



# TAOGLAS®



# Datasheet

## GPDF357A

**Part No:**  
GPDF357A

### Description:

Embedded GPS L1/ L2 Dual Pin Stacked Patch Antenna  
Covering 1227.6/ 1575.42 MHz

### Features:

Dual-Pin Stacked Patch, Dual Feed

Covering Bands:

- GPS L1
- GPS L2
- Galileo E1

Low Axial Ratio

Dimensions: 35\*35\*7.15(mm)

Ground Plane size: 70x70(mm)

RoHS & Reach Compliant

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# 1. Introduction



The Taoglas GPDF357B is a precision-engineered embedded GPS stacked passive patch antenna supporting both GPS L1/Galileo E1 and GPS L2 bands. The stacked, two-pin feed design, consists of two patches, the bottom patch measuring 35\*35\*4mm and the top patch at 25\*25\*3mm, each patch with one pin feed, resulting in compact dimensions of just 35\*35\*7.15mm. The antenna has been tuned and tested on a 70\*70mm ground plane, specifically for GPS L1/Galileo E1 at 1575.42MHz and GPS L2 at 1227.6MHz.

Utilizing two patches ensures that a low axial ratio can be achieved. The antenna exhibits excellent gain and good radiation pattern stability leading to a reliable GNSS fix, even in areas of weaker signal strength. All these elements combined can ensure the best possible positional accuracy for your device. The GPDF357B is manufactured and tested in a TS16949 first tier automotive approved facility.

## Features:

- Multi-GNSS, high-performance passive antenna
- Excellent signal to noise ratio (C/N0)
- Good 2DRMS and fast TTFF
- Axial ratio < 2dB typ. across all bands

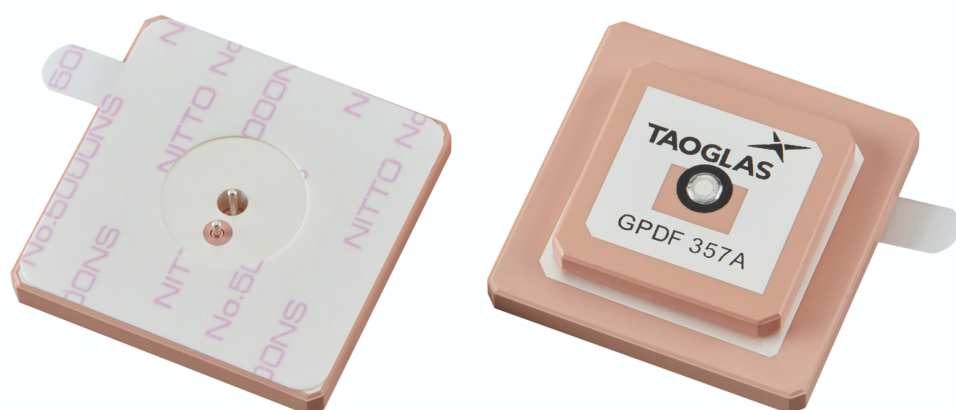
## Benefits:

- Excellent positional accuracy
- Great for use in difficult environments
- Multiband improves the receiver's position estimation in terms of accuracy and reliability
- Ideal antenna solution for multiband RTK systems.

**Typical applications include:**

- High accuracy positioning and navigation systems
- UAVs, Robotics & Autonomous Vehicles
- Mapping & GIS
- Transportation & Telematics
- Precision Agriculture
- Public Safety, Search & Rescue
- RTK Systems

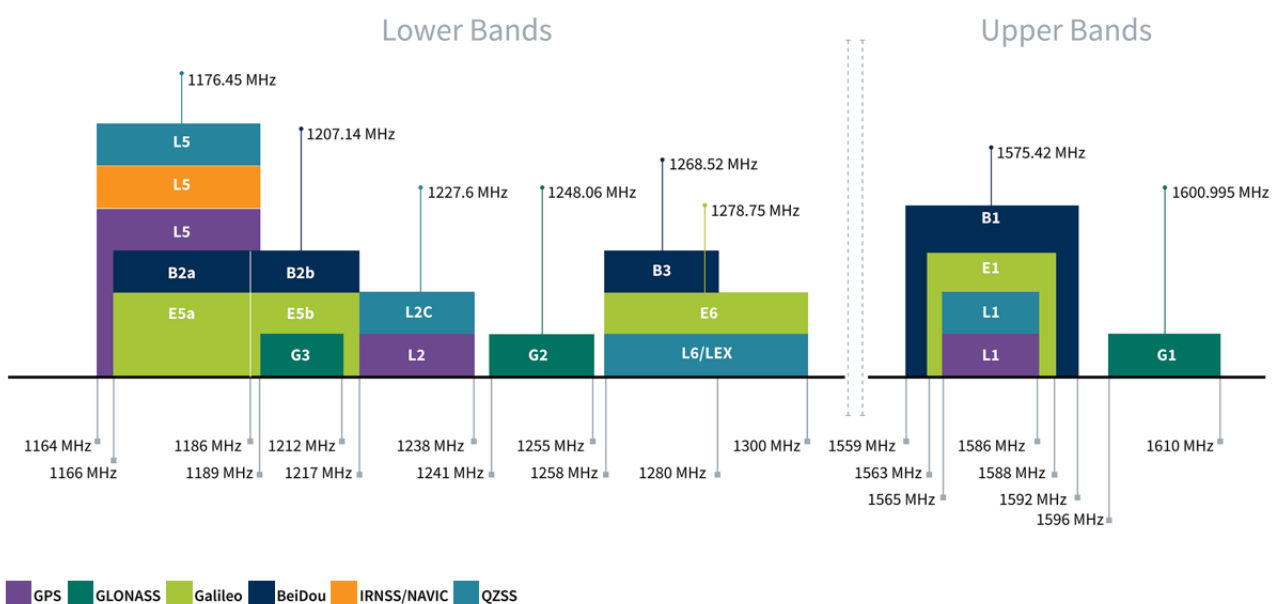
This patch can also be purchased in a version tuned specifically for a smaller 35\*35mm ground plane, the GPDF357A. Patch antennas can also be tuned to customer-specific device environments, subject to NRE and MOQ. Contact your regional Taoglas customer support team to request these services or additional support to integrate and test this antenna's performance in your device.



## 2. Specifications

GNSS Electrical					
GPS	L1	L2	L5		
	■	■	□		
GLONASS	G1	G2	G3		
	□	□	□		
Galileo	E1	E5a	E5b	E6	
	■	□	□	□	
BeiDou	B1	B2a	B2b	B3	
	□	□	□	□	
QZSS (Regional)	L1	L2C	L5	L6	
	■	■	□	□	
IRNSS (Regional)	L5				
	□				
SBAS	L1/E1/B1	L5/B2a/E5a	G1	G2	G3
	■	□	□	□	□

\*SBAS systems: WASS(L1/L5), EGNOS(E1/E5a), SDCM(G1/G2/G3), SNAS(B1,B2a), GAGAN(L1/L5), QZSS(L1/L5), KAZZ(L1/L5).



