WRC-23 Results

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From WRC-23 to WRC-27

WRC-23

163
Member States represented

3985
Delegates

22%
Women

56
Revised resolutions

43
New resolutions

Signed by
151
Member States

ITUWRC
DUBAI2023
20.11.-15.12.23

WRC-27 – Agenda Items

FIXED-SATELLITE AND BROADCASTING-SATELLITE

- **1.1** **Aeronautical/maritime earth stations in motion**
  47.2-50.2 GHz / 50.4-51.4 GHz
- **1.2** 13.75-14 GHz – **Uplink earth stations**
- **1.3** 51.4-52.4 GHz – **Gateway earth stations**
- **1.4** 17.3-17.7/8 GHz – **Fixed/broadcasting allocation in Region 3**
- **1.5** **Unauthorized operations of non-geostationary-satellite orbit earth stations**
- **1.6** **Space sustainability**
  37.5-42.5 GHz / 42.5-43.5 GHz / 47.2-50.2 GHz / 50.4-51.4 GHz
- **7** **Satellite regulatory issues**

MOBILE-SATELLITE

- **Space-to-space links** **1.11**
  1 518-1 544 MHz / 1 545-1 559 MHz
  1 610-1 645.5 MHz / 1 646.5-1 660 MHz
  1 670-1 675 MHz / 2 483.5-2 500 MHz
- **MSS - Allocations for IoT development** **1.12**
  1427-1432 MHz / 1645.5-1646.5 MHz 1880-1920 MHz / 2010-2025 MHz
- **MSS - IMT-space stations connectivity** **1.13**
- **MSS - Additional allocations** **1.14**

Res. 813 (WRC-23)

FIXED, MOBILE AND RADIOLOCATION

- **1.7** 4400-4800 MHz / 7125-8400 MHz / 14.8-15.35 – **IMT**
- **1.8** 231.5-275 GHz / 275-700 GHz – **Radiolocation**
- **1.9** **Aeronautical mobile (OR) high frequency modernization**
- **1.10** 71-76 GHz / 81-86 GHz – **Power flux-density / power limits**

SCIENCE

- **Lunar communications** **1.15**
- **Radio Quiet Zones** **1.16**
- **Space weather sensors protection** **1.17**
- ≥ 76 GHz – **Earth exploration service protection** **1.18**
- **Earth exploration-satellite service allocation** **1.19**
  4200 – 4400 MHz / 8400-8500 MHz

Work towards WRC-27 in ITU-R

The Conference Preparatory Meeting (CPM) allocates WRC agenda items to the relevant ITU-R Study Group

SG 4 (Satellite Services)

WP 4A

1.1 1.3 1.5
1.2 1.4 1.6

WP 4C

1.11 1.13
1.12 1.14

SG 5 (Terrestrial Services)

WP 5B

1.8
1.9

WP 5C

1.10

WP 5D

1.7

SG 7 (Science Services)

