



TAI-SAW TECHNOLOGY CO., LTD.

No. 3, Industrial 2nd Rd., Ping-Chen Industrial District,
Taoyuan, 324, Taiwan, R.O.C.

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Product Specifications Approval Sheet

Product Description: Print Chip Antenna 1583MHz BW 30 MHz Size 25x25 mm
TST Parts No.: TQ0205AA0000

Customer Parts No.: _____

Customer signature required
Company: _____
Division: _____
Approved by : _____
Date: _____

Checked by: _____ Nina Chen *Nina Chen*

Approved by: _____ Kazuma Lee *Kazuma Lee*

Date: _____ 2023/07/07

1. Customer signed back is required before TST can proceed with sample build and receive orders.
2. Orders received without customer signed back will be regarded as agreement on the specifications.
3. Any specifications changes must be approved upon by both parties and a new revision of specifications shall be released to reflect the changes.



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Print Chip Antenna 1583MHz BW 30 MHz Size 25x25 mm

MODEL NO.: TQ0205AA0000

REV. NO.:1.0

A. Maximum Rating:

1. Operating Temperature Range: -40°C to +105°C
2. Storage Temperature Range: -40°C to +105°C
3. Moisture Sensitivity Level: Level 1 (MSL 1)

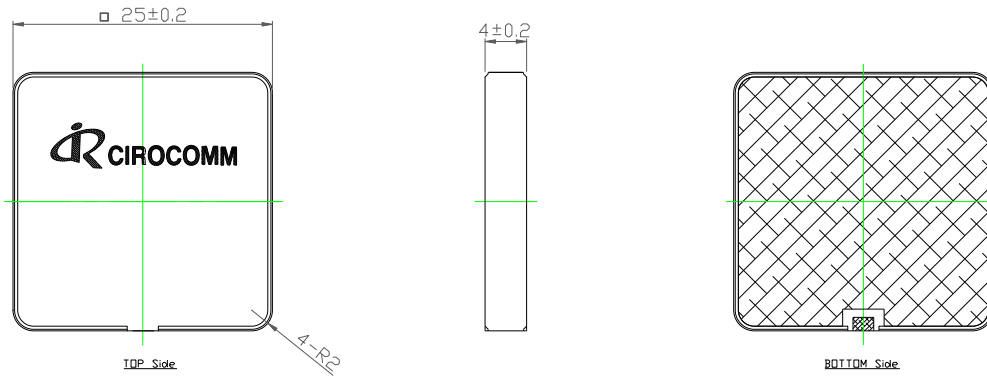
RoHS Compliant
Lead free
Lead-free soldering

Electrostatic Sensitive Device (ESD)

