

ABSTRACT

This final project has performed the design and implementation of a dual-band (3.5 GHz and 7.5 GHz) butterfly-shaped microstrip patch antenna with proximity electromagnetically coupled (EMC) for fifth generation 5G applications and VSAT (Very Small Aperture Terminal) applications. The butterfly antenna made in this Final Project uses proximity electromagnetically coupled (EMC) techniques, and DGS (Detected Ground Structure) techniques, the purpose of adding these techniques is to increase bandwidth. The first step is to calculate the initial dimensions of the antenna, then simulate it using CST Studio 2019 software. The simulation starts by entering the initial dimension values into the CST Studio Suite software, adding the proximity electromagnetically coupled (EMC) technique, and modifying the groundplane using the DGS (Detected Ground Structure) technique. The result of the measurement is getting the working frequency at 3.5 GHz and 7.5 GHz, return loss at 3.5 GHz of -15.056 dB and return loss at 7.5 GHz of -23.010 dB, bandwidth at 3.5 GHz of 650 MHz and bandwidth at 7.5 GHz of 1 GHz.

Keywords: microstrip antenna, butterfly antenna, dual-band, 5G, VSAT, EMC