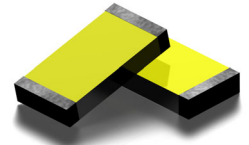


### Features

- GPS & WiFi (2.4 & 5GHz)
- Chip Type
- Stable And Reliable Performance
- 1575.42MHz, 2400-2500MHz & 5150-5850MHz
- SMT Process Compatible

### Applications

- GPS Devices
- WiFi / Bluetooth / BLE / ZigBee 2.4GHz Devices
- Hand Held Devices Where Both GPS And WiFi (Bluetooth) Are Needed. I.E. Smart Phone, Tablet, Trackers.



### Part Numbering Guide

**S AT CA 3C1GF GP B6**

SUNTSU

ANTENNA

CHIP ANTENNA

PACKAGE SIZE\*

3C1GF = 3.2mm x 1.6mm x 0.5mm

APPLICATION

GP = GPS

FREQUENCY

B6 = 1575.42MHz  
2400-2500MHz  
5150-5850MHz



\* Where letters denote decimal location (A=0, B=1, C=2, etc.); e.g. B5=0.15, 3A5=3.05, 9A=9.0

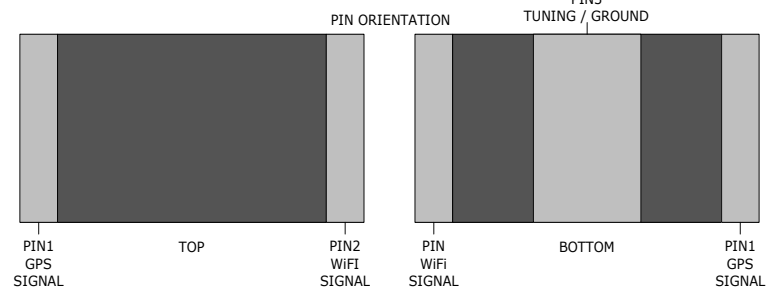
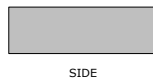
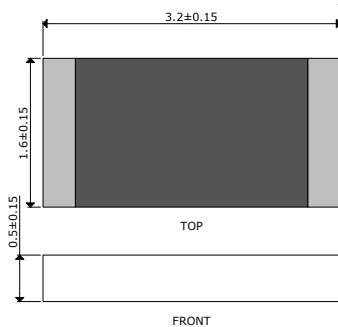
Electrical Parameters	Units	Minimum	Typical	Maximum	Remarks
Frequency Band	MHz		1575.42		
Impedance	$\Omega$		50		
Polarization			Linear		
Peak Gain	dBi		1.5		At 1575.42MHz
Efficiency	%		61		At 1575.42MHz
VSWR				2	At Center Frequency
Operating Temperature	C	-40		85	

Electrical Parameters	Units	Minimum	Typical	Maximum	Remarks
Frequency Band	MHz	2400		2500	
Impedance	$\Omega$		50		
Polarization			Linear		
Peak Gain	dBi		0.4		At 2442MHz
Efficiency	%		50		At 2442MHz
VSWR				2.5	At Center Frequency
Operating Temperature	C	-40		85	

Electrical Parameters	Units	Minimum	Typical	Maximum	Remarks
Frequency Band	MHz	5150		5850	
Impedance	$\Omega$		50		
Polarization			Linear		
Peak Gain	dBi		2.3		At 5550MHz
Efficiency	%		62		At 5550MHz
VSWR				2.5	At Center Frequency
Operating Temperature	C	-40		85	