B. Electrical Characteristics:

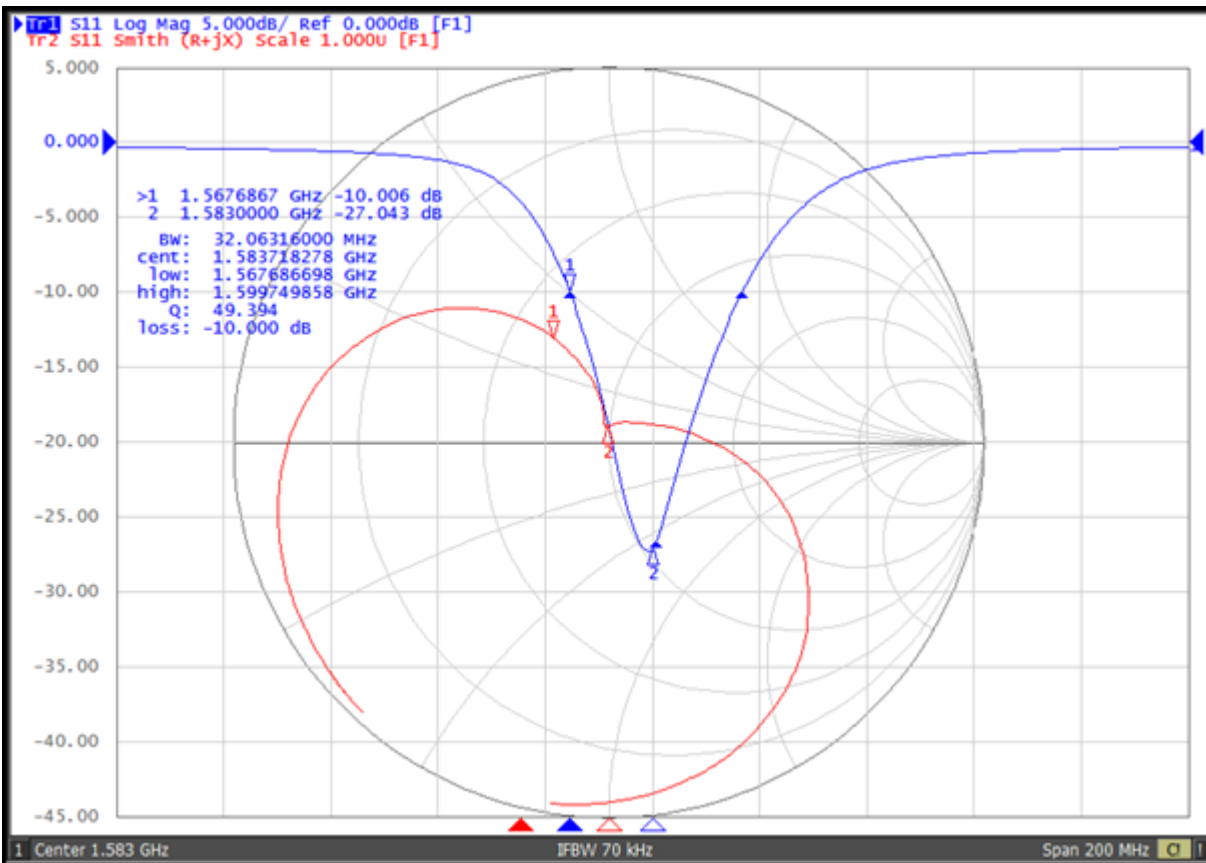
Parameter	Specification	Notes
Range Of Receiving Frequency	GPS : 1575.42 ±1.023 MHz GLONASS : 1602±5MHz	
Center Frequency	1583MHz ± 3MHz	With 59.81x46.44mm GND Plane
Bandwidth	30MHz min	Return Loss@-10dB
VSWR	1.8 max	Center Frequency
Gain at Zenith	GPS : -1.3 dBic typ. GLONASS : 1.69 dBic typ.	Customer Prototype
Axial Ratio	- - -	
Impedance	50 Ohm	
Frequency Temperature Coefficient (ƒf)	-40°C to +105°C	0 ± 20ppm / °C

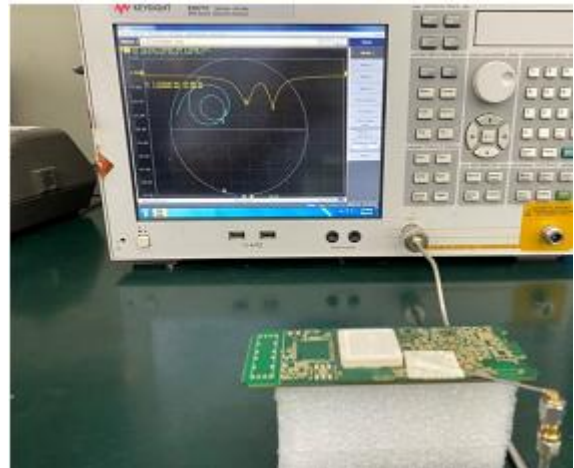
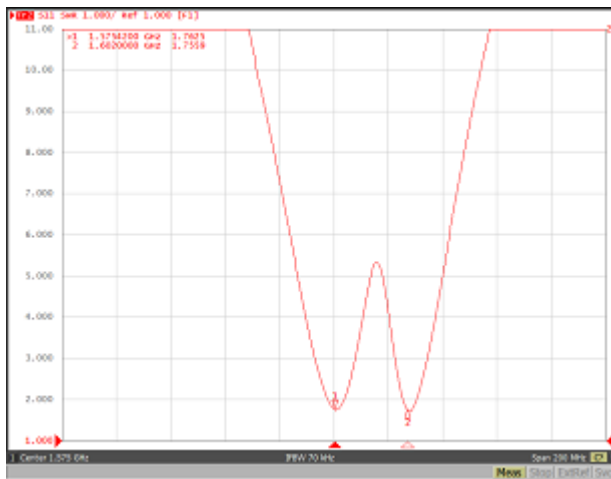
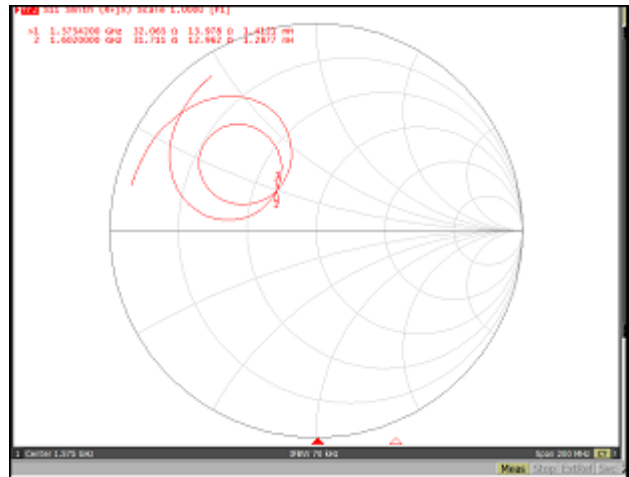
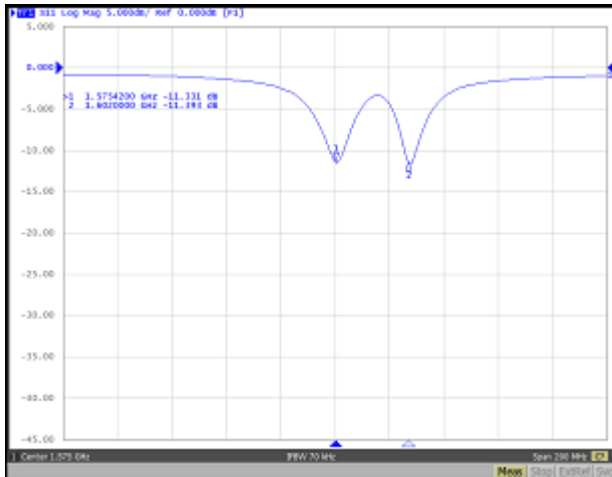
C. Dimension:



Unit:mm

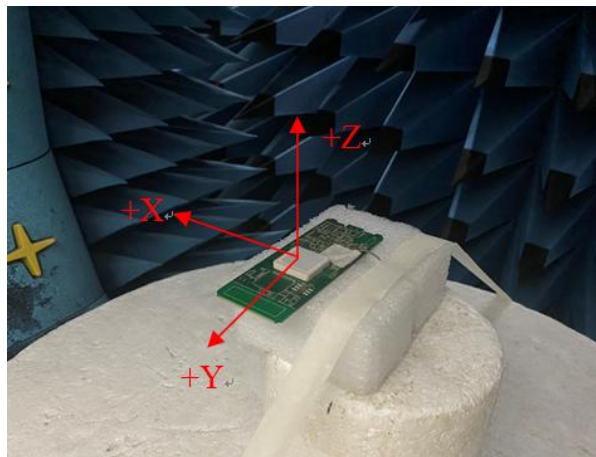
D. Frequency Characteristics:

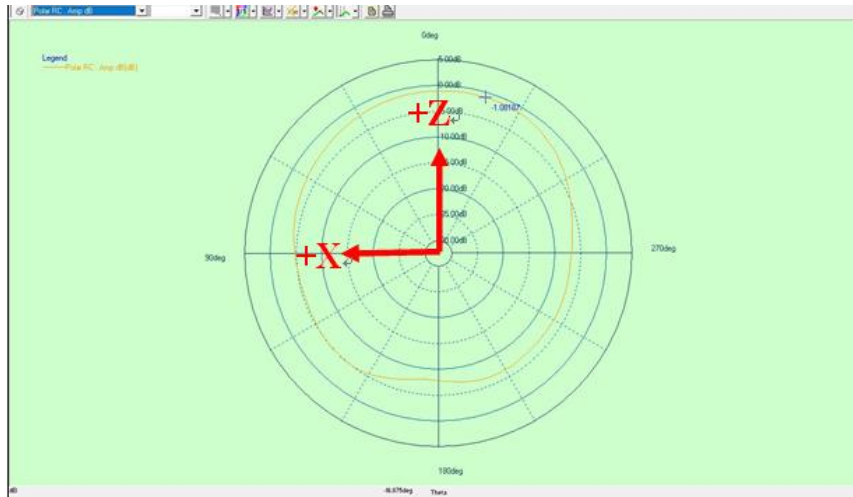




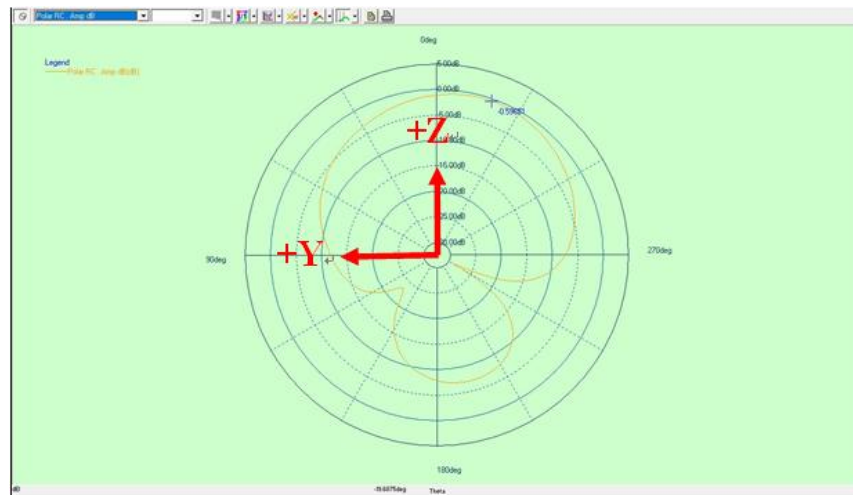
	Return Loss(dB)	Impedance(Ohm)	VSWR
1575.42MHz	-11.33	32.06+j13.97	1.76
1602MHz	-11.39	31.71+j12.96	1.75

