

NATIONAL INTEREST ANALYSIS: CATEGORY 2 TREATY

Partial Revision of the 2015 Radio Regulations, as incorporated into the Final Acts of the World Radiocommunication Conference 2019 (WRC-19)

(Sharm El-Sheikh, 22 November 2019)

[2020] ATNIA 18

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Nature and timing of proposed treaty action

1. It is proposed that Australia consent to be bound by the Partial Revision of the Radio Regulations, as incorporated into the Final Acts of the 2019 World Radiocommunication Conference (WRC-19), done at Sharm El-Sheikh, on 22 November 2019. Australia signed the Final Acts of WRC-19 on 22 November 2019 and intends to notify the International Telecommunication Union (ITU) of its consent to be bound, in accordance with Article 54 of the *Constitution of the International Telecommunication Union* [1994] ATS 28, as amended by the 1998 Plenipotentiary Conference (Constitution), after completion of domestic treaty-making requirements.
2. The Radio Regulations is a binding international instrument that facilitates equitable access to, and rational use of, the natural resources of the radio-frequency spectrum and satellite orbits. The Radio Regulations (including their appendices), together with the International Telecommunication Regulations, constitute the Administrative Regulations of the ITU. The Administrative Regulations complement the basic instruments of the ITU – the Constitution and the *Convention of the International Telecommunication Union* [1994] ATS 28 (Convention).
3. Article 13 of the Constitution and Article 7 of the Convention enable the World Radiocommunication Conferences (WRCs) to revise the Radio Regulations. Revisions of the Radio Regulations are made at WRCs every three to four years, largely to reflect technical advances. Australia signed the Final Acts of WRC-19 on 22 November 2019. Some of the revisions entered into force immediately after WRC-19, and another on 1 July 2020, in line with Article 59 of the Radio Regulations and Resolution 99 (Rev. WRC-19). These revisions related to international satellite regulation and maritime safety communications; some provisions for satellite and mobile technologies; a provision relating to the intended use of 4800-4900MHz by a number of countries for the purpose of international mobile telecommunications (IMT); and a provision relating to regulations for earth stations in motion (commonly providing satellite connectivity for aircraft). The remaining revisions will apply provisionally to Australia from 1 January 2021, and formally enter into force for Australia upon notification to the Secretary General of the ITU of our consent to be bound (Article 54, ITU Constitution). Absent notification of consent, or of any objection, consent will be deemed after a period of thirty-six months; that is, on 1 January 2024.

Overview and national interest summary

4. The Final Acts of the WRC-19 contain revisions to the Radio Regulations that support continued rational and efficient use of the radiofrequency spectrum and satellite orbits in response to changing technologies and practices. It is in Australia's national interest that the international legal framework for the use of radiofrequency spectrum continue to be updated by multilateral agreement on a regular basis through the ITU, and that spectrum dependent terrestrial and satellite communications continue to develop and be deployed globally. Australia and all other ITU Members are required to ensure that the spectrum is used internationally in a manner that will prevent harmful interference to other services.
5. The principal benefits for Australia arising from the WRC-19 revisions to the Radio Regulations are:
 - a. provision of more bandwidth through identification of additional spectrum for use by wireless broadband services, supporting 5G mobile broadband services in particular;
 - b. improved connectivity on aeroplanes and ships, through uniform international conditions for operation of "earth stations in motion" (ESIM) in certain frequency bands. ESIM are used to provide broadband connectivity to moving vehicles;
 - c. increased global satellite broadband availability and competition in the non-geostationary satellite orbit (GSO) market. This is expected to result from provisions that mandate milestones for deployment of satellites in non-GSO satellite constellations in certain frequency bands;
 - d. expanded capacity and coverage, particularly in Polar regions, as a result of adding a second satellite system to Appendix 15 of the Radio Regulations, and addressing an existing monopoly in the provision of Global Maritime Distress and Safety System (GMDSS) satellite services, through regulatory arrangements supporting introduction of a second satellite system; and
 - e. improved protection for radio astronomy and earth observation sciences, so that the new spectrum arrangements do not impose additional constraints on these existing services. This protects projects of national interest such as the Square Kilometre Array (SKA) and earth observation satellite missions from which Australian industry, engineering, and science stand to gain significant benefits.

