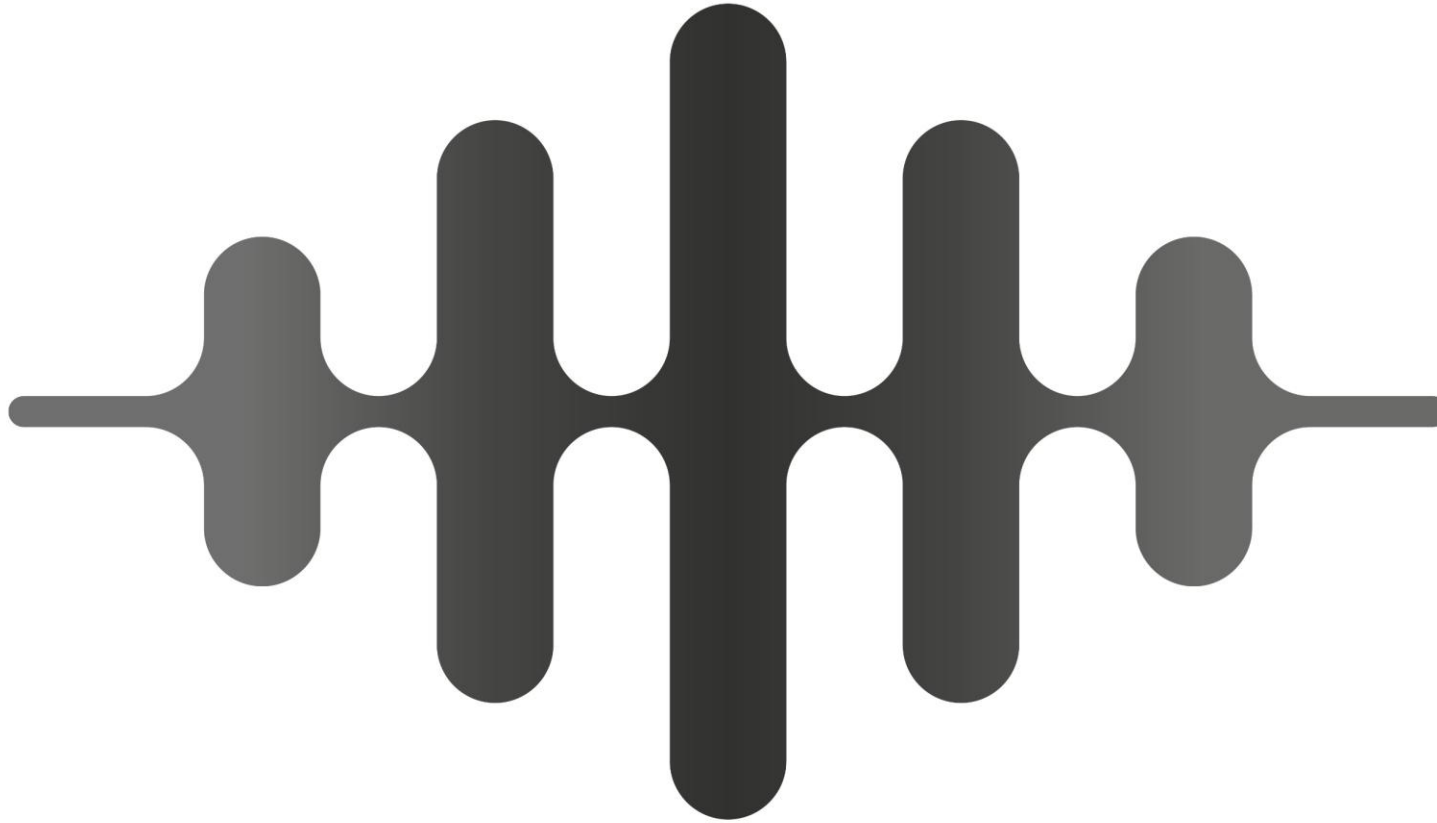
32ND ITU WORLD
RADIOCOMMUNICATION SEMINAR

ITUWRS GENEVA2026

7–11 December 2026
Geneva, Switzerland

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ITU

Introduction to BSS & FSS Plans



ITU Constitution Articles 44 and 45

- Radio frequencies and any associated orbits are limited natural resources
- Must be used rationally, efficiently and economically in conformity with the Radio Regulations (RR)
- To have equitable access to those resources

- Not to cause harmful interference to services operating in accordance with the RR

Two Different Approaches

Coordination

- First come, first served based on current requirements
- Efficient / economical
- Latecomers may have no access if early users have used all resources

Plan

- Distribution of resources based on current and future requirements
- Equitable access

Space Plans

To guarantee equitable access, Space Plans reserve capacity for future use by ITU Member States

Not all planned resources are currently in use, but they will not be cancelled and remain protected from harmful interference from other networks

Two Space Plans in the RR

Broadcasting-Satellite Service and Feeder-link Plans (Appendix 30/30A)

