

Data sheet of Dielectric Chip Antenna

**Part No. : AMAN542012
AMAN542015**

April 16, 2007

AMOTECH Co., LTD.

5B 1L, Namdong Industrial complex, 617 Namchondong, Namdonggu, Incheon, Korea

Notes

The contents of this data sheet are subject to change without notice. Please confirm the specifications and delivery conditions when placing your order.

1. SPECIFICATIONS

1.1 Electrical Specifications

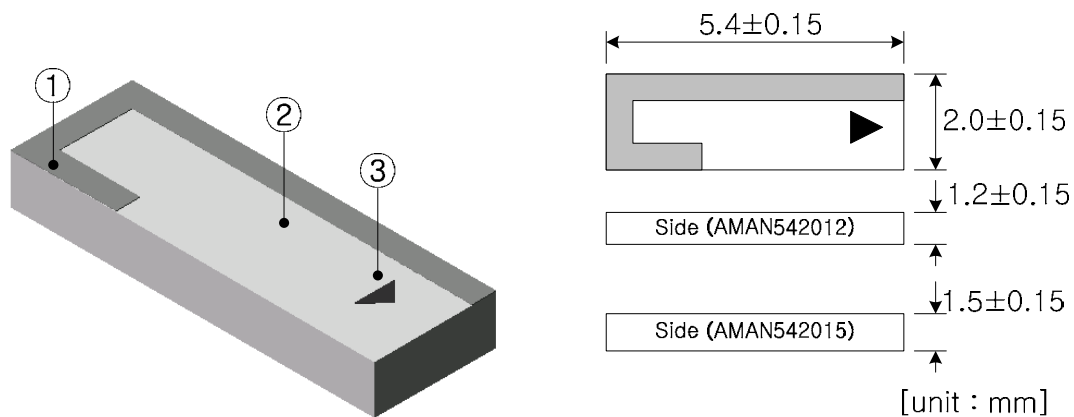
No	ITEM	SPEC.	Remark
1	Frequency Range	2.4 ~2.485 GHz	for ISM
2	VSWR	2.5 : 1 max.	
3	Gain	1.8 dBi .	
4	Polarization	Linear	
5	Azimuth Beam Pattern	Omni-directional	
6	Impedance	Nominal 50 Ω	

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

1.2 Mechanical Specifications

No	ITEM	Spec.	Remark
1	Electrode	Ag	Pb-free
2	Dimensions (L * W * H)	AMAN542012 5.4 * 2.0 * 1.2	mm
		AMAN542015 5.4 * 2.0 * 1.5	
3	Unit Weight	AMAN542012 50 \pm 5	mg
		AMAN542015 60 \pm 5	
4	Operating Temperature	-35 ~ +85	℃

