



**THE DATASHEET OF  
APAE1575R1820ABDC1-T**



# 1575.42MHZ, 18\*18\*2mm GPS Patch Antenna

APAE1575R1820ABDC1-T

## Electrical Specification

Parameter	Specification	Unit	Note
Frequency range	1575.42±1.023	MHz	
Center Frequency @ -10dB bandwidth <sup>(*)</sup>	1575.42±3.0	MHz	(with adhesive tape on 22x22mm ground Plane)
Frequency range	902 - 928	MHz	
VSWR (Typ.)	1.5		
Bandwidth @-10dB	4.5	MHz	
Gain@ Center Frequency	3.1	dBi	(Peak gain on on 22x22mm ground Plane)
Impedance	50	Ω	
Polarization	RHCP		(Right Hand Circular Polarization)
Axial Ratio	3	dB	
Frequency Temperature Coefficient	20	ppm/°C	

<sup>(\*)</sup> Application environment, including size of ground plane will affect stated performance. Fine tuning might be required when installed on customer's PCB

(1) : Peak Gain value is based on the ground plane

## Environmental Specification

Parameter	Specification
Operating Temperature	-40°C to +85°C
Storage Temperature	-45°C to +85°C
RoHS Complaint	Yes



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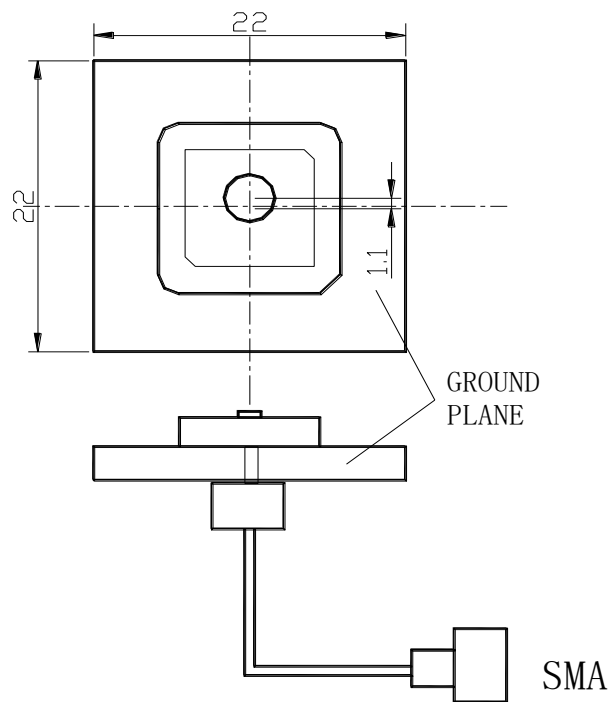
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## Test conditions and Test setup

shall Parts be measured under a condition (Temp.:  $20 \pm 15^\circ\text{C}$ , Humidity:  $65 \pm 20\%$  R.H.)

