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Organised by:



Planned Satellite Services (BSS & FSS SERVICES) ITU Constitution

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The fundamentals: ITU Constitution

Article 44

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

Article 452

- ✓ **Not to cause harmful interference** to the service operating in accordance with the Radio Regulations.

The mechanism to control interference is within

the Radio Regulations

(RR) which contains:

- ✓ The allocation of frequency bands and services.
- ✓ The process of Coordination / Planning.
- ✓ The technical and operational limits to apply to avoid interference.



It is used during:

- ✓ Licensing of frequencies and orbital locations.
- ✓ Monitoring the frequency emissions over a territory.



Planning Approach the “Space Plans”

The Space Plans have been established for certain space services and frequency bands in order to facilitate equitable access to a certain part of the frequency/orbit resource.

Broadcasting-Satellite Service and feeder-link Plans

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 (Region 1&3),
17.3-17.8 GHz (Region 2),
14.5-14.8 GHz (Region 1&3
except Europe)



Cf. RR book 2 Appendices 30/30A
(So called BSS Plan or AP30/30A)

Fixed Satellite Service Plans

4.5 - 4.8 GHz,
6.725 - 7.025 GHz,
10.7 - 10.95 GHz
11.2 - 11.45 GHz,
12.75 - 13.25 GHz



Cf. RR book 2 Appendix 30B
(So called FSS Plan or AP30B)

Space Plans, a long HISTORY

Several World Radio Conferences between 1977 and 2007 were held to establish and revise the Space Plans:

- **WARC-77 established the Region 1&3 BSS Plan**
- **RARC-83 established the Region 2 BSS and associated feederlink Plan**
- **WARC ORB-85 included the Region 2 BSS and associated feederlink Plan into the Radio Regulations**
- **WARC ORB-88 established the FSS Plan and Region 1 &3 BSS feederlink Plan**
- **WRC-97 revised the Region 1&3 BSS and associated feederlink Plans**
- **WRC-2000 revised the Region 1&3 BSS and associated feederlink Plans**
- **WRC-07 revised the FSS Plan**

More documents about conferences are available at the ITU History Portal:
<http://www.itu.int/en/history/Pages/ConferencesCollection.aspx>



Space Plans Features and Parameters

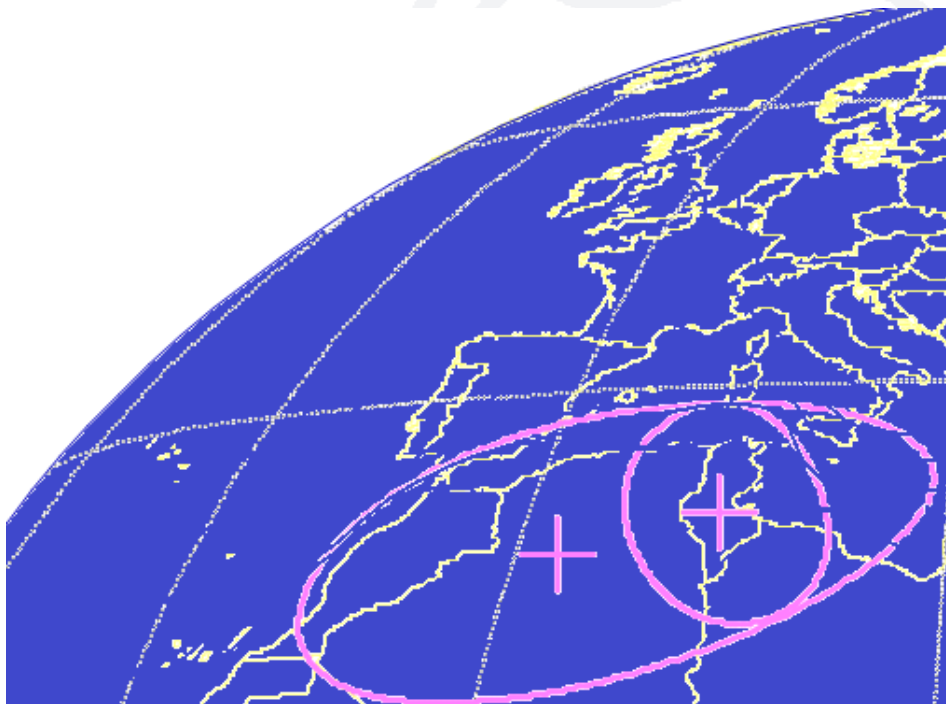
Space Plans features (1/4)

