MULTILAYER CERAMIC ANTENNA
FOR BLUETOOTH & ISM Band (2.45G Hz)

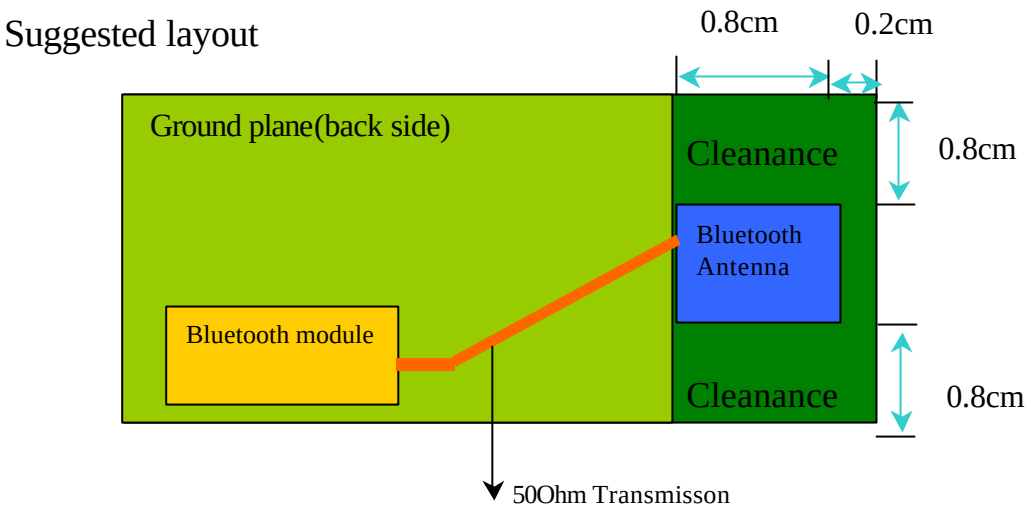
Product Specification

QUICK REFERENCE DATA

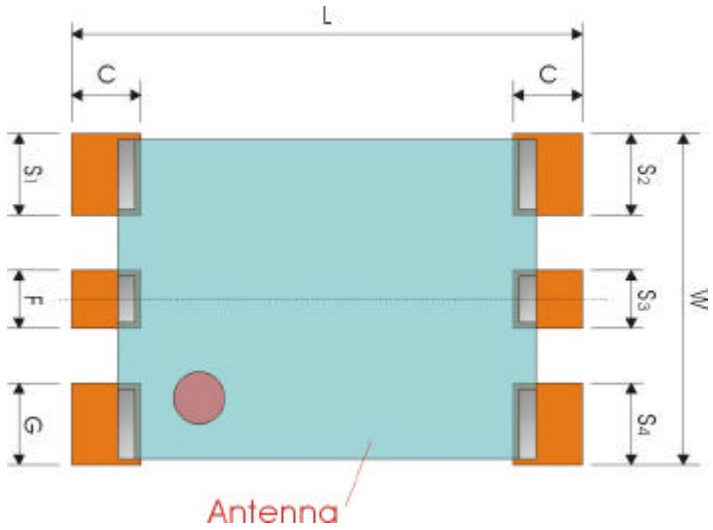
Central Frequency	2.45 GHz
Bandwidth	100 MHz
Gain	0 ~ 1.2dBi
VSWR	2 max
Polarization	Linear
Azimuth Beamwidth	Omni-directional
Impedance	50 Ohm
Operating Temperature	-55~125 Deg. C
Termination	Ni/Sn (Environmental Friendly Leadless)
Resistance to soldering heat	260 Deg. C, 10 sec.

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

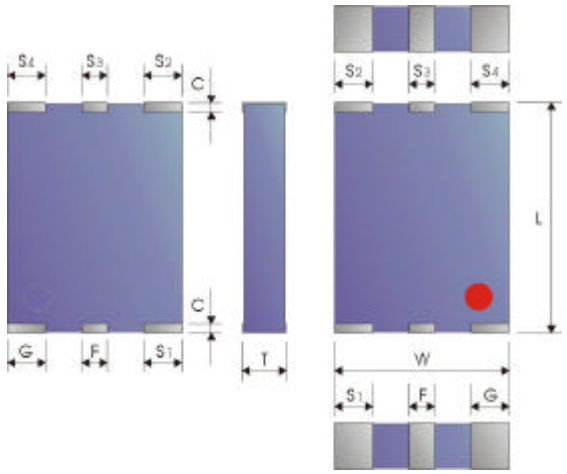
APPLICATION



Solder Land Pattern

Figure	**Dimensions**		*Remark*
	L	8.30 ± 0.10 mm	
	W	5.70 ± 0.10 mm	
	F	1.00 ± 0.10 mm	Feed pad
	G	1.40 ± 0.10 mm	Ground pad
	C	0.90 ± 0.10 mm	
	S1	1.40 ± 0.10 mm	Mount pad
	S2	1.40 ± 0.10 mm	Mount pad
	S3	1.00 ± 0.10 mm	Mount pad
	S4	1.40 ± 0.10 mm	Mount pad

