

## Datasheet

## GNSS Patch Antenna

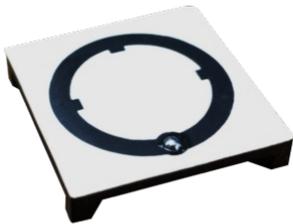
Embedded

Features:

The patch antenna has much higher efficiency and small form factor, easy mounting with pin-connector, suitable for mounting inside device.

Applications:

- GNSS enabled devices
- Portable Handsets
- Automotive Navigation
- Marine buoys
- Tracking and Positioning



25 × 25 × 4.5 mm

## GNSS Antenna



## Electrical Specifications

## Antenna Characteristics By Range Of Receiving Frequency

|  |            |             |
|--|------------|-------------|
| Frequency (MHz)                                | 1176.5 ± 1 | 1575.42 ± 1 |
| Return Loss (dB)                               | < -10      | < -10       |
| Gain (dBic) @Zenith<br>at 100mm × 100mm ground | 2.7        | 4.5         |
| Efficiency (%) @Center Frequency               | 35         | 70          |
| Axial Ration (dB)                              | 3 Typ.     | 3 Typ.      |
| Polarization                                   | RHCP       | RHCP        |
| Impedance (Ω)                                  | 50         | 50          |

**Mechanical Specifications**

**Mechanical**

|                |                   |
|----------------|-------------------|
| Dimension (mm) | 25.0 × 25.0 × 4.5 |
| Material       | Ceramic           |
| Weight (g)     | 10.0              |

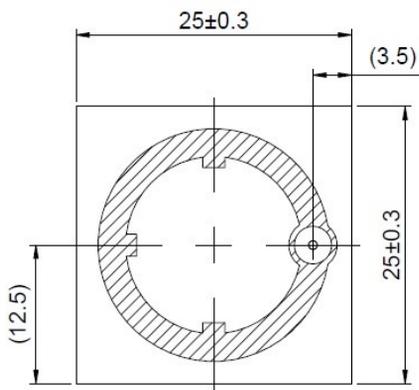
**Environmental**

|                        |               |
|------------------------|---------------|
| Temperature Range (°C) | -40 to 85     |
| Humidity               | 10% to 70% RH |

