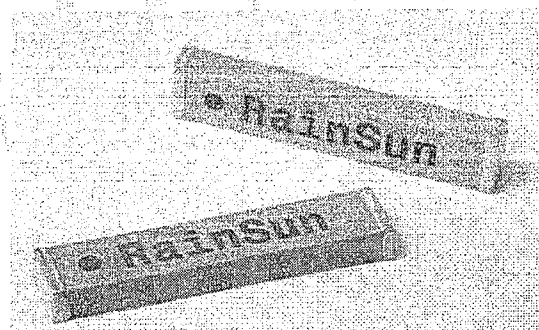


AN1603-433

Multilayer Chip Antenna for 433MHz Wireless Communication



AN1603 Multilayer Chip Antenna

◆ Features

- Light weight and low profile 16.0mm(L)X3.1mm(W)X1.65mm(H)
- Omni-directional in azimuth
- Lead (Pb) Free

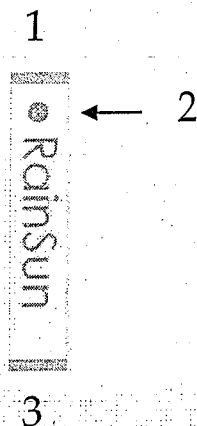
◆ Applications

- 433MHz wireless communications
- 433MHz Modules
- Other ISM band 420MHz~660MHz Wireless Application

Specifications

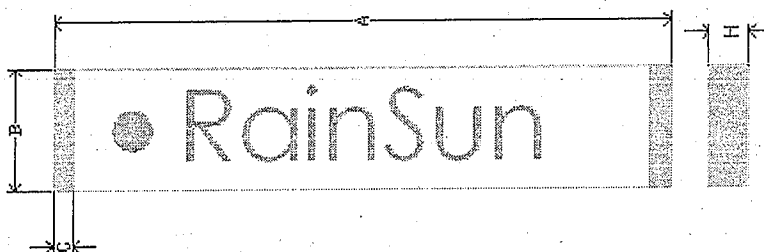
Center frequency	433MHz
Peak gain	0.5dBi
Operation temperature	-40 ~ +85 °C
Storage temperature	-40 ~ +85 °C
VSWR	2.0 (Max)
Input Impedance	50 Ohm
Power handling	3W (Max)
Bandwidth	8MHz
Azimuth beamwidth	Omni-directional
Polarization	Linear

Pin configuration



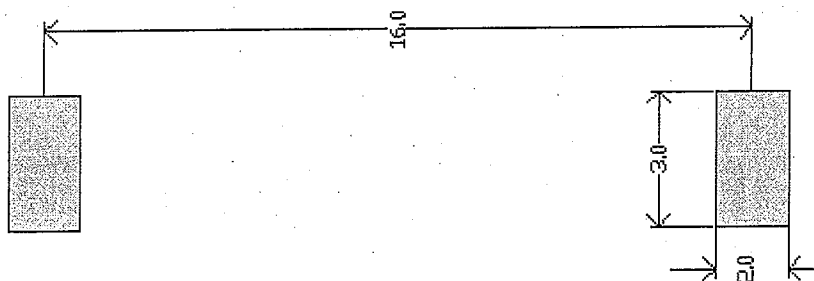
Pin No	Pin assignment
1	Feed termination
2	Feed point mark
3	Solder termination

