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|  | ASIA-PACIFIC TELECOMMUNITY | Document No: |
| **The 6th Meeting of the APT Conference Preparatory****Group for WRC-23 (APG23-6)** | **APG23-6/OUT-36** |
| 14 – 19 August 2023, Brisbane, Australia | 19 August 2023 |

Working Party 5

**APT VIEW and Preliminary APT Common Proposal 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.

At the 29th meeting of ITU-R WP 5A(May 2023), WP 5A continued the work on a Preliminary Draft New Recommendation ITU-R M.[AS.GUIDANCE] “*Guidance on technical and operational measures for the use of the frequency band 1 240-1 300 MHz by the amateur and amateur-satellite service in order to protect the radionavigation-satellite service (space-to-Earth)*” ([Annex 6](https://www.itu.int/dms_pub/itu-r/md/19/wp5a/c/R19-WP5A-C-0769%21N06%21MSW-E.docx) to [Doc. 5A/769](https://www.itu.int/md/R19-WP5A-C-0769/en)) and a Preliminary Draft New Report ITU-R M.[AMATEUR CHARACTERISTICS] “*Amateur and amateur-satellite services characteristics and usage in the 1 240-1 300 MHz frequency band*” ([Annex 5](https://www.itu.int/dms_pub/itu-r/md/19/wp5a/c/R19-WP5A-C-0769%21N05%21MSW-E.docx) to [Doc. 5A/769](https://www.itu.int/md/R19-WP5A-C-0769/en)). A Liaison statement was send to WP 4C regarding the progression of the work on topic 9.1b) ([Annex 2](https://www.itu.int/dms_pub/itu-r/md/19/wp5a/c/R19-WP5A-C-0769%21N02%21MSW-E.docx) to [Doc. 5A/769](https://www.itu.int/md/R19-WP5A-C-0769/en)).

* [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-0769%21N06%21MSW-E.docx) It started work on a preliminary draft new Recommendation ITU-R M.[AS GUIDANCE] at the 26th meeting of WP 5A. The current version of the working document is [Annex 6](https://www.itu.int/dms_pub/itu-r/md/19/wp5a/c/R19-WP5A-C-0769%21N06%21MSW-E.docx) to [[Documnet  5A/769](https://www.itu.int/md/R19-WP5A-C-0769/en)](http://www.itu.int/md/R15-WP5A-C-0650/en) (Chairman’s Report) dated 18 May 2023. The document provides guidance on technical and operational measures to be implemented by stations operating in the Amateur and Amateur-satellite services to protect the Radionavigation Satellite Service (space-to-Earth) in the frequency band 1 240-1 300 MHz.
* [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-0769%21N05%21MSW-E.docx) A preliminary draft new Report ITU-R M.[AMATEUR.CHARACTERISTICS] is in preparation in WP 5A. The current version is [Annex 5](https://www.itu.int/dms_pub/itu-r/md/19/wp5a/c/R19-WP5A-C-0769%21N05%21MSW-E.docx) to [[Document 5A/769](https://www.itu.int/md/R19-WP5A-C-0769/en)](http://www.itu.int/md/R15-WP5A-C-0650/en) (Chairman’s Report) dated 18 May 2023. The document provides a comprehensive illustration of how the band is used by amateurs.

At the 30th meeting of ITU-R WP 4C (June 2023), WP 4C produced [a preliminary draft revision to Report ITU-R 2513](https://www.itu.int/md/R19-WP4C-230621-TD-0155/en) on which the work will continue at the next WP 4C meeting with a view to incorporating a new Annex which contains *an example of how to assess the impact of certain amateur station emissions on a deployment simulation of a large number of one type of co-frequency RNSS (space-to-Earth) receivers*. WP 4C also agreed that this preliminary draft revision to Report ITU-R 2513 is sufficiently matured for the purpose of a supporting material for WRC-23 agenda item 9.1, Topic B).

* [Report 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.