To guarantee equitable access, it is based on a reservation of capacity for future use by the ITU Member States:

- Not all Plan assignments are currently in operation BUT will not be cancelled and are protected from harmful interference from other networks
- Standard parameters (assumptions) are required to ensure equity amongst Administrations and possible future use

Space Plans features (2/4)

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

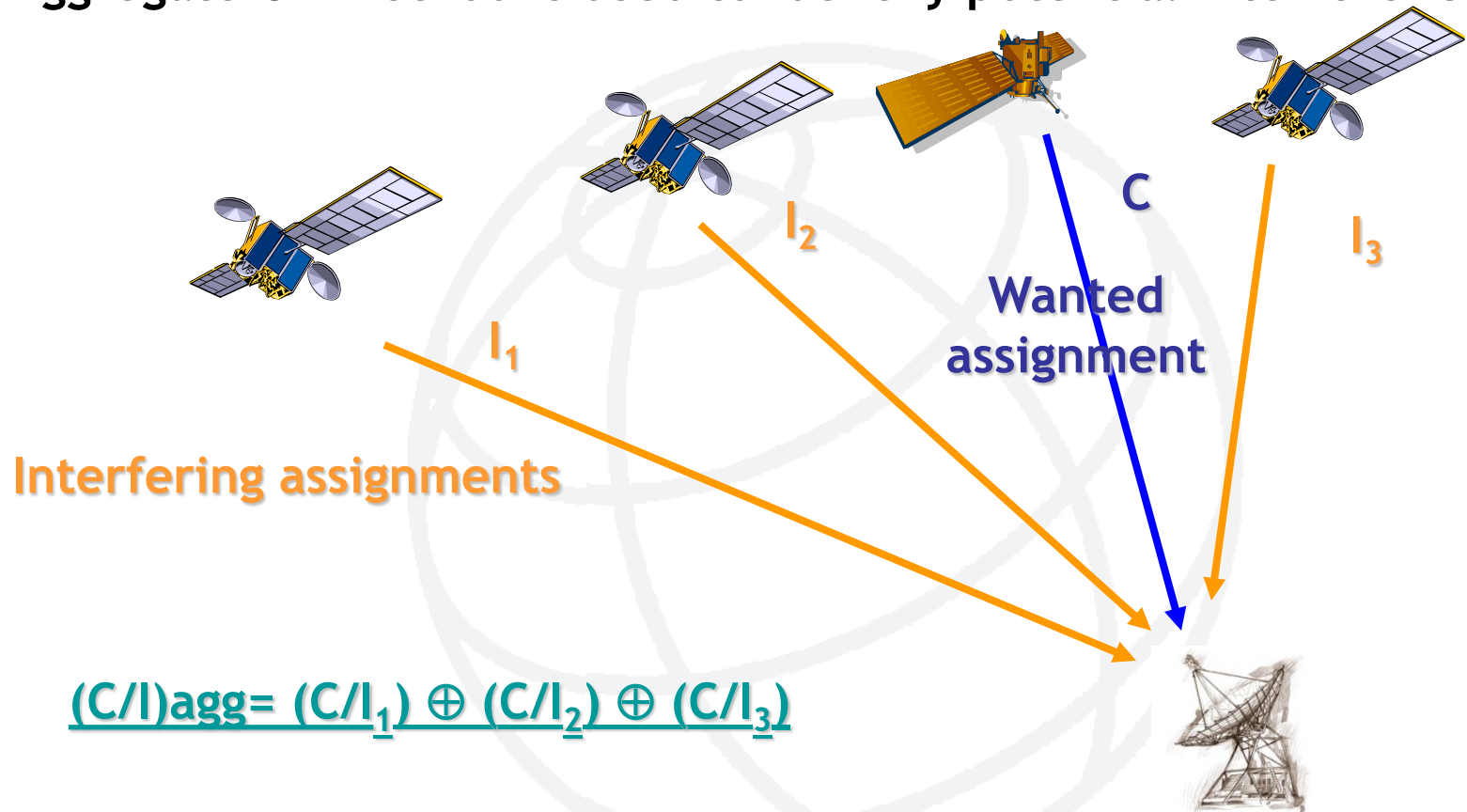


Space Plans features (3/4)

