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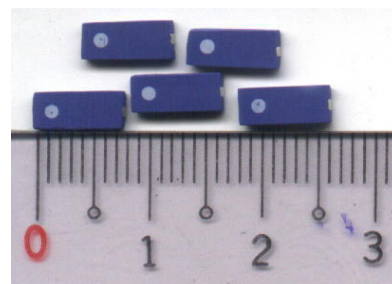
**MULTILAYER CERAMIC ANTENNA  
FOR BLUETOOTH & WLAN IEEE 802.11b (2.45G Hz ISM Band)  
(Long Shape)**

**Product Specification<sup>1</sup> (Preliminary)**

**QUICK REFERENCE DATA**

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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 heat	260°C, 10 sec.
Maximum Power	1W



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

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*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*

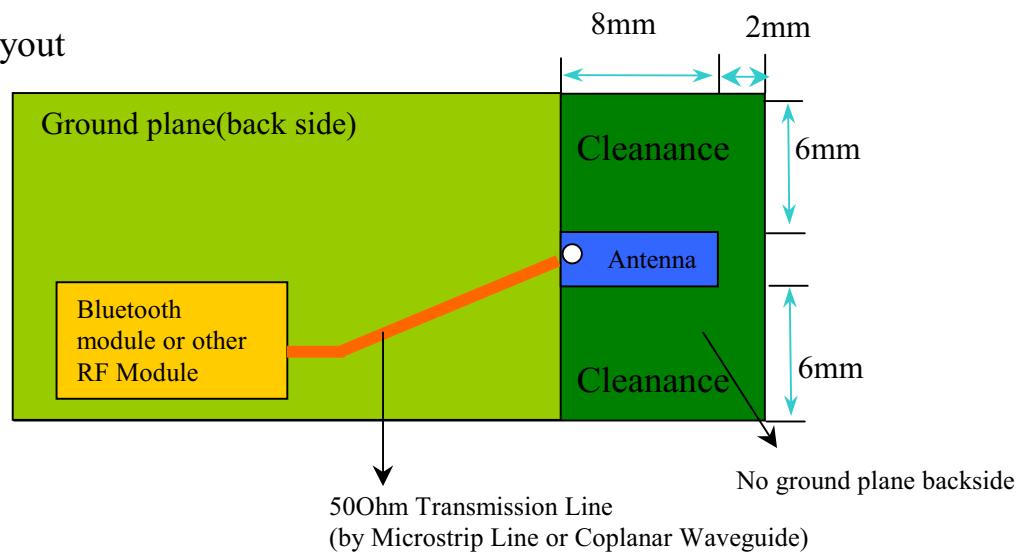
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<sup>1</sup> All the technical data and information contained herein are subject to change without prior notice

Print the technical data and information contained herein at the subject to change without prior notice									
HF R&D	Print date 02/04/26				Preliminary internal use only				
	Long Shape Multilayer Ceramic Antenna for Bluetooth (ISM Band 2.45GHz)				4311 115 00245/260/270			Aug. 15. 01	
								Nov. 13, 01	
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## APPLICATION

## Suggested Layout



## DIMENSIONAL DATA

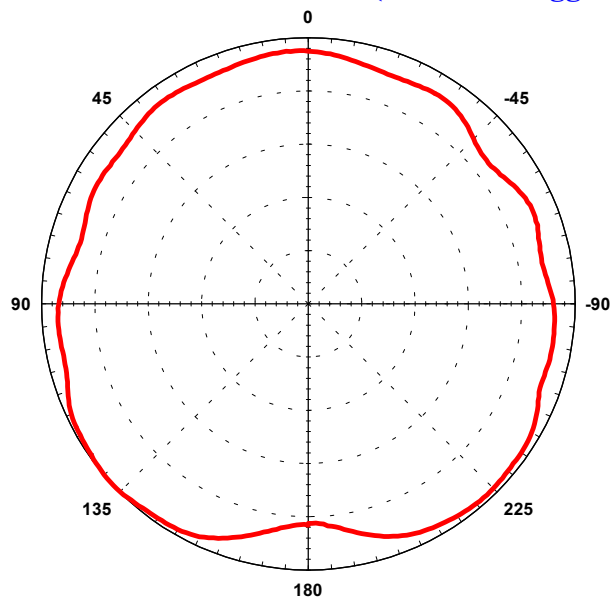
Figure	Dimension	Port
	L	-
	W	-
	T	-
	F	Feed Termination
	C	-
	S1	NC Solder Termination Only
	S2	NC Solder Termination Only

