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| **U.S. Radiocommunications Sector**  **Fact Sheet** | |
| **Working Party:** ITU-R WP 5C | **Document No:** USWP5C23\_10\_rev1 |
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| **Document Title:** Fixed Service technical and operational characteristics for use by WP 5B for their Agenda Item 1.8 studies. | |
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| **Purpose/Objective:** The purpose of this contribution is to determine how to update the WP 5C reply provided to WP 5B (in 5B/223) regarding the FS characteristics to be used in WP 5B’s studies on Agenda Item 1.8 based on the information provided by Iran in 5C/102/141. | |
| **Abstract:** Under WRC-23 Agenda Item 1.8, WP 5B is required to perform sharing and compatibility studies for Unmanned Aircraft Systems Control and Non-Payload Communications use of the Fixed Satellite Service.  At its last meeting WP 5C received a request from WP 5B (5C/69) for characteristics and protection criteria for the FS so that the FS could be included in WP 5Bs considerations.  WP 5C replied to WP 5B (5B/223) but their reply contained a paragraph noting that Iran had just provided information on its FS assignments in 5C/102/141 that need to be taken into account.  This contribution from the USA proposes a methodology to assess the characteristics of the Iranian FS stations and to determine if the Recommendations that WP 5C cited in their reply to WP 5B do or do not reflect the Iranian FS characteristics. | |

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| **Radiocommunication Study Groups** |  |
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| Source: Document 5C/102/141 and 5B/223  Subject: WRC-23 Agenda item 1.8, Resolution **155 (Rev.WRC-19)**  Resolution **171 (WRC-19)** | **Document 5C/XX-E** |
| **May 2021** |
| **English only** |
| |  |  | | --- | --- | | **United Stated of America** | | | REPLY Liaison statement to Working Party 5B | | | **Fixed Service technical and operational characteristics for use by WP 5B for their Agenda Item 1.8 studies**  **Introduction**  In its 5B/223 reply to Working Party 5B’s request for “Techncial and Operational Characteristics and Protection Criteria” for the Fixed Service Working Party 5C concluded that although it had identified a number of Recommendations that Working Party 5B should used in its sharing studies with the Fixed Service under Agenda Item 1.8 that:  *“WP 5C would also like to indicate that it has received in Document 5C/102 characteristics and operational parameters of the Fixed Services of the Islamic Republic of Iran which also need to be taken into account in further action in regard to WRC-23 agenda item 1.8.”*  So, Working Party 5C will need to perform additional work to assess if those assignments identified in 5C/102 (and its latter version 5C/141) would materially alter the reply it provided.  **Proposal**  This contribution from the United States of America proposes to assist in this assessment by providing a methodology and approach to the work that must be undertaken either by the authors of the original contribution, by other members of Working Party 5C, or by the Radiocommunications Bureau.  **Attachment:** 1 |   **ATTACHMENT**  REPLY Liaison statement to Working Party 5B  **Fixed Service technical and operational characteristics for use by WP 5B for their Agenda Item 1.8 studies** | |

1. **Introduction**

Resolution **171 (WRC-19)** *resolves to invite the ITU Radiocommunication Sector*:

1. to continue and complete in time for WRC-23 relevant studies of the technical, operational and regulatory aspects, based on the frequency bands mentioned in *resolves 1* of Resolution **155 (Rev.WRC-19),** in relation to the implementation of Resolution **155 (Rev.WRC-19)**, taking into account the progress obtained by ICAO in the completion of SARPs on the use of FSS for the UAS CNPC links.
2. to review No. **5.484B** and Resolution **155 (Rev.WRC-19)** taking into account the results of the above studies

To support the required sharing and compatibility studies to be carried out within Working Party 5B, Working Party 5B contacted Working Parties responsible for potentially affected services and requested them to provide relevant information, including technical and operational characteristics and protection criteria for the respective services allocated in, the frequency bands in *resolves 1* of Resolution **155 (Rev.WRC-19)**.Working Party 5C is one such responsible Working Party and received 5C/69 from Working Party 5B following its July 2020 meeting.

At its November 2020 meeting Working Party 5C developed a reply to Working Party 5B (5B/223) which provided references to current Recommendations that identify technical and operational characteristics and protection criteria that are representative of the Fixed Service for use in sharing studies.

