



TAOGLAS®



Datasheet

GPS & BeiDou Stacked Patch Multi-Band Antenna

Part No:
GPVBSF.25.8.A

Description:

GPS L1 / L5 & BeiDou B1 Single Feed Stacked Patch Antenna

Features:

Single Feed Stacked Patch Assembly

Covering Bands

- GPS L1 & L5
- BeiDou B1

Low Axial Ratio

Pin Mount

Dimensions: 25*25*8.12mm

RoHS & REACH Compliant

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1. Introduction



The GPVBSF.25.8.A, with Taoglas Sure Technology, is a multi-band GPS, BeiDou/Compass and IRNSS, high-performance directional antenna for high precision GPS and BeiDou accuracy and fast positioning. It utilizes a 25*25*8mm advanced wide-band dual stacked ceramic patch antenna with optimized gain for GPS L1/L5, Galileo and BeiDou bands.

Typical Applications Include:

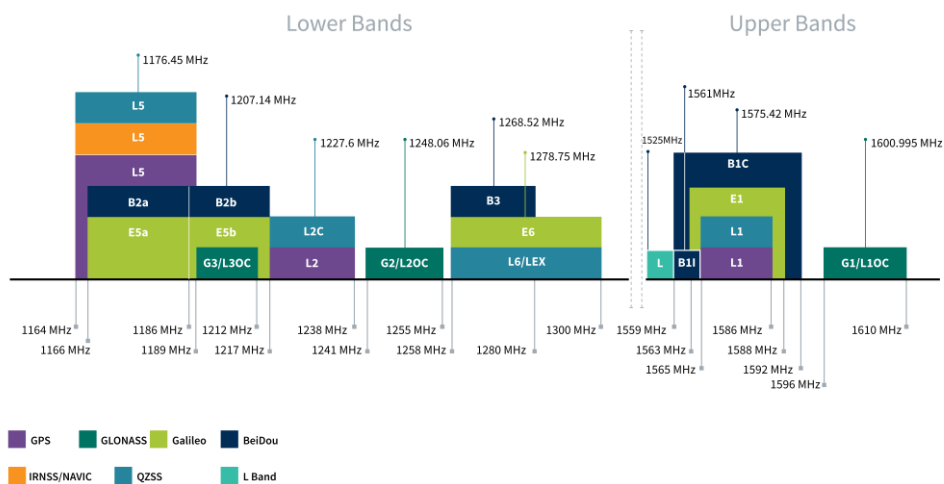
- RTK
- Navigation
- Wearables
- Security
- Transportation
- Autonomous Vehicles
- Agriculture

The GPVBSF.25.8.A has been tuned and tested on a 70 x 70 mm ground plane and exhibits excellent radiation patterns.

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 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

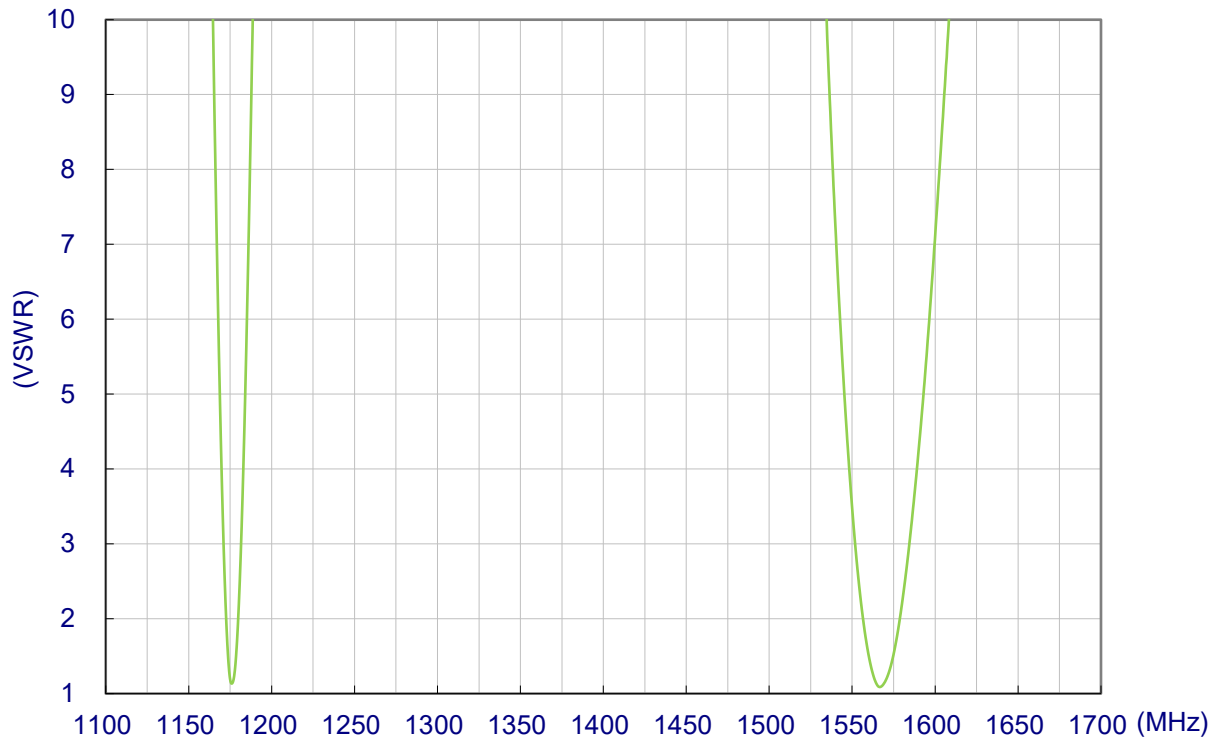
GNSS Electrical			
Frequency (MHz)	1176.45	1561	1575.42
VSWR (max.)	2:1	2:1	2:1
Efficiency (%)	60.8	63.9	59.6
Peak Gain(dBi)	2.5	3.4	3.1
Average Gain(dB)	-3	-2	-2.3
Polarization	R.H.C.P.		

