

# **Specification**

Part No. : **SGGP.18.4.A.08** 

GPS/GLONASS/GALILEO SMD Patch Antenna

**Features** : SMD Direct Mount Ceramic Patch Antenna

GPS/GALILEO/GLONASS Antenna

GPS L1 (1575.42 MHz) – 78% Efficiency GLONASS L1 (1602 MHz) – 80% Efficiency

Dimensions:18\*18\*4mm

RoHS compliant





### 1. Introduction

The Taoglas SGGP.18 is a ceramic GPS/GLONASS/GALILEO passive patch antenna designed for optimal performance on GPS L1 band (1575.42 MHz) and GLONASS L1 band (1602 MHz). With a low-profile thickness of just 4mm and convenient mounting via standard SMD process, it is ideal for high-volume, low-cost assembly applications. SGGP.18 is designed for applications in navigation devices, vehicle tracking/fleet management systems, and telematics devices. It is an excellent choice for applications in transportation, defense, marine, agriculture, and navigation industries.

This antenna has been tuned for use on a 50mm\*50mm ground plane to achieve 2.86 dBi gain at 1575.42 MHz and 3.04 dBi gain at 1602 MHz. In addition to excellent efficiency, it also offers a broadly hemispherical radiation pattern with stable gain across elevations.

SGGP.18 is manufactured and tested in an IATF16949 first tier automotive approved facility. For further optimization to customer-specific device environments, custom tuned patch antennas can be supplied, subject to NRE and MOQ.

For more information or support with integrating this antenna into your device, please contact your regional Taoglas sales office.



# 2. Specification

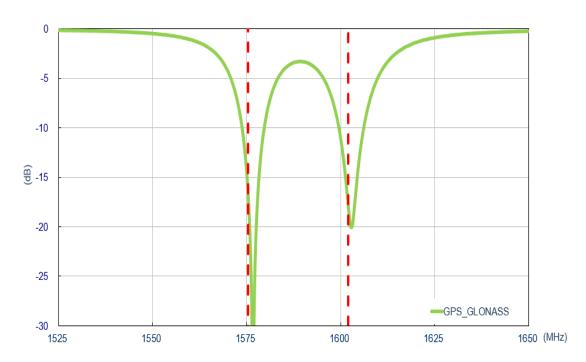
ELECTRICAL*		
Application Bands	GPS/GALILEO	GLONASS
Operation Frequency (MHz)	1575.42 ±1.023	1602±5
Return Loss (dB)	< -10	< -10
Efficiency (%)	78	80
Average Gain (dB)	-1.07	-0.98
Peak Gain (dBi)	2.86	3.04
Impedance	50 ohms	
Polarization	RHCP	
MECHANICAL		
Ceramic Dimension	18*18*4mm	
Weight	5.8g	
ENVIRONMENTAL		
Operation Temperature	-40°C to 85°C	
Humidity	Non-condensing 65°C 95% RH	

