



Product Name: WiFi/Bluetooth Chip Antenna – AA055U

Part Number: H2U34W1H1Z0700

Features:

- Stable and reliable in performances
- Low profile, compact size
- RoHS 2.0 compliance
- SMT processes compatible
- AEC-Q200 Compliant

Applications:

- ISM 2.4 GHz applications
- ZigBee/BLE applications
- Bluetooth earphone systems
- Hand-held devices when WiFi / Bluetooth functions are needed, e.g., Smart phones
- IEEE802.11 b/g/n
- Wireless PCMCIA cards or USB dongles

WiFi/Bluetooth Chip Antenna

MODEL: AA055U

Version: A

I. Specifications:

Items	Specifications	
Frequencies (MHz)	2400~2484	
Return loss (dB)	< -10 Typ.	
VSWR	< 2 Typ.	
Efficiency (%)	@2442MHz	75.7
Average Gain (dB)		-1.2
Peak Gain (dBi)		1.9
Test Condition	80 x 40 mm ² (Evaluation board)	
Impedance (Ω)	50	
Polarization	Linear Polarization	

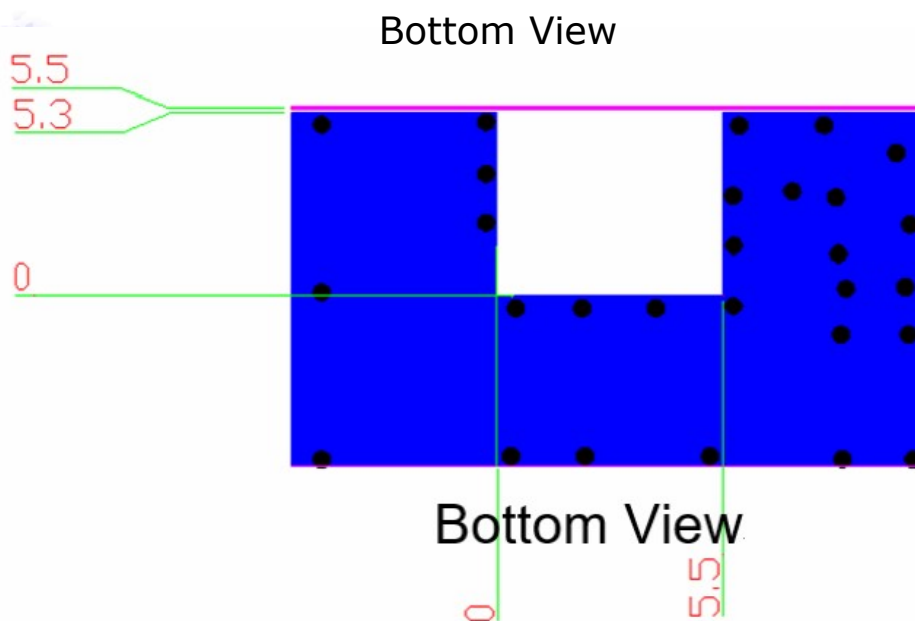
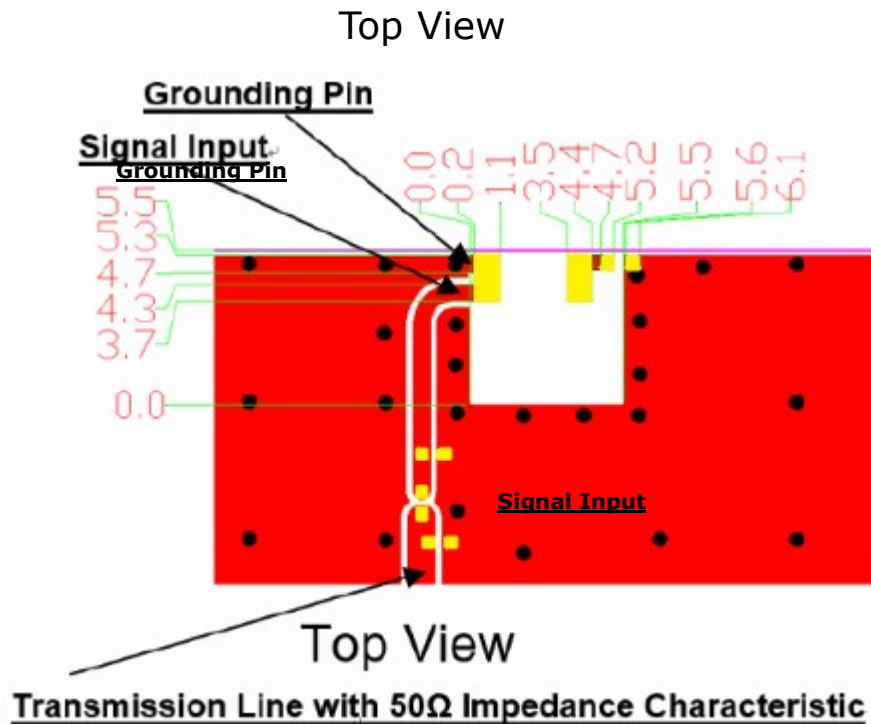
Mechanical Specifications	
Dimensions (mm)	3.2 (L) x 1.6 (W) x 0.5 (H)
Material	Ceramic
Termination	Ag (environmental Pb free)
Environmental Conditions	
Operation & Storage Temperature (°C)	-40 ~ +125
Storage Temperature (°C) (Antenna with packing sealed)	-5 ~ +40
Relative Humidity	10 ~ 70 %

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II. Layout Guide:

Solder Land Pattern:

The solder land pattern (gold marking areas) is shown below. Recommendation on matching circuit will be provided according to customer's installation conditions.

