

SPECIFICATION

Chip Antenna

Manufacturer: Sena Technologies, Inc.

Part Number: SENA_009

WRITTEN	CHECKED	APPROVED
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1. SPECIFICATIONS

1.1. Electrical Specifications

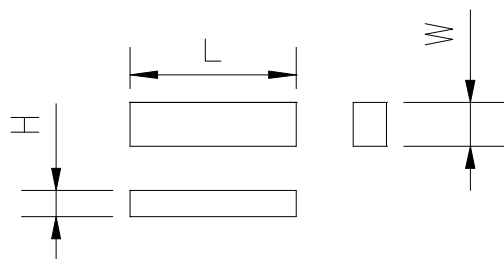
ITEM	SPEC.	Unit
Frequency	2400-2485	MHz
Bandwidth @ VSWR 2.5:1	100	MHz
Gain Max.	0.5	dBi
Polarization	Linear	
Azimuth Beam Pattern	Omni-directional	
Impedance	50	Ω

※ These values are measured on the matched reference test board.

1.2. Mechanical Specifications

Electrode	Silver	
Dimensions (L x W x H)	9.0 x 3.0 x 1.2	mm
Operating Temperature	-35 ~ +85	°C

1.3. Appearance and Dimensions



- unit : mm
- Tolerance : ± 0.15

L	9.0
W	3.0
H	1.2

- Laminate: FR-4, 1.20mm

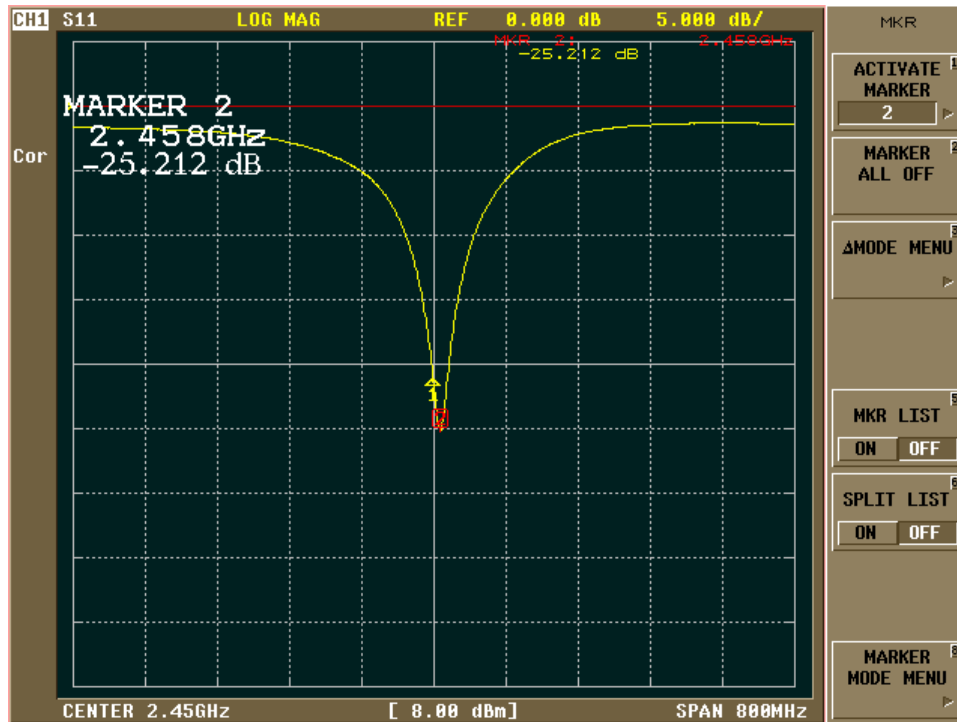
- Plating Thickness: 1.5oz (54um)

- Board Thickness: 1.30mm (typ.)

