SGGP.18A

Specification

PATENT PENDING

Part No.	**SGGP.18A**
Product Name	GPS/GLONASS SMT Patch Antenna
Features	18mm*18mm*4mm Single Feed SMT GPS: 1575MHz GLONASS: 1602MHz Patent pending RoHS Compliant

1. Introduction

This ceramic 18mm GPS/GLONASS 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

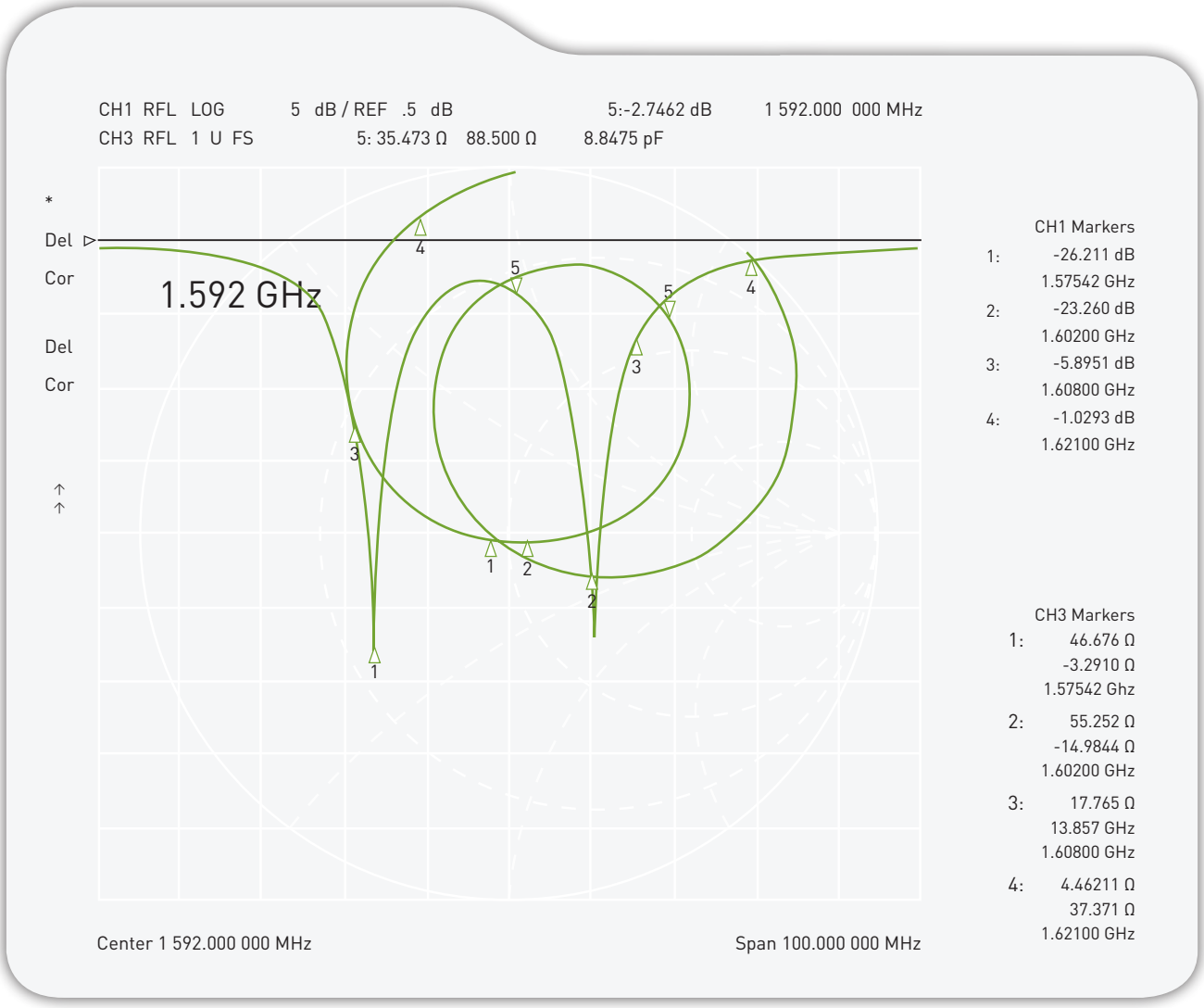
Original Patch Specification tested on 50*50mm ground plane

NO.:	PARAMETER	SPECIFICATION	NOTES
1	**Range of Receiving Frequency**	GPS:1575.42 MHz ± 1.023 MHz GLONASS: 1602± 5 MHz	
2	**Center Frequency**	1592± 3MHz	With 50*50mm ground plane
3	**Bandwidth**	8MHz min	Return Loss <-10 dB
4	**VSWR**	2.0 max	Center Frequency
5	**Gain at Zenith**	GPS: 0.26dBic typ. GLONASS: 1.25dBic typ.	
8	**Impedance**	50 Ohms	
9	**Frequency Temperature Coefficient (τf)**	0 ± 20ppm / oC	-40°C to +85°C
10	**Operating Temperature**	-40°C to +85°C	

