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FINAL REPORT:
SLOTTED HOLLOW PYRAMIDAL MICROWAVE ABSORBER

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SEMESTER JUNE-OCTOBER 2016

This report is submitted to the Faculty of Electrical Engineering,

Universiti Teknologi MARA (UiTM).

In partial fulfilment of the requirement for the award of Diploma in Electrical Engineering.

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6/10/2016

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ABSTRACT

The Slotted Hollow Pyramidal Microwave Absorber project was designed to absorb and prevent the electromagnetic wave form reflected in anechoic chamber. The aim of the project is to get a good and better performance of microwave absorber by applying a slotted method. The Slotted Hollow Pyramidal Microwave Absorber are separated into 5 prototype to analyse the performance characteristic. Different slotted give a different performance. The calculated parameters have been optimized using Computer Simulation Technology (CST) software. The shapes of the microwave absorber are design using the software to get the simulation calculation. In making the prototype, the method use is by cutting the board, painting the board, shaping it into pyramid and the design prototype has been fabricated and the output measured by Arch method. The simulation gave out the prototype that give the best absorption is prototype small rectangular. However, in hardware measurement which is by using arch method, the best absorption was prototype big rectangular which is at -35.099 dB nearly achieve the commercial absorption which is -40dB. While the simulation was said that the prototype big rectangular has the poorest measurement of absorption. From the measurement, it is assured that the environment of the microwave absorber also affects the result which the simulation does not have. The poorest result of arch method measurement was big triangle slotted which is at -16.0222 db. The different of result between greatest absorption prototype big rectangular slotted and the poorest absorption big triangle slotted 19.077dB. This proved that each design has its own characteristic that affects the result and absorption of electromagnetic wave towards the microwave absorber. In order to understand the basic characteristic of shape, rectangular and triangle shape were used. The theories of Sierpinski triangle were used in order to understand about shapes characteristic better.

ACKNOWLEDGEMENTS

First and foremost, I offer my sincerest gratitude to my supervisor Puan Linda Binti Mohd Kasim who guided me through my final year project and who shared her experienced and knowledge. Her effort was very inspired to me to do this project on time and become more appreciate toward time.

My appreciation also extends to Tuan Haji Hasnain Abdullah who help me in completing the final year project by guiding and give some advice and time on doing the project. Also my gratitude to my mentor who is Ahmad Syahmi Yusof for helping me in physically and mentally towards finishing my final year project. Also thank you for open my mind and heart in understanding this project better.

Above ground, I offer my regards and blessing to my colleagues, families and everyone who supported me in any respect during the completion of the project.

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