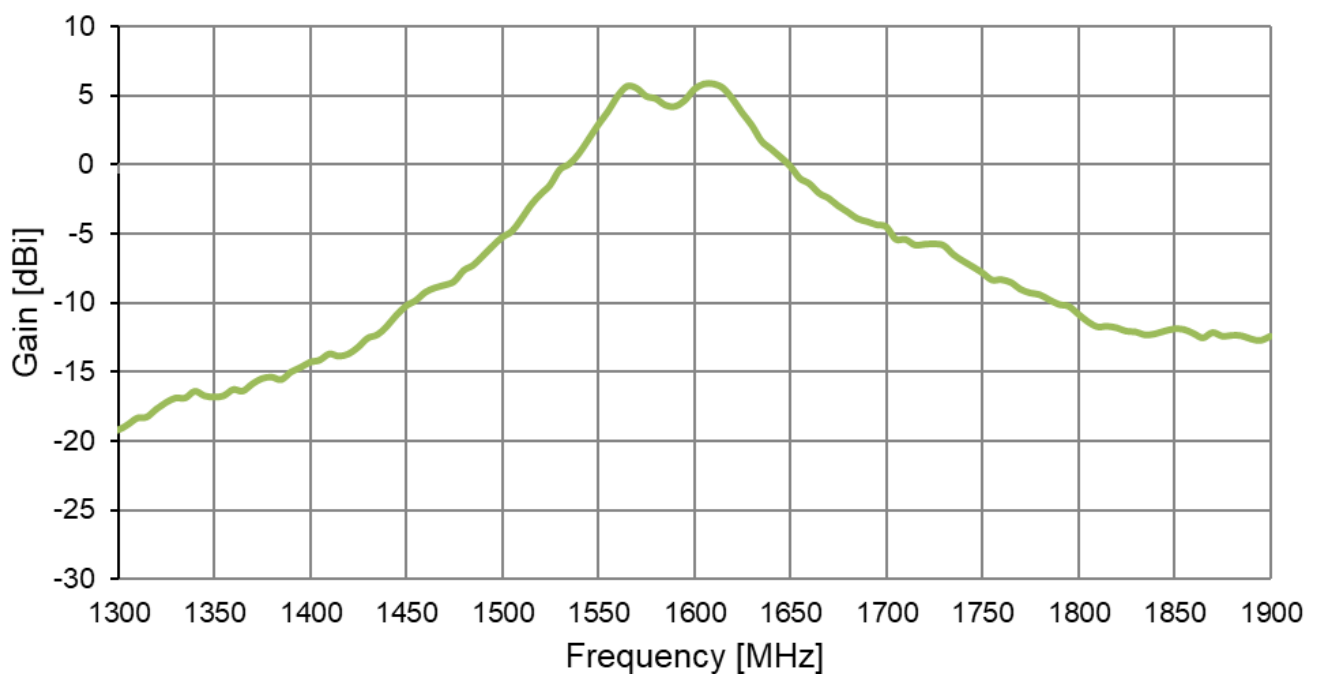
3.2 VSWR



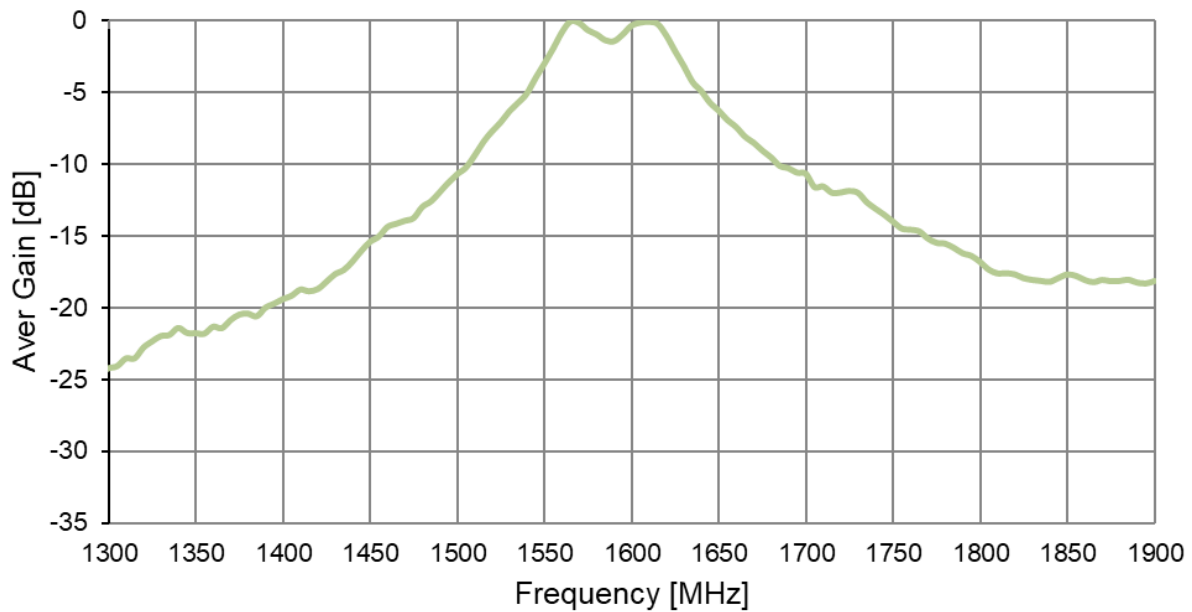
3.3 Efficiency



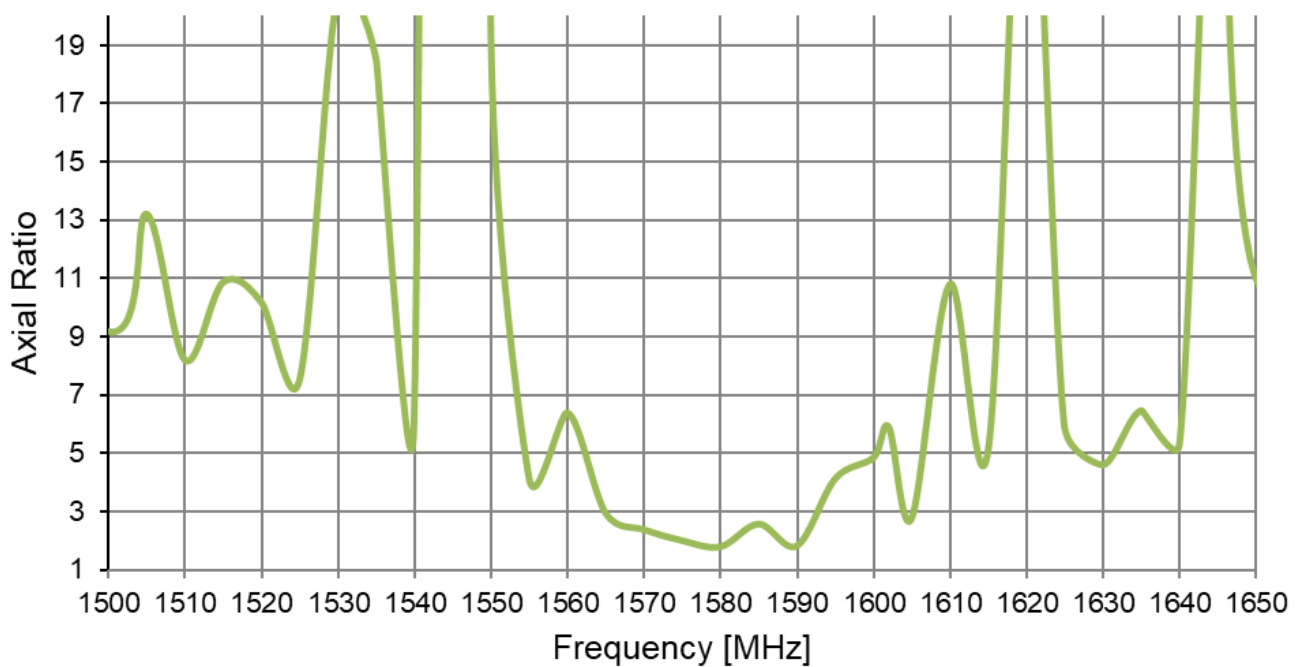
3.4 Peak Gain



