



Datasheet

GNSS+IRNSS Stacked Patch Antenna

Part No:
GPVSF.25.8.A.08

Description:

GPS L1 & L5 / IRNSS Single Feed Stacked Patch Antenna

Features:

GPS L1 & L5 Band Operation
L1: 1575MHz and L5: 1176.45MHz
IRNSS Band Compatible
Low Axial Ratio
Dimensions: 25*25*8.12mm
RoHS & REACH Compliant

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1. Introduction



The Taoglas GPVSF.25.8.A.08, with Taoglas Sure Technology, is a multi-band GPG and IRNSS, high-performance directional antenna for high precision GPS accuracy and fast positioning. Integration of IRNSS allows for better navigation accuracy and enables compliance with AIS-140 for tracking devices in use in India.

Typical applications include:

- :: UAVs and Robotics
- :: Marine
- :: RTK
- :: Transportation
- :: Agriculture
- :: Autonomous Vehicles
- :: Navigation

This compact antenna exhibits excellent radiation patterns and has a low noise figure to preserve signal quality to help with fast first time to fix speeds.

It has been tuned and tested on a 70 x 70 mm ground plane, working at GPS / IRNSS L1 and L5 bands. Patch antennas can be specifically 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.

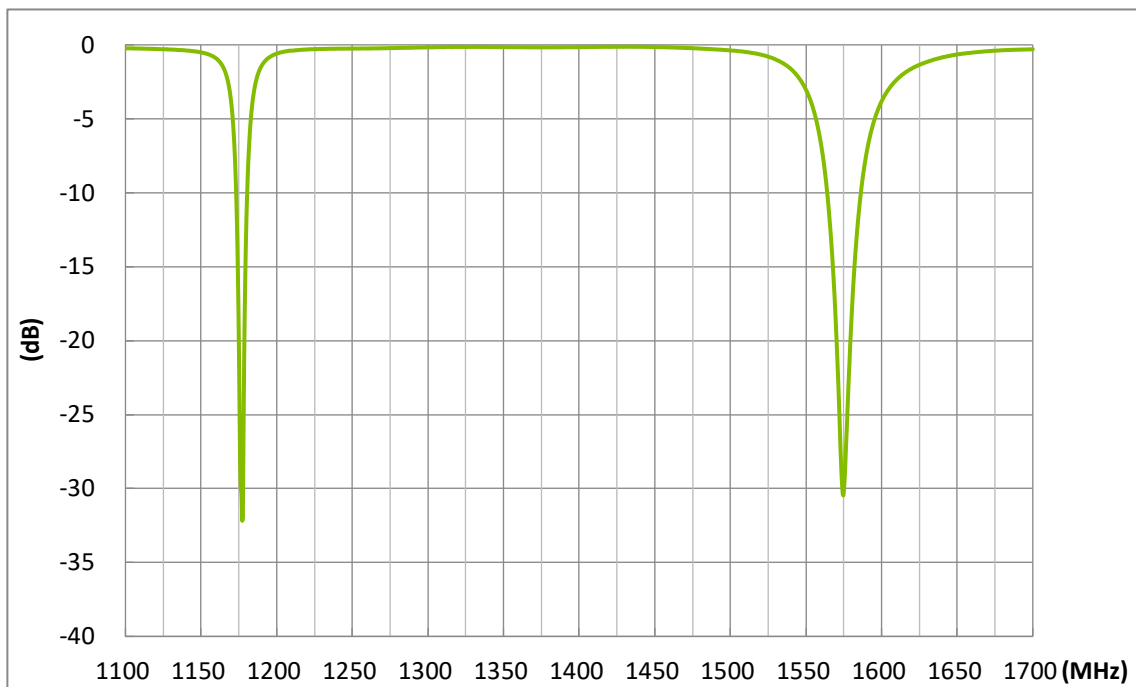
2. Specifications

GNSS Frequency Band							
GPS/QZSS	L1 1575.42MHz	L2 1227.6MHz	L5 1176.45MHz	L6 1278.75MHz			
	■	□	■	□			
GLONASS	L5R 1176.45MHz	L3PT 1201.5MHz	L2PT 1246MHz	L1CR 1575.42MHz	L1PT 1602MHz		
	■	□	□	■	□		
Galileo	E5a 1176.45MHz	E5b 1201.5MHz	E4 1215MHz	E3 1256MHz	E6 1278.75MHz	E2 1561MHz	E1 1575.42MHz
	■	□	□	□	□	□	■
BeiDou	B1 1561MHz	B2 1207.14MHz	B3 1268.52MHz				
	□	□	□				
Compass	E5B(B2)/ E6(B3) 1268.56MHz	E2(B1) 1561MHz					
	□	□					
SBAS	Omnistar 1542.5MHz	WAAS/EGN OS 1575.42MHz					
	□	■					

