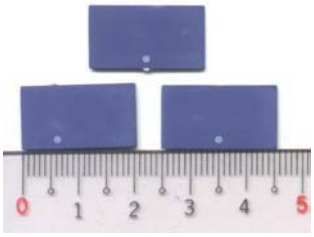
MULTILAYER CERAMIC ANTENNA
FOR GSM/DCS (900/1800MHz)

Product Specification[1] (Preliminary)

QUICK REFERENCE DATA



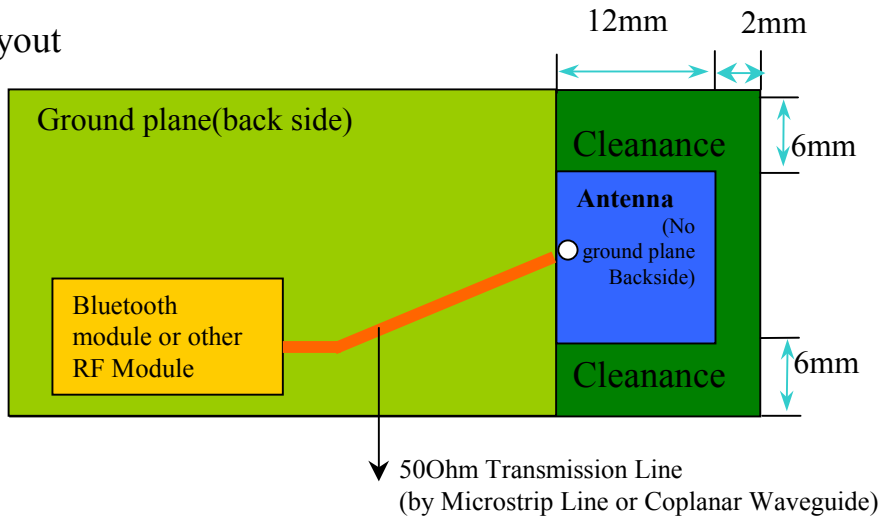
Frequency Range	880-960 MHz	
	1710-1880 MHz	
Bandwidth	30 MHz	
	170 MHz	
(Dependant on ground plane size and tuning circuit of customer)		
Peak Gain	900MHz	0.5~1 dBi
	1800MHz	0.5~1 dBi
(Dependant on ground plane size and tuning circuit of customer)		
VSWR		2.7
(Dependant on ground plane size and tuning circuit of customer)		
Polarization		Linear
Impedance		50Ω
Operating Temperature		-55~125 ^{O}C
Size		21*12*0.9 mm

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

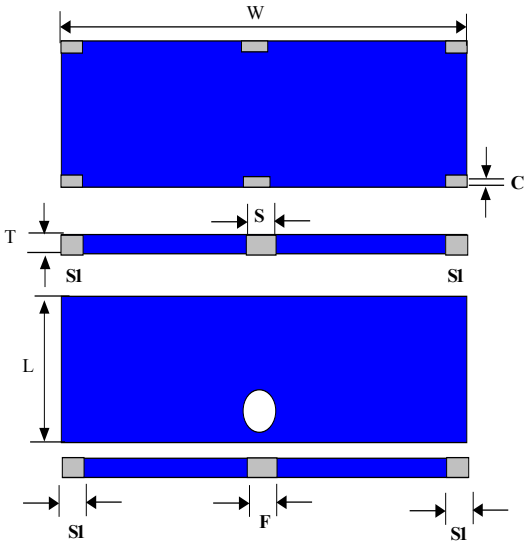
[1] All the technical data and information contained herein are subject to change without prior notice