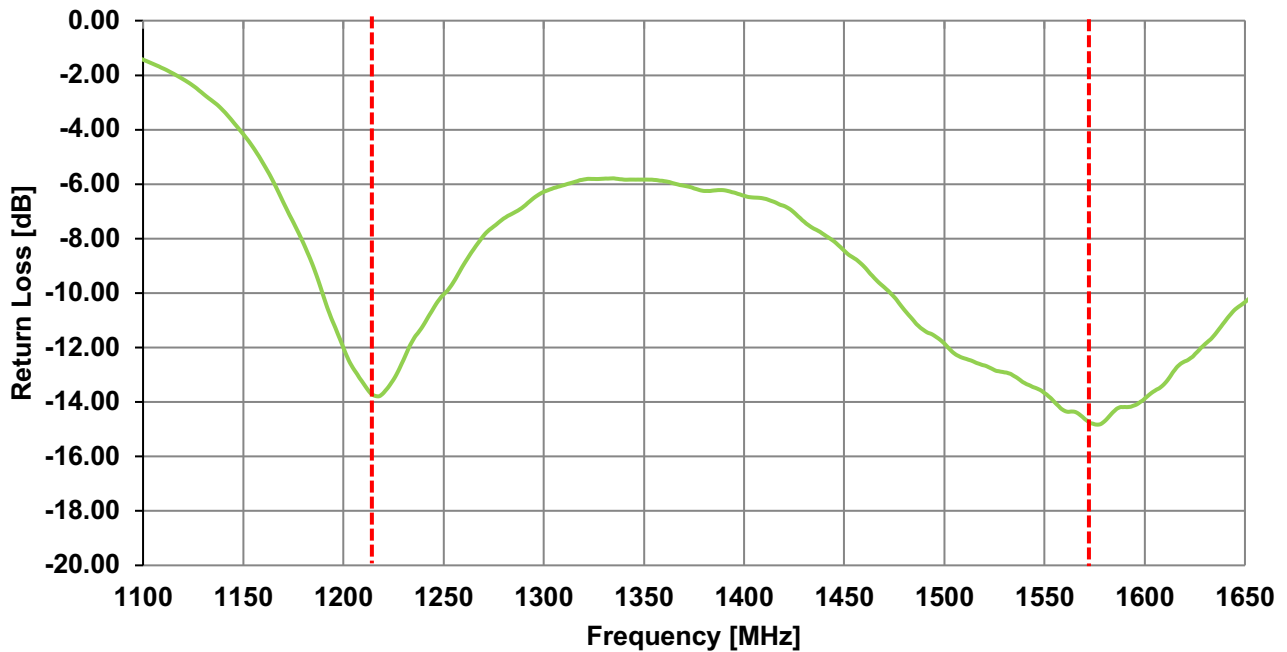
<b>GNSS Electrical</b>		
<b>Frequency (MHz)</b>	<b>1227.6</b>	<b>1575.42</b>
Return Loss (dB)	< -13	< -14
Efficiency (%)	55	33
Peak Gain at Zenith (dBi)	2.1	1
Average Gain (dB)	-2.6	-4.6
Axial Ratio (dB)	< 0.5	< 0.8
Group Delay Ripple (ns)	18	10
Polarization	R.H.C.P.	
Impedance	50Ω	

Note. Tuned on 70x70(mm) ground plane.

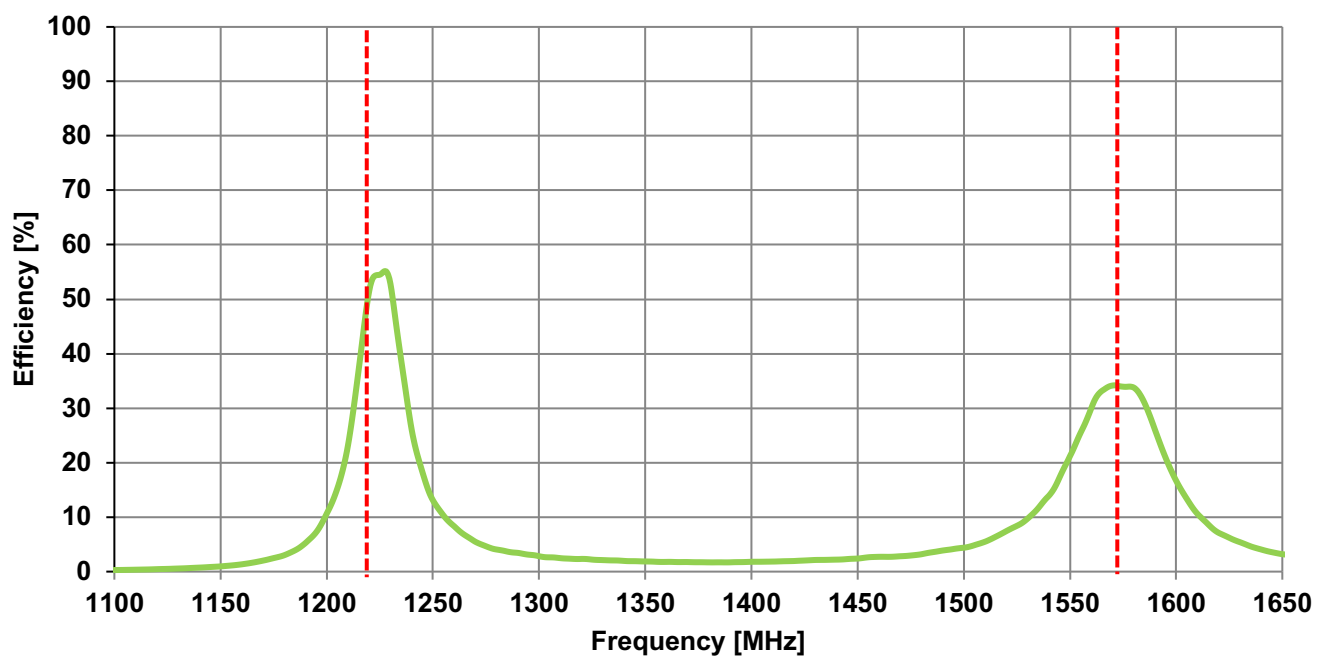
<b>Mechanical</b>	
Ceramic Dimension	35 x 35 x 7.15mm
Standard Ground Plane Size	70*70mm
Pin Length	2.4mm
Weight	25.2g
<b>Environmental</b>	
Operation Temperature	-30°C to 80°C
Storage Temperature	-40°C to 85°C
Humidity	Non-condensing 65°C 95% RH

