

APPROVAL SHEET

Antenna TYPE : Dielectric Chip Antenna

Model : 한화비전 Body Cam

Application : Dual Wi-Fi

Amotech P/N : AMAN1003015HV01

한화비전	Checked	Checked	Approved
	/	/	/



AMOTECH	Written	Checked		Approved
				
Job Part	Antenna Eng.	Production Eng.	Quality Eng.	Director
Name	KM LEE	TH KIM	DH AN	HJ KWON
Date	2025. 06. 24	2025. 06. 24	2025. 06. 24	2025. 06. 24

2025. 06. 24

AMOTECH Co., Ltd.

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1. Revision history

Rev No	Date	Content	Approver
0	2025. 06. 24	New	

2. Specifications

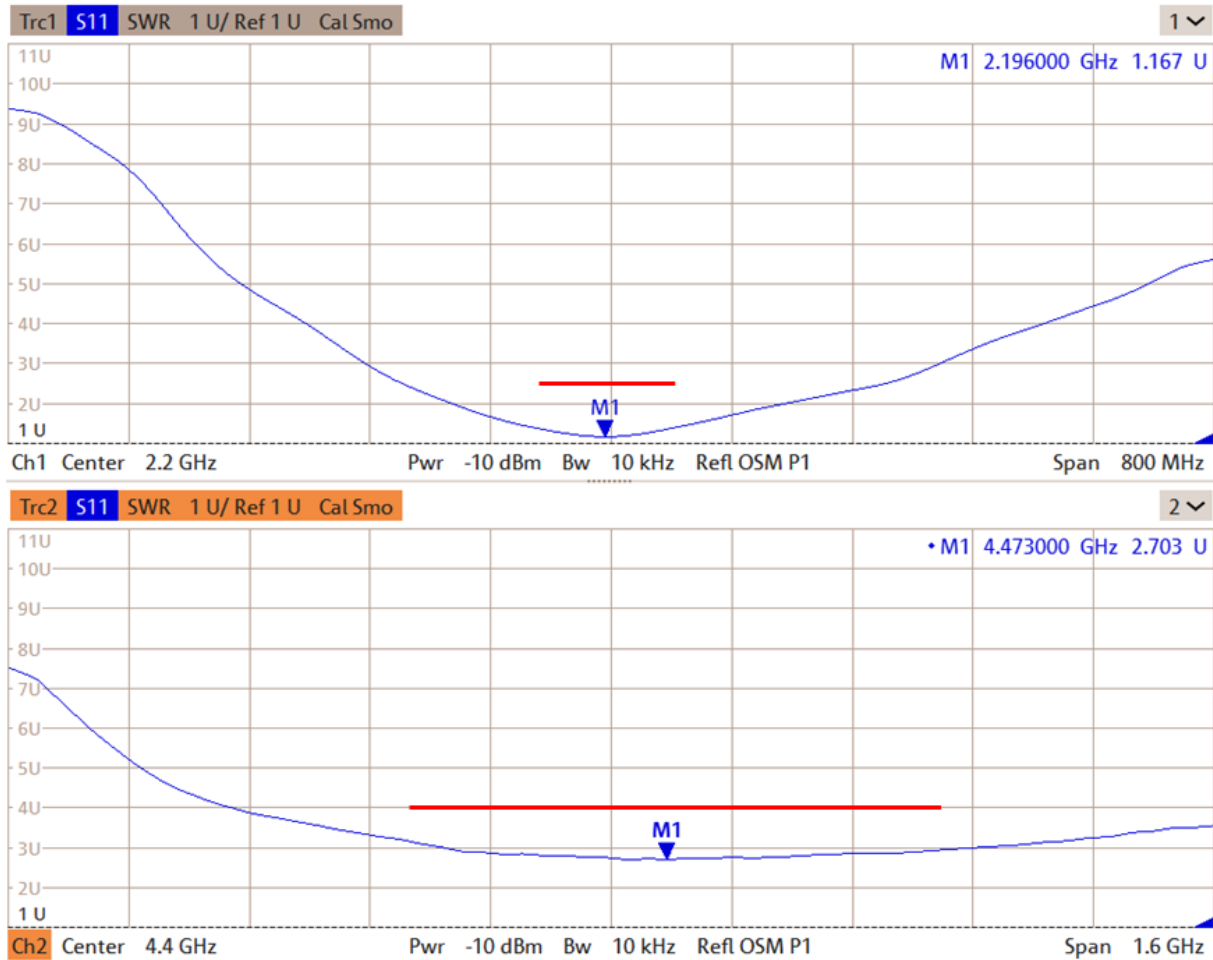
2.1 Electrical specification on the measurement JIG

