



CGGBP.18.4.A.02

Part No: CGGBP.18.4.A.02

#### **Description**

Embedded 18mm GPS/GLONASS/Galileo/BeiDou Patch Antenna 1561/1575/1602MHz

#### **Features:**

18\*18\*4mm Ceramic patch

High Gain (up to 4.5.dBi typ.)

Excellent stability on the three GNSS systems

Optimized radiation patterns

Pin Mount

RoHS and REACH Compliant



1.	Introduction	2
2.	Specification	3
3.	Antenna Characteristics	5
4.	Radiation Patterns	9
5.	Mechanical Drawing	13
6.	Packaging	15
7.	Antenna Integration Guide	16
	Changelog	22

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### 1. Introduction



This 18mm square embedded ceramic GPS/GLONASS/Galileo/BeiDou patch antenna's wide band of operation leads to excellent gain and radiation pattern stability on all four common commercial GNSS systems worldwide.

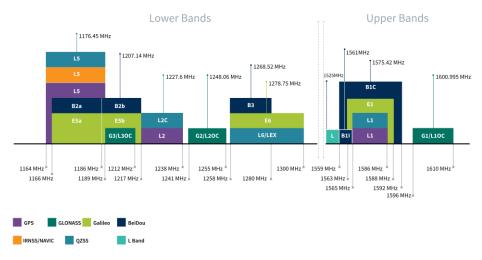
Compared to using a smaller antenna, this will translate into the GNSS system having much higher location accuracy, improved reliability of lock in urban areas, better signal reception, with more satellites acquired and a quicker time to first fix.

The patch is mounted via pin and double-sided adhesive. This patch can be tuned subject to NRE and MOQ, for further information please contact your regional Taoglas customer support team.



# 2. Specification

		GNSS Frequ	ency Bands		
GPS	L1 1575.42 MHz	L2 1227.6 MHz	L5 1176.45 MHz		
	-				
GLONASS	G1 1602 MHz	G2 1248 MHz	G3 1207 MHz		
	-				
Galileo	E1 1575.24 MHz	E5a 1176.45 MHz	E5b 1201.5 MHz	E6 1278.75 MHz	
	-				
BeiDou	B1C 1575.42 MHz	B1I 1561 MHz	B2a 1176.45 MHz	B2b 1207.14 MHz	B3 1268.52 MHz
	-	-			
L-Band	L-Band 1542 MHz				
QZSS (Regional)	L1 1575.42 MHz	L2C 1227.6 MHz	L5 1176.45 MHz	L6 1278.75e6	
	-				
IRNSS (Regional)	L5 1176.45 MHz				
SBAS	L1/E1/B1 1575.42 MHz	L5/B2a/E5a 1176.45 MHz	G1 1602 MHz	G2 1248 MHz	G3 1207 MHz
	•		•		



**GNSS Bands and Constellations** 



GNSS Electrical			
Frequency (MHz)	1561	1575.42	1602
VSWR (max.)	1:1	1:1	1:1
Passive Antenna Efficiency (%) (Without cable loss)	58.14	68.09	72.3
Passive Antenna Gain at Zenith (dBic) (Without cable loss)	3.12	4.23	4.38
Polarization		RHCP	
Impedance		50 Ω	

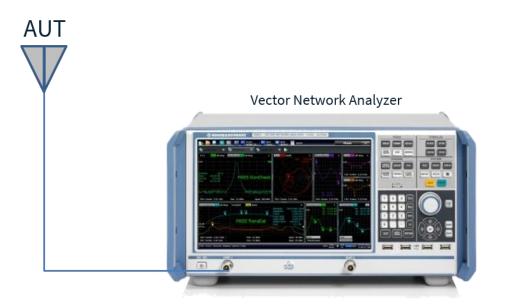
Mechanical		
Dimensions	18 x 18 x 4mm	
Weight	29g	
Material	Ceramic	

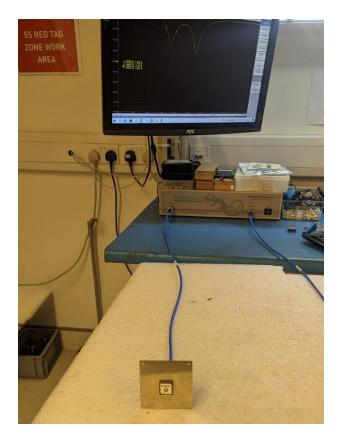
Environmental		
Operation Temperature	-40°C to 85°C	
Storage Temperature	-40°C to 105°C	
Relative Humidity	Non-condensing 65°C 95% RH	



