|  |  |  |
| --- | --- | --- |
| A picture containing text, clipart  Description automatically generated | ASIA-PACIFIC TELECOMMUNITY | **Document No:** |
| **The 5th Meeting of the APT Conference Preparatory**  **Group for WRC-23 (APG23-5)** | **APG23-5/OUT-37** |
| 20 – 25 February 2023, Busan, Republic of Korea | 24 February 2023 |

Working Party 5

**PRELIMINARY VIEWs on WRC-23 agenda item 9.1 Topic b)**

**Agenda Item 9.1. Topic b):**

*Review of the amateur service and the amateur-satellite service allocations in the frequency band 1 240 1 300 MHz to determine if additional measures are required to ensure protection of the radionavigation-satellite (space-to-Earth) service operating in the same band in accordance with Resolution****774 (WRC-19)***

**1. Background**

Resolution **774 (WRC-19)** *resolves to invite ITU‑R*

1 to perform the detailed review of the different systems and applications used in the amateur service and amateur-satellite service allocations within the frequency band 1 240‑1 300 MHz;

2 taking into account the results of the above review, to study possible technical and operational measures to ensure the protection of RNSS (space-to-Earth) receivers from the amateur and amateur-satellite services within the frequency band 1 240-1 300 MHz, without considering the removal of these amateur and amateur-satellite services allocations,

ITU-R Working Party (WP) 5A was identified as the responsible group for this agenda item, together with WP 4C and WP 3M as the contributing groups. WP 4C is responsible for the detailed interference analysis between stations of the amateur service and receivers of the radionavigation-satellite service. WP 5A is also responsible for the review amateur service applications and development of appropriate and relevant parameters of amateur service stations for the studies undertaken by WP 4C.

WP 5A completed the work on the [Draft CPM text for WRC-23 Agenda Item 9.1 TOPIC B).](https://www.itu.int/dms_pub/itu-r/md/19/wp5a/c/R19-WP5A-C-0597!N06!MSW-E.docx) [A Preliminary Draft New Recommendation ITU-R M.[AS GUIDANCE]](https://www.itu.int/dms_pub/itu-r/md/19/wp5a/c/R19-WP5A-C-0708!N06!MSW-E.docx) and [A Preliminary Draft New Report ITU-R M.[AMATEUR.CHARACTERISTICS]](https://www.itu.int/dms_pub/itu-r/md/19/wp5a/c/R19-WP5A-C-0708!N05!MSW-E.docx) are in course of preparation.

* [Draft CPM Report:](https://www.itu.int/md/R19-CPM23.2-C-0001/en) Preliminary draft new Report ITU‑R M.[AMATEUR.CHARACTERISTICS] provides the detailed information on the review of amateur and amateur-satellite service applications and a compilation of appropriate and relevant parameters and operational characteristics for the studies, while Report ITU‑R M.2513 details the potential interference analysis and related studies. And a Preliminary draft new Recommendation ITU-R M.[AS GUIDANCE] provides guidelines in order to avoid such cases of harmful interference to the RNSS receivers in the future.

|  |
| --- |
| Summary  Some cases of harmful interference caused by transmissions from stations in the amateur service operating on a secondary basis into RNSS (space‑to-Earth) receivers operating on a primary basis have been observed, documented and reported in two countries.  Subsequent studies provided an estimate of potential interference distance and confirmed that the impact of interference generally depends on the bandwidth and power of the interfering signal. Furthermore, these studies predicted that RNSS receiver protection criteria could be exceeded by co-frequency emissions from typical amateur stations.  ITU-R is developing a Recommendation ITU‑R M.[AS.GUIDANCE] providing guidelines in order to avoid such cases of harmful interference to the RNSS receivers in the future. This Recommendation could include, *inter alia*, encouragement of the use of specific sub-bands with sufficient frequency offsets from the spectrum main lobes of RNSS signals to enhance the protection of RNSS receivers in the bands under consideration.  These guidelines are intended to assist administrations and the amateur and amateur-satellite services to ensure the protection of the RNSS (space-to-Earth) in the frequency band 1 240-1 300 MHz. |

WP 4C completed the work on a preliminary draft new Report ITU-R M.[Amateur-RNSS] and the report is published [ITU-R M.2513 - *Studies regarding the protection of the primary radionavigation-satellite service(space-to-Earth) by the secondary amateur and amateur-satellite services in the frequency band 1 240-1 300 MHz.*](https://www.itu.int/pub/R-REP-M.2513-2022) This document contains relevant amateur/amateur-satellite transmitter parameters and interference scenarios agreed with WP 5A, relevant RNSS receiver parameters and protection criteria developed in WP 4C, analysis methodologies employing propagation models discussed with WP 3M, and the results of studies completed of interference to RNSS receivers in the frequency band 1 240-1 300 MHz. WP 4C also revised the Recommendations ITU-R M.1902-1 and M.1787-3 to support the studies.

