

# Radio Spectrum and Technical Standards Advisory Committee

## SSAC Paper 4/2022

### World Radiocommunication Conference 2023

Office of the Communications Authority  
December 2022

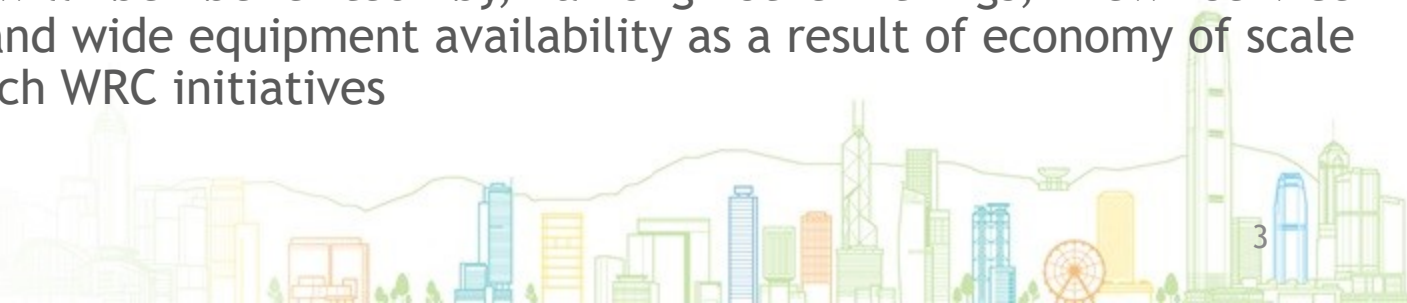
# World Radiocommunication Conference

- World Radiocommunication Conference (“WRC”) is held every three to four years.
- Tasked to review, and if necessary, revise the Radio Regulations (“RR”) of the International Telecommunication Union (“ITU”). RR is an international treaty governing the use of radio spectrum and satellite orbits
  - Revise RR and associated frequency allocation and allotment plans
  - Address worldwide radiocommunications matters
  - Instruct the Radio Regulation Board and Radiocommunication Bureau to take action on relevant matters, and review their activities
  - Determine Questions for study by the Radiocommunication Assembly and its Study Groups in preparation for future WRC



# Relevance to Hong Kong

- Various industry sectors require radio frequency to develop wireless and innovative services
- **Hong Kong follows RR** on radio frequency allocations, frequency coordination with relevant administrations and coordination/notification of satellite orbits for domestic satellite networks
- The **outcome of WRC** may **create new opportunities** for radio users but at the same time it may **affect some existing services**
- WRC also seeks to harmonise the use of radio spectrum for specific applications, such as 5G services, wireless local area network, intelligent transport systems, and various satellite applications, etc.
  - Hong Kong will be benefited by, among other things, new service applications and wide equipment availability as a result of economy of scale brought by such WRC initiatives



# World Radiocommunication Conference 2023

- The last WRC was held in 2019 (“WRC-19”) in Egypt
- WRC 2023 (“WRC-23”) will be held from 20 Nov - 15 Dec 2023, preceded by the Radiocommunication Assembly (13 - 17 Nov 2023), in Dubai, United Arab Emirates
- Resolution 811 of WRC-19 recommended the agenda items (“AIs”) for WRC-23<sup>1</sup>
  - covers 19 Specific Items and a variety of general issues related to regulatory and administrative matters

<sup>1</sup> [https://www.itu.int/dms\\_pub/itu-r/oth/0C/0A/R0C0A00000F00174PDFE.pdf](https://www.itu.int/dms_pub/itu-r/oth/0C/0A/R0C0A00000F00174PDFE.pdf)

