TAOGLAS


Datasheet

**Part No:**
**CGGP.35.3.A.02**

**Description:**

3.5mm height GPS/GLONASS/Galileo
Patch Antenna 1575/1610MHz

**Features:**

Wide-band Operation

35mm*35mm*3.5mm

4dBi Peak Gain (on 50mm*50mm ground-plane)

85% Efficiency (on 50mm*50mm ground-plane)

Pin type

Automotive TS16949 Production and Quality Approved

RoHS & Reach Compliant

# 1. Introduction


The Taoglas 35mm ceramic GPS/GLONASS/GALILEO patch antenna, by means of a double resonance design, has unique wide-band operation over the whole operating bands of GPS/GLONASS/Galileo systems spanning from 1575MHz to 1610MHz. It is mounted via pin and double-sided adhesive. This antenna has been tuned for a center position on a 50mm*50mm ground-plane. It is manufactured and tested in a TS16949 first tier automotive approved facility.

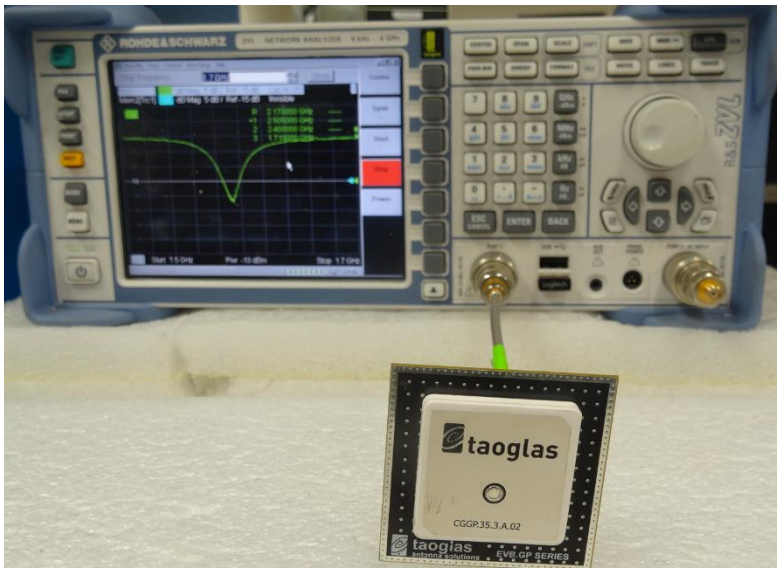
For further optimization to customer specific device environments where positioning is off center or on different ground-plane sizes, custom tuned patch antennas can be supplied. Taoglas can also provide different pin lengths for these antennas, subject to potential NRE and MOQ. For more details please contact your regional Taoglas customer support team.

# 2. Specifications

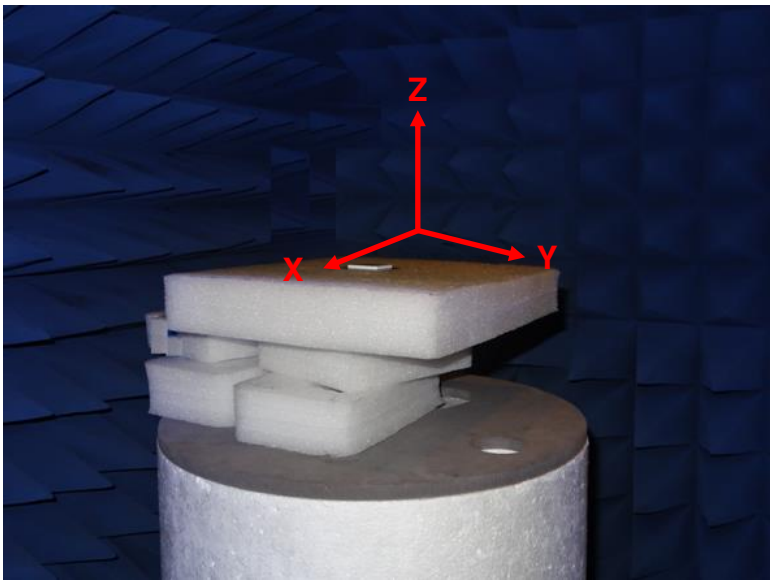
| Electrical | | |
|---|---|---|
| **Application Bands** | **GPS/Galileo** | **GLONASS** |
| **Operation Frequency** | **1575.42 ±1.023MHz** | **1602±5MHz** |
| Bandwidth | 22MHz min | |
| VSWR | 1.5 | |
| Peak Gain | 4.0dBi typ. | |
| Gain at Zenith | 4.0dBi | |
| Gain at 10°elevation | 1.5dBi typ. | |
| Axial Ratio | 3dB max | |
| Impedance | 50 Ohms | |
| Efficiency | 85% typ. | |
| Frequency Temperature Coefficient（τf) | 0 ± 20ppm / oC | |
| **Mechanical** | | |
| Ceramic Dimension | 35*35*3.5mm | |
| Pin Length | 2.4mm | |
| Pin Diameter | 0.9mm | |
| **Environmental** | | |
| Storage Temperature | -40°C to +85°C | |
| Operating Temperature | -40°C to +85°C | |
| Moisture Sensitivity | Level 3 | |

* Antenna properties were measured with the antenna mounted on 50*50mm Ground Plane

