

承認圖號

# 承 認 書

## SPECIFICATION FOR APPROVAL

客 戶：亞旭電腦股份有限公司

Customer

料 號：CAN4311115002451K

Part No.

產品名稱：MULTILAYER CERAMIC ANTENNA FOR BLUETOOTH & WLAN IEEE 802.11b  
(2.45G Hz ISM Band) (Long Shape)

Commodity

型 別：Ceramic

Type / Model

貴公司承認印

Approval Signatures

日期：Date

承認後請寄回本承認書一份

Please return one copy with your approval

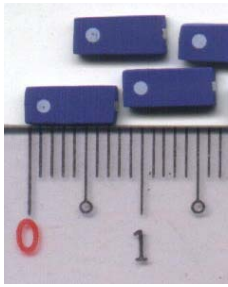
國巨股份有限公司 台北縣新店市寶橋路233-1號3樓 3F, 233-1, Pao Chiao Rd., Hsin Tien, Taipei, Taiwan t. 886.2.2917.7555 f. 886.2.2917.0148

Innovative Service Around the Globe **YAGEO**

**MULTILAYER CERAMIC ANTENNA  
FOR BLUETOOTH & WLAN IEEE 802.11b (2.45G Hz ISM Band)  
(Long Shape)**

**Product Specification<sup>1</sup>**

**QUICK REFERENCE DATA**

Dimension	7.8* 3.6 * 0.9 mm	
Central Frequency*	2.45 GHz	
Bandwidth	>100 MHz	
Gain	2.5 dBi max	
VSWR	2.0 max	
Polarization	Linear	
Azimuth	Omni-directional	
Impedance	50Ω	
Operating Temperature	-55~125 °C	
Termination	Ni/Sn (Environmentally-Friendly Leadless)	
Resistance to soldering heats	260°C, 10 sec.	
Maximum Power	1W	

\* Three types of antenna are available for central frequency adjustment (type 245, type 260, type 270)



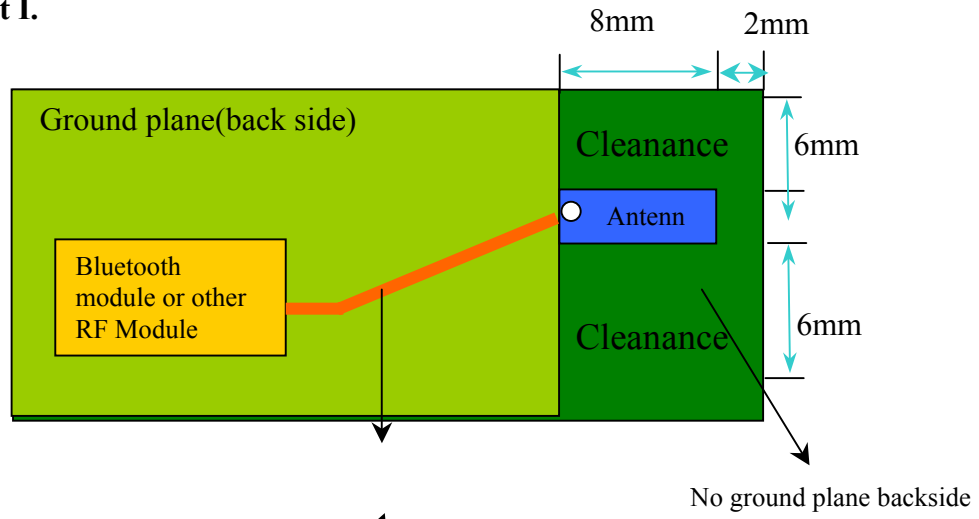
*Special Environmental Concerns- Green Products Design: The foil making process is using environmentally-friendly aqueous solvent technology. Termination is lead free (Pb free) and packing materials can be re-cycled*

<sup>1</sup> All the technical data and information contained herein are subject to change without prior notice

