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.

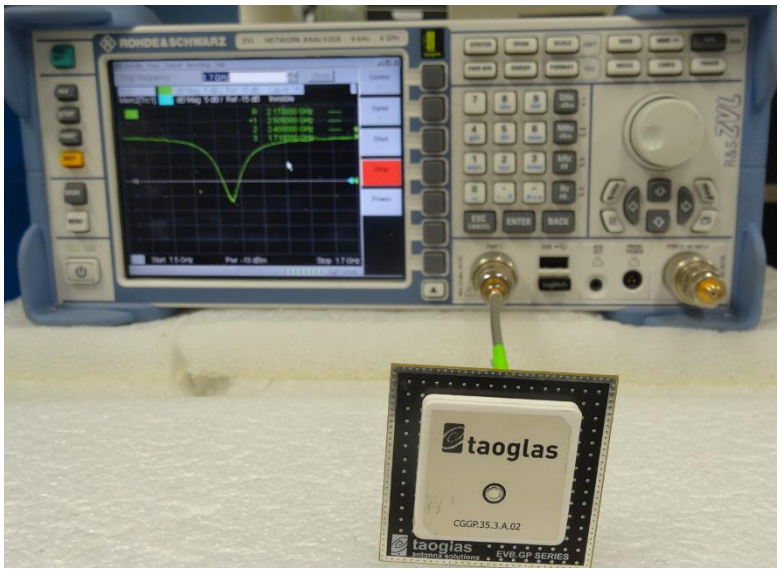
For further optimization to customer specific device environments where positioning is off center or on different ground-plane sizes, custom tuned patch antennas can be supplied. Taoglas can also provide different pin lengths for these antennas, subject to potential NRE and MOQ. For more details please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

2. Specifications

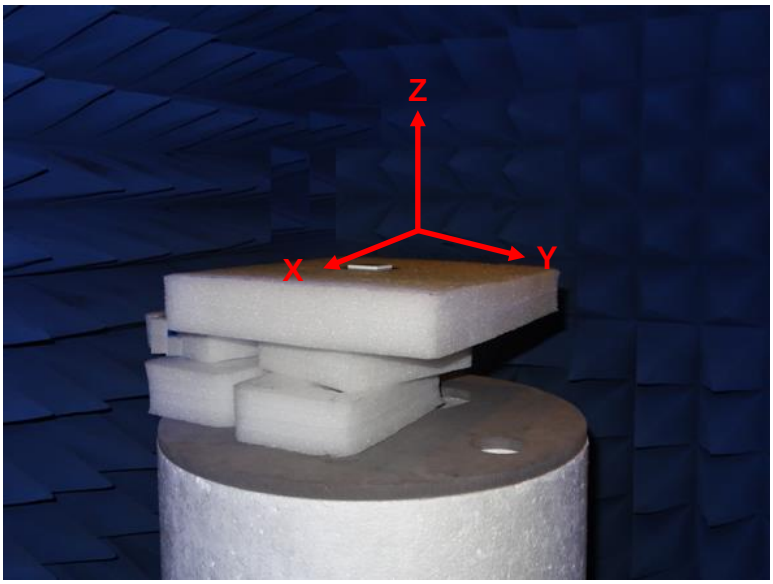
Electrical		
Application Bands	**GPS/Galileo**	**GLONASS**
Operation Frequency	**1575.42 ±1.023MHz**	**1602±5MHz**
Bandwidth	22MHz min	
VSWR	1.5	
Peak Gain	4.0dBi typ.	
Gain at Zenith	4.0dBi	
Gain at 10°elevation	1.5dBi typ.	
Axial Ratio	3dB max	
Impedance	50 Ohms	
Efficiency	85% typ.	
Frequency Temperature 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



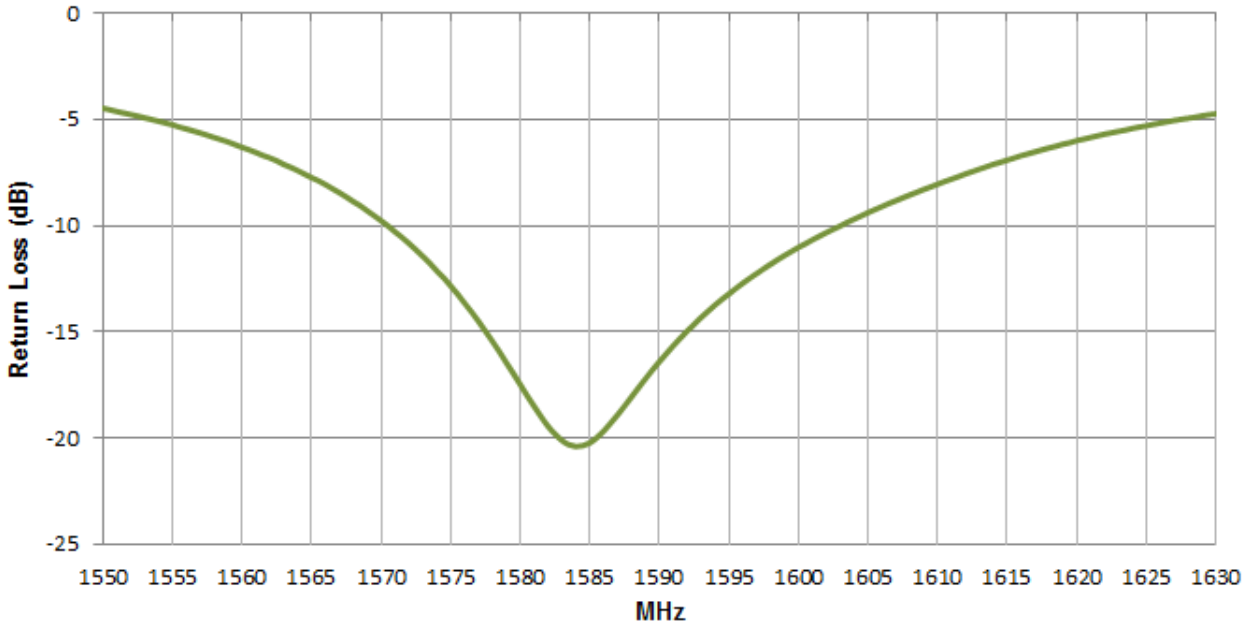
Return Loss measurement of the CGGP.35.3.A.02



