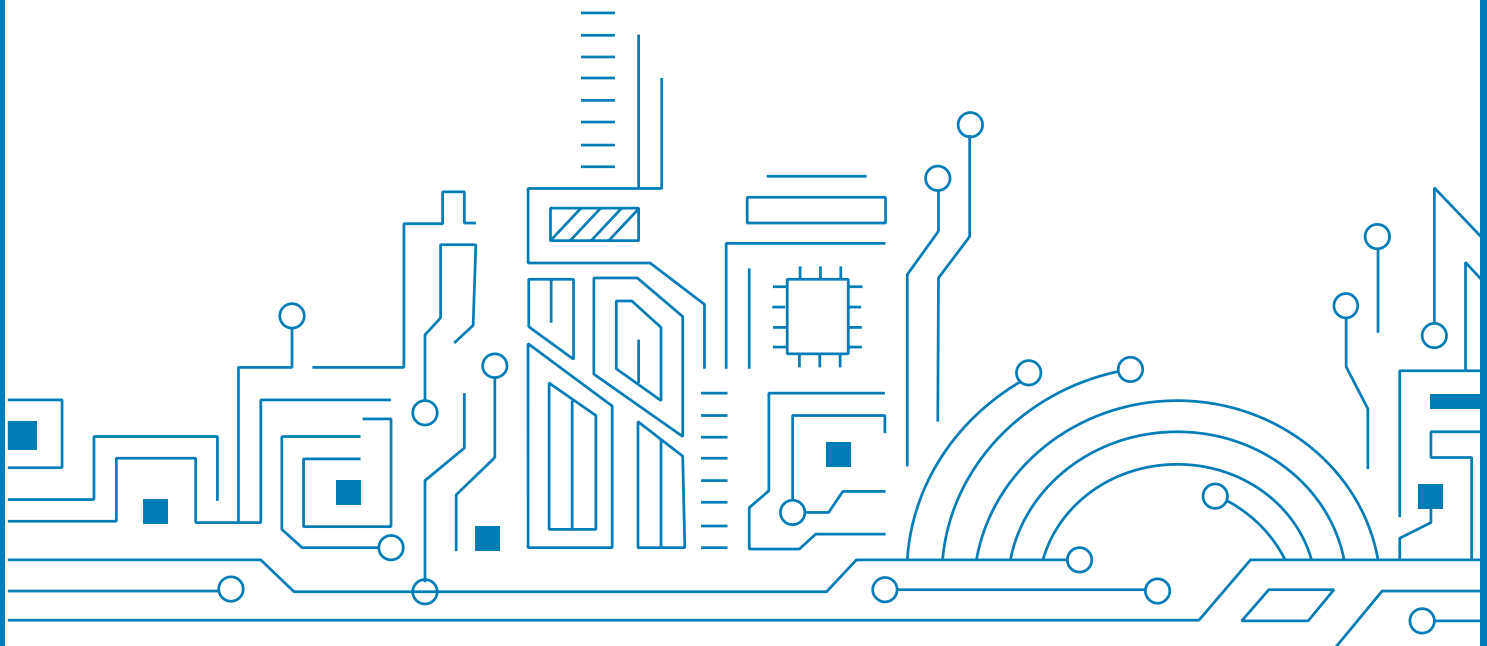
华大北斗
ALLYSTAR

Ceramic Patch Antenna

AGR7107-ES

Datasheet V2.0



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1 PRODUCT OVERVIEW

1.1 General description

The AGR7104 patch antenna are use Allystar's unique technology to customize for customer device, which support the GNSS L1 band and show the good performance of AR and RHCP on practical application, just like tracker, navigation device and autonomous vehicles.
Customizer service of antenna design and measurement that can follow your request and contact the Allystar window.