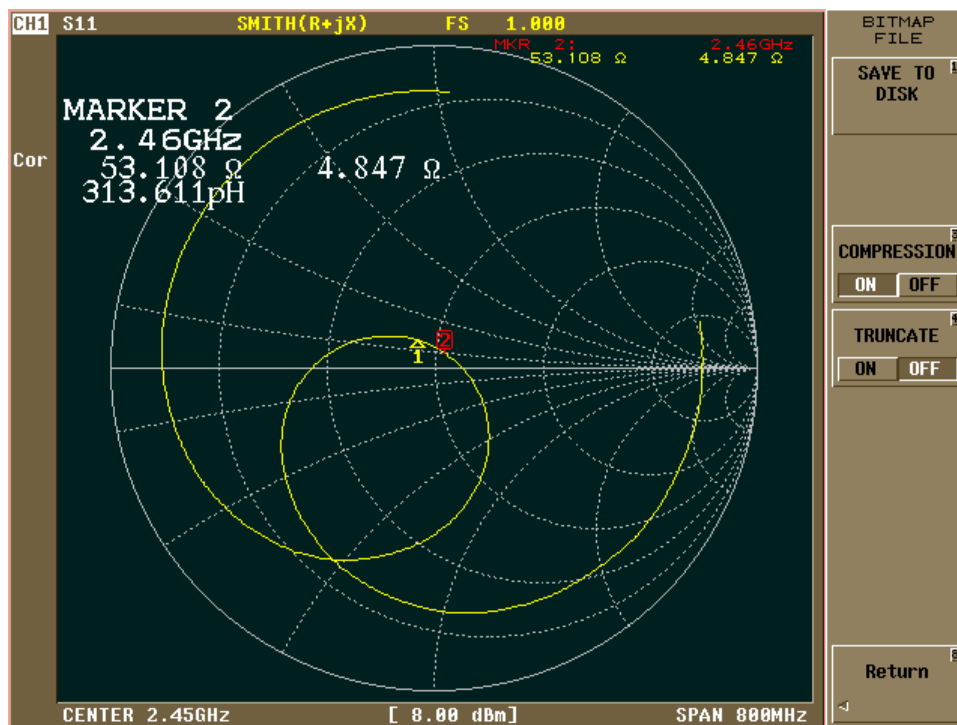
2. MEASUREMENT

2.1. Electrical Characteristic

S_{11} (Return Loss)

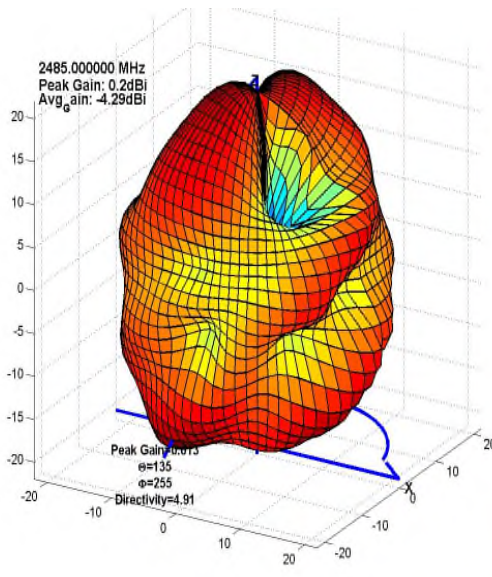
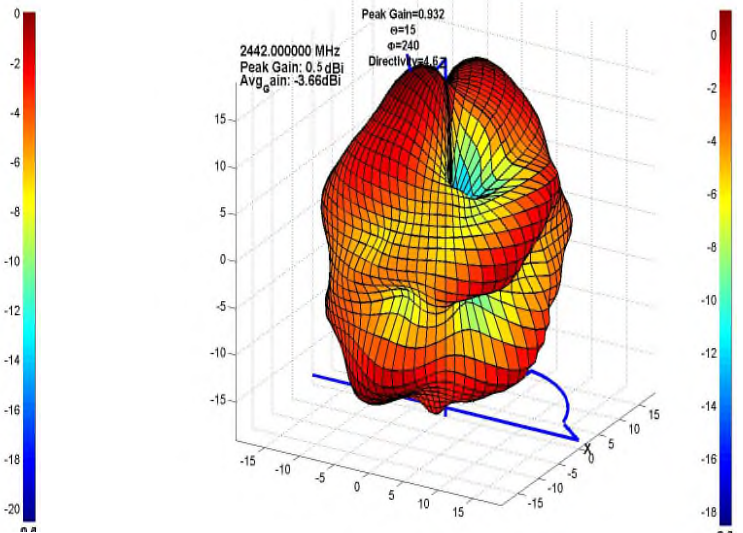
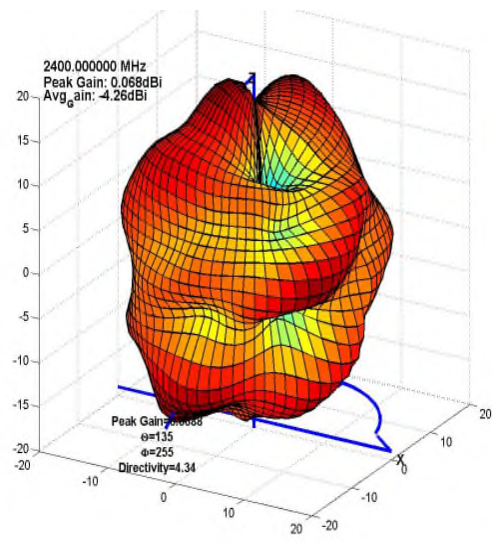


B. (Smith chart)

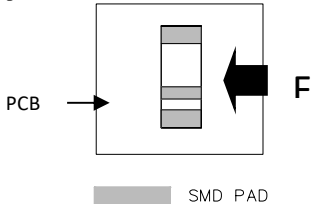
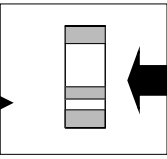