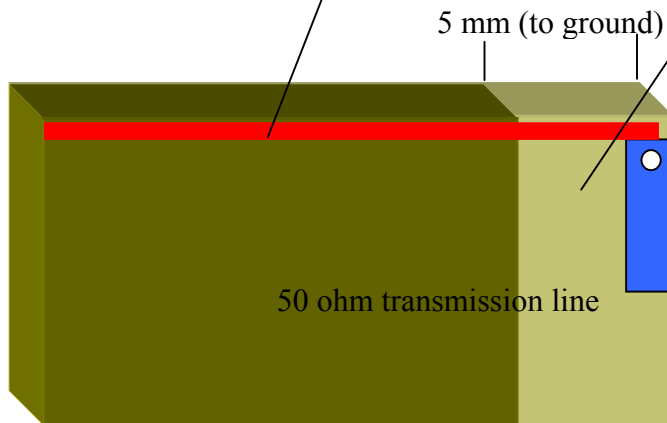
HF R&D	Print date 04/02/04	Preliminary internal use only			
	<b>Long Shape Multilayer Ceramic Antenna for Bluetooth (ISM Band 2.45GHz)</b>	<b>CAN431111500245/260/2701K</b>			Mar. 26, 02
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## APPLICATION

### Suggested Layout I.



### Suggested Layout II.



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## DIMENSIONAL DATA

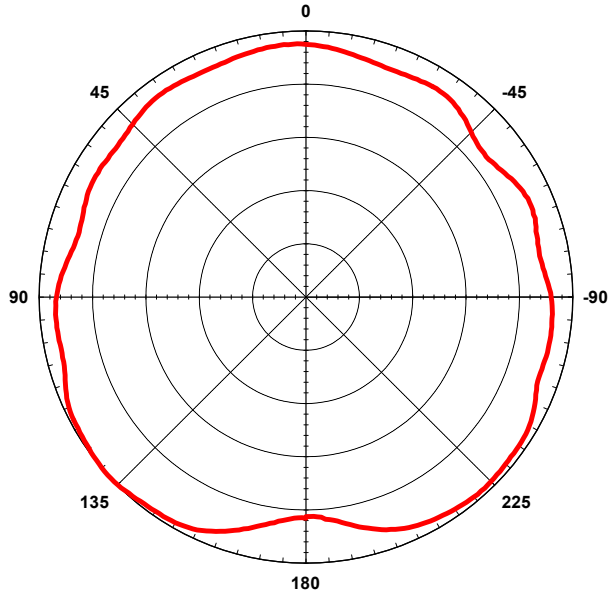
Figure	Dimension	Port	
	L	7.8±0.25 mm	-
	W	3.6±0.2 mm	-
	T	0.9±0.2 mm	-
	F	1.25±0.25 mm	Feed Termination
	C	0.4±0.2 mm	-
	S1	1.25±0.25 mm	NC Solder Termination Only
	S2	1.40 ±0.25 mm	Optional NC Solder Termination Only

## SOLDER LAND PATTERN

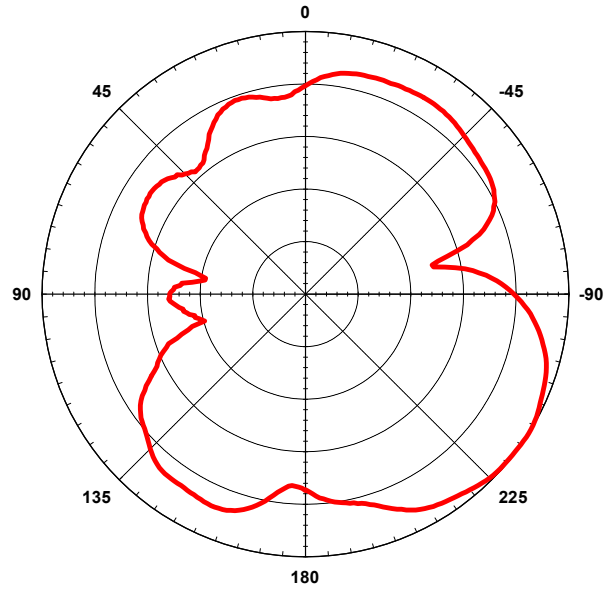
Figure	Dimensions	Remark	
	L	9 ± 0.10 mm	
	W	4.4 ± 0.20 mm	
	F	1.40 ± 0.25 mm	Feed Pad
	C	0.80 ± 0.20 mm	
	S1	1.40 ± 0.25 mm	NC Mount Pad Only
	S2	1.60 ± 0.25 mm	Optional NC Mount Pad Only

