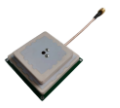


# Active GNSS Dual-Band Stacked Patch Antenna



**APKG5012GD**

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50 x 50 x 12 mm

RoHS N/A

MSL Level = N/A

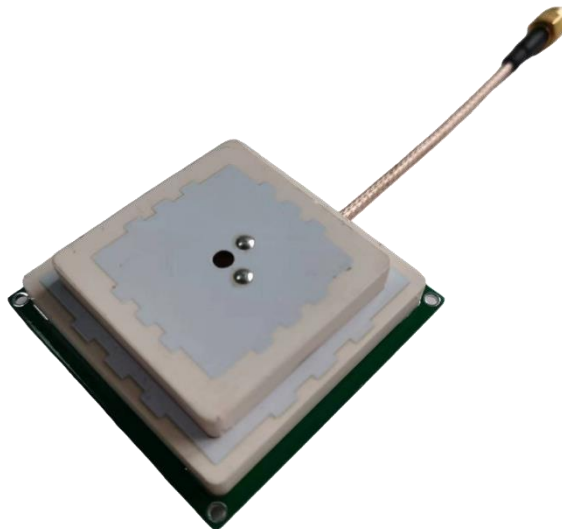
## Features

- Multiband Multi-Constellation Active GNSS Antenna
  - GPS : L1/L5
  - GLONASS : G1
  - Galileo : E1/E5a
  - Beidou : B1/B2a/B2b
  - IRNSS : L5
  - SBAS : L1/L5
- High LNA gain of  $40 \pm 2$  dB with low noise figure
- Very low noise figure ( $< 1.5$ dB)
- Good performance from 3.3 to 10 VDC
- Excellent multipath and interference rejection

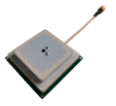
## Applications

- Autonomous driving and UAVs
- Precision land survey positioning
- Surveying and mapping systems
- Precision agriculture
- Tri-band RTK and PPP receivers
- Mission-critical GNSS timing
- Geofencing

## Product Image



# Active GNSS Dual-Band Stacked Patch Antenna



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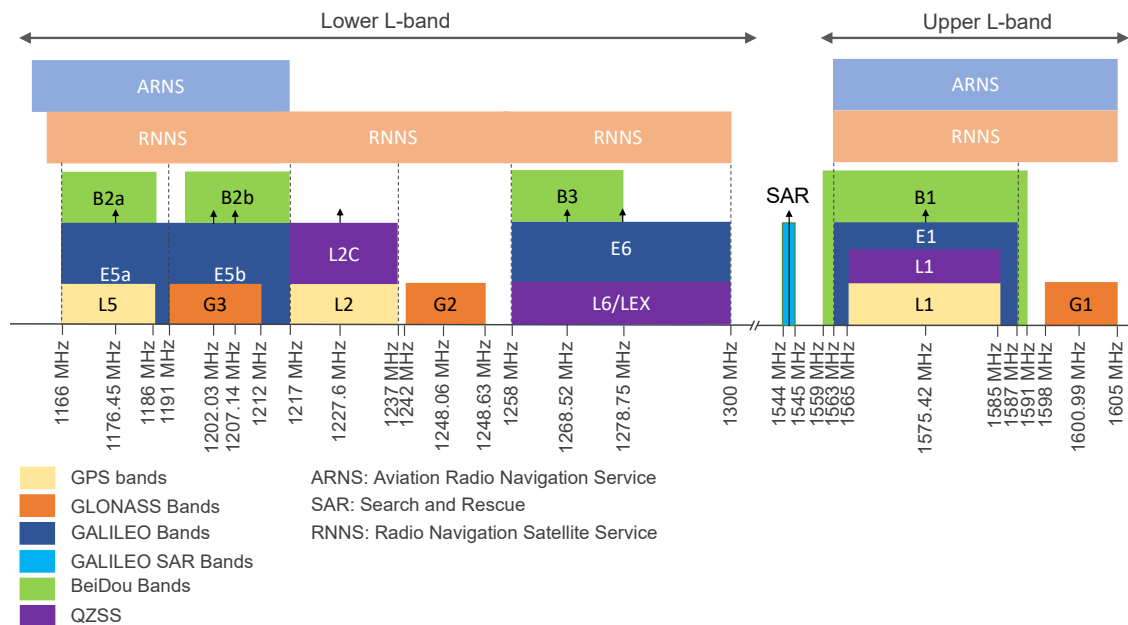
50 x 50 x 12 mm

RoHS N/A

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	B1 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

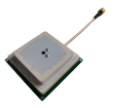


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# Active GNSS Dual-Band Stacked Patch Antenna



