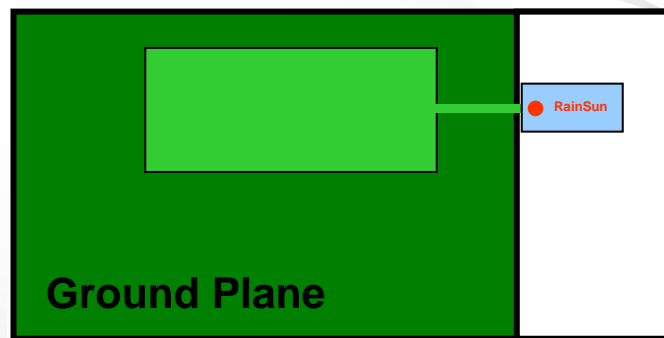


Design guide line for chip Antennas

The location of antenna and PCB ground layer

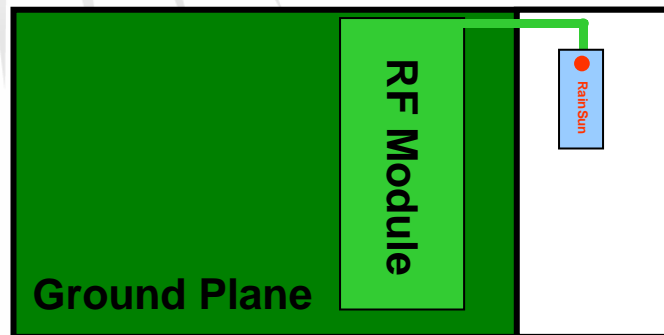
Recommended Antenna location – PCB Corner

Suitable



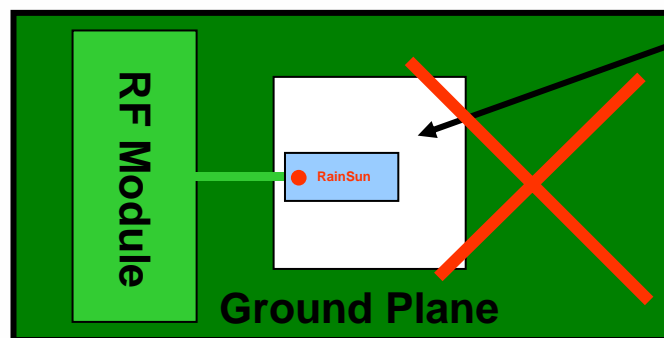
No Ground Area

Suitable



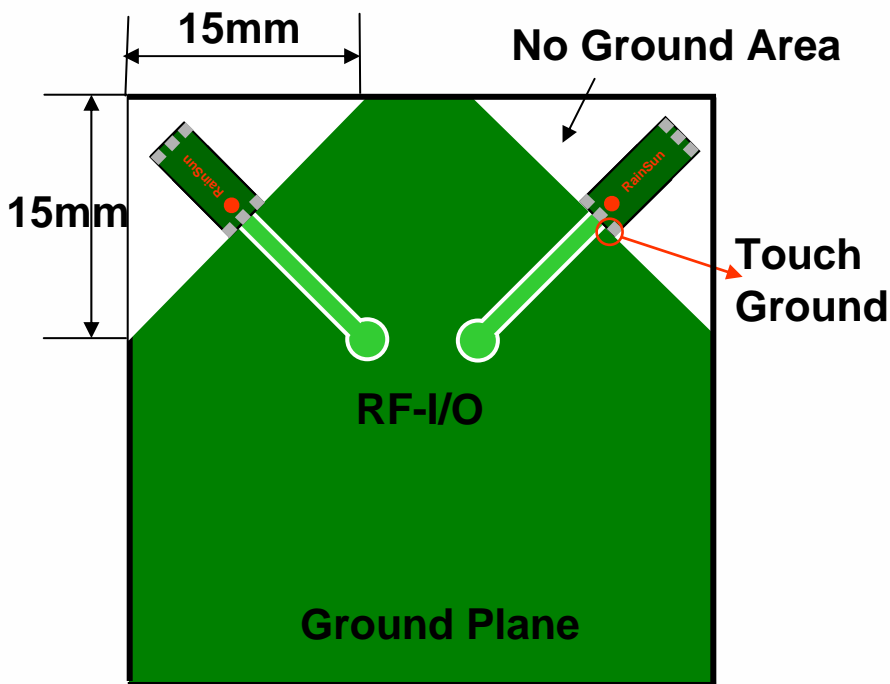
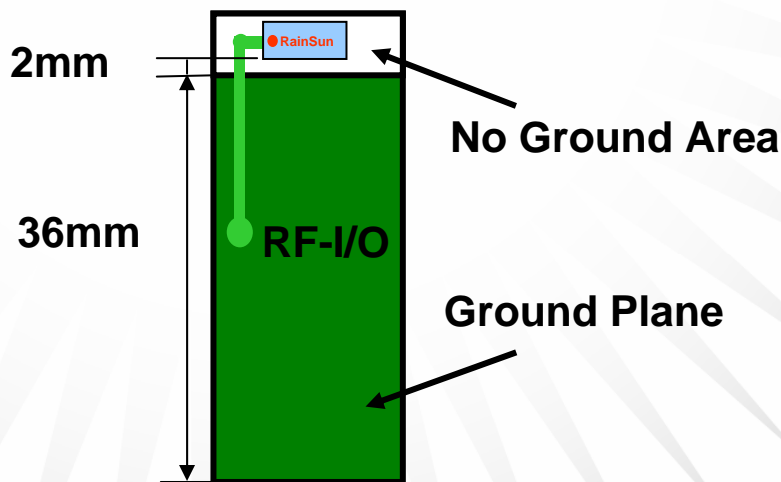
No Ground Area