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**Radiation Pattern Polar Plot (Based on Suggested Layout)**



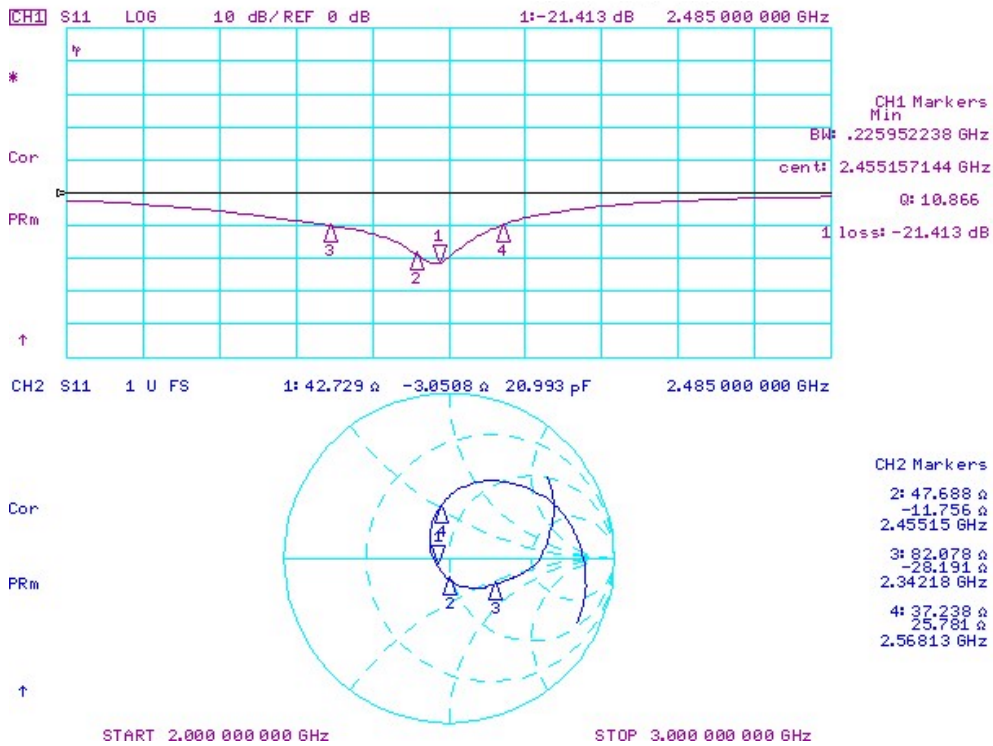
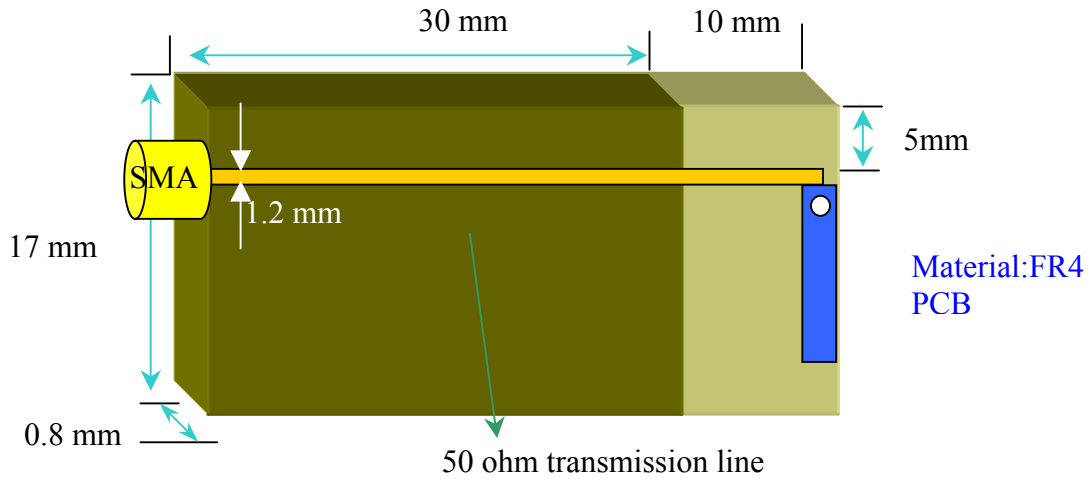
**H-Plane**