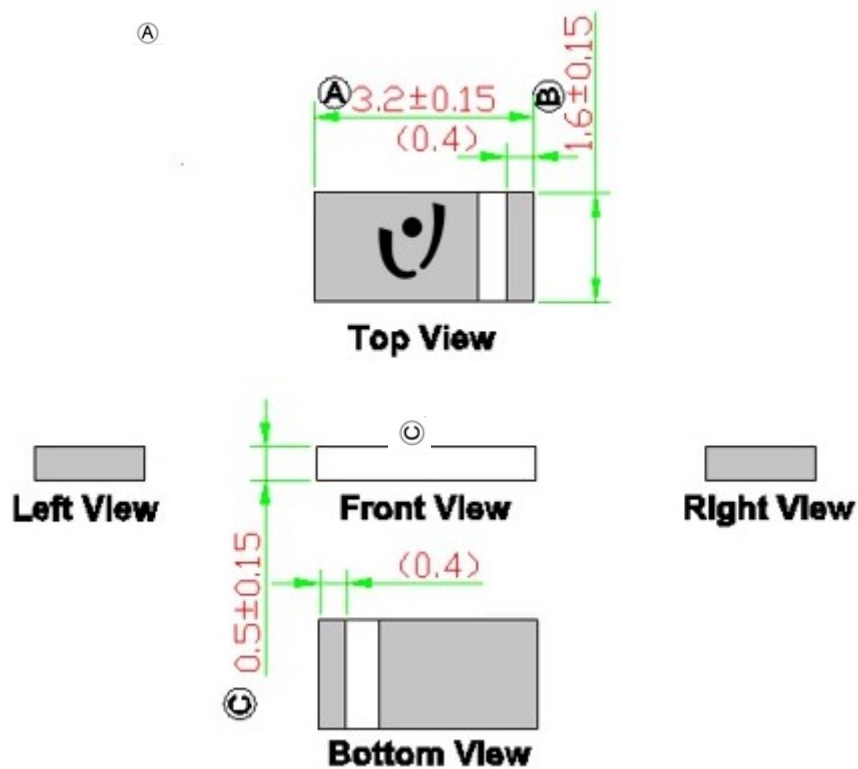


III. Mechanical Dimensions:

a) Antenna Dimensions

Unit: mm

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NOTE:

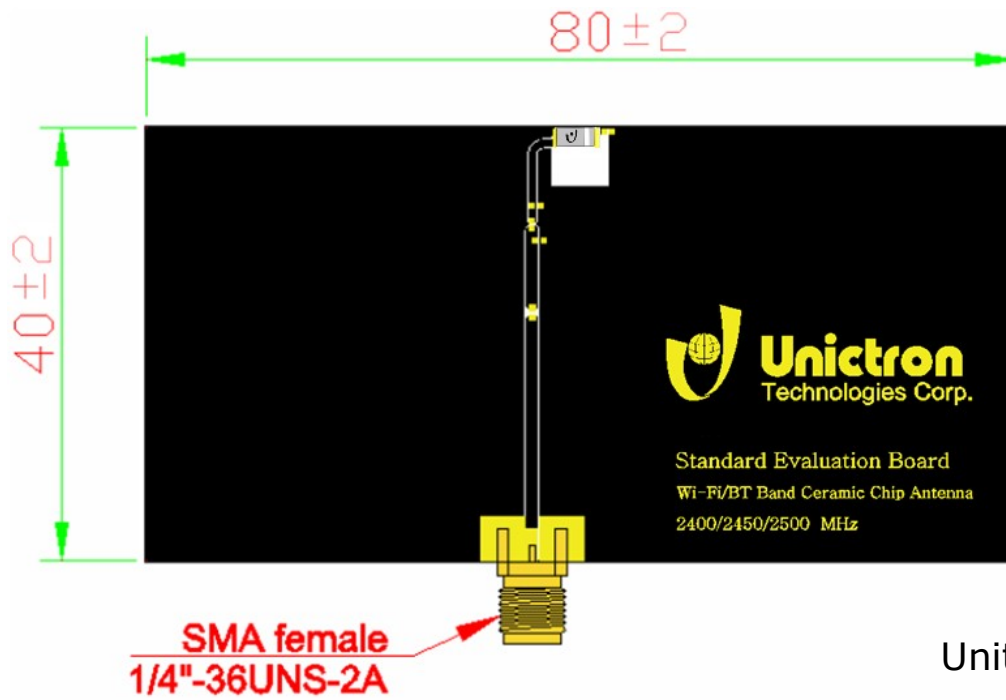
1. All materials are RoHS 2.0 compliant.
2. "A~C" Critical Dimensions.
3. "()" Reference Dimensions.