3.5 Average Gain

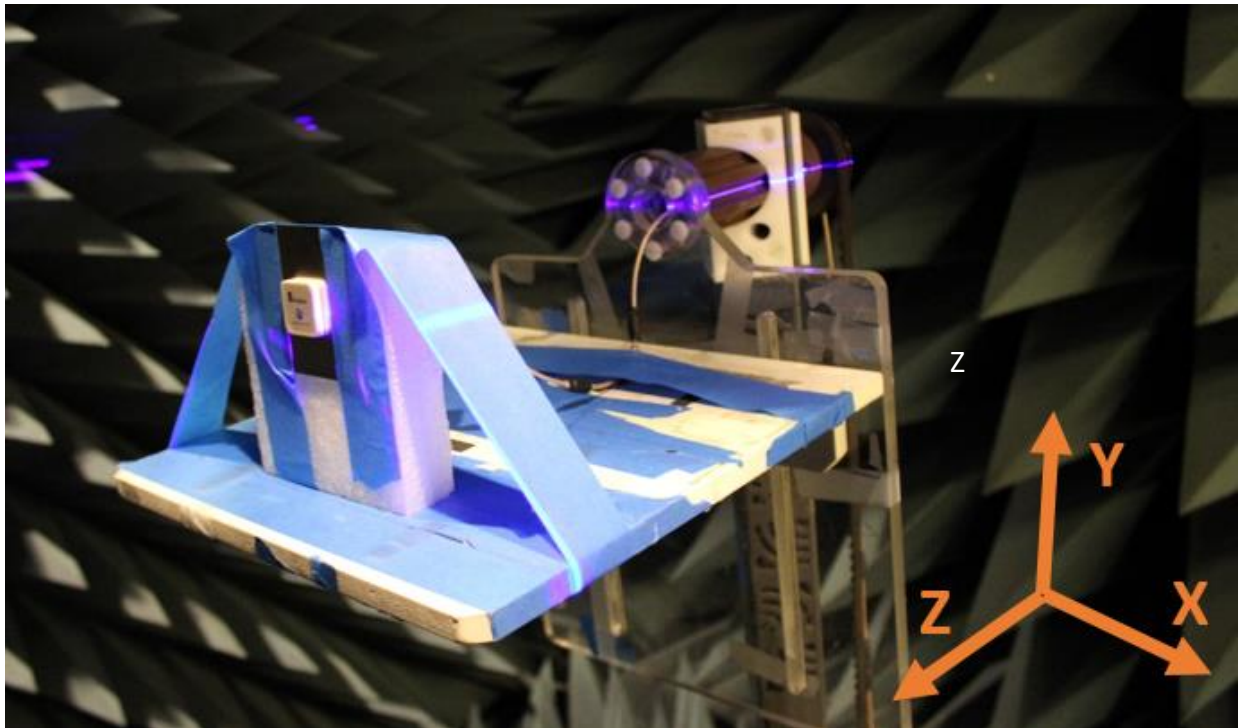


3.6 Axial Ratio



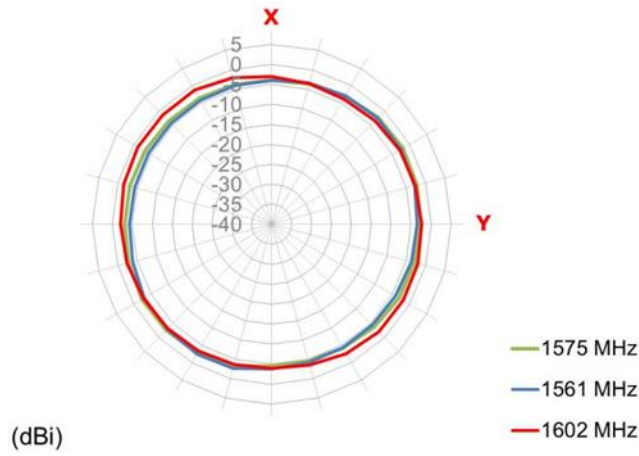
4. Radiation Patterns

4.1 Test Setup

