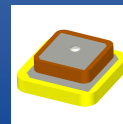


GNSS L1/L5 Ceramic Patch Antenna



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25.0 x 25.0 x 8.0 mm

RoHS Compliant

MSL Level = N/A

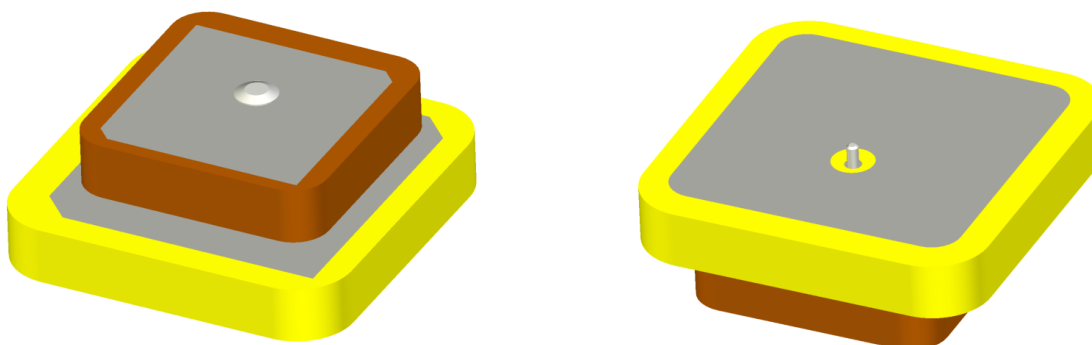
Features

- Multiband Multi-Constellations GNSS Support
 - GPS: L1/L5
 - Galileo: E1/E5a
 - Beidou: B1I/B1C/B2a
 - QZSS: L1/L5
 - SBAS: L1/L5
 - IRNSS: L5
- Size: 25.0 x 25.0 x 8.0 mm
- Peak Gain: 3.4 dBic (L1), 2.4 dBic (L5)
- High Efficiency: 85% (L1), 73% (L5)
- Light Weight: 17.2g

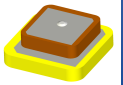
Applications

- UAVs and Drones
- Robotics and Autonomous Driving
- Asset Tracking and Telematics
- Real-Time Kinematic (RTK)
- Intelligent Transportation
- Precision Land Survey Positioning
- Precision Agriculture

Product Image



GNSS L1/L5 Ceramic Patch Antenna



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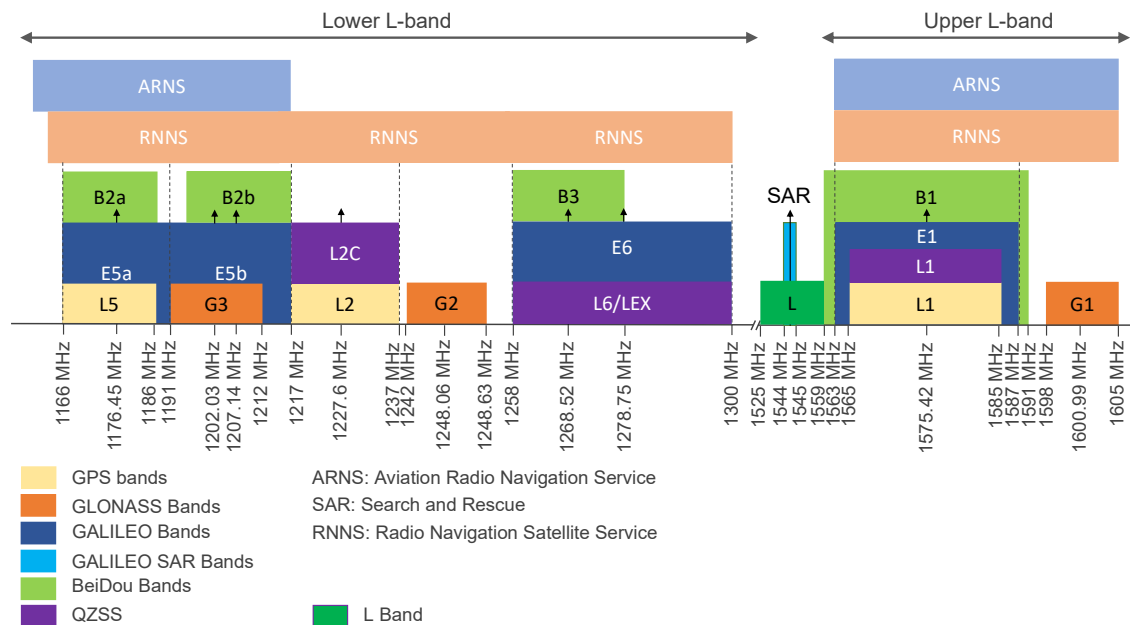
25.0 x 25.0 x 8.0 mm

RoHS Compliant

MSL Level = N/A

GNSS Frequency Bands Covered

GPS	L1 1575.42MHz	L2 1227.6MHz	L5 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	B1c 1575.42MHz	B2a/B2I 1176.45MHz	
	■	■	■	
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

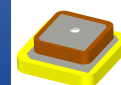


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25.0 x 25.0 x 8.0 mm

RoHS Compliant

MSL Level = N/A

Electrical Specification

Parameters	Typ.			Units	Note
Frequency	1176.45 (L5)	1561 (B1I)	1575.42 (L1)	MHz	
VSWR	< 2.0			:1	
Peak Gain	2.4	3.6	3.4	dBic	
Average Gain	-4.1	-2.8	-2.1	dBic	
Maximum Efficiency	73	83	85	%	
Average Efficiency	56	74	78	%	
Axial Ratio	1.5	7.1	8.2	dB	
Polarization	RHCP			-	
Nominal Impedance	50			Ω	

