

NEUROPHYSIOLOGICAL AND BEHAVIORAL EFFECTS OF
HUMAN ACUTE EXPOSURE TO A 60 HZ MAGNETIC FIELD
UP TO 1800 μ T: PRELIMINARY RESULTS

For the past two decades, researchers have actively been studying the effects of time-varying magnetic fields (MF) on humans, principally examining the potential for the field to have acute effects on human physiology, neurophysiology and behaviour. The more consistent results reported in recent literature seem to show an increase in occipital alpha rhythm of resting electroencephalographic activity (EEG) with exposure (Cook et al., 2004; Ghione et al. 2005). Interestingly, other studies have demonstrated that human motor behavior can be modulated by exposure to an Extremely Low Frequency (ELF) MF, showing a reduction in anteroposterior standing balance oscillations (Thomas et al., 2001) and a decrease in physiological tremor intensity (Legros et al, 2006). However, to establish a connection between these observations would require a project that, in one procedure, investigates physiological, neurophysiological and behavioural parameters. Therefore, subject testing has begun, in a project approved by the University of Western Ontario (Health Sciences Research Ethics Board # 11956E), to investigate the effects of a 60 Hz, 1800 μ T MF on heart rate (frequency and variability), peripheral blood perfusion, brain electrical activity (EEG), postural oscillations, voluntary motor functions, and physiological tremor. Preliminary results will be presented and should provide reliable information concerning human exposure to power-line frequency MF.