



**AANI-AP-0200**

Request Samples



Check Inventory



**18 x 18 x 6.6 mm**  
**RoHS Compliant**  
**MSL Level = N/A**

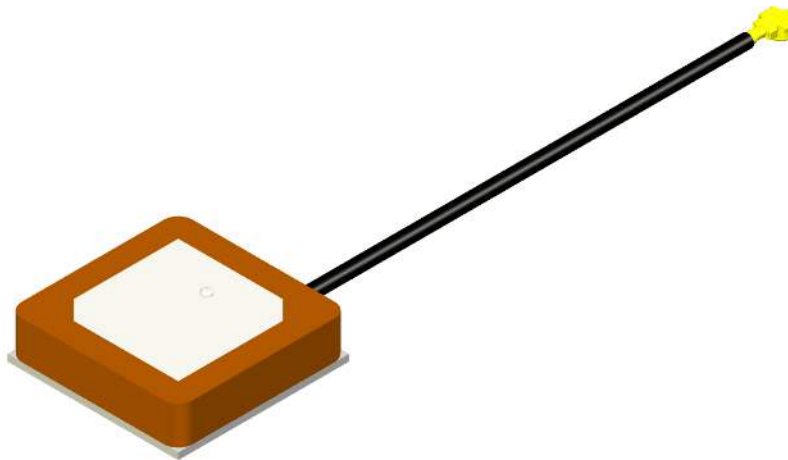
## Features

- Full-Constellation Active GNSS Antenna
- Low Profile with Size 18 x 18 x 6.6 mm
- LNA Gain:  $15 \pm 3$  dB
- Pre-Filtering for Enhanced Anti-Jamming Performance
- Low Current Consumption:  $5 \pm 3$  mA
- Custom Cable & Connector Options Available

## Applications

- Asset Tracking
- Fleet Management
- Micro-Mobility Solutions
- UAVs, Robotics & Autonomous Vehicles
- Precision GNSS Positioning
- Mission-Critical GNSS Timing
- Geofencing

## Product Image



# Full-Constellation Internal Active GNSS L1 Patch Antenna



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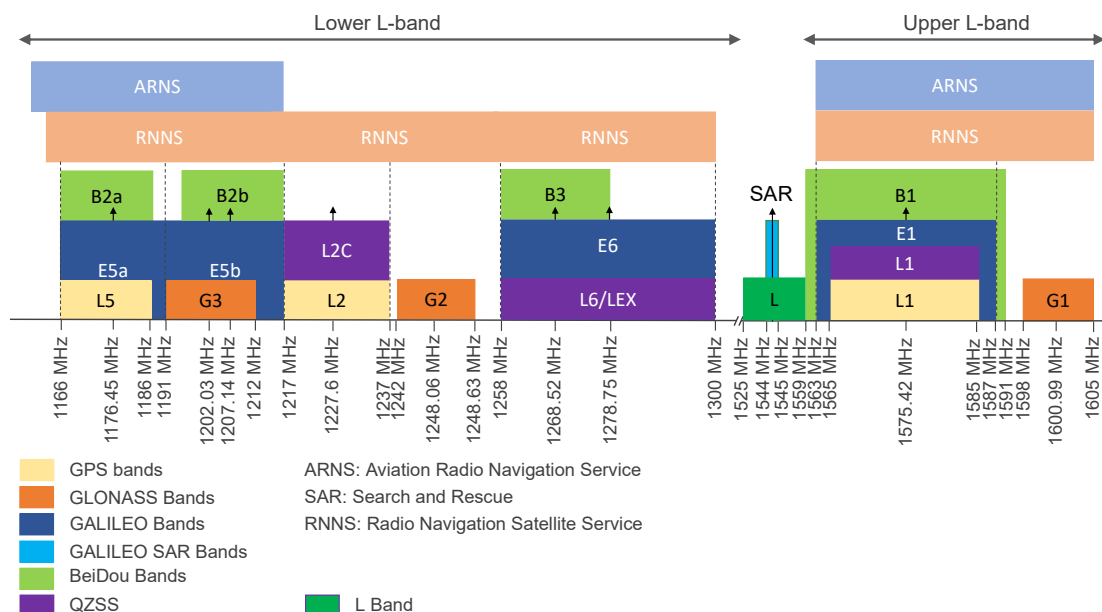
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## GNSS Frequency Bands Covered