No	ITEM	Spec	Remark
1	VSWR	Max 2.5:1 @2155~2239 MHz	Inspection
		Max 4.0:1 @4123~4823 MHz	

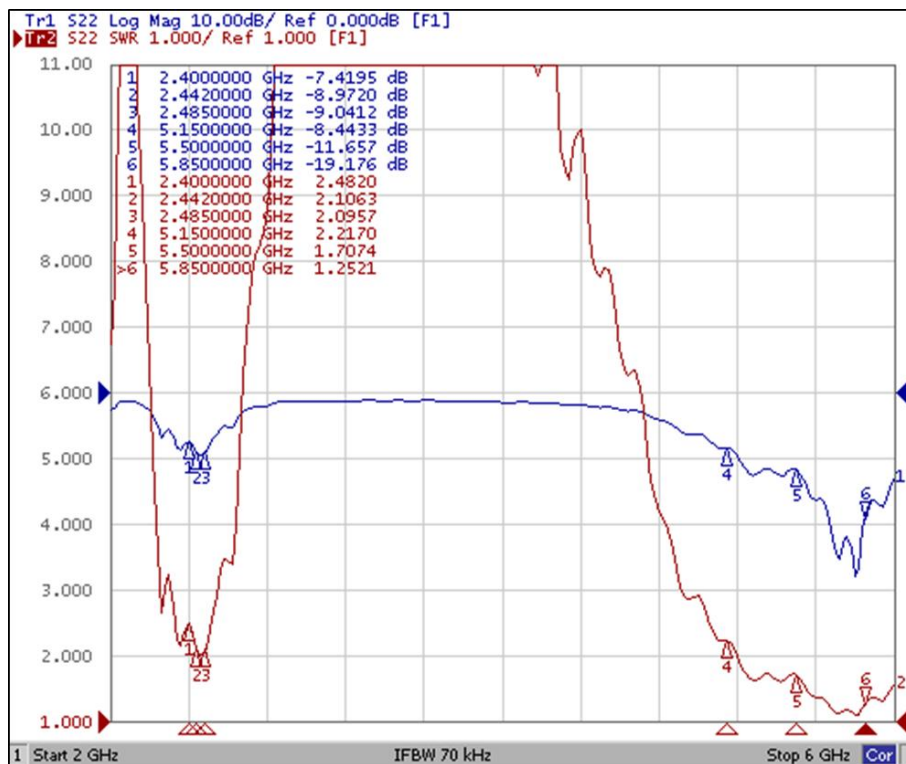
2.2 Electrical specification on the Set

No	ITEM	Spec			Remark
1	VSWR	Max 3.0:1 @ 2400~2485 MHz			Measured Data (on the Set)
		Max 3.0:1 @ 5150~5850 MHz			
2	Radiation Gain	Average [dBi]	2400 MHz	typ. -3.08	
			2442 MHz	typ. -3.78	
			2485 MHz	typ. -3.93	
			5150 MHz	typ. -3.40	
			5500 MHz	typ. -2.63	
			5850 MHz	typ. -2.58	
		Effency [%]	2400 MHz	typ. 49.2	
			2442 MHz	typ. 41.8	
			2485 MHz	typ. 40.5	
			5150 MHz	typ. 45.7	
			5500 MHz	typ. 54.5	
			5850 MHz	typ. 55.2	
		Peak [dBi]	2400 MHz	typ. 0.75	
			2442 MHz	typ. 1.09	
			2485 MHz	typ. 0.97	
			5150 MHz	typ. 1.48	
			5500 MHz	typ. 2.95	
			5850 MHz	typ. 3.24	
3	Radiation Pattern	Omni-directional			
4	Impedance	Nominal 50 Ω			