b) PIN Definition



PIN	1	2
Soldering Pad	Signal	Tuning/Ground

c) Test Board with Antenna

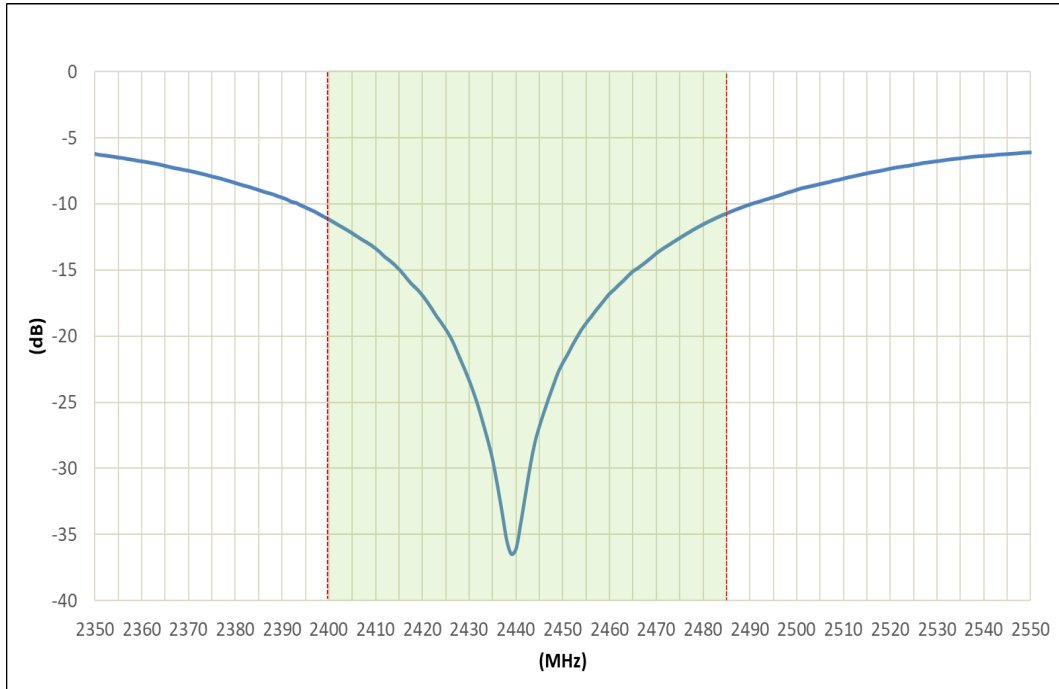


Unit: mm
unit : mm

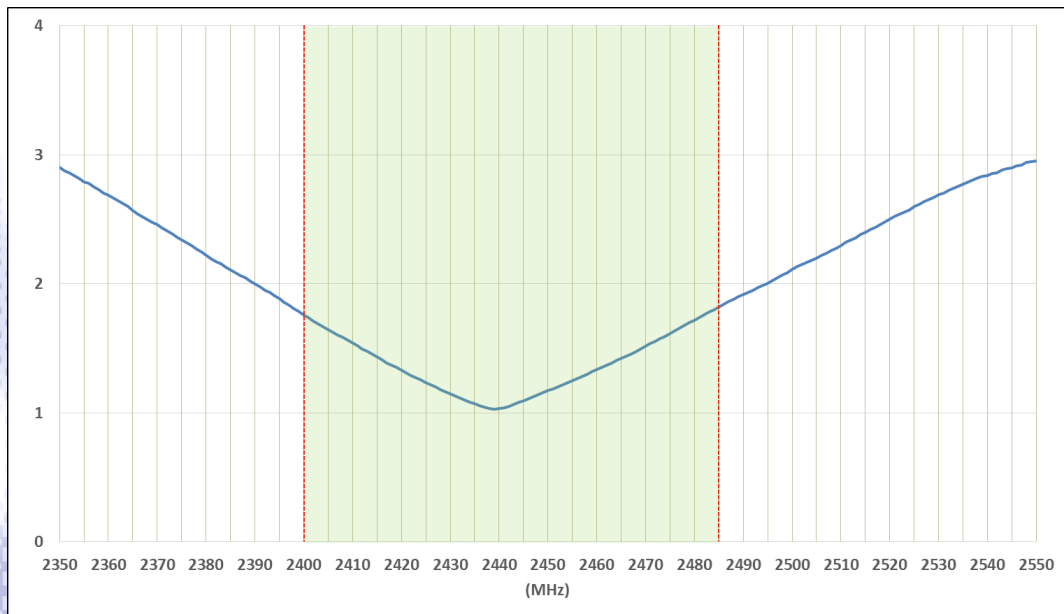
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IV. Properties:

a) Return loss (dB)