# 3. Antenna Test Setup



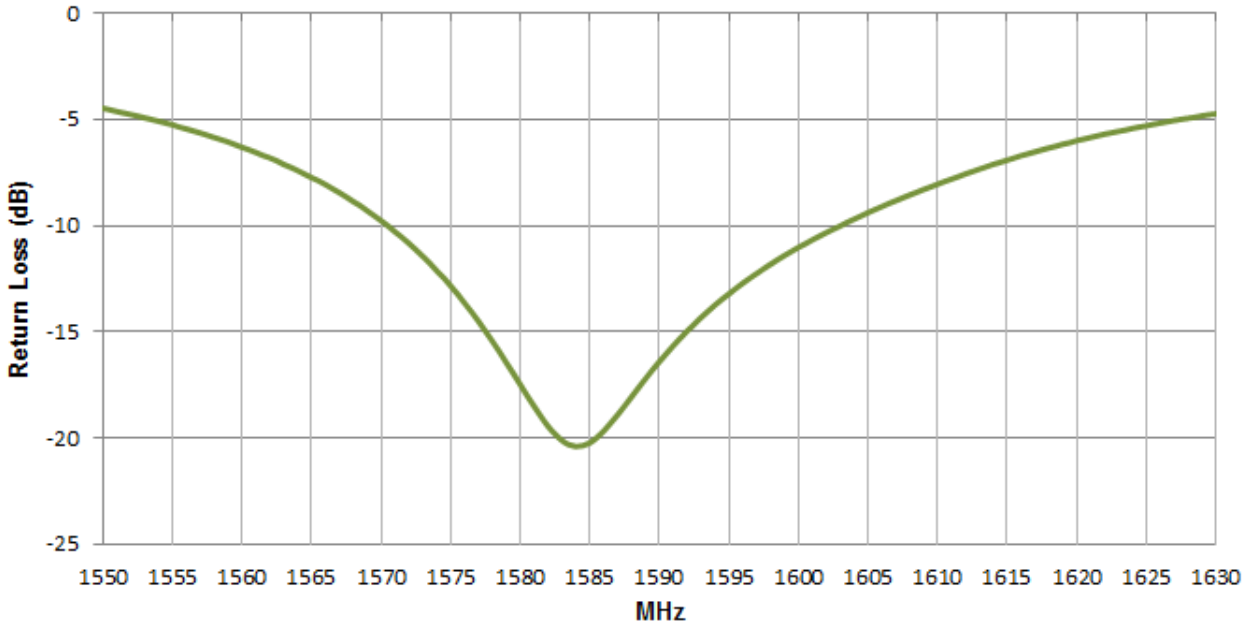

Return Loss measurement of the CGGP.35.3.A.02



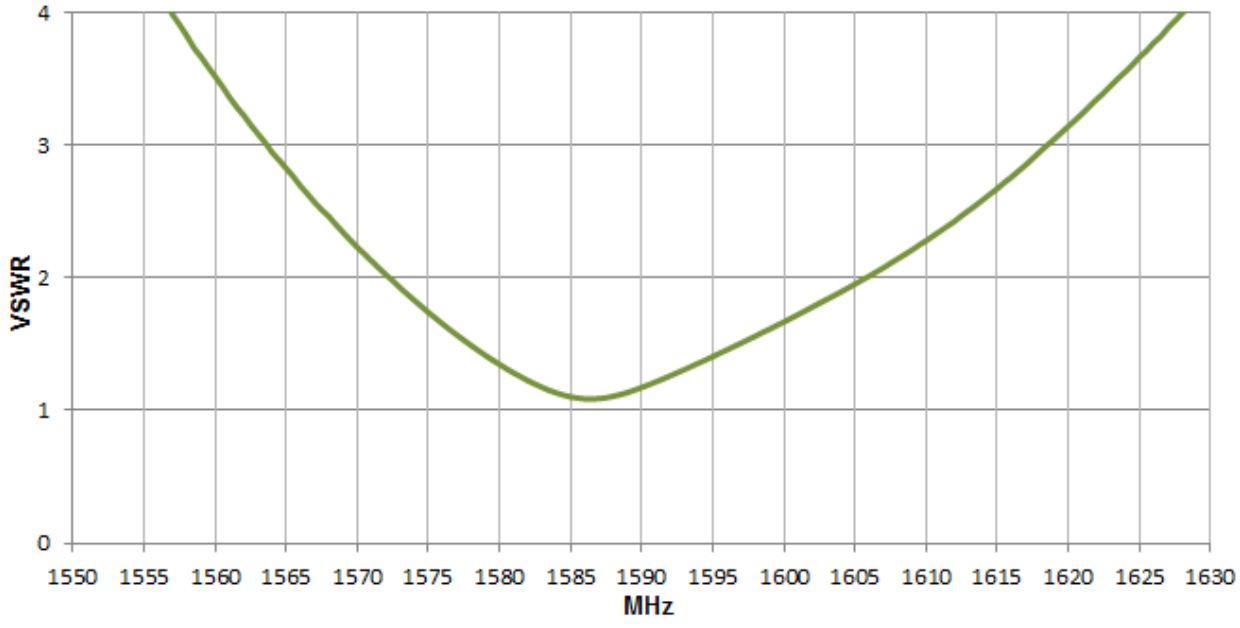

Peak gain, efficiency and radiation pattern measurements of the CGGP.35.3.A.02

# 4. Antenna Characteristics

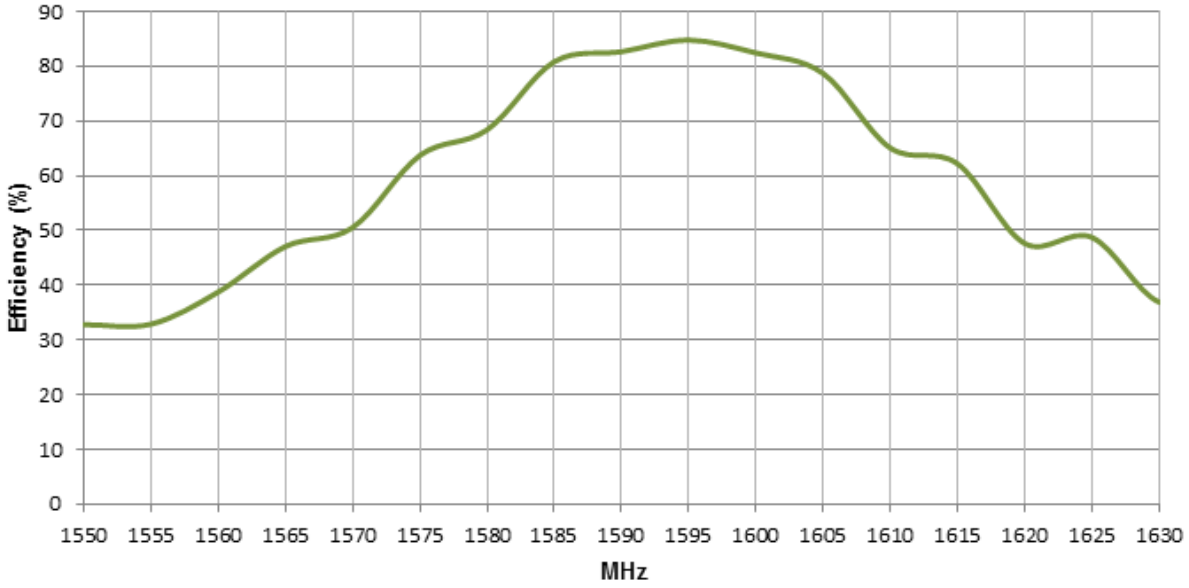
## 4.1 Return Loss



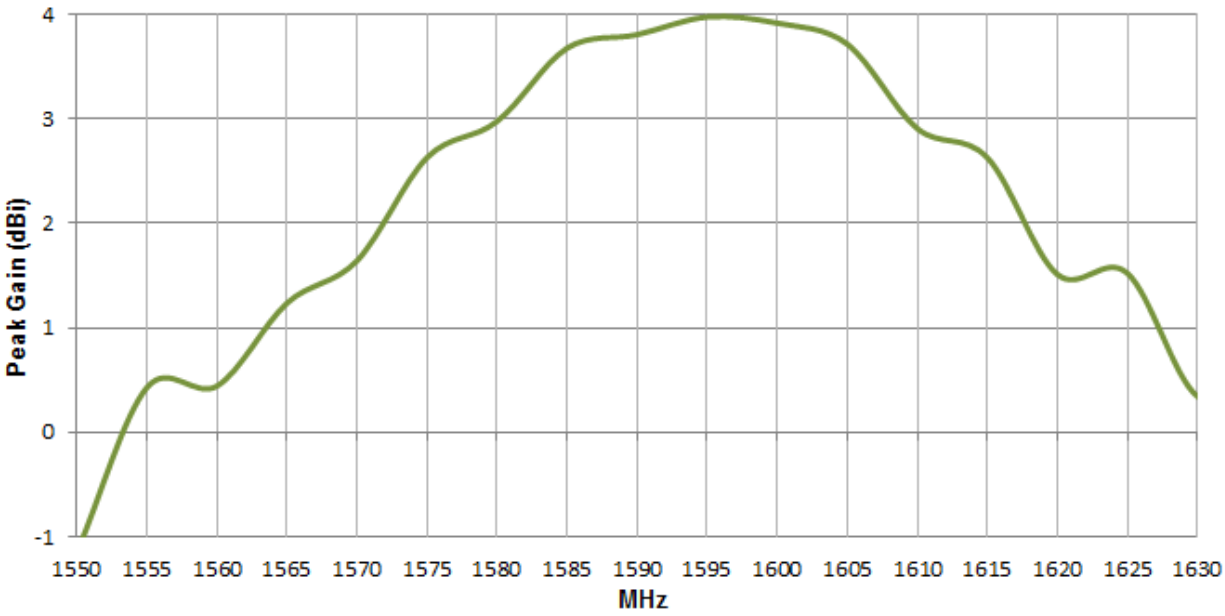

## 4.2 VSWR



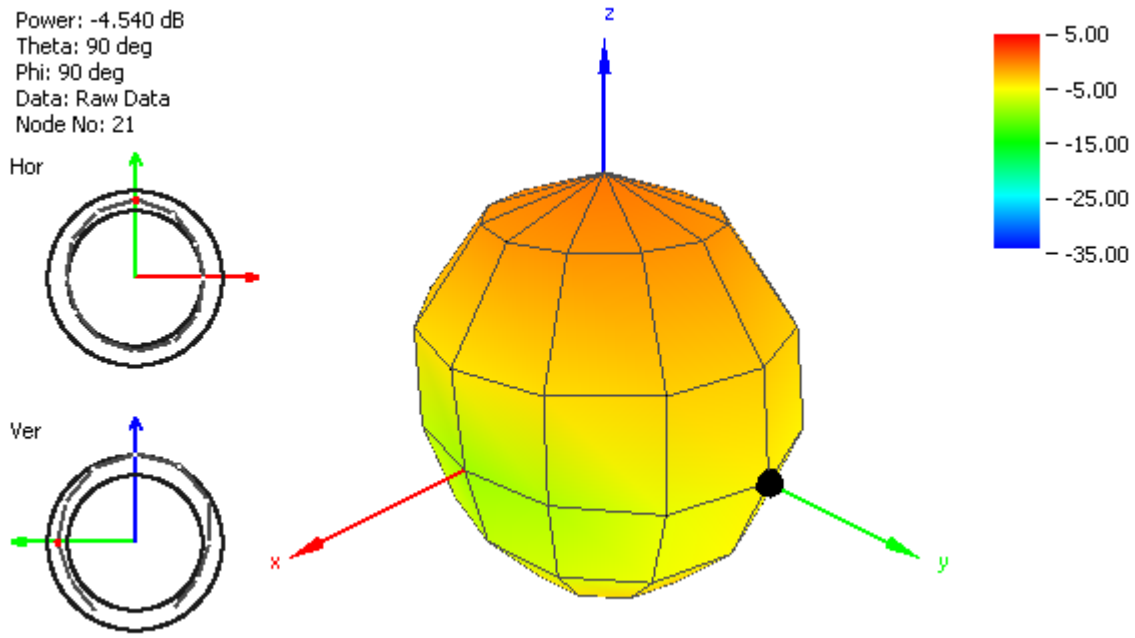
## 4.3 Efficiency



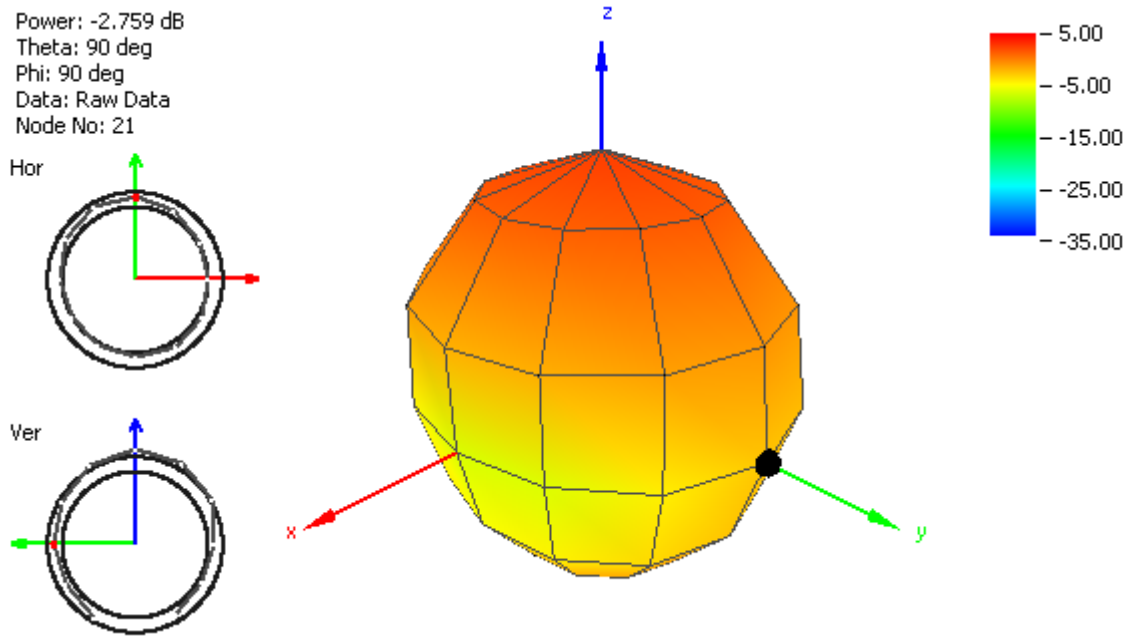

