

A Frequency Domain Equalizer in Discrete Wavelet Packet Multitone Transceiver for In-Home PLC Lans

Reliable and high speed communication over power-lines requires a robust modulation scheme, such as discrete multitone (DMT). A novel transceiver based on the discrete wavelet multitone (DWMT) modulation technique is proposed, in order to improve the data communication over the noisy in-home PLC network. DWMT transceiver utilizes discrete wavelet packet transform (DWPT) for basis functions. A frequency domain equalizer for the DWMT transceiver employing cyclic prefix, is also suggested. The time and frequency localization property of the wavelet packet transform helps mitigate narrowband and heavy impulse noise in the PLC channel, and gives improved performance over its conventional counterpart, the DMT transceiver.