WP 7B

1.15

WP 7C

1.17
1.19

1.18

WP 7D

1.16

AI	Topic	Resolution	WP 5A	WP 5B	WP 5C	WP 5D	Other WPs/TG (R)	R
1.1	Aeronautical and maritime ESIM	Res. 176 (Rev.WRC-23)	C	C	C	C	3M, 4A, 4C, 7B, 7C, 7D	4A
1.2	FSS with small antenna sizes in the frequency band 13.75-14 GHz	Res. 129 (WRC-23)	C	C	C	-	3M, 4A*, 7A, 7B, 7C	4A
1.3	Non-GSO in the FSS in the frequency band 13.75-14 GHz	Res. 130 (WRC 23)	C	-	C	-	3M, 4A, 7C, 7D	4A
1.4	New allocation for FSS in 17.3-17.7 GHz and BSS in 17.3-17.8 GHz	Res. 726 (WRC 23)	C	C	C	-	3M, 4A, 4B, 6B, 7C	4A
1.5	Unauthorized operations of non-GSO FSS and MSS earth stations	Res. 14 (WRC 23);	-	-	-	-	1B, 3M, 4A, 4B, 4C, 6A, 7B, 7C, 7D	4A
1.6	FSS in the bands 37.5-42.5 GHz, 42.5-43.5 GHz, 47.2-50.2 GHz and 50.4-51.4 GHz	Res. 131 (WRC 23)	C	C	C	C	1B, 3M, 4A, 4B, 4C, 6A, 7B, 7C, 7D	4A
1.7	IMT in the bands 4400-4800 MHz, 7125-8400 MHz (or parts thereof) and 14.8-15.35 GHz	Res. 256 (WRC-23)	C	C	C	R	1B, 3K, 3M, W4A, 4C, 7B, 7C, 7D	5D
1.8	Radiolocation service in the bands 231.5-275 GHz and the frequency range 275-700 GHz	Res. 663 (Rev.WRC-23)	C	R	C	-	3J, 3K, 3M, 4A, 4C, 7C, 7D	5B
1.9	Update RR, Appendix 26 in support of aeronautical mobile (OR) high frequency modernization	Res. 411 (WRC 23)	-	R	C	-	3L, 6A, 7A	5B
1.10	Protection of FS and MS by FSS, MSS and BSS in the bands 71-76 GHz and 81-86 GHz	Res. 775 (Rev.WRC-23)	C	C	R	-	1A, 3J, 3M, 4A*, 4C*, 6A, 7C	5C
1.11	Space-to-space transmission between NGSO and GSO in the bands 1.6 GHz and 2.5 GHz	Res. 249 (Rev.WRC-23)	C	C	C	C	3L, 3M, 4A, 4B, 4C, 6A, 7B, 7C, 7D	4C
1.12	MSS (low-data NGSO) in the bands 1427-1432 MHz, 1645.5-1646.5 MHz, 1880-1920 MHz and 2010-2025 MHz	Res. 252 (WRC 23)	C	C	C	C	3L, 3M, 4B*, 4C, 7B, 7C, 7D	4C
1.13	MSS (direct to device) in IMT-bands between 694/698 MHz to 2.7 GHz	Res. 253 (WRC-23)	C	C	C	C	3L, 3M, 4A, 4B, 4C*, 6A, 7B, 7C, 7D	4C
1.14	MSS in the 2 GHz	Res. 254 (WRC 23)	C	-	C	C	3L, 4B, 4C, 7B, 7C	4C
1.15	Space research service allocations, for communications on the lunar surface and lunar orbit	Res. 680 (WRC 23)	C	C	C	C	1B, 3J, 4A, 4C, 7A, 7B, 7C, 7D	7B
1.16	Protection of RAS in radio quite zones	Res. 681 (WRC 23)	C	C	-	C	1B, 3J, 3M, 4A, 4C, 7D	7D
1.17	Space weather sensors (several bands in the 30 MHz, 70 MHz, 600 MHz range)	Res. 682 (WRC 23)	C	C	C	C	3L, 3M, 4A, 4C, 6A, 7B, 7C, 7D	7C
1.18	Protection of EESS & RAS from unwanted emissions of active sensors above 76 GHz	Res. 712 (WRC-23)	C	C	C	-	3J*, 3M*, 4A, 4C, 7C, 7D	7C/7D
1.19	EESS globally in 4.3 and 8.5 GHz	Res. 674 (WRC-23)	C	C	C	C	4A, 7B, 7C	7C

Source: Document 5/1, "ASSIGNMENT OF TEXTS TO THE STUDY GROUP 5 SUB-GROUPS", Attachment 8

Main Steps towards WRC-27

ITU Member States and **ITU-R Members** (public & private sectors)

2023 | 2024 | 2025 | 2026 | 2027

WRC-23 *Nov.-Dec.23*
- **Defines WRC-27 Agenda**

CPM27-1 *Dec.23*
- **Organizes the ITU-R Studies** on the agenda items

ITU-R Study Groups *Dec.23 to Oct.26 and beyond*
- **Conducts the studies** for ~4 years and prepares texts for the draft CPM Report

ITU-R Study Groups and Working Parties meetings

Council *Jun.24*
- **Confirmed WRC-27 Agenda**

Council *[Jul.25]*
- Expected Decision on **WRC-27 Dates/Place**

CPM27-2 *[Apr.27]*
- **Consolidates & approuves** the **Report of the CPM** to WRC-27