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

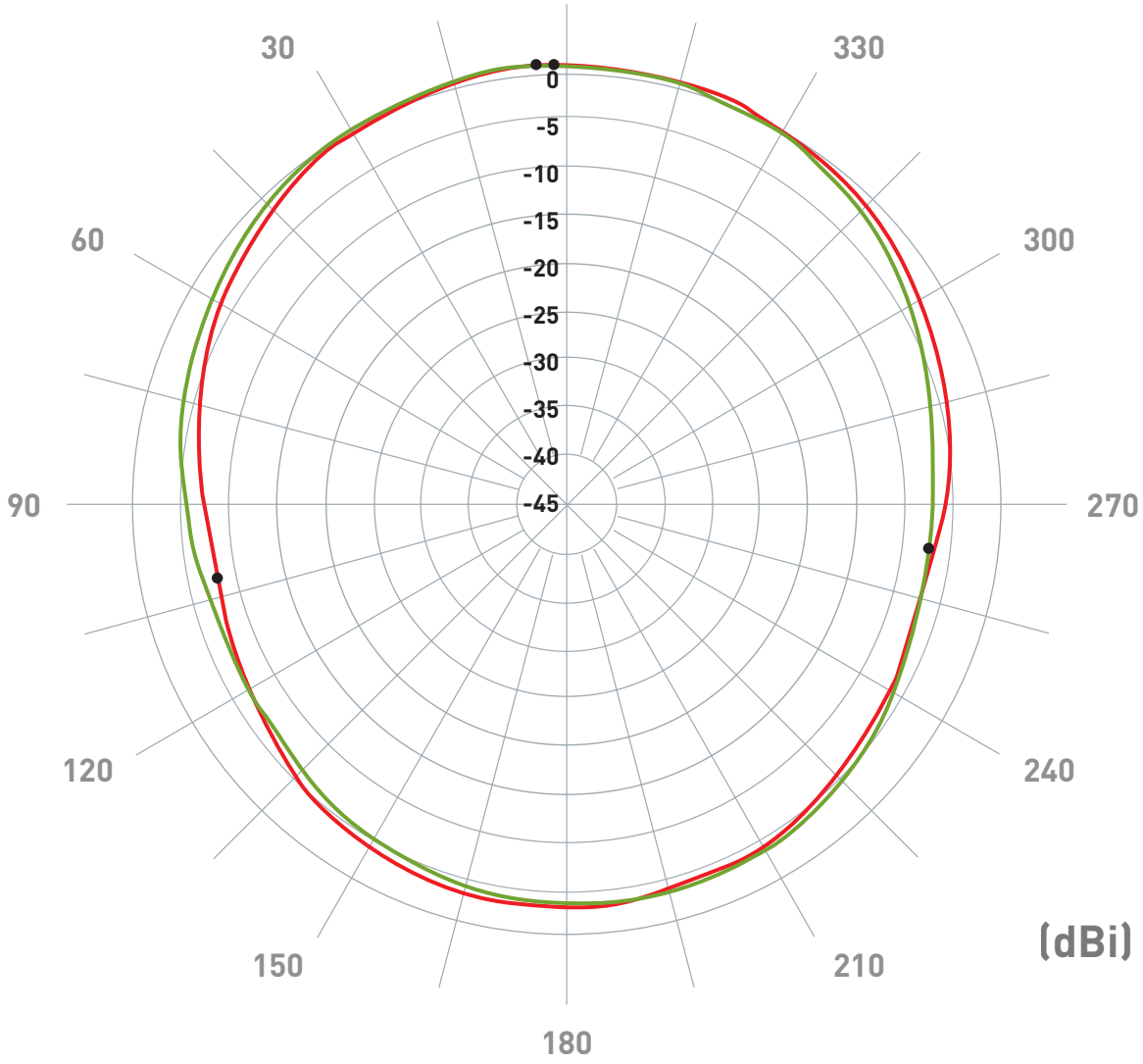
3. Electrical Specifications

3.1. Return Loss, SWR, Impedance, measured on the test fixture



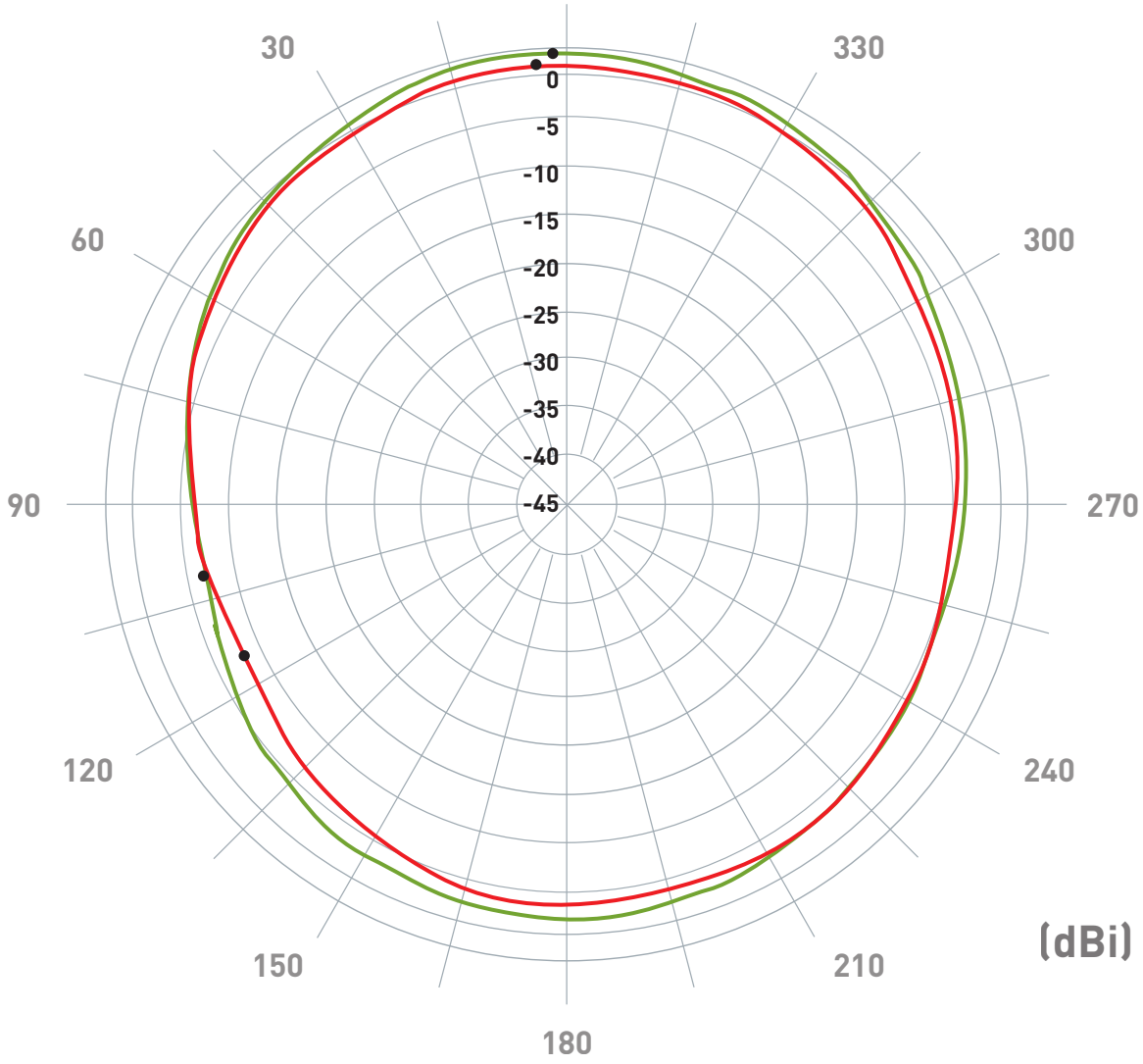
4. Radiation Patterns

4.1 1575MHz - XZ and YZ Plane



Pattern	Model No.	Test Mode	Freq (Mhz)	Max Gain (dBi)	Min Gain (dBi)	Avg. Gain (dBi)	Source Polar	Date
1	SGGP.18A	XZ	1575.42	0.72 / 2.00	-7.68 / 102.00	-2.81	V+H	2012/6/8
2	SGGP.18A	YZ	1575.42	0.82 / 4.00	-7.33 / 263.00	-2.79	V+H	2012/6/8

