

Active Cancellation Algorithm for Radar Cross Section Reduction Isam

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ABSTRACT:

Abstract - Modern components for signal processing make it possible to achieve radar visibility reduction, that requires reduce the radar cross section (RCS) of an aircraft or a system because it seems to be on the enemy's radar detection capabilities. To achieve this goal, this paper proposed an Active cancellation algorithm for radar cross section reduction using MATLAB, C language program, digital radio-frequency memory (DRFM), and phased array technology to generate the desired signal to cancel the reflected radar returns. The algorithm depends on a pre calculation approach in which an omni direction RCS, clutter, and noise databases generated in advance. Signal processing system function analysis parameter of the measured radar signal. Then find the corresponding echo data (amplitude and phase parameters of the coherent echo) in the target RCS database through real-time amendment. Through the establishment of a target scattering field with the abolition of a coherent signal in the direction of the radar system detection, the radar receiver stays in empty pattern synthesis. The result achieved by the proposed method improves visibility reduction by 25% compared to conventional methods.

KEYWORDS: Active cancellation, coherent, Echo, radar cross section, MATLAB, Phased array antenna, and Stealth.