Unsuitable



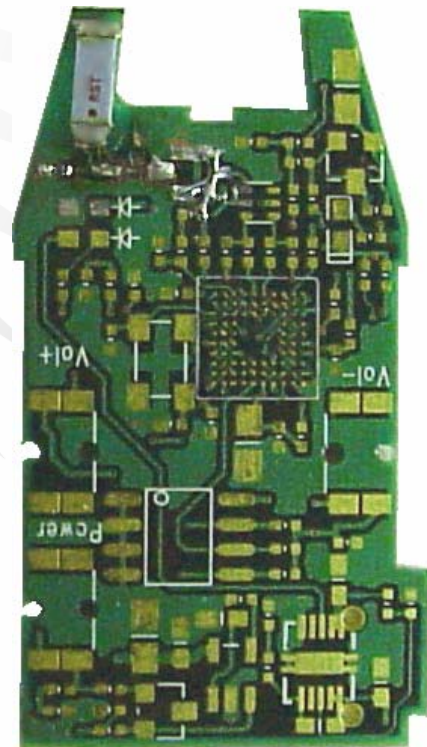
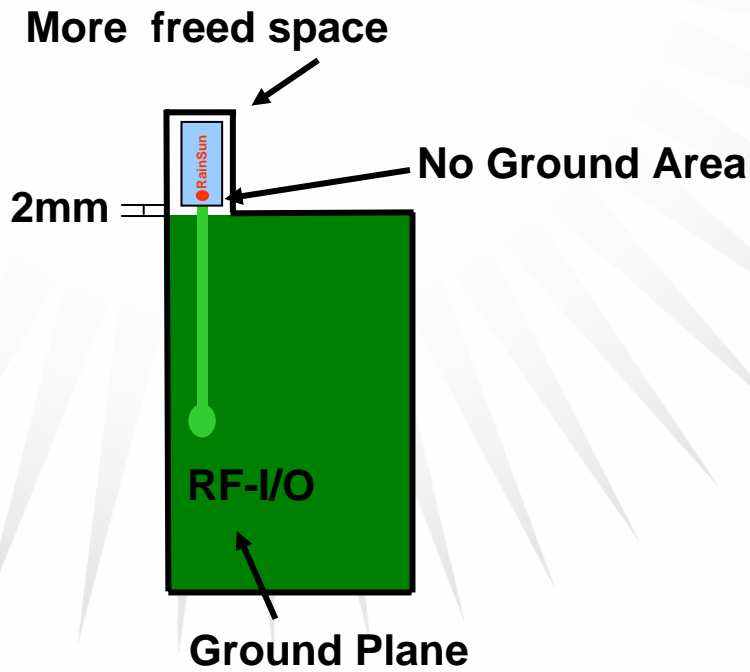
***Not good for radiation**

