



THE DATASHEET OF SGGPD.25A





TAOGLAS®



Datasheet

Part No:
SGGP.25.4.A.02

Description

GPS/GLONASS/GALILEO SMD Patch Antenna

Features:

Dimensions: 25mm*25mm*4mm

Single Feed SMD Mount

GPS/GALILEO: 1575MHz

GLONASS: 1602MHz

RoHS & REACH Compliant

1.	Introduction	2
2.	Specification	3
3.	Antenna Characteristics	5
4.	Radiation Patterns	11
5.	Mechanical Drawing	14
6.	Packaging	15
7.	Antenna Integration Guide	17
8.	Solder Reflow Profile	25
<hr/>		
	Changelog	26

Taoglas makes no warranties based on the accuracy or completeness of the contents of this document and reserves the right to make changes to specifications and product descriptions at any time without notice. Taoglas reserves all rights to this document and the information contained herein. Reproduction, use or disclosure to third parties without express permission is strictly prohibited.



1. Introduction



The Taoglas SGGP.25 is a ceramic GPS/GLONASS/Galileo passive patch antenna designed for optimal performance on GPS L1/Galileo E1 band (1575.42 MHz) and GLONASS L1 band (1602 MHz). With a low-profile thickness of just 4mm and convenient mounting via standard SMD process, it is ideal for high-volume, low-cost assembly applications.

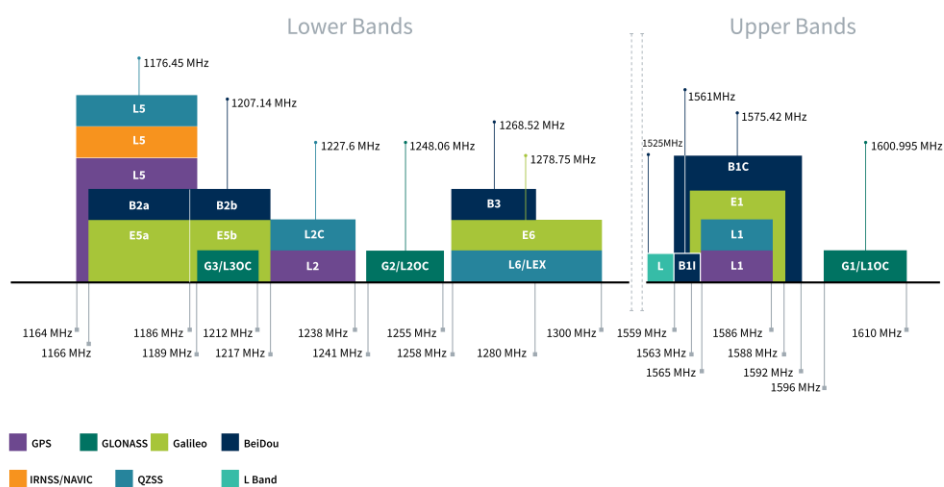
SGGP.18 is designed for applications in navigation devices, vehicle tracking/fleet management systems, and telematics devices. It is an excellent choice for applications in transportation, defense, marine, agriculture, and navigation industries.

The SGGP.25 is manufactured and tested in an IATF16949 first tier automotive approved facility. For further optimization to customer-specific device environments, custom tuned patch antennas can be supplied, subject to NRE and MOQ.

For further information or support with integrating this antenna into your device, please contact your regional Taoglas customer support team.

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 1575.42 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)	1561	1575.42	1603
VSWR (max.)	3:1	3:1	5:1
Passive Antenna Efficiency (%)	78.49	78.41	73.49
Passive Antenna Gain at Zenith (dBic)	3.66	3.66	3.04
Polarization	RHCP		
Impedance	50 Ω		

Mechanical	
Dimensions	25*25*4mm
Weight	7g
Material	Ceramic

Environmental	
Operating Temperature	-40°C to +85°C
Storage Temperature	-40°C to +85°C
Moisture Sensitivity Level (MSL)	3 (168 Hours)