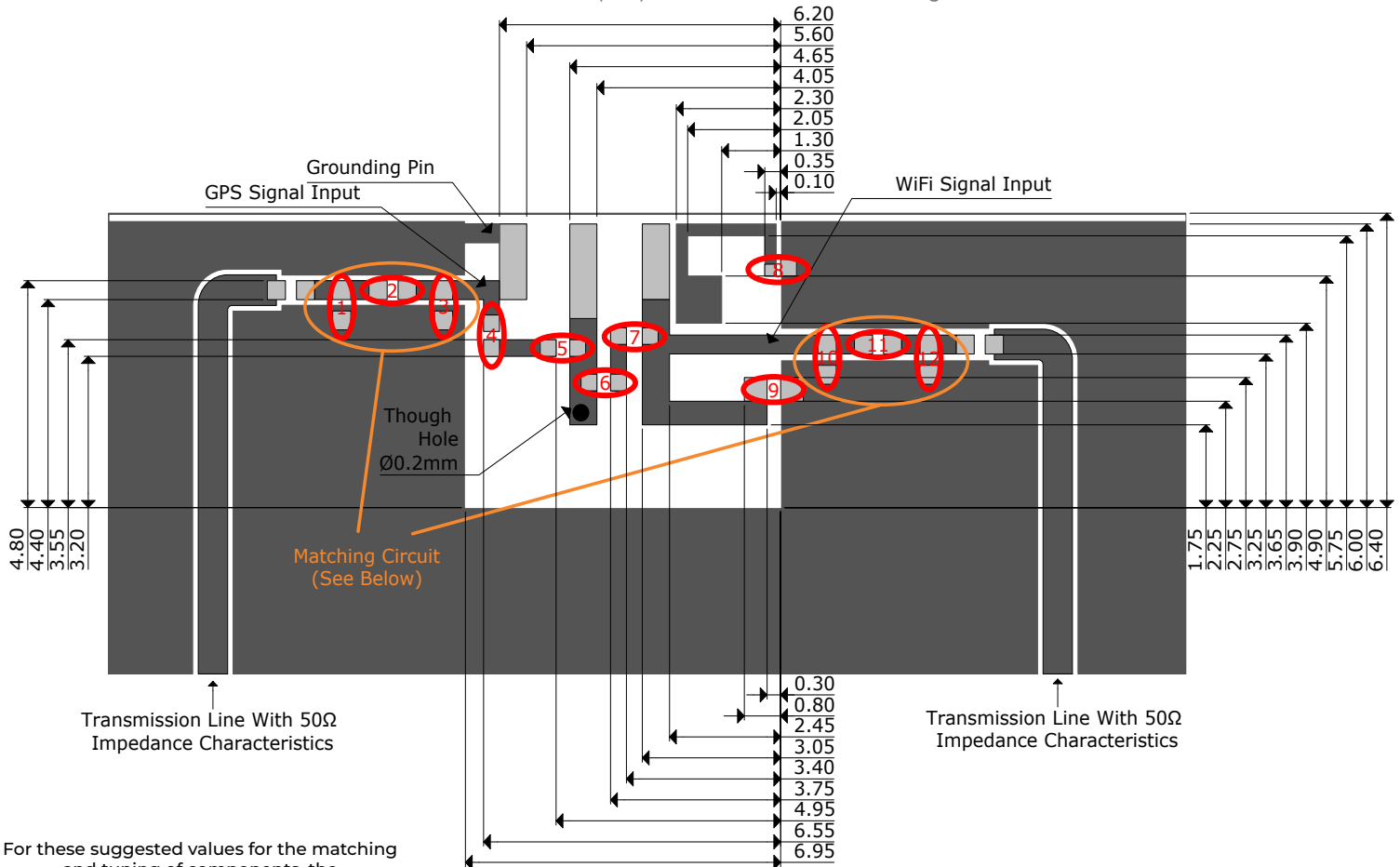
### Outline Drawing

All dimensions are in millimeters (mm) unless otherwise noted. Drawings are not to scale.



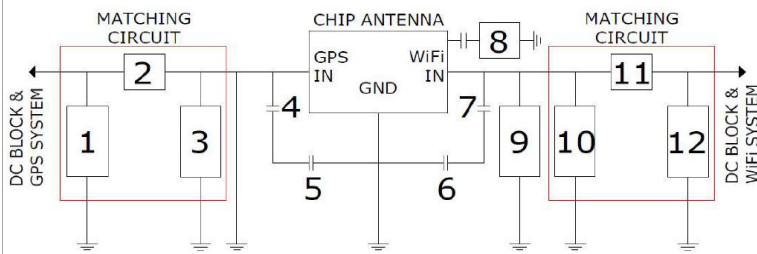
### Recommended Land Pattern & Frequency Tuning Scenario Circuit

All dimensions are in millimeters (mm) unless otherwise noted. Drawings are not to scale.



For these suggested values for the matching and tuning of components, the average frequency will be around 1575.42MHz on GPS band and 2442MHz and 5550MHz on WiFi Band on a standard 80 x 40mm<sup>2</sup> Evaluation board.

Please note, these are average reference values which may need to be changed when different circuit boards or manufactures are used.

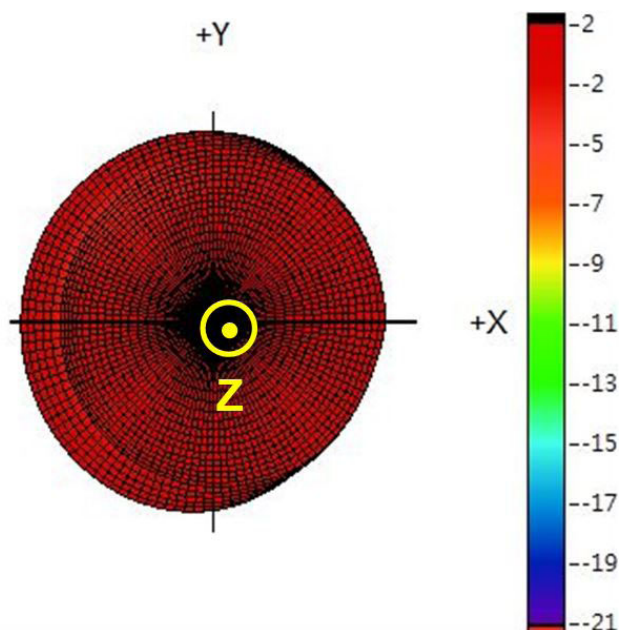


System Matching Circuit Components

Location	Description	Vendor	Tolerance
1	2.7pF, (0402)	MURATA	±0.05pF
2	7pF, (0402)	MURATA	±0.05pF
3	N/A	-	-
4 (Fine Tuning)	1pF, (0201)	MURATA	±0.05pF
5 (Fine Tuning)	0.9pF, (0201)	MURATA	±0.05pF
6 (Fine Tuning)	0.8pF, (0201)	MURATA	±0.05pF
7 (Fine Tuning)	0Ω (0201)	-	±0.05pF
8 (Fine Tuning)	0.6pF, (0201)	MURATA	±0.05pF
9	18pF, (0402)	MURATA	±5%
10	N/A	-	-
11	1nH, (0402)	MURATA	±0.3nH
12	N/A	-	-
DC BLOCK	22pF, (0402)	MURATA	±5%

