

UNIVERSITI TEKNOLOGI MARA

**IMPROVING STFBC MIMO-OFDM
WITH ICI SELF-CANCELLATION
SCHEME USING LEAST SQUARE
ERROR ESTIMATION**

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ABSTRACT

Channel estimation techniques for MIMO-OFDM based on comb type pilot arrangement with LSE estimator is investigated with STF diversity implementation. The frequency offset, due to the Rayleigh fading channel, Doppler shift and oscillator synchronization in OFDM impacts its performance. This is mitigated with the implementation of the presented ICI-SC techniques and different ST subcarrier mapping. STFBC in the system exploits the spatial, temporal and frequency diversity to improve performance. Estimated channel is fed into a decoder which combines the STF decoding together with the estimated channel coefficients for equalization. The performance of the system is compared by measuring the symbol error rate with a PSK-4 and PSK-8. The results show that subcarrier mapping and ICI-SC was able to increase the system performance. LSE estimator was also able to estimate the channel coefficient at only 6 dB difference with a perfectly known channel.

TABLE OF CONTENT

CHAPTER	TITLE	PAGE
	AUTHOR'S DECLARATION	iii
	ACKNOWLEDGEMENT	iv
	ABSTRACT	v
	TABLE OF CONTENTS	vi
	LIST OF FIGURES	viii
	LIST OF TABLES	ix
1	INTRODUCTION	1
	1.1 Problem Statements	3
	1.2 Objectives	4
	1.3 Scope of Project	4
	1.4 Report Overview	4
2	LITERATURE REVIEW	
	2.1 MIMO-OFDM System	6
	2.2 STF Block Coding	9
	2.3 Inter-Carrier Interference	11
	2.4 ICI Reduction Methods	14
	2.5 Channel Estimation	16
	2.6 Error Estimator	19

CHAPTER	TITLE	PAGE
3	METHODOLOGY	
3.1	System Model	20
3.2	MIMO-OFDM with FO	22
3.3	Subcarrier Mapping	26
3.4	ICI Self-Cancellation Scheme	28
3.5	Pilot Insertion	30
3.6	Least-Square Error Estimator	31
3.7	Alamouti Decoder	33
4	RESULTS AND DISCUSSION	35
4.1	Subcarrier Mapping	36
4.2	ICI-SC Performance	37
4.2	Channel Estimation Performance	39
5	CONCLUSION AND FUTURE DEVELOPEMENT	
5.1	Conclusion	42
5.2	Future Development	43
	 REFERENCES	 44