

An Alternative Measures for Detecting Stealthy Aircraft using Monostatic Radars

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Abstract— Stealthy aircraft detection attracted a substantial attention in the recent years. The paper proposes an alternative measures for detecting stealthy aircraft using the operating monostatic radar parameters. This technique is used for detecting and tracking the small cross section area and stealthy aircrafts. The proposed measures are studied with different radar parameters to extend the detection coverage over the monostatic radar used for air surveillance. The simulation is done using Computer Aided Radar Performance Evaluation Tool (CARPET). It is a comprehensive computer program which alleviates the difficult task of designing and evaluating surface based radar systems. The studied parameters are the operating frequency, the transmitted power, pulse width, pulse repetition frequency, antenna polarization and tilt angle. The results show that the optimized parameters achieve a range extension of 100 Km and 50 % detection probability over the worst case parameters for detecting and tracking stealthy aircraft.

Keywords— Stealthy targets, Monostatic Radar

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