Reasons for Australia to take the proposed treaty action

6. The proposed treaty action would align Australia with the international community on the use of radiofrequency spectrum and orbital resources and strengthen international cooperation. The revisions establish new global and regional radiofrequency spectrum allocations, identifications and coordination arrangements (including technical or operational requirements) that are technically feasible and respond to changing technology and industry practice, including for International Mobile Telecommunications (IMT) and other evolving terrestrial communications, maritime communication services, and satellite services. While some WRC-19 agenda items were resolved with globally harmonised approaches, some WRC-19 outcomes reflect different arrangements in the three Radio Regulations regions: Region 1 (Europe/Africa), Region 2 (Americas) and Region 3 (Indo-Pacific, including Australia).

Reservations and declarations

7. Australia made the following general reservation to the Final Acts of WRC-19:

In signing the Final Acts of the World Radiocommunication Conference (Sharm el-Sheikh, 2019), the delegation of Australia reserves for its Government the right to take measures it might deem necessary to safeguard its interests if another Member State of the International Telecommunication Union in any way fails to respect the conditions specified in the Final Acts or if the reservations made by any Member State should be prejudicial to the operation of radiocommunication services in Australia or its full sovereign rights.

The delegation of Australia further declares that it reserves for its Government the right to make declarations or reservations when depositing its instrument of ratification for amendments to the Radio Regulations adopted at this World Radiocommunication Conference (Sharm el-Sheikh, 2019).

8. Under this general reservation, Australia retains the right to take measures it deems necessary to safeguard its radiocommunication interests, including with regard to interference from foreign systems.
9. Upon signing the Final Acts of WRC-19, Australia also joined Canada, the United States and New Zealand in support of a Ukrainian declaration on Crimea:

The delegations of the mentioned countries, referring to the declaration made by the Ukraine (No. 44) declare that we remain committed to uphold the sovereignty and territorial integrity of Ukraine within its internationally recognized borders. We do not recognize the illegal referendum in Crimea, which was in clear violation of the Ukrainian Constitution. We strongly condemn the Russian Federation's illegal seizure of Crimea and Sevastopol and do not recognize Russian Federation's claim to have annexed Crimea. We further believe that there is no place for the use of force and coercion to change borders in Europe in the 21st century.

Therefore, we call upon the International Telecommunication Union (ITU) to continue to implement fully the terms of Resolution 68/262 (2014) of the United Nations General Assembly that "calls upon all States, international organizations and specialized agencies not to recognize any alteration of the status of the Autonomous Republic of Crimea and the city of Sevastopol" and to "refrain from any action or dealing that might be interpreted as recognizing any such altered status".

In this regard, we welcome the statement by the ITU Secretary-General at the 2014 Plenipotentiary Conference (Busan, 2014), published in Document PP-14/174, Annex B (<https://www.itu.int/md/S14-PP-C-0174/en>) and the statement by the ITU Secretary-General, published in the ITU Operational Bulletin No. 1158 dated 15 October 2018 (<https://www.itu.int/pub/T-SP-OB.1158-2018>) and encourage the ITU Secretary-General and the Directors of the three Bureaux to continue to take all necessary actions in order to assist Ukraine to ensure the use of its telecommunications resources in accordance with the Constitution and Convention of the International Telecommunication Union and the Administrative Regulations.

10. Australia also joined a declaration opposing Colombia's reaffirmation of the Bogota Declaration, which asserts sovereignty over geostationary satellite orbit (GSO):

The delegations of the above-mentioned States, referring to the declaration made by the Republic of Colombia (No. 564/14), inasmuch as these and any similar statements refer to the Bogota Declaration of 3 December 1976 made by equatorial countries and to the claims of those countries to exercise sovereign rights over segments of the geostationary-satellite orbit, or to any related claims, consider that the claims in question cannot be recognized by this Conference. The above-mentioned delegations also wish to state that reference in Article 44 of the Constitution to the "geographical situation of particular countries" does not imply recognition of a claim to any preferential rights to the geostationary-satellite orbit.

11. Australia intends to maintain all of these statements at the time of notifying its consent to be bound by the Final Acts of WRC-19.

