

MICROSTRIP DIPOLE ARRAY ANTENNA FOR DIGITAL
BROADCASTING APPLICATION

Thesis presented in partial fulfillment for the award of the

Bachelor of Electrical Engineering (Hons)

UNIVERSITI TEKNOLOGI MARA

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ABSTRACT

This work will describe the design, simulation and fabrication of microstrip dipole array antenna. The microstrip dipole array antenna has been designed and fabricated for digital broadcasting application.

Centered at around of 2.6 GHz from the bandwidth of 2.54 GHz to 2.65 GHz, the antenna is designed on the FR4 substrate with a permittivity of 5, a thickness of 1.6mm and tangent loss of 0.02. Computer Simulation Technology (CST) Microwave Studio software is used to design and simulate the required response.

The fabricated antenna is measured using Vector Network Analyzer (VNA) and Antenna Training Measurement System (ATMS). The results are compared between the simulation and measurement.

The results showed that for the dipole array antenna with quarter wavelength matching, the return loss and VSWR obtained are -23.528dB and 1.143 respectively. Meanwhile the measured results for return loss and VSWR are -20.454dB and 1.21 respectively.

Meanwhile, microstrip dipole array antenna without quarter wavelength matching the return loss and VSWR obtained are -26.946dB and 1.094 respectively. Meanwhile the measured results for return loss and VSWR are -8.713dB and 2.158 respectively.

Thus it can be concluded that, it is important to ensure the matching network used is quarter wavelength in order to obtain a better results between the simulation and measurement.

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