



## APARM2504-SG3

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25.0 x 25.0 x 4.0 mm

RoHS Compliant

MSL Level = N/A

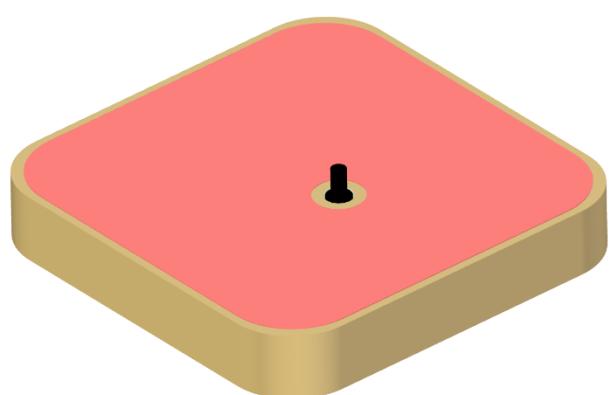
### Features

- GPS/GLONASS/Galileo/Beidou Patch Antenna
- Compact Size: 25.0 x 25.0 x 4.0 mm
- Peak Gain: 4.1 dBi
- Antenna Efficiency: 89%
- RHCP Polarization
- Through Hole Mounting
- Light Weight: 10.4 g

### Applications

- GNSS Modules
- UAVs and Drones
- Asset Tracking & Telematics
- Intelligent Transportation
- Precision Agriculture
- Geolocation and Tracking

### Product Image





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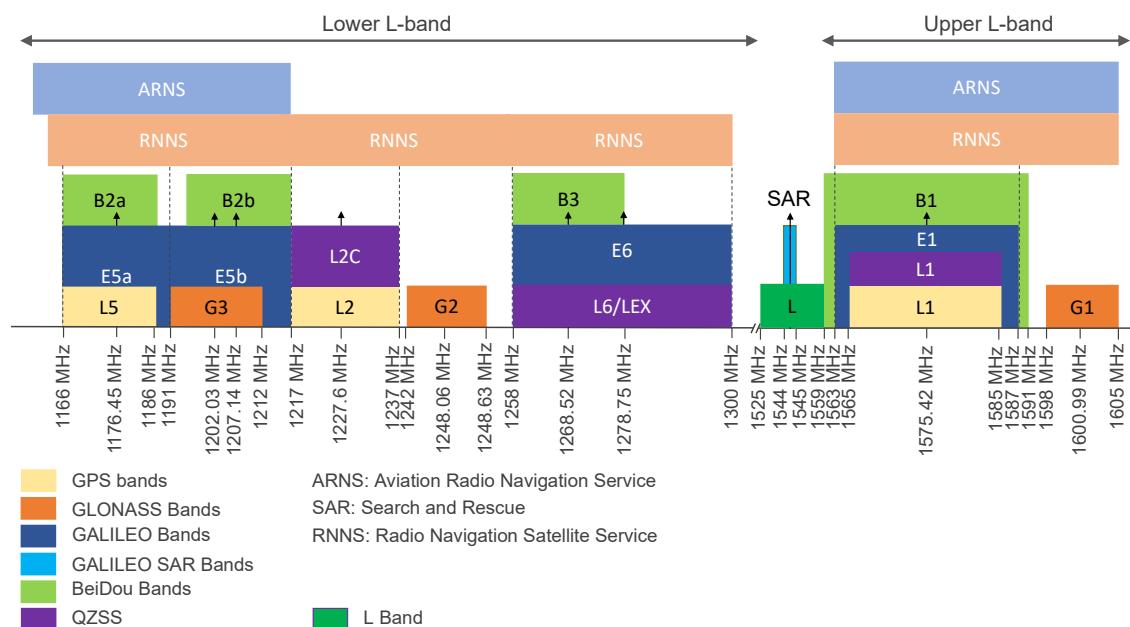
25.0 x 25.0 x 4.0 mm

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## GNSS Frequency Bands Covered

System	L1	L2	L5	
GPS	1575.42MHz	1227.6MHz	1176.45MHz	
	■	□	□	
GLONASS	G1 1598.06-1609.31MHz	G2 1242.93-1251.68MHz	G3 1202.025MHz	
	■	□	□	
Galileo	E1 1575.42MHz	E5a 1176.45MHz	E5b 1201.5MHz	E6 1278.75MHz
	■	□	□	□
BeiDou	B1I 1561MHz	B2 1207.14MHz	B3 1268.52MHz	
	■	□	□	
QZSS	L1 1575.42MHz	L2 1227.6MHz	L5 1176.45MHz	L6 1278.75MHz
	■	□	□	□
IRNSS/NAVIC			L5 1176.45MHz	
			□	
SBAS	L1/E1/B1 1575.42MHz		L5/B2a/E5a 1176.45MHz	
	■		□	