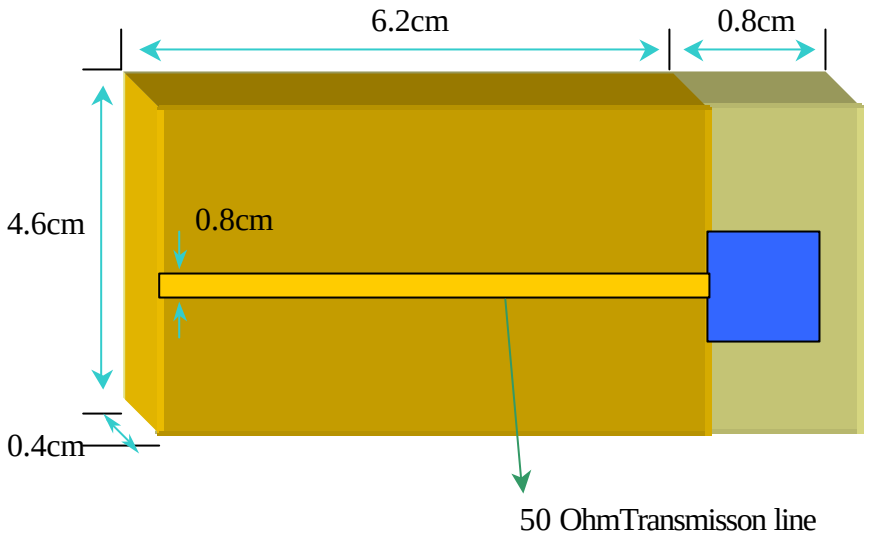
MECHANICAL DATA

Figure	Dimension		Port
	L	7.3±0.2mm	-
	W	5.5±0.2mm	-
	T	1.3±0.2mm	-
	F	0.9±0.25mm	Feed termination
	G	1.25±0.25mm	Ground termination
	C	0.2mm	-
	S1	1.25±0.25mm	Solder termination
	S2	1.25±0.25mm	Solder termination
	S3	0.9±0.25mm	Solder termination
	S4	1.25±0.25mm	Solder termination

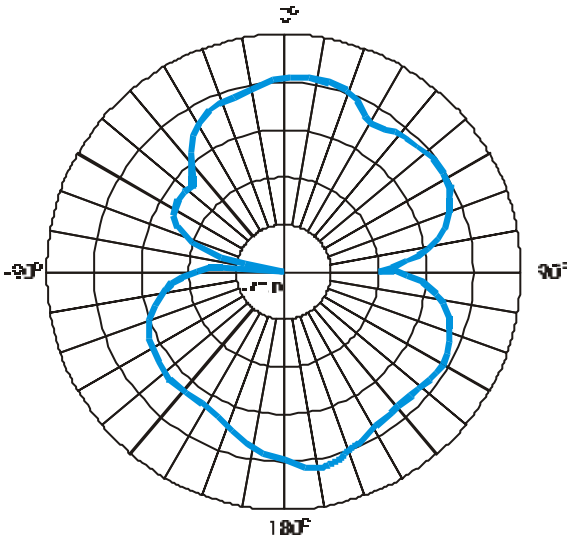
ELECTRICAL DATA

Central Frequency	2.45 GHz
Bandwidth	100 MHz
Gain	0 ~ 1.2dBi
VSWR	2 max
Polarization	Linear
Azimuth Beamwidth	Omni-directional
Impedance	50 Ohm
Operating Temperature	-55~125 Deg. C
Termination	Ni/Sn (Environmental Friendly Leadless)
Resistance to soldering heat	260 Deg. C, 10 sec.
Temperature Characteristic	±10%(-30/20/85 Deg. C)

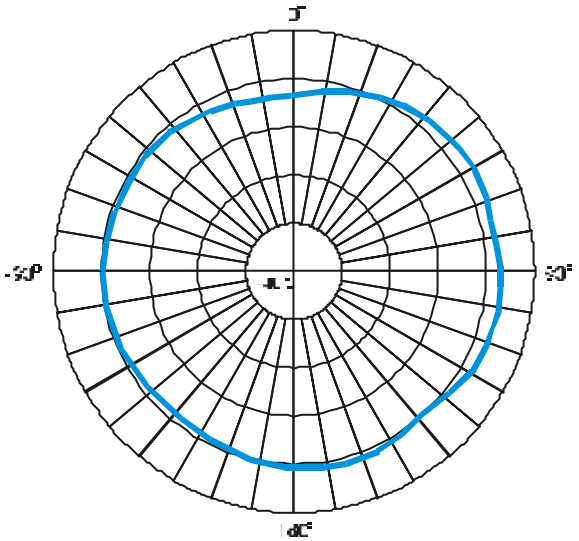
Standsrd Testing Board for Radiation Pattern and S11(return loss)