# The 19 Specific Items

- 1.1
- 1.2
- 1.3
- 1.4
- 1.5

Fixed, Mobile  
and  
Broadcasting  
issues

Aeronautical  
and  
Maritime  
issues

- 1.6
- 1.7
- 1.8
- 1.9
- 1.10
- 1.11

ITU  
WRC-23

- 1.12
- 1.13
- 1.14

Science  
issues

Satellite  
issues

- 1.15
- 1.16
- 1.17
- 1.18
- 1.19

# Fixed, Mobile & Broadcasting Issues

- AI 1.1 - to consider, based on the results of the ITU-R studies, possible measures to address, in the frequency band 4800 - 4990 MHz, protection of stations of the aeronautical and maritime mobile services located in international airspace and waters from other stations located within national territories, and to review the power flux density criteria in No. 5.441B
- AI 1.2 - to consider identification of the frequency bands 3300 - 3400 MHz (Regions 1 & 2), 3600 - 3800 MHz (Region 2), 6425 - 7025 MHz (Region 1), 7025 - 7125 MHz (globally) and 10.0 - 10.5 GHz (Region 2) for International Mobile Telecommunications (IMT), including possible additional allocations to the mobile service on a primary basis
- AI 1.3 - to consider primary allocation of the band 3600 - 3800 MHz to mobile service in Region 1 and take appropriate regulatory actions

# Fixed, Mobile & Broadcasting Issues (2)

- AI 1.4 - to consider the use of high-altitude platform stations as IMT base stations (HIBS) in the mobile service in certain frequency bands below 2.7 GHz already identified for IMT, on a global or regional level
- AI 1.5 - to review the spectrum use and spectrum needs of existing services in the frequency band 470 - 960 MHz in Region 1 and consider possible regulatory actions in the frequency band 470 - 694 MHz in Region 1

# Aeronautical and Maritime Issues

- AI 1.6 - to consider regulatory provisions to facilitate radiocommunications for sub-orbital vehicles
- AI 1.7 - to consider a new aeronautical mobile-satellite (R) service allocation for both the Earth-to-space and space-to-Earth directions of aeronautical VHF communications in all or part of the frequency band 117.975 - 137 MHz, while preventing any undue constraints on existing VHF systems operating in the aeronautical mobile (R) service, in the aeronautical radionavigation service, and in adjacent frequency bands
- AI 1.8 - to consider appropriate regulatory actions, with a view to reviewing and if necessary, revising Resolution 155 (Rev. WRC-19) and No. 5.484B to accommodate the use of fixed-satellite service networks by control and non-payload communications of unmanned aircraft systems



# Aeronautical and Maritime Issues (2)

- AI 1.9 - to consider appropriate regulatory actions and updates based on ITU-R studies, in order to accommodate digital technologies for commercial aviation safety-of-life applications in existing HF bands allocated to the aeronautical mobile (R) service and ensure coexistence of current HF systems alongside modernized HF systems
- AI 1.10 - to conduct studies on spectrum needs, coexistence with radiocommunication services and regulatory measures for possible new allocations for the aeronautical mobile service for the use of non-safety aeronautical mobile applications
- AI 1.11 - to consider possible regulatory actions to support the modernization of the Global Maritime Distress and Safety System (GMDSS) and the implementation of e-navigation

# Science Issues

- AI 1.12 - to conduct, and complete in time for WRC-23, studies for a possible new secondary allocation to the Earth exploration-satellite (active) service for spaceborne radar sounders within the range of frequencies around 45 MHz, taking into account the protection of incumbent services, including in adjacent bands
- AI 1.13 - to consider a possible upgrade of the allocation of the frequency band 14.8 - 15.35 GHz to the space research service
- AI 1.14 - to review and consider possible adjustments of the existing or possible new primary frequency allocations to Earth exploration-satellite service (passive) in the frequency range 231.5 - 252 GHz, to ensure alignment with more up-to-date remote-sensing observation requirements

# Satellite Issues

- AI 1.15 - to harmonize the use of the frequency band 12.75 - 13.25 GHz (Earth-to-space) by earth stations on aircraft and vessels communicating with geostationary space stations in the fixed-satellite service globally
- AI 1.16 - to study and develop technical, operational and regulatory measures, as appropriate, to facilitate the use of the frequency bands 17.7 - 18.6 GHz and 18.8 - 19.3 GHz and 19.7 - 20.2 GHz (space-to-Earth) and 27.5 - 29.1 GHz and 29.5 - 30 GHz (Earth-to-space) by non-geostationary fixed-satellite service earth stations in motion, while ensuring due protection of existing services in those frequency bands