2D Radiation Patter





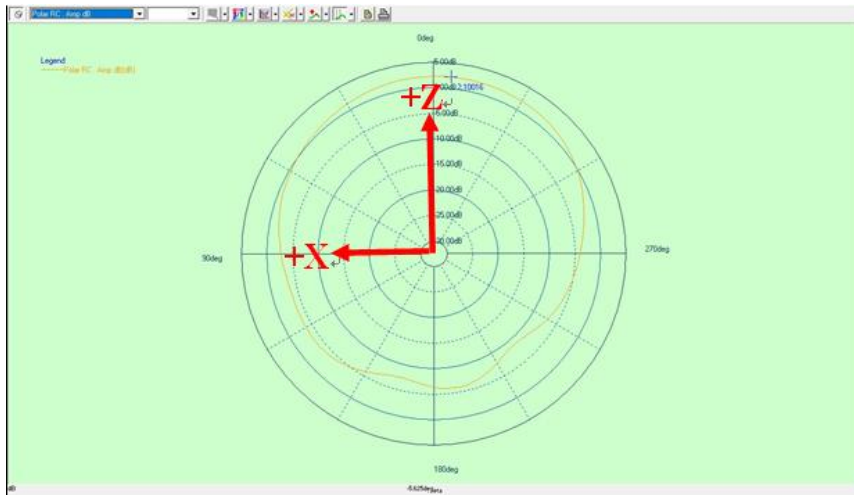
XZ -Plane - 1575.42MHz



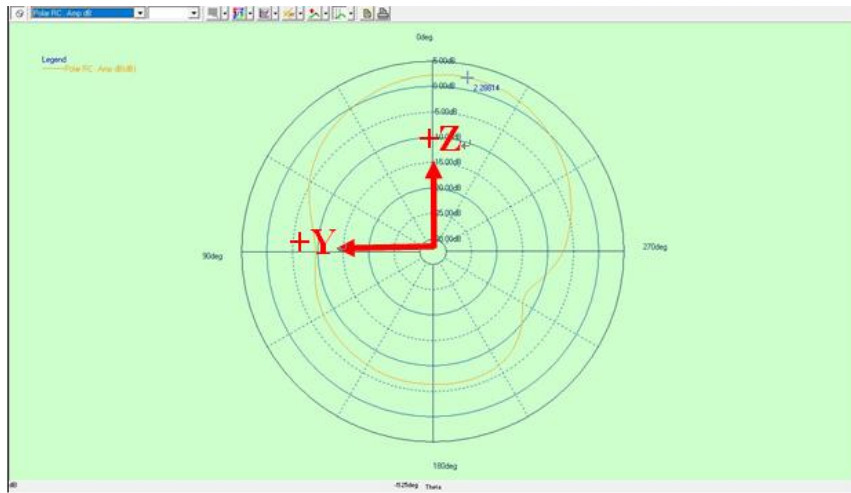
YZ -Plane - 1575.42MHz

1575.42MHz	Peak Gain	Zenith Gain
XZ-Plane	-1.08	-1.22
YZ-Plane	-0.59	-1.22

(Unit : dBic)