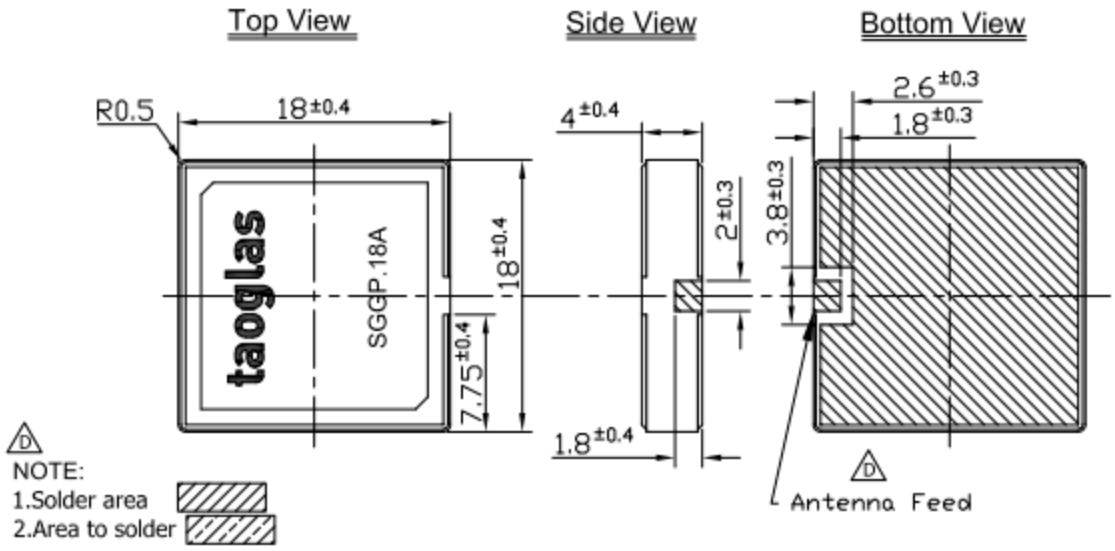
4.2 1602MHz - XZ and YZ Plane



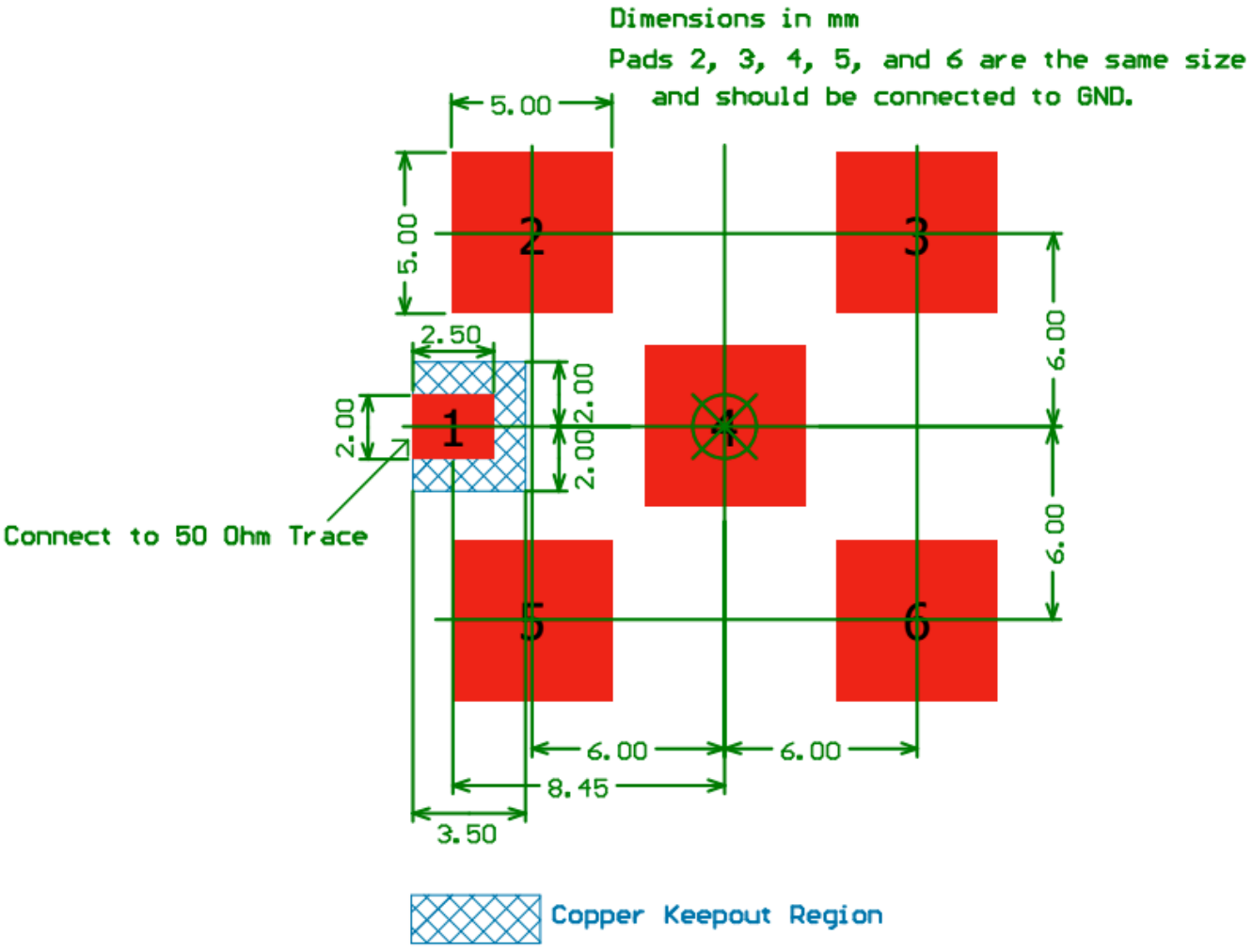
Pattern	Model No.	Test Mode	Freq (Mhz)	Max Gain (dBi)	Min Gain (dBi)	Avg. Gain (dBi)	Source Polar	Date
1	SGGP.18A	XZ	1602.00	1.25 / 4.00	-7.62 / 115.00	-2.19	V+H	2012/6/8
2	SGGP.18A	YZ	1602.00	2.27 / 2.00	-6.30 / 101.00	-1.28	V+H	2012/6/8