# 3. Antenna Characteristics

### 3.1 Test Setup

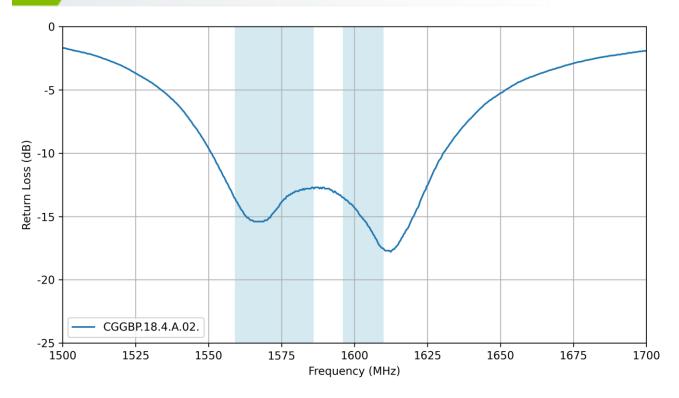




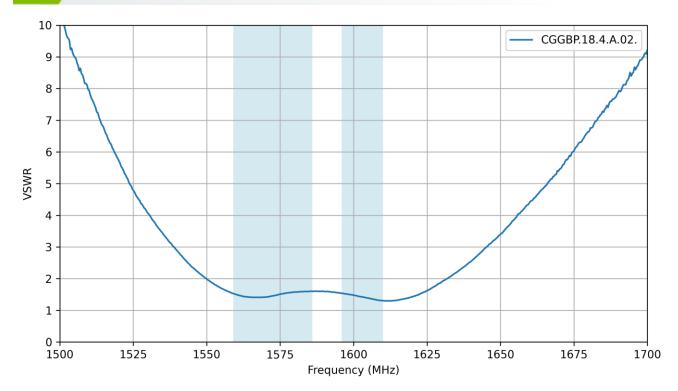
On 70mm x 70mm Ground Plane



#### 3.2 Return Loss

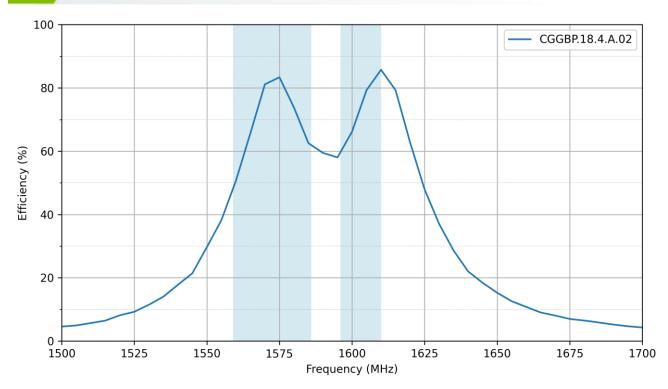


#### 3.3 VSWR

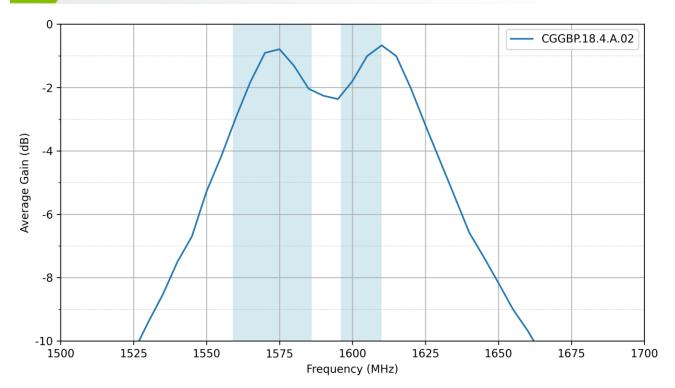




### 3.4 Efficiency

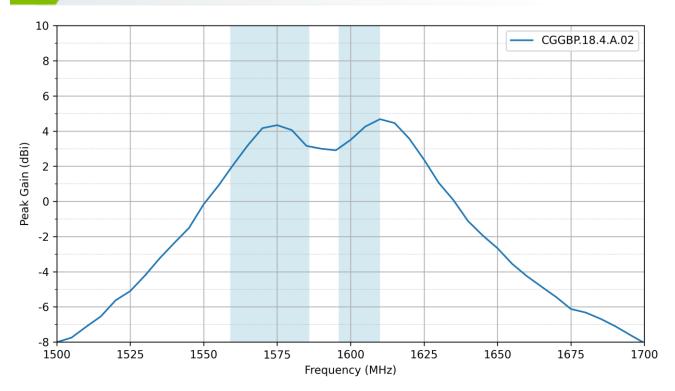


#### 3.5 Average Gain





### 3.6 Peak Gain

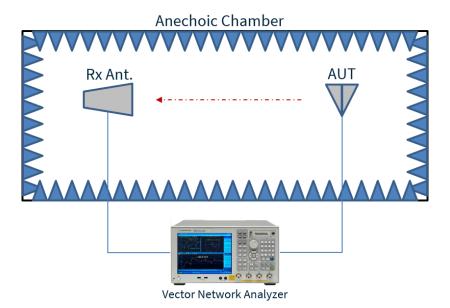


