



TAOGLAS®



Datasheet

Part No:
GP.1575.15.4.B.02

Features:

Dimensions: 15.0 x 15.0 x 4mm

Mounted with pin and adhesive tape

1575.42MHz GPS/Galileo Patch Antenna

RoHS & REACH Compliant

1.	Introduction	2
2.	Specification	3
3.	Mechanical Drawing	5
4.	Antenna Integration Guide	6
5.	Packaging	11
6.	Antenna Characteristics	12
7.	Radiation Patterns	16
	Changelog	18

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.

Ireland & USA
ISO 9001:2015
Certified



Taiwan
ISO 9001:2015
Certified



1. Introduction



The GP.1575.15.4.B.02 is a miniaturized ceramic GPS/GALILEO patch antenna is based on smart XtremeGain™ technology. It has been designed and tuned by Taoglas' expert team to work at the GPS/Galileo L1 frequency 1575.42MHz. It is an ideal solution for customers who require a miniature antenna for an application where antenna size is crucial

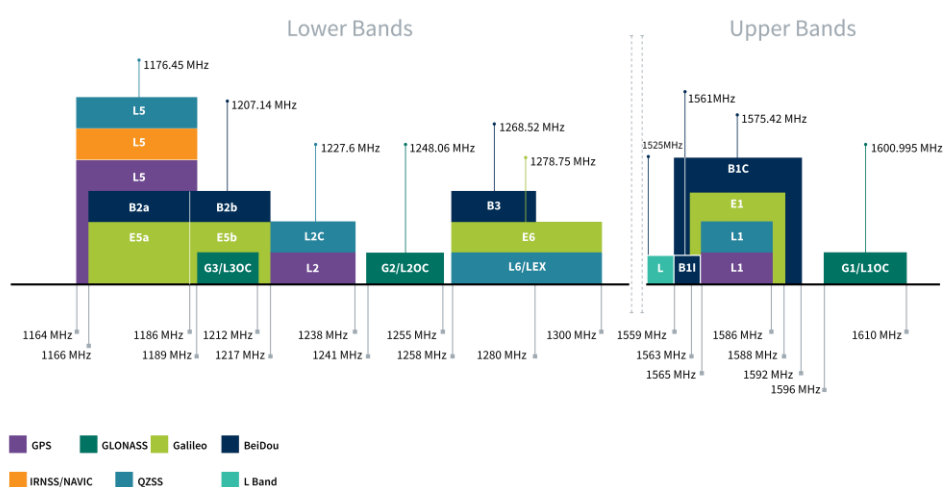
Typical applications include:

- Commercial & Hobbyist UAVs
- Compact IoT Sensors
- Asset Trackers
- Telematics & OBDs

It is mounted via pin and double-sided adhesive and has been selected as optimal solution for the customer device environment. The GP.1575.15.4.B.02 can be tuned for customer devices, subject to NRE and MOQ, please contact your regional Taoglas customer support team for further information.

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 1575.24 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)	1575.42
Passive Antenna Efficiency (%)	36.1
Passive Antenna Gain at Zenith (dBi)	1.69
Polarization	RHCP
Impedance	50 Ω

Mechanical	
Dimensions	15.0 x 15.0 x 4.0mm
Weight	5g
Material	Ceramic

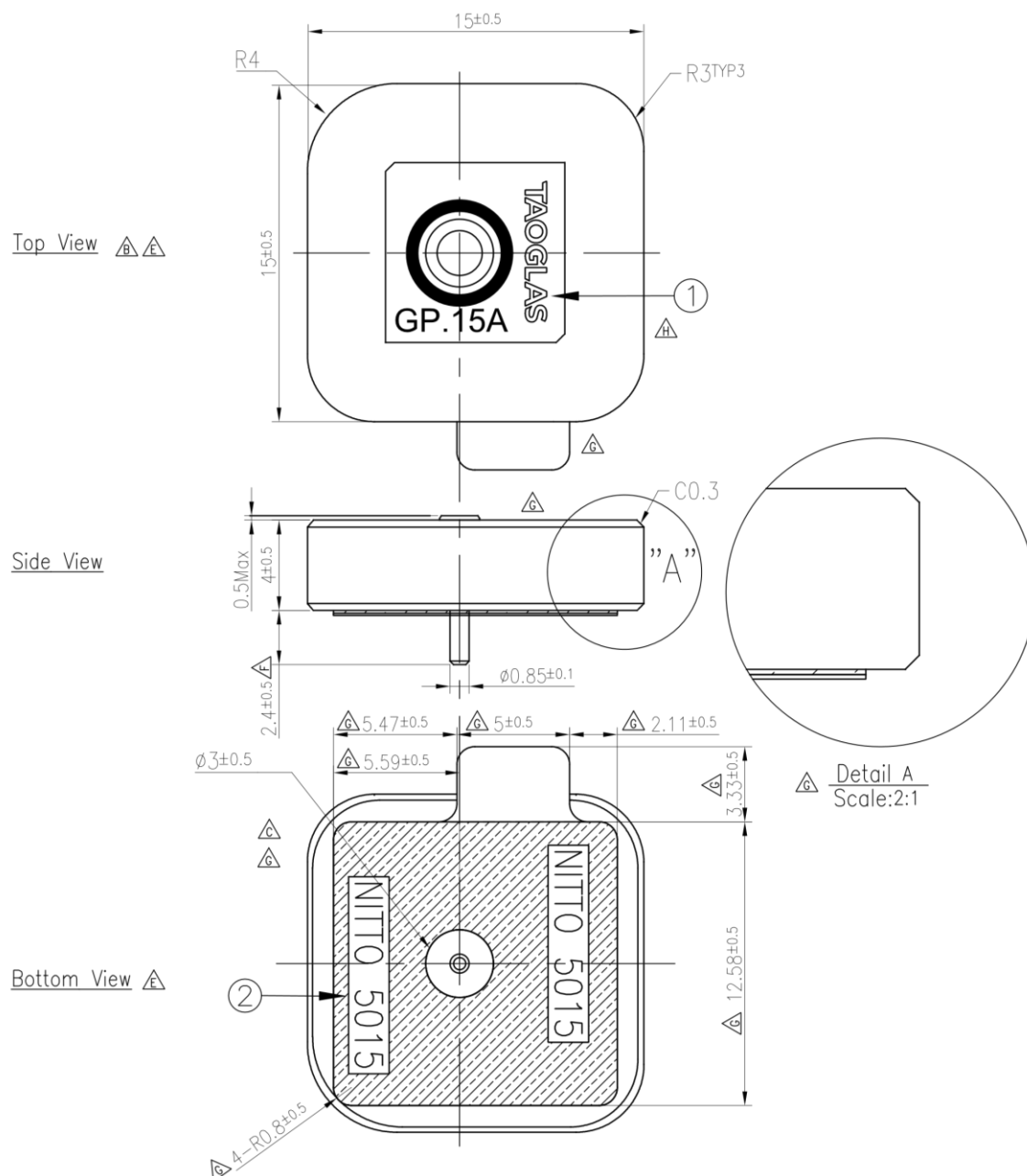
Environmental	
Operating Temperature	-40°C to +85°C
Storage Temperature	-40°C to +85°C
RoHs Compliant	Yes

