

SPECIFICATION

2.4GHz Chip Antenna

Manufacturer: Sena Technologies, Inc.

Part Number: SENA_029

WRITTEN	CHECKED	APPROVED

October 29, 2013

Sena Technologies, Inc.
210 Yangjae-dong, Seocho-gu, Seoul 137-130, Korea
Tel :(+82-2) 573-7362
Fax:(+82-2) 573-7710
Website: <http://www.sena.com>

1. SPECIFICATIONS

1.1. Electrical Specifications

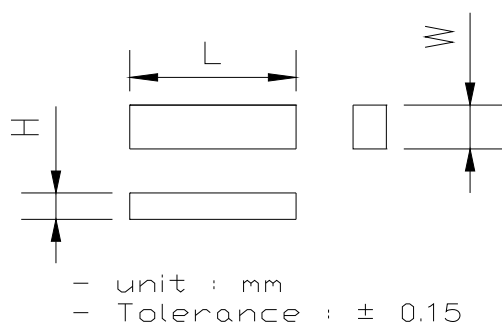
ITEM	SPEC.	Unit
Frequency	2400-2485	MHz
Bandwidth @ VSWR 2.5:1	100	MHz
Max. Gain	0.5	dBi
Polarization	Linear	
Azimuth Beam Pattern	Omni-directional	
Impedance	50	Ω

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

1.2. Mechanical Specifications

Electrode	Silver	
Dimensions (L x W x H)	5.2 x 2.0 x 1.2	mm
Operating Temperature	-40 ~ +85	°C

