



TAOGLAS®



Datasheet

GPDF357B

Part No:
GPDF357B

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: 35*35 mm

RoHS & Reach Compliant

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1. Introduction



The Taoglas GPDF357B is a precision-engineered embedded stacked passive GPS 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 35*35mm 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

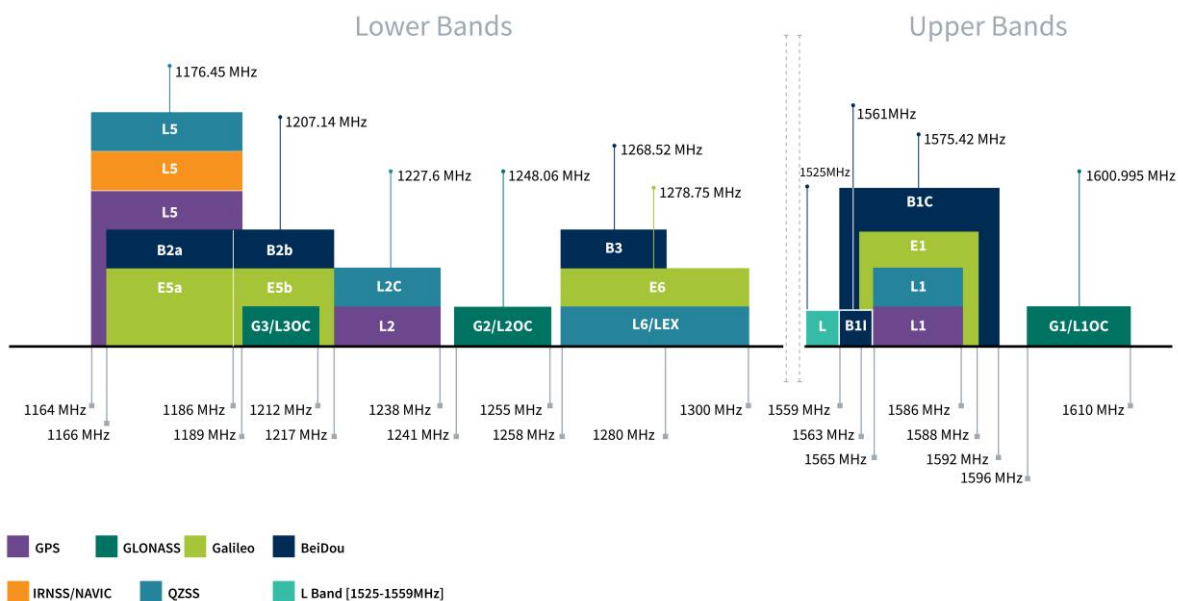
This patch can also be purchased in a version tuned specifically for a larger 70*70mm ground plane, the GPDF357A. Patch antennas can also be tuned to customer-specific device environments, subject to NRE and MOQ. Contact your regional Taoglas customer support team to request these services or additional 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).



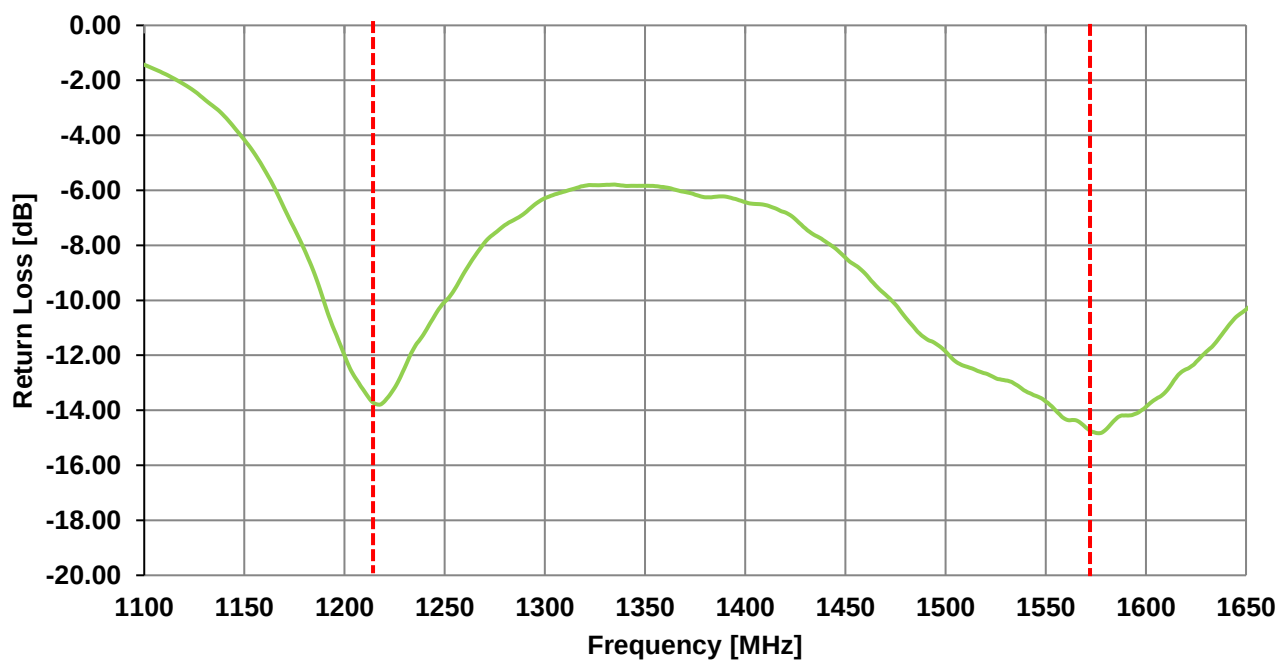
GNSS Electrical		
Frequency (MHz)	1227.6	1575.42
Return Loss (dB)	< -13	< -14
Efficiency (%)	47.9	27.9
Peak Gain at Zenith (dBi)	2.8	-1.3
Average Gain (dB)	-3	-5.5
Axial Ratio (dB)	< 2	< 2
Polarization	R.H.C.P.	
Impedance	50Ω	

Note. Tuned on 35x35 mm ground plane.