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

Space Plans features (4/4)

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



The Space Plan of an Administration

Standard parameters

Main assumptions (with some exceptions)

- Same amount of frequency band for each beam
- National coverage
- Elliptical beam using defined space station antenna pattern
- Defined C/N
- Same values of system noise temperature
- Similar power level
- Defined earth station antenna size and pattern
- Defined Aggregate C/I

BSS Plan and FSS Plan

Some distinct features

APPENDICES 30/30A – BSS Plan

- **Plans separated by Regions**
- **Shared with other space services in other Regions**
- **Coordination Arc, Lists for R1&3**
- **Cluster concept in Region 2 Plan**

APPENDIX 30B – FSS Plan

- **World wide**
- **Allotment (conversion to assignment)**
- **Together with Single Entry criteria**
- **Protection based on grid points in service areas for downlinks**

Space Plans procedure

Space Plans and operational systems

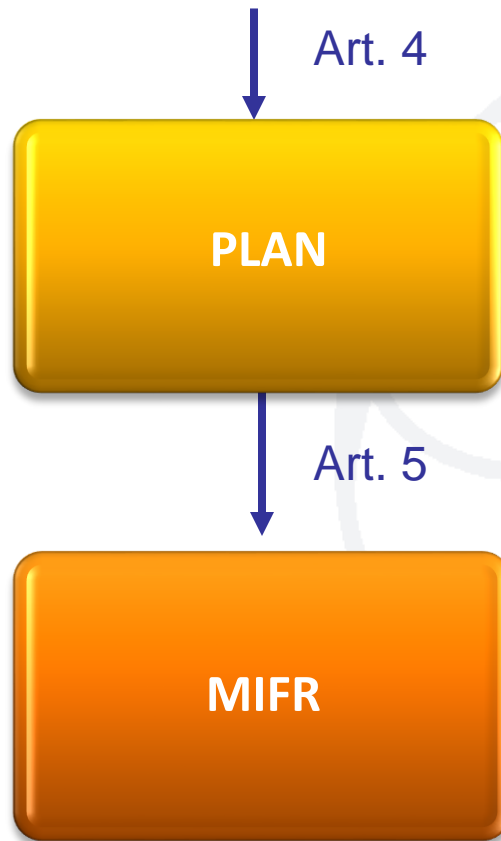
3 status possible for the frequency



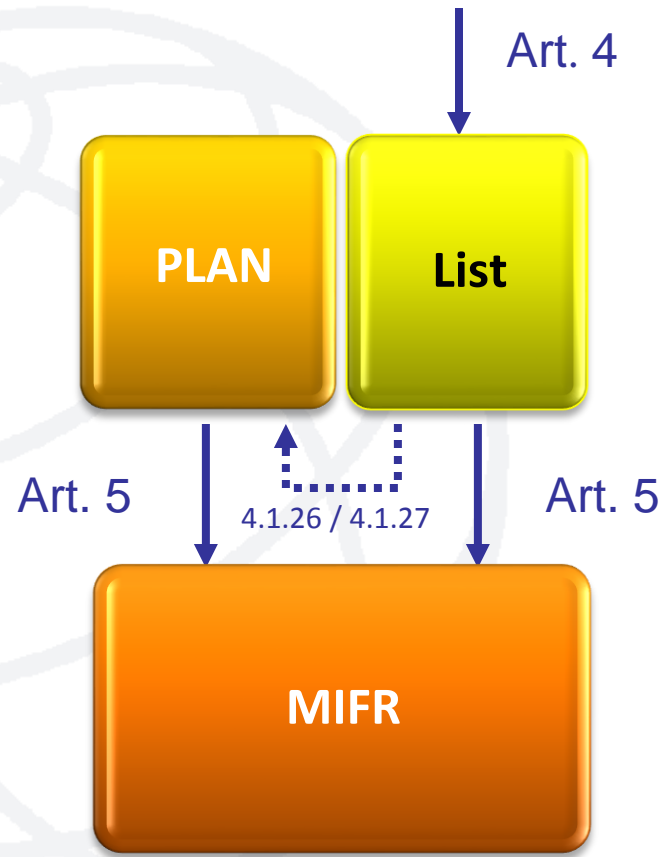
The Articles and the Appendices of the Radio Regulations establish the procedures to fulfill in order to enter the allotments/assignments in the Master Register (MIFR) whenever they are brought into use.