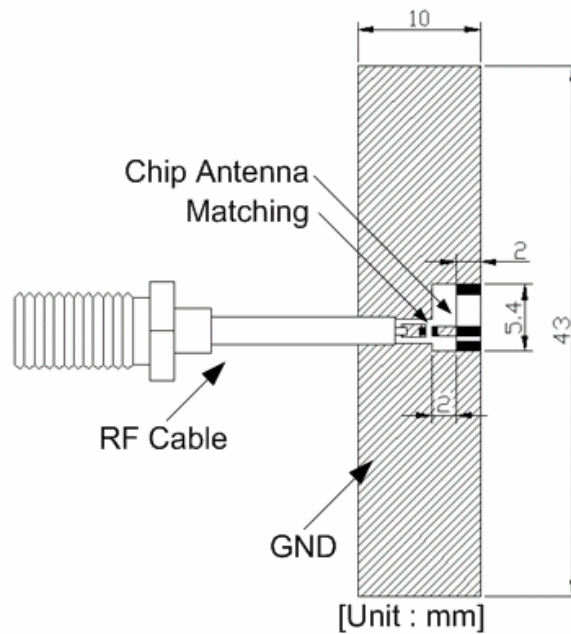
1.3 Appearance and Dimensions



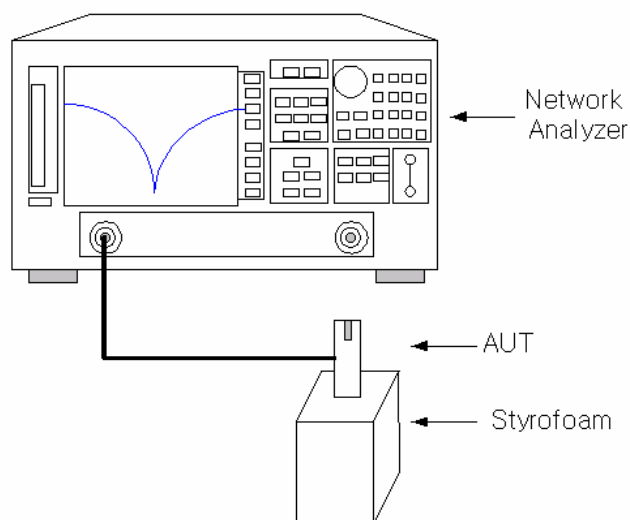
No	Name	Function	Material
1	Electrode	Radiation Element	Ag
2	Ceramic Body	-	Ceramic
3	Direction Index	Feeding Direction	

2. MEASUREMENT

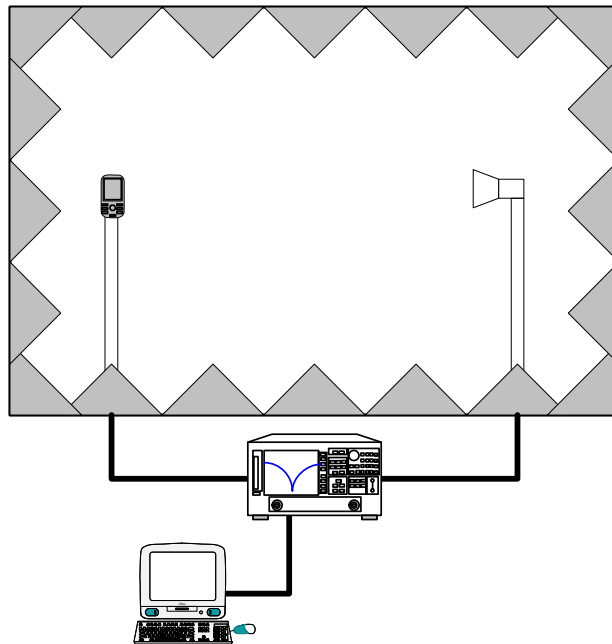
2.1 Reference Test Board for Measurement



2.2 Diagram for VSWR measurement



2.3 Diagram for radiation gain and pattern measurements

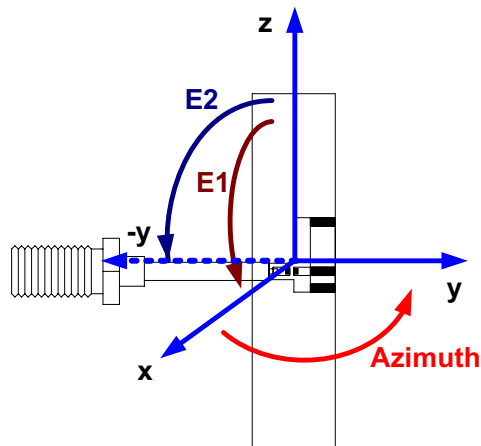


A. Anechoic chamber spec.

Parameters	Condition	Unit
Chamber size	8x4x4	m
Temperature	21.5	°C
Humidity	55	% RH
Measurement	S21 (8753ES)	
System software	Midas (Orbit/FR)	

