

Radiation Safety of Radio Base Stations

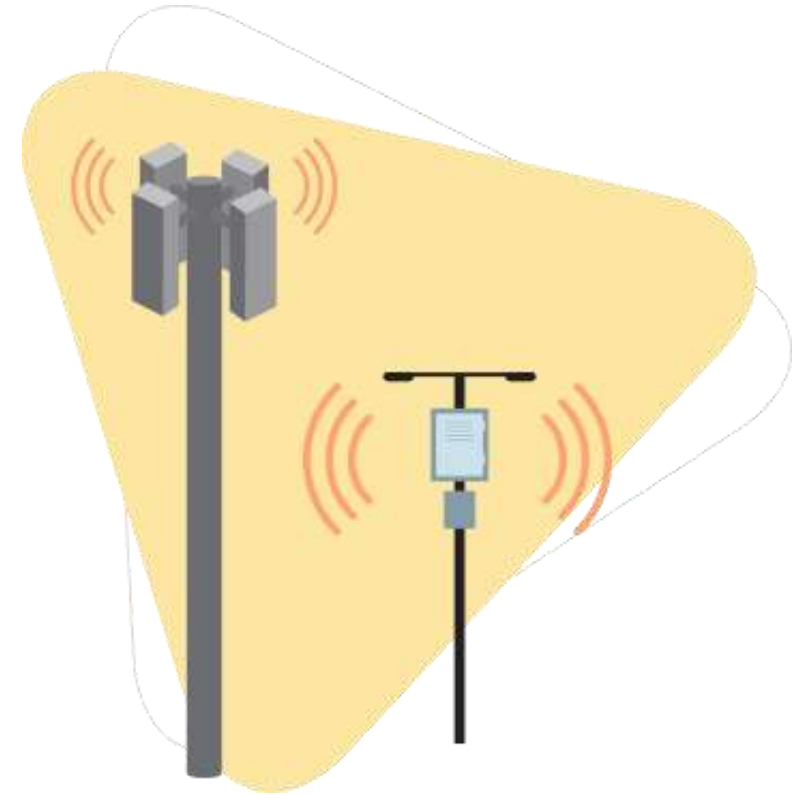
Telecommunications Users and
Consumers Advisory Committee