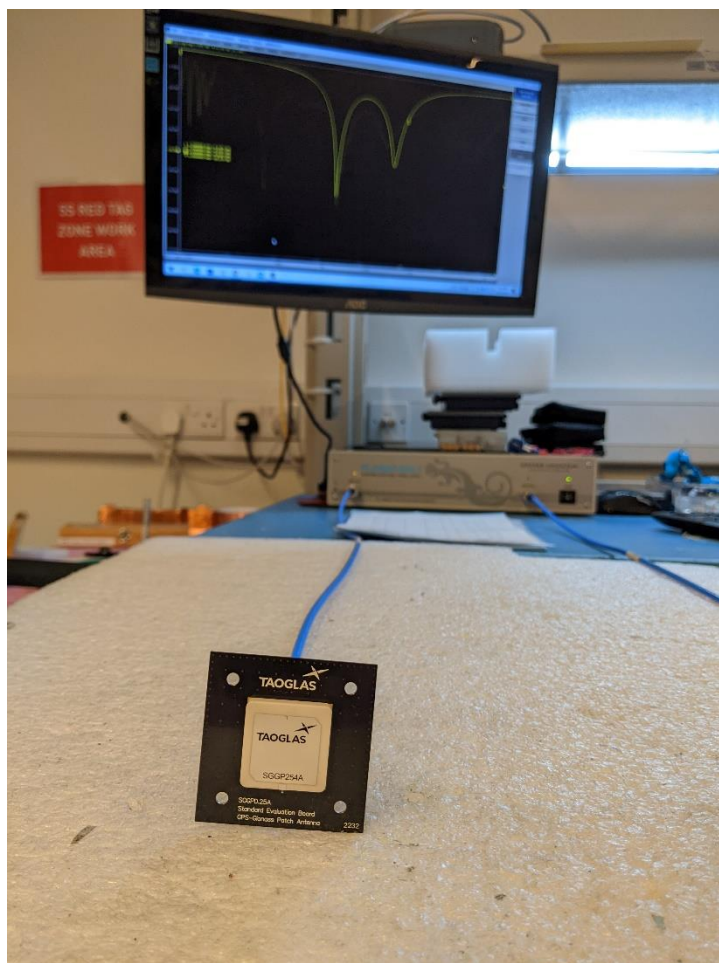
3. Antenna Characteristics

3.1 Test Setup

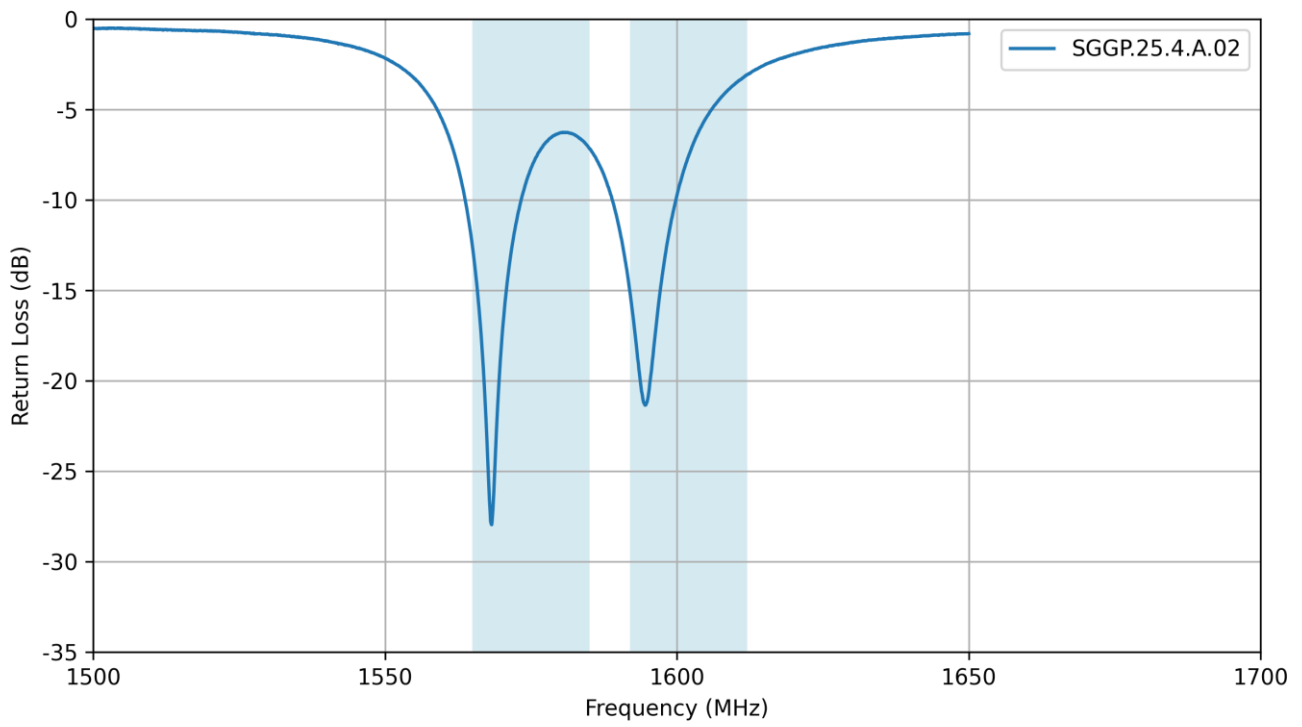
AUT



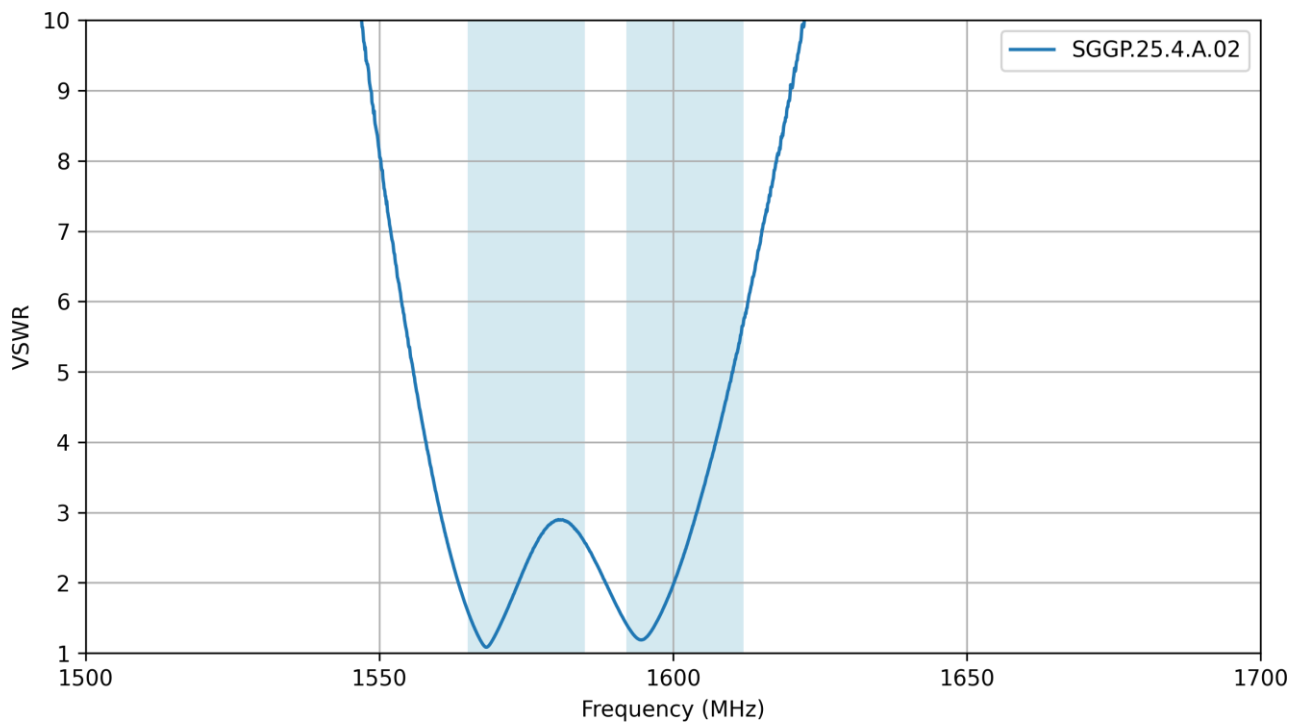
Vector Network Analyzer



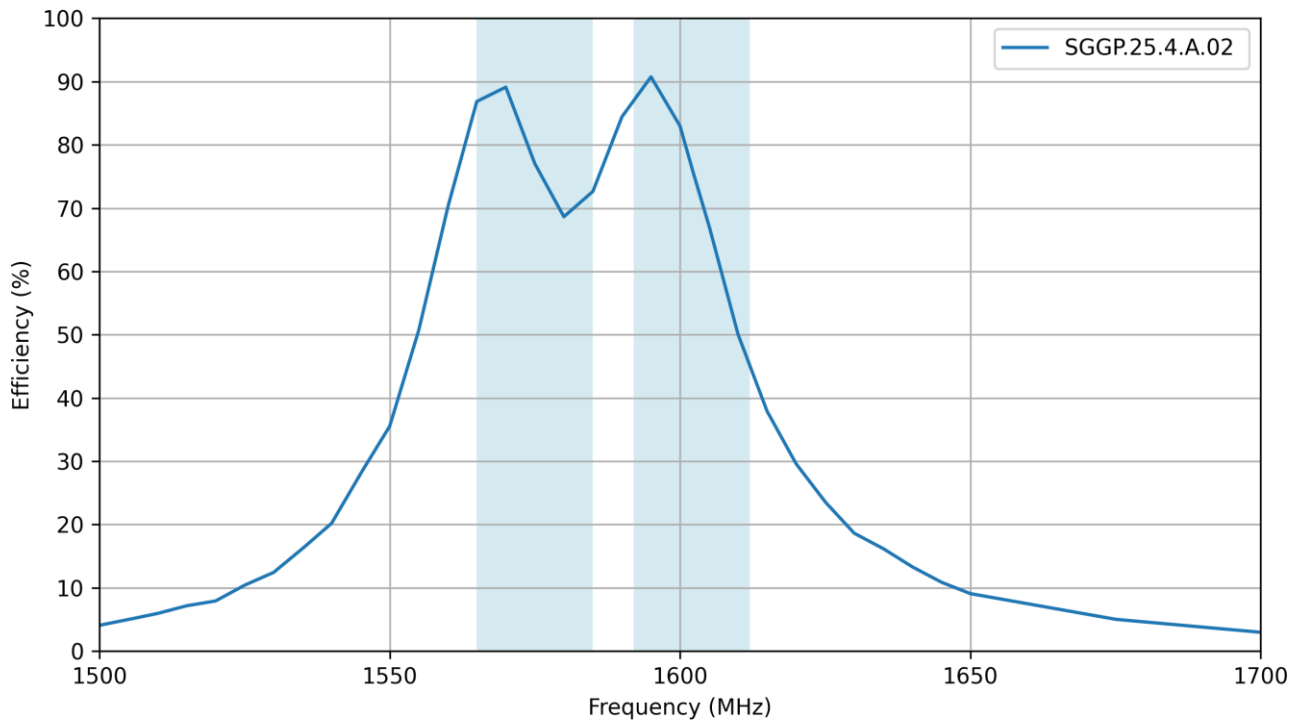
3.2 Return Loss



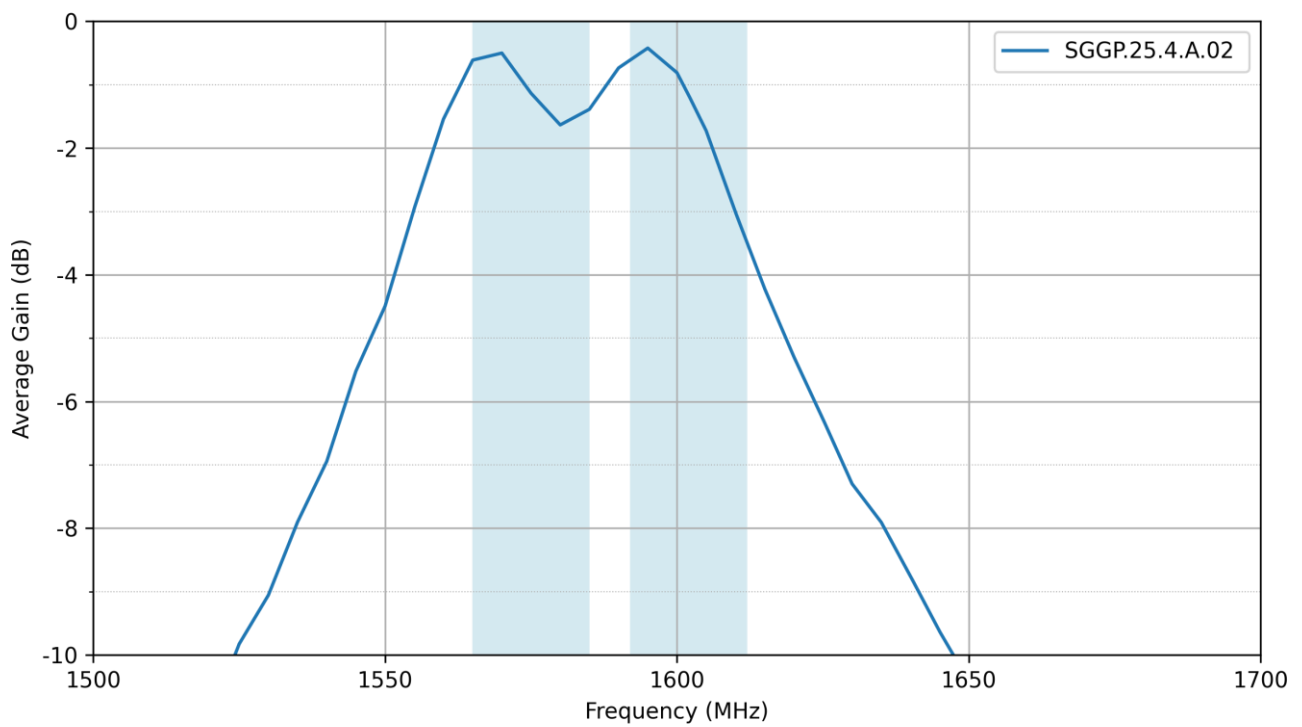