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 8.0 mm
Evaluation Board Dimension	70 x 70 mm
Mounting Type	Through Hole & Adhesive
Mounting Location	PCB Center Mounting
Material(s)	Ceramic
Weight	17.2 g

Environmental Specification

Parameter	Specification
Operating Temperature	-40°C to +85°C
Storage Temperature	-40°C to +85°C
RoHS Compliance	Yes

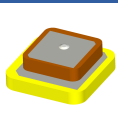


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25.0 x 25.0 x 8.0 mm

RoHS Compliant

MSL Level = N/A

Ordering Information

Part Number	Description
AANI-PP-0218	GNSS L1/L5 Ceramic Patch Antenna

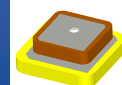


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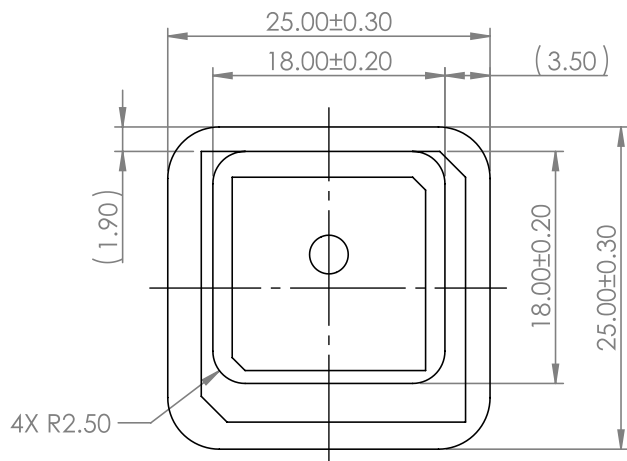