26 August 2026

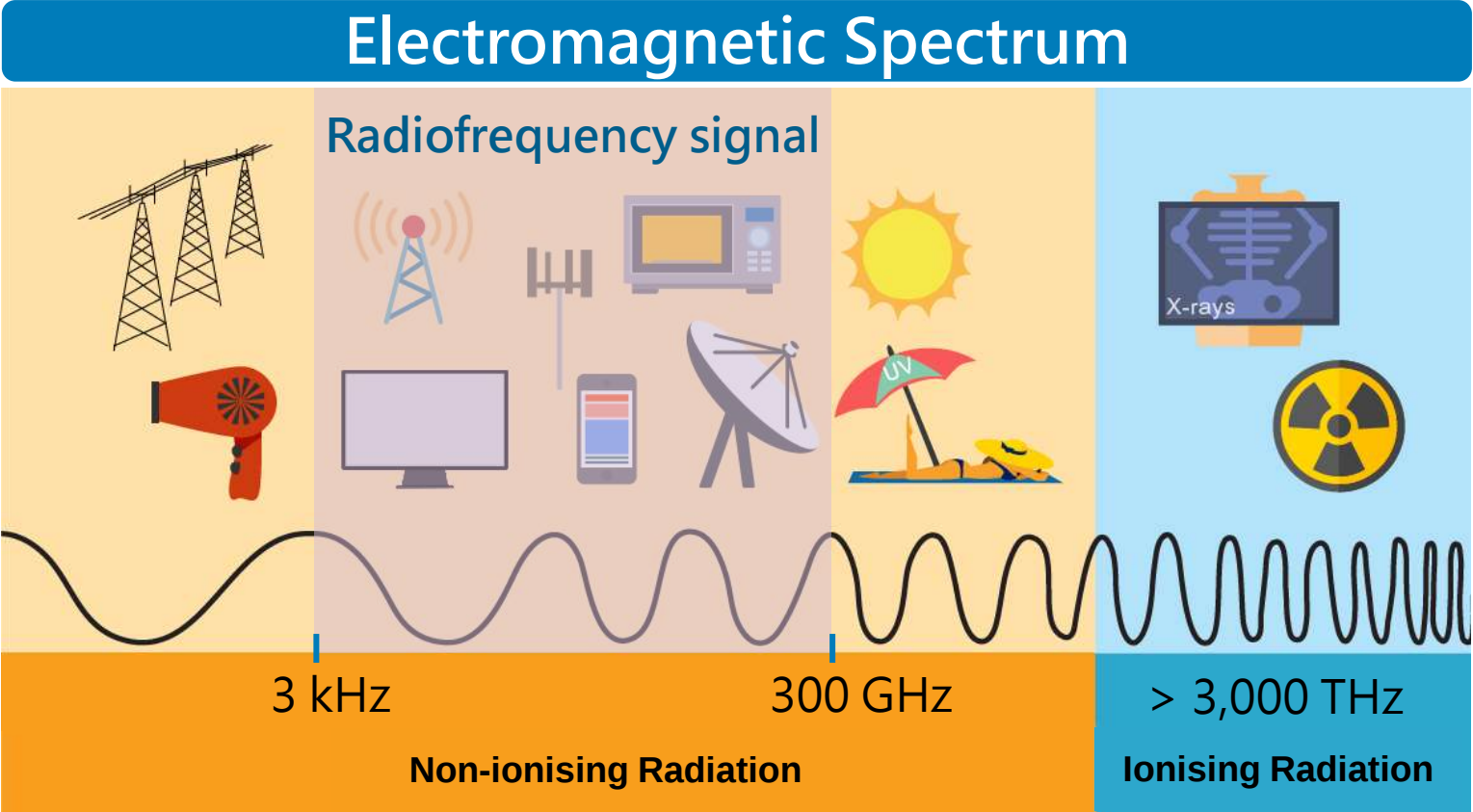


Radio Base Stations

- Mobile phones have become an important part of citizens' daily lives
- To meet the public's high demand for public mobile services, mobile network operators (MNOs) need to install radio base stations (RBS) throughout the territory to provide public mobile services
- Radiation safety of RBS has drawn great attention



Classification of Electromagnetic Radiation



	Non-ionising Radiation	Ionising Radiation
Energy	Low	High
Effect	• Cannot cause ionisation of atoms and molecules • Cannot break the chemical bonds which hold molecules together	• Can cause ionisation of atoms and molecules • Can break the chemical bonds which hold molecules together

Radiofrequency Signals of RBS

- RBS use radiofrequency (RF) signals to convey information
- RF signals
 - Frequencies: ~ 3 kHz to 300 GHz
 - A type of non-ionising radiation (NIR), different from ionising radiation such as X-rays and nuclear radiation
 - NIR has lower energy, unable to alter the chemical properties of substances or break chemical bonds in the human body to cause harm



The Radiation Safety Standards



衛生署
Department of Health

- The Communications Authority (“CA”) in consultation with the Department of Health has adopted the NIR limits as set by the International Commission on Non-ionising Radiation Protection (“ICNIRP”) as the radiation safety standards



- The World Health Organization considers that there is no sufficient scientific evidence indicating that exposure to NIR levels below the ICNIRP limits will cause adverse health effects



- ICNIRP limits or similar requirements are commonly adopted by many developed economies and economies with dense population, such as Germany, France, the United States, the United Kingdom, Australia, New Zealand, Japan, Singapore and Korea, as their radiation safety standards

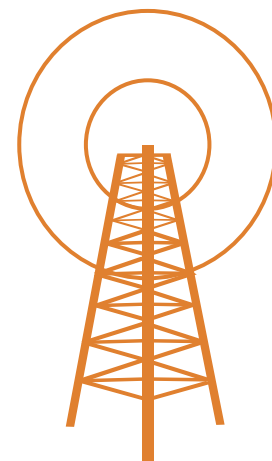
ICNIRP Limits

- RBS used for provision of public mobile services can be operated in different frequency bands depending on their specific configurations, including the 700 MHz, 900 MHz, 1800 MHz and above 2000 MHz bands
- According to ICNIRP, the safety limits for power density of electromagnetic fields in the above frequency bands are as follows:

Frequency band	700 MHz	900 MHz	1800 MHz	> 2000 MHz – 300 GHz
Power Density Safety Limit (W/m ²)	3.5	4.5	9	10

Radiation Safety of RBS

- According to relevant conditions of telecommunications licences, MNOs are required to obtain approvals from CA before bringing their RBS into operation
- MNOs are required to
 - comply with the “Code of Practice for the Protection of Workers and Members of Public Against Non-Ionising Radiation Hazards from Radio Transmitting Equipment” issued by the Office of the Communications Authority (OFCA) to ensure the total NIR levels of RBS in public areas meet the radiation safety standards; and
 - submit on-site NIR measurement reports to OFCA after the RBS are activated
- OFCA also proactively conducts sample checks on the NIR levels of approved RBS in Hong Kong



Inspection of RBS

In response to requests from Legislative Council Members, District Council Members and members of the public, OFCA conducts measurements of NIR levels at residential premises across Hong Kong

Since 2020, OFCA has conducted

over **1,440** measurements

OFCA proactively conducts sample checks on the NIR levels of approved RBS in Hong Kong

Since 2020, OFCA has conducted

over **18,700** measurements
involving 17,100 RBS

**All measurement results met the
radiation safety standards**

Measurement of RBS NIR levels



Addressing Public Concerns on Radiation Safety of RBS

- Distribute leaflets on “Radiation Safety of Radio Base Stations”
- Provide information about radiation safety of RBS and hand-held mobile communications devices on OFCA’s website
- Broadcast publicity videos on radiation safety of RBS via television and radio
- Establish a hotline at **2961 6648** to respond to public enquiries



Thank You