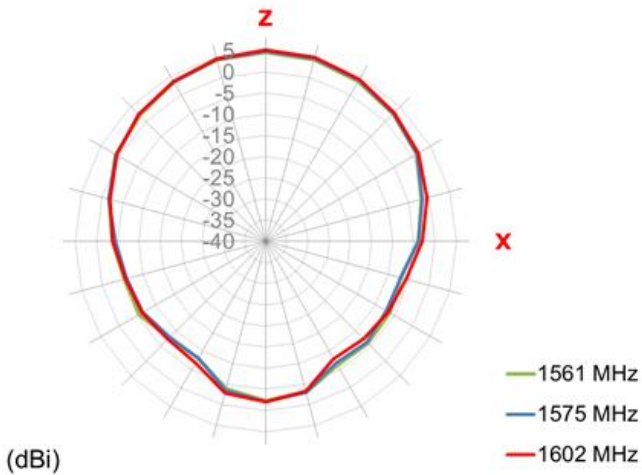


4.2 842MHz 3D and 2D Radiation Patterns

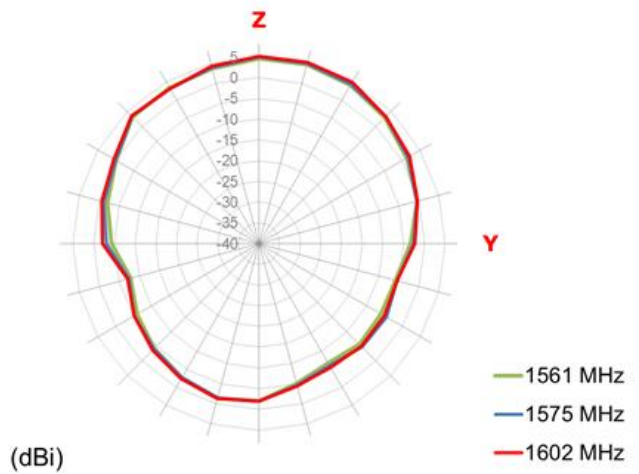
XY Plane



XZ Plane

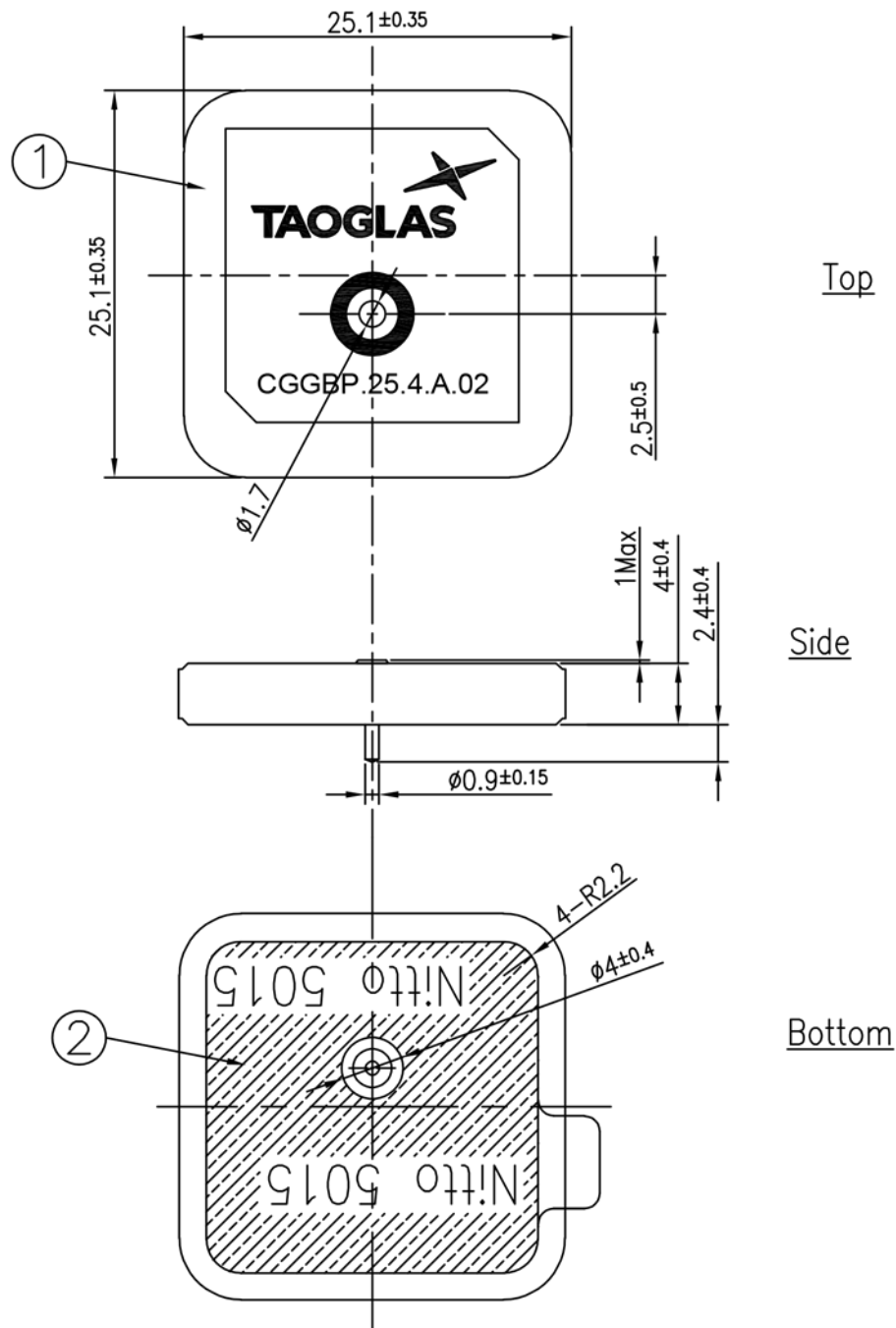


