Noise suppression and modified decoding for PLC system

Power line channel has some unique characteristics as a data transmission medium including time varying, large attenuation and all kinds of complex noise sources. Since impulse noise has very high instantaneous power and wide frequency spectrum, it has a considerable influence on the transmission and leads to high BER which prevents receiver from correcting and deciding the transmitted symbols. Moreover, the high power noise is likely to cause the self-interference within the receiving equipment, leading to serious effect on the whole communication system. To overcome the problems, employment of subtle channel coding techniques is necessary. LDPC is a popular and practical candidate among channel coding schemes with an outstanding performance close to channel capacity. However, the common decoding techniques for LDPC are specifically designed for communication channels with AWGN noise and not suitable in the case of power line communications. The main task of this article aims at improving the performance of the whole PLC by proposing effective improvement for LDPC decoding scheme as well as noise suppression.

Keywords:
BER ,communications, LDPC, noise

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