<sup>\*</sup>Measurements tested on 50\*50 mm ground plane

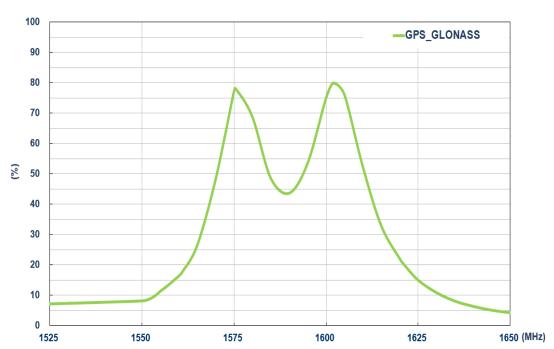


# 3. Antenna Characteristics

### 3.1. Return Loss

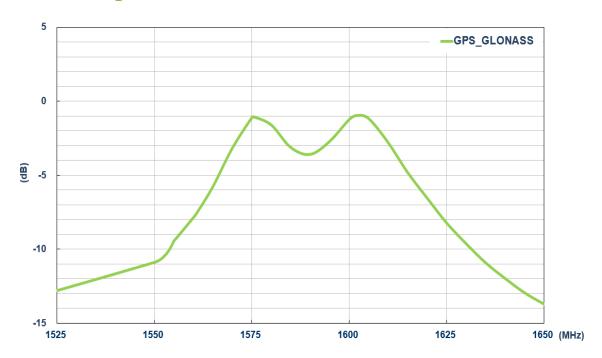


## 3.2. Efficiency

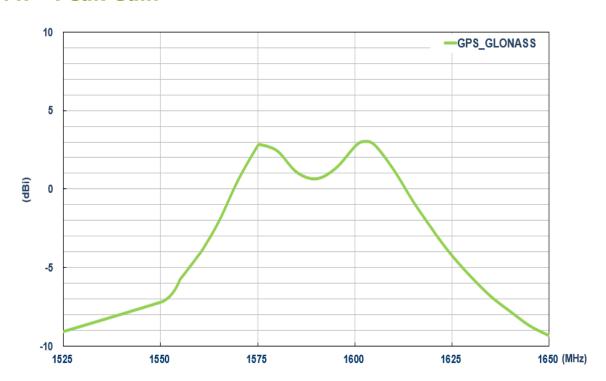




## 3.3. Average Gain



### 3.4. Peak Gain

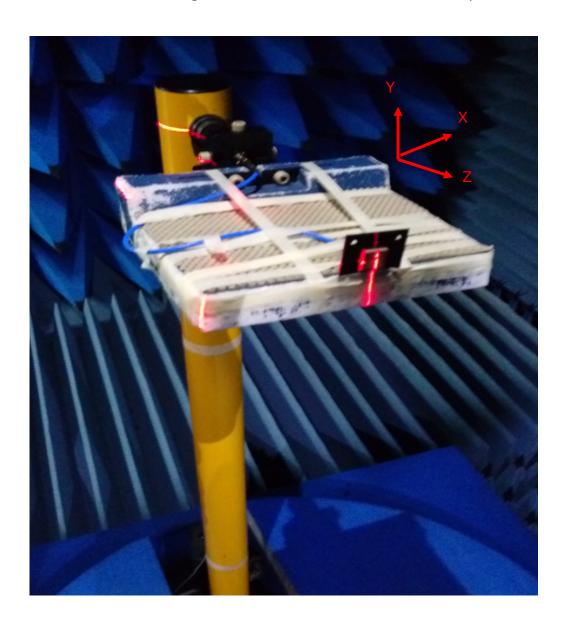




## 4. Antenna Radiation Pattern

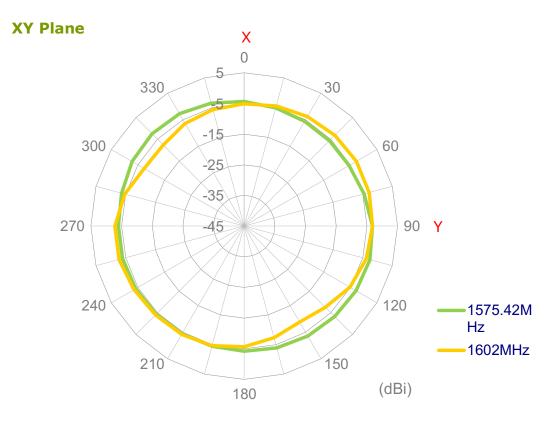
## 4.1. Measurement Setup

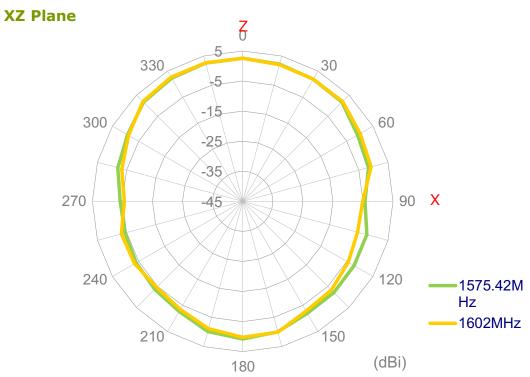
The SGGP.18.4.A.08 antenna is tested with 50mm\*50mm ground plane in a CTIA certified ETS-Lindgren Anechoic Chamber. The test setup is shown below.





