



Recent scientific publications relevant to mobile telephony

February 2013

Details

Australia: The Alpha Band of the Resting Electroencephalogram under Pulsed and Continuous Radiofrequency Exposures, [Perentos et al., IEEE Transactions on Biomedical Engineering](#), Published Online: 23 January 2013.

'...alpha is altered by RF electromagnetic fields, but suggest that the pulsing nature of the fields is not essential for this effect to occur.'

Belgium: Compliance boundaries for multiple-frequency base station antennas in three directions, [Thielens et al., Bioelectromagnetics](#), Published online: 29 January 2013.

'...A method to determine a conservative estimation of compliance boundaries for multiple-frequency (cumulative) exposure is introduced...Uncertainties on the compliance distances are found to be smaller than 122%.'

China: Simplified segmented human models for whole body and localised SAR evaluation of 20 MHz to 6 GHz electromagnetic field exposures, [Wu et al., Radiation Protection Dosimetry](#), 153(3):266-272, March 1, 2013.

'...The results confirmed the efficiency and the validity of the proposed method. The application as evaluating the MRI radiofrequency EMF exposure is also discussed in the paper.'

China: Interaction Between Internal Antenna and External Antenna of Mobile Phone and Hand Effect, [Guo et al., IEEE Transactions on Antennas and Propagation](#), 61(2):862-870, February 2013.

'...the platform has a significant effect on the performance of the antenna, both in terms of its bandwidth and the number of its resonance frequencies...'

Germany: Influence of GSM Signals on Human Peripheral Lymphocytes: Study of Genotoxicity, [Waldmann et al., Radiation Research](#), Published Online: January 14, 2013.

'...none of the nine end points tested for SAR trend showed a significant and reproducible exposure effect. Highly significant differences between sham exposures and positive controls were detected by each analyzing laboratory, thus validating the study. In conclusion, the results show no evidence of a genotoxic effect induced by RF EMF (GSM, 1,800 MHz).'

Greece: Transient and cumulative memory impairments induced by GSM 1.8 GHz cell phone signal in a mouse model, [Ntzouni et al., Electromagnetic Biology and Medicine](#), Posted online on January 15, 2013.

'...The overall contribution of several possible mechanisms to the observed cumulative and transient impairments in spatial and non-spatial memory is discussed.'

Hong Kong: Specific absorption rate evaluation for passengers using wireless communication devices inside vehicles with different handedness, passenger counts, and seating locations, [Leung et al., IEEE Transactions on Biomedical Engineering](#), 59(10):2905-2912, October 2012.

'...results illustrated that the maximum SAR induced for mobile phone users in a vehicle is 5% higher than those in free space, but the SAR results showed no significant difference for the handedness...'

India: Effect of SAR on human head modeling inside cylindrical enclosures, [Mary et al., Electromagnetic Biology and Medicine](#), Posted online on January 16, 2013.

'...The results show that SAR values are increased inside cylindrical enclosures compared with those in free space...'

Iran: Assessment of RF radiation levels in the vicinity of 60 GSM mobile phone base stations in Iran, [Nayyeri et al., Radiation Protection Dosimetry](#), published online December 4, 2012.

'...results were compared with the relevant guideline of International Commission on Non-Ionising Radiation Protection and that of Iran, confirming radiation exposure levels being satisfactorily below defined limits and non-detrimental.'

Israel: Changes in Brain Glioma Incidence and Laterality Correlates with Use of Mobile Phones - a Nationwide Population Based Study in Israel, [Barchana et al., Asian Pacific Journal of Cancer Prevention](#), 13(11):5857-5863, 2013.

'...a statistically significant decrease in LGG's over 30-years period that correlates with introducing of mobile phones technology and a shift in laterality towards left-sided tumors, the latter occurred in both low and high-grade gliomas.'

Japan: FDTD analysis of temperature elevation in the lens of human and rabbit models due to near-field and far-field exposures at 2.45 GHz, [Oizumi et al., Radiation Protection Dosimetry](#), Published online: February 6, 2013.

'...For plane-wave exposure, the core temperature elevation is shown to be essential both in the human and in the rabbit models as suggested in the international guidelines and standards. For localised exposure of the human eye, the temperature elevation of the skin was essential, and the lens temperature did not reach its threshold for thermal pain. On the other hand, the lens temperature elevation was found to be dominant for the rabbit eye.'

