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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-24**  |
| 14 – 19 August 2023, Brisbane, Australia | 18 August 2023 |

Working Party 3

**APT VIEW and Preliminary APT Common Proposal on WRC-23 agenda item 1.14 [[1]](#footnote-1)**

**Agenda Item 1.14:**

*to review and consider possible adjustments of the existing or possible new primary frequency allocations to EESS (passive) in the frequency range 231.5-252 GHz, to ensure alignment with more up-to-date remote-sensing observation requirements, in accordance with Resolution* ***662 (WRC-19)****;*

**1. Background**

The objective of WRC-23 agenda item 1.14 is to review and consider possible adjustment of the existing or possible new primary frequency allocations to the Earth exploration-satellite service (EESS) (passive) in the frequency range 231.5-252 GHz, to ensure alignment with more up-to-date remote sensing observation requirements, ensure that the allocations to the EESS (passive) within the considered frequency range correspond to the observation requirements for satellite passive microwave sensing without unduly constraining the operation of other primary services currently allocated in this frequency range, taking into account the possible effect on the other primary services in the considered frequency range.

ITU-R Working Party (WP) 7C is responsible to study this issue under agenda item 1.14. WP 7C received several reply liaisons statements from contributing groups containing relevant technical and operating characteristics and protection criteria for other services. Compatibility studies show that, in the frequency bands 239.2-242.2 GHz and 244.2-247.2 GHz, the sharing between the conical scanning passive sensors (like ICI) and systems of the fixed service (FS)/mobile service (MS) is not feasible. Studies also show that limb sounding passive sensors are compatible with systems of the FS/MS in the whole frequency range 231.5-252 GHz. Further, the sharing between the fixed-satellite service (FSS) (GSO, space-to-Earth) and EESS (passive) is feasible within the whole frequency range 232-240 GHz.

In order to avoid undue constraints on the FS and MS in the frequency band 239.2-241 GHz (1.8 GHz of BW), the existing FS and MS allocations could be shifted to the frequency band 235-238 GHz (3 GHz of BW). With such a shift the potential of interference to the EESS (passive) could be avoided and no constraints would have to be placed on the FS and MS services. On the contrary, the FS and MS would gain 1.2 GHz of additional primary allocations, and the two frequency ranges 231.5-235 GHz (3.5 GHz of BW) and 238-241 GHz (3 GHz of BW) would be transformed into one block of contiguous allocations in the frequency range 231.5-239.2 GHz (7.7 GHz of contiguous BW). In addition, the sharing studies as described in sections 3/1.14/3.3.1.2 and 3/1.14/3.3.8 confirm that such a shift would not negatively affect the existing services in the frequency band 235-238 GHz. Sharing between limb sounding passive sensors and the FS/MS is considered feasible in the frequency band 235-238 GHz. Thus, there would be neither an impact on the current allocation to the EESS (passive) and space research service (SRS) (passive) in the frequency band 235-238 GHz, nor any limitations required for the FS/MS to protect the EESS (passive) and SRS (passive). To ensure that there will be no potential future impact to the FS/MS in the frequency band 235-238 GHz, the existing allocation to the EESS (passive) in this frequency band could be limited for use by limb sounding passive sensors only. Three methods are proposed in the CPM report. Among those three methods**,** method A may not be in conformity with Resolution 662 (WRC-19) since it imposes constraints on the FS and the MS. Method C proposes no change. Apart from these two methods, Method B is in line with the objective of this agenda item.

**Method A:** Addition of new primary allocations to the EESS (passive) in the frequency bands 239.2-242.2 GHz and 244.2-247.2 GHz, and implementation of power limits on the FS and MS in the frequency band 239.2-241 GHz;

**Method B:** Addition of new primary allocations to the EESS (passive) in the frequency bands 239.2-242.2 GHz and 244.2-247.2 GHz, switch of the current FS and MS allocations in the frequency band 239.2-241 GHz to the frequency band 235-238 GHz and limitation of the EESS (passive) allocation in the 235-238 GHz to limb-sounding operations;

In this method, three options are proposed to mitigate some limitation to the existing EESS (passive) allocation in the frequency band 235-238 GHz in order to ensure that there will be no potential future impact to the FS and MS in the frequency band 235-238 GHz. This could be done by limiting the existing allocation to the EESS (passive) in this frequency band for use by limb sounding passive sensors only and/or by introducing a condition that the EESS (passive) in the frequency band 235-238 GHz shall not claim protection from stations of the FS and the MS.