3. Mechanical Drawing

ISO NO.: EDW-11-8-800

STATE: Release

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



					
	Name	P/N	Material	Finish	QTY
	1 GP.1575 Patch	001517F060000A	Ceramic	Brown	1
	2 Double sided Adhesive	001517F060000A	NITTO 5015	White Linter	1

4. Antenna Integration Guide

The following is an example on how to integrate the GP.1575.15.4.B.02 into a design. This antenna has one pin, which is used for the RF Feed. Taoglas recommends using a minimum of 50x50mm ground plane (PCB) to ensure optimal performance.



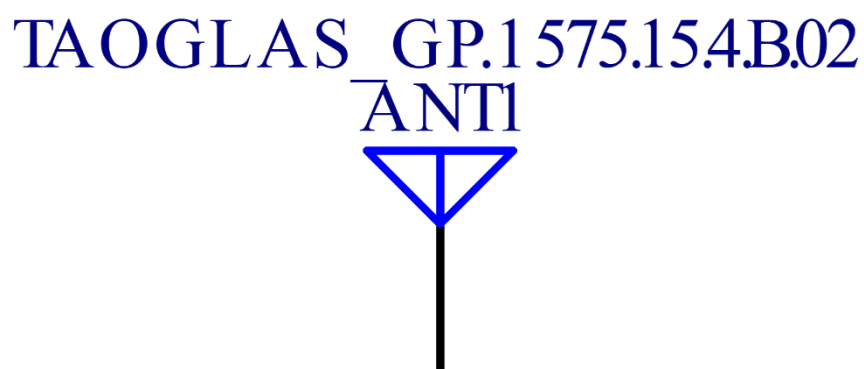
Top view of PCB reference design

Please find the Integration files in Altium, 2D formats and the 3D model for the GP.1575.15.4.B.02 here:

<https://www.taoglas.com/product/gp-1575-15-4-b-02-gps-1575-42mhz-patch-antenna-154mm-2/>

4.1 Schematic Symbol and Pin Definitions

The circuit symbol for the GP.1575.15.4.B.02 is shown below. The antenna has 1 pin as indicated below.



Above is a schematic symbol of GP.1575.15.4.B.02 and a table of the pin definitions.