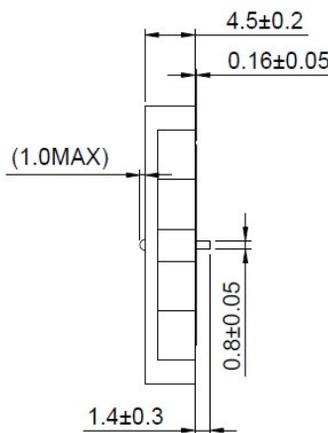
RoHS Compliant

**Mechanical Drawing**

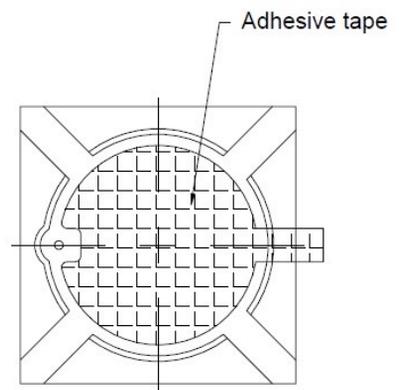
Unit : mm



Front View

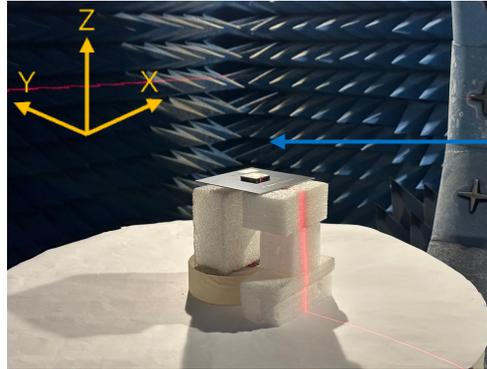


Side View



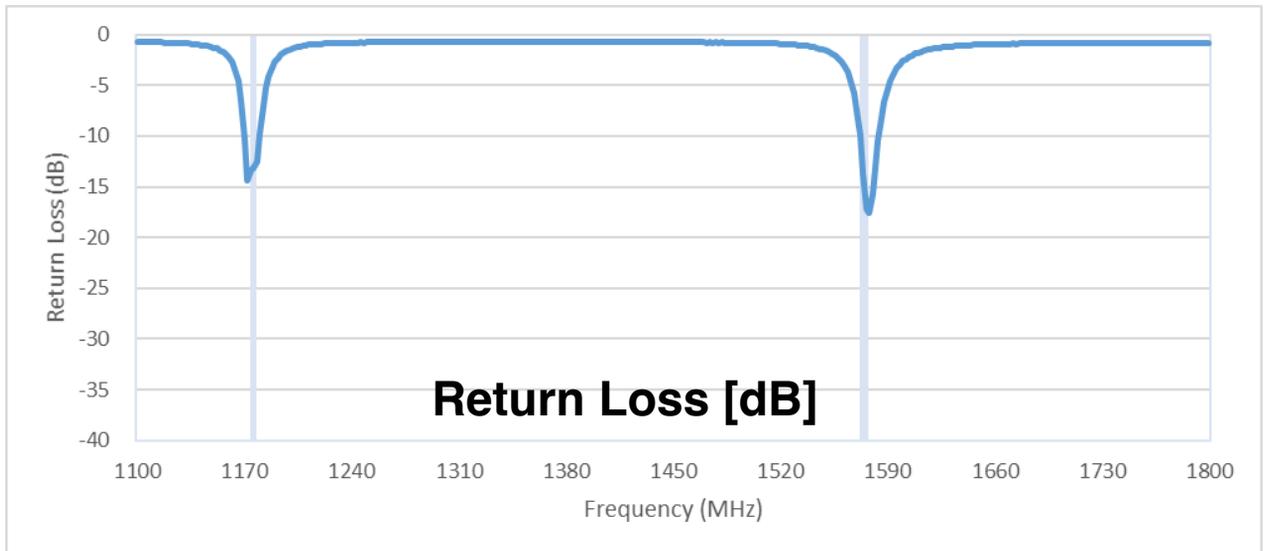
Back View

## Antenna Testing Includes Evaluation Board

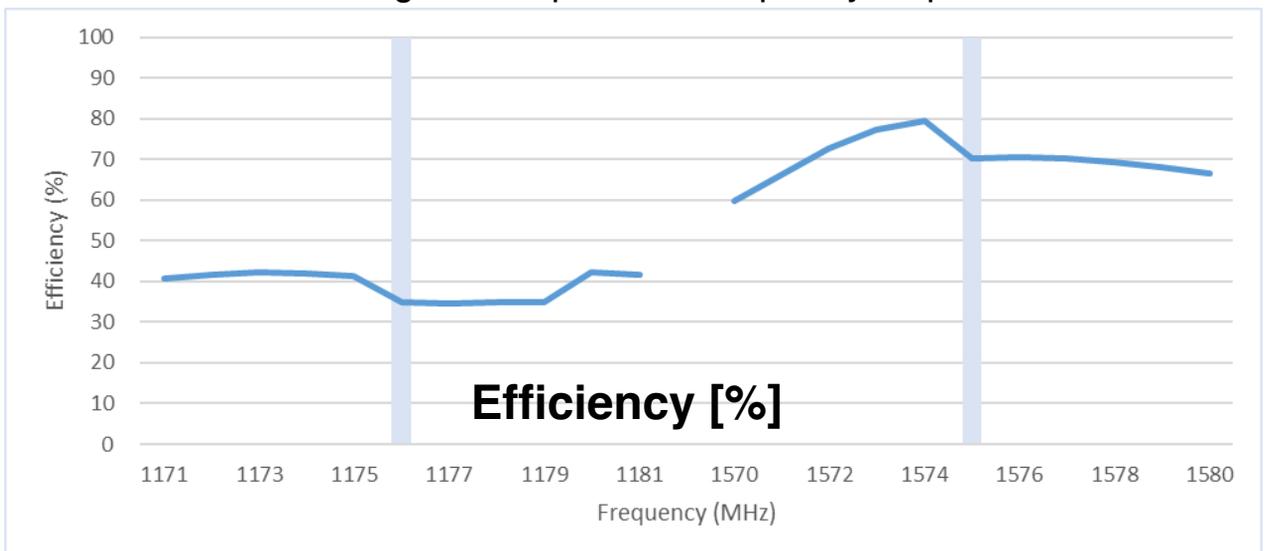


ST0543-11-N02-E

Test setup, measurement performed in 3D anechoic chamber.

