

RADIO SPECTRUM AND TECHNICAL STANDARDS ADVISORY COMMITTEE

World Radiocommunication Conference 2015 Decisions

Introduction

This paper briefs Members on the decisions of the World Radiocommunication Conference 2015 (“WRC-15”) of the International Telecommunication Union (“ITU”) and identifies potential allocation of frequency bands to the relevant services in Hong Kong as a result of the WRC-15 decisions.

Background

2. WRC-15 was tasked to tackle some 20 Agenda Items (“AIs”) that covered, among other things, frequency allocation and sharing for efficient use of spectrum and satellite orbital resources. At the 5th SSAC meeting held in 2013, Members were briefed on the scope of these AIs. At the subsequent SSAC meetings held in 2014 and 2015, Members were updated on the progress of ITU’s studies, Hong Kong’s preparatory work, Hong Kong’s preliminary and final positions on WRC-15 AIs.

3. OFCA thereafter attended WRC-15, which took place from 2 to 27 November 2015 in Geneva. This paper summarises the decisions of WRC-15.

WRC-15 Decisions

4. A summary of the WRC-15 decisions on the respective AIs, as stipulated in the Provisional Final Acts of WRC-15, is given at Annex 1. Those WRC-15 decisions or AIs involving new frequency allocation and/or of interest to Hong Kong are highlighted below –

(a) *AI 1.1 – Identification of additional frequency bands for International Mobile Telecommunications (“IMT”)*

This AI considered additional spectrum allocations to the mobile service (“MS”) on a primary basis and identification of additional frequency bands for IMT and related regulatory provisions to facilitate the development of terrestrial mobile broadband applications. WRC-15 identified the 1427 – 1518 MHz band for IMT in all three ITU Regions starting from 2017.

In Hong Kong, within the 1427 – 1518 MHz band, only the 1466 – 1480 MHz sub-band is allocated to MS. The adjacent spectrum, 1427 – 1429 MHz band is unplanned whereas the 1429 – 1466 MHz and 1480 – 1518 MHz bands are currently allocated to the fixed service (“FS”). Whether these bands may be allocated to MS in Hong Kong is subject to further study and hinged on the availability of harmonised IMT band plans and their associated equipment support.

(b) *AI 1.3 – Broadband public protection and disaster relief*

Resolution 646 (Rev.WRC-12) of the ITU Radio Regulations (“RR”) invites the ITU Radiocommunication Sector (“ITU-R”) to study technical and operational issues relating to broadband Public Protection and Disaster Relief (“PPDR”), and to develop recommendations, as required, on technical requirements for PPDR services and applications. This AI considered revising Resolution 646 based on the results of the related ITU-R studies.

Among those frequency bands harmonised for PPDR in Region 3 as listed in Resolution 646 (Rev.WRC-12), WRC-15 removed the bands 806 – 824 MHz / 851 – 869 MHz and 5850 – 5925 MHz from the list. As specified in Resolution 646 (Rev.WRC-15), administrations are encouraged to consider parts of the frequency range 694 – 894 MHz, as described in the most recent version of Recommendation ITU-R M.2015¹, when undertaking their national planning for PPDR applications, in particular broadband PPDR. Administrations are also encouraged to use the regionally harmonised frequency ranges 406.1 – 430 MHz, 440 – 470 MHz and 4940 – 4990 MHz for PPDR in Region 3.

¹ The current version “Frequency arrangements for public protection and disaster relief radiocommunication systems in UHF bands in accordance with Resolution 646 (Rev.WRC-12)” shall be revised following the WRC-15 decision.

In Hong Kong, the 406.1 – 430 MHz and 4940 – 4990 MHz bands have been allocated for PPDR. The removal of 806 – 824 MHz / 851 – 869 MHz and 5850 – 5925 MHz bands by WRC-15 does not have any significant impact to Hong Kong.

(c) AI 1.4 – Amateur service

WRC-15 allocated the frequency band 5351.5 – 5366.5 kHz to the amateur service (“ARS”) on a secondary basis globally with a provision that the maximum equivalent isotropically radiated power shall not exceed 15W in Region 3.

In Hong Kong, the 5005 – 5480 kHz band is currently allocated to FS on a primary basis.

(d) AI 1.5 – Use of frequency bands allocated to the fixed-satellite service for unmanned aircraft systems

This AI considered the use of frequency bands allocated to the fixed-satellite service (“FSS”) not subject to a plan under RR for the control and non-payload communications (“CNPC”) of Unmanned Aircraft Systems (“UAS”) in non-segregated airspaces.

