Performance evaluation of two narrowband PLC systems: PRIME and G3

J. Matanza, S. Alexandres, C. Rodríguez-Morcillo

Abstract— The present work analyzes and compartes two of the most popular specifications for data transmission over power line networks: PRIME and G3. A complete and detailed description of the specifications together with simulation results of the performance of both solutions in a power line environment are presented. The simulation model has been built using the Matlab workspace. In order to create an accurate analogy of the disturbances present in the power line channel, frequency fading channels together with background and asynchronous impulsive noise are included. Both noise and channel response have been computed using previous results from literature and transmission matrix theory, respectively. Simulation results aim to show how PRIME and G3 behave in several frequency fading and noisy environments. Finally, with respect to PRIME, a proposal is made to increase its performance in a hardly impulsive noise channel.

Index Terms— OFDM, Source Coding, PLC, PRIME, G3, Matlab, Interleaver