At the CPM23-2meeting(April 2023), the section on AI.9.1.topic b) of [the CPM Report](https://www.itu.int/dms_pub/itu-r/md/19/cpm23.2/r/R19-CPM23.2-R-0001%21%21PDF-E.pdf) has been revised with more details regarding ITU-R study results such as new ITU-R Report M.2513, revision of Recommendation M.1902 and WD PDN Recommendation M.[AS.GUIDANCE]. The Russian Federation proposed to modify Resolution **774 (WRC-19)** for additional studies to ensure protection for RNSS (space-to-space) and EESS (active) space receivers, and extend the study cycle to WRC-27. Most Member States disagreed on this, but the meeting could not make progress without compromise. Therefore the meeting agreed to add ‘Views’ to the CPM text to reconcile this issue, and three Views were included: View 1(Russia), View 2(Korea & US & France) and View 3(Canada).

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| SummarySome 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. More information can be found in Report ITU-R M.2513. Recommendation ITU-R M.1902 provides the characteristics and protection criteria for receiving earth stations in the radionavigation-satellite service (space-to-Earth) operating in the band 1 215- 1 300 MHz which were considered when developing studies. These subsequent studies and measurements, presented in Report ITU-R M.2513, provided an estimate of potential interference distance and confirmed that the impact of interference generally depends on the bandwidth, power of the interfering signal but also upon the antenna installation height. Furthermore, these studies and measurements predicted that RNSS (space-to-Earth) receiver protection criteria could be exceeded by co-frequency emissions from typical amateur stations. Operational data indicate a relatively low population of actively transmitting stations across the frequency band 1 240-1 300 MHz and operating characteristics suggest that emissions from the most common amateur stations are neither of long duration nor persistent in nature, which may help to achieve compatibility with RNSS. 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 (space-to-Earth) receivers in the future. This Recommendation could include encouragement for the amateur and amateur-satellite services to use specific sub-bands with sufficient frequency offsets from the spectrum main lobes of RNSS signals, maximum emission power level and emission bandwidth restrictions to enhance the protection of RNSS (space-to-Earth) 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. |

**2. Documents**

* Input Documents APG23-6/[INP-21(IND)](https://www.apt.int/sites/default/files/2023/08/APG23-6-INP-21_India_WP5_PACP_WRC-23_Agenda_Items.docx), [44(J)](https://www.apt.int/sites/default/files/2023/08/APG23-6-INP-44_Japan_WP5_Views_on_WRC-23_Agenda_Item_9.1b.docx), [64(SNG & THA)](https://www.apt.int/sites/default/files/2023/08/APG23-6-INP-64_Multicountry_WP5_PACP_WRC-23_Agenda_Item_9.1b.docx), [72(IRN)](https://www.apt.int/sites/default/files/2023/08/APG23-6-INP-72_Iran_WP5_PACP_WRC-23_Agenda_Items.docx), [84(AUS)](https://www.apt.int/sites/default/files/2023/08/APG23-6-INP-84_Australia_WP5_PACP_WRC-23_Agenda_Items.docx), [91Rev2(KOR)](https://www.apt.int/sites/default/files/2023/08/APG23-6-INP-91R2_KOR_WP5_PACP_WRC-23_Agenda_Items.docx), [107Rev1(CHN)](https://www.apt.int/sites/default/files/2023/08/APG23-6-INP-107R1_China_WP5_PACP_WRC-23_Agenda_Items.docx), [113(MLA)](https://www.apt.int/sites/default/files/2023/08/APG23-6-INP-113_Malaysia_WP5_PACP_WRC-23_Agenda_Item_9.1b.docx)
* Information Documents APG23-6/[INF-11(DG Chair)](https://www.apt.int/sites/default/files/2023/07/APG23-6-INF-11_Brief_on_AI9.1.b.docx), [25(ICAO)](https://www.apt.int/sites/default/files/2023/07/APG23-6-INF-25_ICAO-Position_for_ITU-WRC23.docx), [30(IARU)](https://www.apt.int/sites/default/files/2023/08/APG23-6-INF-30_IARU_Views_on_WRC-23_Agenda_Items.docx), [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/2023/08/APG23-6-INF-45_Status_of_RCC_preparation_to_WRC-23.pdf)), [46(CEPT)](https://www.apt.int/sites/default/files/2023/08/APG23-6-INF-46_Status_of_CEPT_preparation_for_WRC-23_and_RA-23.pdf), [52(CITEL)](https://www.apt.int/sites/default/files/2023/08/APG23-6-INF-52_CITEL_preparation_for_WRC-23.pdf)

**3. Summary of discussions**

**3.1 Summary of APT Members’ views**

**3.1.1 India** - **Document** [**APG23-6/INP-21**](https://www.apt.int/sites/default/files/2023/08/APG23-6-INP-21_India_WP5_PACP_WRC-23_Agenda_Items.docx)

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 1240-1300 MHz and supports continued use of this frequency band for amateur and amateur satellite service as secondary service.