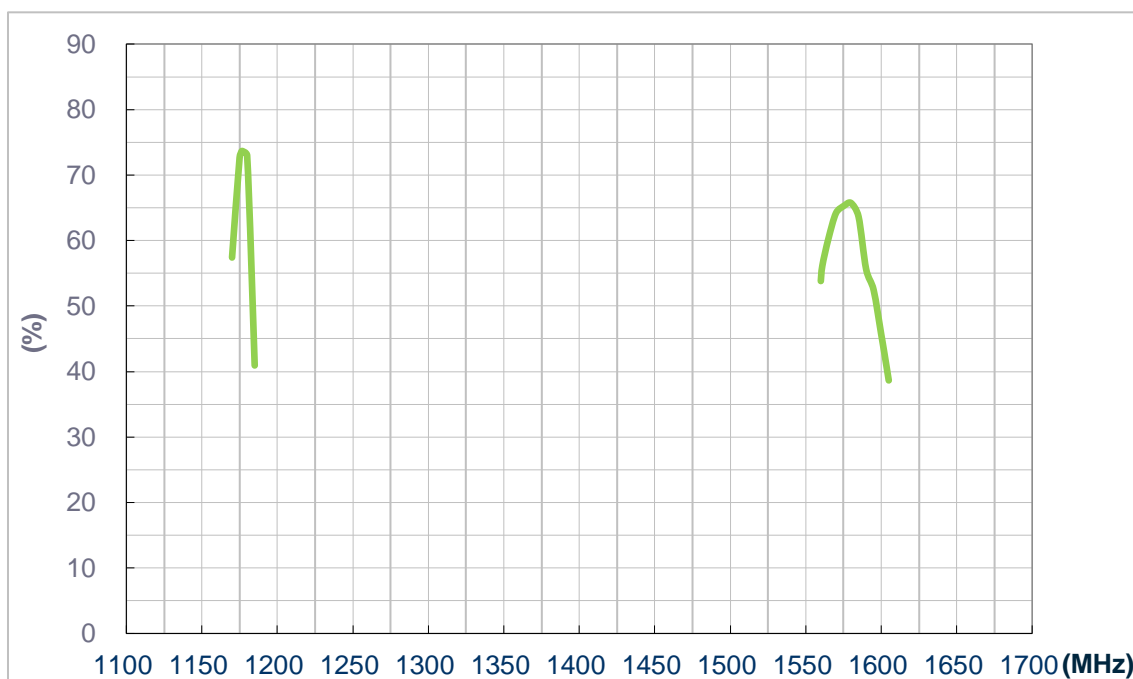
Electrical		
Centre Frequency (MHz)	1176 (L5/IRNSS)	1575.42 (L1/GNSS)
Peak Gain (dBi)		
With Ground plane(70x70mm)	3.85	3.55
Average Gain (dB)		
With Ground plane(70x70mm)	-2.56	- 3.03
Efficiency (%)		
With Ground plane(70x70mm)	73.67	65.31
Axial Ratio(dB)		
With Ground plane(70x70cm)	1.68	1.13
Impedance	50Ω	
Polarization	Linear	
Radiation Pattern	Directional	
Input Power	50 W	
Mechanical		
Dimension	25*25*8 mm	
Material	Ceramic	
Pin external length	2.4 ± 0.3 mm	
Environmental		
Temperature Range	-40°C to 85°C	
Humidity	Non-condensing 65°C 95% RH	

