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| **US Radiocommunication Sector**  **FACT SHEET** | |
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| **Purpose/Objective:** The purpose of this document is to continue the sharing and compatibility studies for WRC-27 Agenda Item 1.10 in accordance with Resolution 775 (WRC-23). | |
| **Abstract:** This contribution continues the sharing studies between the FS/AMS systems and FSS GSO system in the 71-76 and 81-86 GHz range. | |
| **Fact Sheet Preparer:** Victory Nguyen | |

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| **Radiocommunication Study Groups** | A blue logo with a black background  AI-generated content may be incorrect. |
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| **Working document Towards Draft CPM Text for WRC-27 agenda item 1.10** | |
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**Introduction**

WRC-27 Agenda Item 1.10 considers developing power flux-density and equivalent isotropically radiated power limits for inclusion in Article 21 of the Radio Regulations for the fixed-satellite, mobile-satellite and broadcasting-satellite services to protect the fixed and mobile services in the frequency bands 71-76 GHz and 81-86 GHz, in accordance with Resolution 775 (Rev.WRC-23).

Currently, there is no CPM text in the Chair’s Report. This contribution proposes draft CPM text.

Attachment: 1

|  |
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| **ATTACHMENT**  Agenda Item 1.10 |
| **(WP 5C / WP 3M, WP 5A, WP 5B, WP 5C, WP 7A, WP 7B, WP 7C)** |

RESOLUTION 775 (REV.WRC-23)

**Power flux-density and equivalent isotropically radiated power limits**

**for inclusion in Article 21 for the fixed-satellite, mobile-satellite**

**and broadcasting-satellite services to protect the fixed and mobile services**

**in the frequency bands 71-76 GHz and 81-86 GHz**

*1.10 to consider developing power flux-density and equivalent isotropically radiated power limits for inclusion in Article 21 of the Radio Regulations for the fixed-satellite, mobile-satellite and broadcasting-satellite services to protect the fixed and mobile services in the frequency bands 71-76 GHz and 81-86 GHz, in accordance with Resolution* ***775 (Rev.WRC-23)****;*

# 3/1.11/1 Executive summary

TBD

# 3/1.12/2 Background

WRC-2000 made changes to the allocations in the frequency bands 71-76 GHz and 81-86 GHz based on the information known at that time. However, due to lack of information, the sharing conditions between fixed service, mobile service, and satellite services could not be fully developed.

Due to the current and ongoing development of the terrestrial and satellite services the 71-76 GHz and 81-86 GHz bands, the bands have become increasingly more important.

# 3/1.12/3 Summary and analysis of the results of ITU‑R studies

## 3/1.12/3.1 Study to determine PFD limits of satellite systems operating in the 71-76 GHz frequency range

1. **Fixed Satellite Service Geostationary Orbit Satellite**

A study was carried out to determine the PFD limit of a FSS GSO Satellite without any other satellite systems considered under agenda item 1.10. The conducted study showed that a PFD mask of [-115/-92 dBW/m2/MHz] was able to satisfy the protection of fixed and mobile services.

## 3/1.12/3.2 Study to determine EIRP limits of satellite systems operating in the 81-86 GHz frequency range

1. **Fixed Satellite Service Geostationary Orbit Satellite Earth Station**

A study was carried out to determine the EIRP limit of a FSS GSO Earth Station without any other satellite systems considered under agenda item 1.10. The conducted study showed that the current EIRP limit stipulated in RR Nos. 21.8 is sufficient.