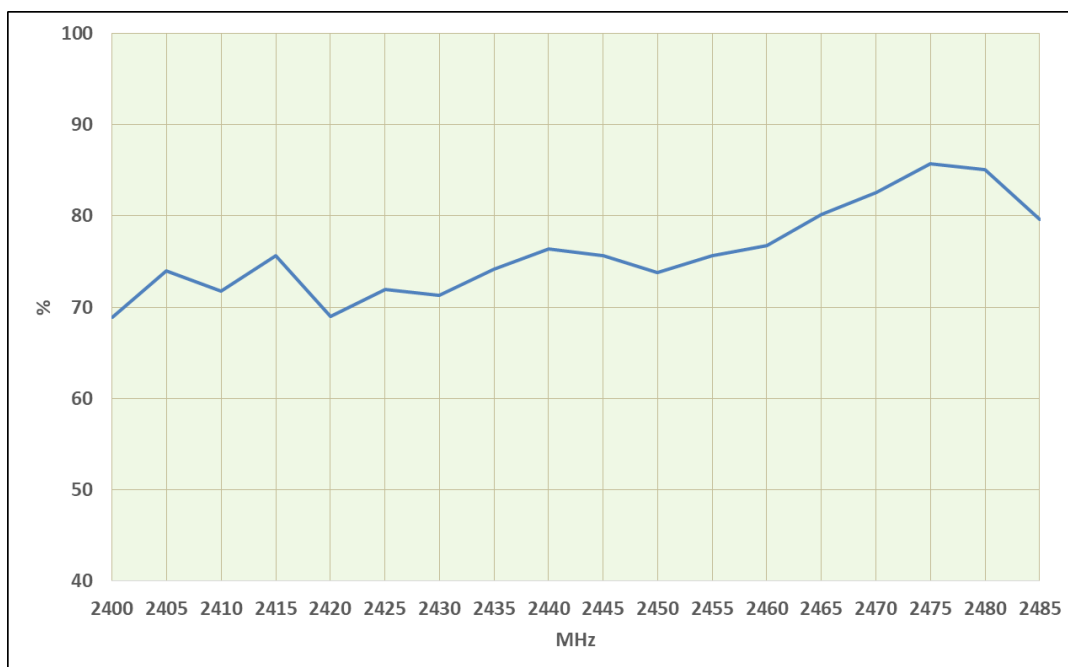


b) VSWR

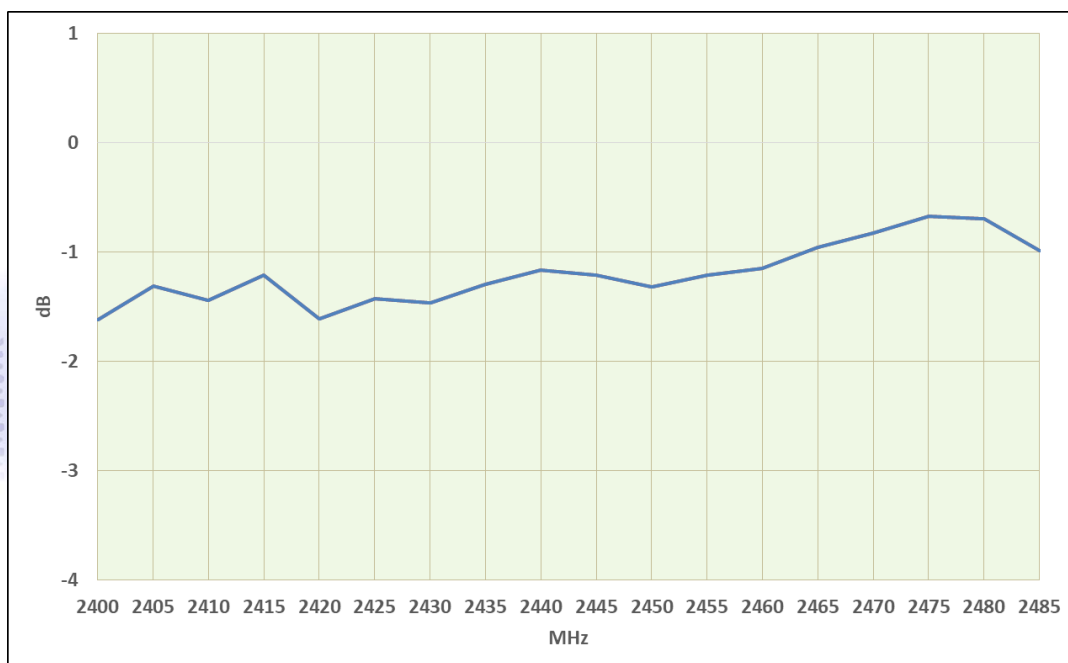


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c) Efficiency (%)

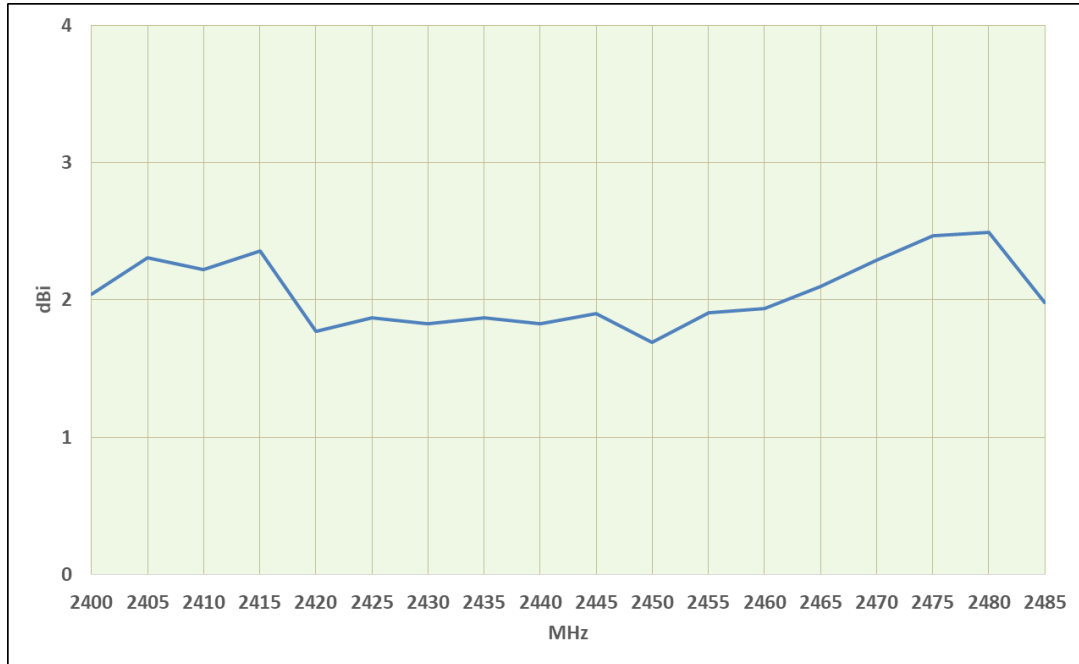


d) Average Gain (dB)



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b) Peak Gain (dBi)



