

This paper describes a robust method of auto-adaptive pseudo noise (PN) code acquisition for mobile systems, when communicating in multipath environment. The proposed method is built on the Constant False Alarm Rate (CFAR) algorithm, which is referred to here as Median Absolute Deviation (MAD)-CFAR. The new method does not need any prior information of the background situations, and employs the Median Absolute Deviation (MAD) test to detect the multipath signals (outliers) in the ranked cells for the full reference window. Once these multipath signals are automatically identified and censored, the remaining ranked cells are taken to form a homogeneous reference window (HRW) free of outliers to calculate the adaptive threshold. Monte Carlo simulations show that the new approach has a good detection performance, while competitors present a poor performance to varying degrees. Thus proving the efficiency and superiority of the new method in a multipath environment