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| U.S. Radiocommunication Sector  Fact Sheet | |
| **Working Party:** ITU-R WP 7D | **Document No:** 24USWP7D\_01\_NC |
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| **Document Title:** Draft Reply Liaison Statement to Working Party 5D: Relevant technical information to support studies under WRC-27 agenda item 1.7 | |
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| **Purpose/Objective:** To provide relevant technical and operational characteristics and protection criteria for studies under WRC-27 agenda item 1.7 | |
| **Abstract:** Working Party (WP) 5D is the responsible group for WRC-27 agenda item 1.7, and is requesting relevant system characteristics and protection criteria for the conduct of studies under this agenda item. As a contributing group, WP 7D will respond with this information for the radio astronomy band 15.35-15.40 GHz, adjacent to the 14.8-15.35 GHz band under study, and request to be kept informed regarding the progress of studies. | |

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| **XX March 2024** |
| **English only** |
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| United States of America | |
| DRAFT REPLY liaison statement to Working partY 5D (Copied to Working Parties 1B, 3K, 3M, 4A, 4C, 5A, 5B, 5C, 7B, and 7C for information) on wrc-27 Agenda item 1.7 | |
| Relevant technical information to support studies under WRC-27 agenda item 1.7 | |

**Introduction**

Working Party (WP) 5D is the responsible group for agenda item 1.7, investigating identification of IMT in the frequency bands 4 400-4 800 MHz, 7 125-8 400 MHz (or parts thereof) and 14.8-15.35 GHz. WP 7D has been identified as a contributing group, as the 14.8-15.35 GHz band is immediately adjacent to the 15.35-15.40 GHz radio astronomy primary allocation.

This reply liaison statement is intended to address an expected liaison statement from WP 5D regarding technical and operational characteristics and protection criteria (including application methodology and performance objectives, as appropriate).

**Attachment**

ATTACHMENT

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| Source:  Subject: WRC-27 agenda item 1.7 | **Document 7D/XX** |
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| Working Party 7D | |
| Draft REPLY liaison statement to Working PartY 5D (COPIED TO 1B, 3K, 3M, 4A, 4C, 5A, 5B, 5C, 7B, and 7C FOR INFORMATION) | |
| **Relevant technical information to support studies under WRC-27 agenda item 1.7** | |

Working Party (WP) 7D thanks WP 5D for its liaison (Document 7D/[xx]) requesting technical and operational characteristics, and protection criteria relevant to the studies to be undertaken under agenda item 1.7.

WP 7D notes the 14.8-15.35 GHz band under study is immediately adjacent to the 15.35-15.40 GHz band allocated to the radio astronomy service (RAS) on a co-primary basis with other passive services. This band is covered by No. **5.340**, stating that “all emissions are prohibited” in the band, and is a key band for conducting RAS operations.

ITU-R Recommendations and Reports relevant to compatibility studies for new identification of International Mobile Telecommunications (IMT) in adjacent bands are given below.

# Relevant ITU-R Recommendations and Reports

ITU-R Recommendations:

RA.769 – *Protection criteria used for radio astronomical measurements* where the values in Tables 1, 2, and 3 should be jointly taken into account in analyses.

RA.1513 – *Levels of data loss to radio astronomy observations and percentage-of-time criteria resulting from degradation by interference for frequency bands allocated to the radio astronomy service on a primary basis* that references the epfd method.

RA.517 – *Protection of the radio astronomy service from transmitters operating in adjacent bands*.

ITU-R Report:

RA.2131 – *Supplementary information on the detrimental threshold levels of interference to radio astronomy observations in Recommendation ITU-R RA.769*

# Representative system characteristics for use in cross-border compatibility studies

Radio astronomy facilities may be sited at any location within an administration while taking into account Article**29** of the Radio Regulations, including near the border of another administration. For worst-case compatibility studies, therefore, a representative system may be assumed to be located at or near such a border location, with signals arriving into the radio astronomy service station from an equal or near-equal elevation. Conditions consistent with the application of protection criteria from Recommendation ITU-R RA.769-2 assume a representative system employs a high-gain antenna with average non-main-beam gain at or near 0 dBi, representing the receiver gain through which ground-based interfering signals (in band or adjacent) are received. Data loss thresholds should be derived from Recommendation RA.1513-2.WP 7D recommends examining stations operating with the three conditions found in Recommendation RA.769-2 for this frequency range:

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| Operation | Bandwidth | Threshold level  (dB(W/m2 × Hz))) |
| Continuum | 50 MHz | –233 |
| Spectral Line | 150 kHz | –221 |
| VLBI | 50 MHz | –189 |

These levels are specified for observing times of 2000 seconds.

WP 7D kindly requests that WP 5D keep it informed on the progress of the compatibility and sharing studies under WRC-27 agenda item 1.7.

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| **Status:** Working Party 5D: For action  Working Parties 1B, 3K, 3M, 4A, 4C, 5A, 5B, 5C, 7B, AND 7C: For information |  |
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