**3.1.2 Japan** - **Document** [**APG23-6/INP-44**](https://www.apt.int/sites/default/files/2023/08/APG23-6-INP-44_Japan_WP5_Views_on_WRC-23_Agenda_Item_9.1b.docx)

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 Singapore and Thailand** - **Document** [**APG23-6/INP-64**](https://www.apt.int/sites/default/files/2023/08/APG23-6-INP-64_Multicountry_WP5_PACP_WRC-23_Agenda_Item_9.1b.docx)

Singapore and Thailand support no change to the Radio Regulations under agenda item 9.1 topic b). Singapore and Thailand also support 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.

**3.1.4 Iran** - **Document** [**APG23-6/INP-72**](https://www.apt.int/sites/default/files/2023/08/APG23-6-INP-72_Iran_WP5_PACP_WRC-23_Agenda_Items.docx)

This Administration 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).



**3.1.5 Australia** - **Document** [**APG23-6/INP-84**](https://www.apt.int/sites/default/files/2023/08/APG23-6-INP-84_Australia_WP5_PACP_WRC-23_Agenda_Items.docx)

Australia supports no change to the Radio Regulations in relation to this issue.

Australia supports the view that the draft ITU-R Recommendation which will provide guidelines for administrations to protect RNSS receivers through the application of various operational and technical measures imposed on the amateur service, fully addresses the requirements of Resolution **774 (WRC 19)** and further changes the Radio Regulations are not required.

Australia proposes a Preliminary APT Common Proposal as follows:



**3.1.6 Korea** - **Document** [**APG23-6/INP-91 (Rev.2)**](https://www.apt.int/sites/default/files/2023/08/APG23-6-INP-91R2_KOR_WP5_PACP_WRC-23_Agenda_Items.docx)

The Republic of Korea supports developing a new ITU-R Recommendation based on Report ITU-R M.2513 before WRC-23 to provide technical and operational measures to ensure protection of the radionavigation-satellite service (space-to-Earth) allocated on a primary basis from the amateur and amateur-satellite services allocated on a secondary basis in the frequency band 1 240-1 300 MHz, recognizing that the provisions of RR Nos. 5.28 to 5.30 shall continue to apply despite the new Recommendation.

The Republic of Korea is of the view that if the new Recommendation developed in a manner mentioned above is approved in the ITU-R, it may be necessary to consider incorporation by reference in the Radio Regulations.

**3.1.7 China** - **Document** [**APG23-6/INP-107 (Rev.1)**](https://www.apt.int/sites/default/files/2023/08/APG23-6-INP-107R1_China_WP5_PACP_WRC-23_Agenda_Items.docx)

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 supports the development of the Recommendation ITU-R M.[AS GUIDANCE] based on Report ITU-R M.2513 to protect RNSS (space-to-Earth) receivers. China also supports the suppression of Resolution **774 (WRC-19)** if Recommendation ITU-R M.[AS GUIDANCE] can be finalized and approved before WRC-23.

**3.1.8 Malaysia** - **Document** [**APG23-6/INP-113**](https://www.apt.int/sites/default/files/2023/08/APG23-6-INP-113_Malaysia_WP5_PACP_WRC-23_Agenda_Item_9.1b.docx)

Malaysia supports:

* No changes to the Radio Regulations; and
* 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 1240-1300 MHz frequency band, without considering its removal.

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

There were two options to discuss whether to make a Preliminary APT Common Proposal, and some suggested that it was not appropriate to make a PACP because the development of the new Recommendation ITU-R M.[AS GUIDANCE] was not completed yet and the results could not be prejudged.

