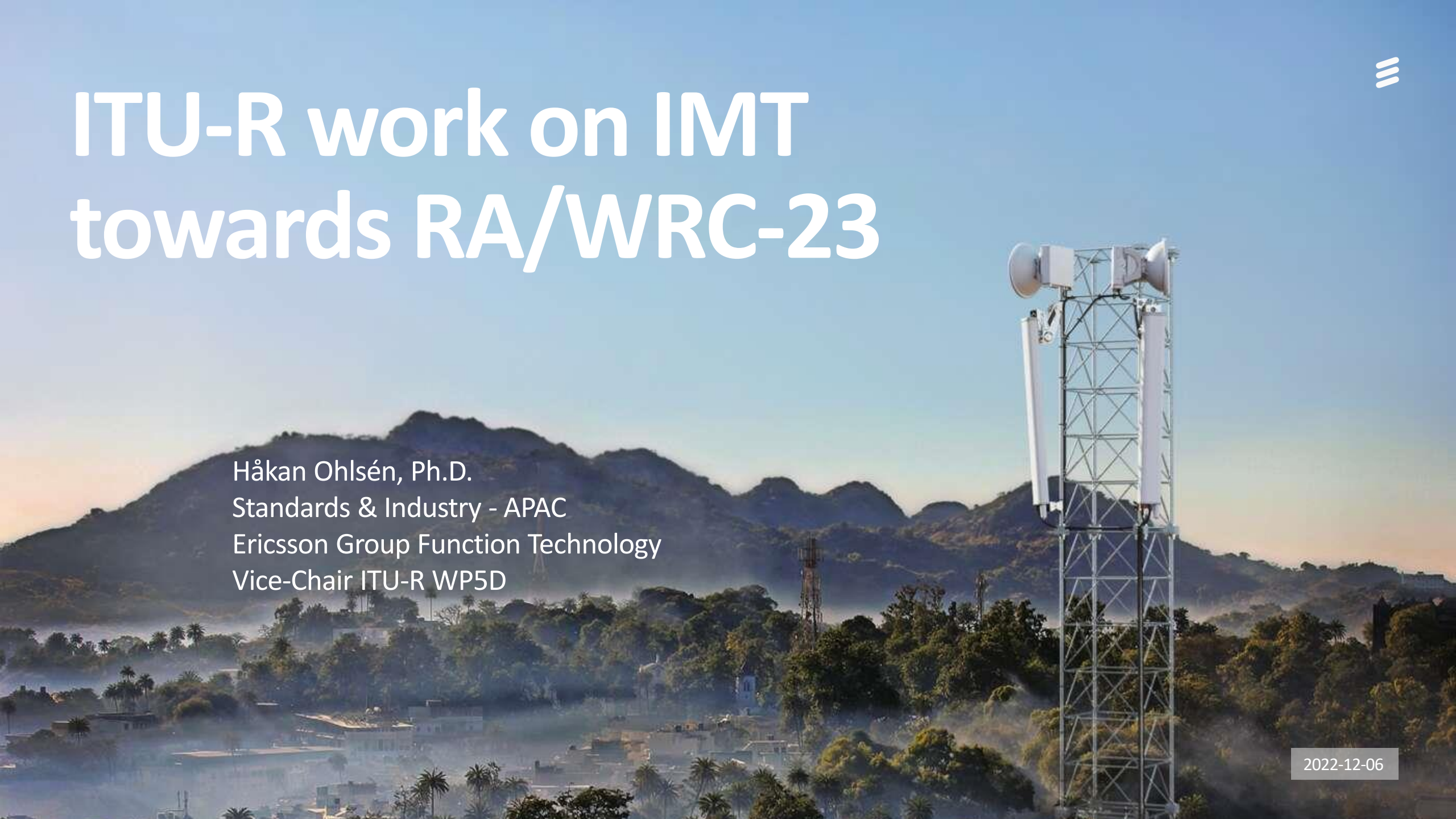
ITU-R work on IMT towards RA/WRC-23



Håkan Ohlsén, Ph.D.
Standards & Industry - APAC
Ericsson Group Function Technology
Vice-Chair ITU-R WP5D

2022-12-06

Now we have a name on “IMT for 2030 and beyond”

RADIO ASSEMBLY – 2023 (Resolutions 56 (done) + 65 (ongoing))

From WP 5D#42

“IMT-2030”

Update of Resolution ITU-R 56-2:

The ITU Radiocommunication Assembly,

...

recognizing

j) that, for IMT-2030:

– the framework and overall objectives for the future development of “IMT for 2030 and beyond” are described in Recommendation ITU-R M.[IMT.VISION 2030 AND BEYOND];