1.2 Features

- Support GPS L1
- Great AR
- One pin feed in
- RoHS Compliant

1.3 Product image

Figure 1 Product image

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2 SPECIFICATIONS

2.1 Dimensions

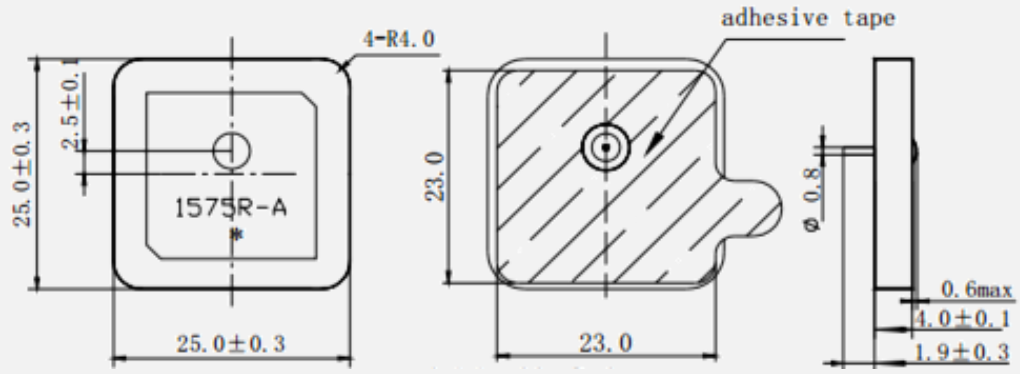

Figure 2 Dimensions

2.2 Layout Dimensions

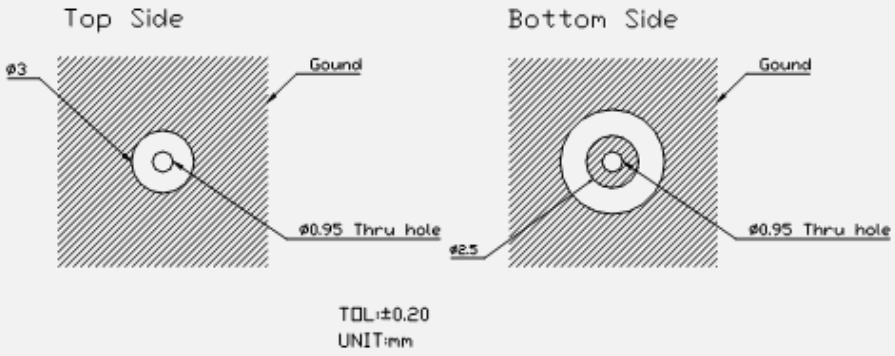

Figure 3 Layout Dimensions

2.3 Antenna performance

Table 1 Antenna performance

Parameter	Specification	Notes
Antenna dimension(mm)	25*25*4	
Operation band	1575.42 ± 1.023 MHz	
Center Frequency	1578MHz±3MHz	With69.7×67.3mm GND Plane
Bandwidth	27MHz min	Return Loss@-10dB
Polarization	RHCP	
Axial ratio	Max 3.0dB@zenith	
Impedance	50 Ohm	

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2.4 Reliability

Table 2 Reliability

Items	Requirement
Operating temperature	-40°C to +85°C
Storage temperature	-40°C to +105°C
Environment	RoHS