YZ Plane



5. Mechanical Drawing (Units: mm)

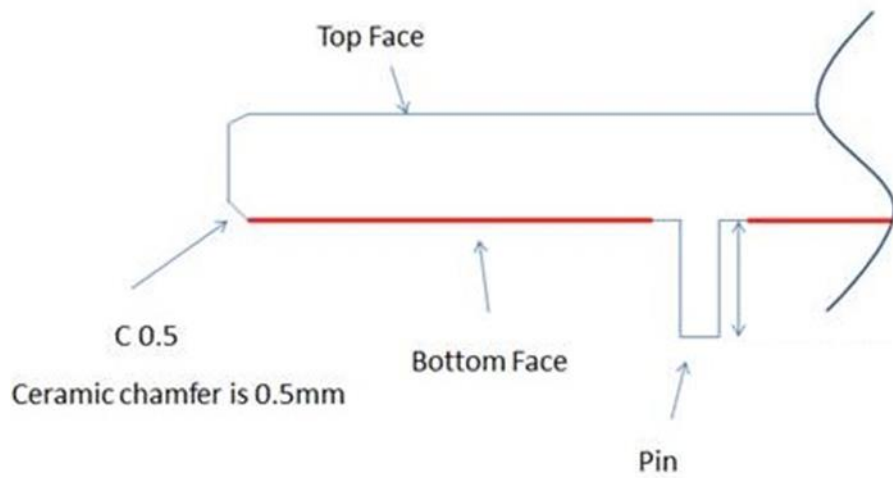
5.1 Patch Drawings



NOTES: 1. Double sided adhesive area. 2. Soldermask Area.