Layout design example



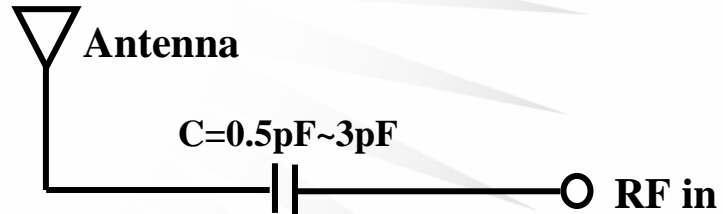
This antenna requires a ground plane

Layout design example

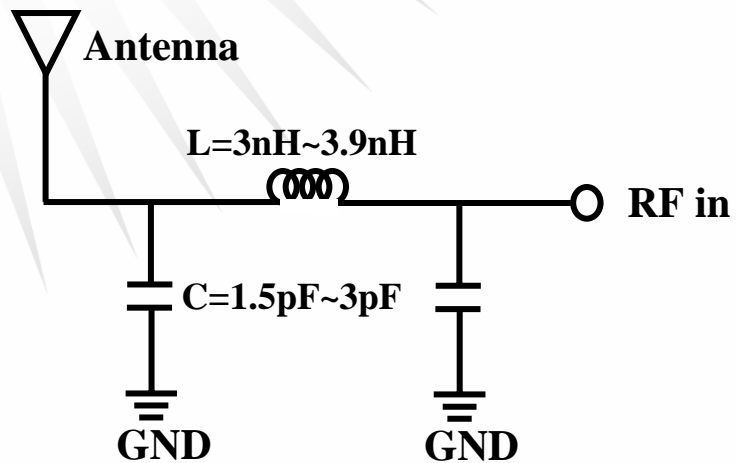


Matching Network Example

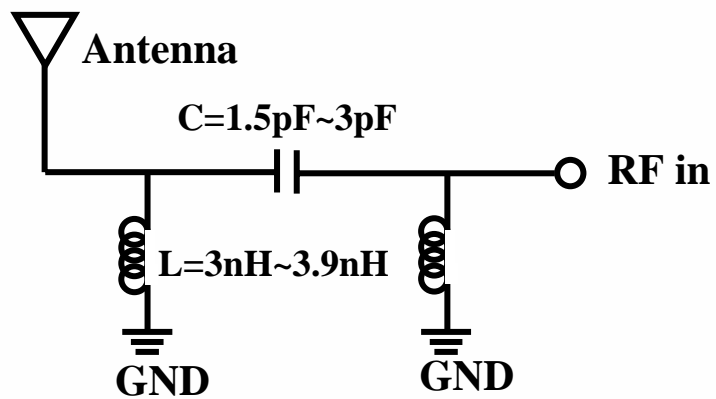