– the enhancements and further developments of IMT-2000, IMT-Advanced or IMT-2020 that fulfil the criteria defined by ITU R for development of IMT-2030 could also be part of IMT-2030,

...

resolves

4 that the term “IMT-2030” be applied to those systems, system components and related aspects that include radio interface(s) which support the additional capabilities of systems beyond IMT-2000, IMT-Advanced and IMT-2020, and that *recognizing j)* applies;

WRC-23: AIs & Issues

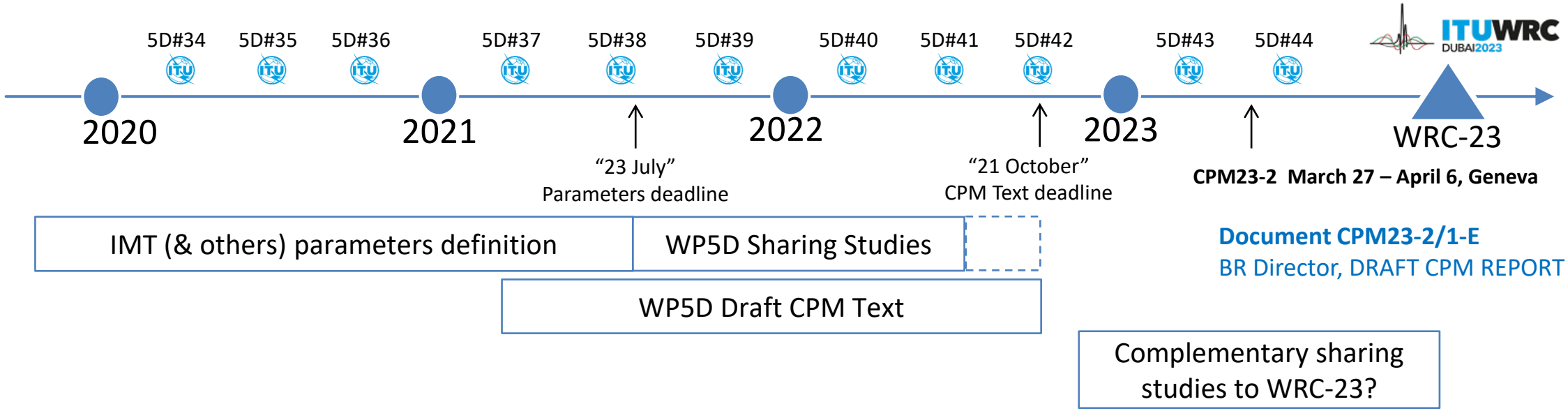
Related to IMT

Other AIs

Fixed, Mobile and Broadcasting issues	Aeronautical and maritime issues	Science issues	Satellite issues	General issues
1.1 4800-4990 MHz	1.6 sub-orbital vehicles	1.12 EESS (active) 45MHz	1.15 Earth stations aircraft/vessels 13 GHz with GSO	2 incorporation by ref in RR
1.2 IMT identification	1.7 AMRS 130 MHz	1.13 SRS 15 GHz	1.16 ESIM 17-20/27-30 GHz with NGSO	4 editorial review
1.3 3600-3800 MHz mobile allocation	1.8 Res 155 and No.548B	1.14 EESS (passive) 231-252 GHz	1.17 ISL 12, 18-20 and 28GHz	9.1 a Space weather sensors
1.4 HIBS below 2.7GHz	1.9 Appendix 27		1.18 MSS allocations	9.1 b Radionavigation 1.3GHz
1.5 470-694 MHz R1 broadcast and mobile	1.10 AMS 22 and 15GHz		1.19 FSS 17 GHz	9.1 c IMT for FWA under FS
10 AIs-future Conferences	1.11 GMDSS		7 Res 86	9.1.d EESS protection 36-37GHz

No. **21.5** – not AI, but topic of interest (BR Director's report under 9.1)

TIMELINE FOR PARAMETERS, SHARING STUDIES AND CPM TEXT



Meeting	Dates	Workplan
5D#38	June 2021	Submission of characteristics, protection criteria and propagation models
5D#39	October 2021	Start substantial work on sharing studies; update draft CPM text
5D#40	February 2022	Continue sharing studies; update draft CPM text
5D#41	June 2022	Finalize sharing studies; update draft CPM text
5D#42	October 2022	Finalize draft CPM text until 21 Oct. 2022
CPM 23-2	27 Mar. – 6 Apr. 2023	Finalize CPM Report
RA/WRC-23	13 Nov. – 15 Dec. 2023	WRC-23 decisions for ITU Radio Regulations

AI 1.1 – description, "*resolves*," etc.