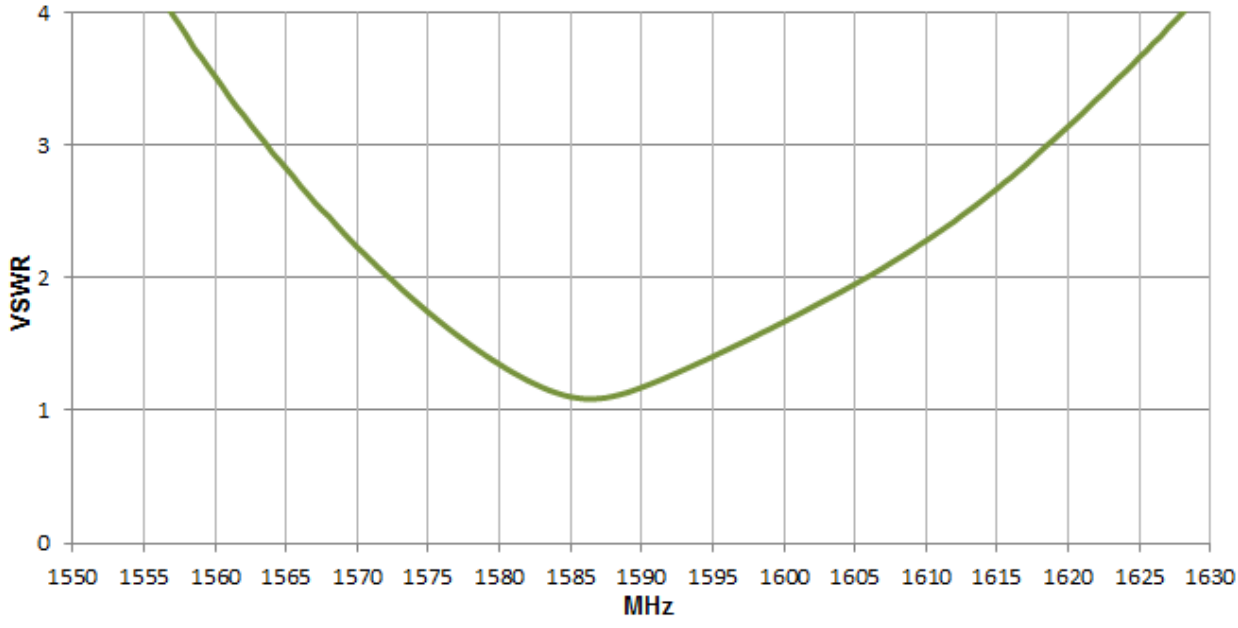
Peak gain, efficiency and radiation pattern measurements of the CGGP.35.3.A.02