WRC-15 decided that assignments to stations of geostationary FSS networks operating in the frequency bands 10.95 – 11.2 GHz, 11.45 – 11.7 GHz, 12.2 – 12.5 GHz, 12.5 – 12.75 GHz and 19.7 – 20.2 GHz (space-to-Earth) and 14 – 14.47 GHz and 29.5 – 30 GHz (Earth-to-space) may be used in Region 3 for UAS CNPC links in non-segregated airspaces, subject to the availability of relevant standards to be developed by ITU-R and the International Civil Aviation Organisation.

In Hong Kong, the above frequency bands have already been allocated to FSS.

(e) AI 1.9.2 – Allocation of parts of the 7/8 GHz band to the maritime mobile-satellite service

This AI considered the possibility of allocating parts of the 7/8 GHz band to the maritime mobile-satellite service to meet operational needs beyond territorial waters.

WRC-15 allocated the 7375-7750 MHz band to the maritime mobile-satellite service (space-to-Earth) on a primary basis globally with a provision limiting its use to geostationary-satellite networks.

In Hong Kong, the 7375 – 7750 MHz band is currently allocated to FS and MS on a primary basis.

(f) AI 1.16 – VHF maritime radiocommunications

This AI considered regulatory provisions and spectrum allocations to enable new Automatic Identification System (“AIS”) technology applications to improve maritime radiocommunications.

WRC-15 revised RR Appendix 18 (Table of transmitting frequencies in the VHF maritime mobile band) to identify some existing VHF maritime channels for non-critical data communications using the new AIS technology. In addition, WRC-15 also allocated the 161.9375 – 161.9625 MHz and 161.9875 – 162.0125 MHz bands to the maritime mobile-satellite (Earth-to-space) service on a secondary basis globally.

In Hong Kong, the 160.6 – 163 MHz band is currently allocated to the maritime mobile service on a primary basis.

(g) AI 1.17 – Aeronautical mobile (route) service in the 4 GHz band

With a view to supporting the implementation of wireless avionics intra-communication systems enabling communications between two or more points on a single aircraft, WRC-15 allocated the 4200 – 4400 MHz band to the aeronautical mobile (route) service on a primary basis globally.

In Hong Kong, the 4200 – 4400 MHz band is currently allocated to the aeronautical radionavigation service on a primary basis.

(h) AI 1.18 – Allocation of 77.5 – 78 GHz to the radiolocation service for short-range radar for ground-based applications

The frequency bands 77 – 77.5 GHz and 78 – 81 GHz are allocated to the radiolocation service on a primary basis globally. WRC-15 further allocated the 77.5 – 78 GHz band to the radiolocation service on a primary basis globally, effectively providing a contiguous band in 77 – 81 GHz for radiolocation service, including automotive radar applications.

In Hong Kong, the 77.5 – 78 GHz band is currently allocated to ARS on a primary basis.

(i) Ad hoc item – Global flight tracking for civil aviation

Automatic Dependent Surveillance-Broadcast (“ADS-B”) allows an aircraft to periodically broadcast its position. The 1087.7 – 1092.3

MHz band has been used for transmission of ADS-B signals from aircraft to terrestrial stations within line-of-sight. WRC-15 allocated this band to the aeronautical mobile-satellite (route) service (Earth-to-space) on a primary basis globally for reception by space stations of ADS-B signals from aircraft. This will extend ADS-B transmissions beyond line-of-sight to facilitate reporting of aircraft position via satellites.

In Hong Kong, the 960 – 1164 MHz band is currently allocated to the aeronautical radionavigation and the aeronautical mobile services on a primary basis.

Way Forward

5. As a result of the WRC-15 decisions, the relevant frequency allocations in Region 3 would be revised and they shall enter into force on 1 January 2017. Annex 2 gives a summary of the Region 3 allocation revision. OFCA would arrange to update the “Region 3 Allocation” column in the *Hong Kong Table of Frequency Allocations* accordingly in due course.

6. Furthermore, OFCA would take into consideration views of Members and the concerned stakeholders and make recommendations to the Communications Authority on the allocation of the concerned frequency bands to the relevant services in Hong Kong.

Advice Sought

7. Members are invited to offer comments on the allocations of the relevant frequency bands in Hong Kong as a result of the WRC-15 decisions.

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