**E-Plane**

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# STANDARD TEST BOARD FOR SWR



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	<b>for Bluetooth</b>				
	<b>(ISM Band 2.45GHz)</b>				
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**RELIABILITY DATA (Reference to IEC Specification)**

<b>IEC 384-10/ CECC 32 100 CLAUSE</b>	<b>IEC 60068-2 TEST METHOD</b>	<b>TEST</b>	<b>PROCEDURE</b>	<b>REQUIREMENTS</b>
4.4		Mounting	The antenna can be mounted on printed-circuit boards or ceramic substrates by applying wave soldering, reflow soldering (including vapour phase soldering) or conductive adhesive	No visible damage
4.5		Visual inspection and dimension check	Any applicable method using × 10 magnification	In accordance with specification (chip off 4mm)
4.6.1		Antenna	Central Frequency at 20 °C	Standard test board in page 4
4.8		Adhesion	A force of 3 N applied for 10 s to the line joining the terminations and in a plane parallel to the substrate	No visible damage
4.9		Bond strength of plating on end face	Mounted in accordance with CECC 32 100, paragraph 4.4	No visible damage
			Conditions: bending 0.5 mm at a rate of 1mm/s, radius jig. 340 mm, 2mm warp on FR4 board of 90 mm length	No visible damage

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IEC 384-10/ CECC 32 100 CLAUSE	IEC 60068-2 TEST METHOD	TEST	PROCEDURE	REQUIREMENTS
4.10	20(Tb)	Resistance to soldering heat	260 ± 5 °C for 10 ± 0.5 s in a static solder bath	The terminations shall be well tinned after recovery and Central Freq. Change ± 6%
		Resistance to leaching	260 ± 5 °C for 30 ± 1 s in a static solder bath	Using visual enlargement of × 10, dissolution of the termination shall not exceed 10%
4.11	20(Ta)	Solderability	Zero hour test, and test after storage (20 to 24 months) in original atmosphere; un-mounted chips completely immersed for 2 ± 0.5 s in 235 ± 5°C.	The termination must be well tinned, at least 75% is well tinned at termination
4.12	4(Na)	Rapid change of temperature	-55 °C (30 minutes) to +125 °C (30 minutes); 100 cycles	No visible damage Central Freq. Change ± 6%
4.14	3(Ca)	Damp heat	500 ± 12 hours at 60 °C; 90 to 95 % RH	No visible damage 2 hours recovery Central Freq. Change ± 6%
4.15		Endurance	500 ± 12 hours at 125 °C;	No visible damage 2 hours recovery Central Freq. Change ± 6%

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**ORDERING INFORMATION:**

The antennas may be ordered by using the Yageo ordering code. These code numbers can be determined by the following rules:

**CAN 43 11 1 15 00 245 1K**

CAN = Yageo Part No. for Antenna

F. Family Code

**43** = Antenna

C. Packing Type Code

**11** = 180 mm/ 7" blister (1000pcs) , **12** = 330 mm/13" blister (4000 pcs)

**13** = Bulk (1000 pcs)

M. Materials Code

**1** = High Frequency Material

S. Size Code

**15** = 7.8 \* 3.6 \* 0.9 mm

T. Tolerance

**00** = larger than 100 M Hz Band Width

A. Working Frequency (three types of antenna are available)

**245** = 2.45 GHz

**260** = (2.45+0.15) GHz \* Intention for shift up 150MHz

**270** = (2.45+0.25) GHz \* Intention for shift up 250MHz

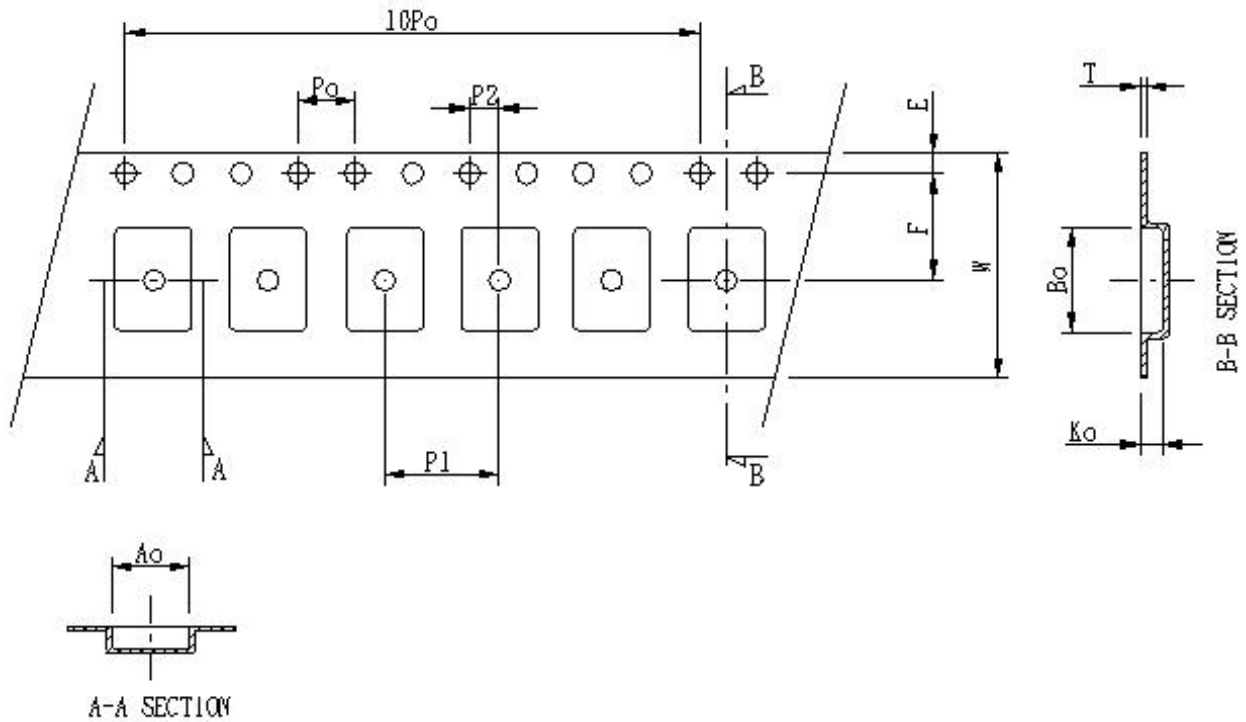
Type 245

Type 260 (Marking 6)

Type 270 (Marking 7)