Pin	Description
1	RF Feed

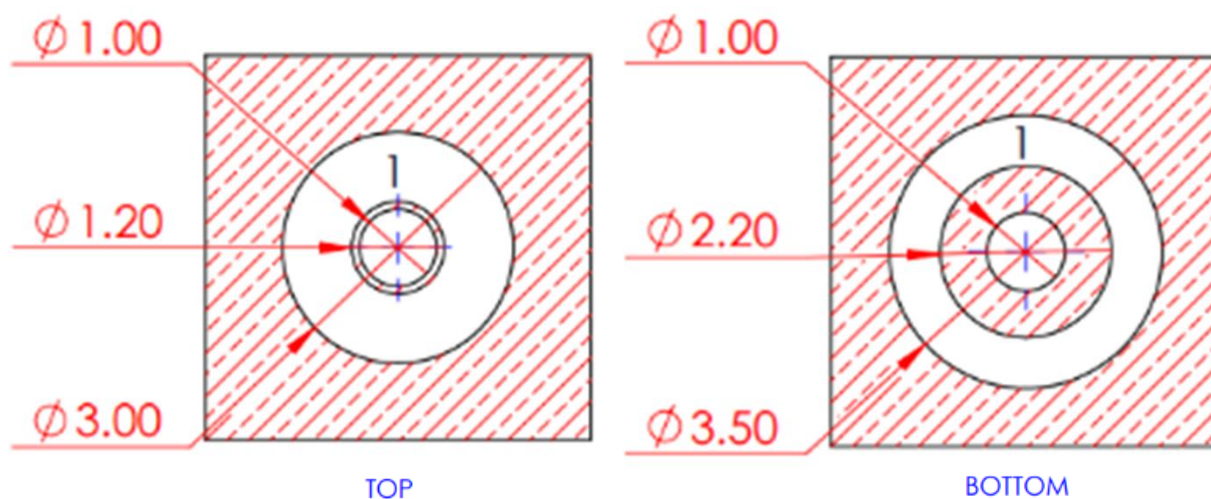
4.2 Antenna Footprint



4.3 Copper Clearance

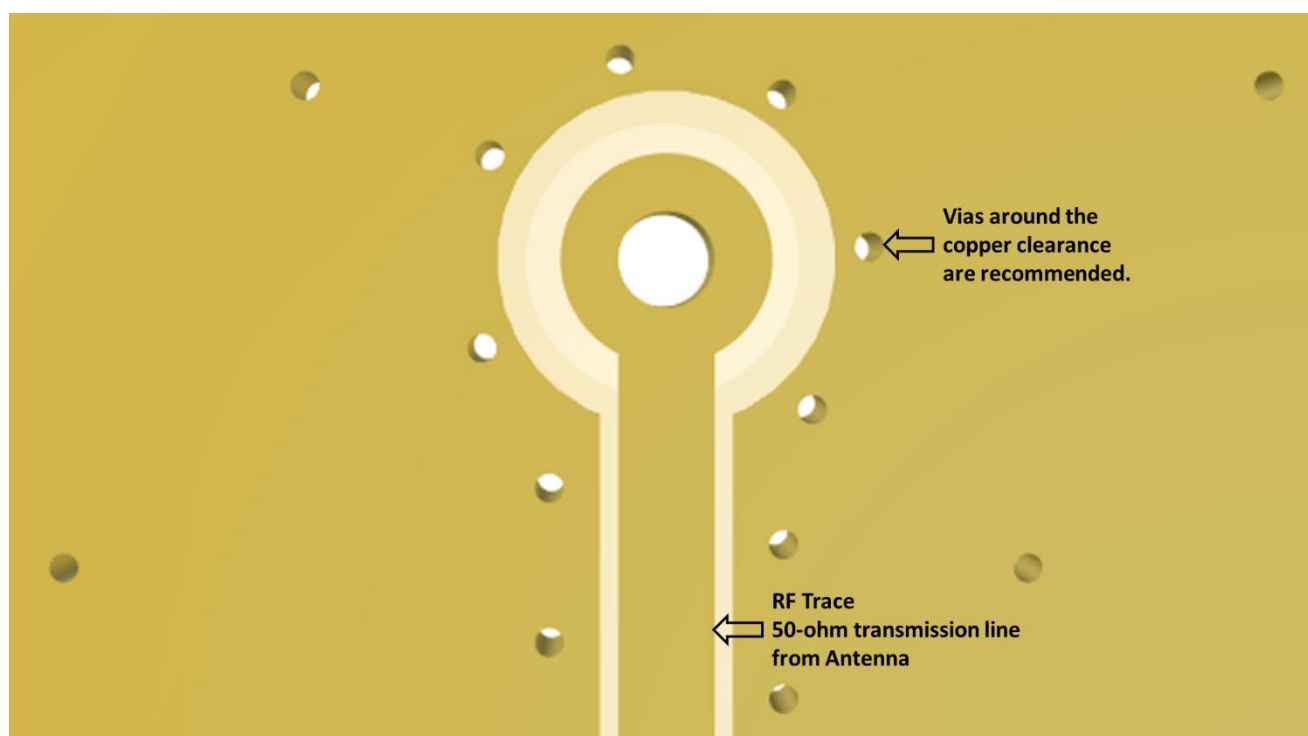
The footprint and clearance on the PCB must comply with the antenna's specification. The PCB layout shown in the diagrams below demonstrates the GP.1575.15.4.B.02 clearance area for Pin 1 (RF Feed Pad). The bottom copper keep out area only applies to the bottom layer and the top copper keep out area applies to all other layers.

There should be a $\phi 3\text{mm}$ copper clearance around the antenna pins on the top side of the PCB with a $\phi 3.5\text{mm}$ copper clearance around the antenna pins on the bottom side.



4.4 Antenna Integration

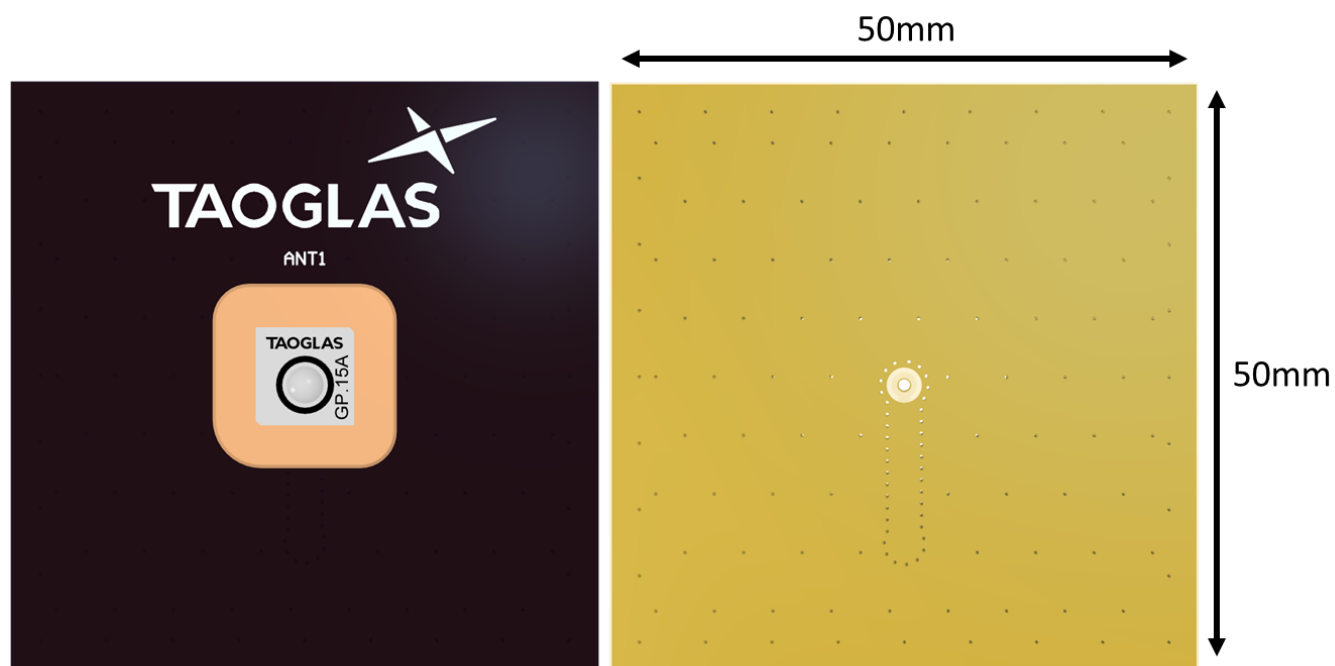
The GP.1575.15.4.B.02 should be placed in the centre of the PCB to take advantage of the ground plane. The RF traces must maintain a 50 Ohm transmission line. Ground vias should be placed around the copper clearance area and the transmission line. Note that depending on the design application, tuning may be required for optimal performance. This may be achieved using a 'pi' matching network or custom tuning of the patch antenna.