- 11.7-12.2 GHz (Region 3)
- 11.7-12.5 GHz (Region 1)
- 12.2-12.7 GHz (Region 2)

- 17.3-18.1 GHz (Regions 1&3)
- 17.3-17.8 GHz (Region 2)

- 14.5-14.8 GHz (Regions 1&3 except Europe)



Fixed-Satellite Service Plans (Appendix 30B)

- 4500 – 4800 MHz
- 10.7 - 10.95 GHz
- 11.2 - 11.45 GHz

- 6725 - 7025 MHz
- 12.75 - 13.25 GHz



Space Plans

Appendix 30

- Article 10: Plan for BSS in Region 2
- Article 11: Plan for BSS in Regions 1 & 3

Appendix 30A

- Article 9: Plan for feeder links in Region 2
- Article 9A: Plan for feeder links in Regions 1 & 3

Appendix 30B

- Article 10: Plan for FSS



Article 10 of AP30

Beam Name

Orbital Position

Boresight Coordinates

Antenna Beamwidth

Max. EIRP

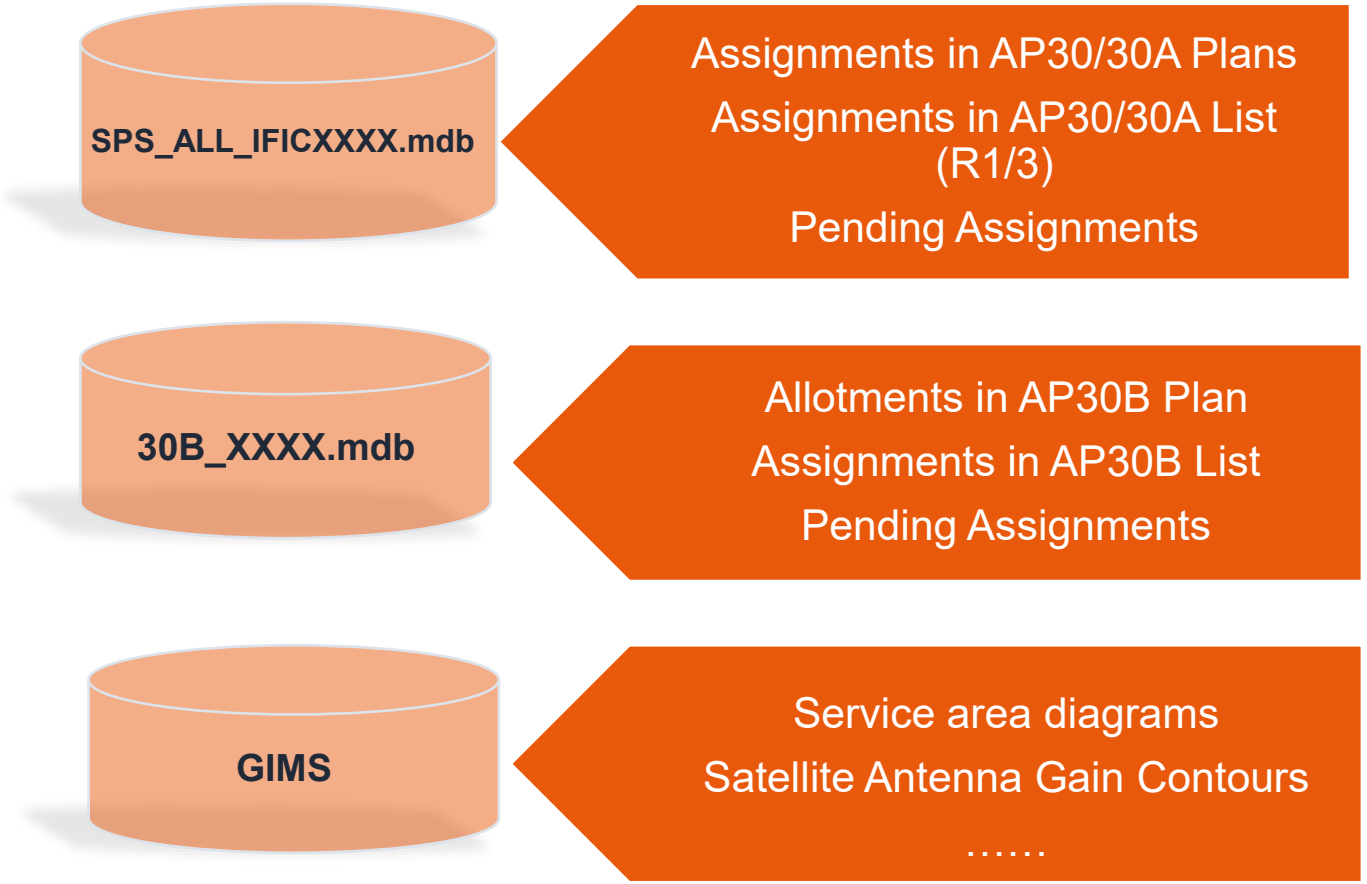
12 224.00 MHz (1)

