

Governmental Activities of Japan (FY2022)

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Ministry of Economy, Trade and Industry (METI)

ELF-EMF (electric utility equipment only)

- ① collection of information on health effects by ELF-EMF including exposure mitigation measurement and precautionary approach
- ② information dissemination (website, symposia, pamphlets)
- ③ exposure measurement (near utility equipment)

Ministry of the Environment

EMF (residential)

- ① collection of findings
- ② information dissemination

Ministry of Internal Affairs and Communications (MIC)

RF-EMF

- ① setting RF-EMF guideline
- ② epidemiology, in-vivo/in-vitro study, human volunteer study, dosimetry
- ③ information dissemination (website, symposia, pamphlets)
- ④ exposure measurement (living environment)

Ministry of Health, Labour and Welfare

EMF Occupational (or workplace)/indoor building (or room)

Ministry of Land, Infrastructure, Transport and Tourism

ELF-EMF (railway)

Actions of Ministry of Economy, Trade and Industry in connection with EMF produced by power facilities

Japan's regulations concerning power frequency EMF

The Ministry of Economy, Trade and Industry (METI) is responsible for electric power facilities.

a) Electric field

Regulation of 3 kV/m electric field strength beneath high-voltage power transmission lines was enacted in 1976 as the Ministerial Ordinance of Standards for Electrical Equipment. This clause is not intended to protect human health but to prevent electric shocks which might be caused by electric fields.

b) Magnetic field

METI organized a Working Group to review regulatory policy and related measures which should be taken for the general public, concerning EMF associated with electric transmission lines or other utility electric facilities. The 12-member Working Group, comprising well-informed persons from academia, industry and consumer groups, compiled a report on the issue on Jun. 30, 2008, based on review of WHO Fact Sheet No. 322, WHO ELF EHC Vol. 238, international guidelines, and scientific findings in and outside the country. The Working Group advising METI has proposed that Japan should adopt the ICNIRP exposure guidelines for power-frequency EMF.

In accordance with the Working Group's recommendation, METI amended the Ministerial Ordinance of Standards for Electrical Equipment to introduce a limit of magnetic flux density from electric power facilities at 200 μ T in 2011, without any changes in electric field limit value though. This amendment was promulgated on March 31, 2011 and entered into force on October 1, 2011. This is aiming at protecting the general public from acute health effects of power frequency magnetic fields and is based on the ICNIRP ELF guidelines 2010, while it is the emission limit applicable only to electric power facilities. Examples of technical procedures used for checking compliance with this limit were also provided by METI together with the amendment of the Ordinance, referring to procedures described in IEC 62110.

METI concluded that scientific evidence suggesting the causal relationship between long-term exposure to magnetic fields and childhood leukemia was not strong enough to be the basis of any exposure or emission limits, which is in accordance with the Working Group's conclusion.

Actions of Ministry of The Environment

The Ministry of the Environment collects findings including the information on health effects by EMF and disseminates such information to the public.

Actions of Ministry of Internal Affairs and Communications to protect the human body from RF-EMF

The RRPg (Radio Radiation Protection Guidelines for Human Exposure to Electromagnetic Fields) that were set out in 1990 have been used as guidelines within the frequency range from 10 kHz to 300 GHz for radio station operations and the manufacture of radio equipment. The guidelines are renewed in 1997, 2011, 2015 and 2018 to adopt latest scientific knowledge and further harmonize to international guidelines such as ICNIRP. In 2015, Ministry of Internal Affairs and Communications (MIC) renewed RRPg to adopt ICNIRP Guidelines, 2010. The latest renewal in 2018 was to introduce the local exposure limit for mobile devices using spectrum above 6 GHz like 5G-System. Recently, it is under review to partially fill the gap between RRPg and ICNIRP Guidelines, 2020.

1. Research Activities

It has become common knowledge globally that radio waves which satisfy the RRPg do not have adverse effects. However, it is still important to continue to clarify the effects of radio waves scientifically. In order to pursue this issue, the MIC set up "Committee on the Possible Adverse Health Effects of RF Electromagnetic Fields", in 2008. This committee has comprised of specialists in medical, engineering and risk communication, and homemakers. The committee advises the MIC on implementing the research related to epidemiology, human volunteer studies, animal studies, cellular studies and dosimetry. A large comprehensive study on dosimetry from intermediate frequency region to THz-wave region has been conducted by National Institute of Information and Communications Technology (NICT).

MIC encourages researches on RF safety issues, some of which are related with the 5G-System, WPT (Wireless Power Transfer) or other emerging wireless technologies. NICT conducts nationwide RF-EMF exposure measurement in the living environment and it is scheduled to publicize the results by 2024.

2. International Collaborations

The MIC collaborates with international organizations such as WHO. The GLORE meeting is an annual multi-national meeting on RF safety of telecommunication authorities and expert researchers from Japan, Korea, EU, US, and so on. Due to COVID-19, the meeting has been temporarily suspending.

3. Providing information to general public

The MIC holds seminars on the safety of citizens and businesses with regard to radio waves in cooperation with local governments.

4. Development of rules on radio equipment

The MIC enforced the amendment of the Ministerial Ordinance Regulating Radio Equipment concerning the local exposure limit of incident power density (IPD) in May 2019 to introduce 5G mobile terminal using millimeter-wave.

Actions of Ministry of The Ministry of Health, Labour and Welfare in connection with IF-EMF

The Ministry of the Health, Labour & Welfare provides funding which is available for studies on possible health effects of electromagnetic fields upon request.

Actions of Ministry of Land, Infrastructure, Transport and Tourism in connection with ELF-EMF for railway

On August 1, 2012, the Ministry of Land, Infrastructure, Transport and Tourism (MLIT) amended the Ministerial Ordinance to Provide the Technical Standard on Railway about magnetic field generated by electric power facilities of railway, and introduced a regulation equivalent to electric transmission lines or other utility electric facilities.