### 3. Passive Antenna Characteristics

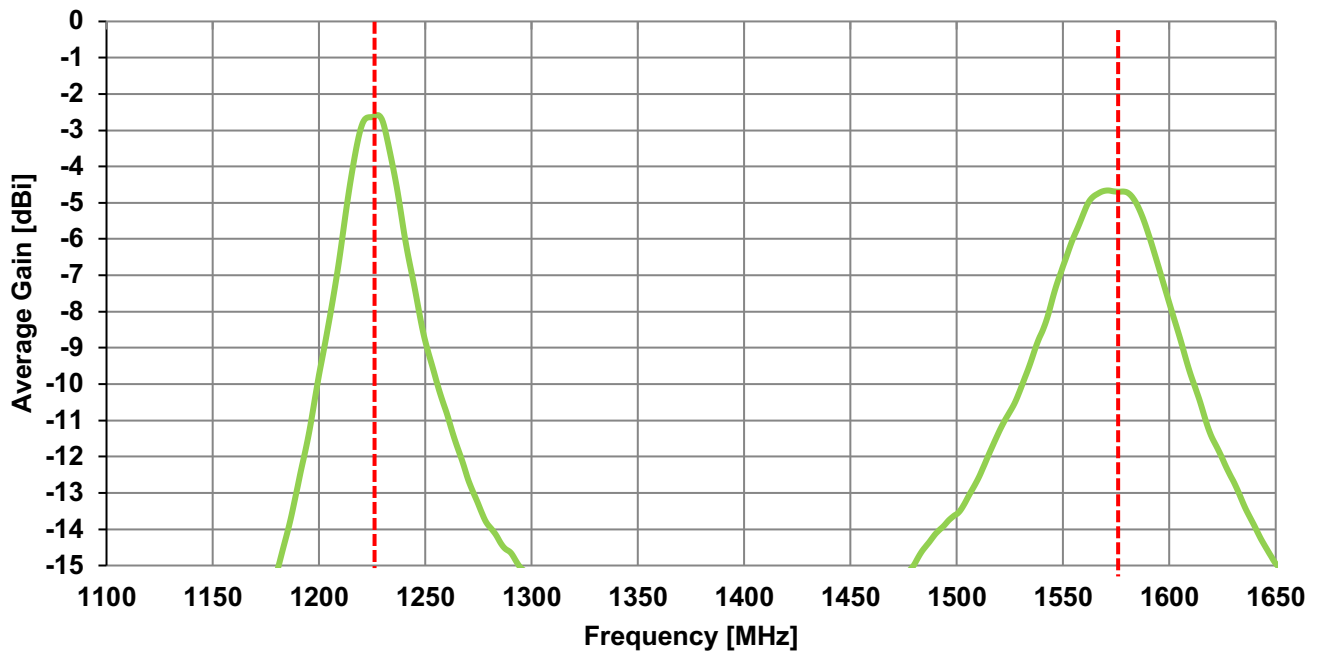
#### 3.1 Return Loss



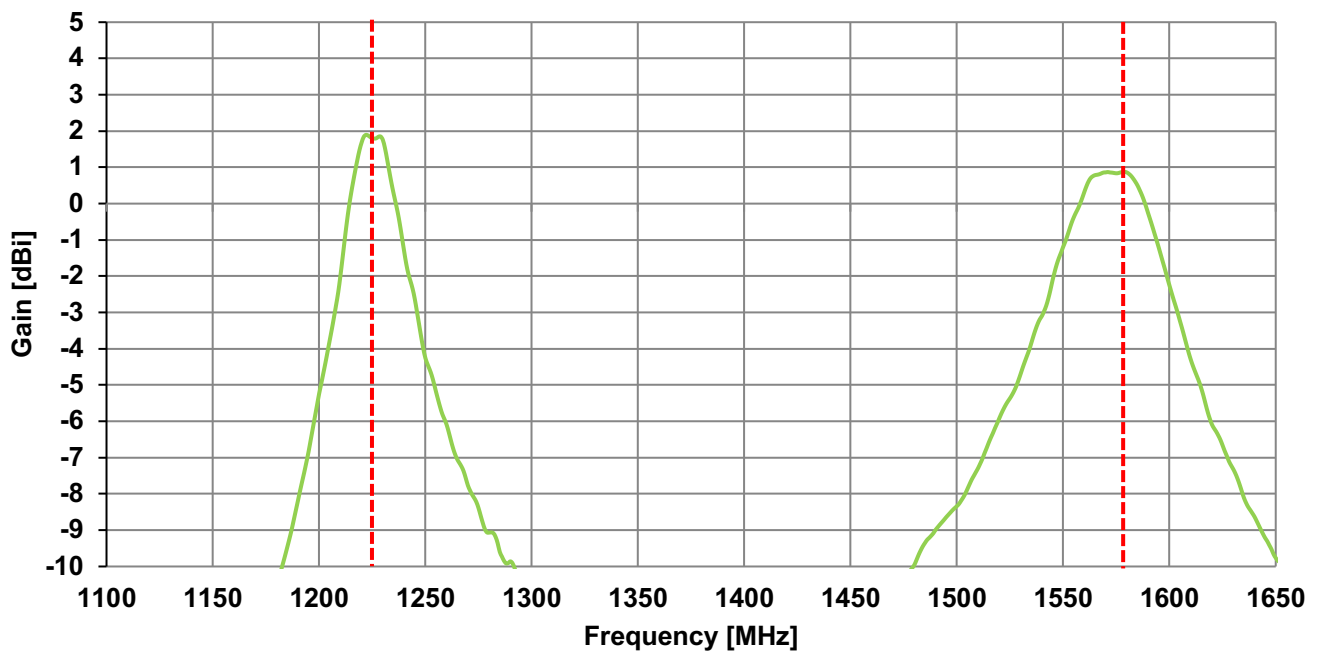
#### 3.2 Efficiency



### 3.3 Average Gain

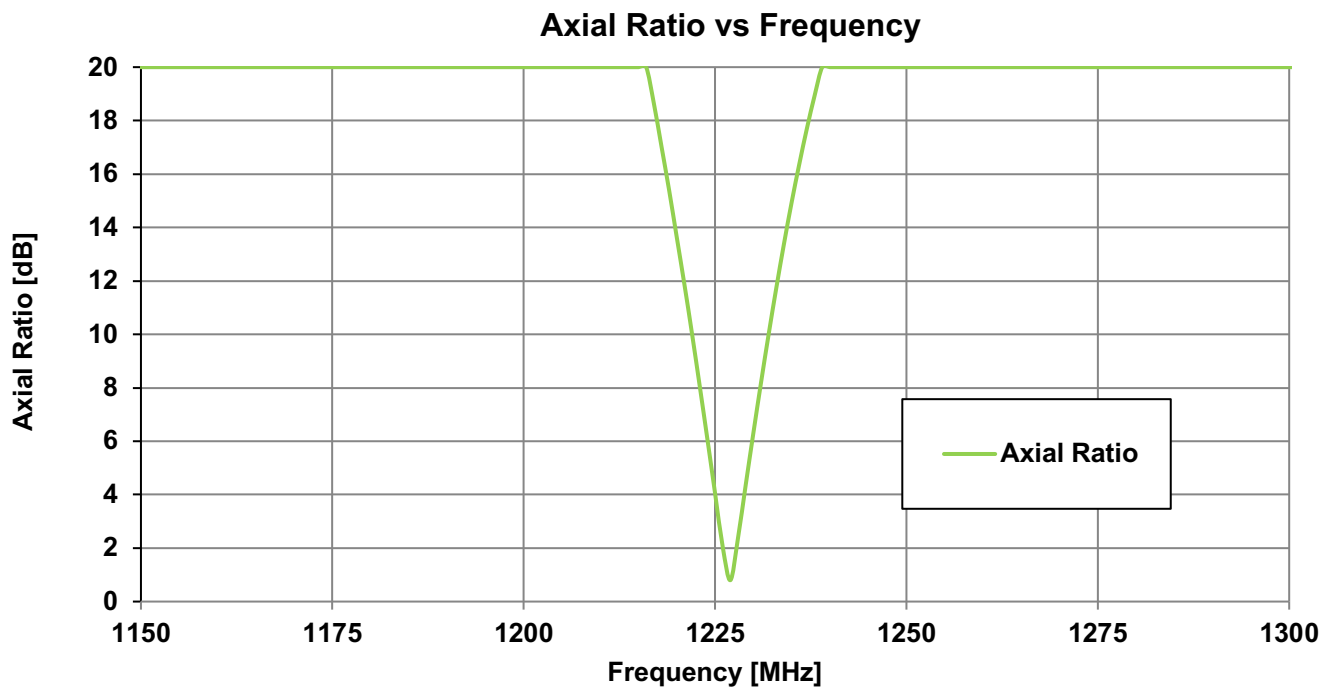


