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| **Agenda item: PL 3** | **Document C24/13-E** |
| **12 April 2024** |
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| Report by the Secretary-General |
| REPORT ON THE RADIOCOMMUNICATION ASSEMBLY 2023 (RA-23) AND THE WORLD RADIOCOMMUNICATION CONFERENCE 2023 (WRC-23) |
| **Purpose**Further to Resolution 811 (WRC-19), and in accordance with Council Resolution 1399 (C20) and Council Decision 623 (C21), the World Radiocommunication Conference 2023 (WRC-23) was held in Dubai, United Arab Emirates from 20 November to 15 December 2023, preceded by the Radiocommunication Assembly 2023 from 13 to 17 November 2023. This document reports on the activities and outcomes of the RA-23 and WRC-23.**Action required by the Council**The Council is invited to **take note** of this report.**Relevant link(s) with the Strategic Plan**[Resolution 71 (Rev. Bucharest, 2022)](https://www.itu.int/en/council/Documents/basic-texts-2023/RES-071-E.pdf)**Financial implications**See documents [C24/INF/2](https://www.itu.int/md/S24-CL-INF-0002/en) (Report of the Budget Control Committees of the Radiocommunication Assembly (RA-23) and the World Radiocommunication Conference (WRC-23)), [C24/63](https://www.itu.int/md/S24-CL-C-0063/en) (Annual budgetary implications of addressing the WRC-23 decisions), and [C24/19](https://www.itu.int/md/S24-CL-C-0019/en) (Allocations of savings achieved in 2023 budget implementation and exhibition working capital fund).\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**References**[*Resolution 811 (WRC-19)*](https://www.itu.int/dms_pub/itu-r/oth/0C/0A/R0C0A00000F00174PDFE.pdf)*;* [*Council Resolution 1399 (C20)*](https://www.itu.int/md/S20-CL-C-0069/en)*;* [*Council Decision 623 (C21)*](https://www.itu.int/md/S21-CL-C-0096/en) |

**1 Introduction**

1.1 Further to Resolution 811 of the WRC-19 (Sharm el-Sheikh, 2019), and in accordance with Council Resolution 1399 (C20) and Council Decision 623 (C21), the World Radiocommunication Conference 2023 (WRC-23) was held in Dubai, United Arab Emirates from 20 November to 15 December 2023, preceded by the Radiocommunication Assembly 2023 from 13 to 17 November 2023.

**2 RA-23**

2.1 The RA-23, which was chaired by Ms Carol Wilson of Australia, was attended by 566 participants representing 95 Administrations and 41 Sector Members, 1 Academia and 2 specialized agencies of the United Nations. Charting future directions in radiocommunication systems and information and communication technologies, RA-23 set the future work programmes for the ITU-R and approved a range of ITU-R Recommendations and Resolutions that will have a global impact on future radiocommunication technologies.

2.2 The following committees were established:

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| Committee 1 (Steering) | Chair: Ms Carol WILSON (Australia)Vice-Chairs: Mr El Hadjar ABDOURAMANE (Cameroon)  Mr Khalid AL AWADI (United Arab Emirates) Mr Dilmurod DUSMATOV (Uzbekistan) Mr Victor MARTINEZ VANEGAS (Mexico) Mr Martin WEBER (Germany)This Committee was made up of the Chair and Vice-Chairs of the Assembly and the Chairs and Vice-Chairs of the Committees. |
| Committee 2(Budget Control) | Chair: Mr Daniel OBAM (Kenya)Vice-Chair: Ms Latifa ALMUHANNA (Kuwait) |
| Committee 3(Editorial) | Chair: Mr Christian RISSONE (France)Vice-Chairs: Mr Mohammed AL-HASSANI (United Arab Emirates) Mr Dmitry CHERKESOV (Russian Federation) Ms Zhang HAIYAN (China (People’s Rep. of)) Mr Oliver INGS (United Kingdom) Mr Angel LEON ALCALDE (Spain) |
| Committee 4(Structure and work programme of the Study Groups) | Chair: Mr Yukihiro NISHIDA (Japan)Vice-Chair: Ms Muneera ALZAYANI (Bahrain) |
| Committee 5(Working methods of the Radiocommunication Assembly and Study Groups) | Chair: Mr John ZUZEK (United States of America)Vice-Chair: Mr Moath ALMANEA (Saudi Arabia) |

2.3 RA-23 was a fully paperless assembly, with all the detailed drafting activities being conducted using the RA-23 SharePoint site. A Sync Application was also provided and used.