Frequency allocation: GNSS systems, upper L bands and lower L bands



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## Electrical Specification

Parameters	Typ.			Units	Note
Frequency	1561 (B1I)	1575.42 (L1/E1)	1602 (G1)	MHz	
VSWR	< 2.0			-	
Peak Gain	3.1	4.1	4.0	dBi	
Average Gain	-0.8	-0.7	-0.5	dBi	
Maximum Efficiency	82.3	85.5	89.2	%	
Average Efficiency	82.0	82.4	88.0	%	
Polarization	RHCP			-	(Right Hand Circular Polarization)
Nominal Impedance	50			$\Omega$	

Note: All measurements were performed using the evaluation board in a free-space environment. Actual performance may vary depending on factors such as the ground plane, specific application, and surrounding environment.

## Mechanical Specification

Parameter	Specification
Antenna Dimension	25.0 x 25.0 x 4.0 mm
Evaluation Board Dimension	70 x 70 mm
Mounting Type	Through Hole & Adhesive
Mounting Location	PCB Center Mounting
Material(s)	Ceramic
Weight	10.4 g

## Environmental Specification

Parameter	Specification
Operating Temperature	-40°C to +105°C
Storage Temperature	-40°C to +105°C
RoHS Compliance	Yes

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**25.0 x 25.0 x 4.0 mm****RoHS Compliant****MSL Level = N/A**

## Ordering Information

Part Number	Description
APARM2504-SG3	GPS/GLONASS/Galileo/Beidou Patch Antenna
APARM2504-SG3-EVB	GPS/GLONASS/Galileo/Beidou Patch Antenna EVB



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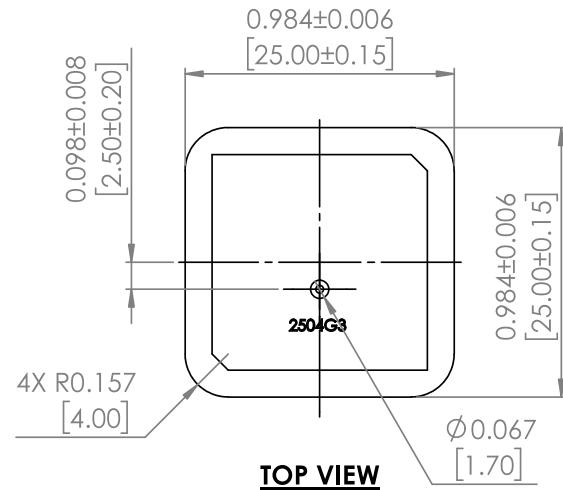
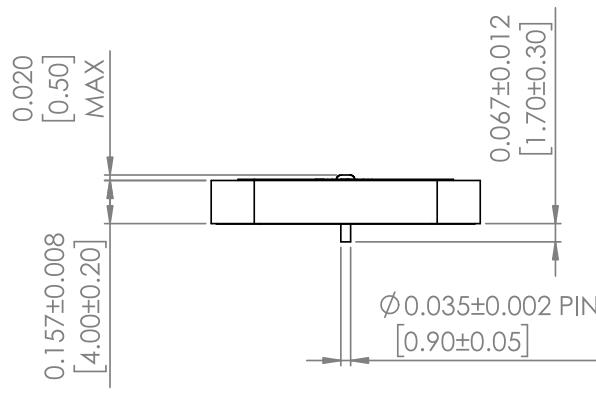
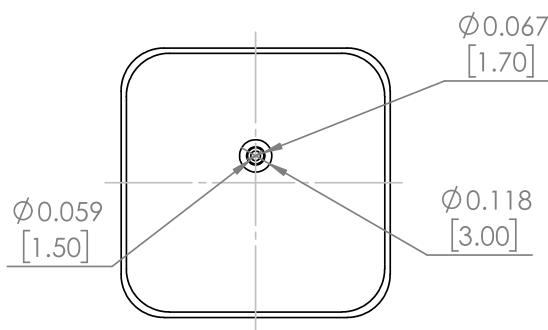
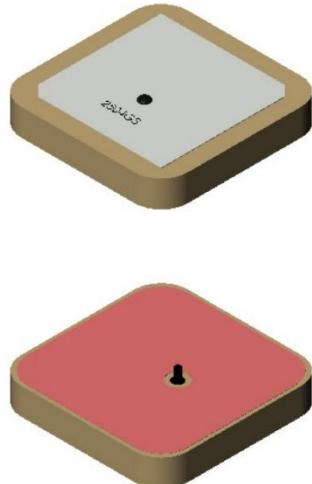


25.0 x 25.0 x 4.0 mm

RoHS Compliant

MSL Level = N/A

## Product Dimensions

**TOP VIEW****SIDE VIEW****BOTTOM VIEW**

Unit: inches [mm]



