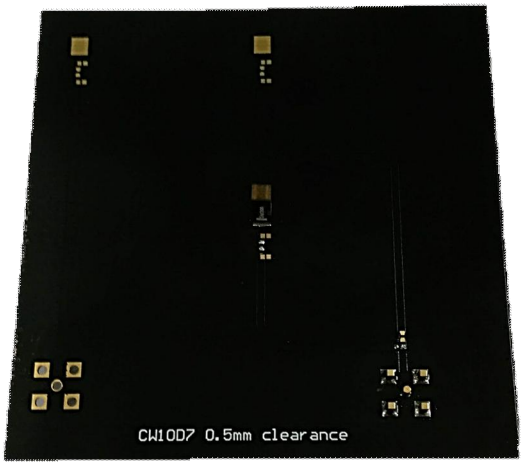
3.0 x 3.0 x 10.0 (mm) WiFi/Bluetooth Pillar PCB Substrate

Antenna(EVB+CW10D7) Engineering Specification

1. Product Number

H	2	B	1	B	G	3	A	1	B	0	1	0	0



2. Features

*Stable and reliable in performance.
*RoHS 2.0 compliance
*SMT processes compatible

3. Applications

*ISM 2.4 GHz applications
*Wi-Fi router (IEEE802.11 b/g/n)
*Hand-held devices when WiFi / Bluetooth functions are needed, e.g. Tracker、IoT Devices, etc.

4. Description

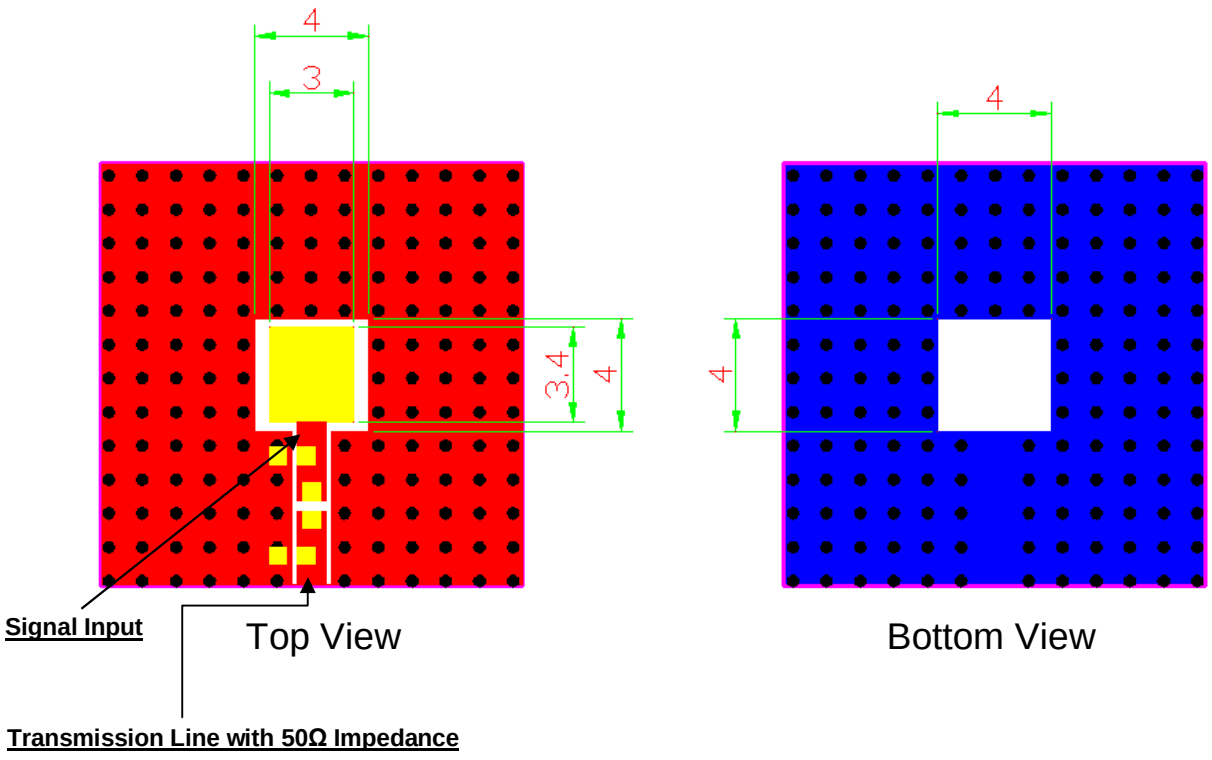
Unictron's CW10D7 chip antenna is designed for ISM 2.4GHz applications, covering frequencies 2400~2500MHz. Fabricated with proprietary design and processes, CW10D7 shows excellent performance and is fully compatible with SMT processes which can decrease the assembly cost and improve device's quality and consistency.