XZ -Plane - 1602MHz

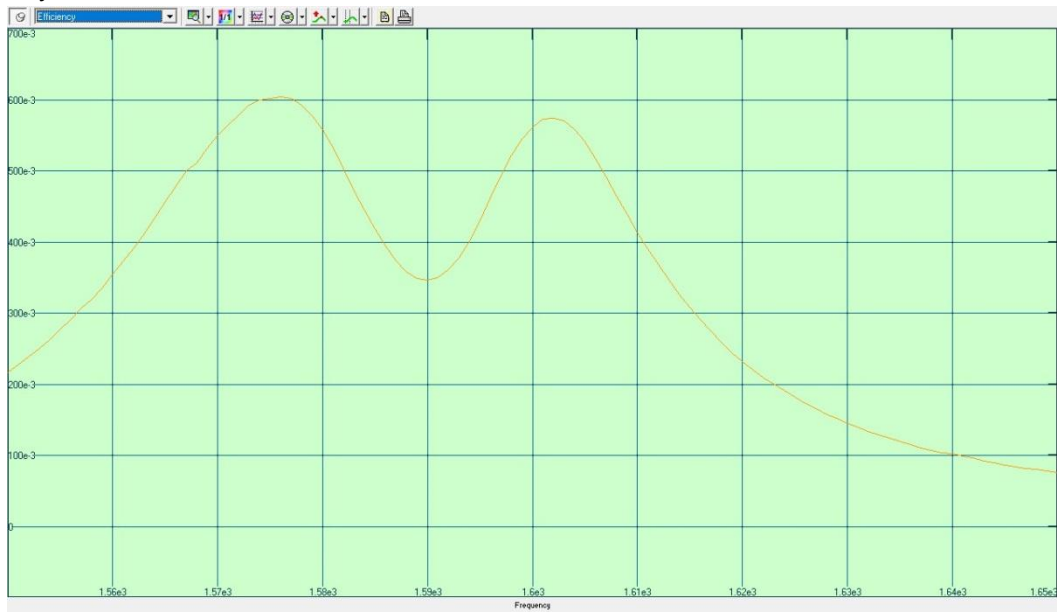


YZ -Plane - 1602MHz

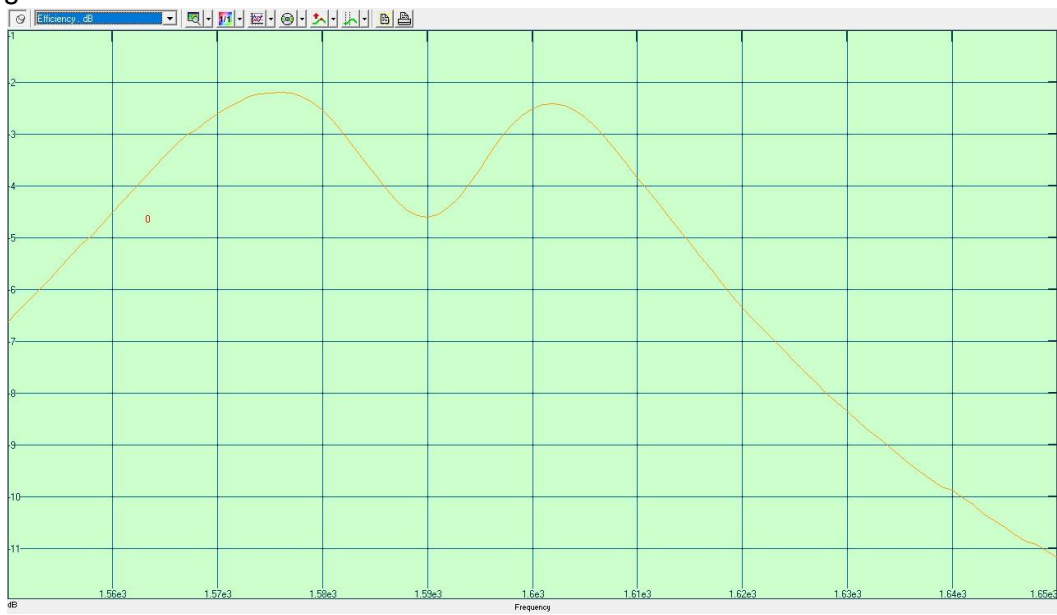
1602MHz	Peak Gain	Zenith Gain
XZ-Plane	2.10	2.08
YZ-Plane	2.28	2.08

(Unit : dBic)