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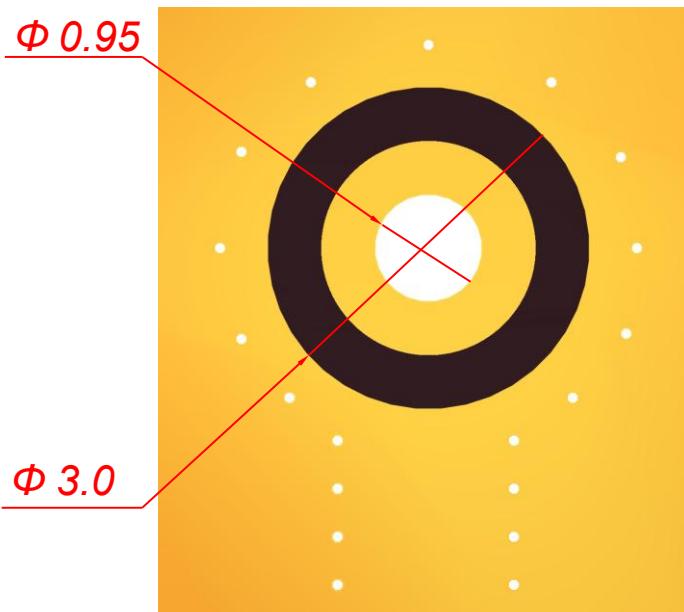
25.0 x 25.0 x 4.0 mm

RoHS Compliant

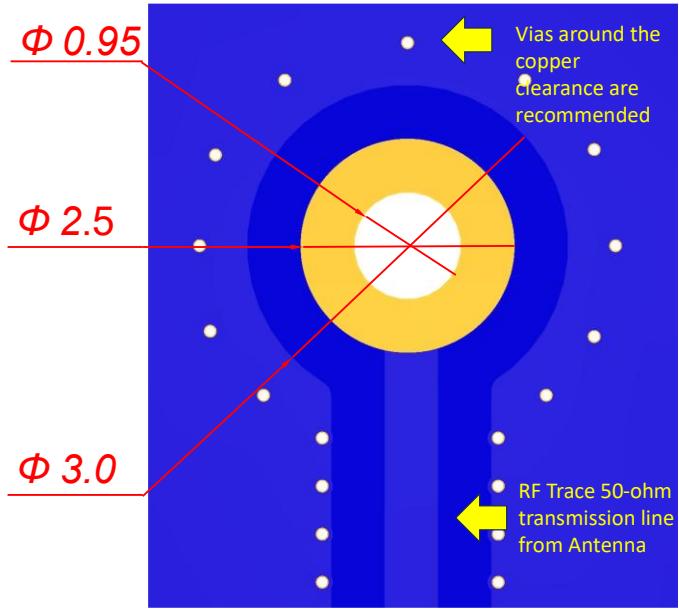
MSL Level = N/A

## Antenna Footprint & PCB Layout Guide

Top



Bottom



Unit: mm

**Note: Antenna welding does not support reflow soldering, please use manual soldering, the recommended soldering time is  $\leq 3$ s, and the temperature is  $390 \pm 20$ °C.**

For technical assistance, please contact [Abracon online support](#) through our online support platform.

## Transmission Line

The transmission line should be kept as short as possible and be designed to have a characteristic impedance of  $50\Omega$ . Abracon recommends using a Co-Planar Waveguide with Ground (CPWG), which dimensions can be derived by any trusted calculator, using the correct input for PCB materials and layer stack-up.



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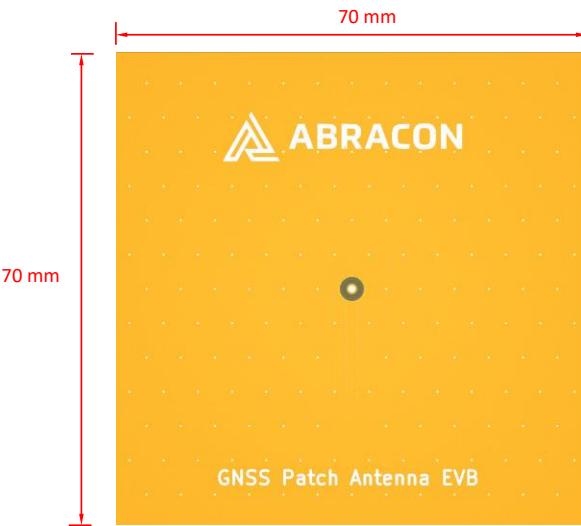
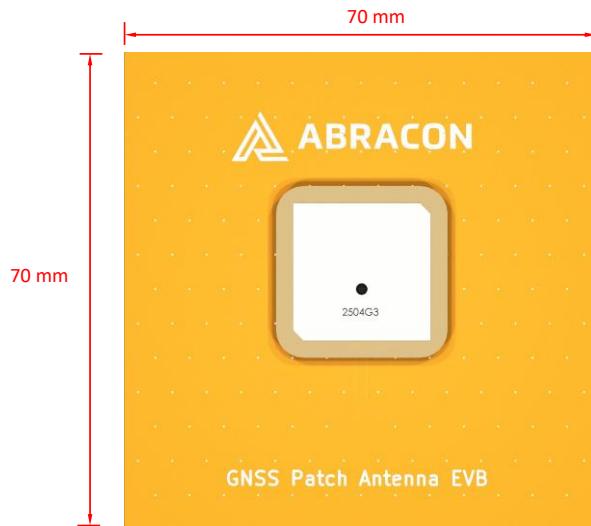