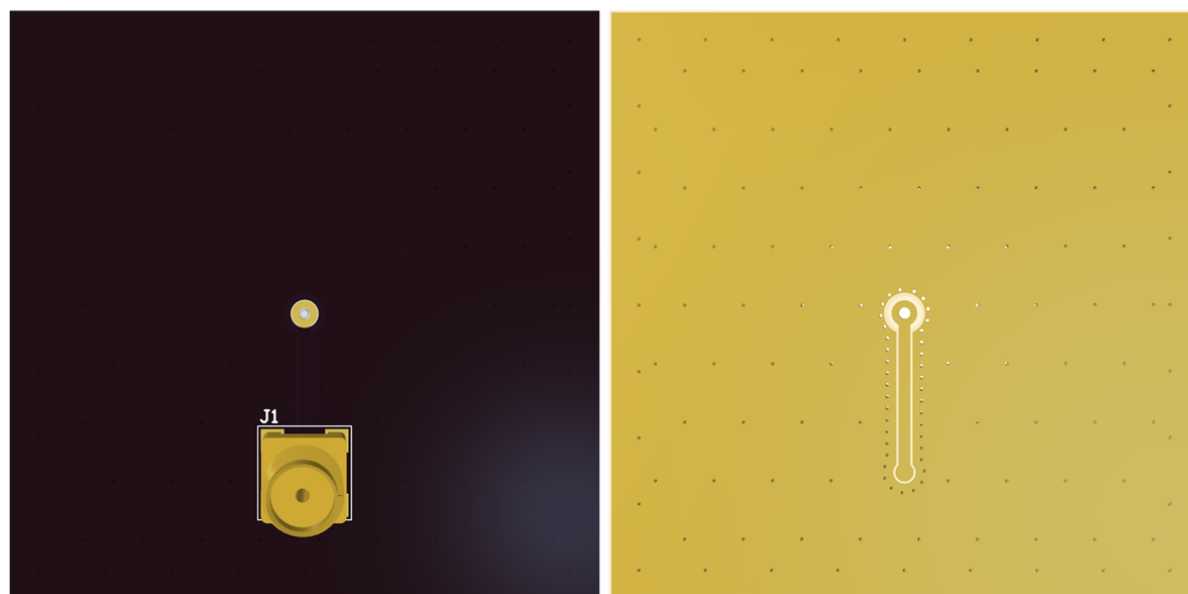
Bottom view of the PCB Reference Design, showing transmission lines and integration notes.

4.5 Final Integration

The bottom side image shown below highlights the antenna transmission line. Taoglas recommends using a minimum of 50x50mm ground plane to ensure optimal performance.



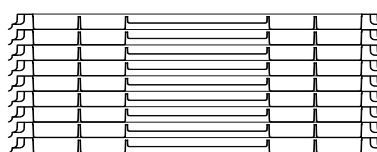
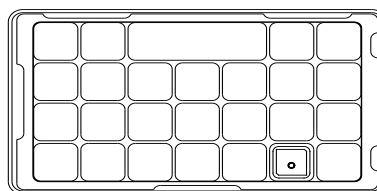
Top Side (50x50mm PCB Reference Design)



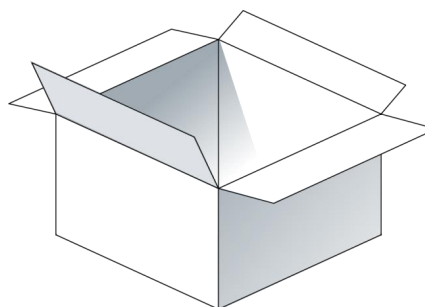
Bottom Side

5. Packaging

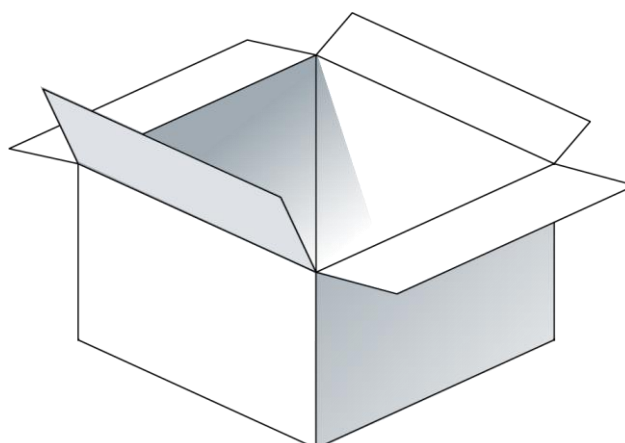
400pcs per Inner Carton



400pcs GP.1575.15.4.B.02 per carton
Dimensions - 263*154*96mm
Weight – 2Kg



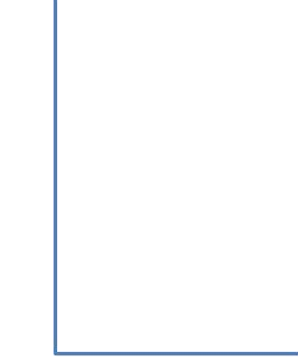
1600pcs GP.1575.15.4.B.02 per carton
Dimensions - 327*280*218mm
Weight – 8.2Kg