2.5 Antenna S Parameter Data

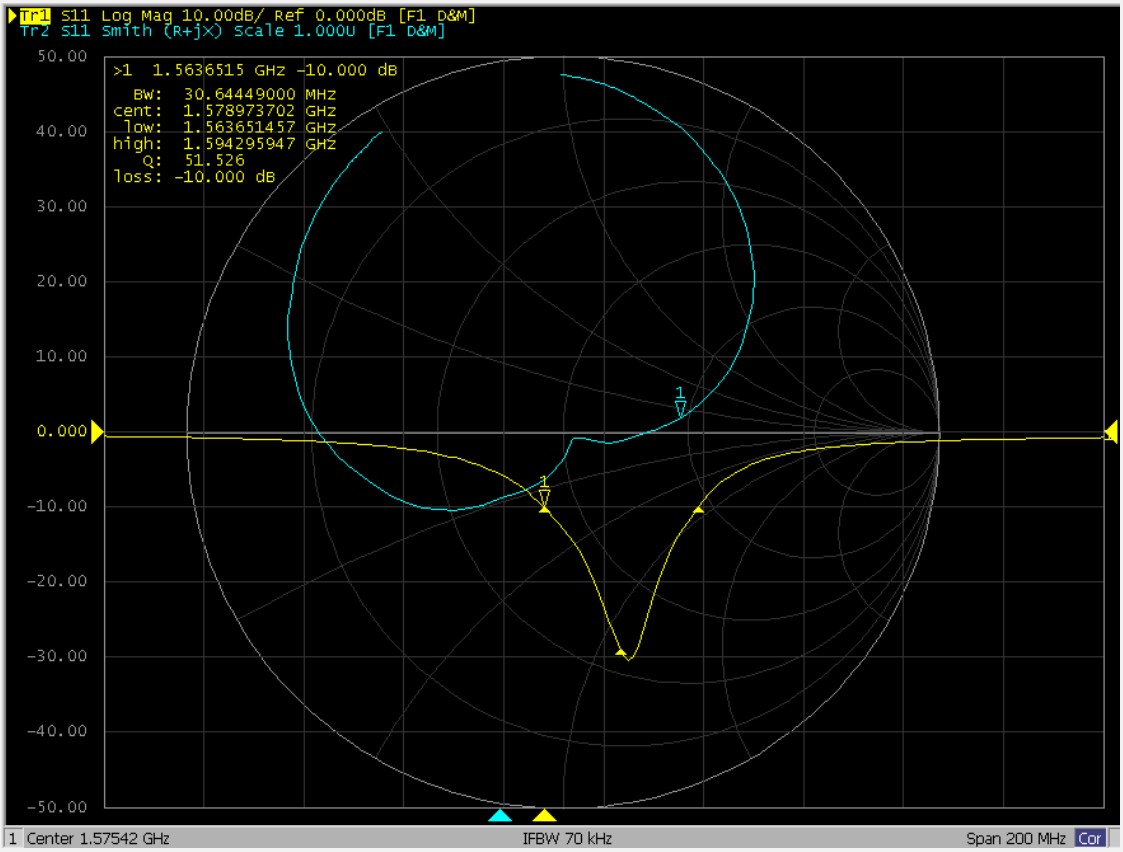

Figure 4 S Parameter Data

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3 TEST

3.1 Test Conditions

Parts shall be measured under a condition (Temp.:20℃±15℃, Humidity: 65%±20% R.H.).