**Method C:** No change.

**2. Documents**

-Input Documents: [APG23-6/INP-19(IND)](INPUT%20CONTRIBUTION/INDIA.docx), [APG23-6/INP-25(BGD)](INPUT%20CONTRIBUTION/BANGLADESH.docx), [APG23-6/INP-34(J)](INPUT%20CONTRIBUTION/JAPAN.docx), [APG23-6/INP-60(THA)](INPUT%20CONTRIBUTION/THAILAND.docx), [APG23-6/INP-67(IRN)](INPUT%20CONTRIBUTION/IRAN.docx), [APG23-6/INP-82(AUS)](INPUT%20CONTRIBUTION/AUSTRALIA.docx), [APG23-6/INP-89(KOR)](INPUT%20CONTRIBUTION/KOREA.docx), [APG23-6/INP-105(CHN)](INPUT%20CONTRIBUTION/CHINA.docx), [APG23-6/INP-111(MLA)](INPUT%20CONTRIBUTION/MALAYSIA.docx).

- Information Documents: [APG23-6/INF-02 (WMO)](INFORMATION%20DOC/APG23-6-INF-02_WMO_Position_on_WRC-23_Agenda.docx), [APG23-6/INF-30 (IARU)](INFORMATION%20DOC/APG23-6-INF-30_IARU_Views_on_WRC-23_Agenda_Items.docx), [APG23-6/INF-45 (RCC)](INFORMATION%20DOC/APG23-6-INF-45_Status_of_RCC_preparation_to_WRC-23.pdf), [APG23-6/INF-46 (CEPT)](INFORMATION%20DOC/APG23-6-INF-46_Status_of_CEPT_preparation_for_WRC-23_and_RA-23.pdf), [APG23-6/INF-52 (CITEL)](INFORMATION%20DOC/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(Republic of)-Document** [**APG23-6/INP-19**](file:///D%3A%5CAPT%20Docs%5CAPG%5CAPG2023%5CAPG23-5%5CDocuments%5COriginal%20OUT%20documents%5CAPG23-4-INP-09_J-3_WP3_Preliminary_Views_on_WRC-23_Agenda_Items_1.12_1.13_1.14_9.1.A_9.1.D_and_RES.655.docx)

India supports the consideration of possible adjustments of the existing or new primary frequency allocations to EESS (passive) in the frequency range 231.5-252 GHz in accordance with Resolution 662 (WRC-19) subject to the outcome of the results of ITU-R studies. Therefore, India supports Method B which proposes addition of new primary allocations to the EESS (passive) in the frequency bands 239.2-242.2 GHz and 244.2-247.2 GHz, and shifting of the existing FS and MS allocations to the frequency band 235-238 GHz.

**3.1.2 Bangladesh (People’s Republic of)-Document** [**APG23-6/INP-**](file:///D%3A%5CAPT%20Docs%5CAPG%5CAPG2023%5CAPG23-5%5CDocuments%5COriginal%20OUT%20documents%5CAPG23-4-INP-21_BGD_WP3_Preliminary_Views_on_WRC-23_Agenda_Items_1.13_and_1.14.docx)**25**

In order to review and consider possible adjustments of the existing or possible new primary frequency allocations to EESS (passive) in the frequency range *231.5-252 GHz,* Bangladesh administration prefers method B of the CPM report to WRC-2023, because there would be neither an impact on the current allocation to the EESS (passive) and space research service (SRS) (passive) in the frequency band 235-238 GHz, nor any limitations required for the FS/MS to protect the EESS (passive) and SRS (passive). To ensure that there will be no potential future impact to the FS/MS in the frequency band 235-238 GHz, the existing allocation to the EESS (passive) in this frequency band could be limited for use by limb sounding passive sensors only.

**3.1.3 Japan-Document** [**APG23-6/INP-34**](file:///D%3A%5CAPT%20Docs%5CAPG%5CAPG2023%5CAPG23-5%5CDocuments%5COriginal%20OUT%20documents%5CAPG23-4-INP-09_J-3_WP3_Preliminary_Views_on_WRC-23_Agenda_Items_1.12_1.13_1.14_9.1.A_9.1.D_and_RES.655.docx)

The fixed, mobile, fixed-satellite (space-to-Earth), radiodetermination, radionavigation, radionavigation-satellite and radio astronomy services are allocated on a primary basis in the 239.2-242.2 GHz band and its adjacent bands, and the radiodetermination and radio astronomy services are allocated on a primary basis in the 244.2-247.2 GHz band and its adjacent bands in Japan. Among those services, the incumbent active services should not be imposed undue restrictions. Japan does not support Method A. Japan does not support a specific Method for the moment.

