Wood Evaluation by using Ultrasonic Testing Technique

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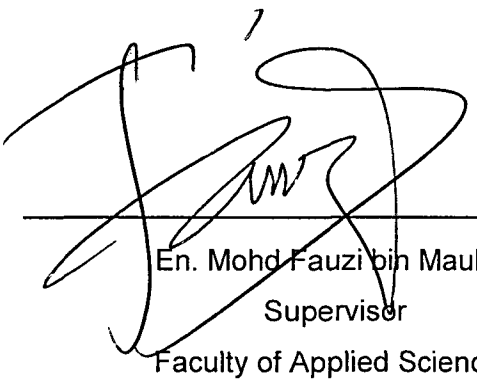
Final Year Project Report Submitted
in Partial Fulfillment of the Requirements for the
Degree of Bachelor of Science (Hons.) Industrial Physics
in the Faculty of Applied Sciences Universiti Teknologi MARA

JULY 2013

This Final Year Project Report entitled **"Wood Evaluation by using Ultrasonic Technique"** was submitted by Nur Hani binti Che Halim, in partial fulfillment of requirement for Degree of Bachelor of Science (Hons.) Industrial Physics, in the Faculty of Applied Sciences and was approved by



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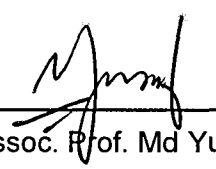

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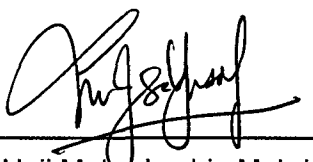

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Date: 18 JUL 2013

ACKNOWLEDGEMENTS

In the name of Allah, the Most Gracious and the Most Merciful Alhamdulillah, all praises to Allah for the strength and His blessing in completing this project.

I would like to express my gratitude to my supervisor, Mr Fauzi Maulud, for his kindness in helping me to carry out this project and for all his guidance throughout this period. Under his guidance and supervision, this project had been completed without much difficulty. All his advice have made me strong and he encouraged me to do and to think differently.

I also would like to thank to Dr. Ilham Mukriz and Miss Nur Hafzan Sarah as my co-supervisors for their support and guidance in completing my project.

Also my appreciation to everyone involved directly and indirectly in ensuring the successfulness of this project. Their help and support is highly appreciated.

Thank you,

Nur Hani binti che Halim

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ABSTRACT

This report is to study the ultrasonic wave velocity and orthotropic direction with respect to different moisture content in wood. Samples are cut down from Aquilaria species tree. Eight different samples with 3cm X 2cm X 9cm dimension are constructed from the cross-sectional area of wood. The samples are dried by using spotlight in order to ensure the sample properly dried. Ultrasonic velocity technique is used to determine the velocity wave propagate in wood sample after dried. There are three directions, parallel, perpendicular, and tangential to the wood grain have being inspected. In order to obtain 9 % and 15 % of MC, the samples are immersed in water in certain period; 2 hour produces 9% MC whereas for 15% MC time needed is 5-6 hours, velocity wave is measured by using ultrasonic testing technique. From the result obtained, dried sample produces the higher velocity wave and parallel direction measured is the best technique to be used other than perpendicular and tangential. It can be demonstrated that the velocity is sensitive to changes in moisture content of wood samples. Results indicated the moisture content as the main factor in this study.