5. Mechanical Specifications

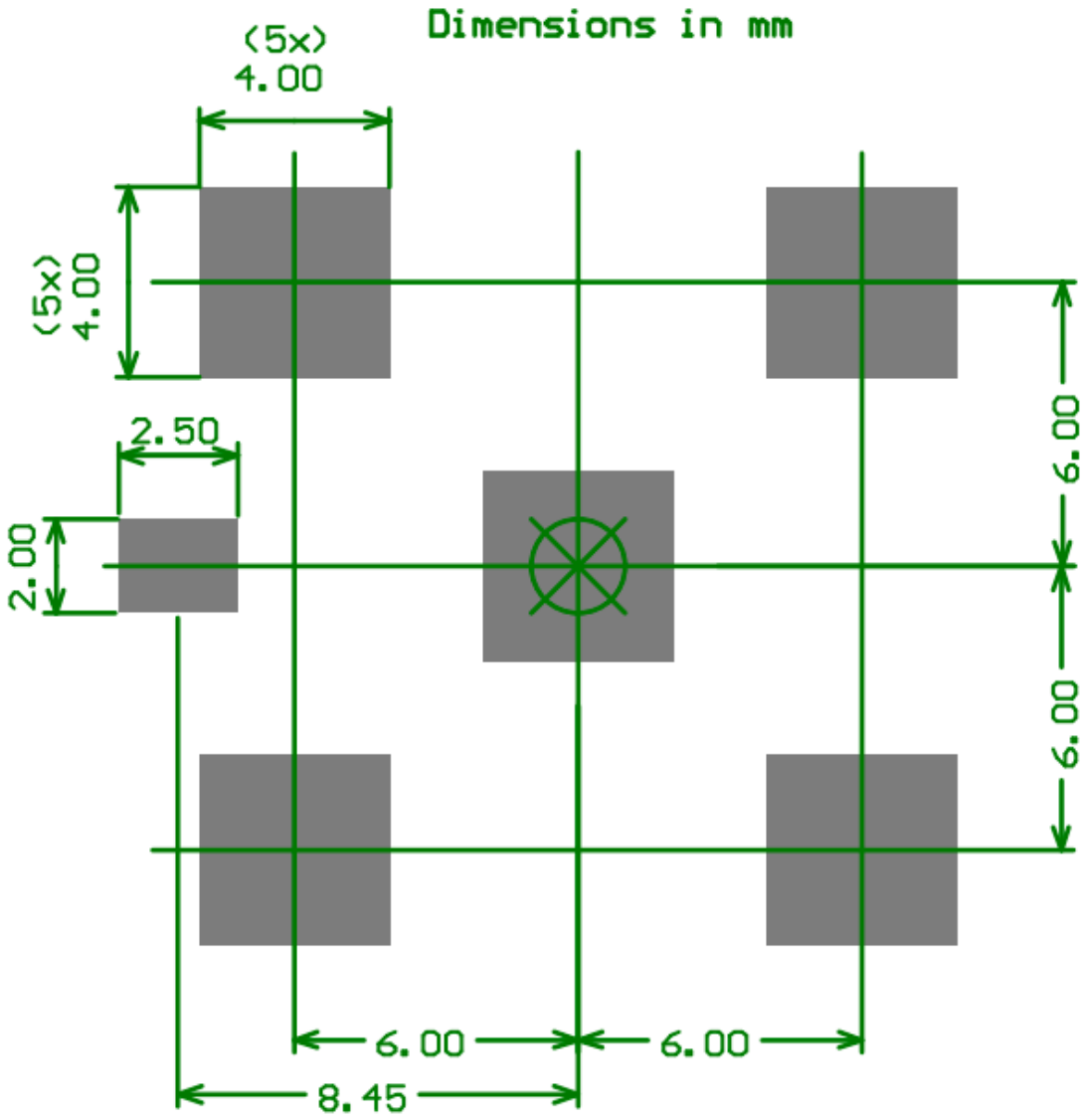
5.1 Antenna Dimensions and Drawing



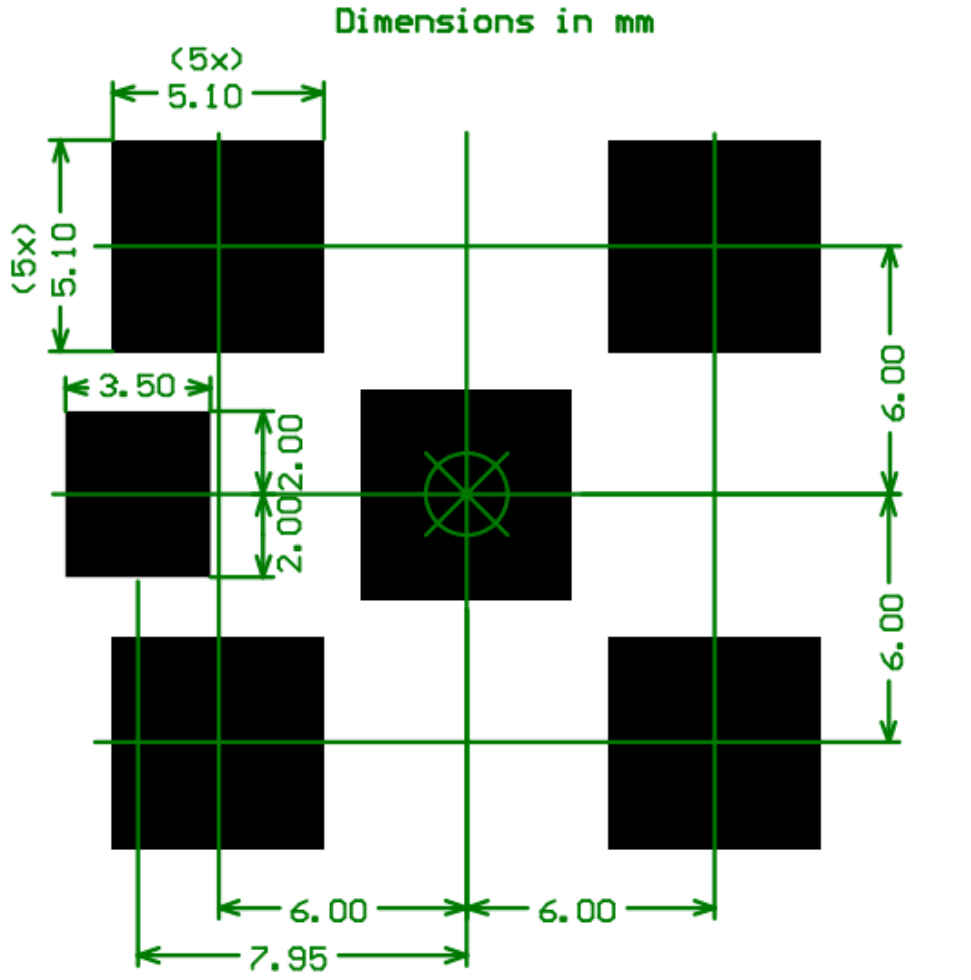
