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Agency to set electromagnetism exposure limits

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The industrial safety agency will set up standards early next year to protect the public from exposure to extremely low-frequency magnetic fields that exist close to power lines and appliances whenever there are electric currents, officials said Monday.

An ordinance under the Electricity Enterprises Law will be revised to comply with a World Health Organization recommendations in June to set exposure limits against the biological effects of low-frequency electric and magnetic fields.

According to the WHO, high levels of exposure to electric and magnetic fields in the frequency up to 100 kilohertz can affect the nervous systems, resulting in acute health effects, including nerve stimulation.

The Nuclear and Industrial Safety Agency of the Ministry of Economy, Trade and Industry will take the step based on a working group report, the agency officials said. Currently no standards have been set under domestic laws for magnetic fields, while standards are set for electric fields.

Under the envisaged standards, the level of magnetic fields arising from a current would be capped at 100 microtesla in eastern Japan, where electric power operates at a frequency of 50 hertz, and 83 microtesla in western Japan with a frequency of 60 Hz, the officials said.

When the agency measured the magnetic field values at about 760 locations across Japan between 2003 and 2006, they were below the planned standards directly under the power lines. But figures were higher, 144 microtesla at the maximum, near some transformers installed on streets and lines running from underground cables to power poles.

The agency believes the values above the standards do not pose immediate risks, but it plans to urge power companies to take measures to reduce them, the officials said.

The agency also plans to discuss the fields' potential long-term effects, because everyday, chronic exposure to magnetic fields above 0.3 to 0.4 microtesla is considered a possible health risk based on epidemiological studies of childhood leukemia.

As for high-level exposures to electric and magnetic fields, adverse health effects have already been scientifically established. The International Commission on Non-Ionizing Radiation Protection issued in 1998 guidelines for limiting exposure to fields up to 300 gigahertz.

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