5. Layout Guide & Electrical Specifications

5-1. Layout Guide (Unit：mm)

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.



5-2. Electrical Specifications

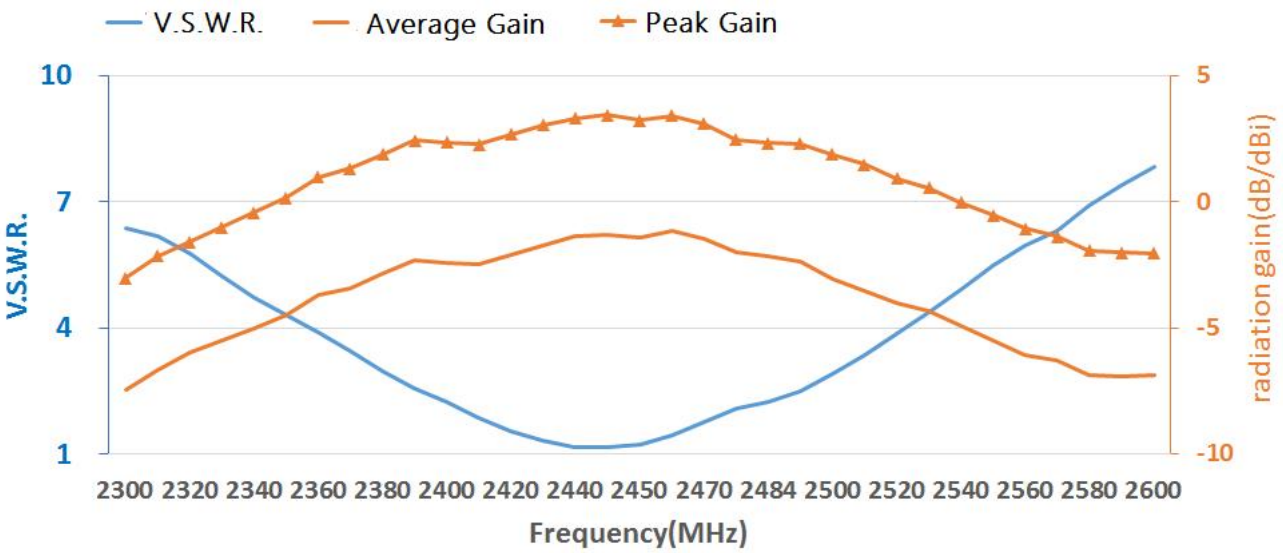
5-2-1. Electrical Table

Characteristics		Specifications	Unit
Outline Dimensions		3.0 x 3.0 x 10.0	mm
Ground Plane Dimensions		80 x 80	mm
Working Frequency		2400~ 2500	MHz
VSWR (@ center frequency)*		2 Max.	
Characteristic Impedance		50	Ω
Polarization		Vertical Polarization	
Peak Gain	(@2442 MHz)	3.4(Typical**)	dBi
Efficiency		61.5(Typical**)	%

* Center frequency is the frequency with the lowest value of return loss.

