Document WRC-23-IRW-21/24-E
12 December 2021
English only

ITUEvents

1st ITU Inter-regional Workshop on WRC-23 preparation

13 - 15 December 2021

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#ITUWRC

Status of RCC preparation to the World Radio Conference and Radio Assembly 2023

(6 of April 2021)

RCC

Structure of RCC preparatory process to WRC-23

Chair: Maksut Shadaev

Board of RCC CAs Heads

- Approve RCC Position
- Approve RCC CP

Chair: Valery Butenko

Commission on Spectrum & Orbit

- Approve RCC Position on behalf of the RCC Board
- Approve RCC CP on behalf of the RCC Board

Chair: Albert Nalbandian

Coordinator's team

Working Group RA/WRC

- Draft RCC Position
- Draft RCC CP

Coordinators on WRC AI

- RCC AIs Brief
- Propose Position&CP

RCC Members

- Propose - RCC Position
- Propose - RCC CP

Basic principles for RCC position to WRC-23

Principles
for position
to WRC

Equitable access
to spectrum and satellite orbits

Compatibility
between radioservices

Efficiency & innovation
on use of spectrum and satellite orbits

Preparatory process for WRC-23

WG RA/WRC – group of RCC Commission on Spectum & Orbit responsible for WRC & RA preparation.

Chairman : Albert Nalbandian, (abo441@mail.ru)

V-Chairman : Sergey Pastukh, (sup@niir.ru)

Coordinator : for every AI Coordinator(s) and group of specialists from RCC countries

WG RA/WRC – develops RCC Position, RCC Common Proposals and Coordinator's Paper (Brief) on AIs for the work of WRC-23.

WG RA/WRC – had **4** meetings out of **9** planed meetings:

1st meeting: *02.2020, Minsk, BLR*
2d meeting: *08.2020, video conference*
3th meeting: *04.2021, video conference*
4th meeting: *12.2021, Minsk, BLR*
5th meeting: *03.2022, TBD*
6th meeting: *10.2022 TBD*
7th meeting: *01.2023, TBD*
8th meeting: *05.2023, TBD*
9th meeting: *09.2023, TBD*

RCC coordinators for WRC-23 Agenda Items (1)

WRC-23 AI	RCC Coordinator	e-mail
1.1 - IMT 4.9 GHz	Mr. Alexey SHURAKHOV (RUS)	shurakhov@niir.ru
1.2 - IMT 3.3-10.5 GHz	Dr. Sergey PASTUKH (RUS)	sup@niir.ru;
1.3 - MS 3.8 GHz	Mr. Sergey RUDKO (RUS) – space	rudko@g-tl.ru;
	Ms. Alina MAMBETALINA (KAZ) – terrest.	a.temirbayeva@rfs.gov.kz
1.4 - HIBS	Dr. Dmitry ARONOV (RUS)	aronov@g-tl.ru;
1.5 - UHF	Mr. Andrey LASHKEVICH (RUS)	a.lashkevich@niir.ru;
1.6 - Sub-orbital vehicles	Mr. Sergey STARCHENKO (RUS)	starchenko@g-tl.ru;
1.7 - AMS(R)S 137 MHz	Mr. Igor ZHELTONOGOV (RUS)	sorokin@g-tl.ru;
1.8 - Res. 155	Mr. Sergey SOROKIN (RUS)	sorokin@g-tl.ru;
1.9 - App. 27	Mr. Sergey SOROKIN (RUS)	sorokin@g-tl.ru;
1.10 - AMS non-safety	Ms. Olga IASTREBTSOVA (RUS)	yastrebtsova@niir.ru;
1.11 - GMDSS	Mr. Oleg Zakharchenko (RUS)	zakharchenko@marsat.ru
1.12 - EESS radar sounders	Mr. Anuar MAGZUMOV (KAZ)	a.magzumov@rfs.gov.kz;
1.13 - SRS 15 GHz	Mr. Anton STEPANOV (RUS)	a.stepanov.rfc@gmail.com;
1.14 - EESS(passive) 250 GHz	Mr. Andrei GLADKOV (RUS)	gladkov.aa@spacecorp.ru;
1.15 - GSO FSS ESIM Ku	Ms. Tatyana SMIRNOVA (RUS)	t.smirnova@niir.ru;
1.16 - NGSO FSS ESIM Ka	Dr. Mikhail SIMONOV (RUS)	mms@niir.ru;
1.17 - Inter-satellite links	Mr. Arman BITURGANOV (KAZ)	biturganov_a@rfs.gov.kz;
1.18 - MSS data collection	Mr. Anuar AIDAROV (KAZ)	a.abdiraman@rfs.gov.kz;
1.19 - FSS 17 GHz (R2)	Ms. Olga MIRONOVA (RUS)	mironova@niir.ru