Efficiency



Average Gain



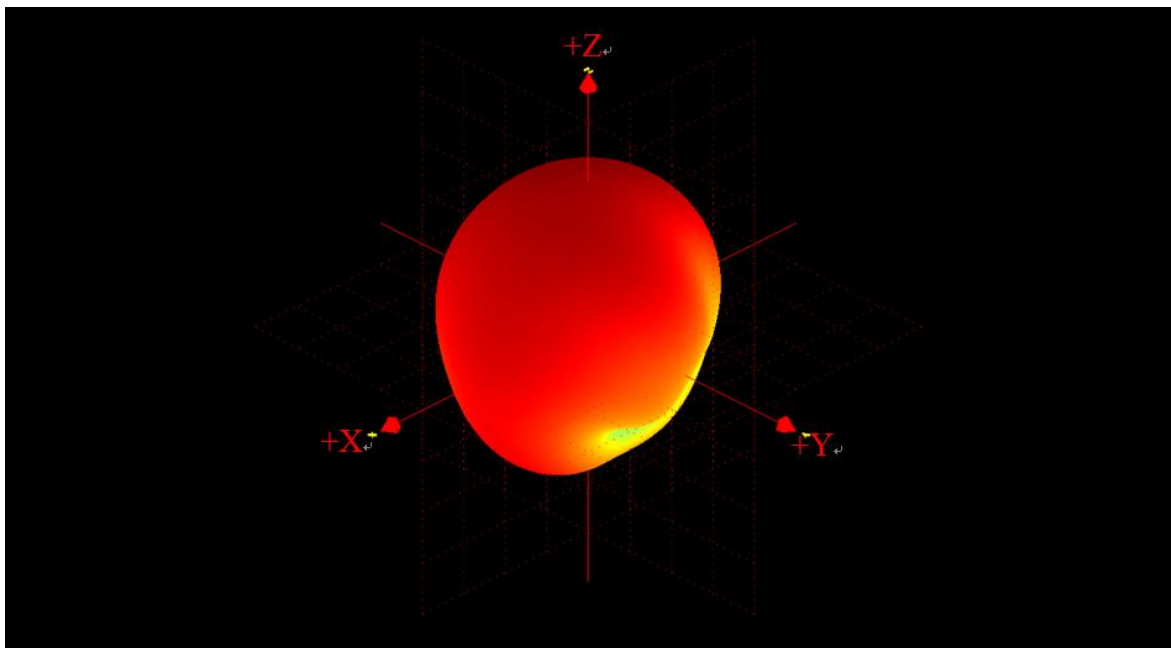
	1575.42MHz	1602MHz
Efficiency	60.23%	57.48%
Average Gain	-2.20 dBi	-2.40 dBi