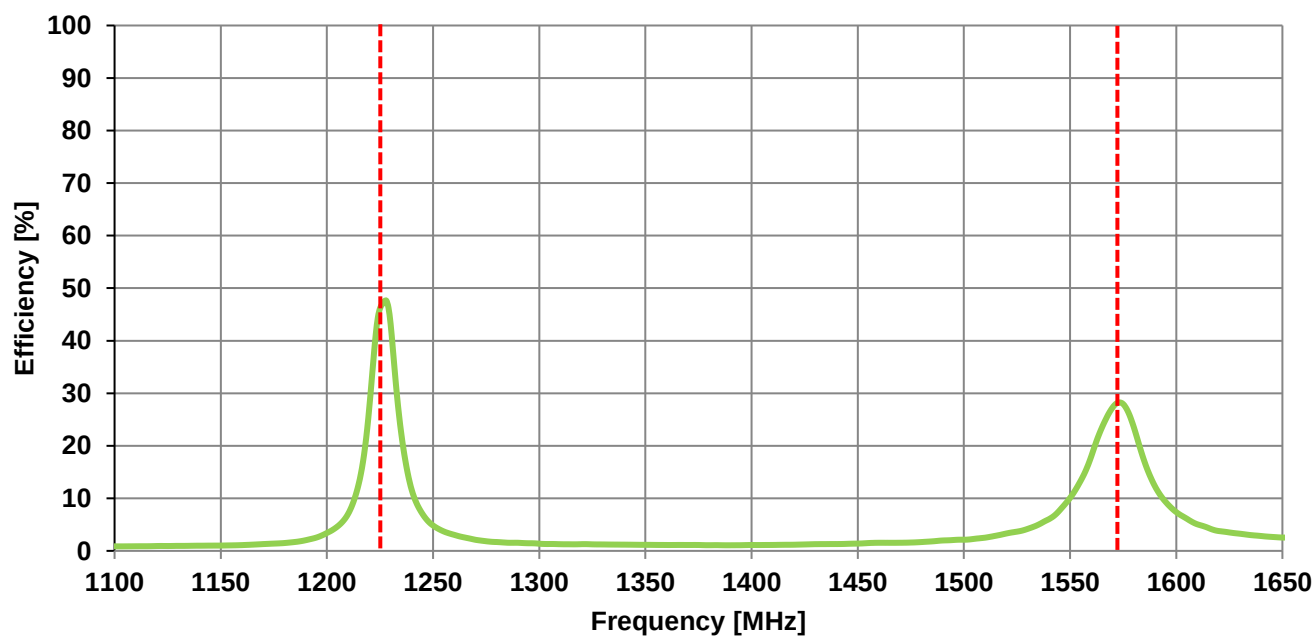
Mechanical	
Ceramic Dimension	35 x 35 x 7.15mm
Standard Ground Plane Size	35x35mm
Pin Length	2.4mm
Weight	25.2g
Environmental	
Operation Temperature	-30°C to 80°C
Storage Temperature	-40°C to 85°C
Humidity	Non-condensing 65°C 95% RH

