

### Methodology of the 50 Hz magnetic field exposure of the French population

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The relationship between 50 Hz magnetic fields (MF) human health has been studied for about 30 years. The latest review (WHO 2007) has concluded that there is a correlation between an increased risk of child leukaemia and an exposure to ELF magnetic field mean  $\geq 0,4 \mu\text{T} / 24\text{h}$ , without evidence of a causal relation. The French population exposure is known only very roughly, even if the comparison with other countries can give an order of magnitude. The aim of this study is to quantify the ELF magnetic field exposure of a representative sample of the French population (value, uncertainty) and to characterize it according to many variables (geographical environment, vicinity to electric networks, way of life).

Personal measurements of 50 Hz MF exposure during 24 hours will be registered for 1000 adults and 1000 children, representative of the French population. The measuring device is EMDEX II (Enertech). A poll institute is in charge of the recruitment of volunteers and collection of measurements data. The volunteers recruited by telephone receive the visit of an investigator who gives them an Emdex and a timetable to be filled. The investigator is also in charge of filling a questionnaire on the socio-demographic data, the characteristics of the house, the household electrical equipment. The vicinity of electrical networks is given by calculation of distance to the GPS position of the house. The fields measurements will be divided into three campaigns:

-from February 2007 till May 2007

-from October 2007 till April 2008

-from October 2008 till January 2009

The first campaign required to contact 5.248 persons to recruit 551 volunteers. The time average to recruit one volunteer is 80 minutes.

The analysis is in progress to ensure that:

-the EMDEX II has been worn and not put at the same place during 24h,

-the measurement is representative of a personal exposure.

We encountered some difficulties to ensure that the measurement recorded represent a personal exposure corresponding to the timetable. The questionnaire, instructions and timetable were improved for the second campaign of measurements.

Preliminary results of this first campaign will be presented in the communication of M Bedja "French population exposure to 50 Hz magnetic fields : first results in Ile-de-France and Rhône-Alpes regions"