INTERNATIONAL EMF PROJECT
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1. Risk perception and Risk Communications

KIEES (Korea Institute of Electromagnetic Engineering and Science) have conducted an EMF risk perception survey every other year, targeting 600 adults residing in six major metropolitan cities. In 2021, the percentage of perceived risk was decreased from 84% to 76.2%, compared to 2019. It is judged that this trend of decreased perception rate may reflect the phenomenon of the EMF issue being covered by the Corona 19 pandemic. Meanwhile, Korea started commercializing 5G for the first time in the world at the end of 2019, and thus the public concerns about the risk of EMF's emitted from 5G base stations were also investigated, in the survey mentioned above. 34% of the respondents said that electromagnetic waves from 5G base stations are more dangerous than those from 3G and 4G, and 38% answered that they do not know 5G. The main reasons why they consider 5G EMF is more dangerous than 3G/4G EMFs were answered to be the use of higher frequencies and a lot more base stations built for 5G services. In the light of these results, it can be concluded that there is a tendency of thinking that new technologies such as 5G are more dangerous because the general public is not familiar with them. Therefore, it seems that it is very important to provide sufficient information on exposure environments related to new technologies to general public, for their accurate understanding.

On Korean EMF websites (www.rra.go.kr/emf, www.emf.or.kr, emf.kca.kr, home.kepco.co.kr), the EMF related information such as guidelines on the safe use of home appliances, Q&A, and educational videos are provided. The EMF website of KIEES is currently under revision to strengthen interactive communication capabilities, and is scheduled to reopen in August 2022. National Radio Research Agency (RRA) is providing measurement services for applications filed from general public for their curiosity about EMF exposure level from various devices. RRA discloses the measurement results on its website, and the response of the general public for that is pretty good.

2. Risk management

The EMF exposure limits in Republic of Korea were established in 2000 (MSIT Notification No. 2019-4) and enforced since April 2002. Ministry of Science and ICT (MSIT) is responsible for EMF regulations in the Radio Wave Act, except power lines which is regulated by MOTIE (Ministry of Trade, Industry and Energy). National Radio Research Agency (RRA) is in charge of the EMF measurement standards, including ELF. MOTIE is implementing legal provisions in Electricity Business Act, related to ELF human protection from power lines. MSIT is establishing and promoting a comprehensive plan for the human protection from EMFs in accordance with the Radio Wave Act. In 2022, the policy plan for the human protection from EMF is being prepared, focusing on the revision of the EMF exposure standards based on the ICNIRP (2020), the expansion of *in situ* measurement services, the introduction of a computational method for EMF field strength evaluation, and systematic research activities.

Meanwhile, in RRA, the measurement standards for electromagnetic field strength (RRA Notification No. 2021-22) was revised in consideration of the effectiveness of conformity assessment for EMF exposure from base stations for 5G mobile communication.

3. Researches on the biological effects of EMF

In early 2021, KEHC (Korea EMF Health Criteria) 2020 was published jointly by KIEES and ETRI (Electronics and Telecommunications Research Institute). This report evaluates the health effects by analyzing the results of domestic studies (30%) and overseas studies (70%) on exposure to IF and RF EMF. KEHC 2020 will be provided to the public in the form of an e-book on the KIEES website (www.emf.or.kr), and it will also be used as a reference for future risk communication activities in Korea.

RF research project which is titled as “A study on public health and safety in a complex EMF environment” is in its 4th year, and will be finished in 2023. The main research activities in 2021 are as follows.

The 2-year carcinogenic joint study between Korea and Japan is underway, starting from 2021 using the same protocol (Young Hwan Ahn et al., “An International Collaborative Animal Study of the Carcinogenicity of Mobile Phone Radiofrequency Radiation: Considerations for Preparation of a Global Project”, Bioelectromagnetics, 2022). The EMF exposure for rats will be completed at the end of this year, and the results will be analyzed in the next step.

ETRI and KIEES are conducting *in vitro* studies on EMF exposure of 3.5 GHz and 28 GHz, which corresponds to 5G NR frequencies in Korea.

ETRI has released the rhesus monkey model, the average human head models, and the male and female whole-body human models as general-purpose open data in 2021, and these data can be used free of charge.

This data can be found on the following websites:

https//www.data.go.kr/en/data/15074612/fileData.do,
https//www.data.go.kr/en/data/15074160/fileData.do,
https//www.data.go.kr/en/data/15074159/fileData.do

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