Product Name: ISM Chip Antenna – C9703S

Part Number: H2U64F1L2C0100

Features:

- Supporting: ISM 915MHz
- Stable and reliable in performances
- Low profile, compact size
- RoHS 2.0 compliance
- SMT processes compatible
- AEC-Q200 compliant

Applications:

- ISM Band system
- IOT system

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ISM Chip Antenna

MODEL: C9703S

Version: A

I. Specifications:

Items	Specifications
Frequencies (MHz)	915
Return loss (dB)	<-10 Typ.
Efficiency (%)	30 Typ.
Average Gain (dB)	-5.2 Typ.
Peak Gain (dBi)	0.2 Typ.
Test Condition	49.5 x 20 mm² (Evaluation board)
Impedance (Ω)	50
Polarization	Linear Polarization

Mechanical Specifications	
Dimensions (mm)	7.0 (L) x 2.0 (W) x 1.0 (H)
Material	Ceramic
Environmental Conditions	
Operation & Storage Temperature (°C)	-40 ~ +85
Storage Temperature (°C) **(Antenna with packing sealed)**	-5 ~ +40
Relative Humidity	10 ~ 70 %

***After the product is unpacked (not used for more than a week), it needs to be sealed package to prevent the silver surface of the product from being oxidized and discolored.**

*** The oxidation and discoloration of the silver surface of the product will not affect the functional electrical properties.**

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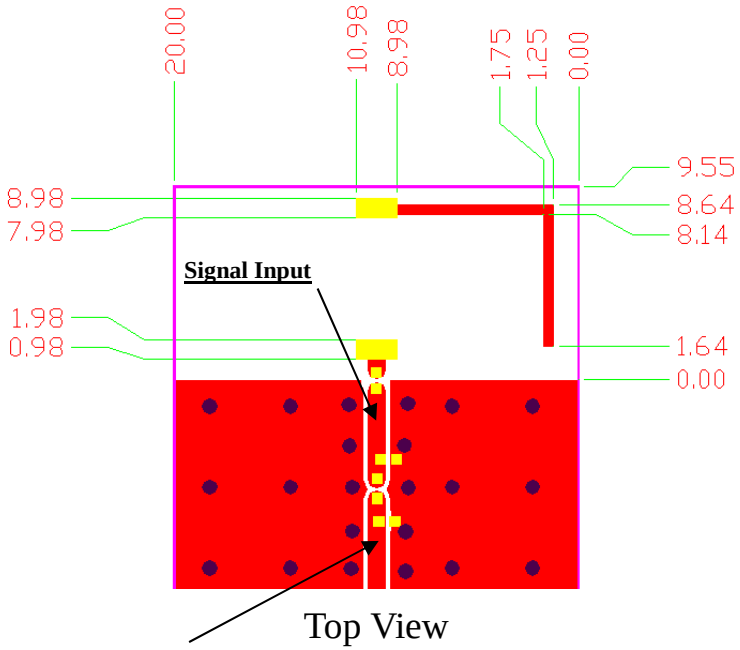
II. Layout Guide (unit : mm):

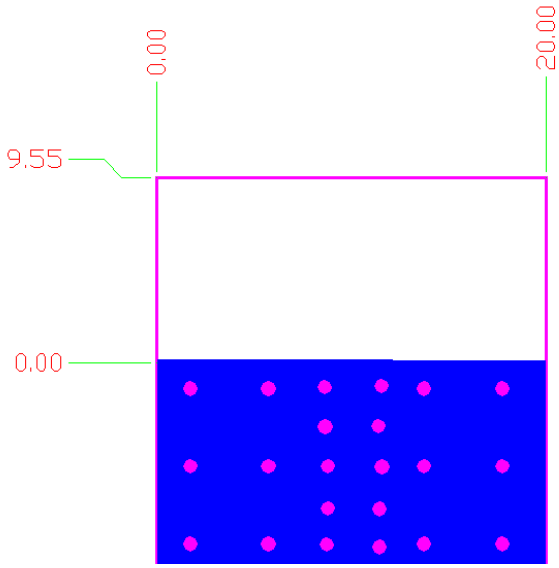
Solder Land Pattern:

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



Top View

Transmission Line with 50Ω Impedance Characteristic



Bottom View

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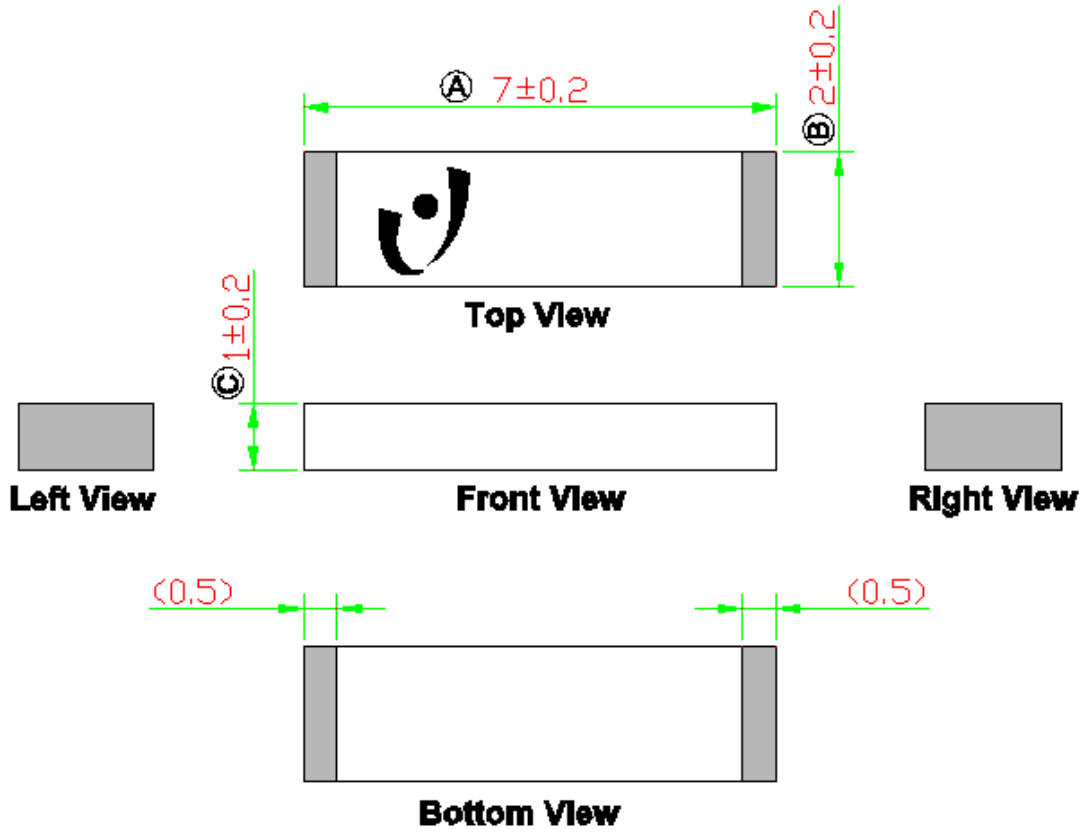
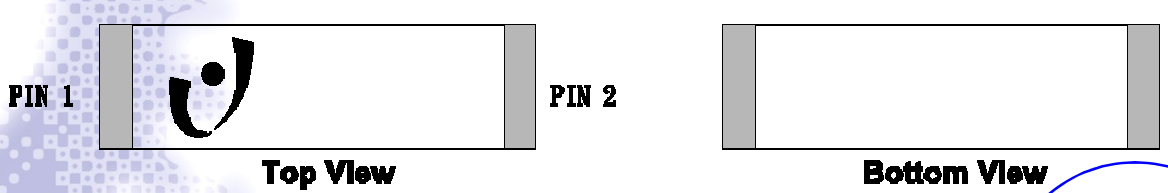
III. Mechanical Dimensions (unit：mm):