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## SOLDER LAND PATTERN

Figure	Dimensions		Remark
<p>Technical drawing of the NC Mount Pad. The pad is a blue rectangle with a central white circular hole. Dimensions are indicated by arrows: L is the total length, F is the height of the side pads, C is the width of the side pads, S1 is the height of the side pads, S2 is the width of the bottom pad, and C is the width of the bottom pad. A central hole is located on the left side of the pad.</p>	L	$9 \pm 0.10 \text{ mm}$	Feed Pad  NC Mount Pad Only  NC Mount Pad Only
	F	$1.40 \pm 0.25 \text{ mm}$	
	C	$0.80 \pm 0.20 \text{ mm}$	
	S1	$1.40 \pm 0.25 \text{ mm}$	
	S2	$1.60 \pm 0.25 \text{ mm}$	

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

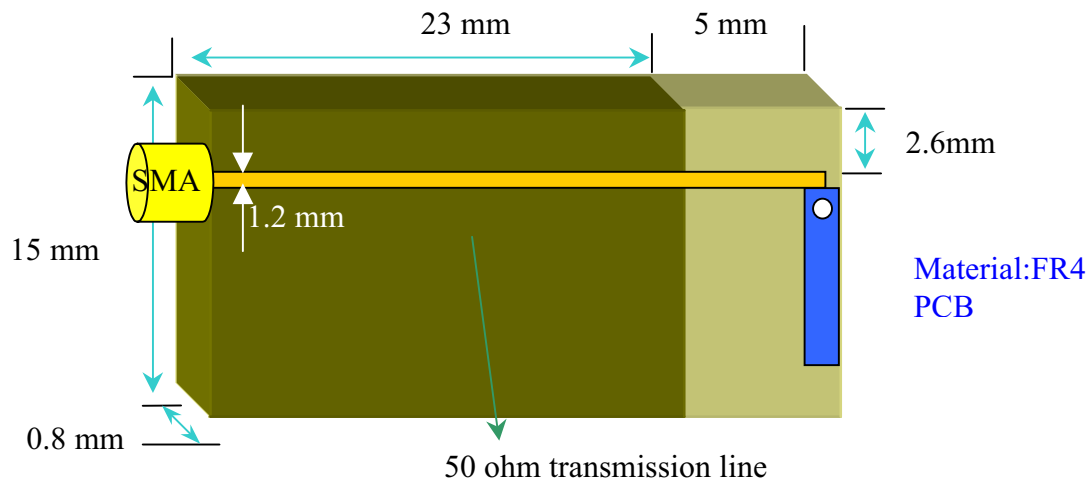


## H-Plane

## E-Plane

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**STANDARD TEST BOARD FOR SWR**  
 (Note: Only for SWR Verification, not for suggested layout)



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### RELIABILITY DATA (Reference to IEC Specification)

IEC 384-10/ CECC 32 100 CLAUSE	IEC 60068-2 TEST METHOD	TEST	PROCEDURE	REQUIREMENTS
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 $\times 10$ 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
4.10	20(Tb)	Resistance to soldering heat	$260 \pm 5$ °C for $10 \pm 0.5$ s in a static solder bath	The terminations shall be well tinned after recovery and Central Freq. Change $\pm 6\%$

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## ORDERING INFORMATION: Method I- by 12NC Ordering Code

The antennas may be ordered by using the 12 NC ordering code. These code numbers can be determined by the following rules:

43 11 00 245  
F C M S T A

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

Type 245

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

Type 260 (Marking 6)

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

Type 270 (Marking 7)

**Example: 12NC**

**4311 115 00245**

Product description: Antenna (43) by 180 mm blister (11) of High Frequency Material (1), Size 7.8\*3.6\*0.9 mm (1);  
Tolerance (00) of 100 MHz (VSWR<2)  
Working Frequency (245) = 2.45G Hz

## ORDERING INFORMATION: Method II- by Clear Text Code

The antennas may be ordered by using the 16-digit clear text ordering code. These code numbers can be determined by the following rules:

AN2450000708031K (Clear Text Code Example)						
AN	2450	00	07	0803	1	K
Product	Central Freq.	Bandwidth	Material	Size	Quantities	Packing
AN= Antenna	2450=2.45GHz 2600=2.60GHz 2700=2.70GHz	00= >100MHz	07=K7	0803=7.8*3.6*0.9 mm	1 = 1K 4 = 4K	K=7" plastic F =13" plastic B = Bulk

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