4. Antenna Characteristics

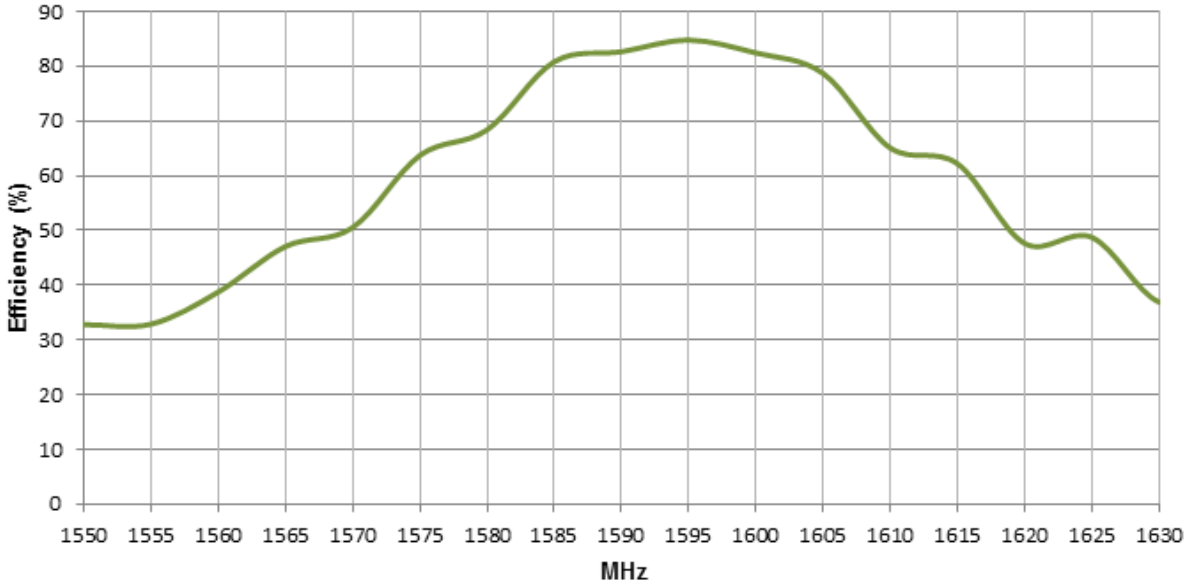
4.1 Return Loss



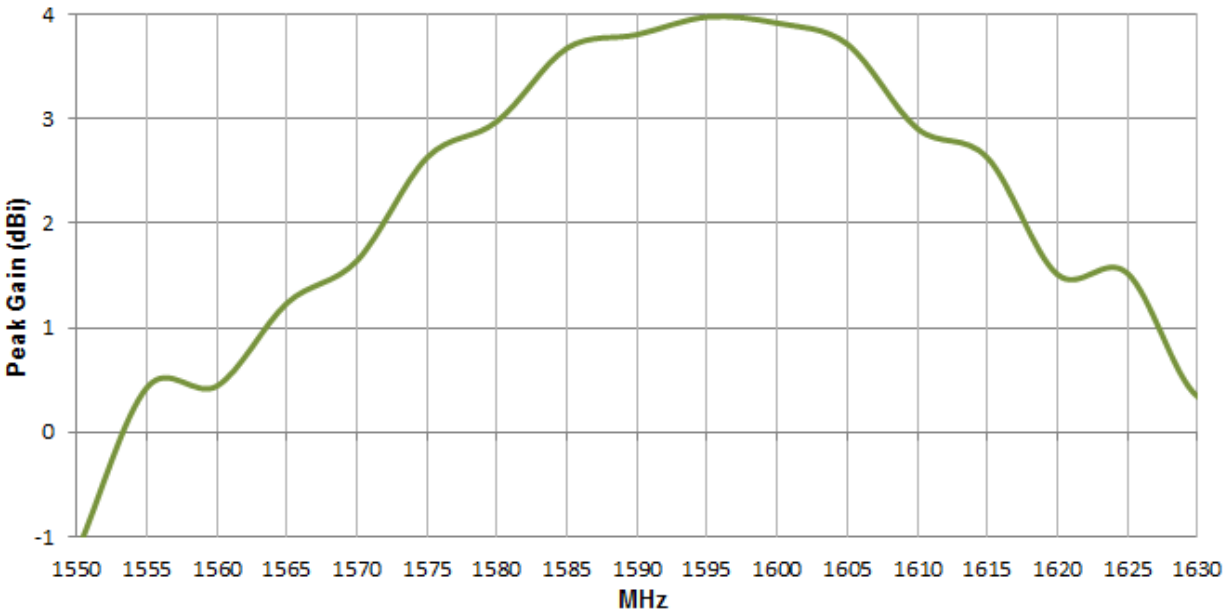
4.2 VSWR



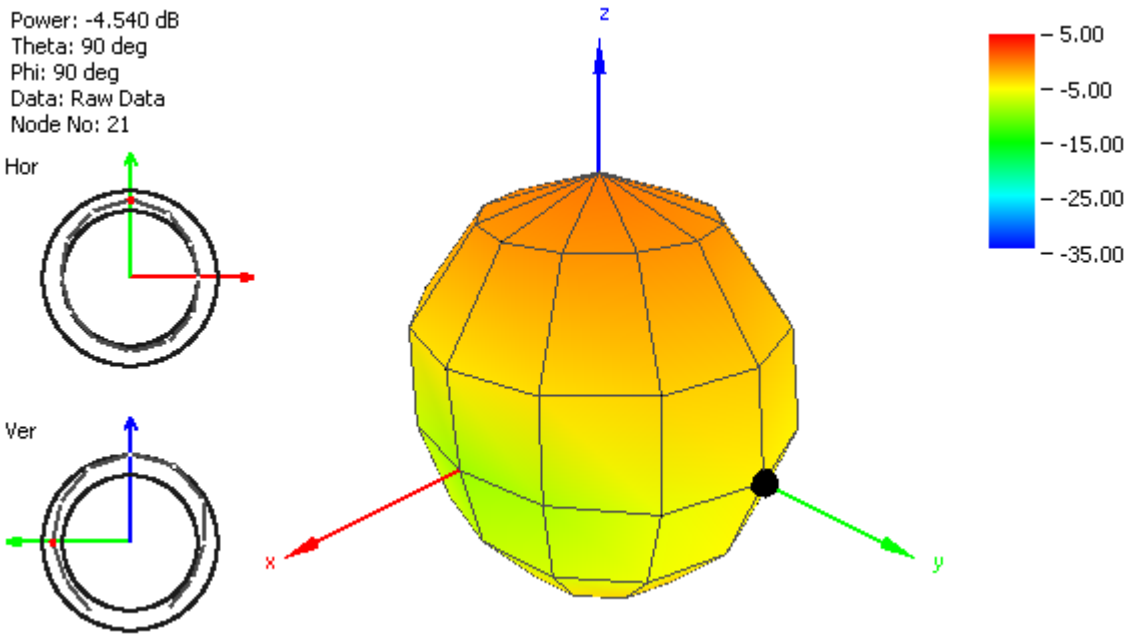
4.3 Efficiency



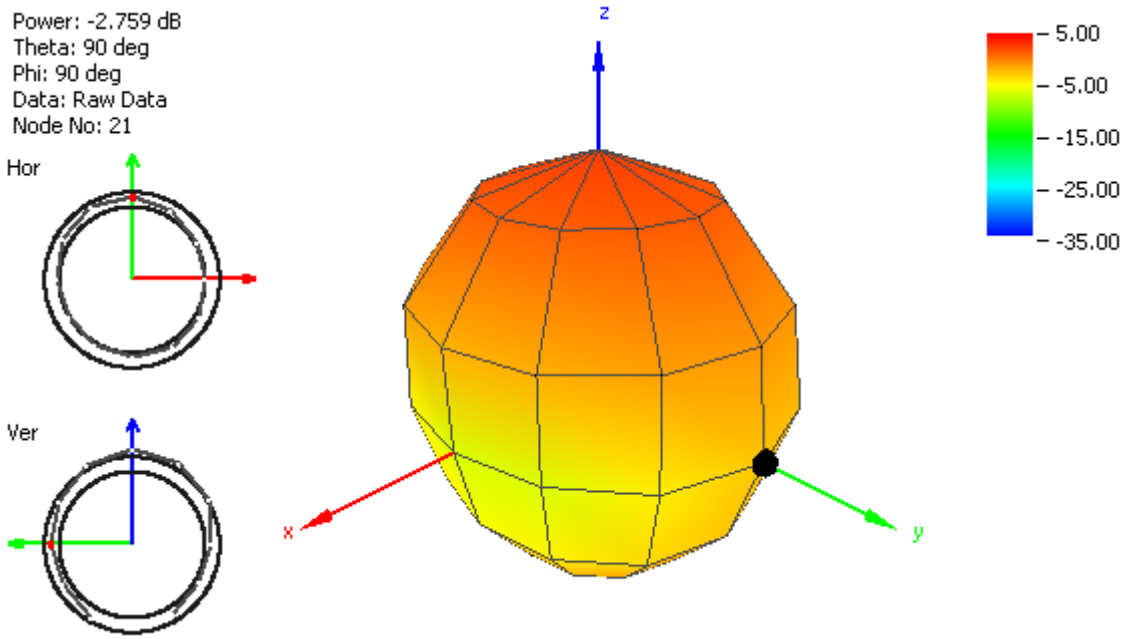
4.4 Peak Gain



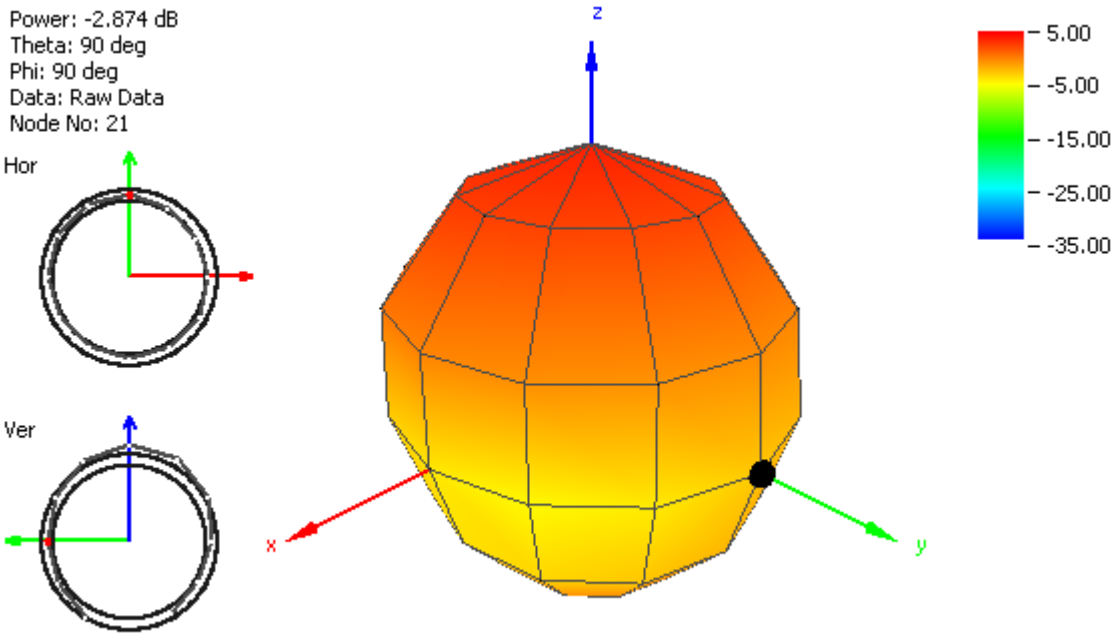
4. Antenna Radiation Pattern



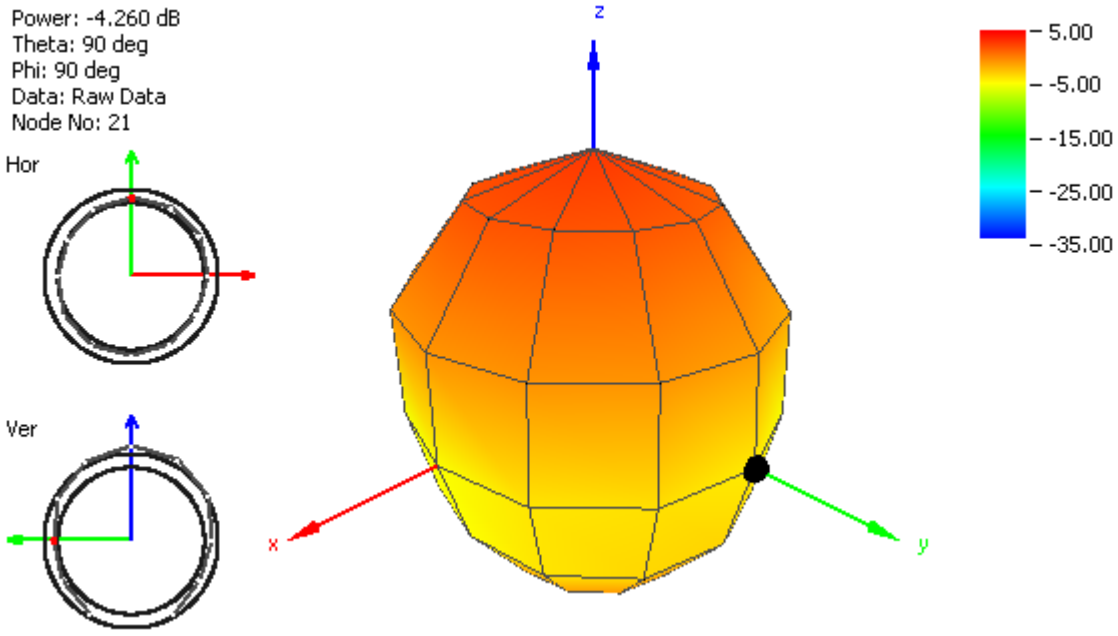