Mechanical	
Planner Dimension	25 x 25 x 8mm
Weight	18g
Ground Plane	70*70mm
Connection Type	Pin & Adhesive Mount

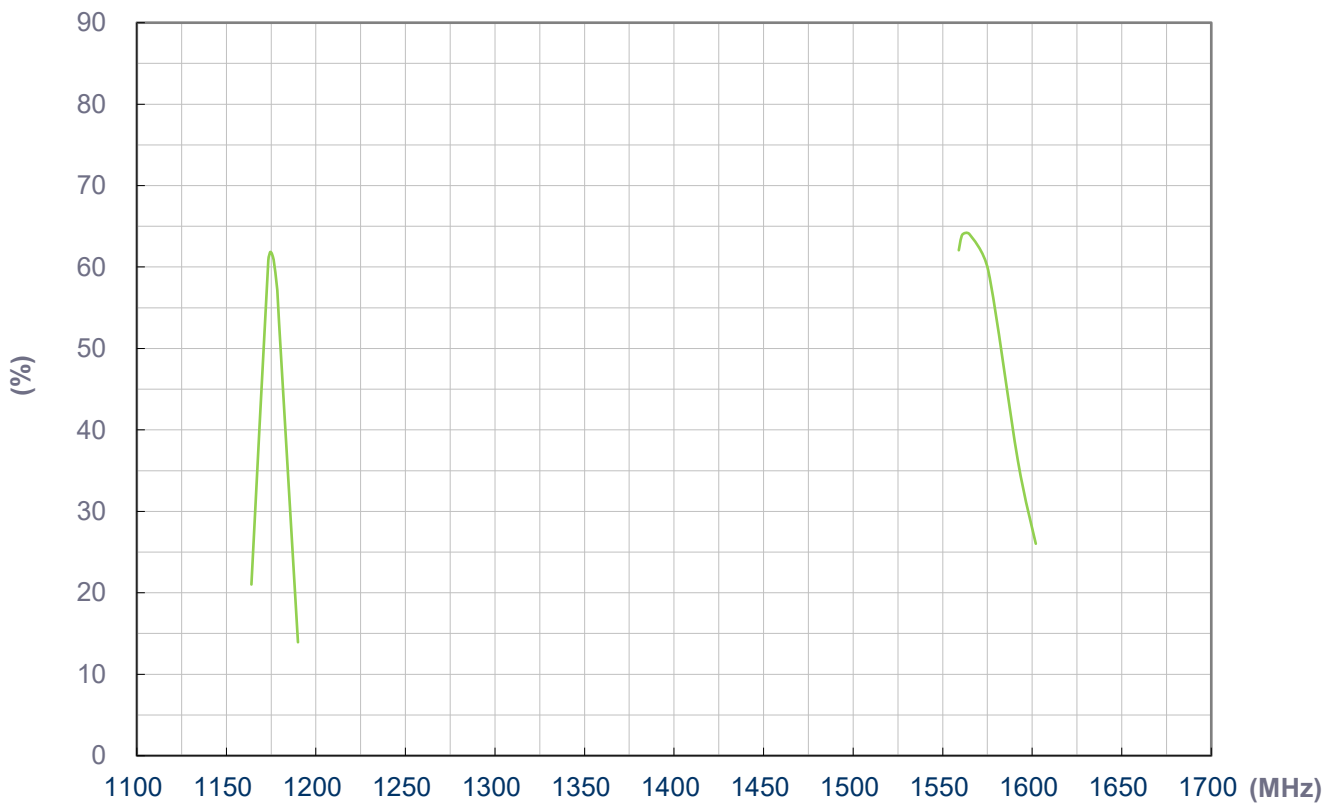
Environmental	
Temperature Range	-40°C to 85°C
Humidity	Non-condensing 65°C 95% RH