B. Measurement coordinates

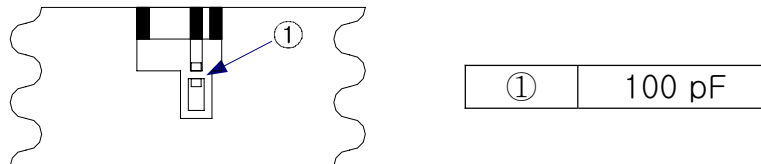
Measurement Plane	Symbol	Rotating direction
Azimuth	Azimuth	$x \rightarrow y$
Elevation1	E1	$z \rightarrow x$
Elevation2	E2	$z \rightarrow -y$



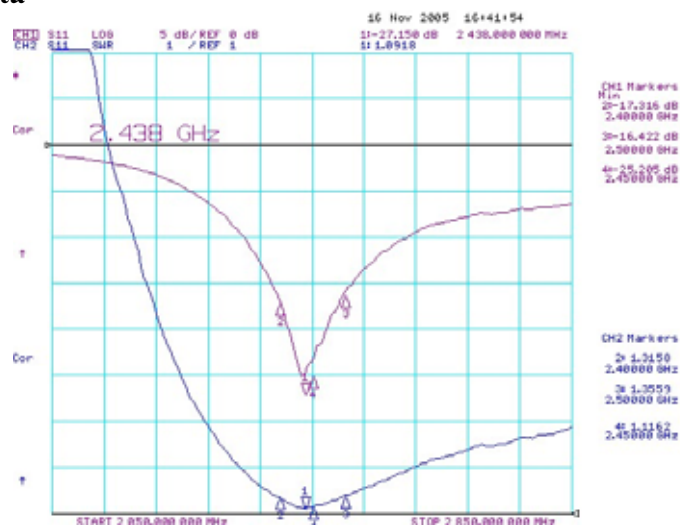
3. MEASUREMENT RESULT

3.1 VSWR & Smithchart

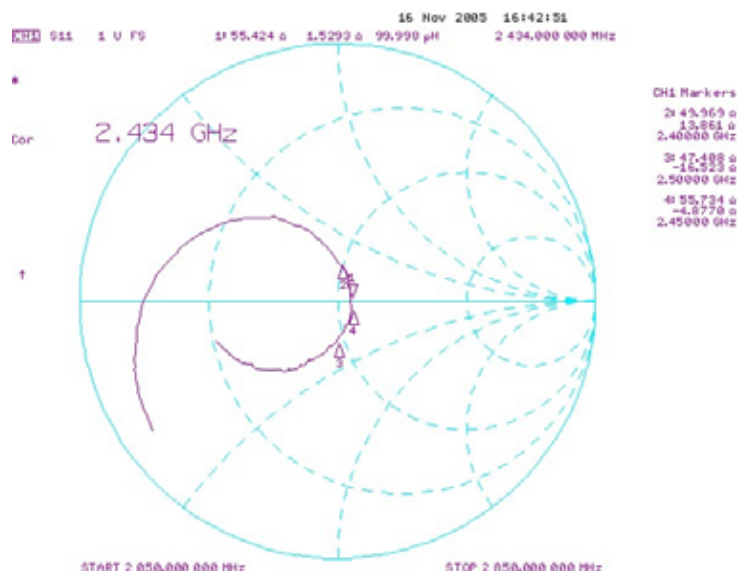
A. Matching Value (recommend for reference testboard only)



B. Measured data



[VSWR : AMAN542015 on the testboard]