**2. Documents**

***2.1. Input Documents:*** APG23-5/INP-[12(THA)](https://www.apt.int/sites/default/files/2023/02/APG23-5-INP-12_Thailand-WP5-Preliminary_Views_on_WRC-23_Agenda_Items_9.1_TOPIC_B_and_10.docx), [20(J)](https://www.apt.int/sites/default/files/2023/02/APG23-5-INP-20_Japan-WP5-Preliminary_Views_on_WRC-23_Agenda_Items_8_and_9.1B.docx), [30(IND)](https://www.apt.int/sites/default/files/2023/02/APG23-5-INP-30_India_WP5-Preliminary_Views_on_WRC_23_Agenda_Items_2_4_9.1Topic_b_and_10.docx), [41(IRN)](https://www.apt.int/sites/default/files/2023/02/APG23-5-INP-41_Iran-WP5-Preliminary_Views_on_WRC_23_Agenda_Items_8_and_9.1Topic_b.docx), [60(AUS)](https://www.apt.int/sites/default/files/2023/02/APG23-5-INP-60_Australia-WP5-Preliminary_Views_on_WRC-23_Agenda_Items_2_4_and_9.1Topic_b.docx), [67(KOR)](https://www.apt.int/sites/default/files/2023/02/APG23-5-INP-67_Rep_of_Korea-WP5-Preliminary_Views_on_WRC-23_Agenda_Items_9.1Topic_b_and_10.docx), [92Rev1(CHN)](https://www.apt.int/sites/default/files/2023/02/APG23-5-INP-92_China-WP5-Preliminary_Views_on_WRC-23_Agenda_Items_2_4_9.1Topic_b_and_10.docx), [99(MLA)](https://www.apt.int/sites/default/files/2023/02/APG23-5-INP-99_Malaysia-WP5-Preliminary_View_on_WRC-23_Agenda_Item_9.1Topic_b.docx)

***2.2. Information Documents:*** APG23-5/INF-[14(Chair)](https://www.apt.int/sites/default/files/2023/02/APG23-5-INF-14_Brief_on_AI9.1.b.docx), [21(IARU)](https://www.apt.int/sites/default/files/2023/02/APG23-5-INF-21_IARU_Views_on_WRC-23_Agenda_Items_1.2_1.12_1.14_1.18_and_9.1Topics_a_and_b.docx), [39(CEPT)](https://www.apt.int/sites/default/files/2023/02/APG23-5-INF-39_Status_of_CEPT_preparation_for_WRC-23_and_RA-23.pdf), [43(CITEL)](https://www.apt.int/sites/default/files/2023/02/APG23-5-INF-43_CITEL_preparation_for_WRC-23.pdf),

[45](https://www.apt.int/sites/default/files/2023/02/APG23-5-INF-45_Status_of_RCC_preparation_to_the_WRC-23.pdf)([RCC](https://www.apt.int/sites/default/files/2023/02/APG23-5-INF-45_Status_of_RCC_preparation_to_the_WRC-23.pdf))

**3. Summary of discussions**

**3.1 Summary of APT Members’ views**

**3.1.1 Thailand** - **Document APG23-5/INP-12**

Thailand supports the draft CPM text for agenda item 9.1 topic b), and the development of guidelines in new ITU-R recommendations to protect RNSS (space-to-Earth) receivers from the amateur and amateur-satellite services in the frequency band 1 240-1 300 MHz without considering the removal of the amateur and amateur-satellite service allocations. Thailand supports no change to the Radio Regulations under agenda item 9.1 topic b).

**3.1.2 Japan** - **Document APG23-5/INP-20**

Japan supports ongoing studies in ITU-R to ensure the protection of RNSS (space-to-Earth) receivers from the amateur and amateur-satellite services allocated in the frequency band 1 240-1 300 MHz in accordance with Resolution **774 (WRC-19)**.

