

ALGORITHMS FOR EVALUATING ADAPTIVE EQUALIZATION IN WIRELESS COMMUNICATION SYSTEMS

Engr. Silas A. Akaneme
Electrical/Electronic Engr. Dept.
ANSU-Uli, Anambra State, NIGERIA

Prof. G. N. Onoh
Electrical and Electronic Engr. Dept.
ESUT-Enugu State, NIGERIA

ABSTRACT

One of the new challenges in modern communication is to conceive highly reliable and fast communication system that is devoid of problems caused by multipath fading in wireless channels. The search is geared toward removing one of the obstacles in the way of achieving ultimately fast and reliable wireless digital communication such as inter-symbol interference (ISI). The job here is to apply adaptive equalization technology to minimize the communication errors resulting from the multipath signal effects. Adaptive equalization method is applied in this research based on the Least Mean Square (LMS) algorithms. The approach to the work is based on one methodology but several algorithms and configurations such as trained LMS algorithm, decision-directed algorithm and dispersion minimization algorithm. Different step size values are considered and compared for each of the three algorithms. Result of the simulation reveals that decision directed linear equalizer performs significantly better than others.

Keywords: Adaptive Algorithm, Dispersion Minimization, Decision Directed, LMS, ISI.