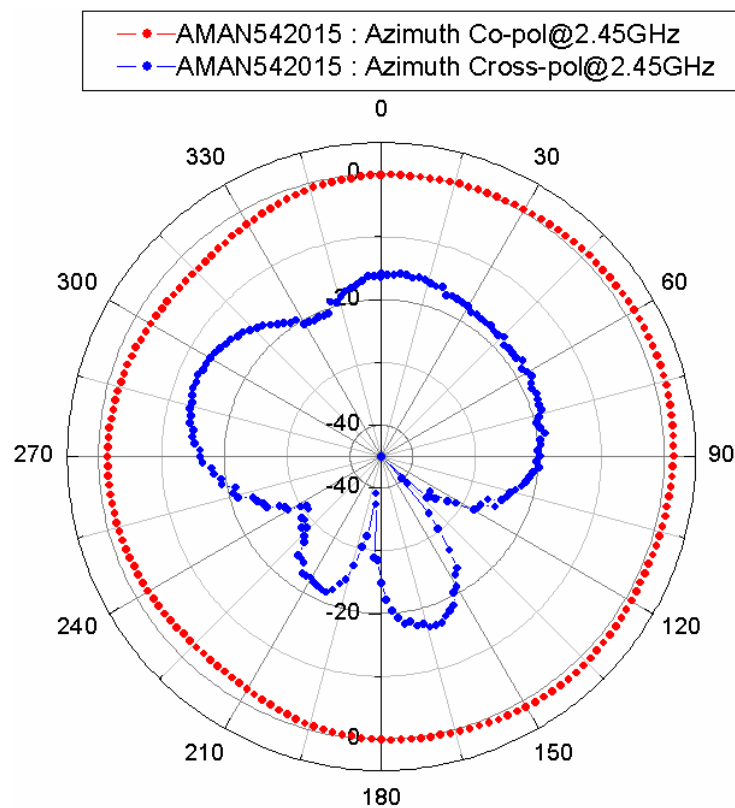


[Smithchart : AMAN542015 on the testboard]

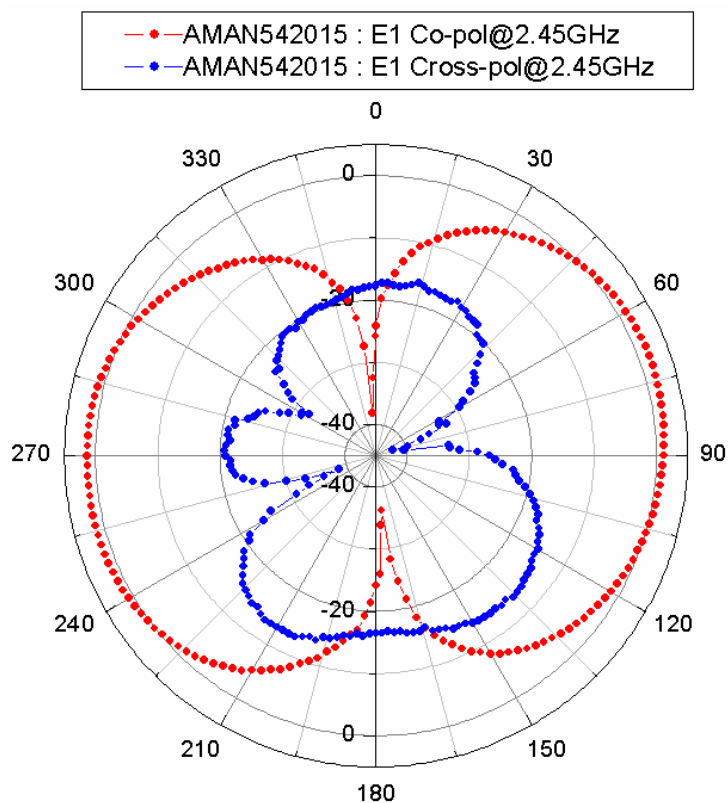
3.2 Radiation Gain and Pattern

[Measured data table]

