# VOLTAGE SAG COMPENSATION BASED ON THREE-DIMENSIONAL SPACE VECTOR MODULATION TECHNIQUE ON *abc* COORDINATES



DOCTOR OF PHILOSOPHY IN ELECTRICAL ENGINEERING

**ลิขสิทธิ์มหาวิทยาลัยเชียงใหม่** Copyright<sup>©</sup> by Chiang Mai University All rights reserved

> THE GRADUATE SCHOOL CHIANG MAI UNIVERSITY APRIL 2010

## VOLTAGE SAG COMPENSATION BASED ON THREE-DIMENSIONAL SPACE VECTOR MODULATION TECHNIQUE ON *abc* COORDINATES

KOSOL ORANPIROJ

THIS THESIS HAS BEEN APPROVED TO BE A PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF DOCTOR OF PHILOSOPHY IN ELECTRICAL ENGINEERING

### EXAMINING COMMITTEE

7.....CHAIRPERSON

Assoc.Prof.Dr. Vijit Kinares

Assoc.Prof.Dr,Suttichai Premrudeepreechacharn

MEMBER

Prof.Dr. Chem Nayar CV S. Uatrong, it MEMBER

Asst.Prof.Dr. Sermsak Uatrongjit

Dr. Peerapol Jirapong

### THESIS ADVISORY COMMITTEE

.. ADVISOR

Assoc.Prof.Dr.Suttichai Premrudeepreechacharn

M. CO-ADVISOR

Prof.Dr. Chem Nayar CV latrong it ... CO-ADVISOR

Asst.Prof.Dr. Sermsak Uatrongjit

2 April 2010 © Copyright by Chiang Mai University

## VOLTAGE SAG COMPENSATION BASED ON THREE-DIMENSIONAL SPACE VECTOR MODULATION TECHNIQUE ON *abc* COORDINATES

**KOSOL ORANPIROJ** 

A THESIS SUBMITTED TO GRADUATE SCHOOL IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF DOCTOR OF PHILOSOPHY IN ELECTRICAL ENGINEERING

ลิขสิทธิ์มหาวิทยาลัยเชียงใหม่ Copyright<sup>©</sup> by Chiang Mai University All rights reserved

> THE GRADUATE SCHOOL CHIANG MAI UNIVERSITY APRIL 2010

#### ACKNOWLEDGEMENT

I would like to express my appreciation for my supervisor, Associate Professor Dr. Suttichai Premrudeepreechacharn, for his great assistance and advice throughout this research.

I would like to thank my co-supervisor, Professor Dr. Chem Nayar, for his great advice and help during research at Department of Electrical Engineering, Curtin University of Technology, Perth Australia.

I would like to thank you Assoc.Prof. Dr. Worawit Tayati and Asst.Prof. Darunee Tayati for their take care during research at Perth Australia.

I would like to thank other committee members, Asst. Prof. Dr. Sermsak Uatrongjit and Assoc. Prof. Dr. Wijit Kinares for their helpful discussions.

I would like to thank Mr.Montri Ngodech, Mr.Worrajak Muangjai, Mr.Pichet Tanin, Mr.Krisda Yingkayan for their support for the many thing.

Most importantly, I would like to thank my parents, Mr.Soung-Fha Sae-Fu my father who pasted away, Mrs.Boonkau Oranpiroj my mother, Mrs. Piengdao Oranpiroj my wife, Mr. Pisol Oranpiroj and Mr. Possawat Oranpiroj my sons, for everything they have done for me.

The financial support of the Thailand Research Fund through the Royal Golden Jubilee Ph.D. Program Program (Grant PHD/0078/2547) is also gratefully acknowledged.

All rights reserved