

## **LegCo Panel on Health Services**

### **Effects on health due to the use of mobile phones and installation of base station antennae in buildings**

#### **Purpose**

This paper provides information on the latest findings of international authorities on possible effects of mobile phones and their base stations on human health.

#### **Background**

2. The radiation emitted by mobile phones and their base stations are radiofrequency (RF) fields, which are classified as non-ionizing radiation. Unlike ionizing radiation such as X-rays or gamma rays, even high intensity RF fields cannot cause ionization or radioactivity in the human body.

3. However, as mobile (cellular) phones are fast becoming an integral part of modern telecommunication, the rapid increase in the use of mobile telephone handsets and the construction of their base stations have aroused concerns about possible adverse effects on health. In response to these concerns, the World Health Organization (WHO) launched a 5-year International Electromagnetic Fields (EMF) Project in 1996 with the following objectives :

- (a) to assess the existing scientific evidence of possible health

effects of EMF, including RF fields emitted by mobile phones and their base stations;

- (b) to encourage the formulation of internationally acceptable standards; and
- (c) to recommend new research areas that will improve health risk assessments.

**Available information on health effects arising from mobile telephone systems**

4. Mobile telephone systems in Hong Kong operate in the 800 and 1800 megahertz (MHz) frequency bands. RF fields at such frequencies can penetrate exposed body tissues and produce heating effect due to energy absorption. However, although even very low levels of RF energy may produce a small amount of heat, the human body's normal regulatory processes are able to carry this heat away.

5. According to WHO, International Commission on Non-Ionising Radiation Protection and National Radiological Protection Board of U.K., current scientific evidence indicate that exposure to low levels of RF fields, including those emitted by mobile phones and their base stations, is unlikely to induce or promote cancer. Available evidence so far do not suggest that the use of mobile phones has any direct detrimental effect on human health.

6. Nevertheless, mobile phones may cause electromagnetic interference in medical electrical equipment and result in malfunctioning of

such equipment. Therefore, caution should be exercised when using mobile phones near patients with cardiac pacemakers and hearing aids. Use of mobile phones should be avoided in hospital intensive care units. Moreover, mobile phones can also cause interference to aircraft navigation systems. Passengers are advised not to use mobile phones on board aircraft at specific times.

### **Control of Mobile Phones and Base Stations in Hong Kong**

7. Hong Kong has been following the WHO's recommendations on :
  - (a) strict adherence to the existing safety standards;
  - (b) avoiding electromagnetic field interference with electromedical equipment and aircraft navigator system; and
  - (c) consultation with local authorities and the public on siting mobile telephone base stations.
  
8. In particular, all mobile phones and base station apparatus to be used in Hong Kong have to be type-approved by Office of the Telecommunications Authority (OFTA). The type-approval specifications stipulate, among other things, limits for the transmitter power of these apparatus. Under the Telecommunication Ordinance (Cap. 106), users who need to establish a radio base station in Hong Kong also need a licence from the OFTA. OFTA will examine applications for base station installations and assess if there is any possibility of interference with other radio systems and potential radiation hazards.

9. Mobile phone operators are also required to follow the “Code of Practice for the Protection of Workers and Members of Public Against Non-ionizing Radiation Hazards from Radio Transmitting Equipment” issued by OFTA in 1996. The Code of Practice specifies the limits on non-ionizing radiation and other installation requirements related to radiation hazard protection for establishing radio base stations in Hong Kong. OFTA conducts on site measurements on requests by members of the public and random sample checks to ensure that the requirements of the COP is followed.

### **The way forward**

10. As a result, there should be no undue fear on the use of mobile phones and the effect of their base stations. The International EMF Project of the WHO will continue to help national authorities to weigh the benefits of mobile telecommunications technology against the detriment of any, even subtle, adverse health effects, and decide what additional protective measures may be needed. The OFTA and Department of Health will continue to keep in view any new developments and recommendations by international authorities in this area.

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Health and Welfare Bureau  
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