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Monography "Cellular Radio Communications System Ecology»

Application

The technique and estimation procedures are used by the State Institution "Republican Scientific and Practical Center of Hygiene", the Ministry of Health in the development of:

- Sanitary norms, rules and hygienic regulations "Hygienic requirements for installation and operation of cellular systems" (approved by Resolution of the Belarus Ministry of Health

on February 1, 2010 No. 14);

– Technological normative document "Evaluation of the public health risk from exposure of electromagnetic fields generated by base stations of cellular mobile telecommunications and broadband wireless access. Instructions for use"(approved by the Chief Medical Officer of the Republic of Belarus on June 28, 2010, registration No. 093-0610).

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Since 2010, the technique and estimation procedures are used by BSUIR as the Key Organization in the Republic of Belarus for the study of protection from radio interference and electromagnetic compatibility of radio electronic equipment during assessments of population electromagnetic safety at Belarus socially significant facilities (schools, gymnasiums, offices hospitals and specialized medical centers for children, etc.).

Original research results used in these technique and estimation procedures received the recognition abroad and have been published in leading journals of United States, Russia and Belarus; they have been tested extensively at major international scientific symposia and conferences in the United States (2000), the Netherlands (2004), Spain (2006), Poland (2008, 2010), Russia (2005, 2007, 2009, 2011), Canada (2008), Switzerland (2011), Kazakhstan (2012), Italy (2012, 2013), Sweden (2014).

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ELECTROMAGNETIC safety of population



Estimation procedures for mass use of modern radio telecommunications



Purpose

- Estimation of electromagnetic ecology at densely populated areas in the conditions of mass use of radioelectronic equipment of various radio services (fixed and mobile radio communication, broadcasting, radar, etc.).
- Estimation of the electromagnetic safety of population in the conditions of mass use of cellular communications in the presence of electromagnetic fields produced by electromagnetic radiation of transmitters of various radio services.
- Expert evaluation of the electromagnetic safety of population on socially significant objects for children and teenagers (preschool and educational institutions, boarding schools, healthcare, health camps, etc.).

Features and benefits

- Forced environmental risks associated with the influence of electromagnetic radiation of users mobile devices (cell phones, PC modems, and mobile radio stations) in public areas are taken into account.
- The probabilistic criterion of population electromagnetic safety is used for objective definition and representation of the statistical characteristics of the electromagnetic fields ensemble set created by mobile and stationary sources of electromagnetic radiation.

Distribution of the indoor total intensity of electromagnetic field created by users cellular equipment (UMTS modems) at different height above ground level (0, 0.5, 1.0 and 2.0 m)

Distribution of the total intensity of electromagnetic field created by cellular base stations in the building restricted area on height of 26.0 m above the ground level around the socially significant object Distribution of the total intensity of electromagnetic field in the building restricted area on height of 49.4 m above ground level (2 m above the building roof) in the area of the socially significant object (gymnasium)