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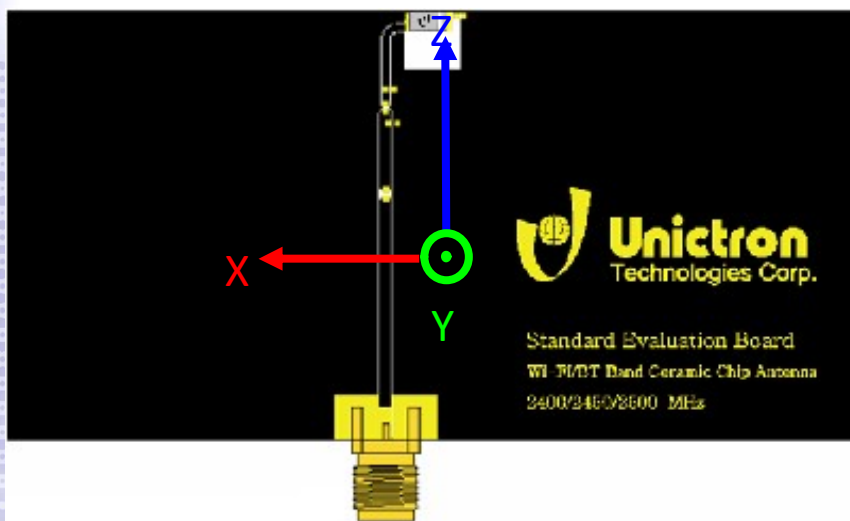
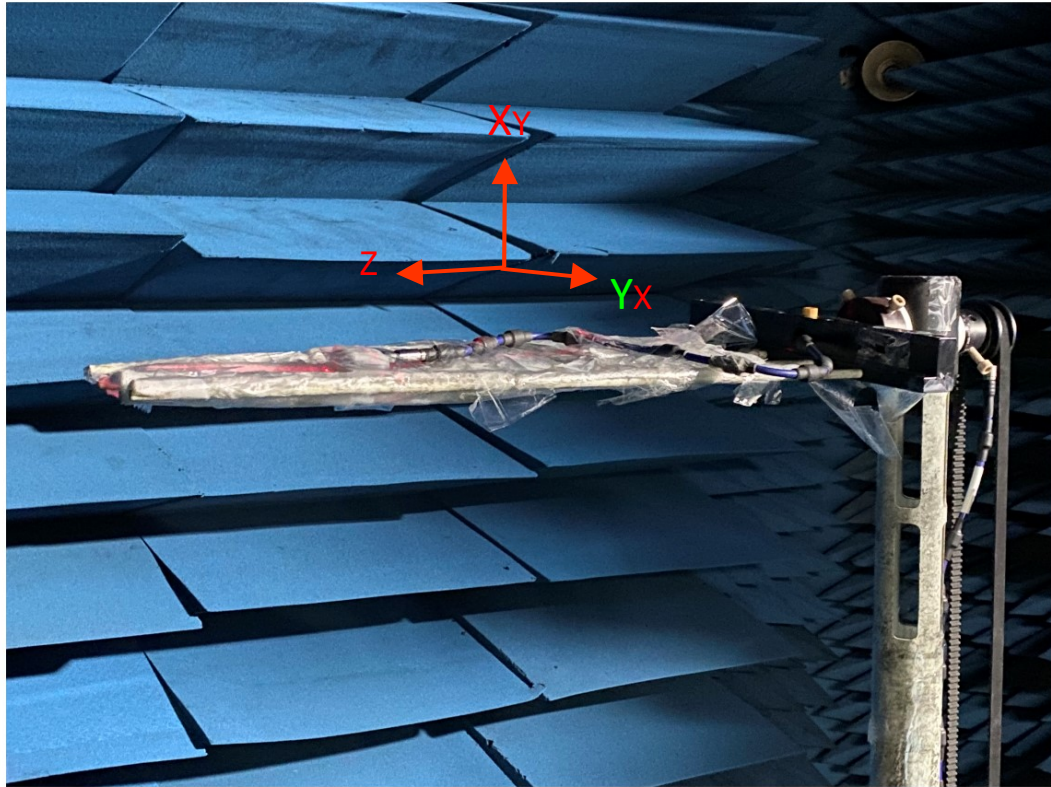
Frequency (MHz)	2400	2405	2410	2415	2420	2425	2430	2435	2440	2442
Average Gain (dB)	-1.6	-1.3	-1.4	-1.2	-1.6	-1.4	-1.5	-1.3	-1.2	-1.2
Efficiency (%)	68.9	74.0	71.8	75.7	69.0	71.9	71.3	74.1	76.4	75.7
Peak Gain (dBi)	2.0	2.3	2.2	2.4	1.8	1.9	1.8	1.9	1.8	1.9

Frequency (MHz)	2450	2455	2460	2465	2470	2475	2480	2485
Average Gain (dB)	-1.3	-1.2	-1.2	-1.0	-0.8	-0.7	-0.7	-1.0
Efficiency (%)	73.8	75.7	76.7	80.2	82.6	85.7	85.1	79.6
Peak Gain (dBi)	1.7	1.9	1.9	2.1	2.3	2.5	2.5	2.0

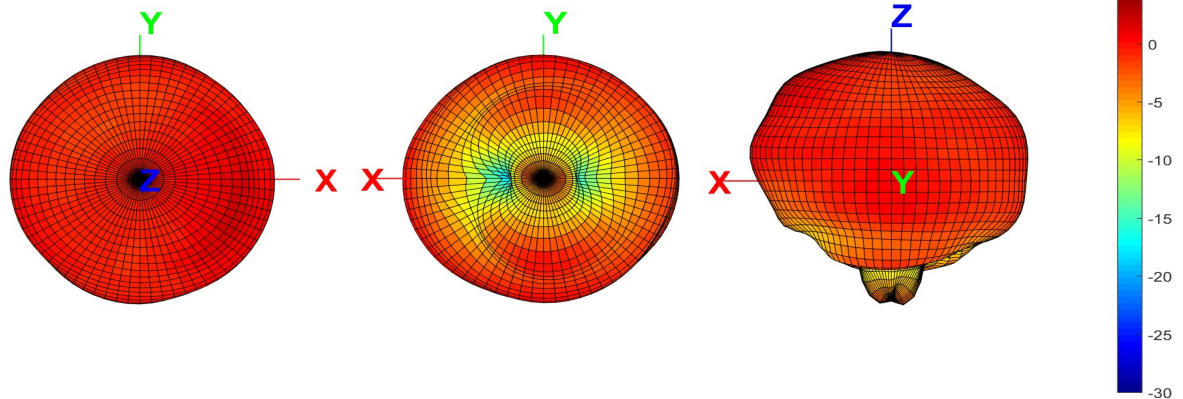
V. Antenna Radiation Pattern Measurement:

The antenna radiation patterns are measured in Unictron's 3D Anechoic Chamber. The measurement setup is as show below.