25.0 x 25.0 x 4.0 mm

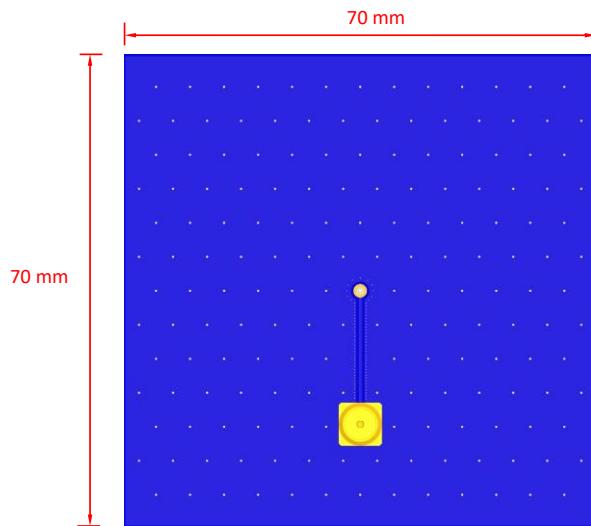
RoHS Compliant

MSL Level = N/A

## Integration Guide

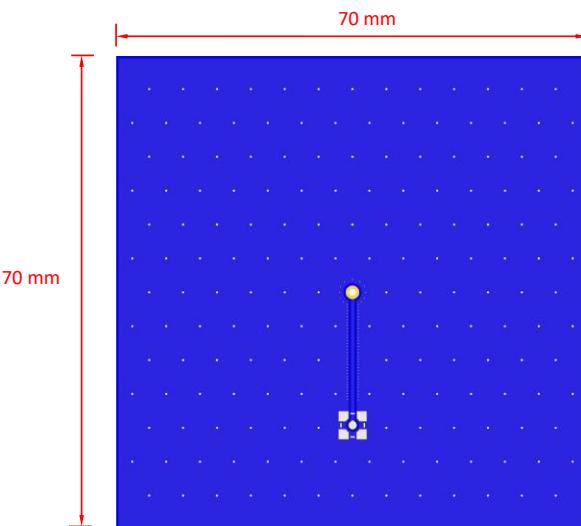


Top with Antenna



Bottom with Connector

Top without Antenna



Bottom without Connector

Unit: mm

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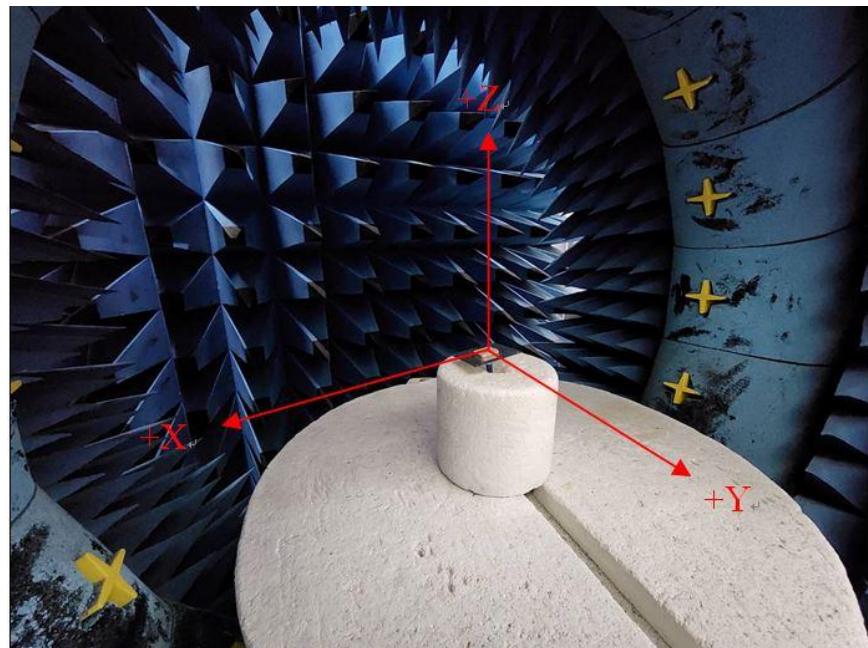
Check Inventory

