

PCAK0001-12 Print Chip Antenna



Product Specifications

Working Frequency: 2400-2500 MHz

Dimension: 9.0×1.6×1.6mm

Return Loss: <-15dB @ Center Frequency

Band Width: >100MHz @ -10dB

Peak Gain: 2.0 dBi (typ)

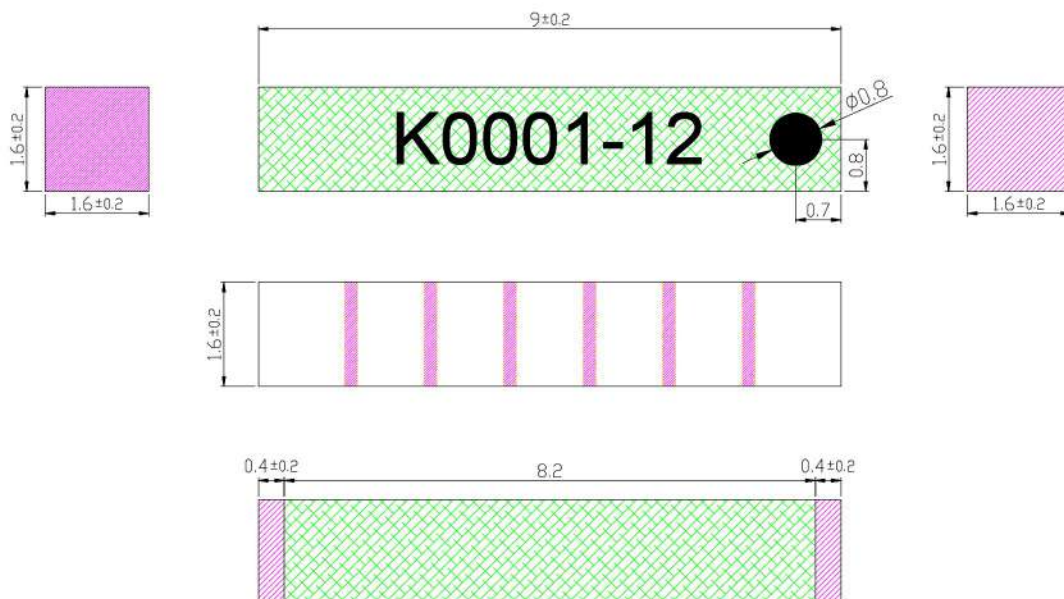
Polarization: Linear

Azimuth: Omni-directional

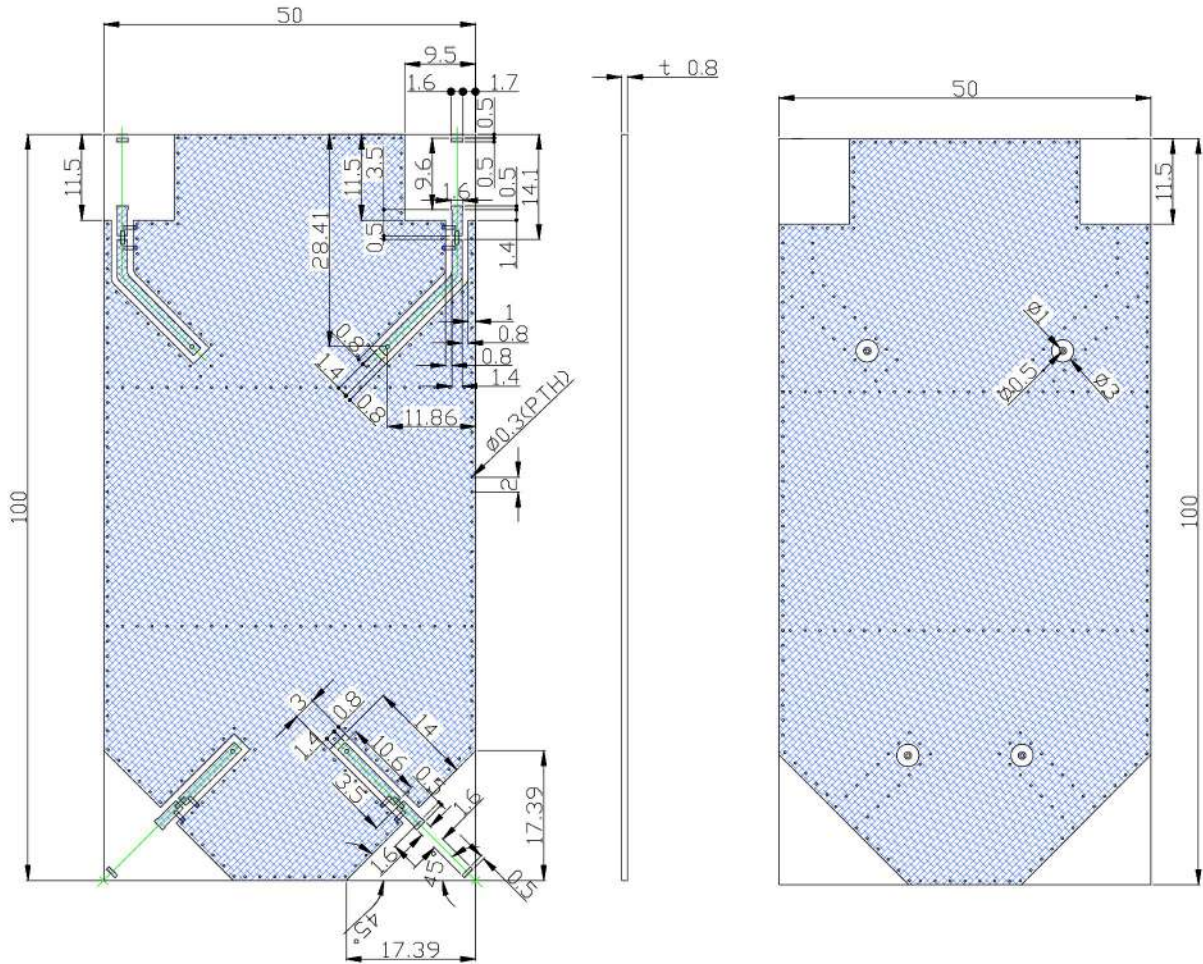
Impedance: 50Ω

Operating Temperature: -40~105°C

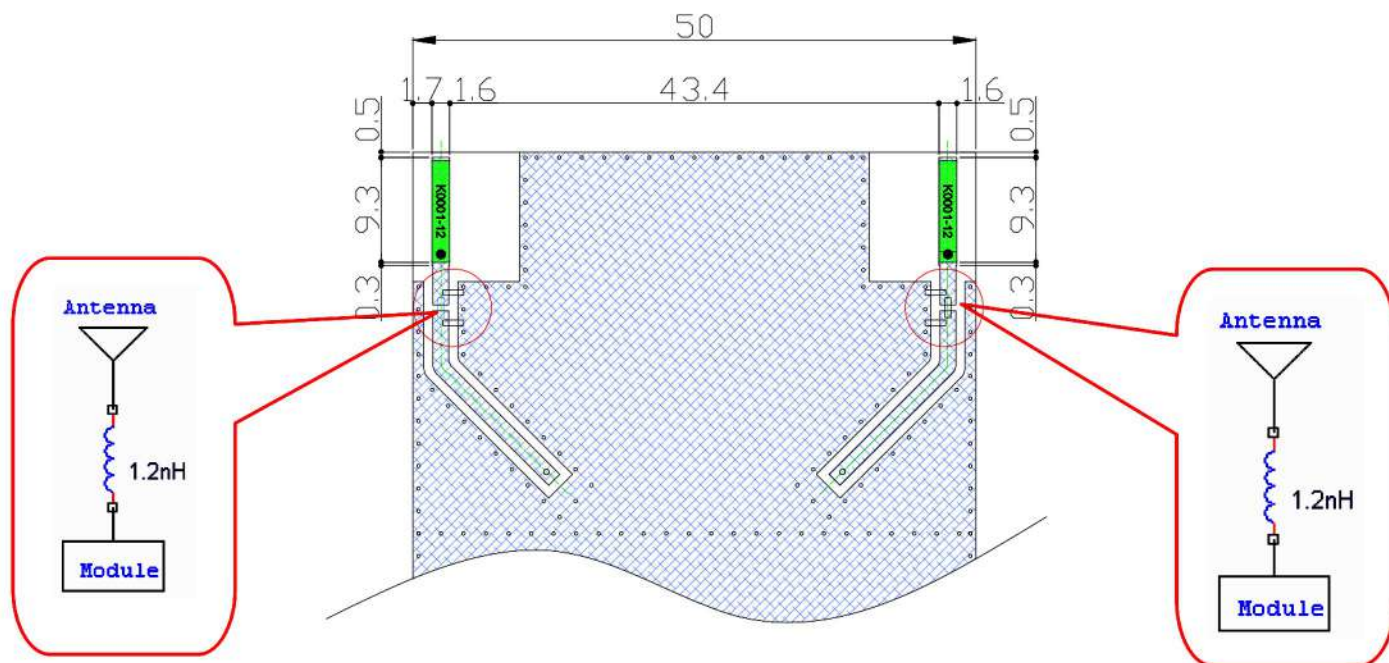
