Optimization of Data Transmission Packet Length in Secondary Radar Systems

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***Abstract*—An expression for the effective data transfer rate in the response channel of a secondary radar under the action of intentional and unintentional correlated and uncorrelated, impulse and fluctuation interference in the channel is obtained. And also the influence of the main four factors on the decrease in the data transfer rate was evaluated: interference, analysis time at the receiving point, waiting time for confirmation at the transmitting point, and exceeding the allowable value of the number of retries. It is shown that the optimal size of information transmission through the channels of the secondary radar is largely determined by the intensity of interference. An algorithm for achieving the optimal transmission packet size is proposed.**

Keywords—secondary surveillance radars (SSR), Identification Friend or Foe (IFF), data packet length optimization, effective data rate.

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