Specification

Part No. : **SGGP.25.4.A.02**

Description : GPS/GLONASS/GALILEO SMT Patch Antenna

Features : 25mm*25mm*4mm
Single Feed SMT Mount GPS/GALILEO: 1575MHz
GLONASS: 1602MHz
Patent pending
RoHS Compliant

1. Introduction

This ceramic 25*25*4mm GPS/GLONASS/GALILEO patch antenna is mounted via SMT process and has been pre-tuned for a 50*50mm ground plane. Custom part no's tuned for different ground-plane or layout positions and taking into account the specific conditions in your device can be created and supplied by Taoglas.

2. Specification

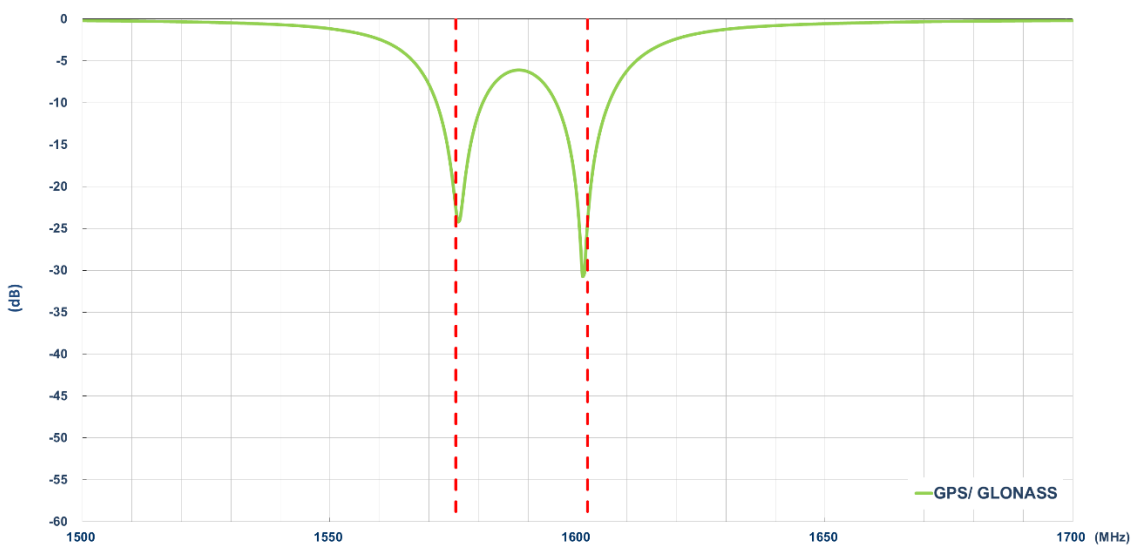
Patch Specification tested on 50*50mm ground plane

Parameter	Specification
Operating Bands	GPS/GALILEO: 1575.42 MHz ± 1.023 MHz GLONASS: 1602± 5 MHz
VSWR	<2.5
Return Loss in Band	<-10 dB
Efficiency	GPS/GALILEO (1575.42 MHz): 83% GLONASS (1602 MHz): 84%
Polarization	RHCP
Impedance	50 Ω
Frequency Temperature Coefficient (-40ºC to +85ºC)	0 ± 20ppm / ºC
Operating Temperature	-40ºC to +85ºC

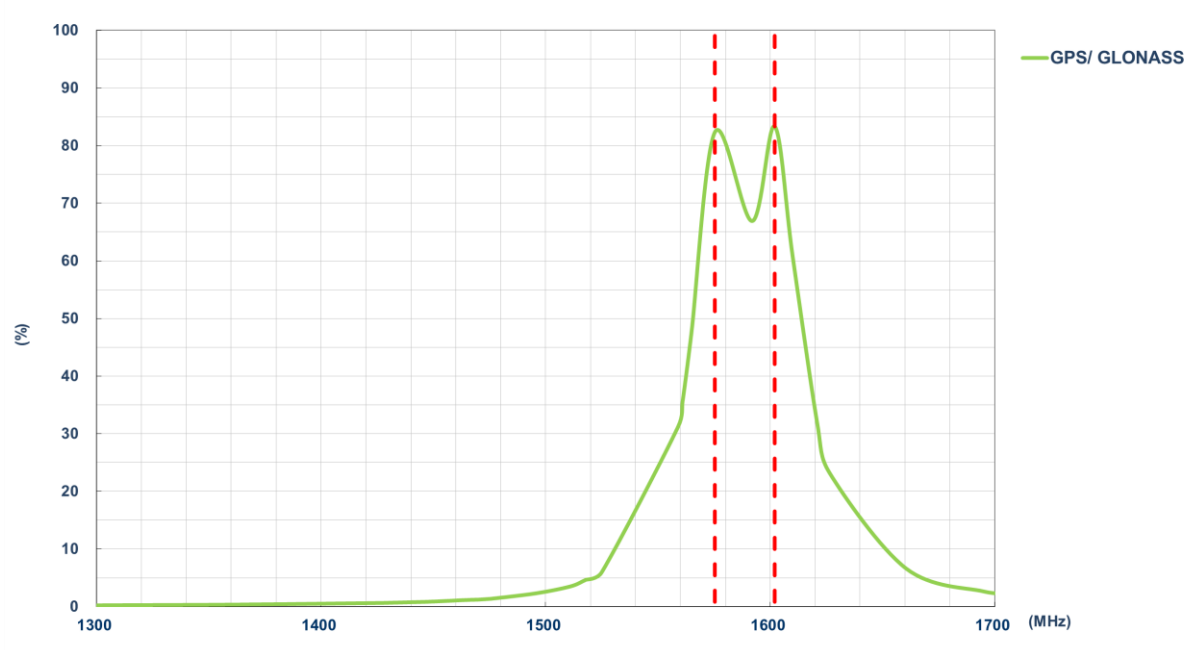
**Changes in user groundplane and environment will offset centre frequenc