Antenna Dimensions



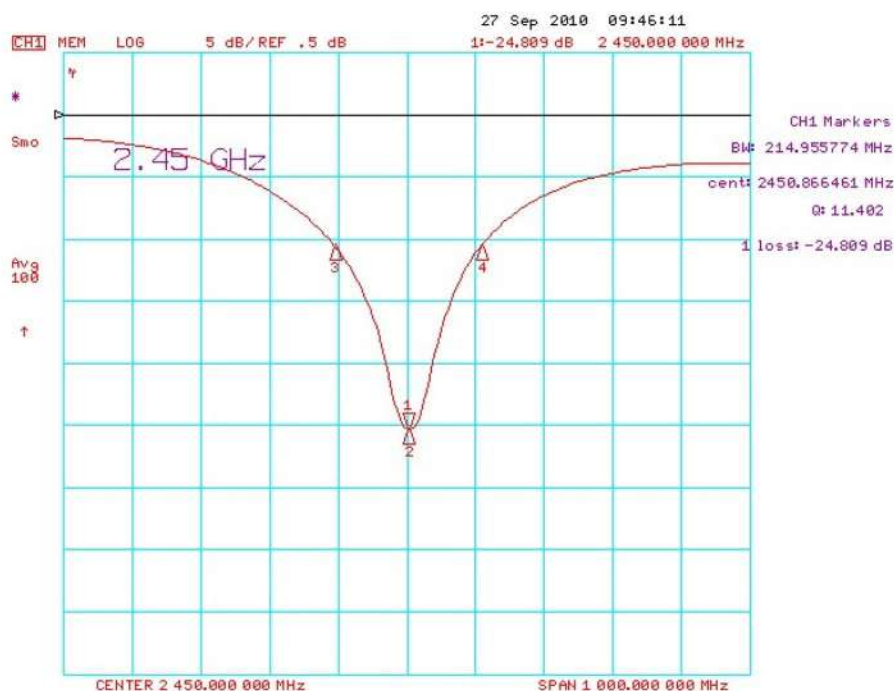
Demo Board Dimensions



Antenna Measurement on Demo Board: Matching Circuit

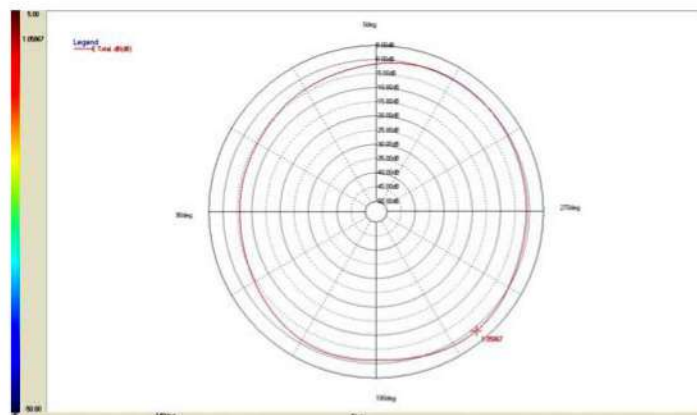


Response Curve (Work Frequency)