RCC coordinators for WRC-23 Agenda Items (2)

WRC-23 AI	RCC Coordinator	e-mail
2 - Rec. incorp. by reference	Mr. U. AZIMOV (UZB)	u.azimov@unicon.uz
4 - Review of Res/Rec	Mr. U. AZIMOV (UZB)	u.azimov@unicon.uz
7 - Sat. procedures	Ms. Olga DASHKEVICH (BLR)	dashkevich@belgie.by
	Mr. Agzam TADZHIBAYEV (KAZ)	a.tadzhibayev@rfs.gov.kz
	Ms. Natalia STEPANOVA (RUS)	natals08@mail.ru
8 - Art.5 Footnotes	Mr. Rustam XAMIDOV (UZB)	r.xamidov@unicon.uz
9.1a - Space weather sensors	Mr. Nikolay KHOHLACHEV (RUS)	hohlachev@niir.ru;
9.1b - ARS/ARSS 1.3 GHz	Mr. Dmitry ARONOV (RUS)	aronov@g-tl.ru;
9.1c - FWA	Ms. Zinaida PAHARZHELSKAYA (BLR)	paharzelskaya@belgie.by
9.1d - EESS(passive) 37 GHz	Mr. Aleksandr DOMAKHIN (RUS)	alex.domakhin.rfc@gmail.com
RR No 21.5 Table 21-2	Prof.Dr. Lyudmila ZINCHENKO (RUS)	Zinchenko@niir.ru;
Resolution 427 (WRC-19)	Mr. Sergey STARCHENKO (RUS)	starchenko@g-tl.ru;
Resolution 655 (WRC-15)	Mr. Victor KLIUEV (RUS)	klyuev@vniiftri.ru
9.2 - RR inconsistencies	Mr. Vladislav SOROKIN (RUS)	v.s@inbox.ru;
9.3 - Due diligence	Mr. Timofey KIM (KAZ)	t.kim@rfs.gov.kz
10 – Agenda of WRC-27	Mr. Alexey SHURAKHOV (RUS)	shurakhov@niir.ru

* Topics marked green will not be included into CPM-23 Report but will be included into BR Director Report to WRC-23

Key WRC-23 AIs for RCC

WRC – 23 Agenda

facilitate innovation, sharing, compatibility, harmonization and transparent regulation

Agenda Items identified as key items for RCC

IMT & Broadcast	Satellite & Science	Regulation
1.1 – IMT 4800 - 4990 MHz 1.2 – IMT 6 - 11 GHz 1.5 – UHF review	1.13 – SRS 15 GHz 1.15 – GSO ESIM Ku-band 1.16 – NGSO ESIM Ka-band 1.18 – MSS data collection 1.17 – Inter-satellite links	7 – Satellite procedures 9.1c – IMT & FWA RR 21.5 – Active antenna system

Other Agenda Items of the RCC interest

1.3 - MS 3 600-3 800 MHz,1.4 - HIBS,
1.6 - Sub-orbital vehicles, 1.7 - AMS(R)S 137 MHz, 1.8 - Resolution 155, 1.9 - Appendix 27,
1.10 - AMS non-safety, 1.11 - GMDSS, 1.12 - EESS(active) radar sounders,
1.14 - EESS(passive) 250 GHz, 1.19 - FSS 17 GHz (Region 2),
2 - Recs incorporated by reference, 4 - Review of Res/Recs, 8 - Review of footnotes,
9.1a - Space weather sensors, 9.1b - ARS/ARSS 1300 MHz, 9.1d - EESS(passive) 37 GHz,
9.3 – Report on Res.80, 10 – Future agenda

Key WRC-23 AIs for RCC – IMT spectrum

1.1 - IMT 4.9 GHz

Unlock and harmonize 190 MHz spectrum for IMT

Aleksey Shurakhov

The RCC Administrations oppose applying the PFD limits to protect stations of the aeronautical and maritime mobile services located in international airspace and waters (i.e., outside national territories) since:

- this imposes restrictions on services within national territories;
- administrations do not hold exclusive spectrum rights in international airspace and waters and there is no notification and registration procedure in international airspace and waters for AMS and MMS in this band;
- AMS and MMS stations do not have priority over other applications of terrestrial services in international airspace and waters or within national territories of countries.

