

## EUROPEAN COMMON PROPOSALS

### PART 34

#### AGENDA ITEM 1.34 – RESOLUTION 539 (WRC-2000)

##### Introduction

No. 5.418 provides for an additional allocation to the BSS (sound) and complementary terrestrial broadcasting service on a primary basis in the band 2535-2655MHz in one Region 1 country and eight Region 3 countries. The use of this BSS (sound) allocation is limited to the band 2630-2655 MHz by **Resolution 528 (WARC-92)**.

WRC-2000 decided to facilitate access to this band by non-GSO BSS (sound) systems by replacing the application of No. 22.2 by a coordination regime between GSO and non-GSO systems (Nos 5.418A, B and C). This decision was coupled with several provisions intended to ensure the protection of terrestrial services in this band:

- limiting non-GSO BSS (sound) systems to national systems and a minimum elevation angle over the BSS service area of 40°.
- replacing the coordination procedure of No. 9.11, previously applicable to non-GSO BSS (sound) system with respect to terrestrial services, by the agreement seeking procedure contained in Resolution 539 (WRC-2000) and the associated pfd thresholds. This procedure involves the obligation, for non-GSO BSS (sound) systems communicated to the BR after 2 June 2000 in the band 2 630-2 655 MHz, to seek the agreement of any administration on whose territory these pfd thresholds are exceeded.

Resolution 539 (WRC-2000) also invites the ITU-R to conduct the necessary technical and regulatory studies relating to frequency sharing between systems in the broadcasting-satellite service (sound) and terrestrial services in the band 2 535-2 655 MHz with a view to avoiding placing undue constraints on either service. These studies included the review of the satellite pfd threshold values contained in this Resolution.

The band 2500-2690 MHz was identified at WRC-2000 as an additional band for IMT-2000 and there is considerable interest and activity underway worldwide to make this band available for use by IMT-2000 at an appropriate time in the future. Europe therefore considers it necessary to ensure that the future use of the band for IMT-2000 is safeguarded in terms of protection from potential interference from other services, such as non-GSO BSS (sound).

Resolution 539 was carefully developed in order to enable the development of non-GSO BSS (sound) systems in the band 2630-2655 MHz, whilst taking into account the concerns of terrestrial services in a band which is particularly sensitive, since it has been identified by WRC-2000 for use by IMT-2000.

Hard limits under Article 21 were seen as detrimental to the development of BSS (sound), and No. 9.11 coordination procedure was seen as detrimental to terrestrial services.

Resolution 539 (WRC-2000) was therefore intended to strike an acceptable compromise between these two extreme regulatory solutions, by implementing a procedure enabling the BSS (sound) administration to seek the agreement of the administrations which have been identified by the BR as affected, with no implicit agreement in case of no response and no limitation in time for the bringing in service of the terrestrial stations to be protected. By March 2002, it appeared that this compromise was interpreted by several countries and by the Radio Regulations Board as one of the extremes (No. 9.11), with implicit agreement in case of no response and a three year limit for the bringing in service of the terrestrial stations to be protected.

This unusual situation puts in question the entire set of decisions taken by WRC-2000 in this context, including the suppression of No. 22.2 and the additional footnotes Nos. 5.418A, B and C, which introduce a coordination process between GSO and non-GSO systems in this allocation, and the applicability of No. 11.41 in the framework of the procedure of No. 9.11. In order to avoid coming back to the situation which prevailed before WRC-2000, Europe proposes that the procedure of Resolution 539 (WRC-2000) be reflected in the body of the Radio Regulations by the following regulatory approach, as described in Method 1 of the CPM report :

- Pfd thresholds are proposed to be used by the Bureau to identify the administrations whose terrestrial services may be affected and the agreement of these administrations has to be sought.
- The pfd thresholds are proposed included in Article **21**, with the addition of two provisions in Articles **9** and **11** to allow discussions to take place without loss of right before notification.
- This agreement is proposed to be explicit (and not implicit in case of no response within 4 months of the publication of the BSS (sound) system), and the protection of terrestrial stations is not limited to those planned to be brought in service within 3 years of this publication. This is to avoid the very serious limitation that this 3 year limitation would impose to terrestrial services in situations where re-farming of the band is being planned on a long term basis, as is the case for IMT-2000 or MMDS.
- At the notification stage, any lack of agreement will be considered under No. 11.31. Any missing agreement implies therefore that the BSS system will operate under No 4.4 and accordingly be recorded in the MIFR only for information purposes.