Dimensions

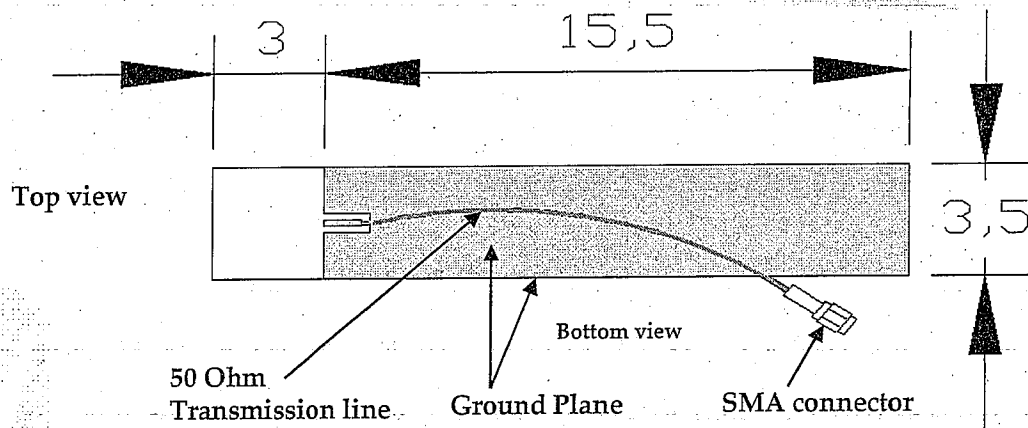


Symbol	Dimensions (mm)
A	16.00 ± 0.10
B	3.10 ± 0.10
C	0.60 ± 0.05
H	1.65 ± 0.20

PCB foot printer



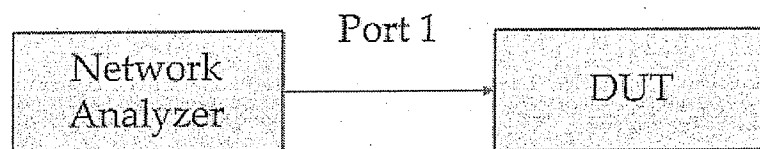
Recommended Test Board Pattern



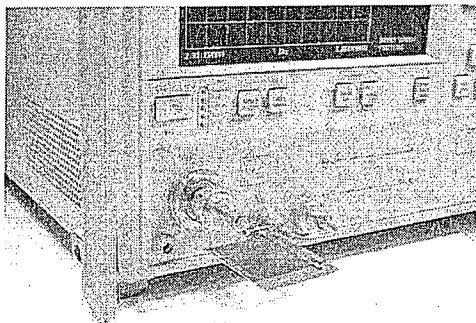
Unit : cm
Board thickness : 0.6mm
Board material : FR4

Fig-1

Testing Setup



Measurement



Testing Instrument:

Anritsu 37369C VNA(Vector Network Analyzer)

VNA calibrate with 1 path reflection only calibration sequence on test board feed point.

The test board dimension and it's layout is the same as recommended Test Board.

