

Republic of Korea

Report on EMF Activities

10th International Advisory Committee on EMF

June 2005

Public Concerns and Risk Communications

In spite of our efforts for risk communications in last several years, the level of public concerns about RF and ELF EMFs is still very high in Korea. The number of public appeals filed to the government office is about 80 per year for RF EMF exposure, and 75% of them are related to base stations. MIC(Ministry of Information and Communication) responds to every appeal, and takes proper actions if necessary. A special task-force team has been organized this year to deal with complaints for RF EMF in MIC. It consists of government officers, carriers, and EMF experts. Regarding power lines and substations, the number of complaints filed to KEPCO(Korea Electric Power Corporation) is approximately 210, 410 and 180 in last three years, and KEPCO is actively taking care of the complaints.

A EMF web site for two-way communication (www.emf.or.kr) is under operation, which was opened in December 2002. From 2004, two kinds of News Letters, one for EMF measurement standards and the other one for biological effects, exposure limits and policies, are published and distributed twice a year. A video tape for RF EMFs, titled “How much do you know about EMFs in our everyday life?”, has been produced and distributed. Regarding ELF, a big project by KEPCO is under way to construct a “hands-on EMF experience building” for risk communication.

EMF Policies

The MIC ordinance for exposure limits is in effective from January 2002, but it is not mandatory except SAR limits for mobile phones. Korean government plans to regulate the EMFs from stationary installations by the end of 2006. The SAR values of mobile phones in Korean market is currently available to mobile-phone users.

From this year, a study for revising the MIC ordinance has been started, and it is expected that revision will be made in 2006, main issues being inclusion of SAR limits for workers, change of SAR limits for mobile phones, inclusion of limits for contact/induced currents and pulsed EMFs. A research project is under way for implementation of a precautionary policy, and it will be adopted in appropriate time.

EMF Researches

There are two separate EMF research projects, one for RF/MF and the other for ELF. The former one is a 5-year EMF research project(2000-2004) supported by MIC and partly by service providers, the total budget being about 9.0 billion won. Main research topics include epidemiological studies, in vivo and in vitro studies for MF and RF exposure, as well as engineering studies. The planning for the second-phase EMF Project is under way, and details will be fixed by June..

The latter one is a 7-year EMF research project(2002-2008) supported by MCIE(Ministry of Commerce, Industry and Energy) and partly by KEPCO, the total budget being about 8.0 billion won. Main research topics include epidemiological studies, in vivo studies for ELF, as well as engineering studies and the construction of a facility for risk communication.

Major research topics are summarized below.

Epidemiological Study

- Case-control study of cancers for the residents near high-power AM transmission (2001-2004: finished)
- Large-scale case-control study of cancers for mobile-phone exposure (2002-2004: continued in the 2nd phase)
- Epidemiological study for occupational RF exposure in the marine police vessels: Feasibility study for establishing occupational cohort (2003-2004: finished)
- Large-scale epidemiological study for power-line EMF exposure: Case-control study (2003-2005) and cohort study (2003-2008)

Volunteer Study

- Large-scale volunteer study for the health effects of mobile-phone EMFs on brain functions, immune and other physiological functions (2002-2004: continued in the 2nd phase)
- Human study for the effects of power-line EMF on the level of melatonin and growth hormone for children living nearby and away from overhead power lines (2003-2004: finished)

In vivo and in vitro Study

- Long-term *in vivo* study and *in vitro* study for the effects of 20 kHz magnetic field on mammary tumorigenesis (2002-2004: continued in the 2nd phase)
- Two long-term *in vivo* studies for whole-body exposure from mobile-phone EMFs at 848.5 MHz and 1762.5 MHz (2002-2004: continued in the 2nd phase)
- Two *in vivo* studies for local exposure from mobile-phone EMFs at 848.5 MHz and 1762.5 MHz (2003-2004: continued in the 2nd phase)
- Two *in vitro* studies for mobile-phone EMF exposure at 848.5 MHz and 1762.5 MHz, mainly for DNA expression (2002-2004: continued in the 2nd phase)
- Long-term *in vivo* study and *in vitro* study for EMFs from new technologies (RFID, Wibro, DMB, multiple-frequency devices, etc.) (2005-: started in the 2nd phase)
- Large-scale long-term *in vivo* study of brain cancer for power-line EMF exposure (2002-2008)
- Long-term *in vivo* study for the effects of 60 Hz magnetic field on apoptosis of murine testicular germ cell (2002-2006)

Engineering Study

Ongoing researches in engineering area are quite active in Korea, which include development of exposure systems for biological studies, dosimetry, SAR reduction technologies, measurement of EMF environments.

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