3.3 VSWR



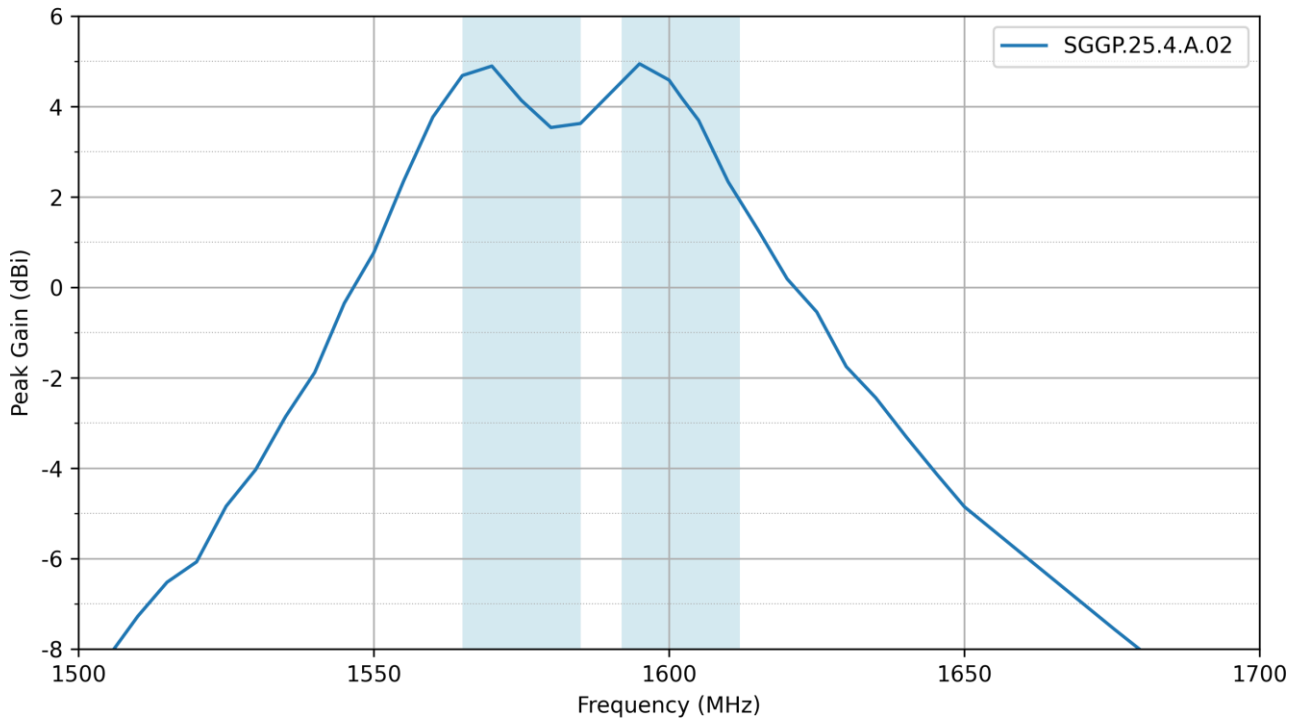
3.4 Efficiency



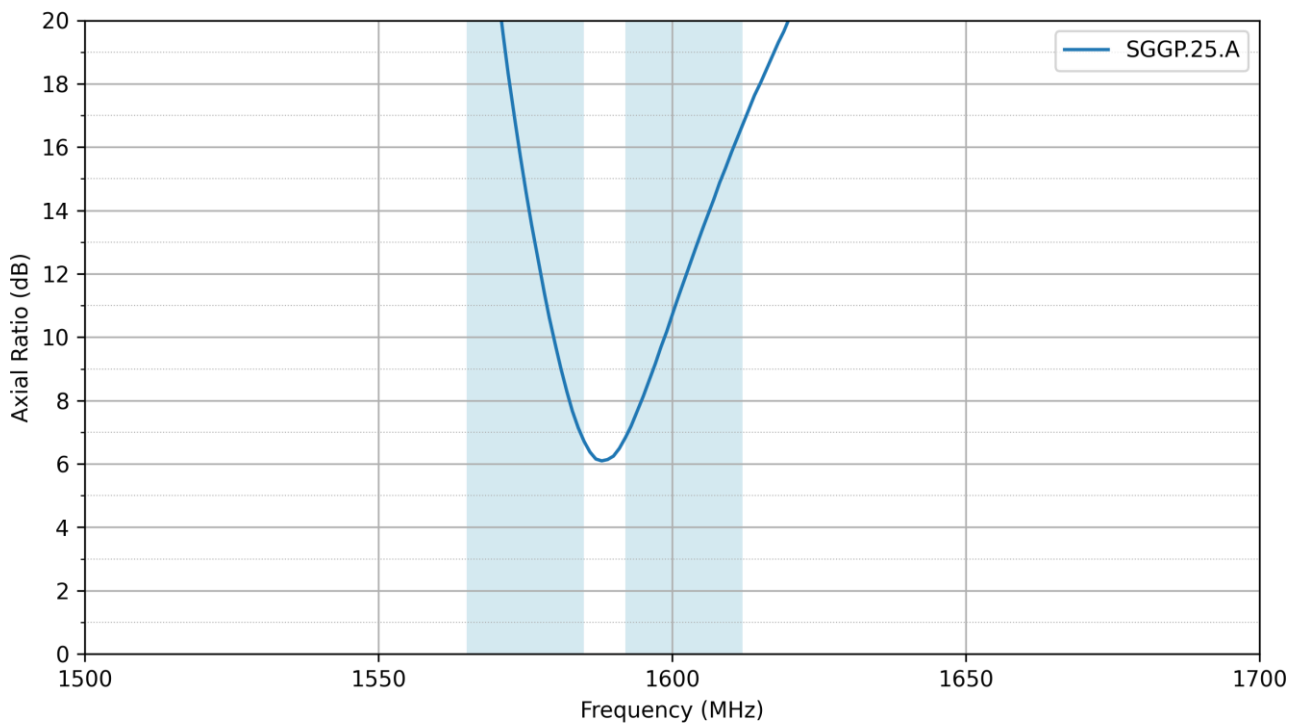
3.5 Average Gain



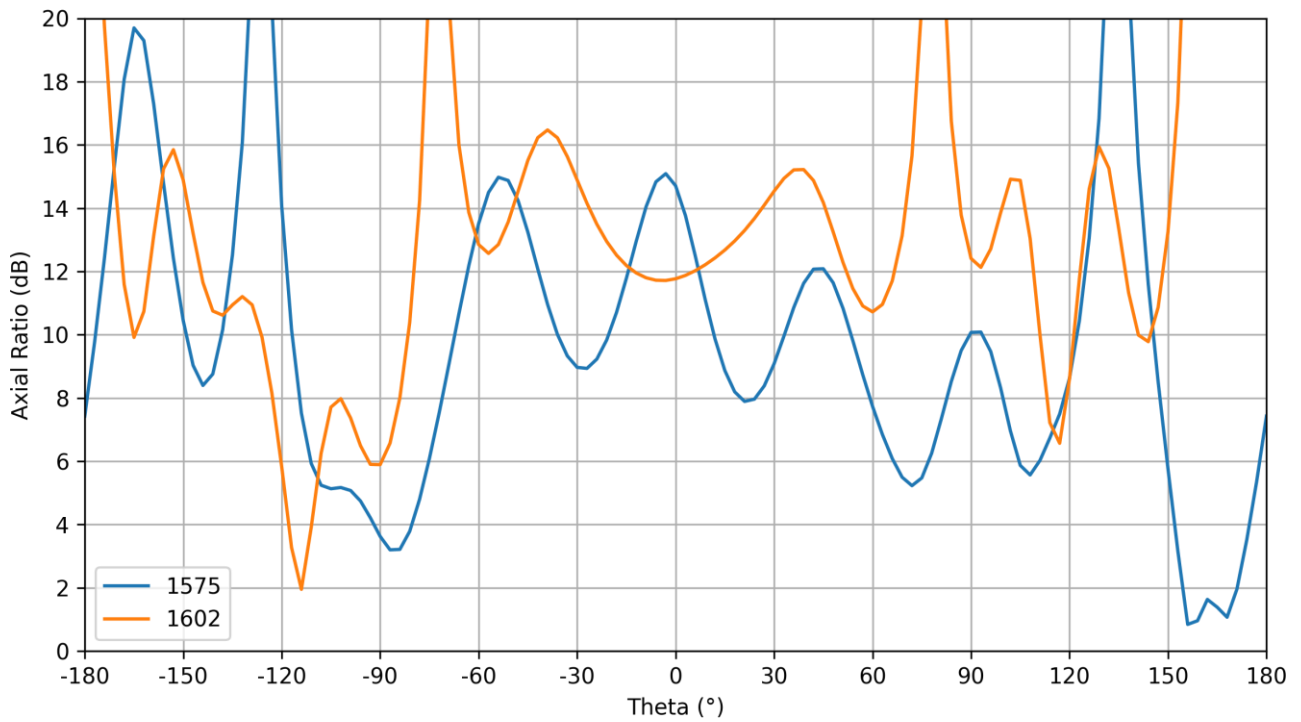
3.6 Peak Gain



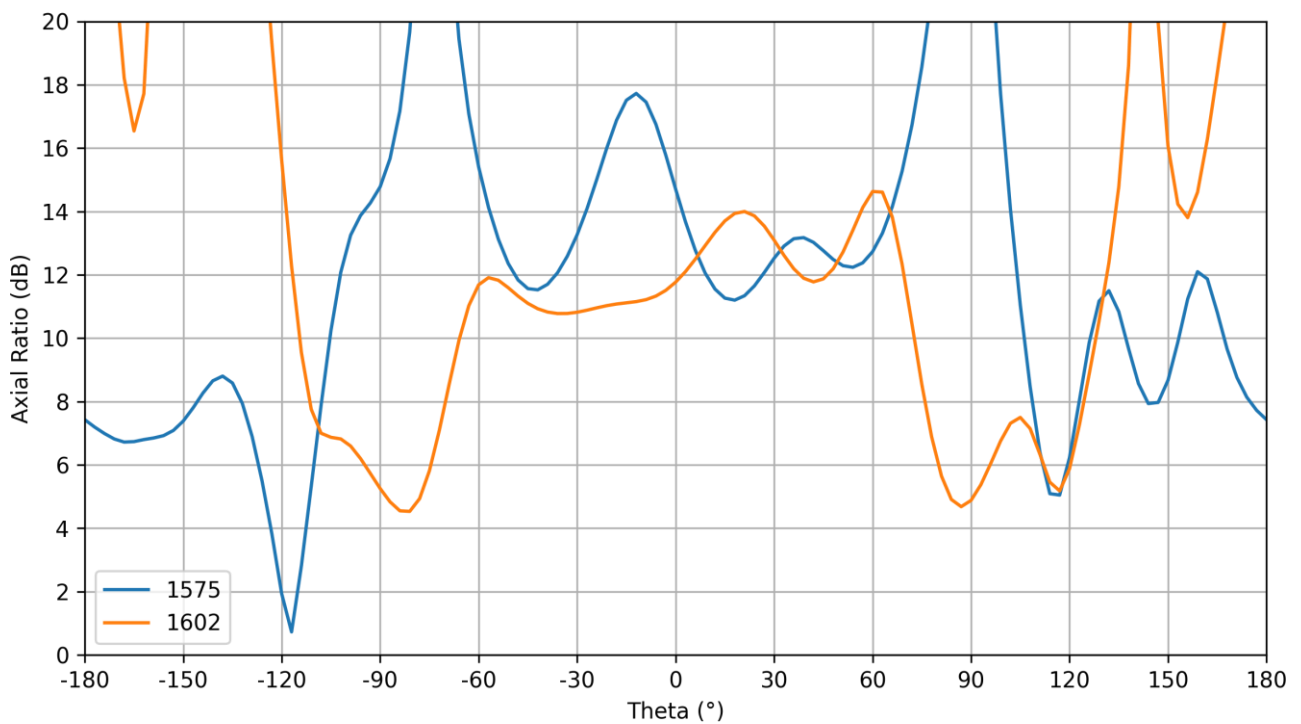
3.7 Axial Ratio



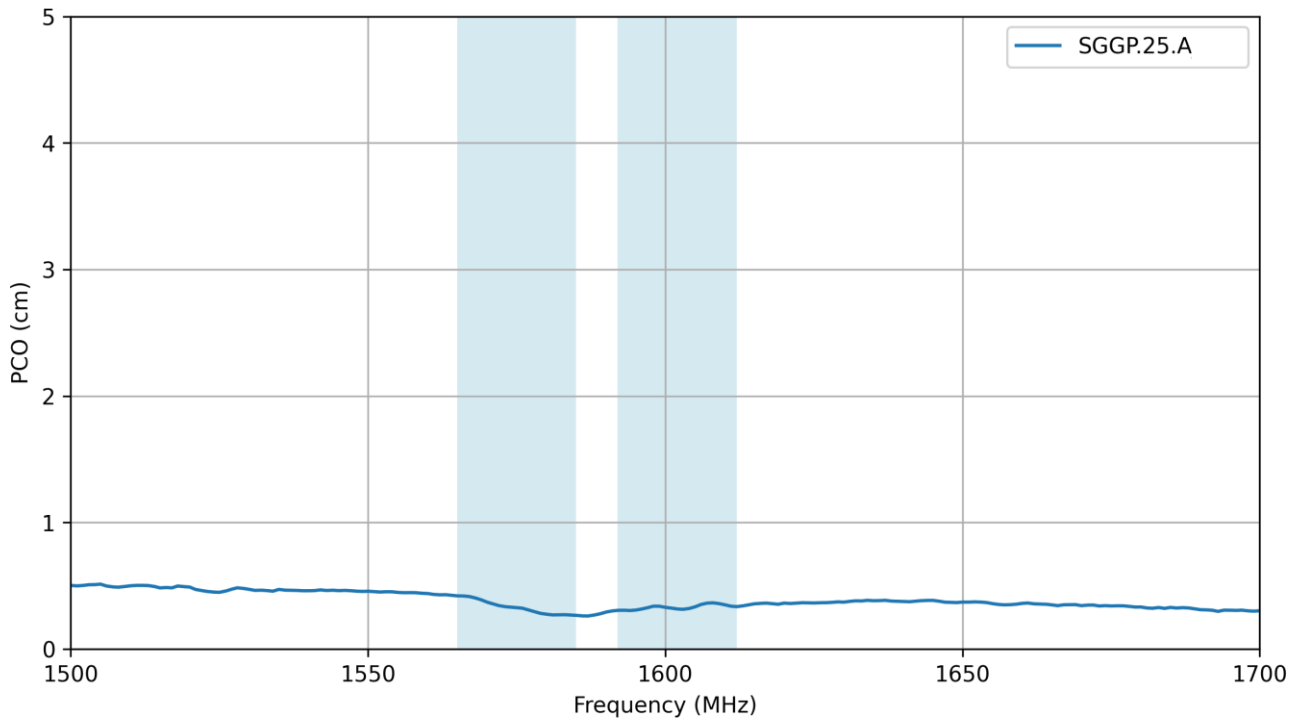