1	2	3	4		5		6	7	8	9	
ALS00002	−166.20	1	−149.66	58.37	3.76	1.24	170	1	59.7	9/GR1	10
ALS00003	−175.20	1	−150.98	58.53	3.77	1.11	167	1	60.0	9/GR2	10
ARGINSU4	−94.20	1	−52.98	−59.81	3.40	0.80	19	1	59.9	9/GR3	
ARGSUR04	−94.20	1	−65.04	−43.33	3.32	1.50	40	1	60.7	9/GR3	10
B CE311	−64.20	1	−40.60	−6.07	3.04	2.06	174	1	61.6	8 9/GR7	10
B CE312	−45.20	1	−40.27	−6.06	3.44	2.09	174	1	61.0	8 9/GR9	10
B CE411	−64.20	1	−50.97	−15.27	3.86	1.38	49	1	62.6	8 9/GR7	10
B CE412	−45.20	1	−50.71	−15.30	3.57	1.56	52	1	62.7	8 9/GR9	10
B CE511	−64.20	1	−53.10	−2.90	2.44	2.13	104	1	63.0	8 9/GR7	10
B NO611	−74.20	1	−59.60	−11.62	2.85	1.69	165	2	62.8	8 9/GR8	10
B NO711	−74.20	1	−60.70	−1.78	3.54	1.78	126	2	62.8	8 9/GR8	10
B NO811	−74.20	1	−68.76	−4.71	2.37	1.65	73	2	62.8	8 9/GR8	
B SU111	−81.20	1	−51.12	−25.63	2.76	1.05	50	1	62.8	8 9/GR6	10
B SU112	−45.20	1	−50.75	−25.62	2.47	1.48	56	1	62.2	8 9/GR9	
B SU211	−81.20	1	−44.51	−16.95	3.22	1.36	60	1	62.5	8 9/GR6	10
B SU212	−45.20	1	−44.00	−16.87	3.20	1.96	58	1	61.3	8 9/GR9	
BAHIFRB1	−87.20	1	−76.06	24.16	1.81	0.80	142	1	61.6		
BERBERMU	−96.20	1	−64.77	32.32	0.80	0.80	90	2	56.8		
BERBER03	−31.00	1	−64.77	32.32	0.80	0.80	90	1	56.9	2	10
BOLAND01	−115.20	1	−65.04	−16.76	2.49	1.27	76	1	67.9	9/GR5	
CAN01101	−138.20	1	−125.63	57.24	3.45	1.27	157	1	59.5	9/GR10	10
CAN01201	−138.20	1	−112.04	55.95	3.35	0.97	151	1	59.6	9/GR10	10
CAN01202	−72.70	1	−107.70	55.63	2.74	1.12	32	1	59.6		



Databases in BR IFIC

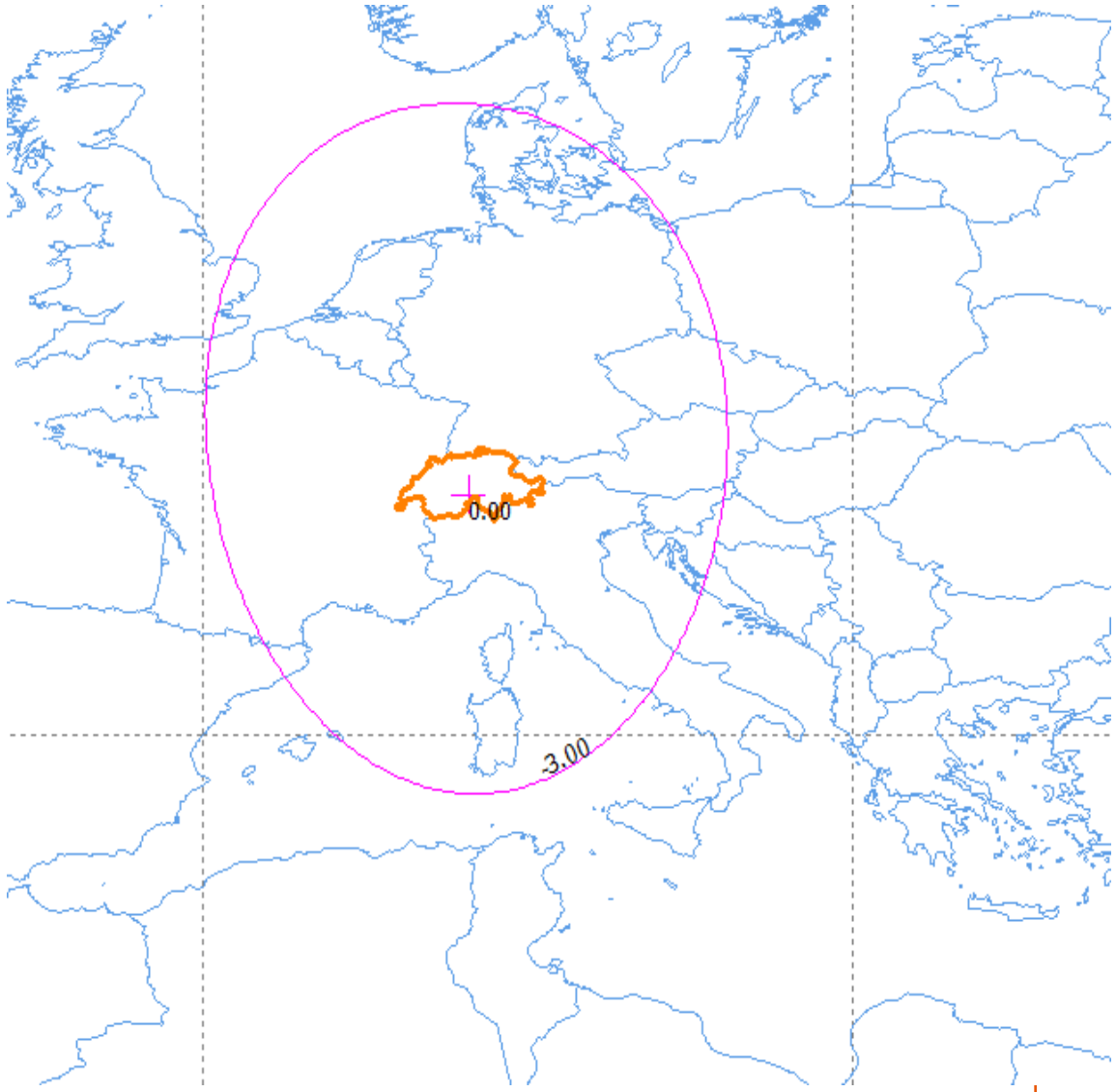
https://www.itu.int/en/ITU-R/space/brific/Pages/default.aspx