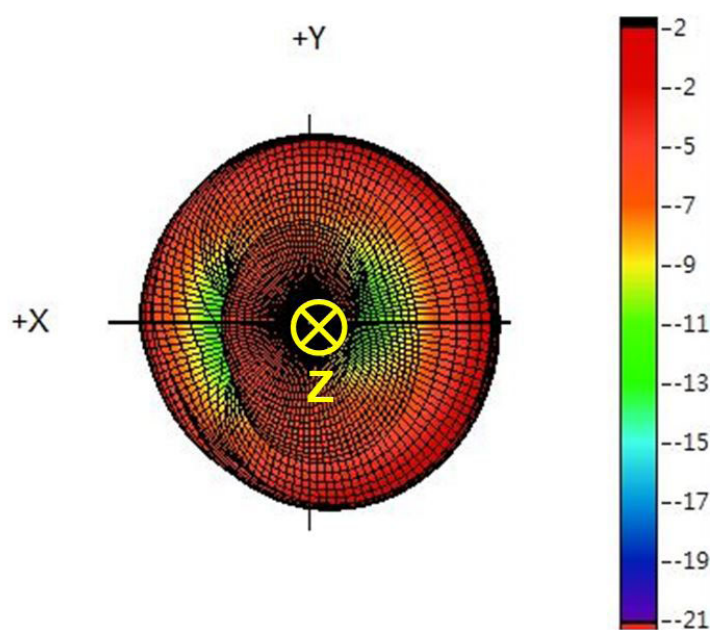
Radiation Pattern

1575.42MHz GPS Band



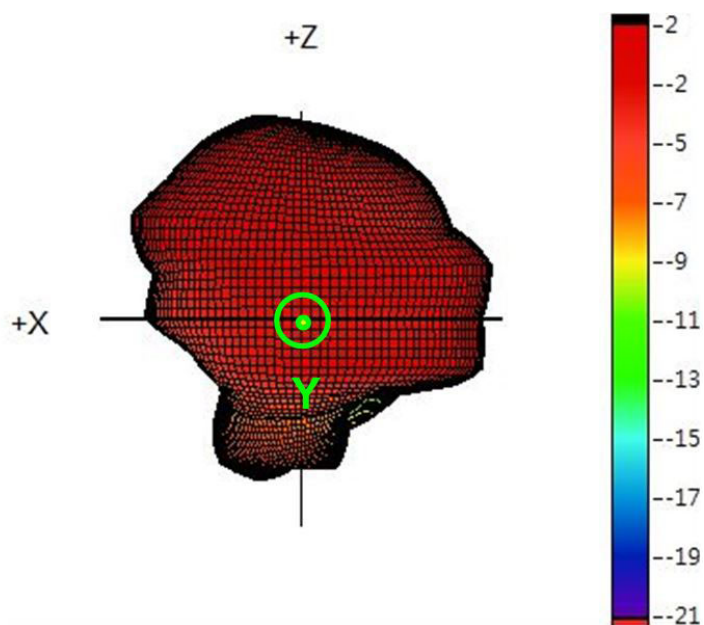
Radiation Pattern

1575.42MHz GPS Band



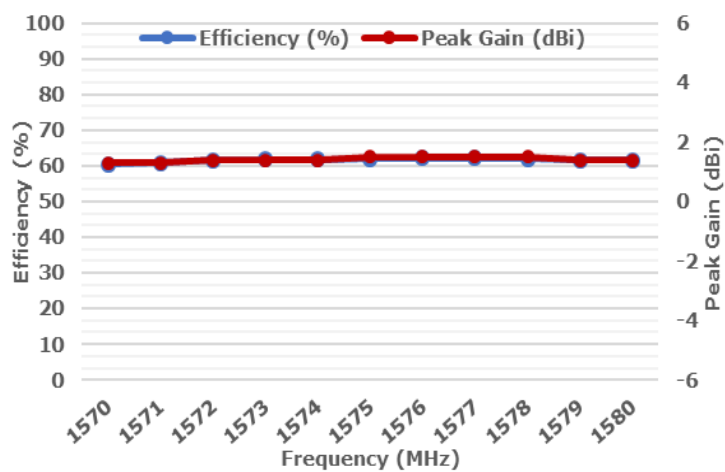
Radiation Pattern

1575.42MHz GPS Band



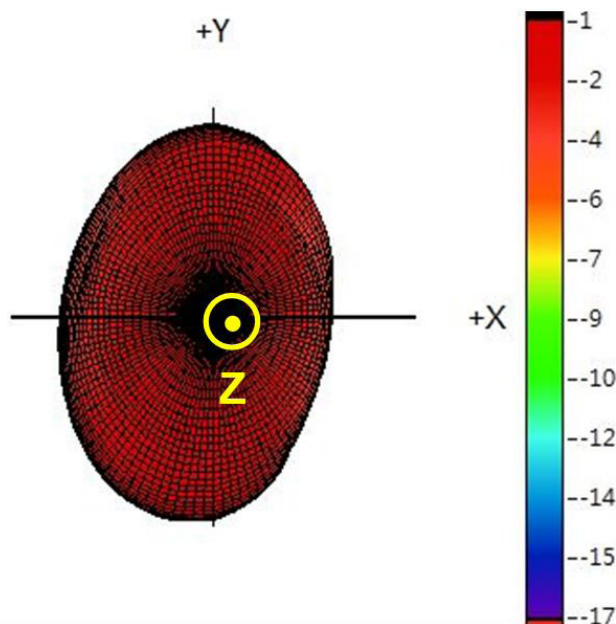
Efficiency V's Frequency

1575.42MHz GPS Band

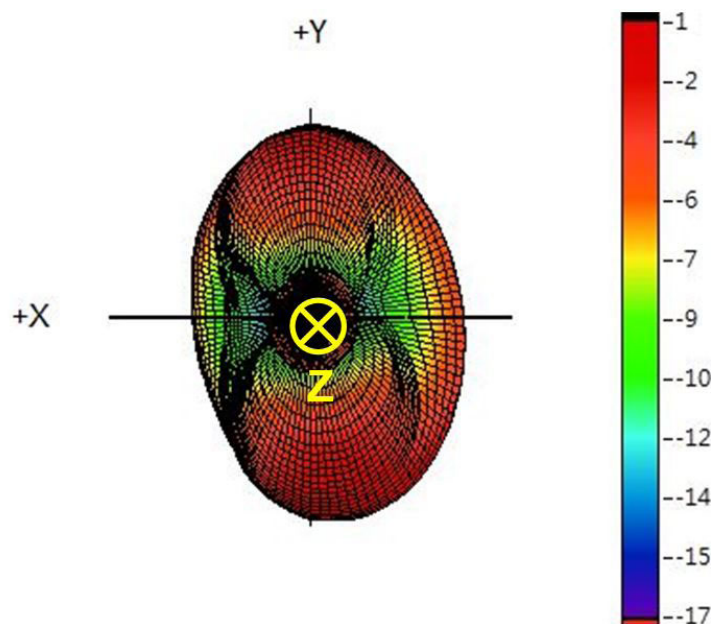


Freq.	1570	1571	1572	1573	1574	1575	1576	1577	1578	1579	1580
Eff. (%)	60.5	60.9	61.5	61.7	61.8	61.9	62.2	62.2	61.9	61.5	61.5
P.G.	1.3	1.3	1.4	1.4	1.4	1.5	1.5	1.5	1.5	1.4	1.4

