UNIVERSITI TEKNOLOGI MARA

DESIGN OF RECTANGULAR PATCH TEXTILE ANTENNA AT 2.45 GHz ISM BAND

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ABSTRACT

A textile antenna comprises a textile substrate with a conductive patch and a ground plane and may be affixed to or integrated in clothing, furniture or other type of textile materials. In this thesis, the design of textile antennas with substrate permittivities, $\varepsilon_r = 1.63$ and $\varepsilon_r = 1.53$ were proposed. The rectangular patch textile antenna was designed at 2.45 GHz Industrial, Science and Medical (ISM) band (2.4 GHz -2.485 GHz) for short range communication system. Fleece and denim fabrics were used as antenna substrates and copper tapes as the conductive part of the antenna patch and the ground plane. This project also presented the effects of antenna bending at four different angles which is the main highlight of this thesis.

Keywords: Fleece fabrics, denim fabrics, microstrip patch antenna, permittivity, ISM Band, antenna bending.

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