Space Plans features (1)

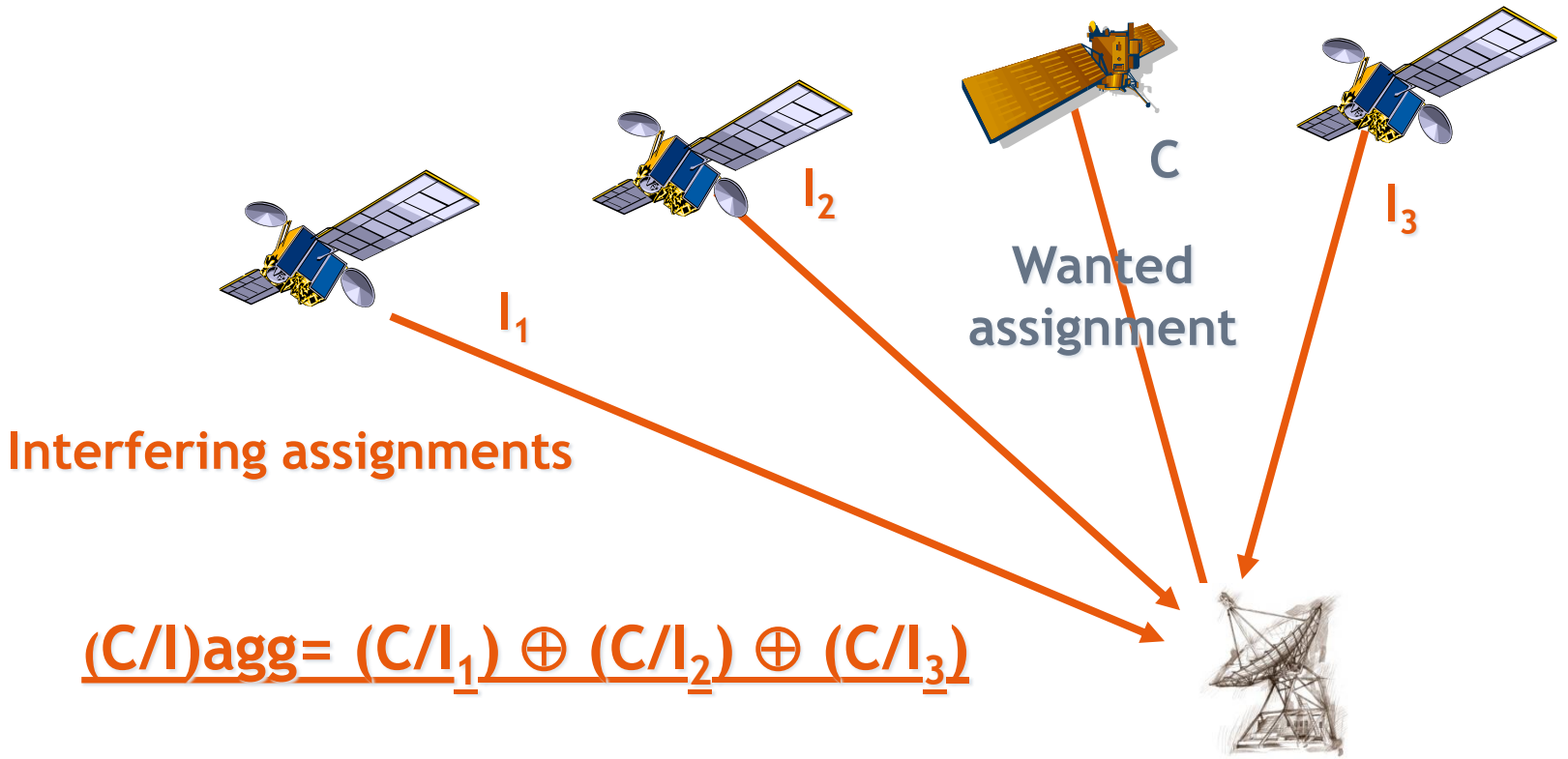
To guarantee equitable access, the beams cover the national territory of each Administration:

- National service area
- National coverage (minimum beams)



Space Plans features (2)

To use the space resources rationally, efficiently and economically, the Aggregate *C/I* method is used to identify potential interference.



Space Plans features (3)

Protection from harmful interference is provided based on the Plan characteristics and NOT on the characteristics entered into the Master Register upon notification. This is different for networks operating in the non-plan frequency bands.

Space Plans features (4)

Standard parameters (assumptions) are used to ensure equity amongst Administrations and possible future use

- Same bandwidth for each beam
- Elliptical beam using a defined space station antenna pattern
- Defined C/N
- Same values of system noise temperature
- Similar power level
- Defined earth station antenna size and pattern

.....

BSS Plans and FSS Plan
Some distinct features

BSS Plans (Appendix 30/30A)

- Plans separated by Regions
- Assignment Plans
- Shared with other space services in other Regions
- **List** for R1&3 only
- Cluster concept in Region 2 Plan

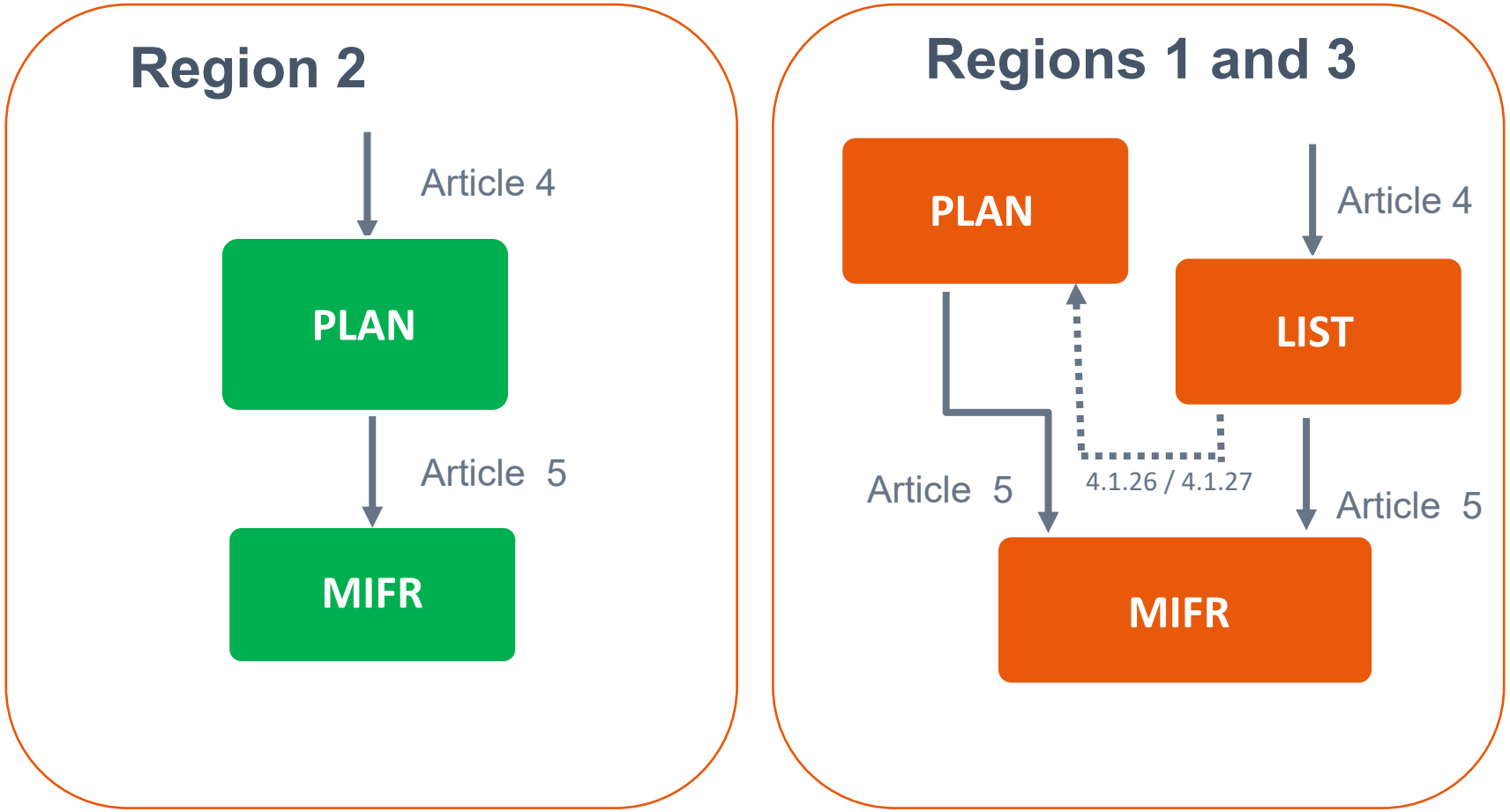
List: *Regions 1 and 3 List of additional uses*