PPLICATION

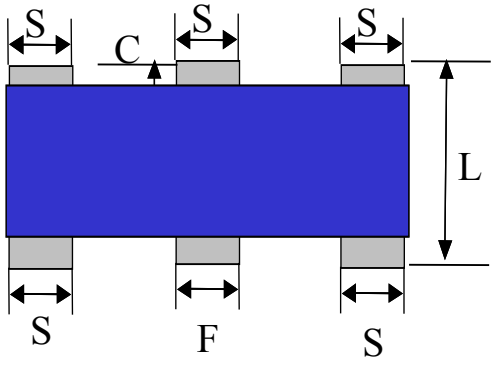
Suggested Layout



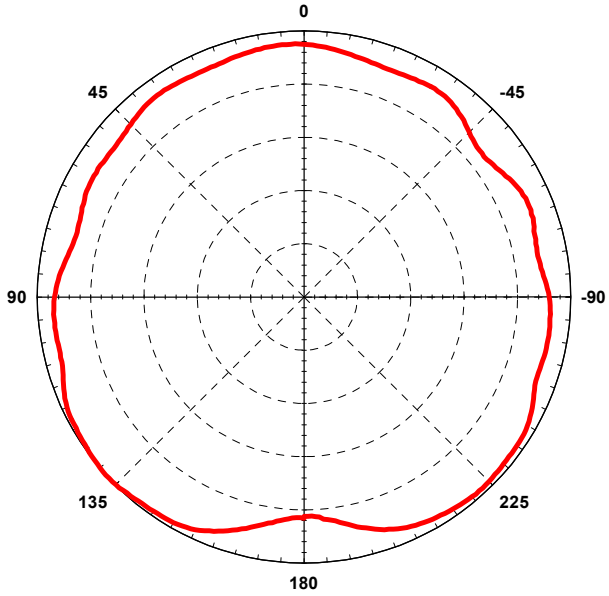
DIMENSIONAL DATA

Figure	Dimension	Port
	W 20.5 ± 0.25 mm L 11.8±0.2 mm T 0.90±0.2 mm F 2.85±0.35 mm C 1.55±0.55 mm S 2.85±0.35mm S1 2.65±0.65 mm	

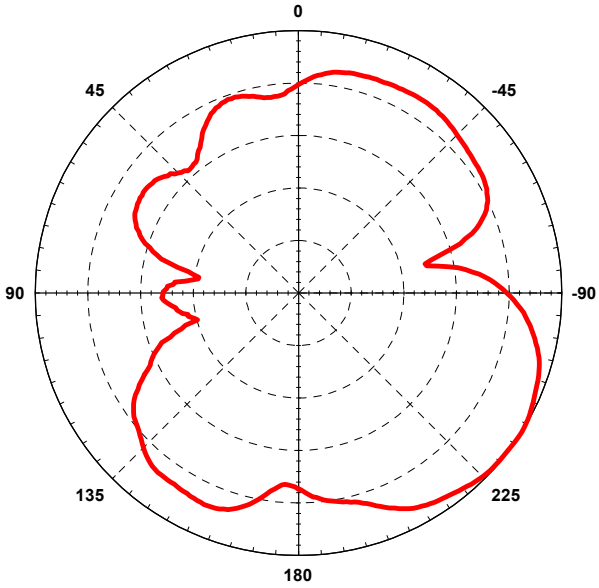
SOLDER LAND PATTERN

Figure	Dimensions		Remark
	L	13 ± 0.10 mm	
	F	1.40 ± 0.10 mm	Feed Pad
	C	0.90 ± 0.10 mm	
	S	1.40 ± 0.10 mm	NC Mount Pad

Typical Radiation Pattern Polar Plot (Based on Suggested Layout)