2.3 VSWR [On the measurement jig / On the set]

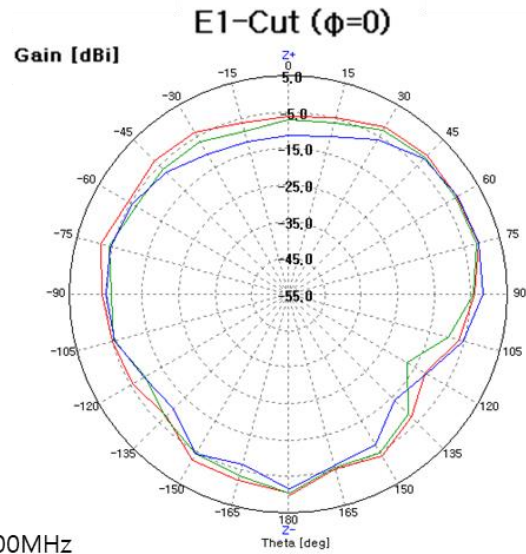
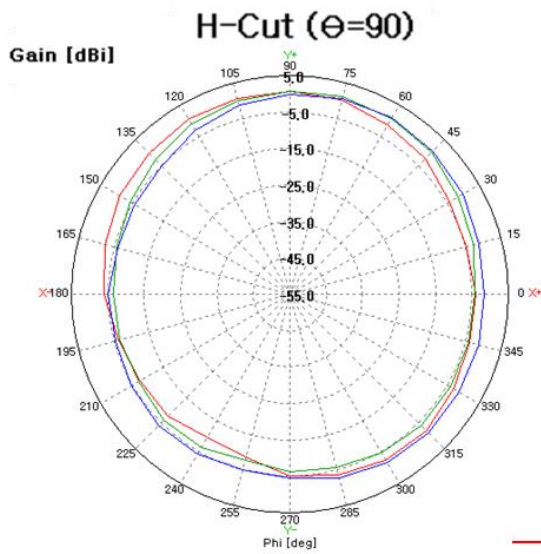


[VSWR on the measurement jig]

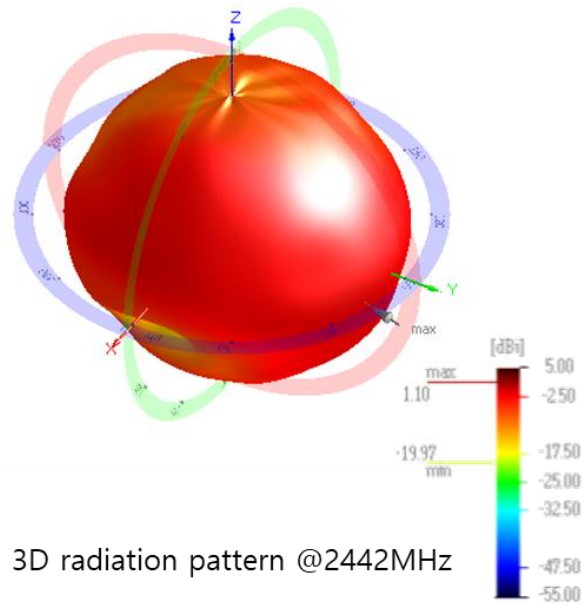
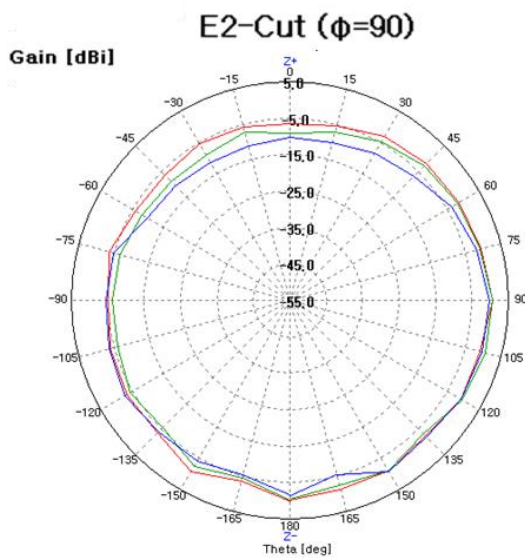


