



EXTENDED KALMAN FILTERING AND PATHLOSS MODELING FOR SHADOW POWER PARAMETER ESTIMATION IN MOBILE WIRELESS COMMUNICATIONS

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Submitted: Jan.31, 2014

Accepted: May 16, 2015

Published: June 1, 2014

Abstract- In this paper accurate estimation of parameters, higher order state space prediction methods and Extended Kalman filter (EKF) for modeling shadow power in wireless mobile communications are developed. Path-loss parameter estimation models are compared and evaluated. Shadow power estimation methods in wireless cellular communications are very important for use in power control of mobile device and base station. The methods are validated and compared to existing methods, Kalman Filter (KF) with Gaussian and Non-Gaussian noise environments. These methods provide better parameter estimation and are more accurate in most realistic situations. EKF can estimate the model channel parameters and predict states in state-space.

Index terms: Extended Kalman Filter; Fading Channel, Handoff, Kalman Filter, local mean, multipath, power estimation, shadowing, state space, Path-Loss, Parameter Estimation.