MALAYSIA
REPORT ON EMF ACTIVITIES
21st INTERNATIONAL ADVISORY COMMITTEE (IAC) MEETING, 2016

1. General Research Activities

In 2016, the Malaysian Communications and Multimedia Commission (MCMC) completed the EMF research on the following projects:

i) Collaboration with Universiti Malaysia Perlis (UniMAP)
The Effects of Short-Term LTE (850, 1800, 2600 MHz) Base Station Signal Exposure on Cognitive Performance, Well Being, Physiological Parameters and Electroencephalography (EEG) of the Malaysian Children.

- The goal of this research was to determine whether there was an effect on children from exposure to electromagnetic fields (EMFs).

The outcome from the research showed that there was no significant difference between the exposure to the Short-term LTE base station signals and Sham exposure towards EMF perception, EEG response, cognitive performance, well-being, physiological parameters (P's > 0.05) of the Malaysian Children.

ii) Collaboration with UniMAP and Universiti Malaysia Kelantan (UMK)
A Study on the Biological Effects of LTE (850, 1800, 2600 MHz) Electromagnetic Fields (EMF) Exposures

- This research concentrated on the biological effects on Sprague Dawley rats from exposure to radio frequency electromagnetic field (RF EMF) using Long Term Evolution (LTE) mobile phone-like signals, which correspond to the central frequency allocated to the uplink (from mobile phone to base station) signals respectively.

The long-term (chronic) exposure to LTE mobile phone signals showed no effect on red blood corpuscles count (RBCs), haemoglobin (HGB), haematocrit (HCT) values (P's>0.05). Moreover, the results also show that chronic exposures to LTE do not induce or cause DNA damage and have no carcinogenic effects.

Nuclear Malaysia (MNA) is doing an on-going study jointly with Universiti Kuala Lumpur on:

i) *The Effects of 2.45 GHz Microwave Radiation on Leukocyte Parameters in Rats* to investigate the effects of low strength microwave towards leukocytes.
ii) The Effects of 2.45 GHz Microwave Radiation on Brain Cell Apotosis in Sprague Dawley Rats" - to study the effects of low strength microwave radiation on various bodily functions of the rats.
iii) Development of database on Radiofrequency radiation levels emitted by the telecommunication systems – to provide information for members of public on RF radiation levels at their respective locations
iv) A study of electromagnetic field (EMF) exposure on rail-based transportation in Malaysia.

The MNA is also involved with the following projects:

i) The Development of accreditation MS ISO/IEC 17020 for RF assessment (RF) in Nuclear Malaysia.
ii) Radiofrequency (RF) radiation level assessment for telecommunication system structures.
iii) Audit of radiofrequency radiation levels emitted by telecommunication structures.
iv) Nuclear Malaysia Innovation competition for the development a prototype RF radiation level database -obtained silver medal.

2. Policies and Legislation

The MOH has established a committee, comprising various agencies, to evaluate the installation of mobile phone base stations in healthcare facilities. This committee is in the process of finalizing the *"Guidelines on the Application Process to Install Wireless Telecommunication Infrastructure at Medical Facilities under the Ministry Of Health".* This to ensure the safety of these installations with respect to patients, staff and public.
In addition the MOH has produced a Guidance Document on the Safe Use of Medical Lasers which can be obtained from: http://engineering.moh.gov.my/v4/download.php?i=29.
The MOH worked together with the Standards Research Malaysia (SIRIM) Technical Standards committee to produce the Malaysian Standard MS 2652 *on "Site Planning and Installation of MRI systems – Code of Practice".*

3. Public Concerns and National Responses

The MOH continues to deal with public complaints on health issues from the communication towers located near residential areas, schools and hospitals. The MOH, MCMC and MNA are closely working on public awareness on non – ionizing radiation issues in Malaysia.
MNA conducts consultancy services for RF assessment around telecommunication structure, broadcasting facilities, offices and homes.

4. Public Information Activities

The MCMC, MNA and MOH continue to work together to create awareness and to disseminate information to the general public on radiation emission issues from mobile phone base stations. The MOH will continue to monitor the scientific results on health risks associated with EMF and will disseminate the latest findings on EMF issues to the public.

The MCMC together with other Malaysian Agencies hosted the ITU Standardization Sector (ITU-T) Study Group 5: Environment and Climate Change meeting from 20 to 27 April 2016 in Kuala Lumpur with participation from 35 countries. The ITU-T SG5 Working Party 2 conducts work regarding electromagnetic fields: emission, immunity and human exposure. Question 7 specifically studies human exposure to electromagnetic fields (EMFs) from communication systems.
In conjunction with this meeting, Malaysia also hosted the 11th International Telecommunication Union (ITU) Symposium on ICT, Environment and Climate Change, attended by over 300 participants with the theme "Celebrate the Earth towards a Sustainable Future".
The Malay version of the ITU EMF Guide & Mobile App was launched during this symposium can be accessed through http://rfemf.mcmc.gov.my/ituemfguide/.The guide is one of MCMC's methods to convey correct information on EMF emissions to the public.
MCMC has updated their website on Radio Frequency Electromagnetic Field (RF-EMF) based on information and resources made available from the emerging research conducted by international and local universities, relevant authorities on EMF as well as other government agencies. The website can be viewed at http://rfemf.mcmc.gov.my.
The MCMC, in collaboration with MNA, conducted EMF measurements at 42 sites nationwide to ensure compliance as a form of reassurance to the public.

Prepared by:
The Medical Physics Unit / Radiation Safety Section
Engineering Services Division,
Ministry of Health Malaysia, May 2016