## 4.4 Peak Gain



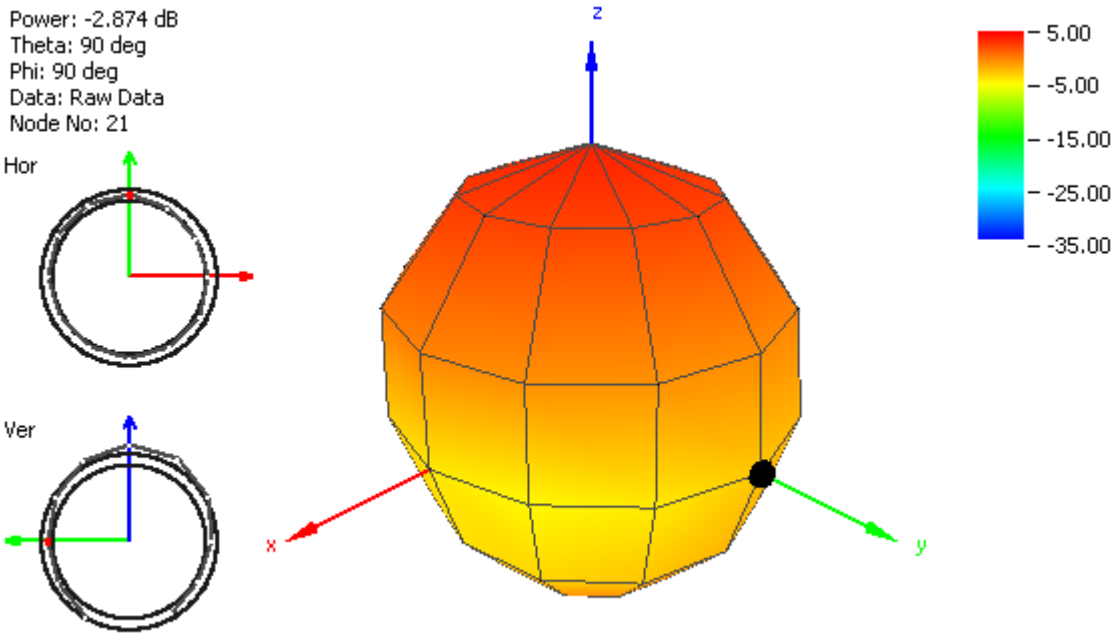
# 4. Antenna Radiation Pattern



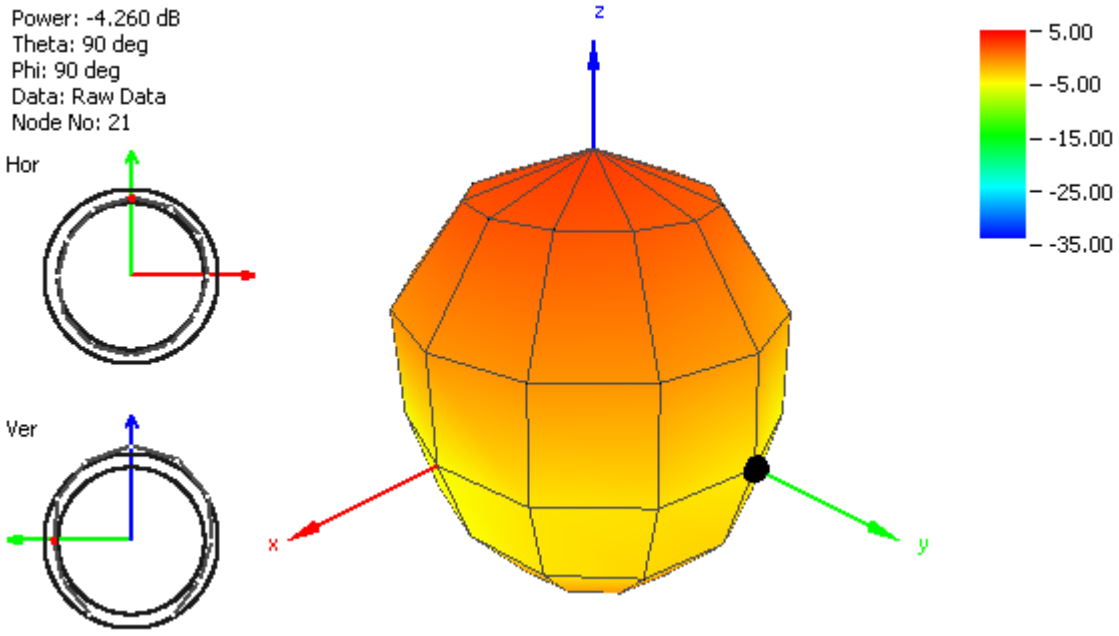

1560Mhz




1575Mhz

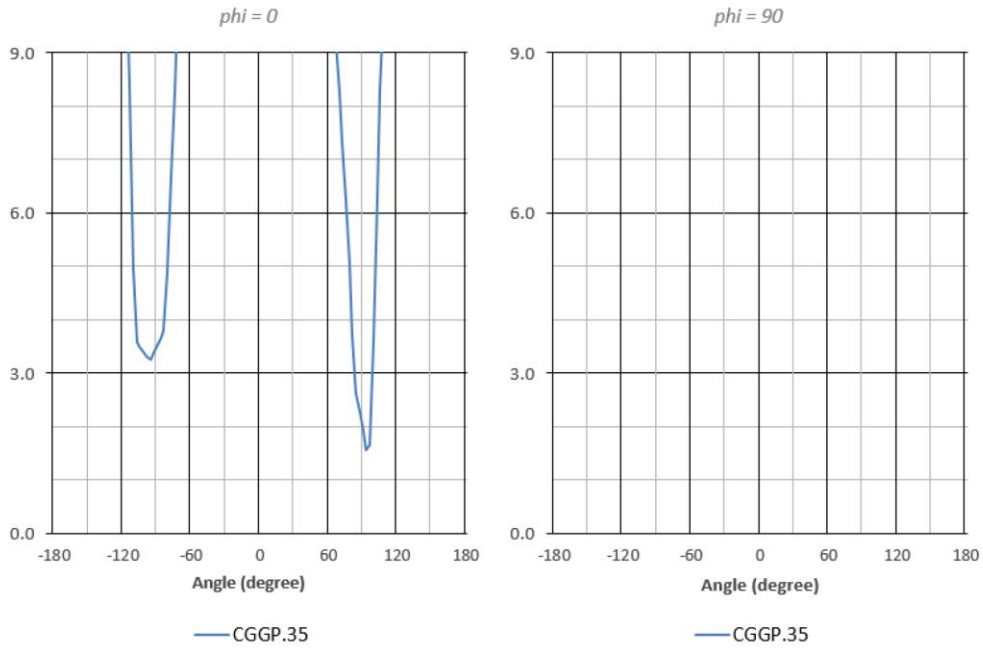



1590Mhz

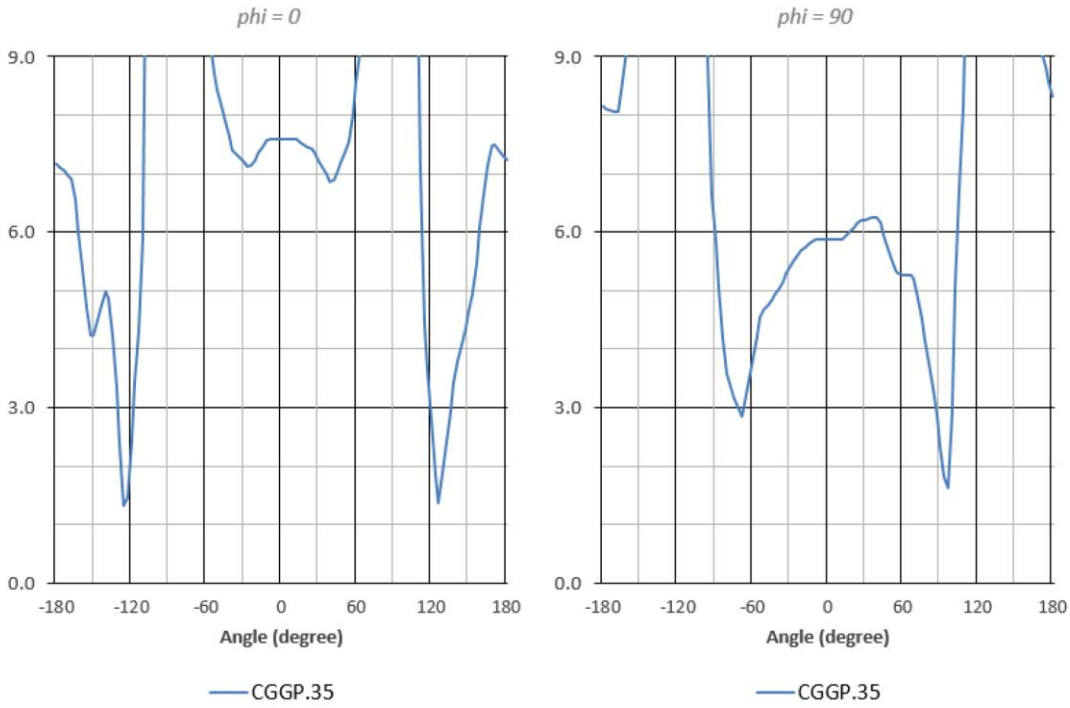



1610Mhz

# 5. Axial Ratio




1575.42MHz

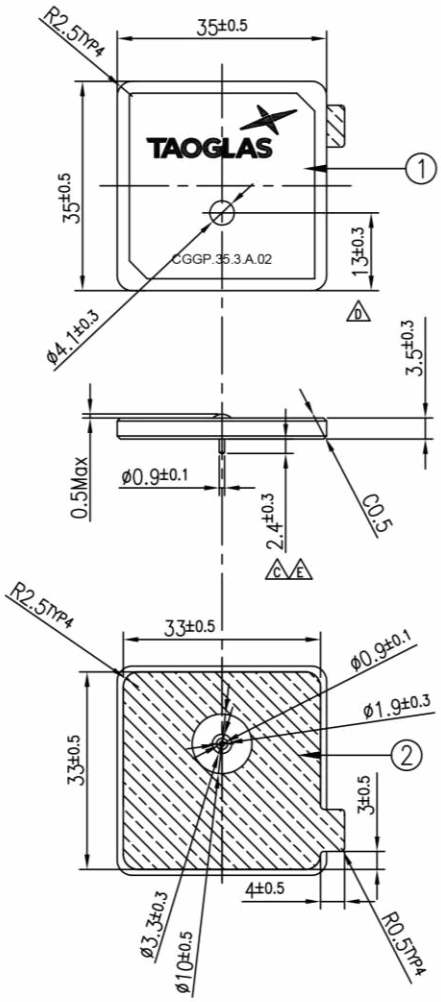



1602MHz

# 6. Mechanical Drawing (Unit: mm)

ISO NO.: EDW-11-8-387
STATE: Release
NOTES: 1. Double sided adhesive area

| REV. | DESCRIPTION | ENG. | APPROVED | DATE |
