Recent scientific publications relevant to mobile telephony

August 2013

Details

Belgium: Spatial and temporal RF electromagnetic field exposure of children and adults in indoor micro environments in Belgium and Greece, Vermeeren et al., *Progress in Biophysics and Molecular Biology*, Available online 17 July 2013.

> *'…All instantaneous and maximal exposures satisfied international exposure limits and were of the same order of magnitude in Greece and Belgium. Mobile telecommunications and radio broadcasting (FM) were most present…'*

Belgium: Comparison of Temporal Realistic Telecommunication Base Station Exposure with Worst-Case Estimation in Two Countries, Mahfouz et al., *Radiation Protection Dosimetry*, Published online: June 14, 2013.

> *'…worst-case exposure assessment overestimates realistic maximal exposure up to 5.7 dB for the considered example. In France, the values are the highest, because of the higher population density. The results for the maximal realistic extrapolation factor at the weekdays are similar to those from weekend days.'*

Belgium: Assessment of outdoor radiofrequency electromagnetic field exposure through hotspot localization using kriging-based sequential sampling, Aerts et al., *Environmental Research*, Available online 5 June 2013.

> *'…validation of the subsequent surrogate models shows high prediction accuracy, with the final model featuring an average relative error of less than 2 dB (factor 1.26 in electric-field strength), a correlation coefficient of 0.7, and a specificity of 0.96.'*

Brazil: Estimating the Location of Maximum Exposure to Electromagnetic Fields Associated with a Radiocommunication Station, Linhares et al., *Journal of Microwaves*, Optoelectronics and Electromagnetic Applications, 12(1):141-157, June 2013.

> *'…results may be applicable to any radiocommunication station. As far as the authors know, this is the first study to present a mathematical formulation in closed form under the considered constraints.'*

Brazil: Effect of 950 MHz UHF electromagnetic radiation on biomarkers of oxidative damage, metabolism of UFA and antioxidants in the livers of young rats of different ages, Furtado-Filho et al., *International Journal of Radiation Biology*, Posted online on July 25, 2013.

> *'…950 MHz UHF EMR does not cause oxidative stress (OS), and it is not genotoxic to the livers of neonates or those of 6 and 15 day old rats, but it changes the concentrations of polyunsaturated fatty acid (PUFA) in neonates. For rats of 30 days, no OS, but it is genotoxic to the lisvers of ER to total body irradiation.'*

Egypt: Effect Of Microwave Radiation On The Retina Of Mice Embryos, Amer et al., *Journal of Biology and Life Science*, 4(2):215-231, 2013.

> '*…Since the evaluation of the clinical relevance of microwave radiation interactions on fetal retina is still lacking, such pathological changes must be taken into consideration in order to minimize cell injuries.*'

France: In-vitro exposure of neuronal networks to the GSM-1800 signal, Moretti et al., *Bioelectromagnetics*, Published online: 1 August 2013.

> '*…Our research group has developed a dedicated experimental setup in the GHz range for the simultaneous exposure of neuronal networks and monitoring of electrical activity…'*

France: Is the effect of mobile phone radiofrequency waves on human skin perfusion non-thermal?, Loos et al., *Microcirculation*, Published Online: 17 April 2013.

> '*…Our results reveal the existence of a specific vasodilatory effect of mobile phone radiofrequency emission on skin perfusion.'*

India: Spatial memory and learning performance and its relationship to protein synthesis of Swiss albino mice exposed to 10 GHz microwaves, Sharma et al., *International Journal of Radiation Biology*, Posted online on August 19, 2013.

> '*…exposure to microwave radiation caused decrements in the ability of mice to learn the special memory task, this may be due to simultaneous decrease in protein levels in the brain of mice.'*

Japan: Effects of electromagnetic fields emitted from W-CDMA-like mobile phones on sleep in humans, Nakatani-Enomoto et al., *Bioelectromagnetics*, Published online: 22 August 2013.

> '*…Sleep parameters including sleep stage percentages and EEG power spectra did not differ significantly between real and sham exposures. We conclude that continuous wave EMF exposure for 3h from a W-CDMA-like system has no detectable effects on human sleep.'*

Japan: Computational dosimetry for grounded and ungrounded human models due to contact current, Chan et al., *Physics in Medicine and Biology*, 58(15):5153, 7 August 2013.

> '*…Some discrepancies are observed between the basic restrictions for the electric field and SAR and the reference levels for the contact current, especially in the extremities…'*

The Netherlands: Measuring mobile phone use: Gender, age and real usage level in relation to the accuracy and validity of self-reported mobile phone use, Vanden Abeele et al., *Mobile Media & Communication*, 1(2):213-236, May 1, 2013.

> '*…The results showed significant discrepancies between self-reported and behavioral mobile phone use, particularly for the number and duration of mobile calls. Light users tended to overestimate, while heavy users tended to underestimate their mobile phone use…'*

Sweden: Downlink power distributions for 2G and 3G mobile communication networks, Colombi et al., *Radiation Protection Dosimetry*, Published online: July 12, 2013.

> '*…For the 3G network, the 90th percentile of the averaged output power during high traffic hours was found to be 43 % of the maximum available power. The corresponding number for 2G, with two or more transceivers installed, was 65 % or below.'*

Sweden: Meningioma patients diagnosed 2007--2009 and the association with use of mobile and cordless phones: a case--control study, Carlberg et al., *Environmental Health*, 12(1):60, Published: 19 July 2013.

> *'…No conclusive evidence of an association between use of mobile and cordless phones and meningioma was found. An indication of increased risk was seen in the group with highest cumulative use but was not supported by statistically significant increasing risk with latency…'*

Sweden: Pooled analysis of case-control studies on acoustic neuroma diagnosed 1997-2003 and 2007-2009 and use of mobile and cordless phones, Hardell et al., *International Journal of Oncology*, Published online on: Monday, July 22, 2013.

> *'…Several of the calculations in the long latency category were based on low numbers of exposed cases…This study confirmed previous results demonstrating an association between mobile and cordless phone use and acoustic neuroma.'*

Switzerland: Field Evaluation of the Human Exposure From Multiband, Multisystem Mobile Phones, Kuhn et al., *IEEE Transactions on Electromagnetic Compatibility*, 55(2):275-287, April 2013.

> *'…The results show a small change of the mean output power in GSM mode (from -2 to -10 dB) compared to 30-dB power control dynamic range. The mean output power in UMTS was a factor <100 lower than GSM…'*

Turkey: Self-reported symptoms associated with exposure to electromagnetic fields: a questionnaire study, Küçer et al., Electromagnetic Biology and Medicine, Posted online on June 3, 2013.

> *'…users of mobile phone and computer more often complained of headache, joint and bone pain, hearing loss, vertigo/dizziness, tension-anxiety symptoms according to time of daily usage…'*

USA: Adhoc electromagnetic compatibility testing of non-implantable medical devices and radio frequency identification, Seidman et al., *BioMedical Engineering OnLine*, 12(1):71, Published: 11 July 2013.

> *'…Testing confirms that RFID has the ability to interfere with critical medical equipment. Hospital staff should be aware of the potential for medical device EMI caused by RFID systems and should be encouraged to perform on-site RF immunity tests prior to RFID system deployment or prior to placing new medical devices in an RFID environment…'*
