For Discussion **SSAC Paper 2/2020**
on 14 January 2020

RADIO SPECTRUM AND TECHNICAL STANDARDS ADVISORY COMMITTEE

World Radiocommunication Conference 2019 Decisions

Introduction

This paper briefs Members on the decisions of the World Radiocommunication Conference 2019 ("WRC-19") of the International Telecommunication Union ("ITU").

Background

2. At the 17th meeting of the Radio Spectrum and Technical Standards Advisory Committee ("SSAC") held in 2018, Members were briefed on the scope of WRC-19. At the subsequent SSAC meetings held in 2018 and 2019, Members were updated on the progress of studies conducted by the ITU Radiocommunication Sector ("ITU-R"), Hong Kong's preliminary positions and final positions on WRC-19 agenda items ("AIs").

3. WRC-19 was convened in Sharm el-Sheikh, Egypt, from 28 October to 22 November 2019, focusing on ten AIs. In this regard, AI 1 dealt with reviews and revisions of the Radio Regulations ("RR") for frequency allocations. Given its complexity, this AI was broken down into 16 AIs (i.e. AI 1.1 to AI 1.16), covering frequency spectrum for mobile, fixed, satellite, science, maritime, aeronautical and amateur services. AI 7 mainly covered coordination and use of satellite orbits. The remaining AIs (i.e. AIs 2, 3, 4, 5, 6, 8, 9 and 10) largely dealt with administrative issues relating to RR.

4. The Office of the Communications Authority ("OFCA") joined the Chinese delegation and attended WRC-19.

WRC-19 Decisions

5. A summary of WRC-19 decisions on AI 1 (i.e. AI 1.1 to AI 1.16), AI 7 (Issues A to K) and AI 9.1 (Issues 9.1.1 to 9.1.9), as stipulated in the Provisional

Final Acts of WRC-19, is given at ***Annex 1***. Those WRC-19 decisions involving new frequency allocations in Hong Kong are highlighted below –

(a) *AI 1.8 (Issue B) – Possible regulatory actions to support the introduction of additional satellite systems into Global Maritime Distress Safety Systems ("GMDSS")*

Issue B of AI 1.8 considered issues relating to the introduction of additional satellite systems into GMDSS. WRC-19 decided to upgrade the allocation of maritime mobile-satellite service ("MMSS") (space-to-Earth) in the 1621.35 – 1626.5 MHz band from secondary to primary, while leaving mobile satellite service ("MSS") (space-to-Earth) except MMSS (space-to-Earth) to secondary allocation.

In Hong Kong, the 1621.35 – 1626.5 MHz band is allocated to MSS (Earth-to-space) and MSS (space-to-Earth) on a primary and secondary basis respectively. To align with the WRC-19 decision and to support the introduction of additional systems into GMDSS to Hong Kong, OFCA would seek the CA's approval for allocation of the 1621.35 – 1626.5 MHz band to MMSS (space-to-Earth) on a primary basis accordingly. Meanwhile, mobile earth stations operating in this band is exempted from licensing under the Telecommunications (Telecommunications Apparatus) (Exemption from Licensing) Order (Cap. 106Z).

(b) *AI 1.9.2 – Modifications of RR, including new spectrum allocations to the maritime mobile-satellite service (Earth-to-space and space-to-Earth), preferably within the 156.0125 – 157.4375 MHz and 160.6125 – 162.0375 MHz bands of Appendix 18, to enable a new VHF data exchange system satellite component*

WRC-19 decided to allocate the 157.1875 – 157.3375 MHz and 161.7875 – 161.9375 MHz bands to MMSS (Earth-to-space) and (space-to-Earth) on a secondary basis limited to non-geostationary satellite systems operating in accordance with Appendix **18** of RR.

In Hong Kong, the 156 – 162.05 MHz band is allocated to maritime mobile service on a primary basis. To align with the WRC-19 decision and to improve maritime radiocommunications for the integrity of GMDSS, OFCA would seek the CA's approval for allocation of the 157.1875 – 157.3375 MHz and 161.7875 – 161.9375 MHz bands to MMSS (Earth-to-space) and (space-to-Earth) on a secondary basis accordingly.

(c) *AI 1.12 – Possible global or regional harmonised bands, to the maximum extent possible, for the implementation of evolving Intelligent Transport Systems ("ITS")*

WRC-19 decided to add a new WRC Recommendation with a view to facilitating global or regional use of harmonised bands, or parts thereof, making reference to the most recent versions of ITU-R Recommendations (including ITU-R M.2121) for the planning and deployment of evolving ITS applications. Among others, the 5850 – 5925 MHz band, or parts thereof, as allocated to mobile service on a co-primary basis is recommended for use of current and future ITS applications.