2.4 As decided during the opening plenary and in line with ITU Information/Document Access Policy, all input documents were freely accessible by the public in advance of the assembly since no Member State considered that their disclosure would cause potential harm to a legitimate private or public interest that outweighs the benefits of accessibility.

2.5 The ITU-R Resolutions, Recommendations and Questions, as the main outputs of the assembly, are available for public access. The Plenary sessions, as well as those of committees, were webcast in the six official languages and provided with captioning in English, and the corresponding files (archives) are also available on the RA-23 website. Full information on RA-23 can be found on the webpage at: <https://www.itu.int/ra-23/>.

**3 Main Results of RA-23**

In total, RA-23 revised 26 ITU-R Resolutions, including:

* **Resolution ITU-R** [**1**](http://www.itu.int/pub/R-RES-R.1) "Working methods for the Radiocommunication Assembly, the Radiocommunication Study Groups, the Radiocommunication Advisory Group and other groups of the Radiocommunication Sector" was revised.
* The structure of the ITU-R Study Groups has been maintained. As such, the existing six ITU-R Study Groups continue into the new study period (2023-2027) with the same scopes of activity. Only the scope of Study Group 4 was modified to include the related use of links in the inter-satellite service. The structure of Radiocommunication Study Groups, including their scopes and chairs, can be found in Resolution ITU‑R [4](http://www.itu.int/pub/R-RES-R.4). Due to the lack of consensus on the appointment of Vice-Chairs for each Group, RA-23 delegated to the relevant groups (SGs, CCV, RAG, CPM) the responsibility for appointing their respective Vice-Chairs based on Document [RA-23/PLEN/91(Rev.1)](https://www.itu.int/md/R23-RA23-C-0091/en).
* RA-23 approved the work programme and Questions of the Radiocommunication Study Groups (see **Resolution ITU-R**[**5**](http://www.itu.int/pub/R-RES-R.5)) as well as four ITU-R Recommendations.
* **Resolution ITU-R** [**56**](https://www.itu.int/pub/R-RES-R.56) on “Naming for International Mobile Telecommunications” was also significantly revised to include the term “IMT-2030” and reference to Recommendation ITU-R M.2160 that describes the framework and overall objectives for the future development of “IMT for 2030 and beyond”.
* **Resolution ITU-R** [**65**](https://www.itu.int/pub/R-RES-R.65) on “Principles for the process of future development of IMT-2020 and IMT-2030” was also revised to include the same concepts as in Res ITU-R 56.

Additionally, four new ITU-R Resolutions were approved:

* **Resolution ITU-R** [**72**](https://www.itu.int/pub/R-RES-R.72) – Promoting gender equality and equity and bridging the contribution and participation gap between women and men in ITU-R activities.
* **Resolution ITU-R** [**73**](https://www.itu.int/pub/R-RES-R.73) – Use of International Mobile Telecommunications technologies for fixed wireless broadband in the frequency bands allocated to the fixed service on a primary basis.
* **Resolution ITU-R** [**74**](https://www.itu.int/pub/R-RES-R.74) – Activities related to the sustainable use of radio-frequency spectrum and associated satellite-orbit resources used by space services.
* **Resolution ITU-R** [**75**](https://www.itu.int/pub/R-RES-R.75) – Strengthening coordination and cooperation among the three ITU Sectors on matters of mutual interest. This new Resolution consolidates the texts of Resolutions ITU-R 6, ITU-R 7 and ITU-R 48 that were subsequently suppressed.

