



**ICAO NAM/CAR/SAM Workshop for the 2023 ITU World  
Radiocommunication Conference  
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# **ITU Preparatory process towards WRC-23**

**Nikolai Vassiliev**  
**Chief, Terrestrial Services Department**  
**Radiocommunication Bureau**  
**International Telecommunication Union**



# International Telecommunication Union

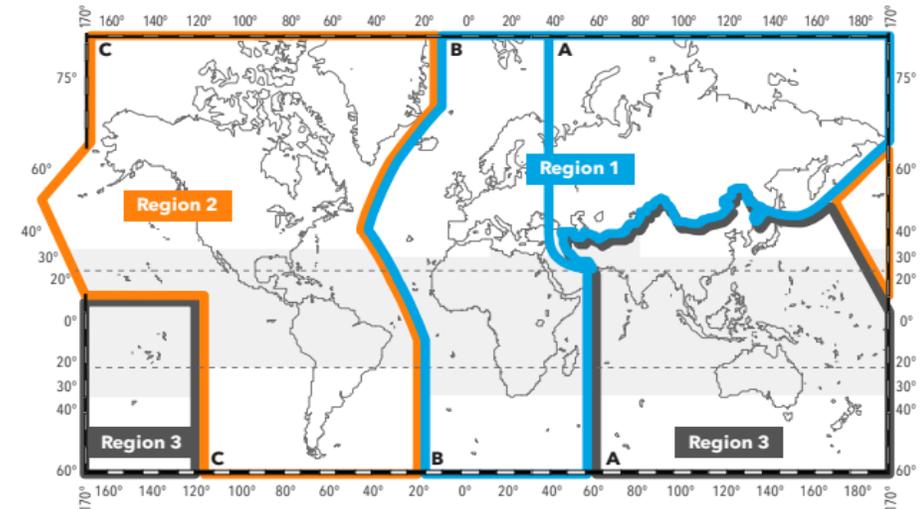
- Based in Geneva, 193 Member states, 750 private-sector entities and academic institutions, 12 regional and area offices
- 800 staff from 85 countries, 6 official languages
- 3 ITU Sector:
  - **ITU-R Radiocommunications** – *spectrum management, radio standards*
  - **ITU-T Standardization** – *standards for wired networks*
  - **ITU-D Development** – *assistance to developing countries*
- The basic ITU document dealing with radio is **Radio Regulations**





# Radio Regulations (RR)

- RR - international rules for use of spectrum and satellite orbits
- RR - intergovernmental treaty: mandatory
- Define the rights and obligations of ITU Member States on use of spectrum/orbit resources.
- Main goals of the RR:
  - interference free operation of stations
  - harmonization of spectrum spectrum/orbit use
- RR updated every 3-4 years by World Radiocommunication Conferences - WRCs

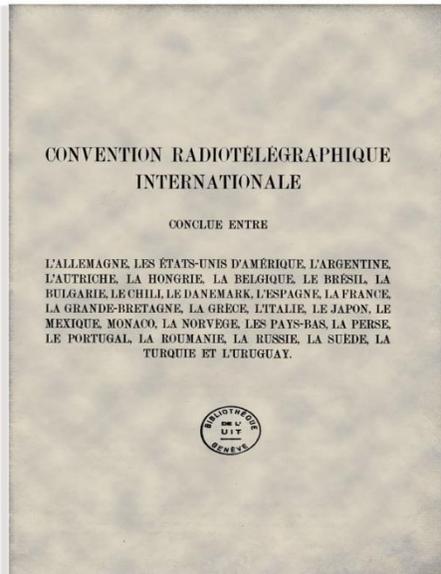




# History of Radio Regulations

1906

2022



From the first International Radiotelegraph Convention, **1906** to the Radio Regulations, **2020**