Obligations

12. The Radio Regulations set out mandatory technical, operational and regulatory parameters and conditions of use for radiofrequency spectrum and satellite orbits by communications technologies. Primary obligations of ITU Member States include the requirement to assign or change frequency assignments in such a way as to avoid causing harmful interference to stations using frequencies, in accordance with the Table of Frequency Allocations and other provisions of the Radio Regulations (Radio Regulations, Article 4.3). However, significant flexibility exists for Member States to make allocations and other rules relating to use of spectrum, on the basis that they do not cause harmful interference to and claim protection from stations operating in accordance with the Radio Regulations (Radio Regulations, Article 4.4).
13. Most provisions of the Radio Regulations, as they are currently drafted, remain in effect; the Final Acts of WRC-19 provide a partial revision only. In providing its consent to be bound by the revisions of the Radio Regulations contained in these Final Acts, Australia will be legally obliged to adopt these into its domestic framework for spectrum regulation, unless it enters a reservation at the time of notifying the Secretary-General of the ITU of its consent to be bound, in accordance with Article 54 of the Constitution.
14. The following provides a brief outline of some of the key changes arising from the WRC-19 revision of the Radio Regulations. References are provided to the text of the Radio Regulations where relevant. Spectrum allocations are made in the Radio Regulations at Article 5, Section IV – Table of Frequency Allocations (TFA).

International Mobile Telecommunications (IMT)

15. WRC-19 agreed to identify spectrum globally for use by 5G mobile broadband (termed IMT by the ITU) in the 24.25-27.5 GHz, 37-43.5 GHz and 66-71 GHz bands. To support the global identification for this application, a new primary allocation was made to the mobile service in the frequency band 24.25-25.25 GHz for Regions 1 and 2 (there was already a primary allocation to the mobile service in Region 3). This allocation is limited to the mobile service except aeronautical mobile, and conditions were imposed to protect

services in the adjacent Earth exploration satellite service 23.6-24 GHz frequency band from interference from IMT transmissions.

16. WRC-19 also agreed identification of spectrum for use by 5G mobile broadband, limited to certain countries and regions. The frequency band 45.5-47 GHz was identified for IMT in 54 countries, predominantly in Region 1. The frequency band 47.2-48.2 GHz was identified for IMT in Region 2 and 68 other countries, including Australia. These global and regional identifications for IMT use will provide more bandwidth, promote economies of scale in equipment development and manufacture, and enable service interoperability as consumers travel around the world (mobile roaming).

Evolving terrestrial uses

17. Spectrum allocated to the fixed service was identified for transmissions of High-Altitude Platform Stations (HAPS, e.g. lighter-than-air platforms or conventional aircraft) and associated ground stations. The frequency bands 31-31.3 GHz and 47.2-47.5 GHz were identified globally on a primary basis for HAPS. The frequency band 38-39.5 GHz was identified globally on a primary basis in the ground-to-HAPS direction and on a secondary basis in the HAPS-to-ground direction with emission limits to protect other services operating in the frequency band.
18. The frequency range 275-450 GHz was identified for land mobile and fixed service applications, with use conditioned in parts of this range to protect Earth exploration-satellite service and radio astronomy applications. These frequency bands are expected to enable new technologies using high-bandwidth point-to-point transmissions over short distances (e.g. transmissions at ticket gates, and between components inside computers).
19. WRC-19 also relaxed conditions for use by radio local area networks (e.g. Wi-Fi) in the frequency band 5150-5250 MHz. Limited numbers of controlled outdoor transmissions are now permitted with restrictions on transmission power, and administrations are afforded flexibility to apply specified higher power limits for indoor and outdoor transmissions so long as they also observe other specified elevation-dependent power limits. These provisions will bring greater utility for Wi-Fi networks, without significant detriment to satellite systems that also use the frequency band.

Maritime services

20. To accommodate updates to the GMDSS made by the International Maritime Organization, a second satellite system was added to Appendix 15 of the Radio Regulations, facilitating provision of GMDSS services, and the maritime mobile-satellite service allocation in the band 1621.35-1626.5 MHz was upgraded to primary status. Provisions were added to protect services operating in that and adjacent bands. Additionally, eight frequency bands between 415kHz and 22455.5 kHz were identified to support the new system 'NAVDAT' used to broadcast navigational data to ships.
21. In response to the proliferation of autonomous maritime radio devices (AMRDs, i.e. automatic transmitters fitted to buoys and other floating objects), regulations were developed permitting frequencies between 156.525MHz, 161.975MHz and 162.025 MHz to be used by AMRDs that enhance safety of navigation, and the frequency 160.9 MHz to be used by AMRDs that do not enhance safety of navigation.

