

**NOVEL SPACE TIME FREQUENCY DIVERSITY FOR MULTIPLE
INPUT MULTIPLE OUPUT-ORTHOGONAL FREQUENCY
DIVISION MULTIPLEXING (MIMO-OFDM)
BY USING EQUALIZER**

This thesis is presented in partial fulfilmeiit for the award of
Bachelor in Electrical Engineering (Honours)
UNIVERSITI TEKNOLOGI MARA (UiTM)



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ACKNOWLEDGEMENT

First of all, I would like to grace the Mighty Allah S.W.T, the only beneficent God for helping me faced all the circumstances during the research and fulfils my hope to complete my Final Project successfully. Alhamdulillah.

I would like to express my greatest appreciation to supervisor, Puan Azlina binti Idris for her supervision, knowledge, advice, guidance and opinions throughout this project. Her enthusiasms are specially recognized and without her cooperation, this project may not succeed.

I would like to thank my beloved wife, Puan Siti Aminah binti Ibrahim and my beloved childrens, Mohammad Fakhri Shafiq bin Mohammad Yazzed and Nur Fatin Nadiah binti Mohammad Yazzed for their understanding, support and encouragement in completing this project.

I am would like to acknowledge the Master student, Encik Meor for his cooperation and information during the project. Last but not least, my deepest appreciation goes to all my colleagues who have given me ideas, support and encouragement throughout this project. Thank you very much and may Allah bless all of you.

ABSTRACT

This project proposes novel space-time-frequency block codes (STFBC) for multi-antenna orthogonal frequency-division multiplexing (OFDM) transmissions over frequency selective fading channels (Multipath Rician and Multipath Rayleigh) by using QPSK modulation and a receiver equalizer. The resulting codes are to be capable of achieving maximum diversity and coding gains, while affording low-complexity decoding. The performance merits of this design is confirmed by corroborating simulations and compared with existing alternatives. In the Space Time Frequency (STF) coding schemes, assuming symbols S_1, S_2, S_3 and S_4 are transmitted a codeword constituted as C_1, C_2, C_3 and C_4 as symbol sets, transmitted at the same time slot but over two different OFDM sub-channel frequency carriers, f_{c1} and f_{c2} .

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