### 3.4 Peak Gain

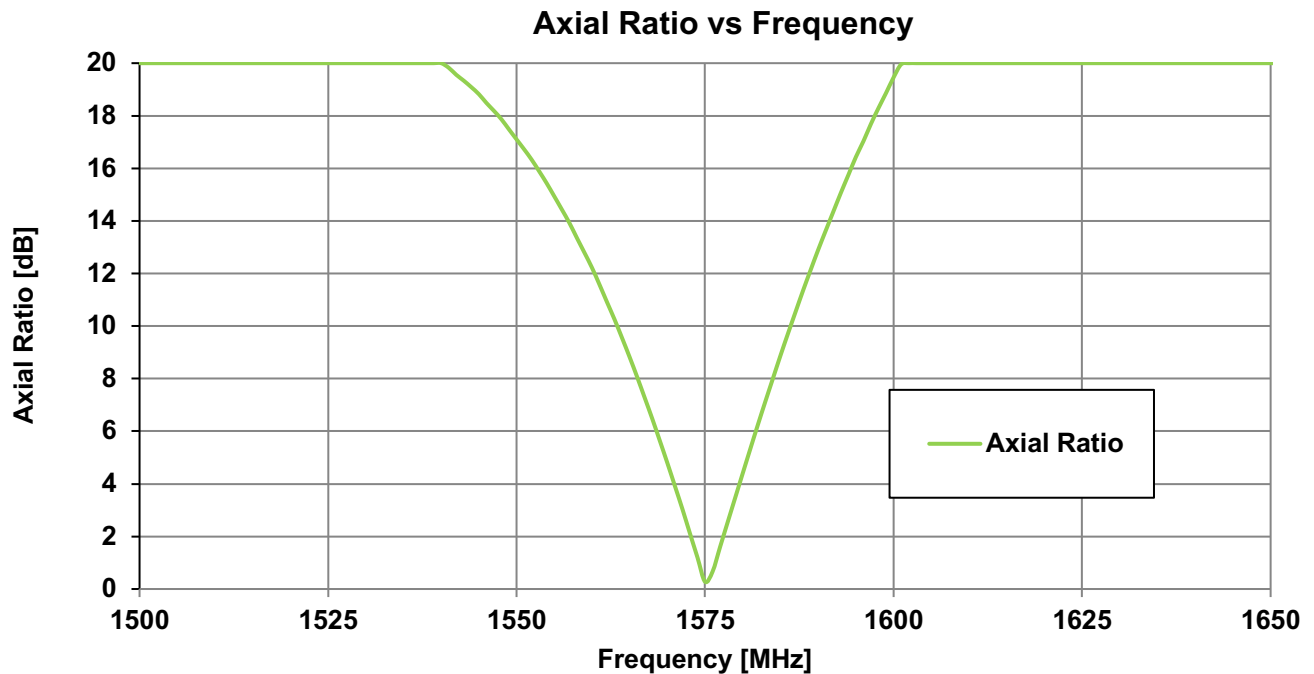




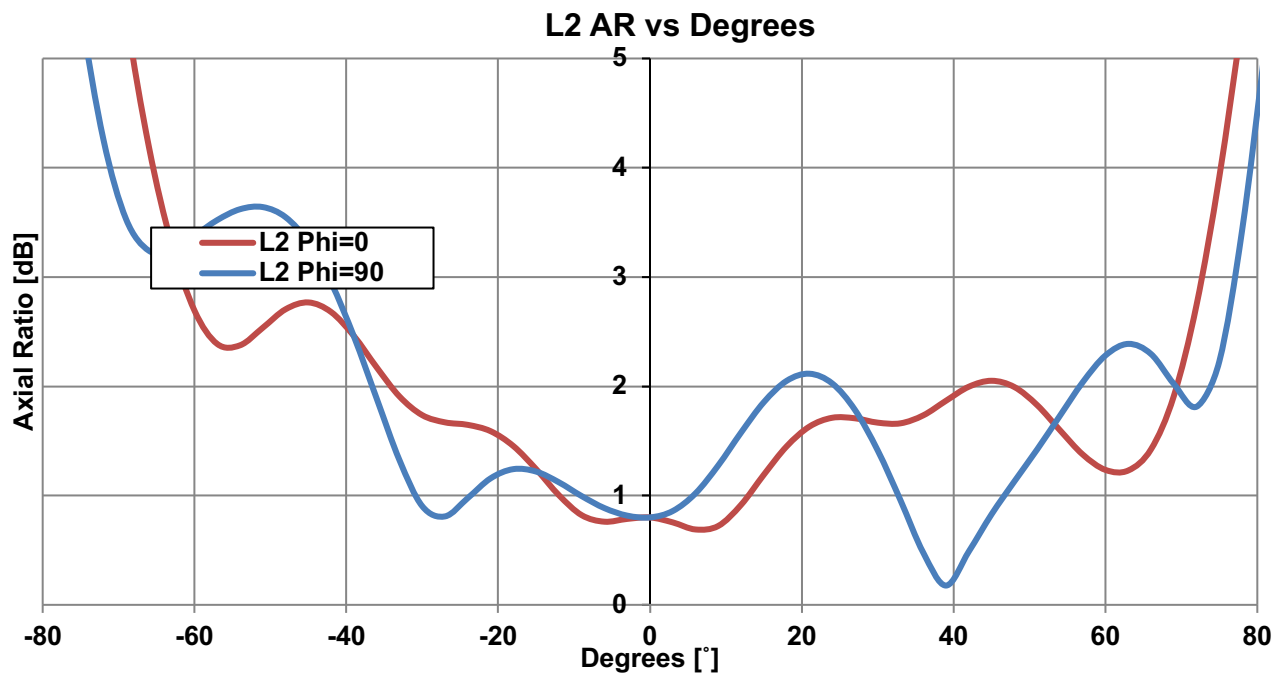
### 3.5 GPS L2 Axial Ratio vs Frequency



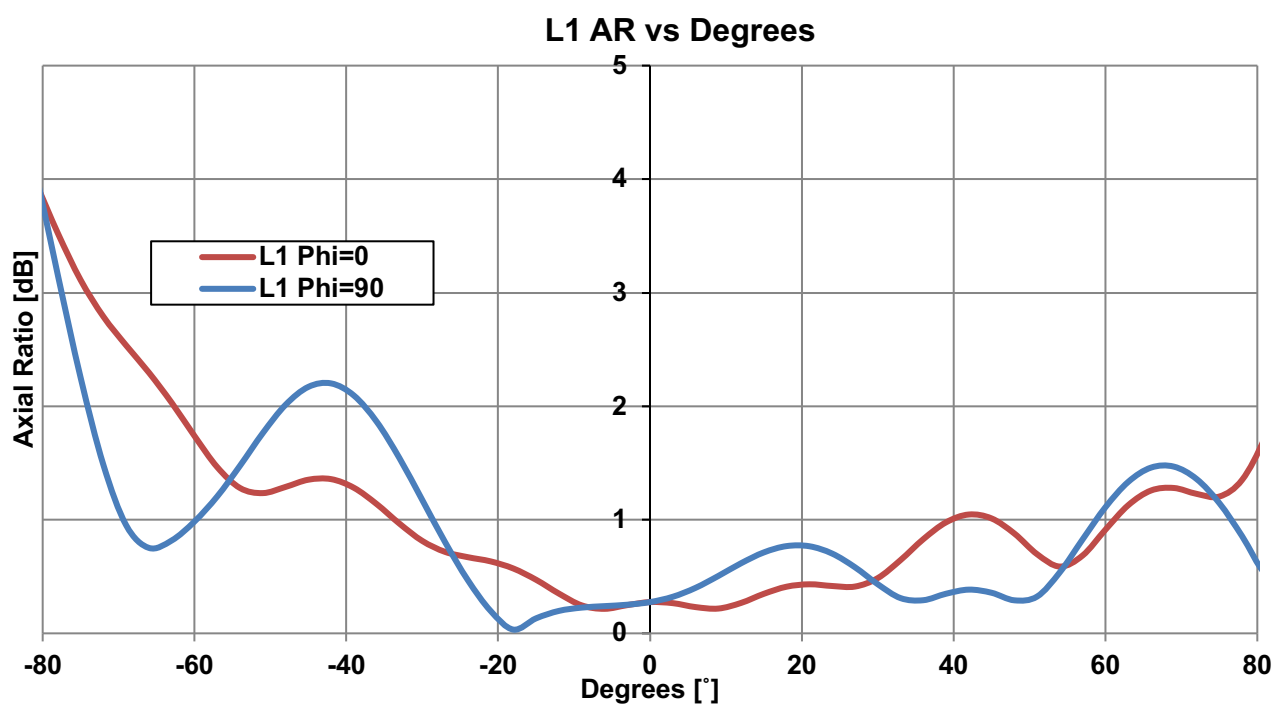
### 3.6 GPS L1 Axial Ratio vs Frequency



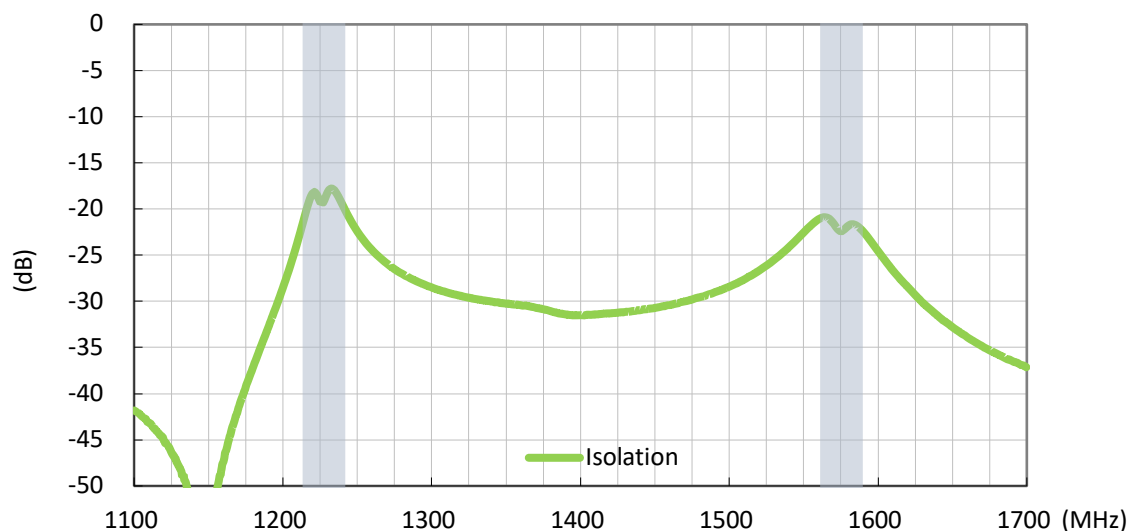