22. A worldwide secondary allocation to the maritime mobile-satellite service was made in the frequency bands 157.1875-157.3375 MHz and 161.7875-161.9375 MHz, with protections for incumbent services in adjacent bands. These allocations enable the satellite component of the Very High Frequency Data Exchange System (VDES), which provides extended coverage for maritime communications.

Satellite services

23. The WRC-19 revisions include new conditions that non-GSO satellite systems must meet to be brought into use. Provisions mirror those currently in place for GSO networks: deployment of a single satellite is required for 90 continuous days within a seven-year period to bring into use satellite systems in the fixed-satellite, broadcasting-satellite and mobile-satellite services, while deployment of a satellite for 0 days is required for other services and for systems that do not orbit the Earth. These provisions fill a regulatory gap.

24. The Final Acts also contains three mandatory milestones for the deployment of satellites in non-GSO satellite systems in certain bands and services. The milestones fall at 3, 5 and 7 years after the end of the seven-year period within which a satellite filing must be brought into use. Ten per cent of the number of satellites must be deployed by the first milestone, 50 per cent by the second milestone, and 100 per cent less one satellite must be deployed by the third milestone. Mandatory milestones will help to ensure spectrum and satellite orbit resources are used efficiently and, where milestones are not met, these resources are made available for others.

25. A new Resolution sets out globally-harmonised conditions that ESIM must meet to operate in the 17.7-19.7 GHz and 27.5-29.5 GHz frequency bands. Harmonised conditions support provision of satellite broadband to moving vehicles while protecting GSO and non-GSO space services and terrestrial services from harmful interference.

26. WRC-19 agreed a new allocation of the frequency band 51.4-52.4 GHz to the fixed-satellite service for use by gateway earth stations. Conditions were also agreed to protect Earth exploration-satellite service operations in 52.6-54.25 GHz from harmful interference. This spectrum allocation will provide additional bandwidth to support broadband satellite systems.

27. WRC-19 agreed emission limits for mobile-satellite service transmissions in the frequency band 399.9-400.05 MHz. Satellite telemetry, tracking and command links may be used without the limits in part of the band (400.02-400.05 MHz). A transition period gives existing satellite systems five years to meet the new limits. In the frequency band 401-403 MHz, emission limits were imposed on ground stations used by the Earth exploration-satellite service and meteorological-satellite service, with 10-year transitional arrangements for existing systems. Limits in both bands will protect low-power satellite data collection systems from satellite systems using high power transmissions. Low-power satellite data collection systems are relied upon for weather and climate data, and also underpin some commercial satellite Internet of Things networks.

28. The Final Acts contain a new regulatory framework for coordination between non-GSO satellite systems and GSO networks in the frequency bands 37.5-39.5 GHz, 39.5-42.5 GHz, 47.2-50.2 GHz and 50.4-51.4 GHz. Under the framework, non-GSO systems may

use the frequency bands subject to limits on emissions from individual transmissions, and emissions in aggregate from all satellite systems operating in the frequency bands. Emission limits were also imposed on some GSO and non-GSO ground stations to protect Earth exploration-satellite service systems in the adjacent frequency band 50.2-50.4 GHz. The regulatory framework will provide clarity and flexibility for use of the frequency bands by non-GSO systems, where previous regulatory provisions limited their use.

29. The Final Acts include a new Resolution with special conditions for short-duration mission satellite systems only (defined as a system of less than 10 satellites with a mission length of up to three years). These special conditions replace or supplement some existing satellite system provisions where they are less suitable for short build, launch and de-orbit timeframes for short-duration mission satellites. WRC-19 also allocated additional spectrum for telemetry, tracking and command of short-duration mission satellites. The frequency bands 137-138 MHz and 148-149.9 MHz were allocated to the space operation service, with conditions to protect other existing services.