3.2 Ground Plane Dimension

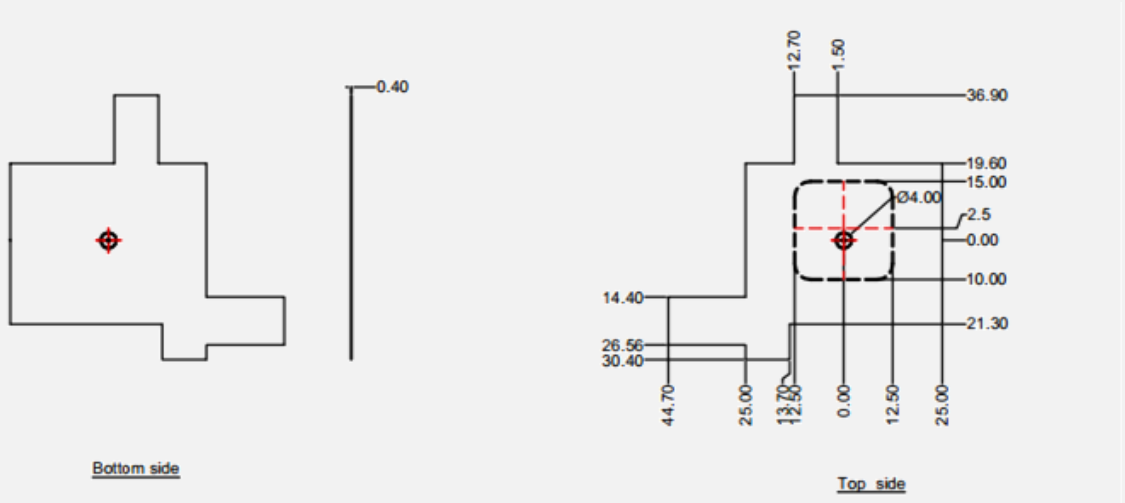

Figure 5 Ground Plane

3.3 Test Jig

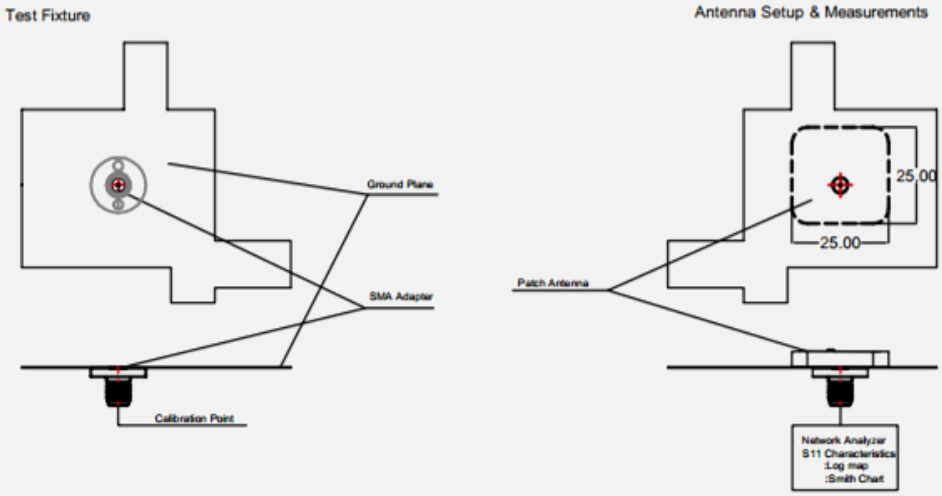

Figure 6 Test Jig

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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°C± 3°C for 96h~98h, then dry out at 25°C± 5°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°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.
6.3	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 l0Hz~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 least95% 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.

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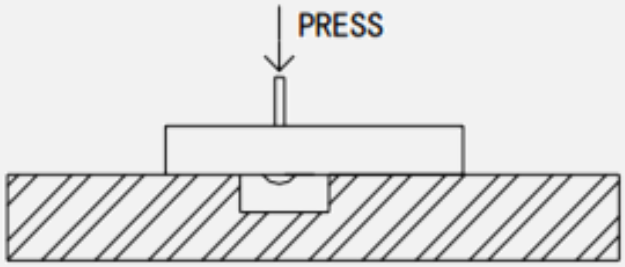

Figure 7 press test

Table 4 Test

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

5 PACKAGE

5.1 PACKING

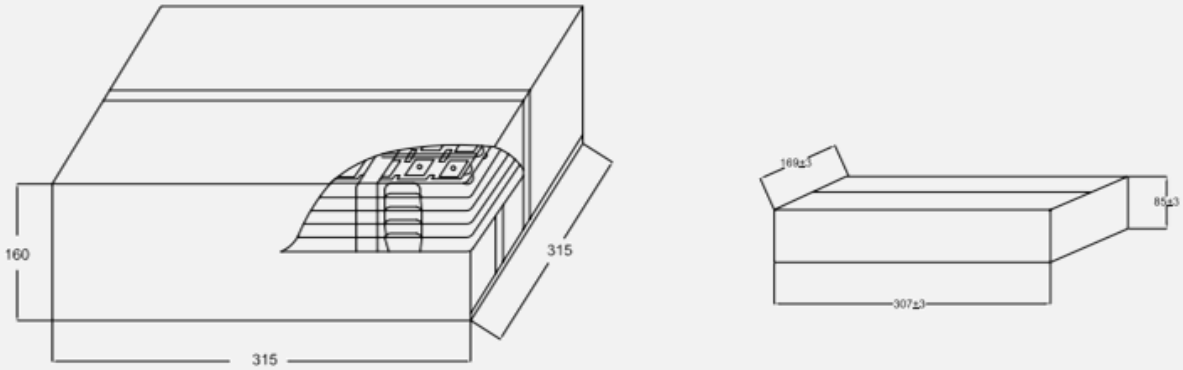

Figure 8 PACKING

Table 5 PACKING

Name	Quantity
Cushion	20
Package Base	24
Vacuum	4
Inner Box	4
Label	5
Package	1

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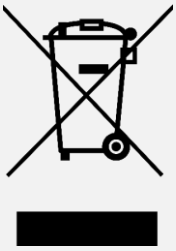
5.2 Disposal information

This device must not be treated as household waste.