Japan also supports the development of ITU-R Recommendation providing guidelines to protect RNSS (space-to-Earth) receivers given that the ITU-R studies have shown that interference into RNSS receivers would occur depending on the cases.

**3.1.3 India** - **Document APG23-5/INP-30**

India supports ongoing work in ITU-R in line with Resolution 774(WRC-19) to ensure the protection of RNSS (space-to-Earth) receivers from the amateur and amateur-satellite services in the frequency band 1240-1300MHz and supports continued use of this frequency band for amateur and amateur satellite service as secondary service.

**3.1.4 Iran** - **Document APG23-5/INP-41**

The Administration of Iran (Islamic Republic of) proposes that the following views and proposals be adopted as the APT Views/PACPs (Preliminary APT Common Proposals) under Agenda Item 9.1, topic b):

APT Members support ITU-R studies so far carried out in accordance with Resolution **774 (WRC-19)**, and development of new ITU-R recommendations to protect RNSS (space-to-Earth) receivers from the amateur and amateur-satellite services in the frequency band 1 240-1 300 MHz. APT Members therefore support no changes to the Radio Regulations under Agenda Item 9.1, topic b).

In this connection the following Preliminary APT Common Proposals (PACPs) are proposed.

|  |
| --- |
| NOC ASP/9.1.b/1  **ITU Radio Regulations**  **Reasons:** Changes to the Radio Regulations are outside the scope of WRC-23 Agenda Item 9.1. Development of new relevant ITU-R recommendations and reports to protect RNSS (space-to-Earth) receivers from the amateur and amateur-satellite services in the frequency band 1 240-1 300 MHz under regular activities of ITU-R is fully enough to resolve RNSS (space-to-Earth) protection issue.  SUP ASP/9.1.b/2  RESOLUTION 774 (WRC-19)  **Studies on technical and operational measures to be applied in the frequency band 1 240-1 300 MHz to ensure the protection of the radionavigation-satellite service (space-to-Earth)**  **Reasons:** No longer required post WRC-23. The required ITU-R studies could be continued under regular activities of ITU-R, if so needed. |

**3.1.5 Australia** - **Document APG23-5/INP-60**

Australia supports studies in line with Resolution 774 (WRC-19) to protect RNSS receivers while supporting the continued use of these frequency bands by the amateur and amateur-satellite services.

**3.1.6 Korea** - **Document APG23-5/INP-67**

The Republic of Korea supports the development of a new ITU-R Recommendation to provide guidance on technical and operational measures to ensure protection of the RNSS (space-to-Earth) from the amateur and amateur-satellite services allocated on a secondary basis in the frequency band 1 240-1 300 MHz based on Report ITU-R M.2513, recognizing that the provisions of RR Nos. **5.28** to **5.30** shall continue to apply despite the new Recommendation under development.

**3.1.7 China** - **Document APG23-5/INP-92(Rev.1)**

China supports the studies in accordance with Resolution 774 (WRC‑19) to ensure the protection of RNSS (space-to-Earth) receivers from the amateur and amateur-satellite services within the frequency band 1 240-1 300 MHz. China also supports the development of the Recommendation ITU-R M.[AS GUIDANCE] based on relevant studies as guidelines to guarantee that all the frequency bands of RNSS receivers specified in Recommendation M.1902-2 within 1 240-1 300 MHz are given due protection.

**3.1.8 Malaysia** - **Document APG23-5/INP-99**

Malaysia supports:

* Studies in line with Resolution **774 (WRC-19)** to ensure protection of radionavigation-satellite (space-to-Earth) service receivers while allowing the amateur service and amateur-satellite service (Earth-to-space) to continue operating in the frequency band 1 240-1 300 MHz; and
* No changes to the Radio Regulations.

**3.2 Summary of issues raised during the meeting**

None.

**4. APT Preliminary View(s)**

APT Members support ITU-R studies undertaken to date in accordance with Resolution **774 (WRC-19)**, and development of new ITU-R recommendations providing guidelines to protect RNSS (space-to-Earth) receivers from the amateur and amateur-satellite services in the frequency band 1 240-1 300 MHz based on Report ITU-R M.2513 without considering the removal of the amateur and amateur-satellite service allocations. APT Members support no changes to the Radio Regulations under Agenda Item 9.1 Topic B. APT Members recognize that the provisions of RR Nos. **5.28** to **5.30** shall continue to apply despite the new Recommendation under development.

**5. Other View(s) from APT Members**

None.