The Assembly also decided to suppress four ITU-R Resolutions:

* **Resolution ITU-R** [**6**](https://www.itu.int/pub/R-RES-R.6) – Liaison and collaboration with the ITU Telecommunication Standardization Sector
* **Resolution ITU-R** [**7**](https://www.itu.int/pub/R-RES-R.7) – Telecommunication development including liaison and collaboration with the ITU Telecommunication Development Sector
* **Resolution ITU-R** [**15**](https://www.itu.int/pub/R-RES-R.15) – Appointment and maximum term of office for Chairmen and Vice Chairmen of Radiocommunication Study Groups, the Coordination Committee for Vocabulary and of the Radiocommunication Advisory Group
* **Resolution ITU-R** [**48**](https://www.itu.int/pub/R-RES-R.48) – Strengthening the regional presence in the Radiocommunication Study Group work

The decisions of RA-23 relevant to WRC-23 were reported in Document [WRC-23/217](https://www.itu.int/md/R23-WRC23-C-0217/en).

**4 WRC-23**

4.1 The WRC-23, which was chaired by His Excellency Mohammad Al Ramsi (UAE), had total of 3 982 participants representing 163 Member States, Resolution 99 and 151 observer organizations attended WRC-23.

4.2 The Vice-Chairs of WRC-23 were elected as follows:

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| Dr Kyu Jin Wee (Republic of Korea)Mr Mohammed Alabdulqader (Saudi Arabia)Mr Martin Weber (Germany) | Mr Stephan LANG (United States)Mr Albert Nalbandian (Armenia)Mr Valéry Hilaire Ottou (Cameroon) |

4.3 The following committees were established (see also WRC-23 structure in Document [WRC‑23/222R1](https://www.itu.int/md/R23-WRC23-C-0222/en)):

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| Committee 1(Steering) | Composed of the Chair and Vice-Chairs of the Conference and of the Chairs and Vice-Chairs of the other committees. |
| Committee 2(Credentials) | **Chair:** Ms Basebi Mosinyi (Botswana)**Vice-Chairs:** Dr Jaewoo Lim (Republic of Korea) Ms Huda Al Korbi (Qatar) Mr Samuel Ritchie (Ireland) Mr Hector Bude (Uruguay) Mr Agzam Tajibayev (Kazakhstan) |
| Committee 3(Budget Control) | **Chair:** Ms Cindy Cook (Canada)**Vice-Chairs:** Mr Christopher Hose (Australia)Mr Fawaz M. Albarjas (Kuwait)Mr Kenneth Concannon (Ireland)Mr Serikbolsyn Myrzakhmet (Kazakhstan)Ms Salwa Suleiman Kamil (South Sudan) |
| Committee 4(Specific agenda items) | **Chair:** Dr Hiroyuki Atarashi (Japan)**Vice-Chairs:** Mr Bharat Bhatia (India)Mr Mohamed Abdelhaseeb (Egypt)Mr Eric Fournier (France)Mr Avaz Khashimkhodjaev (Uzbekistan)Ms Sana Zairi (Morocco)Ms Maria Myers Hamilton (Jamaica) |
| Committee 5(Specific agenda items) | **Chair:** Ms Anna Marklund (Sweden)**Vice-Chairs:** Mr Phung Nguyen Phuong (Viet Nam)Mr Aws Majeed Al Awadi (Iraq)Mr Stephen Talbot (United Kingdom)Mr Rafael Pinto Prata (Brazil)Mr Gabriel Yao Koffi (Côte d'Ivoire)Ms Aftab Kalantarli (Azerbaijan) |
| Committee 6 (Specific agenda items) | **Chair:** Mr El Hadjar Abdouramane (Cameroon)**Vice-Chairs:** Dr Mohammad Taghi Shafiee (Iran)Mr Mustafa Bessi (Morocco)Mr Alexander Kühn (Germany)Ms Tania Villa (Mexico)Mr Mohamed Soliman (Egypt)Mr Ulugbek Azimov (Uzbekistan) |
| Committee 7 (Editorial) | **Chair:** Mr Christian Rissone (France)**Vice-Chairs:** Ms Sana Souai (Tunisia)Ms Claire Lyons (United Kingdom)Ms Marta Serrano (Spain)Mr Dimitri Cherkesov (Russian Federation)Mr Zhao Zheng (China) |

4.4 WRC-23 was a fully paperless conference. In order to facilitate the handling of the 7 608 proposals of the conference, the Proposals Management System used by the secretariat was further enhanced in advance of WRC-23, after its successful use in previous ITU conferences.

