

Dosimétrie personnelle de l'exposition aux RF Les Challenges de la Métrologie

Personal Dosimetry for RF Exposures The Metrology Challenges

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Recent advances in the capability of portable measurement instruments that record the electric field strengths of environmental radiofrequency signals have opened up a range of exciting new research possibilities. The instruments, known as personal exposure meters (PEMs) or exposimeters, can be carried around when people are moving and placed nearby when they are stationary. In this way people's exposures can be measured over time.

PEM measurements can be used for hazard assessments, risk communication or to provide exposure information for health-related studies. Studies of short-term health effects in which small numbers of people are issued with PEMs over the period during which their health is studied are relatively straightforward. A greater challenge is to use the readings from PEMs to optimise predictive exposure models so that studies of health effects in larger numbers of people, including retrospective ones, can be carried out.

The first studies to use the new PEMs are now producing databases that have yielded insights into the relative exposure levels from different sources such as radio and television broadcast transmitters, base station transmitters for mobile phones, and personal use of mobile/cordless phones and Wi-Fi. The data are also being examined to find out if aspects of people's lifestyle, residential location etc, can be used as predictors of exposure and if an exposure gradient can be formulated based on these factors.

This presentation will focus on the measurement aspects of PEMs and the dosimetry challenges in assessing personal exposures. These include calibration and maintenance of the instruments in a study, interpreting the readings in terms of biologically relevant exposure metrics and understanding how the limitations of the instruments affect study results. There is a range of other challenges in different aspects of study design and a multidisciplinary approach is necessary to develop robust studies.