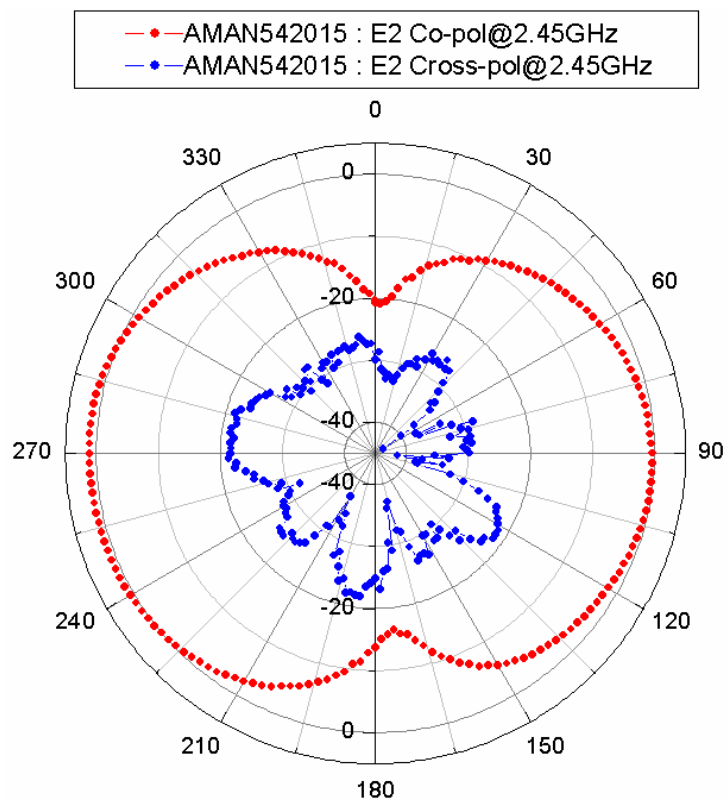
	Peak Gain [dBi]	Average Gain [dBi]	Remark
Azimuth	1.8	-0.2	@2.45 GHz
Elevation1	1.7	-1.9	@2.45 GHz
Elevation2	1.1	-2.0	@2.45 GHz



[Radiation pattern of AMAN542015: Azimuth@2.45GHz]

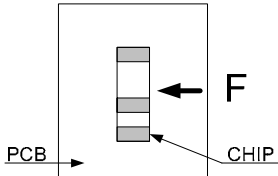


[Radiation pattern of AMAN542015: Elevation1@2.45GHz]



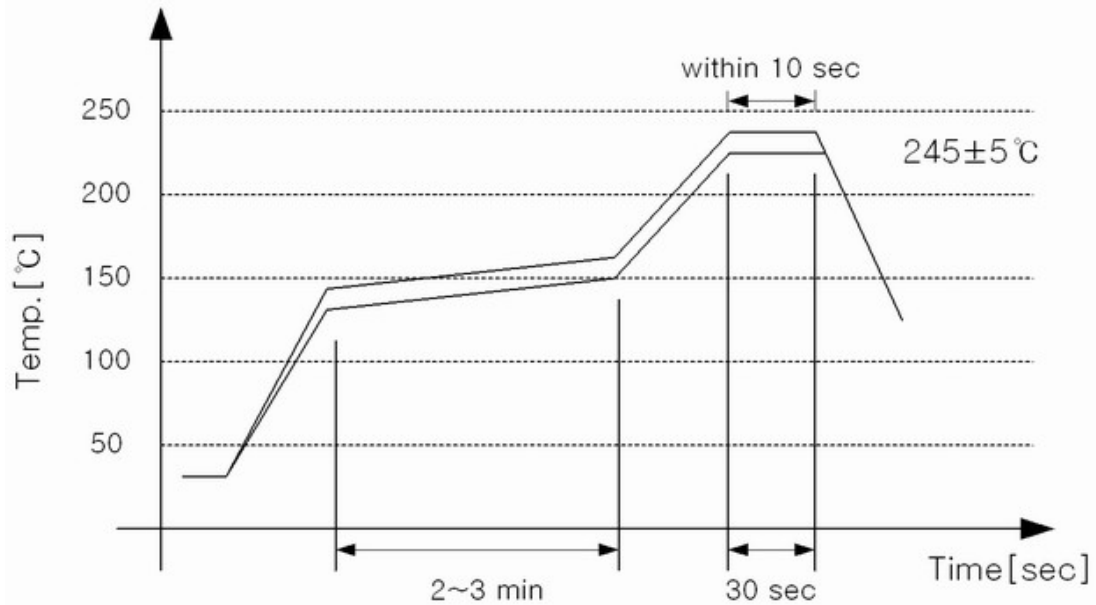
[Radiation pattern of AMAN542015: Elevation2@2.45GHz]