|---|---|---|---|---|
| A | Initial Design | Kiwi | | 2011/08/03 |
| B | Amend Location of Print | Kiwi | | 2011/09/01 |
| C | Amend Length of Pin,Add P/N. | Kim | Joanna | 2015/07/17 |
| D | New LOGO <ECR-18-8-259> and correct dimension. | Joey | Clack | 2019/11/27 |
| E | EC-21-08-010 | Mickey | Buluto | 2021/03/02 |



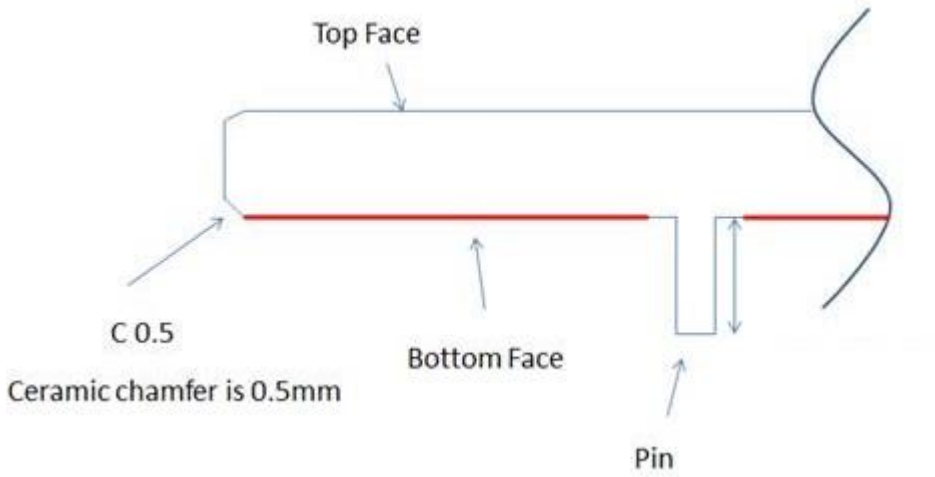

| | Name | P/N | Material | Finish | QTY |
|---|---|---|---|---|---|
| 1 | CGGP.35 Patch 35x35x3.5 | 001513C080007A | Ceramic | Clear | 1 |
| 2 | Double sided Adhesive | 001013C020007A | NITTO 5015 | White Linier | 1 |

| | |
|---|---|
| APPROVED BY: | |
| CHECK BY: | |
| DRAWN BY: | Kiwi |
| DATE: | 2011/08/03 |
| UNLESS OTHERWISE SPECIFIED TOLERANCES ON: | XX.±0.5<br>X.±0.3<br>.X±0.2<br>.XX±0.1<br>.XXX±0.05 |
| THIRD ANGLE PROJECTION | |

TAOGLAS. TW Design Centre
This drawing and its inherent design concepts are property of Taoglas. Not to be copied or given to third parties without the written consent of Taoglas.

