

United States of America

Draft Proposals for the Work of the WRC-15

**AGENDA ITEM 7** to consider possible changes, and other options, in response to Resolution 86 (Rev. Marrakesh, 2002) of the Plenipotentiary Conference, an advance publication, coordination, notification and recording procedures for frequency assignments pertaining to satellite networks, in accordance with Resolution **86 (Rev.WRC-07)** to facilitate rational, efficient, and economical use of radio frequencies and any associated orbits, including the geostationary-satellite orbit;

**ISSUE:** Issue [C] – Review of the orbital position limitations in Annex 7 to Appendix 30

**BACKGROUND:**

Appendix **30** contains provisions for use of the BSS Plans and Regions 1 and 3 List, as well as for modifying the Plan (in the case of Region 2) or the List (in the case of Regions 1 and 3). It is a self-contained Appendix, including provisions for modifying the Plan or List (Article **4**), notifying Plan or List assignments and for coordinating other services in the frequency bands vis a vis the Plan and List (Articles **6** and **7**). Appendix **30** also contains detailed criteria for sharing between the Plan/List and other services. In particular, the relevant provisions and associated technical criteria are:

- Article **4** of Appendix **30** → procedure for proposed modifications to the BSS Plan or List to coordinate with unplanned FSS or BSS.
- Article **7** of Appendix **30** → procedure for unplanned BSS or FSS networks to coordinate with BSS Plan or List assignments or previously filed modifications to the Plan or List.
- Annex 1 to Appendix **30** → criteria to determine if a proposed modification to the BSS Plan or List needs to coordinate with unplanned FSS or BSS networks.
  - The criteria here is a power-flux density (pfd) mask.
- Annex **4** to Appendix **30** → criteria to determine if an unplanned FSS or BSS network needs to coordinate with the BSS Plan or List assignments or previously filed modifications to the Plan or List.
  - The criteria here is a pfd mask.
- Annex 6 to Appendix **30** → summary of the assumptions used to develop the power flux density (pfd) levels contained in Annexes 1 and 4 to Appendix **30**.
- Annex 7 to Appendix **30** → orbital position limitations on modifications to the BSS Plan or List; specifically applicable to Region 2 BSS in 12.2-12.7 GHz and to Region 1 BSS in 11.7-12.2 GHz. Annex 7 also contains associated e.i.r.p. limits for Region 1 BSS in a portion of the arc.

Annex 6 is particularly useful in understanding the derivation of the Annex 1 and 4 pfd limits, with respect to the earth stations considered and the desired  $\Delta T/T$  value.

The focus of the present review is on the orbital position limitations on modifications to the BSS Plans and List contained Annex 7 to Appendix 30. These limitations were designed to facilitate sharing with the fixed-satellite service (FSS) in the shared part of the orbital arc between the Regions. In the Ku band frequencies, the BSS allocations are not global, so, for example, 11.7-12.2 GHz is BSS in Region 1 and FSS in Region 2. These orbital position limitations were maintained at WRC-2000 during the last Regions 1 and 3 planning conference, as during a planning conference, many new BSS slots could be adopted at once which could significantly limit the future access of FSS to the shared portion of the orbital arc.

Based on a review of the studies regarding the orbital separations allowed between BSS and FSS from the coordination triggers in Annexes 1 and 4 of Appendix 30, representative BSS and FSS systems serving different regions can exist successfully with orbital separations as small as 0.5 and 2 degrees, depending on the carrier parameters and geographic discrimination assumed. These small orbital separations suggest that additional measures, such as the orbital position limitations in Annex 7, are no longer needed outside of a planning conference.

Other factors to consider include:

- Both BSS and FSS may proceed at the same time to access the shared orbit resource outside of a planning conference.
- Special consideration may need to be given to operational systems implemented under the Annex 7 regime.
- Parity between the regions and services – BSS is subject to orbital position limitations while FSS in the same frequency bands are not.

## **PROPOSAL:**

Suppress Paragraph A of Annex 7 of Appendix 30 of the Radio Regulations

Reason: Representative BSS and FSS systems serving different Regions can exist successfully with orbital separations as small as 0.5 and 2 degrees, depending on the carrier parameters and geographic discrimination assumed and therefore Annex 7 to Appendix 30 is no longer necessary.