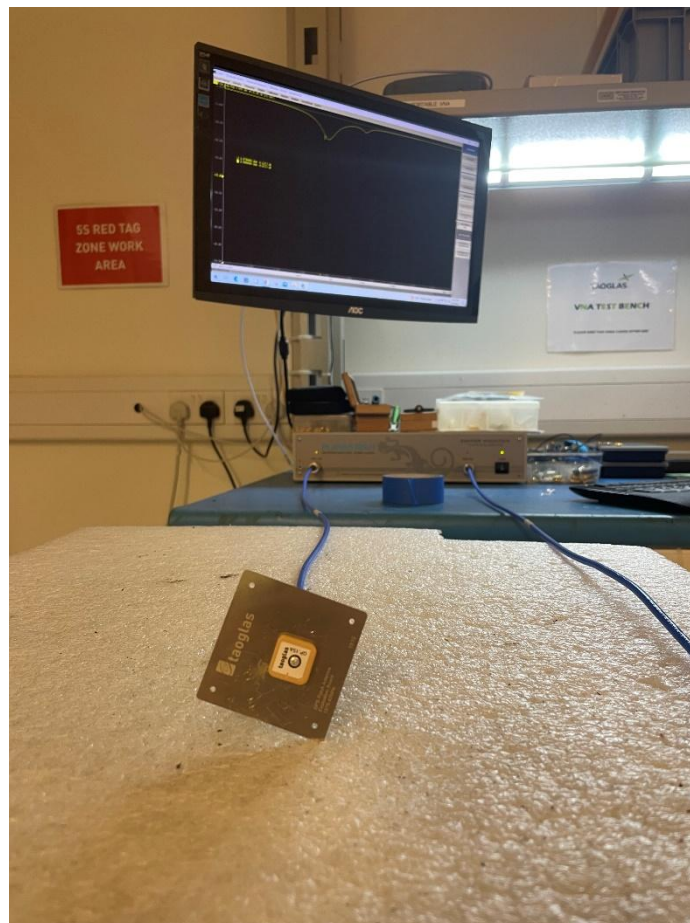
6. Antenna Characteristics

6.1 Test Setup

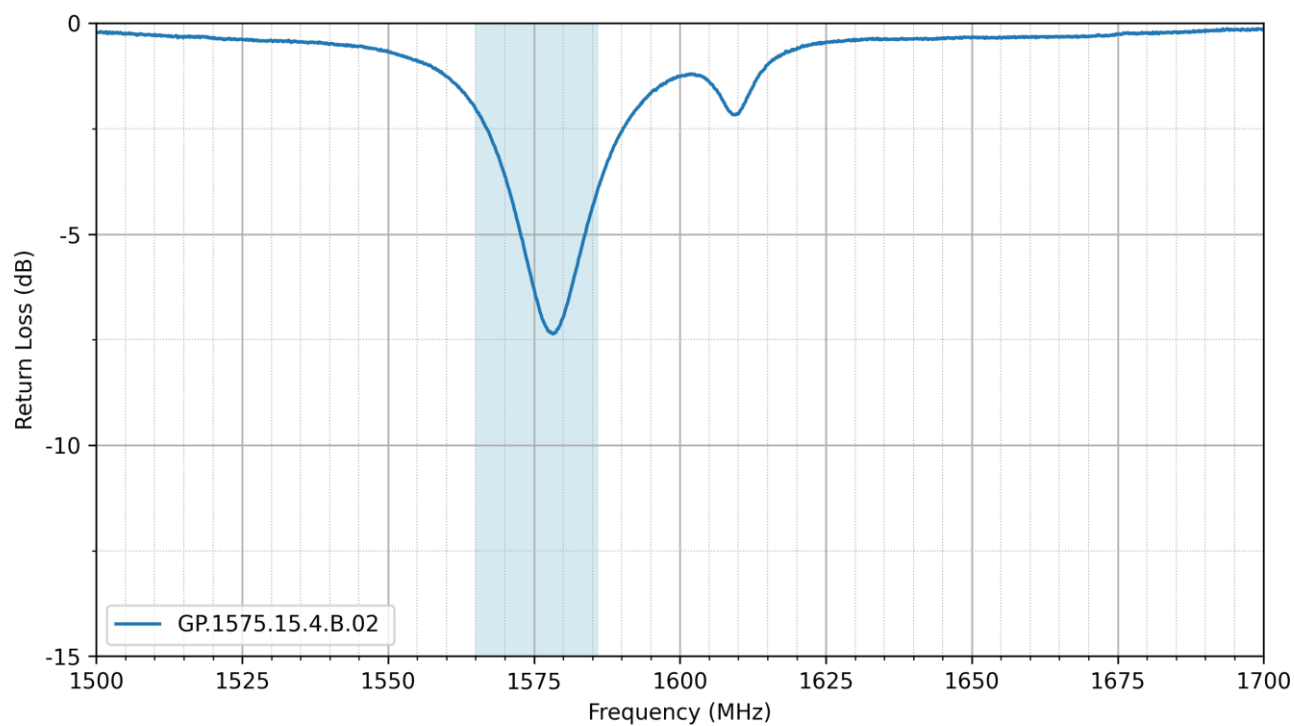
AUT



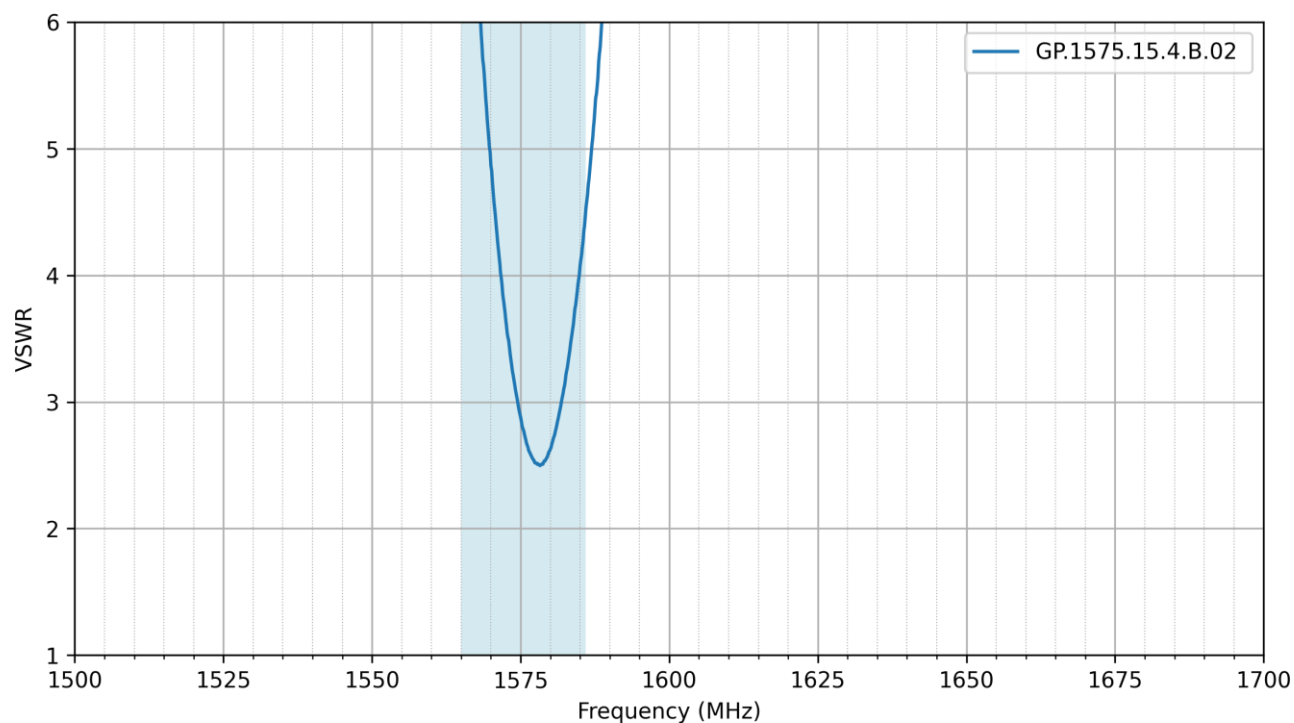
