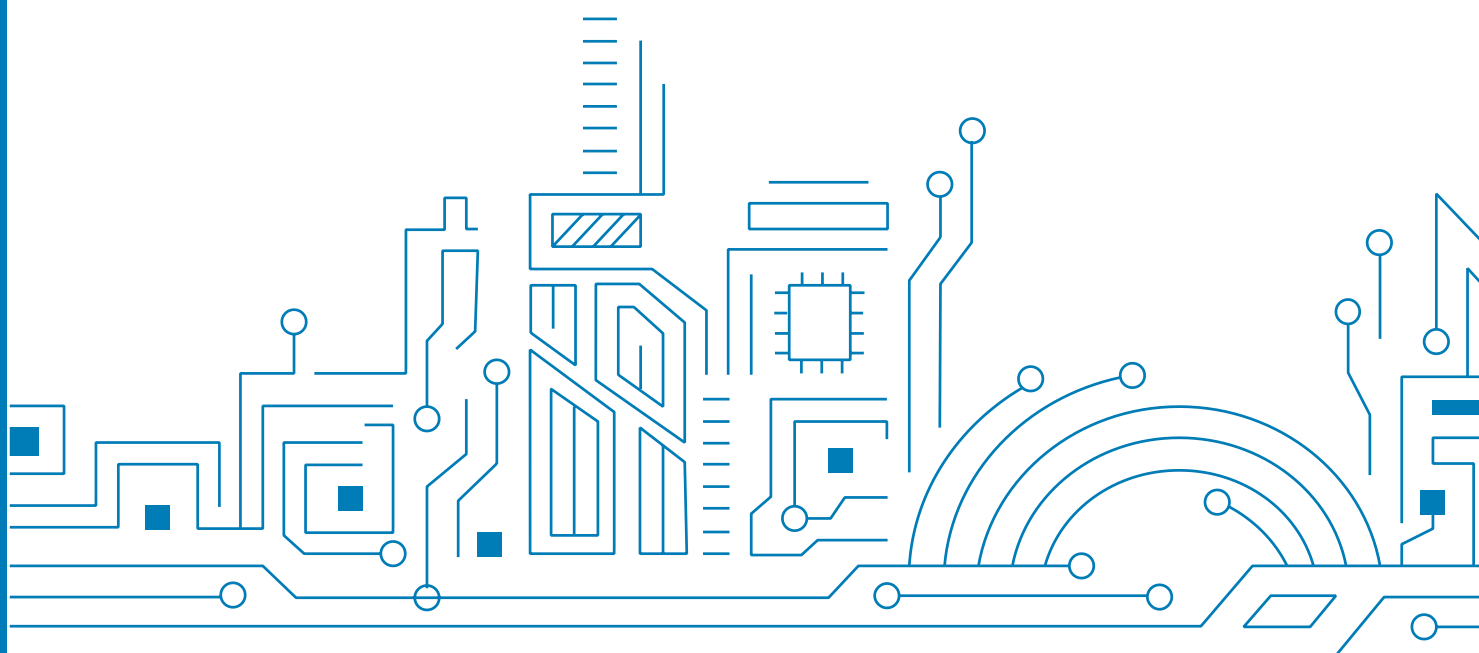


# GNSS Stack Patch Antenna

## 25 with 18 Dimension

### Datasheet V1.0



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## 1 PRODUCT OVERVIEW

### 1.1 General description

GNSS stack patch antenna are use Allystar' s unique technology, which use one antenna fed in and support the GNSS dual band system (L1+L5). The stack patch antenna has compact and embedded on device features, which can use on tracker 、 navigation device and autonomous vehicles.

The stack patch antenna use one pin feed in and coupling to excitation the GNSS dual band mode, which still show the low axial ratio and wide RHCP radiation pattern by tuned on 25x25mm ground plane.

The customization performance of stack GNSS patch antenna can tuned it by customer demand.