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## Taping Blister Tape

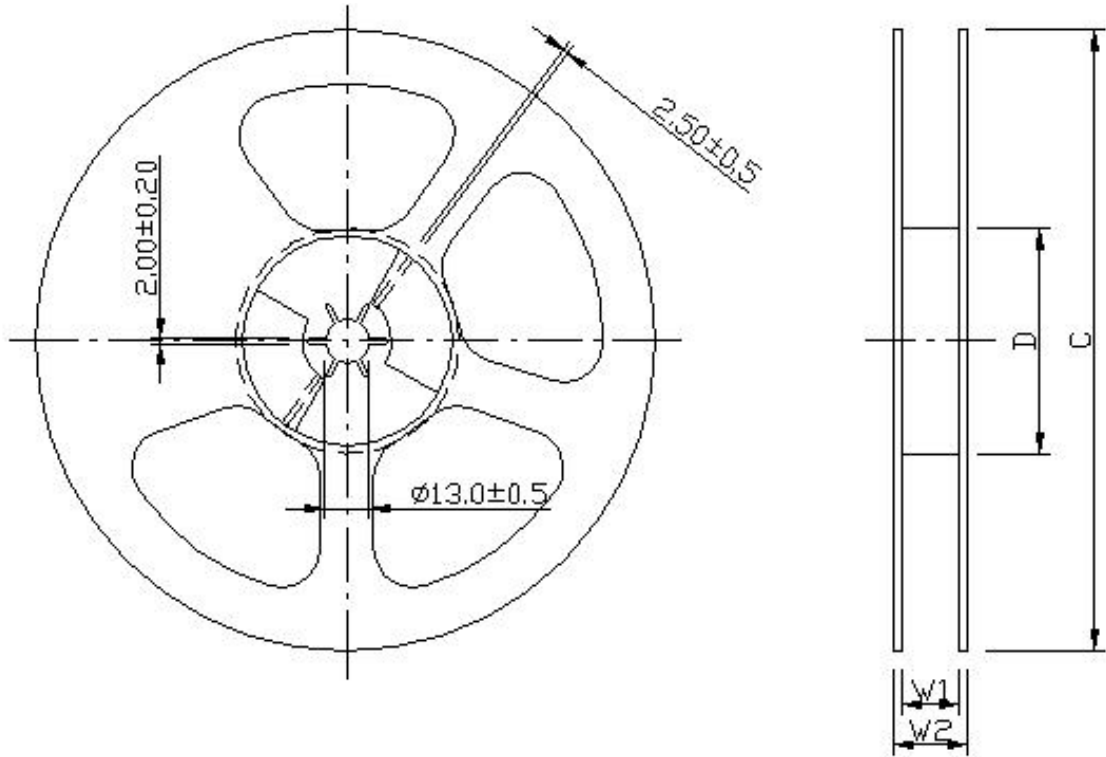


### DIMENSION:

Serial no	Checking note	Index	Spec(mm)
1	Sprocket hole	Do	1.55±0.10
2	Pocket hole	D1	1.50±0.10
3	Distance sprocket hole/sprocket hole	Po	4.0±0.10
4	Distance pocket/pocket	P1	8.0±0.10
5	Distance sprocket hole/pocket	P2	2.0±0.10
6	Tape width	W	16.0±0.30
7	Distance sprocket hole/outside	E	1.75±0.10
8	Distance sprocket hole/pocket	F	7.50±0.10
9	Pocket length	Ao	3.86±0.10
10	Pocket length	Bo	8.15±0.10
11	Pocket depth	Ko	1.20±0.10
12	Thickness of tape	T	0.25±0.10
13	10x sprocket hole pitch	10Po	40.0±0.20

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**7”(180mm) Reel Specifications**



Product size code	Units per Reel	Tape Width (mm)	C (mm)	D (mm)	W <sub>1</sub> (mm)	W <sub>2</sub> (mm)
Antenna	1000	16	180.0±1.0	62±0.5	16.0 <sup>+1</sup> <sub>-0</sub>	20.5±0.2

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