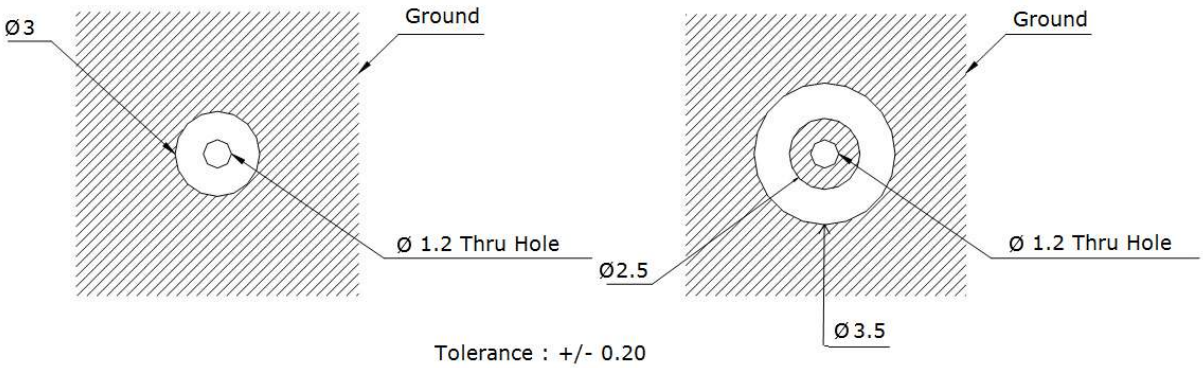
TITLE : 35mm GPS/GLONASS Ceramic Patch
PART NO. : CGGP.35.3.A.02
UNIT: mm | SCALE: 1:1 | PAGES: 1/1 | REV. E

## Adhesive Thickness



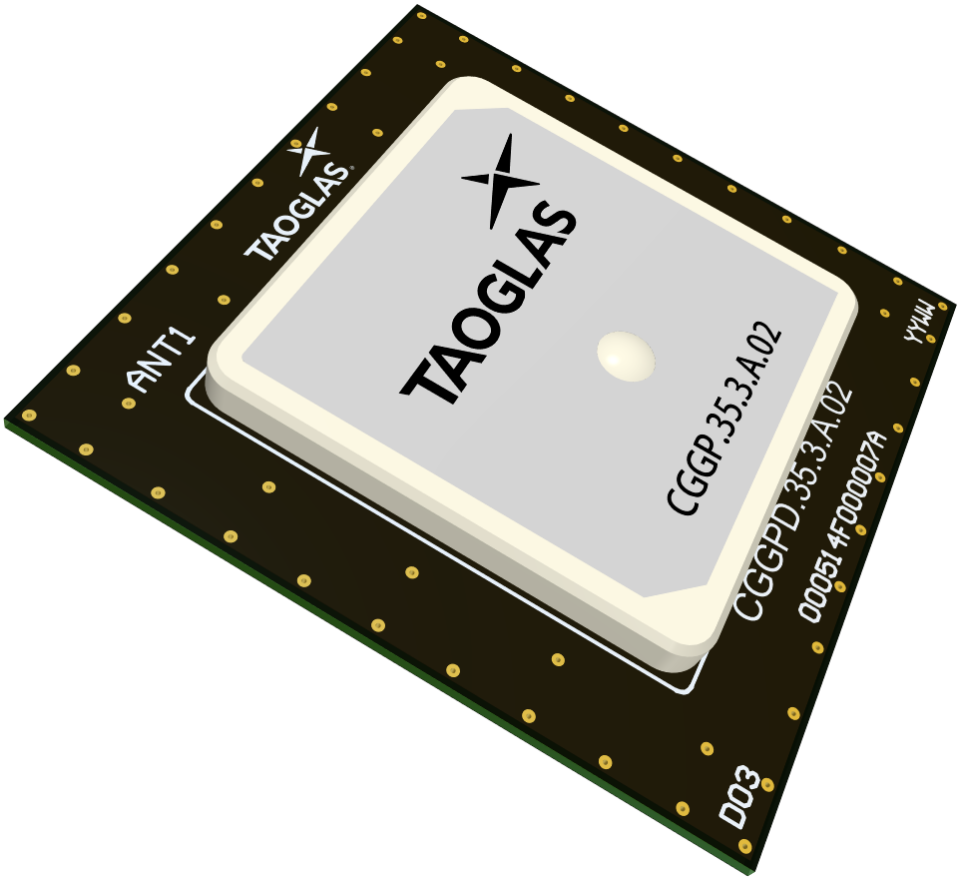

Red Line shows the adhesive without Liner – thickness 0.08~0.1mm

# 7. PCB Footprint Recommendation




Tolerance : +/- 0.20
Unit : mm

# 8. Antenna Integration Guide

## 8.1 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 |

## 8.2 Antenna Integration

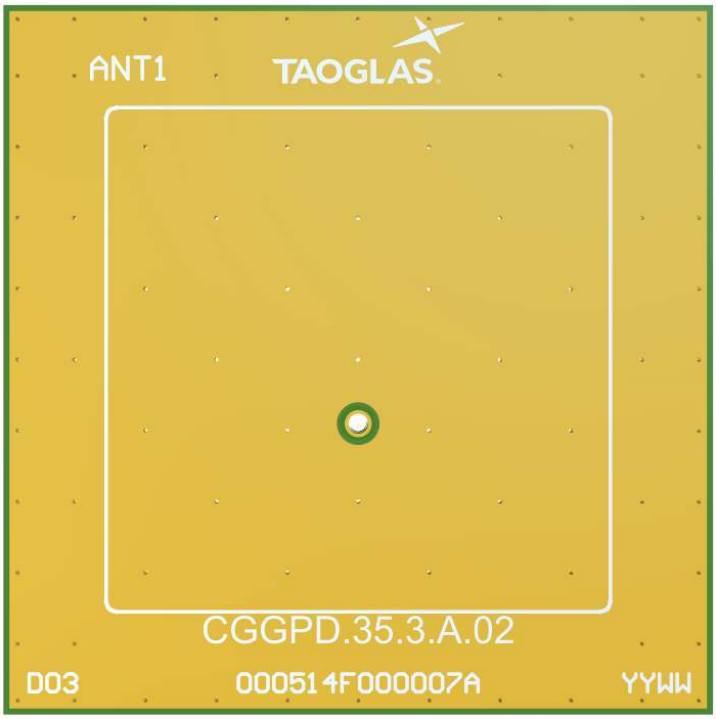
The antenna should be placed at the center of the ground plane with a length and width of 50mm. Maintaining a square symmetric ground plane shape and symmetric environment around the antenna is critical to maintaining the excellent axial ratio and phase center performance shown in this datasheet.