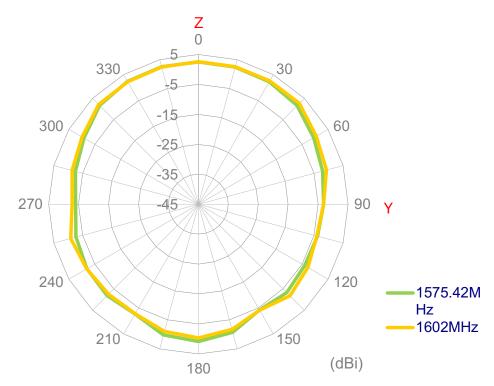
## 4.2. 2D Radiation Pattern







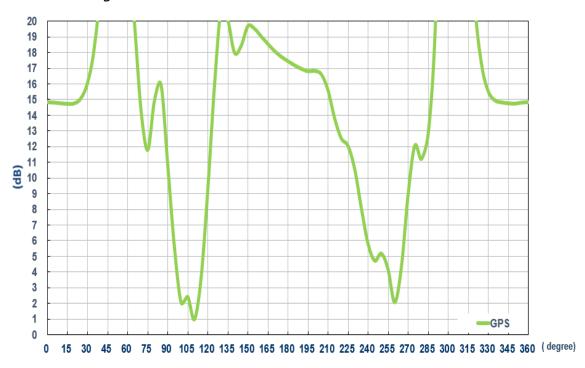
### **YZ Plane**

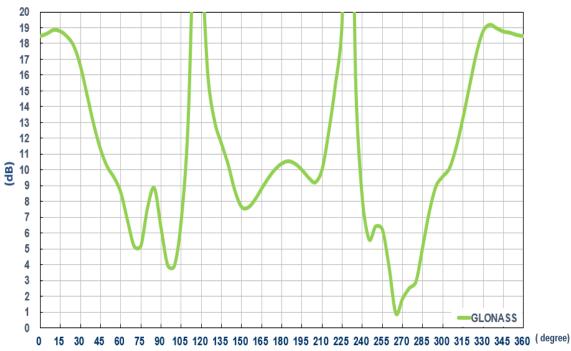




### 4.3. Axial Ratio

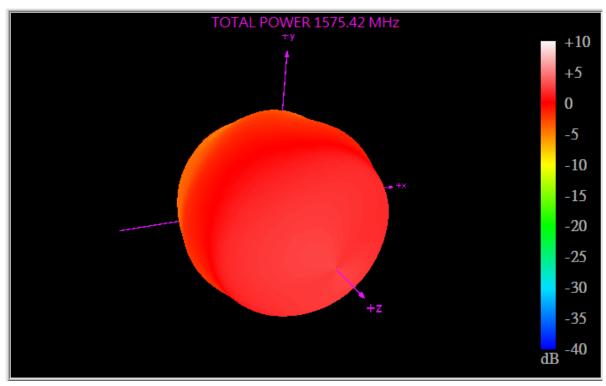
### Zenith is at 0 degrees

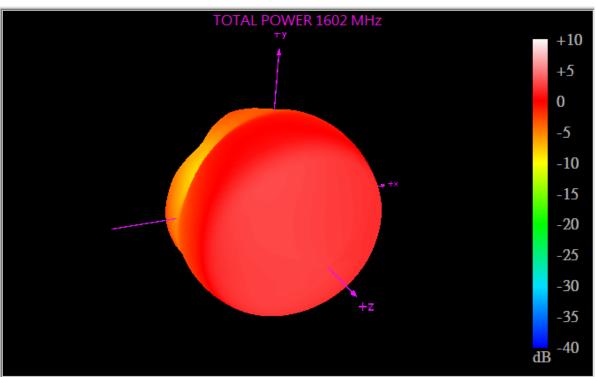






## **4.4 3D Radiation Pattern**

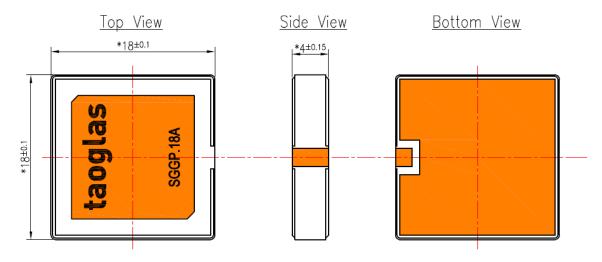






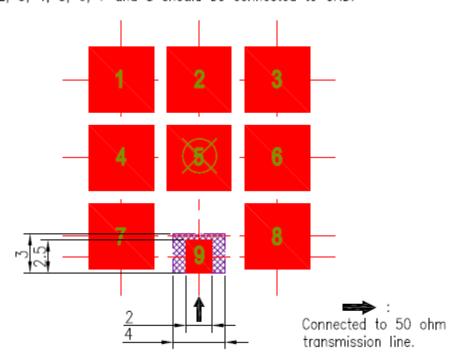
# 5. Mechanical Drawing (Units: mm)