25.0 x 25.0 x 8.0 mm

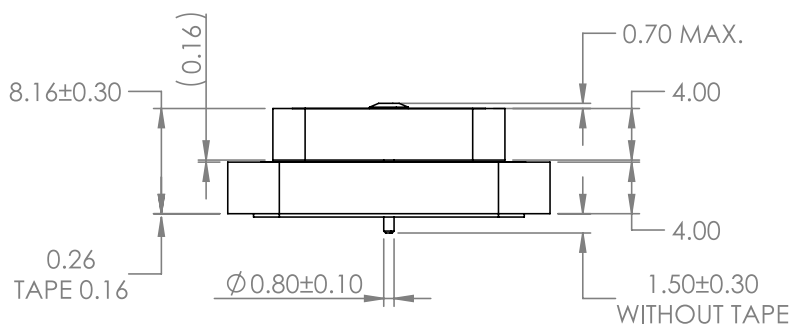
RoHS Compliant

MSL Level = N/A

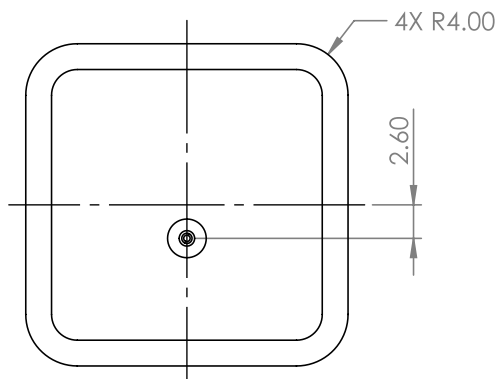
Product Dimensions



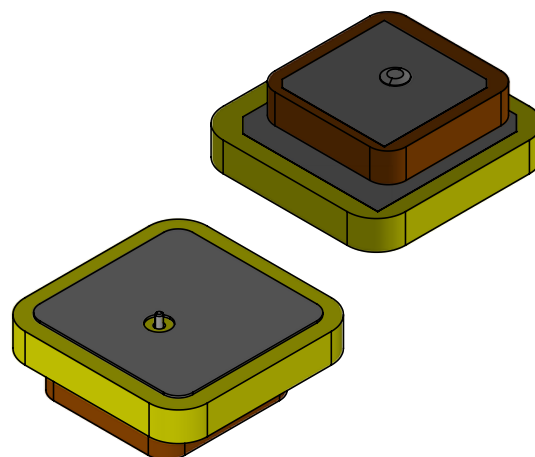
TOP VIEW



FRONT VIEW



BOTTOM VIEW



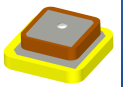
Unit: mm



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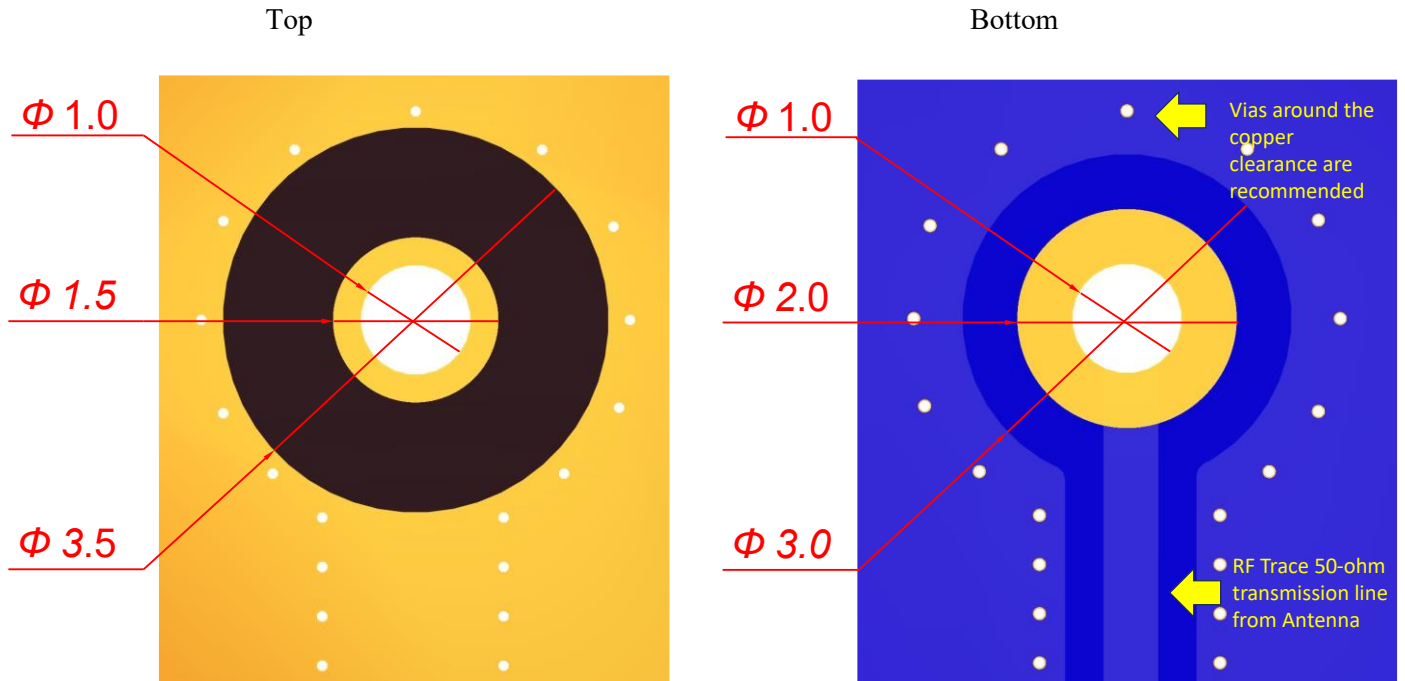


25.0 x 25.0 x 8.0 mm

RoHS Compliant

MSL Level = N/A

Antenna Footprint & PCB Layout Guide



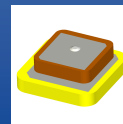
Unit: mm

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

Transmission Line

The transmission line should be kept as short as possible and be designed to have a characteristic impedance of 50Ω . 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.

GNSS L1/L5 Ceramic Patch Antenna



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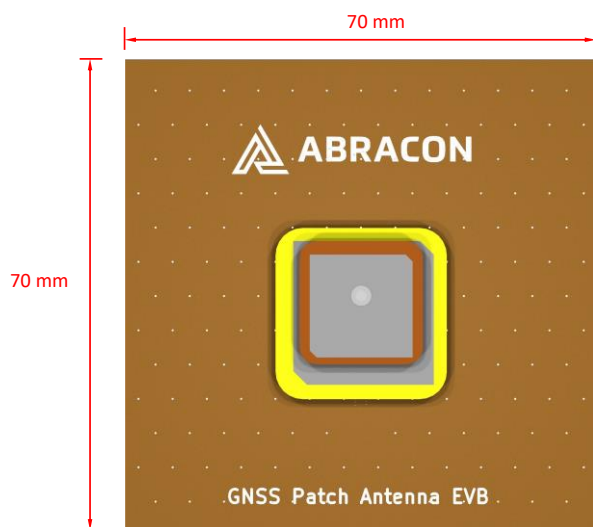