However, 5B/223 also contained a statement that:

*“WP 5C would also like to indicate that it has received in Document 5C/102 characteristics and operational parameters of the Fixed Services of the Islamic Republic of Iran which also need to be taken into account in further action in regard to WRC-23 agenda item 1.8.”*

Consequently, Working Party 5C must analyze the characteristics of the assignments contained in 5C/102 (latter updated to 5C/141) to assess if they will materially affect the analysis that Working Party 5B needs to perform.

**2 Fixed Service** **Technical and Operational Characteristics**

In its 5B/223 reply to Working Part 5B, Working Party 5C indicated that Recommendation ITU-R F.758 was recently updated (November 2019) and, as before in its previous reply on the same topic, Working Party 5C confirmed that the system parameters in the frequency band 10.7‑11.7 GHz of Table 8 of Recommendation ITU-R F.758-7 should be used in the compatibility studies for the 10.95-12.75 GHz frequency band of interest to Working Party 5B. And that the system parameters in the frequency band 14.4-15.35 GHz of Table 9 of Recommendation ITU-R F.758-7 should be used in compatibility studies for the 14‑14.47 GHz band of interest to Working Party 5B.

Additionally, Working Party 5C also (again as before in its previous reply on the same topic), confirmed that the statistical antenna elevation and height information found in Recommendation ITU-R F.2086-0; tables A2-2 (10.7 11.7 GHz) and A2-3 (14.25-14.5 GHz) should be used by Working Part 5B in its studies under Agenda Item 1.8. In 5B/223, Working Party 5C also noted that ITU-R F.2086-0 was not currently being considered for revision. And again, as before, for the 14-14.47 GHz frequency band of interest, Working Party 5C recommended a maximum antenna elevation angle of 5 degrees associated with the maximum antenna gain.

Working Party 5C also advised Working Part 5B that the following recommendations were still the relevant source of antenna patterns for studies with the Fixed Service and that they all have been recently updated:

For point-to-point links:

* Recommendation ITU-R F.699-8: Reference radiation patterns for fixed wireless system antennas for use in coordination studies and interference assessment in the frequency range from 100 MHz to 86 GHz.
* Recommendation ITU-R F.1245-3: Mathematical model of average and related radiation patterns for line-of-sight point-to-point fixed wireless system antennas for use in certain coordination studies and interference assessment in the frequency range from 1 GHz to about 86 GHz.

For point-to-multi point links:

– Recommendation ITU-R F.1336-5 radiation patterns of omnidirectional, sectoral and other antennas for the fixed and mobile services for use in sharing studies in the frequency range from 400 MHz to about 70 GHz.

**2.1 Technical and Operational Characteristics Parameters to be Evaluated**

Based on the Tables 8 and 9 in ITU-R F.758, which were referenced by Working Party 5C in their reply to Working Party 5B, the following parameters will need to be reviewed for the assignments identified in 5C/102/141.

* Modulation
* Channel spacing and receiver noise bandwidth (MHz)
* Tx output power range (dBW)
* Tx output power density range (dBW/MHz)(1)
* Feeder/multiplexer loss range (dB)
* Antenna gain range (dBi)
* e.i.r.p. range (dBW)
* e.i.r.p. density range (dBW/MHz)(1)
* Receiver noise figure typical (dB)
* Receiver noise power density typical (=NRX) (dBW/MHz)
* Normalized Rx input level for 1 × 10−6 BER (dBW/MHz)
* Nominal long-term interference power density (dBW/MHz)(2)

Based on the Tables A2-2 and A2-3 in ITU-R F.2086-0, which were referenced by Working Party 5C in their reply to Working Party 5B, the statistical distribution of the following parameters will need to be reviewed for the assignments identified in 5C/102/141.

* Antenna Elevation Angle
* Antenna Height

**3 Assessment of the Technical and Operational Characteristics of the listed Assignments**

The assignments identified in 5C/102/141 are all contained in the MIFR, so it is appropriate to use the BR IFIC for Terrestrial Services as the source of data for the required assessments.

The Preface to the BR IFIC lists all of the parameters that the BR IFIC contans associated with each assignment.

For The Terrestrial Services of interest, the following parameters that align with those from ITU-R F.758 and ITU-R F.2086-0 identified in Section 2.1 will need to be extracted and compared to the values of the parameters given in ITU-R F.758 and ITU-R F.2086-0.

TBD

**4 Summary**

TBD