

**Ministry of Higher Education
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University of Diyala
College of Engineering
Communication Engineering Department**



**Design And Simulation of Reduced PAPR
OFDM System Using Partial Transmits
Sequences (PTS) Technique**

A project

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Abstract

Orthogonal Frequency Division Multiplexing (OFDM) is one of multicarrier modulation techniques that send signals through multiple carriers. These multiple carriers have different frequencies and they are orthogonal to each other which mean there is a mathematical relationship between them. All types of broadband wireless systems face the problem of inter symbol interference (ISI) and hence techniques that can overcome inter symbol interference are required. OFDM has become an effective technique to combat multipath fading and ISI in highly dispersive channel. Therefore, OFDM has recently found wide applications in both wire and wireless communication systems such as the asymmetric digital subscriber line (ADSL) and IEEE 802.11 standard. Although OFDM has many advantages, it suffer from some challenges such as sensitivity to frequency offset and high peak-to-average-power ratio(PAPR). High peak to average power ratio (PAPR) is the most important challenge that faces OFDM and reduces the power efficiency of RF amplifier. In this project we try to reduce PAPR effects on OFDM signals by using partial transmit sequence (PTS). Partial Transmit Sequence is one of most important PAPR reduction techniques, in this technique an input data block of N symbols is divided into sub blocks and each sub block has many of sub carriers which are weighted by phase factor. Those phase factors are designed to get the PAPR for the combined OFDM signals reduced. The purpose of this project is the design and simulation of OFDM, design and simulation of PTS and applying this technique on OFDM. Finally ,PAPR calculation are applied before and after PTS scheme.

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