

قال تعالى:

وَقُلْ أَعْمَلُوا فَسَيَرَى اللَّهُ عَمَلَكُمْ وَرَسُولُهُ وَالْمُؤْمِنُونَ وَسَتُرَدُّونَ إِلَى
عِلْمِ الْغَيْبِ وَالشَّهَادَةِ فَيُنَبِّئُكُمْ بِمَا كُنْتُمْ تَعْمَلُونَ ﴿١٠٥﴾

صدق الله العظيم

[سورة التوبة]

Abstract:

Multiple Input Multiple Outputs Orthogonal Frequency Division Multiplexing technique (MIMO-OFDM) has high performance over multipath channel environments and is used in many wireless communication applications, Combination between OFDM and multiple input multiple output (MIMO) known as (MIMO- OFDM) system.

In OFDM the data is transmitted using several narrow-band orthogonal sub-carriers, traditional MIMO-OFDM system based on fast Fourier transform (FFT), this transform however has the drawbacks such as it is a high peak average to power ratio(PAPR) and FFT uses a rectangular window, which creates rather high side lobes. Moreover, the pulse shaping function used to modulate each subcarrier extends to infinity in the frequency domain this leads to high interference and lower performance levels MIMO-OFDM system based on discrete wavelet transform (DWT) has a lot of advantages compared to the FFT based OFDM there is no need for cyclic prefix so that higher data rates can be possible achieved , OFDM-DWT is almost suitable in most of the arenas of wireless communication and next generation of wireless communication.

the simulation model has been created to examine the performance of proposed system compared to traditional system using different type of modulation scheme (BPSK,QPSK,16QAM,64QAM) in additive white Gaussian noise channel (AWGN) environment. The PAPR, BER and the capacity has been used as performance metric parameters in order to compare between the conventional OFDM and that based on the DWT. Simulation shows that the use of OFDM-DWT based outperforms the use of OFDM-FFT based in term of PAPR, BER and capacity.

الخلاصة:

تقنية نظام الاتصال متعدد المداخل والمخارج تتميز بادنية عالية في مختلف بيئات قنوات الاتصال وتستخدم في مختلف تطبيقات الاتصال اللاسلكى الدمج بين التعديل المسمى تقسيم التردد المتعامد وتقنية تعدد المداخل والمخارج تسمى بالنظام (متعدد المداخل والمخارج باستخدام تعديل تقسيم التردد المتعامد) .

في نظام تعديل تقسيم التردد المتعامد يتم إرسال البيانات في نطاقات ضيقة ومتداخلة كل منها يسمى (الحامل فرعي) النظام (متعدد المداخل والمخارج باستخدام تعديل تقسيم التردد المتعامد) التقليدي مبنى على عملية تحويل فورير السريع له العديد من المشاكل منها معدل الطاقه القصوي الي متوسط الطاقه العالي وكذلك عملية تحويل فورير السريع لها عدة مشاكل منها أنها تستخدم النافذة المستطيلة التى تنشئ(فصوص جانبية)، و كذلك تستخدم (تشكيل النبضة) فى التعديل و ذلك يقود إلى تداخل عالى و مستوى أقل فى الأداء.

نظام ال (متعدد المداخل والمخارج باستخدام تعديل تقسيم التردد المتعامد) المبنى على عملية (تحويل الموجات المتقطع) له العديد من المميزات مقارنة مع النظام المبنى على (تحويل فورير السريع) ، منها أنه لا يحتاج إلى (إضافة خانة بادئة دورية) لذلك يمكننا إنجاز معدل بيانات أعلى و يتميز أيضا بمرونة و دقة أعلى، و (تحويل الموجات المتقطع) مناسبة لأغلب نطاقات أنظمة الإتصال اللاسلكى تقريبا، و عند إستخدامها مع تعديل ال (تعديل تقسيم التردد المتعامد) تعتبر مناسبة لأجيال الإتصال اللاسلكى القادمة.

تم انشاء نظام محاكاة لاختبار أدائية النظام المقترح ومقارنته بالنظام التقليدى باستخدام انواع مختلفة من أنظمة التعديل فى بيئة قناة الاتصال المضاف اليها الضجيج الابيض تم استخدام معدل الطاقه القصوي الي الطاقة المتوسطة ونسبة اخطاء الخانات الثنائية و السعة كمعاملات قياس للاداء بغرض المقارنة بين النظامين

ظهر من نتائج المحاكاة ان نظام ال(متعدد المداخل والمخارج باستخدام تعديل تقسيم التردد المتعامد) المبنى على عملية ال(تحويل الموجات المتقطع) يتفوق على النظام التقليدى فى معدل الطاقة القصوى الي الطاقة المتوسطة ونسبة اخطاء الخانات الثنائية والسعة

Dedication

The

Deepest gratitude would

Goes to those peoples for their

Encouragement and support in every step

Of our life, special thankful to spirit of my mother

And ask my God to have mercy and forgiveness and is

Inhabited by vast paradises and dear to my father and to

My precious wife and to all my brothers, sisters and friends.

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