a) Antenna Dimensions



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

b) PIN Definition



PIN	1	2
Soldering PAD	Signal	N/C

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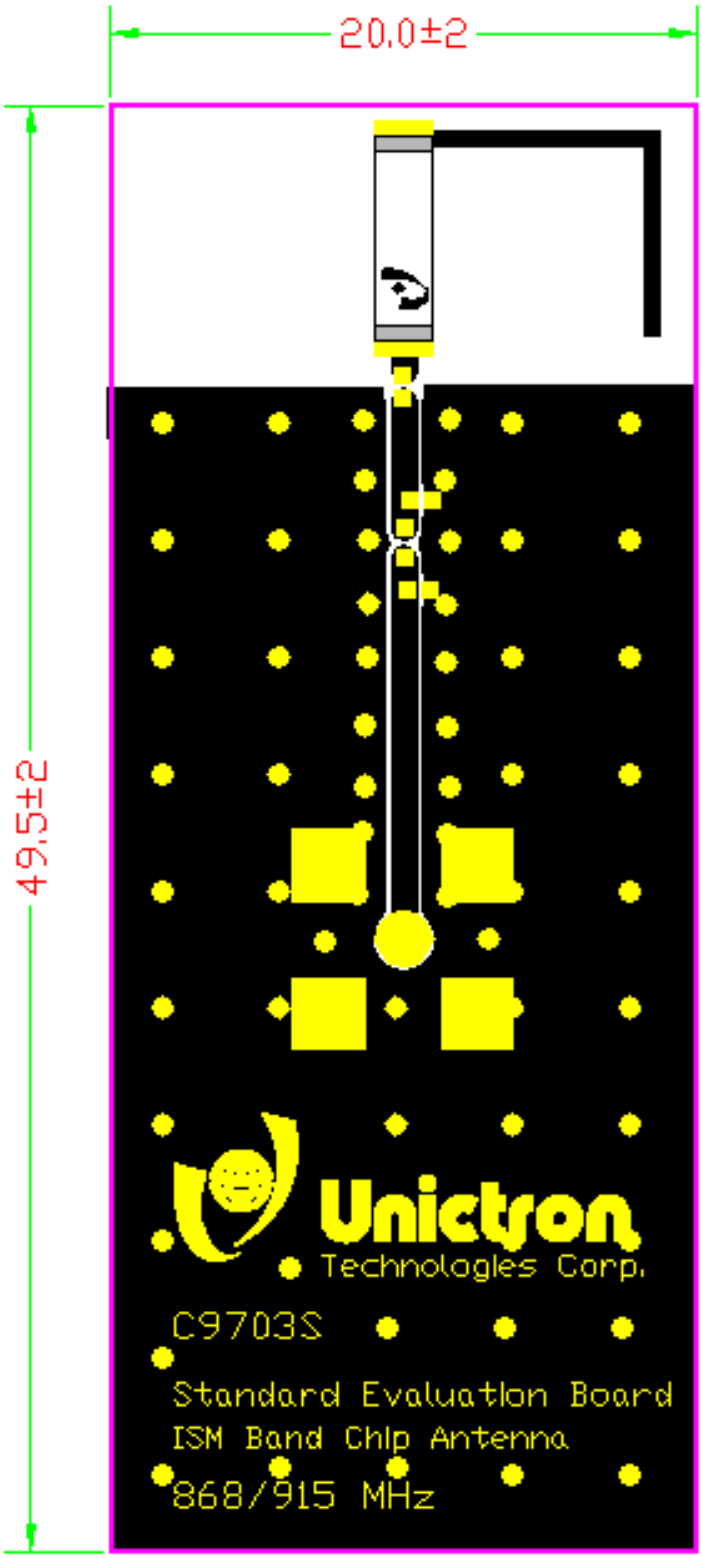
c) Test Board with Antenna