3. Electrical Specifications

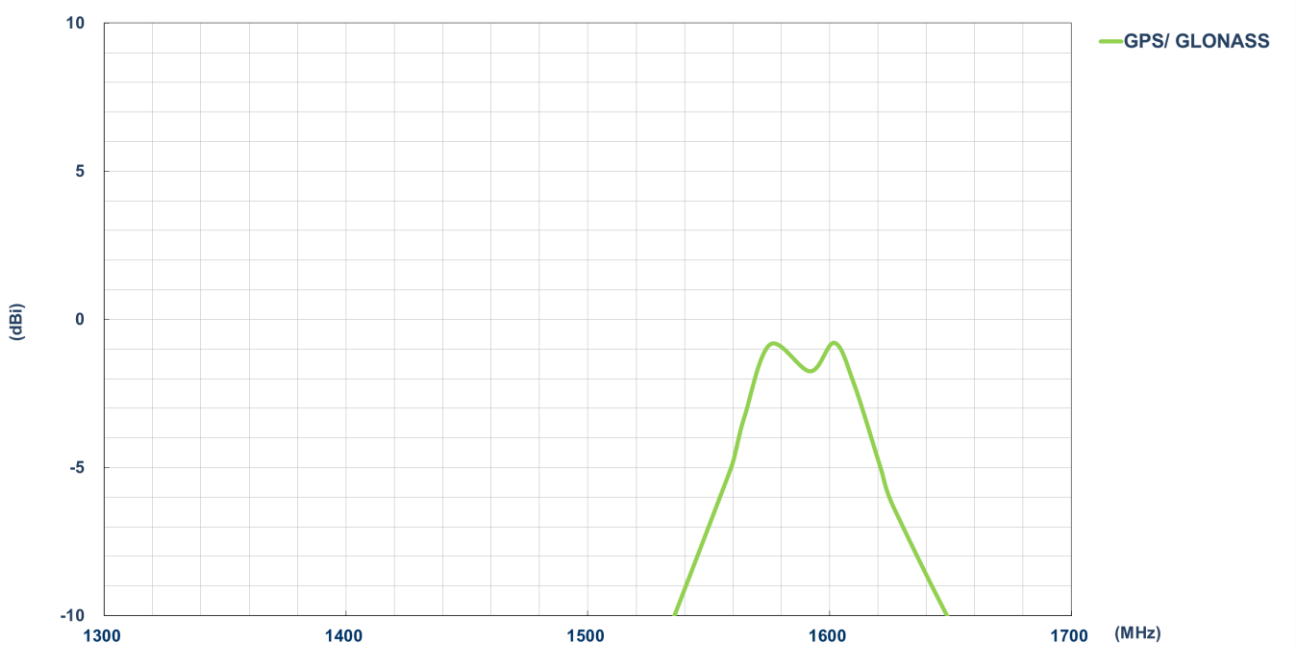
3.1. Return Loss



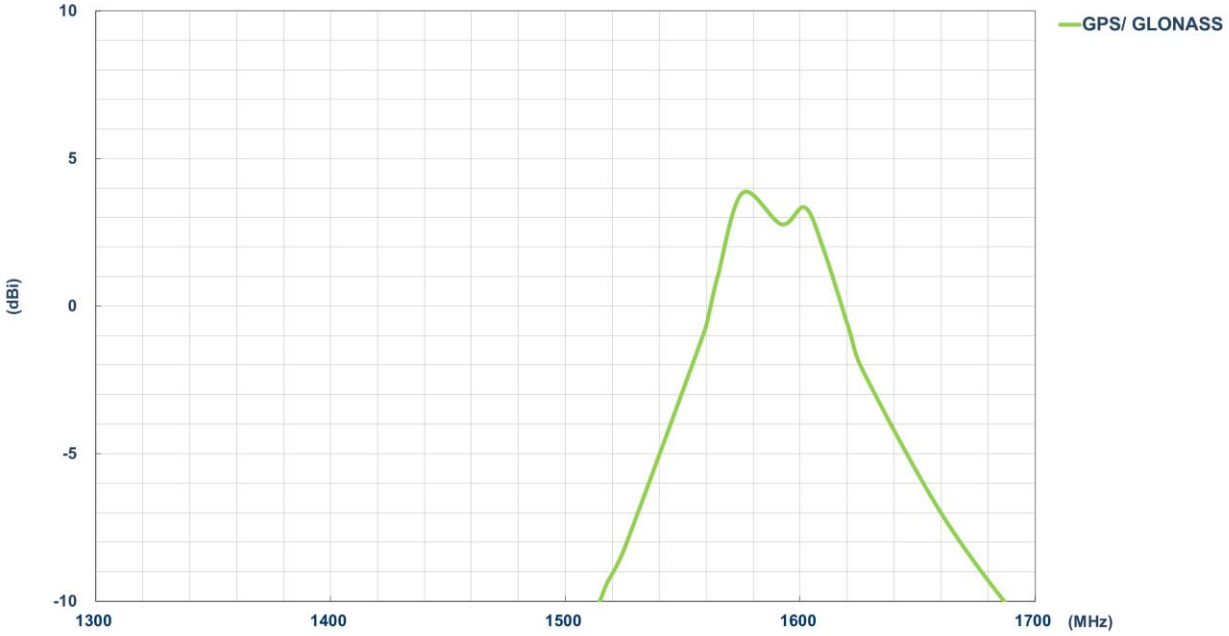
3.2. Efficiency



3.3. Average Gain

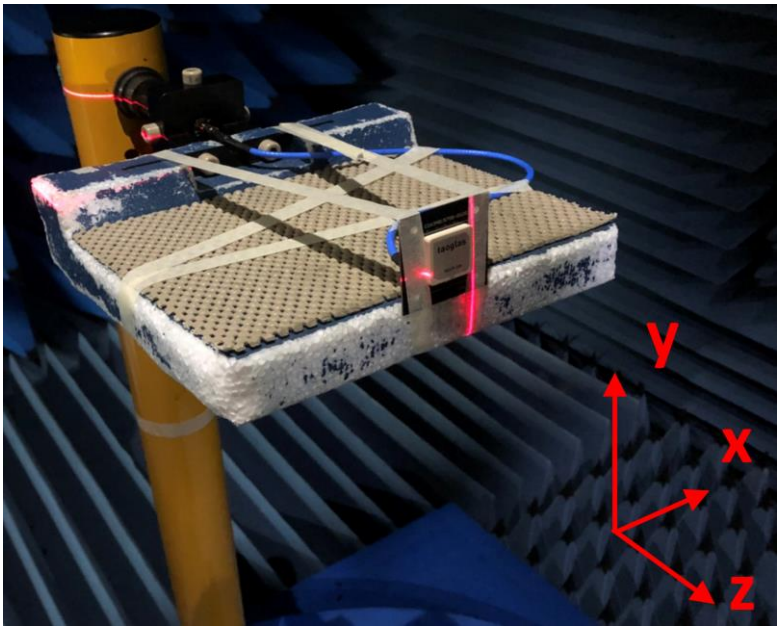


3.4. Peak Gain