3. Antenna Characteristics

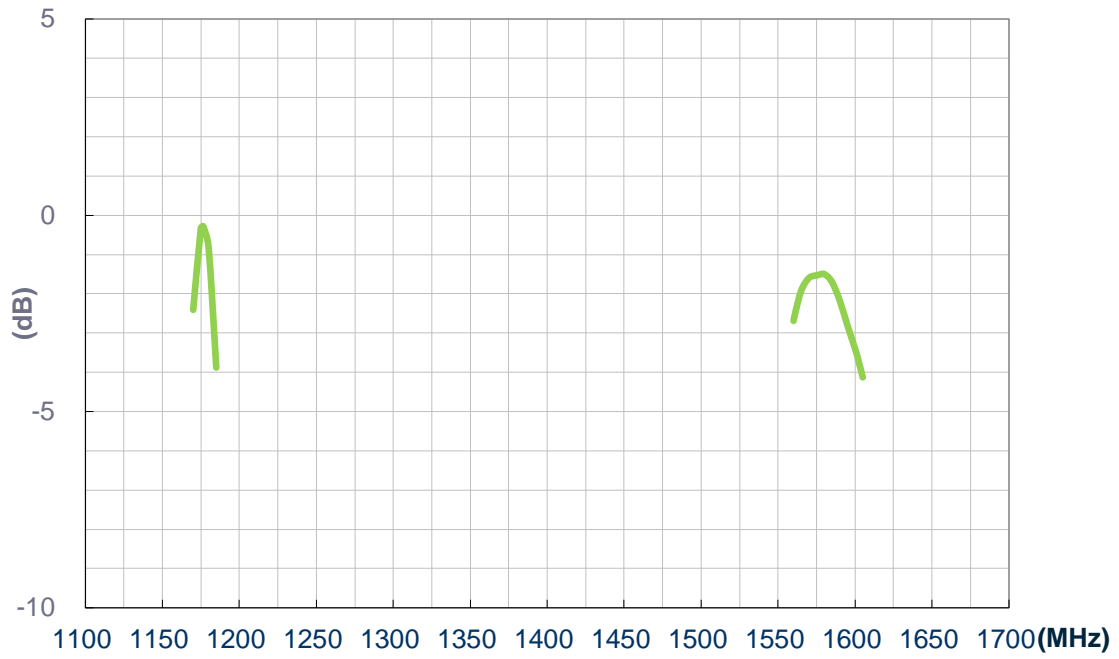
3.1 Return Loss



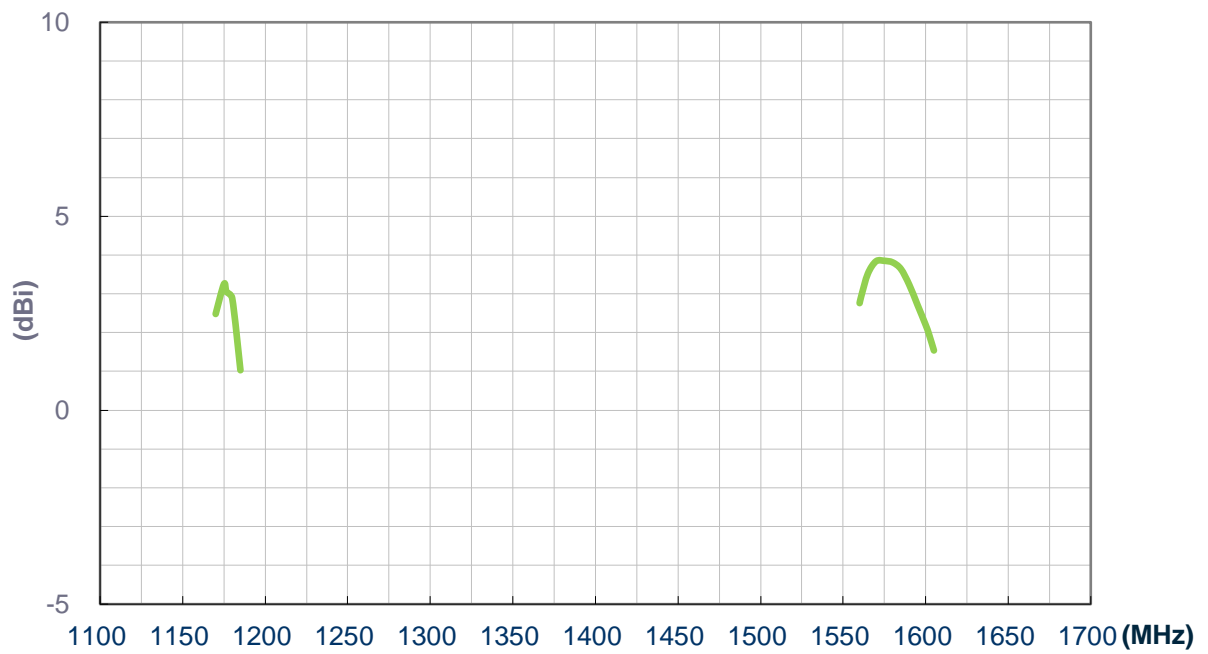
3.2 Efficiency



