Bandwidth Assessment of Cooperative Surveillance Systems

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***Abstract*—Cooperative surveillance systems (CSS), which are formed by secondary surveillance radar (SSR), Multilateration systems (MLAT) and Automatic dependent surveillance (ADS) are the basis of information support of the airspace control system and air traffic control (ATC). CSS represent asynchronous data transmission systems, the capacity of which largely determines the quality of information support of consumers of the airspace control system and ATC. The principle of CSS construction, based on the principle of servicing request signals, predetermined a significant density of intra-system interference and the possibility of the interested party to use aircraft responders by unauthorized request both for receiving data and for paralyzing aircraft responders. In the present paper, on the basis of a brief description of information flows in the request and response channels of CSS, the relative throughput of the aircraft responder under the effect of intrasystem and deliberate correlated and uncorrelated interference in the request channel was evaluated, and an estimate is given of the probability of receiving undistorted data in the response channel under the action of interference, which generally represents the throughput of the CSS.**

Keywords*—*CSS, SSR, MLAT, ADS, aircraft responder, bandwidth, request signal.

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