1.3. Appearance and Dimensions

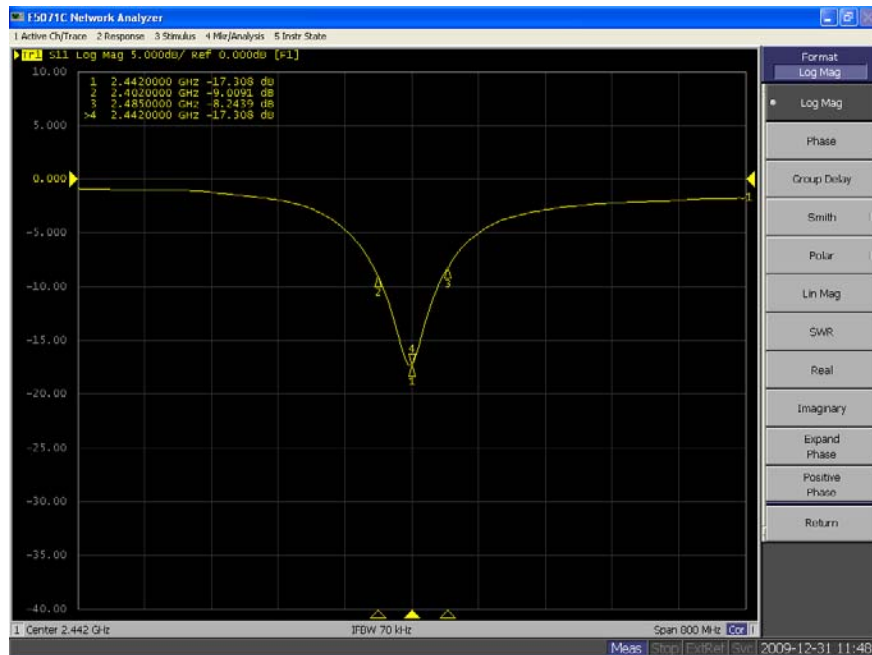


L	5.2
W	2.0
H	1.2

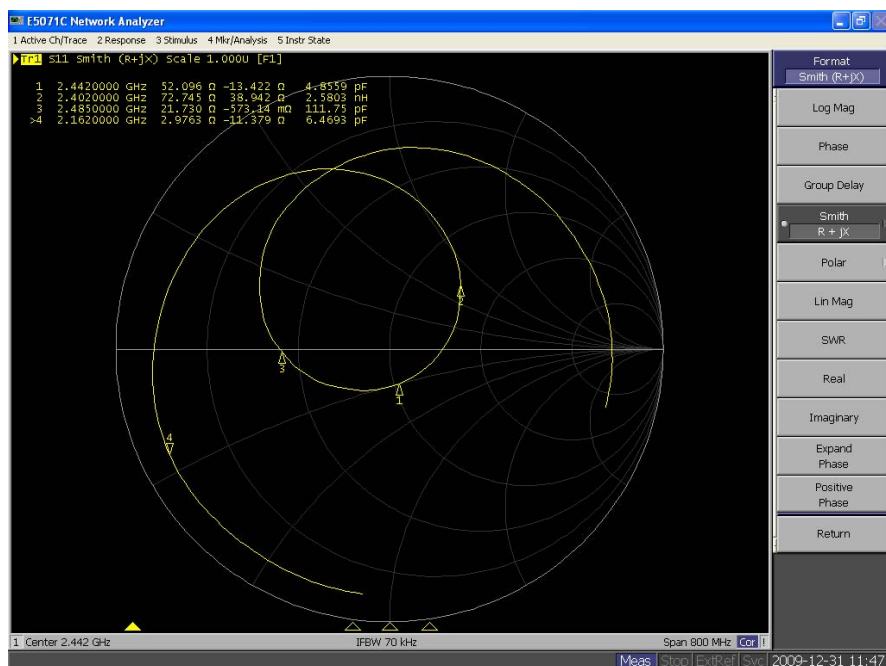
2. MEASUREMENT

2.1. Electrical Characteristic

A. S_{11} (Return Loss)

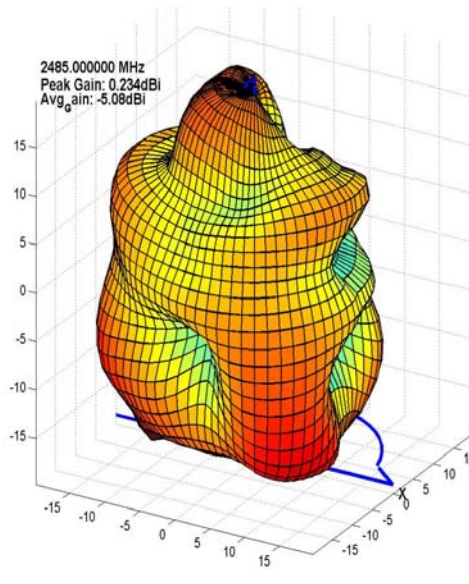
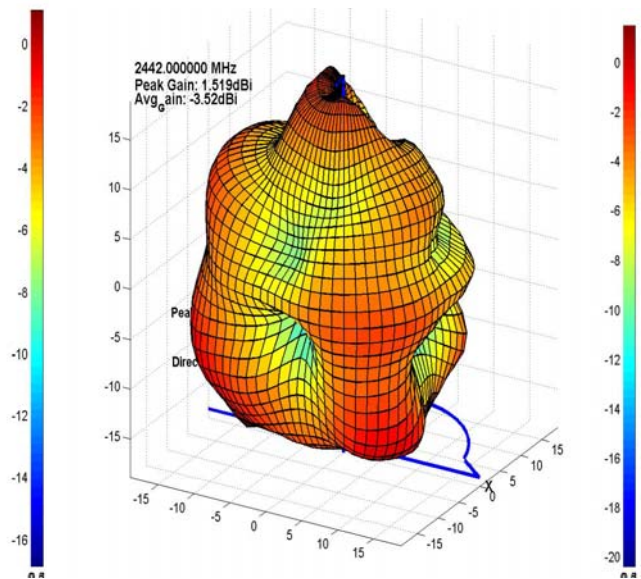
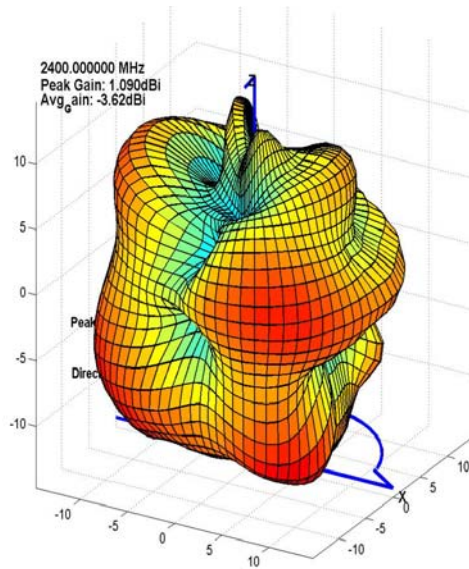