3.8 Axial Ratio vs Angle for Phi=0



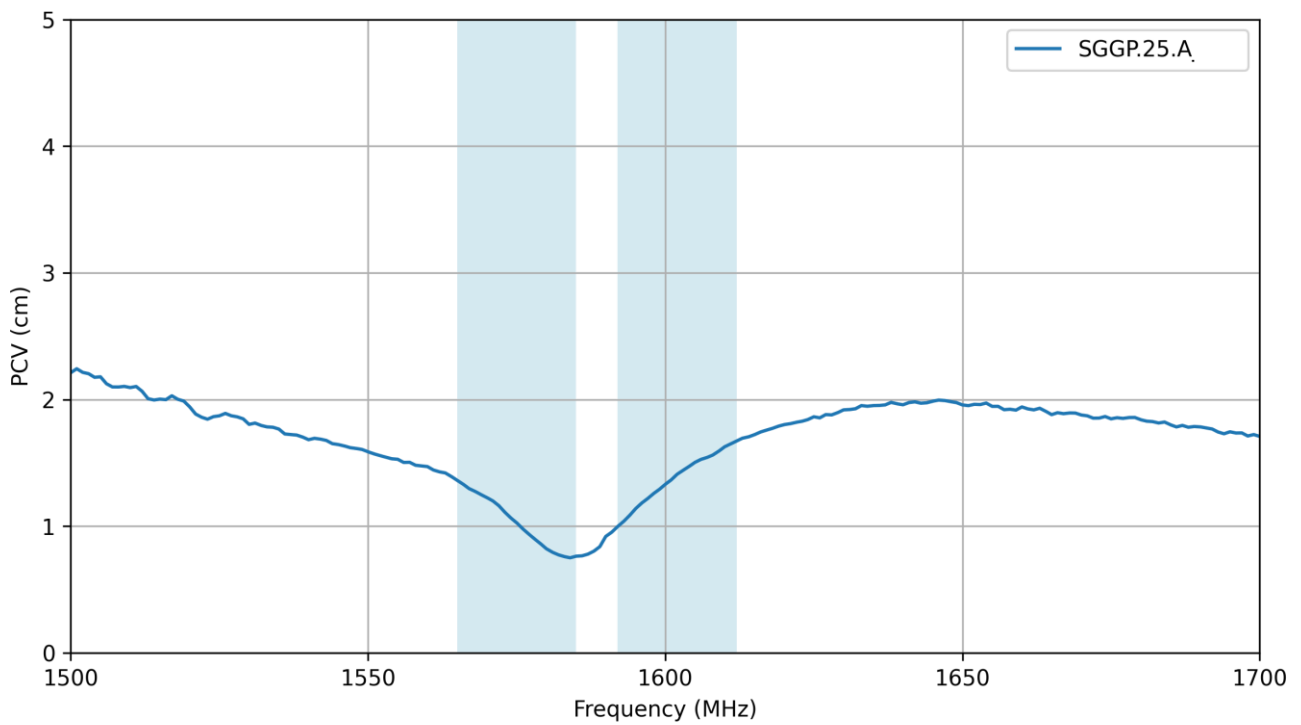
3.9 Axial Ratio vs Angle for Phi=90



3.10 PCO

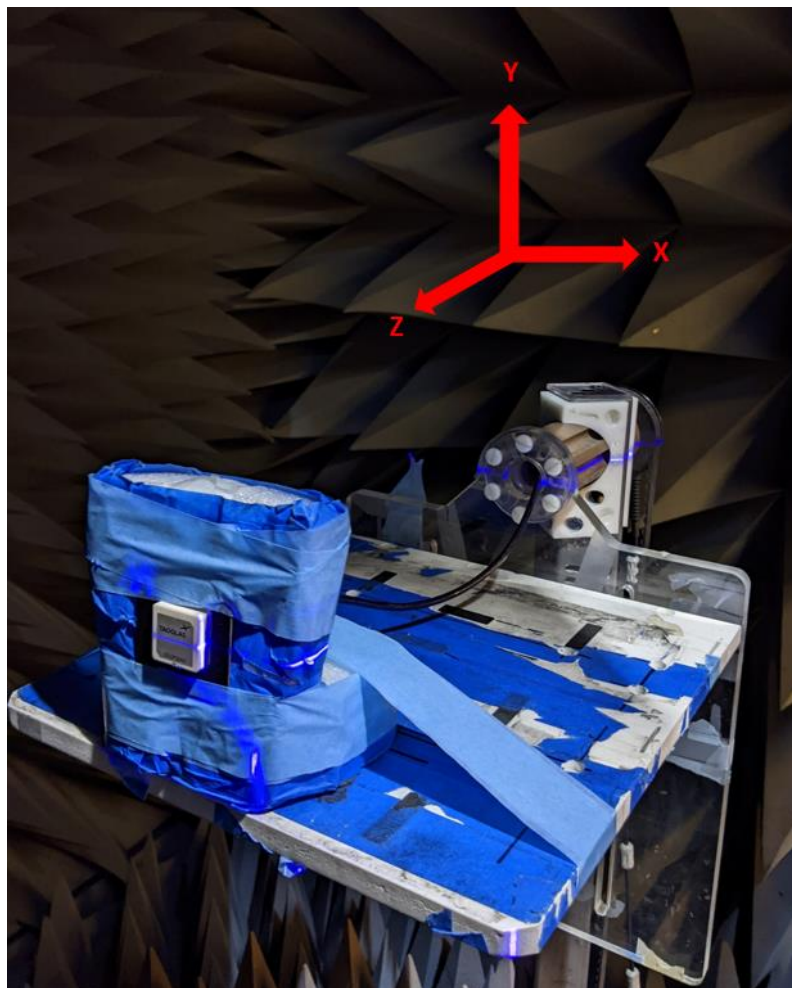
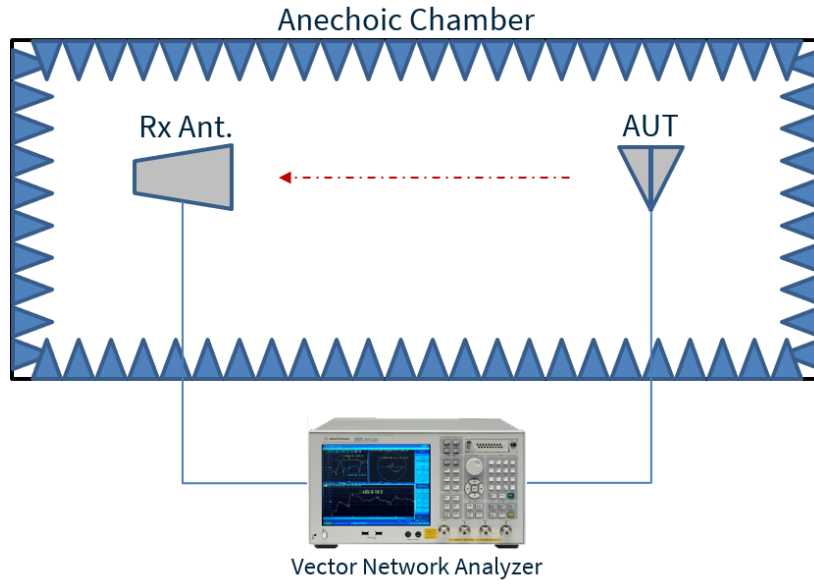


3.11 PCV

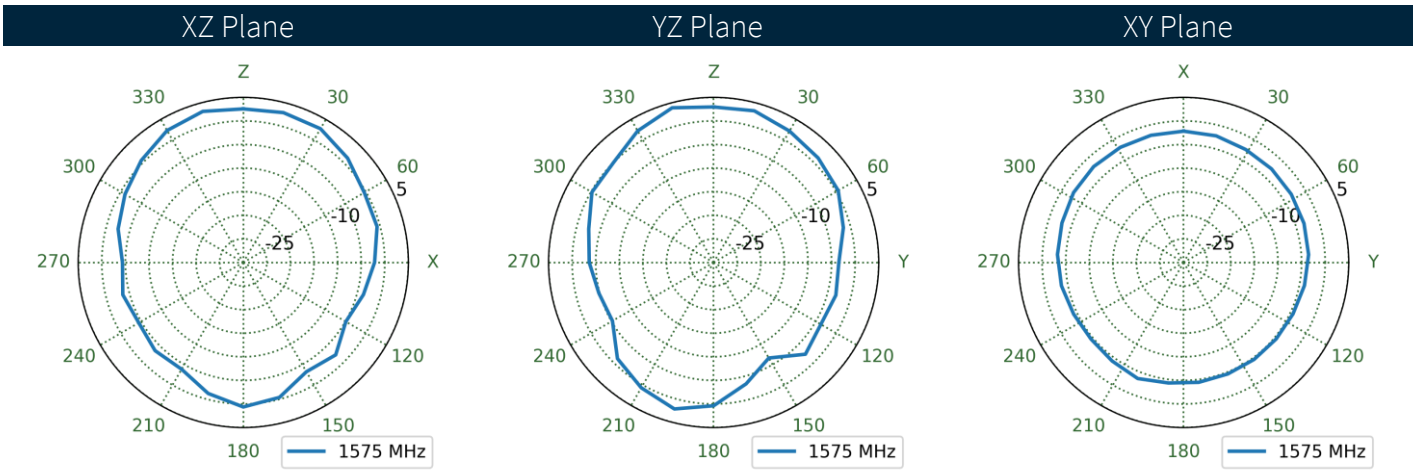
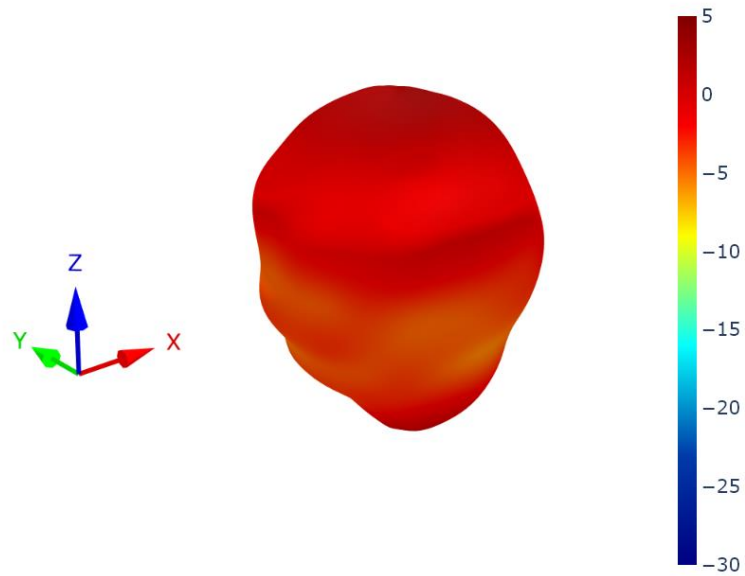