AP30/30A BSS Plan Procedure Summary

Region 2

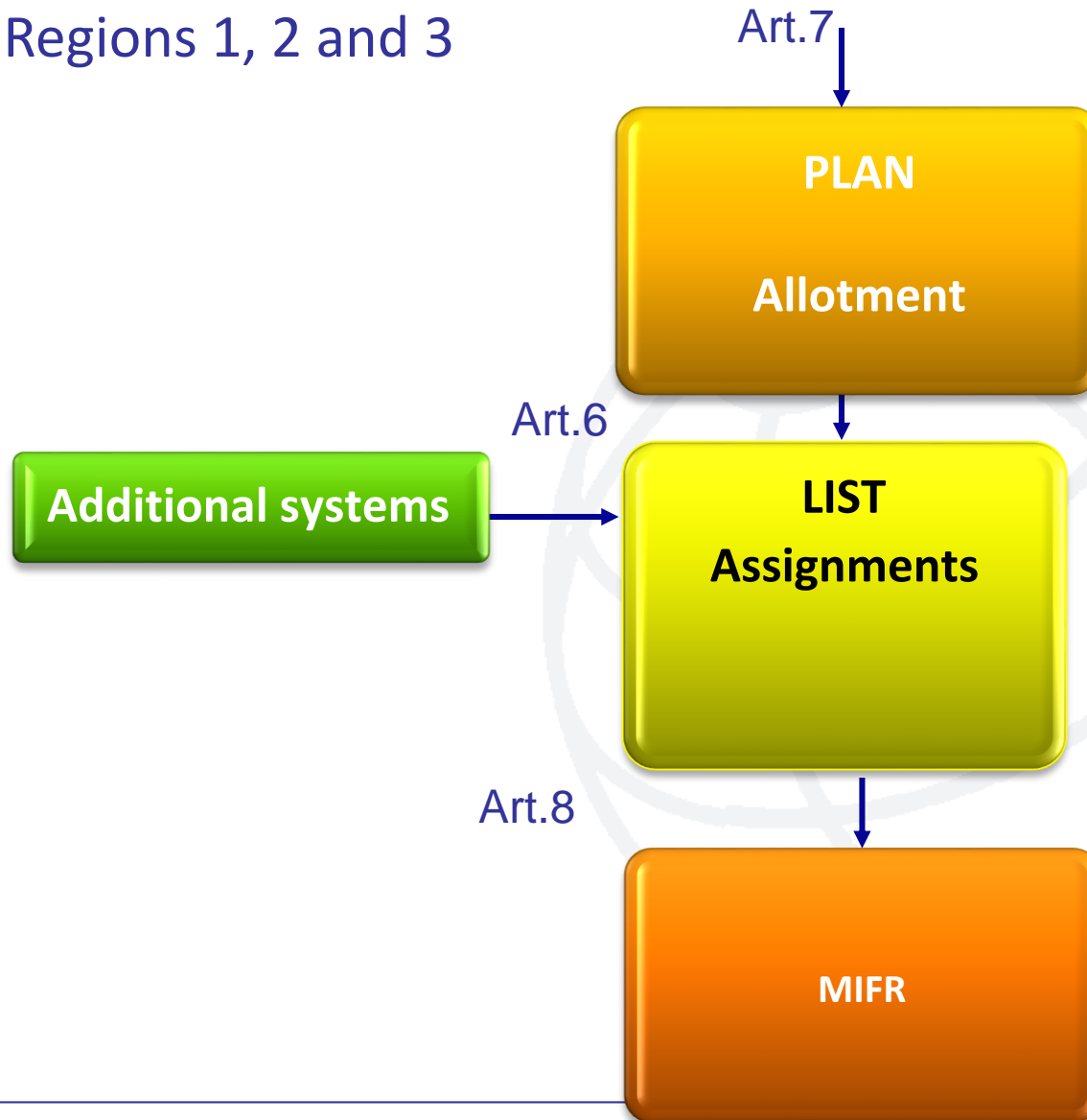


Regions 1 and 3



AP30B FSS Plan Procedure Summary

Regions 1, 2 and 3

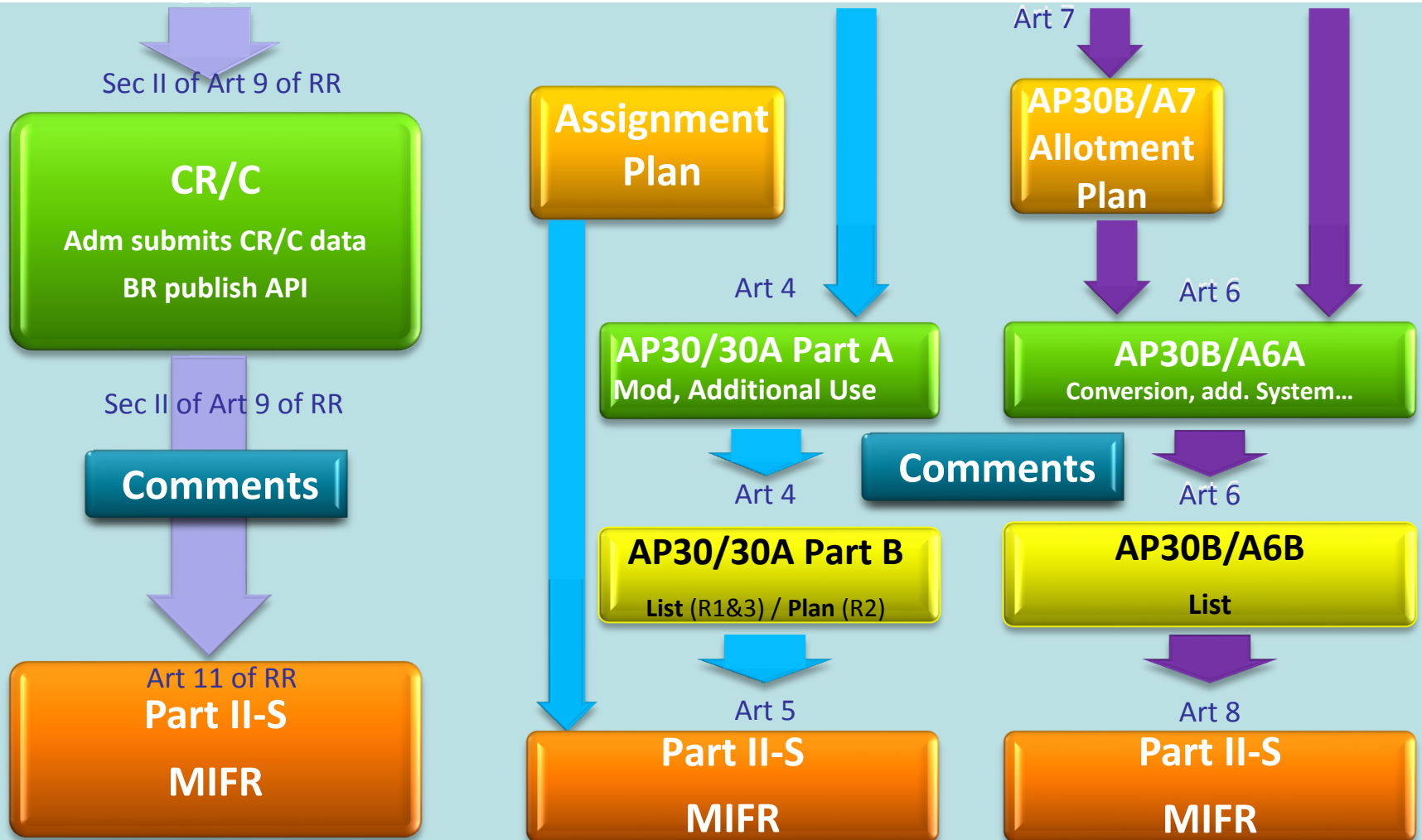


Plan and non-Plan – Procedures and Publications in BR IFIC

Non Plan BSS/FSS GSO

APPENDICES 30/30A

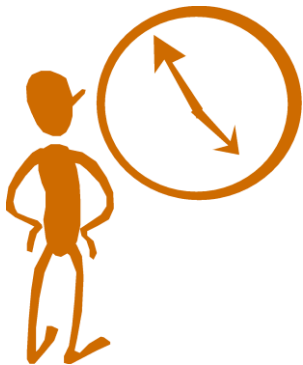
APPENDIX 30B



Plan and Non Plan procedures

	Non Plan FSS GSO	AP30/30A (R1/3)	AP3B (Additional uses)
Regulatory Period	7 years	8 years	8 years
Res. 49	Yes	Yes	Yes
Coordination Publication	CR/C	Part-A	A6A
Inclusion in the List	NA	Part-B	A6B
Notification	Yes	Yes but not for protection	Yes but not for protection
Service Area	Any	Any with agreement	Any with agreement
To be compatible with	Previously filed	Assignments in the Plan/List, previously filed	Allotment, List, previously filed
Identification	Both direction Single entry	One direction Single entry and aggregate	One direction Single entry and aggregate
No comment within 4 months after publication	Assistance No.9.60	Assistance §4.1.10 of AP30/30A (WRC-15)	Assistance §6.13 of AP30B

Space Plans Procedure Highlights



Deadlines to track



**Commenting to
protect existing
assignments**

Tracking Regulatory deadlines for Plans

APPENDICES 30/30A

4 months for comments

8 years for bringing into use, inclusion in the Plan/List, Res.49 not later than **3 months** before DBIU for notification

3 years after suspension for Region 1&3 List assignments (Rev.WRC-12)

90 days for confirmation of DBIU

15 years for R1&3 List

APPENDIX 30B

4 month for comments

30 days after §6.13 assistance
8 years for bringing into use, inclusion in the List, notification, Res.49

3 years after suspension (Rev. WRC-12)