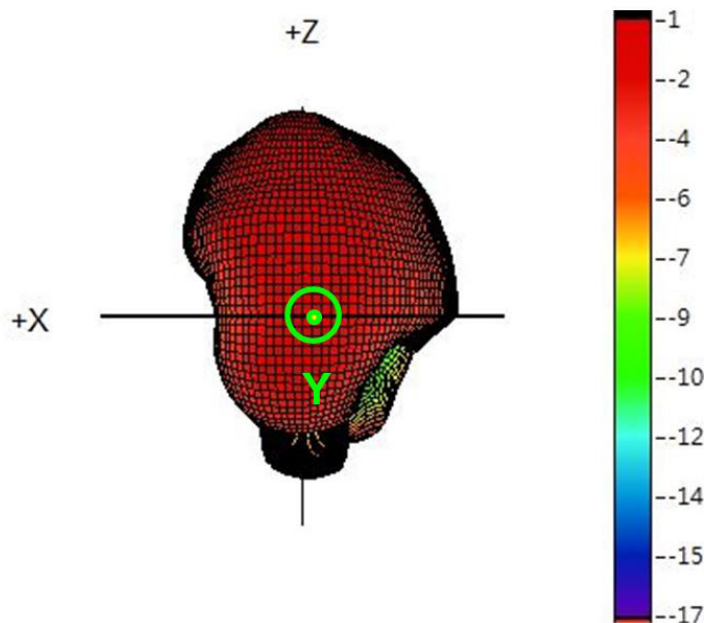
**Radiation Pattern**  
 2442MHz WiFi Band



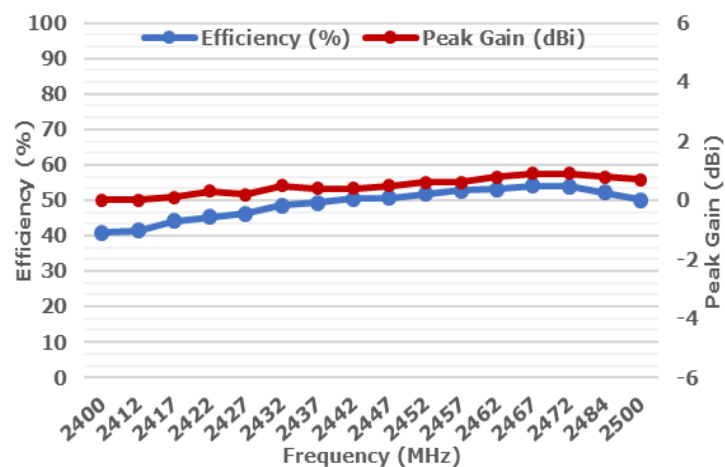
**Radiation Pattern**  
 2442MHz WiFi Band



**Radiation Pattern**  
 2442MHz WiFi Band



**Efficiency V's Frequency**  
 2442MHz WiFi Band

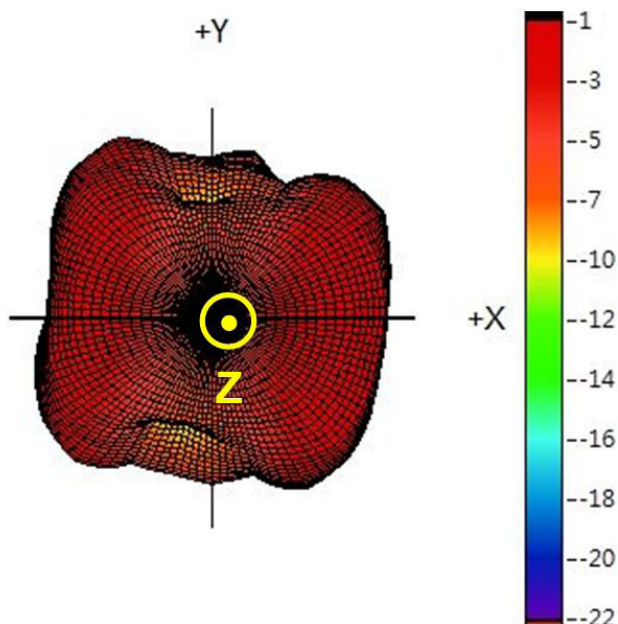


Freq.	2400	2412	2417	2422	2427	2432	2437	2442	2447	2452	2457	2462	2467	2472	2484	2500
Eff. (%)	40.8	41.5	44.1	45.2	46.2	48.5	49.3	50.5	50.7	51.9	52.7	53.2	54.2	53.9	52.2	50.1
P.G.	0	0	0.1	0.3	0.2	0.5	0.4	0.4	0.5	0.6	0.6	0.8	0.9	0.9	0.8	0.7