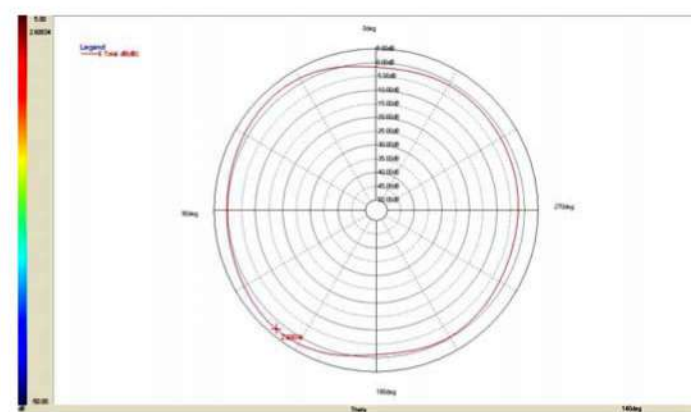


Item	Frequency	Return Loss	Bandwidth
Value	2450 MHz	-24.80dB	214.95 MHz

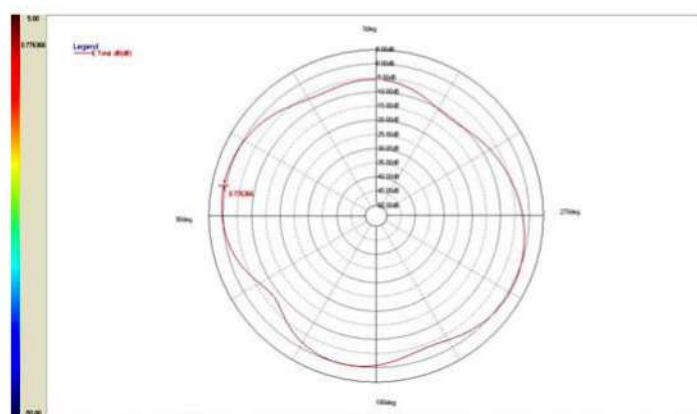
Electrical Performance



XZ-Plane 2450MHz



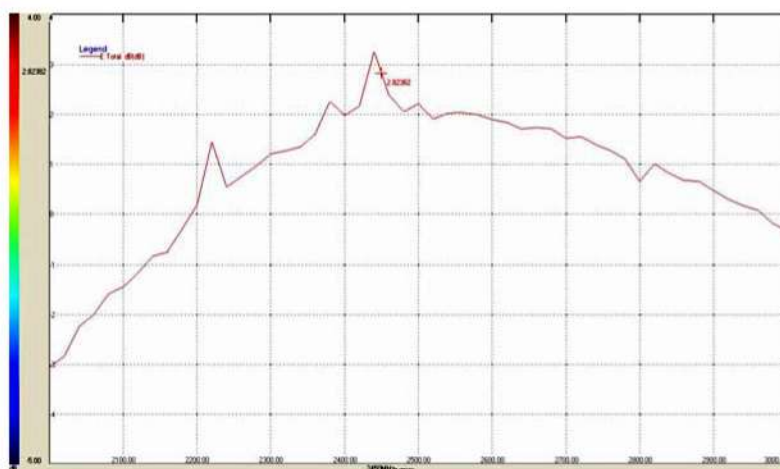
YZ-Plane 2450MHz



XY-Plane 2450MHz

2450MHz	Peak Gain
XZ-Plane	1.06
YZ-Plane	2.60
XY-Plane	0.77

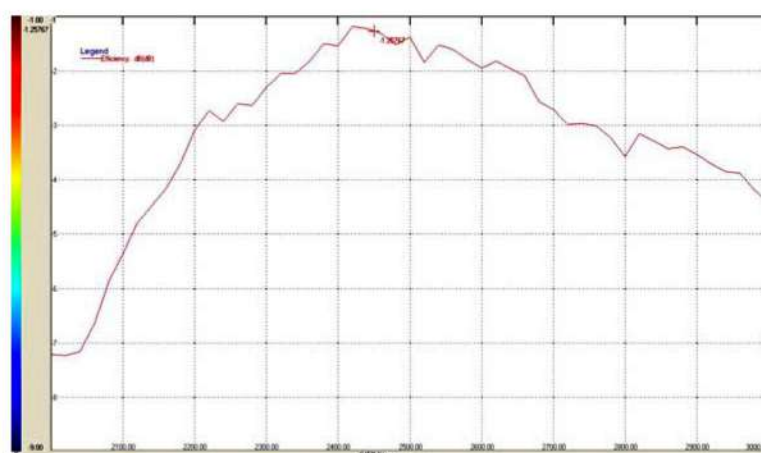
(Unit : dBi)