Example-1



Example-2



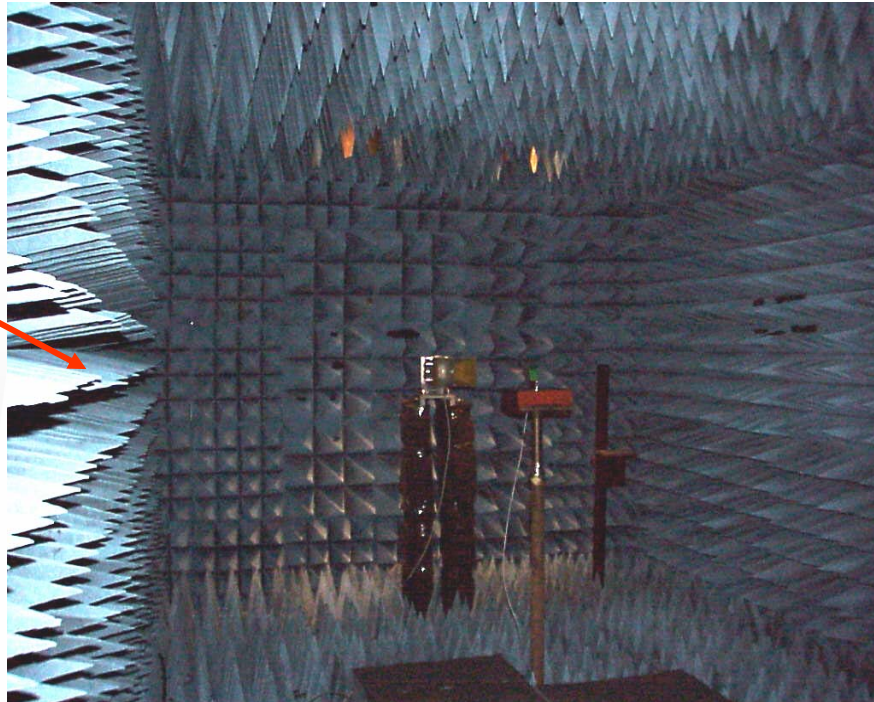
Example-3



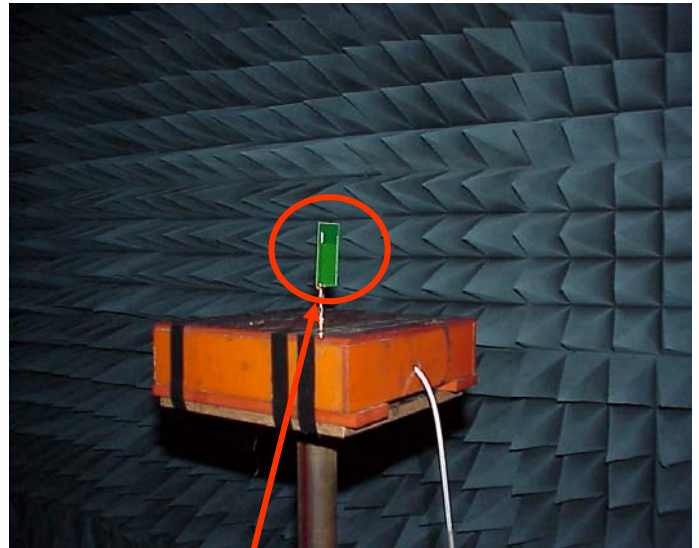
Anechoic Chamber

Radiation Pattern Measured Environment

Absorber



Horn standard Gain antenna

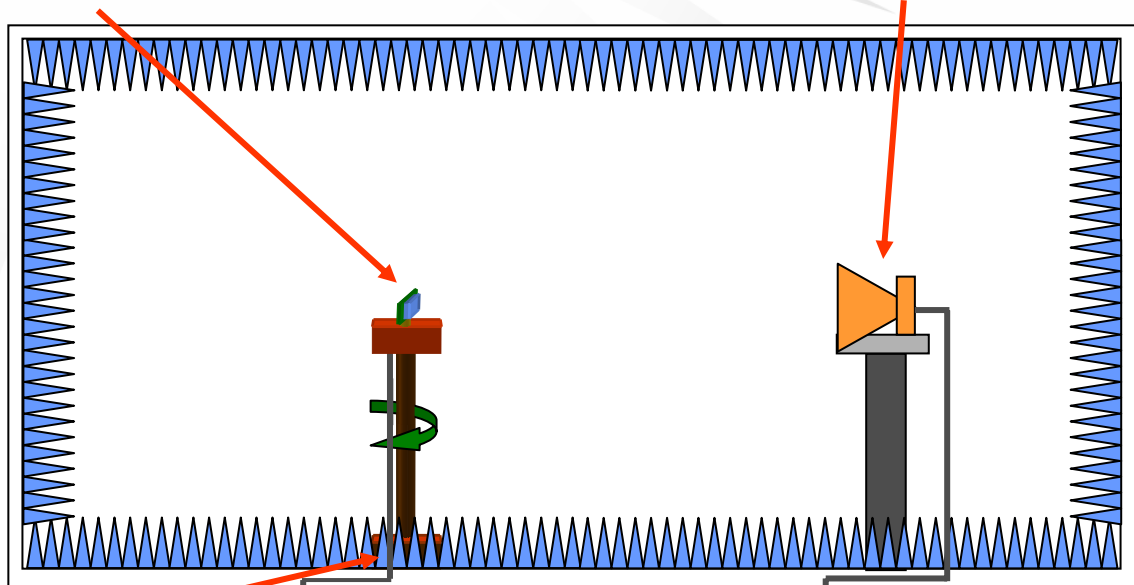


