

ACKNOWLEDGEMENTS

The author would like to express her gratitude to Professor Ci-Ling Pan and Professor Ru-Pin Pan, for providing the opportunity to undertake this research starting from 2000, and their advice and supervision during the execution.

I gratefully acknowledge the financial support of my employer, the Center for Measurement Standards (CMS), Industrial Technology Research Institute (ITRI), Taiwan, R.O.C. Appreciation is additionally due to Dr. Dunn, the General Director, and Dr. Lin, the Division Manager, of CMS, for their intimate regards and support. In addition, sincere thanks go to the colleagues of the Dimensional Laboratory, CMS, for their cheer and warm friendship has eased the burden of the work.

Thanks are also due to group members of the Laser and Electro-Optic (LEO) Laboratory, in particular Chao-Yuan and Yu-Tai for their helpful discussions and the offer of specimens. Further, a personal appreciation goes to Gao for his assistance in the experiment.

I would like to thank my parents for their warm encouragement. Special thank must go to my husband, Tsu-De and my two lovely sons, June-Tsai and Pin-Tsai, for their understanding and support throughout the duration of the study. Finally, this thesis is dedicated to the dear members of my family.