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50 x 50 x 12 mm

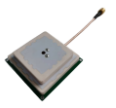
RoHS N/A

MSL Level = N/A

## Electrical Specification

Parameters	Typ.	Units	Note
<b>Antenna</b>			
Frequency	GPS : L1/L5 GLONASS : G1 Galileo : E1/E5a Beidou : B1/B2a IRNSS : L5 SBAS : L1/L5		
VSWR	≤ 2	-	
Polarization	RHCP	-	(Right Hand Circular Polarization)
Nominal Impedance	50	Ω	
<b>LNA</b>			
Gain RHCP (maximum)			
1575.42 MHz	4.0	dBic	GPS L1
1176.45 MHz	> 3.5		GPS L5
Noise Figure	≤ 1.5	dB	
Gain	40 ± 2	dB	
VSWR	≤ 2.0	-	
Operating Voltage	+3.3 ~ +10	V	
Current Consumption	34 ± 3	mA	
Out-Of-Band Rejection	55	dB	

# Active GNSS Dual-Band Stacked Patch Antenna



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50 x 50 x 12 mm

RoHS N/A

MSL Level = N/A

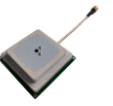
## Mechanical Specifications

Parameter	Specification
Antenna Dimension	50 x 50 x 12 mm
Antenna Material	Dielectric Ceramics
Ground Material	1mm FR-4
Shield Cover	0.2mm Tinplate
RF Connector	SMA-J (M)
RF Cable	RG316,105mm

## Environmental Specification

Parameter	Specification
Operating Temperature	-40°C to +85°C
Storage Temperature	-45°C to +85°C
RoHS Compliance	Yes
Relative Humidity	95% @ 65°C

# Active GNSS Dual-Band Stacked Patch Antenna



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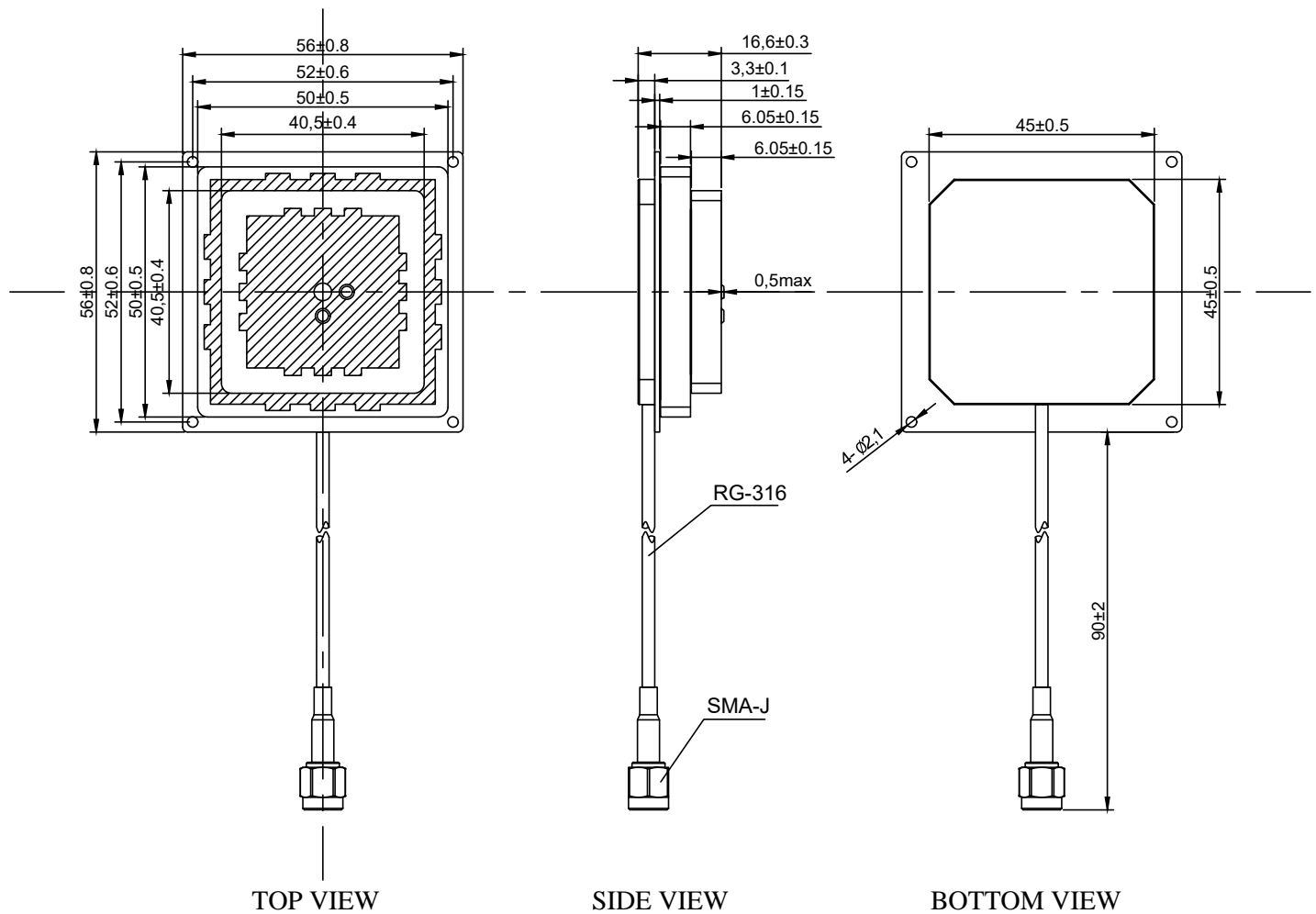