8



### 4. Radiation Patterns

### 4.1 Test Setup

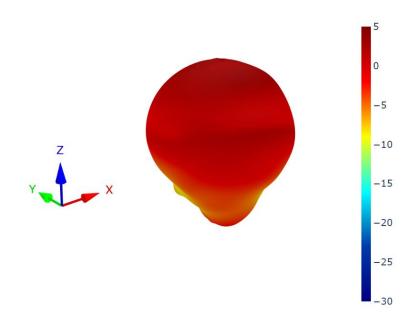


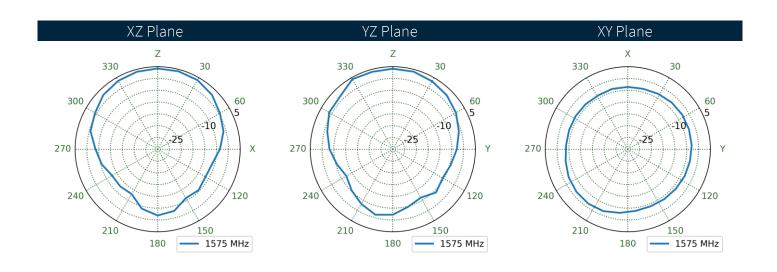
Z

On 70mm x 70mm Ground Plane



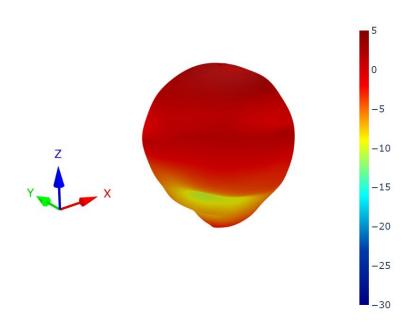
#### .2 CGGBP.18.4.A.02 Patterns at 1575 MHz

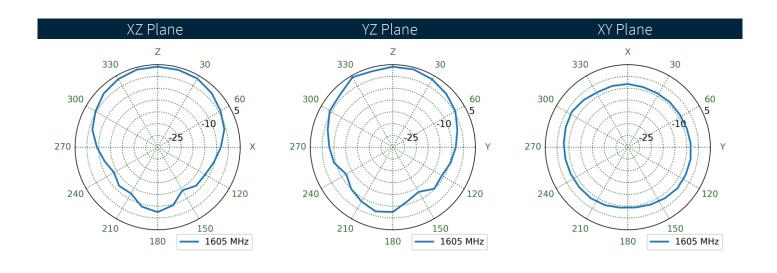






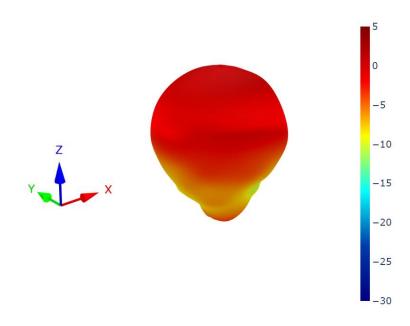
#### 4.3 CGGBP.18.4.A.02 Patterns at 1602 MHz