Antenna under test

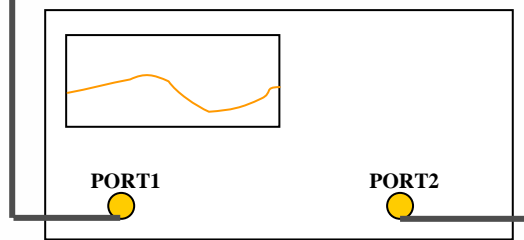
Radiation Pattern Measured

Antenna under test

Horn standard Gain antenna

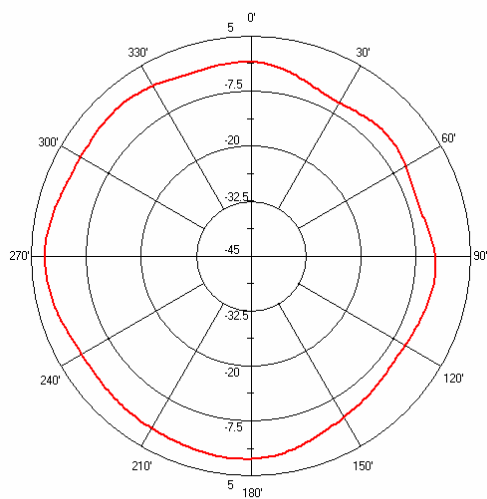
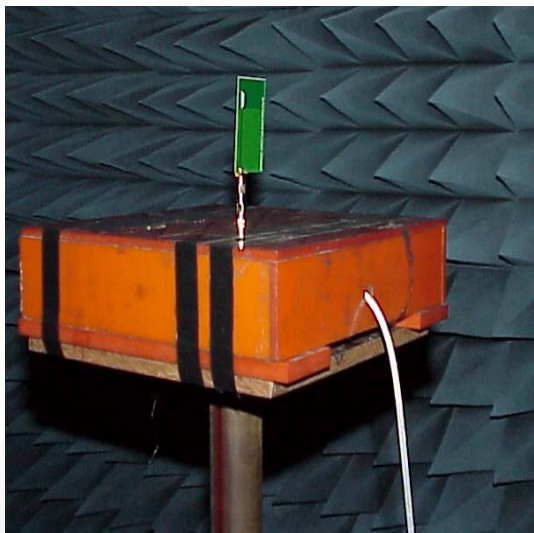