FSS Plan (Appendix 30B)

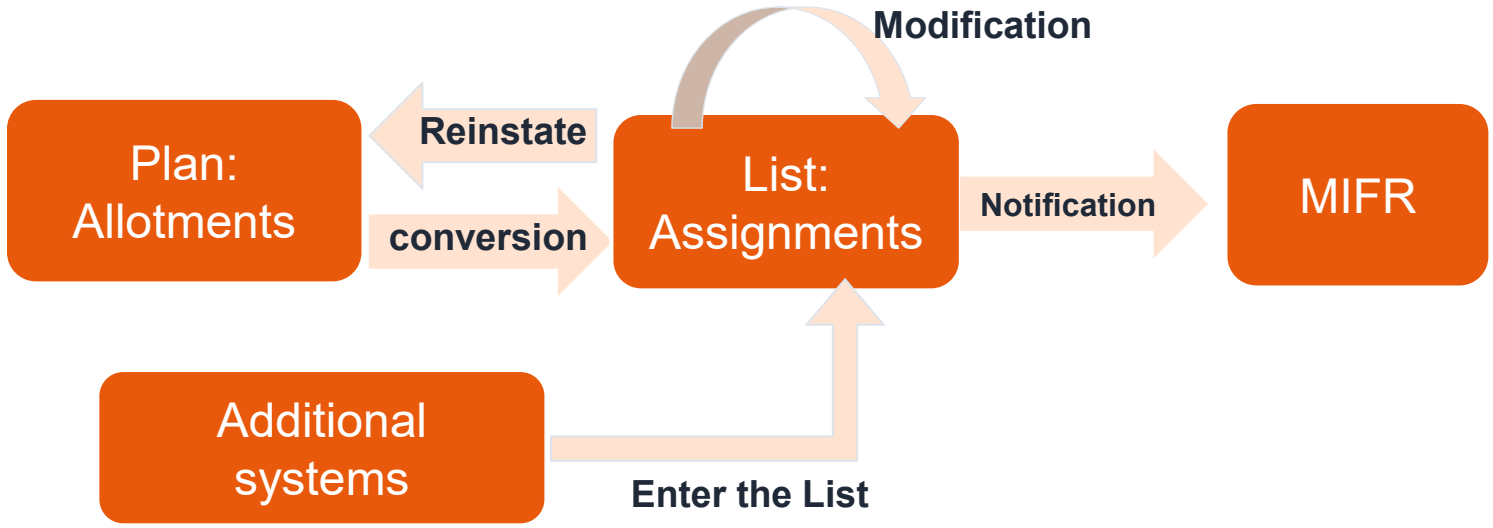
- Worldwide plan
- Allotment Plans (conversion to assignments before use)
- **List** for all 3 regions
- Protection based on grid points in service areas for downlinks