25.0 x 25.0 x 4.0 mm

RoHS Compliant

MSL Level = N/A

## Measurement Setup





APARM2504-SG3

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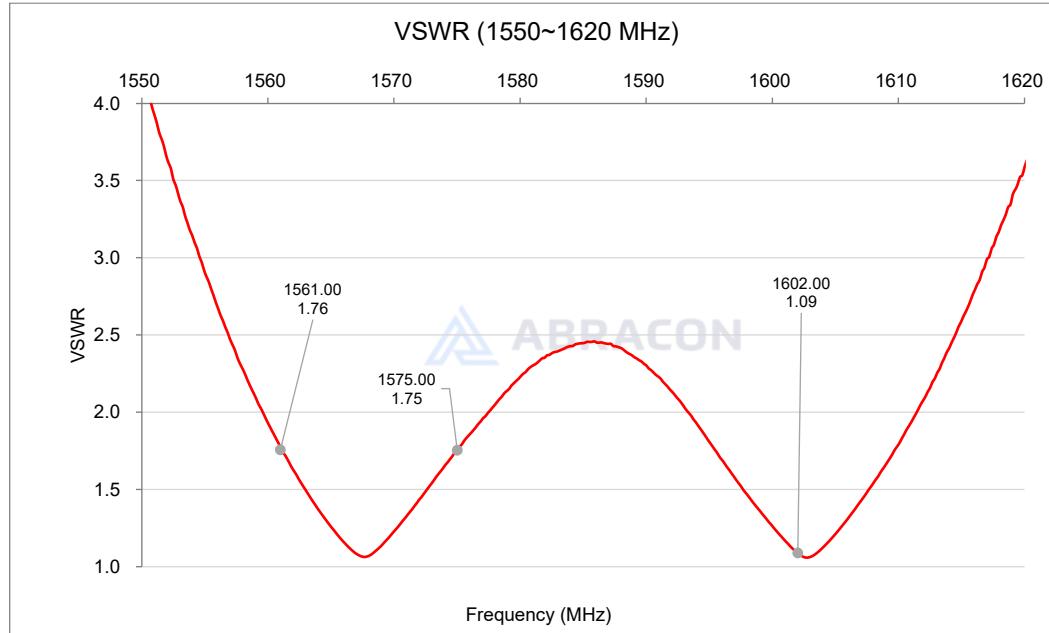
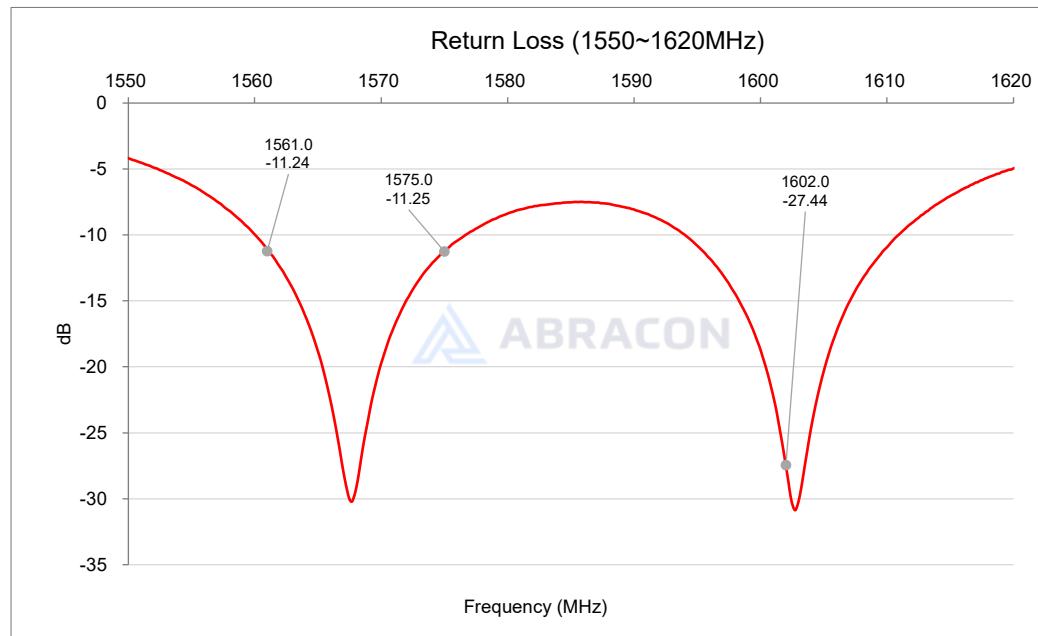
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25.0 x 25.0 x 4.0 mm