4. Radiation Patterns

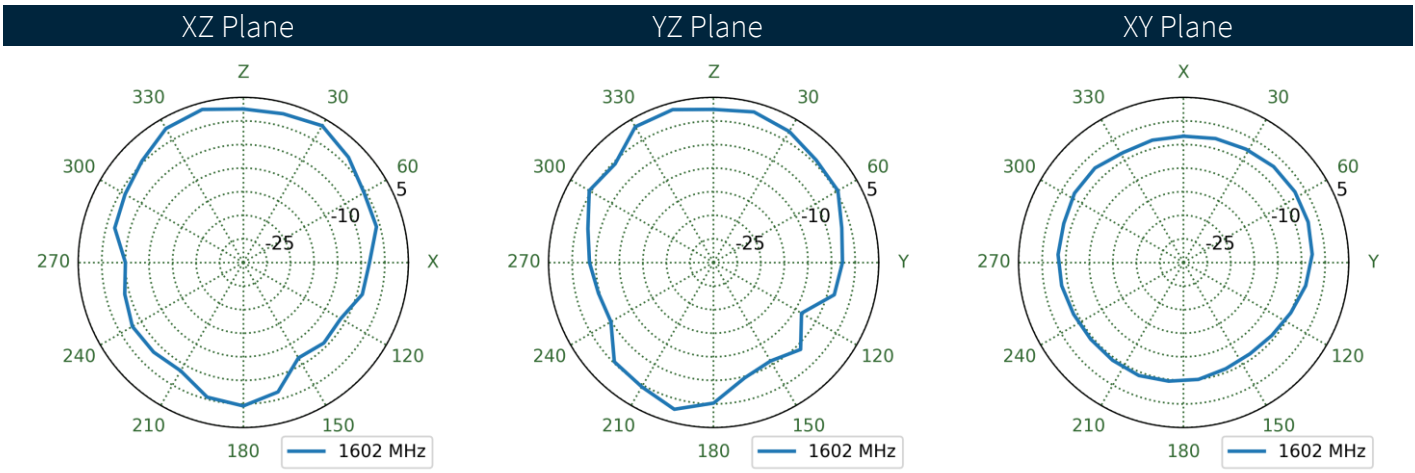
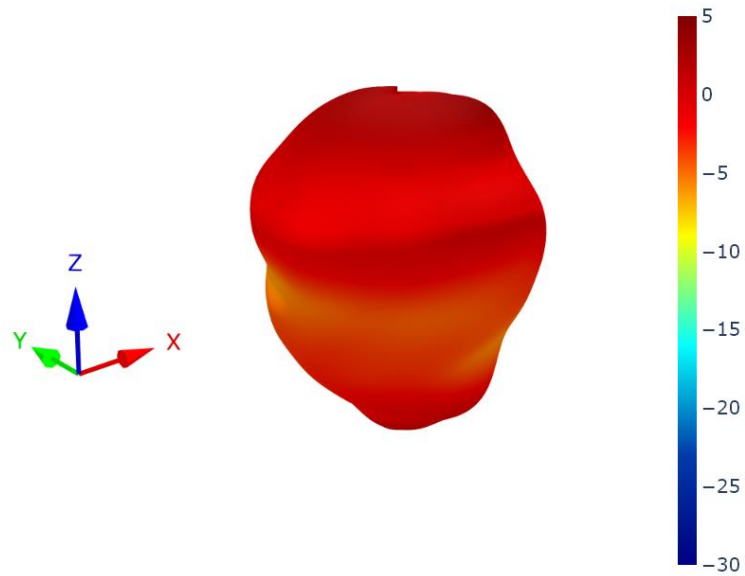
4.1 Test Setup



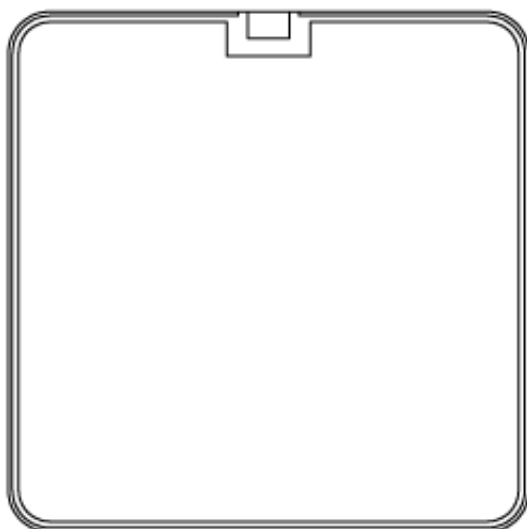
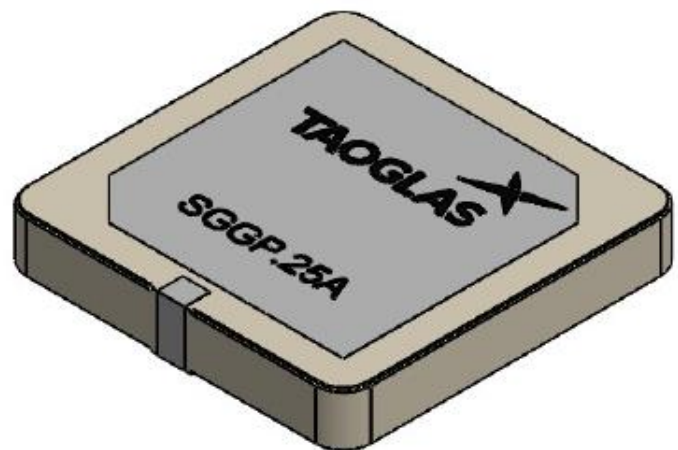
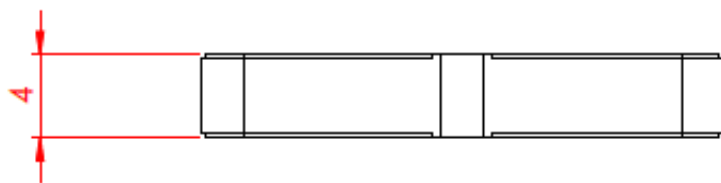
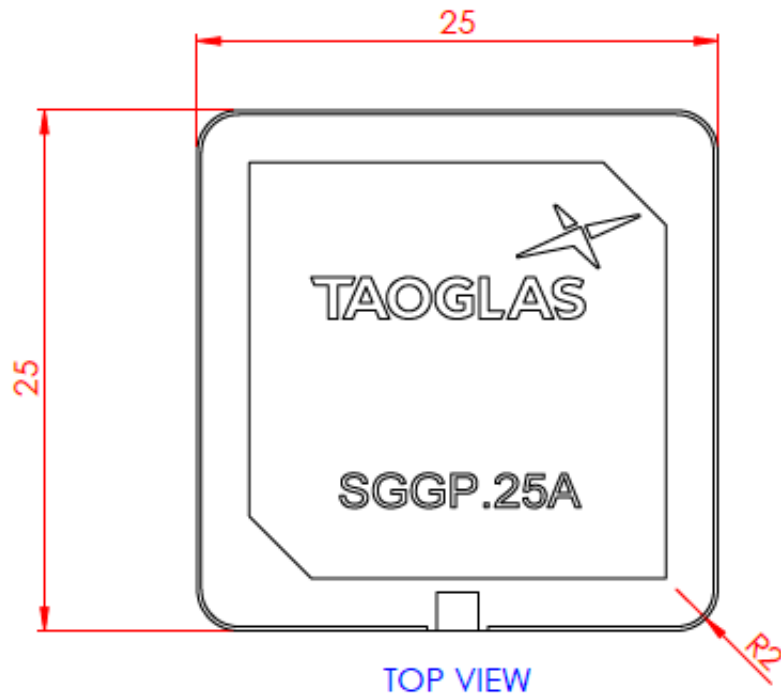
4.2 SGGP.25.4.A.02 - Patterns at 1575 MHz



4.3 SGGP.25.4.A.02 - Patterns at 1602 MHz



5. Mechanical Drawing

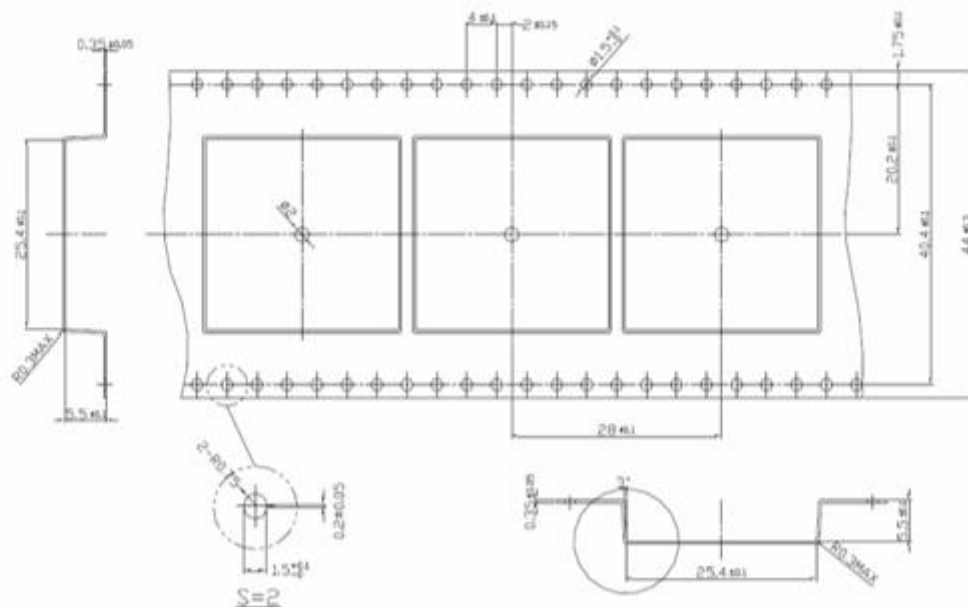
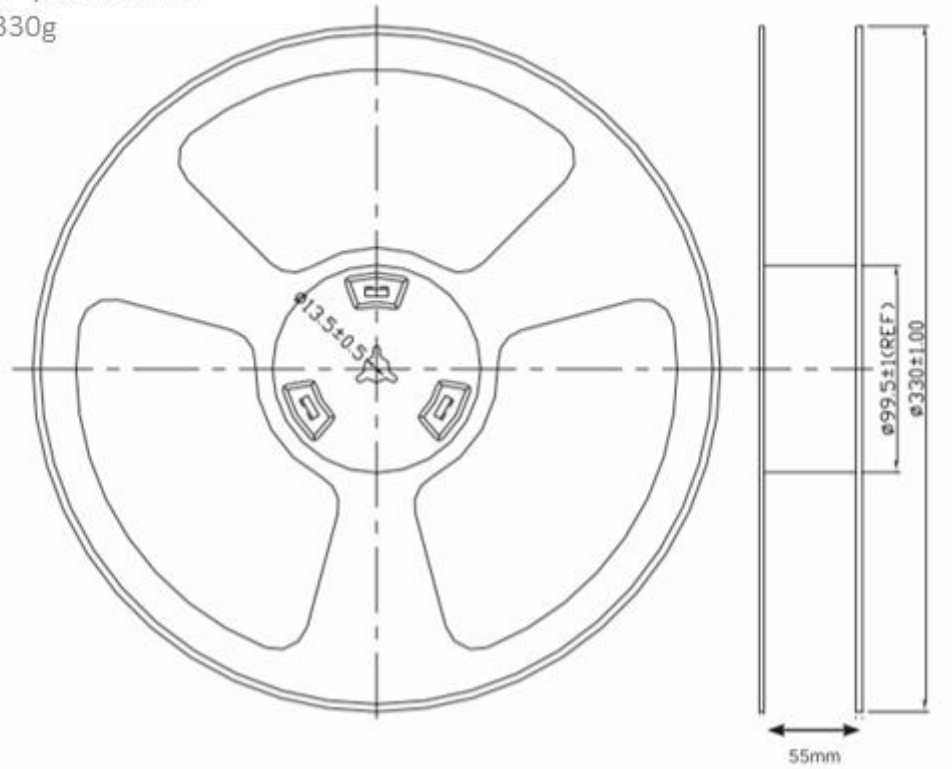