RR follow and anticipate technological advancements





# IRTC-1906 and WRC-2019

10 days  
120 participants  
30 countries

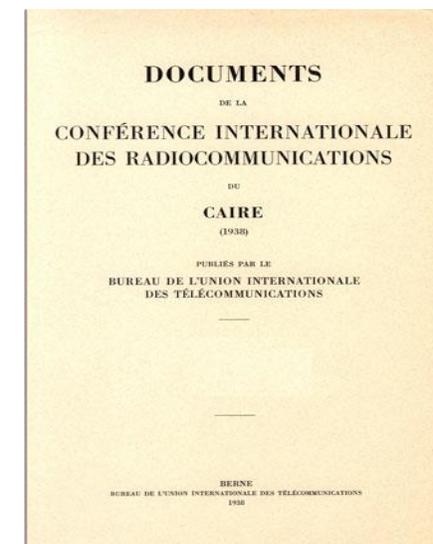
4 weeks  
3 420 participants  
163 countries  
129 other entities





# Allocations of aeronautical bands at WRCs

1927, Washington	First definitions of aeronautical and aircraft stations, allocations to aeronautical mobile service in LF and MF bands, e.g. 315 – 350 kHz
1938, Cairo	Exclusive allocations to HF aeronautical services between 6500 and 23380 kHz
1947, Atlantic City	Allocations of 108 – 118 MHz for ARNS and 118 – 132 MHz to the aeronautical mobile service
1963, Geneva	First Conference dealing with satellite issues. Allocation of frequency bands for communication-satellite and <u>radionavigation</u> -satellite services
1959/1964/1966, Geneva	Establishment and revision of the allotment plan for HF aeronautical mobile (R) service
1971, Geneva	Introduction of the aeronautical mobile-satellite service and allocations to it in 1.5/1.6 GHz band. Allocation of 406 – 406.1 to Cospas-Sarsat
....	.....
2015, Geneva	Allocation of spectrum for WAIC, GFT



Delegates at the 1947 Atlantic City Radio Conference



# Role of WRCs

- Allocate spectrum/orbit resource for emerging radio applications, while protecting the existing usage (e.g. *new HAPS in millimeter bands <-> existing FS, MS*)
- Maintain the right balance between the spectrum requirements of all radiocommunication services, including aeronautical services (*justified and reasonable spectrum requirements*)
- Achieve global interoperability of the equipment and spectrum harmonization for economies of scale (e.g. *maritime, aeronautical, IMT*)
- Create regulatory certainty for users, regulators and telecommunication industry in utilizing spectrum



# WRC-23 preparation milestones





# Important steps of WRC process

- **Agenda** – determines the scope of discussions
  - Agenda is important, stable. It has a legal notion
  - Agenda Item 1.2 “IMT in mid-bands” lists 5 candidate bands → no other bands can be allocated
- **ITU-R Studies**- heart of WRC preparations
  - Task is to satisfy spectrum requirement of emerging applications while protecting existing ones
  - Making sure that all interference scenarios are analysed and cleared to keep interference within manageable limits under all circumstances
- **WRC** – allocates bands and establishes operational conditions for newly allocated services
  - A treaty making Conference, so the final say remains with Member States (telecom regulators)



# Agenda items of WRC-23

## Fixed, Mobile, Broadcasting

1.1 - 1.3: MS in 3.3-10.5 GHz

1.4: HIBS below 2.7 GHz

1.5: MS, BS in UHF, R1

## Satellite science services

1.12: space radar sounders 45 MHz

1.13: space research service in 14.8-15.35 GHz

1.14: Remote-sensing observation requirements in 231.5-252 GHz

## WRC-23 agenda

## Aeronautical, Maritime

1.6: Sub-orbital vehicles

1.7: AMS(R)S VHF allocation

1.8: UAS CNPC links via FSS

1.9: HF AM(R)S , App.27

1.10: non-safety AMS in 15, 22 GHz

1.11: GMDSS modernization

## Space services

1.15: Ku ESIMs , GSO

1.16: Ka ESIM, NGSO

1.17 intersatellite links

1.18: NB MSS for IoT, L/S-bands

1.19: Ka FSS in R2

7: Satellite regulatory issues



# ITU-R studies

- The first session of CPM defined :
  - Framework for WRC-23 preparations
  - Structure of draft CPM Report
  - Responsible ITU-R Groups and Concerned Groups (either contributing or interested)
- There are: 19 specific and 11 standing items, see [Res. 811 \(WRC-19\)](#).
- The main aeronautical agenda items are:
  - 1.6: Regulations for sub-orbital vehicles
  - 1.7: VHF allocation for AMS(R)S
  - 1.8: Regulations for UAS CNPC links via FSS
  - 1.9: Introduction of digital technologies for HF AM(R)S in RR Appendix 27
  - 1.10: allocations for non-safety AMS in 15.5 and 22 GHz