Peak Gain

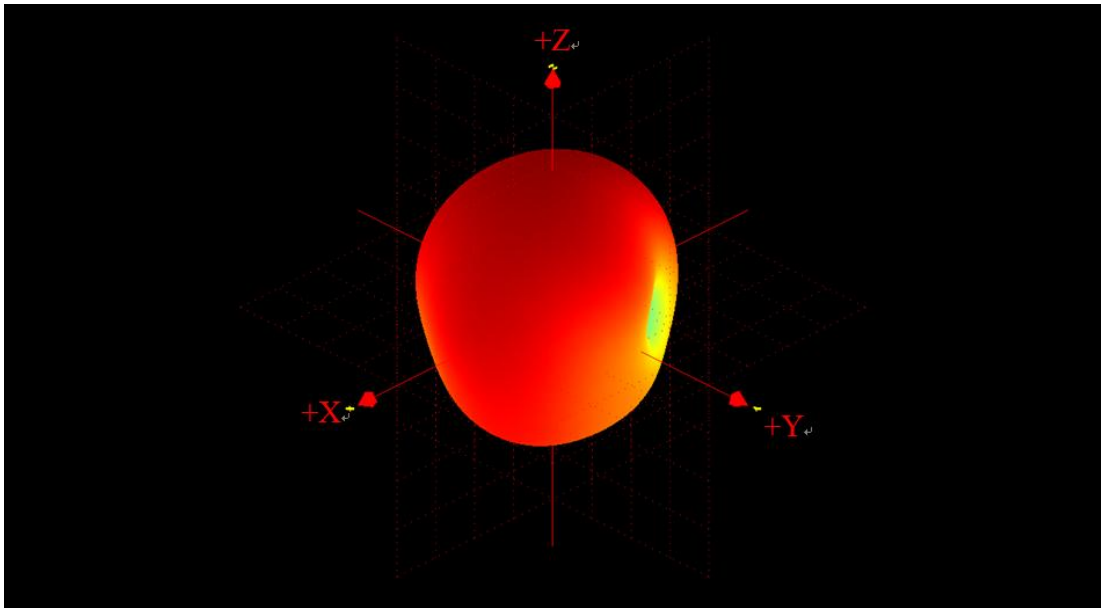


Peak Gain:-0.28@1575.42MHz 、 2.43@1602MHz

3D Radiation Pattern

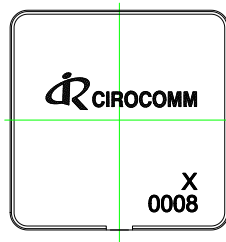


1575.42MHz



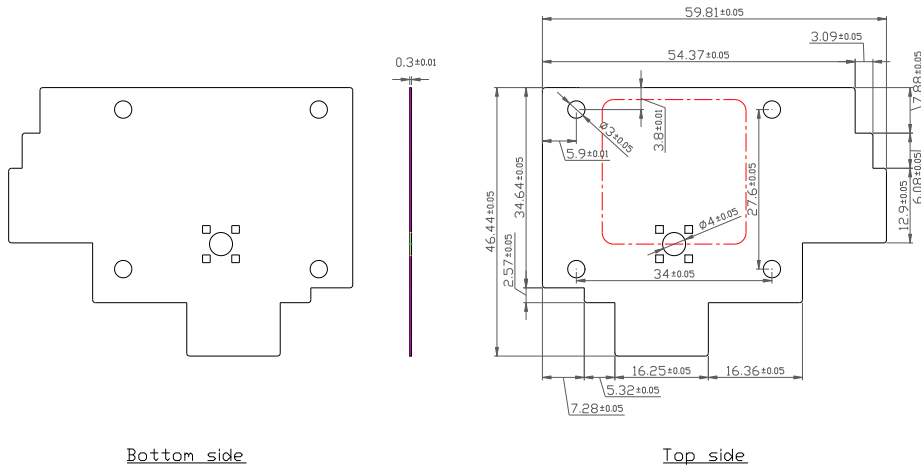
1602MHz

Mark (Schematic diagram)



NOTE:
 X: manufacture location
 T: CIROCOMM TAINAN

Test Fixture Dimension

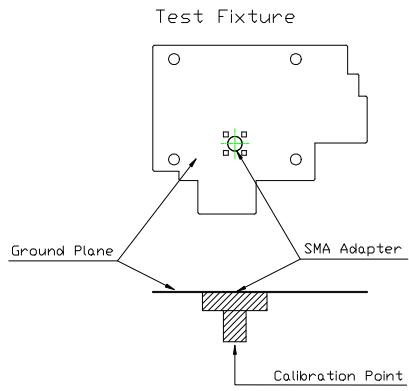


Bottom side

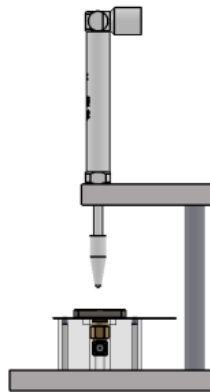
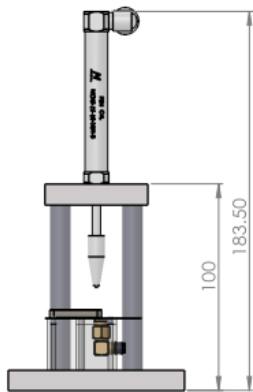
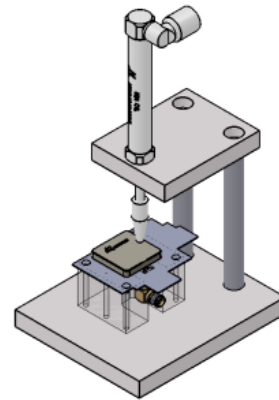
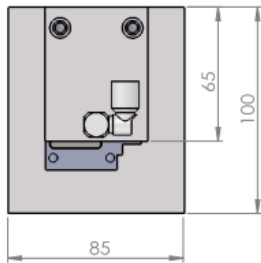
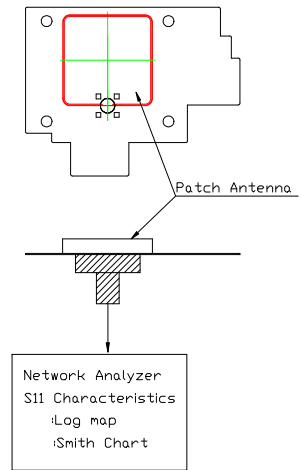
Top side