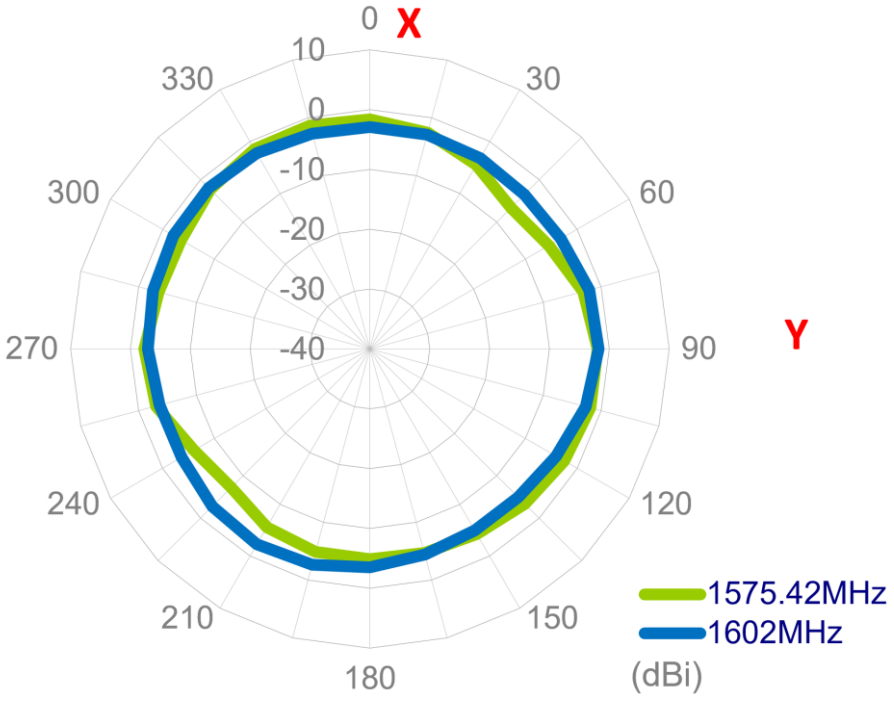


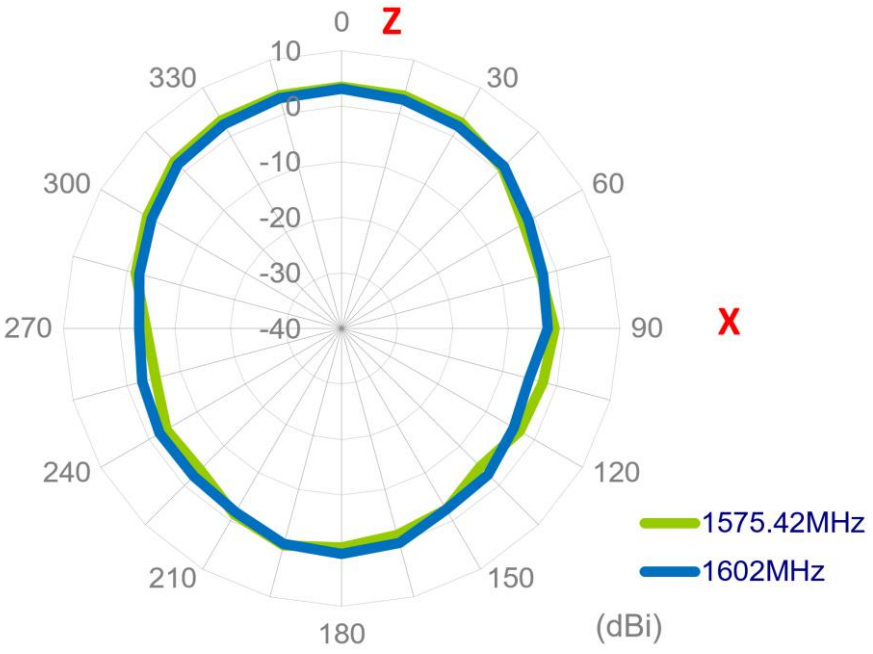
4. Radiation Patterns

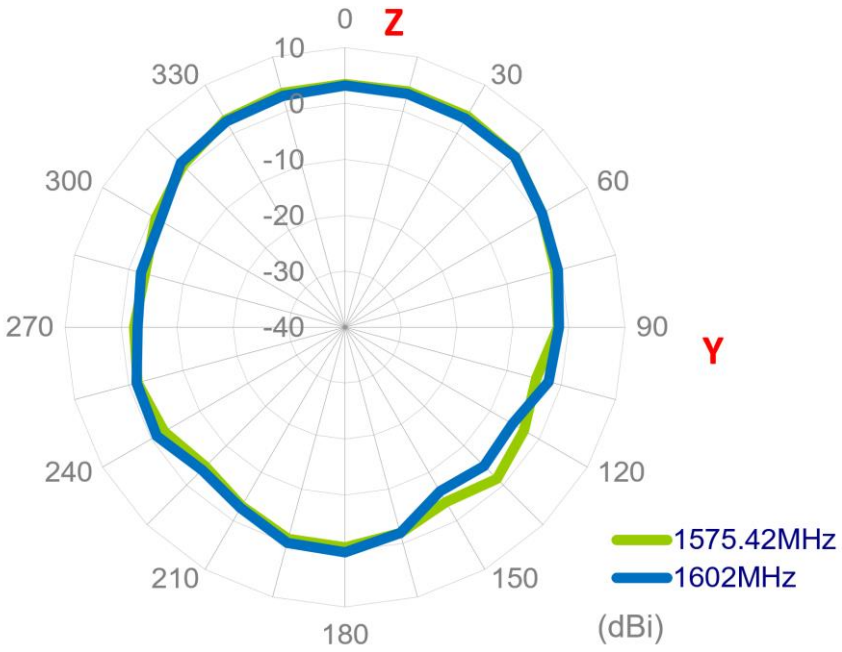
4.1. Chamber Test Setup



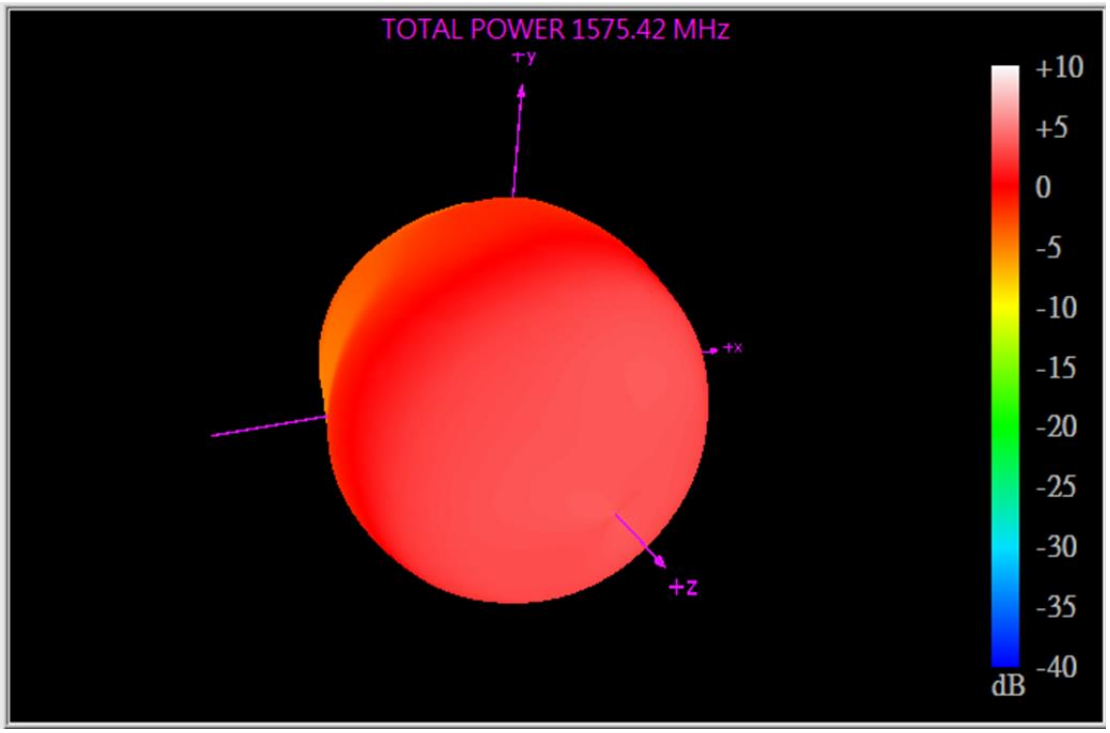
4.2. 2D Radiation Patterns