25.0 x 25.0 x 8.0 mm

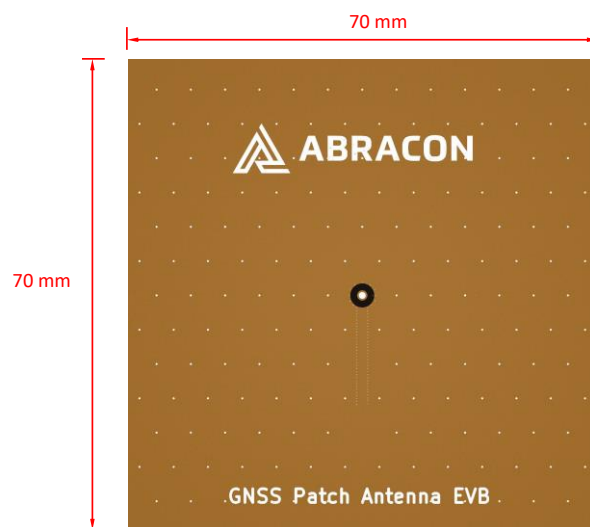
RoHS Compliant

MSL Level = N/A

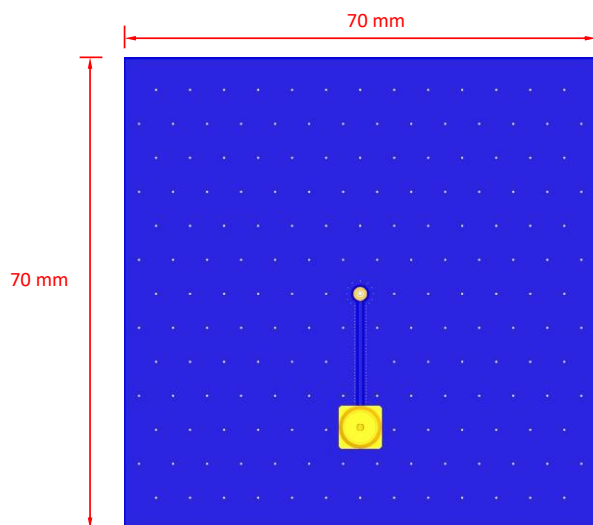
Integration Guide



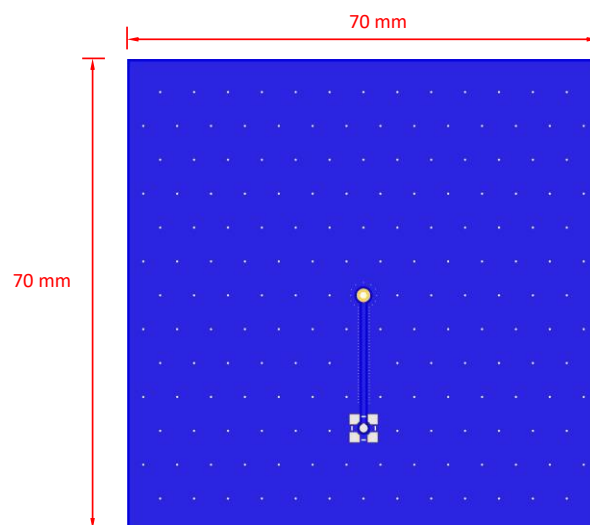
Top with Antenna



Top without Antenna



Bottom with Connector



Bottom without Connector

Unit: mm

The transmission line of the antenna is shown below the bottom image.

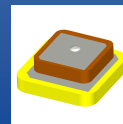


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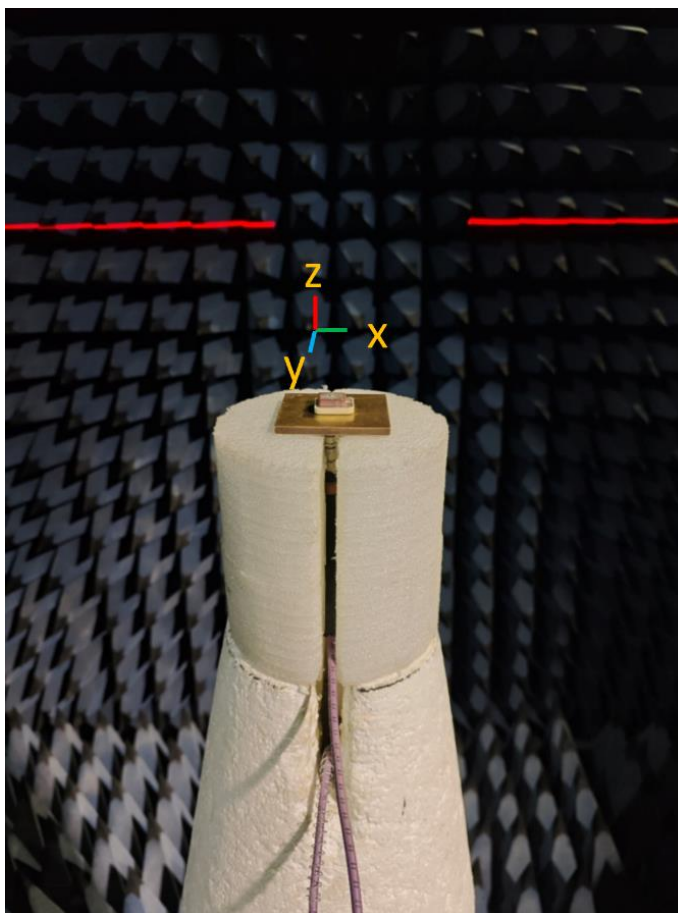