Resolution **223 (WRC-19)**

- to consider, based on the results of the ITU-R studies, possible measures to address, in the frequency band 4 800-4 990 MHz, protection of stations of the aeronautical and maritime mobile services located in international airspace and waters from other stations located within national territories, and to review the pfd criteria in No. **5.441B** in accordance with Resolution **223 (Rev.WRC-19)**;

resolves

1 [not applicable]

2 [not applicable]

3 that in the frequency bands 4 800-4 825 MHz and 4 835-4 950 MHz, in order to identify potentially affected administrations when applying the procedure for seeking agreement under No. **9.21** by IMT stations in relation to aircraft stations, a coordination distance from an IMT station to the border of another country equal to 300 km (for land path)/450 km (for sea path) applies;

4 that in the frequency band 4 800-4 990 MHz, in order to identify potentially affected administrations when applying the procedure for seeking agreement under No. **9.21** by IMT stations in relation to fixed-service stations or other ground-based stations of the mobile service, a coordination distance from an IMT station to the border of another country equal to 70 km applies;

5 that the power flux-density (pfd) limits in No. **5.441B**, which is subject to review at WRC-23, shall not apply to the following countries: Armenia, Brazil, Cambodia, China, Russian Federation, Kazakhstan, Lao P.D.R., Uzbekistan, South Africa, Viet Nam and Zimbabwe,

invites the ITU Radiocommunication Sector

1 [not applicable]

2 to study the technical and regulatory conditions for the protection of stations of the aeronautical and maritime mobile services located in international airspace or waters (i.e. outside national territories) and operated in the frequency band 4 800-4 990 MHz;

3 [not applicable];

4 to include the results of the studies mentioned in *invites the ITU Radiocommunication Sector* above in one or more ITU-R Recommendations and Reports, as appropriate,

invites the 2023 World Radiocommunication Conference

to consider, based on the results of the studies referred to in *invites the ITU Radiocommunication Sector* above, possible measures to address, in the frequency band 4 800-4 990 MHz, protection of stations of the aeronautical and maritime mobile services located in international airspace and waters from other stations located within national territories and to review the pfd criteria in No. **5.441B**.

AI 1.1: Draft CPM Text to WRC-23

Methods	Remarks
A	NoC.
B	NoC to the pfd limit in No. 5.441B and no exemption
C	Relaxed pfd limit in No. 5.441B, retain the exemption list in RES 223
D	Relaxed pfd limit in No. 5.441B and no exemption
E	NoC to pfd limit in No. 5.441B but expand the no. of countries in the exemption list in RES 223
F	Delete pfd limit in No. 5.441B, use No. 9.21 only for protection of AMS/MMS in international airspace and waters
G	Delete pfd limit in No. 5.441B, use No. 9.21 and bilats/multilats for protection of AMS/MMS in international airspace and waters
H	Delete pfd limit in No. 5.441B, use No. 9.21 only for protection of AMS/MMS in international airspace and waters, protection is limited to national territories (effectively same as Method F)
A, B, C & D	MODs to RES 223 to support the above methods.
E, F, G & H	MODs to RES 223 to support the above methods.

AI 1.2 – description, "*resolves*," etc.

Resolution **245 (WRC-19)**

- to consider identification of the frequency bands 3 300-3 400 MHz, 3 600-3 800 MHz, 6 425-7 025 MHz, 7 025-7 125 MHz and 10.0-10.5 GHz for International Mobile Telecommunications (IMT), including possible additional allocations to the mobile service on a primary basis, in accordance with Resolution **245 (WRC-19)**;

[1] Note: With respect to *resolves* 1 of Resolution **245 (WRC-19)**, CPM23-1 defined that the date by which technical and operational characteristics needed for sharing and compatibility studies are to be available is 15 June 2021.

resolves to invite ITU-R

1 to conduct and complete in time for WRC-23 the appropriate studies of technical, operational and regulatory issues pertaining to the possible use of the terrestrial component of IMT in the frequency bands in *resolves to invite ITU-R* 2, taking into account:

– evolving needs to meet emerging demands for IMT;

– technical and operational characteristics of terrestrial IMT systems that would operate in these specific frequency bands, including the evolution of IMT through advances in technology and spectrally efficient techniques;

– the deployment scenarios envisaged for IMT systems and the related requirements of balanced coverage and capacity;

– the needs of developing countries;

– the time-frame in which spectrum would be needed;

2 to conduct and complete in time for WRC-23 the sharing and compatibility studies[1], with a view to ensuring the protection of services to which the frequency band is allocated on a primary basis, without imposing additional regulatory or technical constraints on those services, and also, as appropriate, on services in adjacent bands, for the frequency bands:

– 3 600-3 800 MHz and 3 300-3 400 MHz (Region 2);

– 3 300-3 400 MHz (amend footnote in Region 1);

– 7 025-7 125 MHz (globally);

– 6 425-7 025 MHz (Region 1);

– 10 000-10 500 MHz (Region 2),

resolves

1 to invite CPM23-1 to define the date by which technical and operational characteristics needed for sharing and compatibility studies are to be available, to ensure that studies referred to in *resolves to invite ITU-R* can be completed in time for consideration at WRC-23;

2 to invite WRC-23 to consider, based on the results of the above studies, additional spectrum allocations to the mobile service on a primary basis and to consider identification of frequency bands for the terrestrial component of IMT; the frequency bands to be considered being limited to part or all of the bands listed in *resolves to invite ITU-R* 2,

invites administrations

to participate actively in these studies by submitting contributions to ITU-R. 1

AI 1.2: Draft CPM Text to WRC-23

3.3-3.4 GHz, Region 1

Done!

Methods	Remarks
1A	NoC. SUP RES 245 (WRC-19).
1B	MOD Nos. 5.429A & 5.429B to add interested R1 countries that are in the area defined in 5.429B (south of 30° parallel north) to allocate 3.3-3.4 GHz to primary MS, except AMS & identify for IMT in those countries
1C	MOD Nos. 5.429A & 5.429B, including revision of given conditions (to protect RLS – no nos.) & to add interested R1 countries to allocate 3.3-3.4 GHz to primary MS (5.429A), except AMS & identify for IMT in those countries (5.429B)
1D	Primary MS, except AMS, in interested R1 countries and identification to IMT by new FN. Note: RES 245 (WRC-19) only amends existing FN in 3.3-3.4 GHz in R1, but some administrations insisted on this approach.
1E	Primary MS, except AMS, in TFA, for R1 and identification to IMT (MOD 5.429B for R1) & any consequent MOD to 5.429A. Note: RES 245 (WRC-19) only amends existing FN in 3.3-3.4 GHz in R1, but some administrations insisted on this approach.

AI 1.2: Draft CPM Text to WRC-23

3.3-3.4 GHz, Region 2

Done!

Methods	Remarks
2A	NoC. SUP RES 245 (WRC-19).
2B	Primary MS in R2 and identification for IMT by: • Upgrading existing secondary MS in TFA • MOD 5.429C by applying it only to the FS • MOD 5.429B for R2 for IMT identification, but specify MS in this band cannot cause harmful interference to, or claim protection from, RLS in the band NOTE: View 1 claims harmful interference to services due to this Method, while View 2 claims Method is proposed on basis of sharing & compatibility studies
2C	Same as 2B, but AMS excluded from MS allocation

AI 1.2: Draft CPM Text to WRC-23

3.6-3.8 GHz, Region 2

Methods	Remarks
3A	NoC. SUP RES 245 (WRC-19).
3B	Identify IMT in 3.6-3.8 GHz, or portions thereof, in Region 2. MOD No 5.434 to list foll. condition: – IMT systems shall not claim more protection from space stations than that provided in RR Table 21-4. (In addition, conditions applicable to the MS in the frequency band apply equally to IMT.)
3C	Identify IMT in 3.6-3.8 GHz, or portions thereof, in Region 2. MOD No 5.434 to list foll. conditions: – pfd limit used in No. 5.431B for the MS/IMT for border (same as 3.4 – 3.6 GHz, -154, 20%) – IMT systems shall not claim more protection from space stations than that provided in RR Table 21-4 – RR Nos. 9.17, 9.18 apply.
3D	Identify IMT in 3.6-3.8 GHz, or portions thereof, in Region 2. MOD No 5.434 to list foll. conditions: – RR Nos. 9.17, 9.18, 9.21 apply. – IMT systems shall not claim more protection from space stations than that provided in RR Table 21-4 – pfd limit for MS/IMT revised to -154, 0.005% of the time
3E	Identify IMT in 3.6-3.7 GHz in additional countries in R2 (add names to No. 5.434) while maintaining all existing conditions
3F	Identify IMT in 3.6-3.7 GHz in R2 (MOD No. 5.434) while maintaining all conditions

AI 1.2: Draft CPM Text to WRC-23

6.425-7.025 GHz (R1) / 7.025-7.125 GHz (Global)