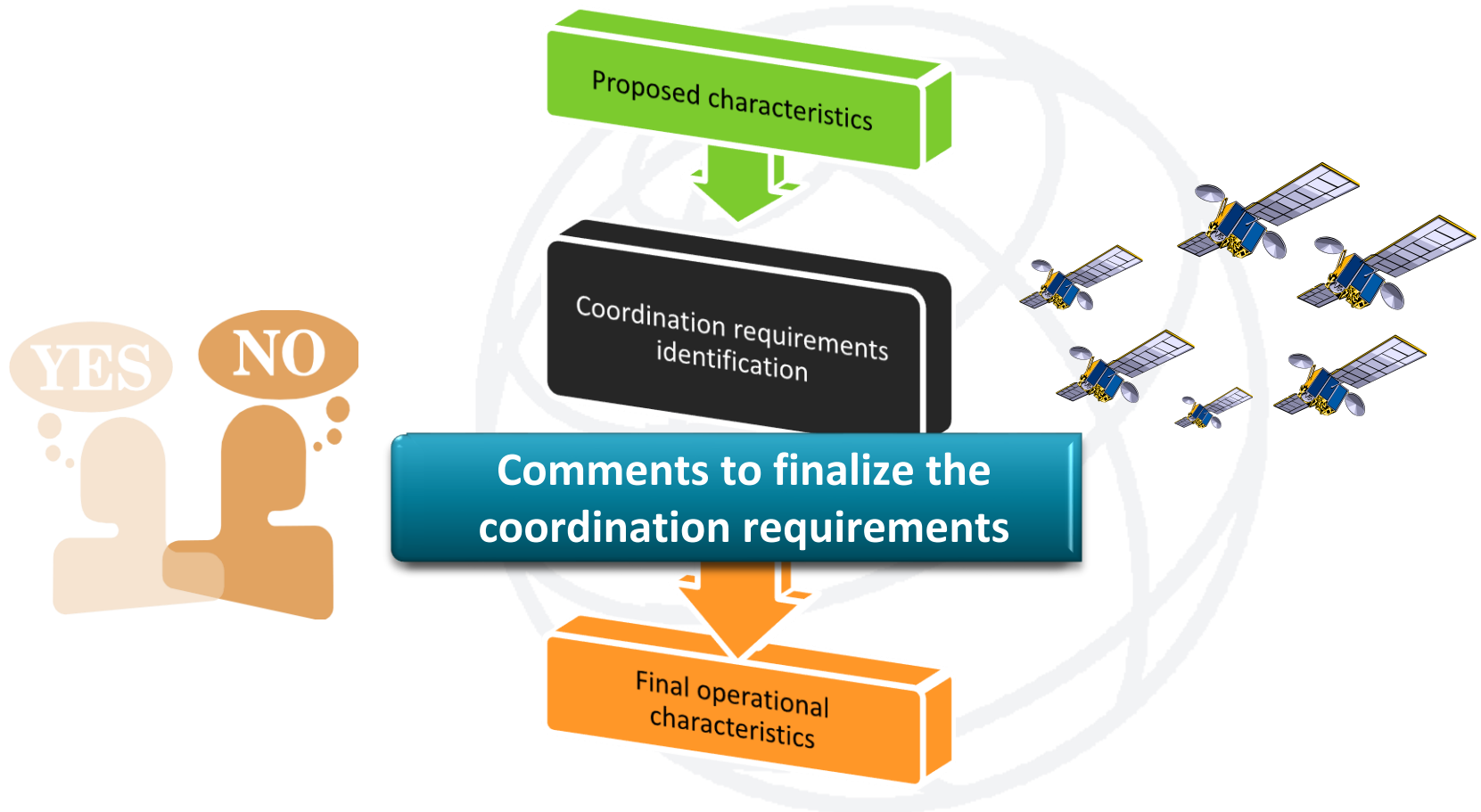
90 days for confirmation of DBIU



Commenting to be protected

APPENDICES 30/30A
BSS GSO

APPENDIX 30B
FSS GSO

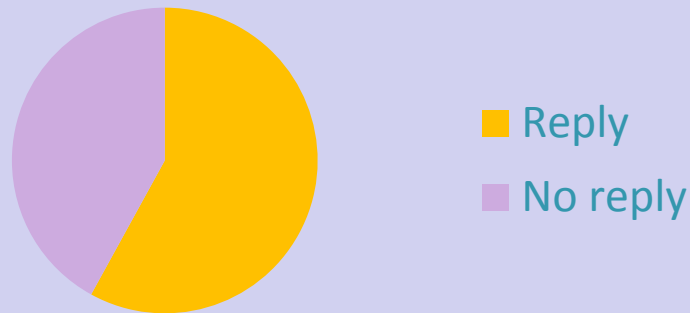


Importance of making comments

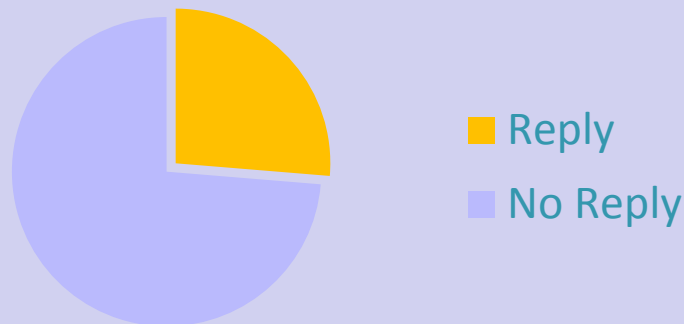
How many administrations respond?