Protection of AMS and MMS stations' frequency assignments in international airspace and waters can be provided if agreed by concerned administration(s) since it can impose restrictions on their frequency assignments within national territories. Such agreement may be reached, for example, through developing the relevant harmonized spectrum utilization plans for AMS and MMS, based on the standards approved by ICAO and IMO.

Key WRC-23 AIs for RCC – IMT spectrum

1.2 - IMT 6425-7125 MHz

Harmonize spectrum to enhance flexibility of IMT deployment

Sergey Pastukh

6425-6525 MHz (Region 1): No objection to the identification of the frequency band 6425-6525 MHz or parts of it for IMT. Protection of FSS stations (E-s) should be ensured by regulatory and technical conditions developed based on the results of ITU-R studies.

6525-7025 MHz (Region 1) and 7025-7100 MHz (Global): Support identification of the frequency band 6525-7100 MHz for IMT systems under the following conditions:

- ✓ insure compatibility of IMT stations with non-GSO MSS (s-E) feeder links in the band 6700-7075 MHz;
- ✓ insure compatibility of IMT stations with FSS (E-s) stations on GSO and HEO in the band 6725-7025 MHz;
- ✓ insure protection of SOS / SRS stations in the band 7100-7250 MHz from unwanted emissions of IMT stations operating in the band 6525-7100 MHz,
- ✓ not imposing regulatory or technical constrains for SOS / SRS stations operating in the band 7100-7250 MHz and keep possibility for the further use of the EESS (passive) in the 7075-7250 MHz.

7100-7125 MHz (Global): Protect existing radio services from interference in coinsidered and adjacent bands (including space stations of SOS, SRS and EESS (passive)).

Key WRC-23 AIs for RCC – IMT spectrum

1.2 - IMT 3.3-3.4 GHz

Protect existing services and extend where possible IMT usage in this band

Sergey Pastukh

Region 1

No objection for the extension of country name list in the footnotes 5.429, 5.429A, 5.429B, 5.429C, 5.429D, 5.429E, 5.429F but advocate for the protection of the RLS in-band and FSS / EESS (active) in adjacent band (i.e. above 3400 MHz and below 3300 MHz).

Protection of RLS, FSS and EESS (active) should be based on ITU-R Reports ITU-R M.2481 and S.2368.

Region 2

No objection for identification of the band 3300-3400 MHz in Region 2 for IMT but advocate for the protection of RLS of Region 1 in-band, FSS/ EESS (active) of Region 1 taking into account ITU-R Reports ITU-R M.2481 and S.2368 and results of studies be carried out by ITU-R in preparation for WRC-23.

Key WRC-23 AIs for RCC – IMT spectrum

1.2 - IMT 3.6-3.8 GHz & 10 GHz

Protect Region 1 services in case of identification of these bands for IMT in Region 2

Sergey Pastukh

3600-3800 MHz in Region 2: If this frequency band is identified for IMT in Region 2, it is necessary to adopt relevant provisions to the RR ensuring protection of FSS and FS of Region 1.
Protection should be provided based on the results of studies carried out in ITU-R in preparation for WRC- 07, WRC-12 and WRC-15 (i.e. ITU-R Report F.2328, M.2109, S.2199, S.2368 and M .2111).

10.0-10.5 GHz in Region 2: If this band is allocated to the MS and identified for IMT in Region 2:

- protection of services for which the band 10-10.5 GHz is allocated in Region 1, as well as protection of EESS (passive) in the 10.6-10.7 GHz should be ensured.
- no additional regulatory and technical constrains should be imposed on radio services in Region 1 operating in accordance with the RR.

