

Optimal Request Signals Detection in Cooperative Surveillance Systems

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Abstract—The paper presents a synthesis of the optimal request signals detector in aircraft responders of Cooperative Surveillance Systems when the request channel streams of request signals emitted both in the main and side lobes of the requester antenna, deliberate correlated interferences imitating request signals and chaotic impulse interferences and shown that the detection of request signals in an aircraft responder is significantly dependent on the intra-system interference flux density, which reduces the safety of these systems due to the possibility and control the operation of the aircraft of the respondent interested party by the inclusion of intentional correlated interference.

Keywords—Cooperative Surveillance System; aircraft respondee; request signal; SSR / IFF; ADS-B; MLAT.

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