# Timetable towards WRC-23

Situation  
as of today

[Website WRC-23 – World Radiocommunication Conferences \(WRC\) \(itu.int\)](https://www.itu.int/wrc-23)

Year	January – March	April – June	July – September	October – December
2022	WP 5D (8 <sup>th</sup> )	[WPs 7B & 7C (5 <sup>th</sup> )]	[WP 5B (6 <sup>th</sup> )]	[WPs 5A, 5C (6 <sup>rd</sup> ) & 5B (7 <sup>th</sup> )]
	TG 6/1 (4 <sup>th</sup> )	[WP 4C+WP 4A (6 <sup>th</sup> )]	[TG 6/1 (5 <sup>th</sup> )]	
	[WP 5B (5 <sup>th</sup> )]	[WPs 5A & 5C (5 <sup>th</sup> )]	[WP 4C+WP 4A (7 <sup>th</sup> )]	
		[WP 5D (9 <sup>th</sup> )]	[WPs 7B & 7C (6 <sup>th</sup> )]	
		[5D-WG Spectrum]	[WP 5D (10 <sup>th</sup> )]	[CPM-23 Manag <sup>nt</sup> Team]
2023	[Meetings of the Responsible Groups]	[CPM23-2]	[Last meetings of the Responsible Groups]	[2 <sup>nd</sup> WS on WRC-23]
			[3 <sup>rd</sup> WS on WRC-23]	RA-23
				<b>WRC-23</b>



# Structure of draft CPM Report to WRC-23

<u>Chapters of the draft CPM Report</u>	<u>WRC-23 agenda items</u>
<b>1.</b> Fixed, Mobile and Broadcasting issues	<b>1.1, 1.2, 1.3, 1.4, 1.5</b>
<b>2.</b> Aeronautical and maritime issues	<b>1.6, 1.7, 1.8, 1.9, 1.10, 1.11</b>
<b>3.</b> Science issues	<b>1.12, 1.13, 1.14</b>
<b>4.</b> Satellite issues	<b>1.15, 1.16, 1.17, 1.18, 1.19, 7</b>
<b>5.</b> General issues	<b>2, 4, 9.1 topics a), b), c), d)</b>
Annex 1	<b>Information on WRC-23 agenda item 10 (WRC-27 preliminary agenda items)</b>



# Regional preparations

- The role of the 6 Regional Telecommunication Organizations is constantly growing, both before and during WRCs
- They consolidate views at regional level, assist in interregional discussions, facilitate reaching a common understanding, save time during WRCs (6 views instead of 193)
- WRC-19: two thirds of documents were common proposals
- ITU Radiocommunication Bureau facilitates coordination between regions by organizing ITU Inter-regional Workshops



Asia-Pacific  
Telecommunity (APT)



Arab Spectrum  
Management Group  
(ASMG)



African  
Telecommunications  
Union (ATU)



European Conference of Postal  
and Telecommunications  
Administrations (CEPT)



Inter-American  
Telecommunication  
Commission (CITEL)



Regional Commonwealth  
in the Field of  
Communications (RCC)

Next CITEL Preparatory Meeting for WRC-23 – from 25 – 29 April



# ITU Interregional workshops on WRC-19

## 1<sup>st</sup> Workshop: 13 – 15 December 2021

Presentation and review of the on-going preparatory studies of the ITU-R responsible groups for CPM-23

Presentation of regional groups, international organizations like ICAO, IMO, WMO on their positions

## 2<sup>nd</sup> Work shop: 30 November – 2 December 2022

Presentation of the Draft CPM Report to WRC-23 (explanation of the draft Methods)

Presentation of regional groups, international organiz. on positions & common proposals for CPM-2

## 3<sup>rd</sup> Workshop: Q3/Q4 2023

Presentation of CPM & Director's Reports to WRC-23

Presentation of regional groups, international organizations on positions, common proposals to WRC-23