B. S_{11} (Smith chart)

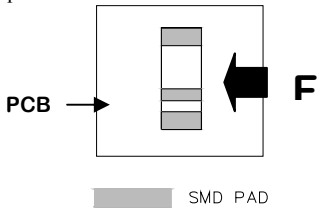


3. Radiation Data

Frequency	Efficiency	Average Gain			Max Gain			Max Position	Directivity
		Ver	Hor	Total	Ver	Hor	Total		
2400 MHz	43.4 %	-9.4 dBi	-5.0 dBi	-3.6 dBi	-0.6 dBi	0.5 dBi	0.1 dBi	Theta120/Pie165	4.71 dB
2442 MHz	44.4 %	-9.0 dBi	-5.0 dBi	-3.5 dBi	-0.3 dBi	0.4 dBi	0.5 dBi	Theta120/Pie165	5.05 dB
2485 MHz	31.0 %	-9.8 dBi	-6.9 dBi	-5.1 dBi	-1.3 dBi	-0.2 dBi	0.2 dBi	Theta120/Pie150	5.32 dB

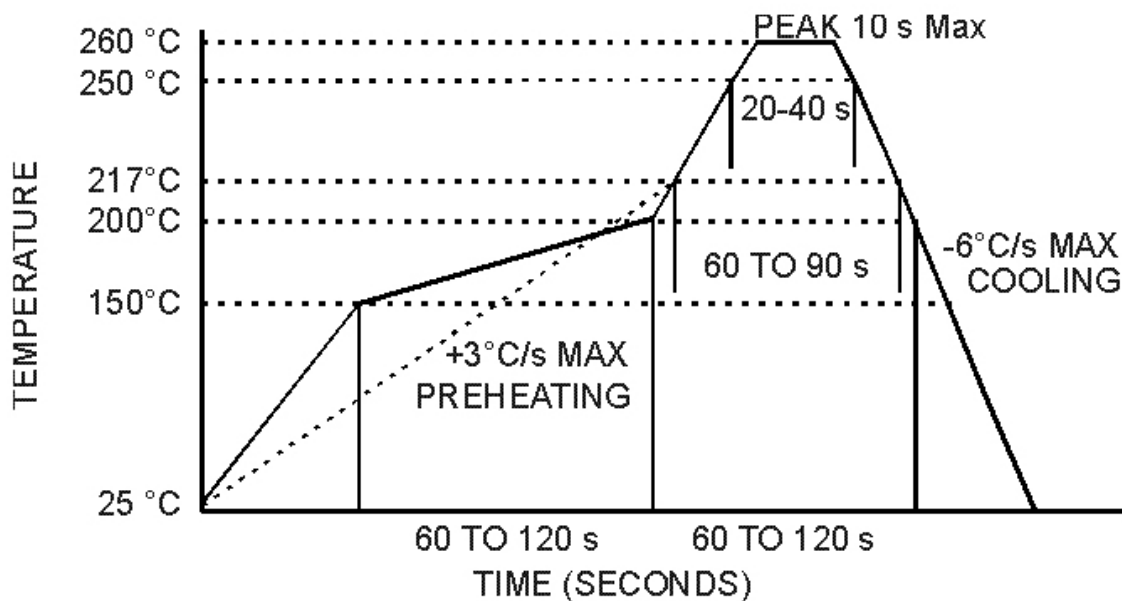


4. RELIABILITY TEST

No	Item	Test condition	Test Requirements
1	Adhesion strength	. Applied force on SMD chip till detached point from PCB  PCB → → SMD PAD	1. No mechanical damage by forces applied on the right 2. Strength (F) > 5 kgf
2	Thermal Shock (Temperature Cycle)	1. 1 cycle / step 1 : $-40 \pm 3^{\circ}\text{C}$, 30 min step 2 : $+85 \pm 3^{\circ}\text{C}$, 30 min 2. Number of cycle : 10 3. Measure after left for 48 hrs min. at room temperature	1. No visual damage 2. VSWR satisfy
3	High Temperature Resistance	1. Temperature : $+85 \pm 5^{\circ}\text{C}$ 2. Time : 96 hrs 3. Measure VSWR_C after left for 24 hrs min. at room temperature	1. No visual damage 2. VSWR satisfy
4	Low Temperature Resistance	1. Temperature : $-40 \pm 5^{\circ}\text{C}$ 2. Time : 96 hrs 3. Measure VSWR_C after left for 48 hrs min. at room temperature	1. No visual damage 2. VSWR satisfy
5	Humidity (Steady Condition)	1. Humidity : 85 % RH 1. Temperature : $+85 \pm 3^{\circ}\text{C}$ 2. Time : 96 hrs 3. Measure VSWR_C after left for 48 hrs min. at room temperature	1. No visual damage 2. VSWR satisfy
6	ESD	1. ESD Level : 8KV 2. Mode : Contact discharge 3. Number of cycle : 100 ※ Used Ref test PCB.	1. No visual damage 2. VSWR satisfy

4. SOLDERING RECOMMENDATIONS

4.1. Reflow Soldering Profile



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