INVESTIGATION OF HARMONIC LOSSES FOR PERSONAL COMPUTER DUE TO TYPE OF VOLTAGE SOURCE

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2011

INVESTIGATION OF HARMONIC LOSSES FOR PERSONAL COMPUTER DUE TO TYPE OF VOLTAGE SOURCE

By

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Report submitted in partial fulfillment
of the requirements for the degree
of Bachelor of Engineering (Industrial Electronic Engineering)

MAY 2011

ACKNOWLEDGEMENT

بسم الله الرحمن الرحيم

Firstly I would like to express praise Allah the Almighty, which have helped and guided me in completing my final year project. I would like to express my deepest and highest gratitude to my supervisor, Ir. Risnidar Chan Bahaudin MT, whose support; patience, encouragement, guidance and advice throughout my project have been invaluable to me. It has been a tremendous learning experience and I am truly honored and privileged. Very special thank my mother and father have been the two most influential people in my life. With their high morals and hard work, they have given me great guidance to success. I am very grateful to them for everything they have given me. Also special thanks goes to all teaching engineers, technician, all members to make my project success and also the entire project team members that being helpful and give the support in ensuring this project become successfully. A full appreciation goes to all Industrial Electronic Engineering members and lecturers for being so committed in giving an idea and comments for this project.

Thank you,

DECLARATION SHEET

I hereby declare that my Final Year Project Thesis is the result of my research work under supervision of Ir. Risnidar Chan Bahaudin. All literature sources used for the writing of this thesis have been adequately referenced.

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Title of thesis	**: AN INVESTIGATION OF HARMONIC LOSSES FROM PERSONAL COMPUTER (PC) DUE TO TYPE OF VOLTAGE SOURCE.**

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APPROVAL AND DECLARATION SHEET

This project report titled An Investigation of Harmonic Losses from Personal Computer due to type of Voltage Source was prepared and submitted by Mohd Hafiz Bin Hamzah (Matrix Number: 081070472) and has been found satisfactory in terms of scope, quality and presentation as partial fulfillment of the requirement for the Bachelor of Engineering (Industrial Electronic Engineering) in Universiti Malaysia Perlis (UniMAP).

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KAJIAN KEHILANGAN HARMONIK DARIPADA KOMPUTER PERIBADI

ABSTRAK

Projek ini adalah kajian berkenaan gangguan harmonik yang akan disebabkan oleh pelbagai jenis bentuk gelombang daripada pembekal voltan kepada komputer peribadi (komputer riba). Pembekal voltan untuk projek ini adalah gelombang sinus, gelombang segi empat, gelombang segi tiga dan gelombang kombinasi harmonik ketiga dan harmonik kelima. Ini kerana beban yang digunakan dalam projek ini adalah komputer yang mana akan menghasilkan arus tidak sinus melalui harmonik bernombor ganjil dengan lebih jelas. Gangguan harmonik daripada beban akan diukur terhadap setiap jenis gelombang pembekal voltan seterusnya untuk penyelesaian, penapis harmonik akan direka untuk mengurangkan gangguan harmonik dan meningkatkan faktor kuasa. Perbandingan antara nilai yang mempunyai penapis harmonik dan tanpa penapis harmonik akan ditunjukkan untuk membuktikan nilai harmonik akan mengurang dan faktor kuasa akan menaik.

INVESTIGATION OF HARMONIC LOSSES FROM PERSONAL COMPUTER

ABSTRACT

This project is about investigating harmonics distortion caused by the type of voltage source to personal computer (laptop). The voltage sources for this project are sine wave, square wave, triangle wave and combination of harmonic 3^{rd} and 5^{th}. The load that has been used for this project is Computer which will draw non-sinusoidal current with odd number of harmonics more significantly. Harmonic distortion from the load will be measured due to multiple types of voltage source waveforms and as the solution the harmonic filter will be designed to reduce harmonic distortion and improve the power factor. Comparison value with harmonic filter and without harmonic filter will be shown to prove that harmonic value will decrease and power factor will be increase.

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