

ABSTRACT

Power Line Communication (PLC) is a kind of data transmission system that using electrical line as its frequency carrier medium. The PLC channel is hardly not friendly in signal propagation because of its characteristics in multipath, attenuation, and the high noise level that cause quality degradation of the information through the PLC channel. With such characteristics above, it is recommended to apply better modulation and channel coding techniques to increase system capability in transmitting data. The multicarrier modulation technique OFDM (orthogonal Frequency Division Multiplexing) so far has been using to overcome the frequency selective fading that caused by multipath propagation.

Apart from that, today the limited resource, in this case about the frequency allocation that caused by the number of user, needs an effective and efficient technique in accessing the channel. the multiple access makes the user possible in a large amount in doing access in a communication resource. CDMA (Code Division Multiple Access) is an ordinary technique that possible many users to transmit information in the same time and frequency continuously. Each user is given a pseudo-random code that orthogonal each other to reduce Multiple Access Interference (MAI). As the result, CDMA will decrease the dependence of frequency planning.

Multicarrier transmission method like OFDM is enable to combine with an access technique based on Code Division Multiple Access (CDMA). The combination is known as Multi-carrier spread spectrum (MC-SS). It is to be hoped that these two implementations system will increase PLC capabilities overall. Here, the value of BER and SNR are used as the indicator of the capabilities.

Keywords : PLC, Frequency Selective Fading, OFDM, Spread Spectrum, Noise impulse, burst error, BER, SNR.