EMFs

EC Scientific Committee on Emerging and Newly Identified Risks 19th July 2006
Preliminary opinion on possible effects of electromagnetic fields (EMF) on human health.

The EC scientific committee once again find that there is next to no evidence of adverse health effects of exposure to electromagnetic fields.

An update of the previous report filed in 2001.

Findings:

Radiowaves

The balance of epidemiologic evidence indicates that mobile phone use of less than 10 years does not pose any increased risk of brain tumour or acoustic neuroma. For long-term use, data are sparse, and the following conclusions are therefore uncertain and tentative. However, from the available data it does appear that there is no increased risk for brain tumours in long-term users, with the exception of acoustic neuroma for which there is some evidence of an association. For diseases other than cancer, very little epidemiologic data are available.

In conclusion, no health effect has been consistently demonstrated at exposure levels below the International Commission on Non Ionising Radiation Protection (ICNIRP)-limits established in 1998. However, the data base for this evaluation is limited especially for long-term low-level exposure.

Power Transmission

The previous conclusion that ELF fields are possibly carcinogenic, chiefly based on childhood leukaemia results, is still valid. There is no known mechanism to explain how electromagnetic field exposure may induce leukaemia. The effects have not been replicated in animal studies.

Comment

The limit for mobile phone use is the specific absorption rate (SAR) of 2 W/kg for the human head. Maximum local SAR values averaged over 10 gram of tissue range typically between 0.2 and 1.5 W/kg, depending on the type of mobile phone. Phones rarely need to work at maximum power.

There are variable results from research into acoustic neuroma. Clarification is expected in the next year or so.

Long term effects (if any) of RF exposure may not become apparent for another 20 years.

Median magnetic flux densities for power frequency emfs rarely exceed 0.2 µT and less than 1% experience densities greater than 0.4 µT. The conclusion with respect to childhood leukaemia was inspired by studies which find a statistically significant association with exposures which exceed 0.4 µT. This association remains unexplained, reflects an unknown degree of confounding and, is not reproduced in studies of animals. Preliminary work also found that children who already have leukaemia sometimes had less good prognoses if they lived with exposures greater than 0.3 µT. Again, there is no validated mechanism available to support this, one-off, observation.

It seems likely that commercial and political exploitation of scientific uncertainties will continue. E.g. protective devices for phone users, campaigns against phone mast installations, disputes with landlords, installation of higher specification underground power cables…