

WO2004075583A1

Application filed by Swisscom Ag 2003-02-24

Abstract

A method and system for reduction of electrosmog in wireless local networks, one or more mobile network units (1) communicating with a base station (2) of a wireless local network (5). After a predefinable time interval without connecting signal, the base station (2) changes over from the normal transmitting-receiving mode into a sleep mode, in which sleep mode no beacon signals and/or other radio frequency signals are transmitted from the base station (2). If a mobile network unit (1) requires a network connection, it transmits an alert signal, and, upon receiving the alert signal of the mobile network unit (1), the base station transmits beacon signals to the mobile network unit (1) and changes over into the normal transmitting-receiving mode

Reduction of Electrosmog in Wireless Local Networks

This invention relates to a method and system for reduction of electrosmog in wireless local area networks (WLAN), one or more mobile network units communicating with a base station by means of radio frequency signals in a wireless local area network, which base station amplifies the radio frequency signals of the mobile network unit and/or connects the wireless local area network to a wired fixed network by means of bridge functions. In particular, the invention relates to a method and system in which a WLAN comprises a plurality of access points with differing transmission cells.

The influence of electrosmog on the human body is a known problem. The health risk from mobile radio transmitters, handys and DECT telephones has been an explosive subject among the general public at least since the enormous breakthrough in mobile radio technology in the 1990s. To meet the concerns of science from the legislative side, the permissible limit values have thus been lowered several times, and technology has been increasingly focused on this problem.

The risk of damage to health through electrosmog has also become better understood as a result of more recent and improved studies. When, for example, human blood cells are irradiated with electromagnetic fields, clear damage to hereditary material has been demonstrated and there have been indications of an increased cancer risk (Mashevich M., Folkman D., Kesar A., Barbul A., Korenstein R., Jerby E., Avivi L., Department of Human Genetics and Molecular Medicine, Tel-Aviv University, Tel-Aviv, Israel, "Exposure of human peripheral blood lymphocytes to electromagnetic fields associated with cellular phones leads to chromosomal instability,"

Bioelectromagnetics, 2003 Feb., 24(2): 82-90). In this study, for example, human peripheral lymphocytes were exposed to continuous electromagnetic fields of 830 MHz in order to examine whether this leads to losses or gains in chromosomes (aneuploidy). Bigger changes lead to instability of the genome (= the totality of all genes of a germinal cell) and thereby to cancer. The human peripheral blood lymphocytes (PBL) were irradiated at different average specific absorption rates (SAR) of 1.6 to 8.8 W/kg over a time period of 72 hours in an exposure system based on a parallel plate resonator in a temperature range of 34.5 to 37.5 °C. The average absorption rate (SAR) and its distribution in the exposed tissue culture flask were determined by combining the measurement results with a numerical analysis based on a finite element simulation code. A linear increase in the chromosome No. 17 -- an aneuploidy (=numerical chromosome aberration) - was observed as a function of the SAR, demonstrating that this radiation has a genotoxic effect.

The SAR-dependent aneuploidy was accompanied by an abnormal mode of replication of the chromosome 17 region engaged in segregation (repetitive DNA arrays associated with the centromere), suggesting that epigenetic alterations are involved in the SAR dependent genetic toxicity. Control experiments (i.e. without any radio frequency radiation) carried out in the temperature range of 34.5 to 38.5 °C showed that elevated temperature is not associated with either the genetic or epigenetic alterations observed following RF radiation, these alterations being the increased levels of aneuploidy and the modification in replication of the centromeric DNA arrays. **These findings indicate that the genotoxic effect of electromagnetic radiation is elicited via a non-thermal pathway. Moreover aneuploidy is to be considered as a known phenomenon in the increase of cancer risk.** Thus it has been possible to show that mobile radio radiation can cause damage to genetic material, in particular in human white blood cells, whereby both the DNA itself is damaged and the number of chromosomes changed. This mutation can consequently lead to increased cancer risk. In particular, it could also be shown that this destruction is not dependent upon temperature increases, i.e. is non-thermal. Based on the scientific studies in the field, and owing to increasing pressure from the public, especially in the industrialized countries, epidemiological studies have been systematized by the World Health Organization (WHO) in the last few years, such as e.g. the currently running WHO Interphone Project, in order to be able to assess more precisely the health risks from electrosmog and work out corresponding guidelines.