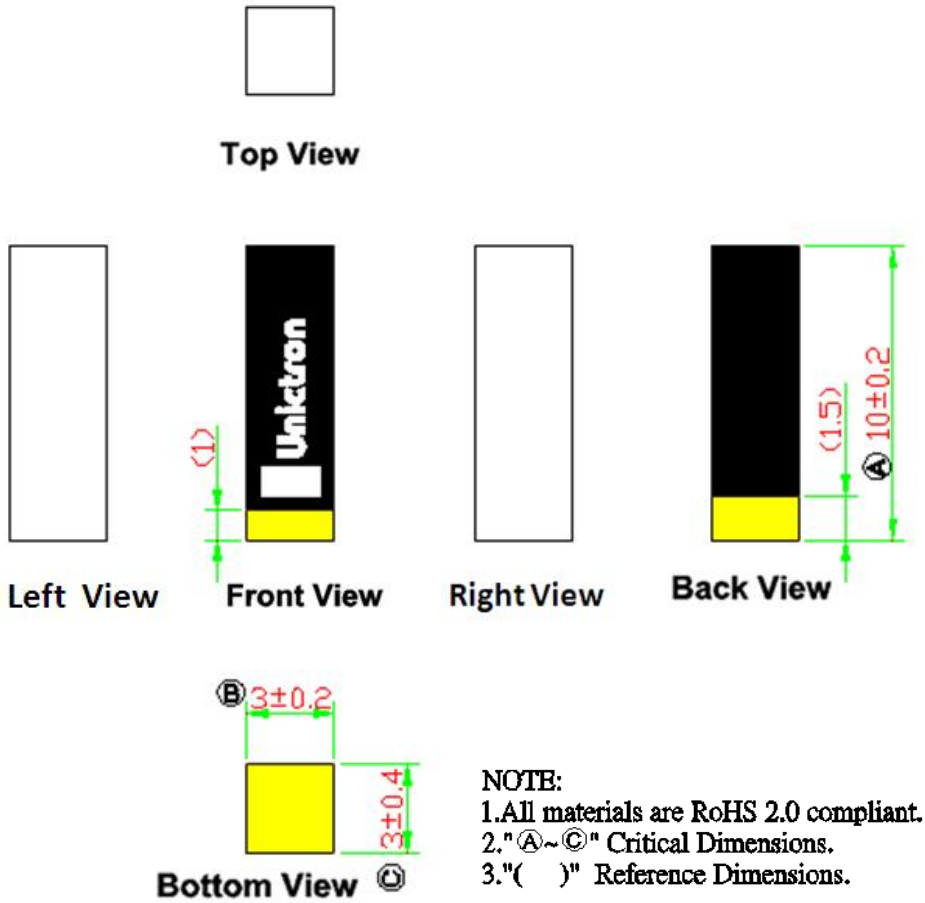
** Typical value is for reference only. The actual efficiency will depend on the circuit board used