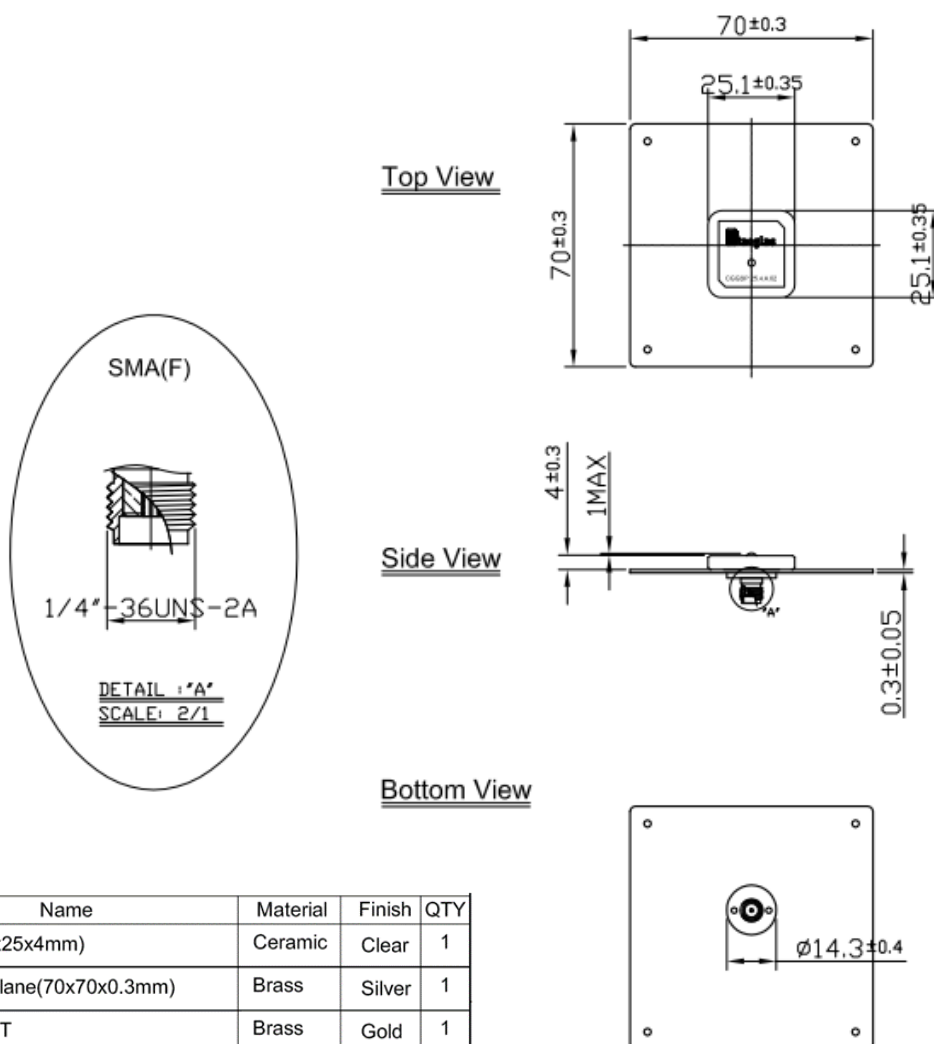
| | Name | P/N | Material | Finish | QTY |
|---|-----------------------|----------------|------------|--------------|-----|
| 1 | Patch 25x25x4 | 001513E010007A | Ceramic | Clear | 1 |
| 2 | Double sided Adhesive | 001513E010007A | NITTO 5015 | White Linter | 1 |

5.2 Adhesive Thickness



Red line shows the adhesive without Liner – thickness 0.08~0.1 mm

5.2 Groundplane Mechanical Drawing



6. Antenna Integration Guide



6.1 Schematic Symbol and Pin Definition

The circuit symbol for the antenna is shown below. The antenna has 1 pin as indicated below.

| Pin | Description |
|-----|-------------|
| 1 | RF Feed |



6.2 Antenna Integration

The antenna should be placed at the center of the ground plane with a length and width of 70mm. Maintaining a square symmetric ground plane shape and symmetric environment around the antenna is critical to maintaining the excellent axial ratio and phase center performance shown in this datasheet