3. Antenna Characteristics

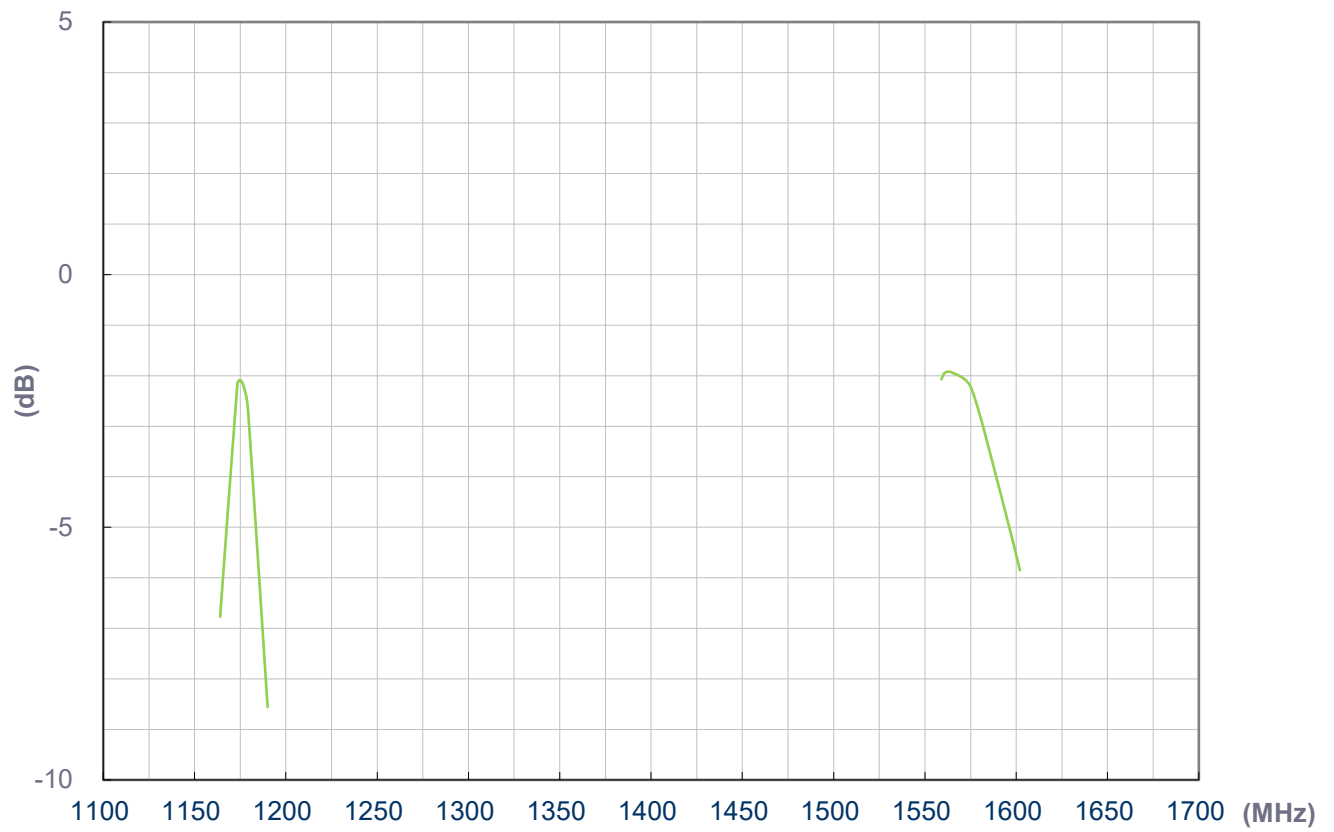
3.1 VSWR



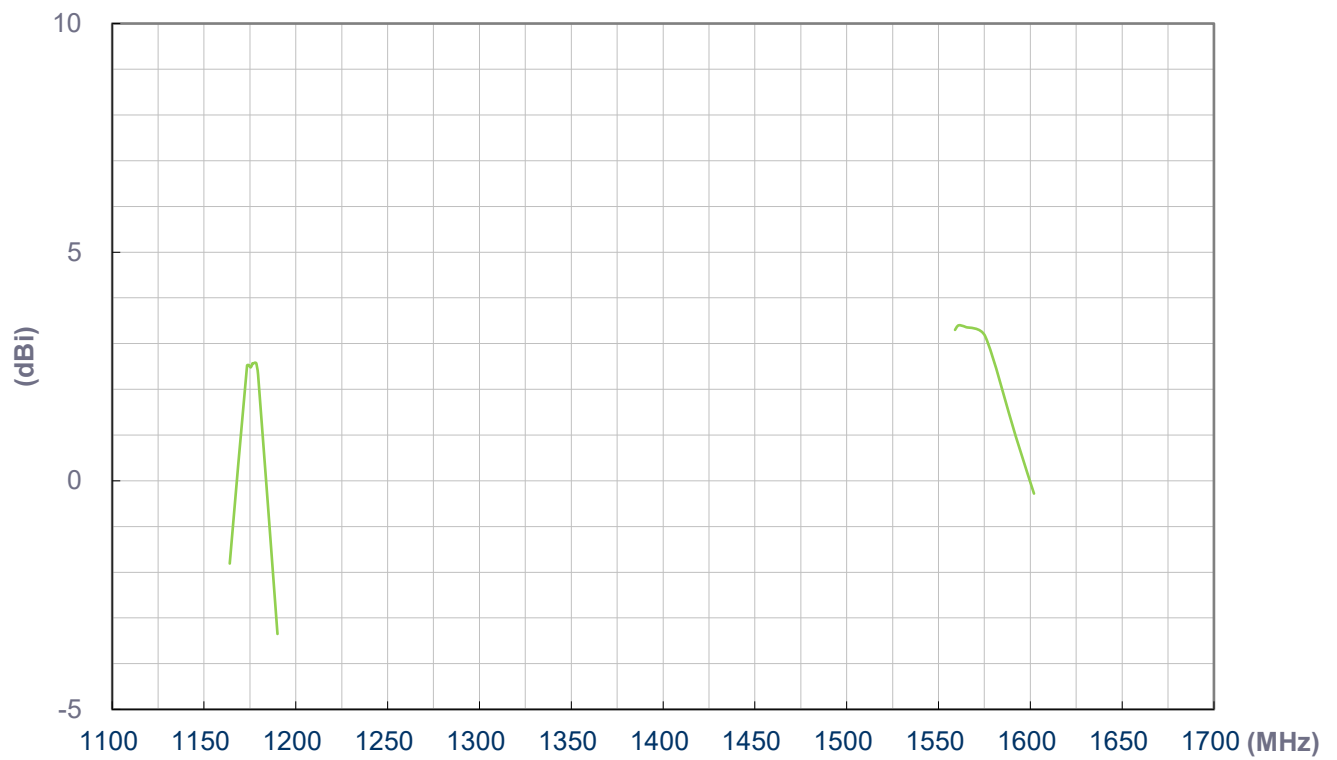
3.2 Efficiency



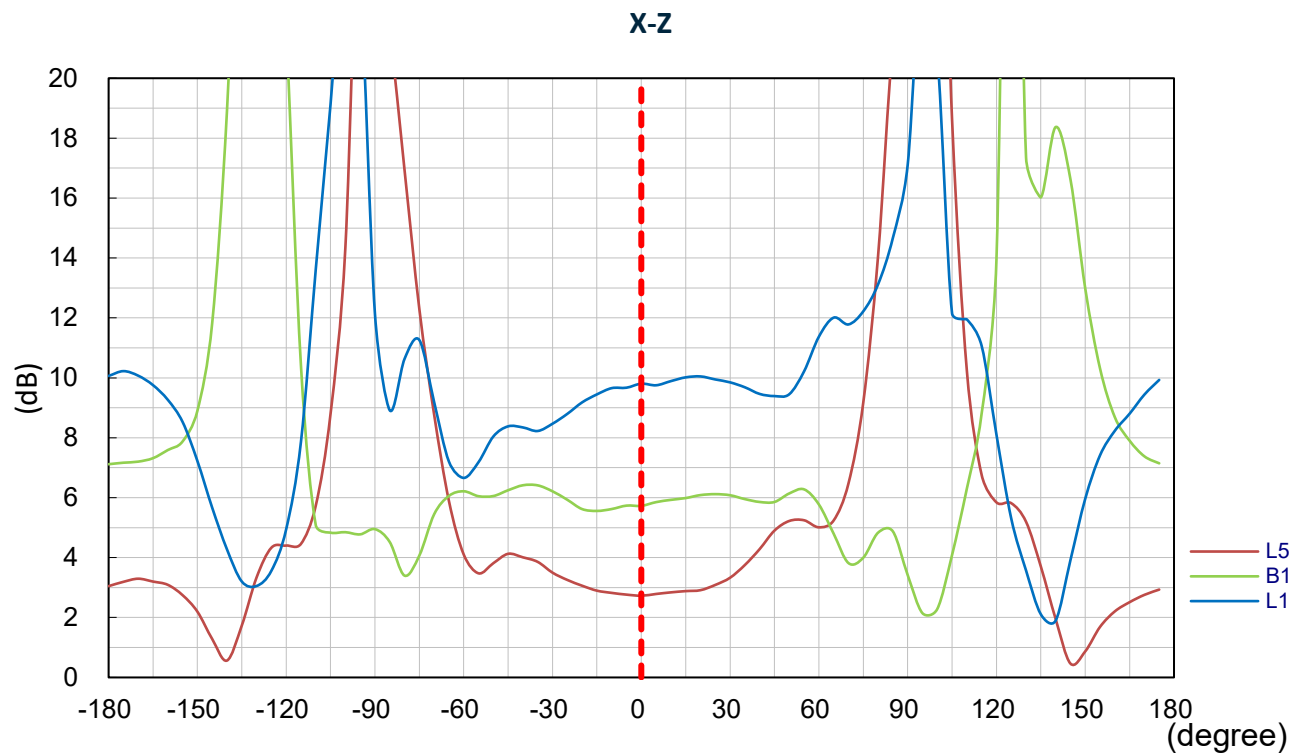
3.3 Average Gain