Key WRC-23 AIs for RCC – IMT & Broadcast

1.5 – UHF (470-960 MHz)

Long term balance between broadband and broadcast in the band 470-960 MHz

AIndrey Lashkevich

The RCC Administrations oppose changes in the regulatory conditions for the use of the 470-694 MHz frequency band in Region 1 under this WRC-23 agenda item due to the current and future intensive use of this frequency band by the existing services.

Key WRC-23 AI for RCC – Satellite & Science

1.13 - SRS 15 GHz

Broadband links in support of science applications

Anton Stepanov

The RCC Administrations are in favor of upgrading the allocation of the frequency band 14.8-15.35 GHz to the space research service under the following conditions:

- protection of FS and MS in this frequency band, as well as passive services in the adjacent frequency band 15,35-15,4 GHz
- upgrading the SRS allocation should not impose constraints on the incumbent FS and MS systems in the frequency band 14.8-15.35 GHz.

Key WRC-23 AI for RCC – Satellite & Science

1.15 - GSO FSS ESIM Ku

Increase spectrum capacity for mobile platforms in GSO FSS

Tatiana Smirnova

- There is a need of technical requirements and regulatory provisions for ESIMs in the frequency band 12.75-13.25 GHz (E-to-s) to ensure protection to the existing services and those in the adjacent bands.
- Ensure protection of allotments in the Plan and assignments in the List of RR Appendix 30B in accordance with criteria provided in Annex 4. ESIM operation in the frequency band 12.75-13.25 GHz (E-to-s) shall not result in any constraints or changes in the existing allotments / assignments in the Plan/List and shall not affect the criteria of Annex4.
- Consider that ESIMs shall operate in the frequency band 12.75-13.25 GHz (E-to-s) within the envelope of the ES's notified in the satellite network and also within the obtained agreements under §§6.5, 6.6 and 6.16 of Article 6.
- The use of ESIM on aircrafts and vessels should be within the framework of assignments, notified and registered in accordance with the Articles 6 and 8 of Appendix 30B.
- Administrations planning to use ESIMs on aircraft and vessels in the frequency band 12.75-13.25 GHz (E-to-s) in international waters/aerospace shall submit information to the BR on filing of such ESIMs. Such submission should be regarded as new filing to satellite network with a new date of receipt by the BR.

Key WRC-23 AI for RCC – Satellite & Science

1.16 - NGSO FSS ESIM Ka

Increase spectrum capacity for mobile platforms in non-GSO FSS

Mikhail Simonov

The RCC Administrations are considering the following requirements for non-GSO FSS ESIMs in the bands 17.7-18.6 / 18.8-19.3 / 19.7-20.2 GHz (s-to-E) and 27.5-29.1 / 29.5-30 GHz (E-to-s) :

- in the bands 17.7-18.6 / 18.8-19.3 GHz (s-to-E) non-GSO ESIMs shall not claim protection from terrestrial services operating in accordance with the RR.
- RR provisions for protection of GSO networks from non-GSO FSS shall not be affected;
- ESIMs should operate within the envelope of typical ES's published in the BR IFIC;
- ESIMs should not be used for safety-of-life applications;
- measures to exclude unauthorized use of ESIMs in the territory of States that have not granted relevant authorizations are needed.

Key WRC-23 AI for RCC – Satellite & Science

1.17 – Inter - satellite links

Facilitate innovation with inter-sat links and keep interference free environment

Arman Biturganov

- The use of satellite-to-satellite links in the bands 11.7-12.7 GHz, 18.1-18.6 GHz, 18.8-20.2 GHz, and 27.5-30 GHz may impose severe constraints on the use of the existing and future systems/networks of FSS, *inter alia*, over the national territories.
- Support the studies of technical and operational characteristics, including spectrum requirements, off-axis e.i.r.p. values and out-of-band emission limits, for transmissions between space stations in the bands 11.7-12.7 GHz, 18.1-18.6 GHz, 18.8-20.2 GHz and 27.5-30 GHz.
- Support studying sharing and compatibility between satellite-to-satellite links, intending to operate between space stations in the bands 11.7-12.7 GHz, 18.1-18.6 GHz, 18.8-20.2 GHz and 27.5-30 GHz, and current and planned stations of the FSS and other existing services allocated in the same frequency bands and in adjacent bands The results of these ITU-R studies should be agreed by Member States by consensus.
- Technical conditions and regulatory provisions should be developed for different types of space stations for satellite-to-satellite operations in the bands 11.7-12.7 GHz, 18.1-18.6 GHz, 18.8-20.2 GHz and 27.5-30 GHz, or portions thereof, including new ISS allocations.

