United States of America

DRAFT PROPOSALS FOR THE WORK OF THE CONFERENCE

Agenda Item 1.2 (Res. 746, resolves 1) to invite ITU-R to conduct sharing analyses between geostationary meteorological satellites operating in the space-to-Earth direction and the fixed, fixed-satellite and mobile services in the band 18.0-18.4 GHz to define appropriate sharing criteria with a view to extending the current 18.1-18.3 GHz geostationary meteorological satellite allocation in the space-to-Earth direction to 300 MHz of contiguous spectrum.

Background Information

Presently the meteorological satellite (MetSat) service is allocated by footnote 5.519 in the band 18.1-18.3 GHz. The band is allocated on a primary basis to the Fixed Satellite Service (FSS), the Fixed Service and the Mobile Service in all three Regions and these allocations also exist for these same services in the band 17.8-18.1 GHz in all regions. In both bands the FSS is allocated in both the space-to-Earth and Earth-to-space directions. Additionally, in 18.1-18.4 GHz band the FSS (space-to-Earth) allocation has associated with it Nos. 5.484A and 5.516B. The first provision applies to non-Geostationary satellite systems. However, the latter provision states that the band 18.3-19.3 GHz has been identified for use by high-density applications in the Fixed Satellite Service in Region 2.

WP-7B has been the lead ITU-R group concerned with analyzing the sharing potential with other services in the band and it has exchanged several Liaison Statements with WP-4A. As a consequence of the information provided by WP-4A, those involved in the design of the next generation meteorological satellite service have optimized the design to maximize the level of homogeneity between FSS and Metsat systems. It is envisioned that this would maximize compatibility and facilitate coordination for operation of both type of systems in the space-to-Earth direction.

In accordance with No. 5.516 the band 18.0-18.1 GHz in the Earth-to-space direction is used for feeder links for the Broadcasting Satellite Service. Compatibility studies have been performed to estimate the typical required separation distances in reverse band sharing situations between receiving MetSat earth stations and transmitting BSS feeder uplink stations. In the worst case, it has been determined that around 40 km separation is required. Therefore it is expected that with some care in situating the limited number of MetSat receive stations international coordination would rarely be required.

In Region 2, GSO FSS satellite networks in the band 18.3-18.4 GHz have been developed and are being deployed which, as a consequence of a 2 degree spacing requirement, will employ earth stations with a minimum diameter on the order of 0.65 meters. Such earth stations are being deployed ubiquitously under “blanket” authorization regulations. Under such an arrangement, these “HDFSS” type earth stations may be deployed anywhere without a requirement for coordination. In addition, it is expected that the number of systems being deployed will grow significantly over the next several years.

This type of implementation could lead to possible concerns or difficulties in identifying suitable locations for MetSat satellites and/or receive stations.

While the expected design of the MetSat satellite networks envisioned for operation in the 300 MHz wide band appears to be generally compatible with FSS systems being implemented, it would appear that, for Region 2, operating MetSat systems below 18.3 GHz would avoid several potential difficulties. Given the desire to have a common MetSat allocation in all three Regions, a global allocation of 18.0-18.3 GHz is proposed. In addition, ITU-R studies have shown that, in conjunction with extending the MetSat allocation, extending the existing FSS coordination arc principle in this band to the case of MetSat systems coordinating with FSS networks would help to alleviate unnecessary coordination exercises between these systems. As such, a modification to Table 5-1 of Appendix 5 to include this change is also proposed.

Proposal:

USA/ /1 MOD

5.519 *Additional allocation :* **the band 18.0 ~~1~~-18.3 GHz is also allocated to the meteorological-satellite service (space-to-Earth) on a primary basis. Its use is limited to geostationary satellites and shall be in accordance with the provisions of Article 21, Table 21-4.**

Reasons: Adding the additional 100 MHz in the band 18.0-18-1 GHz will provide greater flexibility and assurance of protection for the meteorological satellite service.