This would preserve the rights of the BSS (sound) system in respect of third parties, since examination of any missing agreement would be done by the Bureau under No. **11.31**, but only at the time of notification if the BSS (sound) system. In case any agreement is missing, recording of the BSS (sound) system may proceed under No. **11.36**, and terrestrial assignments would be protected from harmful interference if in conformity with No. **11.31**. However, the only way of ensuring that this protection is effective and the procedure meaningful is that the BSS (sound) system operates under No. **4.4**.

Technical studies within the ITU-R have indicated that the preliminary satellite pfd thresholds values contained in Resolution 539 (WRC-00) need to be tightened in order to ensure that terrestrial services that would potentially be adversely affected by interference from non-GSO BSS (sound) systems are properly identified. The consequential transitional aspects are included within the following proposals for modification of Table 21-4.

## **Proposals**

The following proposals correspond to the CPM Report “Method 1” for the regulatory solution and the “Mask B” satellite pfd threshold values.

### ARTICLE 5

#### **Frequency allocations**

##### **MOD EUR/1.34/1**

**5.418** *Additional allocation:* in Bangladesh, Belarus, Korea (Rep. of), India, Japan, Pakistan, Singapore, Sri Lanka and Thailand, the band 2 535-2 655 MHz is also allocated to the broadcasting-satellite service (sound) and complementary terrestrial broadcasting service on a primary basis. Such use is limited to digital audio broadcasting and is subject to the provisions of Resolution **528 (WARC-92)**. The provisions of No. **9.21** do not apply to this additional allocation and the provisions of Table **21-4** of Article 21 do not apply to GSO networks using this additional allocation. The use of this allocation by non-geostationary-satellite BSS (sound) systems is limited to national systems unless agreement has been reached to include the territories of other administrations in the service area, and to operation with a minimum elevation angle over the service area of not less than 40°.

### ARTICLE 9

#### **Procedure for effecting coordination with or obtaining agreement of other administrations<sup>1, 2, 3, 4, 5, 6</sup>**

Sub-Section IIA – Requirement and request for coordination

##### **MOD EUR/1.34/2**

**9.35** a) examine that information with respect to its conformity with No. **11.31**<sup>16, 16A</sup>;

##### **ADD EUR/1.34/3**

<sup>16A</sup> **9.35.2** When examining under No. **9.35** an assignment subject to No. **21.16.3B** with respect to its conformity with No. **11.31**, the Bureau shall identify and publish, under No. **9.38**, the names of the administrations on the territory of which the pfd limits in Table **21-4** are exceeded. Under this examination, any excess will be considered as in conformity with No. **11.31** until the assignment is examined by the Bureau under Article 11.

## ARTICLE 21

### Terrestrial and space services sharing frequency bands above 1 GHz

#### Section V – Limits of power flux-density from space stations

**MOD EUR/1.34/4**

**TABLE 21-4**

Frequency band	Service*	Limit in dB(W/m <sup>2</sup> ) for angle of arrival ( $\delta$ ) above the horizontal plane			Reference bandwidth
		0°-5°	5°-25°	25°-90°	
2 500-2 690 MHz 2 520-2 670 MHz 2 500-2 516.5 MHz (No. <b>5.404</b> )	Fixed-satellite Broadcasting-satellite <sup>9A</sup> Radiodetermination-satellite	-152 <sup>9</sup>	-152 + 0.75( $\delta$ - 5) <sup>9</sup>	-137 <sup>9</sup>	4 kHz
2 630-2 655 MHz (No. <b>5.418</b> )	Broadcasting-satellite (sound) (non-geostationary satellite orbit)	-128 <sup>9B, 9C</sup>	-128 + 0.75( $\delta$ - 5) <sup>9B, 9C</sup>	-113 <sup>9B, 9C</sup>	1 MHz
2 630-2 655 MHz (No. <b>5.418</b> )	Broadcasting-satellite (sound) (non-geostationary satellite orbit)	-132 <sup>9B, 9D</sup>	-132 + 0.5( $\delta$ - 5) <sup>9B, 9D</sup>	-122 <sup>9B, 9D</sup>	1 MHz

**ADD EUR/1.34/5**

<sup>9A</sup> **21.16.3A** These limits do not apply to the BSS (sound) allocation under No. **5.418**.