Methods	Remarks
A	NoC
B	Identification of the frequency band 6 425-7025 (R1)/7 025-7 125 (Global) MHz for IMT without any conditions
C	Identification of the frequency band 6 425-7025 (R1)/7 025-7 125 (Global) MHz for IMT by creating a new RR footnote with conditions contained in a draft new Resolution
D	Identification of the frequency band 6 425-7025 (R1)/7 025-7 125 (Global) MHz for IMT by creating a new RR footnote with a requirement to implement technical measures to protect SOS (Earth-to-space) in the band 7 100-7 155 MHz
E	Identification of the frequency band 6 425-7025 (R1)/7 025-7 125 (Global) MHz for IMT with conditions contained in a draft new WRC Resolution, with use expected as of 2030

AI 1.2: Draft CPM Text to WRC-23

10-10.5 GHz, Region 2

MOBILE

Methods	Remarks
6A	NoC. SUP RES 245 (WRC-19).
6B	Primary allocation to MS in the TFA, in Region 2, in the frequency band 10-10.5 GHz, by MOD Nos. 5.480 and 5.481 and identifying the band for IMT by ADD 5.D12-6B, with conditions in new RES [C12-10GHz] (WRC 23). View 1 claims harmful interference at border of countries in Region 1 operating AMS in Region 2 (no sharing studies) View 2 says “plan to deploy macrocells in this band not in line with baseline assumptions of WP5D.” Also does not believe SSL will mitigate interference to incumbents View 3 says sharing/compatibility studies support IMT identification in R2 while protecting incumbents; MS is primary in R1 and R3, thus permitting AMS View 4 says deployment parameters used were provided by ITU-R SGs & in line with baseline assumptions of WP5D. Also SSL provides a mitigation technique consistent with ITU-R SM 1132-2
6C	Primary allocation to MS, except AMS, in the TFA, in Region 2, in the frequency band 10-10.5 GHz, by MOD Nos. 5.480 and 5.481 and identifying the band for IMT by ADD 5.E12, with conditions in new RES [C12-10GHz] (WRC 23) & ADD 5.F12 (cannot claim protection from RLS).

AI 1.3 – description, "*resolves*," etc.

Resolution **246 (WRC-19)**

- to consider primary allocation of the band 3 600-3 800 MHz to mobile service within Region 1 and take appropriate regulatory actions, in accordance with Resolution **246 (WRC-19)**;

resolves to invite ITU-R

to conduct sharing and compatibility studies in time for WRC-23 between the mobile service and other services allocated on a primary basis within the frequency band 3 600-3 800 MHz and adjacent bands in Region 1, as appropriate, to ensure protection of those services to which the frequency band is allocated on a primary basis, and not impose undue constraints on the existing services and their future development,

resolves to invite WRC-23

based on the results of studies in *resolves to invite ITU-R*, to consider possible upgrade of the allocation of the frequency band 3 600-3 800 MHz to the mobile, except aeronautical mobile, service on a primary basis within Region 1, and to take appropriate regulatory actions,

invites administrations

to participate in these studies in the process of preparation for WRC-23.

AI 1.3: Draft CPM Text to WRC-23

3.6-3.8 GHz, Region 1

Done!

Methods		Remarks
A		NoC. SUP RES 246 (WRC-19).
B		Upgrade MS, except AMS, in 3.6-3.8 GHz to primary in R1 without conditions. SUP RES 246 (WRC-19).
C		Upgrade MS, except AMS, in 3.6-3.8 GHz to primary in R1 with reg &/or tech conditions. SUP RES 246 (WRC-19).
	C1	Reg conds: No. 9.21 applies, as do other reg conds to protect primary services in 3.4-3.6 GHz. Tech conds: pfd limit of -154.5 dB(W/(m²·4 kHz)) at 3m above ground, 20% of time, at border.
	C2	No reg conds, but to protect primary services, adopt FN to RR including pfd limit of -154.5 dB(W/(m²·4 kHz)) at 3m above ground, 20% of time, at border.
	C3	To protect FSS at border of each country, implement pfd limit of -154.5 dB(W/(m²·4 kHz)) at 3m above ground, 20% of time.
	C4	Upgrade MS, except AMS, to primary in TFA, with reg conds including the application of No. 9.21.
	C5	Tech cond is pfd limit of -154.5 dB(W/(m²·4 kHz)) at 3m above ground, 0.005% of time
D		Upgrade MS, except AMS, in 3.6-3.8 GHz to primary in R1 without conditions & identify for IMT. SUP RES 246 (WRC-19). NOTE: Great if happens. Don't drive because IMT identification not part of AI.

AI 1.4 – description, "*resolves*," etc.