Japan: The relationship between specific absorption rate and temperature elevation in anatomically based human body models for plane wave exposure from 30 MHz to 6 GHz, [Akimasa et al., Physics in Medicine and Biology](#), 58(4):903-922, 21 February 2013.

'...the current basic restriction for whole-body exposure in the international guidelines is conservative. Peak spatial-averaged SAR can be used as a metric for estimating local temperature elevation even for whole-body exposure...'

Netherlands: Maternal cell phone and cordless phone use during pregnancy and behaviour problems in 5-year-old children, Guxens et al., [Journal of Epidemiology and Community Health](#), Published Online 5 February 2013.

'...Our results do not suggest that maternal cell phone or cordless phone use during pregnancy increases the odds of behaviour problems in their children.'

Poland: Cancer risks related to low-level RF/MW exposures, including cell phones, [Szmigielski, Electromagnetic Biology and Medicine](#), Posted online on January 15, 2013.

'...So far, the published studies do not show that mobile phones could for sure increase the risk of cancer. This conclusion is based on the lack of a solid biological mechanism, and the fact that brain cancer rates are not going up

significantly. However, all of the studies so far have weaknesses, which make it impossible to entirely rule out a risk...

Sweden: Metric properties and normative data for brief noise and electromagnetic field sensitivity scales, [Nordin et al., Scandinavian Journal of Public Health](#), Published online: February 12, 2013.

'...The favorable metric properties of the NSS-11 and EMFSS-11 in combination with their fast usage suggest that they are particularly useful for assessment in epidemiological studies...'

Switzerland: Combining near- and far-field exposure for an organ-specific and whole-body RF-EMF proxy for epidemiological research: A reference case, [Lauer et al., Bioelectromagnetics](#), Published online: 15 February 2013.

'...a 24-h whole-body averaged exposure of a typical mobile phone user is dominated by the use of his or her own mobile phone when a Global System for Mobile Communications (GSM) 900 or GSM 1800 phone is used. If only Universal Mobile Telecommunications System (UMTS) phones are used, the user would experience a lower exposure level on average caused by the lower average output power of UMTS phones...'

Turkey: Adolescents' risk perceptions on mobile phones and their base stations, their trust to authorities and incivility in using mobile phones: a cross-sectional survey on 2240 high school students in Izmir, Turkey, [Hassoy et al., Environmental Health](#), 12(1):10, Published: 25 January 2013.

'...As debates on the health consequences of electromagnetic fields continue, it would be cautious to approach this issue with a preventive perspective. Efforts should be made to equalize the varying level of knowledge and to ensure that students are informed accurately.'

Turkey: Role of melatonin on electromagnetic radiation-induced oxidative stress and Ca²⁺ signaling molecular pathways in breast cancer, [Naziroglu et al., Journal of Receptors and Signal Transduction](#), 32(6):290-297, December 2012.

'...Melatonin may modulate breast cancer through modulation of enhanced oxidative stress and Ca²⁺ influx in cell lines. However, there is not enough evidence on increased risk of breast cancer related to EMR exposure.'

UK: Environmental risk factors for cancers of the brain and nervous system: the use of ecological data to generate hypotheses, [de Vocht et al., Occupational and Environmental Medicine](#), Published Online: 23 January 2013.

'...The only exogenous risk factor consistently associated with higher incidence was the penetration rate of mobile/cellular telecommunications subscriptions, although other factors were highlighted. According to these ecological results the latency period is at least 11-12years, but probably more than 20years...The results of ecological analyses in general should not be overinterpreted in causal inference, but equally they should not be ignored where alternative signals of aetiology are lacking.'

The MMF is an international association of wireless communications manufacturers established to support scientific research in relation to mobile telephony and health www.mmfai.info

The GSM Association (GSMA) is the global trade association that exists to promote, protect and enhance the interests of GSM mobile operators throughout the world. www.gsma.com/mobile-and-health

Disclaimer: The views expressed in the abstracts mentioned in this document are those of the authors and do not necessarily reflect the views of either the MMF or GSMA.

If you are aware of an article published this month that isn't mentioned here please email articles@mmfai.info