RA-27 *[Q4-27]*
- Appoints C&VC of Study Groups
- **Reviews the SG activities and Working Methods**
- Approves new or revised **ITU-R Resolutions**
- **May approve new or revised ITU-R Rec.**

WRC-27 *[Q4-27]*
- **Modifies the Radio Regulations** (e.g. allocation /identification of frequency bands)

ITUWRC DUBAI 2023

Regional Groups / Multi-countries

- Develop and consolidates **regional or multi-countries common proposals** to WRC

CEPT | APT | ASMG | RCC | CITEL | ATU UAT

WRC-27

IMT and RLAN

Radio Regulations (new Edition 2024)

- **Entering into force** on **1 January 2025**, the **2024 Edition** of the ITU **Radio Regulations** (RR) is **available in all six UN official languages** with **electronic versions** that can be downloaded **free of charge** here: www.itu.int/hub/publication/r-reg-rr-2024
- The RR incorporates the **decisions** of the **World Radiocommunication Conferences** (WRCs), including all Articles, Appendices, Resolutions and Recommendations, as well as the ITU-R Recommendations incorporated by reference.

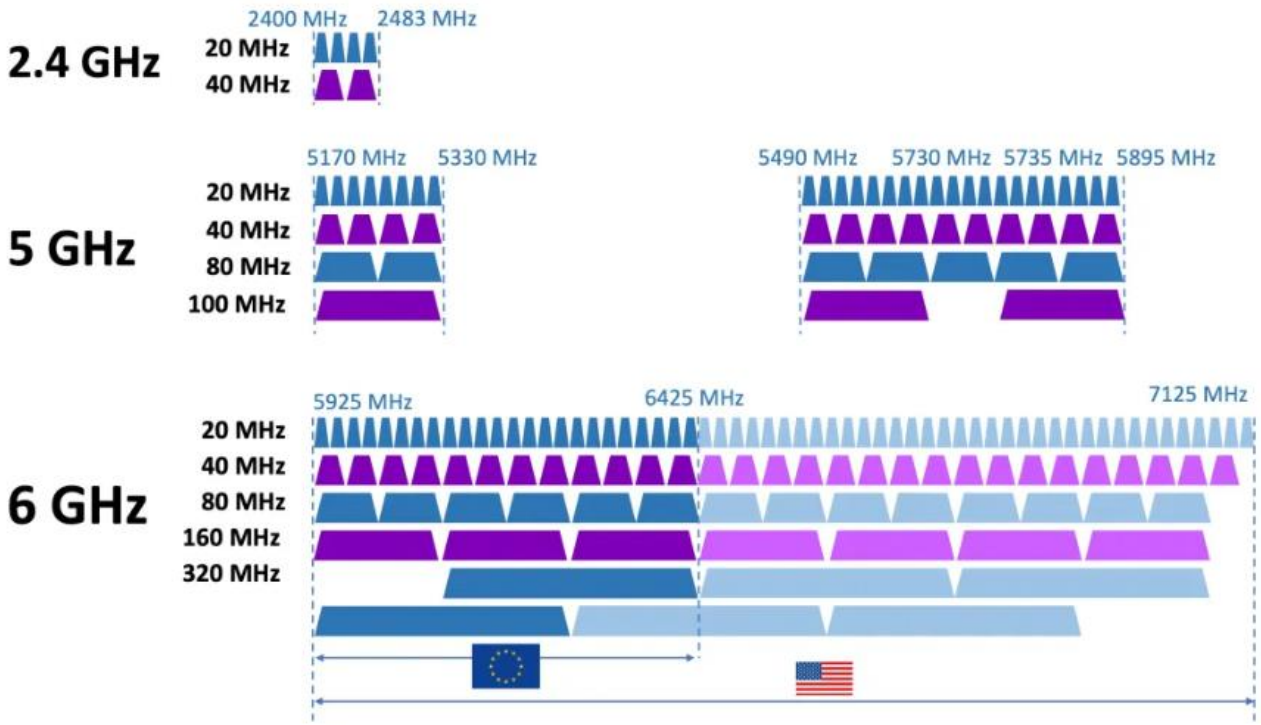
- While IMT and RLAN are both part of the **MOBILE service**, IMT has an additional identification (usually by footnotes).
- IMT identification is independent of the IMT-generation which comprises IMT-2000 (3G), IMT-Advanced (4G), IMT-2020 (5G) and IMT-2030 (6G)
- RLAN (a.k.a. WiFi) is usually operated in unlicensed frequency bands