50 x 50 x 12 mm

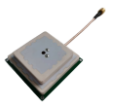
RoHS N/A

MSL Level = N/A

## Product Dimensions



Unit: mm



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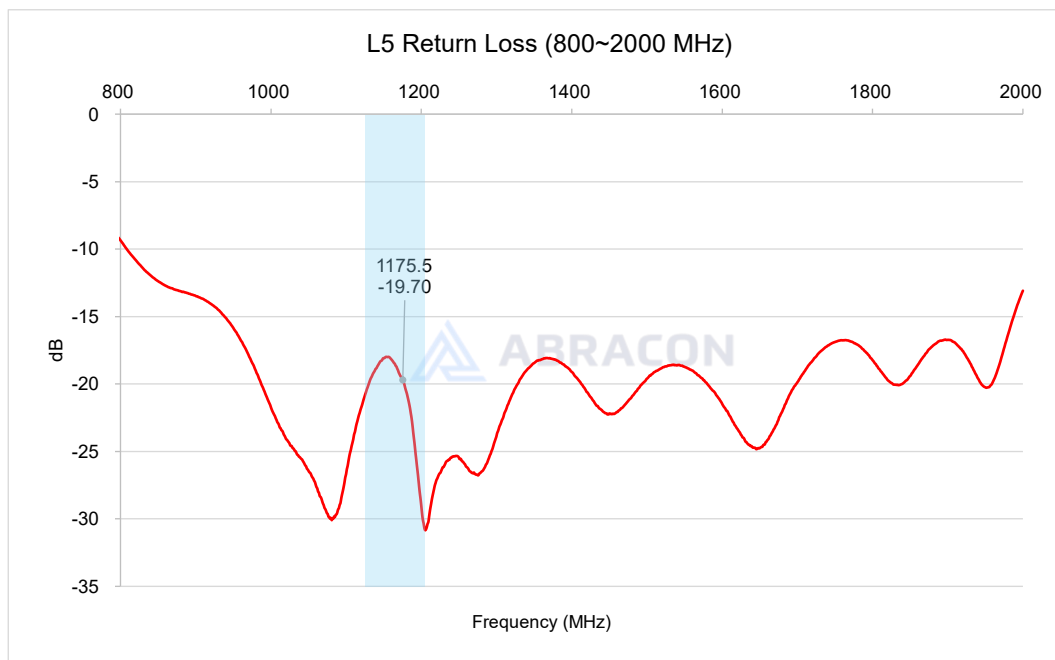
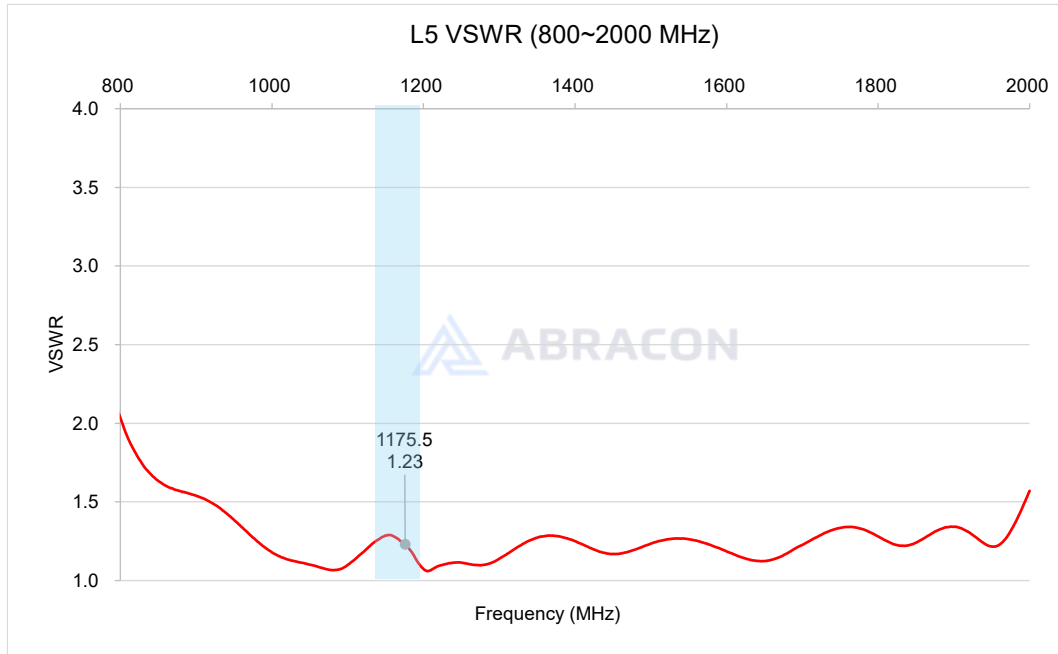