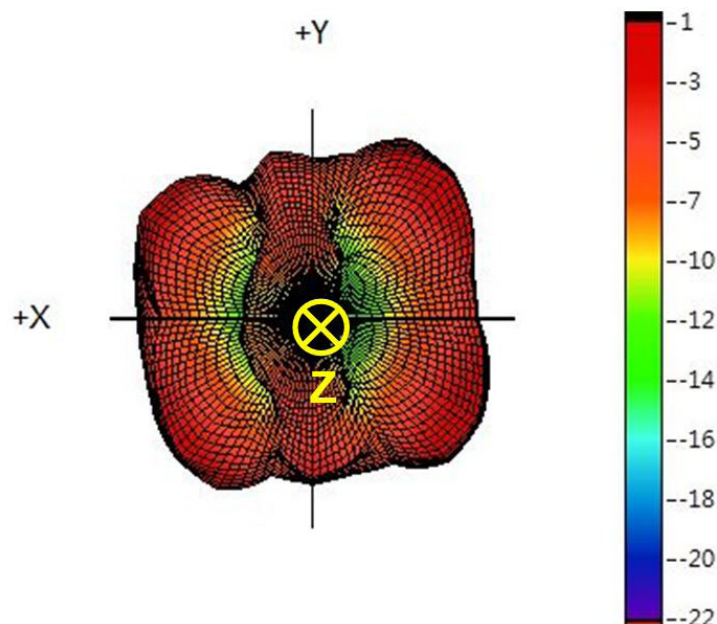
**Radiation Pattern**

5150MHz WiFi Band



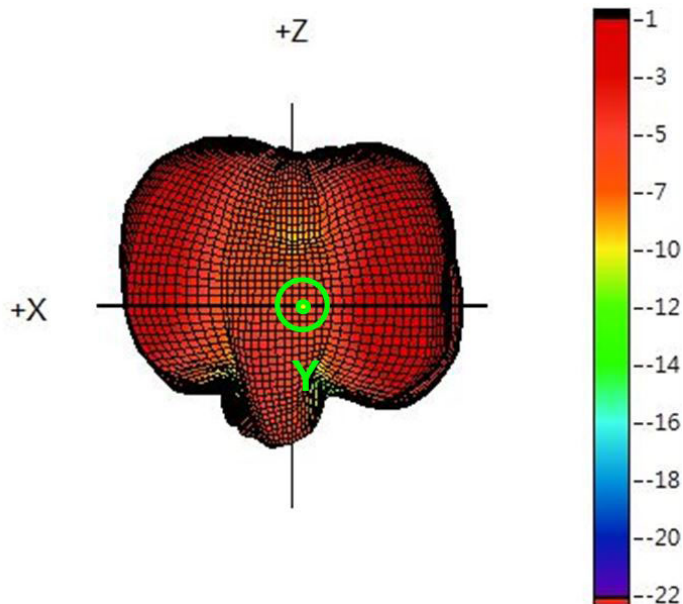
**Radiation Pattern**

5150MHz WiFi (B.T.) Band



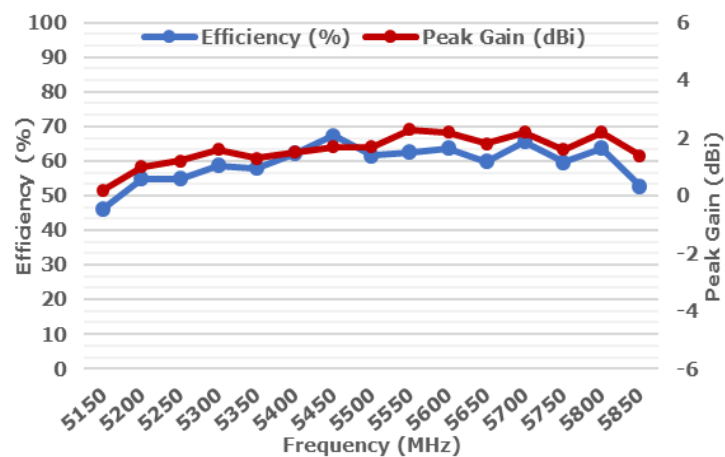
**Radiation Pattern**

5150MHz WiFi (B.T.) Band



**Efficiency V's Frequency**

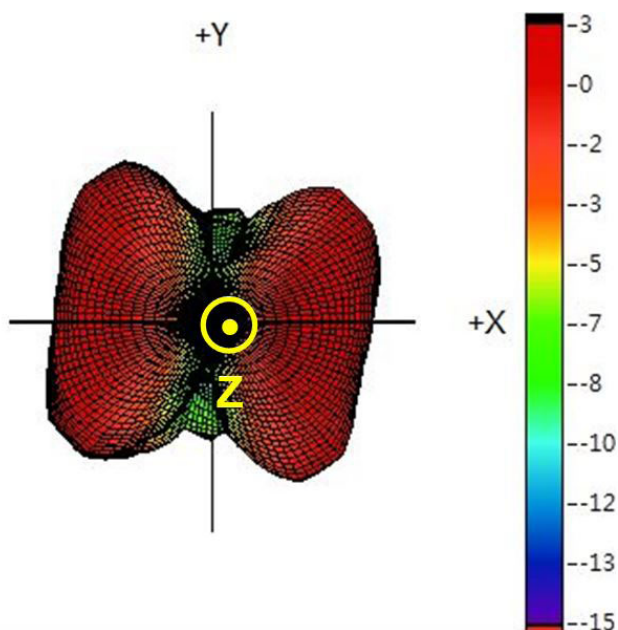
5150MHz WiFi (B.T.) Band



Freq.	5150	5200	5250	5300	5350	5400	5450	5500	5550	5600	5650	5700	5750	5800	5850
Eff. (%)	46.3	54.8	54.9	58.7	57.9	62.2	67.3	61.6	62.6	63.7	59.8	65.6	59.6	63.7	52.7
P.G.	0.2	1	1.2	1.6	1.3	1.5	1.7	1.7	2.3	2.2	1.8	2.2	1.6	2.2	1.4