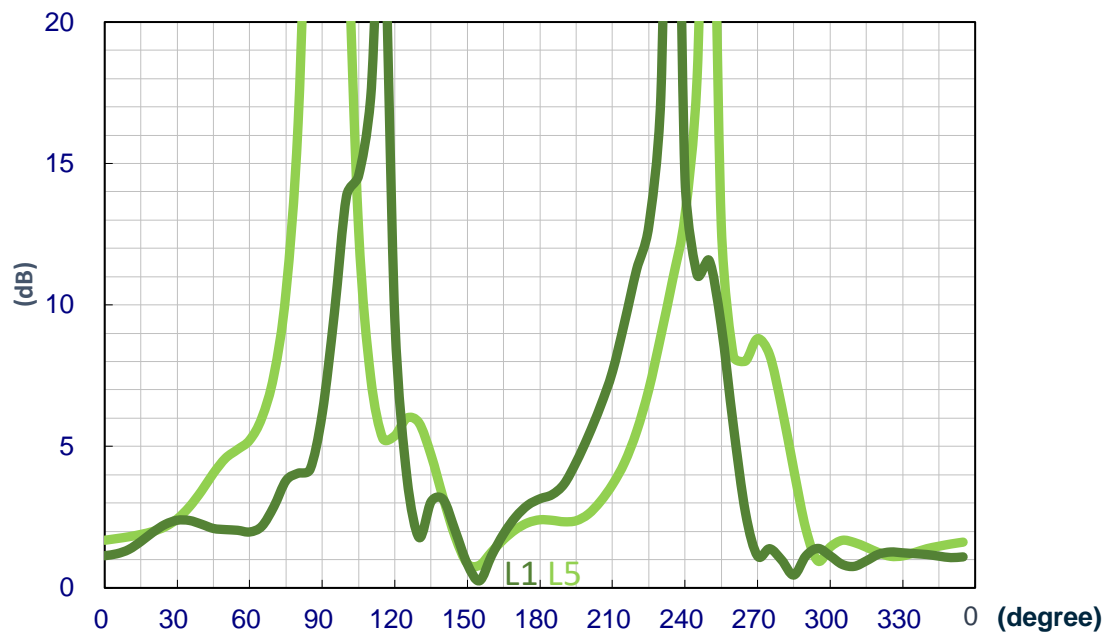
3.3 Average Gain



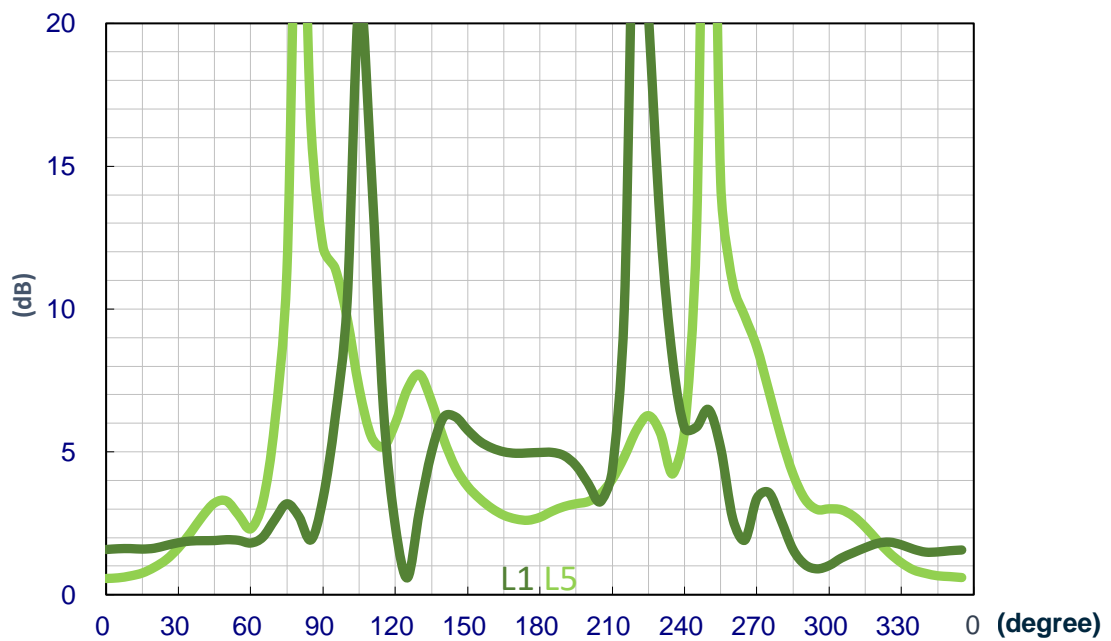
3.4 Peak Gain



3.5 Axial Ratio XZ



3.6 Axial Ratio YZ