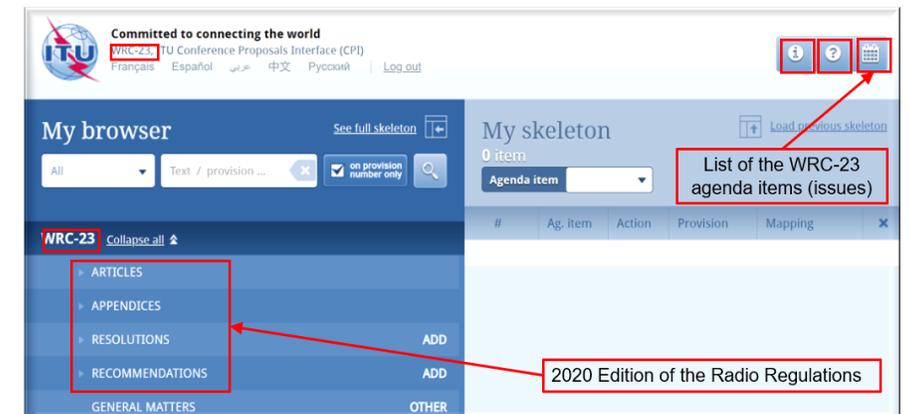
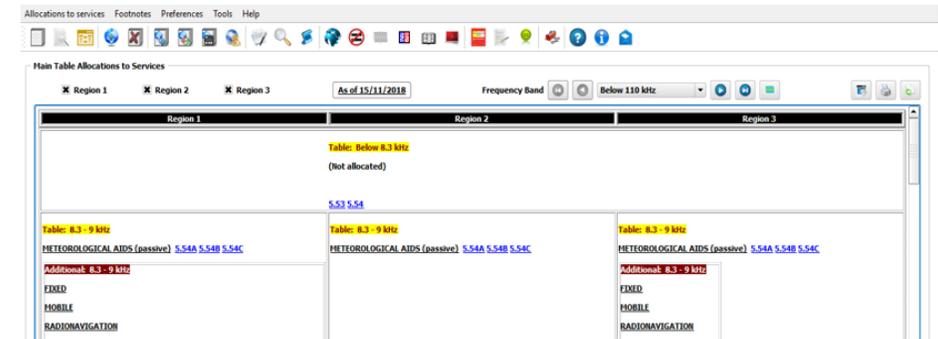
# Importance of national WRC preparations for aeronautical spectrum

- National preparations – starting point in WRCs process. Country activities result in adopting a national position for WRC, which is further tuned in regional and international discussions
- Regulator has to keep a balance between different applications to respond to the needs of the population and national objectives
- To protect the existing aeronautical usage and satisfy its future spectrum requirements, aviation needs to actively participate in development of national positions
- Pay attention to both in-band and adjacent band protection of aeronautical services



# Some ITU/BR tools for WRC preparations

- **RR Navigation tool** – allows navigation of all Radio Regulations, Rules of Procedure, ITU-R Recommendations mentioned in RR, ITU Constitution and Convention, PP Resolutions.  
[www.itu.int/pub/R-REG-RRX-2021](http://www.itu.int/pub/R-REG-RRX-2021)
- **RR Article 5 Viewer** – useful for extracting national footnotes, historical comparison of RR, simultaneous analysis of RR, Rules of Procedure, WRC Resolutions and ITU-R recommendations  
[www.itu.int/pub/R-REG-RR5-2020](http://www.itu.int/pub/R-REG-RR5-2020)
- **Conference Proposals Interface for WRC-23** – to be used for preparation of draft documents with proposed actions  
[www.itu.int/net4/proposals/CPI/WRC23](http://www.itu.int/net4/proposals/CPI/WRC23)





***Thank you!***



# Overlapping frequency bands between some WRC-23 agenda items

1.2 (IMT) WP 5D	1.4 (HIBS) WP 5D	1.16 (non-GSO FSS ESIMs) WP 4A	1.17 (ISL) WP 4A	1.18 (narrowband MSS) WP 4C
	2 010-2 025 MHz (Regions 1 & 3)			2 010-2 025 MHz (Region 1)
3 300-3 400 MHz (Regions 1 & 2)				3 300-3 315 MHz 3 385-3 400 MHz (Region 2)
		27.5-29.1 GHz (E-s) 29.5-30 GHz (E-s)	27.5-30 GHz (s-s)	

\* E-s: Earth-to-space; s-s: space-to-space.