Interference Immunity Assessment of a Secondary Surveillance Radar Synchronous Information Network

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***Abstract*—In the present paper, we consider a method for increasing the noise immunity of secondary surveillance radar in which, due to the continuous transition from an asynchronous to a synchronous information network secondary surveillance radar, it is possible to carry out inter-period processing of request signals in an aircraft responder. This allows us to exclude from the service by the aircraft responder intentional (simulated by the interested party) correlated interference, and as a result, increase the likelihood of servicing SSR request signals included in this information network. This leads to an increase in the likelihood of detecting an airborne object, that is, noise immunity of the considered SSR information network as a whole, and to reduce the likelihood of violating the integrity of the data of the interrogated secondary surveillance radar included in the considered information network.**

Keywords—secondary surveillance radar (SSR); chaotic impulse noise (CIN); request signal (RS); aircraft responder (AR); intentional correlated interference (ICI)

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