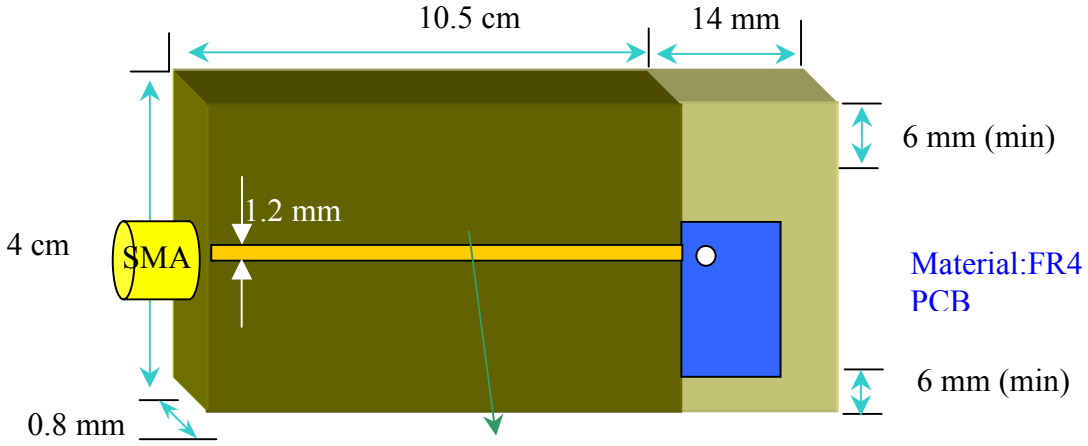


H-Plane

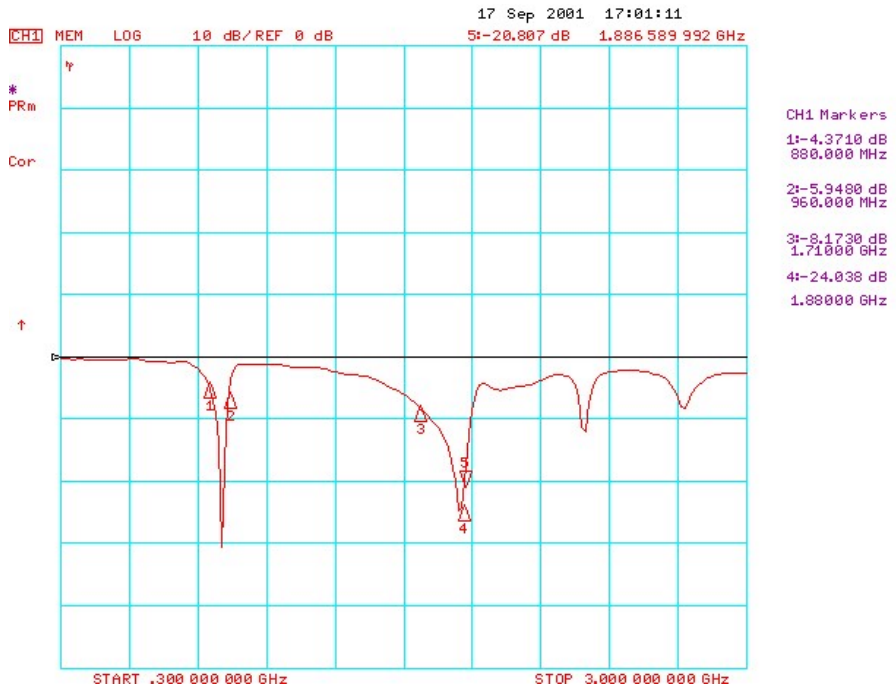


E-Plane

STANDARD TEST BOARD FOR SWR



(Pre-Tuning Reference Only, after-tuning performance is depending on customer installation)



HF R&D	Print date 02/10/16						Preliminary internal use only	
	Multilayer Ceramic Antenna for GSM/DCS (900/1800MHz)			**4313 118 00918 AN0918000721121B**			Oct. 6, 01	
							Oct. 14, 02	
Grant Lin/Cliff		Oct. 14, 02		Page 4	sheet 190-4			A4
spec.doc	Phycomp Taiwan Ltd.							

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 × 10 magnification	In accordance with specification (chip off 4mm)
4.6.1		Antenna	Frequency = 900M/1800MHz; at 20 ^{O}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 0.25 mm 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 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); 5 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%

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:

4313 1 18 00 918
F C M S T A

F. Family Code
43 = Antenna

C. Packing Type Code
13 =Bulk (1000 pcs)

M. Materials Code
1 = High Frequency Material

S. Size Code
18 = 21 *12 * 0.9 mm

T. Tolerance
00 = 80 M Hz GSM 900 Band Width
170 M Hz DCS1800 Band Width

A. Working Frequency
918 = GSM 900 880-960 MHz
DCS 1800 1710-1880 MHz

Example: 12NC 4313 118 00918
Product description: Antenna (43) by bulk (13) of High Frequency Material (1), Size 21*12*0.9 mm (18);
Tolerance (00) of 80 & 170 MHz (VSWR<2.7)
Working Frequency (918) = GSM 900 & DCS1800

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:

AN0918000721121B (Clear Text Code Example)						
AN	0918	00	07	2112	1	B
Product	Central Freq.	Bandwidth	Material	Size	Quantities	Packing
AN= Antenna	900/1800MHz	GSM/DCS	07=K7	2112=21*12mm*0.9mm	1 = 1K	B = Bulk

Revision Control:

Revision	Date	Content	Remark
	Oct. 6, 01	New Issued	
	Oct. 14, 2002	Modify dimension and termination width (S1, F, C, S2)	