Abstract

We propose two alternative approaches for blind channel shortening to design time domain finite impulse response equalizer (TDE) in multicarrier single input, multiple output systems. The first approach we utilize the constant envelop of the transmitted signal called constant modulus (CM). Second approach is based on decision directed algorithm, where we update time domain equalizer using decision directed cost function. These cost function have been widely studied for single carrier systems, implementing them in multicarrier scenario is of great importance. Simulations shows they outperform classical multicarrier equalization by restoration of redundancy (MERRY) and Carrier nulling algorithm (CNA) that utilizes redundancies inherent in carriers in terms of bit error rate.

References

Blind Equalization in OFDM Systems by Channel Shortening and Channel Diversity Exploitation

- K. Maatong, J. A Chambers "Blind adaptive channel shortening with a Generalized Lag hopping which employs sum-squared autocorrelation minimization (GLHSAM);" ICSNC 2008, pp. 75-78


E. B. Salem, H. Besbes, "Maximization of useful-to-null subcarrier energy ratio for blind multicarrier SIMO channel shortening," 7th European Signal Processing Conference (EUSIPCO 2009)

**Index Terms**

Computer Science

Networks

**Keywords**

Blind equalization, Constant modulus algorithm, decision directed algorithm, SIMO, OFDM.