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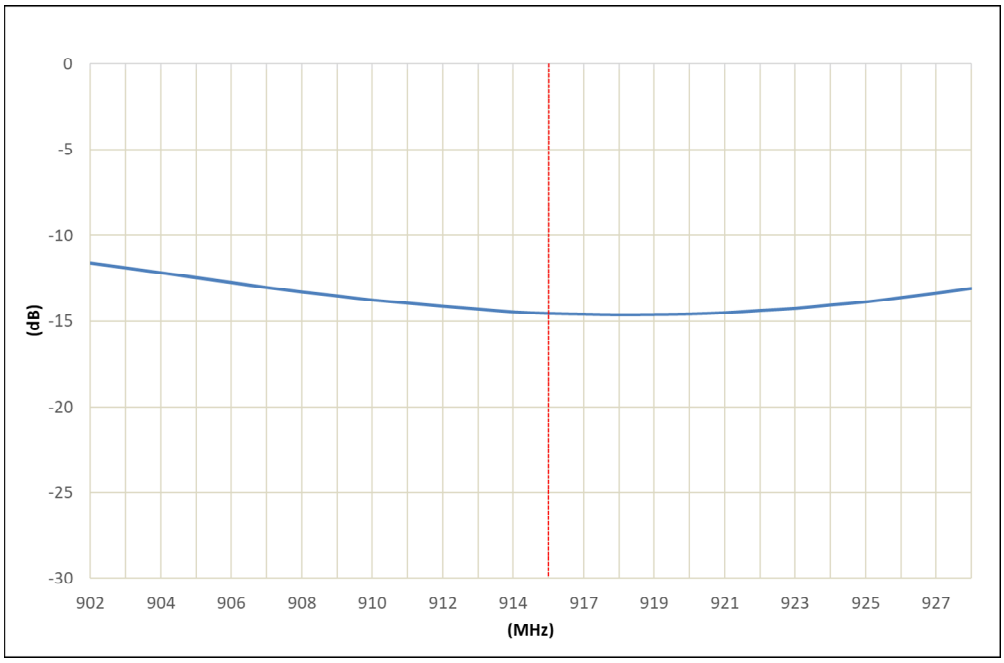
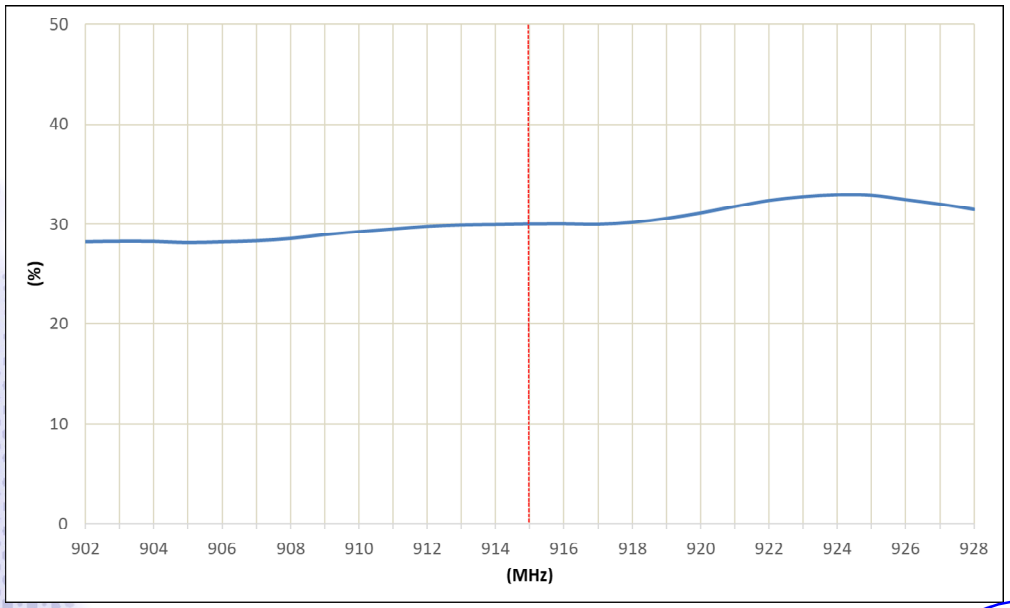
IV. Properties:

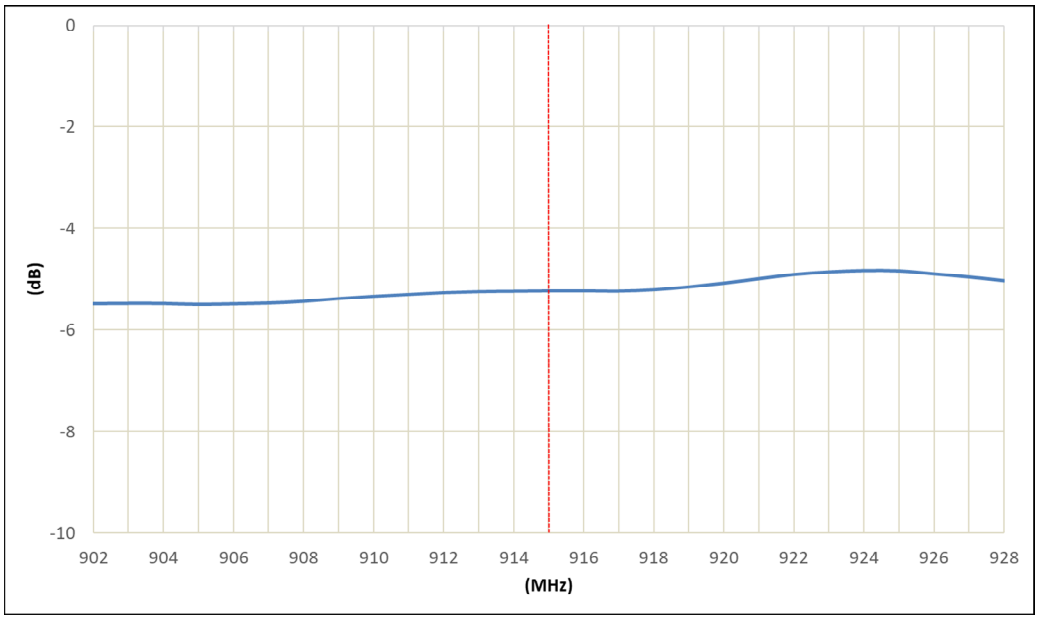
a) Return loss (dB)