4. 2D Radiation Patterns

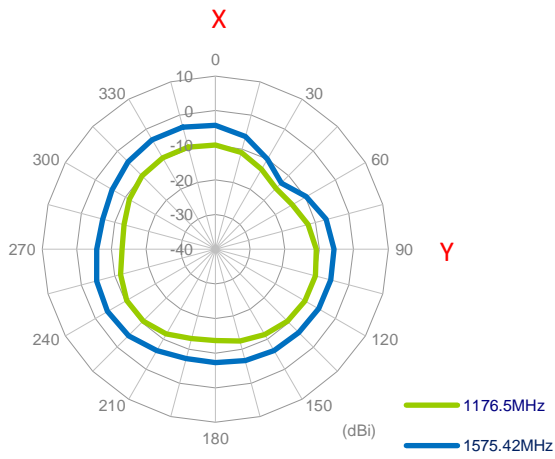
4.1 Test Setup



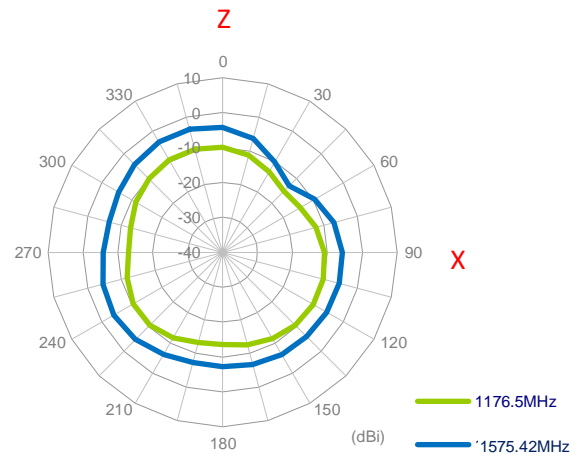
On Evaluation Board

4.2 2D Radiation Patterns

