Abstract

Filter-Bank Multicarrier (FBMC) is a signal processing technique using filter-bank in the data transmission process. FBMC-OQAM system has a better BER value than FBMC-QAM but has interference. This can result in a decrease in the quality of the transmission process which results in reduced signal quality. So, it is necessary to handle this problem, one of which is the addition of an equalizer to the FBMC system. Signal quality can be seen by calculating the Bit Error Rate (BER) and Signal to Noise Ratio (SNR) values. System simulation was performed using MATLAB R2017a software. The system consists of a transmitter as a modulator, a receiver as a demodulator, and a channel. The FBMC system without an equalizer on the AWGN channel produces a lower BER value at the same SNR value compared to other system schemes with BER=0 at SNR 19dB. The equalizer shows good performance in FBMC systems with the Multipath ETU channel. Where there is an improvement in the BER value at SNR ≥7dB. In the AWGN channel, the addition of an equalizer to the FBMC system results in a higher BER value than the FBMC system without an equalizer. So that the addition of an equalizer on the FBMC system with the AWGN channel is not recommended.
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Index Terms

Computer Science

Circuits and Systems

Keywords

FBMC, Bit Error Rate, Equalizer, AWGN, Multipath.