

**RADIO SPECTRUM AND TECHNICAL STANDARDS
ADVISORY COMMITTEE**

**Consultancy Study on Non-ionising Radiation Safety
of Radio Base Stations**

Purpose

This paper briefs Members about the conduction of a consultancy study on non-ionising radiation (“NIR”) safety of radio base stations (“RBS”) by the Office of the Communications Authority (“OFCA”).

Background

2. To ensure radiation safety of radio installations, the Communications Authority (“CA”) in consultation with the Department of Health adopts the NIR limits recommended in the Guidelines of the International Commission on Non-Ionising Radiation Protection (“ICNIRP”) as the radiation safety standard of RBS. ICNIRP is an independent scientific commission. Its recommended limits (“ICNIRP limits”) are based on scientific literature and related health risk assessments, and are endorsed by the World Health Organization (“WHO”). At present, WHO considers that there is insufficient evidence to suggest that exposure to NIR below the ICNIRP limits will cause any adverse health effects.

3. According to licence conditions of their respective unified carrier licences, mobile network operators (“MNOs”) are required to obtain approval from the CA before bringing a particular RBS into use. As the executive arm of the CA, OFCA is responsible for vetting RBS applications from MNOs and will only approve the applications if the RBSs concerned comply with, among others, the technical requirements

on electromagnetic compatibility (i.e. not to cause interference with other legitimate radio installations) and NIR safety.

The Consultancy Study

4. In response to the growing public concern on radiation safety of RBS, OFCA has planned for a consultancy study in 2020. The consultancy study will examine technical matters in relation to NIR in particular those for the fifth generation mobile (“5G”) networks, review the methodology for assessment of NIR for different RBS deployment scenarios and the existing regulatory measures, and make recommendations on practical new measures to control the radiation safety of RBS so as to facilitate the on-going development of public mobile services in Hong Kong.

5. The consultancy study will conduct the following specific tasks, among others –

- (a) research on the best regulatory practice overseas on the relevant matters and review the methodology for assessment/measurement of NIR, in particular for those concerning the use of massive multiple-input-multiple-output (“mMIMO”) antenna for 5G services;
- (b) assessment on the public’s exposure on NIR in Hong Kong as generated by RBS of 5G and other legacy generations of public mobile services operating in a number of frequency bands;
- (c) explore the feasibility of routine monitoring mechanism on NIR levels in public places, including but not limited to the selection of appropriate locations for conducting NIR measurement; and
- (d) based on the findings, offer recommendations on new or improvement measures for the control of emissions of RBS (including 5G mMIMO antenna) under different deployment scenarios, including but not limited to RBSs installed –

- (i) at roof top locations,
- (ii) at indoor locations,
- (iii) on street furniture (such as payphone kiosks, sheltered bus stops and lamp posts) and
- (iv) at external wall of buildings.

Current Status

6. Following the Government procurement process, OFCA has commissioned Rohde & Schwarz Hong Kong Limited, and its sub-contractor Hong Kong Applied Science and Technology Research Institute to conduct the consultancy study, which commenced in mid-April 2021 and is expected to be completed around end 2021.

7. As part of the study, OFCA will arrange for the consultant to interview MNOs and 5G equipment vendors as necessary to collect information on deployment of RBS (in particular 5G RBS) in Hong Kong and the conduction of field measurements to assess public's exposure on NIR under different RBS deployment scenarios, among others. In this regard, OFCA would appeal for the supports of MNOs and equipment vendors to facilitate the work of the consultant.

Way Forward

8. Upon completion of the consultancy study, OFCA will arrange for the consultant to present its findings and recommendations to Members for information.

Office of the Communications Authority
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