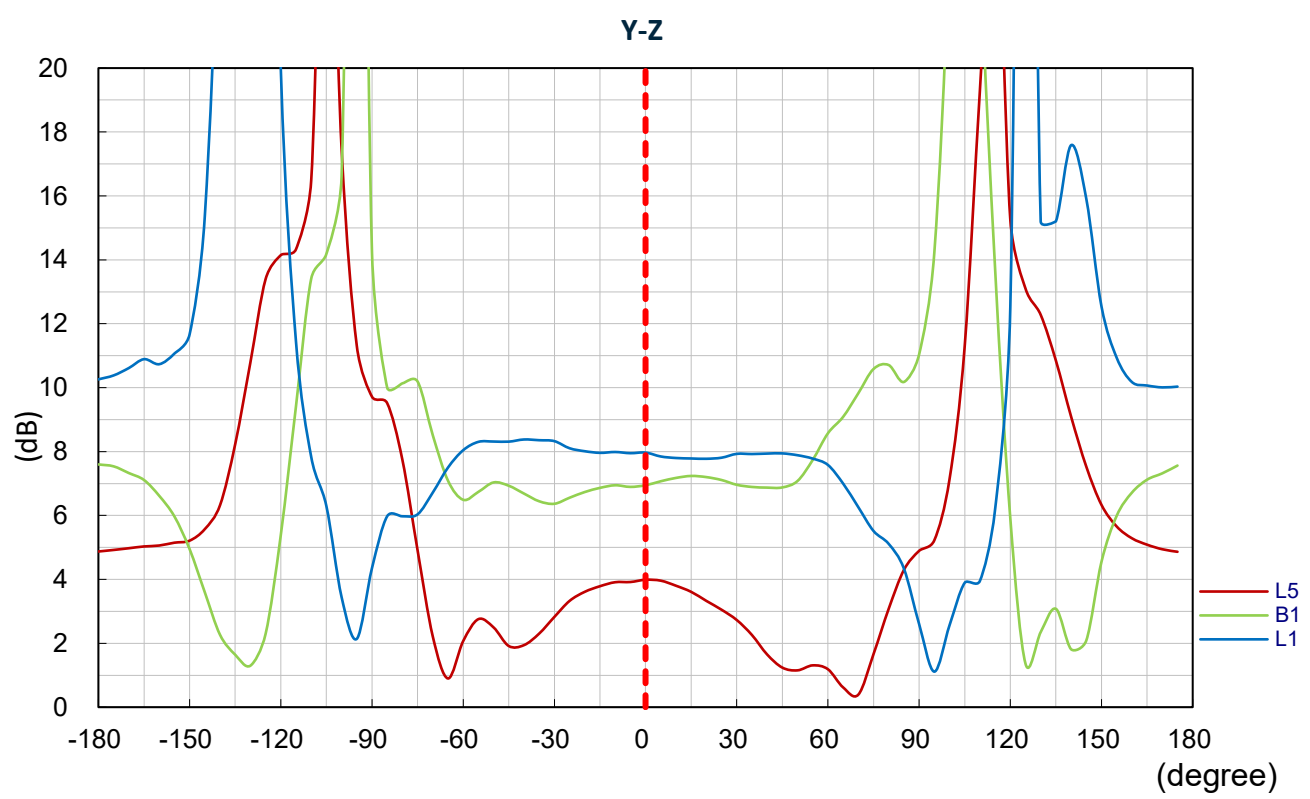
3.4 Peak Gain



3.5 Axial Ratio – X-Z

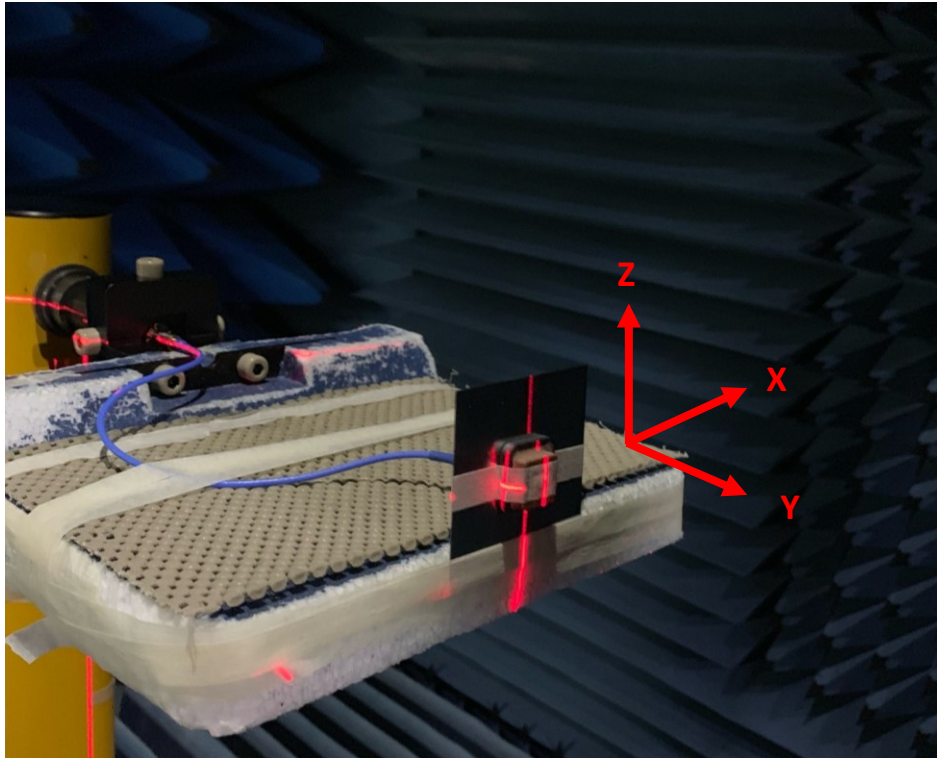


3.6 Axial Ratio – Y-Z



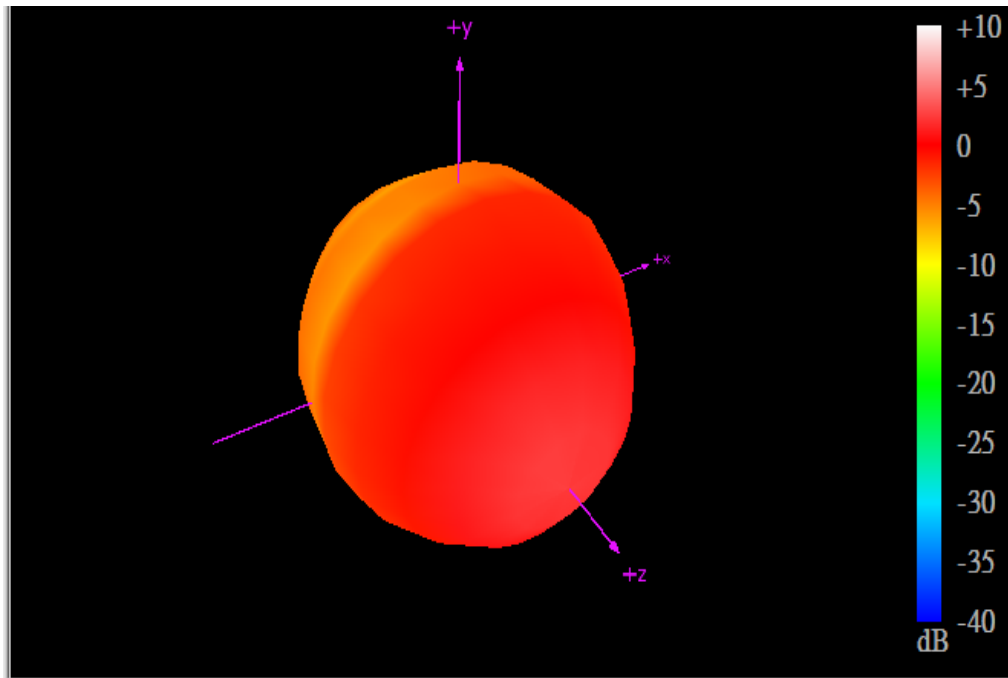
4. Radiation Patterns

4.1 Test Setup