Bands identified for IMT

Frequency Bands identified for IMT (MHz)	Footnotes identifying the band for IMT in the Radio Regulations			Available Bandwidth (MHz)	Timing
	Region 1	Region 2	Region 3		
450-470	5.286AA			20	**WRC-07**
470-698	5.307A**	5.295** 5.308A**	5.296A**	228	**WRC-15/23**
694/698-960	5.317A	5.317A	5.313A** 5.317A	262	**WRC-07/2000**
1 427-1 518	5.341A, 5.346**	5.341B	5.341C, 5.346A	91	**WRC-15**
1 710-2 025	5.384A, 5.388			315	**WARC-92, WRC-2000**
2 110-2 200	5.388			90	**WARC-92**
2 300-2 400	5.384A			100	**WRC-07**
2 500-2 690	5.384A			190	**WRC-2000**
3 300-3 400	5.429B**	5.429D	5.429F**	100	**WRC-15/23**
3 400-3 600	5.430A	5.431B	5.432A** 5.432B** 5.433A**	200	**WRC-07**
3 600-3 700	5.433B, ** 5.434B**	5.434	-	100	**WRC-15/23**
3 700-3 800 *	5.434B**	5.435B**	-	100	**WRC-23**
4 800-4 990	5.441B**	5.441A** 5.441B**	5.441B**	190	**WRC-15**
6 425-7 025 *	5.457E	5.457F**	5.457D**	600	**WRC-23**
7 025-7 125 *	5.457E	5.457F**	5.457E	100	**WRC-23**
10 000-10 500 *		5.480A		500	**WRC-23**
24 250-27 500	5.532AB			3250	**WRC-19**
37 000-43 500	5.550B			6500	**WRC-19**
45 500-47 000	5.553A**			1500	**WRC-19**
47 200-48 200	5.553B**			1000	**WRC-19**
66 000-71 000	5.559AA			5000	**WRC-19**

* *this band is identified for IMT from 01.01.2025* ** *this band is identified in some countries of the Region*

Bands used by WiFi



Reference Documents: Recommendation ITU-R M.1036 and RR edition 2024

Related frequency bands under WRC-27 Agenda Items

WP 5D

1.7

WRC-27 IMT bands under consideration

Region 1	Region 2	Region 3
4 400-4 800 MHz		4 400-4 800 MHz
7 125-7 250 MHz 7 750-8 400 MHz	7 125-8 400 MHz	7 125-8 400 MHz
14.8-15.35 GHz	14.8-15.35 GHz	14.8-15.35 GHz

WP 4C

1.12

1.13

1.14

WRC-27 Mobile-satellite service (MSS) bands under consideration

Direct to Device	New Mobile Satellite
Mobile satellite in IMT bands between **694/698 MHz** and **2.7 GHz**	**1 427-1 432 MHz** 1 645.5-1 646.5 MHz **1 880-1 920 MHz** **2 010-2 025 MHz** **2 120-2 170 MHz**

From:
"Spectrum Policy Trends 2024", GSMA, 02/2024

IMT-2030 (6G)

IMT-Family and naming conventions

Resolution ITU-R. 56 "Naming for IMT"

Documents for previous IMT-generations, see "IMT-Family History" (annex)

International Mobile Telecommunication (IMT)