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



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



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## Electrical Specification

| Parameters              |               | Min.                                                          | Typ. | Max. | Units | Note                               |
|-------------------------|---------------|---------------------------------------------------------------|------|------|-------|------------------------------------|
| Antenna                 |               |                                                               |      |      |       |                                    |
| Frequency               |               | GPS: L1<br>GLONASS: G1<br>GALILEO: E1<br>QZSS: L1<br>SBAS: L1 |      |      |       |                                    |
| VSWR                    |               | ≤ 2                                                           |      |      | -     |                                    |
| Polarization            |               | RHCP                                                          |      |      | -     | (Right Hand Circular Polarization) |
| Nominal Impedance       |               | 50                                                            |      |      | Ω     |                                    |
| Peak Gain (RHCP)        |               | 0.16                                                          | 0.8  | 2.1  | dBic  | On 70 × 70 mm ground plane         |
| Efficiency              |               | 58.3                                                          | 58.9 | 78.1 | %     |                                    |
| LNA                     |               |                                                               |      |      |       |                                    |
| VSWR                    |               | ≤ 2.0                                                         |      |      | -     |                                    |
| DC Input                |               | 1.8                                                           |      | 5.0  | V     |                                    |
| Gain                    |               | 15 ± 3                                                        |      |      | dB    |                                    |
| Noise Figure            |               | ≤ 2.6                                                         |      |      | dB    |                                    |
| Out of Band Attenuation | 10-840 MHz    | > 50                                                          |      |      | dB    |                                    |
|                         | 840-1500 MHz  | > 60                                                          |      |      |       |                                    |
|                         | 1700-2000 MHz | > 50                                                          |      |      |       |                                    |
|                         | 2000-3000 MHz | > 50                                                          |      |      |       |                                    |
| Current Consumption     |               | 5 ± 3                                                         |      |      | mA    |                                    |

Please note: All measurement data is based on the standard configuration (conducted in free space unless otherwise specified).

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**18 x 18 x 6.6 mm**  
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## Mechanical Specification

| Parameter                   | Specification     |
|-----------------------------|-------------------|
| Antenna Dimension           | 18 x 18 x 6.6 mm  |
| Mounting Type               | Adhesive Mount    |
| RF Connector <sup>(1)</sup> | u.FL/IPEX-1/MHF1  |
| Cable Length <sup>(1)</sup> | Ø 1.13mm x 100 mm |

(1): Fully customizable RF Cable & Connector

## Environmental Specification

| Parameter             | Specification  |
|-----------------------|----------------|
| Operating Temperature | -40°C to +85°C |
| Storage Temperature   | -40°C to +85°C |
| RoHS Compliance       | Yes            |
| ESD Sensitive         | No             |
| Relative Humidity     | Up to 95%      |

## Full-Constellation Internal Active GNSS L1 Patch Antenna



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### Ordering Information

| Part Number    | Description                                                                                | Connector Option |
|----------------|--------------------------------------------------------------------------------------------|------------------|
| AANI-AP-0200-1 | Full-Constellation Internal Active GNSS L1 Patch Antenna with 100 mm cable & MHF1connector | u.FL/IPEX-1/MHF1 |
| AANI-AP-0200-2 | Full-Constellation Internal Active GNSS L1 Patch Antenna with 150 mm cable & MHF1connector | u.FL/IPEX-1/MHF1 |
| AANI-AP-0200-3 | Full-Constellation Internal Active GNSS L1 Patch Antenna with 60 mm cable & MHF1connector  | u.FL/IPEX-1/MHF1 |

Note: Different cable and connector configurations that are not listed may be available upon request via [Abracon online support](#)



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# Full-Constellation Internal Active GNSS L1 Patch Antenna