Resolution **247 (WRC-19)**

- to consider, in accordance with Resolution **247 (WRC-19)**, the use of high-altitude platform stations as IMT base stations (HIBS) in the mobile service in certain frequency bands below 2.7 GHz already identified for IMT, on a global or regional level;

resolves to invite ITU-R

1 to study spectrum needs, as appropriate, for high-altitude platform stations as IMT base stations to provide mobile connectivity in the mobile service taking into account:

– the existing identification in recognizing b);

– the usage and deployment scenario envisioned for high-altitude platform stations as IMT base stations as complementary for terrestrial IMT networks;

– the technical and operational characteristics and requirements of high-altitude platform stations as IMT base stations;

2 to conduct and complete in time for WRC 23, taking into account the results of studies already performed and those in progress within ITU R, sharing and compatibility studies to ensure the protection of services, without imposing any additional technical or regulatory constraints in their deployment, to which the frequency band is allocated on a primary basis, including other IMT uses, existing systems and the planned development of primary allocated services, and adjacent services, as appropriate, for certain frequency bands below 2.7 GHz, or portions thereof, globally or regionally harmonized for IMT, i.e.:

– 694-960 MHz;

– 1 710-1 885 MHz (1 710-1 815 MHz to be used for uplink only in Region 3);

– 2 500-2 690 MHz (2 500-2 535 MHz to be used for uplink only in Region 3, except 2 655-2 690 MHz in Region 3);

3 to study appropriate modifications to the existing footnote and associated resolution in the identification in recognizing b) in order to facilitate the use of high-altitude platform stations as IMT base stations with the latest radio interface technologies of IMT;

4 to study the definition of high-altitude platform stations as IMT base stations (HIBS) including possible modifications to the provisions of the Radio Regulations, as appropriate;

5 to develop ITU R Recommendations and Reports, as appropriate, taking into account resolves to invite ITU-R 1, 2, 3, and 4 above,

further resolves to invite WRC-23

to consider, based on the results of the above studies, the use of high altitude platform stations as IMT base stations in certain frequency bands below 2.7 GHz already identified for IMT, on a global or regional level, and take necessary regulatory actions, as appropriate, taking into account that changes to the footnotes in the recognizing d) are outside the scope and there should be no additional regulatory or technical constraints imposed on the deployment of ground-based IMT systems in the frequency bands referred to in those footnotes,

invites administrations

to participate actively in these studies by submitting contributions to ITU R

AI 1.4: Draft CPM Text to WRC-23 (1/2)

Methods					
A	Issue A: HIBS in 694-960 MHz				**Remarks**
	A1	A2	A3	A4	**Alternatives**
	NoC to the RR. **SUP** RES **247 (WRC-19)**.	Identification of this band, or portions, for HIBS, by **ADD 5.A14** and Resolution **[A14-HIBS 694-960 MHZ] (WRC 23)**. For identification of band **698-790** MHz**, ADD 5.B14** and Resolution **[A14-HIBS 694-960 MHZ] (WRC 23)**.	Identification of this band, or portions, for HIBS, not claiming protection from existing primary services by **ADD 5.C14**. No. **5.43A** does not apply. Resolution **[A14-HIBS 694-960 MHZ] (WRC 23)** applies. For identification of band **698-790** MHz**, ADD 5.D14** and Resolution **[A14-HIBS 694-960 MHZ] (WRC 23)**. No. **5.43A** does not apply.	Identification of portions of this band, 694-862 MHz and 862-960 MHz, for HIBS on a regional basis, by **ADD 5.E14** (R1, 694-862) **ADD 5.F14** (R2, 698-862) **ADD 5.G14** (R3, 698-862) **ADD 5.H14** (862-960) **ADD** Resolution **[A14-HIBS 694-960 MHZ] (WRC-23)**	**Remarks** Note that RES **[A14-HIBS 694-960 MHz] (WRC-23)** contains a no. of *resolves* (with several examples) & *further resolves* (same) & annexes
B	Issue B: HIBS in 1 710-1 885 MHz				**Remarks**
	B1	B2	B3	B4	
	NoC to the RR. **SUP** RES **247 (WRC-19)**.	Identification of this band, or portions, for HIBS, by **MOD** No. **5.388A** and **MOD** RES **221 (WRC-07)**	Identification of this band, or portions, for HIBS, not claiming protection from existing primary services by **MOD** No. **5.388A** and **MOD** RES **221 (WRC-07)**	Identification of portions of this band, 1710-1885 MHz, for HIBS on a regional basis, by **MOD** No. **5.388A** and **MOD** RES **221 (WRC-07)**, **ADD 5.I14** (R1, 1710-1885) **ADD 5.J14** (R2, 1710-1885) **ADD 5.K14** (R3, 1710-1885)	

AI 1.4: Draft CPM Text to WRC-23 (2/2)