**3.1.4 Thailand (Kingdom of) - Document APG23-6/INP-60**

Thailand supports Method B that adds new primary allocations to the EESS (passive) in the frequency bands 239.2-242.2 GHz and 244.2-247.2 GHz and shifts the current FS and MS allocations in the frequency band 239.2-241 GHz to the frequency band 235-238 GHz.

To ensure that there will be no potential future impact to the FS and MS in the frequency band 235-238 GHz, Thailand supports Method B Option 1.

**3.1.5 Iran (Islamic Republic of) -Document APG23-6/INP-67**

This Administration supports the consideration of possible adjustment of the existing or possible new primary frequency allocations to EESS (passive) in the frequency range 231.5-252 GHz in accordance with Resolution **662 (WRC-19)** based on the outcome of the study results, provided that, any changes to the EESS (passive) allocations in the frequency range 231.5-252 GHz shall not cause unacceptable interference nor adversely affect the operation of other primary services allocated in this frequency range.

In view of the above, at this stage, this Administration are considering Method B of the CPM report to WRC-23 to address this agenda item.

**3.1.6 Australia-Document APG23-6/INP-82**

Australia supports the addition of new primary allocations to the EESS (passive) in the bands 239.2‑242.2 GHz and 244.2-247.2 GHz, and possible adjustments to the existing Fixed Service and Mobile Service allocations in the 239.2-241 GHz band, in order to maximise the benefit to all involved services. Australia supports the proposed Method B as the most comprehensive and useful way to achieve this outcome.

**3.1.7** **Korea (Republic of)-Document APG23-6/INP-89**

Resolution **662 (WRC-19)** invited the 2023 World Radiocommunication Conference to review the results of the studies presented in *resolves* of the Resolution with a view to adjusting existing allocations or adding possible new allocations, as appropriate, to the EESS (passive) in the frequency range 231.5-252 ㎓ without unduly constraining the other primary services currently allocated in this frequency range.

On the Agenda item 1.14 of the CPM Report to WRC-23, it is noted that Method A may not be in conformity with Resolution 662 (WRC-19) since it imposes constraints on the FS and the MS. On the other hand, to ensure the protection of the stations of the fixed and mobile services from EESS (passive), Option 3 of the Method B includes the conditions of Option 1 and 2 and a condition that the EESS (passive) in the frequency band 235-238 GHz shall not claim protection from stations of the FS and the MS.

In this regard, the Republic of Korea supports Method B on Agenda item 1.14 of the CPM Report to WRC-23 that addition of new primary allocations to the EESS (passive) in the frequency bands 239.2-242.2 GHz and 244.2-247.2 GHz, switch of the current FS and MS allocations in the frequency band 239.2-241 GHz to the frequency band 235-238 GHz and limitation of the EESS (passive) allocation in the 235-238 GHz to limb-sounding operations.

In addition, the Republic of Korea is of a view that Option 3 of the Method B which proposes limiting the existing allocation to the EESS (passive) in this frequency band for use by limb sounding passive sensors only and/or introducing a condition that the EESS (passive) in the frequency band 235-238 GHz shall not claim protection from stations of the FS and the MS.

**3.1.8 China (People’s Republic of)-Document APG23-6/INP-105**

China supports the addition of new primary allocation to EESS(passive) in the frequency bands 239.2-242.2GHz and 244.2-247.2GHz, and the adjustment of the existing FS and MS allocations from 239.2-241GHz (1.8GHz bandwidth) to 235-238GHz (3GHz bandwidth).

In order to avoid undue constraints on the FS and MS in the frequency band 235-238GHz, China supports that the existing allocation to EESS (passive) in this frequency band for use is limited to limb sounding passive sensors only.

**3.1.9 Malaysia-**[**APG23-6/INP-**](file:///D%3A%5CAPT%20Docs%5CAPG%5CAPG2023%5CAPG23-5%5CDocuments%5COriginal%20OUT%20documents%5CAPG23-4-INP-68_MLA_WP3_Preliminary_Views_on_WRC-23_Agenda_Items_1.12_and_1.14.docx)**111**

Malaysia supports **Method B** of the CPM Report, which adds new primary allocations to EESS (passive) in the 239.2-242.2 GHz and 244.2-247.2 GHz frequency bands, and shifts the current FS and MS allocations in the 239.2-241 GHz frequency band to the 235-238 GHz frequency band.

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

*None*

**4. APT View(s)**

APT Members support Method B (option-1) of the CPM report to WRC-23 to address this agenda item. APT members support the addition of new primary allocations to the EESS (passive) in the frequency bands 239.2-242.2 GHz and 244.2-247.2 GHz, swap the current FS and MS allocations in the frequency band 239.2-241 GHz to the frequency band 235-238 GHz and limitation of the EESS (passive) allocation in the 235-238 GHz to limb-sounding operations.