For more detailed information about recycling electronic components contact your local waste management authority.



6 ORDERING CODES

Table 6 ORDERING CODES

Ordering Number	Category	Application	Features
AGR7104-ES	Antenna	GPS	Ceramic Patch antenna

7 REVISION HISTORY

Revision	Date	Author	Status / Comments
V1.0	2019-11-11	Toby	Start version, first released
V2.0	2021-07-21	Toby	

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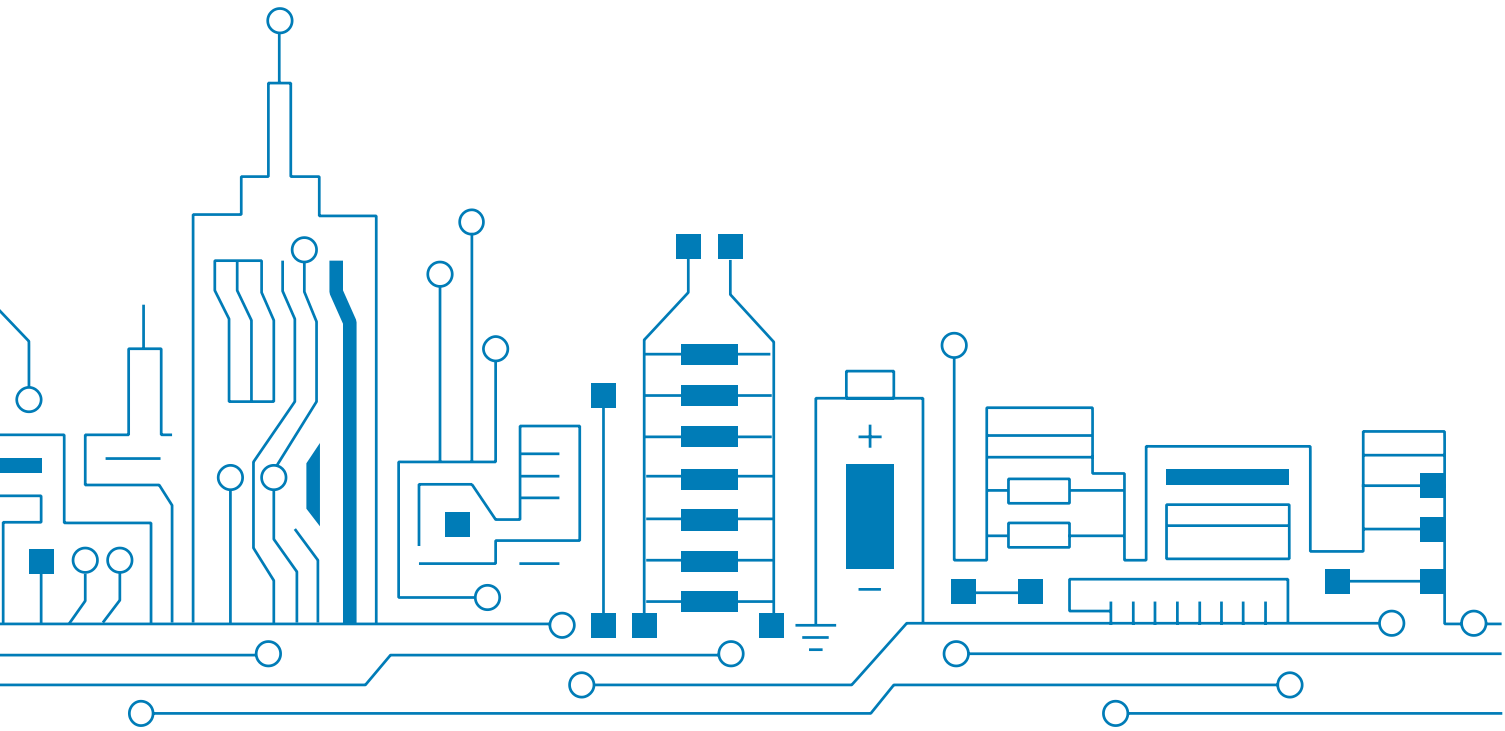

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