

## Abstract

In this paper, we propose a novel algorithm for a CFAR radar detector. The proposed processor is derived from OS CFAR one and is based on weighting samples taken for the background level estimate. We assume that targets are embedded in a Gaussian noise and fluctuate according to Swerling I model. First, closed form expressions of the probabilities of detection and false alarm are determined and the performances of the proposed detector referred as WMAX CFAR are investigated when using one weighting coefficient for one window containing  $N$  samples of background. Then, we consider the case of a version with two different weighting coefficients each applied on a half window containing  $N/2$  samples. We present the results of performance analysis in non homogenous environment of the new detector referred as GOWMAX CFAR detector. The results are presented and discussed