5.1.1 Footprint Copper Keepout Area



5.1.2 Paste Area

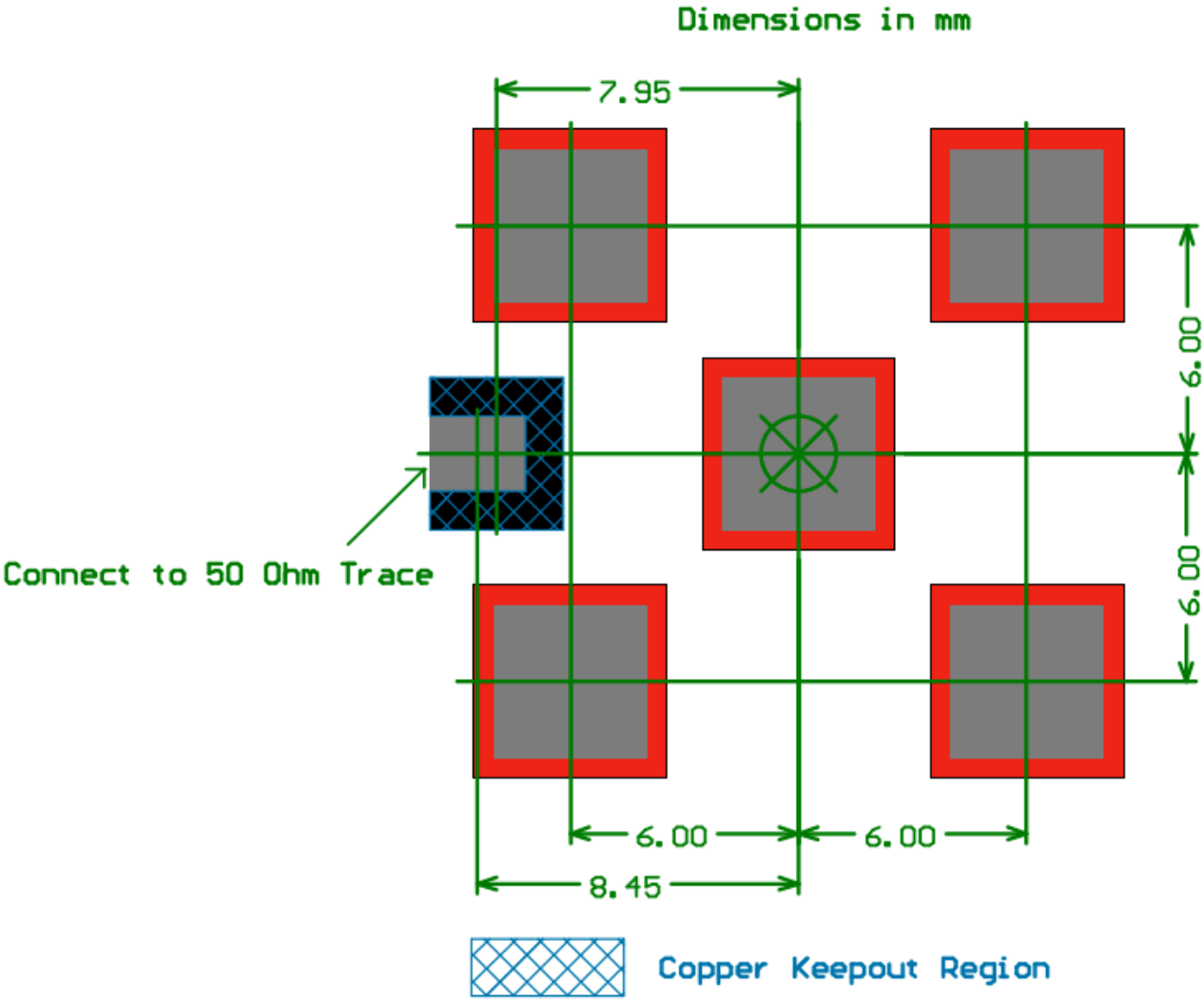