### 3.7 GPS L2 Axial Ratio vs Degrees



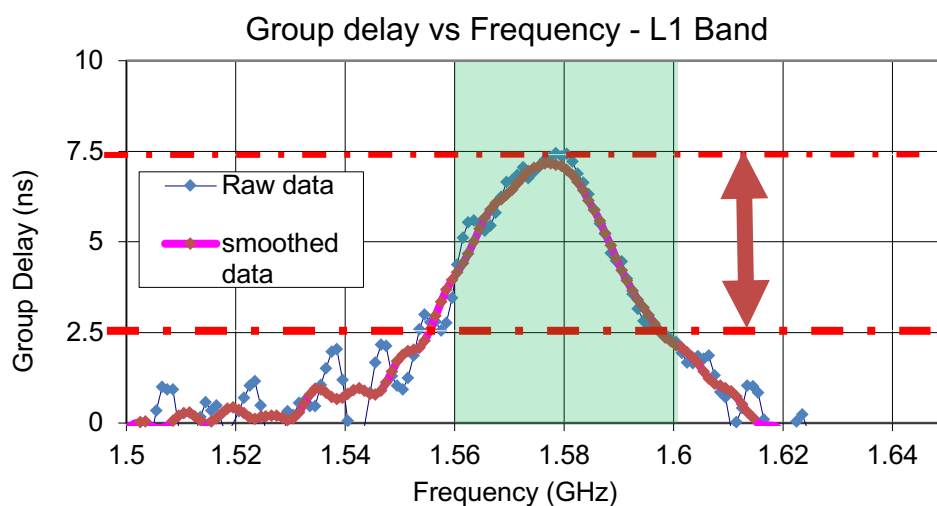
### 3.8 GPS L1 Axial Ratio vs Degrees



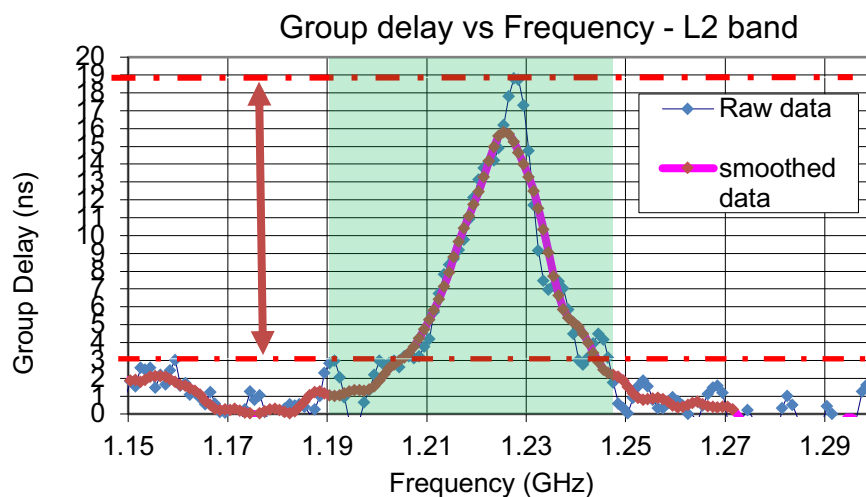
### 3.9 Isolation



### 3.10 Group Delay vs Frequency

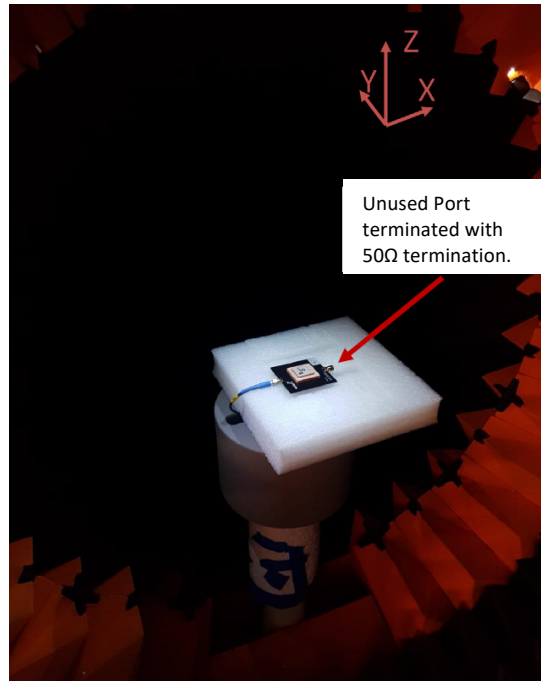