If the development of Recommendation ITU-R M.[AS GUIDANCE] is finalized and approved before WRC-23, the view to suppress Resolution **774 (WRC-19)** was agreed and added to the APT View and it was also included as an issue for Consideration at APG Coordination Meeting at WRC-23.

And a view to consider whether it is necessary to add a new footnote to the Radio Regulations to refer the new Recommendation ITU-R M.[AS GUIDANCE], was summarized as an Issues for Consideration at APG Coordination Meeting at WRC-23.

**4. APT 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. APT Members also support the suppression of Resolution **774 (WRC-19)** if Recommendation ITU-R M.[AS GUIDANCE] can be finalized and approved before WRC-23.

**5. Preliminary APT Common Proposal**



**6. Issues for Consideration at APG Coordination Meeting at WRC-23 (if any)**

* A view was expressed that if the new Recommendation ITU-R M.[AS GUIDANCE] is approved in the ITU-R, it may be necessary to consider incorporation by reference in the Radio Regulations.
* Suppression or revision of Resolution **774 (WRC-19)** may need to be discussed depending on the status of the new Recommendation ITU-R M.[AS GUIDANCE].

**7. Views from Other Organisations**

**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** [**APG23-6/INF-46**](https://www.apt.int/sites/default/files/2023/08/APG23-6-INF-46_Status_of_CEPT_preparation_for_WRC-23_and_RA-23.pdf)

* 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 Amateursatellite services should be based on the results of co-existence studies and measurement campaigns.
* CEPT considers to incorporate by reference the new ITU-R Recommendation developed by ITU-R WP 5A and studies other options.

**7.1.4 CITEL** - **Document** [**APG23-6/INF-52**](https://www.apt.int/sites/default/files/2023/08/APG23-6-INF-52_CITEL_preparation_for_WRC-23.pdf)

* **NOC**. Some Administrations support No Change to the Articles and Appendices of the RR. Administrations are encouraged to take into account ITU-R Reports/Recommendations under development on how the amateur allocation can coexist with primary services in the 1240 – 1300 MHz band. Spectrum management best practices along with technical and operational measures may be used by administrations to ensure the protection of RNSS without the need for any additional regulatory constraints on amateur-satellite services in this frequency band.
* **SUP of RESOLUTION 774 (WRC 19)** “Studies on technical and operations 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)”: Consequential action as no further action is required by a WRC to address this topic. The ITU-R, through the course of its normal Study Group activities, could continue studies towards the revision of existing Reports and Recommendations.

**7.1.5 RCC** - **Document** [**APG23-6/INF-45**](https://www.apt.int/sites/default/files/2023/08/APG23-6-INF-45_Status_of_RCC_preparation_to_WRC-23.pdf)

* RCC views/positions based on direct extract from the relevant information document.
* 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.
* To address this topic new ITU-R Rec. M.[AS.GUIDANCE] should be developed and Res.**774** should be modified.

**7.2 International Organisations**

**7.2.1 IARU** - **Document** [**APG23-6/INF-30**](https://www.apt.int/sites/default/files/2023/08/APG23-6-INF-30_IARU_Views_on_WRC-23_Agenda_Items.docx)

* IARU views/positions based on direct extract from the relevant information document. 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. The IARU believes that the regulatory status of the amateur and amateur satellite services in this range is already clear. Therefore, any developments to add new regulatory, operational, or technical measures to be incorporated as new mandatory elements into the Radio Regulations are considered by the IARU as disproportionate to the minimal risk of interference and therefore opposed.
* IARU has supported and continues to support the development of guidance embodied in draft Recommendation ITU-R M.[AS GUIDANCE] resulting from the studies conducted under Resolution **774**. The guidance thus provided to administrations can be applied as needed on a national basis having taken account of amateur and amateur satellite service spectrum occupancy and usage, so as to be proportionate in scope, and carefully justified so as not to unnecessarily inhibit these amateur services and their future development.

**7.2.2 ICAO** - **Document** [**APG23-6/INF-25**](https://www.apt.int/sites/default/files/2023/07/APG23-6-INF-25_ICAO-Position_for_ITU-WRC23.docx)

* To ensure that any mitigation measures taken under this agenda item will not impact the protection of aeronautical radar systems operating under the existing aeronautical radionavigation or radiolocation service allocations.

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