**ADD EUR/1.34/6**

<sup>9B</sup> **21.16.3B** In the band 2 630 - 2 655 MHz, an assignment to a non-geostationary space station in the broadcasting-satellite service (sound) under No. **5.418** shall be considered in conformity with No. **11.31** if all the agreements required under No. **21.17** have been received.

**ADD EUR/1.34/7**

<sup>9C</sup> **21.16.3C** These values apply to assignments to non-geostationary satellite systems in the broadcasting-satellite service (sound) for which complete Appendix **4** coordination or notification information, as appropriate, has been received by the Bureau after 2 June 2000 and the Resolution 49 (Rev. WRC-2000) information has been received by the Bureau by 9 June 2003.

## **ADD EUR/1.34/8**

<sup>9D</sup> **21.16.3D** These values apply to assignments to non-geostationary satellite systems in the broadcasting-satellite service (sound) for which complete Appendix 4 coordination or notification information, as appropriate, has been received by the Bureau after 2 June 2000 and the Resolution 49 (Rev. WRC-2000) information has been received by the Bureau after 9 June 2003.

## **NOC EUR/1.34/9**

**21.17** 2) The limits given in Table **21-4** may be exceeded on the territory of any country whose administration has so agreed.

## **APPENDIX 5 (WRC-2000)**

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

## **MOD EUR/1.34/10**

1 For the purpose of effecting coordination under Article 9, except in the case under No. **9.21**, and for identifying the administrations with which coordination is to be effected, the frequency assignments to be taken into account are those in the same frequency band as the planned assignment, pertaining to the same service or to another service to which the band is allocated with equal rights or a higher category<sup>1</sup> of allocation, which might affect or be affected, as appropriate, and which are:

a) in conformity with No. **11.31**<sup>MOD 2</sup>; and

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## **MOD EUR/1.34/11**

<sup>2</sup> For the purpose of effecting coordination, an assignment for which the process of obtaining agreement under No. **9.21** has been initiated or which is subject to No. **21.16.3B**, as appropriate, is considered to be in conformity with No. **11.31** with respect to Nos. **9.21** or No. **21.16.3B**, as appropriate.

MOD

EUR/1.34/12

TABLE 5-1 (WRC-2000)

**Technical conditions for coordination  
(see Article 9)**

Reference of Article 9	Case	Frequency bands (and Region) of the service for which coordination is sought	Threshold/condition	Calculation method	Remarks
...					
No. <b>9.11</b> GSO, non-GSO/ terrestrial	A space station in the broadcasting-satellite service (BSS) in any band shared on an equal primary basis with terrestrial services and where the BSS is not subject to a Plan, in respect of terrestrial services	620-790 MHz 1 452-1 492 MHz 2 310-2 360 MHz  2 535-2 655 MHz (GSO BSS (sound) in the countries mentioned in No. <b>5.418</b> ) 12.5-12.75 GHz (Region 3) 17.3-17.8 GHz (Region 2) 21.4-22 GHz (Region 1 and 3) 74-76 GHz	Bandwidths overlap;	Check by using the assigned frequencies and bandwidths	
...					

RESOLUTION 539 (WRC-2000)

**Use of the band 2 630-2 655 MHz in certain Region 3 countries  
by non-geostationary satellite systems in the  
broadcasting-satellite service (sound)**

**Reasons:**

- 1. Technical studies within ITU-R have indicated that the preliminary satellite pfd threshold values contained in Resolution 539 (WRC-2000) need to be tightened in order to ensure that terrestrial services that would potentially be adversely affected by interference from BSS (sound) systems are properly identified. The values proposed here are required to identify administrations within which IMT2000 networks would potentially be affected in the satellite pfd values are exceeded.*
- 2. Experience in application of the Resolution 539 since WRC-2000 has highlighted the need to clarify the “seek the agreement” process referred to in this resolution, as well as clarification of the situation in the case that such agreement is not obtained. It would also be beneficial if the provisions of resolution 539 (WRC-2000) were reflected in the body of the Radio Regulations.*
- 3. It is necessary to take account of the fact that this band is also identified within the Radio Regulations as available on a worldwide basis for those administrations wishing to deploy terrestrial IMT-2000 systems. The timescales foreseen by many administrations for this IMT-2000 deployment would be incompatible with the usual 3 year period for bringing into service of stations taken into consideration in the Article 9 coordination process.*