UNIVERSITI TEKNOLOGI MARA

DESIGN PROXIMITY COUPLER FED ANTENNA WITH DEFECTED GROUND STRUCTURE (DGS)

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ABSTRACT

The use of defected ground structure (DGS) to enhance performance of the antenna has been very popular nowadays. One of the advantages adding a DGS slot shaped on the ground plane of the antenna is for antenna reduction size. Since the radio frequency (RF) devices are getting smaller and smaller in this era technology, an antenna with DGS is designed in order to meet the tininess requirements of RF devices. This project presents the design of a proximity coupler fed antenna with DGS that were simulated on Computer Simulation Technology (CST) Microwave Studio Software and fabricated on Taconic substrate. Initially, a single patch antenna is designed using proximity coupler fed technique. Then, the experimental investigations have been carried out on a single patch antenna that has been added with a DGS. In order to reduce size of the antenna, an arrow head shaped DGS is used in the ground plane. The DGS shaped was achieved by applying parameter analysis in the design process. Analysis has been done to compare between the simulation and the measurement result for antenna with and without DGS. It was found that about 59.3% of antenna size has been reduced.

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