3. Passive Antenna Characteristics

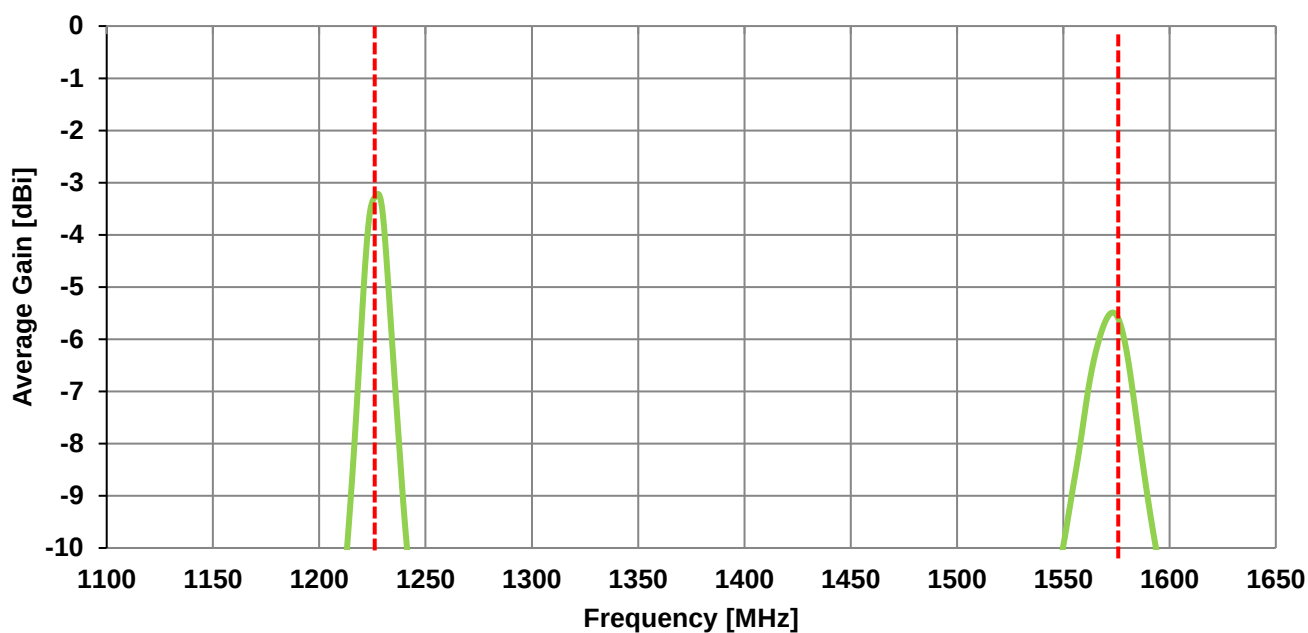
3.1 Return Loss



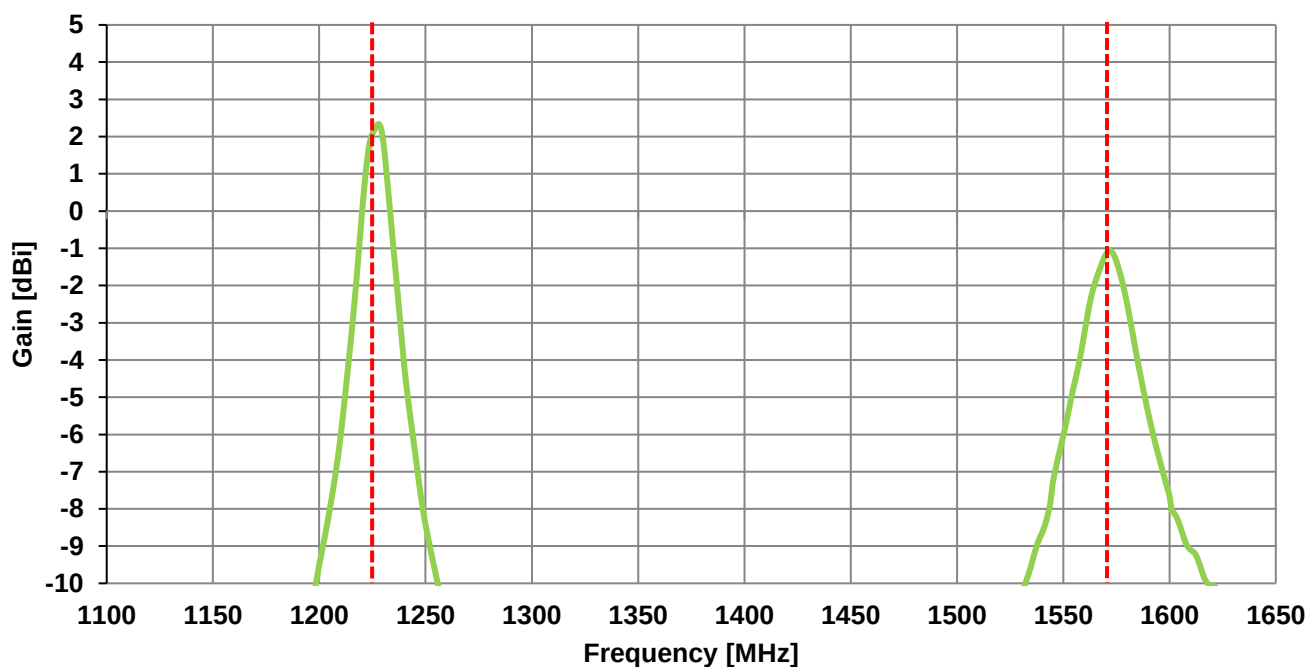
3.2 Efficiency



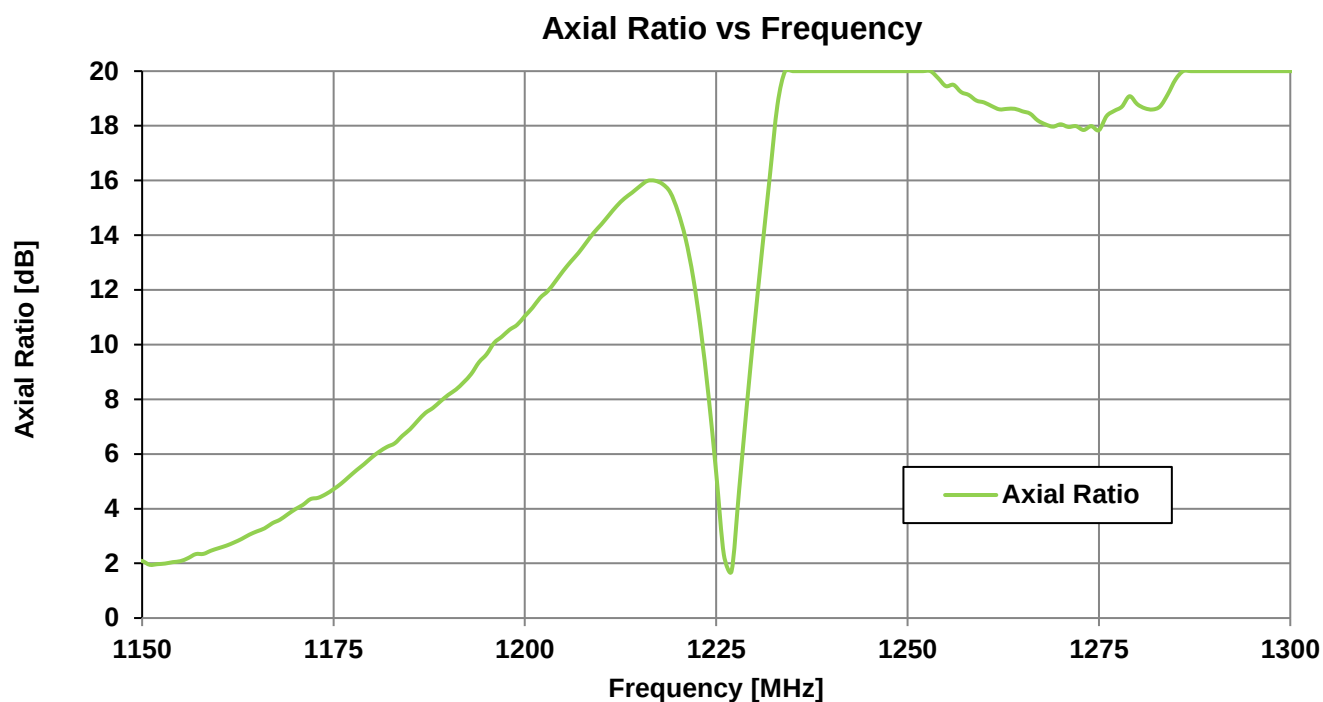
3.3 Average Gain



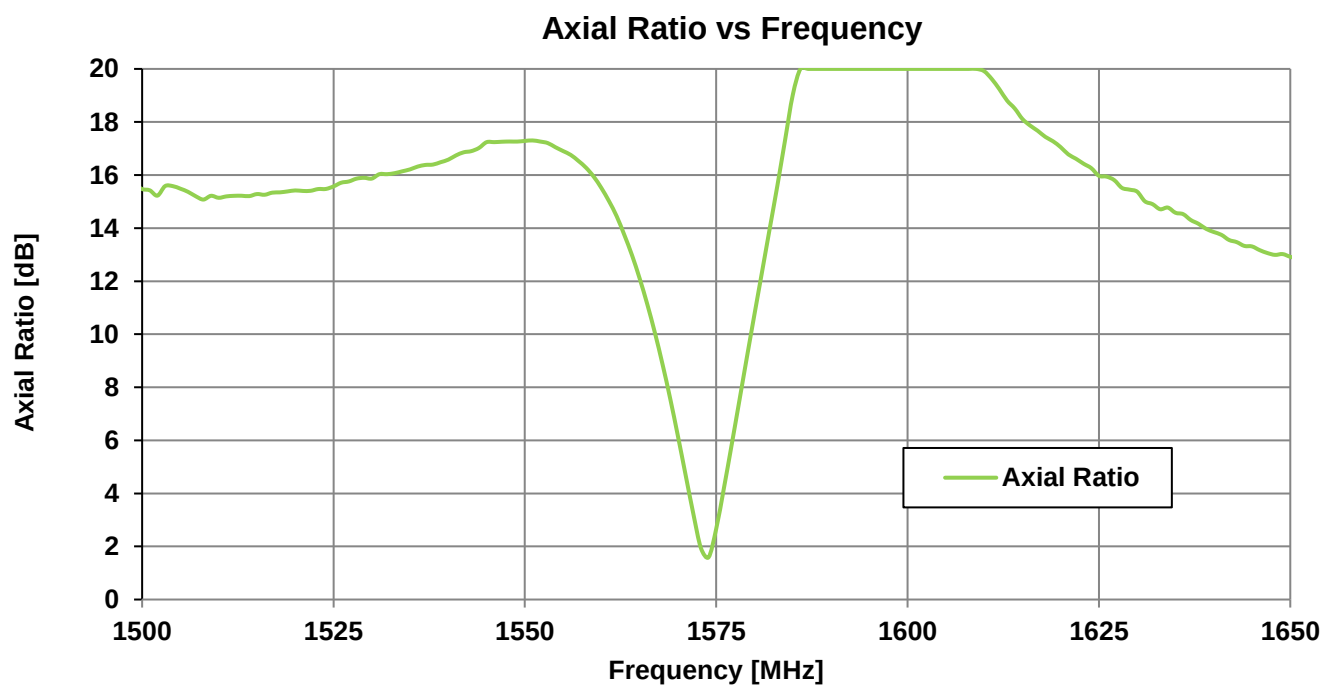