Other changes of minimal impact for Australia

30. Outcomes on rail safety spectrum and intelligent transport systems encourage administrations to consider ITU studies when implementing spectrum for rail safety, and recommend that administrations consider using harmonised frequency bands for intelligent transport systems. In some Region 1 countries, allocations in the 50-54 MHz range for the amateur service align Region 1 with existing allocations in Regions 2 and 3.
31. The Final Acts remove a number of restrictions on the orbital location of satellites which were designed to avoid interference particularly at the boundaries between Regions, as these limits were found through studies to be unnecessary. These orbital locations are not within view of the Australian continent. A Resolution was agreed giving priority to orbital locations opened with the removal of limitations to those countries with less ability to access orbital resources.
32. The Final Acts also contain minor changes and updates to past Resolutions and footnotes that have minimal or no impact on Australian spectrum resources.

Implementation

33. Australia's obligations under the Radio Regulations are directly administered by the Australian Communications and Media Authority (ACMA), in its capacity as a notifying administration to the ITU. They are implemented through the Australian Radiofrequency Spectrum Plan (ARSP), which is prepared by ACMA in accordance with section 30 of the *Radiocommunications Act 1992* (Cth). Revisions to the existing ARSP will be prepared by ACMA to take account of the Final Acts of WRC-19.

Costs

34. There are no identifiable direct costs to Commonwealth, State or Territory Governments arising from the proposed treaty action.

Future treaty action

35. The next World Radiocommunication Conference will be held in 2023 (WRC-23) and will consider agenda items agreed at WRC-19. Further changes to the Radio Regulations will be considered, informed by technical studies conducted by radiocommunications experts (including Australian delegates) in ITU Radiocommunication Sector Study Groups over the 2020-23 period. Any revisions of the Radio Regulations made by WRC-23 would be subject to Australia's domestic treaty-making requirements.
36. The Radio Regulations incorporate by reference a small number of ITU Radiocommunication Sector (ITU-R) Recommendations which specify technical standards. Where the Radio Regulations do not reference a specific version, referenced Recommendations may be updated by agreement of ITU-R Study Groups (international expert bodies on which Australia is represented), and approved by the ITU Radiocommunication Assembly.

Withdrawal or denunciation

37. Under Article 57 of the Constitution, Australia may simultaneously denounce the Constitution and Convention (and by extension the Administrative Regulations) by notifying the Secretary-General of the ITU. Such denunciation would take effect one year after receipt of the notification by the Secretary-General of the ITU, and would be subject to Australia's domestic treaty-making requirements.

Contact details

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ATTACHMENT ON CONSULTATION

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CONSULTATION

38. During the four-year preparatory process for WRC-19, the former Department of Communications and the Arts (now the Department of Infrastructure, Transport, Regional Development and Communications (DITRDC)) led a rigorous multi-stakeholder consultation process, with technical and regulatory advice provided by ACMA.
39. This included face-to-face meetings and online consultations with representatives from the mobile industry (AMTA, Telstra and Optus), satellite industry (NBN Co, Optus, Myriota, Intelsat, Inmarsat, Globalstar, Pivotel, Iridium, Boeing, Airbus, Omnispace, O3b, Telesat), broadcasting industry (Free TV, Commercial Radio Australia, Prime, SBS), the amateur radio community (Wireless Institute of Australia), and the Communications Alliance, and Commonwealth government agencies that rely on spectrum.
40. The multi-stakeholder group provided unique perspectives and technical advice on all draft briefs ahead of major meetings, and contributed to the drafting of Australian contributions to international meetings. Several members also participated in Australian delegations, including at the WRC-19 negotiations.
41. These consultations informed the development of Australia's positions and negotiating parameters for each issue under consideration at WRC-19, set out in the Australian Delegation Brief. Additionally, preliminary positions agreed by the multi-stakeholder group were made public on the DITRDC and ACMA websites, and revised throughout the preparatory cycle.
42. While DITRDC sought to take all views from the multi-stakeholder preparatory group into consideration when finalising Australian positions, briefing and negotiating mandate, interests of commercial stakeholders were scrutinised carefully to ensure they were in Australia's national interest.
43. Australia's positions on issues under consideration at WRC-19 were also tested in regional and international technical and preparatory meetings. The Asia-Pacific Telecommunity Conference Preparatory Group for WRC-19 (APG-19) held five face-to-face meetings throughout the four year cycle, where Australia influenced regional positions where possible.