1560Mhz



1575Mhz

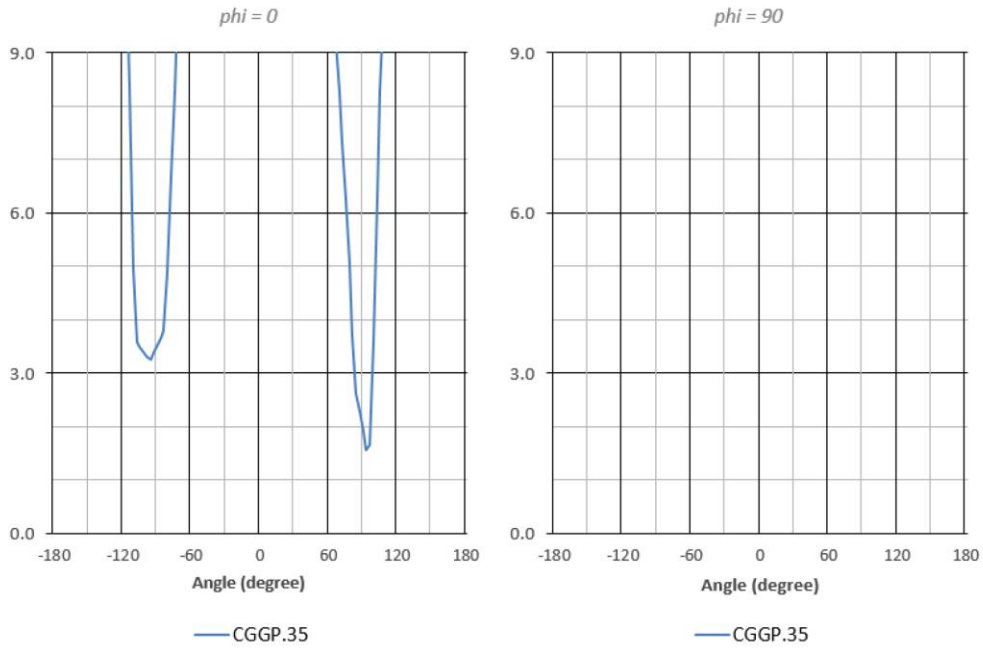


1590Mhz

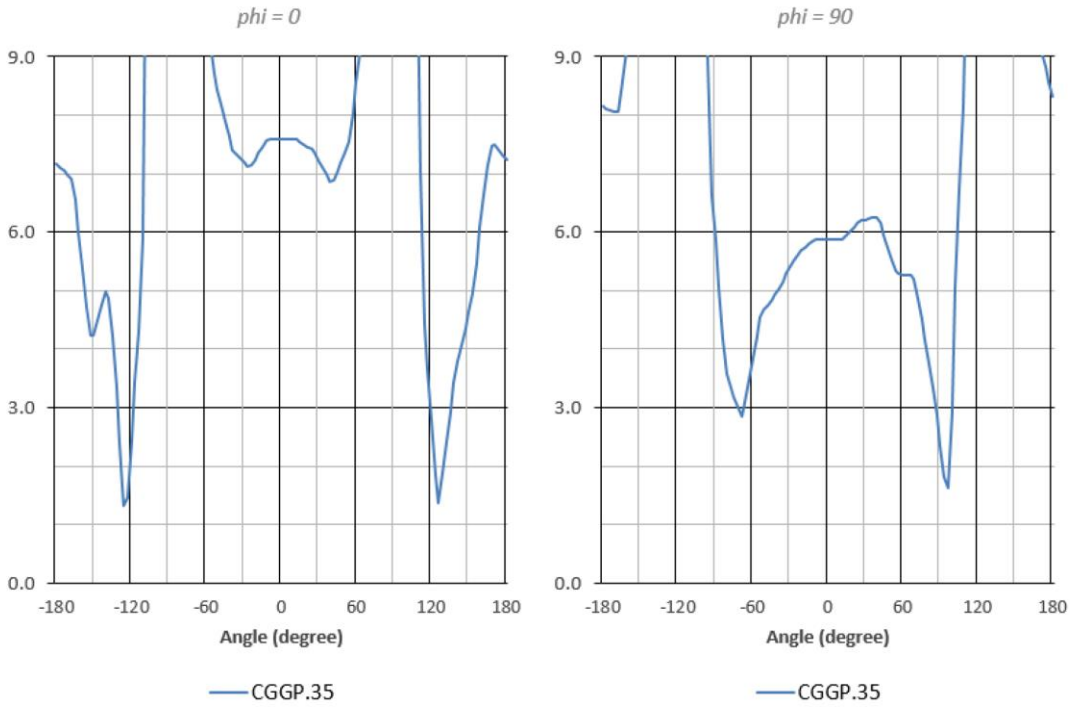


1610Mhz

5. Axial Ratio



1575.42MHz

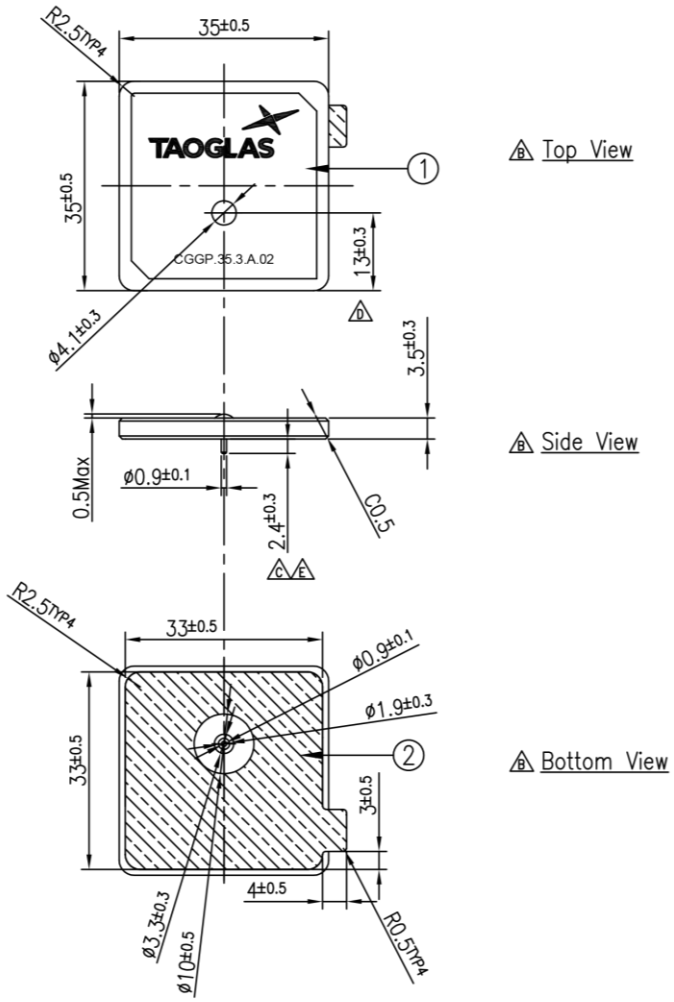


1602MHz

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 Linter	1

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