List: *List of assignments*

AP30/30A BSS Plan Procedure

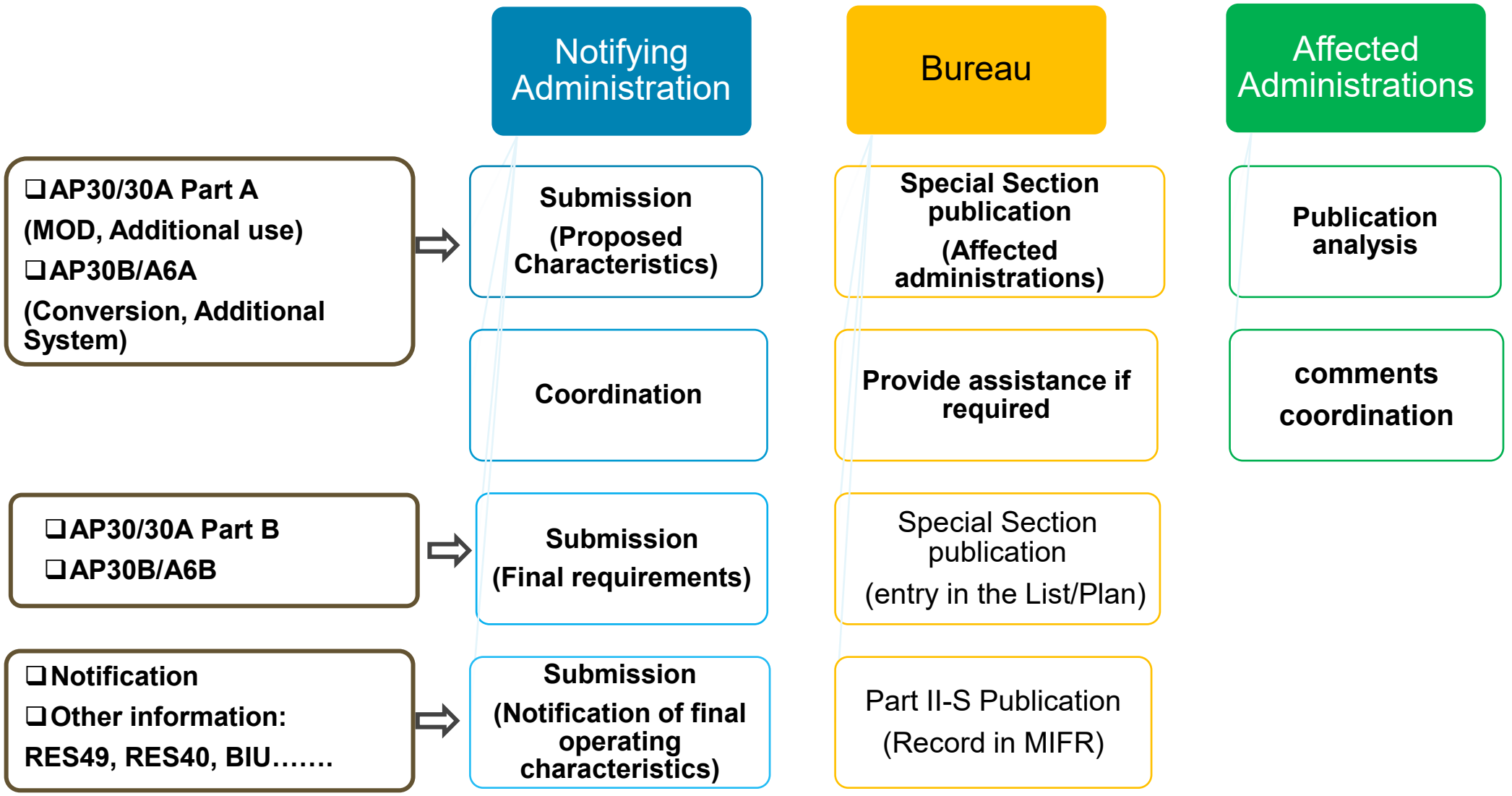


AP30B FSS Plan Procedure



Article 6 of AP30B

Article 8 of AP30B


Notifying Administration
Bureau
Affected Administrations
❑AP30/30A Part A
(MOD, Additional use)
❑AP30B/A6A
(Conversion, Additional System)
Submission
(Proposed Characteristics)
Special Section publication
(Affected administrations)
Publication analysis
Coordination
Provide assistance if required
comments
coordination
❑AP30/30A Part B
❑AP30B/A6B
Submission
(Final requirements)
Special Section publication
(entry in the List/Plan)
❑Notification
❑Other information:
RES49, RES40, BIU…….
Submission
(Notification of final operating characteristics)
Part II-S Publication
(Record in MIFR)

Time limits for Plans

Appendix 30/30A

8 years for completing the procedures in Articles 4&5 of AP30/30A: inclusion in the Plan/List, bringing into use (BIU).

RES 49 information within **30 days** after the BIU deadline.

Confirmation of BIU within **90 days.**

4 months for comments after publication.

Bringing back into use within **3 years** after suspension of Regions 1&3 List assignments.

15 years of operation for R1&3 List.

Appendix 30B

8 years for completing the procedures in Articles 6&8 of AP30B: inclusion in the Plan/List, bringing into use (BIU).

RES 49 information within **30 days** after the BIU deadline.

Confirmation of BIU within **90 days**.

4 months for comments after publication.

Bringing back into use within **3 years** after suspension.