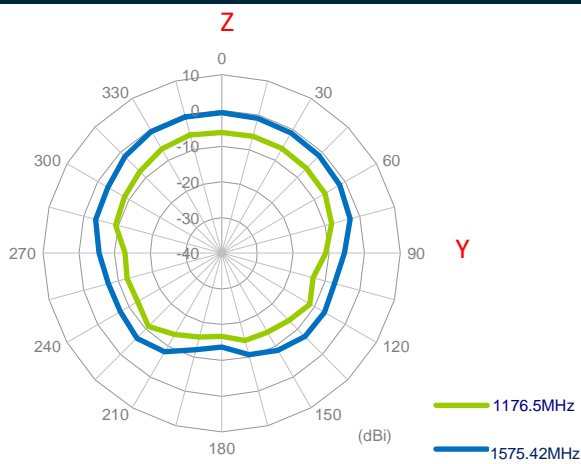
XY Plane



XZ Plane

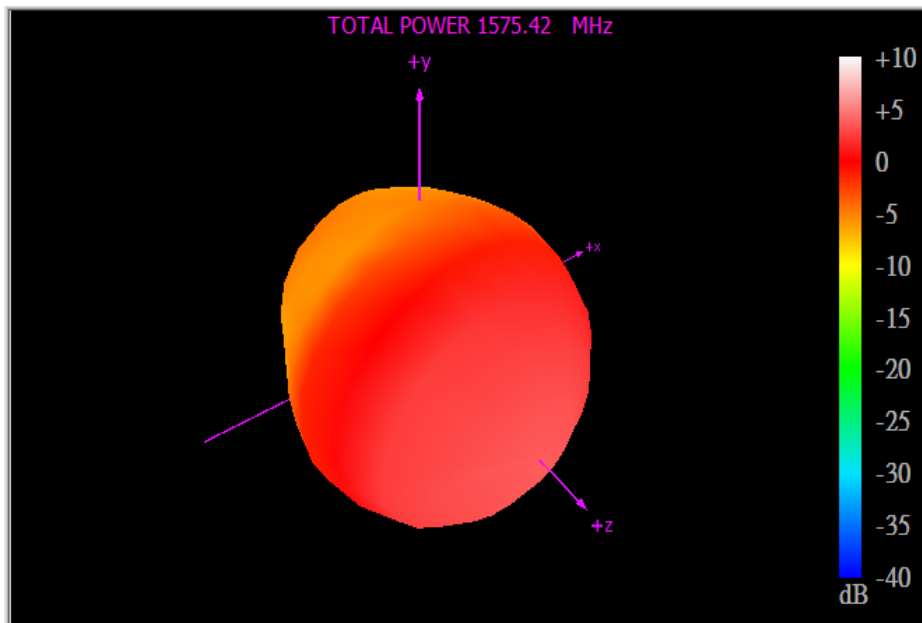
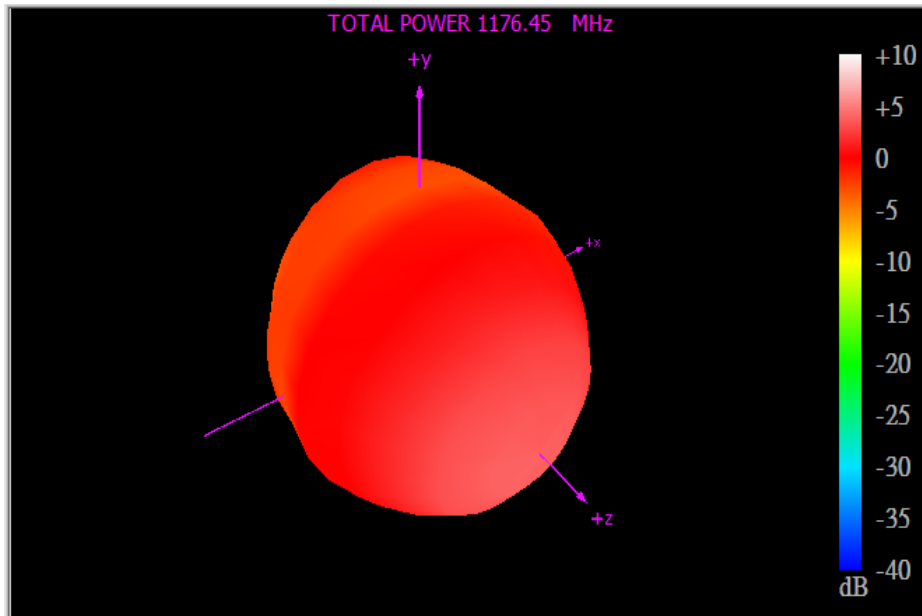