3. Radiation Data

Frequency	Efficiency	Average Gain			Max Gain			Max Position	Directivity
		Ver	Hor	Total	Ver	Hor	Total		
2400 MHz	37.4 %	-6.6 dBi	-8.0 dBi	-4.3 dBi	-1.1 dBi	-0.9 dBi	0.1 dBi	Theta135/Pie255	4.34 dB
2442 MHz	43.0 %	-6.0 dBi	-7.5 dBi	-3.7 dBi	-0.3 dBi	-0.1 dBi	0.5 dBi	Theta15/Pie240	4.60 dB
2485 MHz	37.2 %	-6.6 dBi	-8.1 dBi	-4.3 dBi	-0.1 dBi	-0.2 dBi	0.2 dBi	Theta135/Pie255	4.91 dB

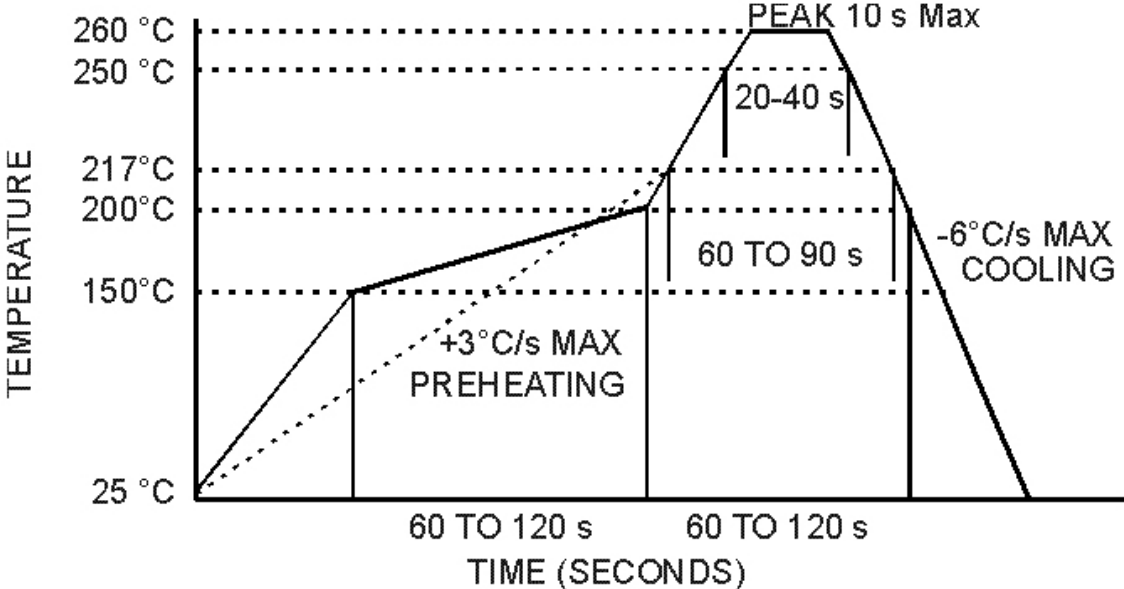


4. RELIABILITY TEST

No	Item	Test condition	Test Requirements
1	Adhesion strength	<p>. Applied force on SMD chip till detached point from PCB</p>  <p>PCB →  ← F</p> <p> SMD PAD</p>	<ol style="list-style-type: none"> No mechanical damage by forces applied on the right Strength (F) > 5 kgf
2	Thermal Shock (Temperature Cycle)	<ol style="list-style-type: none"> 1 cycle / step 1 : $-40 \pm 3^\circ\text{C}$, 30 min step 2 : $+85 \pm 3^\circ\text{C}$, 30 min Number of cycle : 10 Measure after left for 48 hrs min. at room temperature 	<ol style="list-style-type: none"> No visual damage VSWR satisfy
3	High Temperature Resistance	<ol style="list-style-type: none"> Temperature: $+85 \pm 5^\circ\text{C}$ Time : 96 hrs Measure VSWR_C after left for 24 hrs min. at room temperature 	<ol style="list-style-type: none"> No visual damage VSWR satisfy
4	Low Temperature Resistance	<ol style="list-style-type: none"> Temperature: $-40 \pm 5^\circ\text{C}$ Time : 96 hrs Measure VSWR_C after left for 48 hrs min. at room temperature 	<ol style="list-style-type: none"> No visual damage VSWR satisfy
5	Humidity (Steady Condition)	<ol style="list-style-type: none"> Humidity : 85 % RH Temperature: $+85 \pm 3^\circ\text{C}$ Time : 96 hrs Measure VSWR_C after left for 48 hrs min. at room temperature 	<ol style="list-style-type: none"> No visual damage VSWR satisfy
6	ESD	<ol style="list-style-type: none"> ESD Level : 8KV Mode : Contact discharge Number of cycle : 100 <p>※ Used Ref test PCB.</p>	<ol style="list-style-type: none"> No visual damage VSWR satisfy

5. SOLDERING RECOMMENDATIONS

5.1. Reflow Soldering Profile



Note: All the through hole devices can withstand 260°C soldering by terminals only (ie wave solder or hand soldering process)