Tested on 70*70mm Ground Plane Evaluation Board

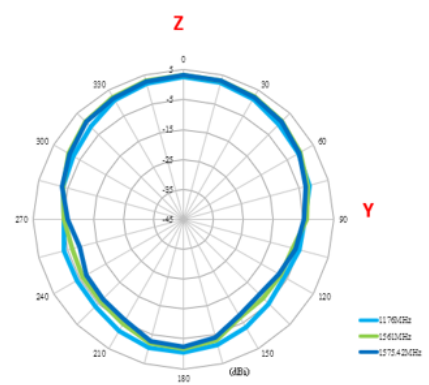
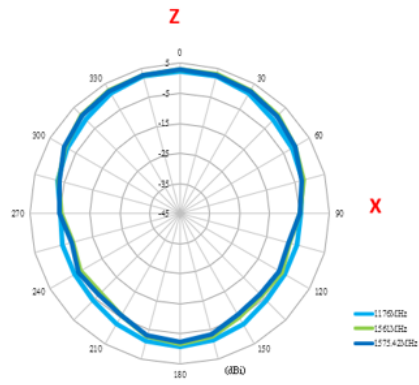
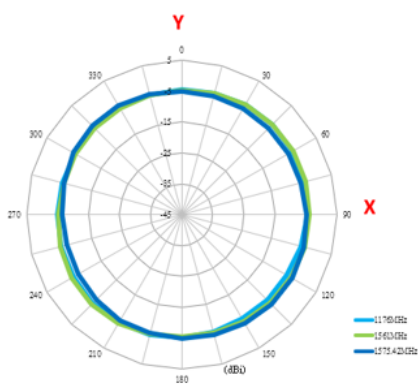
4.2 1176.45MHz - 2D & 3D Radiation Patterns