YZ Plane



5. 3D Radiation Patterns

5.1 Free Space



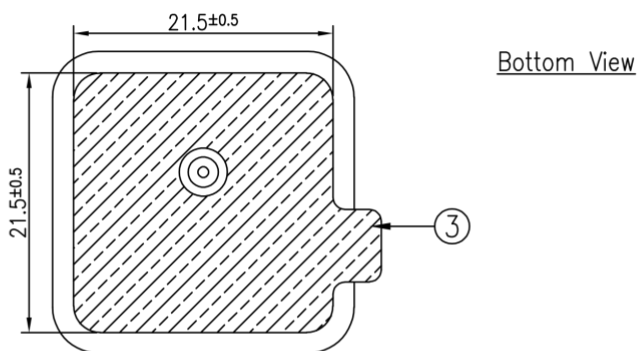
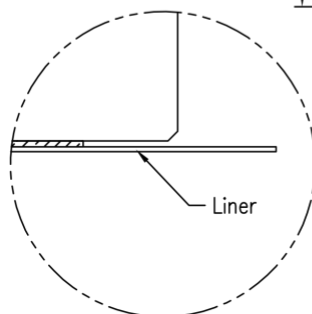
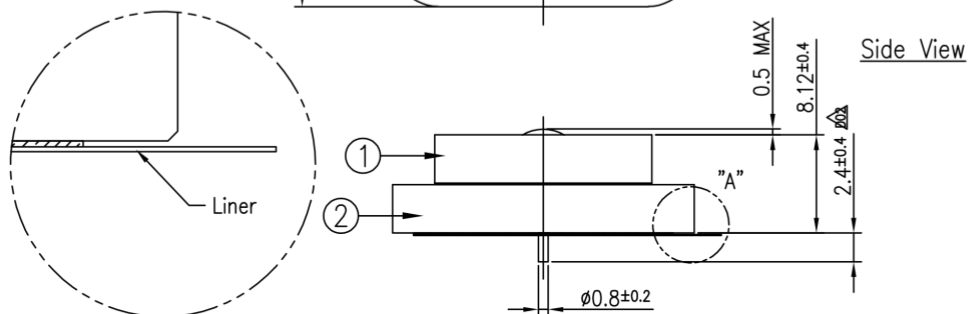
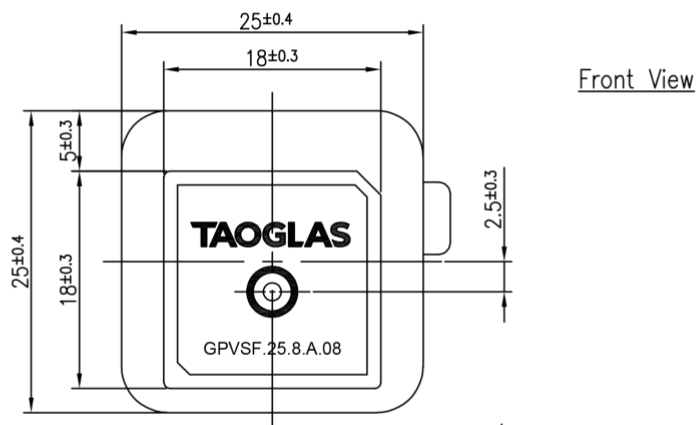
6. Mechanical Drawing (Units: mm)

ISO NO.: EDW-19-8-0303

STATE: Release

NOTES: 1. Double Sided Adhesive Area 2. Soldermask Area

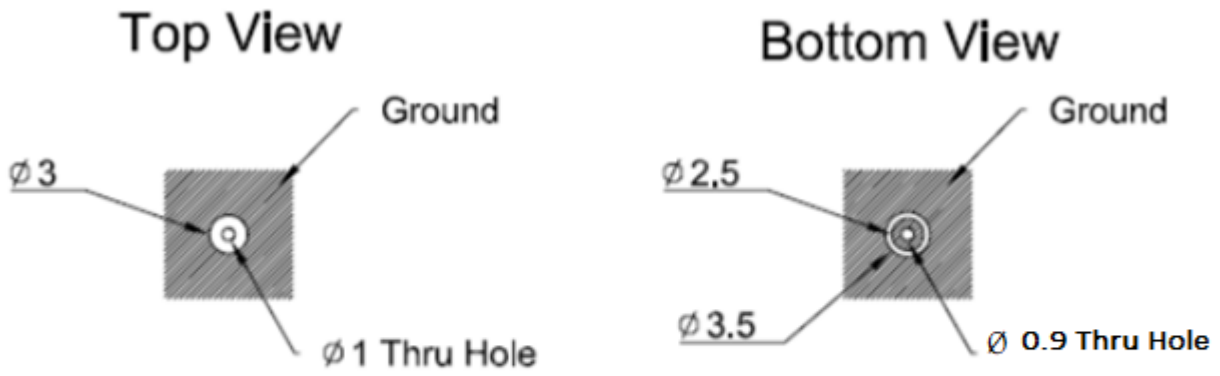
REV.	DESCRIPTION	ENG.	APPROVED	DATE
01	Initial Design	Tony	Buluto	2019/02/25
02	EC-21-08-010	Mickey	Buluto	2021/03/02



	Name	P/N	Material	Finish	QTY
1	Patch(18*18*)	01348CM00x00D	Ceramic	Clear	1
2	Patch(25*25*)	01348CM00x00D	Ceramic	Clear	1
3	Double sided Adhesive	01348CM00x00D	NTTD 5015	White Liner	1

APPROVED BY: Buluto	 <small>TW Design Centre</small> 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: Tony/Joey	
DRAWN BY: Eva Liang	
DATE: 2019/02/25	
UNLESS OTHERWISE SPECIFIED TOLERANCES ON:	XX±0.5 X±0.3 .XX±0.2 .XX±0.1 .XXX±0.05
THIRD ANGLE PROJECTION	TITLE : GPS Single Feed Stacked Patch Antenna L1:1575MHz L5:1176.45MHz 25*25*8mm PART NO. : GPVSF.25.8.A.08 UNIT: mm SCALE: 2:1 PAGES: 1/1 REV. D02