# 3/1.11/4 Methods to satisfy the agenda item

TBD

# 3/1.11/5 Regulatory and procedural considerations

MOD

ARTICLE 21

Terrestrial and space services sharing frequency bands above 1 GHz

Section III − Power limits for earth stations

TABLE **21-3**     (Rev.WRC‑19)

|  |  |  |  |
| --- | --- | --- | --- |
| Frequency band | | Services | |
| 2 025-2 110 MHz  5 670-5 725 MHz  5 725-5 755 MHz [[1]](#footnote-2)6 | (for the countries listed in No. 5.454 with respect to the countries listed in Nos. 5.453 and 5.455)  (for Region 1 with respect to the countries listed in Nos. 5.453 and 5.455) | Earth exploration-satellite  Fixed-satellite  Meteorological-satellite  Mobile-satellite  Space operation | |
| 5 755-5 850 MHz 6 | (for Region 1 with respect to the countries listed in Nos. 5.453 and 5.455) | Space research | |
| 5 850-7 075 MHz |  |  | |
| 7 190-7 250 MHz |  |  | |
| 7 900-8 400 MHz |  |  | |
| 10.7-11.7 GHz 6 | (for Region 1) |  | |
| 12.5-12.75 GHz 6 | (for Region 1 with respect to the countries listed in No. 5.494) |  | |
| 12.7-12.75 GHz 6 | (for Region 2) |  | |
| 12.75-13.25 GHz |  |  | |
| 14.0-14.25 GHz | (with respect to the countries listed in No. 5.505) |  | |
| 14.25-14.3 GHz | (with respect to the countries listed in Nos. 5.505 and 5.508) |  | |
| 14.3-14.4 GHz 6 | (for Regions 1 and 3) |  |
| 14.4-14.8 GHz |  |  |
| 17.7-18.1 GHz |  | Fixed-satellite |
| 22.55-23.15 GHz |  | Earth exploration-satellite |
| 27.0-27.5 GHz 6 | (for Regions 2 and 3) | Mobile-satellite |
| 27.5-29.5 GHz |  | Space research |
| 31.0-31.3 GHz | (for the countries listed in No. 5.545) |  |
| 34.2-35.2 GHz | (for the countries listed in No. 5.550 with respect to the countries listed in No. 5.549) |  |
| 51.4-52.4 GHz  81.0-84.0 GHz  84.0-86.0 GHz |  | Fixed-satellite  Fixed-satellite  Fixed-satellite |

**Section V − Limits of power flux-density from space stations**

TABLE **21-4**  (*end*)     (Rev.WRC‑23)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Frequency band | Service\* | Limit in dB(W/m2) for angles of arrival (δ) above the horizontal plane | | | | Reference bandwidth |
| 0°-5° | 5°-25° | | 25°-90° |
| 40.5-42 GHz | Fixed-satellite (geostationary-satellite orbit)  Broadcasting-satellite  (geostationary-satellite orbit) | −12021 | **5°-15°** | **15°-25°** | −105 21 | 1 MHz |
| −120 +  (d − 5)21 | −110 + 0.5 (d − 15)21 |
| 42-42.5 GHz | Fixed-satellite (non-geostationary-satellite orbit)  Broadcasting-satellite  (non-geostationary-satellite orbit) | −12011, 21 | **5°-25°** | | −105 11, 21 | 1 MHz |
| −120 + 0.75(d − 5)11, 21 | |
| 42-42.5 GHz | Fixed-satellite (geostationary-satellite orbit)  Broadcasting-satellite  (geostationary-satellite orbit) | −12721 | **5°-20°** | **20°-25°** | −10521 | 1 MHz |
| −127 + (4/3) (d − 5)21 | −107 + 0.4 (d − 20)21 |
| In Region 1: 47.5-47.9 GHz 48.2-48.54 GHz 49.44-50.2 GHz | Fixed-satellite (geostationary-satellite orbit) | −115 | **5°-25°** | | −105 | 1 MHz |
| −115 + 0.5(δ − 5) | |
| 71-74 GHz | Fixed-satellite  (geostationary-satellite orbit) | TBD | TBD | | TBD | 1 MHz |
| 74-76 GHz | Fixed-satellite  (geostationary-satellite orbit) | TBD | TBD | | TBD | 1 MHz |

1. 6 21.12.1 The equality of right to operate when a band of frequencies 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. [↑](#footnote-ref-2)