## 5.1. Antenna Dimensions and Drawing



## **5.2.** Top Copper and Copper Keepout

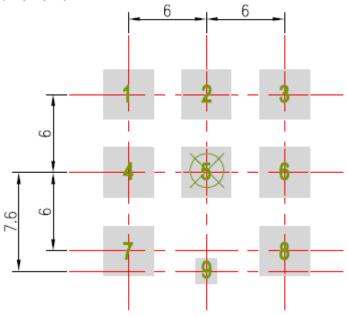
Pads 9 should be connected to a 50 ohm transmission line. Pads 1, 2, 3, 4, 5, 6, 7 and 8 should be connected to GND.





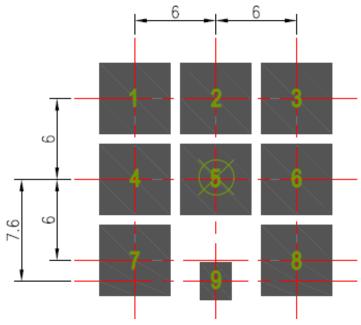
### 5.3. Solder Paste Area

Pads 1, 2, 3, 4, 5, 6, 7 and 8 are the same size.



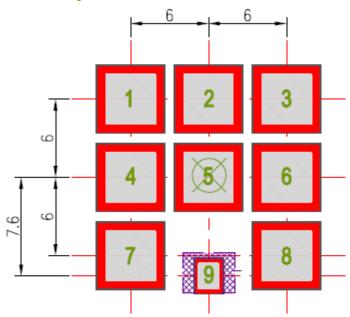
## 5.4. Solder Mask(Negative)

Pads 1, 2, 3, 4, 5, 6, 7 and 8 are the same size, This drawing is a negative of solder mask. Black regions are anti-mask.