3.4 Peak Gain



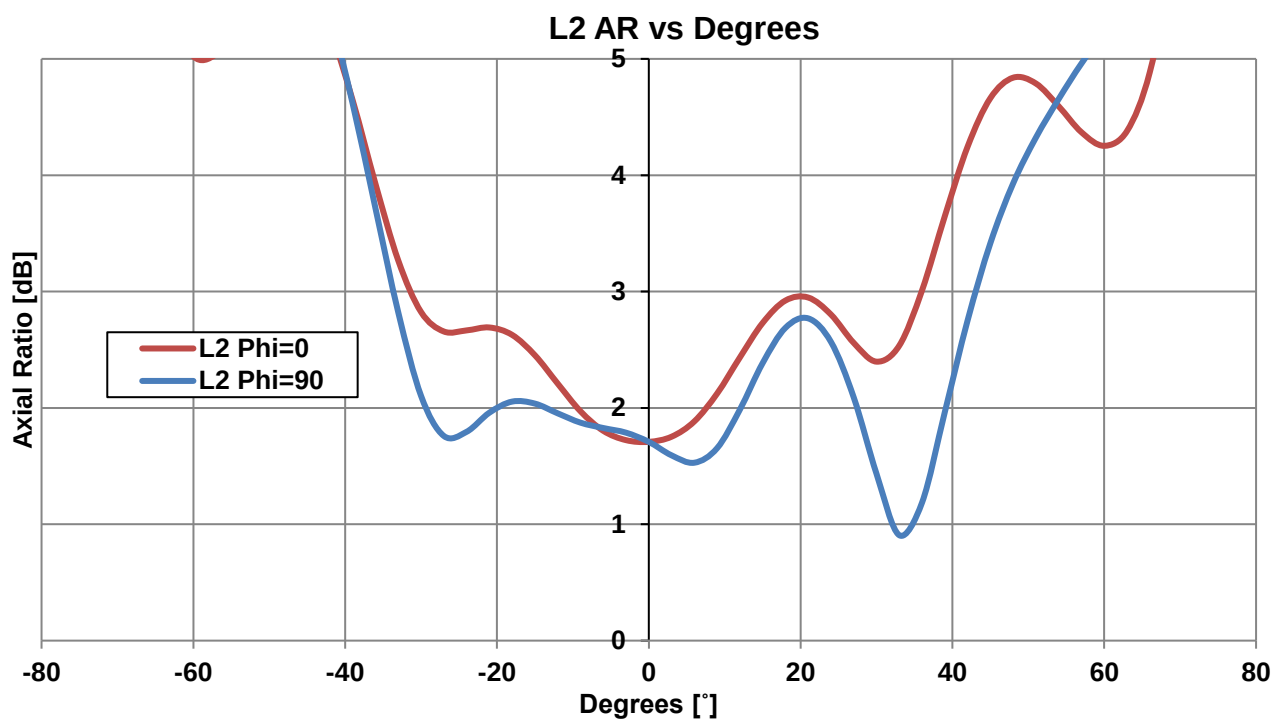
3.5 GPS L2 Axial Ratio vs Frequency



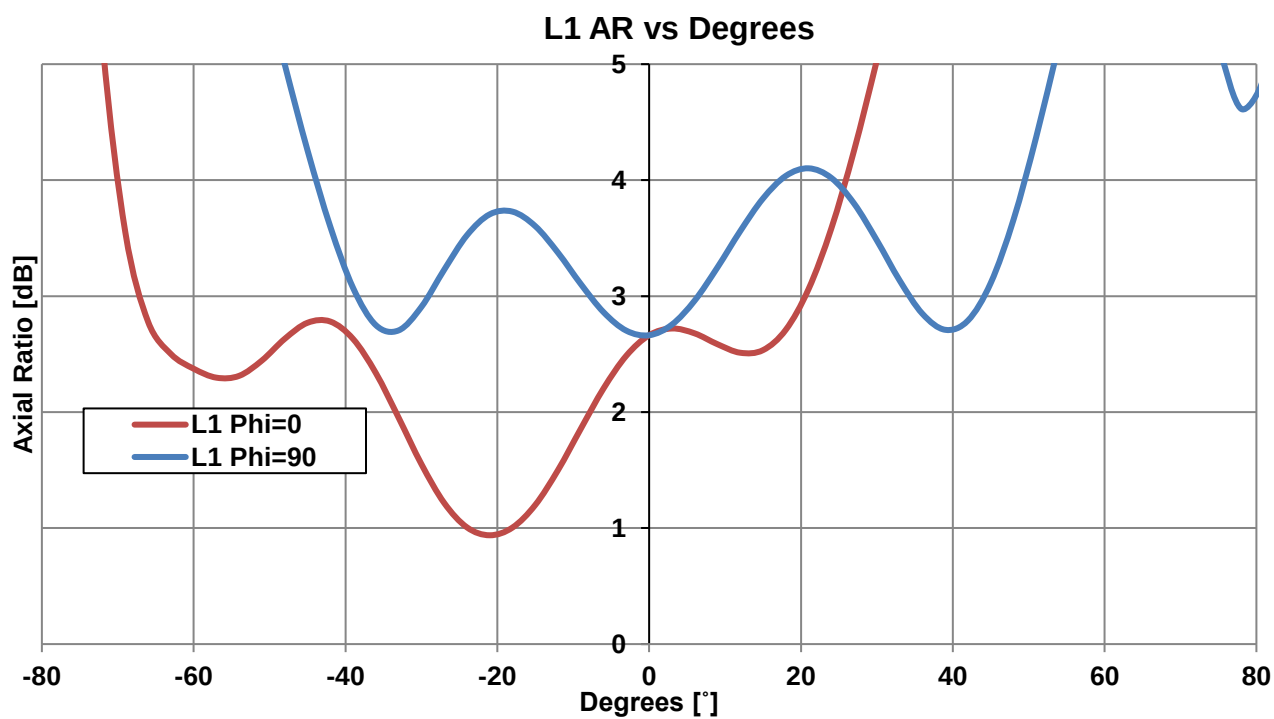
3.6 GPS L1 Axial Ratio vs Frequency



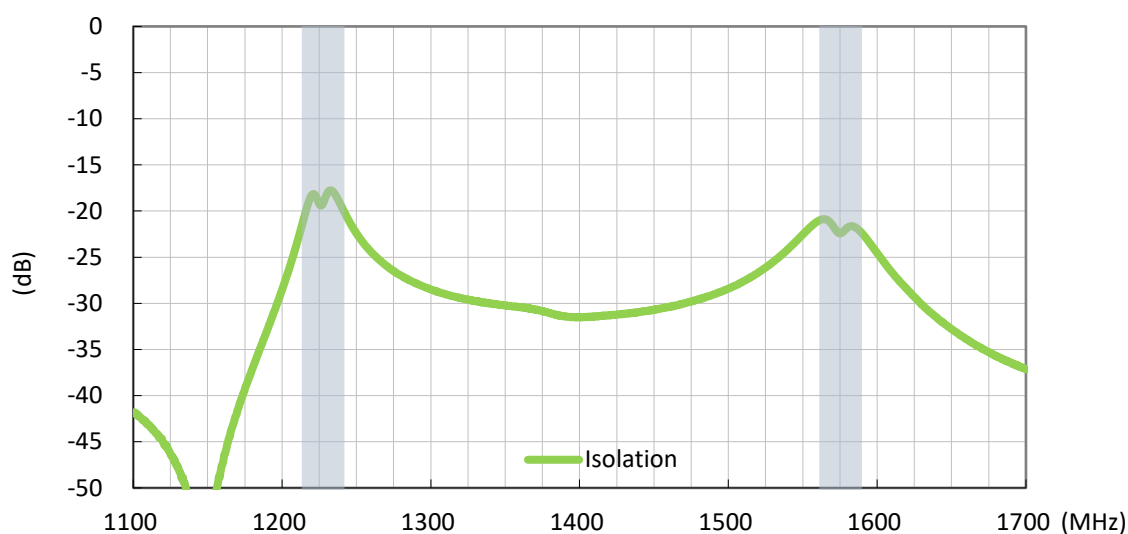
3.7 GPS L2 Axial Ratio vs Degrees



