

# Multiband GNSS Dielectric Patch Antenna



APARM2504-SG3



25.1 x 25.1 x 4.0 mm  
RoHS/RoHS II Compliant  
MSL = N/A

## Features

- Multiband GNSS patch with GPS/GLONASS/BeiDou/Galileo
- Low VSWR of 1.8
- RHCP polarization
- 25.1 x 25.1 x 4.0 mm
- Gain of GPS: 1.5 dBi  
GLONASS: 3.5 dBi  
BeiDou: 2.5 dBi

## Applications

- GPS/GLONASS/BeiDou/Galileo applications
- IoT
- M2M
- Remote technology monitoring
- Geofencing
- Navigation
- Surveying and mapping systems
- Logistics
- Automotive

## Electrical Specifications

Parameters	Min.	Typ.	Max.	Units	Note
Frequency Range		GPS: 1575.42 ± 1.023 GLONASS: 1602 ± 5 BeiDou: 1561.098 ± 2.046 Galileo: 1575.42 ± 1.023		MHz	
Center Frequency		1573 ± 3		MHz	
VSWR			1.8		@CF
Polarization		RHCP			Right Hand Circular Polarization
Impedance		50		Ω	
Bandwidth	28			MHz	RL: - 10 dB
Gain		GPS: 1.5 GLONASS: 3.5 BeiDou: 2.5		dBi	Zenith

- \* Ground Plane size: 64.40 x 49.55 mm
- \* Actual Electrical Value will depend on the size of ground plane in use

## Environmental Characteristics

Parameters	Description
Operating Temperature	-40°C to +105°C
Storage Temperature	-40°C to +105°C
Frequency Temperature Coefficient ( $T_f$ )	-40°C to +105°C (0 ± 20 ppm/°C)
Relative Humidity	0 ~ 95 %

# Multiband GNSS Dielectric Patch Antenna

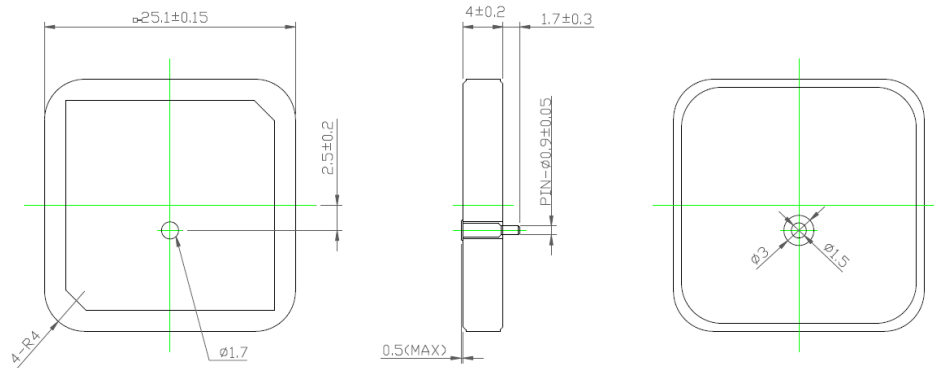


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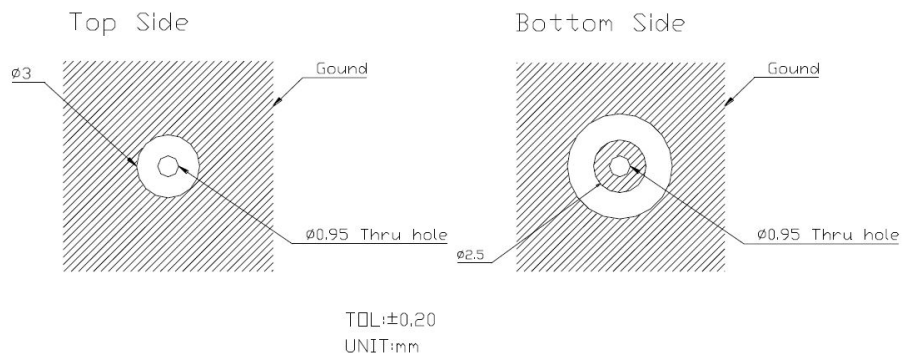