Typical Electrical Characteristics

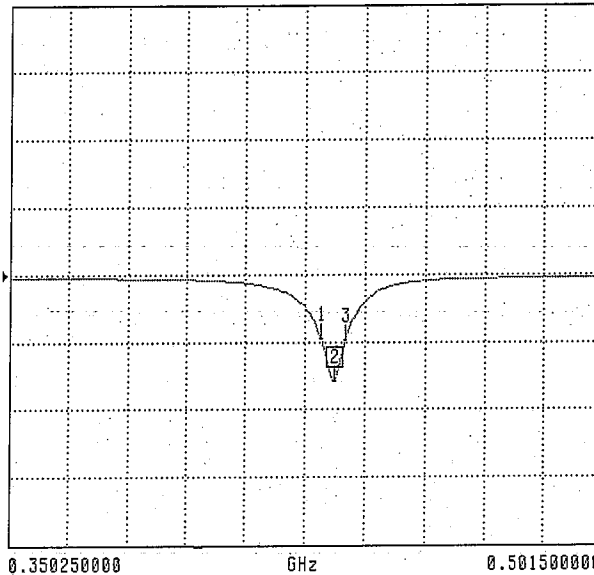
Return loss

S11 FORWARD REFLECTION

LOG MAGNITUDE

REF=0.000 dB

10.000 dB/DIV



CH 1 - S11
REFERENCE PLANE
0.0000 mm

MARKER 2
0.433437500 GHz
-15.725 dB

MARKER TO MAX
MARKER TO MIN

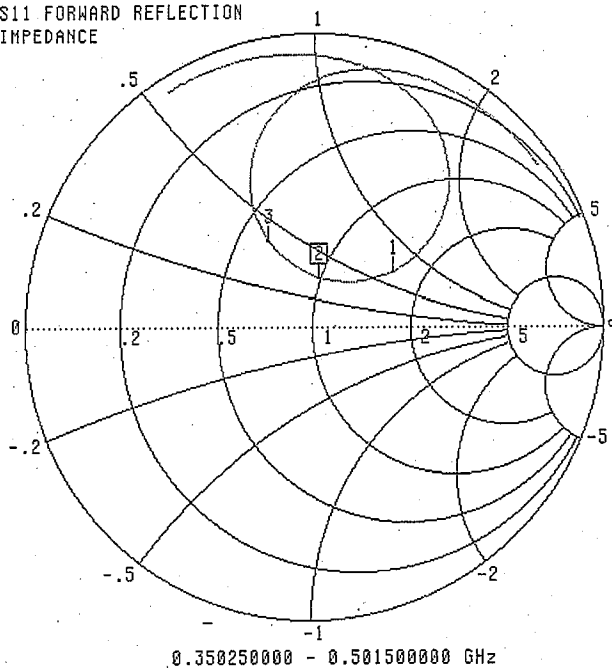
1 0.430000000 GHz
-9.573 dB

3 0.436187500 GHz
-9.787 dB

MARKER READOUT
FUNCTIONS

433 MHz Smith Chart

S11 FORWARD REFLECTION
IMPEDANCE



Marker data:

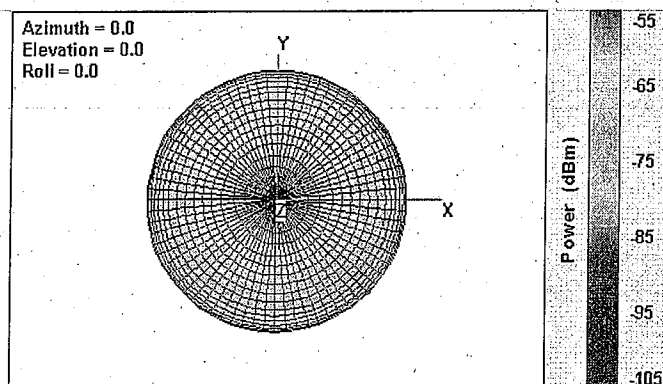
1 : f=430 MHz

2 : f=433 MHz

3 : f=436 MHz

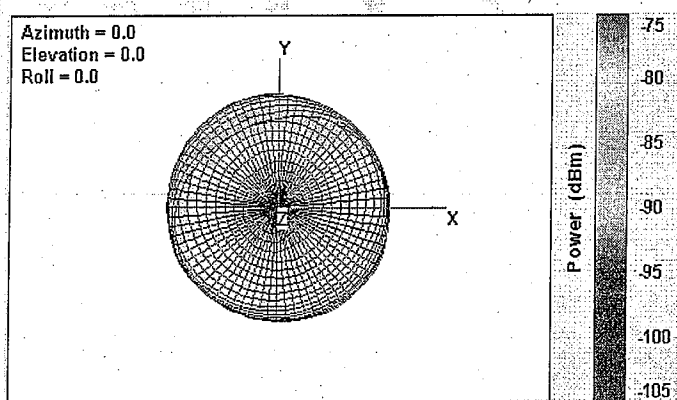
3D Pattern

Theta



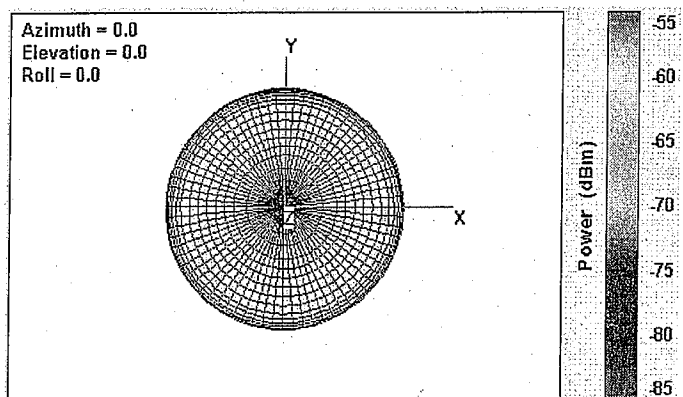
Free-Spec, 433 MHz

Phi



Free-Spec, 433 MHz

Total



Free-Spec, 433 MHz