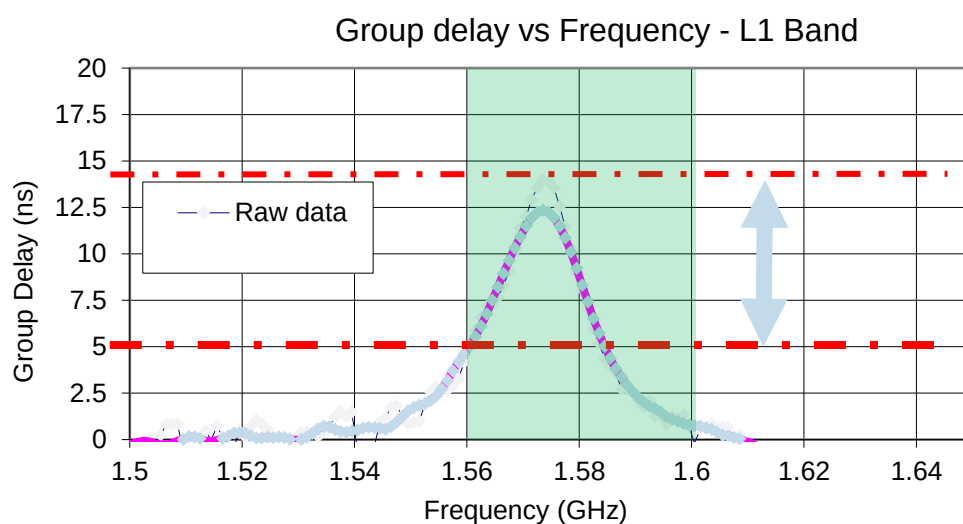
3.8 GPS L1 Axial Ratio vs Degrees



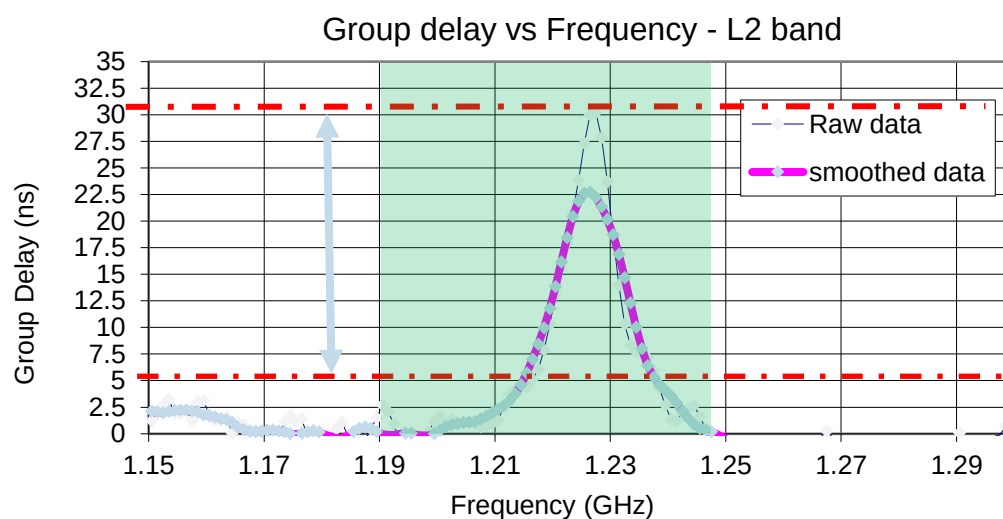
3.9 Isolation



3.10 Group Delay vs Frequency

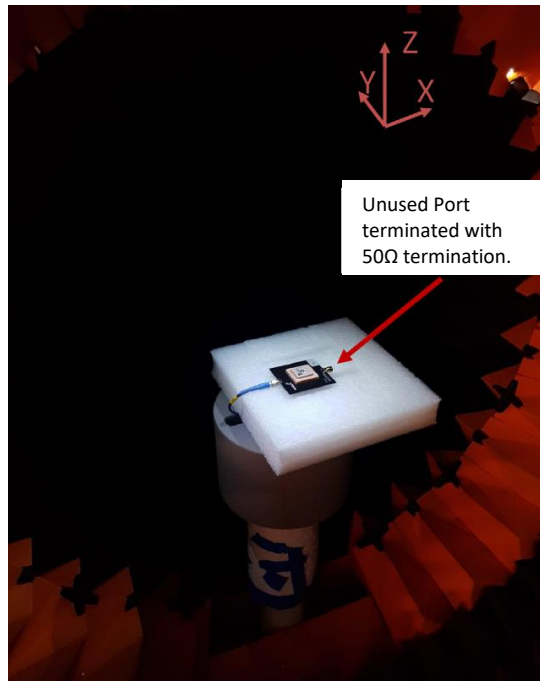


3.11 Group Delay vs Frequency