**6. Issues for Consideration at Next APG Meeting**

APT Members are encouraged to participate in the relevant ITU-R studies, and contribute Preliminary APT Common Proposals (PACPs) on this topic to the next APG meeting.

The draft PACP submitted from Iran([APG23-5/INP-41](https://www.apt.int/sites/default/files/2023/02/APG23-5-INP-41_Iran-WP5-Preliminary_Views_on_WRC_23_Agenda_Items_8_and_9.1Topic_b.docx)) will be reviewed again with other country’s proposals.

**7. Views from Other Organisations** (as provided in the information documents to

APG23-5)

**7.1 Regional Groups**

**7.1.1 ASMG - 2nd ITU Inter-regional Workshop /C-05** (November 2022)

Support the development of possible technical and operational measures to ensure the protection of receivers of operating systems according to the primary allocation to the RNSS service in the frequency band 1240 - 1300 MHz.

**7.1.2 ATU - 2nd ITU Inter-regional Workshop /C-02** (November 2022)

Support the development of possible technical and operational measures to ensure the protection of RNSS (space-to-Earth) receivers from the amateur and amateur-satellite services in the frequency band 1240-1300 MHz.

**7.1.3 CEPT** - **Document APG23-5/INF-39**

CEPT supports the protection of the RNSS.

CEPT supports the development of a new ITU-R Recommendation based on the ITU-R Reports to provide guidance towards the implementation of technical and operational measures for the continued use of the frequency band 1240-1300 MHz by the Amateur and Amateur-satellite services in accordance with the RR in order to protect the RNSS.

CEPT supports that the above mentioned measures to be applied on the use of secondary Amateur and Amateur satellite services should be based on the results of co-existence studies and measurement campaigns.

**7.1.4 CITEL** - **Document APG23-5/INF-43**

One Administration is of the view that changes to the Radio Regulations are outside the scope of Agenda Item 9.1. For WRC-23 Agenda Item 9.1, Topic b), this Administration supports studies to be carried out under Resolution 774 (WRC-19). The results of these studies should seek to identify possible technical and operational measures to ensure the protection of RNSS (space-to-Earth) receivers from the amateur and amateur-satellite services in the frequency band 1 240-1 300 MHz, without considering the removal of these amateur and amateur-satellite service.

Another Administration supports studying the potential for interference to RNSS (space-to-Earth) receivers from amateur and amateur-satellite services in the frequency band 1 240-1 300 MHz and, if warranted, providing possible technical and/or operational measures to prevent any future cases of such interference, without considering any regulatory measures under this topic.

A third Administration supports, without requiring any regulatory measures, the development of the new ITU-R Report aimed at providing guidelines for the implementation of technical and operational measures that allow the continued use of the 1 240-1 300 MHz frequency band by amateur services and satellite amateurs in secondary service condition, while protecting the RNSS in accordance with the RR.

**7.1.5 RCC** - **Document APG23-5/INF-45**

The RCC Administrations support that technical and operational measures to ensure the protection of RNSS receivers from the stations in the amateur and the amateur-satellite services in the frequency band 1 240 -1 300 MHz be addressed in new ITU-R Recommendation.

The RCC Administrations support consideration of compatibility for RNSS (s-s) and for EESS (active) and modification of Resolution 774 (Rev. WRC -19) to carrying out additional studies. Results of the additional studies should be reported to WRC-27 by the BR Director.

**7.2 International Organisations**

**7.2.1 IARU** - **Document APG23-5/INF-21**

During many years of operational experience, the secondary amateur and amateur satellite services have successfully co-existed with all the primary services in the range 1 240-1 300 MHz with very few issues. In cases where certain applications (in particular, wide bandwidth, high duty cycle applications) could increase the potential for interference, careful spectrum management and national licensing conditions have minimised any risk. Radio amateurs have successfully co-existed and innovated in this frequency range for many years and IARU believes that the regulatory status of the amateur and amateur satellite services in this range is already clear. Therefore, any additional regulatory, operational, or technical measures incorporated into the Radio Regulations are unnecessary. Any recommendations resulting from studies under Resolution 774 can be applied on a national basis and should be based on realistic assumptions, proportionate in scope, and carefully justified so as not to unnecessarily inhibit development of the amateur services.

IARU supports the draft CPM text developed by WP5A and will actively take part in the continuing work with the preliminary draft new recommendation ITU-R M. [AS GUIDANCE].

\_\_\_\_\_\_\_\_\_\_\_\_