

Performance Evaluation of Step Stare Sensor for Space-Based Air Vehicle Detection

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ABSTRACT

Detection of aircraft by a space-based infrared sensor is a demanding task using near-term technology. To achieve sufficient sensitivity, background noise suppression is required because of the relatively weak target signal. Background noise suppression techniques, first order, second order, and higher order temporal differencing, spatial and temporal differencing, are analyzed and compared. Background noise due to both background drift and system vibration effects are calculated. Pixel-to-Pixel offset-induced background noise leakage is also evaluated.