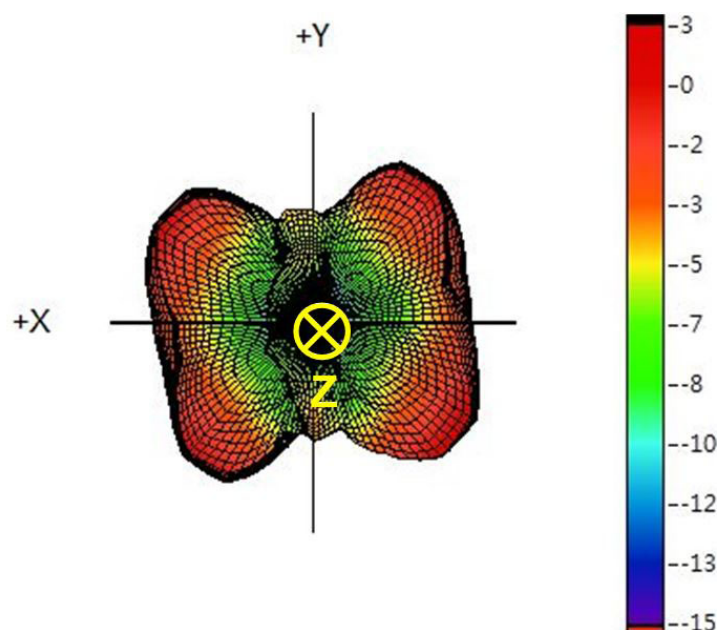
### Radiation Pattern

5550MHz WiFi (B.T.) Band



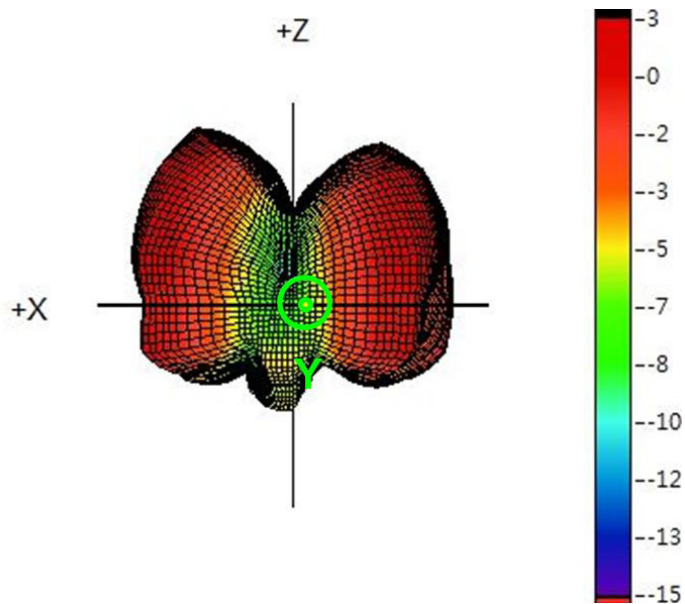
### Radiation Pattern

5550MHz WiFi (B.T.) Band



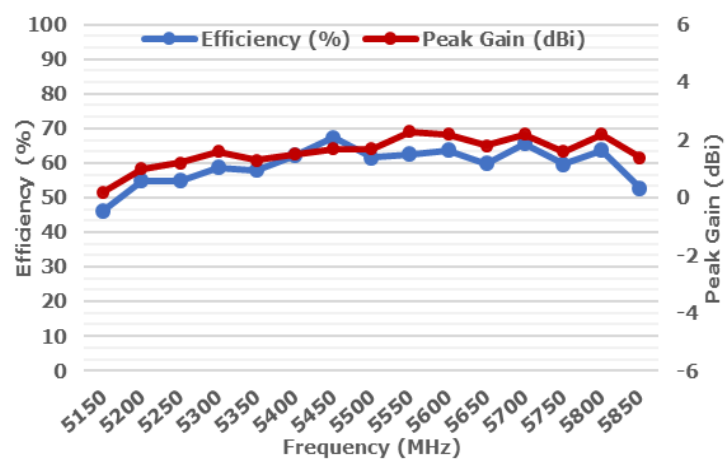
### Radiation Pattern

5550MHz WiFi (B.T.) Band



### Efficiency V's Frequency

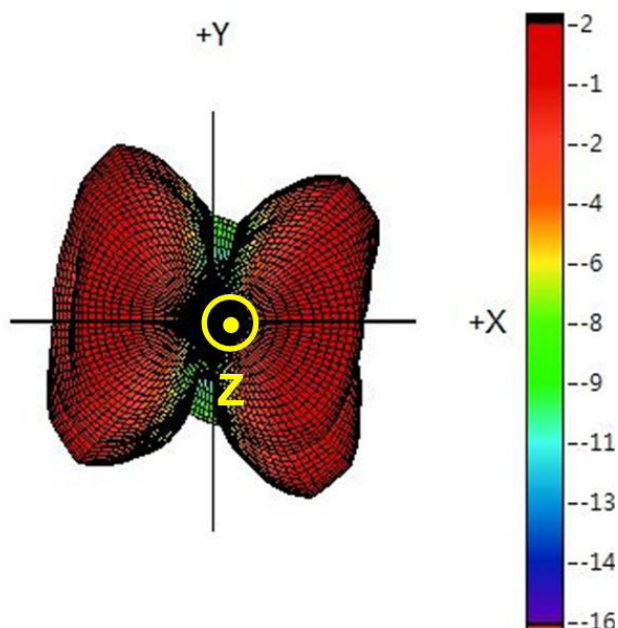
5550MHz WiFi (B.T.) Band



Freq.	5150	5200	5250	5300	5350	5400	5450	5500	5550	5600	5650	5700	5750	5800	5850
Eff. (%)	46.3	54.8	54.9	58.7	57.9	62.2	67.3	61.6	62.6	63.7	59.8	65.6	59.6	63.7	52.7
P.G.	0.2	1	1.2	1.6	1.3	1.5	1.7	1.7	2.3	2.2	1.8	2.2	1.6	2.2	1.4