5-2-2. Frequency vs. V.S.W.R. and Radiation Gain



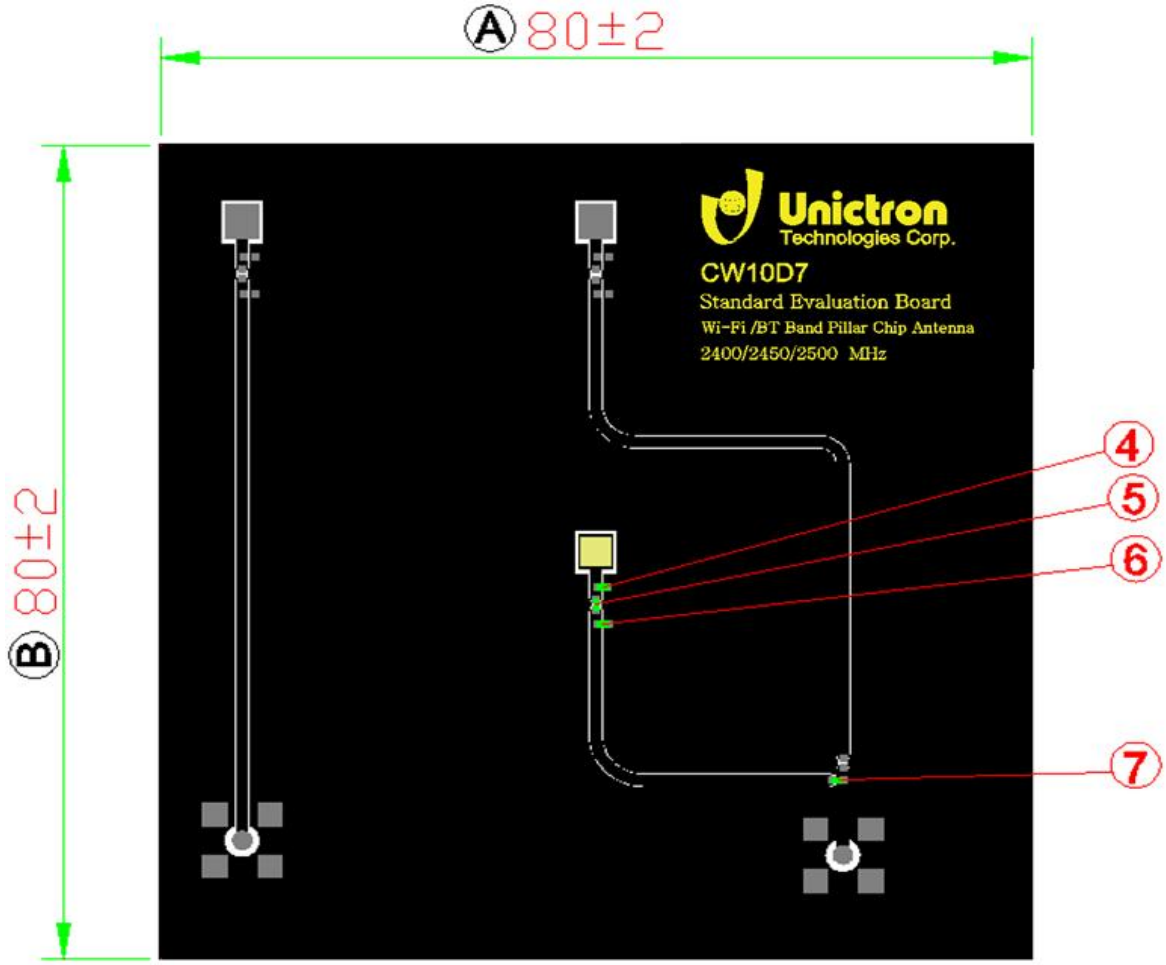
6. Outline Dimensions of Antenna (unit: mm)