Turn table

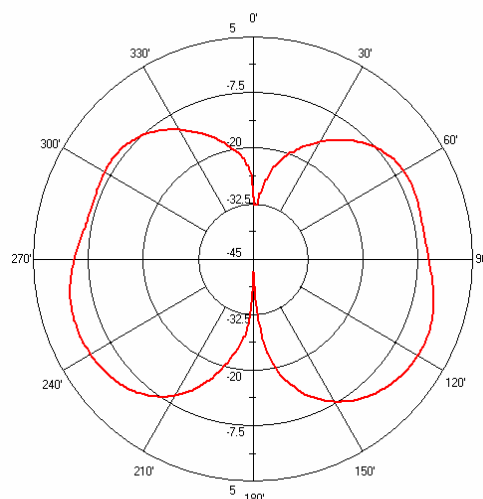


NETWORK ANALYZER

Radiation Pattern Measured



H-Plane



E-Plane

Testing environment setup

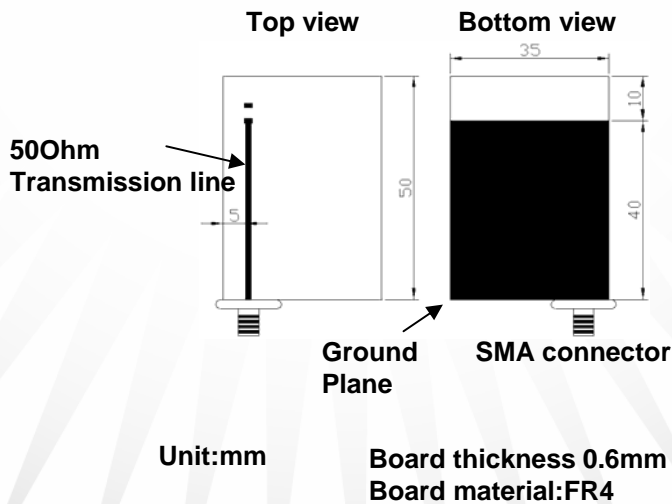


Fig-1 EVB dimension & layout

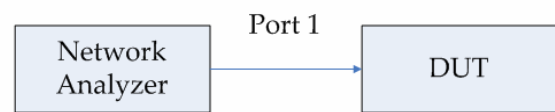


Fig-2 Measurement setup

Antenna under test



Anritsu 37369C VNA(Vector Network Analyzer)

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

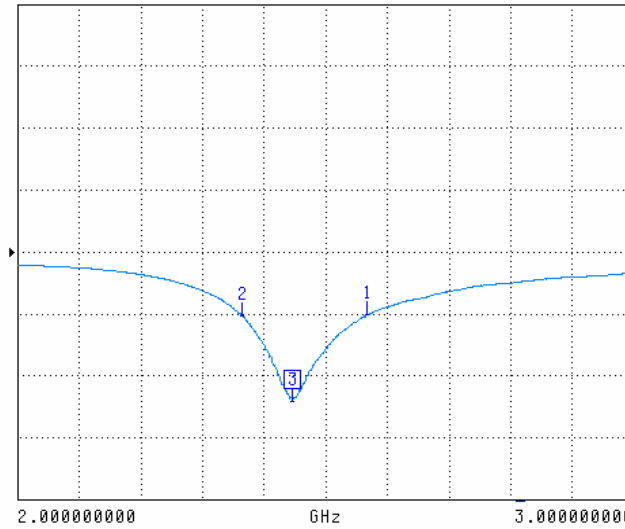
The test board layout and dimension is same Fig-1.

Measured Antenna patterns

Return loss

S22 REVERSE REFLECTION

LOG MAGNITUDE REF=0.000 dB 10.000 dB/DIV



CH 4 - S22
REFERENCE PLANE
0.0000 mm

MARKER 3
2.447500000 GHz
-24.238 dB

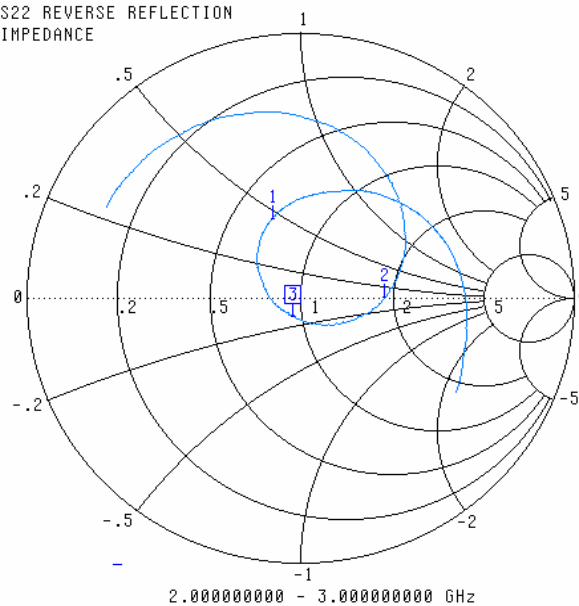
MARKER TO MAX
▶ MARKER TO MIN

1 2.567500000 GHz
-10.256 dB
2 2.365000000 GHz
-10.283 dB

MARKER READOUT
FUNCTIONS

Smith Chart

S22 REVERSE REFLECTION
IMPEDANCE



CH 4 - S22
REFERENCE PLANE
0.0000 mm

MARKER 3
2.447500000 GHz
47.843 Ω
-6.770 jΩ

MARKER TO MAX
▶ MARKER TO MIN

1 2.567500000 GHz
34.911 Ω
23.017 jΩ
2 2.365000000 GHz
95.356 Ω
-124.341 jΩ

MARKER READOUT
FUNCTIONS