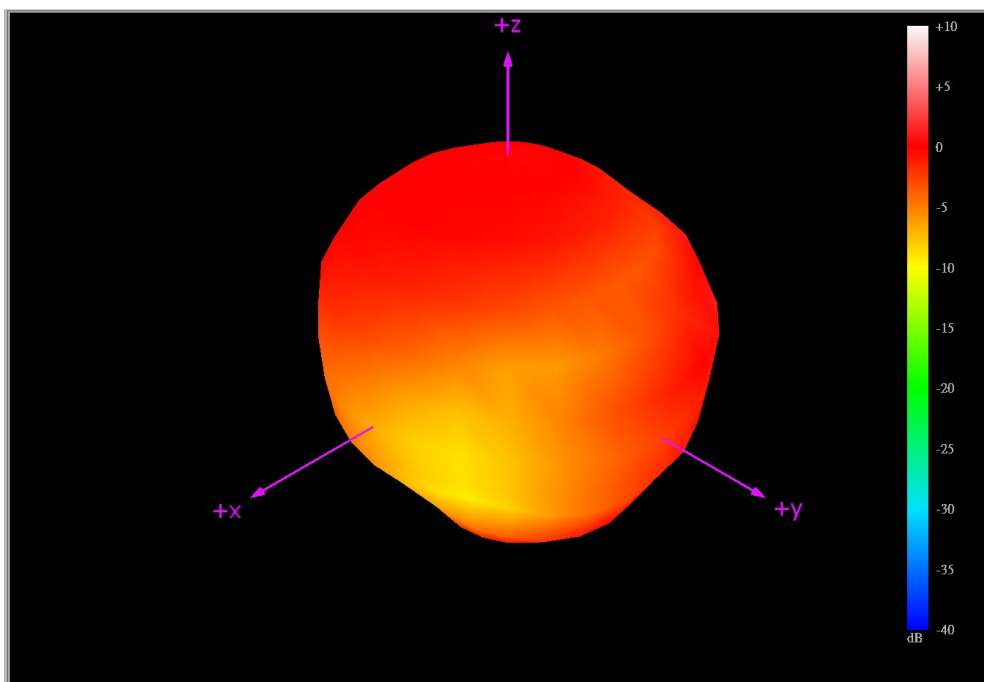


4. Radiation Patterns

4.1 Test Setup



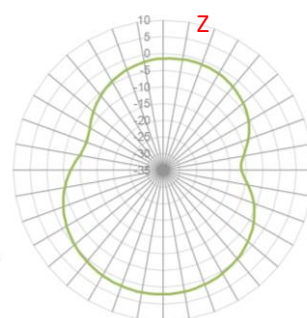
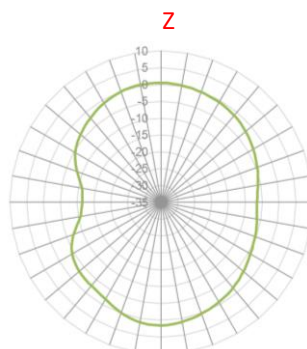
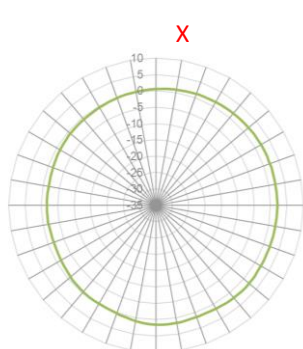
4.2 1227.6MHz 3D and 2D Radiation Patterns



