Methodology of the laboratory tests on efficiency of the means for biological protection against non-ionizing radiation (by the example of radiofrequency electromagnetic field and infrasound)

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The methodical guidelines for sanitary-epidemiological and medical-biological tests of the means for protection against radiofrequency electromagnetic field and infrasound in laboratory conditions have been worked out. The guidelines are suitable for the protective means founded on "traditional" technology (the reflection or absorption of the incident energy), but can be applied for means made using "non-traditional" technologies when there is no sufficient physical explanation.

Assessment of the protective means efficiency, based on the result of the instrumental studies (measurements) and medical-biological studies of the organism reaction to the exposure, is a particular feature of the method. This allows using it in the cases of the complex exposure conditions.

The criteria for the protective means efficiency assessment, requirements for test system setup and laboratory premises, dosimetry, sample selection and statistical data manipulation are described.

The basic criterion is the factor of decreasing of electromagnetic field or infrasound intensity, which must be more than 1 (one) taking into account the measurement uncertainty. The additional criterion is an absence of statistically significant difference ($p < 0.05$) in controlled medical and biological indexes between experimental (with installed protective mean) and sham-exposed and cage control groups of laboratory animals.

Medical-biological studies are conducted to control the organism reaction to the affecting factor as a reaction of the critical systems, which are known as the most sensitive to such influence (central nervous system, cardiovascular system, immune system).

The guidelines were approved during the protective means tests in occupational conditions.