25.0 x 25.0 x 8.0 mm

RoHS Compliant

MSL Level = N/A

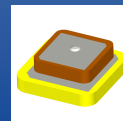
Measurement Setup



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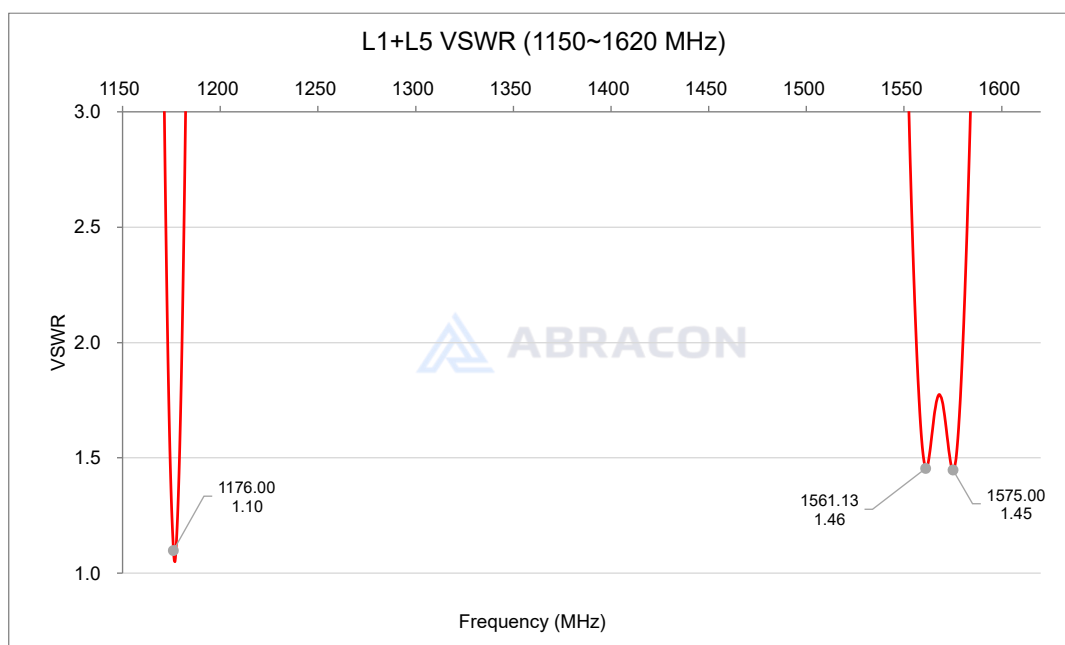
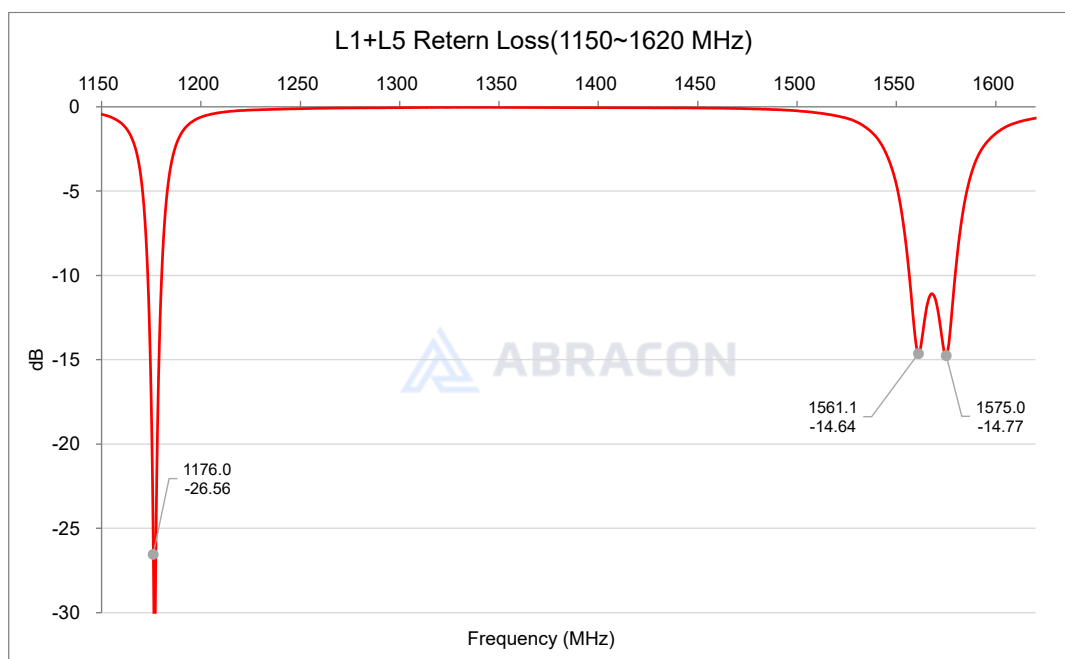


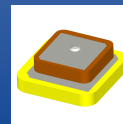
25.0 x 25.0 x 8.0 mm

RoHS Compliant

MSL Level = N/A

Reflection Characteristics – Return Loss & VSWR





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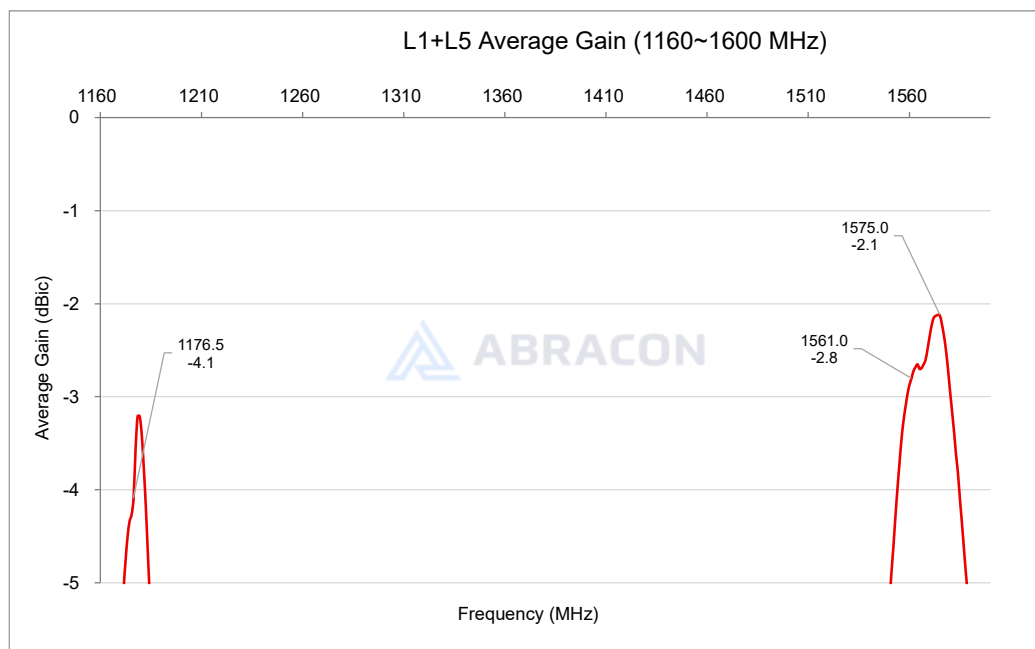
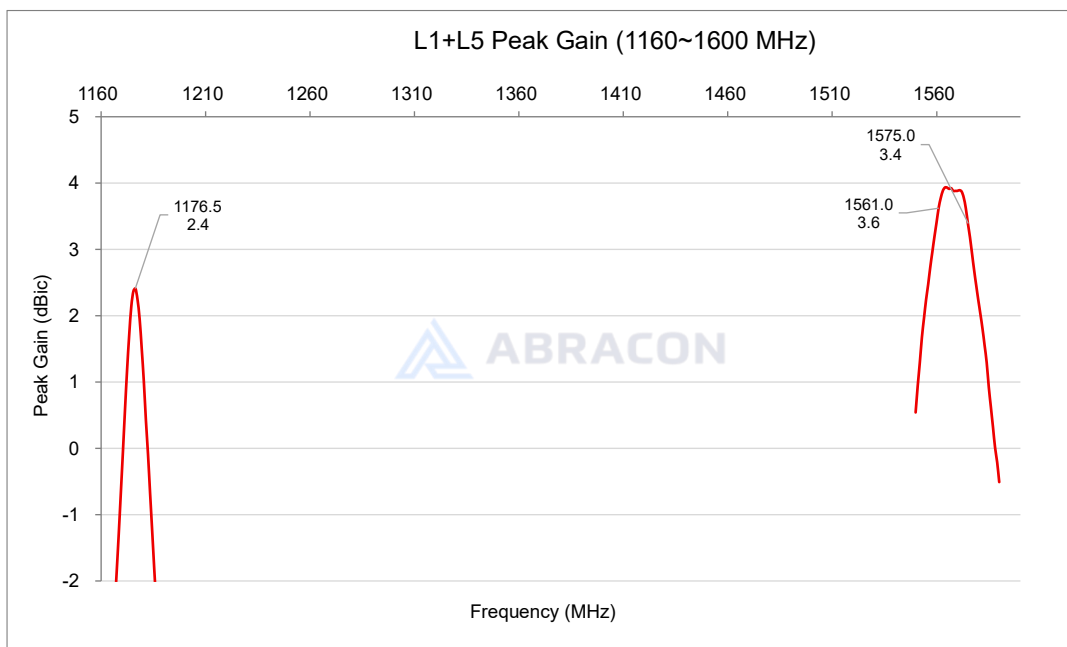