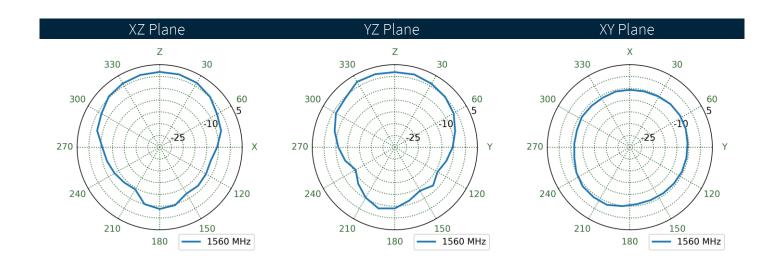






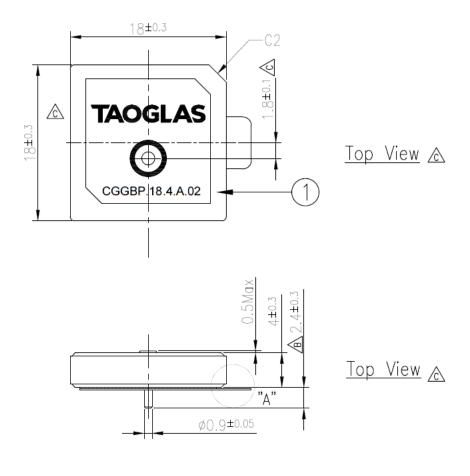
#### 4.4 CGGBP.18.4.A.02 Patterns at 1561 MHz

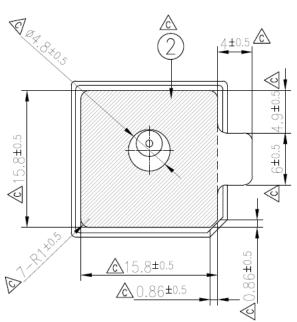






## 5. Mechanical Drawing

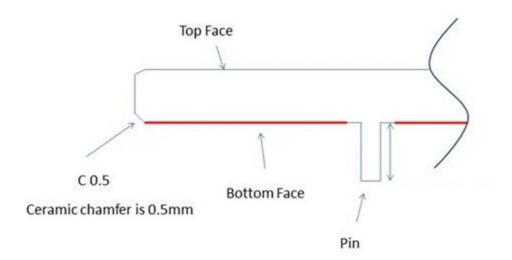




Bottom View 🙈

$\wedge$		Name	Material	Finish	QTY
ζŞ	1	Patch (18x18x4mm)	Ceramic	Clear	1
<u>/c\</u>	2	Double sided Adhesive	NITTO 5015	White Linter	1





Red line shows the adhesive without Liner – thickness 0.08~0.1 mm

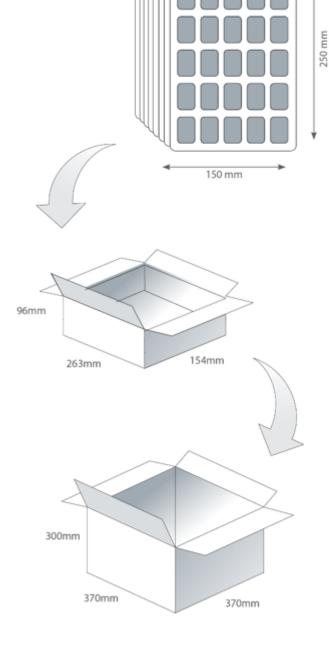


# 6. Packaging

25 pcs CGGBP.18.2.A.02 per tray Tray dimensions – 250\*150\*11mm

200 pcs CGGBP.18.2.A.02 per inner carton Inner carton dimensions – 96\*263\*154mm

800 pcs CGGBP.18.2.A.02 per carton Carton dimensions – 370\*370\*300mm





# Antenna Integration Guide







#### 7.1 Schematic and Symbol Definition

The circuit symbol for the antenna is shown below. The antenna has 1 pin as indicated below.