### 3.11 Group Delay vs Frequency

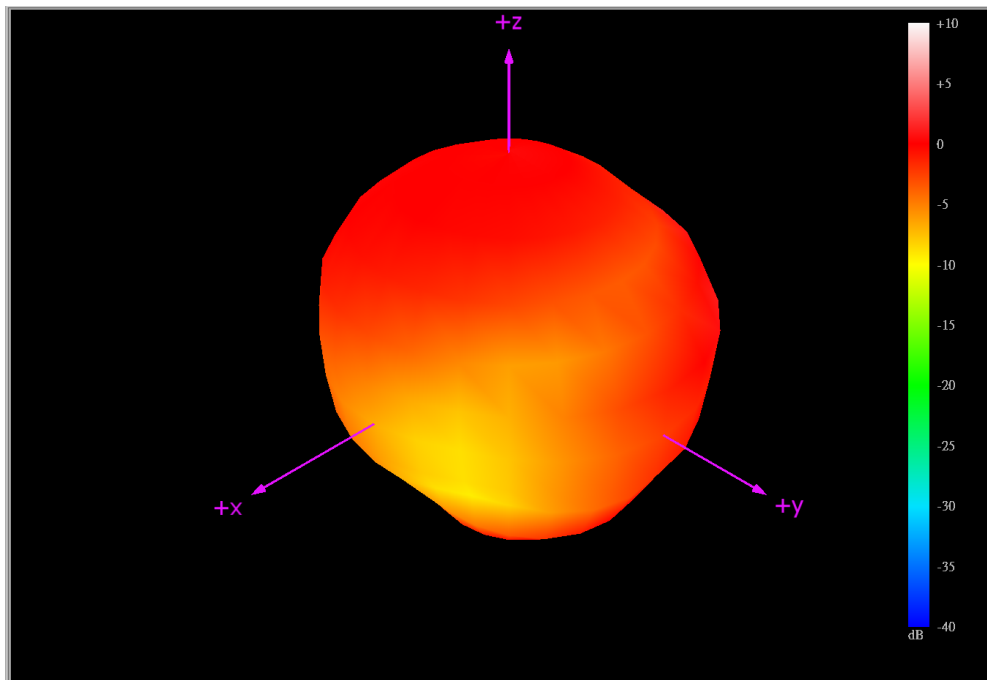


## 4. Radiation Patterns

### 4.1 Test Setup



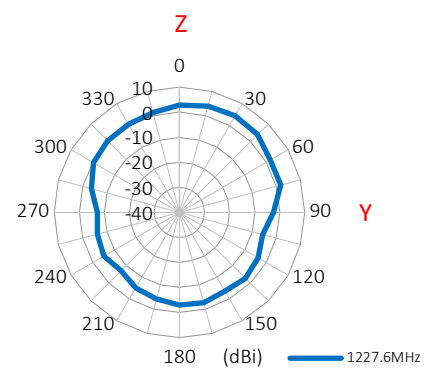
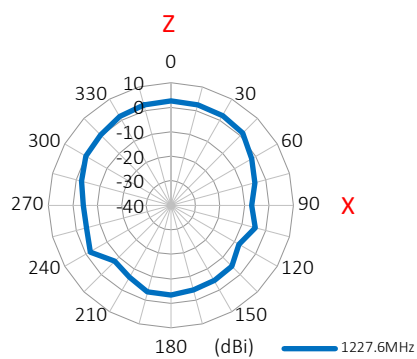
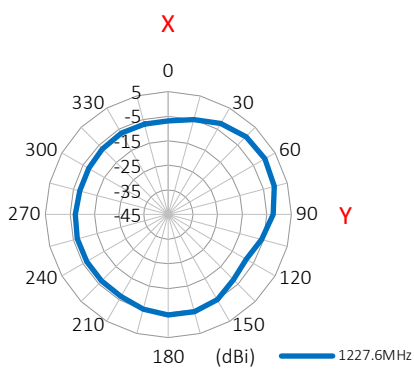
4.2 1227.6MHz 3D and 2D Radiation Patterns



