

Abstrac

UWB (Ultra Wideband) is a short-range communication systems that have a very wide bandwidth. UWB operates at a frequency of 3.1-10.6 GHz. With a data transfer speed of 480 Mbps, UWB is suitable for multimedia streaming in wireless environments in the home or office. UWB is also used for the detection of breast cancer. This method is called ultra wide band radar imaging or confocal imaging. UWB at the military is used for a radar in Unmanned Aerial Vehicle.

With a large bandwidth of UWB operations, we need an antenna which has a large bandwidth anyway. One of approachs to increase the bandwidth of antenna is to lower the Q factor. Decrease the Q factor can be done in a various ways, one of them is by widen and replace the antenna's patch form. This research will analyze the form of a patch that can meet the specifications for Ultra wideband technology. Analysis begins with a simple transmission line and then is converted into a strip monopole antenna. Analysis is afterward followed by a widening and changing the patch shaped of microstrip monopole antenna.

The simulation results show that the antenna's bandwidths can be upgraded to widen and reshape its patch. Semi-circular antenna has a better bandwidth than the rectangular or circular ones. From the measurement results, a semi circular antenna has a 10,176 GHz of bandwidth with a 2,824-13 GHz frequency range. *Gain* obtained from the measurements is 3,806 dBi. This antenna has an omni-directional radiation pattern and elliptical polarization, close to linier. The antenna is able to meet the specifications of UWB technology.

Key word : *ultra wideband, microstrip, monopole antenna, bandwidth, Q factor, patch.*