Vector Network Analyzer



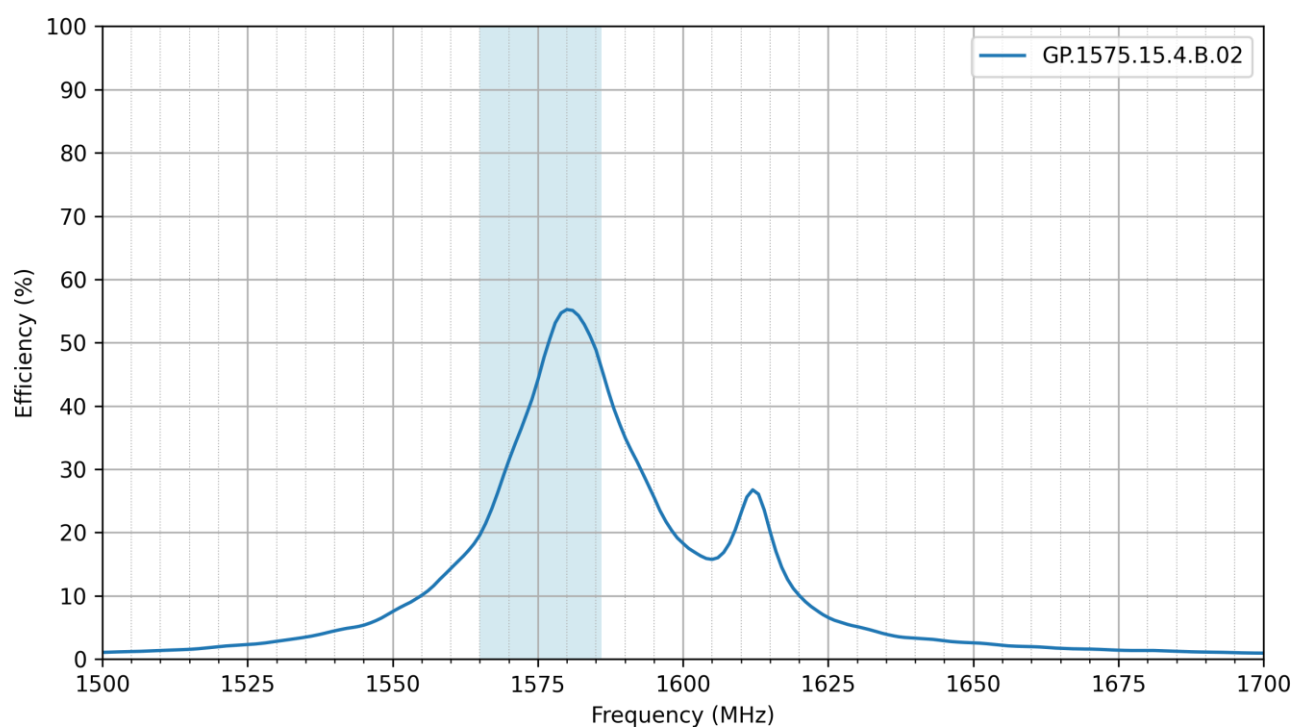
6.2 Return Loss



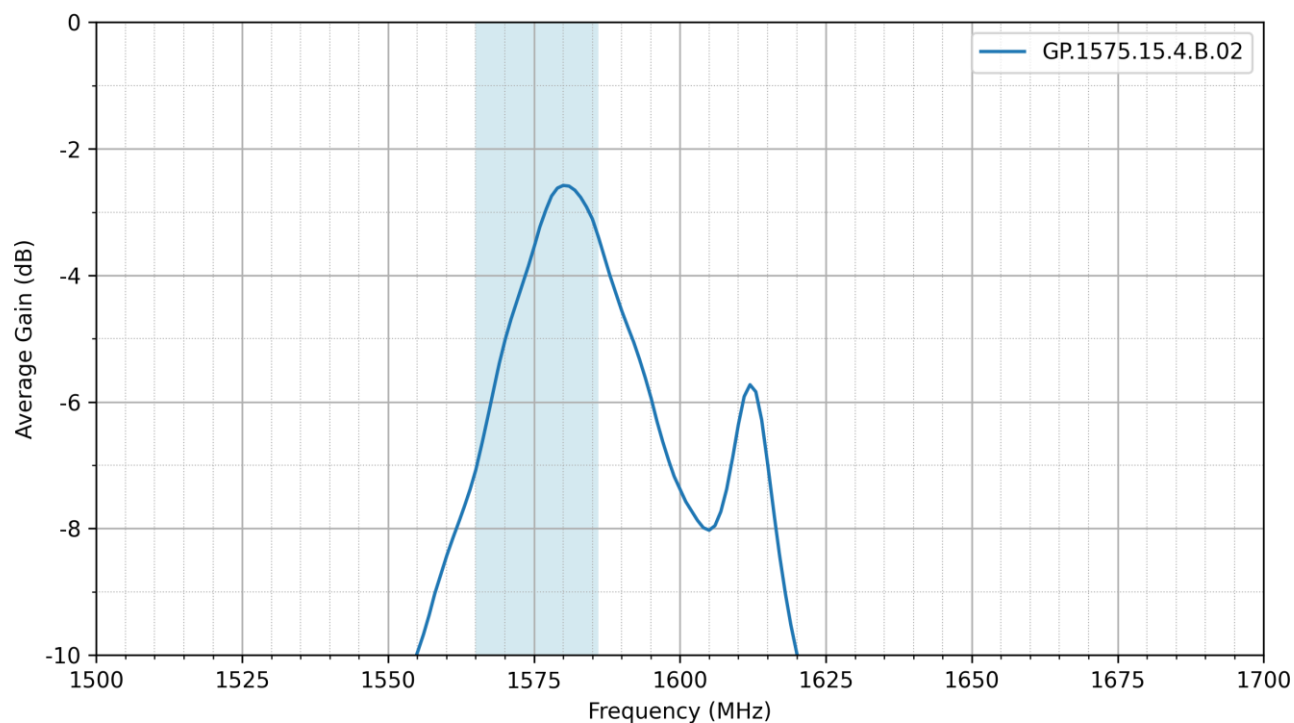
6.3 VSWR