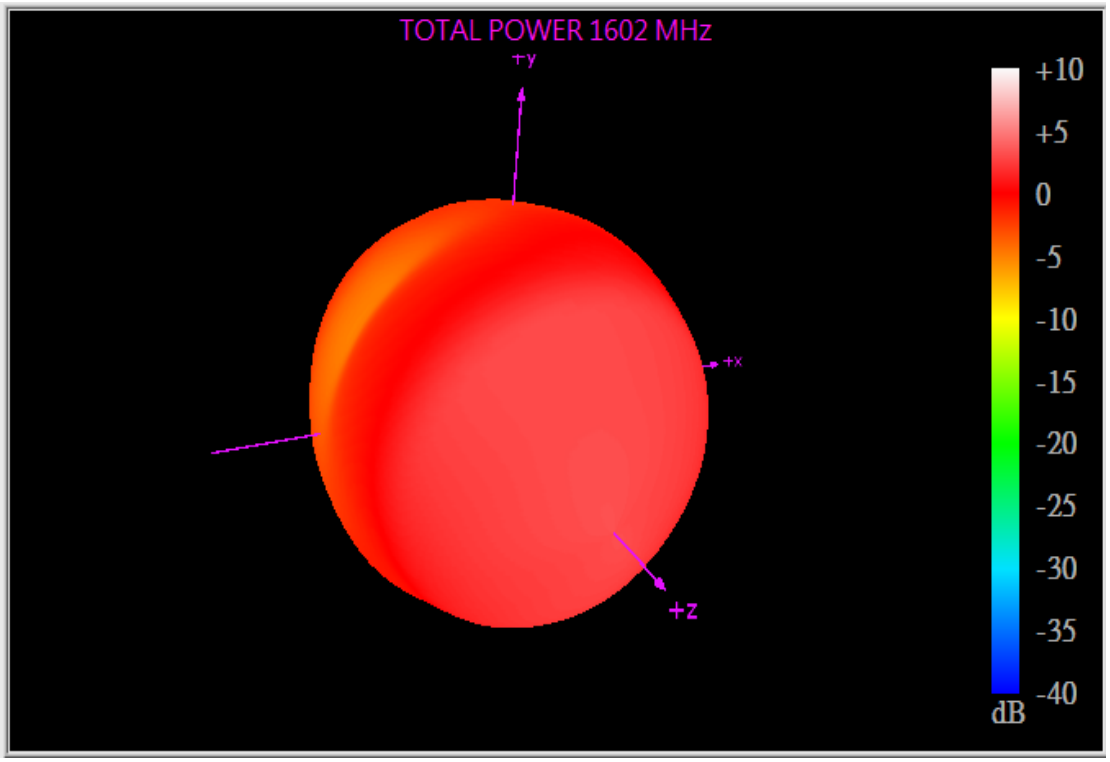



0
Z
10
330
30
0
-10
300
60
-20
-30
270
-40
90
X
240
120
1575.42MHz
1602MHz
210
150
180
(dBi)


0
Z
10
330
30
0
-10
300
60
-20
-30
270
-40
90
Y
240
120
1575.42MHz
1602MHz
210
150
180
(dBi)

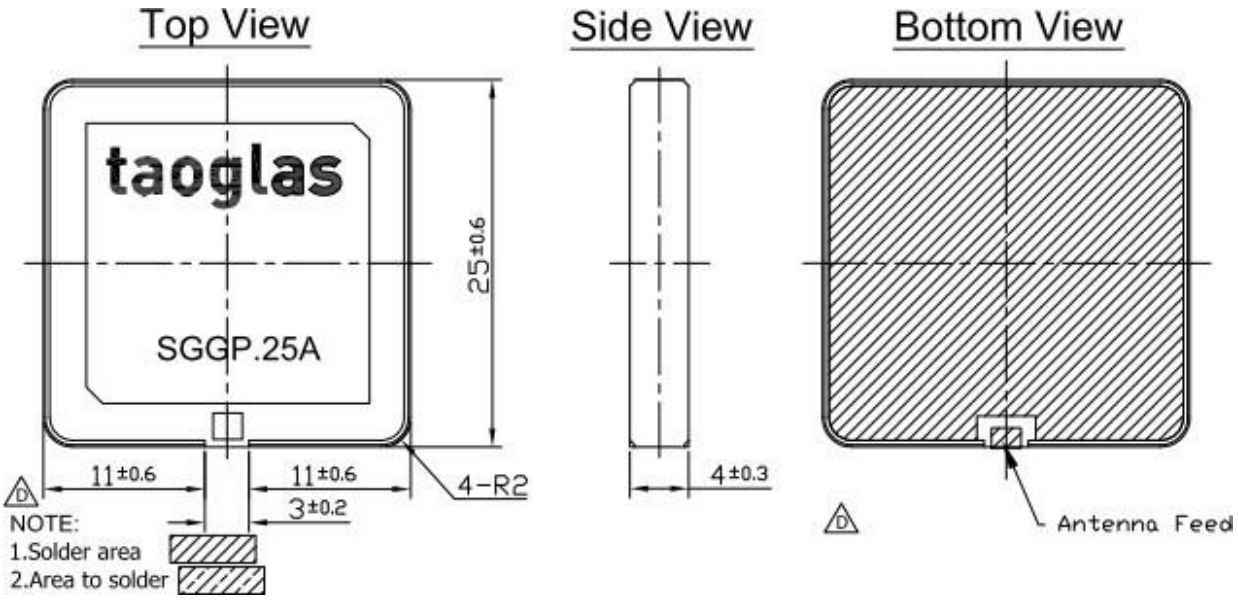