6-1. Antenna Dimensions



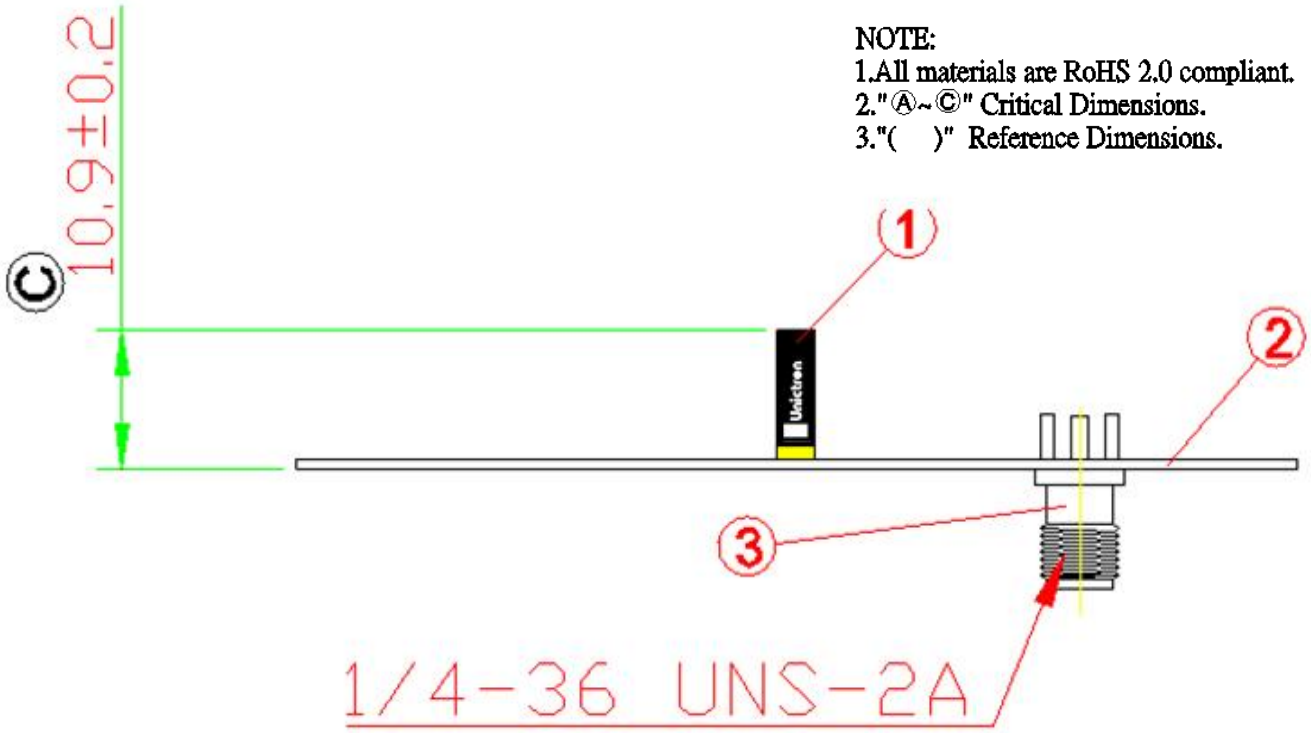
NOTE:
1.All materials are RoHS 2.0 compliant.
2."Ⓐ~Ⓒ" Critical Dimensions.
3."( )" Reference Dimensions.

6-2. Evaluation Board with Antenna



Prepared by : Wen	Designed by : Peter	Checked by : Mike	Approved by : Herbert

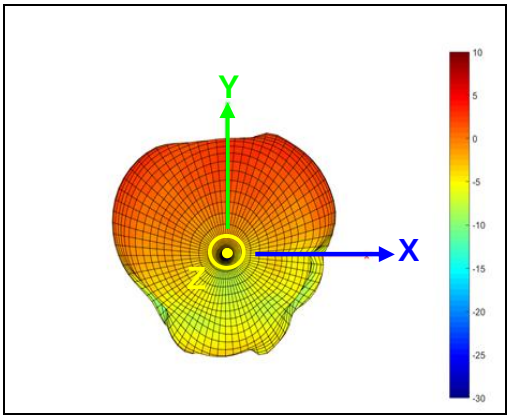
TITLE : WiFi/Bluetooth Pillar PCB Substrate Antenna(EVB+CW10D7) Engineering Specification	DOCUMENT NO.	H2B1BG3A1B0100	REV. Pre

