

Automatic Censoring in K-Distribution for Multiple Targets Situations

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Abstract : The parameters estimation of the K-distribution is an essential part in radar detection. In fact, presence of interfering targets in reference cells causes a decrease in detection performances. In such situation, the estimate of the shape and the scale parameters are far from the actual values. In the order to avoid interfering targets, we propose an Automatic Censoring (AC) algorithm of radar interfering targets in K-distribution. The censoring technique used in this work offers a good discrimination between homogeneous and non-homogeneous environments. The homogeneous population is then used to estimate the unknown parameters by the classical Method of Moment (MOM). The AC algorithm does not need any prior information about the clutter parameters nor does it require both the number and the position of interfering targets. The accuracy of the estimation parameters obtained by this algorithm are validated and compared to various actual values of the shape parameter, using Monte Carlo simulations, this latter show that the probability of censoring in multiple target situations are in good agreement.

Keywords : parameters estimation, method of moments, automatic censoring, K distribution

Conference Title : ICSP 2014 : International Conference on Signal Processing

Conference Location : London, United Kingdom

Conference Dates : November 28-29, 2014