25.1 x 25.1 x 4.0 mm  
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## Product Dimensions (Unit: mm)

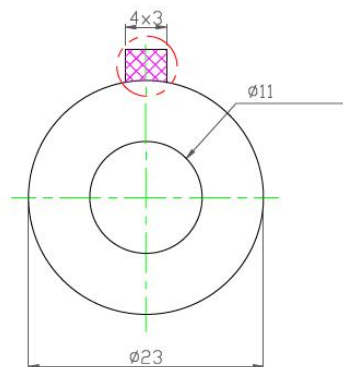


## Layout Dimensions



## Tape Dimension (Unit : mm)

Double – coated thin adhesive tape | Thickness : 0.12 mm



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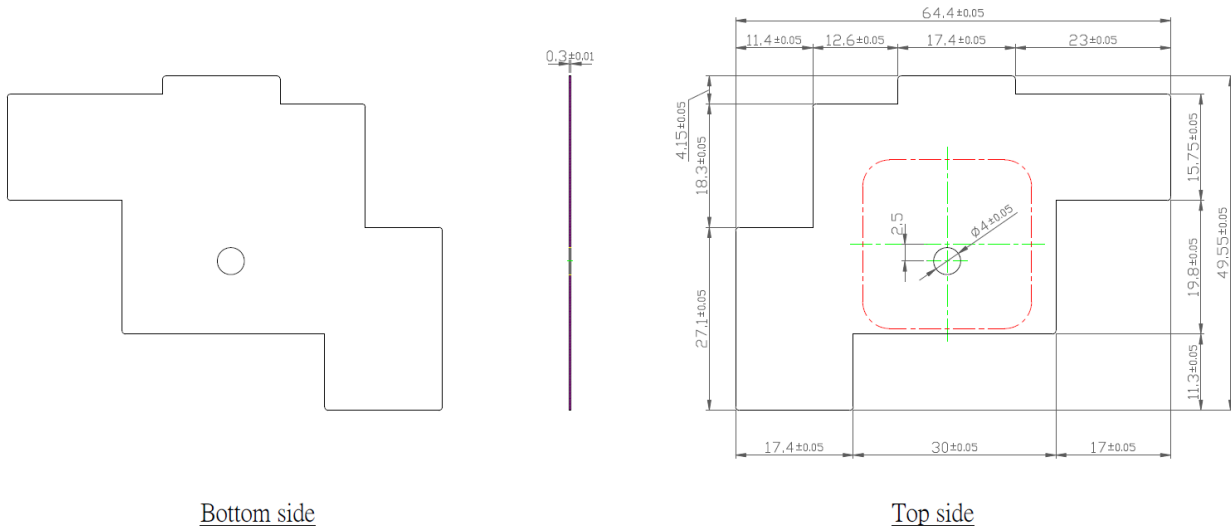
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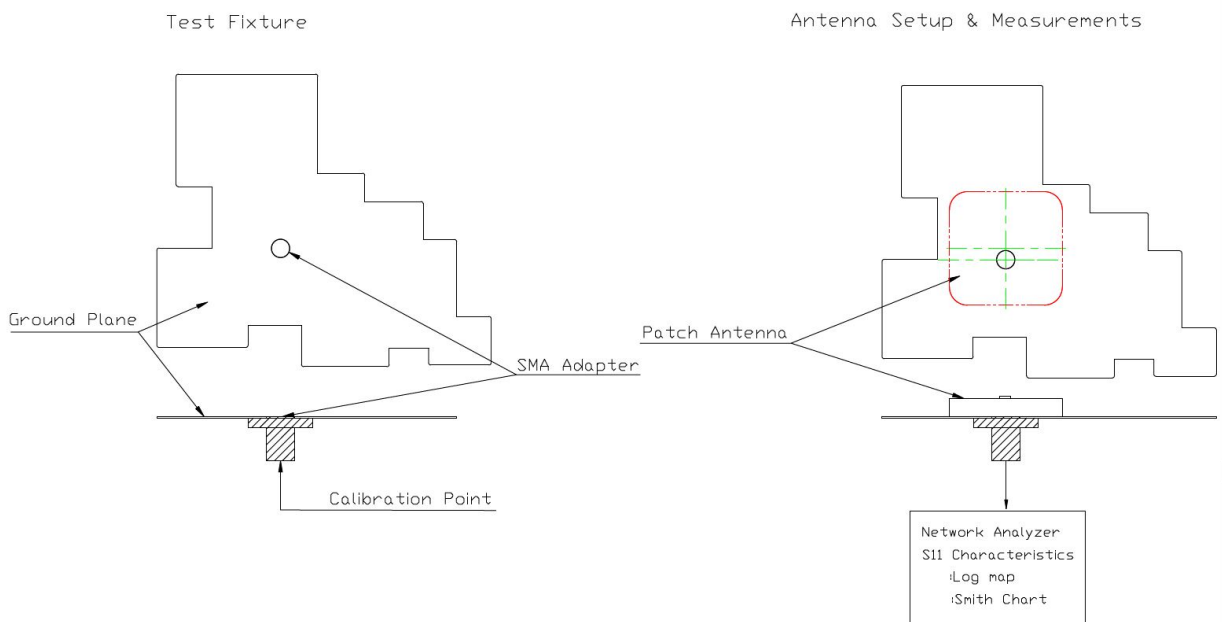
25.1 x 25.1 x 4.0 mm  
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## Product Dimensions