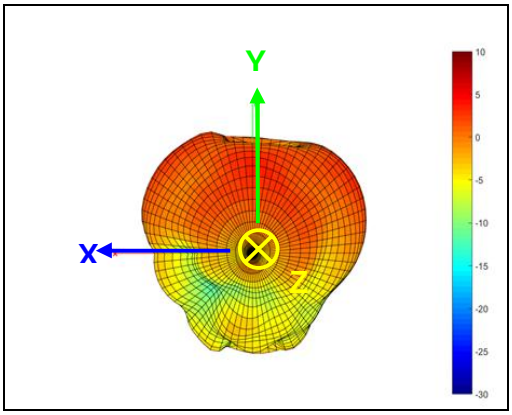


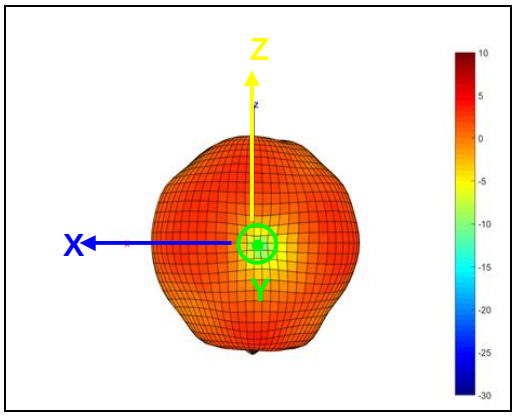
Unit: mm

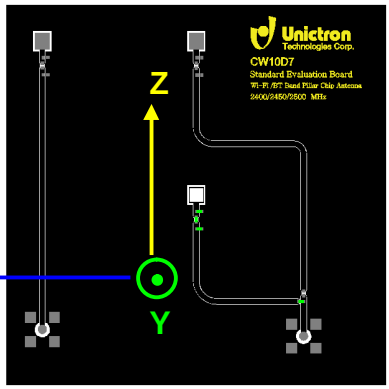
ITEM	PART NO.	Name	Material	Color	Q'ty
1		Chip antenna	FR4		1
2		EVB Board PCB	FR4	Black	1
3		SMA(F)ST	Brass	Gold	1
4		L_0402			1
5		L_0402			1
6		C_0402			1
7		0Ω			1

7. 3D Radiation Gain Pattern@ 2442 MHz (Unit: dBi)