5.1.3 Soder Mask (Negative)

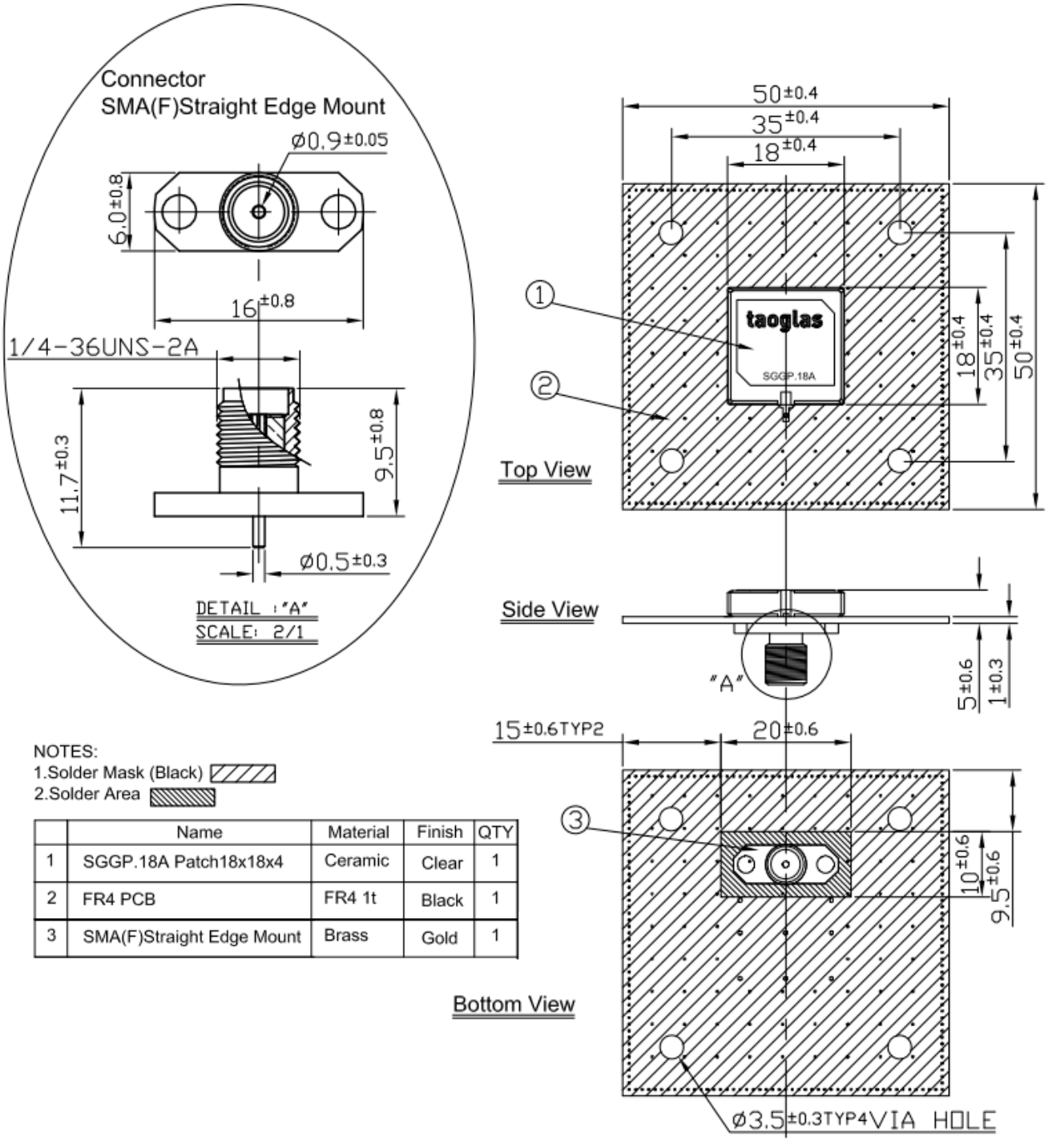


This drawing is a negative of solder mask.
Black regions are anti-mask.

