

EUROPEAN COMMON PROPOSAL
Proposal submitted by the following administrations

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Agenda Item 1.18- To review pfd limits in the band 17.7-19.7 GHz for satellite systems using highly inclined orbits, in accordance with Resolution 141(WRC-03)

Introduction

Agenda Item 1.18 deals with sharing between non-GSO satellite systems in the fixed-satellite service, as described in considering g) of Resolution 141 ('non-GSO satellite systems using highly-inclined orbits having an apogee altitude greater than 18 000 km and an orbital inclination between 35° and 145°) and stations in the fixed service in the 17.7-19.7 GHz band.

Resolution 141 invites to conduct the appropriate technical studies to determine whether the current pfd limits for non-GSO systems in the FSS in Article 21 are adequate to protect the fixed service in the 17.7-19.7 GHz band from non-geostationary systems described in considering g) without unduly constraining the use of these non-GSO FSS systems.

Based on studies undertaken in Working Party 4-9S, CEPT is of the view that these current Article 21 PFD limits are not adequate to protect the FS. Based on further studies undertaken in Working Party 4-9S, Europe is of the view that a pfd value of -123 dB(W/m²/MHz) at low elevation angles (below 5°) and a pfd value of -110 dB(W/m²/MHz) at high elevation angles (above 25°) are adequate for the non-GSO FSS systems described in Resolution 141 to protect the FS in the 17.7-19.7 GHz band. CEPT is also of the view that these proposed new limits do not unduly constrain the use of these non-GSO FSS systems.

Resolution 141 also invites to determine whether there are technical and operational measures in the band 17.7-19.7 GHz that could be implemented in the fixed service to mitigate interference from FSS space stations as described in considering g). Based on considerations discussed in Working Party 4-9S, CEPT is of the view that these mitigation techniques are impractical for existing FS links and that therefore these mitigation techniques can not be considered when deriving pfd limits for Agenda Item 1.18.

For the reasons above, CEPT proposes to change the Article 21 pfd limits in the 17.7-19.7 GHz band for the non-GSO FSS systems described in Resolution 141.

As a consequence, Resolution 141 is proposed for suppression, taking into account the '*instructs the Radiocommunications Bureau*'.

Proposals

ARTICLE 21

Terrestrial and space services sharing frequency bands above 1 GHz

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

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TABLE 21-4 (WRC-07)

Frequency band	Service*	Limit in dB(W/m ²) for angle of arrival (δ) above the horizontal plane			Reference bandwidth
		0°-5°	5°-25°	25°-90°	
17.7-19.3 GHz ^{7,8}	Fixed-satellite (space-to-Earth) (geostationary-satellite orbit) Fixed-satellite (space-to-Earth) (non-geostationary-satellite orbit) ²² Meteorological-satellite (space-to-Earth)	-115 ¹³ or -115-X ¹²	-115 + 0.5(δ - 5) ¹³ or -115-X+((10+X)/20) (δ - 5) ¹²	-105 ¹³ or -105 ¹²	1 MHz
17.7-19.3 GHz ^{7,8}	Fixed-satellite (space-to-Earth) (non-geostationary-satellite orbit)	-123	-123 + 0.65(δ - 5)	-110	1 MHz
19.3-19.7 GHz	Fixed-satellite (space-to-Earth) (non-geostationary-satellite orbit)	-123	-123 + 0.65(δ - 5)	-110	1 MHz
19.3-19.7 GHz	Fixed-satellite (space-to-Earth) (geostationary-satellite orbit) Fixed-satellite (space-to-Earth) (non-geostationary-satellite orbit) ²²	-115	-115 + 0.5(δ - 5)	-105	1 MHz

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22.55-23.55 GHz 24.45-24.75 GHz 25.25-27.5 GHz	Fixed-satellite (space-to-Earth) Earth exploration- satellite (space-to- Earth) Inter-satellite Space research (space-to-Earth)	-115	$-115 + 0.5(\delta - 5)$	-105	1 MHz
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⁷ **21.16.1** The equality of right to operate when a frequency band is allocated in different Regions to different services of the same category is established in No. 4.8. Therefore, any limits concerning inter-Regional interference which may appear in ITU-R Recommendations should, as far as practicable, be observed by administrations.

⁸ **21.16.2** In addition to the limits given in Table 21-4, in the band 18.6-18.8 GHz the sharing environment within which the Earth exploration-satellite (passive) and space research (passive) services shall operate is defined by the following limitations on the operation of the fixed-satellite service: the power flux-density across the 200 MHz band 18.6-18.8 GHz produced at the surface of the Earth by emissions from a space station under assumed free-space propagation conditions shall not exceed -95 dB(W/m²), except for less than 5% of time, when the limit may be exceeded by up to 3 dB. The provisions of No. 21.17 do not apply in this band. (WRC-2000)

²¹ **21.16.19** These limits apply to non-geostationary fixed-satellite service space stations employing an orbit with an inclination angle between 35° and 145° and apogee altitude greater than 18 000 km and where complete advance publication information has been received by the Radiocommunication Bureau after 5 July 2003. (WRC-07)

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²² **21.16.20** These limits apply to non-geostationary fixed-satellite service space stations that are not covered by No. 21.16.19. (WRC-07)

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RESOLUTION 141

Reasons:

- The proposed PFD limits ($-123/-110$ dB(W/m²/MHz)) have been derived for non-geostationary fixed-satellite service space stations employing an orbit with an inclination angle between 35° and 145° and apogee altitude greater than 18 000 km (as described in Resolution 141).
- The band 17.7-19.7 GHz is split in two bands (17.7-19.3 GHz and 19.3-19.7 GHz) as footnotes 21.16.1 and 21.16.2 apply to the band 17.7-19.3 GHz only.
- Resolution 141 (WRC-03) is proposed for suppression after adoption of the above pfd limits and a two new footnotes are proposed to carry forward the condition in Resolution 141 (WRC-03) that the limits agreed at WRC-07 would apply to non GSO FSS for which complete advance publication information has been received after 5 July 2003.