Pin	Description
1	RF Feed





#### 7.2 Antenna Integration

The antenna should be placed at the center of the ground plane with a length and width of 70mm. Maintaining a square symmetric ground plane shape and symmetric environment around the antenna is critical to maintaining the excellent axial ratio and phase center performance shown in this datasheet.



Top Side w/ Solder Mask



Top Side w/o Solder Mask

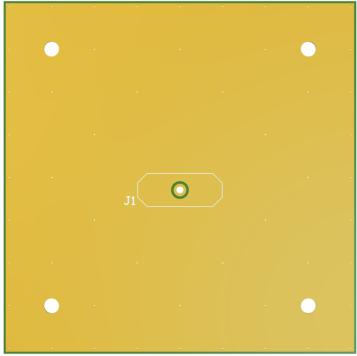


#### 7.3 PCB Layout

The footprint and clearance on the PCB must comply with the antenna specification. The PCB layout shown in the diagram below demonstrates the antenna footprint.



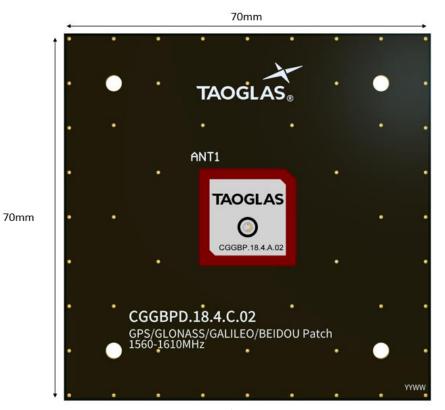
Topside



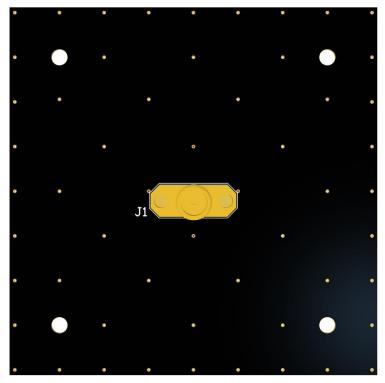
**Bottom Side** 



#### 7.4 Evaluation Board

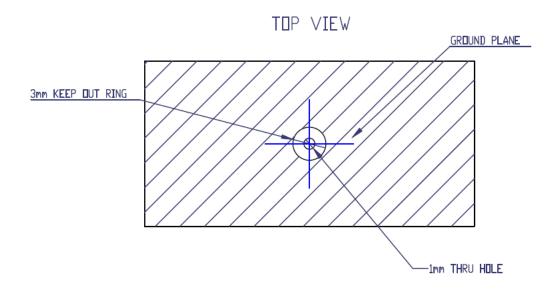


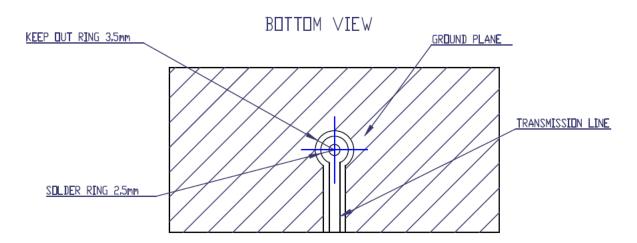
Topside



Bottom Side

7.5 Footprint







#### Changelog for the datasheet

#### SPE-14-8-072 - CGGBP.18.4.A.02

Revision: G (Current Version)		
Date:	2023-06-08	
Changes:	Updated Antenna Characteristics Updated Radiation Patterns	
Changes Made by:	Aswin Biju	

#### **Previous Revisions**

Revision: F		
Date:	2023-03-22	
Changes:	Antenna Integration Guide Added	
Changes Made by:	Cesar Sousa	

Revision: A (Original First Release)		
Date:	2014-07-04	
Notes:		
Author:	Author	

Revision: E		
Date:	2021-06-24	
Changes:	Updated Specification	
Changes Made by:	Dan Cantwell	

Revision: D		
Date:	2019-05-02	
Changes:	Updated specifications	
Changes Made by:	Paul Doyle	

Revision: C	
Date:	2015-02-02
Changes:	Amended drawing
Changes Made by:	Aine Doyle

Revision: B	
Date:	2015-01-02
Changes:	Amended PCB footprint doc
Changes Made by:	Aine Doyle





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