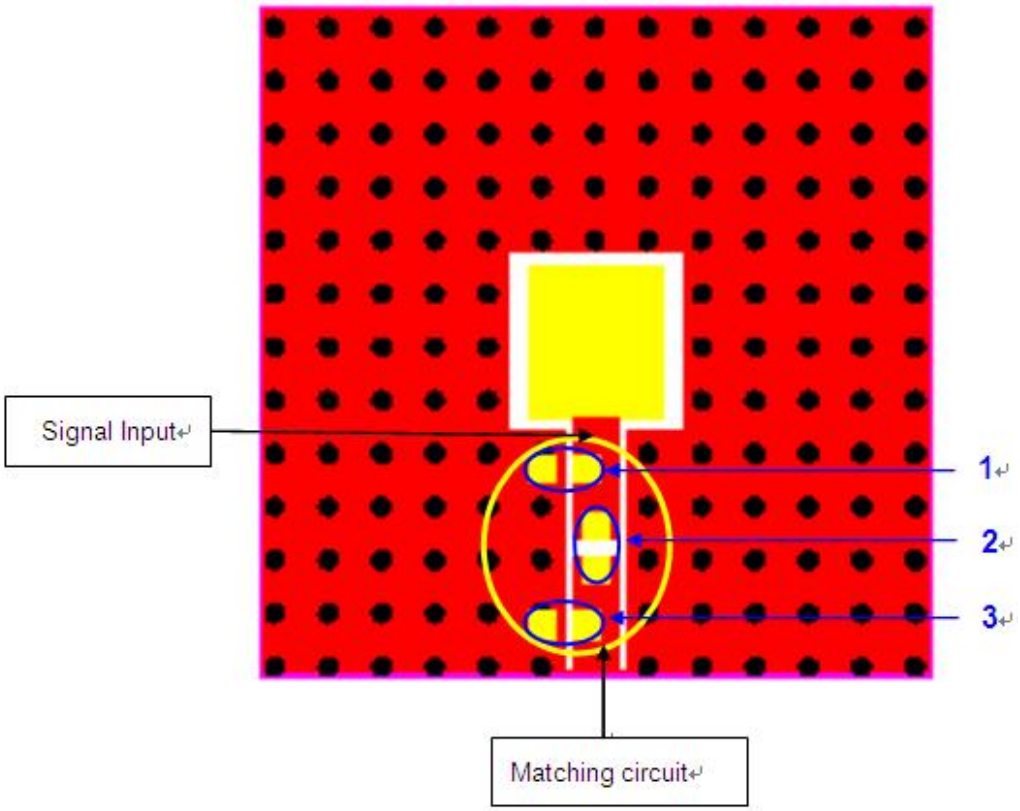






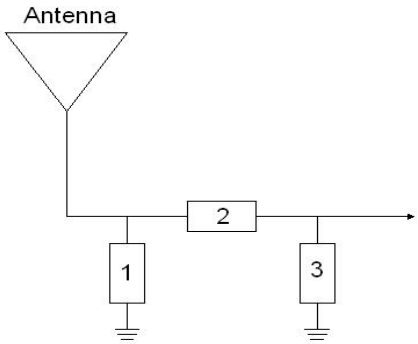
8. Frequency Tuning

8-1. Chip antenna tuning scenario：



8-2. Matching circuit：

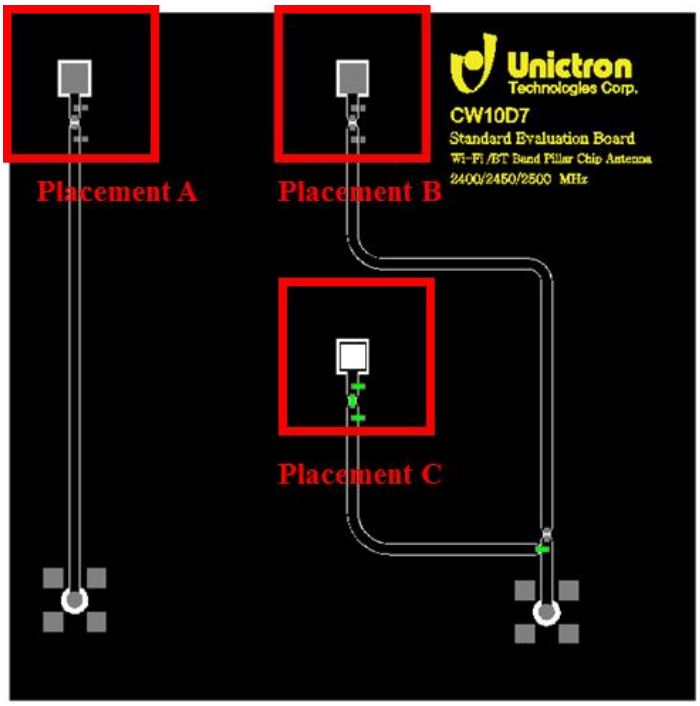
With the following recommended values of matching and tuning components, the center frequencies will be about 2442 MHz at our standard 80 x 80 mm^2 evaluation board. However, these are typical reference values which may need to be changed when circuit boards or part vendors are different.



System Matching Circuit Component			
Location	Description	Vendor	Tolerance
1	1nH, (0402)	MURATA	±0.1 nH
2	1nH, (0402)	MURATA	±0.1 nH
3	1.5pF,(0402)	MURATA	±0.1 pF