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Request Samples

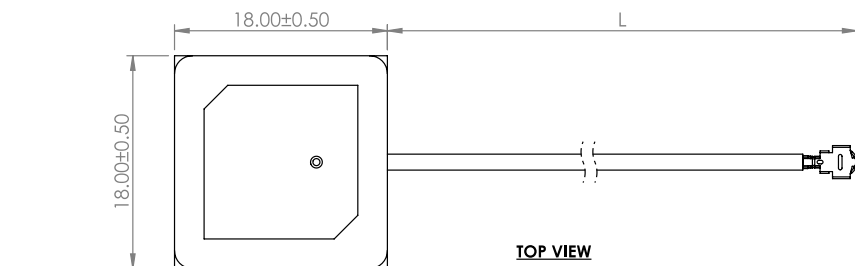


Check Inventory

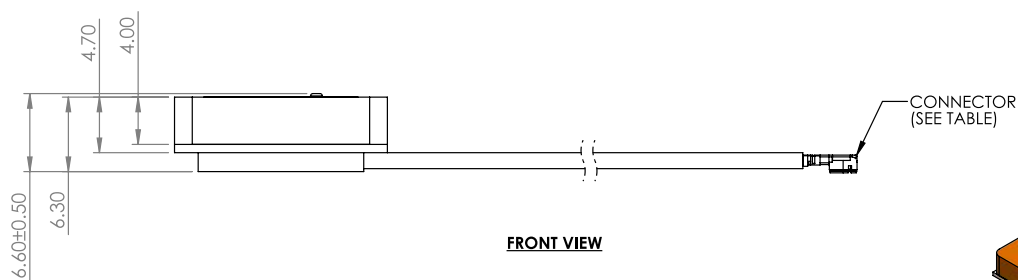


**18 x 18 x 6.6 mm**  
**RoHS Compliant**  
**MSL Level = N/A**

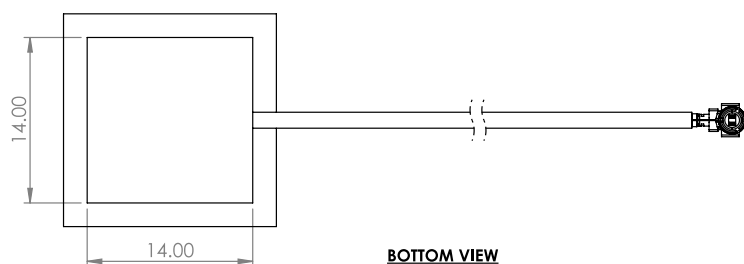
## Product Dimension



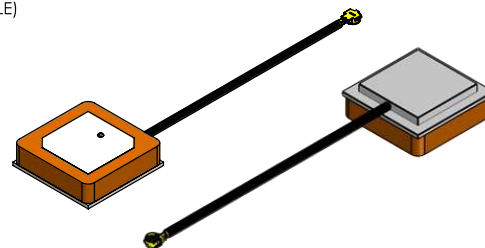
**TOP VIEW**



**FRONT VIEW**



**BOTTOM VIEW**



| PART NUMBER    | CABLE LENGTH (L) | CONNECTOR        |
|----------------|------------------|------------------|
| AANI-AP-0200-1 | 100              | U.FL/IPEX-1/MHF1 |
| AANI-AP-0200-2 | 150              | U.FL/IPEX-1/MHF1 |
| AANI-AP-0200-3 | 60               | U.FL/IPEX-1/MHF1 |

