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STATEMENT OF THE PROBLEM OF STRUCTURAL SYNTHESIS OF ATMOSPHERIC-OPTICAL SYSTEM

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The formulation of the problem of structural synthesis of a atmospheric-optical system is carried out and methods for determining the criteria for the effectiveness of atmospheric optical systems are investigated, which is one of the most important and essential problems in their optimization [1; 2].

The analysis of methods for assessing the impact of radioactive radiation on FSO shows that the created holistic methods assess the impact of radiation effects in the element base on the impact of only penetrating radiation.

Thus, the presence of shortcomings in existing methods does not allow to fully solve the scientific problem of assessing the impact of radioactive radiation on the FSO receivers, as a basis for developing recommendations aimed at preserving the values of the detection ability of the receiver under the influence of radioactive radiation [3; 4; 5].

The solution of the problem is possible in case of creating input data for the method, which would be able to take into account the stages and duration of the formation of the zone of radioactive contamination, the aggregate composition of the mixture of radio nuclides, the energy and activity characteristics of this mixture and the characteristics of adsorption – desorption interaction of a mixture of radioactive substances with the surfaces of the devices, and would also take into account the peculiarities of the impact on the FSO receivers [6].

Formulation of the problem of synthesis of a telecommunication system with the definition of characteristics of structure options is formalized.

The structure, role and place of atmospheric-optical communication lines in modern information transmission systems and increasing the efficiency of their functioning are considered. The factors are analyzed, and especially such an environmental factor is taken into account, which directly affects the technical characteristics of the element base of atmospheric-optical communication lines, such as radioactive radiation. The source of such radiation can be an accident of a nuclear power plant, as a result of which a large amount of radioactive substances spreads into the surrounding space outside the nuclear power plant.

An analysis of the radiation resistance of the element base of atmospheric-optical communication lines was carried out, which showed that the most vulnerable structural elements are infrared receivers. The technical condition of the receivers of atmospheric-optical communication lines under the influence of radioactive radiation will determine the general technical condition of the information system and affect the possibilities for their application. Radioactive radiation, which is also present in the space environment, is one of the factors in the manifestation of external influences and on the technical condition of aerospace technology. The radiation that occurs in the structures of integrated circuits when bombarded with high-energy particles leads to the generation of photocurrents that can change the operating characteristics of integrated circuits, in turn leads to failures in the transmission of information and to complete failure in emergency situations.

The directions of improving the methods of accounting for the influence of atmospheric-optical communication lines on receivers are proposed.

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МЕТОДИ АПРОКСИМАЦІЇ БІОЛОГІЧНИХ СИГНАЛІВ ЗА ДОПОМОГОЮ ФУНКЦІЙ ГАУСА

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У даний час в медицині все більш широке застосування знаходить метод математичного аналізу різних біологічних сигналів. Більшість з них є випадковими та квазіперіодичними процесами, що значно