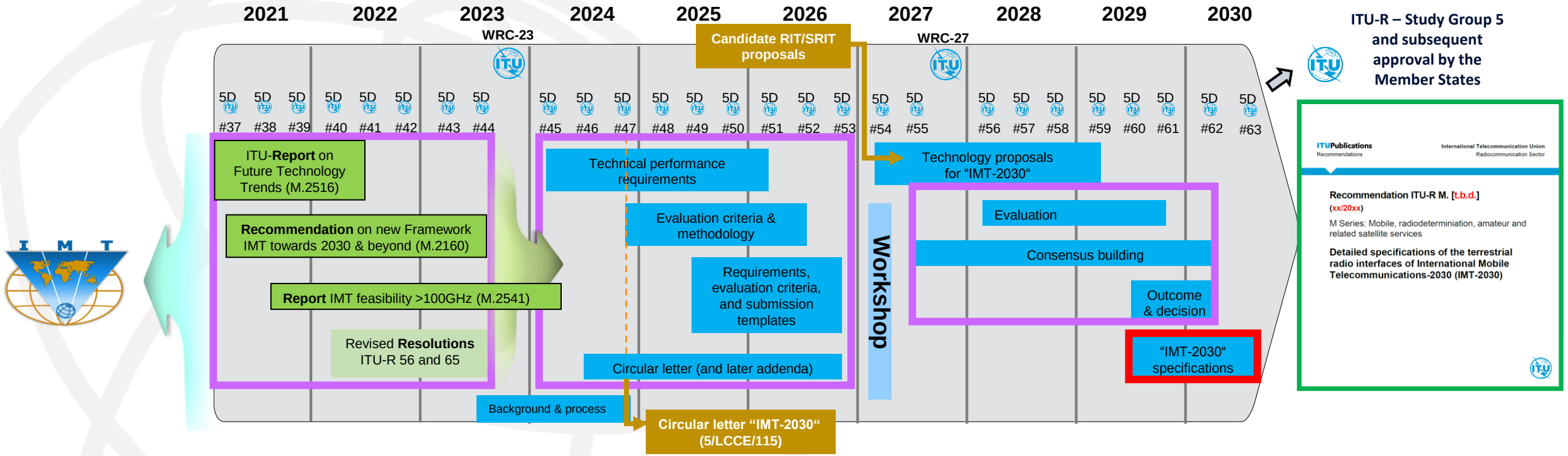
	IMT-2000	IMT-Advanced	IMT-2020	IMT-2030
Name				
Rec.	ITU-R M.1457-15	ITU-R M.2012-6	ITU-R M.2150-2	Res. ITU-R 56-3 (Rev. RA-23)
Radio Interface Technology (RIT)	• IMT-2000 CDMA DS • IMT-2000 CDMA MC • IMT-2000 CDMA TDD • IMT-2000 TDMA SC • IMT-2000 FDMA/TDMA • IMT 2000 OFDMA TDD WirelessMAN	• LTE-Advanced • WirelessMAN-Advanced	• 3GPP 5G-SRIT • 3GPP 5G-RIT • 5Gi [3] • DECT 5G-SRIT	• recognising j • resolves 4 … *that the term* ***"IMT-2030"*** *be applied to those systems*
Year 1st / latest publication *(as of 1. September 2024)*	05/2000 – 10/2020	02/2014 – 12/2023	02/2021 – 12/2023	2030 ?

3 *In Document 5D/926 , TSDSI indicates that the 5Gi technology is merged into the 3GPP 5G specifications from Release 17 forward, and that TSDSI does not intend to submit proposals to WP5D for any further updates of 5Gi*

Market name

"3G" 3GPP A GLOBAL INITIATIVE "4G" LTE "5G" 5G "6G"

ITU-R Timeline and Process (terrestrial component)



Note 1: WP 5D #59 will additionally organize a workshop involving the Proponents and registered Independent Evaluation Groups (IEGs) to support the evaluation process

Note 2: While not expected to change, details may be adjusted if warranted. Content of deliverables to be defined by responsible WP 5D groups

Framework ⇨ **Requirements and Evaluation criteria** ⇨ **Evaluation and Consensus building** ⇨ **Specification** ⇨ **Approval**

ITU – Radiocommunication Bureau

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ITU-R Working Party 5D and 5A

WP 5D is responsible for the overall radio system aspects of the terrestrial component of International Mobile Telecommunications (**IMT**) systems, comprising IMT-2000, IMT-Advanced and IMT-2020 as well as IMT-2030.

WP 5A is responsible for Land mobile service (excluding IMT), amateur and amateur-satellite service (incl. ITS)