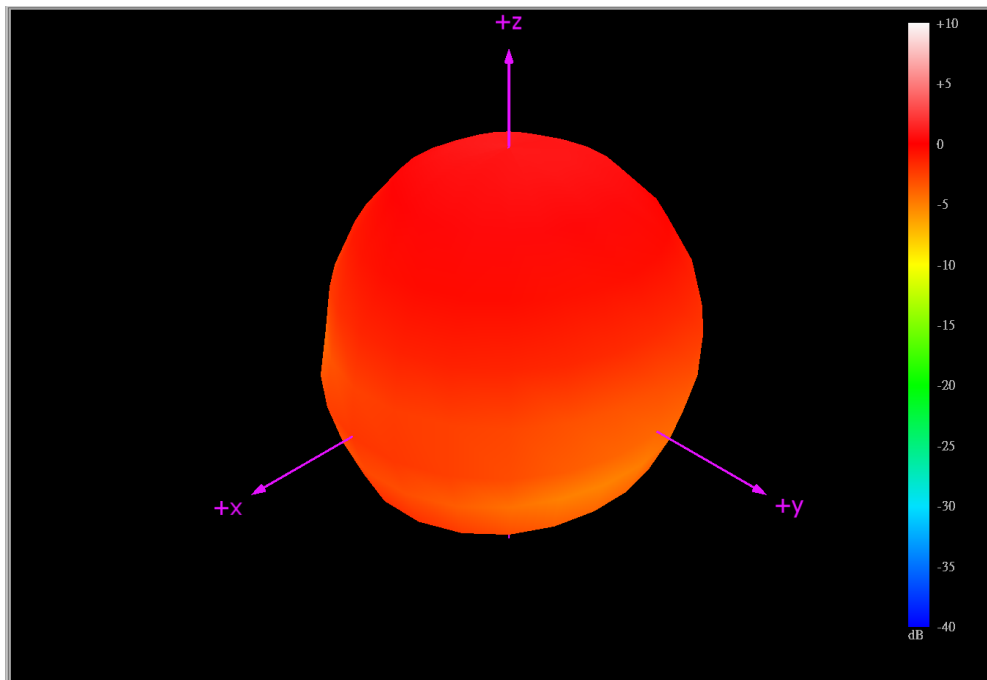
XY Plane

XZ Plane

YZ Plane



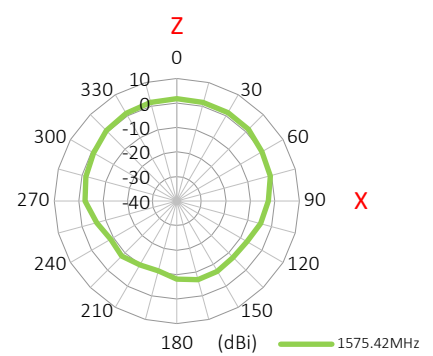
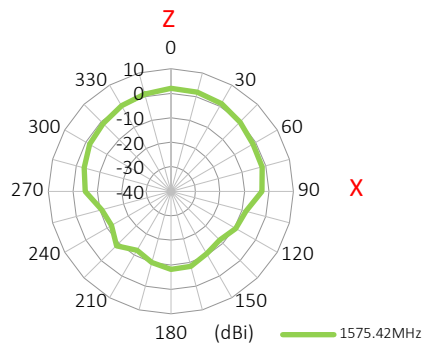
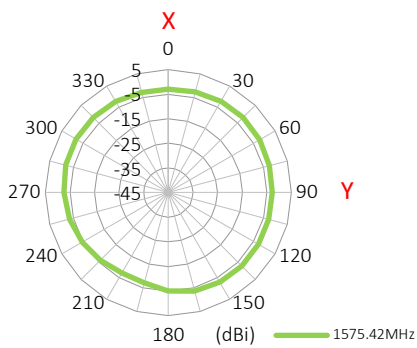
4.3 1575.42MHz 3D and 2D Radiation Patterns



