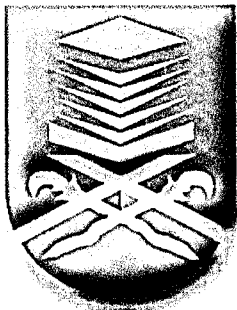


# **MULTILAYER PROXIMITY COUPLED RECTANGULAR PATCH ANTENNA**

Thesis presented in partial fulfillment for the award of the  
Bachelor of Electrical Engineering (Hons)  
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## ABSTRACT

The main purpose of this project is to present the design and simulation of multilayer proximity coupled rectangular patch antenna operating at the frequency of 3.5GHz. This frequency is applicable for WiMAX application. In designing antenna, there are four factor involved that need to be concentrate on which include dielectric constant  $\epsilon_r$  of the substrate, thickness of the substrate, length and width of the feed line, and also the patch dimension calculation. To investigate the performance of the antenna, CST software will be used and the result of simulation determined by analyzing the return loss  $S_{11}$ , VSWR, bandwidth, the input impedance and farfield. All this is presented in the form of graph.

Besides that, the antenna design was designed at the frequency of 3.5GHz and successfully fulfilled the requirement of the result which the return loss is less than -20dB and VSWR less than 1.5. The performance was compared with the antenna design using different combination which is RT Duroid 5870 and FR-4 at 3.5GHz. It was found that the combination of RT Duroid 5870 and RO 3003 is better in term of return loss, VSWR and gain. The analysis of antenna parameters also has been done. Some adjustment of the parameters of the antenna were performed based on the feeder width, feeder length, patch width and also patch length. The results were compared in term of return loss,  $S_{11}$ .

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