Project on OFDM Communications

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Abstract

Orthogonal Frequency Division Multiplexing (OFDM) [1] is a popular modulation scheme in modern wireless communications. It achieves high data rates, robustness to frequency-selective fading, and low inter-symbol interference. This project implements an OFDM system in MATLAB and evaluates its performance with simulations. The project consists of following parts as required:

(i) A description of the OFDM modulation and demodulation process.

(ii) A discussion of the advantages and disadvantages of OFDM compared to other modulation schemes.

(iii) The usage of pilot symbols for channel estimation in OFDM system.

(iv) Numerical results to evaluates the discussed techniques.

1 Modulation and Demodulation

2 Advantages and Disadvantages

3 Pilot Symbols for Channel Estimation

4 Numerical Results

References

[1] Stephen B. Weinstein. “The history of orthogonal frequency-division multiplexing [History of Communications]”. In: *IEEE Communications Magazine* 47.11 (2009), pp. 26–35. DOI: 10.1109/MCOM.2009.5307460.