4.2. 3D Radiation Patterns



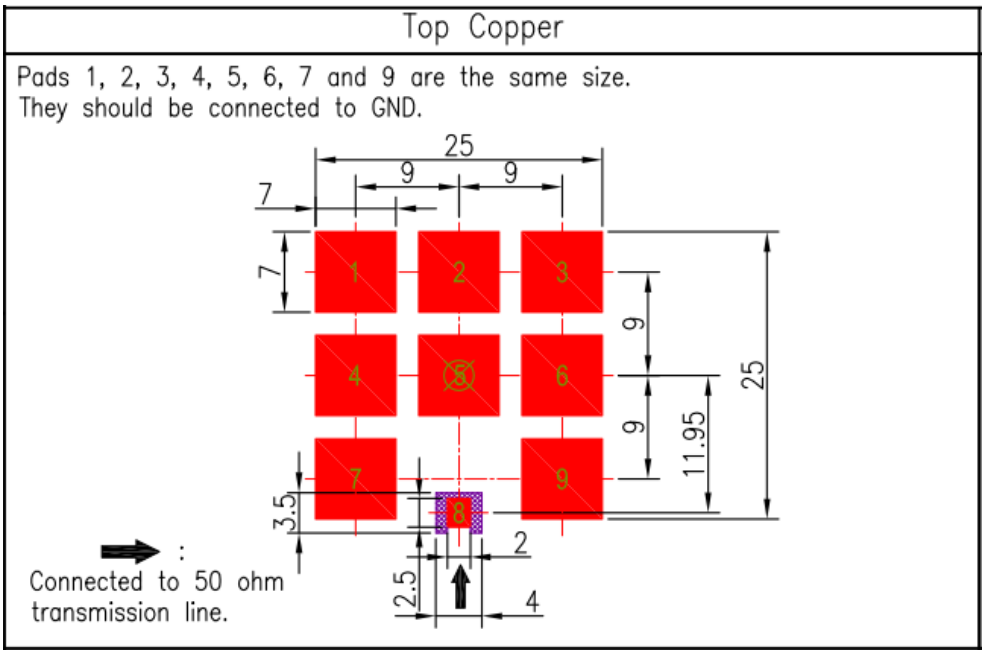


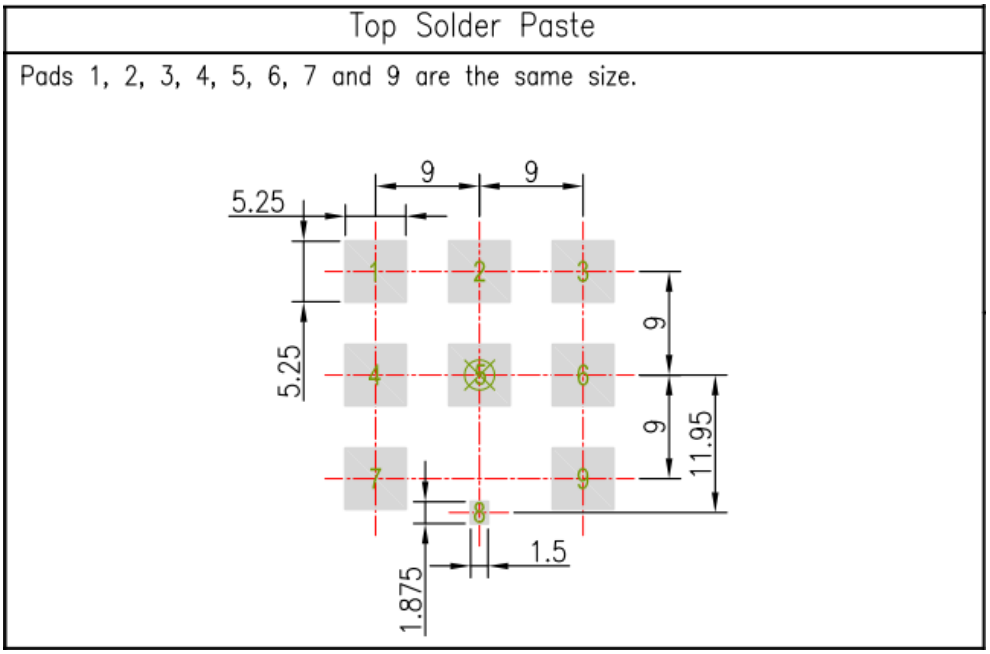
5. Mechanical Specifications

5.1. Antenna Dimensions and Drawing (Unit: mm)



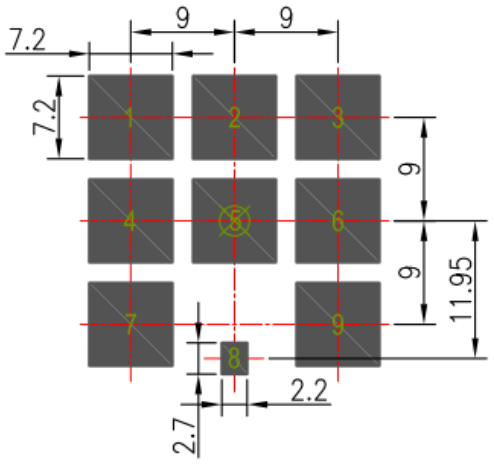
5.2. PCB Footprint Recommendation (Unit: mm)



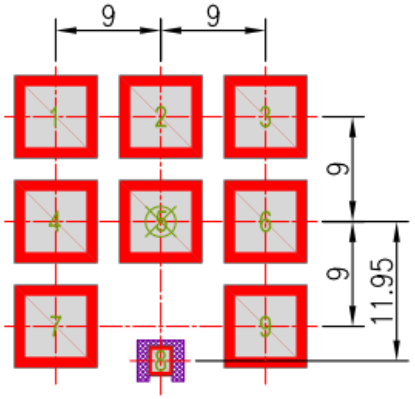


Top Solder Mask

Pads 1, 2, 3, 4, 5, 6, 7 and 9 are the same size,
This drawing is a negative of solder mask. Black regions are anti-mask.