4. RELIABILITY TEST

No	ITEM	TEST CONDITION	TEST REQUIREMENTS
1	Adhesive Strength of Termination	<p>1. Applied force on SMD chip till detached point from PCB.</p> 	<p>1. No mechanical damage by forces applied on the right. 2. Strength (F) > 5 kgf</p>
2	Thermal Shock (Temperature Cycle)	<p>1. 1 cycle / step 1 : $-40 \pm 3^{\circ}\text{C}$, 30 min step 2 : $+125 \pm 3^{\circ}\text{C}$, 30 min 2. Number of cycle : 30 3. Measure after left for 48 hrs min. at room temperature</p>	<p>1. No visual damage 2. Within electric spec (VSWR)</p>
3	High Temperature Resistance	<p>1. Temperature : $+125 \pm 5^{\circ}\text{C}$ 2. Time : 1000 ± 24 hrs 3. Measure f_c after left for 24 hrs min. at room temperature</p>	<p>1. No visual damage 2. Within electric spec (VSWR)</p>
4	Low Temperature Resistance	<p>1. Temperature : $-40 \pm 5^{\circ}\text{C}$ 2. Time : 1000 ± 24 hrs 3. Measure f_c after left for 48 hrs min. at room temperature</p>	<p>1. No visual damage 2. Within electric spec (VSWR)</p>
5	Humidity (Steady Condition)	<p>1. Humidity : 85 % RH 1. Temperature : $+85 \pm 3^{\circ}\text{C}$ 2. Time : 1000 ± 24 hrs 3. Measure f_c after left for 48 hrs min. at room temperature</p>	<p>1. No visual damage 2. Within electric spec (VSWR)</p>

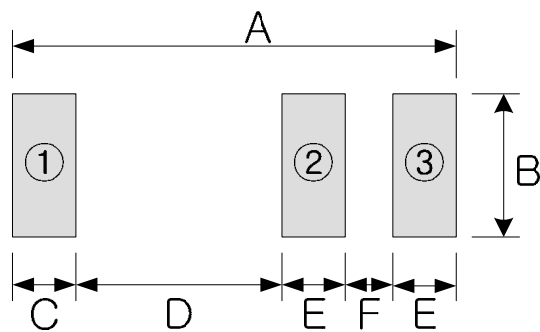
5. SOLDERING RECOMMENDATIONS

5.1 Reflow Soldering Profile



[Soldering Reflow Profile for Pb-free]

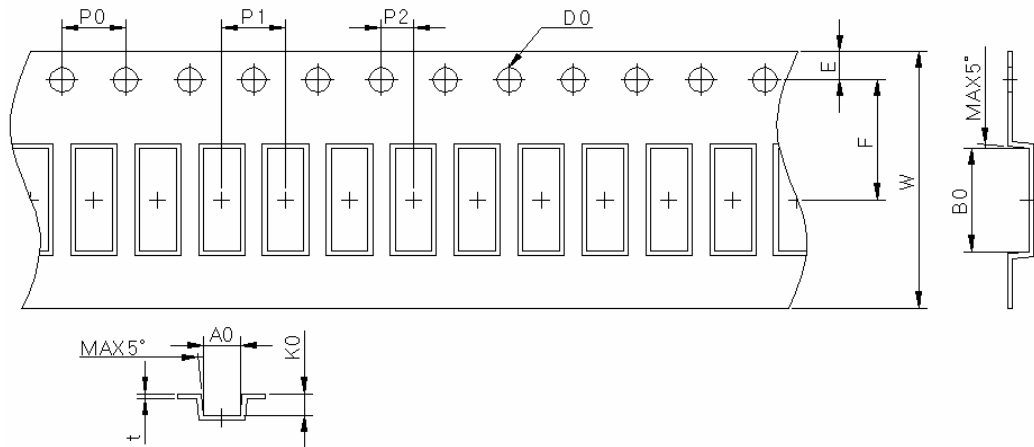
5.2 Soldering Land Pattern



Item	Dimension [mm]	Item	Function
A	5.4	①	GND
B	2.0	②	Feeding
C	0.8	③	GND
D	2.6	—	—
E	0.75	—	—
F	0.5	—	—