Peak Gain



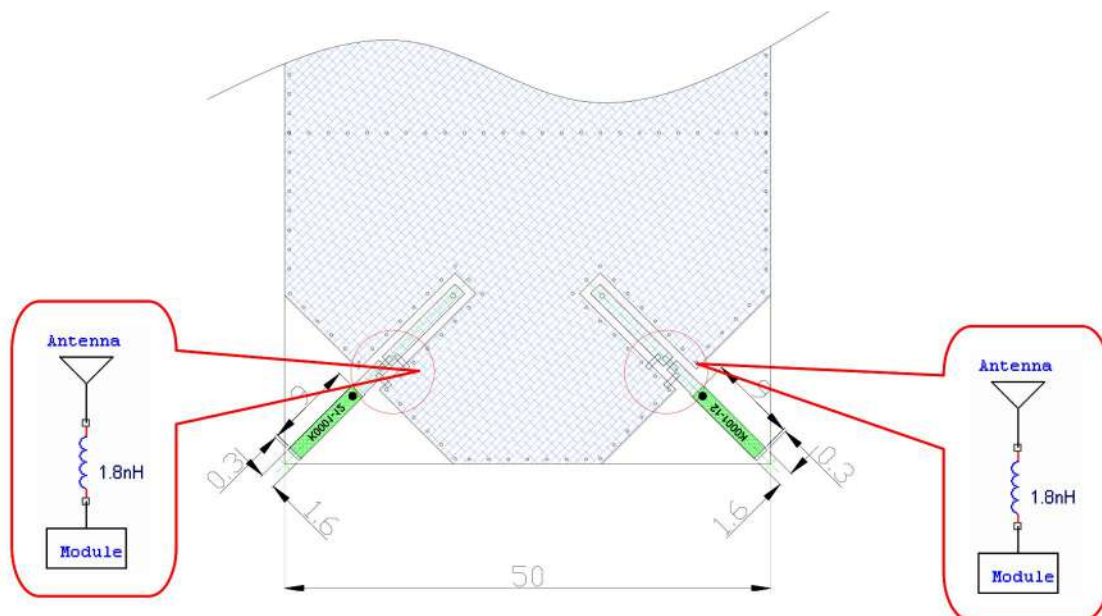
Efficiency



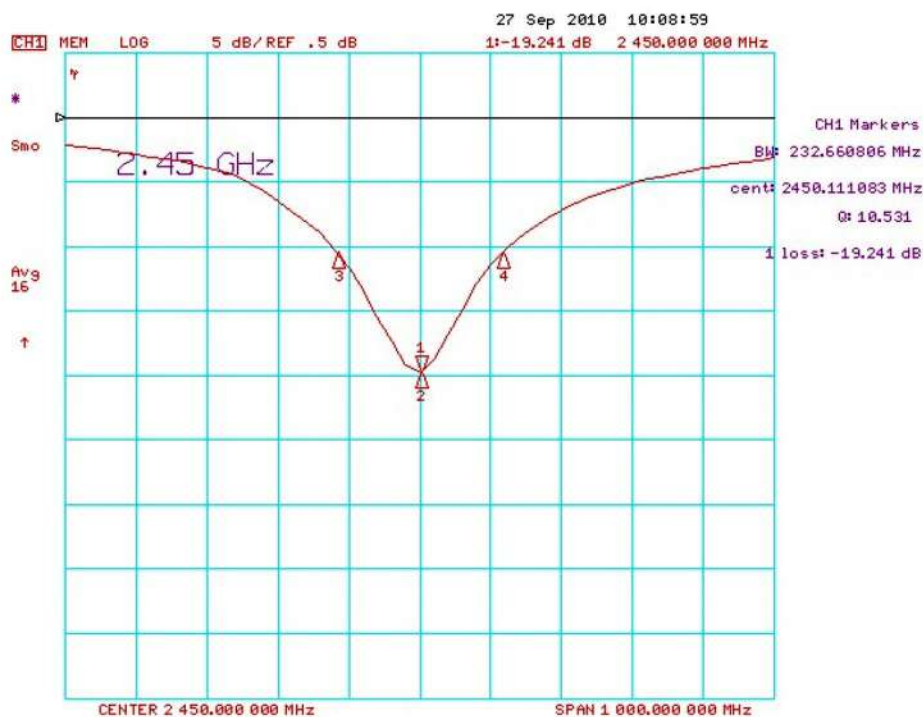
Average Gain

Item	Peak Gain	Efficiency	Average
Value	2.82dBi	74.86%	-1.25dB

Layout Measurement: Matching Circuit

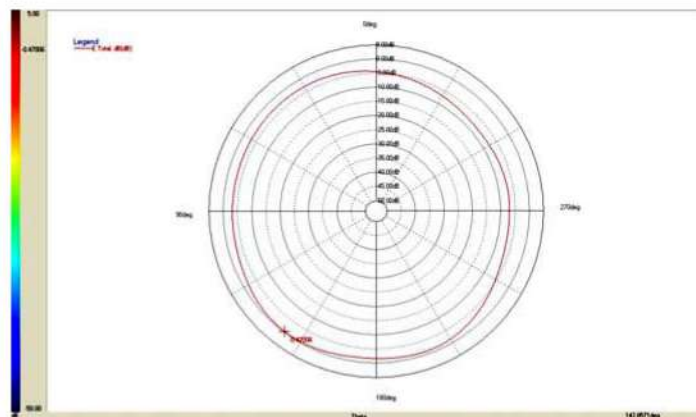


Response Curve (Work Frequency)