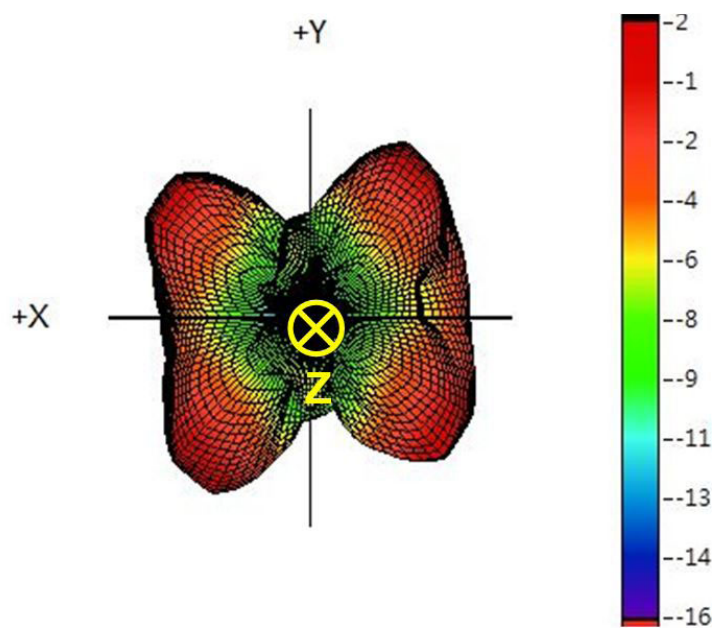
### Radiation Pattern

5850MHz Combined Band



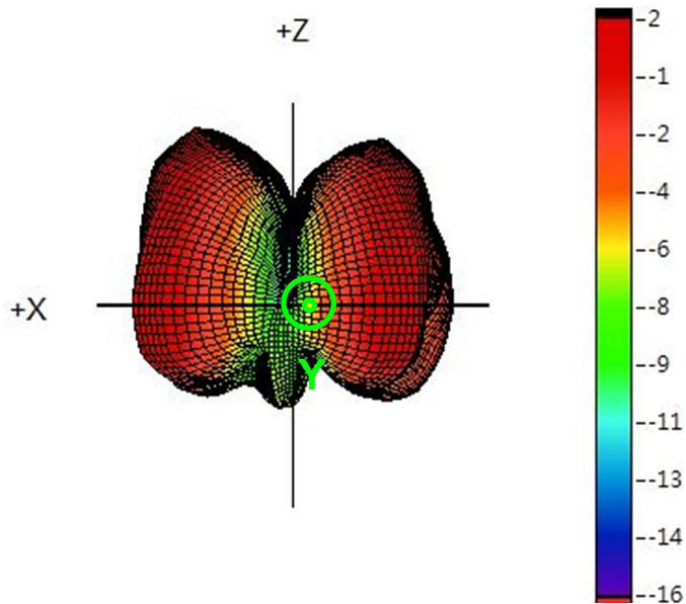
### Radiation Pattern

5850MHz Combined Band



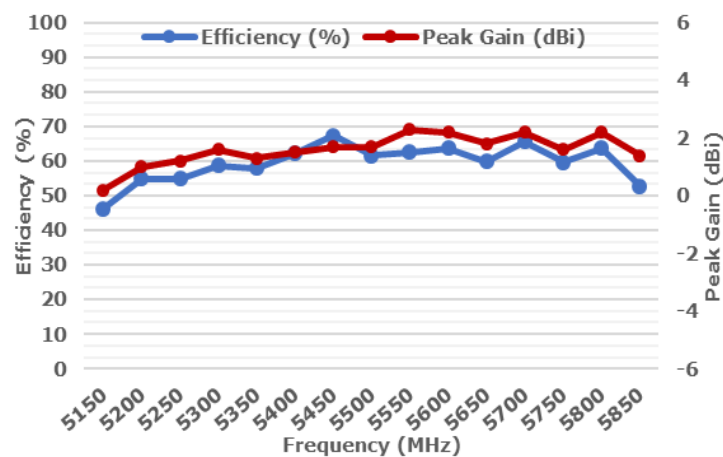
### Radiation Pattern

5850MHz Combined Band



### Efficiency V's Frequency

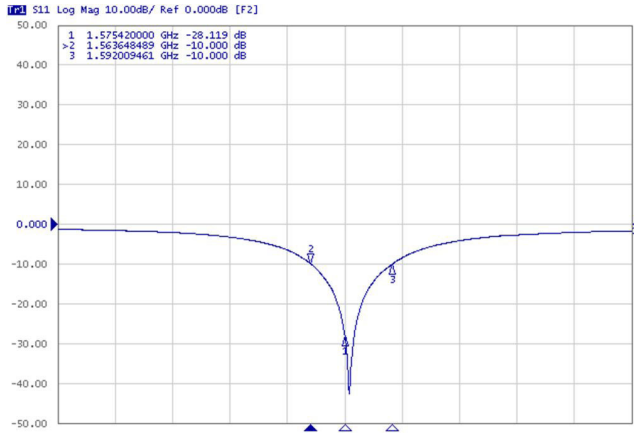
5850MHz Combined Band



Freq.	5150	5200	5250	5300	5350	5400	5450	5500	5550	5600	5650	5700	5750	5800	5850
Eff. (%)	46.3	54.8	54.9	58.7	57.9	62.2	67.3	61.6	62.6	63.7	59.8	65.6	59.6	63.7	52.7
P.G.	0.2	1	1.2	1.6	1.3	1.5	1.7	1.7	2.3	2.2	1.8	2.2	1.6	2.2	1.4

