

**UNIVERSITI TEKNOLOGI MARA
CAWANGAN PULAU PINANG**

**PINEAPPLE LEAVES FIBER
PYRAMIDAL MICROWAVE
ABSORBER**

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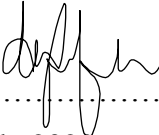
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AUTHOR'S DECLARATION

I declare that the work in this thesis was carried out following the regulations of Universiti Teknologi MARA. It is original and is the result of my work unless otherwise indicated or acknowledged as referenced work.

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ABSTRACT

Agricultural waste has become a risk to the environment. Nowadays, the researcher has found the alternative way to use the agricultural waste by use is as the main material to produce an alternative pyramidal microwave absorber for the anechoic chamber. The purpose of this project is to develop pyramidal microwave absorbers using pineapple leaves fiber (PALF) as of its main material. This paper is focusing on designing and observing the ability of PALF pyramidal microwave absorber to absorb the electromagnetic waves. The pyramidal absorbers used in this study are coming in two different sizes. This research is concentrating on the performance of two different sizes of pyramidal absorbers, Size A and Size B to determine which size gives better reflectivity performance. Other elements that affect the reflectivity are also tested in the simulation which is the dielectric constant of the material and the pyramid height. There are a total of 12 simulations has been constructed by varying the elements as stated before. These microwave absorber designs will resemble in Computer Simulation Technology (CST) Microwave Studio software. To determine the reflectivity performance, the absorber was measured for the microwave frequency range of 1 to 12 GHz. One of the more significant findings of the study is that the Size B absorber gives better reflectivity performance compared to Size A absorber with the best reflectivity performance at -71.36 dB at frequency range 4-8 GHz.

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