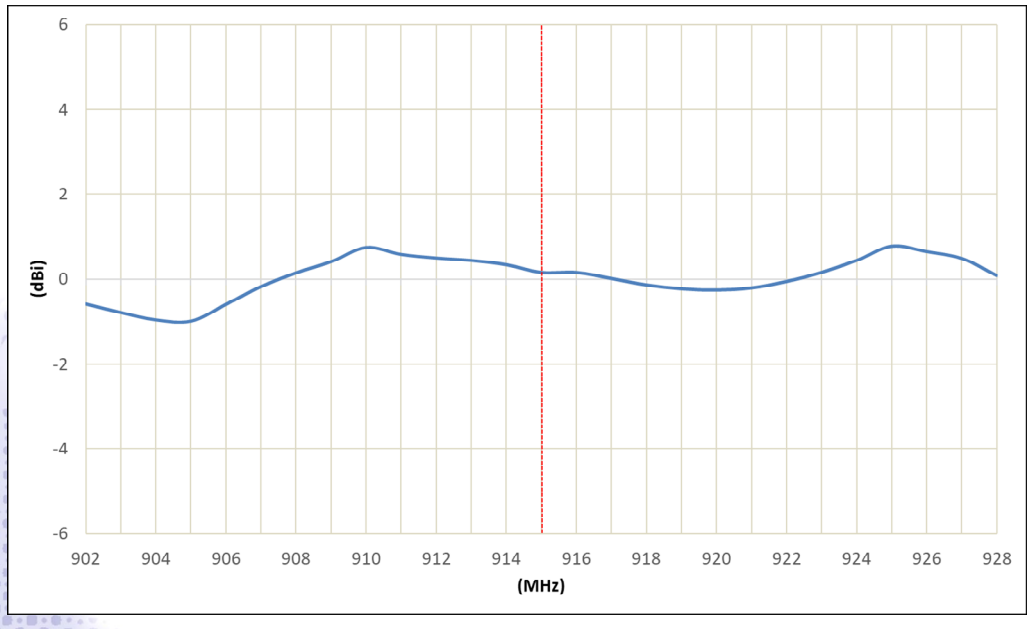
b) Efficiency (%)



c) Average Gain (dB)



d) Peak Gain (dBi)



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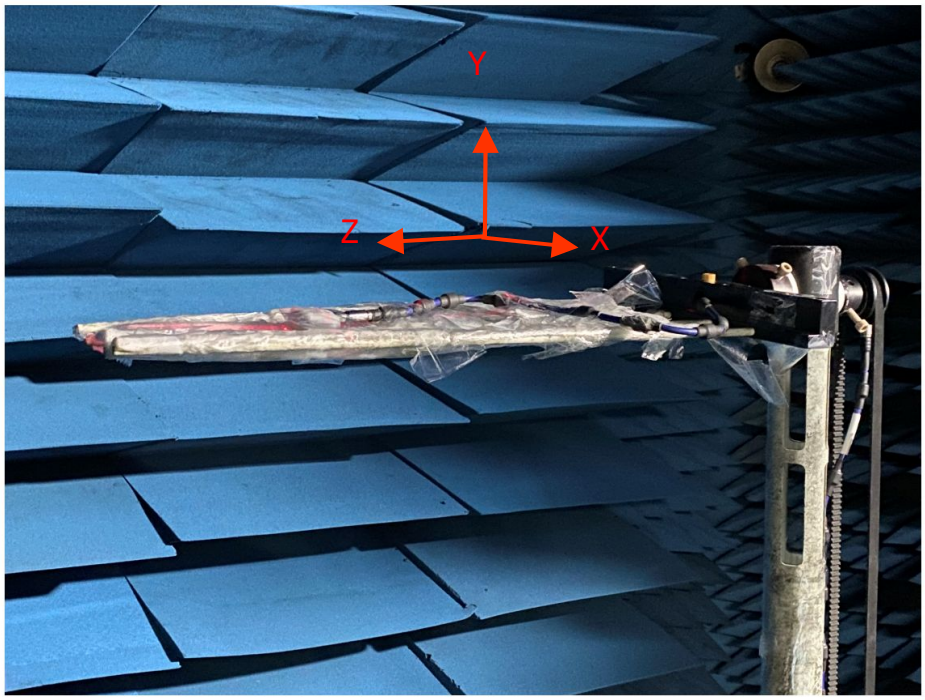
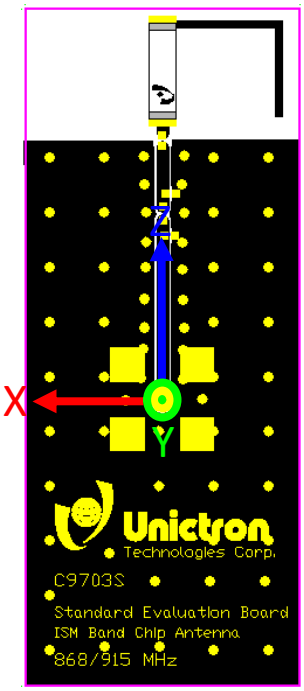
V. Antenna Radiation Pattern Measurement:

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



3D Radiation Gain Pattern



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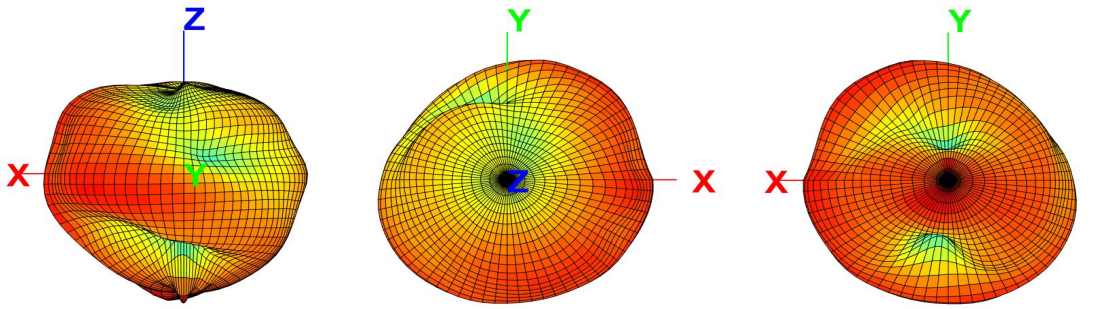
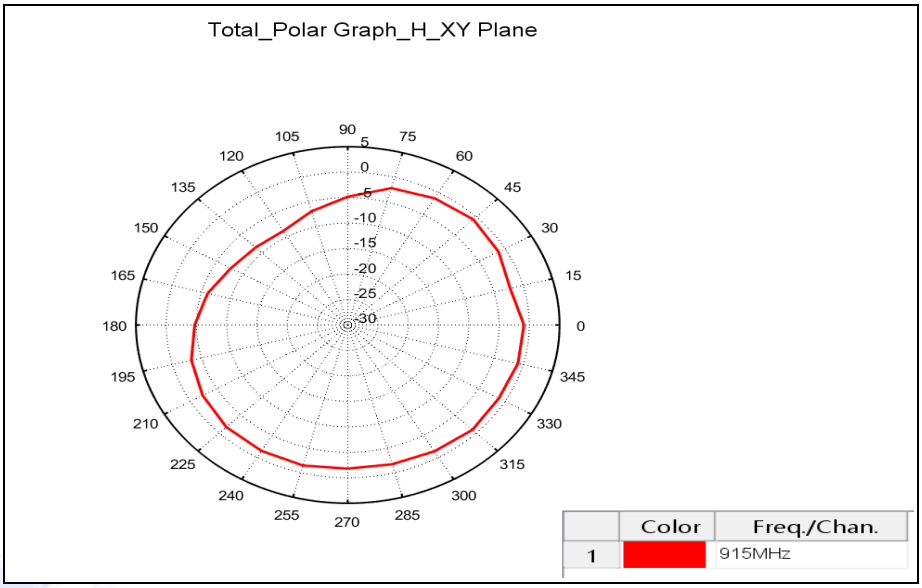
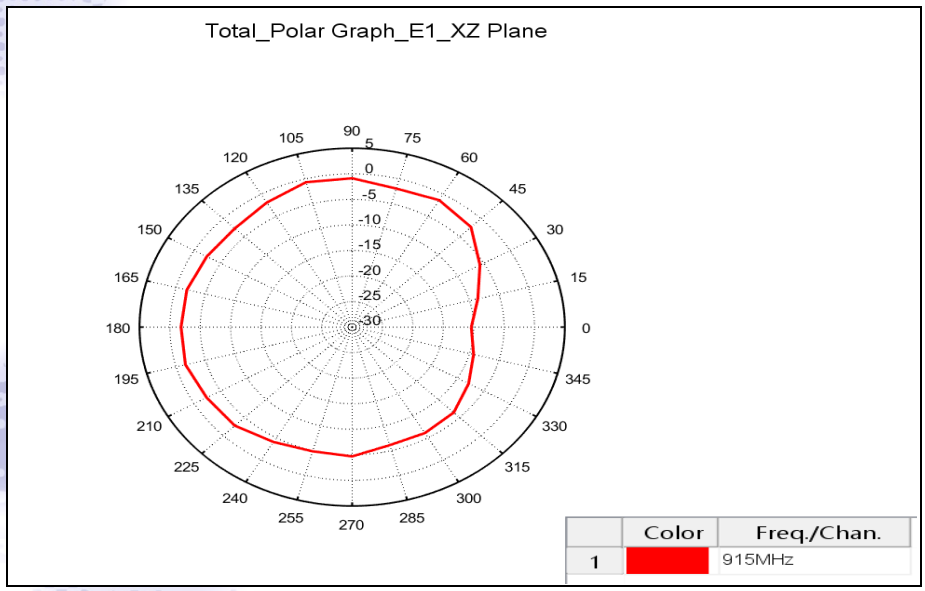
915 MHz (unit: dBi)



2D Radiation Gain Patterns





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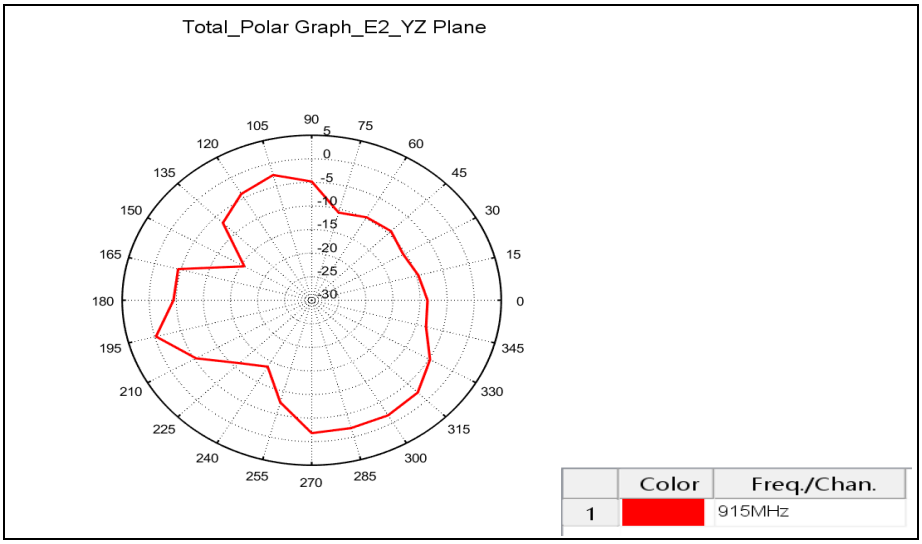
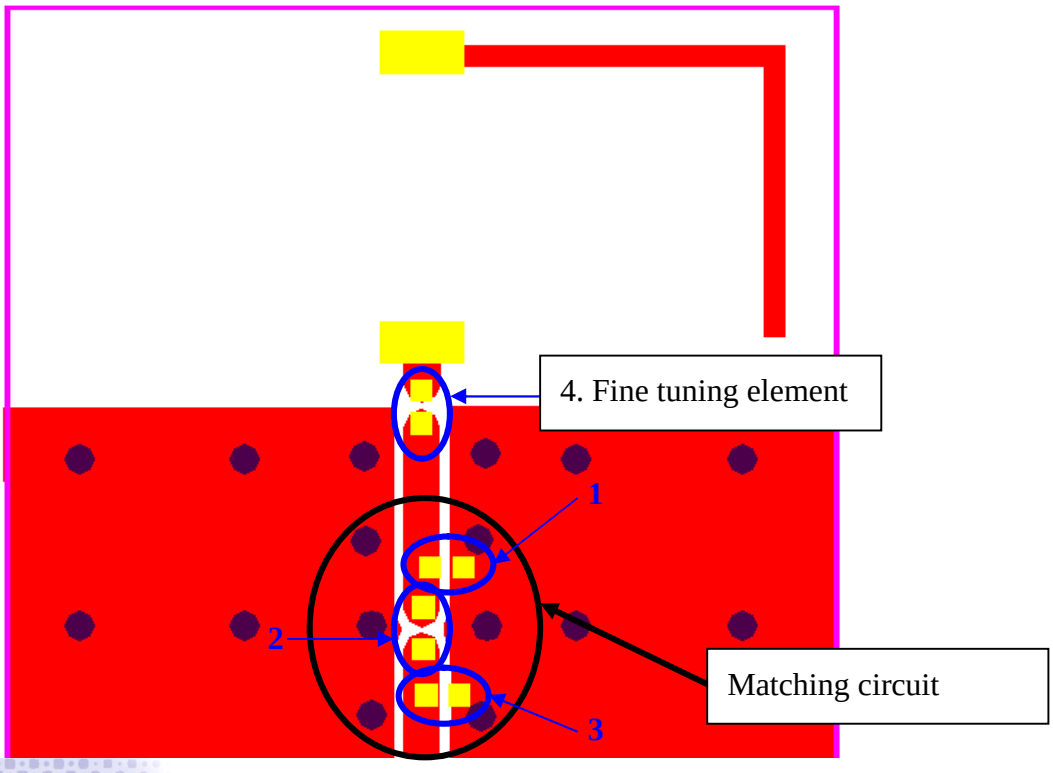