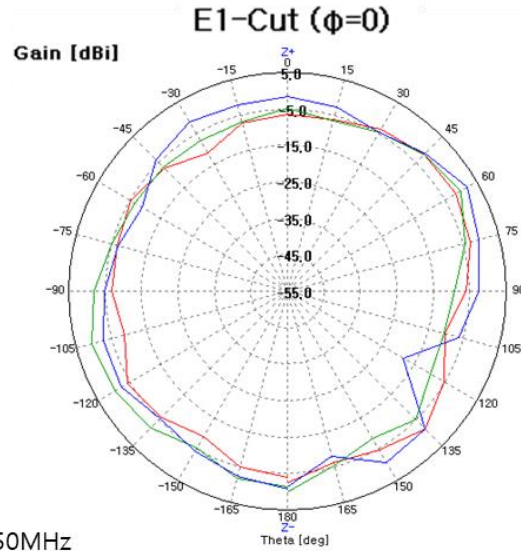
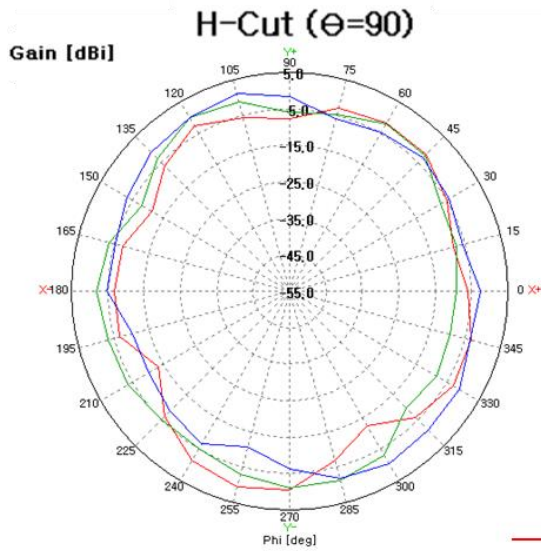
[VSWR on the measurement EVB]

2.4 Radiation Pattern [On the set]

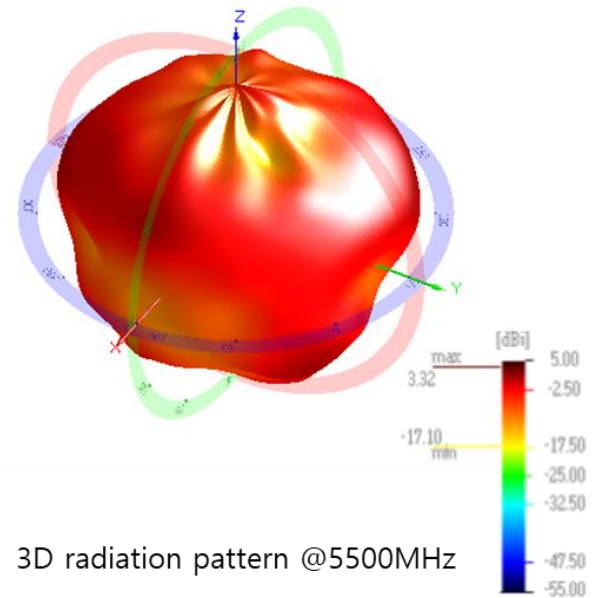
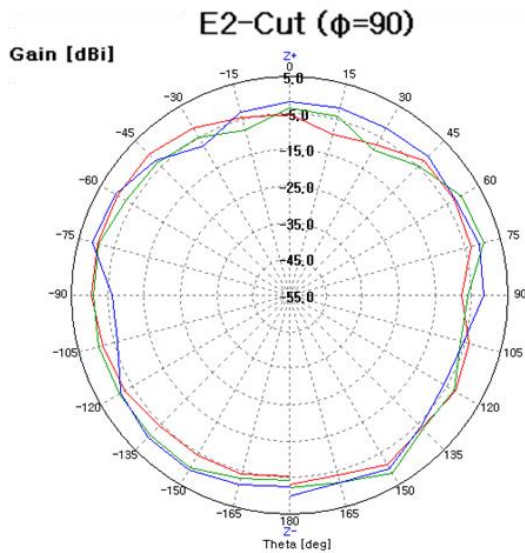