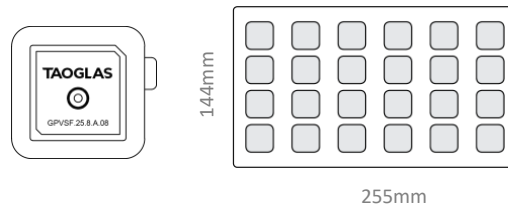
7. Footprint



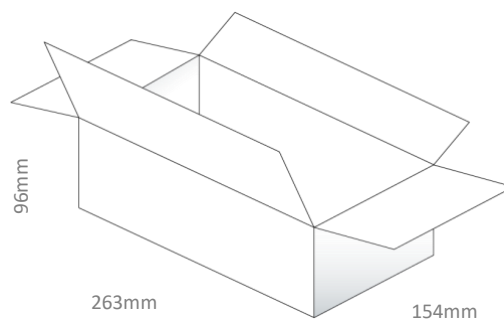
Tolerance: +/- 0,20
Unit:mm

8. Packaging

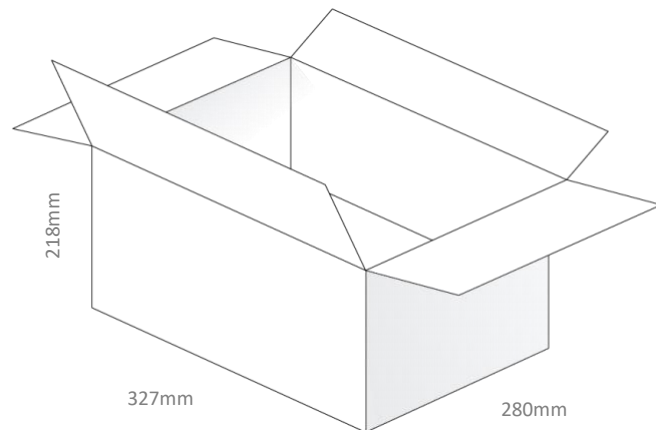
24pcs GPVSF.25.8.A.08 per Tray
 Tray Dimensions: 255*144*8mm
 Weight: 0.460Kg



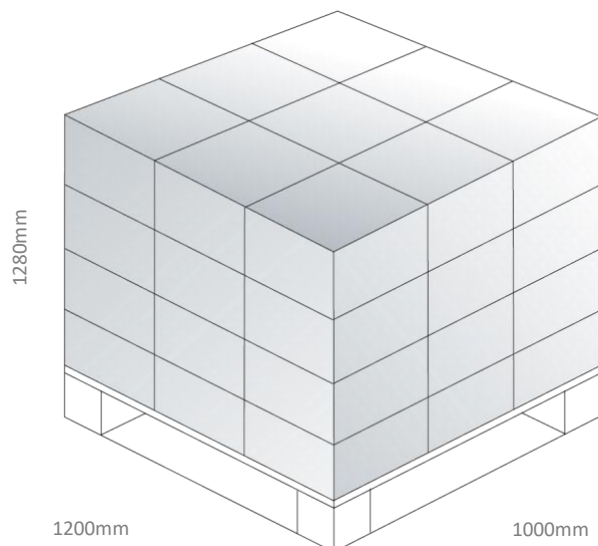
96pcs GPVSF.25.8.A.08 per Inner Carton
 Dimensions: 263*154*96mm
 Weight: 2Kg



384pcs GPVSF.25.8.A.08 per Large Carton
 Dimensions: 327*280*218mm
 Weight: 9Kg



Pallet Dimensions:
 1200*1000*1280mm
 36 Cartons Per Pallet
 9 Cartons Per Layer, 4 Layers



Changelog for the datasheet

SPE-19-8-064 - GPVSF.25.8.A.08

Revision: B (Current Version)	
Date:	2021-06-19
Changes:	Updated Pin Length to 2.4mm Updated Drawing
Changes Made by:	Dan Cantwell

Previous Revisions

Revision: A (Initial Launch)	
Date:	2019-05-17
Changes:	Initial Draft Specification
Changes Made by:	Jack Conroy