VI. Frequency tuning:



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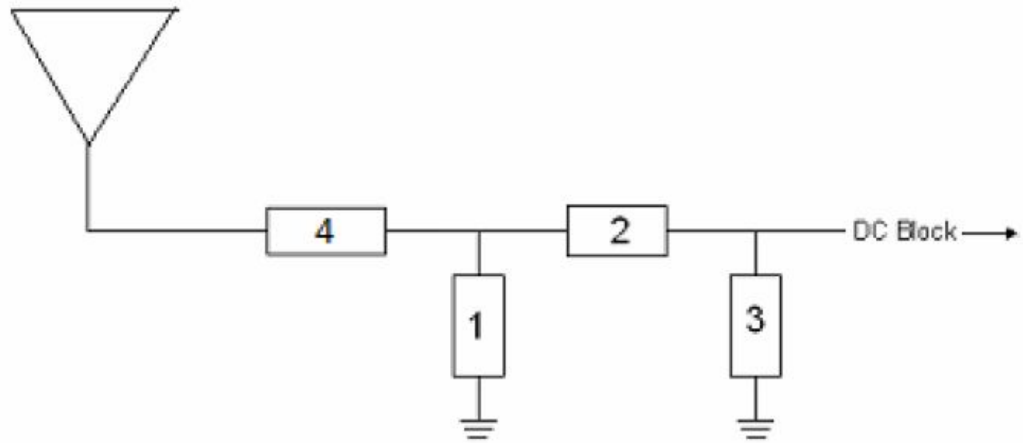
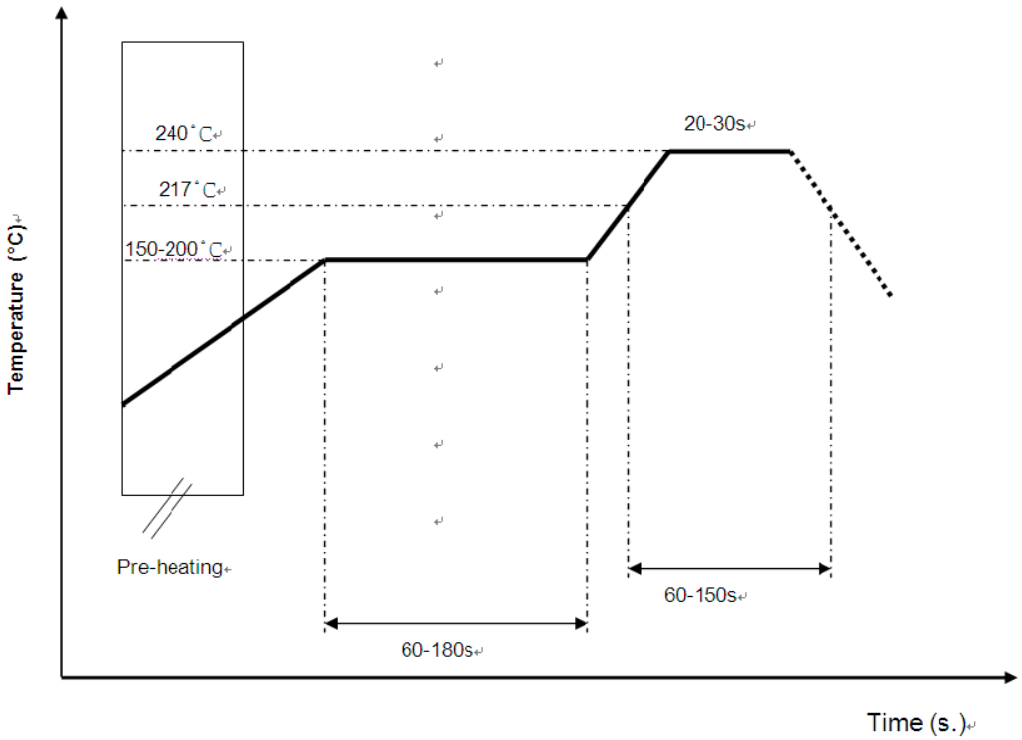


System Matching Circuit Component			
Location	Description	Vendor	Tolerance
1	N/A	-	-
2	0Ω, (0402)	-	-
3	N/A	-	-
4 Fine tuning element	18nH, (0402)	MURATA	±5%

VII. Soldering conditions:

Typical Soldering Profile for Lead-free Process



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

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℃ to 85℃

(3) Relative Humidity**:** 10% to 70%

b) Storage (sealed)

(1) Storage Temperature**:** -5℃ to 40℃

(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℃ to 85℃

(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.

