

## Fast Accurate Detection of Frequency Jumps Using Kalman Filter with Non Linear Improvements

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**Abstract :** In communication systems, frequency jump is a serious problem caused by the oscillators used. Kalman filters are used to detect that jump, Despite the tradeoff between the noise level and the speed of the detection. In this paper, An improvement is introduced in the Kalman filter, Through a nonlinear change in the bandwidth of the filter. Simulation results show a considerable improvement in the filter speed with a very low noise level. Additionally, The effect on the response to false alarms is also presented and false alarm rate show improvement.

**Keywords :** Kalman filter, innovation, false detection, improvement

**Conference Title :** ICCCE 2014 : International Conference on Communication, Control and Computer Engineering

**Conference Location :** Istanbul, Türkiye

**Conference Dates :** December 05-06, 2014