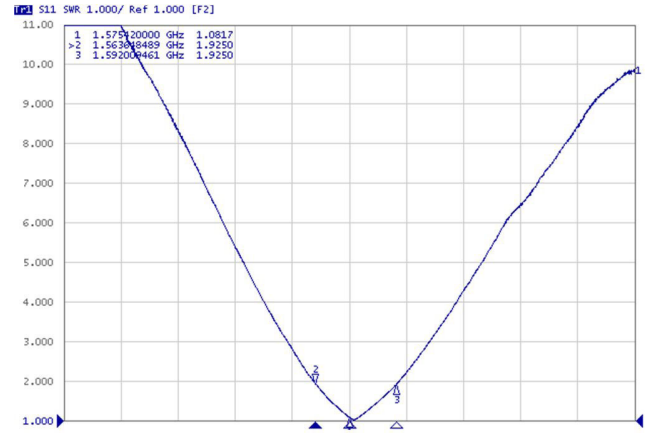
### Electrical Test

Return Loss For GPS Band



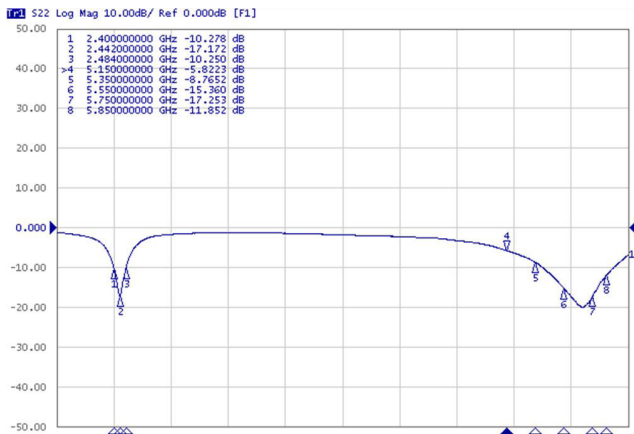
### Electrical Test

VSWR For GPS Band



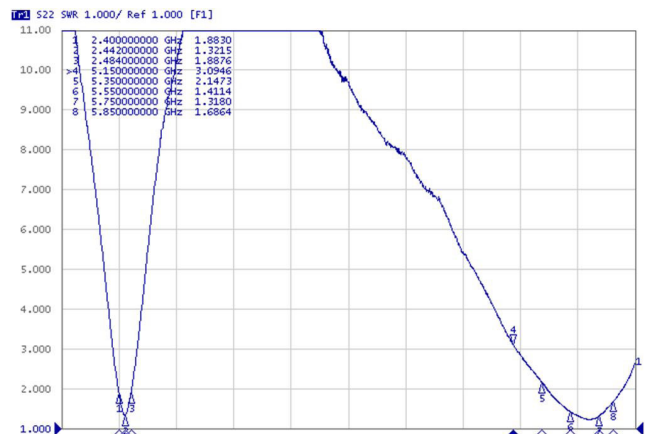
### Electrical Test

Return Loss For WiFi (B.T.) Band



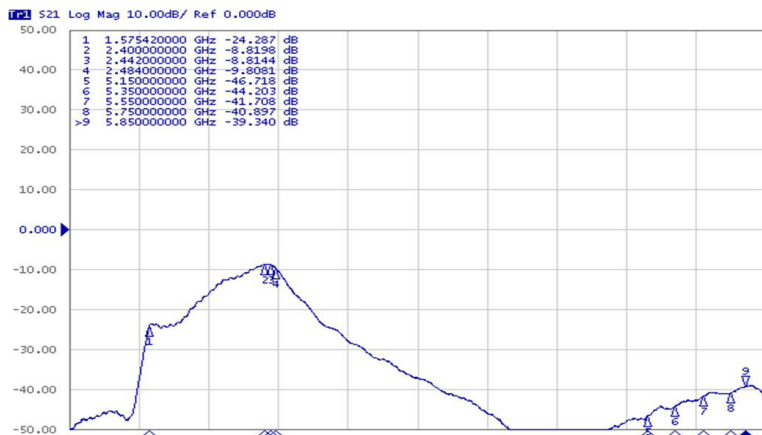
### Electrical Test

VSWR For WiFi (B.T.) Band



### Electrical Test

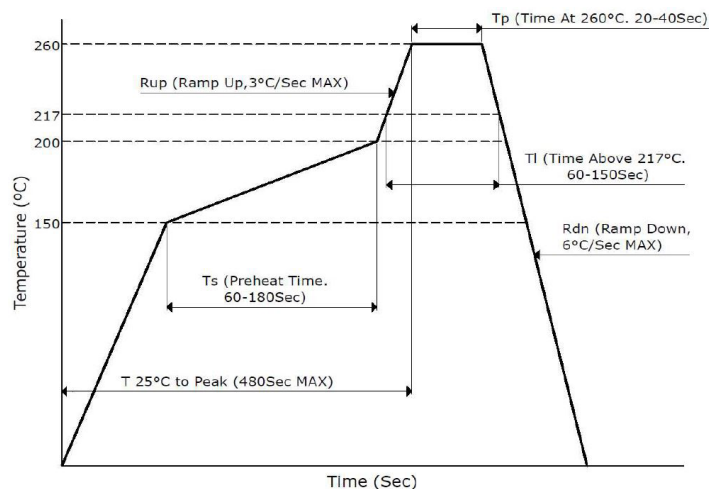
Isolation Between GPS And WiFi (B.T.) Band





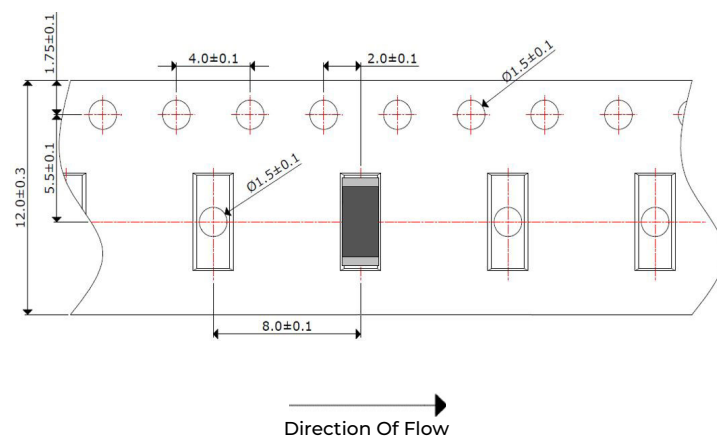
### Soldering Conditions

Typical Soldering Profile For Lead-Free Process



### Packaging - Tape And Reel

5,000Pcs / Reel



### Environmental & Mechanical Specifications

High Temperature Test	85°C for 500 hours, and then to normal temperature/humidity for 24hours.
Low Temperature Test	-30°C for 500 hours, and then to normal temperature/humidity for 24hours.
Humidity Test	85°C / 90-95%RH for 96 hours, and then to normal temperature/humidity for 24hours.
Thermal Shock Test	-30°C for 30 min and +85°C for 30 min. 5 cycles, then expose to normal temperature/humidity for 24 hours or more.
Vibration Test	5 to 200 to 5Hz, swept in 10min, 4.5G at max(2mm amplitude), in X and Y directions for 2 hours each and in Z direction for 4 hours.