### Ground Plane Dimension (Unit : mm)



## Test Fixture Antenna Setup and Measurements



# Multiband GNSS Dielectric Patch Antenna

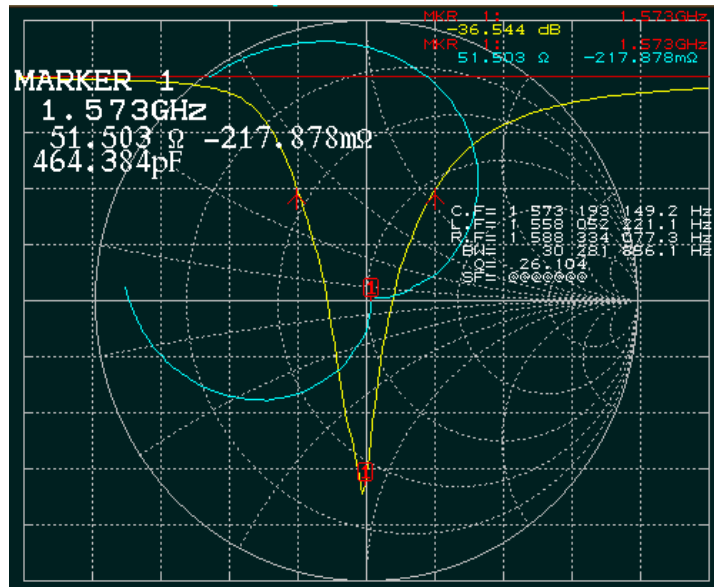


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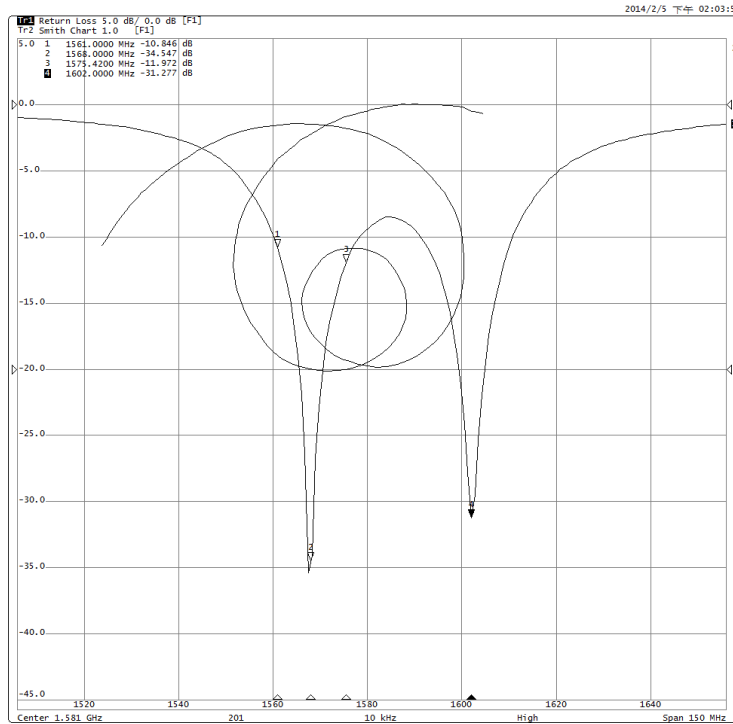


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## Return Loss and Impedance Characteristics



Ground Plane Size : 70 x 70 mm



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REVISED: 01.25.2019

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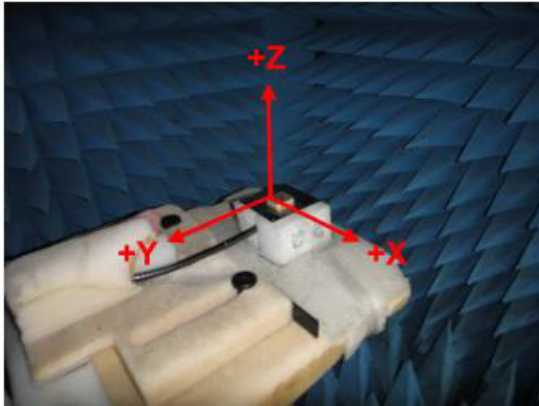
APARM2504-SG3



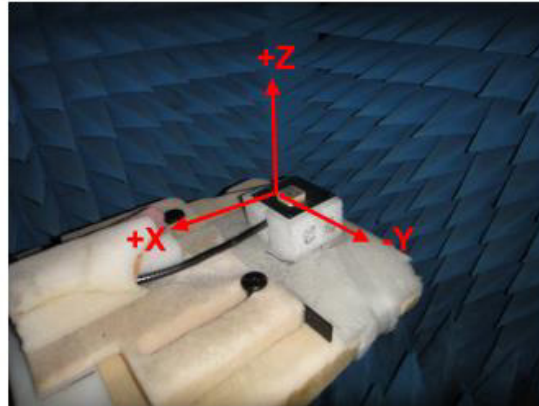
25.1 x 25.1 x 4.0 mm  
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## Radiation Patterns