4.5 The ITU also further developed the Conference Proposals Interface (CPI) which was extensively used by the Member States in creating documents containing proposals for the work of the conference.

4.6 Other electronic tools used during the conference were: the WRC-23 SharePoint, the WRC-23 Smartphone Applications (on iOS, Android and Huawei platforms), the Radio Regulations Navigation Tool, and the Sync Application.

4.7 In line with ITU Information/Document Access Policy, all input documents were freely accessible by the public in advance of the conference. The Provisional Final Acts of WRC-23 are also available for public access as they are considered the main output of the conference. In line with Resolution 154 (Rev. Bucharest, 2022), all contributions submitted to the WRC secretariat were published ‘As Received’ and in their original language in a maximum of three working days.

4.8 The Plenary sessions, as well as those of Committees 4, 5 and 6, were webcasted and captioned during the conference. Webcast was also provided for the sessions of for the Working Groups of the Committees. The corresponding files (archives) are available for TIES users on the WRC-23 website.

4.9 Full information on WRC-23, including the Provisional Final Acts as well as all documents, photos and videos can be found at: <https://www.itu.int/wrc-23/>.

**5 Main results of WRC-23**

WRC-23 addressed over 30 topics related to frequency allocation and frequency sharing for the efficient use of spectrum and orbital resources. The following are WRC-23 key outcomes:

5.1 Mobile and fixed broadband communications

WRC-23 identified a total of additional 1 300 MHz for IMT and extension of IMT identification in the frequency ranges between 3 300 MHz and 10.5 GHz in order to facilitate the worldwide demand of the mid-band IMT spectrum. The bands 3 300-3 400 MHz, 3 600-3 800 MHz, 6 425-7 125 MHz and 10-10.5 GHz or parts thereof, are identified for IMT on a regional or country basis with conditions for protection of the existing services such as radiolocation service or the fixed-satellite service. It also remained a flexibility of the national and regional decisions on the designation of the 6 GHz band for RLANs or IMT.

WRC-23 also made allocation of the band 470-694 MHz on a secondary basis, and parts thereof on a primary basis, to the mobile, except aeronautical mobile, service in a number of countries in Region 1, with conditions for protection of the broadcasting service. This decision would contribute to facilitate the future spectrum needs of the mobile service with wider connectivity, both in rural and urban areas. The band 614-694 MHz is also identified for IMT in some Region 1 countries.

WRC-23 identified the frequency bands 1 710-1 980 MHz and 2 110-2 160 MHz for high altitude platform stations as International Mobile Telecommunications base stations (HIBS) on a global basis and along with other bands 694-960 MHz, 2 010-2 025 MHz, 2 160-2 170 MHz and 2 500-2 690 MHz on a Regional or country basis, with total of 801 MHz spectrum. This will facilitate the development and implementation of HIBS and will enable extended mobile broadband connectivity and telecommunication services in underserved communities and in rural and remote areas, including mountainous and desert zones, thus connecting the unconnected. HIBS can also be used for disaster recovery communications.

5.2 GMDSS modernization and additional satellite GMDSS provider

WRC-23 introduced the results of modernization of the Global Maritime Distress and Safety System (GMDSS) into the Radio Regulations. This aligns the RR with the recent IMO decisions and includes several emerging technologies. New Automatic Connection System (ACS) will ensure reliable access to radio links for mariners. Introduction of Digital navigational data system (NAVDAT) will assist in providing ships with up-to-date meteorological and navigation warning. The use of the automatic identification system search and rescue transmitters (AIS-SART) will facilitate locating of craft in distress for rescue purposes.

The Conference also provisionally recognized satellite BeiDou Message Service System (BDMSS) for use in GMDSS subject to successful completion of coordination with the existing networks and elimination interference.

5.3 Digitalization of HF aeronautical frequencies

WRC-23 added some provisions to the aeronautical frequency Plan for aeronautical mobile (Route) service in High Frequency (HF) bands contained in RR Appendix 27 permitting the introduction of new digital wideband HF systems.

5.4 Spectrum for non-safety aeronautical applications

WRC-23 made allocation to the aeronautical mobile (OR) service in the frequency bands 15.41-15.7 GHz on a secondary basis and 22-22.2 GHz on a primary basis in Region 1 and in some countries of Region 3 on a non-interference basis with respect to the existing services.