25.0 x 25.0 x 8.0 mm

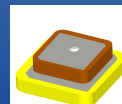
RoHS Compliant

MSL Level = N/A

Radiation Characteristics – Gain



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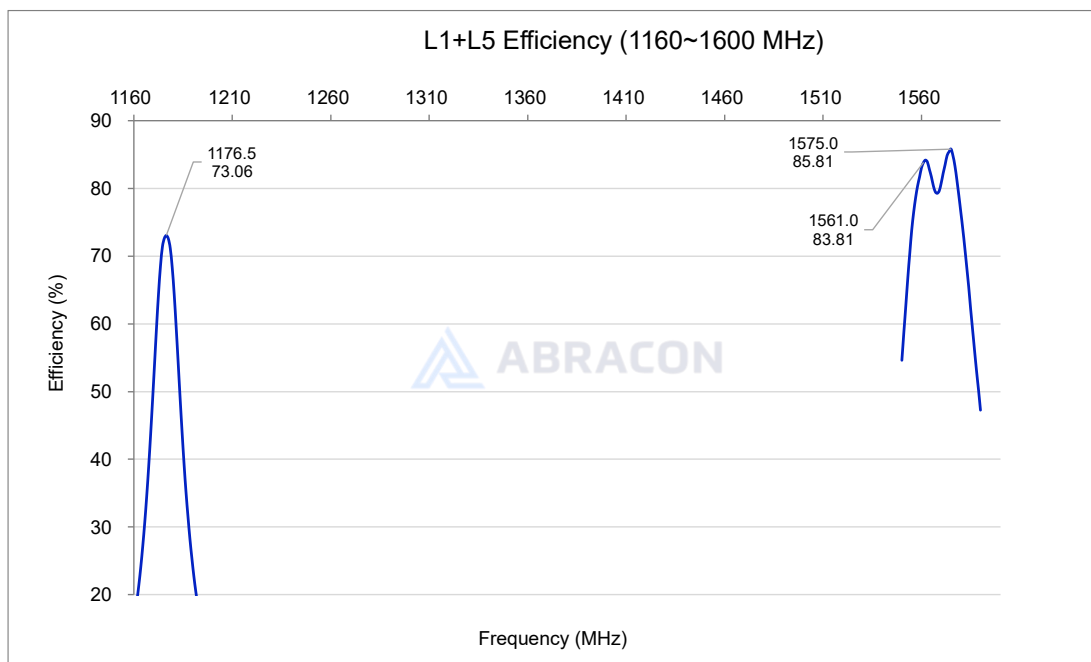


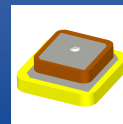
25.0 x 25.0 x 8.0 mm

RoHS Compliant

MSL Level = N/A

Radiation Characteristics – Total Efficiency (%)