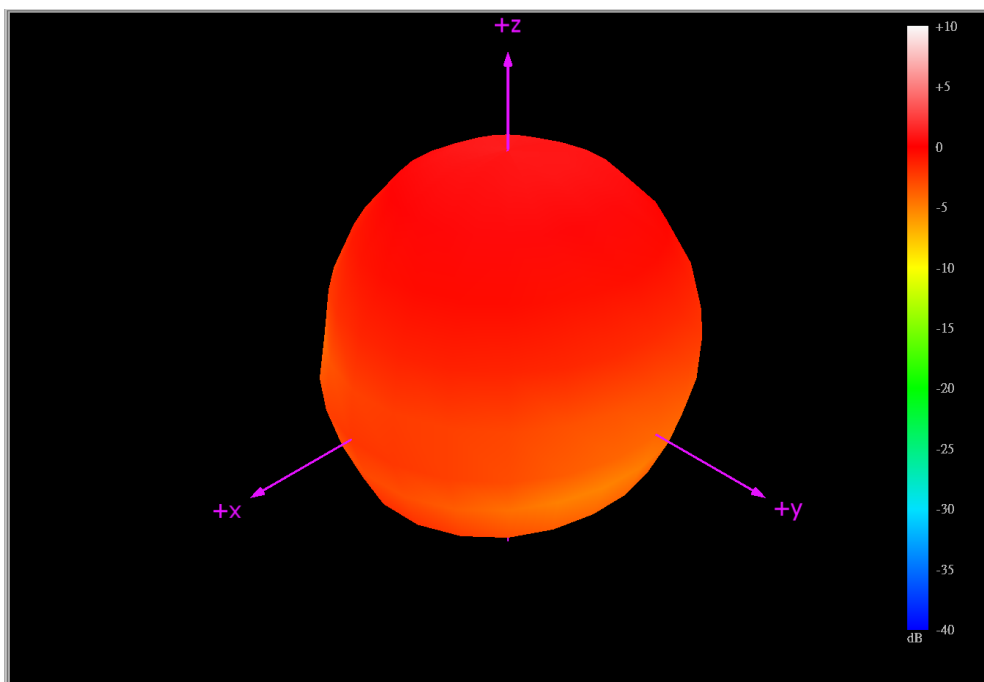
XY Plane

XZ Plane

YZ Plane



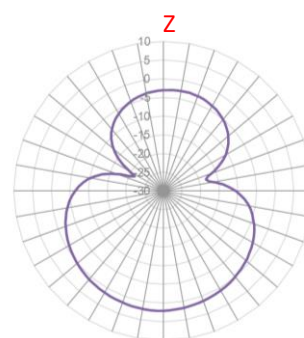
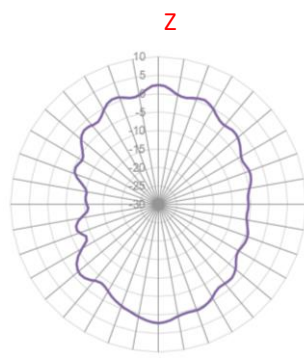
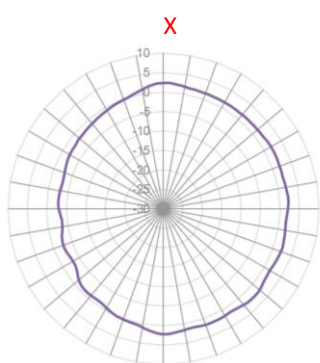
4.3 1575.42MHz 3D and 2D Radiation Patterns