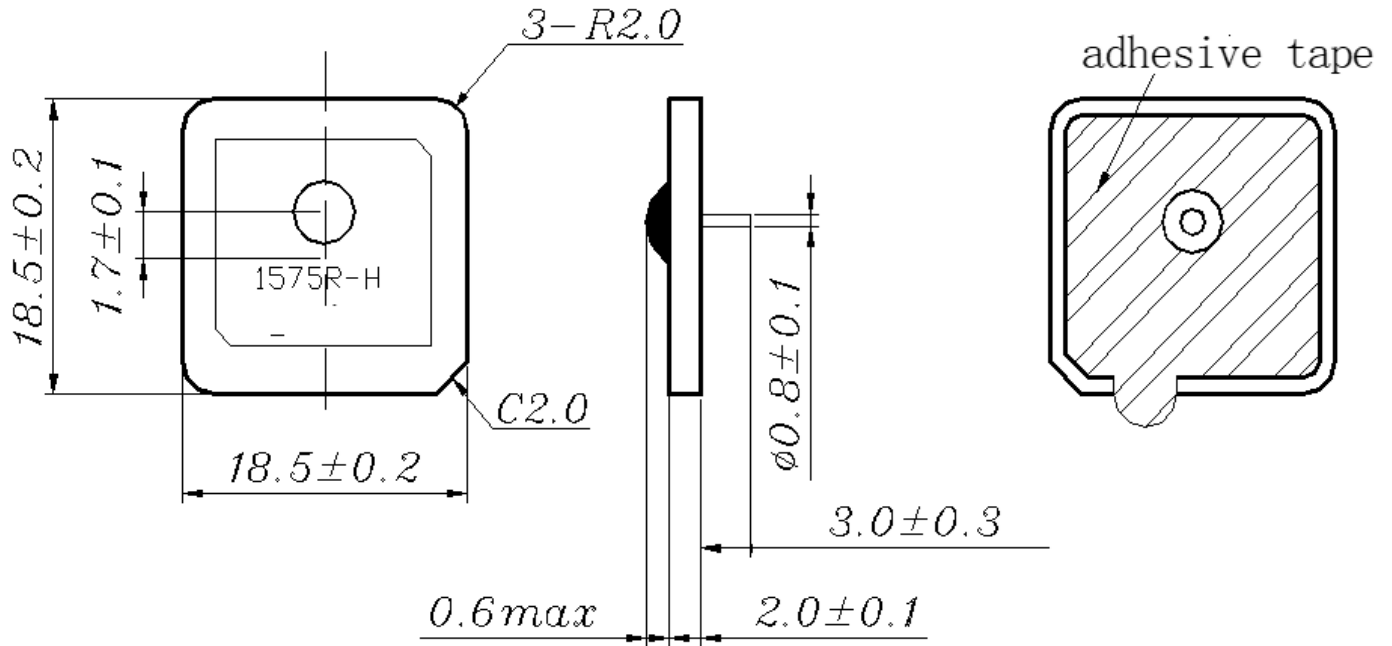
Test fixture



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## Product Dimensions



Unit : mm

## Special Requirements

This product is **RoHS/ RoHS II** compliant.

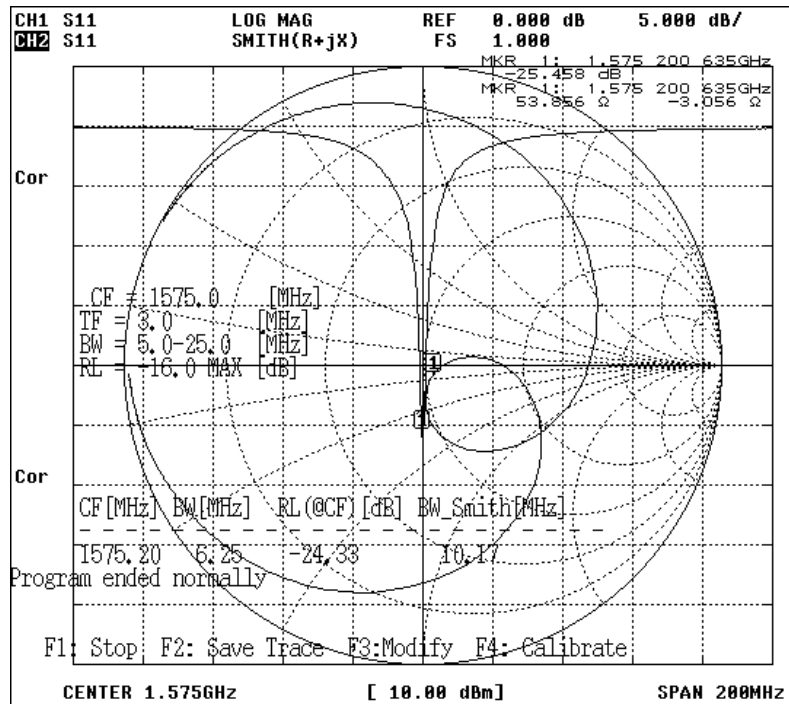
## MSL Level

Not Applicable

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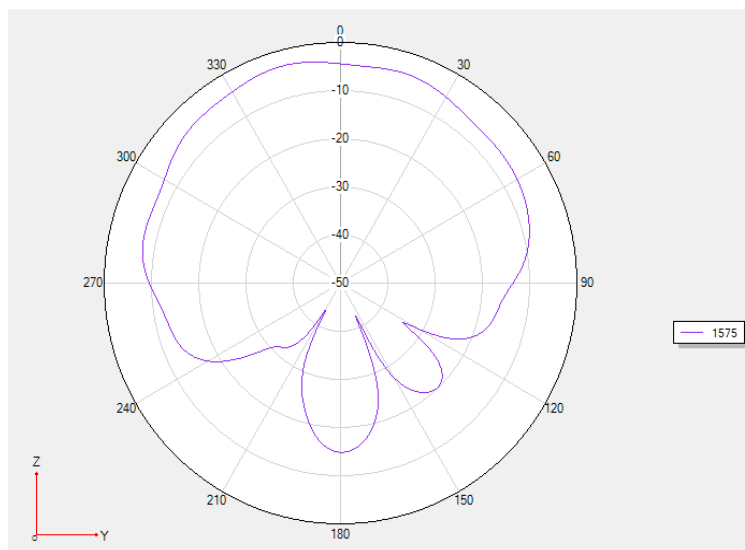
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## Impedance Characteristic