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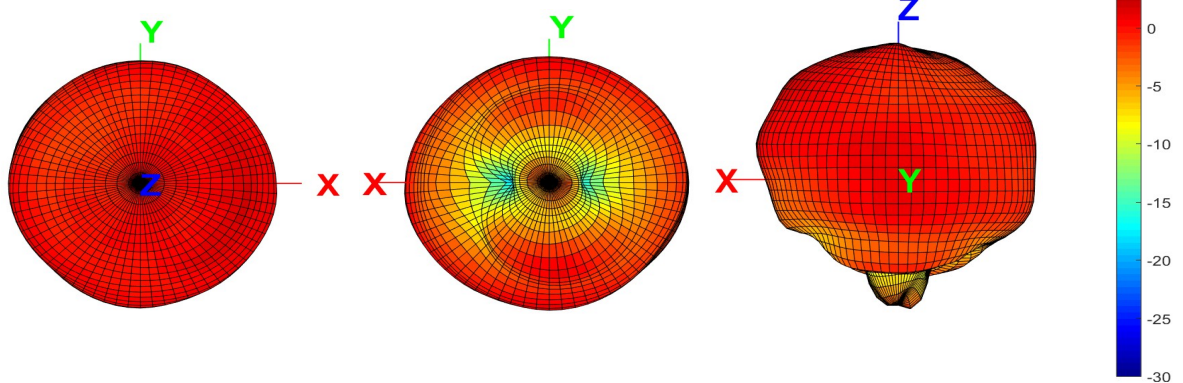


3D Radiation Gain Pattern 2400 MHz (unit: dBi)

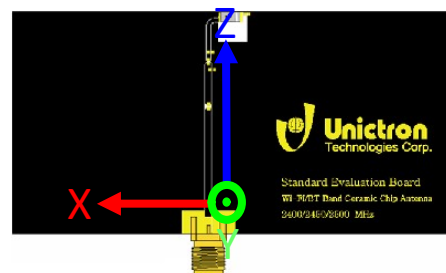
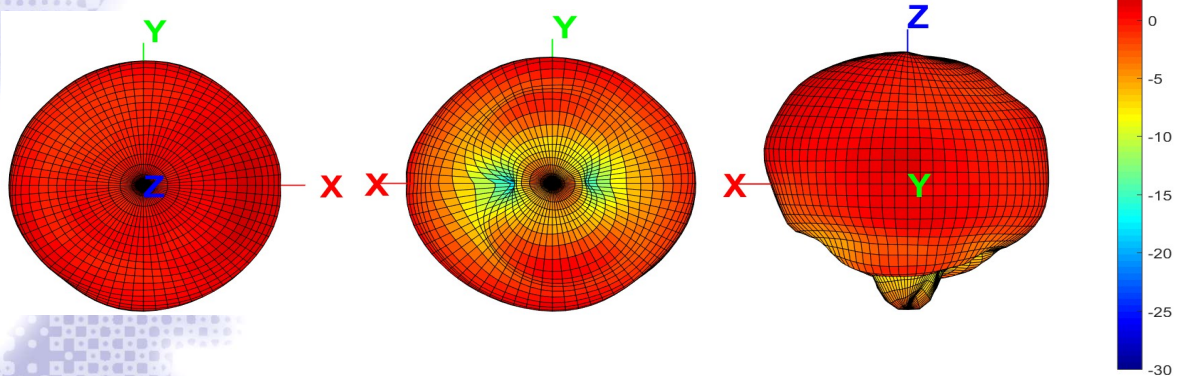


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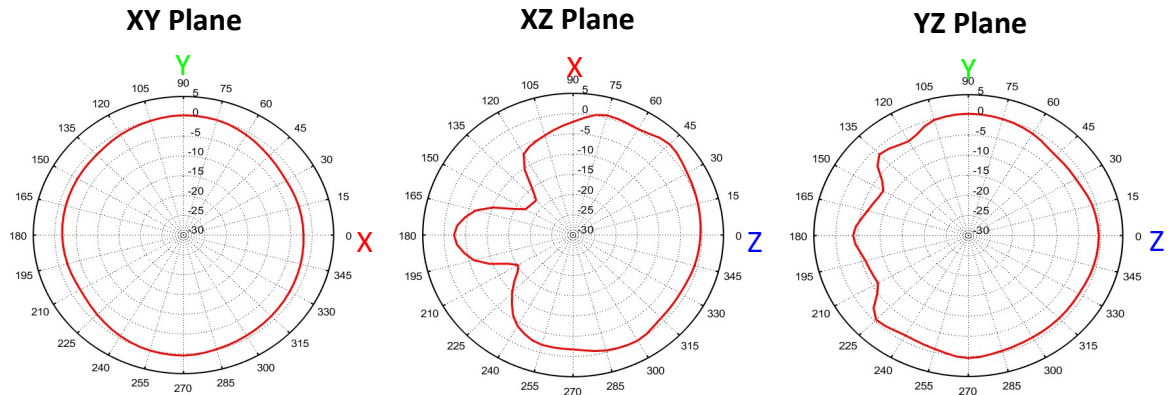
2442 MHz (unit: dBi)