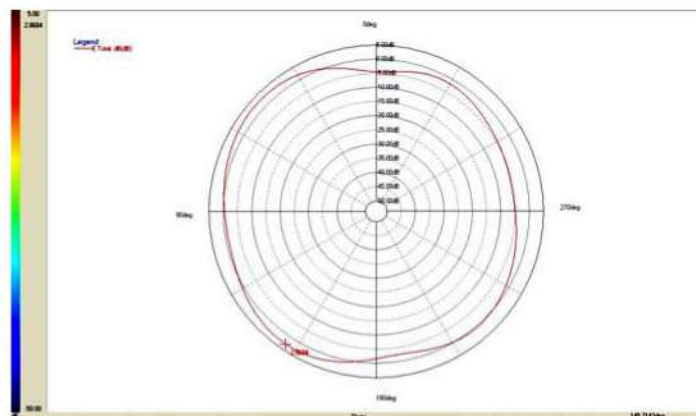


Item	Frequency	Return Loss	Bandwidth
Value	2450 MHz	-19.24dB	232.66 MHz

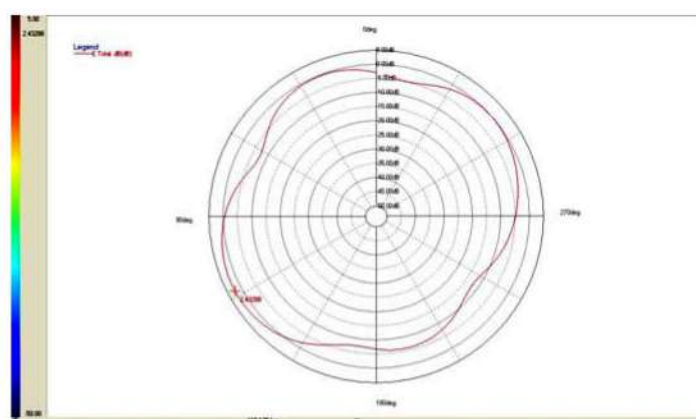
Electrical Performance



XZ-Plane 2450MHz



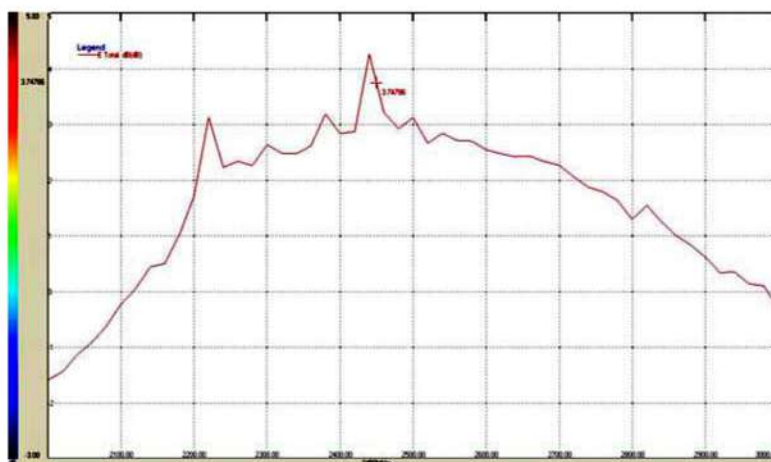
YZ-Plane 2450MHz



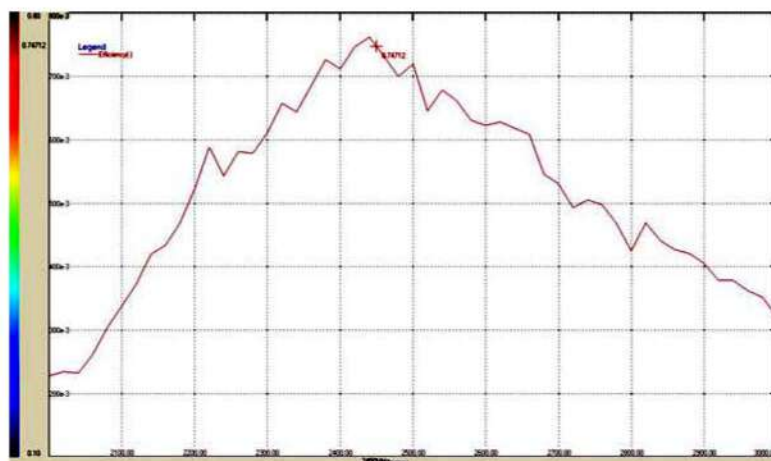
XY-Plane 2450MHz

2450MHz	Peak Gain
XZ-Plane	-0.47
YZ-Plane	2.86
XY-Plane	2.43

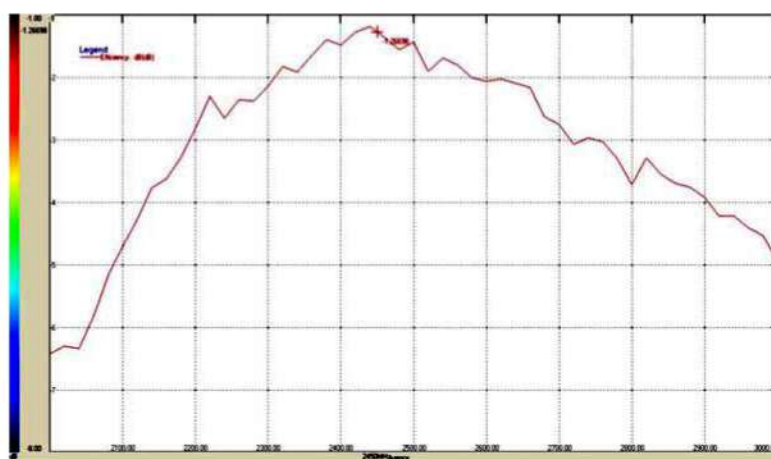
(Unit : dBi)



