

**UNIVERSITI TEKNOLOGI MARA
CAWANGAN PULAU PINANG**

**REFLECTION PERFORMANCE OF
TRUNCATED PYRAMIDAL AND
TRUNCATED WEDGE MICROWAVE
ABSORBER USING BIOMASS
MATERIAL**

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**BACHELOR OF ENGINEERING (HONS)
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AUTHOR'S DECLARATION

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

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ABSTRACT

Microwave Absorber has been widely used in telecommunication equipment as it can prevent unwanted radiation and electromagnetic interference. This work presents that the shape of the absorber affects the performance of the microwave absorber. Other than that, one of the main purposes of this project is to study the reflection performance of the truncated pyramidal and the truncated wedge microwave absorber in the range of frequency between 1 GHz to 12 GHz. The proposed biomass material to develop in these absorbers is Sawdust Activated Carbon and Bamboo Charcoal. There are four fabricated samples of the microwave absorber. The Dielectric Measurement method was used to determine the value of epsilon in the proposed material, which is important to consider it in the simulation. This simulation using CST Microwave Studio Suite, act as the expected result, to predict the reflection performance of these proposed absorbers. Then, the fabricated absorbers were tested by signal at many different incident angles to, which use the Free Space Arch Reflectivity method. The exact performance of these absorbers is shown that the highest reflection performance is -78.3552 dB at a frequency of 4.325 GHz, during the measurement of the incident angle at 0 degree. Meanwhile, the lowest recorded reflectivity value is -0.2411 dB at a frequency of 1.245 GHz, which happen due to the signal incident angle at 60 degree.

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