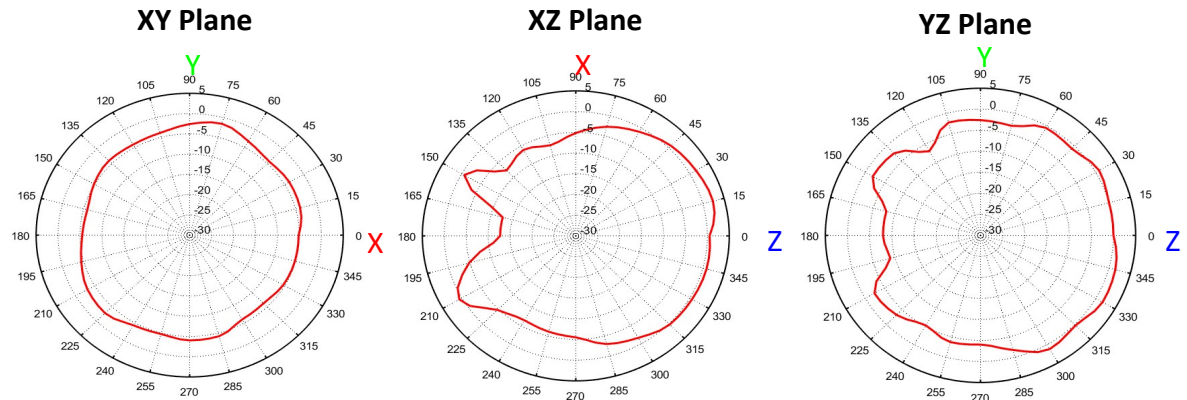
2485 MHz (unit: dBi)



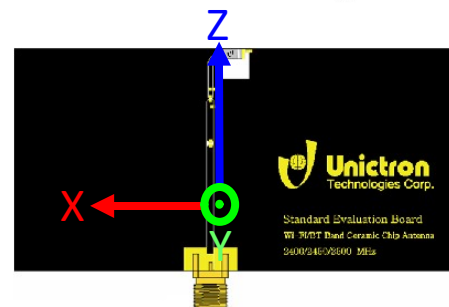
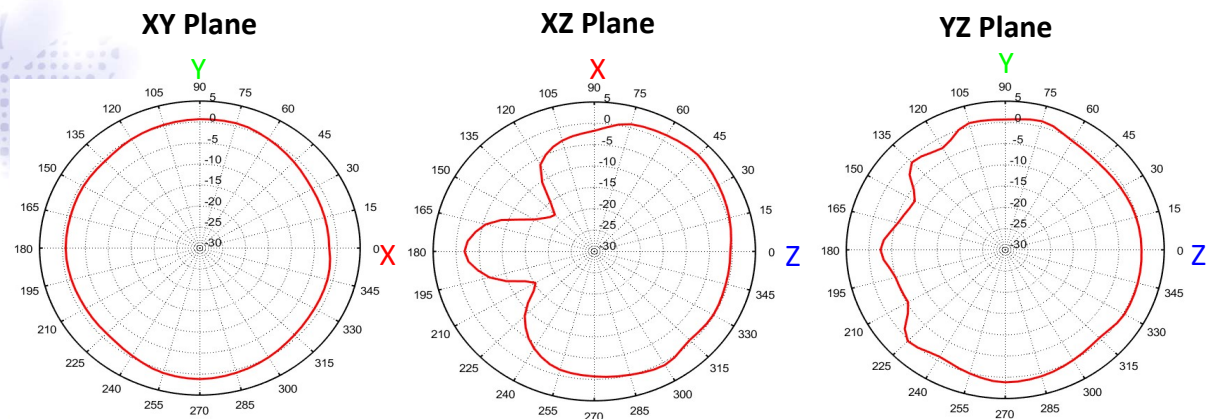
2D Radiation Gain Pattern 2400 MHz (unit: dBi)



2442 MHz (unit: dBi)

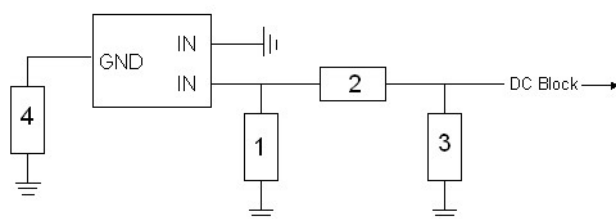
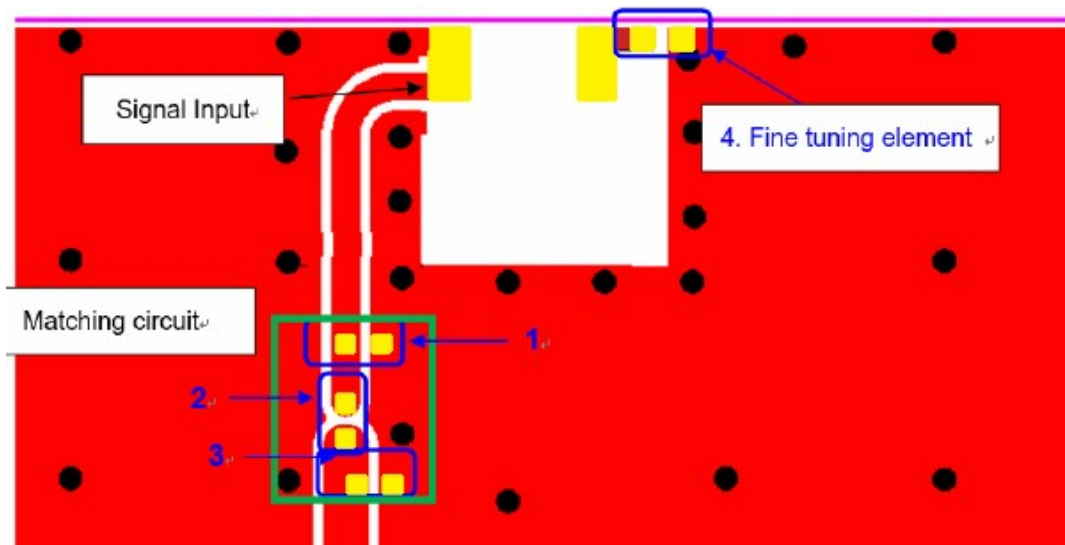


2485 MHz (unit: dBi)



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VI. Frequency tuning:

