ABSTRACT

Wireless communication technology has grown very quickly to meet the needs of users. The 5G technology uses a higher frequency band to provide large data capabilities to support multi-Gbps data rates. The frequency allocation of this 5G technology occurs at a frequency of 24.25 GHz to 27.5 GHz. Bow-Tie antenna is a development of bikonikal antenna.The bow-tie antenna has bandwidth and wide impedance that makes this antenna work on ultra wide band (UWB) frequencies.

For antennas to work on ultra wide band (UWB) frequencies, scaling techniques are required. Scaling techniques can be performed to perform antenna measurements associated with very large structures. Objective scaling techniques to minimize the cost of making antennas on very large structures and finding outcome parameters corresponding to more affordable frequency measurements.

In the study of this Final Project, a 27 GHz slotted bow-tie antenna is designed, realized and evaluated to measure the desired resonance, which is set at a 2.7 GHz frequency by scaling down using Rogers 5880 substrate material / DUROID (Ɛr = 2.2 and h = 1.6 mm). From the simulation result through CST Microwave Suite 2017 and the realization result obtained the comparison of both frequencies with vswr value ≤ 1,3; return loss ≤ -10 dB and Omni-directional radiation pattern.

Keyword: Antenna Bow-Tie, Scaling Technique