# Satellite Issues (2)

- AI 1.17 - to determine and carry out, on the basis of the ITU-R studies, the appropriate regulatory actions for the provision of inter-satellite links in specific frequency bands, or portions thereof, by adding an inter-satellite service allocation where appropriate
- AI 1.18 - to consider studies relating to spectrum needs and potential new allocations to the mobile-satellite service for future development of narrowband mobile-satellite systems
- AI 1.19 - to consider a new primary allocation to the fixed-satellite service in the space-to-Earth direction in the frequency band 17.3 - 17.7 GHz in Region 2, while protecting existing primary services in the band

# Regulatory Matters

- AI 7 - to consider possible changes, in response to Resolution 86 (Rev. Marrakesh, 2002) of the Plenipotentiary Conference, on advance publication, coordination, notification and recording procedures for frequency assignments pertaining to satellite networks in order to facilitate the rational, efficient and economical use of radio frequencies and any associated orbits, including the geostationary-satellite orbit
- AI 8 - to consider and take appropriate action on requests from administrations to delete their country footnotes or to have their country name deleted from footnotes, if no longer required

# Administrative Matters

- AI 2 - to examine the revised ITU-R Recommendations incorporated by reference in RR communicated by the Radiocommunication Assembly, and to decide whether or not to update the corresponding references in RR
- AI 3 - to consider such consequential changes and amendments to RR as may be necessitated by the decisions of the conference
- AI 4 - to review the resolutions and recommendations of previous conferences with a view to their possible revision, replacement or abrogation
- AI 5 - to review, and take appropriate action on, the Report from the Radiocommunication Assembly
- AI 6 - to identify those items requiring urgent action by the radiocommunication study groups in preparation for the next WRC

# Administrative Matters (2)

- AI 9 - to consider and approve the Report of the Director of the Radiocommunication Bureau
  - 9.1 on the activities of the ITU Radiocommunication Sector since WRC-19
  - 9.2 on any difficulties or inconsistencies encountered in the application of RR
  - 9.3 on action in response to Resolution 80 (Rev. WRC-07)
- AI 10 - to recommend to the ITU Council items for inclusion in the agenda for the next WRC, and items for the preliminary agenda of future conferences

# Other ITU-R Studies

Four issues have been identified for the preparation of AI 9.1

- 9.1 a) - to review the results of studies relating to the **technical and operational characteristics, spectrum requirements and appropriate radio service designations for space weather sensors** with a view to describing appropriate recognition and protection in RR without placing additional constraints on incumbent services
- 9.1 b) - to review the **amateur service and the amateur-satellite service allocations in the frequency band 1240 - 1300 MHz** to determine if additional measures are required to ensure protection of **the radionavigation-satellite service (space-to-Earth)** operating in the same band



# Other ITU-R Studies (2)

- 9.1 c) - to study the use of IMT systems for **fixed wireless broadband** in the frequency bands allocated to the fixed services on a primary basis
- 9.1 d) - protection of **Earth exploration-satellite service (passive)** in the frequency band 36 - 37 GHz from non-geostationary fixed-satellite service space stations

# Way Forward

- OFCA will keep in view
  - the progress of the ITU-R studies concerned
  - the development on individual AIs
- Attend preparatory meetings of Asia-Pacific Telecommunity and ITU
- Join the Mainland delegation team to attend WRC-23

# Way Forward (2)

- Members are welcome to offer to OFCA their views and comments on the relevant WRC-23 AIs
- OFCA will consolidate all inputs including Members' input and formulate the Hong Kong preliminary positions for discussion in SSAC in due course
- OFCA will set out the Hong Kong positions on WRC-23 AIs and coordinate with the Ministry of Industry and Information Technology of the People's Republic of China to facilitate the formulation of its positions for WRC-23

# Thank You

