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SIGNAL DEMODULATING DEVICES THROUGH A WAVELET OFDM RECEIVER

Patent

ES 256 148 B2

Code

TIC_UAH_14_P

Application areas

- Communications through the electrical network
- Smart grid
- Internet of things
- 5G



Type of Collaboration

- Technical cooperation
- Commercial agreement
- Technical assistance
- License agreement

Main Researchers

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CONTACT



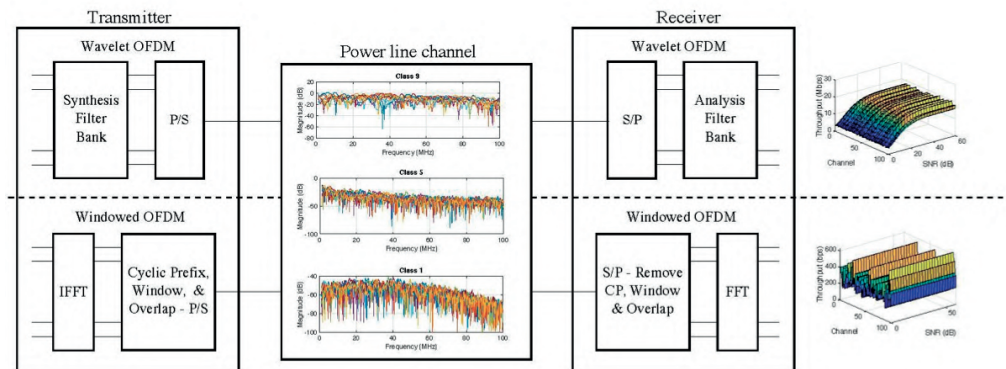
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ABSTRACT

The invention proposes a receiving system for multicarrier signals modulated in the transmitter with wavelet OFDM. This receiver includes a frequency-domain equalizer that corrects the channel effects. The invention also proposes a fast algorithm of implementation, and can be used in all those systems that employ multicarrier modulation based on Wavelet OFDM. Furthermore, the invention presents the following innovative aspects:

- It is compatible with several standards of communications by the electric network.
- It presents greater spectral efficiency than windowed OFDM.
- It increases the robustness of the system, decreasing the probability of error.
- It allows to improve the data rate in very noisy hostile environments.

ADVANTAGES AND INNOVATIONS

Smart Grid (SG) and IoT will bring one of the biggest technological changes in the first half of the 21st century. Within the context of SG, IoT-oriented technologies and systems are experiencing outstanding growth (28.5% between 2016 and 2020), with a large number of social and economic sectors demanding / offering new products from / to the market.

This change must be based on communication technologies that provide SG and IoT with capacity, efficiency and reliability in the transmission of information. The communication by the electrical network, or power line communication (PLC), is well positioned to offer this service, since it exhibits advantages as:

- Cost reduction to deploy new infrastructure, since it uses the existing power lines cables, and
- Great capillarity, allowing access to all IoT entities and systems that have power from the electrical network.

Wavelet OFDM is the modulation technique proposed in standards for PLC broadband data transmission in in-home electrical network, on platforms, for Smart Grid, and for IoT devices.