XY Plane

XZ Plane

YZ Plane



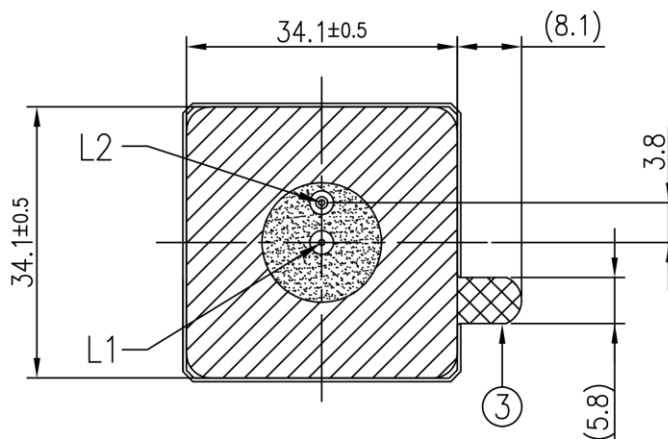
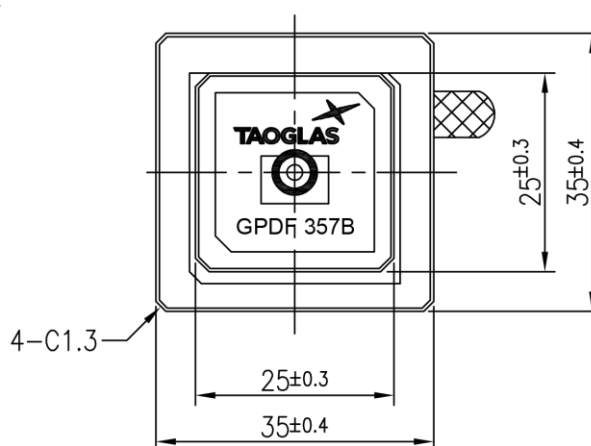
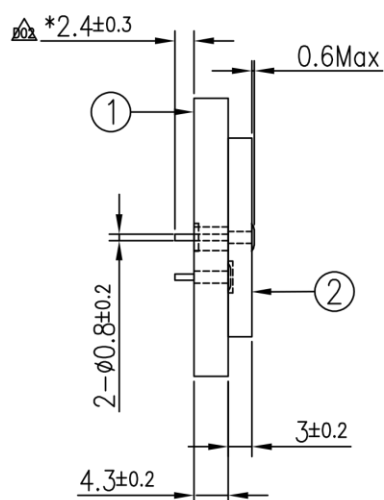
5. Mechanical Drawing (Units: mm)

ISO NO.: EDW-20-8-0150

STATE: Release

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

REV.	DESCRIPTION	ENG.	APPROVED	DATE
A01	Initial Design	Rachel Di	Clark	2020/02/27
B01	EC-21-08-010	Mickey	Buluto	2021/03/02



	Name	Material	Finish	QTY
1	Patch-1(35X35X4mm)	Ceramic	Clear	1
2	Patch-2(25X25X3mm)	Ceramic	Clear	1
3	Double sided Adhesive	NITTO 5000NS	White Liner	1

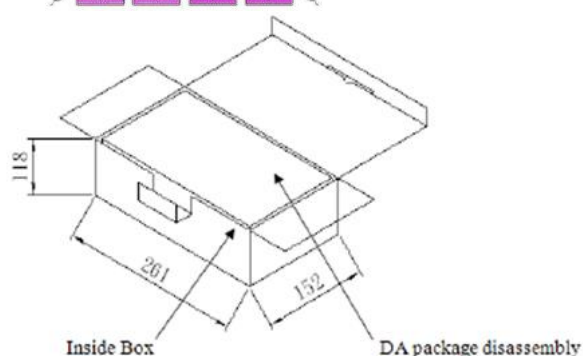
APPROVED BY: Clark	 TW Design Centre This drawing and its inherent design concepts are property of Taoglas. Not to be copied or given to third parties without the written consent of Taoglas.
CHECK BY: Aaron	
DRAWN BY: Rachel Di	
DATE: 2020/02/27	TITLE: GPS/GALILEO Dual Feed Stacked Patch Antenna L1:1575MHz L2:1227MHz 35*35*7mm tuned for 35*35 Ground
UNLESS OTHERWISE SPECIFIED TOLERANCES ON: $XX \pm 0.5$ $XX \pm 0.3$ $XX \pm 0.2$ $XX \pm 0.1$ $XX \pm 0.05$	PART NO.: GPDF357B
THIRD ANGLE PROJECTION 	UNIT: mm SCALE: 1.25:1 PAGES: 1/1 REV. D02

6. Packaging

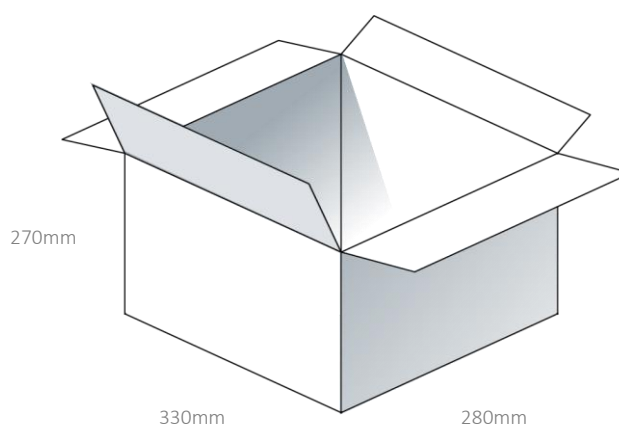
12pcs GPDF357B per Tray
Weight: 360g



72pcs GPDF357B per PE Bag and Inside Box
Dimensions: 261*152*118 mm
Weight: 3Kg



288pcs GPDF357B per carton
Dimensions - 330*280*270mm
Weight -12.4Kg



Changelog for the datasheet

SPE-20-8-062-A – GPDF357B

Revision: C (Current Version)

Date:	2022-02-21
Changes:	Updated GNSS Bands & Constellations Graphics
Changes Made by:	Cesar Sousa

Previous Revisions

Revision: B

Date:	2021-06-12
Changes:	Updated Pin Length to 2.4mm Updated Drawing
Changes Made by:	Dan Cantwell

Revision: A (Original First Release)

Date:	2020-05-29
Notes:	Initial Datasheet Release
Author:	Jack Conroy



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