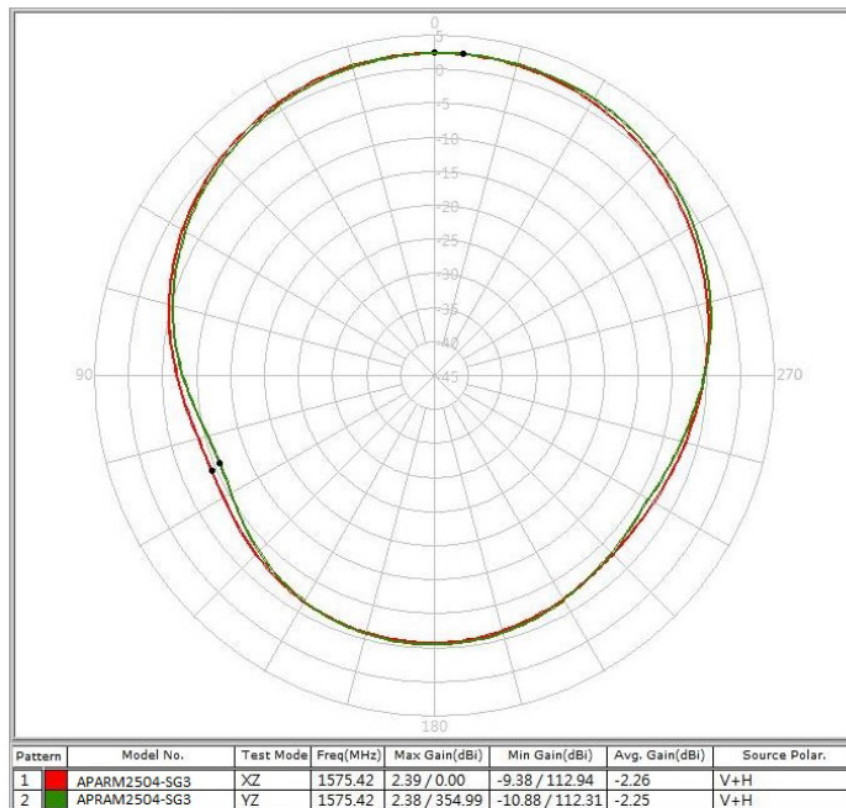
XZ-Plane



YZ-Plane



**XZ + YZ – Plane : 1575.42 MHz**



# Multiband GNSS Dielectric Patch Antenna



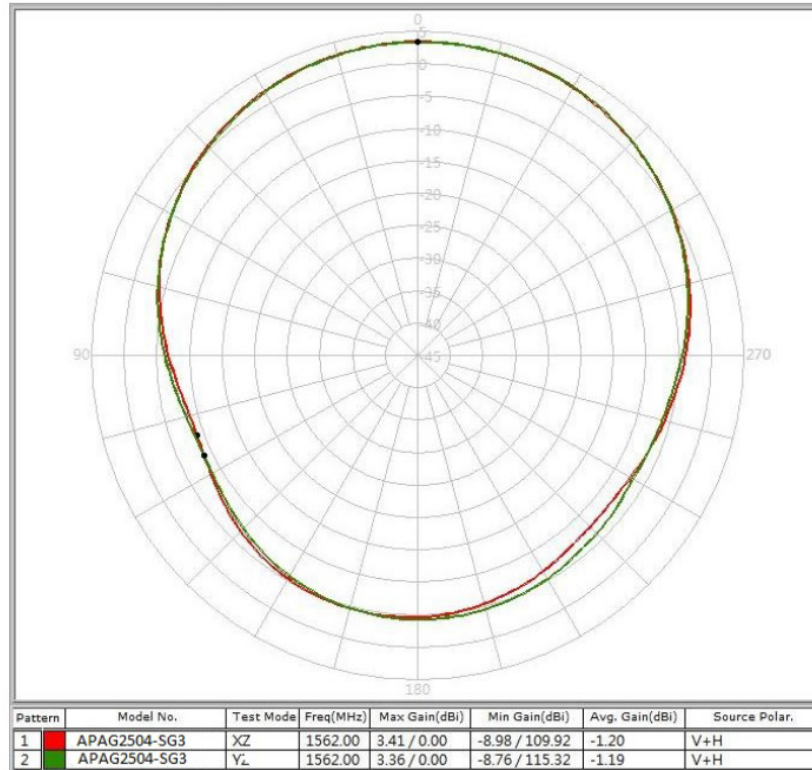
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25.1 x 25.1 x 4.0 mm  
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## Radiation Patterns

