National Interest Analysis [2025] ATNIA 2

with attachment on consultation

Partial Revision of the 2019 Radio Regulations, as incorporated into the Final Acts of the World Radiocommunication Conference 2023 (WRC-23)

(Dubai, 15 December 2023)

[2025] ATNIF 11

NATIONAL INTEREST ANALYSIS: CATEGORY 2 TREATY

Partial Revision of the 2019 Radio Regulations, as incorporated into the Final Acts of the World Radiocommunication Conference 2023 (WRC-23)

(Dubai, 15 December 2023)

[2025] ATNIA 2
[2025] ATNIF 11

Nature and timing of proposed treaty action

1. It is proposed that Australia ratifies the Partial Revision of the Radio Regulations, as contained in the Final Acts of the 2023 World Radiocommunication Conference (WRC-23). Australia signed the Final Acts of WRC-23 on 15 December 2023 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), by depositing an instrument of ratification with the Secretary-General of the ITU subject to completion of domestic treaty-making requirements.

2. The Radio Regulations are a binding international instrument, as per Article 4 of the ITU Constitution, that facilitates equitable access to, and rational use of, the natural resources of the radiofrequency 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). The Radio Regulations evolved from the International Radiotelegraph Convention, first created at the 1906 International Radiotelegraph Conference. Australia was a signatory to the 1912 amendments of the Convention.

3. Article 13 of the Constitution and Article 7 of the Convention enable 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.

4. Some of the revisions to the Radio Regulations made by WRC-23 provisionally entered into force immediately after the Conference on 16 December 2023, in line with Article 59 of the Radio Regulations and WRC Resolution 99 (Rev.WRC-23). These revisions relate to planned frequency bands for the broadcasting-satellite service and fixed-satellite service, which are intended to ensure equitable access to satellite orbital resources for all ITU Member States.

5. WRC-23 considered a revised regulatory framework relating to the recognition of new satellite networks in the Global Maritime Distress and Safety System (GMDSS) on a provisional basis. In accordance with WRC Resolution 365, the revised regulatory framework will only enter into force after a number of conditions are satisfied. These conditions include a requirement that any identified harmful interference be eliminated

and that the networks successfully complete coordination of the relevant frequency assignments. A review of the associated frequency bands is required to be completed at the first WRC following the completion of coordination before the regulatory provisions enter into force.

6. The remaining revisions will apply provisionally to Australia from 1 January 2025, 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 following the date of entry into force of the revisions; that is, on 1 January 2028.

Overview and national interest summary

7. The ITU is a specialised agency of the United Nations with 193 Member States. It is concerned with international cooperation in the use of telecommunications and the radiofrequency spectrum. To this end, it establishes treaties and recommends world standards for telecommunication and radiocommunication services, including satellite services. Australia has been a Member of the ITU and its predecessors since Federation.

8. The Final Acts of WRC-23 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 Member States are required to ensure that the spectrum is used internationally in a manner that will prevent harmful interference to other services (Article 45, ITU Constitution).

9. The principal benefits for Australia arising from the WRC-23 revisions to the Radio Regulations are:

    a. the identification of spectrum in the upper 6 GHz band for International Mobile Telecommunications (IMT), supporting 5G and next generation IMT technologies, such as 6G (Article 5);
    b. the increased availability of spectrum to support international maritime and aviation safety (Appendix 15);
    c. the allocation of additional spectrum to support better weather forecasting and climate monitoring services (Article 5); and
    d. allocations to enable the improvement of broadband satellite communications services, such as those used to support in-flight Wi-Fi (Article 5).

Reasons for Australia to take the proposed treaty action

10. The proposed treaty action would align Australia with the international community on the use of radiofrequency spectrum and orbital resources while strengthening international cooperation. The revisions establish new global and regional radiofrequency spectrum arrangements that respond to changing technology and industry practice, including for IMT and other evolving terrestrial, maritime, aeronautical and satellite communications

services. While some WRC-23 agenda items were resolved with globally harmonised approaches, some WRC-23 outcomes reflect different arrangements in the three Radio Regulations regions: Region 1 (Europe/Africa), Region 2 (Americas) and Region 3 (Asia-Pacific, including Australia).

Reservations and declarations

11. On 15 December 2023, at the time of signing, Australia made a general reservation and two declarations (sections 13, 70 and 108 of the Final Protocol) to the Final Acts of WRC-23.

Obligations

12. The Radio Regulations set out mandatory technical, operational and regulatory parameters alongside 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 radiofrequencies, in accordance with the Table of Frequency Allocations and other provisions of the 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 (Article 4.4).