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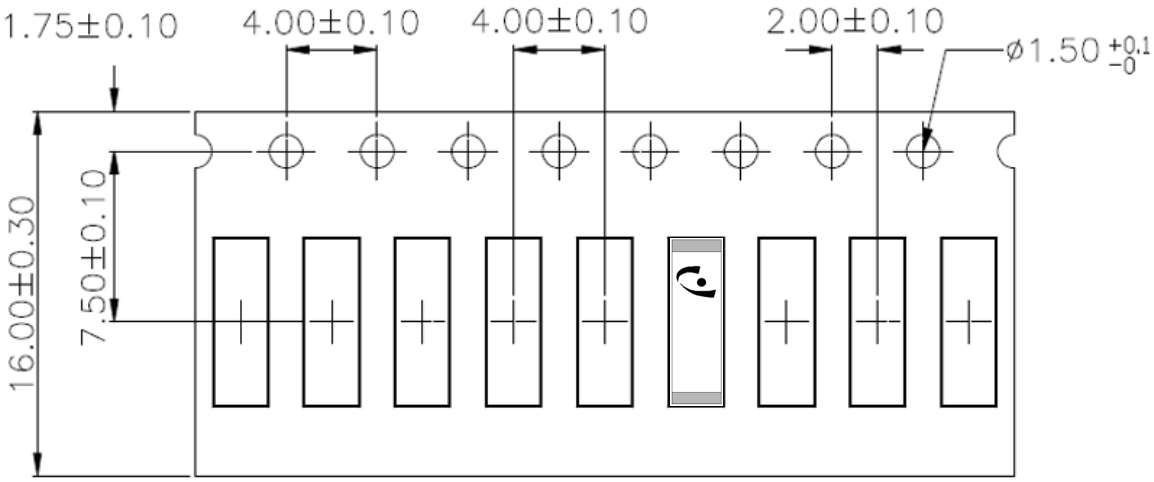
XI. Packing

(1) Unit Weight: 0.042±0.005(g) /pcs

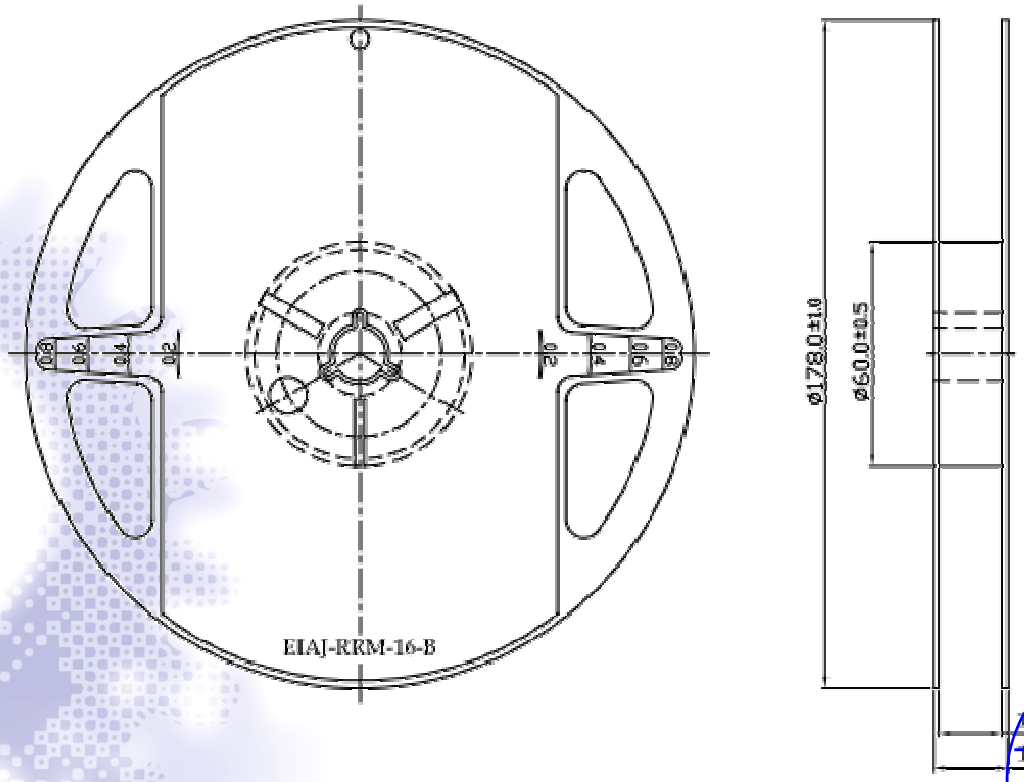
(2) Quantity/Reel: 3000 pcs/Reel

(3) Plastic tape: Black Conductive Polystyrene.

a. Tape Drawing (unit: mm)



b. Reel Drawing (unit: mm)