*Unit: mm*



**AANI-AP-0200**

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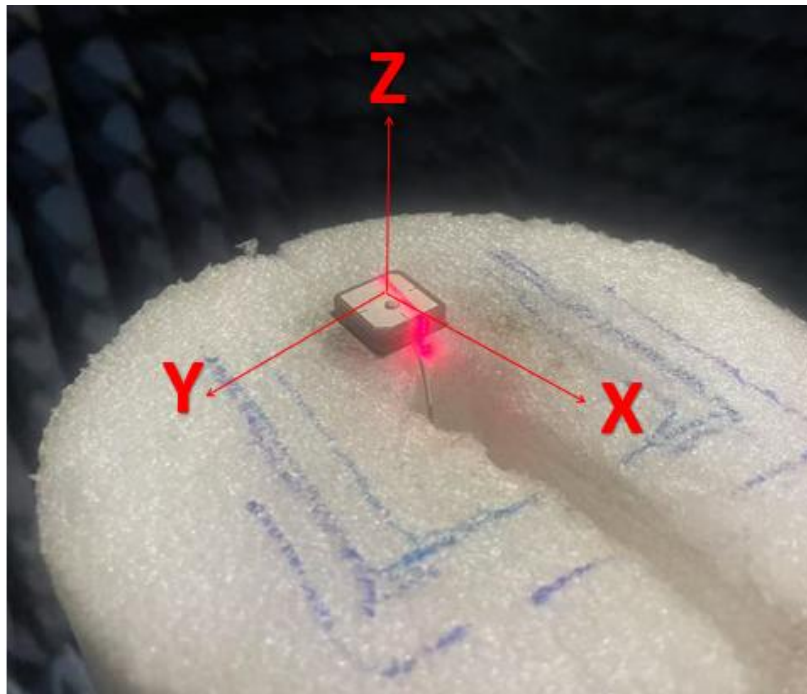


