

DEDICATIONS

I dedicate this thesis to my family and my friends who supported me.

ACKNOWLEDGEMENT

First of all greatest thanks to Allah. I'm highly thankful to my supervisor

Dr.Ibrahim Khider who helped me during my thesis, without his support it was hard to complete my thesis.

ABSTRACT

It is very challenging to design an efficient wireless communication system. It is because of many factors, affecting the performance of a typical wireless communication system. Orthogonal Division Multiple Access (OFDMA) is well utilized for achieving high spectral efficiency in communication systems. Single Carrier Frequency Division Multiple Access (SC-FDMA) was recently introduced for uplink multiple access scheme. The multiple access schemes in an advanced mobile radio system have to meet the challenging requirements, such as high

throughput, good robustness, low Bit Error Rate (BER), high spectral efficiency, low delays, low computational complexity, low Peak to Average Power Ratio (PAPR) and low error probability. Therefore, this thesis focuses on investigate and implement the two multiple access techniques (SC-FDMA and OFDMA) with adaptive modulation techniques BPSK, QPSK, 16-QAM and 64-QAM.

مستخلص

أنهم الصعبة للغاية تصميم نظام اتصالات لاسلكية ذو كفاءة . وذلك بسبب العديد من العوامل، التي تؤثر على أداء نظام اتصالات لاسلكية النموذجية. كذلك يستخدم تقنية الوصول المتعدد ذات الترددات المتعامد لتحقيق الكفاءة الطيفية العالية في نظام اتصالات تقنية الوصول المتعدد الوصول ذات تردد الحامل الواحد تعرضه مؤخر الطريقة الوصول المتعدد للإرسال. طرق الوصول متعددة في نظام الراديو المتنقلة متقدمة يجب أن تقيّم المتطلبات الصعبة، مثل ارتفاع الإنتاجية، متانة جيدة، وانخفاض معدل استخدام خطأ، عالية الكفاءة الطيفية، انخفاض حالات التأخير، قليلة التعقيد الحسابي، ذروة المنخفض لنسبة الطاقة المتوسطة (PAPR) واحتمالها الخطأ منخفضة. ولذلك، هذا لأطروحة تركز على تحقيق تنفيذ تقنيات الوصول المتعددة مع تقنيات التعديل التكميلي

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