UNIVERSITI TEKNOLOGI MARA

TRANSPARENT PATCH ANTENNA DESIGN USING ALUMINIUM-DOPED ZINC OXIDE (ZnO:Al)

MOHD SHAHAR BIN MOHD SHAD

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ABSTRACT

This thesis present the design and simulation of a transparent antenna using Aluminium-doped Zinc Oxide (ZnO:Al) or AZO as a radiating component and glass as a substrate and an Aluminium-doped Zinc Oxide as a ground attached to the substrate. The simulation using Computer Simulation Tools (CST) Microwave Environment software at 1.0 – 3.0 GHZ based on a simple micro-strip patch design. The patch is calculated to get the resonance frequency of 2.4 GHz for WLAN application. The low resistivity value of AZO (1.44x10-4 Ω-cm) when converted to conductivity value, $\sigma = 6.9444 \times 105$ S/m will be used in CST Microwave for simulation.

Keywords— Aluminium-Doped Zinc Oxide (AZO); CST Microwave; Transparent patch antenna; resistivity and conductivity

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