50 x 50 x 12 mm

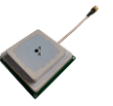
RoHS N/A

MSL Level = N/A

## Reflection Characteristics – VSWR & Return Loss



# Active GNSS Dual-Band Stacked Patch Antenna



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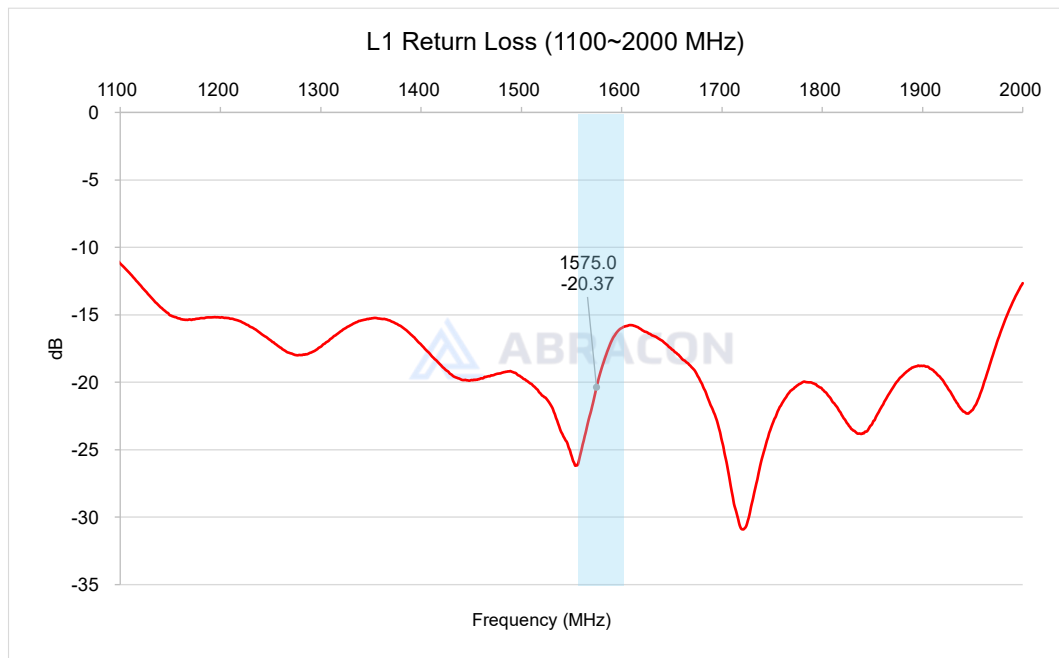
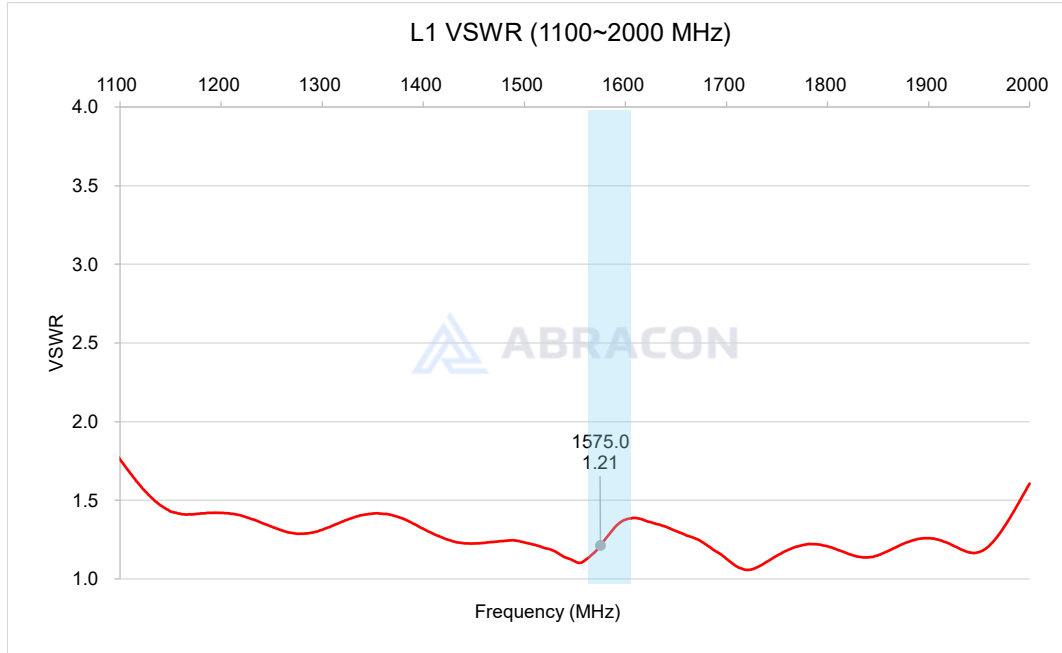
Request Samples