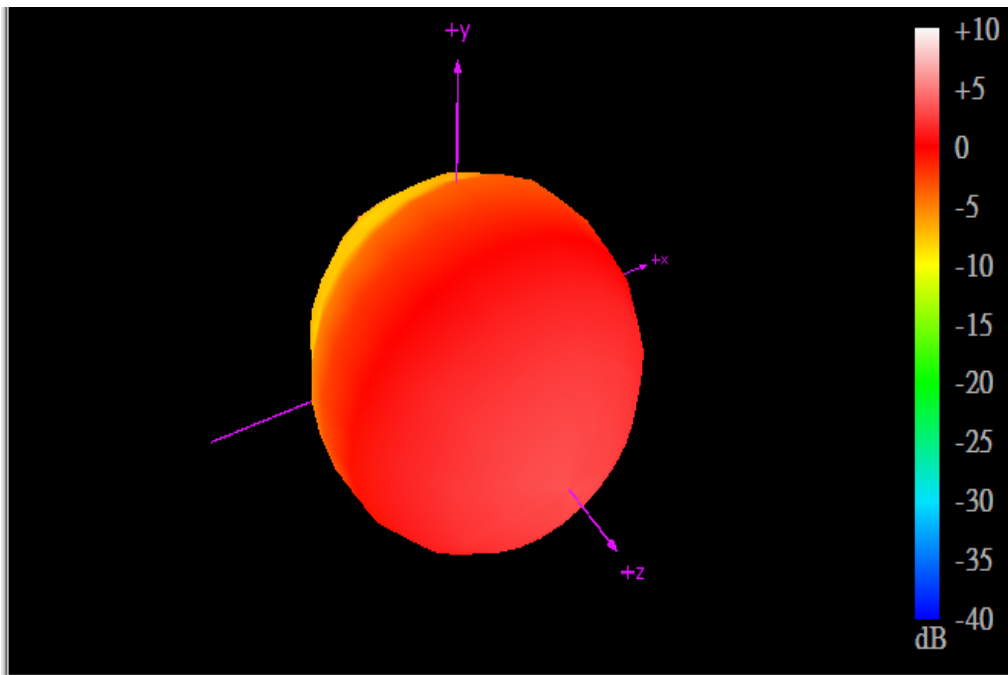
XY Plane

XZ Plane

YZ Plane



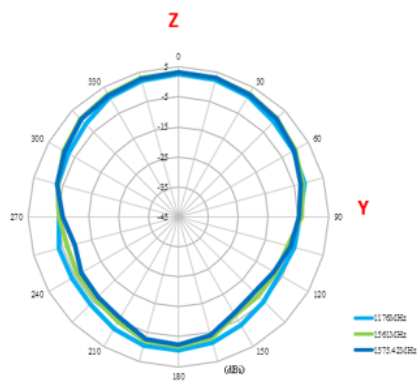
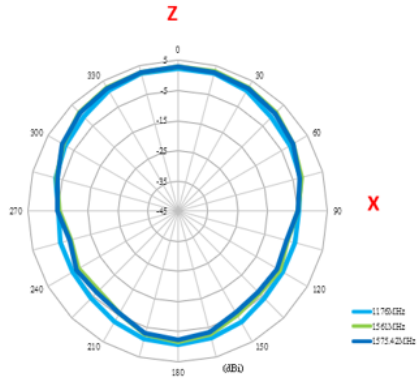
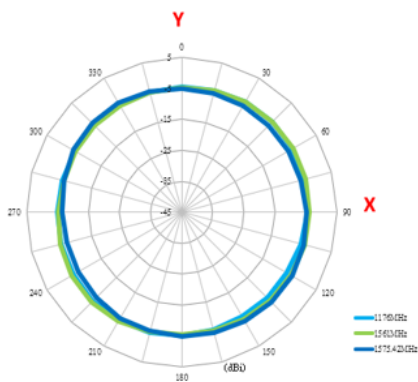
1561MHz