## Radiation Pattern

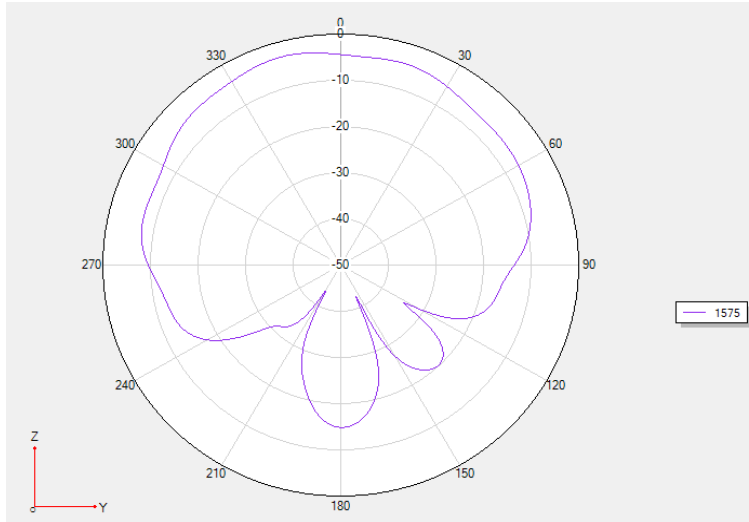
### 2D Radiation Pattern



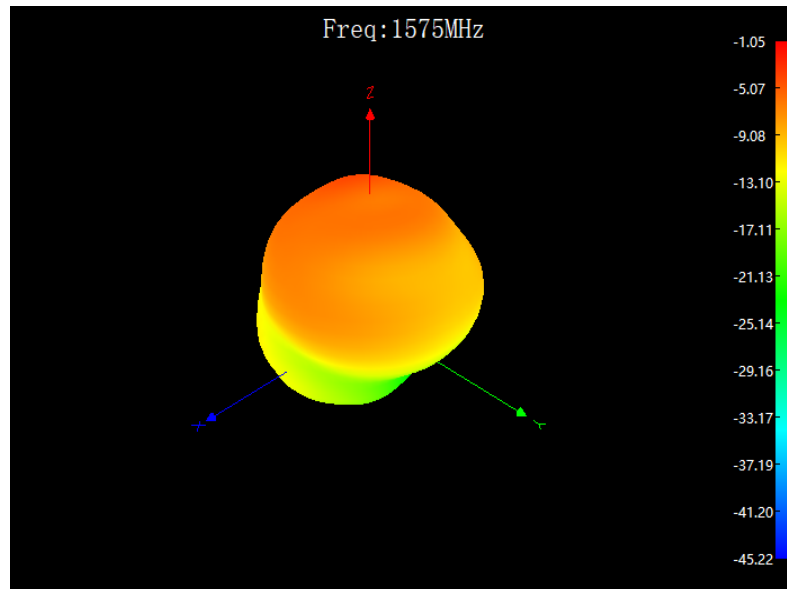
XOZ Plane

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## 3D Radiation Pattern



## Marking Method

Ink Marking

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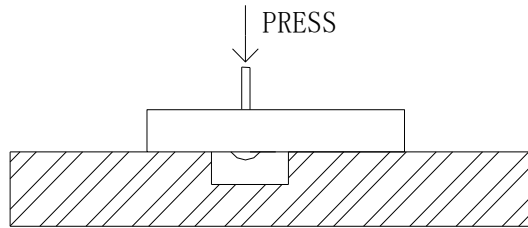
## Reliability Test

