

NEW INSTRUMENTAL METHOD FOR RESEARCH OF HUMAN PERSONAL SENSITIVITY TO A WEAK MICROWAVE EXPOSURE

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Today there are a lot of experimental data confirming the effects of weak microwave fields on human's psycho-physiologies and health. These effects are depending on the individual human sensitivity to microwave fields. This work is dedicated to the new instrumental method for research of the individual human sensitivity to weak microwave exposure. The 25 adult volunteers were irradiated by the remotely controlled low-intensity electromagnetic fields (EMF) source under GSM safety specs. Simultaneously their heart rate parameters were registered before, in time and after exposure. Special microwave sensors system controlled the safety human absorbed dose. Data statistical analyze of heart rate variability (HRV) shown the essentially cardiovascular changes for 20% investigated persons that can signals and effects on their wellbeing & health. This instrumental method may be used for healthcare application, estimating the personal thresholds of maximum permissible exposure (MPE), specific absorption rate (SAR) and power density (PD). The block-diagram of the research instrumental system is shown in fig. 1. a) It indicates: 1 – microwave GSM imitator (generator & transmitter); 2 – ECG Holter monitor with Wi-Fi; 3 – remote computer, which collects all data for post processing; 4 – UHF (microwave) dosimeter provides the constant registration of the main absorption characteristics; 5, 6 – control board and control computer, which perform the management of all units, pre-processing and data transmission. The microwave dosimeter is important and original unit of the instrumental system. This device operation is illustrated in fig. 1. b).

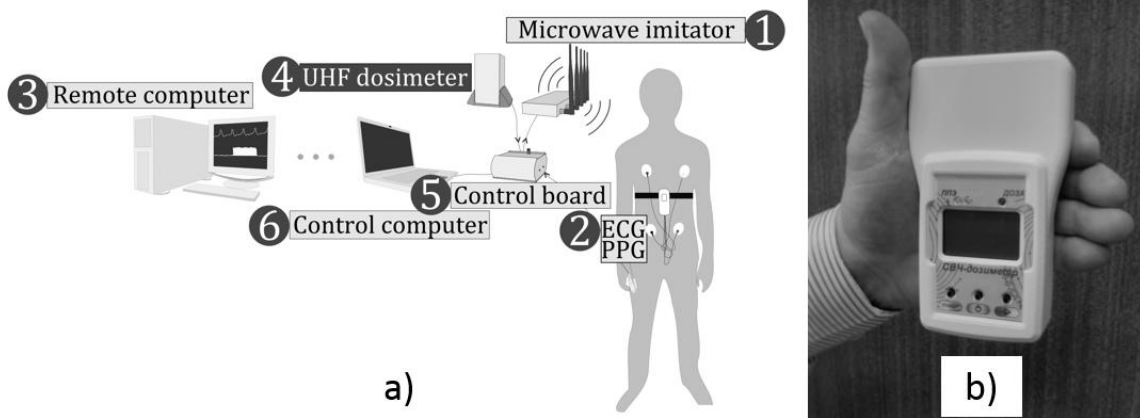


Figure 1. a) The block –diagram of the research instrumental system; b) Photo of microwave dosimeter.

The results of functional state changes of same person are shown in fig. 6. We can see that person functional state essentially changes from normal functional state to break of adaption zone under microwave exposure. The Described above experimental method and instruments may be suggested in medical application to determine the high patient sensitivity to microwave radiation and it may be help in right diagnostics.

This work was supported by the Russian Scientific Found under Grant # 16-19-00167.

[1] Task Force of the European Society of Cardiology and the North American Society of Pacing and Electrophysiology. Heart rate variability: standards of measurement, physiological interpretation and clinical use // Circulation. - 1996. - Vol. 93. - No. 5. -pp. 1043-1065.