

## ABSTRACT

Many microstrip antennas are developed because of light in weight and adjusting a shape of placing. The feeding method of these antennas are divided into three types, which are microstrip feeding, probe feeding, and EMC (*electromagnetically coupled*) feeding. The EMC method is recognized at the first time by K.F Lee and designed for producing a wide bandwidth.

At this Final Project, the microstrip antenna is designed and simulated at range frequency 3400 MHz – 3600 MHz for supporting WiMAX technology with using Ansoft HFSS 9.2 software. The used feeding method is EMC with the dielectric of air at the feeding structure of L-strip and triangular patch. In the simulation, the repetition of size of the antenna dimensions, which are patch, groundplane, feeder, and also a height of air gap, is done for getting a suitable result to the specification of antenna design. The result of simulation is implemented with using a material, which is a copper with a thickness 1 mm.

The result of measurement, which is obtained for frequency 3400 MHz – 3600 MHz, is  $VSWR \leq 1.25$ . At the value of  $VSWR \leq 2$ , it results a very wide bandwidth, which is 1122 MHz at range frequency 2878 MHz – 4000 MHz. The measured radiation pattern of antenna is unidirectional, and also its polarization is ellipse. The obtained gain of this microstrip antenna is around 6.31 dBi.