Abstract

Human body can be used as a communication channel for electrical signal transmission and thus offers a novel data communication means in biomedical monitoring systems. Human Body communication channel (on-body) may be proven as promising solution for Wireless Body Area networks (WBANs) in terms of simplicity, reliability, power-efficiency and security. This study proposes the design of an adaptive filter equivalent for human body communication channel. The simulations are based on Electronics and Telecommunication Research Institute (ETRI’s) measurement results obtained on human body within a frequency range of 5-50MHz. The measured frequency response is processed to obtain FIR filter matrix coefficients and further identified as RLS adaptive filter. The designing is done using system identification tool in MATLAB. Also a comparison is made between RLS and normalized LMS algorithm for adaptive filter design, which established the RLS adaptive filter as the promising solution for modeling Human Body Communication Channel.
Design of RLS Adaptive Filter Equivalent for Human Body Communication Channel

2. Arthur Astrin, Measurements of body channel at 13.5 MHz, IEEE 802.15-08-0590-00-0006, August 2008.

Index Terms

Computer Science
Information Sciences

Keywords