USA/ /2

15.4-18.4 GHz

<table>
<tr><th colspan="3">Allocation to services</th></tr>
<tr><th>Region 1</th><th>Region 2</th><th>Region 3</th></tr>
<tr><td>15.4-15.43</td><td colspan="2">AERONAUTICAL RADIONAVIGATION
5.511D</td></tr>
<tr><td>15.43-15.63</td><td colspan="2">FIXED-SATELLITE (Earth-to-space) 5.511A
AERONAUTICAL RADIONAVIGATION
5.511C</td></tr>
<tr><td>15.63-15.7</td><td colspan="2">AERONAUTICAL RADIONAVIGATION
5.511D</td></tr>
<tr><td>15.7-16.6</td><td colspan="2">RADIOLOCATION
5.512 5.513</td></tr>
<tr><td>16.6-17.1</td><td colspan="2">RADIOLOCATION
Space research (deep space) (Earth-to-space)
5.512 5.513</td></tr>
<tr><td>17.1-17.2</td><td colspan="2">RADIOLOCATION
5.512 5.513</td></tr>
<tr><td>17.2-17.3</td><td colspan="2">EARTH EXPLORATION-SATELLITE (active)
RADIOLOCATION
SPACE RESEARCH (active)
5.512 5.513 5.513A</td></tr>
<tr><td>17.3-17.7
FIXED-SATELLITE
(Earth-to-space) 5.516
(space-to-Earth) 5.516A 5.516B
Radiolocation
5.514</td><td>17.3-17.7
FIXED-SATELLITE
(Earth-to-space) 5.516
BROADCASTING-SATELLITE
Radiolocation
5.514 5.515 5.517</td><td>17.3-17.7
FIXED-SATELLITE
(Earth-to-space) 5.516
Radiolocation
5.514</td></tr>
<tr><td rowspan="2">17.7-18.1
FIXED
FIXED-SATELLITE
(space-to-Earth) 5.484A
(Earth-to-space) 5.516
MOBILE
5.519</td><td>17.7-17.8
FIXED
FIXED-SATELLITE
(space-to-Earth)
(Earth-to-space) 5.516
BROADCASTING-SATELLITE
Mobile 5.518
5.515 5.517</td><td rowspan="2">17.7-18.1
FIXED
FIXED-SATELLITE
(space-to-Earth) 5.484A
(Earth-to-space) 5.516
MOBILE
5.519</td></tr>
<tr><td>17.8-18.1
FIXED
FIXED-SATELLITE
(space-to-Earth) 5.484A
(Earth-to-space) 5.516
MOBILE
5.519</td></tr>
</table>

18.1-18.4	FIXED FIXED-SATELLITE (space-to-Earth) 5.484A 5.516B (Earth-to-space) 5.520 MOBILE 5.519 5.521

Reasons: Consequential to adding the additional 100 MHz in the band 18.0-18-1 GHz to **No. 5.519**.

USA/ /2 MOD

TABLE 5-1 (*continued*) (Rev.WRC-07~~3~~)

Reference of Article 9	Case	Frequency bands (and Region) of the service for which coordination is sought	Threshold/condition	Calculation method	Remarks
No. **9.7** GSO/GSO (*cont.*)		3) 17.7-20.2 GHz, (Regions 2 and 3), 17.3-20.2 GHz (Region 1) and 27.5-30 GHz	i) Bandwidth overlap, and ii) any network in the FSS and any associated space operation functions (see No. **1.23**) with a space station within an orbital arc of ±8° of the nominal orbital position of a proposed network in the FSS		
		4) 18.0-18.3 GHz	i) Bandwidth overlap, and ii) any network in the FSS or MetSat service and any associated space operation functions (see No. **1.23**) with a space station within an orbital arc of ±8° of the nominal orbital position of a proposed network in the FSS or MetSat service		
		5~~4~~) Bands above 17.3 GHz, except those defined in § 3) and 4)	i) Bandwidth overlap, and ii) any network in the FSS and any associated space operation functions (see No. **1.23**) with a space station within an orbital arc of ±8° of the nominal orbital position of a proposed network in the FSS (see also Resolution **901 (WRC-03)**)		
		6~~5~~) Bands above 17.3 GHz	i) Bandwidth overlap, and ii) any network in the FSS or BSS, not subject to a Plan, and any associated space operation functions (see No. **1.23**)		

Reference of Article 9	Case	Frequency bands (and Region) of the service for which coordination is sought	Threshold/condition	Calculation method	Remarks
			with a space station within an orbital arc of ±16° of the nominal orbital position of a proposed network in the FSS or BSS, not subject to a Plan, except in the case of a network in the FSS with respect to a network in the FSS (see also Resolution **901 (WRC-03)**)		
No. **9.7** GSO/GSO (*cont.*)		7~~6~~) All frequency bands, other than those in 1), 2), 3), 4), 5) and 6~~5~~), allocated to a space service, and the bands in 1), 2), 3), 4), 5) and 6~~5~~) where the radio service of the proposed network or affected networks is other than the space services listed in the threshold/condition column, or in the case of coordination of space stations operating in the opposite direction of transmission	i) Bandwidth overlap, and ii) Value of $\Delta T/T$ exceeds 6%	Appendix **8**	In application of Article 2A of Appendix **30** for the space operation functions using the guardbands defined in § 3.9 of Annex 5 of Appendix **30**, the threshold/condition specified for the FSS in the bands in 2) applies. In application of Article 2A of Appendix **30A** for the space operation functions using the guardbands defined in § 3.1 and 4.1 of Annex 3 of Appendix **30A**, the threshold/condition specified for the FSS in the bands in 4) applies

Reason: ITU studies have shown that extending the ±8º coordination arc, currently applicable to FSS networks in this band, to meteorological satellite (MetSat) services in this band would reduce the number of unnecessary coordinations for such systems without compromising the technical integrity of either the FSS or Metsat services.