Methods					
C	Issue C: HIBS in 1885-1980, 2010-2025m and 2110-2170 MHz				**Remarks**
	C1	C2	C3		**Alternatives**
	NoC to the RR. **SUP** RES **247 (WRC-19)**.	Review existing conds in these bands, or portions, for HIBS use, by **MOD** No. **5.388A** and **MOD** RES **221 (WRC-07)**.	Identification of these bands, or portions, for HIBS, not claiming protection from existing primary services, by **MOD 5.338A** and **MOD** RES **221 (WRC-07)**.		**Remarks** Note that **MOD** to RES **221 (WRC-07)** contains a no. of *resolves* (with several examples) & *further resolves* (same)
D	Issue D: HIBS in 2500-2690 MHz				**Remarks** Note that **ADD** new RES **[B14-HIBS 2 500-2 690 MHz] (WRC-23)** contains a no. of resolves (with several examples) & further resolves (same)
	D1	D2	D3	D4	
	NoC to the RR. **SUP** RES **247 (WRC-19)**.	Identification of this band, or portions, for HIBS, by **ADD 5.L14** containing new RES **[B14-HIBS 2 500-2 690 MHz] (WRC-23)**.	Identification of this band, or portions, for HIBS, not claiming protection from existing primary services by **ADD 5.M14** containing new RES **[B14-HIBS 2 500-2 690 MHz] (WRC-23)**.	Identification of portions of this band, 2500-2690 MHz, for HIBS on a regional basis, by **ADD 5.N14** (R1, 2500-2690) **ADD 5.O14** (R2, 2500-2690) **ADD 5.P14** (R3, 2500-2655) **ADD new** RES **[B14-HIBS 2 500-2 690 MHz] (WRC-23).**	

AI 1.5 – description, "*resolves*," etc.

Resolution **235 (WRC-15)**

- To review the spectrum use and spectrum needs of existing services in the frequency band 470—960 MHz in Region 1 and consider possible regulatory actions in the frequency band 470-694 MHz in Region 1 on the basis of the review in accordance with Resolution **235 (WRC-15)**;

resolves to invite ITU-R, after the 2019 World Radiocommunication Conference and in time for the 2023 World Radiocommunication Conference

1 to review the spectrum use and study the spectrum needs of existing services within the frequency band 470-960 MHz in Region 1, in particular the spectrum requirements of the broadcasting and mobile, except aeronautical mobile, services, taking into account the relevant ITU Radiocommunication Sector (ITU-R) studies, Recommendations and Reports;

2 to carry out sharing and compatibility studies, as appropriate, in the frequency band 470-694 MHz in Region 1 between the broadcasting and mobile, except aeronautical mobile, services, taking into account relevant ITU-R studies, Recommendations and Reports;

3 to conduct sharing and compatibility studies, as appropriate, in order to provide relevant protection of systems of other existing services,

invites administrations

to participate actively in the studies by submitting contributions to ITU-R,

resolves to invite the 2023 World Radiocommunication Conference

to consider, based on the results of studies above, provided that these studies are completed and approved by ITU-R, possible regulatory actions in the frequency band 470-694 MHz in Region 1, as appropriate,

further invites ITU-R

to ensure intersectoral collaboration with the ITU Telecommunication Development Sector (ITU-D) in the implementation of this Resolution.

AI 1.5: Draft CPM Text to WRC-23 (1/2)