Peak Gain



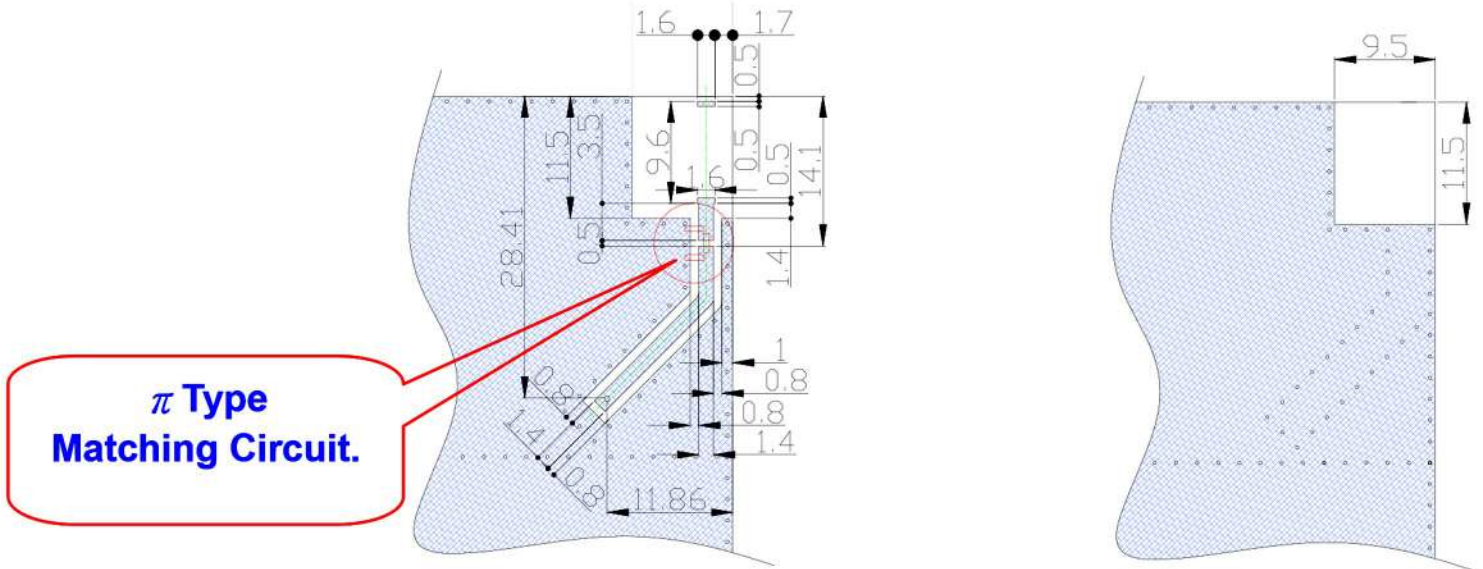
Efficiency



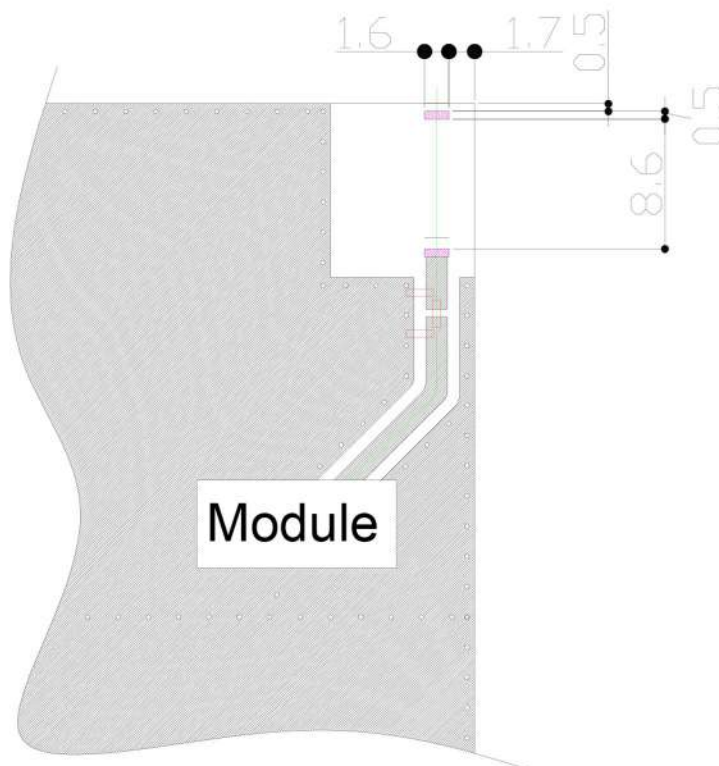
Average Gain

Item	Peak Gain	Efficiency	Average
Value	3.74dBi	74.71%	-1.26dBi

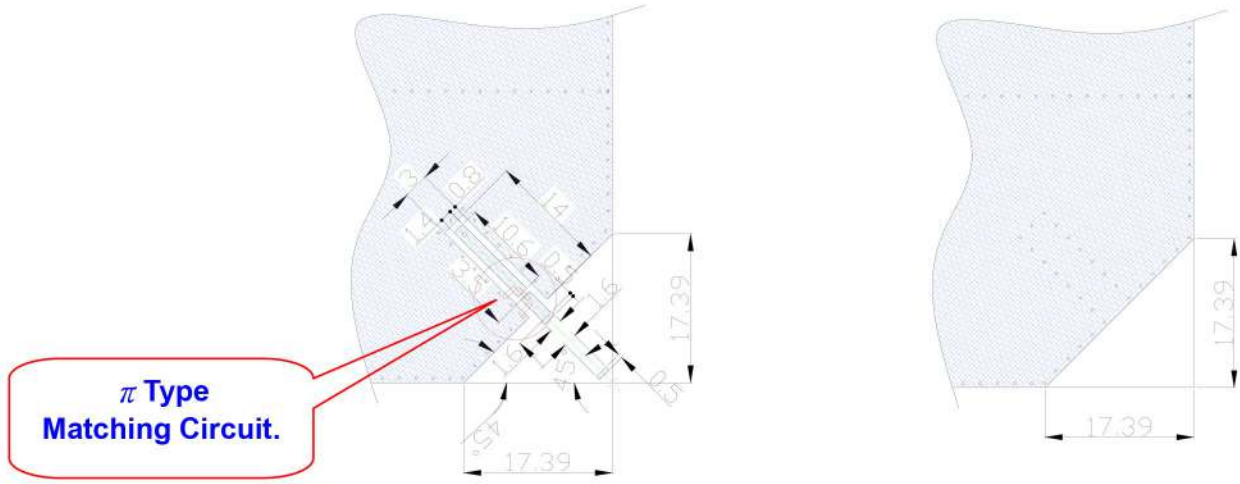
Customers Requirement Layout Dimension: Layout 1 Dimension