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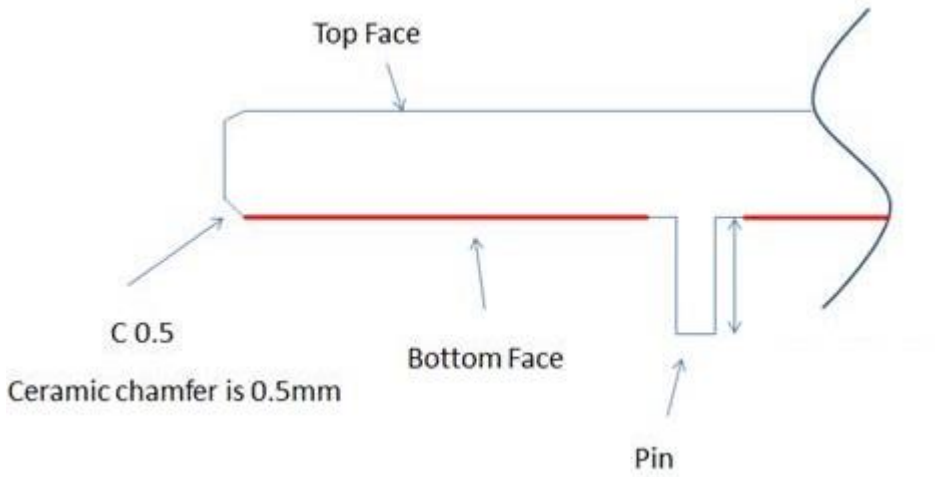
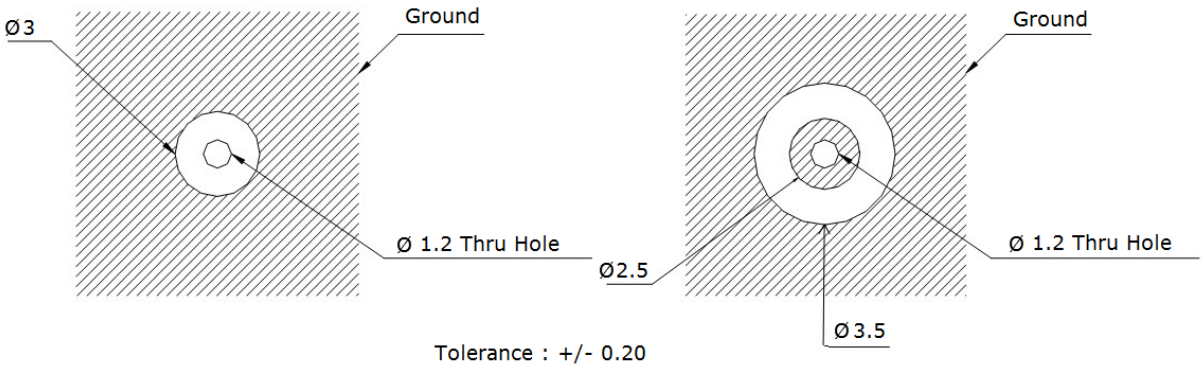
TITLE :	35mm GPS/GLONASS Ceramic Patch
PART NO. :	CGGP.35.3.A.02
UNIT: mm	SCALE: 1:1 PAGES: 1/1 REV. E

Adhesive Thickness



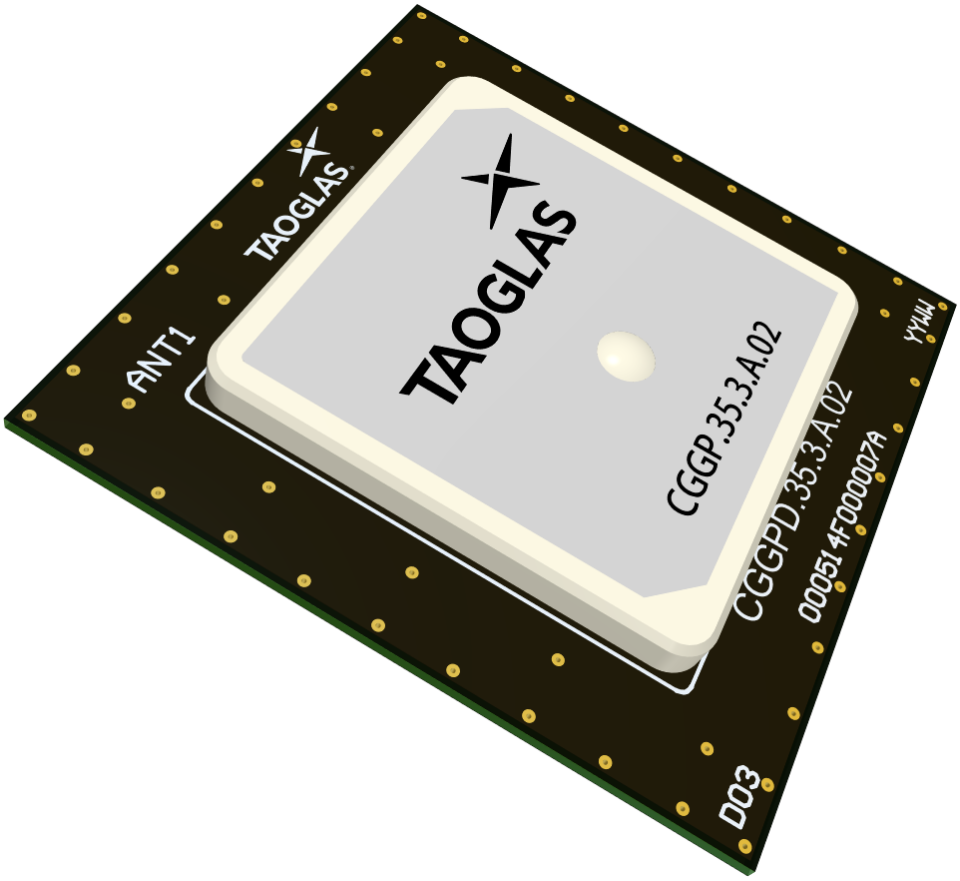
Red Line shows the adhesive without Liner – thickness 0.08~0.1mm

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