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MSL Level = N/A

### Reflection Characteristics – Return Loss & VSWR





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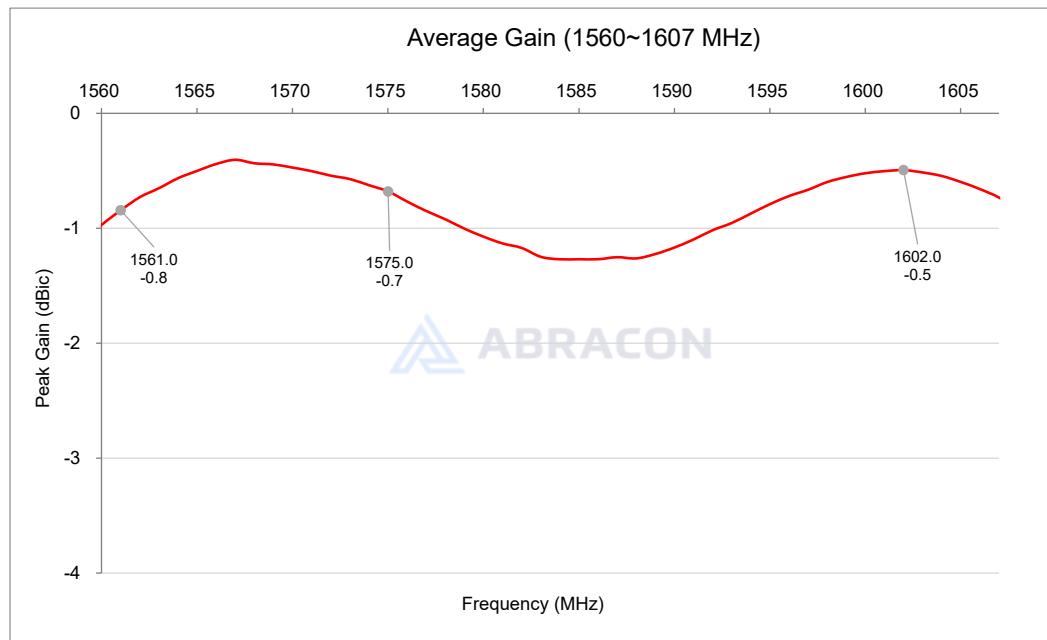
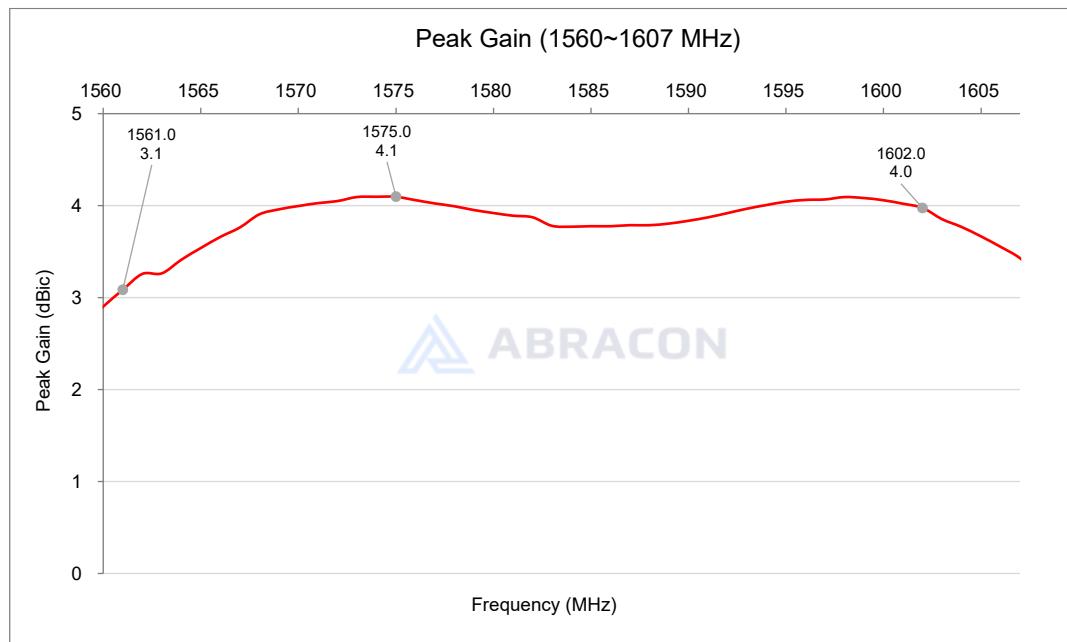