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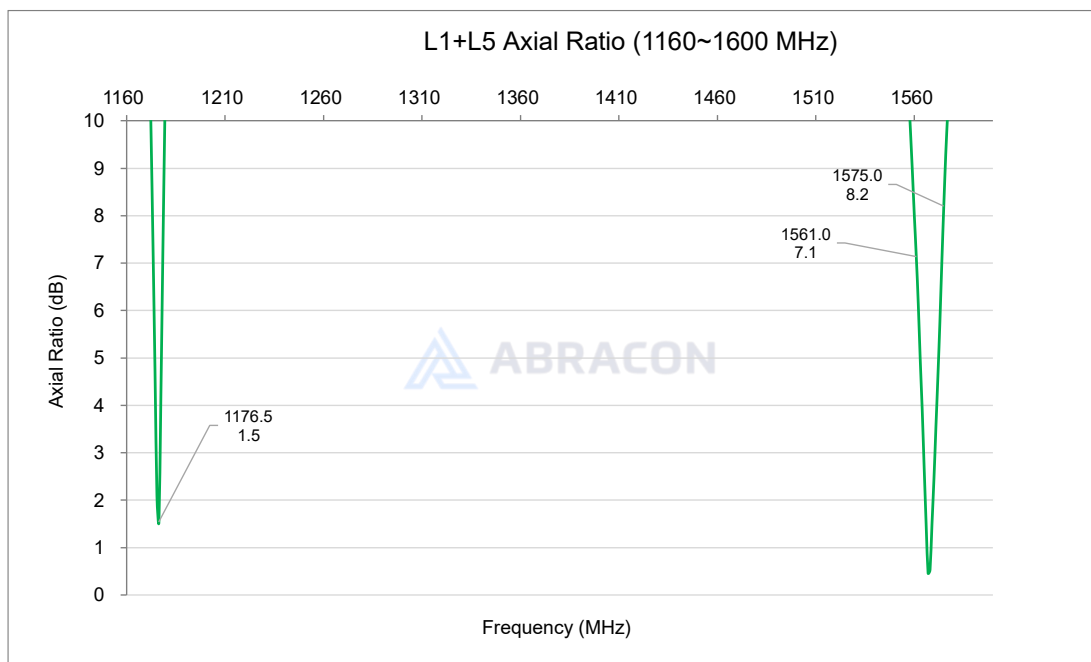


25.0 x 25.0 x 8.0 mm

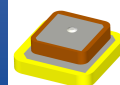
RoHS Compliant

MSL Level = N/A

Radiation Characteristics – Axial Ratio (dB)



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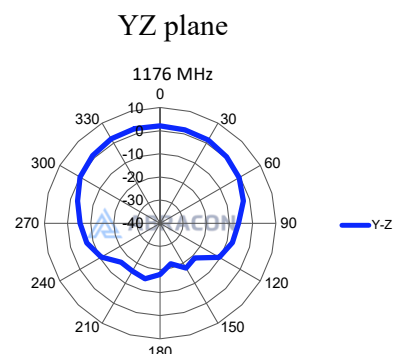
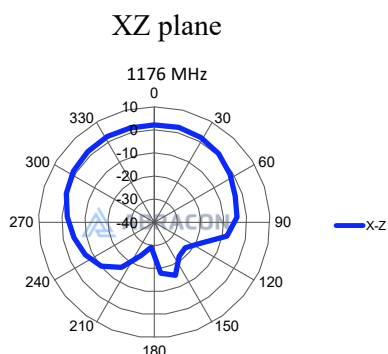
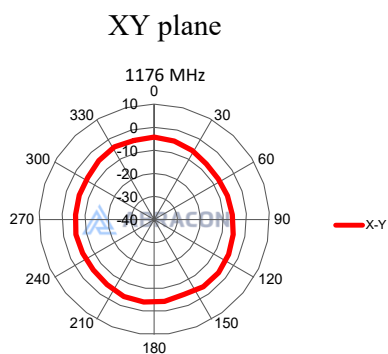
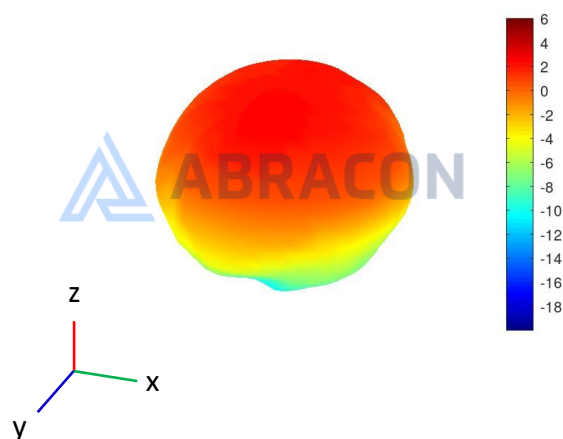
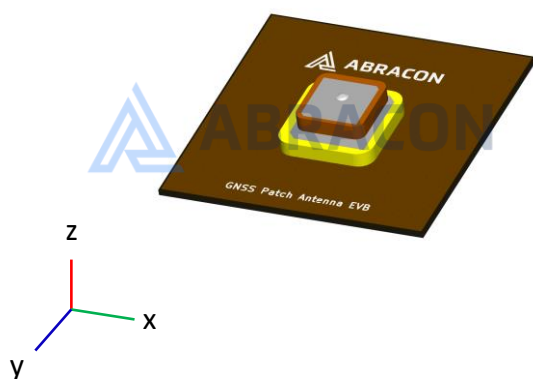
25.0 x 25.0 x 8.0 mm

RoHS Compliant

MSL Level = N/A

Radiation Characteristics – 3D & 2D Pattern

1176MHz

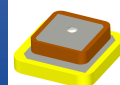


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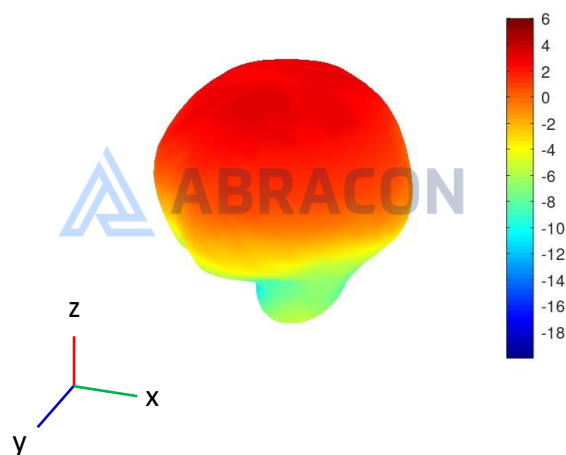
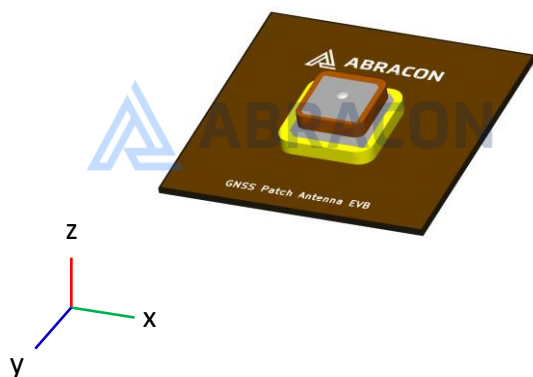


