World Academy of Science, Engineering and Technology
International Journal of Information and Communication Engineering
Vol:9, No:05, 2015

Improved Active Constellation Extension for the PAPR Reduction of FBMC-OQAM Signals

Authors : Mounira Laabidi, Rafik Zayani, Ridha Bouallegue, Daniel Roviras

Abstract : The Filter Bank multicarrier with Offset Quadrature Amplitude Modulation (FBMC-OQAM) has been introduced to overcome the poor spectral characteristics and the waste in both bandwidth and energy caused by the use of the cyclic prefix. However, the FBMC-OQAM signals suffer from the high Peak to Average Power Ratio (PAPR) problem. Due to the overlapping structure of the FBMC-OQAM signals, directly applying the PAPR reduction schemes conceived for the OFDM one turns out to be ineffective. In this paper, we address the problem of PAPR reduction for FBMC-OQAM systems by suggesting a new scheme based on an improved version of Active Constellation Extension scheme (ACE) of OFDM. The proposed scheme, named Rolling Window ACE, takes into consideration the overlapping naturally emanating from the FBMC-OQAM signals.

Keywords : ACE, FBMC, OQAM, OFDM, PAPR, rolling-window
Conference Title : ICICT 2015 : International Conference on Information and Communication Technologies
Conference Location : Paris, France
Conference Dates : May 18-19, 2015