### XZ + YZ – Plane : 1562 MHz



# Multiband GNSS Dielectric Patch Antenna



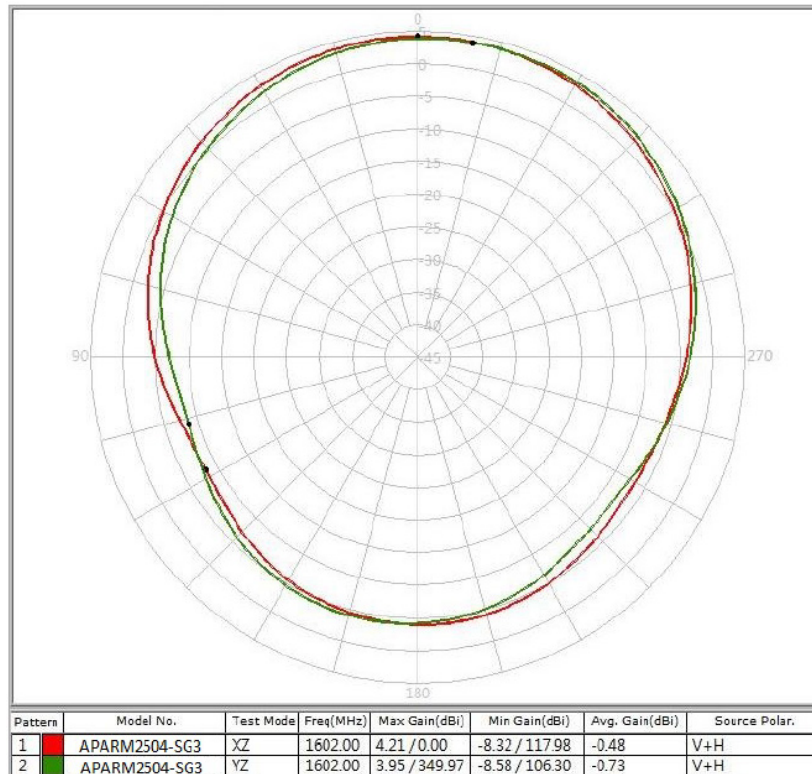
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25.1 x 25.1 x 4.0 mm  
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## Radiation Patterns

### XZ + YZ – Plane : 1602 MHz



## Packaging

The carton is of dimension 330 x 280 x 254 mm and has 800 pcs.

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## Reliability Tests

- i. Low-temperature test: Expose the specimen to -40°C for 400 hours and then to normal temperature/ humidity for 24 hours or more. After this test, examine its appearance and functions.
- ii. High-temperature test: Expose the specimen to +105°C for 400 hours and then to normal temperature/humidity for 24 hours or more. After this test, examine its appearance and functions.
- iii. High-temperature/ High-humidity test: Subject the object to the environmental conditions of +60°C and 90 – 95 % R.H. for 96 hours, then expose to normal temperature/ humidity for 24 hours or more. After this test, examine its appearance and functions.
- iv. Thermal shock test: Subject the object to cyclic temperature change (-40°C, 2 hours  $\Leftrightarrow$  +85°C, 2 hours) for 100 cycles, the expose to normal temperature/humidity for 24 hours or more.
- v. Vibration test:
  - Sinusoidal vibration test: Subject the object to vibrations of 5 to 200 to 5 Hz swept in 10 minutes, 4.5 G at maximum (2 mm amplitude), in X and Y directions for two hours each and in Z direction for four hours. After this test, examine its appearance functions.
  - Vibration test in packaged condition: Subject the object, which is packed as illustrated, to vibrations of 15 to 60 to 15 Hz swept in 6 minutes, 4 G at maximum (2 mm amplitude at maximum), applied in X, Y and Z directions for two hours each, i.e. six hours in total. After this test, examine its appearance and functions.
- vi. Free fall test in packaged condition: Drop the object, which is packaged as illustrated, to a concrete surface from the height of 90 cm, on one comer, three edges and six faces once each, i.e. 10 times in total. After this, check the appearance and functions.
- vii. Soldering heat resistance test: Drop the object, which is packaged as illustrated, to a concrete surface from the height of 90 cm, on one comer, three edges and six faces once each, i.e. 10 times in total. After this, check the appearance and functions.
- viii. Adhesion test: Solder the subjected devices on test PCB. Then apply 0.5 Kg (5 N) of force for  $5 \pm 1$  seconds in the direction parallel to the substrate. (Perform soldering by reflow, conduct with care so that the soldering is uniform, and free of defect by stress such as heat shock).

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Адрес: 198099, г. Санкт-Петербург, ул. Калинина, д. 2, корп. 4, лит. А