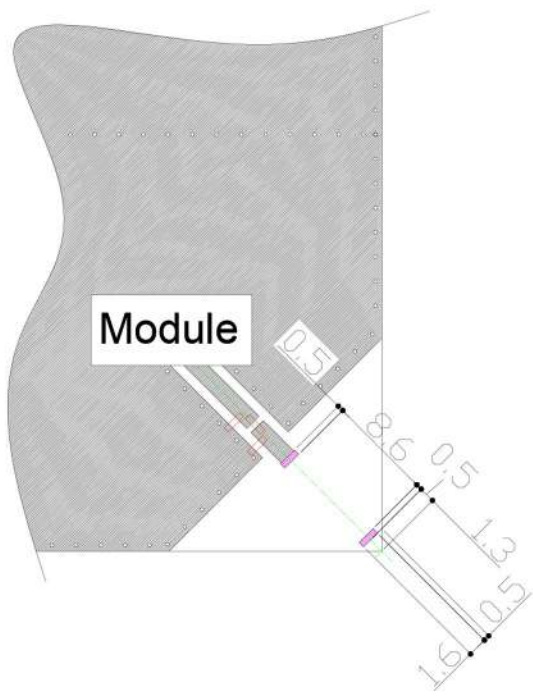
Single and Pad Layout Dimension



Layout 2 Dimension



Single and Pad Layout Dimension



Environmental Conditions

Operating conditions

The antenna has the electrical characteristics given in Tables 1 in the temperature range of -20 to +80°C and under the environmental conditions of +40 and 20~80 % relative humidity.

Storage temperature range

The storage temperature range of product is 0°C to +40°C

Reliability Tests

Low-temperature test

Expose the specimen to -20°C for 168 hours and then to normal temperature/humidity for 24 hours or more. After this test, examine its appearance and functions.

High-temperature test

Expose the specimen to +80°C for 168 hours and then to normal temperature/humidity for 24 hours or more. After this test, examine its appearance and functions.

High-temperature/high-humidity test

Subject the object to the environmental conditions of +80°C and 90 -95% relative humidity for 96 hours, then expose it to normal temperature/humidity for 24 hours or more. After this test, examine its appearance and functions.

Thermal shock test

Subject the object to cyclic temperature change (-20°C , 30 minutes <-> +80°C , 30 minutes) for 5 cycles, the expose it to normal temperature/humidity for 24 hours or more.

Vibration Test

Sinusoidal vibration test

Subject the object to vibrations of 5 to 200 to 5Hz swept in 10 minutes, 4.5G at maximum (2mm amplitude), in X and Y directions for two hours each and in Z direction for four hours. After this test, examine its appearance functions.

Vibration test in packaged condition

Subject the object, which is packaged as illustrated, to vibrations of 15 to 60 to 15Hz swept in 6 minutes, 4G at maximum (2mm amplitude at maximum), applied in X, Y and Z directions for two hours each, i.e. six hours in total. After this test, examine its appearance and functions.

Environmental Conditions

Free fall test in packaged condition

Drop the object, which is packaged as illustrated, to a concrete surface from the height of 90 cm, on one corner, three edges and six faces once each, i.e. 10 times in total. After this test, examine its appearance and functions.

Soldering Heat Resistance Test:

The lead pins of the unit are soaked in solder bath at $270 \pm 5^{\circ}\text{C}$ for 10 ± 0.5 seconds. After this test, examine its appearance and functions.

Adhesion Test:

The device is subjected to be soldered on test PCB. Then apply 0.5Kg(5N) of force for 5 ± 1 seconds in the direction of parallel to the substrate. (The soldering should be done by reflow and be conducted with care so that the soldering is uniform and free of defect by stress such as heat shock).

Warranty

If any defect occurs from the product during proper use within a year after delivery, it will be repaired or replaced free of charge.

Precautions for use

- (1) Antenna pattern use a Sn electrode.
- (2) Please don't use the corrosion gas (sulfur gas, chlorine gas) in the atmosphere.
- (3) Please don't direct solder onto the Sn electrode of Antenna pattern.