Composite Diagram



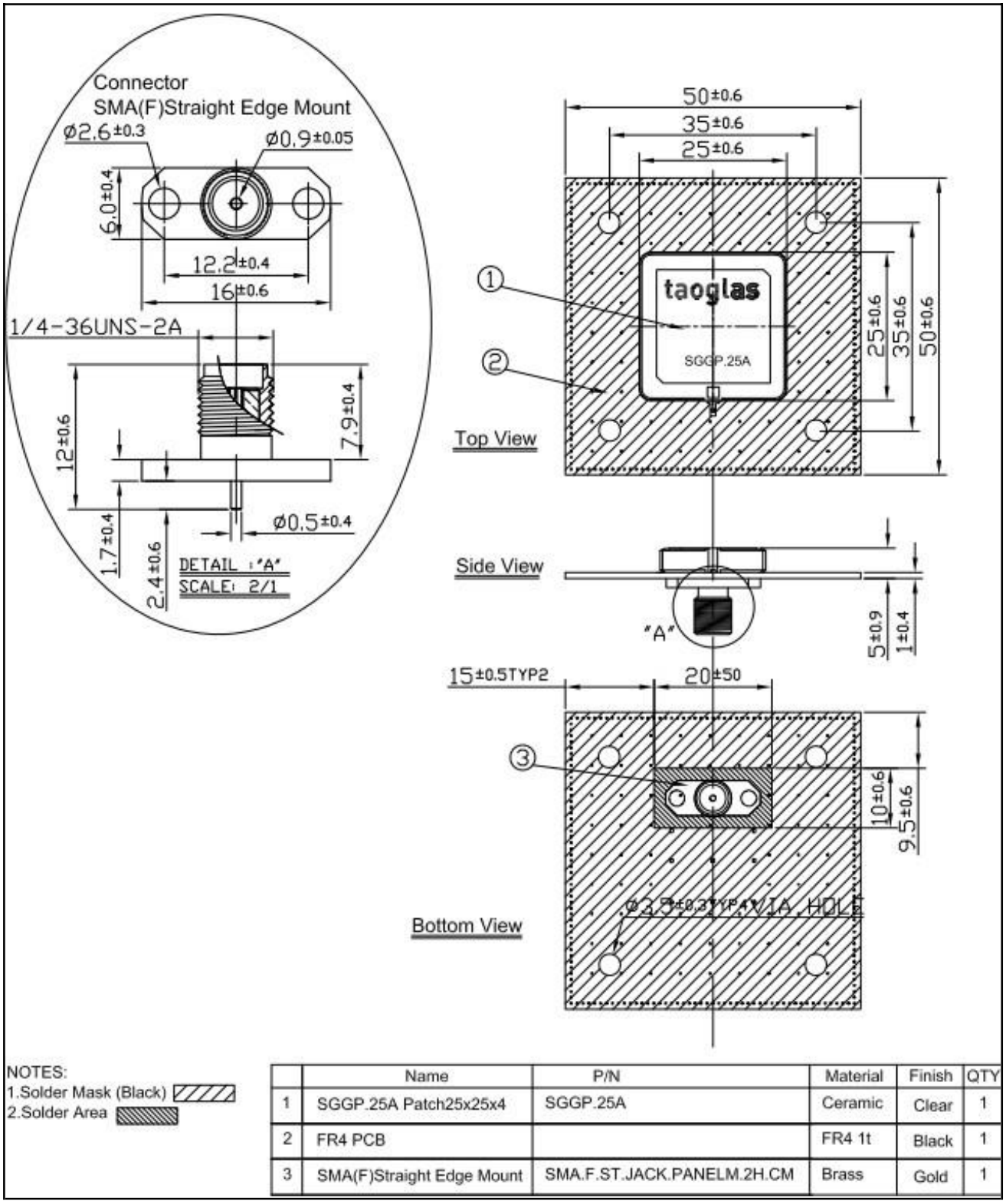
NOTE:
1. Ag Plated area
2. Solder Mask area
3. Copper area
4. Paste area
5. Copper Keepout Area