Key WRC-23 AI for RCC – Satellite & Science

1.18 - MSS data collection

Facilitate and support IoT satellite applications and keep compatibility in the frequency bands

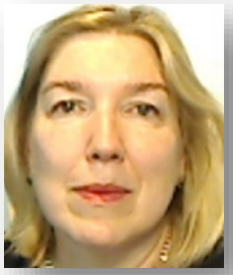
Anuar Aidarov

The RCC Administrations consider that additional MSS allocation is permissible only if technical and operational characteristics of narrowband mobile satellite systems are justified, as well as regulatory conditions of their use, and allowing the exclusion of unacceptable interference towards existing and planned systems operated in the same and adjacent frequency bands in accordance with Article 5 RR.

Key WRC-23 AI for RCC – Regulation

7 - Satellite procedures

Improve regulatory procedures for Non-GSO and GSO satellite systems


Natalia Stenanova


Olga Dashkevich


Agzam.Tajibayev

Topic A - Tolerances for orbital characteristics of non-GSO stations

Only fixed-satellite, mobile-satellite or broadcasting satellite services and only satellite systems with altitudes of apogee above 15000 km should be considered.

Tolerances for the inclination of plane, the altitude of the apogee, the altitude of the perigee and the argument of the perigee of the orbital plane should depend on the type of the space station.

Topic B - Post-milestone procedure for non-GSO systems

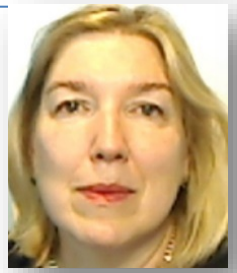
The specificities of operation of non-GSO systems with a small number of satellites should still be taken into account.

The post-milestone procedure should not impose additional constrains on the non-GSO satellite systems using highly-elliptical orbit.

Key WRC-23 AI for RCC – Regulation

7 - Satellite procedures

Improve regulatory procedures for Non-GSO and SGO satellite systems


Natalia Stenanova


Olga Dashkevich


Agzam.Tajibayev

Topic C - Protection of GSO networks in the MSS in 7/8 and 20/30 GHz

Do not oppose developing technical and regulatory measures for the protection of GSO mobile-satellite systems operating in 7/8 and 20/30 GHz from emissions of non-geostationary satellite systems operating in the same frequency bands and identical directions.

Topic D – MOD App 1 to Annex 4 of App 30B

Support the modification of the value of the coordination arc in Appendix 1 to Annex 4 to Appendix 30B of the RR to align it with the value of the coordination arc adopted at WRC-19 for Appendix 30B of the RR.

Topic E – New Member States of the Union in App 30B

Support efforts aimed at solving problems related to access to the radio frequency spectrum and satellite orbits for new Member States of the Union within the parameters of Appendix 30B.

Key WRC-23 AI for RCC – Regulation

9.1c – FWA & IMT

How to address convergence
of fixed and mobile technologies

Zinaida Paharzhelskaya

The RCC Administrations consider that decision on usage of IMT systems in the frequency bands allocated to the fixed service on the primary basis is subject to:

- compliance of such usage to the fixed wireless broadband communication requerements;
- protection of services operating in the same or adjacent frequency bands.

Key WRC-23 AI for RCC – Regulation

Ludmila Zinchenko

RR No 21.5, Table 21-2

Address IMT active antenna systems in the band shared with satellite

Issue A - Notification of IMT station with AAS

Temporarily, unless modified by WRC-23, Item 8AA in Table 1 of RR Appendix 4 "the power delivered to the antenna" for notification of the IMT stations with ASS shall be the value of the “total radiated power” (TRP), defined as in Resolution 243 (WRC-19) and Resolution 750 (Rev. WRC-19).

Issue B - Verification of notifying IMT station with AAS

Keep unchanged the limit of power level in RR Article 21 No. 21.5 with adjustment factor regarding the bandwidth of the IMT station with AAS.

Issue C - Table 21-2 of RR Article 21

Add frequency band 24.45-27.5 GHz allocated to the mobile service by WRC-19 to the Table 21-2 of RR Article 21.