6. Packaging

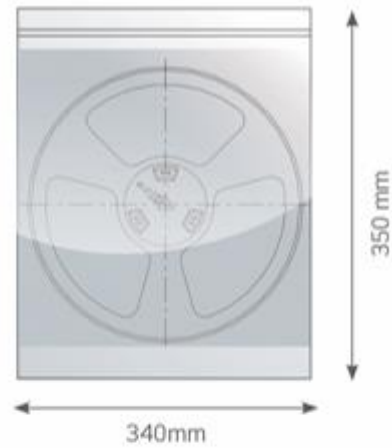
200 pc SGGP.25.4.A.02 per reel

Dimensions – $\varnothing 330 \times 55 \text{mm}$

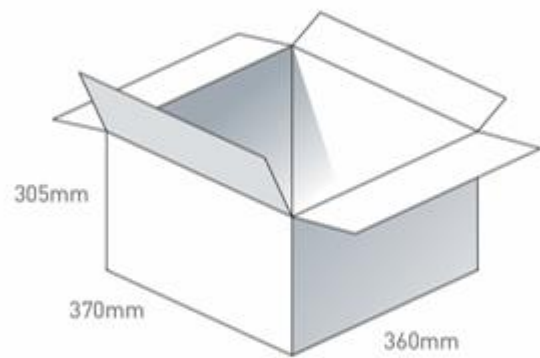
Weight – 2330g



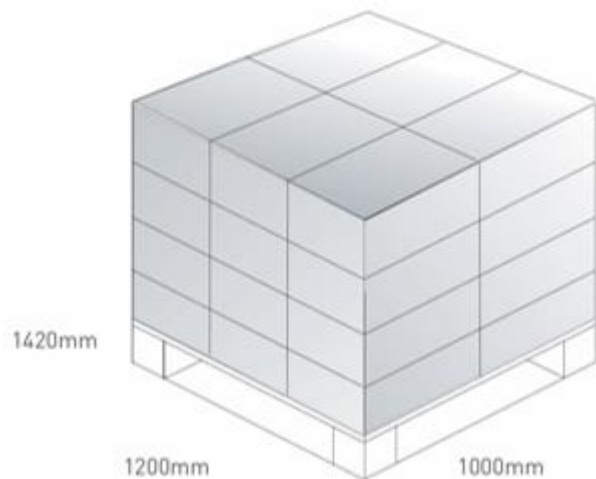
1 pc reel in small anti-static bag
 Dimensions – 340*350*70mm
 Weight – 2.63Kg



4 reels / 800 pcs in one carton
 Carton Dimensions – 370*360*305mm
 Weight – 11.3Kg



Pallet Dimensions – 1200*1000*1420mm
 24 Cartons per pallet
 6 Cartons per layer
 4 Layers



7. Antenna Integration Guide

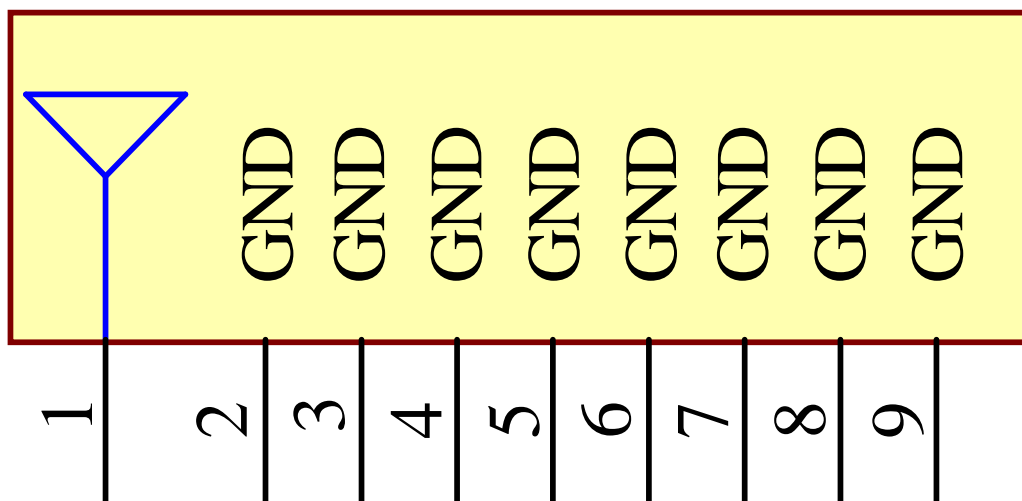


7.1 Schematic and Symbol Definition

The circuit symbol for the antenna is shown below. The antenna has 9 pins as indicated below.

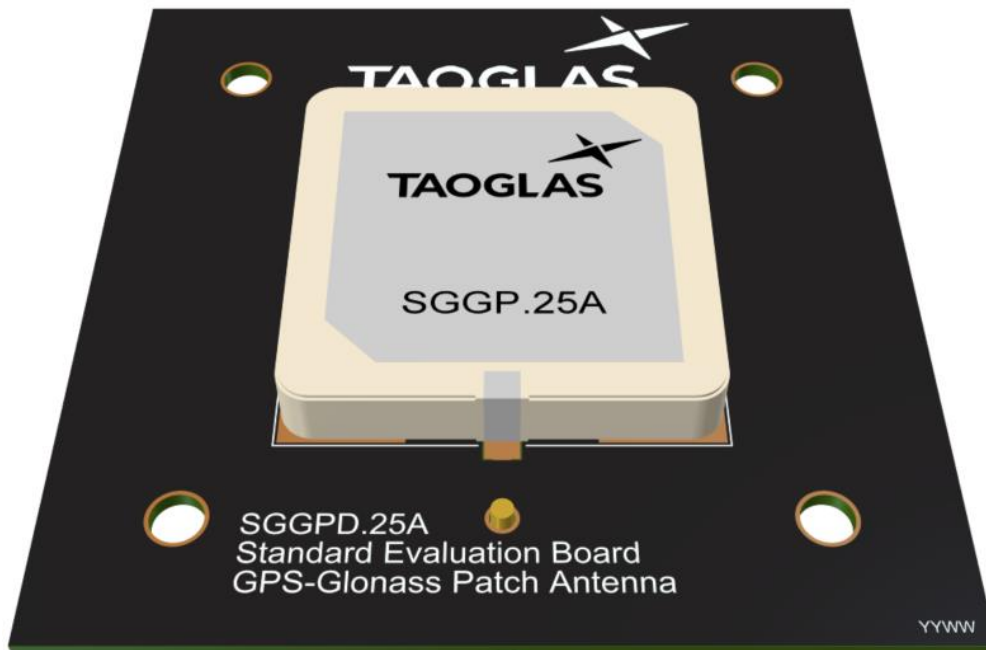
Pin	Description
1	RF Feed
2-9	Ground

TAOGLAS_SGGP.25.4.A.02 ANT1

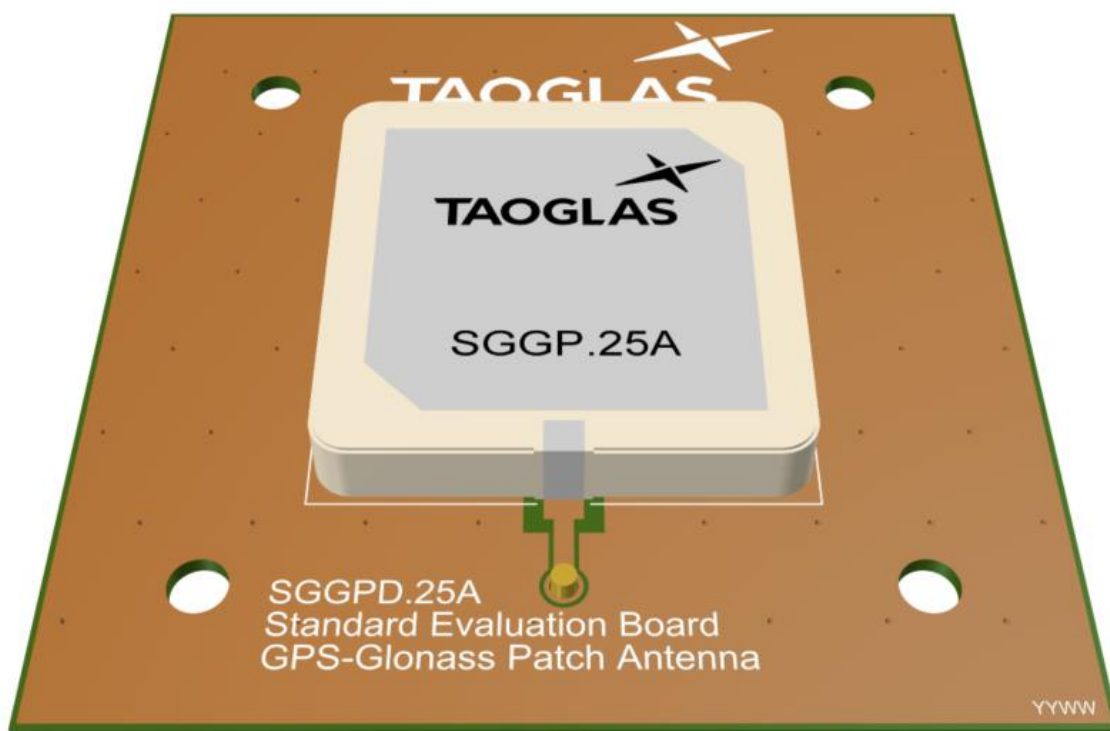


7.2 Antenna Integration

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.