5.1.4 Footprint Composite



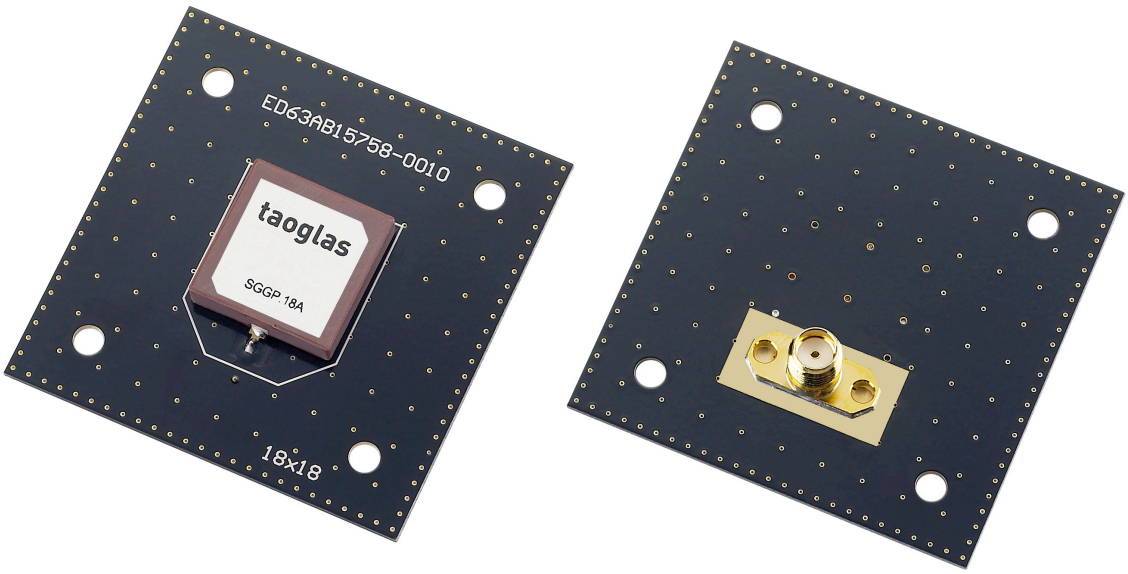
5.2 Test Jig and Dimension SGGP.18A



NOTES:
1.Solder Mask (Black)
2.Solder Area

	Name	Material	Finish	QTY
1	SGGP.18A Patch18x18x4	Ceramic	Clear	1
2	FR4 PCB	FR4 1t	Black	1
3	SMA(F)Straight Edge Mount	Brass	Gold	1

5.3 SGGPD.18A

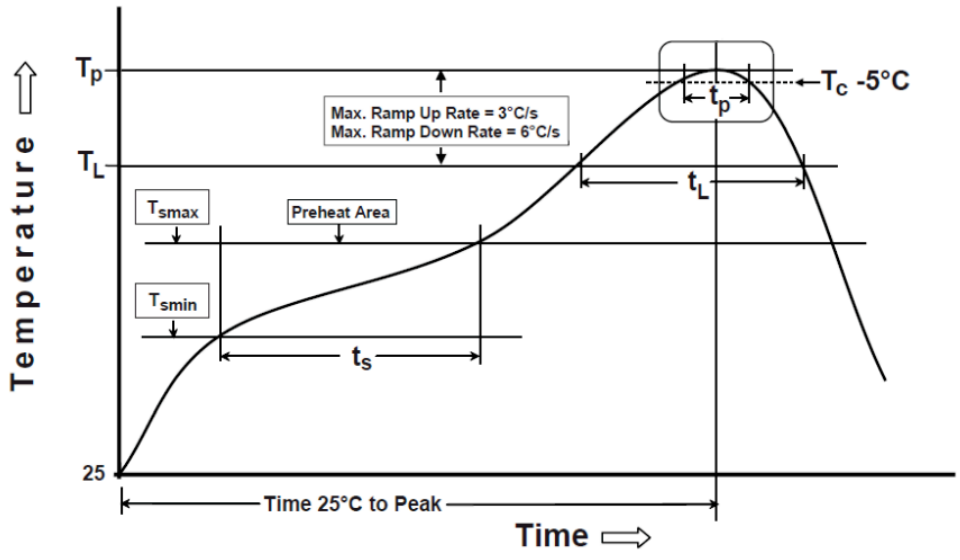


6. Recommended Reflow Soldering Profile

SGGP.18A can be assembled following Pb-free assembly. According to the Standard IPC/JEDEC J-STD-020C, the temperature profile suggested is as follows:

Phase	Profile Features	Pb-Free Assembly (SnAgCu)
PREHEAT	Temperature Min(Tsmin) Temperature Max(Tsmax) Time(ts) from (Tsmin to Tsmax)	150°C 200°C 60-120 seconds
RAMP-UP	Avg. Ramp-up Rate (Tsmax to TP)	3°C/second(max)
REFLOW	Temperature(TL) Total Time above TL (tL)	217°C 30-100 seconds
PEAK	Temperature(TP) Time(tp)	260°C 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.