Matlab Modeling of the Main Blocks Within the Analog Signal Path of a DVB-H Radio Receiver

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Abstract

A Matlab behavioral model of the main analog blocks within a direct conversion radio receiver for signals broadcasted in the DVB-H standard is presented in this paper. The models for amplifier-type block cover not only the basic parameters – gain, bandwidth – but also the noise – though the noise factor – and the nonlinearity - through the compression and intercept points. Additional features are provided for blocks with more specific functions: gain imbalance and quadrature errors are added in for the mixer models and frequency characteristics for channel filter models. As an application example, the analysis of the effect the adjacent and alternate channels have on the wanted channel is presented, for two types of channel filters.