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PARAMETERS OF MONITORING THE TECHNICAL CONDITION OF AIRSPACE RADIO ENGINEERING MONITORING SYSTEMS

The results of combat operations in modern armed conflicts confirm the increasing influence of manned and unmanned aerial vehicles, including aircraft and helicopters, unmanned aerial vehicles, cruise missiles, etc., in achieving tactical, operational-tactical and even strategic levels. Therefore, the urgent task is the timely detection of such means of air attack, their classification and decision-making on the use of appropriate means of destruction to destroy them [1]. For these purposes, use different airspace monitoring systems - radar and stations of different ranges and purposes. However, it should be borne in mind that defective elements of airspace monitoring systems reduce the efficiency of their work and are the reason for non-detection (timely detection) of air attack means. Thus, the construction of effective protection against air strikes depends on the timeliness of detection of possible failures, ie on properly justified parameters of control of the technical condition of airspace monitoring systems during operation [2].

The results of the analysis of failures of modern airspace monitoring systems show the need for timely detection of failures in their main components: radio systems [3]. For example, failure of elements of the radio systems airspace monitoring transmission path may reduce the power of the radio signal. Failure to detect such a failure in time may result in non-detection (timely detection) of air strikes and damage to troops or economic facilities [4].

Note that radio systems airspace monitoring is complex in terms of functional purpose, scope, structure, number of elements and connections, waveguide and energy ranges, processes that take place in the system itself. Nevertheless, for most types of radio systems, despite the list of versatility, there is a single generalized structure and it is possible to justify a set of parameters to control the technical condition of radio systems airspace monitoring during operation [5].

The report presents an algorithm for substantiating the parameters of control of the technical condition of the radio systems airspace monitoring. According to the main characteristics of airspace monitoring systems, it is proposed to use: the working range of the radio systems in range (limited to the minimum and maximum range of air target detection); the area between the minimum and maximum azimuth values; the area between the minimum

and maximum value of the angle; the area of detection of the air target in height; the number of measuring coordinates and the accuracy of measuring parameters (determined by error).

The use of the proposed algorithm will increase the reliability of control of the technical condition of the radio systems airspace monitoring during operation, which will increase the efficiency of their intended use.

References

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