Recent scientific publications relevant to mobile telephony

November 2014

Details

Belgium: Assessment of Radio Frequency Exposures in Schools, Homes, and Public Places in Belgium, Verloock et al., *Health Physics*, 107(6):503-513, December 2014.

> *'...In the schools considered, the highest maximal and average field values were due to internal signals (WiFi). In the homes, public places, and offices considered, the highest maximal and average field values originated from telecommunication signals...'*

France: Risk Management Policies and Practices Regarding Radio Frequency Electromagnetic Fields: Results from a WHO Survey, Dhungel et al., *Radiation Protection Dosimetry*, Published online November 13, 2014.

> *'...That countries with higher mobile subscriptions tend to have set radiofrequency exposure limits for mobile devices and to have provisions on exposure measurements about fixed installations...'*

Greece: Apoptotic cell death during Drosophila oogenesis is differentially increased by electromagnetic radiation depending on modulation, intensity and duration of exposure, Sagioglou et al., *Electromagnetic Biology and Medicine*, Posted online on October 21, 2014.

> *'…All exposure protocols resulted in an increase of apoptotic cell death (ACD) observed in egg chambers, even at very low electric field strengths. FM waves seem to have a stronger effect in ACD than continuous waves…'*

Japan: Effect of a 2.45-GHz radiofrequency electromagnetic field on neutrophil chemotaxis and phagocytosis in differentiated human HL-60 cells, Koyama et al., *Journal of Radiation Research*, Published online September 5, 2014

> *'…The results of our experiments for RF-field exposure at an SAR under 10 W/kg showed very little or no effects on either chemotaxis or phagocytosis in neutrophil-like human HL-60 cells.'*

Japan: Quantification and Verification of Whole-Body-Average SARs in Small Animals Exposed to Electromagnetic Fields inside Reverberation Chamber, Shi et al., *IEICE Transactions on Communications*, E97-B(10):2184-2191, October 2014.

> *'...The relative errors between the two-step method and the MoM approach are approximately below 10%, which reveals the validity and usefulness of the two-step technique...'*

Netherlands: Impact of input data uncertainty on environmental exposure assessment models: A case study for electromagnetic field modelling from mobile phone base stations, Beekhuizen et al., *Environmental Research*, 135(0):148-155, November 2014.

> *'...For exposure ranking and classification, the heights of buildings and receptor sites were the most important sources of uncertainty, followed by building damping, antenna- and site location. Uncertainty in antenna power, tilt, height and direction had a smaller impact on model performance...'*

Spain: Assessment of human body influence on exposure measurements of electric field in indoor enclosures, de Miguel-Bilbao et al., *Bioelectromagnetics*, Published online: 14 NOV 2014.

> *'...The perturbation caused by BSE in PEMs readings cannot be compensated for by correction factors. Although the mean value is well adjusted, BSE causes changes in CDF that would require improvements in measurement protocols and in the design of measuring devices to subsequently avoid systematic errors...'*

Sweden: Cell and cordless phone risk for glioma - Analysis of pooled case-control studies in Sweden, 1997-2003 and 2007-2009, Hardell et al., *Pathophysiology*, Published Online: October 28, 2014.

> *'...The highest risk was found for glioma in the temporal lobe. First use of mobile or cordless phone before the age of 20 gave higher OR for glioma than in later age groups…'*

Sweden: Decreased Survival of Glioma Patients with Astrocytoma Grade IV (Glioblastoma Multiforme) Associated with Long-Term Use of Mobile and Cordless Phones, Carlberg et al., *International Journal of Environmental Research and Public Health*, 11(10):10790-10805, Published: 16 October 2014.

> *'…Due to the relationship with survival the classification of IARC is strengthened and RF-EMF should be regarded as human carcinogen requiring urgent revision of current exposure guidelines.'*

Sweden: Validation of self-reported start year of mobile phone use in a Swedish case-control study on radiofrequency fields and acoustic neuroma risk, Pettersson et al., *Journal of Exposure Science and Environmental Epidemiology*, Published online: 5 November 2014.

> *'...Should an association exist, dilution of risk estimates and distortion of exposure-response patterns for time since first mobile phone use could result from the large random errors in self-reported start year. Retrospective collection of operator data likely leads to a selection of 'good reporters', with a higher proportion of cases. Thus, differential recall cannot be entirely excluded...'*

The Netherlands: Impact of head morphology on local brain specific absorption rate from exposure to mobile phone radiation, Adibzadeh et al., *Bioelectromagnetics*, Published online: 15 November 2014.

> *'...We show head morphology as an important uncertainty source for dosimetric studies of mobile phones. Therefore, any dosimetric analysis dealing with RF dose at a specific region in the brain (e.g., tumor risk analysis) should be based upon real morphology...'*

Turkey: Time dependence of environmental electric field measurements and analysis of cellular base stations, Ozdemir et al., *IEEE Electromagnetic Compatibility Magazine*, 3(3):43-48, 3rd Quarter 2014

> *'…Electromagnetic fields generated by the base station change according to the mobile user traffic, which is time-dependent… maximum and minimum electric fields are found to be Emax=2.36 V/m and Emin = 1.18 V/m, respectively.'*

USA: Incorporating specific absorption rate constraints into wireless signal design, Hochwald et al., *IEEE Communications Magazine*, 52(9):126-133, September 2014.

> *'...SAR codes use multiple transmit antennas to get good combined farfield error performance and near-field SAR performance, improving handset transmitter performance in the critical uplink of a communication system...'*

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