



Transformative connectivity: Satellite Workshop

Key Outcomes of WRC-23 and work towards
WRC-27: the impact on the provision of
increased global satellite connectivity

Mehtap Dufour

ITU, Satellite Communications Department

<https://www.itu.int/ITU-R/go/space/en>



ITU WRC
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World Radiocommunication Conferences



- The Radio Regulations ensure that the use of the radio-frequency spectrum is rational, equitable, efficient, and economical – all while aiming to prevent harmful interference between different radiocommunication services.
- The international treaty on radiocommunications dates back to 1906, when the International Radiotelegraph Convention was signed. In the 117 years since, the Radio Regulations have undergone 38 revisions and expanded to a four-volume agreement of more than 2,000 pages.



Key Outcomes of WRC-23

- **Earth Stations in Motion (ESIMS)**
- **Enhanced and modernized Global Maritime Distress and Safety System (GMDSS), latest e-navigation systems, provisional use of Beidou Satellite Messaging Service System**
- **Additional frequencies for passive Earth exploration-satellite services EESS to enable advanced ice cloud measurements for better weather forecasting and climate monitoring**
- **New primary allocation FSS 17.3 – 17.7 GHz in Region 2**
- **41 countries acquired new and usable orbital resources for satellite broadcasting**
- **Aeronautical Mobile-Satellite (R) (117.975-137 MHz) enhance bidirectional communication via non-GSO satellite systems for pilots and air traffic controllers everywhere, especially over oceanic and remote areas.**
- **Inter-satellite links to allow data to be made available in near-real time, enhancing the availability and value of instrument data for low-latency applications such as weather forecasting and disaster risk reductions**
- **Space weather sensors**



Key Outcomes of WRC-23

- **New secondary allocation to Earth exploration-satellite (active) service for space borne radar sounders in the band of 40 – 50 MHz**
- **Protection of EESS (passive) in the frequency band 36-37 GHz from non-GSO FSS space stations**
- **Agenda Item 7:**
 - **Orbital characteristics of non-GSO space stations**
 - **Non-GSO bringing into use post-milestone procedure**
 - **GSO MSS 7/8 and 20/30 GHz protection from non-GSO systems**
 - **Appendix 1 to Annex of RR Appendix 30B**
 - **New Appendix parameters for Recommendation ITU-R S.1503 updates**
 - **Reminders for BIU and BBIU**
 - **Appendix 30B improved procedures for new Member States**
 - **Excluding uplink service area in RR Appendix 30A for Regions 1 and 3 and RR Appendix 30B**
 - **Resolution 770 revised to allow its implementation**
 - **Enhanced protection of RR Appendices 30/30A in Regions 1 and 3 and RR Appendix 30B**
 - **Special agreements under RR Appendix 30B**
 - **Modification to Resolution 76**
 - **Modification to Resolution 553 to remove certain restrictions that prevent administrations from taking effective advantage of the resolution**



Key Outcomes of WRC-23

- **Additional measures for amateur service and amateur-satellite service allocations in the frequency band 1240-1300 MHz to ensure protection of the radionavigation-satellite service**
- **Protection of EESS (passive) in the frequency band 36 – 37 GHz from non-GSO space stations**
- **Report of the Director of Radiocommunication Bureau, in accordance with Article 7 of the ITU convention, on any difficulties or inconsistencies encountered in the application of the Radio Regulations**
- **Consideration and Approval of the Report of the Director of the Radiocommunication Bureau, in accordance with Article 7 of the ITU Convention, on action in response to Resolution 80**
- **43 new Resolutions, revised 56 existing and suppressed 33**





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- 1.1 Aeronautical and maritime ESIM: consider the use of frequency bands 47.2-50.2 GHz and 50.4-51.4 GHz (Earth-to-space).
- 1.2 Uplink FSS earth stations with small antenna sizes: consider possible revisions of sharing conditions in the band 13.75-14 GHz.
- 1.3 Gateway earth stations: consider studies relating to the use of the band 51.4-52.4 GHz to enable use by gateway earth stations transmitting to NGSO systems in the FSS (Earth-to-space).
- 1.4 Fixed-satellite and broadcasting-satellite services: consider new primary allocations in Region 3 and equivalent power flux-density limits in Regions 1 and 3.
- 1.5 NGSO earth stations: consider regulatory measures to limit unauthorized operations in the fixed-satellite and mobile satellite services.
- 1.6 FSS satellite networks: consider technical and regulatory measures for FSS satellite networks/systems.



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- 1.10 PFD and equivalent isotropically radiated power limits: consider developing for inclusion in Article 21 of the Radio Regulations for the fixed-satellite, mobile-satellite and broadcasting-satellite services.
- 1.11 Space-to-space links: consider the technical and operational issues, and regulatory provisions, for space-to-space links among non-geostationary and geostationary satellites in certain frequency bands.
- 1.12 Future development of low-data-rate non-geostationary mobile-satellite systems: consider, based on the results of studies, possible allocations to the MSS and possible regulatory actions in certain frequency bands.
- 1.13 Connectivity between space stations and IMT: consider studies on possible new allocations to the MSS for direct connectivity between space stations and IMT user equipment to complement terrestrial IMT network coverage.

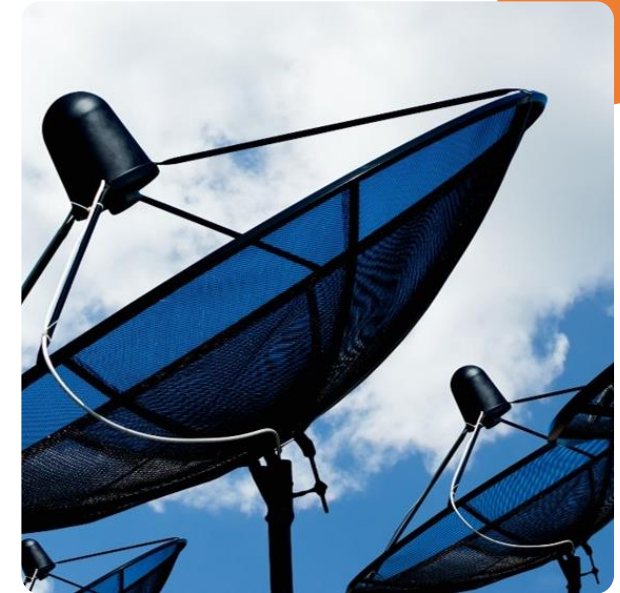


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- 1.14 Mobile-satellite service: consider possible additional allocations to this service.
- 1.15 Lunar communications: consider studies on frequency-related matters, including possible new or modified space research service (space-to-space) allocations, for future development of communications on the lunar surface and between lunar orbit and the lunar surface.
- 1.16 Radio astronomy: consider studies on protecting radio astronomy operating in specific Radio Quiet Zones and, in frequency bands allocated on a primary basis globally, from aggregate radio-frequency interference caused by NGSO systems.
- 1.17 Space weather sensors: consider regulatory provisions and their protection in the Radio Regulations.
- 1.18 Earth exploration-satellite and radio astronomy service: consider, based on study results, possible regulatory measures regarding the protection of the EESS (passive) and the radio astronomy service in certain bands.
- 1.19 EESS: consider possible primary allocations in all Regions.

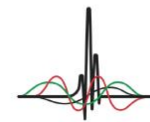


Thank You

Questions to mehtap.dufour@itu.int or brmail@itu.int

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Final Acts



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