Check Inventory



50 x 50 x 12 mm  
RoHS N/A  
MSL Level = N/A

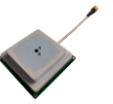


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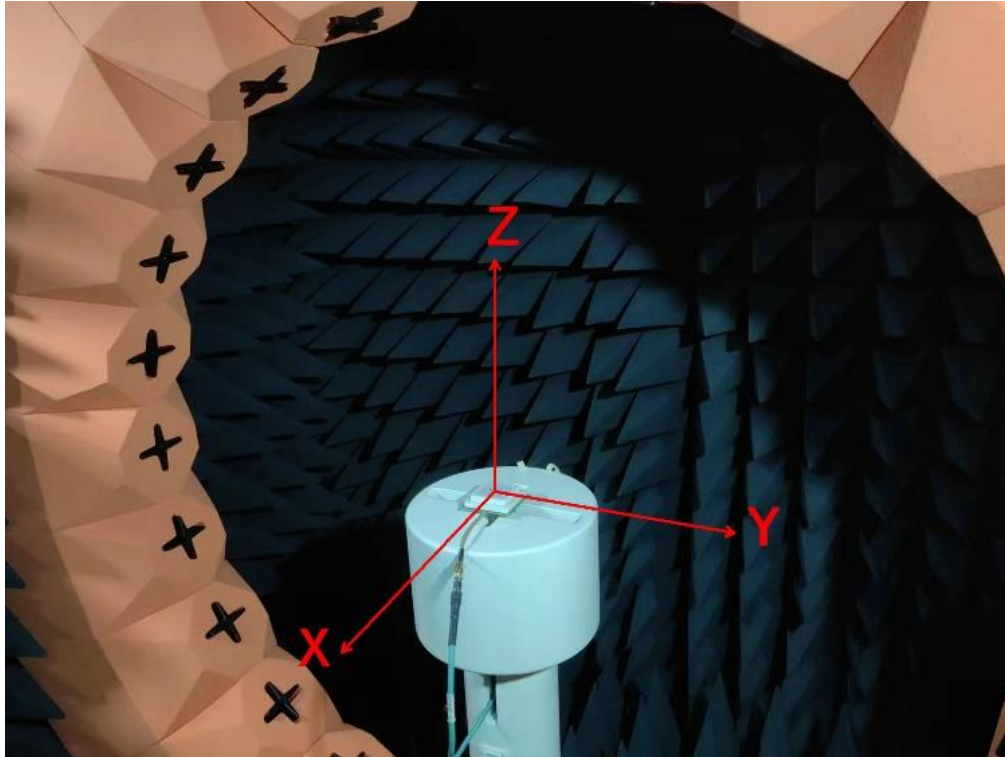


