PERFORMANCE STUDY ON WIDEBAND CODE DIVISION MULTIPLE ACCESS (WCDMA) SYSTEM RAKE RECEIVER

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ACKNOWLEDGEMENT

In the name of Allah, the most gracious and the most merciful. Praised to the prophet Muhammad S.A.W, his companions and those who are on the path as what he preached upon.

I would like to express my gratitude to my Project Supervisor, PM Norasimah Binti Khadri for her endless support, guidance, advices and patience towards completing this project.

My sincerely and deepest thanks to my parents, En. Nasarudin Bin Hashim and Pn. Wan Azni Binti Wan Yusof and my family for their continuous support and prayers and for their faith in me.

Finally, to all lecturers, friends and coursemates whose contributing upon the course of this project.

ABSTRACT

This paper presents the study of Rake receiver bit error rate (BER) performance on WCDMA. The BER performance analysis was done in a WCDMA Frequency Division Duplex (FDD) downlink system by simulating on different channel types and Rake receiver spreading factor. All the simulations were done using MATLAB Simulink models. The models included a transmitter, propagation channel (Additive White Gaussian Noise (AWGN) channel and Rayleigh multipath fading channel) and Rake receiver with up to four fingers and 4 to 256 spreading factor. The functionality of each blocks in the models were verified, then the models were simulated and finally the trade-offs between parameters affecting the Rake receiver performance were investigated. The result shows that the Rake receiver work best in multipath channel and the highest number of spreading factor, which in this paper is 256.

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