### 1.2 Features

- One pin feed in
- Great AR
- Support dual band system

### 1.3 Product image



Figure 1 Product image

## 2 SPECIFICATIONS

### 2.1 Dimensions

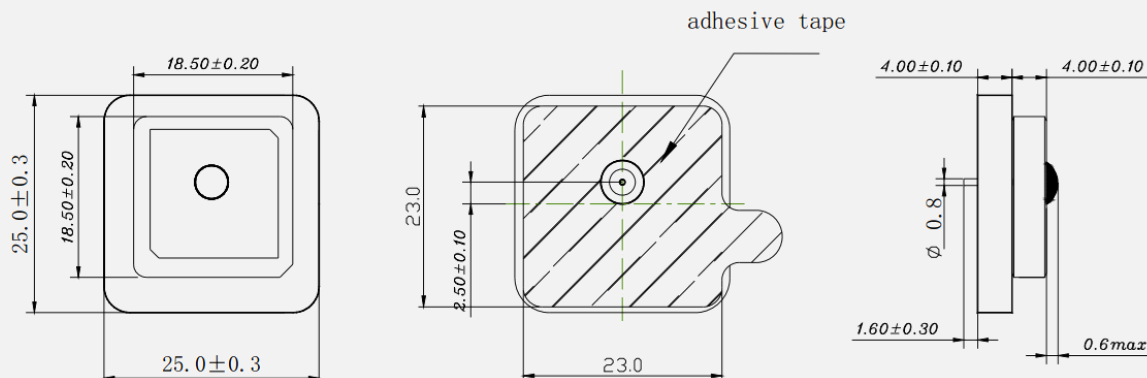


Figure 2 Dimensions

### 2.2 Layout Dimensions

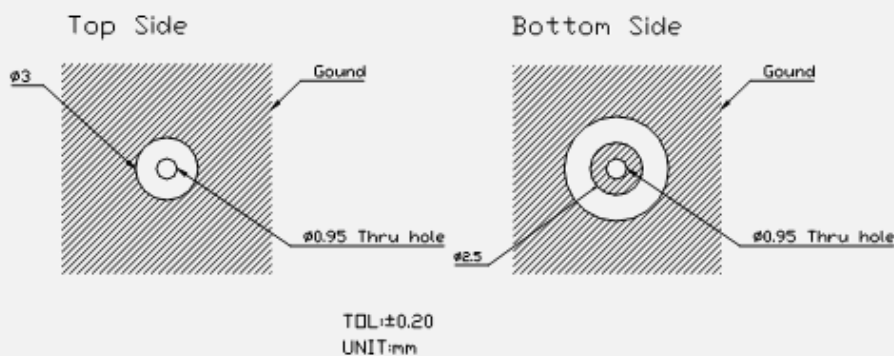


Figure 3 Layout Dimensions

### 2.3 Antenna performance

Table 1 Antenna performance

Parameter	Specification	
Antenna dimension(mm)	18*18*4	25*25*4
Operation band	1575.42 ± 1.023 MHz	1176 ± 1.023 MHz
Test conditions	With 70×70 Ground	
Antenna peak gain	1575.42MHZ:2.66 dBic Typ. @zenith 1176MHZ:2.97dBic Typ. @zenith	
Polarization	RHCP	
Axial ratio	Max 3.0dB@zenith	
Antenna feed in	One pin	

## 2.4 Reliability

Table 2 RELIABILITY

Items	Requirement
Operating temperature	-40°C to +85°C
Storage temperature	-40°C to +105°C
Environment	ROHS and REACH

## 2.5 Antenna S Parameter Data

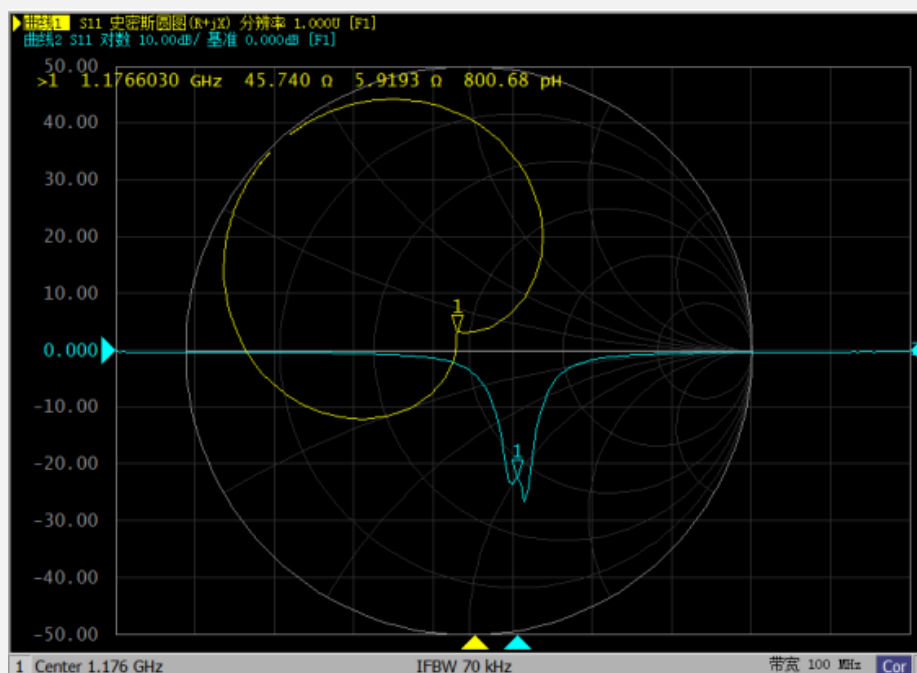
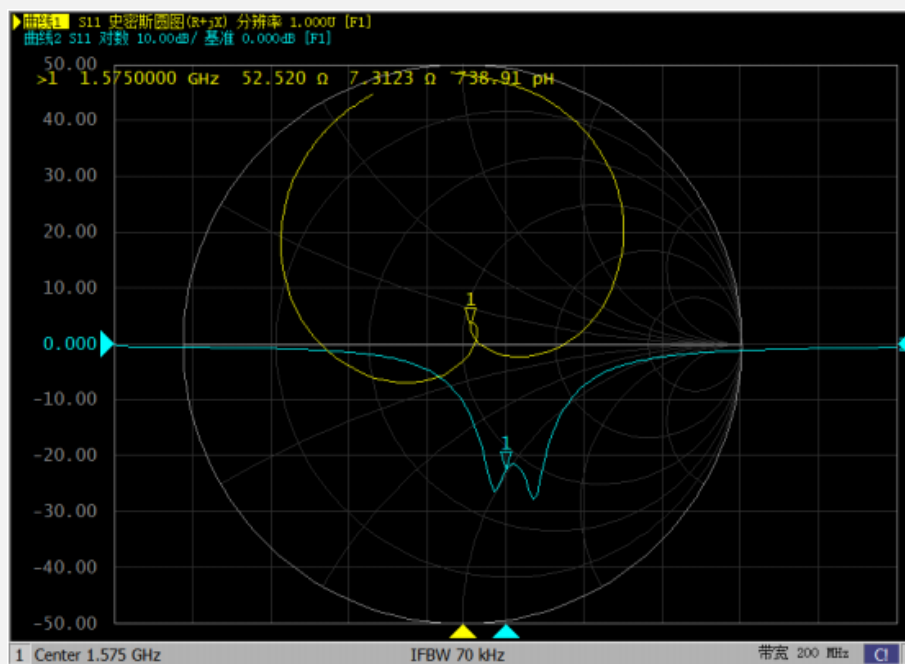