5.5 Satellite Services

WRC-23 adopted regulatory, operational and technical conditions under which earth stations in motion (ESIM) can communicate with geostationary-satellite orbit (GSO) space stations in the fixed-satellite service in the 12.75-13.25 GHz frequency band or with non-geostationary satellite (non-GSO) systems in the 30/20 GHz frequency range. This decision will provide more available bandwidth for connectivity in ships or planes.

WRC-23 also devised a new mechanism under which inter-satellite links can be operated in the 30/20 GHz frequency range, which will enable transferring data gathered by scientific or experimental sensors quicker to the ground.

WRC-23 fine-tuned the regulatory framework concerning the bringing into use and the milestone-based approach for the deployment of non-GSO satellite constellations in specific frequency bands and services. Notably WRC-23 adopted a set of orbital tolerances around the notified values and agreed on a post-milestone mechanism. The approach will better qualify the accuracy of the Master International Frequency Register with respect to the actual deployment of non-GSO satellite systems. In making these decisions, WRC-23 a reinforced the balance found by WRC-19 between the prevention of spectrum warehousing, the proper functioning of coordination, notification and registration mechanisms, and the operational requirements related to the deployment of non-GSO systems.

WRC-23 also adopted a number of measures reinforcing the equitable access to orbit/spectrum resources by guaranteeing the long-term protection of national planned resources in the BSS, BSS Feeder-Links and FSS Plans and by facilitating the obtention of resources in Appendices 30, 30A and 30B for new countries or for countries not using the Lists yet. In the same vein, WRC-23 decided on the replacement of BSS planned resources for 41 countries previously having degraded resources in the BSS or BSS Feeder-links Plans and agreed on the inclusion in the FSS Plans of new national allotments for nine countries.

5.6 Support for the Science Services

WRC-23 allocated the frequency band 40-50 MHz for EESS (active) sensors in order to improve the observations of ice thickness in polar areas.

WRC-23 upgraded to primary the allocation to the space research service in the frequency band 14.8-15.35 GHz in order to improve the regulatory status of the data relay satellite systems using this frequency band.

WRC-23 reorganized the allocations to the EESS (passive) in the frequency range 231.5-252 GHz in order to ensure alignment with the most up-to-date remote-sensing observation requirements. This reorganization entailed a consequential modification of allocations to the fixed and mobile services.

Concerning space weather, WRC-23 concluded that space weather sensors may operate under the Meteorological Aids service (under a specific subset of allocations labelled “MetAids (space weather)”). Studies will continue until WRC-27 to identify the appropriate frequency bands for such allocations.

Finally, WRC-23 adopted an *e.i.r.p.* density limit per non-GSO space station to protect EESS (passive) sensors in the frequency band 36-37 GHz from non-GSO FSS systems operating in the 37.5-38 GHz band.

5.7 Palestine

WRC-23 adopted Resolution 12 (Rev.WRC-23) measures to ensure the continuous assistance and support to enable Palestine to manage and exploit its radio spectrum; modernize its telecommunication networks, including building and operating 4G and 5G networks; obtain and manage the necessary frequencies for microwave links, which are considered essential to the operation of 4G and 5G services; extend, install, own, manage and operate optical fibre broadband telecommunication networks (and optical fibre links) between governorates and major cities to ensure a more robust digital transformation; obtain VHF and UHF frequencies for fixed and mobile telecommunication services; and obtain FM frequencies for the broadcasting service.

5.8 Agenda for WRC-27 and preliminary agenda for WRC-31

WRC-23 adopted new Resolutions containing the agenda for WRC-27 and the preliminary agenda for WRC-31, as well as new or revised Resolutions associated to the agenda items. The WRC-27 agenda contains 19 specific agenda items to accommodate emerging technological developments and new spectrum requirements for users in the terrestrial, aeronautical, radiolocation, satellite, and science services, as well as several regulatory issues. The WRC-27 agenda contains also the usual standing agenda items and the conference will further consider the preliminary agenda for WRC-31. The WRC-27 agenda will be presented in a separate document to Council 2024 (see document [C24/64](https://www.itu.int/md/S24-CL-C-0064/en)).

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