25.0 x 25.0 x 4.0 mm

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MSL Level = N/A

## Radiation Characteristics – Peak Gain & Average Gain





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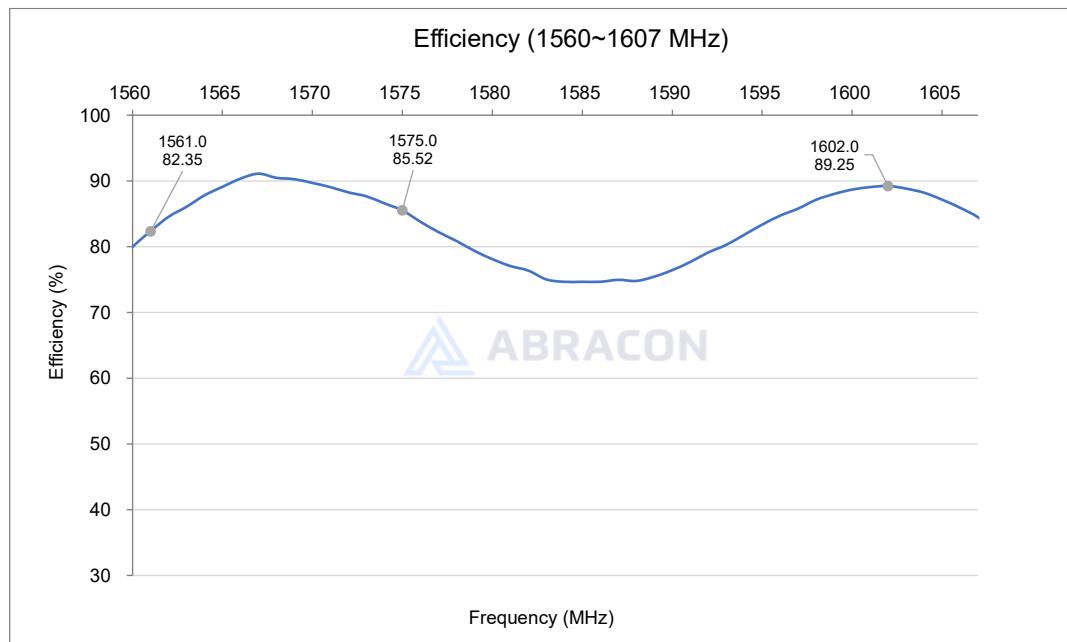


25.0 x 25.0 x 4.0 mm

RoHS Compliant

MSL Level = N/A

### Radiation Characteristics – Total Efficiency (%)



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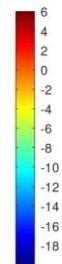
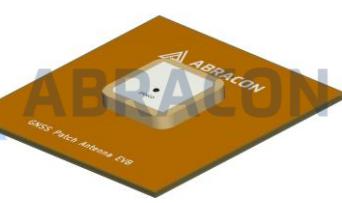
25.0 x 25.0 x 4.0 mm

RoHS Compliant

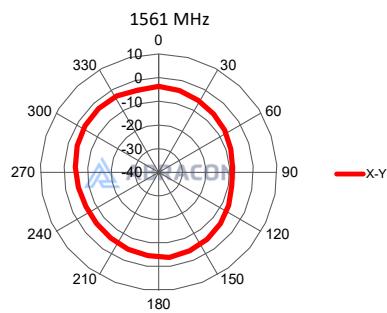
MSL Level = N/A

## Radiation Characteristics – 3D & 2D Pattern

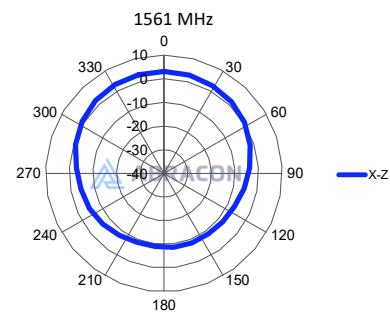
1561MHz



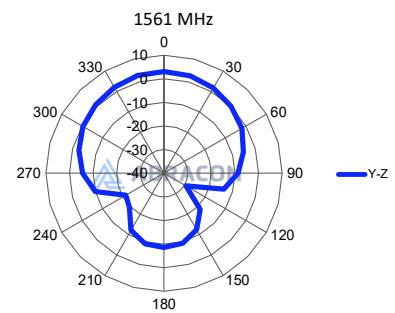
XY plane



XZ plane



YZ plane



# GPS/GLONASS/Galileo/Beidou Patch Antenna



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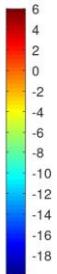
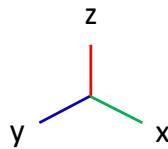
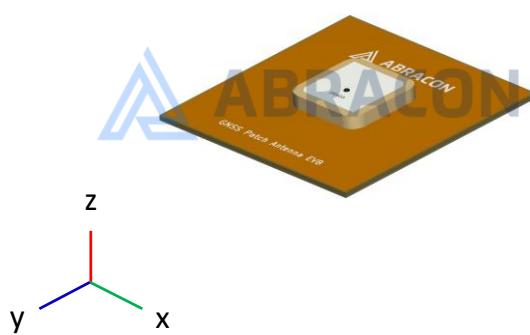