*** 註：未標示導角處尺寸為R0.5 ***

Test Fixture Antenna Setup & Measurements



Antenna Setup & Measurements



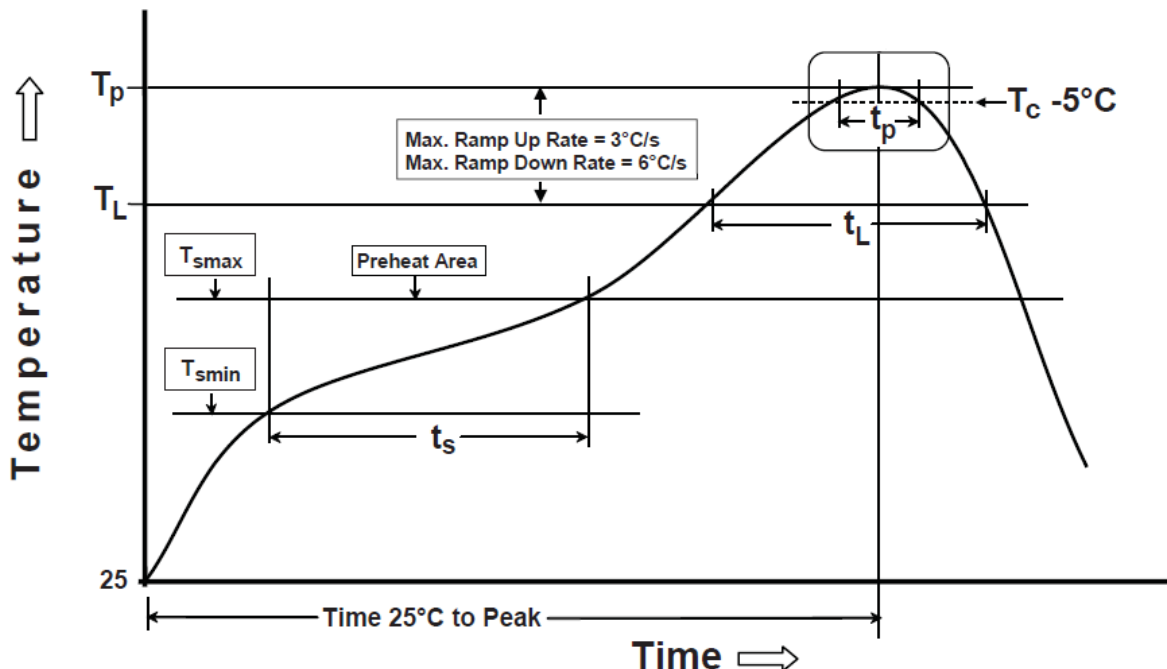
F. Recommended Reflow Profile:

Products 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(T_{smin}) -Temperature Max(T_{smax}) -Time(t_s) form (T_{smin} to T_{smax})	150°C 200°C 60-120 seconds
RAMP-UP	Avg. Ramp-up Rate (T_{smax} to T_P)	3°C/second(max)
REFLOW	-Temperature(T_L) -Total Time above T_L (t_L)	217°C 30-100 seconds
PEAK	-Temperature(T_P) -Time(t_p)	260°C 5-10 second
RAMP-DOWN	Rate	6°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

Note : All the temperature measure point is on top surface of the component, if temperature over recommend, it will make component surface peeling or damage.

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



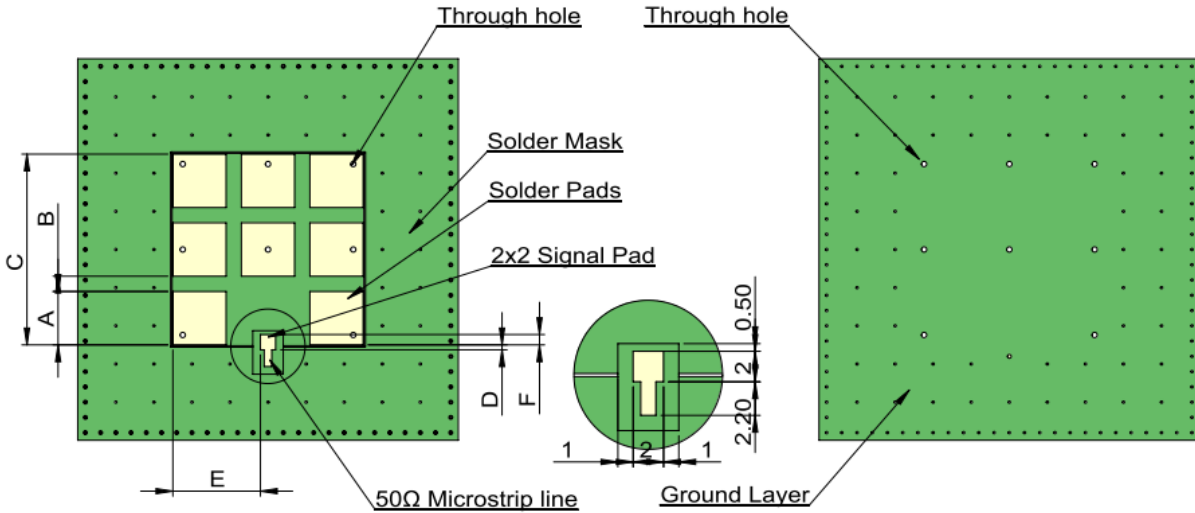
Soldering With Iron:

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

Apply preheating at 120°C for 2-3 minutes. Finish soldering for each terminal within 3 seconds, if soldering iron over temperature 270±10 °C or 3 seconds, it will make component surface peeling or damage.

Soldering iron can not leakage of electricity.

Recommendations of the Antenna Foot Print Tables :



Type/Size	A	B	C	D	E	F
25x25x4	7±0.2	2±0.2	25±0.2	0.65±0.2	11.5±0.2	1.35±0.2

Recommendations of the PCB layout :

- a. It needs at least 5mm clearance between LCD panel/shielding and around antenna.
- b. Keep ground area around antenna as symmetrical as possible.
- c. It's can't be obscured metal in top of antenna space.