50 x 50 x 12 mm

RoHS N/A

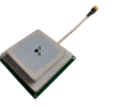
MSL Level = N/A

## Measurement Setup





# Active GNSS Dual-Band Stacked Patch Antenna



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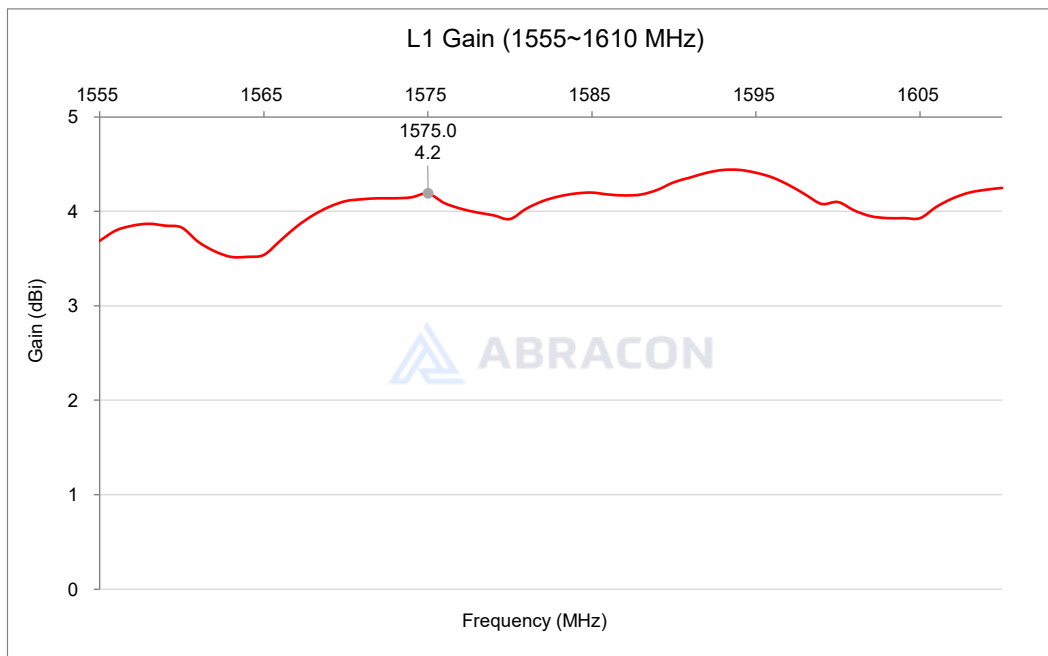
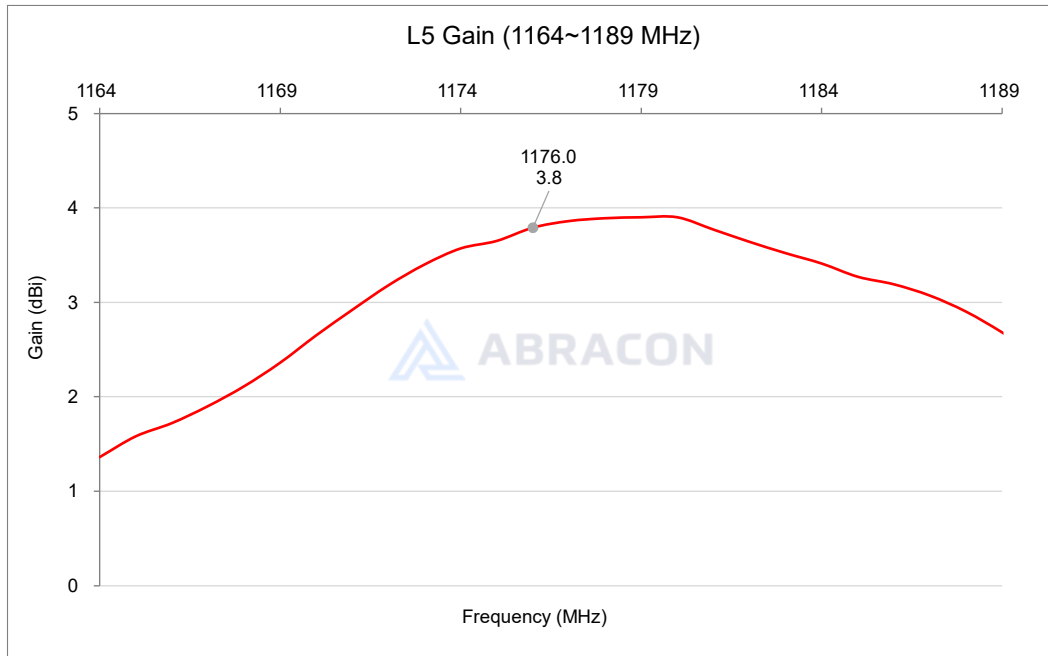