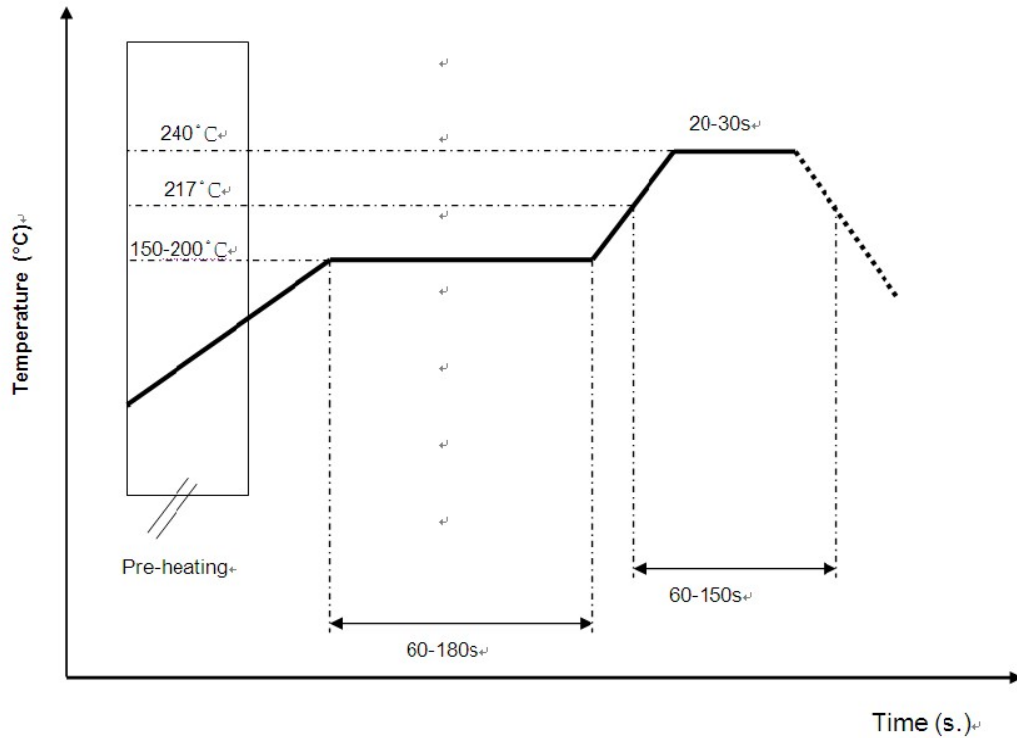


System Matching Circuit Component			
Location	Description	Vendor	Tolerance
1	1.2pF, (0402)	MURATA	± 0.05 pF
2	3.3nH, (0402)	MURATA	± 0.1 nH
3	NA		
Fine tuning element 4	1.2pF, (0402)	MURATA	± 0.05 pF

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VII. Soldering conditions:

Typical Soldering Profile for Lead-free Process



*Recommended solder paste alloy: SAC305 (Sn96.5 /Ag3 /Cu0.5) Lead Free solder paste.

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VIII. Reminders for use of Unictron's ceramic chip antennas:

- a) This chip antenna is made of ceramic materials which is relatively more rigid and brittle compared to circuit board materials. Furthermore, the length of this antenna is quite long. Bending of circuit board at the locations where chip antenna is mounted may cause the cracking of solder joints or antenna itself.
- b) Punching/cutting of the break-off tab of PCB panel may cause severe bending of the circuit board which may result in cracking of solder joints or chip antenna itself. Therefore break-off tab shall be located away from the installation site of chip antenna.
- c) Be cautious when ultrasonic welding process needs to be used near the locations where chip antennas are installed. Strong ultrasonic vibration may cause the cracking of chip antenna solder joints.

IX. Operating & Storage conditions:

a) Operating

- (1) Maximum Input Power: 2 W
- (2) Operating Temperature: -40°C to 125°C
- (3) Relative Humidity: 10% to 70%

b) Storage (sealed)

- (1) Storage Temperature: -5°C to 40°C
- (2) Relative Humidity: 20% to 70%
- (3) Shelf Life: 1 year

c) Storage (After mounted on customer's PCB with SMT process)

- (1) Storage Temperature: -40°C to 85°C
- (2) Relative Humidity: 10% to 70%

X. Notice

(1) Installation Guide:

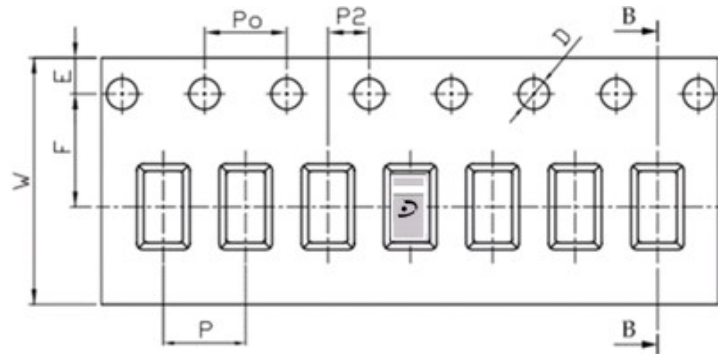
Please refer to Unictron's application note "General guidelines for the installation of Unictron's chip antennas" for further information.

(2) All specifications are subject to change without notice.

XI. Packing

- (1) Quantity/Reel: 5000 pcs/Reel
- (2) Plastic tape: Black conductive polystyrene.

a. Tape Drawing (unit: mm)



b. Tape Dimensions (unit: mm)

Feature	Specifications	Tolerances
W	12.00	±0.30
P	4.00	±0.10
E	1.75	±0.10
F	5.50	±0.10
P ₂	2.00	±0.10
D	1.50	+0.10 -0.00
P ₀	4.00	±0.10
10P ₀	40.00	±0.20

c. Reel Drawing