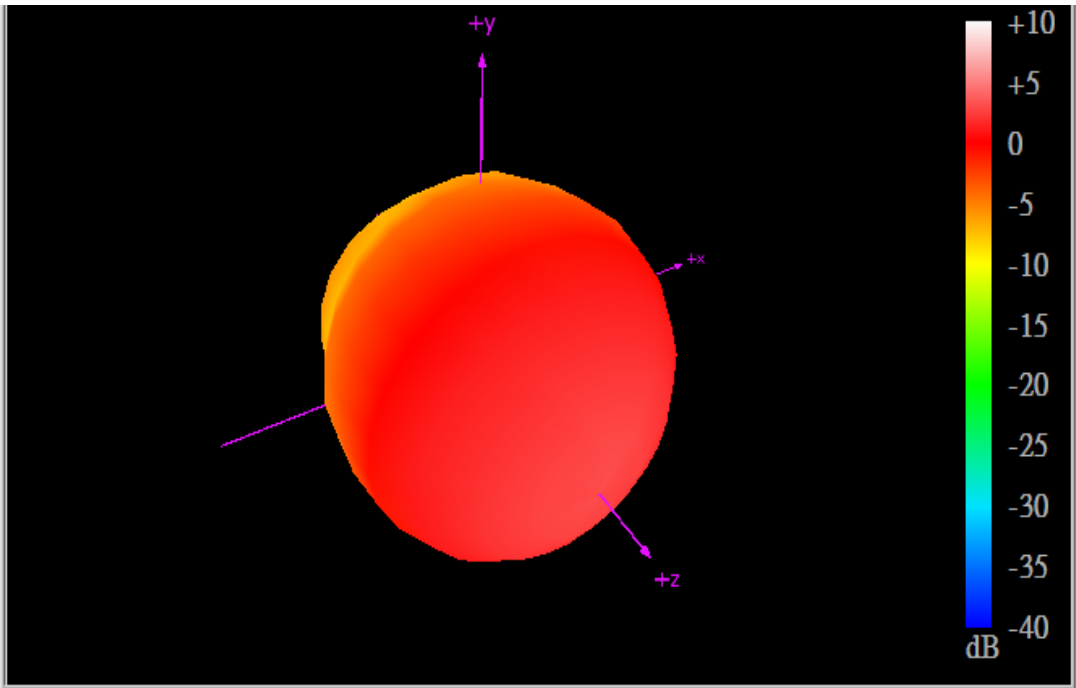
XY Plane

XZ Plane

YZ Plane



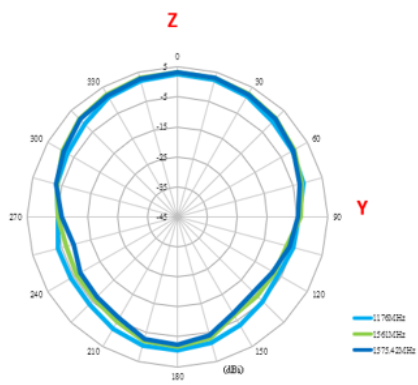
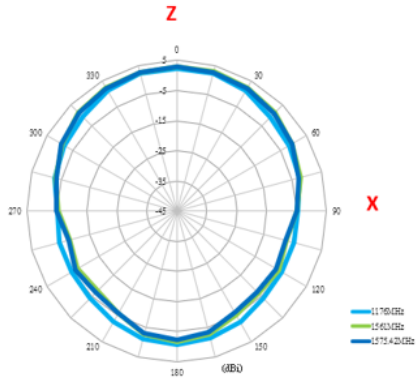
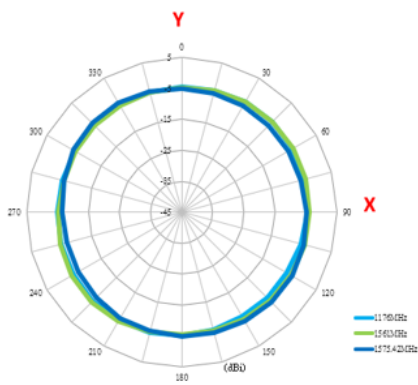
1575.42MHz