— 2400MHz
— 2442MHz
— 2485MHz





— 5150MHz
— 5500MHz
— 5850MHz

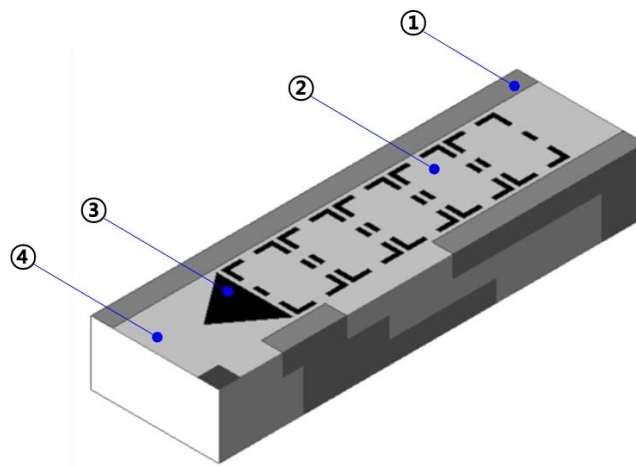


2.5 Mechanical specification

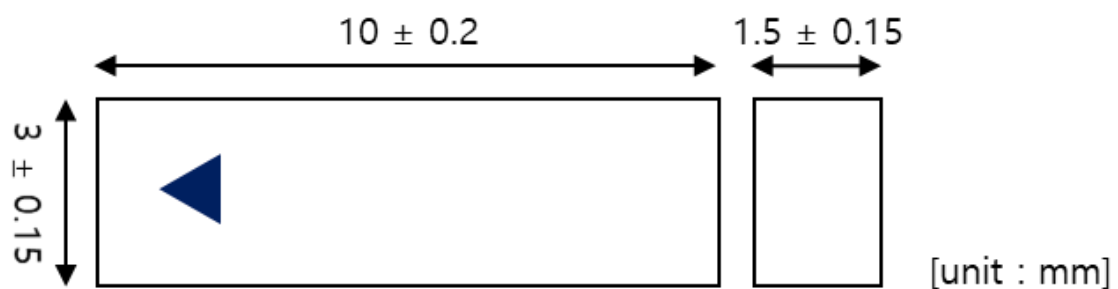
No	Part	Specification	Remark
[1]	Dimensions	10 x 3 x 1.5 mm ³	
[2]	Unit weight	Typ. 0.15 g	
[3]	Operating temperature	-40 ~ 85 °C	

2.6 Appearance and material

No	Part	Function	Material
[1]	Electrode	Radiation Element	Ag
[2]	Marking	Manufactured data	Ink
[3]	Marking	Feeding direction	Ink
[4]	Ceramic body	Antenna body	ceramic



2.7 Drawing



2.8 Part No. and Lot No. information

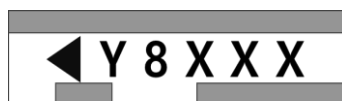
Part No.	<u>AMAN</u>	<u>1003015</u>	<u>HV</u>	01
	(1)	(2)	(3)	(4)

- (1): **AMOTECH ANTENNA**
 (2): Antenna size (L x W x H)
 (3): **Hanhwa Vision**
 (4): Product No.

	<u>XX</u>	<u>XX</u>	<u>X</u>	<u>X</u>	<u>XX</u>
Lot :	(1)	(2)	(3)	(4)	(5)

- (1): Year of forming corpuscule
 (2): Month of forming corpuscule
 (3): Dielectric constant ex) 1: 9.5, 2: 20.5
 (4): Chip body size ex) U: 1003030
 (5): Production number of month

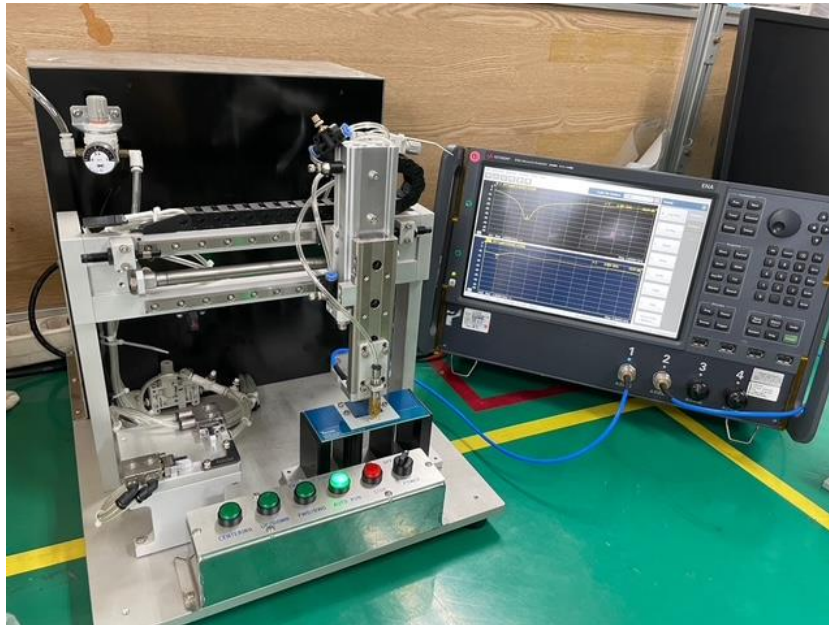
2.9 Marking information



<u>Y8</u>	<u>X</u>	<u>X</u>	X
(1)	(2)	(3)	(4)

- (1): Model No.
 (2): Year of manufacture
 (3): Month of manufacture ex) A: January, B: February, C: March
 (4): Date of manufacture ex) 1~9: 1~9 day, A~W: 10~31day

3. Measurement Method



A) Calibrate Network Analyzer Port

- Refer to electrical specification
- Low : Center 2200MHz, Span 800MHz, Number of point 801
- High : Cener 4400MHz, Span 1600MHz, Number of point 1601
- Calibrate RF cable

B) Connect Antenna cable to the manual jig

B-1) Set FORMAT of network analyzer in VSWR (SWR)

B-2) Read the value of VSWR, after setting MARKER1, MARKER2

※ Marker 1 is the VSWR max value in the low band.