Check Inventory

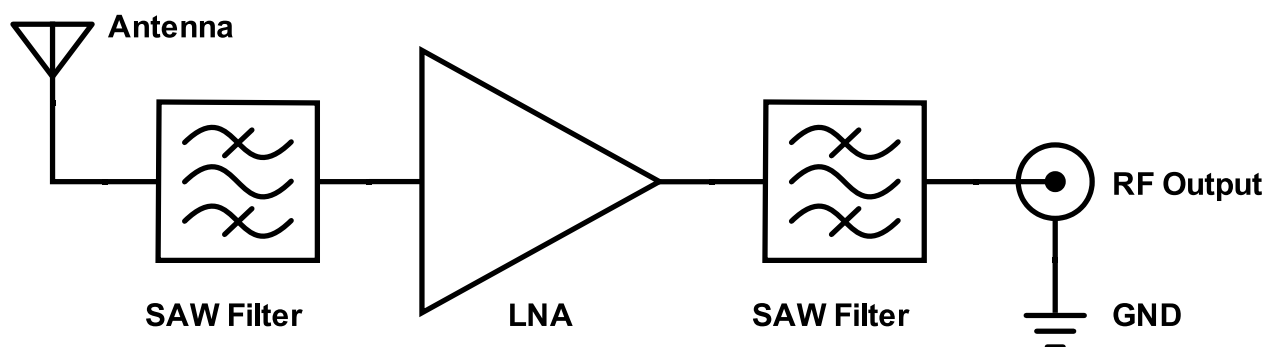


**18 x 18 x 6.6 mm**  
**RoHS Compliant**  
MSL Level = N/A

## Measurement Setup



## GNSS Block Diagram





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Request Samples

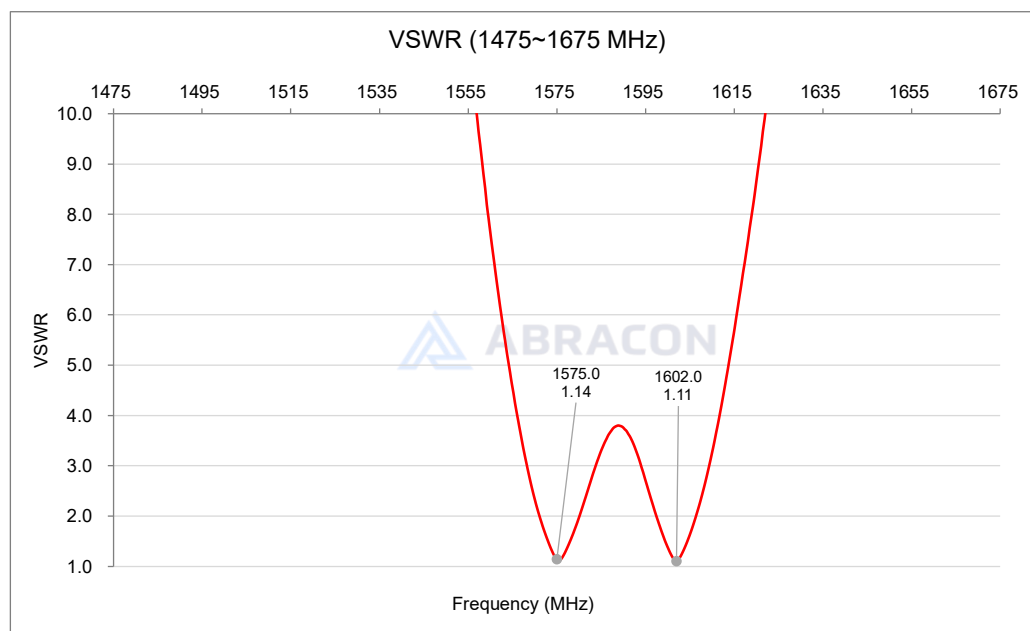
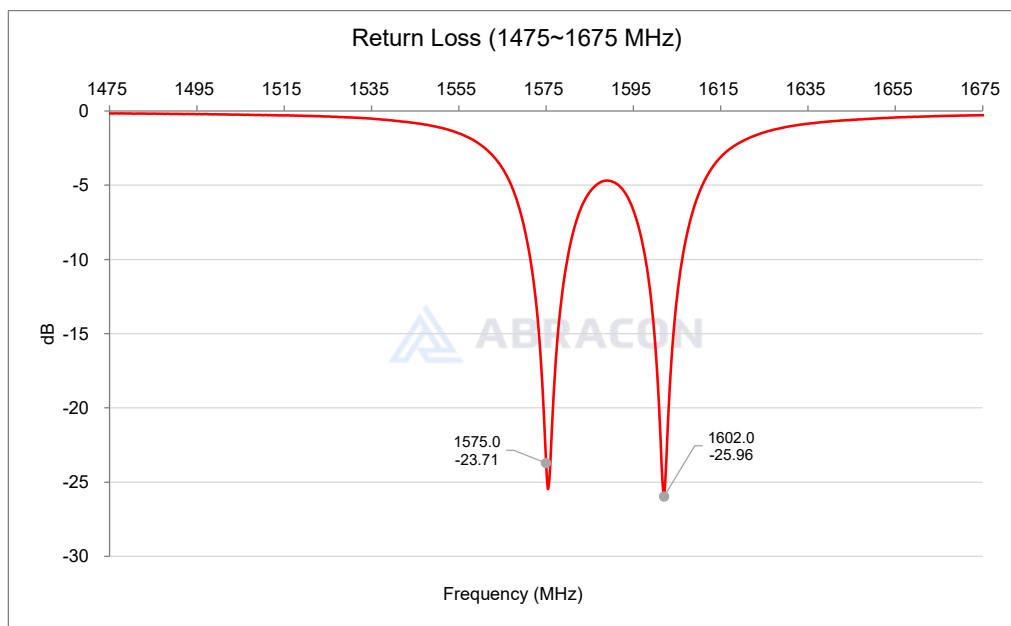


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**18 x 18 x 6.6 mm**  
**RoHS Compliant**  
**MSL Level = N/A**