13. Most provisions of the Radio Regulations, as they are currently drafted, remain in effect; the Final Acts of WRC-23 provide a partial revision only. In ratifying the revisions of the Radio Regulations contained in these Final Acts, Australia will be obliged under international law to adopt these revisions into its domestic framework for spectrum regulation, unless it enters a reservation at the time of depositing the instrument of ratification with the Secretary-General of the ITU, 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-23 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.

Fixed, mobile and broadcasting issues

15. WRC-23 considered a number of candidate frequency bands for 5G/6G mobile broadband services (referred to in the ITU as International Mobile Telecommunications—IMT) across the three ITU geographic regions. Of key interest to Australia was the 7025-7125 MHz band and the directly adjacent 6425-7025 MHz band. In ITU Region 1 (Europe, Africa and the Middle East) both bands were identified for IMT. In ITU Region 3 (Asia-Pacific), which includes Australia, the upper 100 MHz of the band (7025-7125 MHz) was identified. Two Region 2 countries and three Region 3 countries also identified both bands for IMT via country footnotes to the Table of Frequency Allocations. WRC-23 additionally recognised that this spectrum is also used for wireless local area networks (Wi-Fi), which provides some certainty that equipment ecosystems and economies of scale will develop to support both IMT and Wi-Fi use cases.

16. WRC-23 agreed to retain existing provisions for the use of IMT in the 4.8-4.99 GHz band which provide interference protections for aeronautical and maritime mobile services (WRC Resolution 223). Many countries, including a number of African countries that had previously expressed interest in deploying IMT systems in this band, declined the opportunity to identify their use of the band for IMT in the Radio Regulations. As this frequency band is allocated to the mobile service on a primary basis, countries may register their use of IMT-like systems without being subject to constraints that would otherwise apply if the band was identified for IMT in their territory.

17. Minor changes were made to the Radio Regulations to require administrations notifying certain broadcasting stations to provide additional data to the ITU (Appendix 4). Australia may be required to provide such information if it notifies the ITU of new broadcasting stations in the medium frequency bands, but this data, such as type of modulation, is readily available.

Satellite issues

18. Revisions were made to the Radio Regulations to globally harmonise rules governing the use of Ku- and Ka-band frequencies for satellite communications with aircraft and ships while in motion, including with non-geostationary orbit (non-GSO) satellites – for example, low earth orbit satellite (LEOSat) networks (WRC Resolution 121 and 123). These new allocations will support improvements and increased competition in broadband satellite communications services, such as those used to support in-flight Wi-Fi.

19. WRC-23 also agreed to introduce new regulations to make Ka-band spectrum available for inter-satellite links to allow data from LEOSats to be relayed via satellites in higher orbits (WRC Resolution 679). This will support applications such as the faster transfer of satellite imagery and, potentially, communications with crewed space stations via commercial satellites.

20. The regulatory procedures governing the advance publication, coordination, notification and recording of frequency assignments pertaining to satellite networks, as contained in the Master International Frequency Register (MIFR) and maintained by the ITU Radiocommunication Bureau, were updated (Articles 9 and 11). Of particular significance, regulatory frameworks for non-GSO constellations were updated to balance the requirement to meet specific deployment milestones and orbital tolerances with the technical capabilities and operational requirements of the sector. These measures are required to prevent spectrum hoarding and to facilitate the proper functioning of the ITU's coordination, notification and registration processes. Changes were also made to the planned bands to ensure equitable access to satellite spectrum for all ITU Member States (Appendix 30B).

21. A new resolution was agreed to address concerns of harmful interference being caused to Global Positioning System (GPS) and other radionavigation-satellite services (WRC Resolution 676). The ITU Radiocommunication Bureau has reported a growing number of incidents, particularly in areas near zones of armed conflict, of concern to civil aviation safety for passenger, cargo and humanitarian flights. The resolution calls on administrations to take action to prevent and mitigate harmful interference which may

stem from the activities of national defence and security authorities. Guidance was also provided to administrations to protect radionavigation-satellite services from amateur services.

22. The Conference agreed arrangements to support the use of high-altitude platform stations (HAPS), such as long endurance drones and balloons, as mobile base stations (known as HAPS as IMT base stations – HIBS) (WRC Resolution 213 and 221). The regulations could support the development of HIBS technology to serve regional and remote areas in Australia where coverage from terrestrial base stations is difficult to achieve, as well as in disaster situations where terrestrial infrastructure is damaged or destroyed.