In Hong Kong, the 5850 – 5925 MHz band is allocated to fixed service and fixed satellite service ("FSS") (Earth-to-space) on a primary basis, while part of which, i.e. the 5850 – 5875 MHz band, is also allocated to the industrial, scientific and medical equipment on a primary basis. In response to industry demand, the proposed allocation of the 5850 – 5925 MHz band to mobile service with a view to facilitating the deployment of ITS had been discussed at the 15th, 16th and 17th SSAC meetings in 2017 – 2018. To align with the WRC-19 decision, OFCA would seek the CA's approval for allocation of the 5850 – 5925 MHz band to mobile service on a co-primary basis. Views of relevant stakeholders expressed at the SSAC meetings on the subject matter would be submitted to the CA for its consideration.

(d) *AI 1.13 – Identification of bands for the future development of International Mobile Telecommunications ("IMT")*

This AI considered identification of additional bands for the future development of IMT and additional spectrum allocations to mobile service on a primary basis in portion(s) of the frequency range between 24.25 and 86 GHz for the future development of IMT for 2020 and beyond, including the fifth generation mobile ("5G") services.

WRC-19 decided to identify the following bands for global 5G deployment, with effect from 1 January 2021 –

Bands	WRC-19 Decision
24.25 – 27.5 GHz	WRC-19 identified this band for global 5G use.
37.0 – 40.5 GHz	WRC-19 identified these bands, or portions thereof, for global 5G use.
40.5 – 42.5 GHz	
42.5 – 43.5 GHz	
45.5 – 47.0 GHz	WRC-19 identified this band for use by countries listed in a new Footnote **No. 5.F113** to implement 5G services. China is not on the list.
47.2 – 48.2 GHz	WRC-19 identified this band for use by Region 2 and some other countries listed in a new Footnote **No. 5.H113** to implement 5G. China is not on the list.
66 – 71 GHz	WRC-19 identified this band for use by countries to implement 5G under the provisions in a new Footnote **No. 5.J113**.

WRC-19 decided that use of the aforesaid bands for 5G shall comply with the additional constraints imposed on the relevant systems, with a view to ensuring adequate protection of existing services in the same and adjacent bands, in particular protection of Earth exploration-satellite services (passive) in the 23.6 – 24 GHz and 36 – 37 GHz bands due to operation of 5G systems in the 24.25 – 27.5 GHz and 37 – 40 GHz bands respectively.

In Hong Kong, existing allocation of the aforesaid bands are tabulated below –

Bands	Primary Allocation unless otherwise stated
24.25 – 27.5 GHz*	Fixed service (24.25 – 27.5 GHz) Mobile service (24.25 – 27.5 GHz) Radionavigation service (24.25 – 24.65 GHz) FSS (Earth-to-space) (24.75 – 25.25 GHz) FSS (Earth-to-space) (27 – 27.5 GHz)
37 – 40.5 GHz	Fixed service (37 – 39.5 GHz) To be planned (39.5 – 40.5 GHz)
40.5 – 42.5 GHz	To be planned
42.5 – 43.5 GHz	
45.5 – 47.0 GHz	
47.2 – 48.2 GHz	
66 – 71 GHz	

Note *: The CA has already assigned spectrum in the 24.25 – 27.5 GHz band for the provision of 5G services.

The CA will continue to look for suitable spectrum for releasing to the market in a timely manner to support the continued developments of the mobile industry[1]. In this connection, and to align with the WRC-19 decision, OFCA would seek the CA's approval for allocation of the 37 – 43.5 GHz and 66 – 71 GHz bands to mobile service[2] on a co-primary basis and the additional allocation of the 39.5 – 43.5 GHz band to fixed service on a co-primary basis for provision of public mobile services by network operators.

Way Forward

6. The new frequency allocations decided in WRC-19 shall enter into force on 1 January 2021, except the allocation of the 1621.35 – 1626.5 MHz band which shall provisionally enter into force on 23 November 2019. OFCA would update the "Region 3[3] Allocation" column in the Hong Kong Table of Frequency Allocations in due course accordingly. ***Annex 2*** gives a summary of the revision to Region 3 allocation by WRC-19.

7. OFCA would take into consideration views of Members and the concerned stakeholders and make recommendations to the CA on the allocation of the concerned bands in Hong Kong to align with the WRC-19 decisions as described in paragraph 5 above.

Advice Sought

8. Members are invited to offer comments on the relevant matters of this paper.

Office of the Communications Authority
January 2020

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[1] Please refer to the work plan of the CA for making available additional spectrum for public mobile services to meet the increasing aspirations of service users towards 2020 and beyond, which is available at https://www.coms-auth.hk/en/media_focus/press_releases/index_id_1423.html.

[2] The 37 – 38 GHz and 42.5 – 43.5 GHz bands would be allocated to mobile (except aeronautical mobile) service, while the 40.5 – 42.5 GHz band would be allocated to land mobile service. Additionally, the 38 – 40.5 GHz and 66 – 71 GHz bands would be allocated to mobile service.

[3] RR divides the world into three regions for the purposes of managing the global radio spectrum. Each region has its own set of frequency allocations. Region 3 comprises those Asian countries east of Iran and including Iran, as well as the majority of those in Oceania.