## Reflection Characteristics – Return Loss & VSWR





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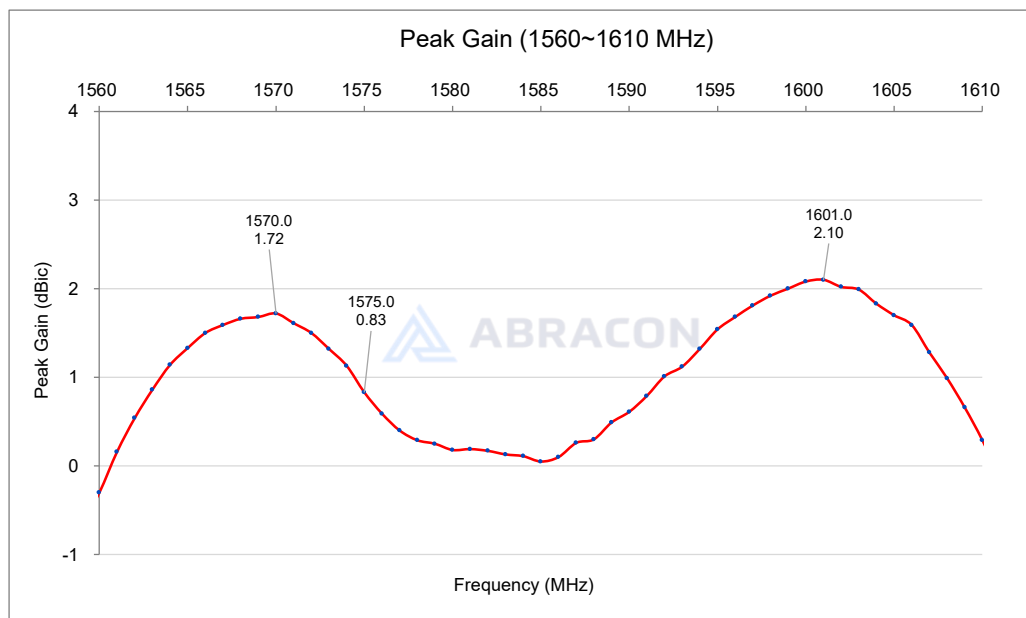


Check Inventory



**18 x 18 x 6.6 mm**  
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**MSL Level = N/A**

## Radiation Characteristics –Passive Peak Gain





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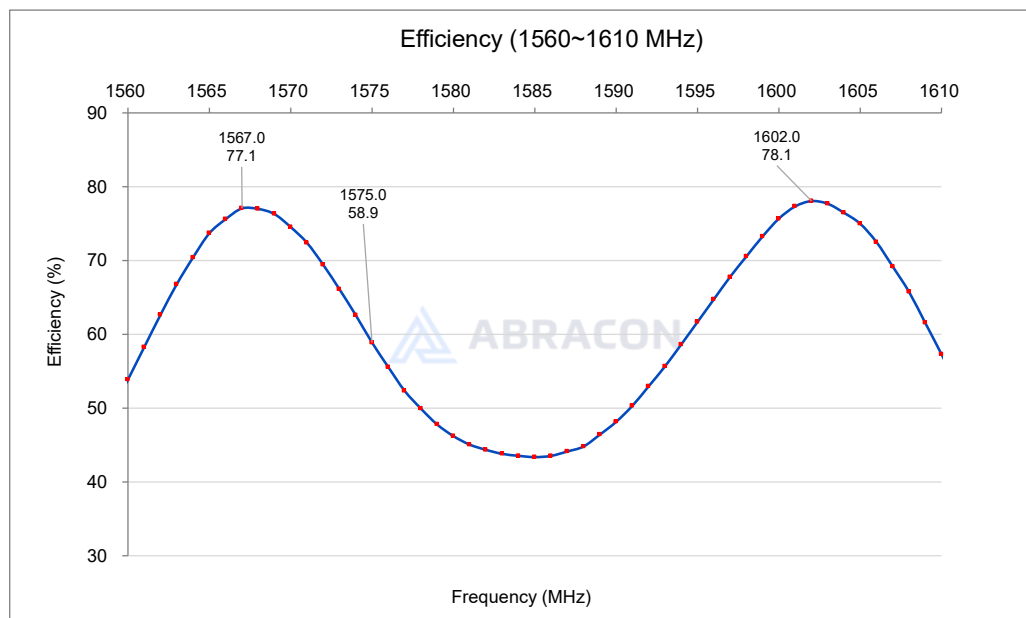


Check Inventory



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## Radiation Characteristics –Passive Efficiency





