Optimum Stealthy Aircraft Detection Using a Multistatic Radar

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***Abstract*— Radar systems, based on Multistatic radar concept attracted a substantial attention in the recent years. The paper proposes system geometry for S-band Multistatic radar. This technique is used for detecting and tracking the small cross section area and stealthy aircrafts. The proposed geometrical structures are studied with different radars spacing to extend the detection coverage over the Monostatic radar used for air surveillance. The radar detection coverage is also studied with all possible stealthy aircraft paths to find the improvement achieved from using this type of radar. The simulation is done using Matlab program. The results show that the first system geometry with two transmitters and four receivers extends the detection coverage 80 Km for small aircraft and 62 Km for stealthy targets. The second system geometry with two transmitters and six receivers extends the detection coverage 85 Km for small targets and 69 Km for stealthy targets. The achieved SNR from these system geometries guarantee a high probability of detection for small and stealthy aircraft detection.**

***Keyword*— Multistatic radar, Stealthy Aircraft Detection**

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