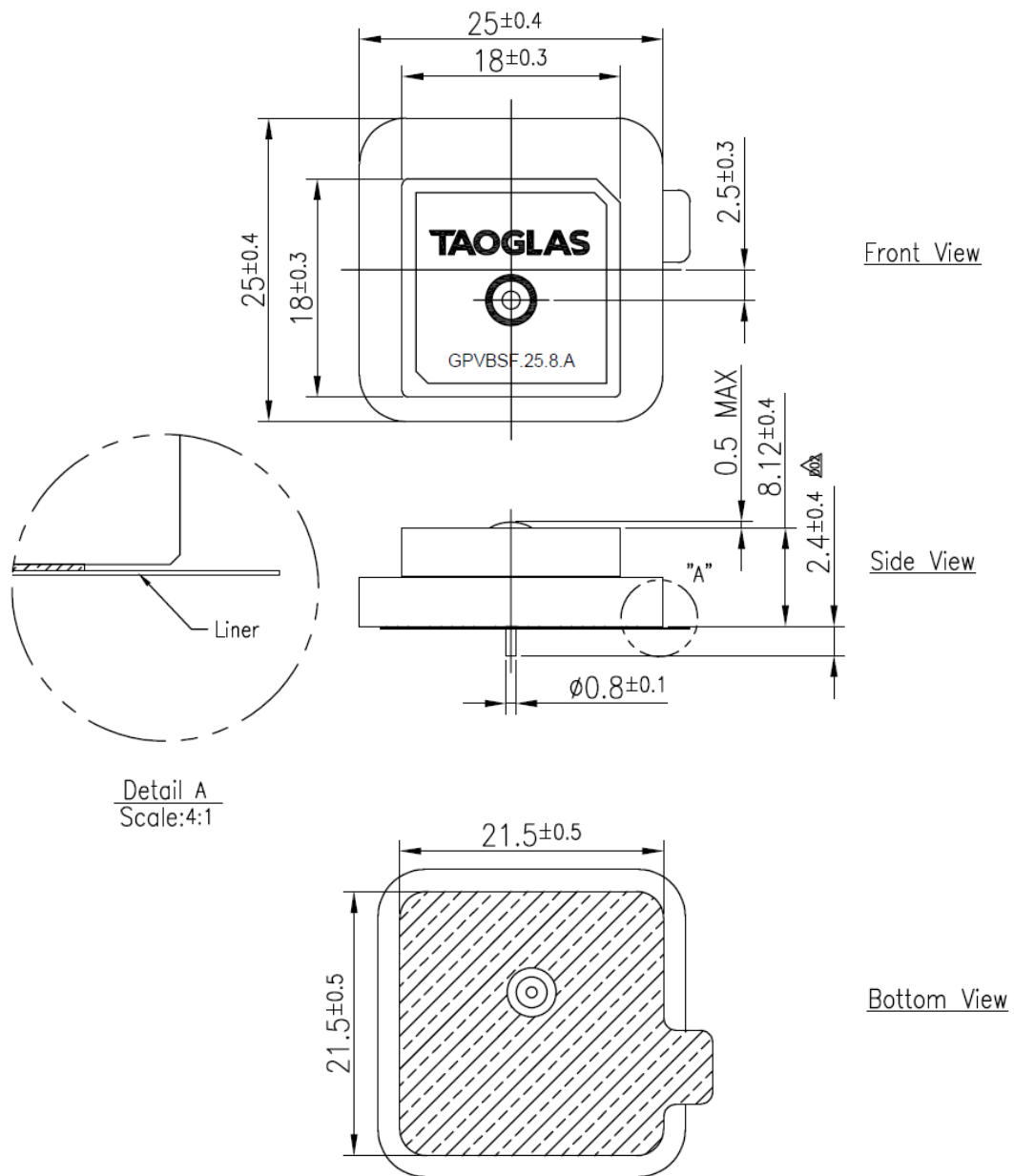
XY Plane

XZ Plane

YZ Plane



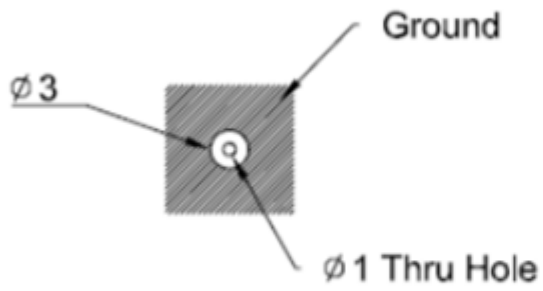
5. Mechanical Drawing (Units: mm)



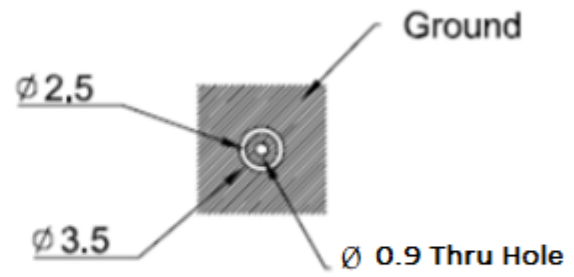
	Name	P/N	Material	Finish	QTY
1	Patch(18*18*4)	013ABCAW000000	Ceramic	Clear	1
2	Patch(25*25*4)	013ABCAW000000	Ceramic	Clear	1

6. Footprint

Top View



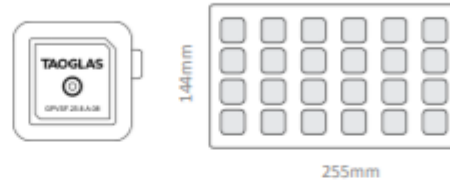
Bottom View



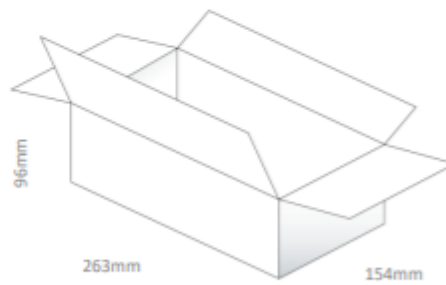
Tolerance: +/- 0,20
Unit:mm

7. Packaging

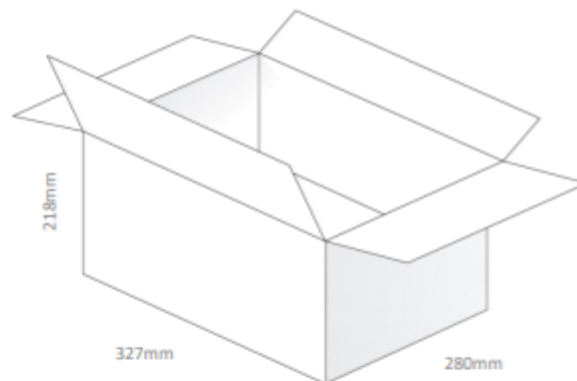
24pcs GPVBSF.25.8.A per Tray
 Tray Dimensions: 255*144*8mm
 Weight: 0.460Kg



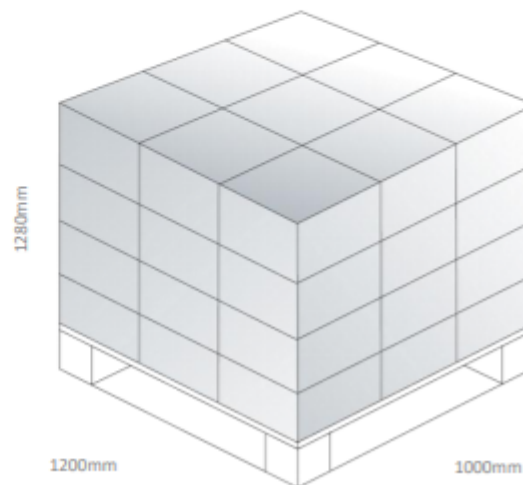
96pcs GPVBSF.25.8.A per Inner Carton
 Dimensions: 263*154*96mm
 Weight: 2Kg



384pcs GPVBSF.25.8.A 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-19-8-139 – GPVBSF.25.8.A

Revision: D (Current Version)

Date:	2025-03-27
Notes:	Added weight to spec table.
Author:	Gary West

Previous Revisions

Revision: C

Date:	2022-06-17
Notes:	Updated some formatting issues.
Author:	Gary West

Revision: B

Date:	2021-06-19
Notes:	Updated Pin Length to 2.4mm Updated Drawing
Author:	Dan Cantwell

Revision: A (Original First Release)

Date:	2019-11-07
Notes:	Initial Release
Author:	Jack Conroy



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