- ✓ Response rate for AP30/30A after Part A Special Sections



- ✓ Response rate for AP30B after BR assistance under § 6.13



5 key points to remember

- **Plans ensure equitable access and equitable use of frequency and orbital resources**
- **Plan and non-plan procedures have similarities and differences**
- **In the Radio Regulations, Appendices 30/30A/30B contain the Plan/List/MIFR processes and definitions**
- **Processing deadlines should be carefully tracked**
- **It is important to comment when your Administration is identified as potentially affected by new assignments**

Major WRC-15 decisions on Plans (1/6)

- As from 01.01.2017, Administrations can submit up to **100 test points for each service area (Appendices 30/30A/30B)**. (cf Appendix 4 item C.11.a)

Before 01.01.2017				After 01.01.2017			
<u>Satellite Beam 1</u>				Satellite Beam 1			
Grp 1	20 TP	<u>Area 1</u>		Grp 1	<u>100 TP</u>	<u>Area 1</u>	
Grp 2	20 TP	Area 2					
Grp 3	20 TP	Area 3					
Grp 4	20 TP	Area 4					
Grp 5	20 TP	Area 5					

Major WRC-15 decisions on Plans (2/6)

- **Commenting Procedure for Regions 1 and 3 (Appendices 30 and 30A)**
 - ✓ **Implicit agreement has been replaced with Explicit agreement**
 - ✓ Applied to Article 4 networks (Part A) and Article 2A networks published as of 01.01.2017 (cf Circular Letter CR/400 of 13 May 2016)
 - ✓ No submission of comments with SpaceCOM
 - ✓ Similar to Appendix **30B** commenting procedure

4.1.10 An administration that has not notified its agreement either to the administration seeking agreement or to the Bureau within a period of four months following the date of the BR IFIC referred to in § 4.1.5 shall be deemed to have **NOT AGREED** to the proposed assignment unless the provisions of § 4.1.10a to 4.1.10d and § 4.1.21 are applied.

Major WRC-15 decisions on Plans (3/6)

- ALL analogue assignments contained in the Regions 1 and 3 Plan and List will be converted to digital assignments (Res. 556 (WRC-15))
 - ✓ Circular Letter CR/400 of 13 May 2016
 - ✓ **SPS_ALL_2836** database in BR IFIC 2836 of 10 January 2017
 - ✓ Article 4 networks in Regions 1 and 3 submitted after 01.01.2017 can contain wideband digital carriers (i.e. greater than 85 MHz)

Major WRC-15 decisions on Plans (4/6)

- Agreement provided under § 4.1.11 of Appendices 30 and 30A in case of increase of interference due to modified characteristics
 - ✓ If Part B causes more interference than Part A:
 - ✓ BR requests the notifying administration to:
 - Modify Part B so that it causes less interference than Part A; or
 - Provide an agreement in this regard.

WRC-15 confirmed the practice of the Bureau to accept an agreement provided under § 4.1.11

Major WRC-15 decisions on Plans (5/6)

➤ 14.5-14.8 GHz:

- ✓ Before WRC-15, the use of this band by FSS (Earth-to-space) was limited to feeder-links for the broadcasting-satellite service outside Europe.
 - *In Regions 1 and 3: Associated BSS feeder-link subject to Appendix 30A*
 - *In Region 2: non-planned BSS feeder-link subject to Articles 9 and 11*

- ✓ After WRC-15, this band can also be used for FSS (not just for BSS feeder-link):
 - **14.5-14.75 GHz (250 MHz) in certain countries in Region 2 as indicated in Res. 163**
 - **14.5- 14.8 GHz (300 MHz) in certain countries in Region 3 as indicated in Res. 164**
 - *Coordination between Article 4 networks in Regions 1 and 3 with respect to this new FSS allocation: **Delta T/T***
 - **Coordination between New allocation with respect to Plan/List: Uplink PFD trigger limits. (Section 3 of Annex 4 to Appendix 30A)**

Major WRC-15 decisions on Plans (6/6)

- Notifying administrations shall submit to the Bureau separate notices for Articles 6 (A6B) and 8 (Notification) (Appendix 30B).
- Bringing into use, suspension & resumption procedures aligned with non-planned band procedures.

Thank you

<http://www.itu.int/ITU-R/go/space-plans/en>
General information relating to Space Plan services

