

# Dual Band CPW Pentagonal Island with Modified Sierpinski Gasket Structure at 3.5 GHz and 5.8 GHz

## Abstract

In this work, a dual-band pentagonal island antenna is proposed for WiMAX 3.5 GHz and WLAN 5.8 GHz applications. Firstly, the basic CPW pentagonal island antenna, Antenna A, is constructed on a 1.6 mm thick FR-4 substrate with a dielectric constant of 4.3 and a copper thickness of 0.035 mm. This antenna contains a pentagonal island with five mini structures of pentagonal island. Then, for Antenna B, a modification is made to the shading made of the Sierpinski gasket structure in the mini structure of the pentagonal island. For simulation Antenna B, it shows the simulation performance of 3.52 GHz and 5.93 GHz with return loss of - 24.84 dB and - 27.94 dB. For the measurement result of Antenna B at desired frequencies of WiMAX 3.5 GHz and WLAN 5.8 GHz, it shows a good performance of - 17.25 dB and - 19.35 dB, respectively.

## Keywords

CPW antenna; pentagonal antenna; Sierpinski Gasket; WiMAX; WLAN