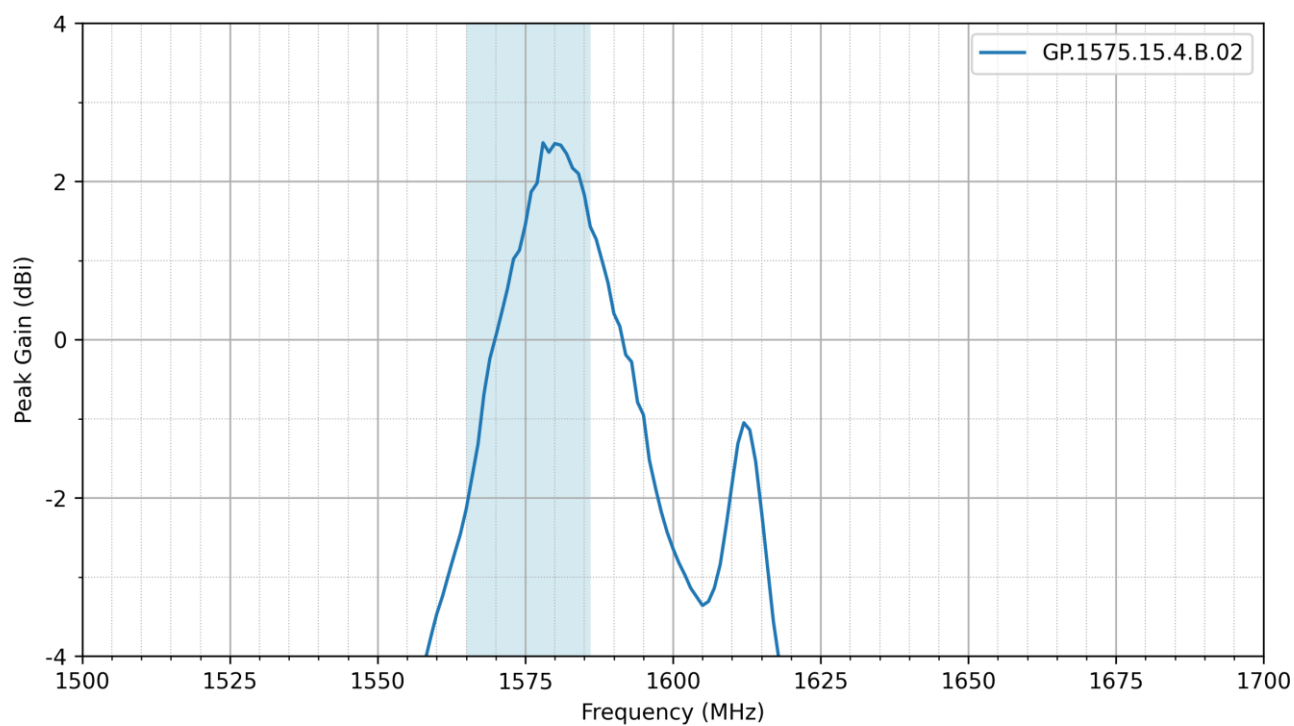
6.4 Efficiency



6.5 Average Gain

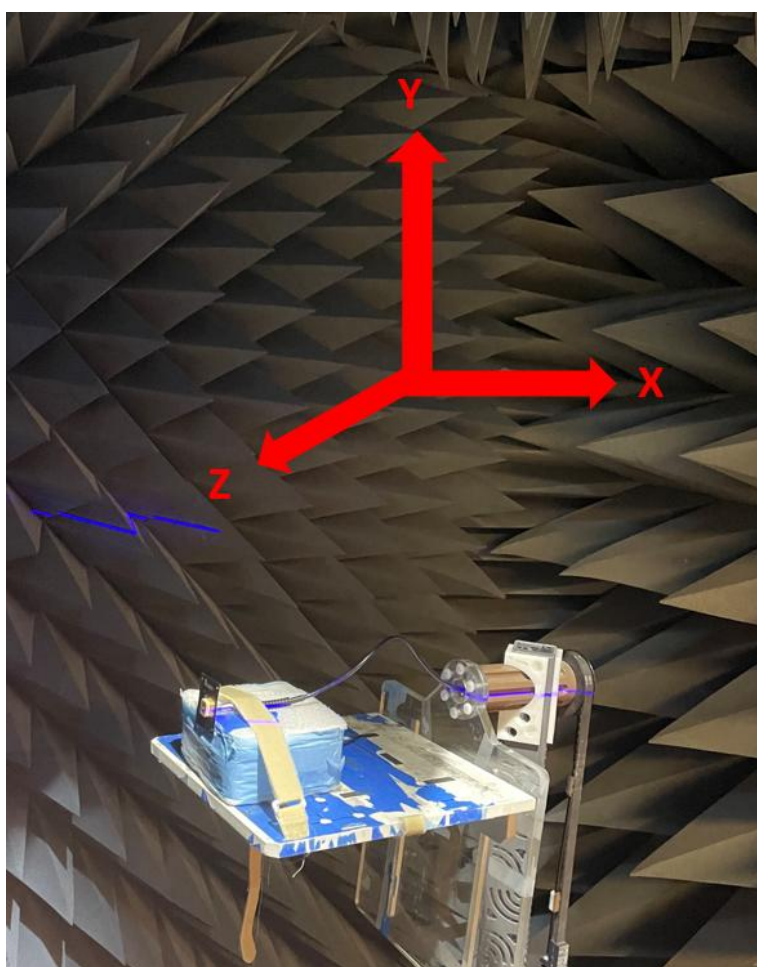
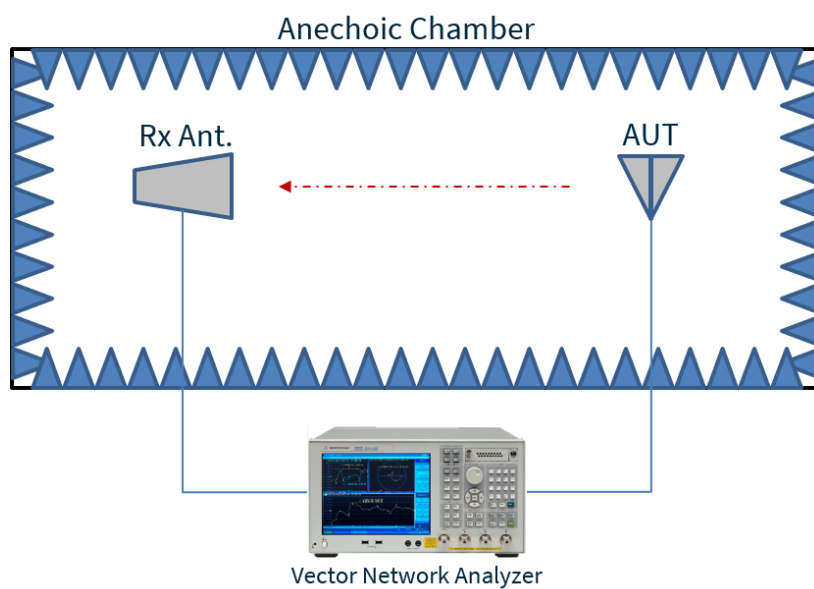