※ Marker 2 is the VSWR max value in the high band.

C) Verify that the value of VSWR is within specification

※ If the product is defective, [Fail] message will be appears on the display.

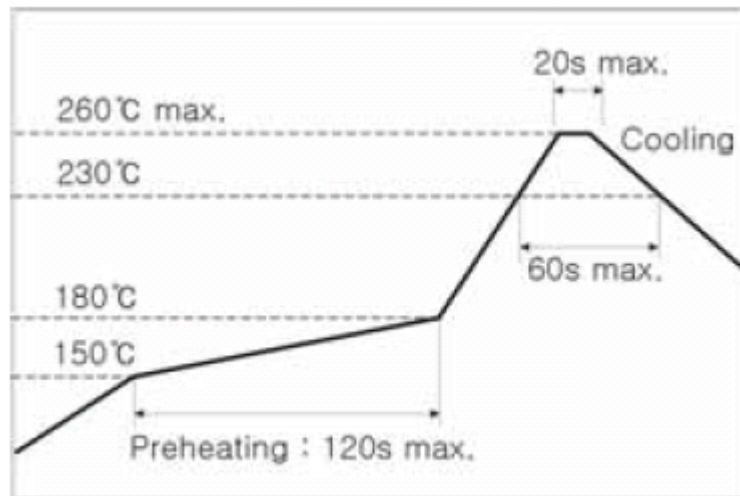
4. Reliability Test Condition

No	Test Items	Test Condition	Criteria
1	High Temperature Exposure	1. +85°C, 96Hr 2. Measure fc after left for 1hrs min. at room temperature.	1. No visual damage 2. Within electric spec (VSWR)
2	Low Temperature resistance	1. -40±3°C, 96 hrs 2. Measure fc after left for 1hrs min. at room temperature.	1. No visual damage 2. Within electric spec (VSWR)
3	Humidity	1. +80±3°C, 85%RH, 120Hr 2. Measure fc after left for 1hrs min. at room temperature.	1. No visual damage 2. Within electric spec (VSWR)
4	Thermal shock	1. -40°C/60min ↔ 85°C/60min, 30 Cycle 2. Measure fc after left for 1hrs min. at room temperature.	1. No visual damage 2. Within electric spec (VSWR)

5. Recommendations

5.1 Unleaded soldering temperature conditions (Pb-free)

Solder paste : Ag/Sn/Cu(3.0/96.0/0.5)



※ In order to prevent degradation of antenna characteristics, soldering conditions must be observed below.

- This product is designed for reflow soldering only. Do not use flow (wave) soldering.
- Use non-activated flux (CL content 0.2% max.)
- Reflow-cycle is max, 3 times.

5.2 PCB design guide



Antenna Top



Antenna Bottom

No	Pin Assignment
①	GND
②	Feeding
③	N/C
④	N/C (Connected Stub line)