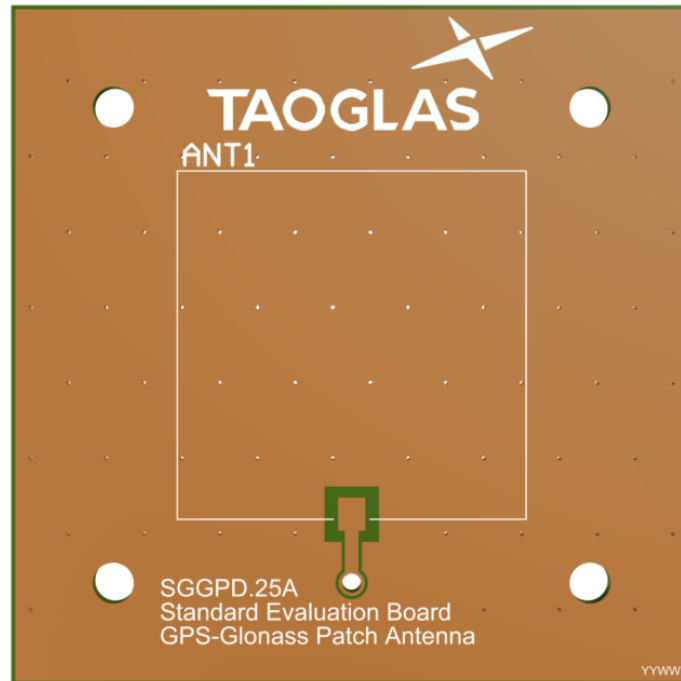
Top Side W/Solder Mask



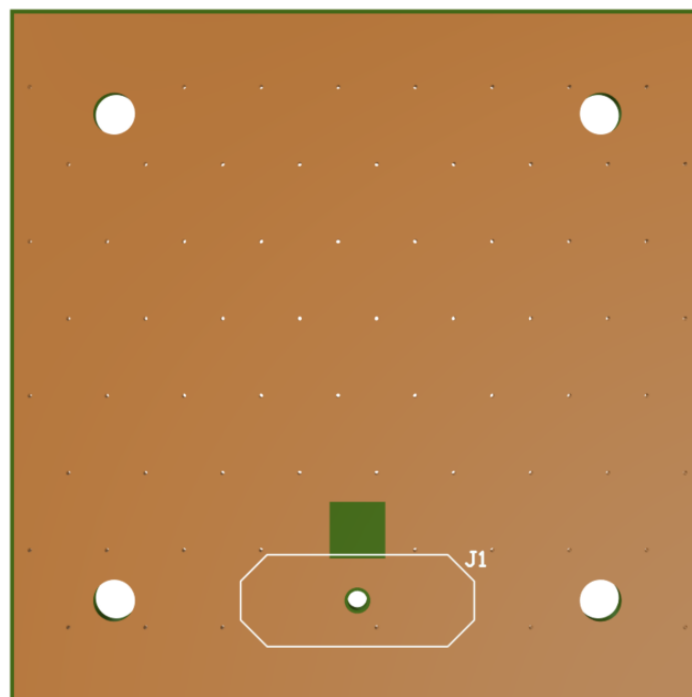
Top Side W/O Solder Mask

7.3 PCB Layout

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

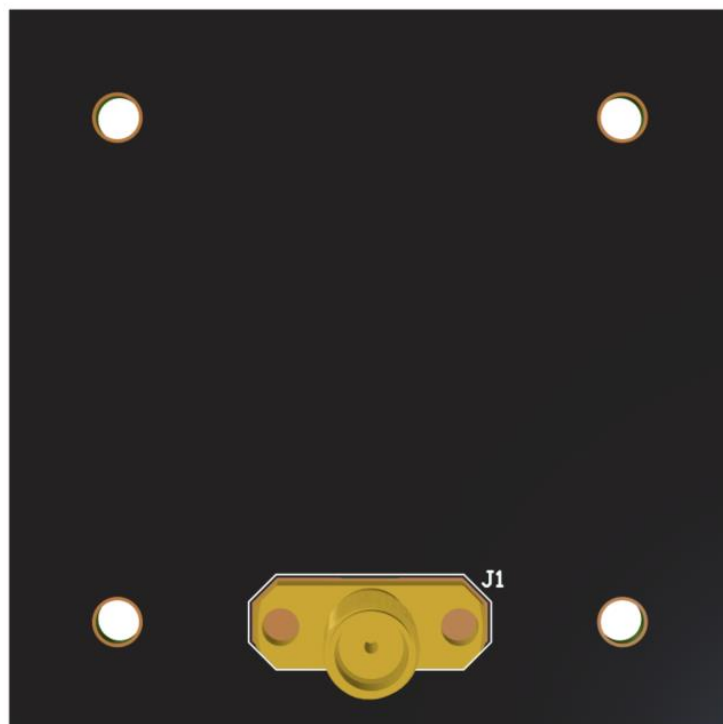
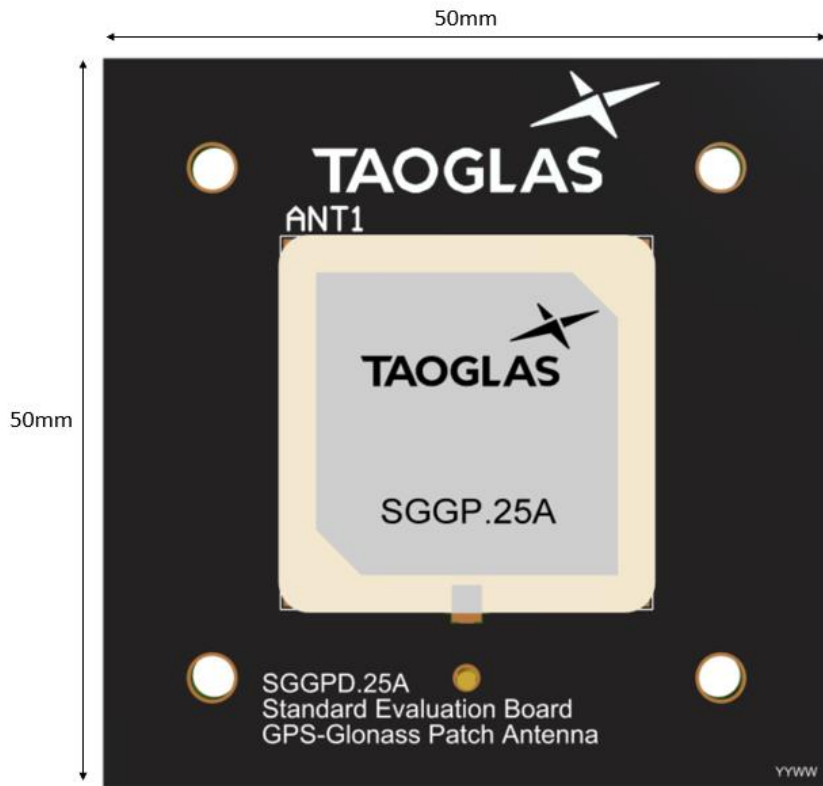