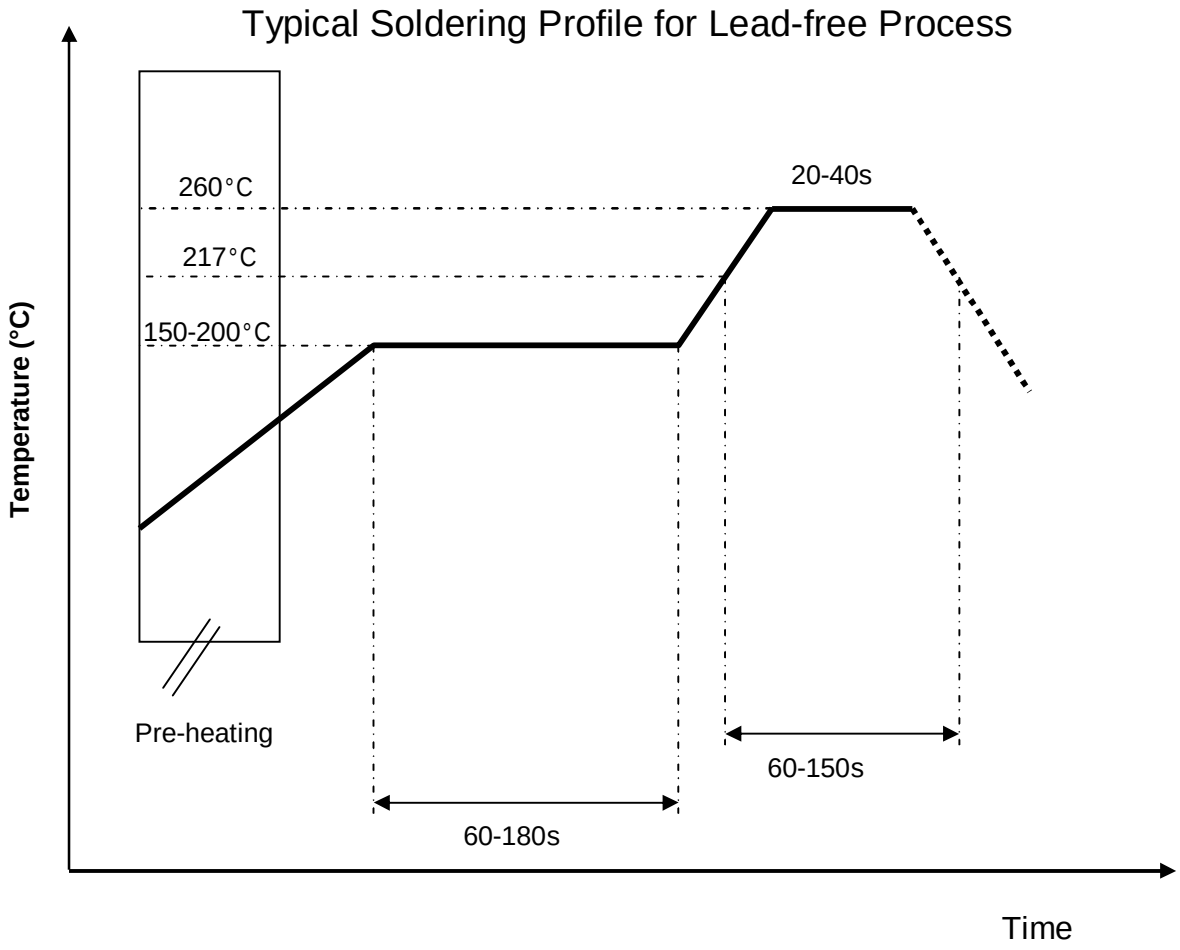
9. Typical Efficiency Values @ 2442 MHz with three antenna installation locations

The radiation efficiencies of antenna installed at various locations on the evaluation board are shown in the table below.



Placements	Efficiency (%)	Polarizations
A	74.6	Horizontal + Vertical
B	63.6	Horizontal + Vertical
C	61.5	Vertical

10. Soldering Conditions



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

11. Operating & Storage Conditions

11-1. Operating

(1) Maximum Input Power: 2 W

(2) Operating Temperature: -40℃ to 85℃

(3) Relative Humidity: 10% to 70%

11-2. Storage (sealed)

(1) Storage Temperature: -5℃ to 40℃

(2) Relative Humidity: 20% to 70%

(3) Shelf Life: 1 year

12. 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.