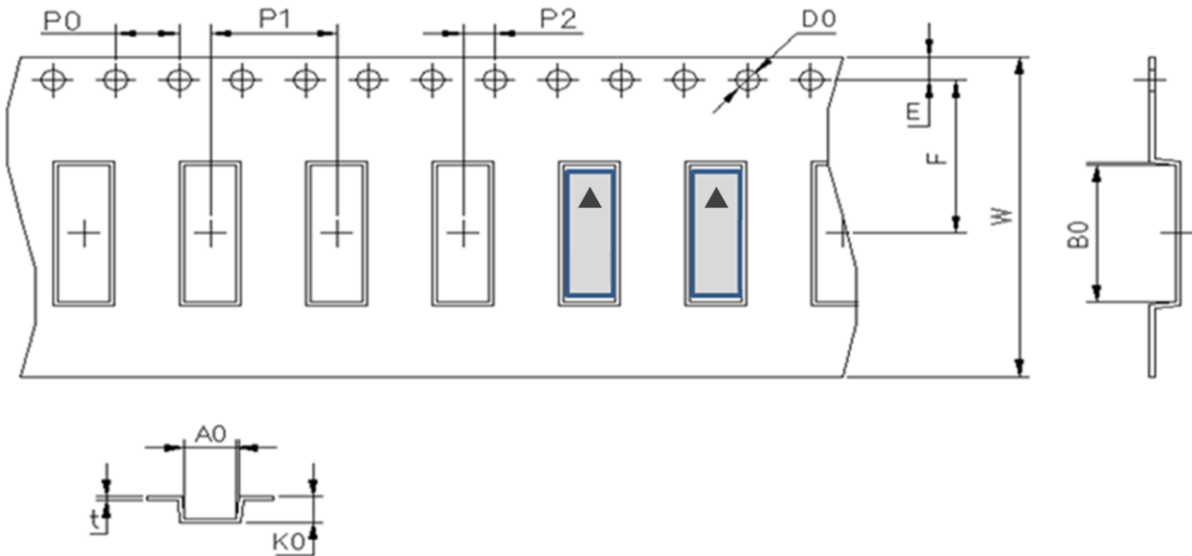
6. Notice

1. Storage environment of parts must be at ambient temperatures of 5 to 40 °C and maximum 60% RH humidity. (MSL Level 1)
2. Dielectric chip antenna must avoid high temperature & humidity, sulfur and chlorine gas leading to weaken solder-ability of electrode
3. Dielectric chip antenna must avoid any mechanical stress leading to crack of ceramic.
4. The parts should be used within 1year from the time of delivery.
If stored for over 1year, check for solder ability before use.
5. Tarnishing of the antenna pattern (Ag) before or after SMT process cannot any impact on the product performance, so AMOTECH accepts no warranty for tarnished product.

7. Packing

7.1 Carrier tape

7.1.1 Size



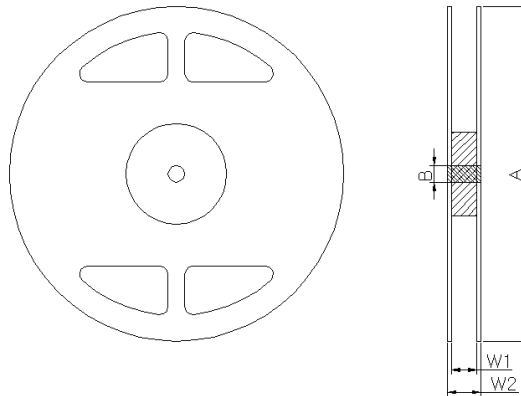
A0	3.30±0.10	P0	4.00±0.10	E	1.75±0.10
B0	10.30±0.10	P1	8.00±0.10	F	11.50±0.10
K0	1.65±0.10	P2	2.00±0.10	W	24.00±0.30
D0	1.55±0.05			t	0.30±0.05

7.1.2 Material surface resistance

- 1) Carrier tape: Max $10^{11}\Omega/\square$
- 2) Cover tape: Max $10^{11}\Omega/\square$
- 3) Reel: Max $10^{11}\Omega/\square$

