AUTOMATION OF ELECTROMAGNETIC RADIATION MONITORING AS THE FACTOR OF ECOLOGICAL SAFETY MAINTENANCE

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The statistical analysis given in tab. 1 [1] testifies, that in Ukraine the medico-demographic threats are destabilizing factors of territories steady development maintenance . Degradation of environment is the reason of deterioration of the population health condition and abrupt decrease of population natural reproduction (see tab. 1).

The table 1. Dynamics of medico-demographic parameters in Ukraine

Parameter	1990	1995	1997	1999	2001	2003	2005	2006
Amount of the conditionally healthy people in an aggregate number of the population, %	62,6	53,7	50,0	46,6	42,1	34,2	28,2	26,1
Factor of a natural gain of the population (on 1000 population)	0,5	–5,8	–5,9	–7,0	–7,6	–7,5	–7,6	–6,4

Degradation of environment leads not only threat to health of the population, but also to growing of losses in economy and delay in socio-economic development of the state.

Therefore according to the Law of Ukraine "About protection of environment" all accepted technical and economic decisions should have a high degree of ecological reliability and safety.

The problem of calculating the anthropogenesis factors influence on environment and accordingly return influence of environment on the population has the important practical meaning in a context of ecological safety maintenance.

The available facts show importance of an estimation influence on natural environment of the electromagnetic fields of various nature, occasional or regular action (base stations of mobile connection, flying objects location finding devices). So for example, the foreign researchers Wertheimer and Leeper have established connection between intensity of electromagnetic emissions and children leukemia sickness rate [2].

By the standards of the different countries, including Ukraine [3] consummates control of electrical equipment on value of a field that they generate, the requirements on restriction of intensity of emissions and time of stay of the people under action of electromagnetic field also are exposed. Having the information about used equipment it is possible to lead preliminary research of radio devices influence through numerical methods of modeling of an electromagnetic field. So there is a urgent necessity of automation of electromagnetic emissions monitoring realization with the help of computer modeling, such approach can considerably reduce time of monitoring realization, and also lower expenses for special measuring devices.

Monitoring of electromagnetic radiation – is procedure of intensity level definition of a electromagnetic field with the purpose of the analysis of a environment condition (comparison of the received intensity amount with threshold limit value of the emissions), prevention of any losses connected with loss of health by the workers.

For solving the tasks of electromagnetic emissions monitoring automation improvement of system which calculates intensity of electromagnetic field in a premise is necessary. This system is based on algorithm of modeling situation of electromagnetic field intensity in space bounded by dielectric walls.

Input data for system functioning is amplitude-frequency characteristic of devices, linear sizes of a premise, location of devices and their orientation in space.

The system simulates dipole emissions in presence of walls-barriers and allows to get parameters on which it is possible to characterize a level of electromagnetic pollution, and also to forecast possible consequences of long stay of the personnel in a researched premise.

References

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