



Recent scientific publications relevant to mobile telephony

March 2014

Details

Australia: Modeling Human Head Tissues Using Fourth-Order Debye Model in Convolution-Based Three-Dimensional Finite-Difference Time-Domain, Mustafa et al., [IEEE Transactions on Antennas and Propagation](#), 62(3):1354-1361, March 2014.

'...The derived model gives accurate estimation of the electrical properties of those tissues across the frequency band from 0.1 GHz to 3 GHz that can be used in microwave systems for head imaging...'

Australia: Significant RF-EMF and thermal levels observed in a computational model of a person with a tibial plate for grounded 40 MHz exposure, [McIntosh et al., Bioelectromagnetics](#), Published online: 27 February 2014.

'...findings from this study re-emphasize the need to ensure compliance with limb current reference levels for exposures near whole-body resonance, and not just rely on compliance with ambient electric (E) and magnetic (H) field reference levels...'

Belgium: Prediction and comparison of downlink electric-field and uplink localised SAR values for realistic indoor wireless planning, [Plets et al., Radiation Protection Dosimetry](#), Published online: February 18, 2014.

'...The benefits of the UMTS power control mechanisms are demonstrated. However, dependent on the macrocell connection quality and on the user's average phone call connection time, also the macrocell solution might be preferential from an exposure point of view for the considered scenario.'

Italy: Effects of the exposure to intermittent 1.8 GHz radio frequency electromagnetic fields on HSP70 expression and MAPK signaling pathways in PC12 cells, [Valbonesi et al., International Journal of Radiation Biology](#), Posted online on February 11, 2014.

'...The positive effect on HSP70 mRNA expression, observed only in cells exposed to the GSM-217Hz signal, is a repeatable response previously reported in human trophoblast cells and now confirmed in PC12 cells...'

Japan: The significance of microwaves in the environment and its effect on plants, [Jayasanka et al., Environmental Reviews](#), Published online: 18 December 2013.

'...the number of published studies is not yet sufficient to support drawing strong conclusions regarding the effects of microwaves on whole plant communities. Therefore, further studies are necessary to support present findings and uncover new findings.'

Japan: Dosimetric Assessment of Two-Layer Cell Culture Configurations for Fertility Research at 1950MHz, [Gong et al., IEICE Transactions on Communications](#), Vol.E97-B(3):631-637, March 2014.

'...non-uniformity of the specific absorption rate (SAR) distribution is 30% for monolayer, and 59-75% for suspension configurations. The latter should be taken into account when biological experiment is performed.'

New Zealand: Cell phone towers and house prices in New Zealand: economic effects and policy implications, [Filippova et al., *International Journal of Housing Markets and Analysis*](#), 7(1):18 - 29, 2014.

'...No statistically significant connection between cell phone towers and house prices was observed...'

Romania: Exposure levels due to WLAN devices in indoor environments corrected by a time-amplitude factor of distribution of the quasi-stochastic signals, [Miclaus et al., *Radiation Protection Dosimetry*](#), Published online: March 2, 2014.

'...Significant exposure level reductions of 52.6-79.2 % from the field determined by frequency domain method and of 36.5-72.8 % from the field determined by the DC weighting method were obtained by time-amplitude method...'

South Korea: Epidemiological characteristics of mobile phone ownership and use in Korean children and adolescents, [Byun et al., *Environ Health Toxicol*](#), 28(e2013018), Published online Dec 31, 2013.

'...The ownership rate and the amount of mobile phone use were higher in females than males, in higher school grades than lower grades, and at 2011 than 2008. The average age of first mobile phone ownership was shown to decrease from 12.5 years in currently high school students to 8.4 years in currently elementary school students at 2011...'

Sweden: Efficient Whole-Body SAR Assessments by Means of Surface Scan Measurements, [Colombi et al., *IEEE Transactions on Electromagnetic Compatibility*](#), Date of Publication: 05 February 2014.

'...Compared with a volumetric scan, and for the cases investigated, the measurement time was reduced with a factor larger than 3 while keeping the relative error smaller than 8%.'

The Netherlands: Comparing non-specific physical symptoms in environmentally sensitive patients: Prevalence, duration, functional status and illness behavior, [Baliatsas et al., *Journal of Psychosomatic Research*](#), Available online 28 February 2014.

'...environmentally sensitive individuals experience poorer health, increased illness behavior and more severe NSPS. The number and duration of self-reported NSPS are important components of symptom severity and are associated with characteristics similar to those of NSPS in primary care...'

USA: Adaptive response in mammalian cells exposed to non-ionizing radiofrequency fields: A review and gaps in knowledge, [Vijayalaxmi et al., *Mutation Research/Reviews in Mutation Research*](#), Available online 15 February 2014.

'...observations suggested the ability of radiofrequency fields to induce adaptive response and also indicated some potential mechanisms for the induction of such response...'

USA: A survey of the urban radiofrequency (RF) environment, Tell et al., [Radiation Protection Dosimetry](#), Published online: February 23, 2014.

'...In both the 1980 and the present study, the power density in the FM band was a major contributor to overall power density, but over time, power densities in the VHF and UHF band decreased and increased, respectively...'

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