UNIVERSITI TEKNOLOGI MARA

DESIGN OF A MICROSTRIP PATCH ANTENNA USING FREQUENCY SELECTIVE SURFACE (FSS) FOR SATELLITE COMMUNICATION SYSTEM IN S BAND

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ABSTRACT

This paper presents E shaped microstrip patch antenna with frequency selective surface (FSS) for S band application in satellite communication system. This proposed antenna reduces the return loss and enhances the gain in S band, which operating between 2 to 4 GHz of frequencies. The proposed structure of this project is an E shaped microstrip patch antenna attached with an air gap between the FSS. The simulation of this antenna structure is done using CST software. From the simulation, the return loss, gain, VSWR and radiation pattern of the antenna has been analysed. The return loss is reduce from -4.47 dB to -10.17 dB at the frequency of 2.51 GHz after embedding the FSS on the E shaped patch antenna. The gain is also has been improved from 5.44 dB to 7.41 dB at the same frequency. The radiation pattern also shows that the antenna main loop and back loop is improved after implanting the FSS on the microstrip patch antenna.

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