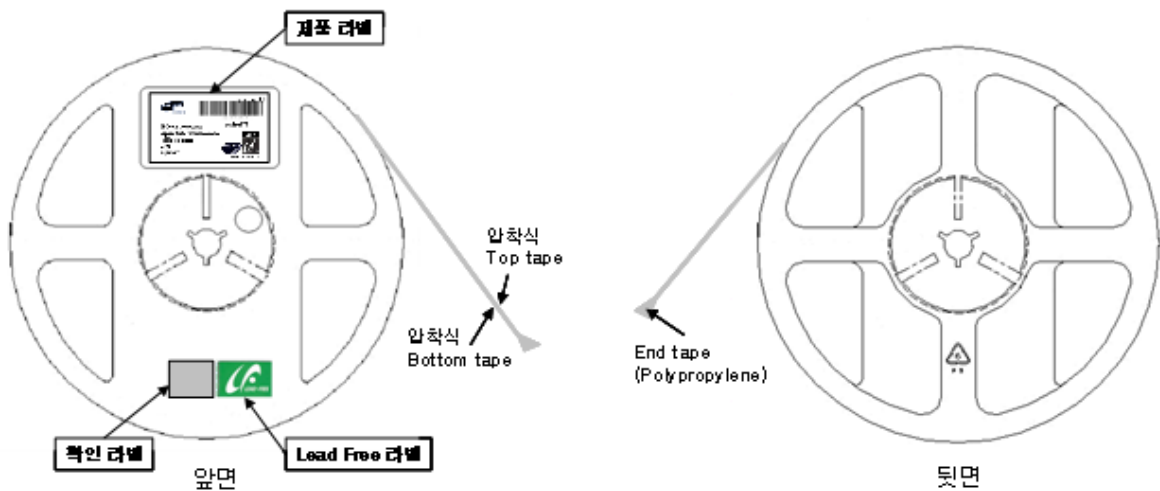
7.2 Reel

7.2.1 Size



A	$330 \pm 1 \text{ mm}$	W1	$25.5 \pm 1 \text{ mm}$
B	$13 \pm 0.2 \text{ mm}$	W2	$29.5 \pm 1 \text{ mm}$

7.2.2 Labeling and winding way



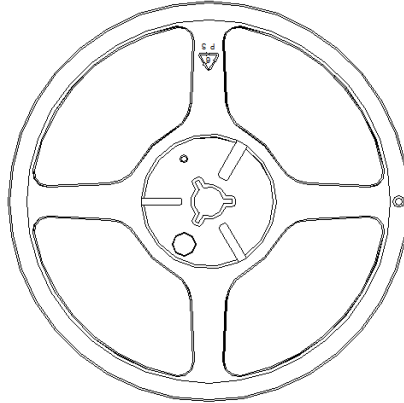
7.2.3 Materials

- 1) Plastic reel: GPPS (General Purpose Poly Styrene) resin

7.3 Box

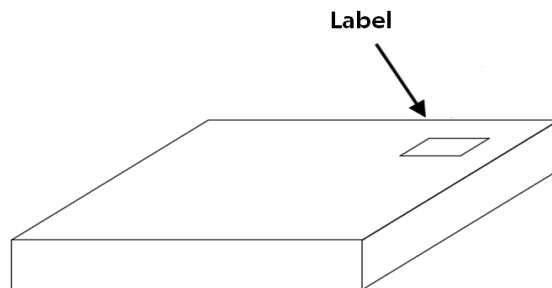
7.3.1 Reel

- 1) Size: $\Phi 13'' \times 24$ [mm]
- 2) Quantities: 4,000 ea



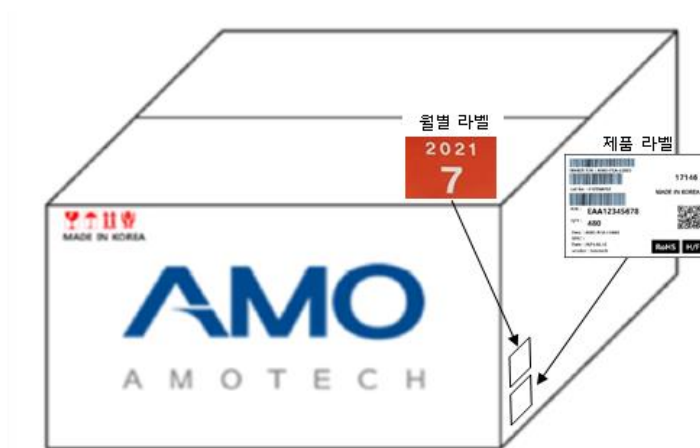
7.3.2 Inner box

- 1) Size: 350 (W) x 350 (D) x 55 (H) [mm]
- 2) Quantities: 4,000 ea (1 reel)



7.3.3 Outer box

- 1) Size: 390 (W) x 380 (D) x 205 (H) [mm]
- 2) Quantities: 12,000 ea (3 inner box)



7.4 Label

CUSTOMER	Hanwha Vision
I T E M	Dielectric Chip Antenna
M O D E L	AMAN1003015HV01
QUANTITY	
PART NO	
P/O NO	
SHIP DATE	
SUPPLIER	AMOTECH CO., LTD.. 5B – 1L Namdong industrial complex 617, Namchon – Dong, Namdong – Gu, Incheon – City, Korea TEL. 82 – 2 – 544 – 1351 FAX. 82 – 2 – 517 – 7183
MADE IN KOREA  	

AMOTECH CO., LTD. 5B – 1L Namdong industrial complex 617, Namchon – Dong Namdong – Gu, Incheon, Korea AMAN1003015HV01	
Type : Dielectric Chip Antenna	Date :
Lot No :	
Quantity :	
	

8. Manufacture site

Product	Manufacturer	Factory site / Location	Customer
AMAN1003015HV01	AMOTECH	Incheon / Korea	한화비전
		Vinh phuc / Vietnam	