Recent scientific publications relevant to mobile telephony

November 2013

Details

Belgium: Assessment and comparison of total RF-EMF exposure in femtocell and macrocell base station scenarios, Aerts et al., *Radiation Protection Dosimetry*, Published online: October 31, 2013.

> *'…in average macrocell coverage and MP use-time conditions and for Universal Mobile Telecommunications System technology, the total exposure can be reduced by a factor of 20-40 by using an FBS, mostly due to the significant decrease in the output power of the MP…'*

China: Circadian alterations of reproductive functional markers in male rats exposed to 1800MHz radiofrequency field, Qin et al., *Chronobiology International*, Posted online on October 11, 2013.

> *'…our findings indicate potential adverse effects of RF exposure on male reproductive functional markers, in terms of both the daily overall levels as well as the circadian rhythmicity.'*

Egypt: Protective role of sesame oil against mobile base station-induced oxidative stress, Abd El Moneim et al., *Journal of Radiation Research and Applied Sciences*, Available online 29 October 2013.

> *'…all results of the current study proved that sesame oil can be used as an edible oil to attenuate the oxidative stress which could be yielded as a result of chronic exposure to EMR.'*

France: Feasibility study of 4G cellular antennas for eyewear communicating devices, Cihangir et al., *IEEE Antennas and Wireless Propagation Letters*, PP(99):1-1, Published online: 24 October 2013.

> *'…The best antenna is -6dB matched and has radiation efficiencies around 14% and 36% in respectively low and high frequency bands. Based on simulation data, SAR values could be above the 1g standards.'*

France: Spatial learning, monoamines and oxidative stress in rats exposed to 900 MHz electromagnetic field in combination with iron overload, Maaroufi et al., *Behavioural Brain Research*, Available online 18 October 2013.

> *'…there is an impact of EMF on the brain and cognitive processes but this impact is revealed only in a task exploiting spontaneous exploratory activity. In contrast, there are no synergistic effects between EMF and a high content of iron in the brain.'*

Italy: Mobile phone use and risk of intracranial tumors: A consistency analysis, Lagorio et al., *Bioelectromagnetics*, Published online: 6 November 2013.

> *'…the results of our study detract from the hypothesis that mobile phone use affects the occurrence of intracranial tumors. However, reproducibility (or lack of) is just one clue in the critical appraisal of epidemiological evidence. Based on other considerations, such as the limited knowledge currently available on risk beyond 15 years from first exposure, or following mobile phone use started in childhood, the pursuance of epidemiological surveillance is warranted.'*

Iran: Electromagnetic fields (UHF) increase voltage sensitivity of membrane ion channels; possible indication of cell phone effect on living cells, Ketabi et al., *Electromagnetic Biology and Medicine*, Posted online on November 15, 2013.

> *'…The frequency of channel gating and the voltage sensitivity is increased when the channel is exposed to EMF, while its conductance remains unchanged at all frequencies applied. We have not identified any changes in the capacitance and permeability of membrane in the presence of EMF…'*

Japan: FDTD computation of temperature elevation in the elderly for far-field exposures, Nomura et al., *Radiation Protection Dosimetry*, Published online: October 17, 2013.

> *'…the core temperature elevation in the older adult model was larger than that in the younger one at both frequencies. The reason for this difference is attributable to the difference of sweating, which is originated from the difference in the threshold activating the sweating and the decline in sweating in the legs.'*

Japan: Dosimetry of a Reverberation Chamber for Whole-Body Exposure of Small Animals, Chakarothai et al., *IEEE Transactions on Microwave Theory and Techniques*, 61(9):3435-3445, September 2013.

> *'…we performed dosimetry evaluation for multiple rat-shaped tissue-equivalent phantoms inside the RC and determined their whole-body average SARs for many orientations and arrangements of the phantoms. Finally, based on our numerical results, we offered a design rule when using an RC as a whole-body exposure system for small animals.'*

Japan: Incident Electric Field Effect and Numerical Dosimetry for a Wireless Power Transfer System Using Magnetically Coupled Resonances, Park et al., *IEEE Transactions on Microwave Theory and Techniques*, 61(9):3461-3469, September 2013.

> *'…We calculated the induced electric fields and the specific absorption rates in a Japanese adult male model by the scattered-field finite-difference time-domain method, taking into account both the incident electric and magnetic fields, and also by the impedance method, but only taking into account the incident magnetic fields…'*

Norway: Electromagnetic hypersensitivity (EHS) in the media - a qualitative content analysis of Norwegian newspapers, Huiberts et al., *Journal of the Royal Society of Medicine Short Reports*, 4(11):Published online: November 4, 2013.

> *'…The newspaper media discourse of EHS aetiology and recommended treatment interventions is much in conflict with the current evidence in the field. The majority of statements concerning aetiology convey that EHS is related to the presence of weak EMFs, and radiance reduction as the most frequently conveyed measure to reduce EHS-related symptoms.'*

South Korea: Effects of combined radiofrequency radiation exposure on levels of reactive oxygen species in neuronal cells, Kang et al., *Journal of Radiation Research*, Published online: October 8, 2013.

> *'…neither combined RF radiation alone nor combined RF radiation with menadione or H2O2 influences the intracellular ROS level in neuronal cells such as U87, PC12 or SH-SY5Y.'*

Switzerland: Use of portable exposure meters for comparing mobile phone base station radiation in different types of areas in the cities of Basel and Amsterdam, Urbinello et al., *Science of The Total Environment*, 468-469:1028-1033, 15 January 2014.

> *'…mobile monitoring of exposure from mobile phone base station radiation with PEMs is useful due to the high repeatability of mobile phone base station exposure levels, despite the high spatial variation.'*

Tunisia: Effects of olive leave extract on metabolic disorders and oxidative stress induced by 2.45 GHz WIFI signals, Salah et al., *Environmental Toxicology and Pharmacology*, 36(3):826-834, November 2013.

> *'…RF exposure induced a diabetes-like status through alteration of oxidative response. Olive leaves extract was able to correct glucose metabolism disorder by minimizing oxidative stress induced by RF in rat tissues.'*

Turkey: Effect of 900 MHz electromagnetic fields emitted from cellular phones on fracture healing: an experimental study on rats, Aslan et al., *Acta Orthop Traumatol Turc* , 47(4):273-280, 2013.

> *'…this study demonstrate that EMF at 900 MHz of frequency emitted from cellular phones has a significantly negative effect on bone fracture healing in a rat tibia model.'*

UK: Assessment of extremely low frequency magnetic field exposure from GSM mobile phones, Calderón et al., *Bioelectromagnetics*, Published online: 6 November 2013.

> *'…Maximum resultant magnetic flux density values at 217Hz had a geometric mean of 221 (+198/-104)nT. Taking into account harmonic data, measurements suggest that mobile phones could make a substantial contribution to ELF exposure in the general population…'*

USA: Glioblastoma and other malignant gliomas: A clinical review, Omuro et al., *Jama*, 310(17):1842-1850, Published online: 6 November 2013.

> *'…review the clinical management of malignant gliomas, including genetic and environmental risk factors such as cell phones…Only radiation exposure and certain genetic syndromes are well-defined risk factors for malignant glioma…'*