Top Side

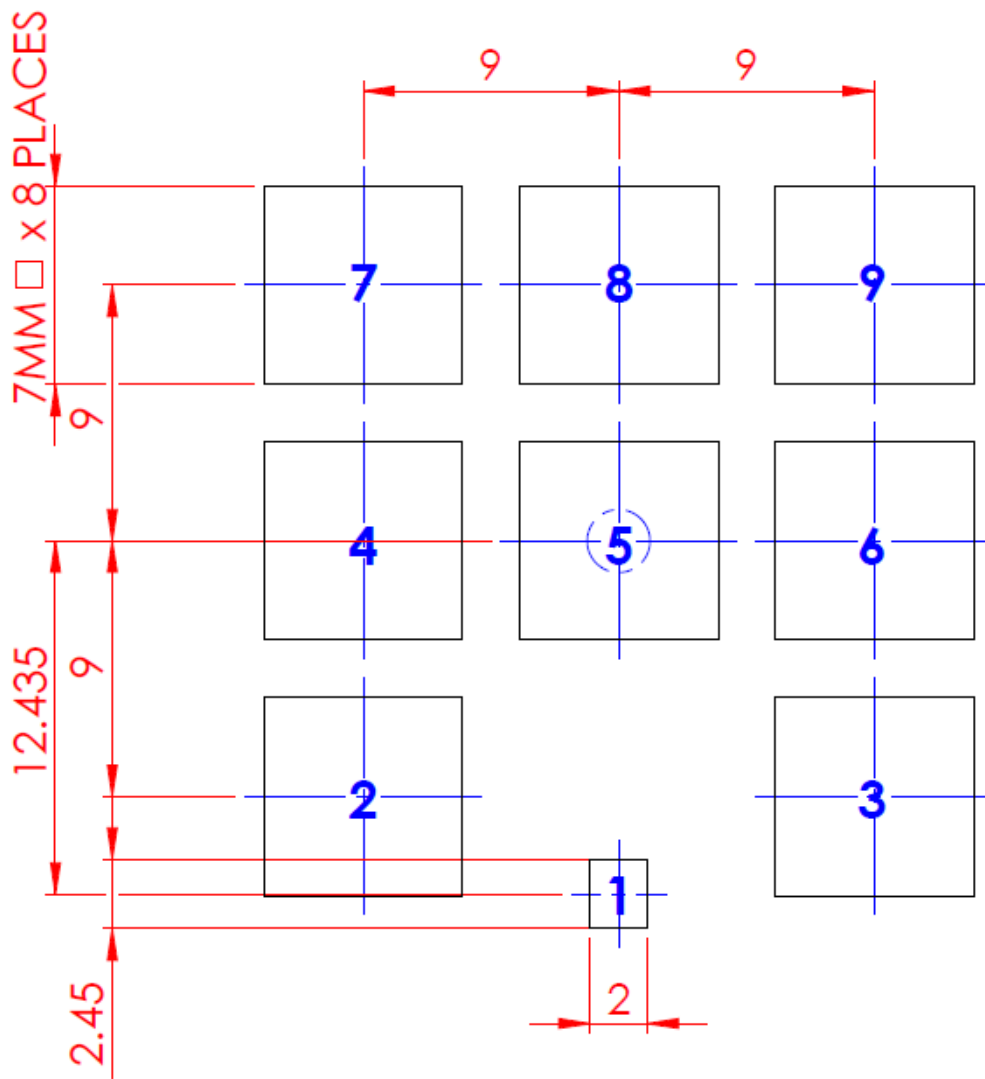


Bottom Side

7.4 Evaluation Board

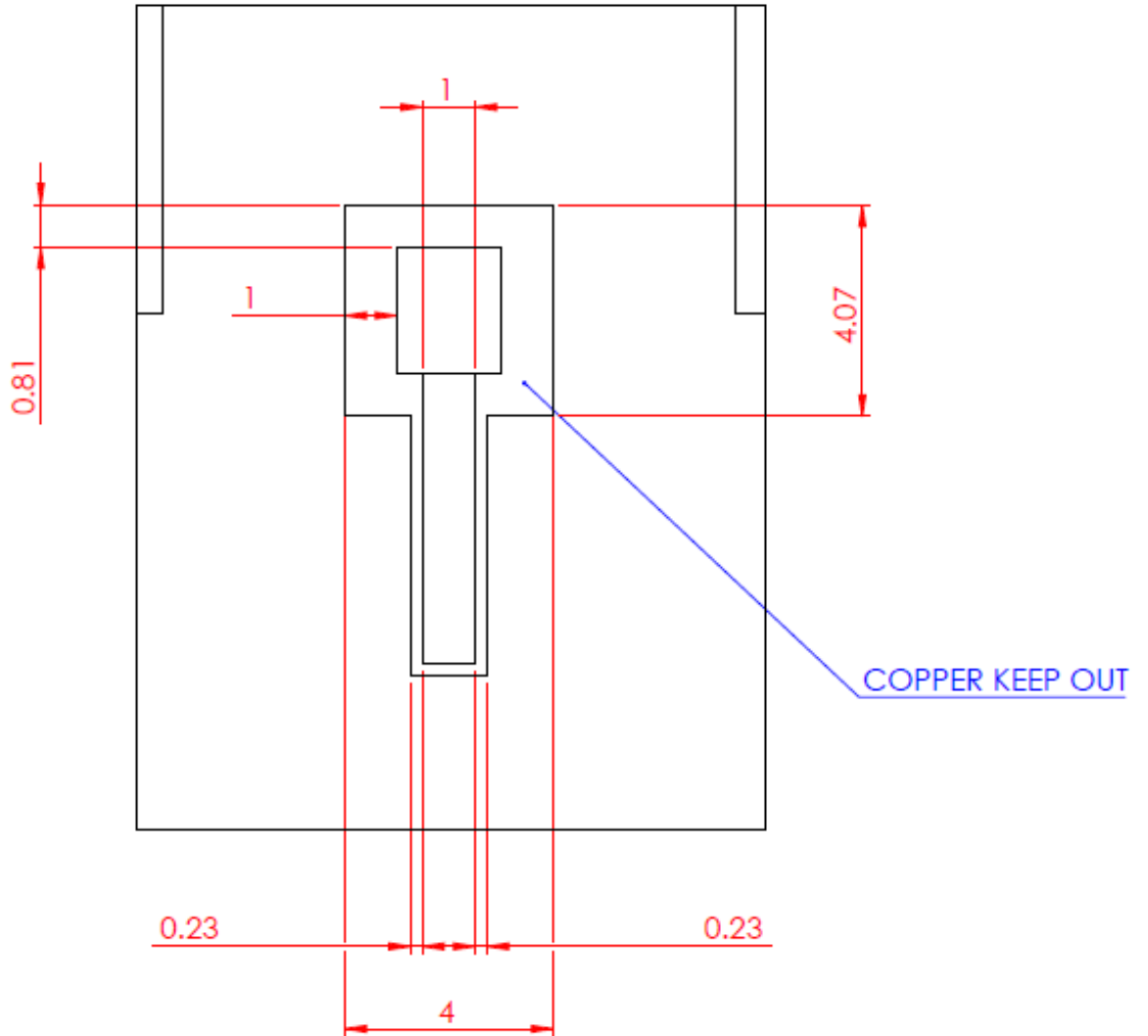


7.5 Footprint

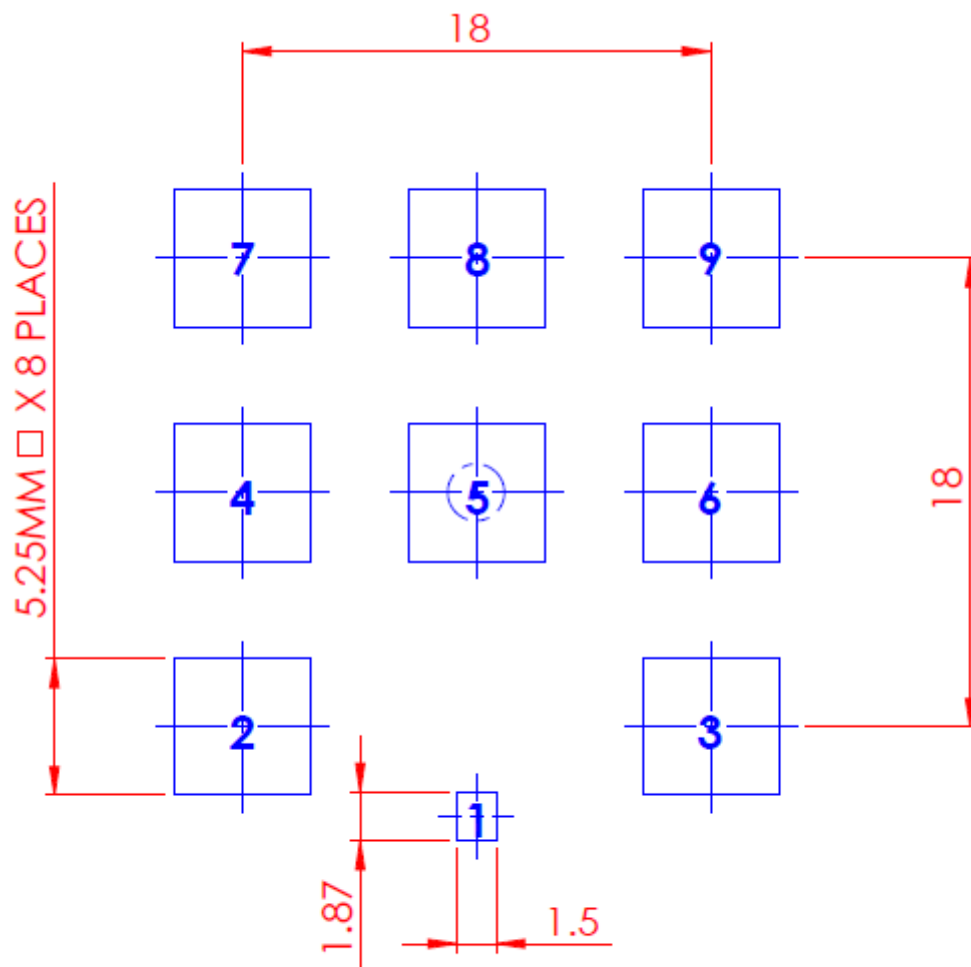


PCB FOOTPRINT

7.6 Copper Keep-Out



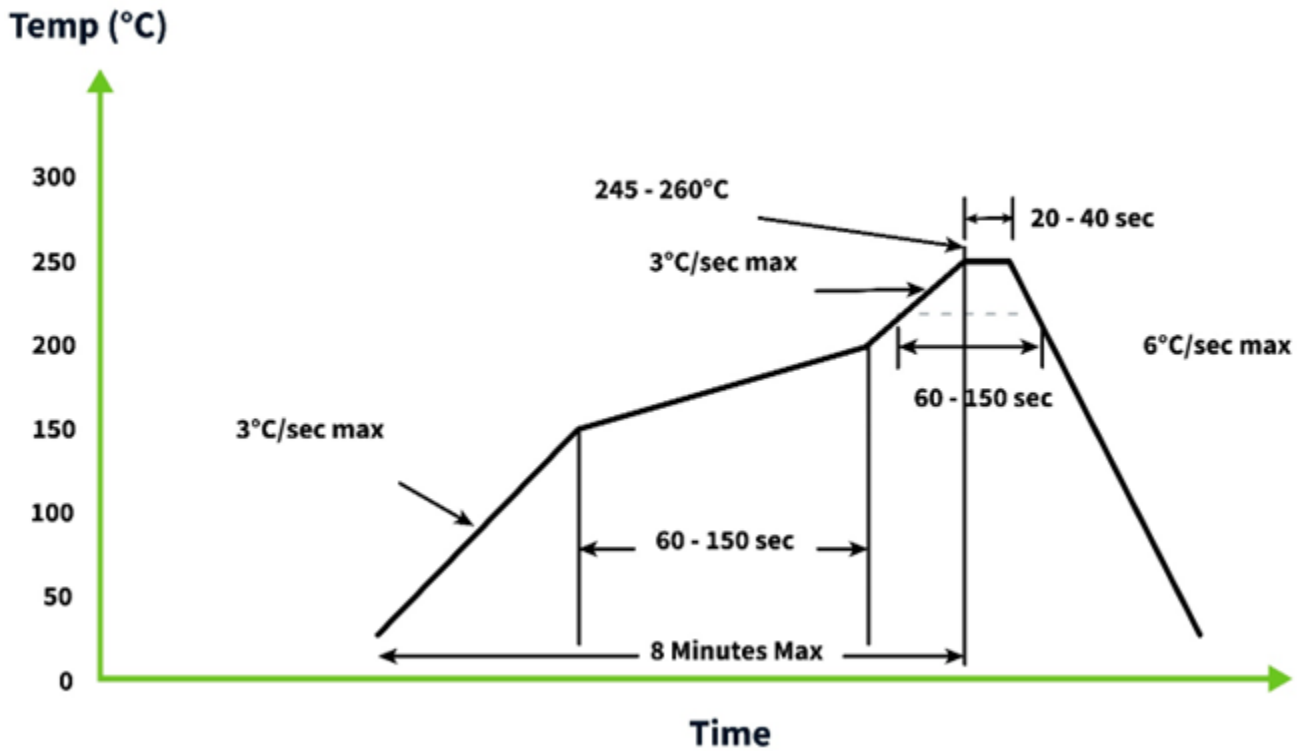
7.7 Top Solder Paste



TOP SOLDER PASTE

8. Solder Reflow Profile

The SGGP.25.4.A.02 can be assembled by following the recommended soldering temperatures are as follows:



*Temperatures listed within a tolerance of +/- 10° C

Smaller components are typically mounted on the first pass, however, we do advise mounting the SGGP.25.4.A.02 when placing larger components on the board during subsequent reflows.

Changelog for the datasheet

SPE-13-8-031 – SGGP.25.4.A.02

Revision: J (Current Version)

Date:	2023-08-16
Changes:	Full datasheet update
Changes Made by:	Gary West

Previous Revisions

Revision: I

Date:	2021-10-15
Changes:	
Changes Made by:	Unknown

Revision: D

Date:	2013-10-23
Changes:	Amended dimensions
Changes Made by:	Aine Doyle

Revision: H

Date:	2018-06-25
Changes:	Adding plots and updating footprints
Changes Made by:	Jack Conroy

Revision: C

Date:	2013-05-21
Changes:	Removed footprint drawing for now
Changes Made by:	Aine Doyle

Revision: G

Date:	2014-05-21
Changes:	Added updated reflow
Changes Made by:	Aine Doyle

Revision: B

Date:	2013-05-15
Changes:	Amended Drawing
Changes Made by:	Aine Doyle

Revision: F

Date:	2014-03-27
Changes:	Added Footprint from Jon
Changes Made by:	Aine Doyle

Revision: A (Original First Release)

Date:	2013-04-16
Notes:	
Author:	SS

Revision: E

Date:	2013-12-03
Changes:	Amended op temp
Changes Made by:	Aine Doyle



www.taoglas.com



Looking for pricing, stock, or lifecycle information?

Click below to explore more details on WIN SOURCE:

- ⊖ [View SGGPD.25A on WIN SOURCE](#)
- ⊖ [Taoglas Limited Information](#)

Optimize Your Supply Chain with WIN SOURCE Solutions

- ✓ Global Sourcing Solution
- ✓ Obsolete Management
- ✓ Cost Control Management
- ✓ Shortage Management
- ✓ Alternative Solution
- ✓ Excess Inventory Management