Space Plans, a long HISTORY

- WARC-77 established the Regions 1&3 BSS Plan
- RARC-83 established the Region 2 BSS and associated feeder-link Plan
- WARC ORB-85 incorporated the Region 2 BSS and associated feeder-link Plan into the Radio Regulations
- WARC ORB-88 established the FSS Plan and Regions 1 & 3 BSS feeder-link Plan
- WRC-97 revised the Regions 1&3 BSS and associated feeder-link Plans
- WRC-2000 revised the Regions 1&3 BSS and associated feeder-link Plans
- WRC-07 revised the FSS Plan standard parameters, procedure and protection criteria

WRC-12, WRC-15 and WRC-19 revised provisions in order to improve the procedures and consider the development of technology

WRC-19 approved Resolution **170** and Resolution **559**

Modifications to Plans Made by WRC-23

Application of RES. 559

- Approved 40 new entries in AP30/30A Plans to replace 40 corresponding degraded entries
- Addition of one new entry for a new ITU Member State

MOD to AP30B Plan

- Addition of 8 new entries to the AP30B Plan and consequent modification of one allotment

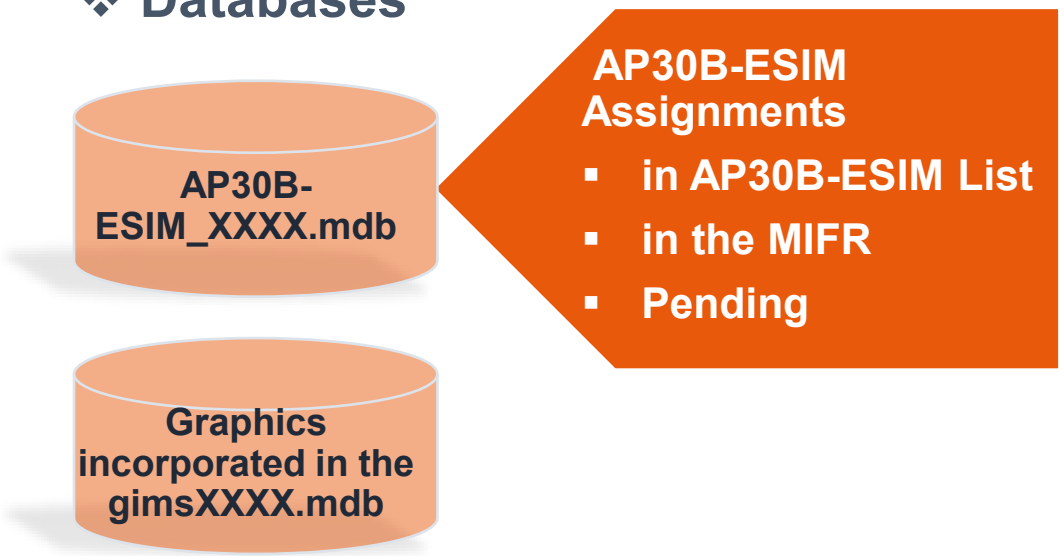
Some Modifications to Provisions made by WRC-23

- Resolution **121**: Use of 12.75-13.25 GHz (one of the AP30B bands) by earth stations in motion (ESIM) on aircraft and vessels
- Modification to Article 7 of AP30B (with the addition of a new Annex) to help new Member States obtain new allotments in the FSS Plan
- New provisions in AP30A (R1&3) for excluding the territory of an objecting Administration from the feeder-link service area of a network with possible relocation of feeder-link test-points
- New provisions in AP30A/AP30B to enhance frequency compatibility in feeder links/uplinks
- Introduction of a “Special Agreement” mechanism to ensure the protection of assignments/allotments in the AP30/30A (R1&3) and AP30B Plans, and to allow restoration of the degraded reference situation of an allotment in the AP30B Plan (Resolution **126**)

Resolution 121

Use of 12.75-13.25 GHz by earth stations in motion (ESIM) on aircraft and vessels

❖ Databases



❖ Procedure for notification

Initial characteristics	• AP30B-ESIM/A/ and • AP30B-ESIM/D/ *
final characteristics	• AP30B-ESIM/B/
notification	• Part I-S • Part II-S • Part III-S

*AP30B-ESIM/D/: Publication of final coordination requirements for other AP30B-ESIM networks only. For Appendix **30B** networks, see Tables 1 and 2 of AP30B-ESIM/A/.

Do we need more Space Plans? (1)

Should more radio-frequency spectrum be used for planned space services?

For the Broadcasting-Satellite Service (BSS) in the 21.4–22 GHz band in Regions 1 and 3, **Resolution 553 (Rev.WRC-23)** introduces additional regulatory measures to promote equitable access, rather than establishing a new plan.

Key measure: Priority treatment is given to the first submission from an Administration to enhance equitable access.

Do we need more Space Plans? (2)

Do we need a plan for Non-GSO Constellations?

A key challenge for equitable access to space resources

- **Evolving landscape:** Large non-GSO constellations introduce new challenges due to the number of satellites, moving orbital geometries and extensive spectrum requirements.
- **Challenge:** How to promote equitable access to both GSO and non-GSO resources.
- **Key question:** Do existing regulatory mechanisms ensure equitable access in the era of large non-GSO constellations?

Resolution 131 (WRC-23) calls for consideration of regulatory and technical measures to support equitable access to specified high-frequency FSS bands.

General information relating to Space Plan services:

http://www.itu.int/ITU-R/go/space-plans/en

Thank you!

ITU – Radiocommunication Bureau
Questions to brmail@itu.int or jian.wang@itu.int