Top Side w/ Solder Mask

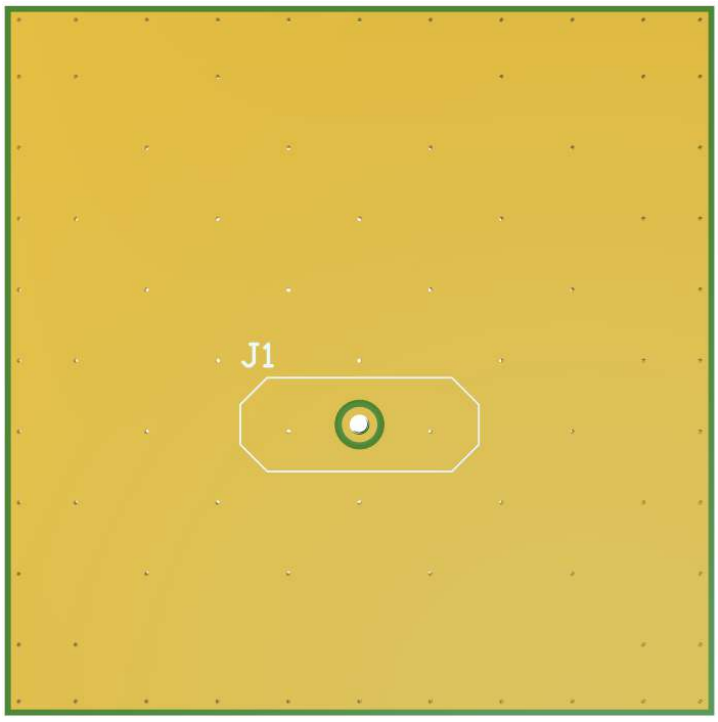

Top Side w/o Solder Mask

## 8.3 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.

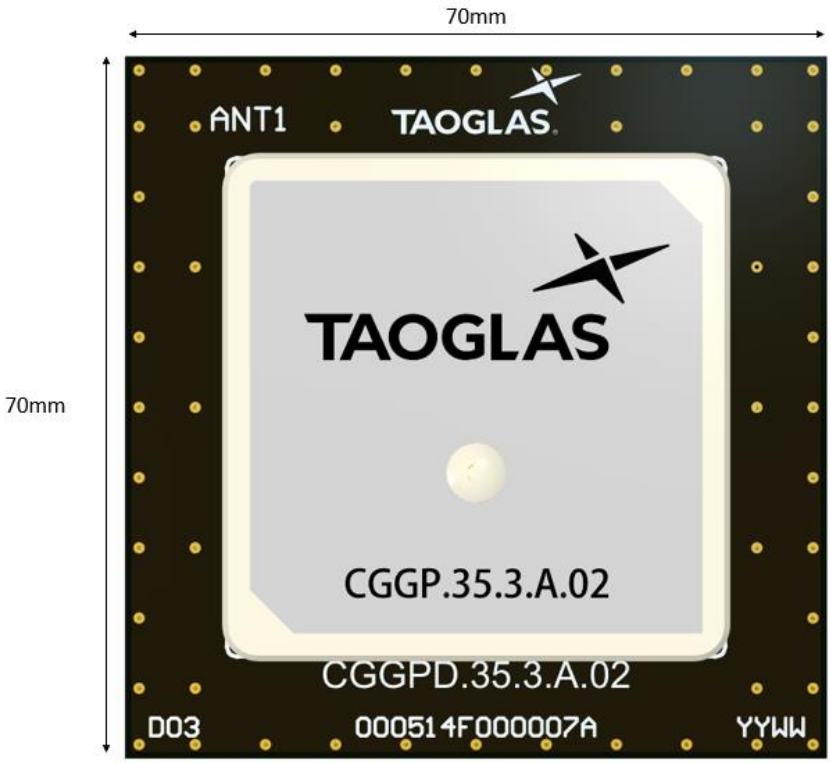



Topside

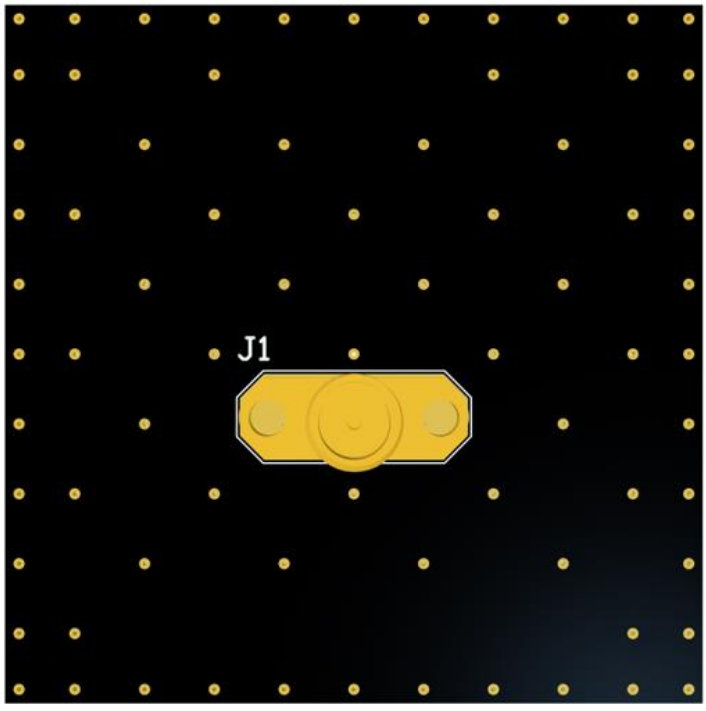



Bottom Side

## 8.4 Evaluation Board

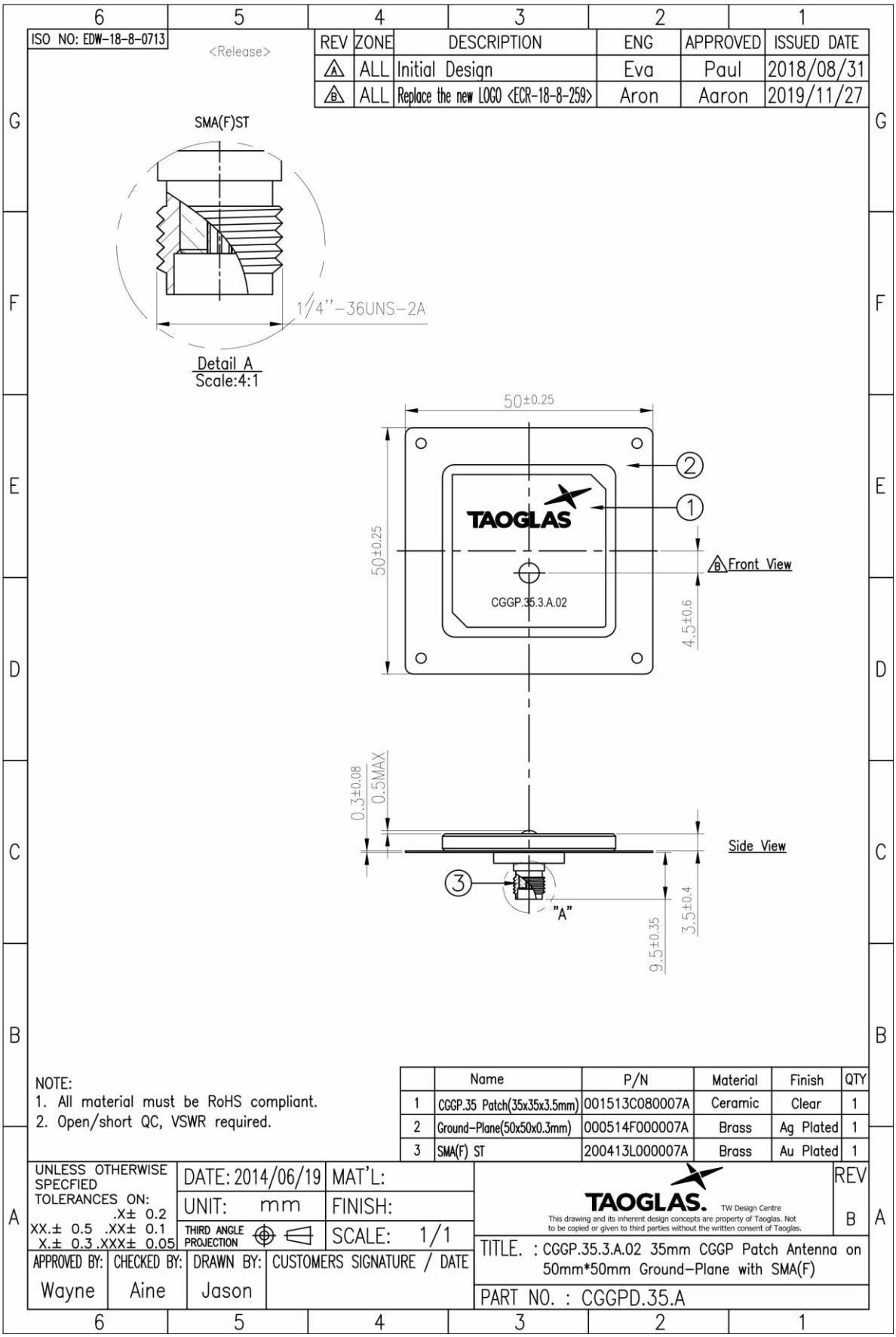



Topside




Bottom Side

# 9. Evaluation Board Mechanical Drawing (Unit: mm)

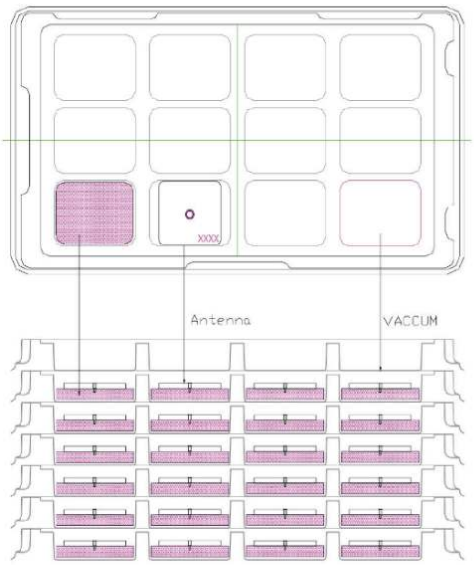


# 10. Packaging

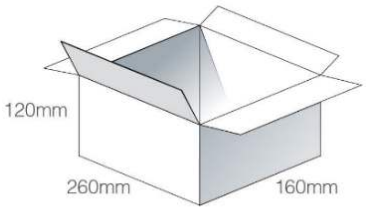
## CGGP.35.3.A.02

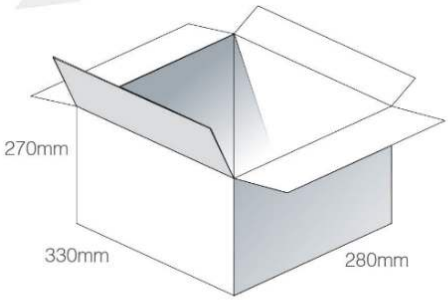
### Packaging Specifications

12 Pieces CGGP.35 per tray
Dimensions - Diameter 250*150*20mm
Weight - 220g



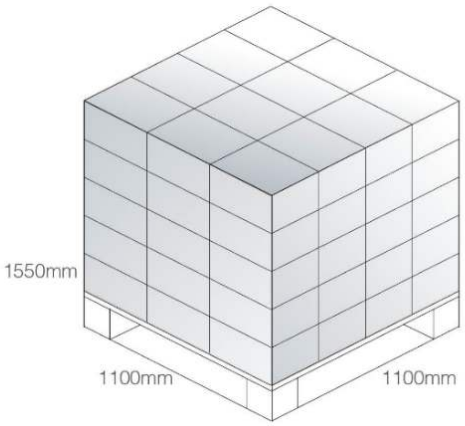

6 Trays per Small Carton
72 Pieces CGGP.35 Carton
Dimensions - 260*160*120
Weight - 1.37Kg




4 Small Cartons per 1 Large Carton
288 Pieces CGGP.35 per Large Carton
Carton Dimensions - 330*280*270
Weight - 6Kg

Pallet Dimensions 1100*1100*1550mm
60 Cartons per Pallet
12 Cartons per layer
5 Layers



Changelog for the datasheet

## SPE-11-8-062– CGGP.35.3.A.02

| Revision: O (Current Version) | |
|---|---|
| Date: | 2023-02-27 |
| Changes: | Antenna Integration Guide Added |
| Changes Made by: | Cesar Sousa |

**Previous Revisions**

| Revision: N | |
|---|---|
| Date: | 2021-06-12 |
| Changes: | Updated Pin Length to 2.4mm<br>Updated Drawing |
| Changes Made by: | Dan Cantwell |

| Revision: M | |
|---|---|
| Date: | 2020-11-23 |
| Changes: | Updated to new format |
| Changes Made by: | Dan Cantwell |

| Revision: L | |