Top Side w/ Solder Mask



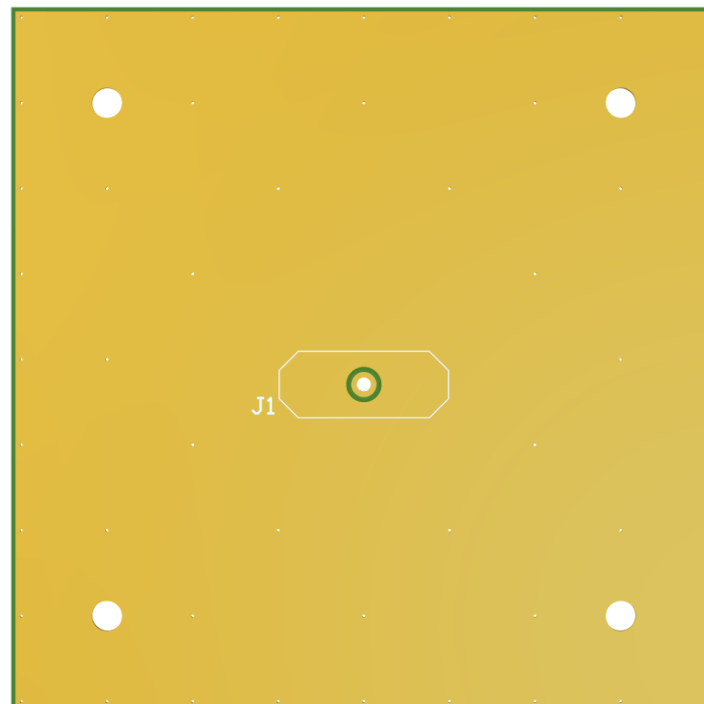
Top Side w/o Solder Mask

6.3 PCB Layout

The footprint and clearance on the PCB must comply with the antenna specification. The PCB layout shown in the diagram below demonstrates the antenna footprint.