25.0 x 25.0 x 4.0 mm

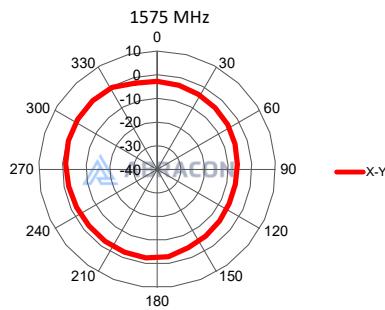
**RoHS Compliant**

MSL Level = N/A

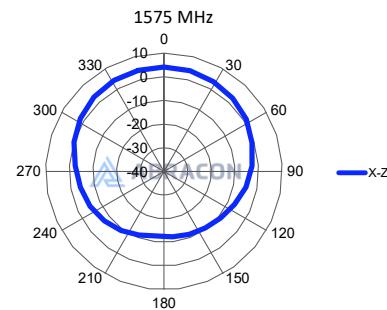
1575MHz



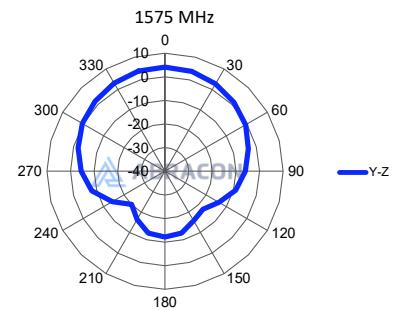
XY plane



XZ plane



YZ plane



# GPS/GLONASS/Galileo/Beidou Patch Antenna



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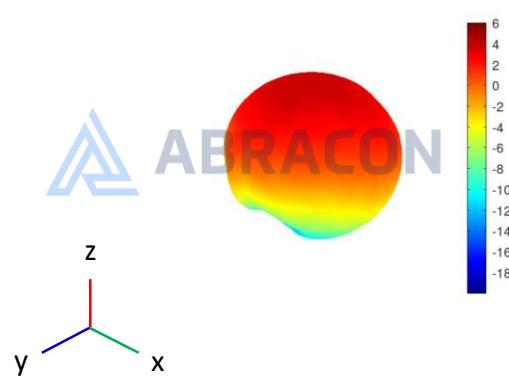
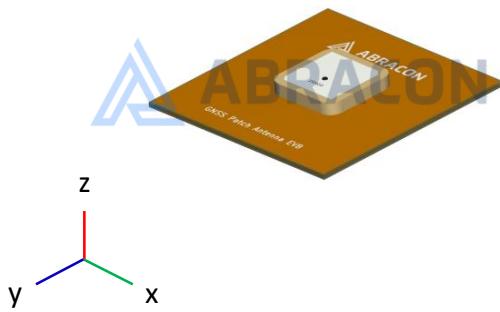


**25.0 x 25.0 x 4.0 mm**

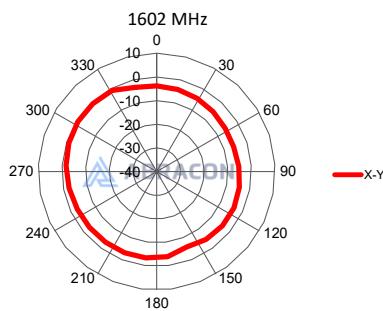
**RoHS Compliant**

**MSL Level = N/A**

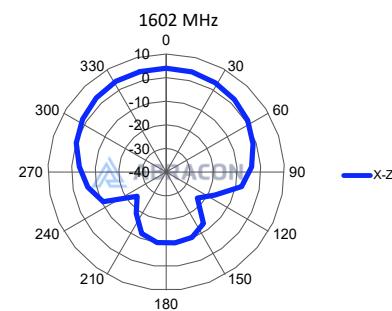
1602MHz



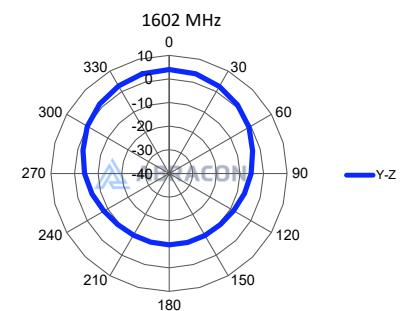
**XY plane**



**XZ plane**



**YZ plane**





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25.0 x 25.0 x 4.0 mm

RoHS Compliant

MSL Level = N/A

### Packaging

50 pcs per tray

200 pcs per inner box

800 pcs per carton

**ATTENTION:** Abracon LLC's products are Commercial-Off-The-Shelf ('COTS'), which are designed, intended, and validated for use in commercial, industrial, and automotive applications. The customer is responsible for testing and verifying the performance of an Abracon solution to meet their system-level requirements.



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