|---|---|
| Date: | 2019-04-12 |
| Changes: | Added AR Values |
| Changes Made by: | David Connolly |

| Revision: K | |
|---|---|
| Date: | 2019-02-12 |
| Changes: | Amended Drawing |
| Changes Made by: | Technical Writer |

| Revision: J | |
|---|---|
| Date: | 2016-09-09 |
| Changes: | Updated drawing as per PCN |
| Changes Made by: | Andy Mahoney |

| Revision: I | |
|---|---|
| Date: | 2016-05-12 |
| Changes: | Updated Packaging Spec |
| Changes Made by: | Aine Doyle |

| Revision: H | |
|---|---|
| Date: | 2015-10-02 |
| Changes: | Added efficiency Rating to cover page |
| Changes Made by: | Aine Doyle |

| Revision: G | |
|---|---|
| Date: | 2015-06-01 |
| Changes: | Amended PCB Footprint |
| Changes Made by: | Aine Doyle |

| Revision: F | |
|---|---|
| Date: | 2014-08-19 |
| Changes: | Removed Circular Polarization data from spec |
| Changes Made by: | Aine Doyle |

| Revision: E | |
|---|---|
| Date: | 2014-07-04 |
| Changes: | Updated test results |
| Changes Made by: | Aine Doyle |

| Revision: D | |
|---|---|
| Date: | 2014-11-06 |
| Changes: | Added EBV information |
| Changes Made by: | Aine Doyle |

| Revision: C | |
|---|---|
| Date: | 2013-04-15 |
| Changes: | updated Supplier spec with GND plane info |
| Changes Made by: | Aine Doyle |

| Revision: B | |
|---|---|
| Date: | 2011-08-30 |
| Changes: | |
| Changes Made by: | Technical Writer |

| Revision: A (Original First Release) | |
|---|---|
| Date: | 2011-07-29 |
| Notes: | |
| Author: | Technical Writer |

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