Maritime issues

23. WRC-23 agreed a number of measures to modernise the GMDSS (Appendix 15). These changes include the removal of outdated provisions, and the identification of new frequencies for search and rescue transmitters and broadcasts of maritime safety information.

24. WRC-23 also considered a revised regulatory framework to recognise the Chinese BeiDou Message Service System (BMDSS) as an additional satellite GMDSS service provider (WRC Resolution 365). The International Maritime Organization (which approved BeiDou in 2022) and the International Mobile Satellite Organisation (IMSO) will consider the outcomes of WRC-23 in relation to further recognition processes required before the system can commence operational GMDSS services. Recognition of BMDSS is heavily caveated with requirements to eliminate reported interference and to complete coordination before it can commence operation.

Aeronautical issues

25. A new service allowing aircraft to communicate via satellite in the Very High Frequency (VHF) aviation communications band will be introduced, which will improve aviation safety in remote areas (WRC Resolution 406). The updated provisions in the Radio Regulations will allow pilots and air traffic controllers to communicate via LEOSats using existing aviation frequencies, particularly over oceanic and remote areas. Further standards and recommended practices will be developed by the International Civil Aviation Organization (ICAO) to support the development of a space-based communication and surveillance air traffic management capability using this spectrum.

26. Flexibility has been retained in the regulatory provisions for communications with sub-orbital vehicles. Stations onboard these vehicles, which operate at higher altitudes than conventional aircraft and can be used for a variety of purposes including scientific research and transport, can continue to access space and/or terrestrial service frequencies.

27. WRC-23 also ensured that work to regulate the use of fixed-satellite service (FSS) networks for control and non-payload communications (CNPC) of unmanned aircraft systems (UAS) will continue into the future (WRC Resolution 155). CNPC is the communications link between UA and UA aircraft control stations that allows a remote pilot to control the flight, and also enables the relay of critical information such as air traffic control communications in the area of the UA. This decision will support ICAO to continue developing Standards and Recommended Practices (SARPs) for the use of FSS

networks by UAS CNPC links. The SARPs, once developed, will in turn inform future ITU decisions on regulatory options.

28. The Conference also agreed to measures to accommodate new digital technologies in existing High Frequency (HF) bands allocated to the aeronautical mobile (route) service, in support of improved commercial aviation safety-of-life uses (Appendix 27). In addition, new allocations to non-safety applications of the aeronautical mobile service to support uses such as surveillance, monitoring, mapping and filming, as well as enabling the transfer of large amounts of data collected during these activities, were also agreed, while protecting existing aeronautical radionavigation and other services in these bands.

Science issues

29. WRC-23 agreed a number of amendments that will support developments in science services. Additional frequencies were allocated to the Earth exploration-satellite service (EESS) to enable better remote measuring of the Earth's subsurface by spaceborne sensors. This will specifically improve the information that can be collected on the characteristics of polar ice sheets, including important climate change indicators. These amendments also support the use of wind profiler radars in the same bands, of which Australia operates the largest known number of any administration.

30. The space research service was elevated from a secondary to primary allocation in particular frequencies, recognising the importance of the scientific data transmitted in the Ku band while protecting existing services. This upgrade will allow space research satellites to transmit data at higher speeds.

31. The passive Earth exploration-satellite service (EESS (passive)) was also granted a primary allocation in certain parts of the millimetre wave bands, supporting meteorological satellites to collect enhanced data on advanced ice cloud measurements for better weather forecasting and climate monitoring. Additional protections for the EESS (passive) from non-GSO FSS space stations were also agreed.

32. The Conference also agreed to recognise the importance of space weather observation within the Radio Regulations (WRC Resolution 675), as well as the operation of space weather sensors as part of the meteorological aids service (Article 29B). This will support the observation of space weather phenomena including solar flares, solar radiation and geomagnetic storms, which have the potential to interfere with radiocommunication services including satellites, IMT services and navigation systems such as GPS.

Other outcomes of minimal impact for Australia

33. The Conference agreed to power limits on IMT stations to protect the EESS from interference (Article 21). While these protections already applied in Region 3, they have now been extended to also cover Regions 1 and 2.

34. WRC-23 endorsed the decision by the International Bureau of Weights and Measures (BIPM) to adopt Coordinated Universal Time (UTC) as the de-facto time standard by 2035 (Article 1 and WRC Resolution 655). This decision reinforces the decision by BIPM to cease the use of leap-seconds, and is supported by Australia's National Measurement Institute (part of the Department of Industry, Science and Resources) because of the

potential for leap seconds to disrupt critical infrastructure that is dependent on precise time-keeping, such as navigation systems and stock markets.

