

عنوان مقاله:

The Object Detection Efficiency in Synthetic Aperture Radar Systems

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خلاصه مقاله:

The main purpose of this paper is to develop the method of characteristic functions for calculating the detection characteristics in the case of the object surrounded by rough surfaces. This method is to be implemented in synthetic aperture radar (SAR) systems using optimal resolution algorithms. By applying the specified technique, the expressions have been obtained for the false alarm and correct detection probabilities. In order to illustrate the effective application of the introduced approach in the case of the generic SAR system, the results are presented of the calculation of the detection characteristics of the signal from the extended object surrounded by a rough surface. It is shown that the analysis allows us to substantiate the structure of the SAR signal processing channel and to obtain the improved relations for the radio observation characteristics in this case. The efficiency of the optimal signal processing in SAR systems can also be determined without the approximate calculations involved.

کلمات کلیدی:

Characteristic function, Detection Characteristics, Extended Object, Probability Density, Synthetic Aperture Radar

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