XY Plane

XZ Plane

YZ Plane



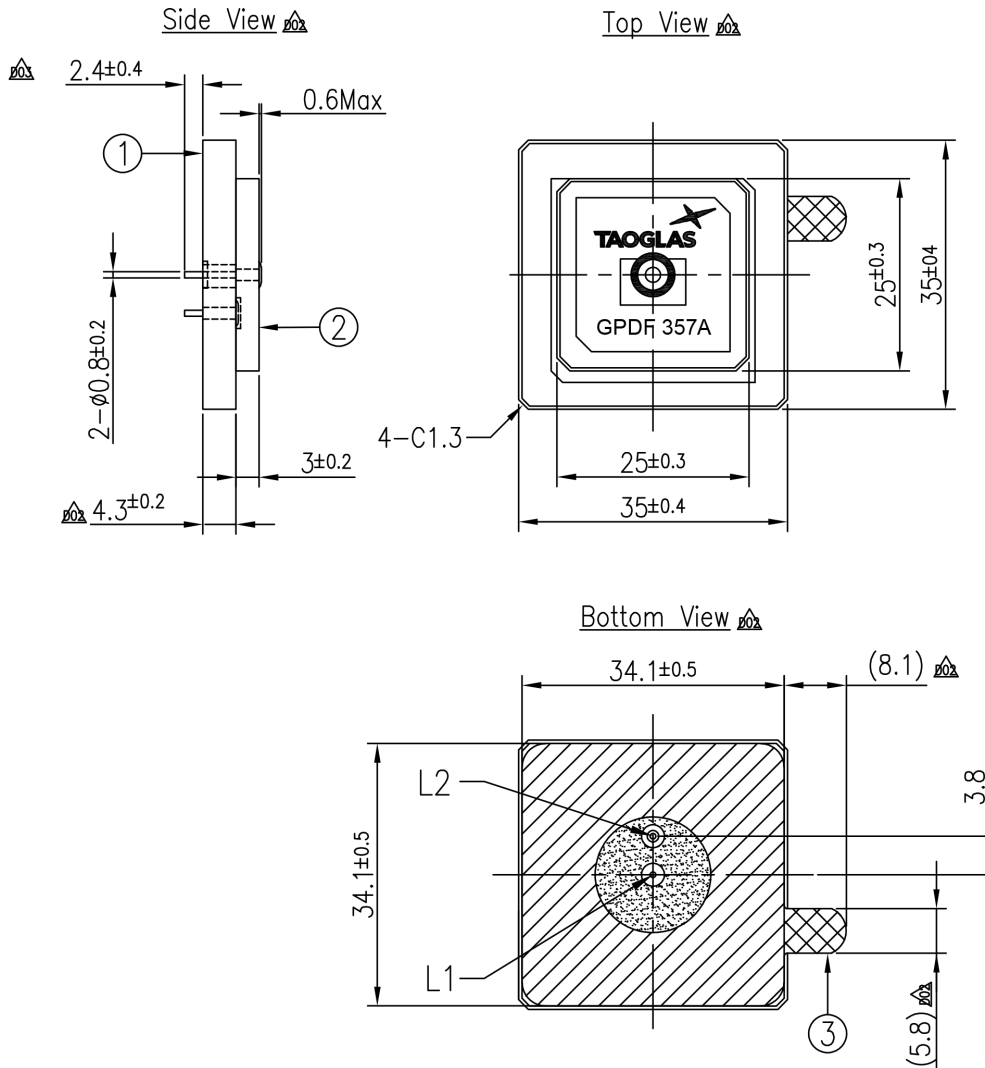
# 5. Mechanical Drawing (Units: mm)

ISO NO.: EDW-19-8-1546

STATE: Release

- NOTES:
1. Double sided adhesive area.
  2. Silver area.
  3. Release paper area.

REV.	DESCRIPTION	ENG.	APPROVED	DATE
1	Initial Design	Rachel Di	Aaron	2019/12/05
2	Amend Appearance & Dimension	Rachel Di	Aaron	2020/01/17
3	EC-21-08-010	Mickey	Buluto	2021/03/02

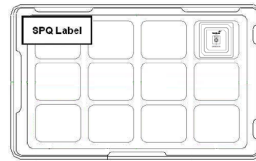


APPROVED BY: Clark	<p>TW Design Centre This drawing and its inherent design concepts are property of Taoglas. Not to be copied or given to third parties without the written consent of Taoglas.</p>
CHECK BY: Aaron	
DRAWN BY: Rachel Di	
DATE: 2019/12/02	
TITLE: GPS L1/L2 Dual Feed Double Stacked Patch (Tuned for 70x70 GP)	PART NO.: GPDF357A
UNLESS OTHERWISE SPECIFIED TOLERANCES ON:	UNIT: mm SCALE: 1.25:1 PAGES: 1/1 REV. D03
THIRD ANGLE PROJECTION	

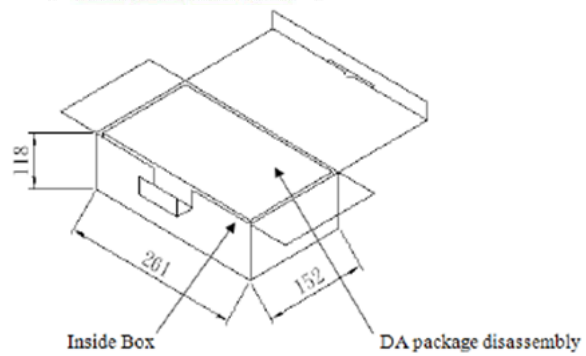
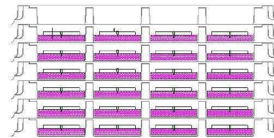
Name	P/N	Material	Finish	QTY
1 Patch-1(35X35X4mm)	013ABBD0101D	Ceramic	Clear	1
2 Patch-2(25X25X3mm)	013ABBD0101D	Ceramic	Clear	1
3 Double sided Adhesive	013ABBD0101D	NIITO 5000NS	White Liner	1

## 6. Packaging

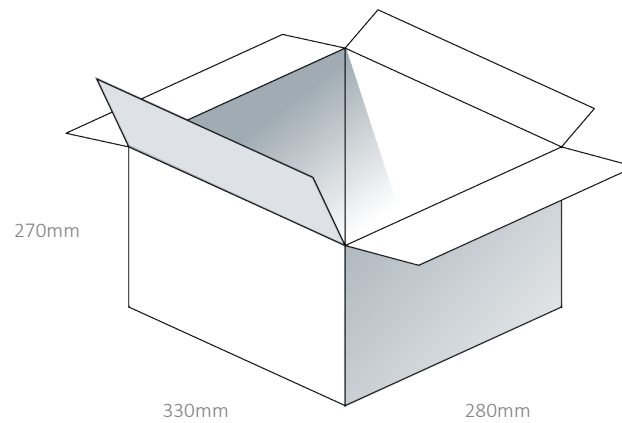
12pcs GPDF357A per Tray  
Weight: 360g



72pcs GPDF357A per PE Bag and Inside Box  
Dimensions: 261\*152\*118 mm  
Weight: 3Kg



288pcs GPDF357A per carton  
Dimensions - 330\*280\*270mm  
Weight -12.4Kg





Changelog for the datasheet

**SPE-20-8-006-A – GPDF357A**

<b>Revision: B (Current Version)</b>	
Date:	2021-06-12
Changes:	Updated Pin Length to 2.4mm Updated Drawing
Changes Made by:	Dan Cantwell

**Previous Revisions**

<b>Revision: A</b>		
Date:	2020-05-29	
Changes:	Initial Release	
Changes Made by:	Jack Conroy	



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