I would like to express my sincere gratitude and indebtedness to my supervisor Prof. J. A. Ansari for his supervision, advices and guidance during my research. Without his continuous support and interest, this thesis would not have been the same as presented here. He has helped me explore this vast topic in an organized manner and provided me all the ideas on how to work towards a research oriented venture. He served not only as a guide but as a genuine guardian in the time of need. Working with him has been a wonderful experience which I shall cherish for a long time.

I pay my sincere thanks to Prof. C. K. Dwivedi, Head, Department of Electronics and Communication, University of Allahabad, for providing the necessary help and facilities during the whole tenure of my work. He is not only a great teacher with deep vision but also a kind person.

I also want to express my deepest thanks to Prof. S. D. Dixit, Prof. H. K. Dixit, Prof. Nar Singh, Prof. R. R. Tewari, Dr. N. K. Shukla, Dr. Rajeev Singh, Dr. Rajneesh Kumar Srivastava, Er. Rajeev Srivastava, Dr. R. S. Yadav, Dr. T. J. Siddiqui, Dr. Ashish Khare and Mr. P. N. Gupta for their suggestions, constant encouragement and invaluable help throughout the successful completion of this work. This work would not have been possible without their motivation.

I offer my gratitude and indebtedness to all the faculty members and technical staff for their help and support in various ways. I am also thankful to non-technical staff members of the department for their help and co-operation in many respects.

I pay my sincere thanks to Dr. Ananjan Basu, Associate Professor, Center of Applied Research in Electronics, IIT Delhi for his co-operation and providing facilities of antenna measurement in their lab, during my research work.

I would like to express my gratefulness to my super senior Dr. Ram Brij Ram, for inspiring and suggesting me to incorporate new ideas to complete the thesis with fresh work. He helped me at every stage of my research work from beginning to end.
I am hereby recording my gratitude to my seniors Dr. Prabhaker Singh, Dr. Nagendra Prasad Yadav, and Dr. Sheo Kumar Mishra for their help and support during my research period. I wish to express my appreciation and sincere thanks to Dr. Anurag Mishra for his exemplary suggestions and encouragement throughout my research. His co-operation has been very valuable.

My words are boundless to deliver thanks to my fellow researchers Mr. Ashish Singh, Kamakshi, Mrs. Sapna Verma, Mr. Saiyed Salim Sayeed, Mr. Nitin Pandey, Mr. Ravi Saxena, Mr. M. M. H. Farooqui, Mr. Devendra Tripathi, Mr. Ram Raksha Tripathi, Mr. Manoj Sharma, Mr. Abhinav Sharma, Mr. Rajeev Singh, Mrs. Pallavi Singh, Mrs. Shweta Singh, and Mr. Vivekanand Yadav who always supported and helped me in many ways, their co-operation make me able to solve and face any type of problems. I sincerely thanks for their help given in bringing the manuscript in the present form.

During the intervening period I have come across some wonderful people in the form of seniors, friends, relatives or acquaintances from whom I have learnt immensely. While it is not possible to name them individually, I would like to express a deep sense of gratitude towards them.

Last but not the least I feel a glimpse of happiness to say thanks to my respected parents Mr. Rais Mohammad and Mrs. Sayra whose affection and blessings always empowered me to accomplish the work. I want to express my deepest appreciation and respect to my brothers and sisters Yasheen, Aftab, Saif and Kaushar who encouraged and motivated me not only during my research but also supported me throughout my education.

“God, the greatest giver, can open the whole universe to our gaze in the narrow space of a single lane.”

(Mohammad Aneesh)
Dedicated

Dedicated to The Ones Who Paved the Way for Achievements my Grand Parents & Teachers.

to my

Grand Parents