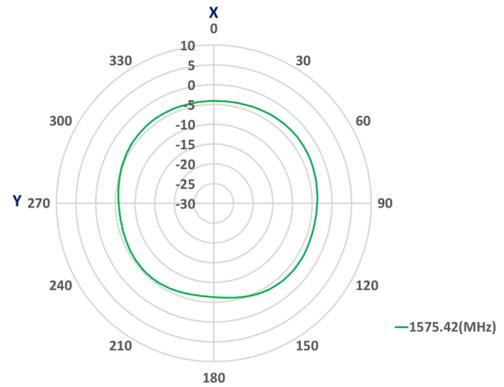
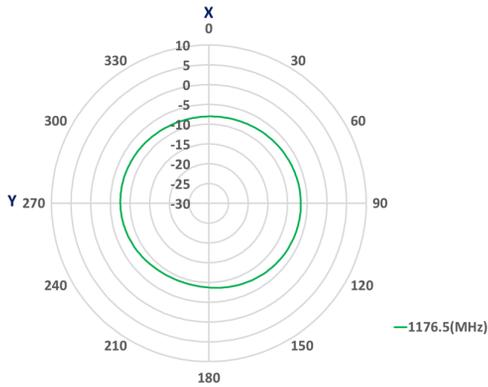


Blue background represents frequency response.

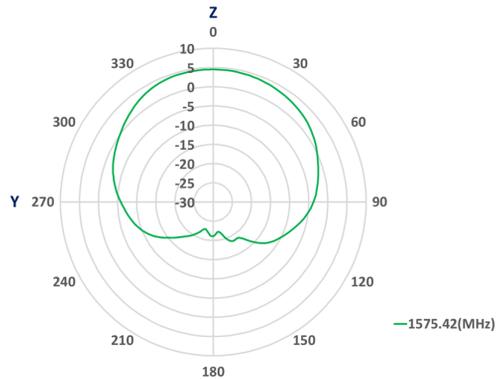
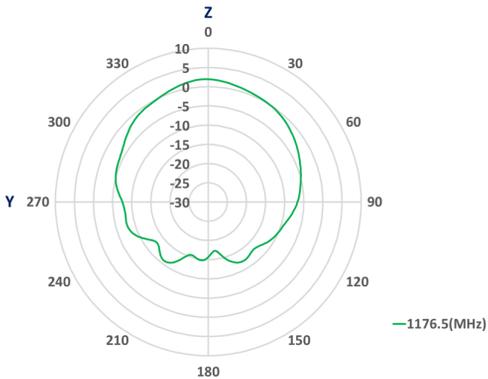


## Radiation Pattern - Free Space

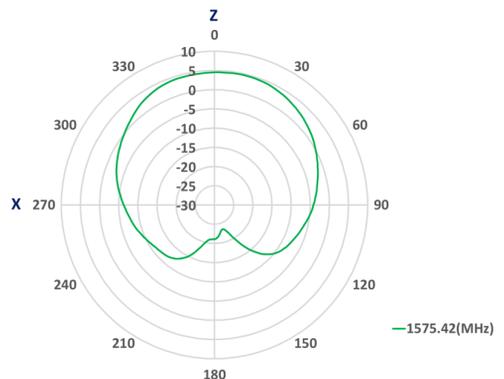
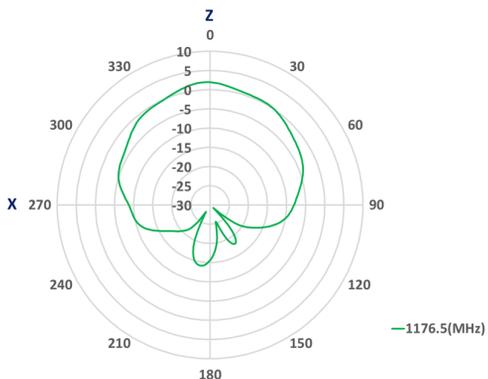
### XY - Plane