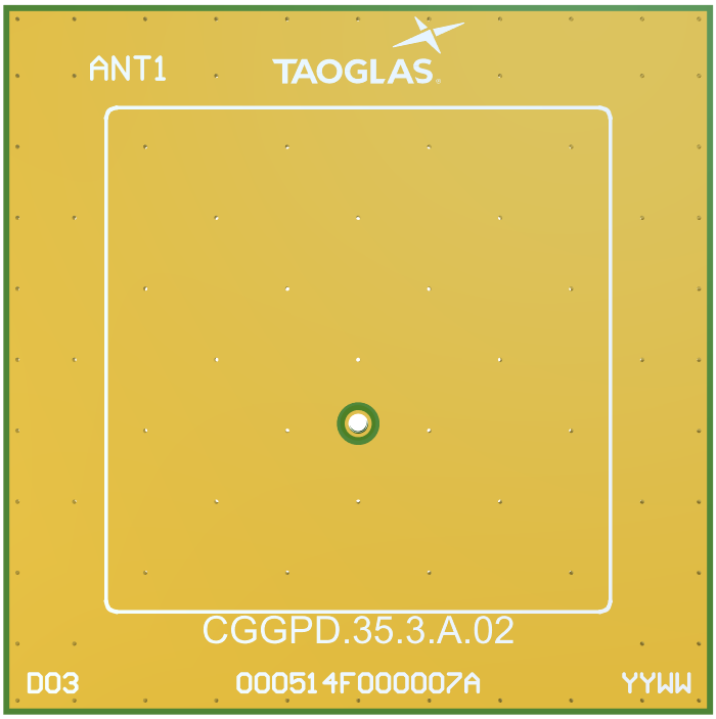
The antenna should be placed at the center of the ground plane with a length and width of 50mm. Maintaining a square symmetric ground plane shape and symmetric environment around the antenna is critical to maintaining the excellent axial ratio and phase center performance shown in this datasheet.