Check Inventory

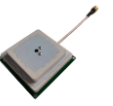


50 x 50 x 12 mm  
RoHS N/A  
MSL Level = N/A

## Radiation Characteristics –Passive Gain



# Active GNSS Dual-Band Stacked Patch Antenna



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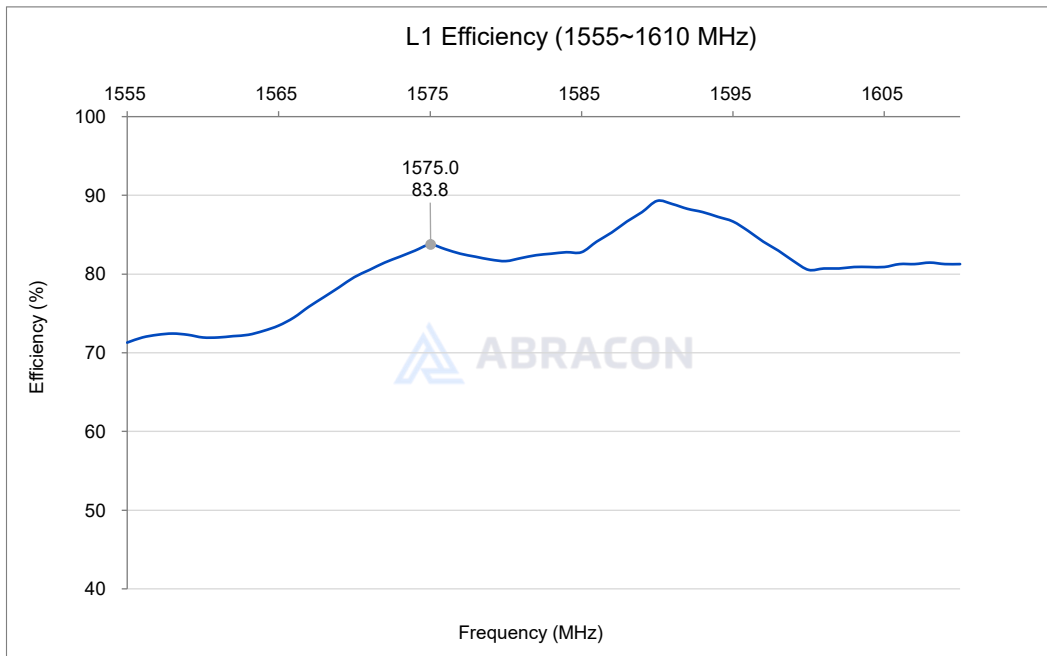
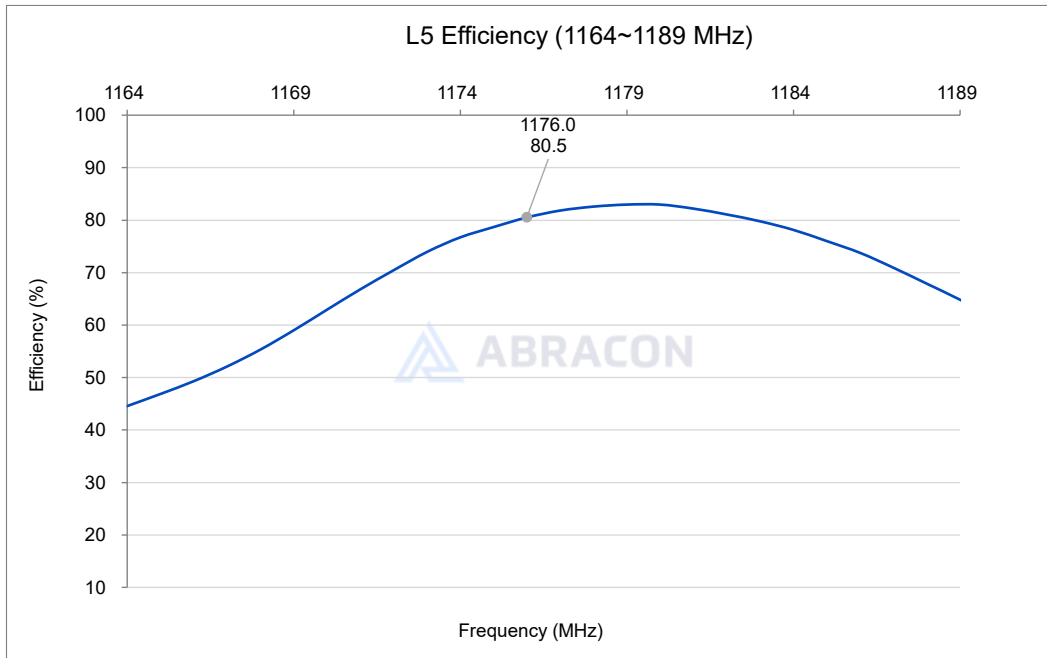


50 x 50 x 12 mm

RoHS N/A

MSL Level = N/A

## Radiation Characteristics – Total Efficiency (%)

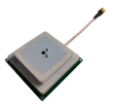


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# Active GNSS Dual-Band Stacked Patch Antenna