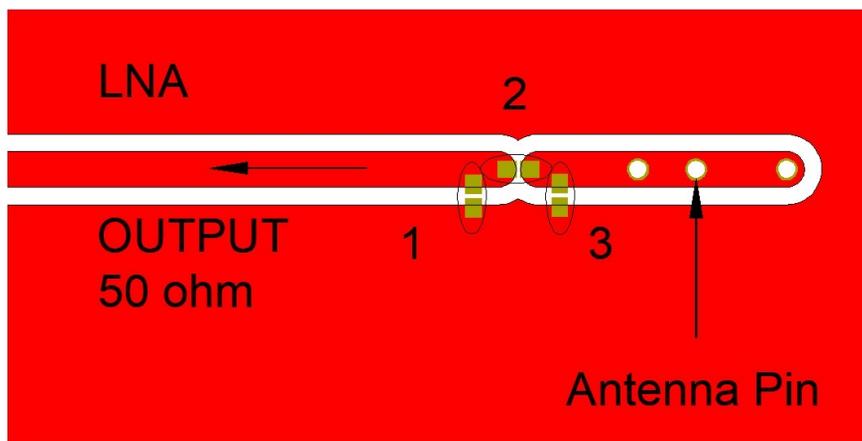
### YZ - Plane



### XZ - Plane



## Matching Circuit Design



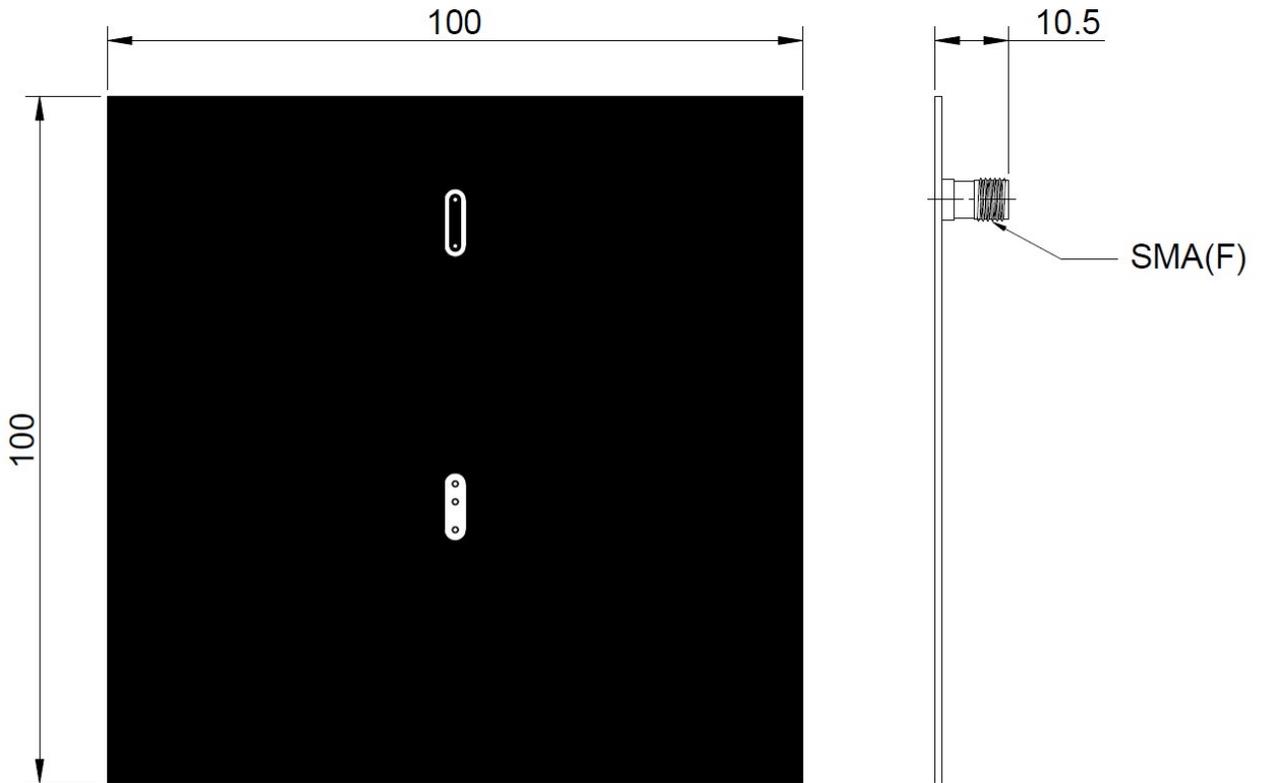
- \* To make the antenna have this resonance must be matched with the matching circuit.
- \* The matching component may be slightly different than that shown depending on the distance to the ground plane, the dielectric constant of the PCB, and PCB material thickness.

### Circuit Matching Components

| Circuit Symbol | Size | Description      |
|----------------|------|------------------|
| 1              | 0402 | 4.7 nH Inductor  |
| 2              | 0402 | 0 Ohm Resistance |
| 3              | NA   | NA               |

Evaluation Board

Unit : mm



Base Material : FR-4, T=1.0

**Revisions**

| Rev. | Description     | Date       | ECN                  | Approval |
|------|-----------------|------------|----------------------|----------|
| A    | Initial Release | 2023-06-19 | ST0543-11-N02-E-RA00 | ATC      |

NOTICE - These drawings, specifications, or other data ( 1) are, and remain the property of Amphenol corp. (2) must be returned upon request; and (3) are confidential and not to be disclosed to any person other than those to whom they are given by Amphenol Corp. the furnishing of these drawings, specifications, or other data by Amphenol Corp., or to any other person to anyone for any purpose is not to be regarded by implication or otherwise in any manner licensing, granting rights to permitting such holder or any other person to manufacture, use or sell any product, process or design, patented or otherwise, that may in any way be related to or disclosed by said drawings, specifications, or other data.