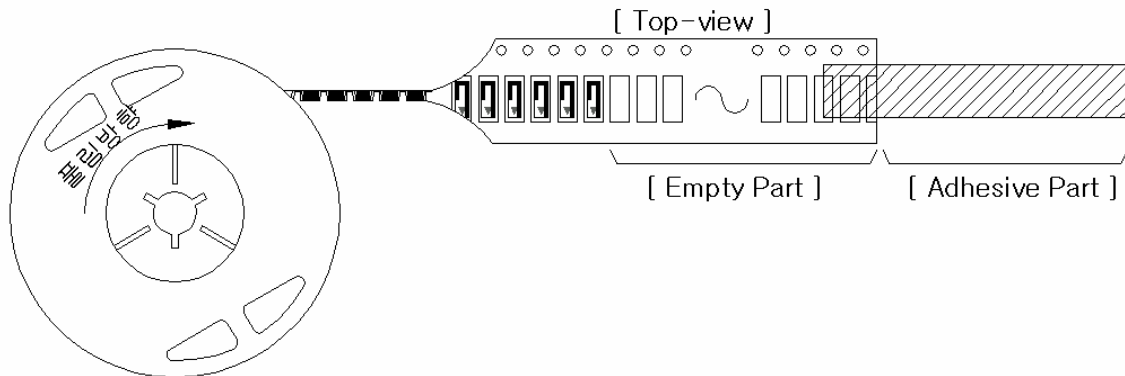
6. PACKING

6.1 Tape Dimension (unit : mm)



A0	2.20 +0.00/-0.10	P0	4.00±0.10	E	1.75±0.10
B0	5.60 +0.00/-0.10	P1	4.00±0.10	F	7.50±0.10
K0	1.65±0.10	P2	2.00±0.10	W	16.00±0.30
D0	1.55±0.05			t	0.30±0.05

6.2 Taping Style



6.3 Packing Unit

	Quantity	Size
Reel	2,000 ea	Φ7" * 16mm
Small Box	6,000 ea (3 reel*2,000ea/reel)	185 * 185 * 68 (mm ³)
Middle Box	30,000 ea (5 small box*6,000ea/small box)	365 * 200 * 200 (mm ³)
Large Box	84,000 ea (14 small box*6,000ea/small box)	390 * 390 * 280 (mm ³)

6.4 Description of Packing Label

<p>AMOTECH CO.,LTD. 617 5B 1LT, Namchon-Dong, Namdong-Gu, Incheon, Korea <u>Dielectric Chip Antenna</u> Type : AMAN542015□□△△ Lot No : Quantity : 2,000 pcs Date : 2006/01/24</p>
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AMOTECH CO., LTD.

Name of Company

617 5B 1LT, Namchon-Dong, Namdong-Gu, Incheon, Korea

Address of Manufacture

Dielectric Chip Antenna

Name of Component

Type : AMAN542015□□△△

AMAN : Amotech LTCC Antenna

542015 : Chip Size

□□△△ : Customer & Part S/N

Quantity : 2,000 pcs

Quantity : 2,000 pcs

Date : 2006/01/24

Date : 2006 /01/24

7. STORAGE CONDITION

- A. Storage environment must be at an ambient temperature of 15~35℃ and an ambient humidity of 45~75 % RH. (MSL Level 2)
- B. Chip antenna can experience degradation of termination solderability when subjected to high temperature of humidity, or if exposed to sulfur or chlorine gases.
- C. Avoid mechanical shock (ex. falling) to the chip antenna to prevent mechanical cracking inside of the ceramic dielectric due to its own weight.