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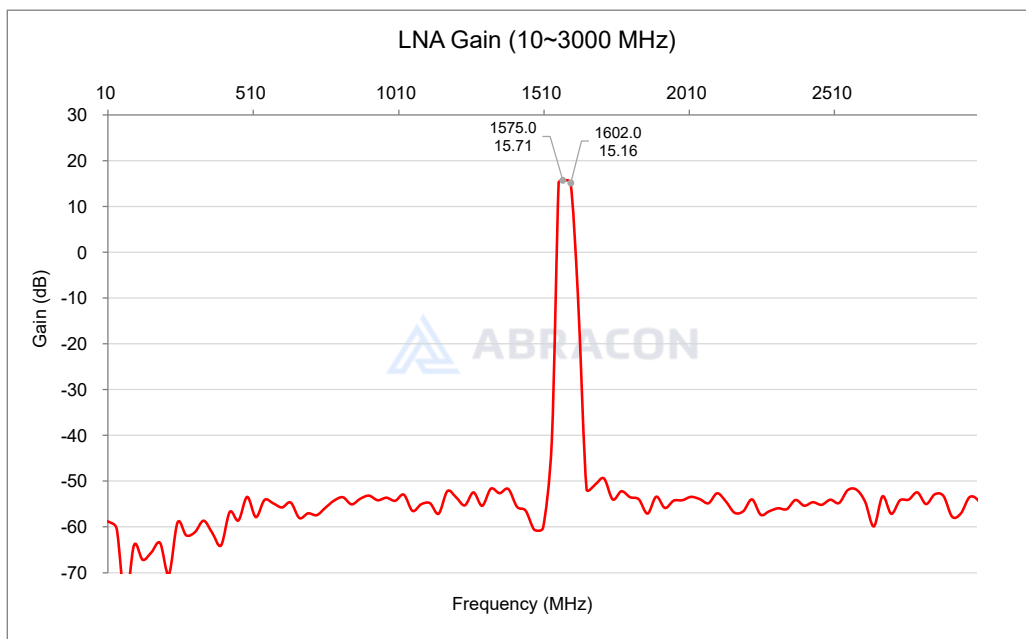


Check Inventory



**18 x 18 x 6.6 mm**  
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**MSL Level = N/A**

## LNA Characteristics –LNA Gain





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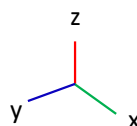
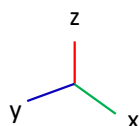
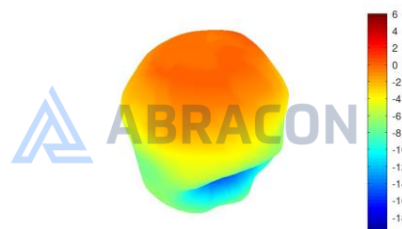
Check Inventory



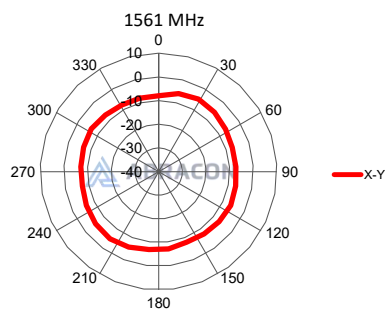
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## Radiation Characteristics – 3D & 2D Pattern

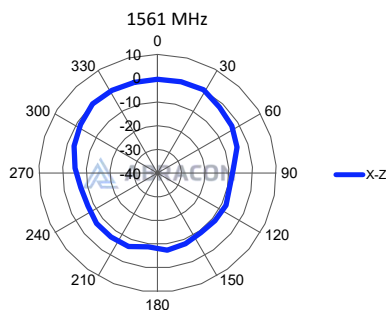
1561MHz



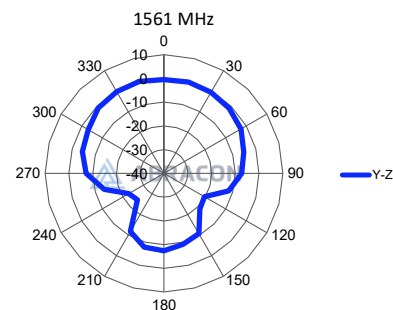
XY plane



XZ plane



YZ plane



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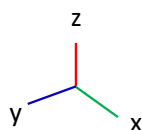
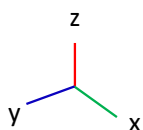