MOBILE

Methods										
A	Alt A1 – NoC.				Alt A2 – NoC.					**Alternatives**
	Object. Reasons being BC still requires spectrum, separation distances are extremely large (100s of kms).				Object. Reason being that BC still requires spectrum, changes to be considered only at WRC-27 or WRC-31.					**Remarks**
B	B					Alt B1	Alt B2	Alt B3		**Alternatives**
	Allocate all or part of 470-694 MHz to MS on primary basis; identify all or part (614-694 MHz) for IMT thru' MOD of existing FN and suppress RES **235** (**WRC-15**).					IMT in 614-694 MHz	IMT in 470-694 MHz	No IMT identification		**Remarks** *Note ranges*
C	Allocate 470-694 MHz to MS, except AMS, on primary basis; identify all or parts of 470-694 MHz in R1. Suppress RES **235** (**WRC-15**).									
	Alt C1	Alt C2	Alt C3	Alt C4	Alt C5	Alt C6	Alt 7	Alt C8	Alt C9	**Alternatives**
	IMT in 614-694 MHz	IMT in 470-694 MHz	IMT in 614-694 MHz; add new RES [**A15-CONDITIONS C3-EXAMPLE1**] or new RES [… EXAMPLE 2] & coord dist to be developed based on Res **749** & **760**	IMT in 470-694 MHz; add new RES [**B15-CONDITIONS C4-EXAMPLE1**] or new RES [… **EXAMPLE 2**] & coord dist to be developed based on Res **749** & **760**	MS ,except AMS, allocation in 614-694 MHz, secondary in 582-614 MHz; IMT in 614-694 MHz with RES **224**, **760** & **749** applicable. But No. **5.C15** permits use of MS allocation also by BC & PM.	MS ,except AMS, allocation in 614-694 MHz, secondary in 582-614 MHz; IMT in 614-694 MHz with RES **224**, **760, 749** & **[C15-CONDITIONS C6 – EX1 & EX2]** applicable. No. **5.D15** permits use of 614-694 by MS (no AMS) & No. **5.E15** by BC & PM. Object, too many conditions.	No.**5.F15** allocates 470-694 MHz to primary MS. MOD to **5.317A** from 614-790 MHz for IMT identification. Both subject to RES **[D15-CONDITIONS C7 – EX1 & EX2],** with No. **5.G15** allowing use by BC & PM. RESs 224, 760 & 749 also apply. Conflicting text in Nos. **5.296** & **5.300**.	No.**5.H15** allocates 470-694 MHz to primary MS. MOD to **5.317A** from 470-790 MHz for IMT identification. Both subject to RES **[E15-CONDITIONS C8 – EX1 & EX2],** with No. **5.I15** allowing use by BC & PM. RESs 224, 760 & 749 also apply. Conflicting text in Nos. **5.296** & **5.300**.	No.**5.J15** allocates 614-694 MHz to primary MS. MOD to **5.317A** from 614-790 MHz for IMT identification. Both subject to RES **[F15-CONDITIONS C9 – EX1 & EX2],** with No. **5.K15** allowing use by BC & PM (614-694). RESs 224, 760 & 749 also apply. Conflicting text in Nos. **5.296** & **5.300**.	**Remarks** *Note ranges*

AI 1.5: Draft CPM Text to WRC-23 (2/2)

MOBILE

Methods										
D	Allocation of 470-694 MHz (or parts) to the MS, except AMS, is acceptable, suppress RES **235**. But no IMT identification in R1.									**Remarks**
	Alt D1		Alt D2		Alt D3		Alt D4		Alt D5	**Alternatives**
	No.**5.L15** allocates 470-694 MHz to primary MS (no AMS) subject to RES **[G15-ALTERNATIVE D1],** with MOD to No. **5.296** allowing use by BC & PM. Conditions are onerous, so allocation a compromise at best. More an opposition.		Primary allocation to MS in 470-694 MHz in TFA in R1. SUP 5.296 & MOD 5.300 to allocate 582-790 MHz to secondary FS in some countries. No onerous conditions makes this attractive.		No.**5.M15-Ex1** allocates 470-694 MHz to primary MS (no AMS) as does No. M15-Ex2 tho' BC is super-primary, both subject to RES **[H15-ALTERNATIVE D3],** with MOD to No. **5.296** allowing sec use by BC & PM & No. **5.N15** allowing primary use. MOD 5.300 to allocate 582-790 MHz to secondary FS in some countries.		Primary allocation to MS, except AMS, in 470-694 MHz in TFA in R1, but subject to RES **[I15-ALTERNATIVE D4]** & MOD to **5.296** to allow use by BC & PM. MOD **5.300** to allocate 582-790 MHz to secondary FS in some countries.		Primary allocation to MS, except AMS, in 614-694 MHz. MOD **5.296** to permit use of BC & PM in 470-694 MHz.	**Remarks**
E	Method appears incomplete, though it allocates (in TFA) 470-694 MHz to primary MS, except AMS. No. 5.P15 limits allocation for transmission from BS to MS & applns ancillary to BC & PM subject to RES **[J15-METHOD E]** – which is yet to be developed. SUP **5.296**									**Remarks** *Downlink only*
F	Secondary allocation (in TFA) to MS, except AMS, in the band 470-694 MHz in R1. MOD **5.296** to permit use of 470-694 MHz by BC & PM under MS allocation.									**Remarks** *Secondary allocation*
G	Primary MS allocation in TFA in the band 470-694 MHz in R1. MOD to **5.304** allocates use of 608-614 to RAS, but it cannot claim protection from BC. MOD to **5.306** refers to countries listed under **5.304**. This method to be used with method B, alt B3.									**Remarks** *RAS*
All Methods, except A2	SUP RES **235** (**WRC-15**).									

SUMMARY

- WP5D agreed on a new name – “IMT-2030” (Res 56)
- Approve the IMT new Vision Recommendation (SG5) to conclude on ITU-R Resolutions 56 + 65 in RA-23
- All IMT related CPM texts agreed and submitted
- Several of CPM text of the AIs are complex
- More work/discussion on alternatives/views expected at the CPM23-2 in March/April