25.0 x 25.0 x 8.0 mm

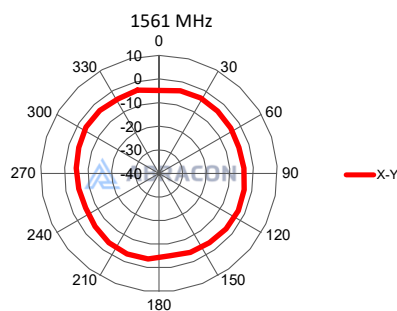
RoHS Compliant

MSL Level = N/A

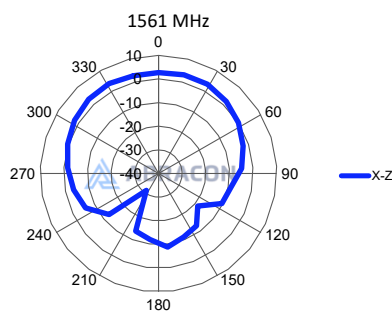
1561MHz



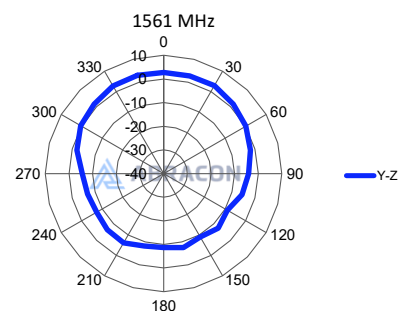
XY plane



XZ plane



YZ plane

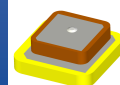


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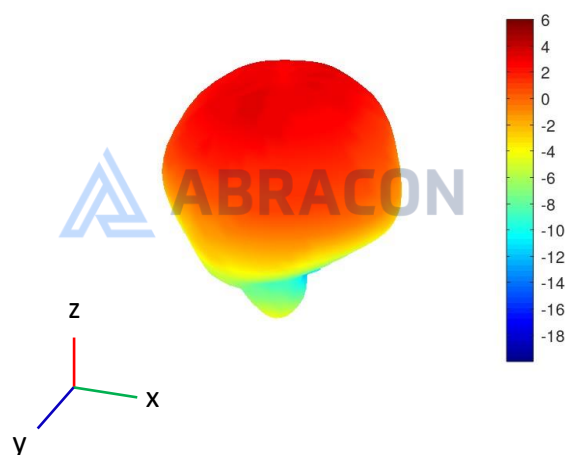
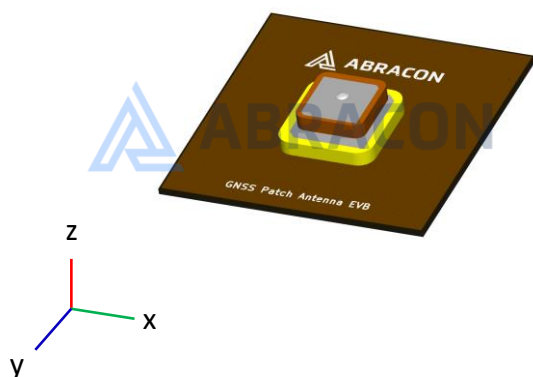


25.0 x 25.0 x 8.0 mm

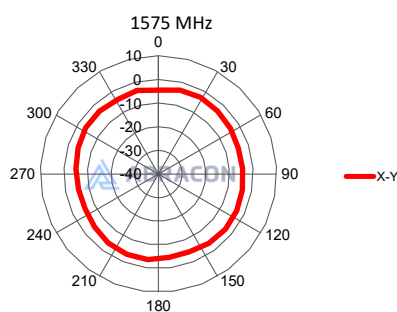
RoHS Compliant

MSL Level = N/A

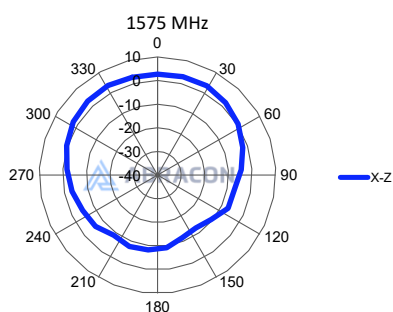
1575MHz



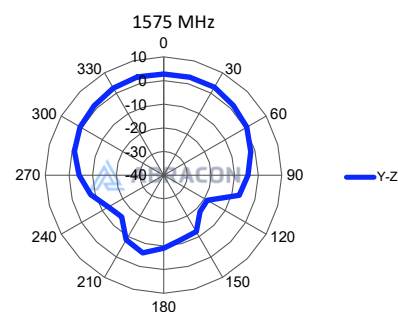
XY plane



XZ plane



YZ plane

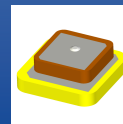


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25.0 x 25.0 x 8.0 mm

RoHS Compliant

MSL Level = N/A

Packaging

50 pcs per tray

300 pcs per inner box

600 pcs per carton

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