Check Inventory

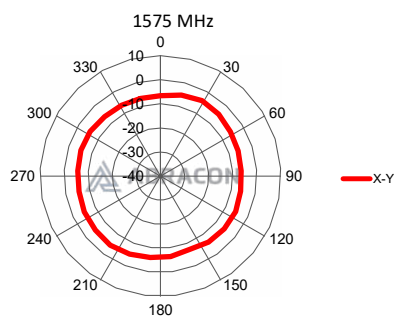


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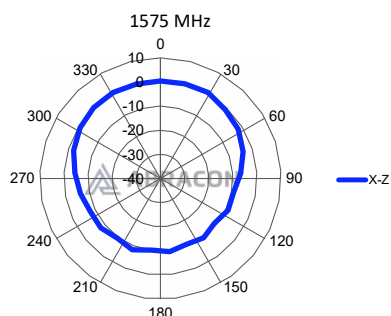
1575MHz



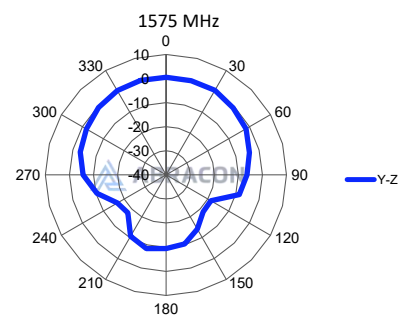
XY plane



XZ plane



YZ plane



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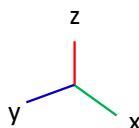
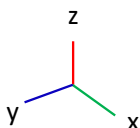
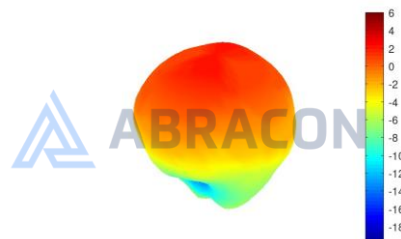


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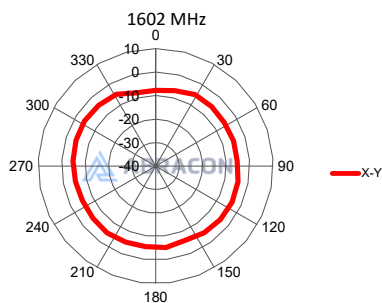


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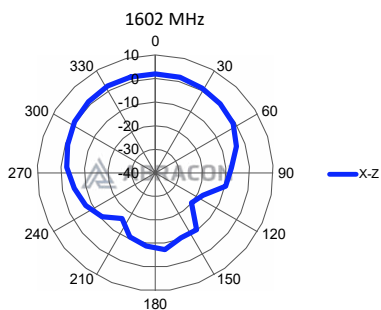
1602MHz



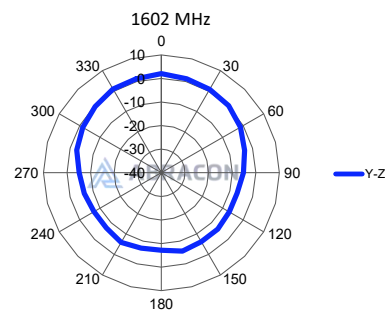
XY plane



XZ plane



YZ plane



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## Packaging

AANI-AP-0200-1:

600 pcs antennas per carton

Dimensions: 345 x 210 x 360 mm

AANI-AP-0200-2:

400 pcs antennas per carton

Dimensions: 345 x 210 x 360 mm

AANI-AP-0200-3:

600 pcs antennas per carton

Dimensions: 345 x 210 x 360 mm

**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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