

ABSTRACT

The wireless communication technologies these days are rapidly developing. WiMAX is one of the many wireless communication technologies for high speed data, voice, and video communications which operate in the 3.3 – 3.4 GHz frequency band. This technology has been implemented by several advanced first world countries. However, to support such technology, a wide bandwidth antenna is needed.

Antenna is a device that emits and receives electromagnetic waves. Microstrip antenna has a small bandwidth and gain. The purpose of this final project is to design a 4 dipole array microstrip antenna that operates in the 3.3 – 3.4 GHz frequency band for a WiMAX application. The dipole array microstrip antenna is actually a patch dipole antenna shaped into a four microstrips arranged in an array. The purpose of the array form is to produce a bigger gain.

According to the measurements conducted, the value of VSWR that was obtained on the middle frequency of 3.5GHz was 1.092 with a bandwidth of 270MHz on the VSWR value of ≤ 1.5 . While the gain obtained was 8.49 dBi and the polarization made was linear polarization with an omnidirectional radiation pattern. Since the measurements attained correspond to the original design, hence the 4 dipole array microstrip antenna can be implemented for WiMAX application in the 3.3 – 3.4 GHz frequency band.

Keywords : *Microstrip, dipole array, WiMAX, VSWR, bandwidth, omnidirectional, gain.*