35. The Final Acts also contain minor changes and updates to past WRC Resolutions and footnotes that have minimal or no impact on Australian spectrum resources.

Decisions of WRC-23 with implications for future WRCs

36. A key responsibility of each WRC is to recommend the agenda of the next WRC (WRC Resolution 813), as well as a preliminary agenda for the subsequent WRC (WRC Resolution 814) to ITU Council. In this instance, the next WRC will be held in 2027, followed by another in 2031. While determining the agenda does not have regulatory impacts on Member States, it is a critical decision included in the Radio Regulations as a WRC Resolution, and becomes the key focus of the work of the ITU Radiocommunication Sector for the next four years.

37. One WRC-27 agenda item of particular interest to Australia will consider identifying additional spectrum for IMT that may be used to support 6G mobile services. The frequency bands that will be considered include bands currently used for other purposes in Australia, including defence purposes. WRC-27 will consider the results of sharing and compatibility studies to determine if additional spectrum can be identified for IMT.

38. WRC-23 agreed that the ITU, in time for the next WRC, consider arrangements to support satellite direct-to-handset services in IMT frequency bands. All of the bands used for mobile broadband below 2.7 GHz in Australia will be studied. This could help to support the development of direct-to-device services worldwide by making provisions for them in the Radio Regulations.

39. Following a decision by WRC-23 to make a new Region 1 primary allocation to the FSS in the space-to-Earth direction in the 17.3-17.7 GHz band (already allocated for such purposes in Region 2), WRC-27 will also consider a similar allocation for Region 3. A future allocation in this band, which is also used by the broadcasting-satellite service, could support increased use of this spectrum by GSO and non-GSO satellite systems to provide broadband communications services.

Implementation

40. 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 in part through the Australian Radiofrequency Spectrum Plan (ARSP) which is prepared by ACMA in accordance with section 30 of the *Radiocommunications Act 1992* (Cth). The ACMA will update the ARSP to implement the Final Acts of WRC-23.

Costs

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

42. The Office of Impact Analysis has been consulted and has advised that an Impact Analysis is not required.

Future treaty action

43. The next World Radiocommunication Conference will be held in 2027 (WRC-27). 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 2024-27 period. Any revisions of the Radio Regulations made by WRC-27 would be subject to Australia's agreement and domestic treaty-making requirements.

Withdrawal or denunciation

44. 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

Competition and Spectrum Branch
Communications Infrastructure Division
Department of Infrastructure, Transport, Regional Development,
Communications and the Arts

ATTACHMENT ON CONSULTATION

Partial Revision of the 2019 Radio Regulations, as incorporated into the Final Acts of the World Radiocommunication Conference 2023 (WRC-23)

(Dubai, 15 December 2023)

[2025] ATNIA 2
[2025] ATNIF 11

CONSULTATION

45. During the four-year preparatory process for WRC-23, the Department of Infrastructure, Transport, Regional Development, Communications and the Arts (DITRDCA) led a rigorous multi-stakeholder consultation process, with technical and regulatory advice provided by the Australian Communications and Media Authority (ACMA).

46. This included face-to-face meetings and online consultations with representatives from the mobile industry (Australian Mobile Telecommunications Association, Telstra and Optus), satellite and aerospace industry (NBN Co, Optus, Intelsat, Inmarsat, Globalstar, Pivotel, Iridium, Echostar, Boeing, Telesat, SES, Fleet Space Technologies, Skykraft, Nova Systems, Amazon, Viasat), broadcasting industry (Free TV), equipment manufacturers (Ericsson, Nokia, Dynamic Spectrum Alliance), the amateur radio community (Wireless Institute of Australia), and the Communications Alliance, alongside the Department of Defence and other Commonwealth government agencies that rely on spectrum.

47. 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-23 negotiations.

48. These consultations informed the development of Australia's positions and negotiating parameters for each issue under consideration at WRC-23, set out in the Australian Delegation Brief. Additionally, preliminary positions were made public on the DITRDCA and ACMA websites, and revised throughout the preparatory cycle.

49. While DITRDCA 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.

50. Australia's positions on issues under consideration at WRC-23 were also tested in regional and international technical and preparatory meetings. The Asia-Pacific Telecommunity Conference Preparatory Group for WRC-23 (APG-23) held six meetings throughout the four-year cycle, where Australia sought to influence regional positions.