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50 x 50 x 12 mm

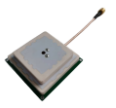
RoHS N/A

MSL Level = N/A

## Radiation Characteristics –LNA Gain

Frequency, GHz	Gain, dB
1.176	39.299
1.561	38.389
1.575	39.970
1.602	39.395

# Active GNSS Dual-Band Stacked Patch Antenna



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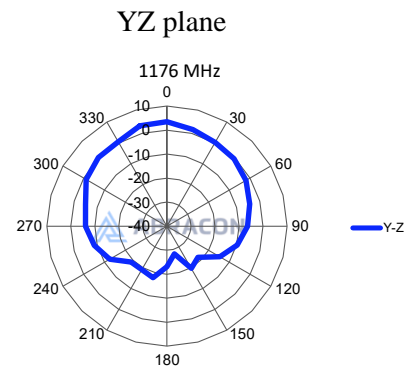
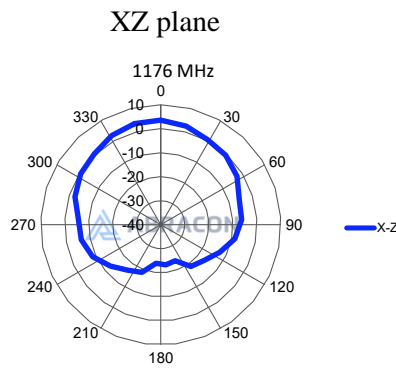
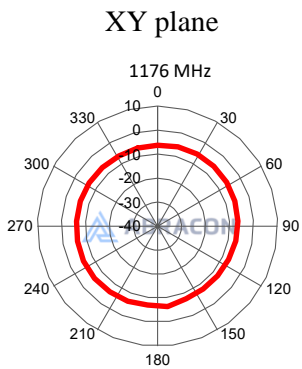
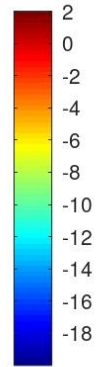
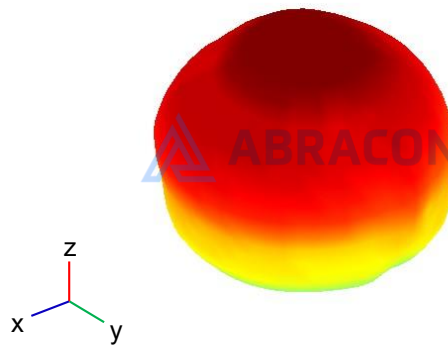
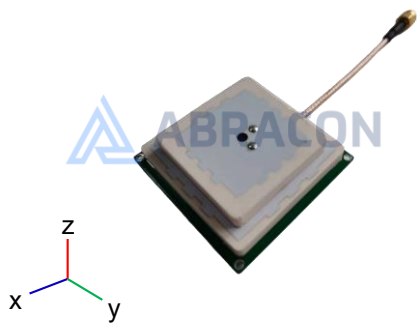
50 x 50 x 12 mm

RoHS N/A

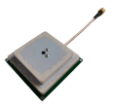
MSL Level = N/A

## Radiation Characteristics – 3D & 2D Pattern

1176MHz



# Active GNSS Dual-Band Stacked Patch Antenna



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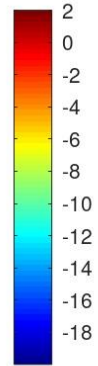
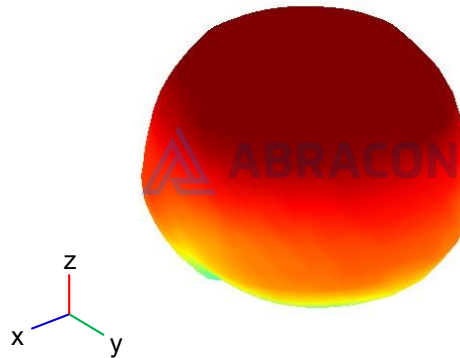
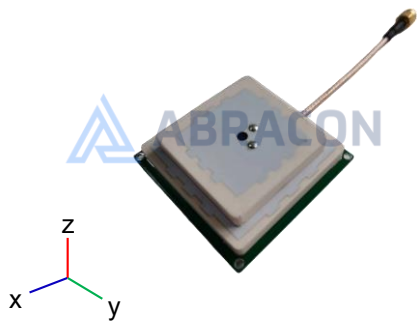


Check Inventory

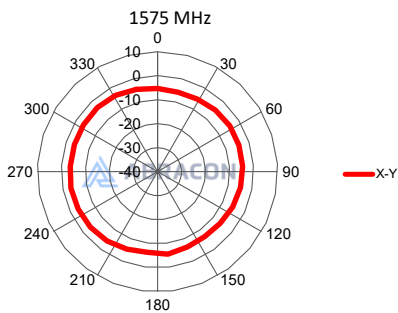


**50 x 50 x 12 mm**  
**RoHS N/A**  
**MSL Level = N/A**

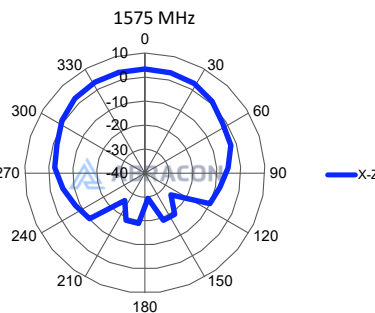
1575MHz



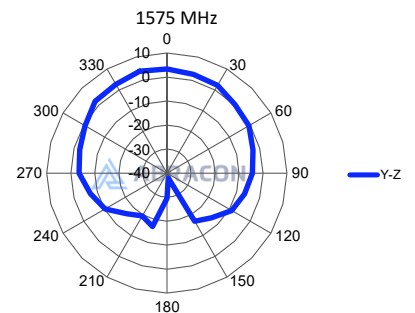
XY plane



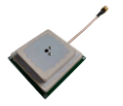
XZ plane



YZ plane



# Active GNSS Dual-Band Stacked Patch Antenna



**APKG5012GD**

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50 x 50 x 12 mm

RoHS N/A

MSL Level = N/A

## Packaging

8 pcs per package bases

Total 80 pcs antennas per outer box

Dimension of the outer box: 430 x 360 x 150 mm

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