

United States of America

DRAFT PROPOSALS FOR THE WORK OF THE CONFERENCE

Agenda Item 1.18: *to consider extending the existing primary and secondary radiodetermination-satellite service (space-to-Earth) allocations in the band 2483.5-2500 MHz in order to make a global primary allocation, and to determine the necessary regulatory provisions based upon the results of ITU-R studies, in accordance with Resolution 613 (WRC-07);*

Background information

The 2 483.5-2 500 MHz band is allocated globally on a primary basis, to fixed, mobile and mobile-satellite services. In addition, in Regions 2 and 3 there are primary allocations to the radiolocation service. In Region 1, the radiolocation service is allocated on a secondary basis. The RDSS is allocated on a primary basis in Region 2 and on a secondary basis in Region 3, in the space-to-Earth direction. No. 5.400 allocates this band for RDSS on a Primary basis in certain countries in Regions 1 and 3 subject to agreement obtained under No. 9.21 from countries not listed in No. 5.400. No. 5.398 states that the provisions of No. 4.10 do not apply to RDSS in this band. No. 5.402 calls for coordination of mobile-satellite service and radiodetermination-satellite service networks under No. 9.11A.

The 2 483.5 – 2 500 MHz band is used by the mobile-satellite service, in the space-to-Earth direction, to provide communication service to remote and underserved locations. Service to these remote and underserved areas is critical for the continued development of the areas and represents the only means of communication available in these areas. The 1992 World Administrative Radio Conference made the MSS allocation based on a 1998 implementation date and the MSS has successfully operated in this band since 1998.

In other parts of the world, fixed and mobile services are active in the 2 483.5 – 2 500 MHz band. In particular, advanced terrestrial wireless services operate in the 2 496-2 690 MHz band in the United States.

Currently, the RDSS is active in the 2483.5 – 2500 MHz band only from geostationary space stations serving parts of Region 3. It is uncertain at this time whether RDSS operation has had any effect on the other primary allocated services.

Studies conducted within the ITU-R have indicated that the radiodetermination-satellite service (space-to-Earth) could cause unacceptable interference to the mobile-satellite service (space-to-Earth) based on current operating conditions. Relaxation of the coordination trigger power flux density level given in Table 5-2 of Annex 1 of Appendix 5, which some systems regard as a power flux density limit, would allow this potential interference to be overcome.

The power flux density coordination trigger level was developed in preparation for WRC-95. The usage of the 2483.5-2500 MHz band has changed since the ITU-R studies preparing for WRC-95 were conducted. In some countries the use of this band for the fixed service has been discontinued

while in other countries the characteristics of the fixed service systems have been drastically changed.

Proposal:

ARTICLE 5

Frequency allocations

**Section IV – Table of Frequency Allocations
(See No. 2.1)**

NOC USA/1.18/1

2 170-2520 MHz

Allocation to services		
Region 1	Region 2	Region 3
2 483.5-2 500 FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) 5.351A Radiolocation 5.150 5.371 5.397 5.398 5.399 5.400 5.402	2 483.5-2 500 FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) 5.351A RADIOLOCATION RADIODETERMINATION- SATELLITE (space-to-Earth) 5.398 5.150 5.402	2 483.5-2 500 FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) 5.351A RADIOLOCATION Radiodetermination-satellite (space-to-Earth) 5.398 5.150 5.400 5.402

Reason: No proposals are made with respect to the Table of Frequency Allocations in the band 2483.5-2500 MHz but it is presumed that WRC-12 under Agenda Item 1.18 will allocate this band to the Radiodetermination-satellite (space-to-Earth) on the primary bases in Regions 1 and 3.

NOC USA/1.18/2

5.398 In respect of the radiodetermination-satellite service in the band 2483.5-2500 MHz, the provisions of No. **4.10** do not apply.

Reason: The operation under the radiodetermination-satellite service in this band is not intended to be used for safety-of-life applications.

NOC USA/1.18/3

5.402 The use of the band 2483.5-2500 MHz by the mobile-satellite and the radiodetermination-satellite services is subject to the coordination under No. **9.11A**. Administrations are urged to take all practicable steps to prevent harmful interference to the radio astronomy service from emissions in the 2483.5-2500 MHz band, especially those caused by second-harmonic radiation that would fall into the 4990-5000 MHz band allocated to the radio astronomy service worldwide.

Reason: The necessity for coordination between networks operating in the space services and between space and terrestrial networks will continue in the future.

APPENDIX 5 (REV.WRC-07)

Identification of administrations with which coordination is to be effected or agreement sought under the provisions of Article 9

ANNEX 1

1 Coordination thresholds for sharing between MSS (space-to-Earth) and terrestrial services in the same frequency bands and between non-GSO MSS feeder links (space-to-Earth) and terrestrial services in the same frequency bands

MOD USA/1.18/4

TABLE 5-2 (*continued*) (WRC-07)

Frequency band (MHz)	Terrestrial service to be protected	Coordination threshold values				
		GSO space stations		Non-GSO space stations		
		pfd (per space station) calculation factors (NOTE 2)		pfd (per space station) calculation factors (NOTE 2)		% FDP (in 1 MHz) (NOTE 1)
		<i>P</i>	<i>r</i> dB/degrees	<i>P</i>	<i>r</i> dB/degrees	
2 483.5-2 500	All cases	-146 dB(W/m ²) in 4 kHz and -128 dB(W/m ²) in 1 MHz	0.5	-140 dB(W/m ²) in 4 kHz and -122 dB(W/m ²) in 1 MHz (NOTE 7)	0.65	

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NOTE 1 – The calculation of FDP is contained in § 1.2.2.1, using the reference FS parameters contained in § 1.2.2.2.1 and 1.2.2.2.3. The use of FDP threshold is limited to the case of digital FS systems.

NOTE 2 – The following formula should be used for deriving the coordination threshold in terms of pfd:

$$\begin{aligned}
 P & \quad \text{for } 0^\circ \leq \delta \leq 5^\circ \\
 P + r(\delta - 5) & \quad \text{for } 5^\circ < \delta \leq 25^\circ \\
 P + 20r & \quad \text{for } 25^\circ < \delta \leq 90^\circ
 \end{aligned}$$

where δ is the angle of arrival (degrees).

The threshold values are obtained under assumed free-space propagation conditions.

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NOTE 7 – The pfd values specified for the band 2 483.5-2 500 MHz provide full protection for analogue radio-relay systems using the sharing criteria established by Recommendation ITU-R SF.357, for operation with multiple non-GSO MSS systems employing code division multiple access techniques. The pfd values specified will not provide full protection for existing digital fixed systems in all cases. However, these pfd values are considered to provide adequate protection for digital fixed systems designed to operate in this band, where high-power industrial, scientific and medical equipment and possible low-power applications are expected to produce a relatively high interference environment.

Reason: Studies conducted within the ITU-R have indicated that the radiodetermination-satellite service (space-to-Earth) could cause unacceptable interference to the mobile-satellite service (space-to-Earth) based on current operating conditions. Relaxation of the coordination trigger power flux density level given in Table 5-2 of Annex 1 of Appendix 5, which some systems regard as a power flux density limit, would allow this potential interference to be overcome.