Radiation Pattern Polar plot



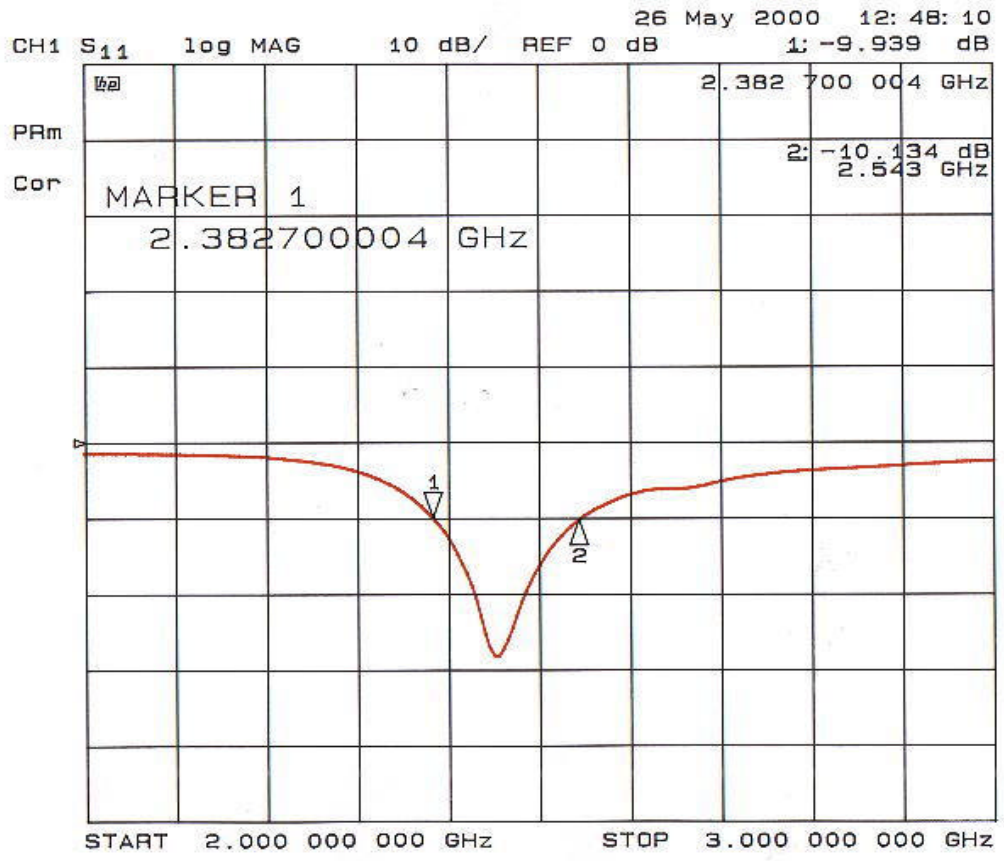
E Plane



H Plane

Development	Print date 00/10/30				Preliminary use only			
	Multilayer Ceramic Antenna for Bluetooth (ISM Band 2.45GHz)			**4311 111 00245**			2000-08-01	
Grant Lin		2000-8-01		Page 4	sheet 190-4			A4
spec.doc	PHYCOM Technologies Co, Ltd.							

S11 (return loss) Measurement



RELIABILITY DATA (Reference to IEC Specification)

IEC 384-10/ CECC 32 100 CLAUSE	IEC 6006868-2 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 ´ 10 magnification	In accordance with specification (chip off 4mm)
4.6.1		Antenna	Frequency = 2.45 GHz; at 20 ^{o}C	Standard test board in page 4
4.7.1		Temperature characteristics	-30/20/85 ^{o}C	Bandwidth Change ± 20%
4.8		Adhesion	A force of 5 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 1mm at a rate of 1mm/s, radius jig. 340 mm, 2mm warp on FR4 board of 90 mm length	No visible damage

IEC 384-10/ CECC 32 100 CLAUSE	IEC 6006868-2 TEST METHOD	TEST	PROCEDURE	REQUIREMENTS
4.10	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 Bandwidth Change ± 20%
		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	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	Na	Rapid change of temperature	-55 °C (30 minutes) to +125 °C (30 minutes); 100 cycles	No visible damage Bandwidth Change ± 20%
4.14	Ca	Damp heat	500 ± 12 hours at 60 °C; 90 to 95 % RH Applied rated current	No visible damage 2 hours recovery Bandwidth Change ± 20%
4.15		Endurance	500 ± 12 hours at 125 °C; Applied rated current	No visible damage 2 hours recovery bandwidth Change ± 20%

ORDERING INFORMATION: Method I- by 12NC Ordering Code

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

4311	1 11	00 245
F C	M S	T A

F. Family Code
43 = Antenna

C. Packing Type Code
11 = 330 mm/13" blister

M. Materials Code
1 = High Frequency Material

S. Size Code
11 = 7.3 * 5.5 * 1.3 mm

T. Tolerance
00 = 100 M Hz Band Width

A. Working Frequency
245 = 2.45 GHz

Example: 12NC 4311 111 00245
Product description: Antenna (43) by 330 mm blister (11) of High Frequency Material (1), Size 7.3*5.5*1.3 mm (1);
Tolerance (00) of 100 MHz (VSWR<2)
Working Frequency (245) = 2.45G Hz