Item	Test Condition	Remark
Humidity Test	The device is subjected to 90%~95% relative humidity $60^{\circ}\text{C}\pm 3^{\circ}\text{C}$ for 96h~98h, then dry out at $25^{\circ}\text{C}\pm 5^{\circ}\text{C}$ and less than 65% relative humidity for 2h~4h. After dry out the device shall satisfy the specification in table 1.	It shall fulfill the specifications in Table 1.
High Temperature Exposure	The device shall satisfy the specification in table 1 after leaving at $105^{\circ}\text{C}$ for 96h~98h, provided it would be measured after 2h~4h leaving in $25^{\circ}\text{C}\pm 5^{\circ}\text{C}$ and less than 65% relative humidity.	It shall fulfill the specifications in Table 1.
Low Temperature	The device shall satisfy the specification in table 1 after leaving at $-40^{\circ}\text{C}$ for 96h~98h, provided it would be measured after 2h~4h leaving in $25^{\circ}\text{C}\pm 5^{\circ}\text{C}$ and less than 65% relative humidity.	It shall fulfill the specifications in Table 1.
Temperature Cycle	Subject the device to $-40^{\circ}\text{C}$ for 30 min. followed by a high temperature of $105^{\circ}\text{C}$ for 30 min cycling shall be repeated 5 times. At the room temperature for 1h prior to the measurement.	It shall fulfill the specifications in Table 1.
Vibration	Subject the device to vibration for 2h each in x, y and z axis with the amplitude of 1.5mm, the frequency shall be varied uniformly between the limits of 10Hz~55Hz.	It shall fulfill the specifications in Table 1.
Soldering Test	Lead terminals are heated up to $350^{\circ}\text{C}\pm 10^{\circ}\text{C}$ for $5\text{s}\pm 0.5\text{s}$ with brand iron and then element shall be measured after being placed in natural conditions for 1 h. No visible damage and it shall fulfill the specifications in Table 1	It shall fulfill the specifications in Table 1.
Solder ability	Lead terminals are immersed in soldering bath of $260^{\circ}\text{C}\sim 290^{\circ}\text{C}$ for $3\text{s}\pm 0.5\text{s}$ . More than 95% of the terminal surface of the device shall be covered with fresh solder.	The terminals shall be at least 95% covered by solder.
Terminal Pressure Strength	Force of 2kg is applied to each lead in axial direction for $10\text{s}\pm 1\text{s}$ (see drawing). No visible damage and it shall fulfill the specifications in Fig 1	Mechanical damage such as breaks shall not occur.

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Figure 1



Item	Specification after test (MHz)
Center Frequency Change	$\pm 2.0$
-10dB Bandwidth Change	$\pm 2.0$

## Packaging

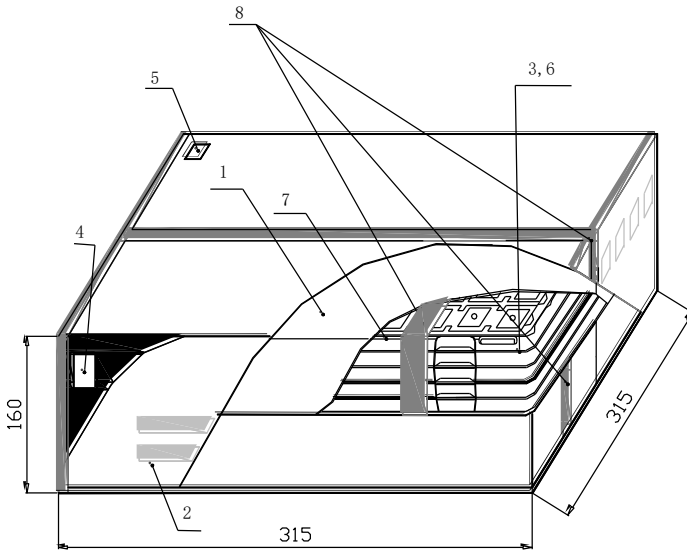
“T” is for a vacuum sealed tray containing 50 units.

1000 pieces is the suggested quantity containing 20-trays with 50-pcs per Tray.

NOTE: This product is vacuum packaged to reduce the possibility of oxidation and/or contamination during storage.

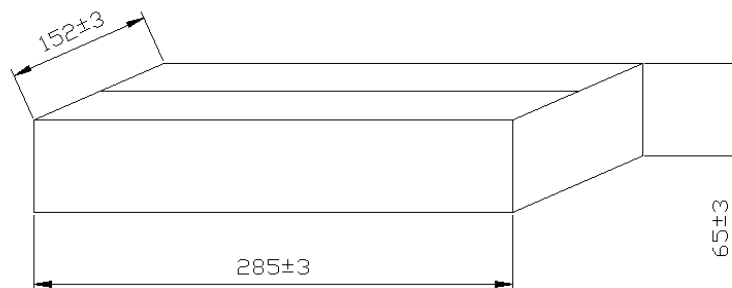
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NO.	Name
1	Inner Box
2	Package
3	Vacuum Bag
4	Certificate of approval
5	Label
6	Cushion
7	Tray
8	Adhesive tape

**Inner Box dimensions (unit: mm)**



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