6.6 Peak Gain

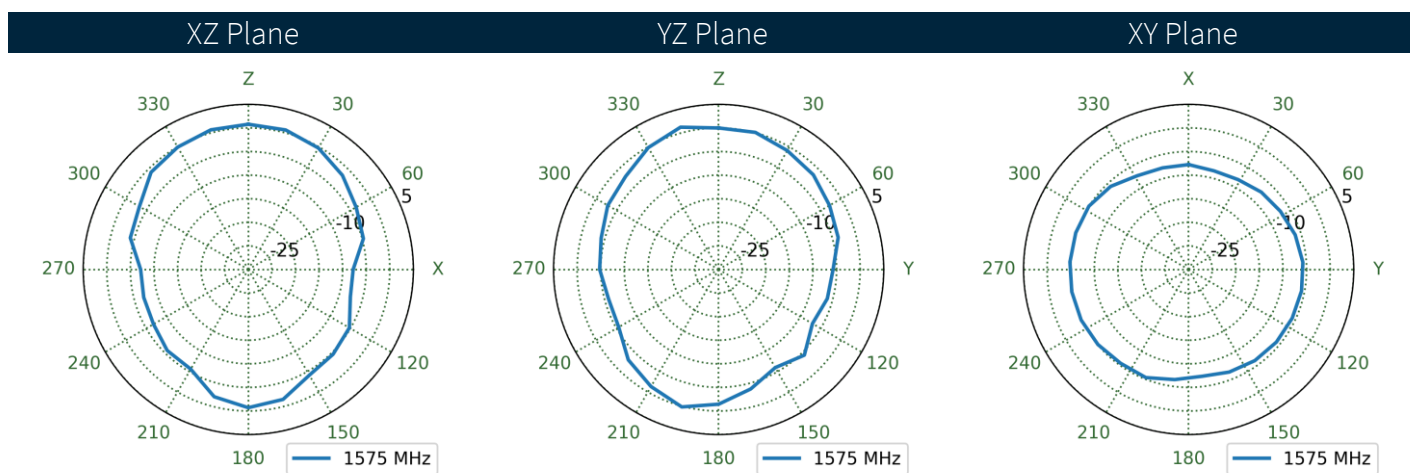
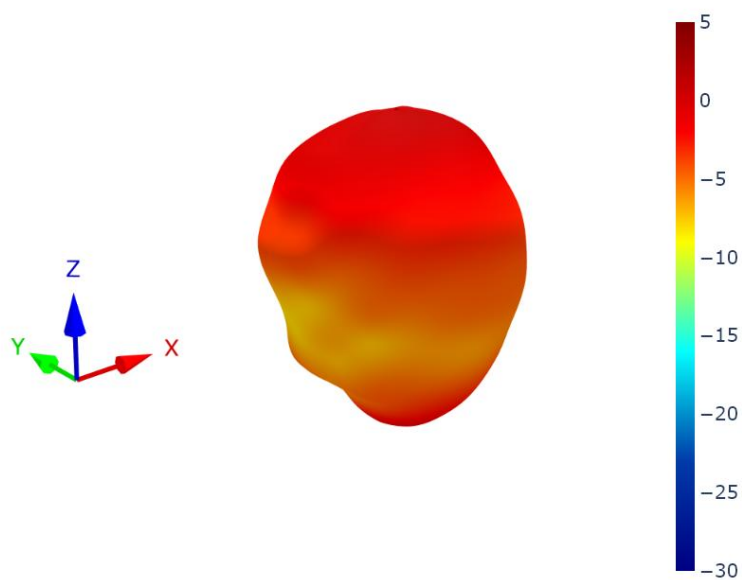


7. Radiation Patterns

7.1 Test Setup



7.2 Patterns at 1575 MHz



Changelog for the datasheet

SPE-12-8-094 – GP.1575.15.4.B.02

Revision: G (Current Version)

Date:	2026-05-15
Changes:	Added antenna integration guide.
Changes Made by:	Gary West

Previous Revisions

Revision: F

Date:	2025-01-14
Changes:	Drawing Update
Changes Made by:	Cesar Sousa

Revision: A (Original First Release)

Date:	2012-07-19
Notes:	
Author:	Dan Cantwell

Revision: E

Date:	2023-08-17
Changes:	Full datasheet update
Changes Made by:	Gary West

Revision: D

Date:	2021-06-21
Changes:	Updated Pin Length to 2.4mm Updated Drawing
Changes Made by:	Dan Cantwell

Revision: C

Date:	2018-03-15
Changes:	Drawing and Photo updated
Changes Made by:	Jack Conroy

Revision: B

Date:	2016-04-22
Changes:	
Changes Made by:	Jack Conroy



www.taoglas.com