Figure 4 S Parameter Data

### 3 TEST

#### 3.1 Test Conditions

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

#### 3.2 Test Jig

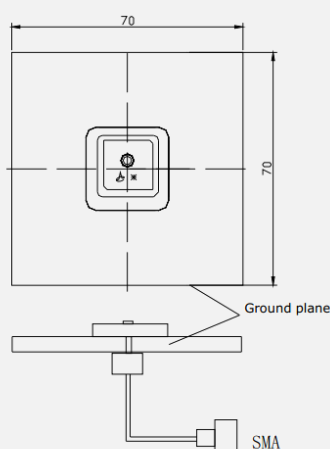


Figure 5 Test Jig

### 4 ENVIRONMENTAL TEST

Table 3 ENVIRONMENTAL TEST

NO	Item	Test Condition	Remark
6.1	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 fulfil the specifications in Table 4.
6.2	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 fulfil the specifications in Table 4.



6.3	LOW Temperature	The device shall satisfy the specification in table 1 after leaving at -40°C for 96h~98h, provided it would be measured after 2h~4h leaving in 25°C±5°C and less than 65% relative humidity.	It shall fulfil the specifications in Table 4.
6.4	Temperature Cycle	Subject the device to 40°C for 30 min. followed by a high temperature of 105°C for 30min cycling shall be repeated 5 times. At the room temperature for 1h prior to the measurement.	It shall fulfil the specifications in Table 4.
6.5	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 fulfil the specifications in Table 4.
6.6	Soldering Test	Lead terminals are heated up to 350°C±10°C for 5s±0.5s with brand iron and then element shall be measured after being placed in natural conditions for 1h. No visible damage and it shall fulfill the specifications in Table 1	It shall fulfil the specifications in Table 4
6.7	Solder ability	Lead terminals are immersed in soldering bath of 260°C ~290°C for 3s±0.5s. 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.
6.8	Terminal Pressure Strength	Force of 2kg is applied to each lead in axial direction for 10s±1s (see drawing). No visible damage and it shall fulfill the specifications in Fig 6	Mechanical damage such as breaks shall not occur.

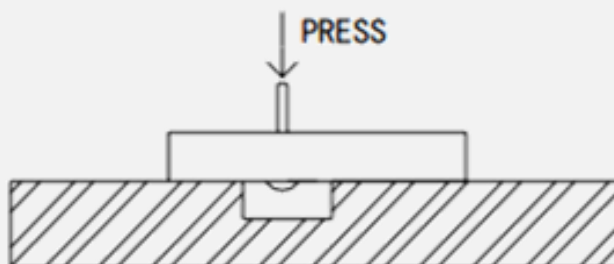


Figure 6 press test

Table 4 test

Item	Specification After Test (MHz)
Center frequency change	±2.0

## 5 REVISION HISTORY

Revision	Date	Author	Status / Comments
V1.0	2019-12-02	Toby	Start version, first released



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