Acknowledgements

At the very outset, I would like to express my profound gratitude and sincere thanks to my respected guide Dr. Satyajib Bhattacharyya, Professor, Electronics and Communication Engineering, Tezpur University, for his invaluable supervision, guidance and constructive suggestions throughout the course of this work and particularly for his diligent scrutiny and correction of the thesis. He often encouraged me to generalize things and look for the essence of problems. He also gave me freedom to develop my own ideas and to think and work independently. His encouragement was the great motivation for me to keep exploring.

I would like to extend my gratitude towards all the faculty members of the Dept of Electronics and Communication Engineering for their kind co-operation and encouragement which helped me in successful completion of the thesis.

I would also like to thank Prof. Nidhi S. Bhattacharyya, Dept. of Physics for her encouragement to carry out experiments and measurements in Microwave Engineering laboratory, Dept. of Physics, Tezpur University.

I wish to extend my sincere thanks to the staff of Dept. of Electronics and Communication Engineering for providing the required facilities, specially Bipul Da

I also take this opportunity to thank my seniors Suhas Da, Rocktotpal Da, Bidhan Da, Abinash Da and Chandramita Ba for their ample time which aides towards successful completion of Mtech dissertation.

My thanks and appreciations also go to my friends in carrying out the thesis and people who have willingly helped me with their abilities.

Partha Pratim Das

Dedicated to my

Parents, Teachers and friends