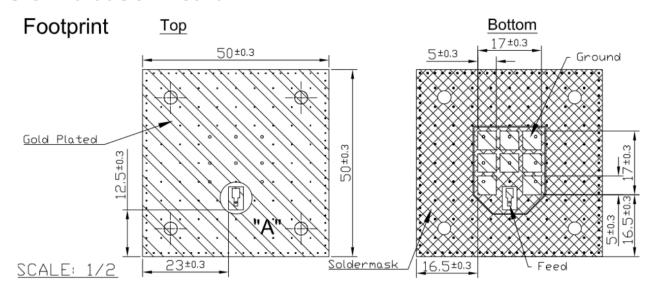




## **5.5. Footprint Composite**

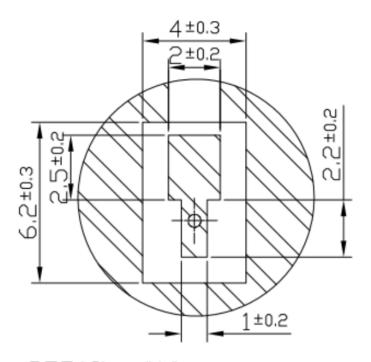


## **5.6 Evaluation Board**





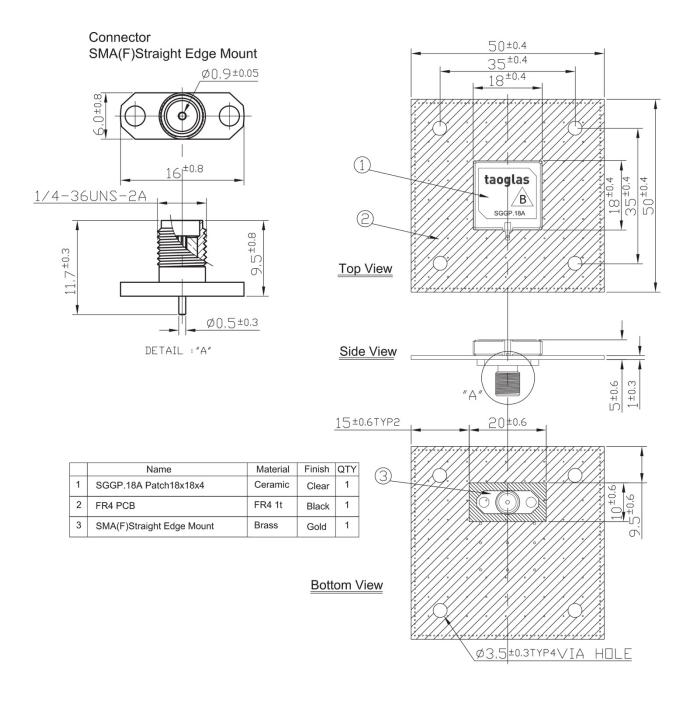
### **5.7 Feed**



DETAIL : "A" SCALE: 2/1



### 5.8 Evaluation Board - SGGPD.18.A





## 6. Antenna Recommended Soldering Conditions

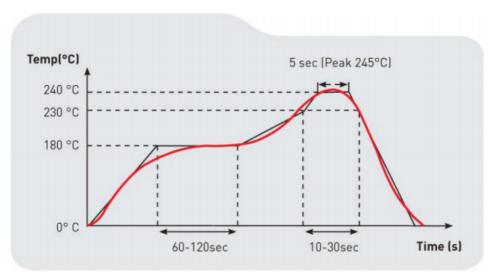
#### 6.1. Flux, Solder

- Use rosin-based flux. Don't use highly acidic flux with halide content exceeding 0.2wt%(chlorine conversion value).
- Use Sn solder.

#### 6.2. Reflow soldering conditions

• Pre-heating should be in such a way that the temperature difference between solder and product surface is limited to 150°C max. Cooling into solvent after soldering also should be in such a way that temperature difference is limited to 100°C max.

Unwrought pre-heating may cause cracks on the product, resulting in the deterioration of products quality.



#### 6.3. Reworking with soldering iron

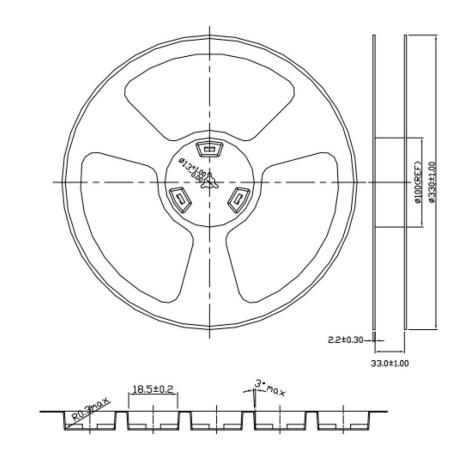
• The following conditions must be strictly followed when using a soldering iron.

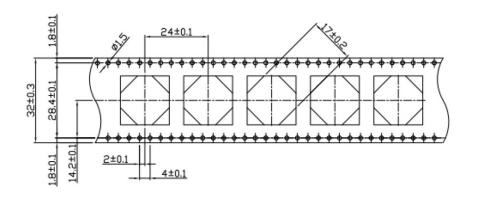
Pre-heating	150°C, 1 min	
Tip temperature	290°C max	
Soldering iron output	30w max	
Soldering time	3 second max	

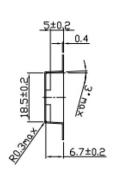


# 7. Packaging

200 pc SGGP.18.4.A.08 per reel Dimensions - Ø330\*33mm Weight - 2.125Kg



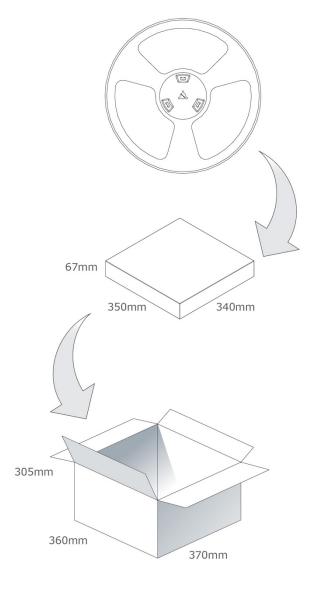






200 pc SGGP.18.4.A.08 per small box Dimensions - 350\*340\*67mm Weight - 2.125Kg

800 pcs SGGP.18.4.A.08 per carton Dimensions - 370\*360\*305mm Weight - 8.5Kg





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