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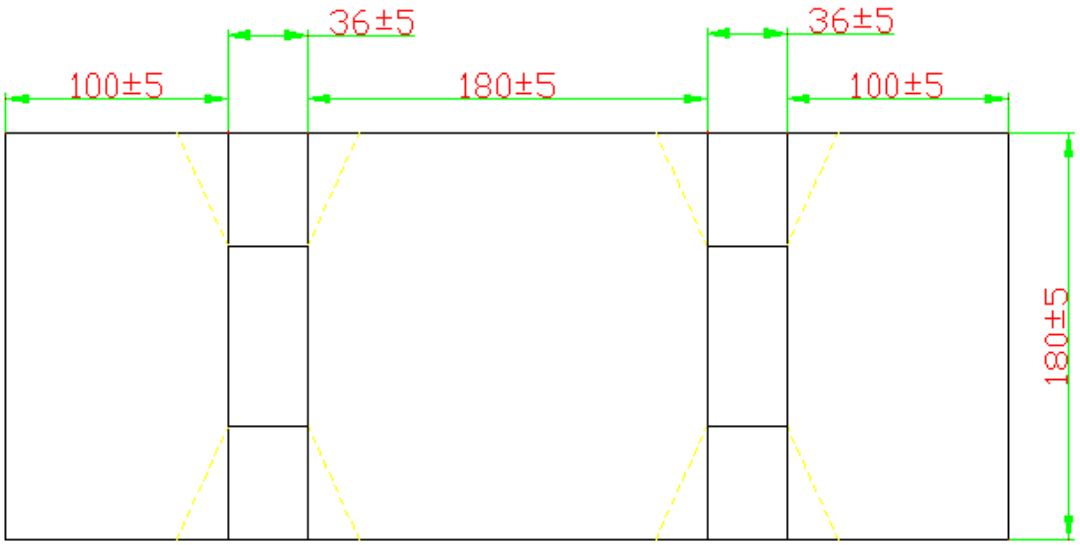
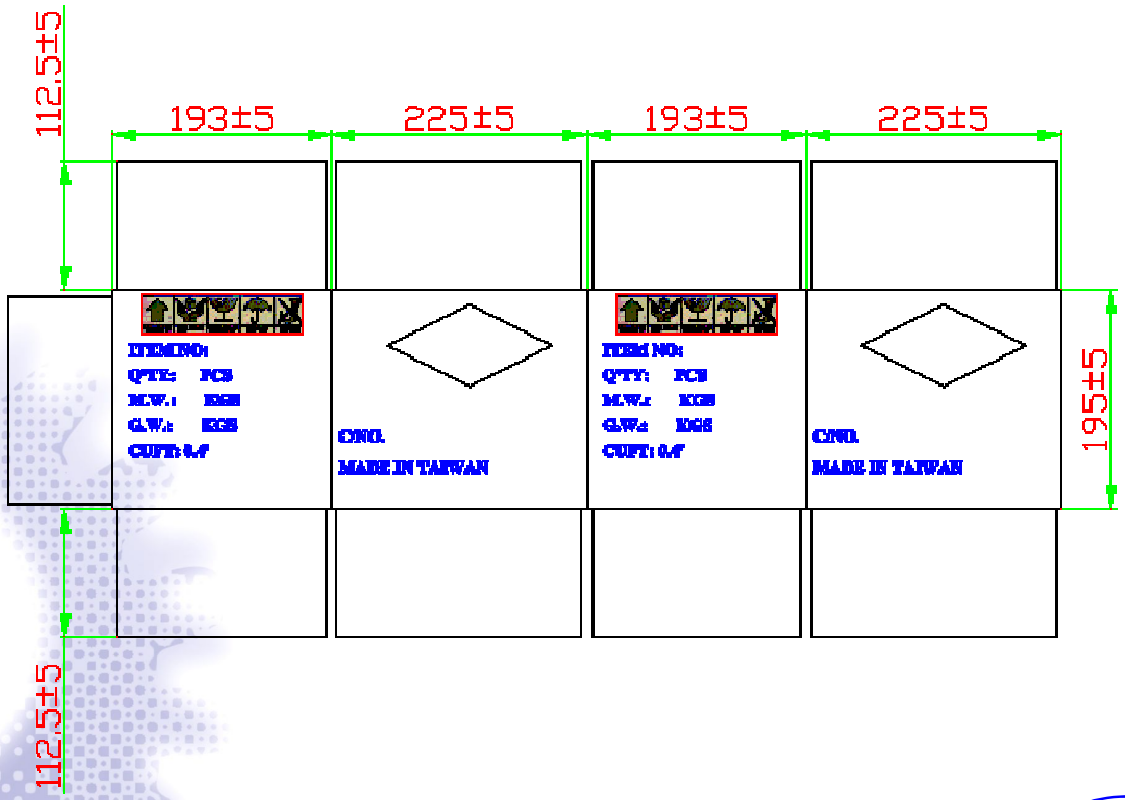
c. Drawing of small size carton in developed view



d. Drawing of middle size carton in developed view



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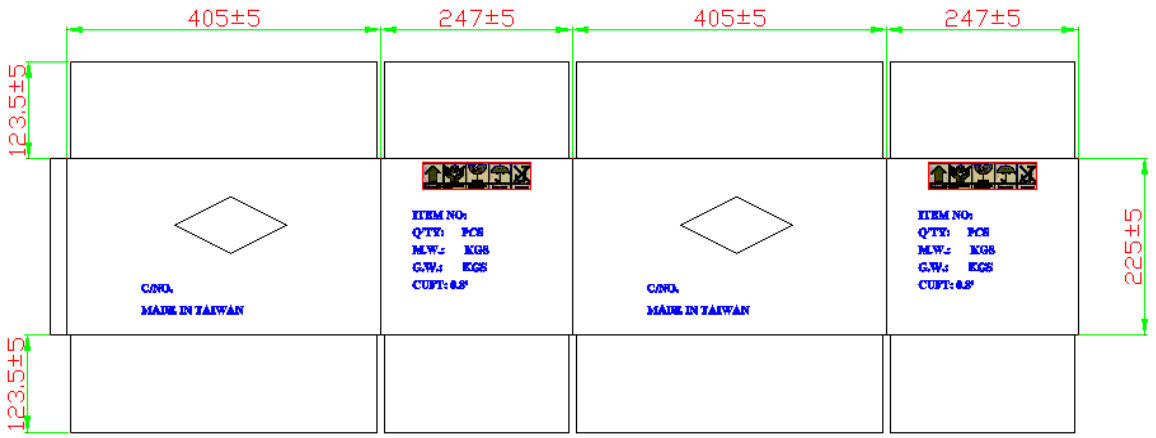
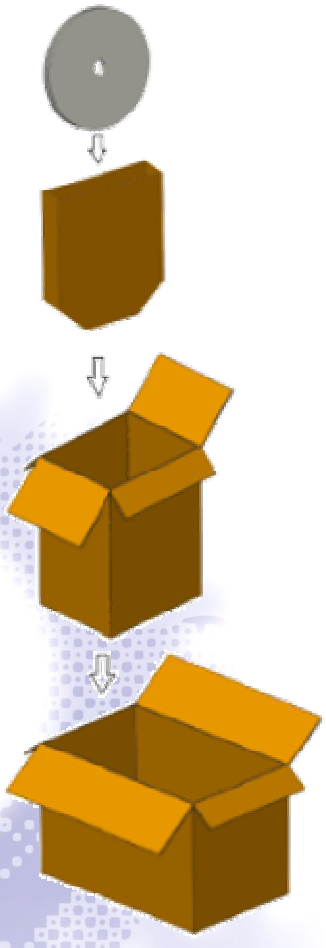
e. Drawing of large size carton in developed view



f. Process of packing



1 reel includes **3,000** pcs(max.) chip antennas

1 small size carton includes 1pcs(max.) reels

1 middle size carton includes 5pcs(max.) small catons

1 large size carton includes 2pcs(max.) middle cartons

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