Topside

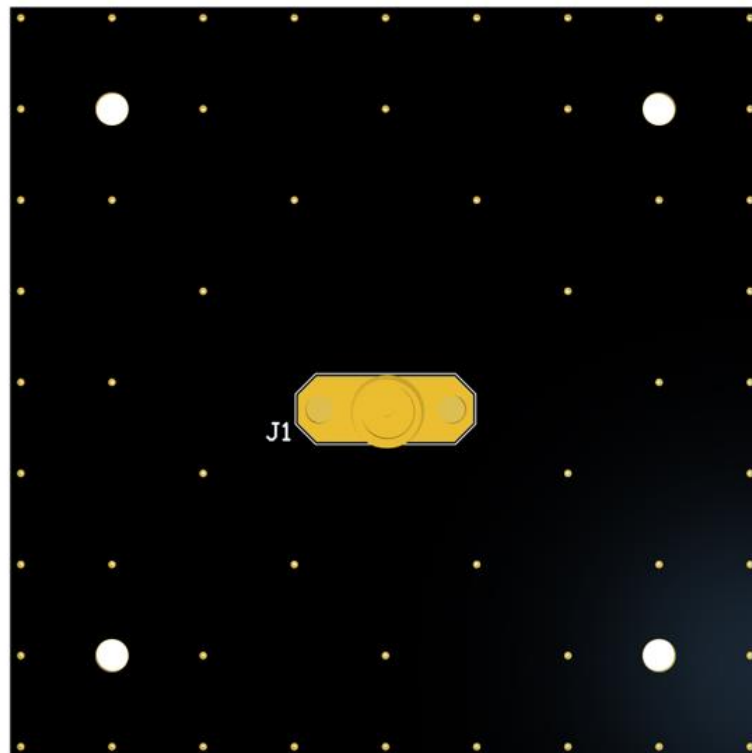


Bottom Side

6.5 Evaluation Board



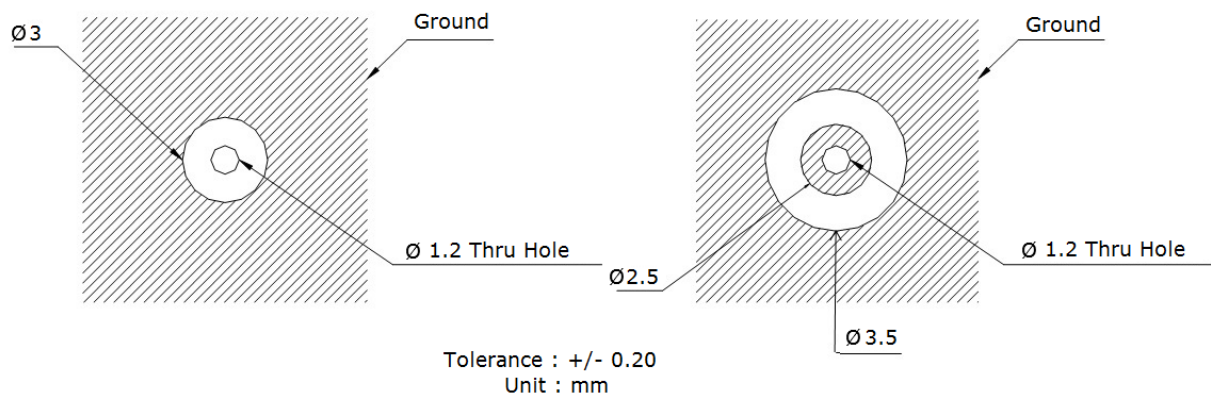
Topside



Bottom Side

7. Footprint

7.1 Dimensions



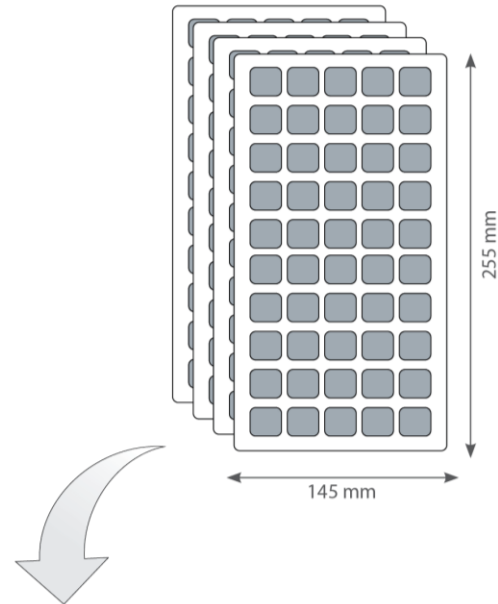
7.2 Patch on 70*70mm Ground Plane



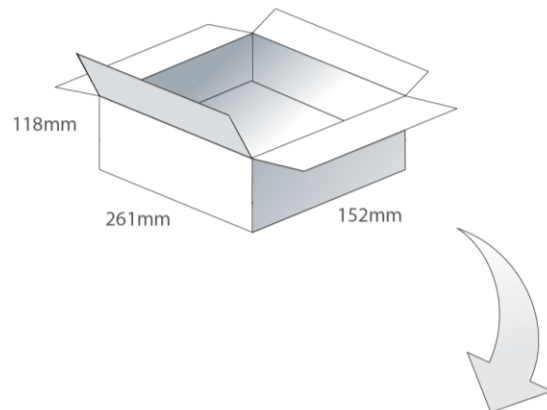
8. Packaging

50 pcs CGGP.25.4.A.02 per tray
Tray Dimensions - 255*145*32mm

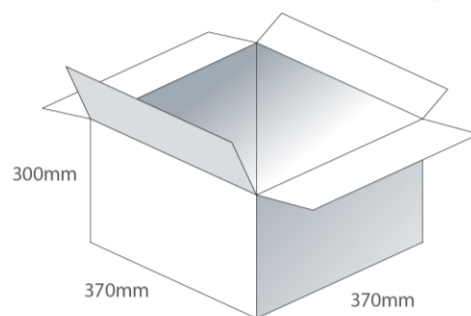
Weight - 2.20g



200 pcs CGGP.25.4.A.02 per Inner Carton
Inner Carton Dimensions - 261*152*118mm



800 pcs CGGP.25.4.A.E.02 per Carton
Carton Dimensions - 370*370*300mm



Changelog for the datasheet

SPE-14-8-071 – CGGBP.25.4.A.02

Revision: F (Current Version)

| | |
|------------------|--|
| Date: | 2023-02-21 |
| Changes: | Updated GNSS Bands & Constellations Graphics and Integration guide added |
| Changes Made by: | Cesar Sousa |

Previous Revisions

Revision: E

| | |
|------------------|---|
| Date: | 2022-02-18 |
| Changes: | Updated Datasheet Template Updated Packaging Graphic |
| Changes Made by: | Paul Doyle |

Revision: C

| | |
|------------------|---------------------------|
| Date: | 2017-03-08 |
| Changes: | Packaging Details Updated |
| Changes Made by: | Andy Mahoney |

Revision: B

| | |
|------------------|---------------------------|
| Date: | 2017-08-17 |
| Changes: | Packaging Details Updated |
| Changes Made by: | Andy Mahoney |

Revision: A (Original First Release)

| | |
|---------|----------------|
| Date: | 2017-08-10 |
| Notes: | |
| Author: | Your Name Here |



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