6. Copper keepout should extend through all PCB layers.

7. Any vias in pads should be either filled or tented to prevent solder from wicking away from the pad during reflow.

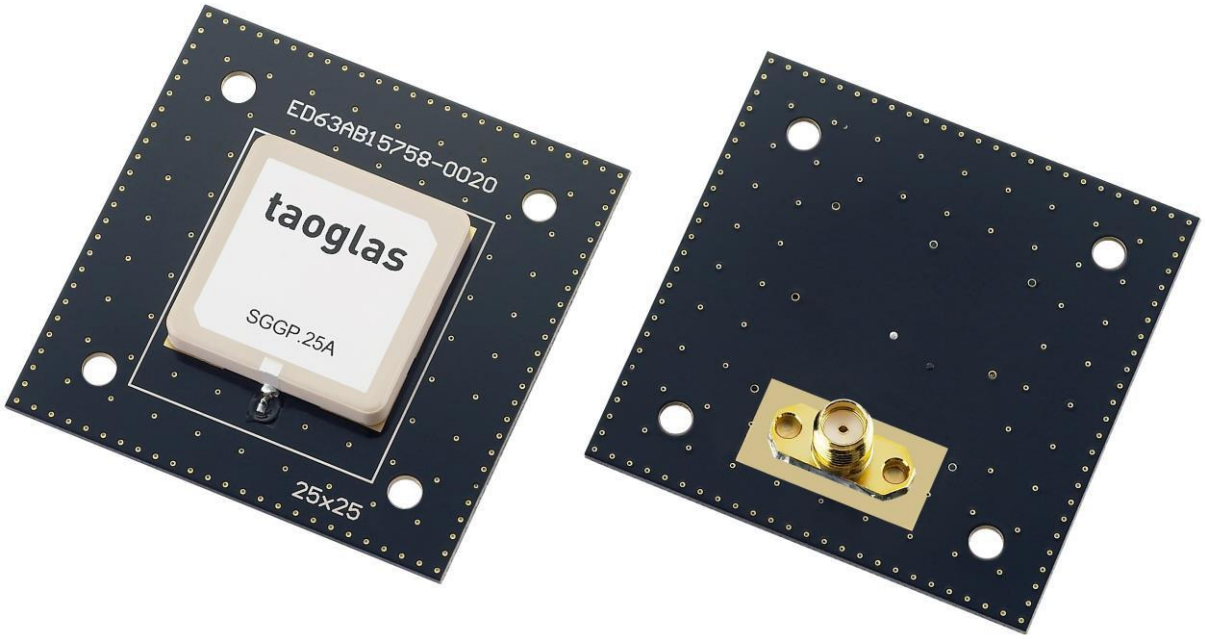
8. The dimension tolerances should follow standard PCB manufacturing guidelines

5.3. Test Jig and Dimension SGGPD.25A



	Name	P/N	Material	Finish	QTY
1	SGGP.25A Patch25x25x4	SGGP.25A	Ceramic	Clear	1
2	FR4 PCB		FR4 1t	Black	1
3	SMA(F)Straight Edge Mount	SMA.F.ST.JACK.PANELM.2H.CM	Brass	Gold	1

5.4. SGGP.25A On Evaluation Board

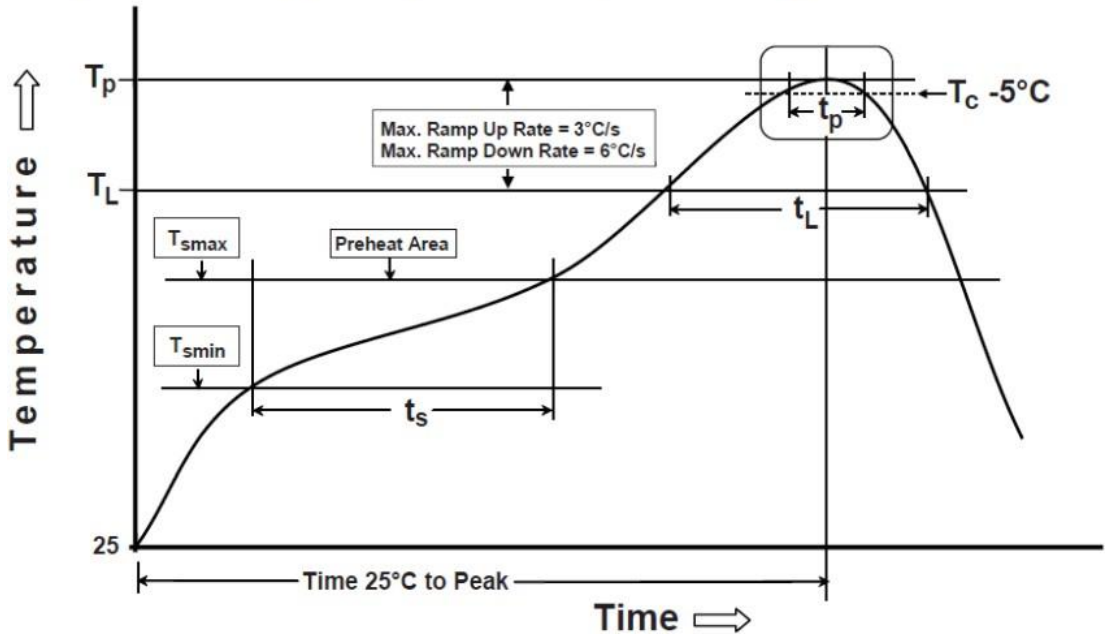


6. Recommended Reflow Soldering Profile

SGGP.25A can be assembled following Pb-free assembly. According to the Standard IPC/JEDEC J-STD-020C, the temperature profile suggested is as follow:

Phase	Profile Features	Pb-Free Assembly (SnAgCu)
PREHEAT	Temperature Min(Tsmin)	150°C
	Temperature Max(Tsmax)	200°C
	Time(ts) from (Tsmin to Tsmax)	60-120 seconds
RAMP-UP	Avg. Ramp-up Rate (Tsmax to TP)	3°C/second(max)
REFLOW	Temperature(TL)	217°C
	Total Time above TL (tL)	30-100 seconds
PEAK	Temperature(TP)	260°C
	Time(tp)	2-5 seconds
RAMP-DOWN	Rate	3°C/second(max)
Time from 25°C to Peak Temperature		8 minutes max.
Composition of solder paste		96.5Sn/3Ag/0.5Cu
Solder Paste Model		SHENMAO PF606-P26

The graphic shows temperature profile for component assembly process in reflow ovens



Soldering Iron condition: Soldering iron temperature 270°C±10°C.

Apply preheating at 120°C for 2-3 minutes. Finish soldering for each terminal within 3 seconds, if soldering iron temperature over270°C±10°C or 3 seconds, it will make cause component surface peeling or damage.

7. Packaging

200 pcs / reel / inner carton

4 reels in an outer carton (800)