

Methods and equipment for assessment of microwave radiation influence on biological objects

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(Abstract)

Dr. Vitaly N. Makukhin

**Center of Scientific Engineering and Social Activities "Trymas"
(Moscow, Russia)**

Effective factors of influence (frequency, amplitude, temporal physiological windows, influence of constant magnetic field). Reaction of an irradiated object, change of biological processes, cell structures, disorder of functioning organism. Sensitivity of principal physiological systems to influence of microwave radiation. Influence on organism by use of ferments reactions in cells and stressor mechanism, influencing regulatory systems. Complex parameters analysis of functioning objects on the basis of minimization of signs space dimension, ensuring a prompt assessment of object state with application of diagnostics methods; detection of latent regularities, indicative of afteraction origin; assessment of subsequent dynamics of object state. Substantiation and selection of transmitting and receiving equipment specifications.

Measuring devices of electromagnetic field parameters for medicobiological studies. Electromagnetic environmental monitoring. Electromagnetic compatibility of studies results, reproducibility of measurements normalization of microwave radiation influence on human. Exposure doses of radiation influence.

Distant control equipment of irradiated object state in the influence zone. Express diagnostics equipment; rhythmocardiographic, iridodiagnostic devices. Analysis of human oculomotor reactions. Stress-reactions. Intercommunication of hormonal and nervous systems. Vulnerableness of cortical analyzers under the influence of stressor actions. An assessment of character and action depth of stressor factors on human body. Activation criteria of retina compensatory processes, connected with stress-syndrome. An evaluation of psychoemotional disorders, caused by metabolic and structural changes of central nervous system. Evaluation methods of oculomotor reactions. Sensitivity of tests, based on analysis of eyes movements. High-velocity registration equipment of biopotentials, originated with motion of the eyeball. Typical signs of oculomotor reaction disorders with emotional stress, pathological states. Diagnostic tests for estimation of character and afteraction severity, appearing with effect of stressor factors on human organism. Prediction of human behavior in extreme conditions. Accomplishment possibility estimation of coordinated movements, spatial orientation, reduction of reaction time.

Basic requirements for methods and control devices of human functional state (sensitivity, efficiency, minimal interaction with the object, low cost). Experimental prototypes parameters of portable equipment, mobile and stationary installations.

Key words: non-lethal weapons, microwave radiation, biological objects, distant control, prototypes