Top Side w/ Solder Mask

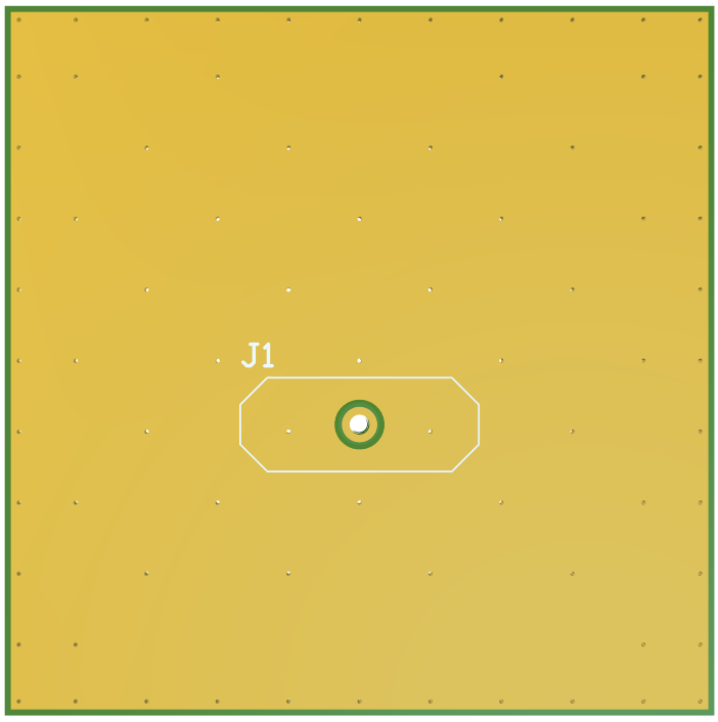
Top Side w/o Solder Mask

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.