**5. Preliminary APT Common Proposal**



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

Coordination to be required for the global or regional harmonization based on the views and proposals are submitted by other regional organizations at WRC-23, where following issues to be ensured;

-Move the current FS and MS allocations in the frequency band 239.2-241 GHz to the frequency band 235-238 GHz.

-There will be no potential future impact to the FS/MS in the frequency band 235-238 GHz.

-Limitation of the EESS (passive) allocation in the 235-238 GHz to limb-sounding operations;

**7. Views from Other Organisations**

**7.1 Regional Groups**

**7.1.1 CEPT** - **Document APG23-6/INF-46**

CEPT supports to cover relevant requirements of passive microwave sensor measurements within the frequency range 231.5-252 GHz with frequency allocations to EESS (passive) without unduly constraining the other primary services currently allocated in this frequency range,

specifically:

• In line with the scientific observation requirements identified so far, CEPT supports a new primary allocation to the EESS (passive) in the frequency bands 239.2-242.2 GHz and 244.2-247.2 GHz;

• In order to avoid undue constraints to the primary services to which the bands 239.2-242.2 GHz and 244.2-247.2 GHz are currently allocated and subject to the outcome of the relevant sharing and compatibility studies with the services to which these and the adjacent bands are already allocated, CEPT is also proposing a shift of existing allocations to the FS and MS in the frequency band 239.2-241 GHz into the frequency band 235-238 GHz;

• In order to ensure that there will be no potential future impact to FS and MS in the frequency band 235-238 GHz, CEPT proposes to limit the existing allocation to EESS (passive) in this frequency band for use by limb sounding passive sensors only.

**7.1.2 CITEL** - **Document APG23-6/INF-52**

MOD article 5 - 200-248 GHz

Reason:

Provides additional spectrum for EESS (passive) to ensure alignment with more up-to-date remote sensing observation requirements while at the same time not putting undue burden on incumbent services sharing the same band.

• ADD 5.B114-Opt1

• SUP RESOLUTION 662 (WRC 19) Review of frequency allocations for the Earth exploration-satellite service (passive) in the frequency range 231.5-252 GHz and consideration of possible adjustment according to observation requirements of passive microwave sensors

Preliminary proposal

• One Administration support NOC to Articles and Appendices.

**7.1.3 RCC** - **Document APG23-6/INF-45**

The RCC Administrations support Method B Option 3 of the CPM Report

- allocations to FS, MS in the frequency band 235-238 GHz are being included and allocations to FS/MS in the frequency band 238-241 GHz are being removed;

- the use of the frequency band 235-238 GHz is being limited to the passive sensors for atmospheric clearance and this use shall not require protection from FS/MS stations;

- additional allocations to EESS (passive) are being added in the frequency bands 239.2-242.2 GHz and 244.2-247.2 GHz.

**7.2 International Organisations**

**7.2.1 IARU** - **Document APG23-6/INF-30**

The IARU supports retention of the 248-250 GHz primary allocations and the 241 – 248 GHz secondary allocations to the amateur and amateur-satellite services.

Within this frequency range there is ongoing experimentation by amateur service stations, which is expected to grow as technology and equipment availability improves. Any introduction of EESS into the 241-250 GHz frequency range should not unduly constrain the ongoing experimental use by the amateur and amateur satellite services in their secondary and primary allocations or their future development.

IARU prefers Method C (No change) in the CPM Report, but may support Method B as long as neither the secondary amateur allocation 241 – 248 GHz nor our primary allocation 248 – 250 Hz are adversely affected.

**7.2.2 WMO** - **Document APG23-6/INF-02**

WMO supports new primary allocations to EESS (passive) in the frequency bands 239.2-242.2 GHz and 244.2-247.2 GHz in order to accommodate the requirements for ice cloud measurements.

In order to avoid undue constraints on the FS and MS in the band 239.2-241 GHz (currently with an allocation of 1.8 GHz in bandwidth), WMO also supports the shift of the existing FS and MS allocations to the band 235-238 GHz (providing an allocation of 3 GHz in bandwidth).

In order to ensure that there would be no potential future impact to FS and MS in the band 235-238 GHz, WMO would accept limiting the existing allocation to EESS (passive) in the band 235-238 GHz for use by limb sounding passive sensors only. Method B, Option 1 of the CPM Report aligns with these WMO objectives.

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1. Please note that the term ‘Issues/issues’ should not be confused with Issues in WRC-23 Agenda Items 7 and 9. [↑](#footnote-ref-1)