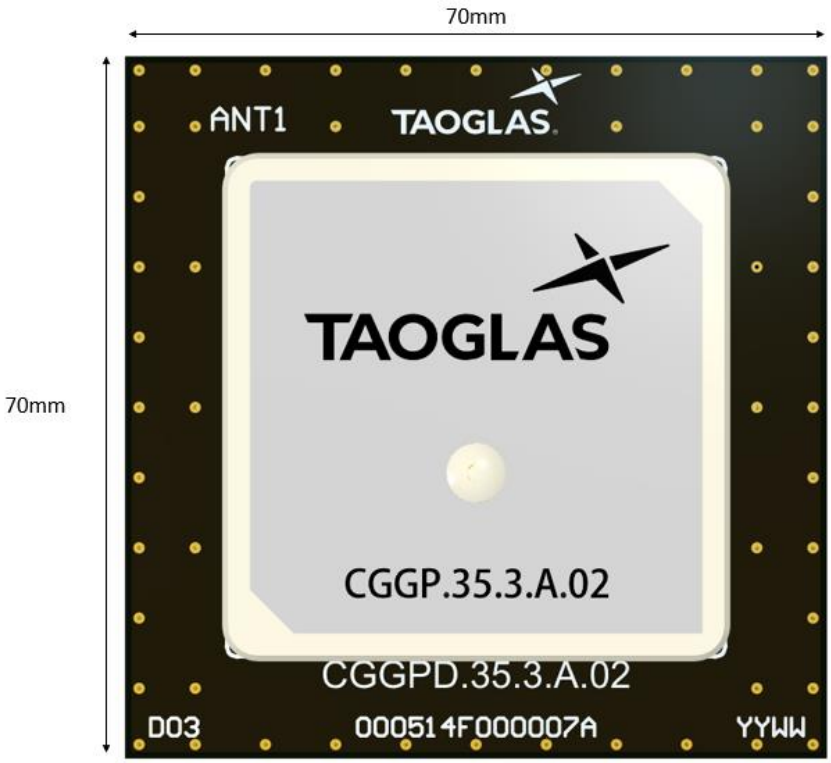


Topside

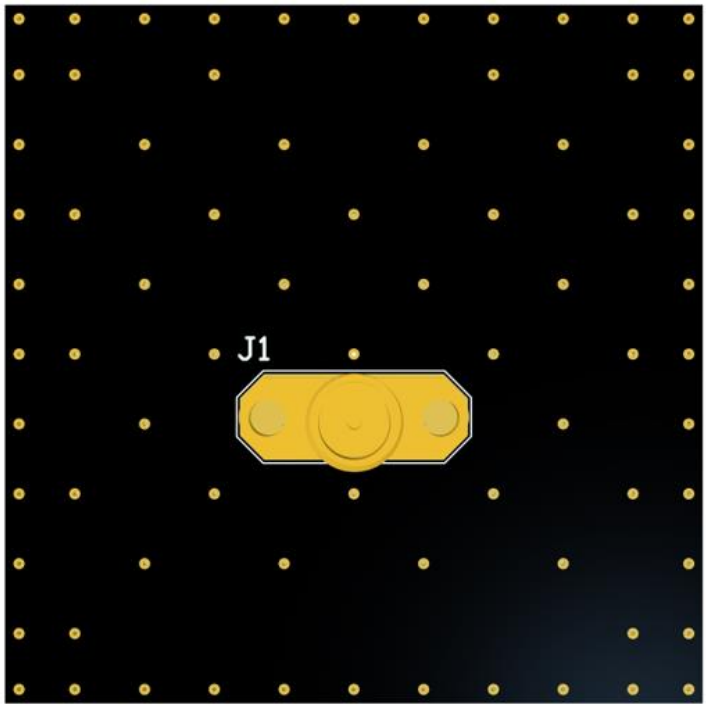


Bottom Side

8.4 Evaluation Board



Topside



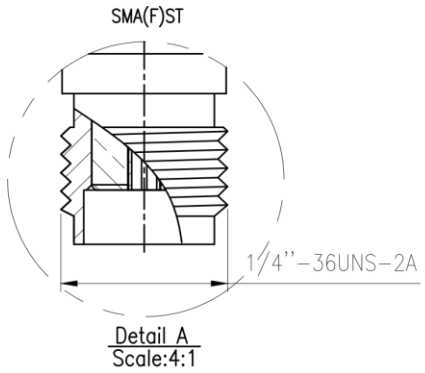
Bottom Side

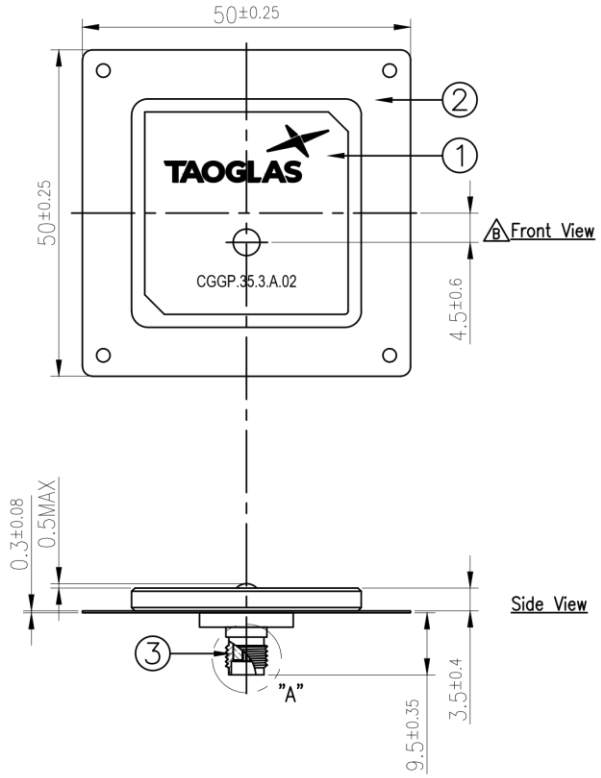
9. Evaluation Board Mechanical Drawing (Unit: mm)

REV	ZONE	DESCRIPTION	ENG	APPROVED	ISSUED DATE
A	ALL	Initial Design	Eva	Paul	2018/08/31
B	ALL	Replace the new LOGO <ECR-18-8-259>	Aron	Aaron	2019/11/27

ISO NO: EDW-18-8-0713

<Release>





NOTE:
1. All material must be RoHS compliant.
2. Open/short QC, VSWR required.

	Name	P/N	Material	Finish	QTY
1	CGGP.35 Patch(35x35x3.5mm)	001513C080007A	Ceramic	Clear	1
2	Ground-Plane(50x50x0.3mm)	000514F000007A	Brass	Ag Plated	1
3	SMA(F) ST	200413L000007A	Brass	Au Plated	1

UNLESS OTHERWISE SPECFIED TOLERANCES ON:
.X± 0.2
XX.± 0.5 .XX± 0.1
X.± 0.3 .XXX± 0.05

DATE: 2014/06/19 | MAT'L:
UNIT: mm | FINISH:
THIRD ANGLE PROJECTION | SCALE: 1/1

APPROVED BY:	CHECKED BY:	DRAWN BY:	CUSTOMERS SIGNATURE / DATE
Wayne	Aine	Jason	

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REV B

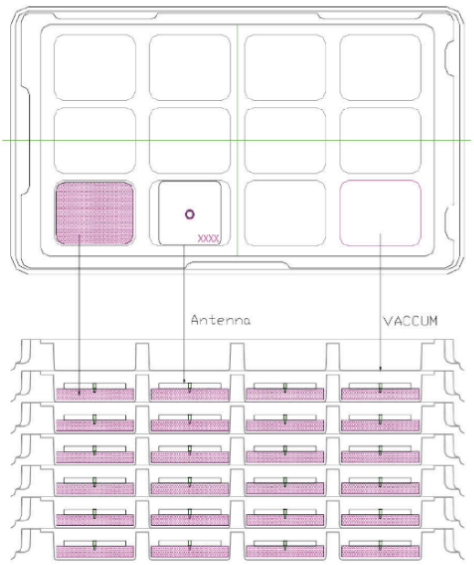
TITLE. : CGGP.35.3.A.02 35mm CGGP Patch Antenna on 50mm*50mm Ground-Plane with SMA(F)

PART NO. : CGGPD.35.A

10. Packaging

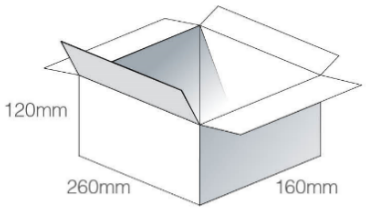
CGGP.35.3.A.02

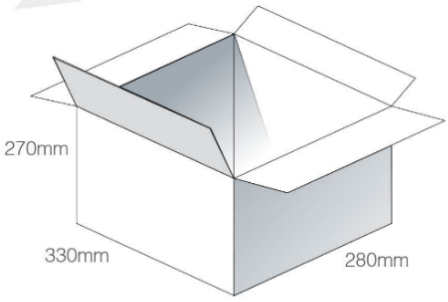
Packaging Specifications



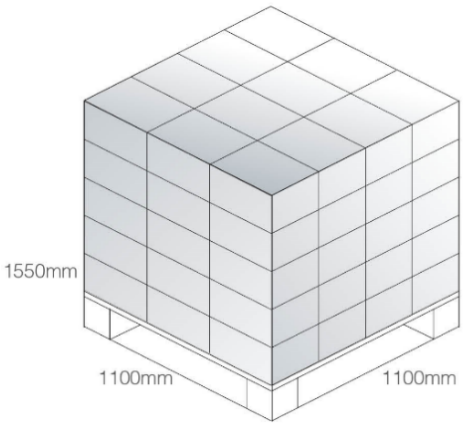
12 Pieces CGGP.35 per tray
Dimensions - Diameter 250*150*20mm
Weight - 220g

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 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