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| **The 3rd Meeting of the APT Conference Preparatory Group for WRC-23 (APG23-3)** | **APG23-3/OUT-14** |
| 8 – 13 November 2021, Virtual/Online Meeting | 13 November 2021 |

Working Party 2

**PRELIMINARY VIEWs on WRC-23 agenda item 1.7**

**Agenda Item 1.7:**

*To consider a new aeronautical mobile-satellite (R) service (AMS(R)S) allocation in accordance with Resolution* ***428 (WRC-19)*** *for both the Earth-to-space and space-to-Earth directions of aeronautical VHF communications in all or part of the frequency band 117.975-137 MHz, while preventing any undue constraints on existing VHF systems operating in the AM(R)S, the ARNS, and in adjacent frequency bands;*

**1. Background**

* Agenda item 1.7 was initiated by APT, CEPT and CITEL at WRC-19.
* The new AMS(R)S allocation would enable the relay of existing aeronautical VHF communications via satellites to extend the direct controller-pilot communications for aircraft operating in remote/oceanic region without the need to change the existing aircraft equipage.

**ITU-R studies**

* WP 5B was designated by CPM23-1 as the group responsible for this agenda item.
* A Working Document (WD) towards a Preliminary Draft New (PDN) Report ITU-R [M.[SPACE-VHF]](https://www.itu.int/dms_ties/itu-r/md/19/wp5b/c/R19-WP5B-C-0355%21N29%21MSW-E.docx) was updated based on the contributions from some countries.
* The draft CPM text was not updated due to a lack of contributions and would be carried forward to the next meeting.
* WP 5B noted that frequency planning and coordination within ICAO would ensure coexistence between AMS(R)S and AM(R)S within the frequency band 117.975-137 MHz, and between AMS(R)S with ARNS in the adjacent frequency band 108-117.975 MHz, hence sharing studies at ITU-R would not be necessary between these services.
* Hyperlink to the latest meeting documents: <https://www.itu.int/md/R19-WP5B-C-0355/en>

**Relevant ITU-R Recommendations**

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| ITU-R [M.1231-0](https://www.itu.int/rec/R-REC-M.1231-0-199702-I/en) | Interference criteria for space-to-Earth links operating in the mobile-satellite service with non-geostationary satellites in the 137-138 MHz band |
| ITU-R [M.1232-0](https://www.itu.int/rec/R-REC-M.1232-0-199702-I/en) | Sharing criteria for space-to-Earth links operating in the mobile-satellite service with non-geostationary satellites in the 137-138 MHz band |
| ITU-R [M.2092-0](https://www.itu.int/rec/R-REC-M.2092-0-201510-I/en) | Technical characteristics for a VHF data exchange system in the VHF maritime mobile band |
| ITU-R [P.531-14](https://www.itu.int/rec/R-REC-P.531-14-201908-I/en) | Ionospheric propagation data and prediction methods required for the design of satellite networks and systems |
| ITU‑R [RA.769-2](https://www.itu.int/rec/R-REC-RA.769-2-200305-I/en) | Protection criteria used for radio astronomical measurements |
| ITU-R [SM.1541-6](https://www.itu.int/rec/R-REC-SM.1541-6-201508-I/en) | Unwanted emissions in the out-of-band domain |

**Issues**

* WP 5B had exchanged liaison statements with the contribution groups, pending further collaboration and inputs:
	+ WP 4C on 137-137.025 MHz and 137.175-137.825 MHz allocated to the mobile-satellite service (MSS),
	+ WP 7B on 137-138 MHz allocated to the space operation service (SOS), space research service (SRS) and meteorological satellite service (MetSat),
	+ WP 7D on EPFD limits to protect the radio astronomy service in 150.05-153 MHz,
	+ ICAO on the extent of a possible AMS(R)S allocation in the frequency band 117.975-137 MHz; power to be considered for aircraft VHF transmitter; Doppler shift and time latency.

**2. Documents**

* Input Documents APG23-3/[INP-08](https://www.apt.int/sites/default/files/2021/10/APG23-3-INP-08_AUS_contribution_for_WP2_Preliminary_Views_on_WRC-23_Agenda_Items_1.6_1.7_1.8_1.9_1.10_1.11_and_Res.427WRC-19.docx) (AUS), [INP-13](https://www.apt.int/sites/default/files/2021/10/APG23-3-INP-13_Thailand_PV_WP2_AI_1.7.docx) (THA), [INP-21](https://www.apt.int/sites/default/files/2021/11/APG23-3-INP-21_New_Zealand_input_to_WP2_AIs_1.7_1.8_1.9_1.11.docx) (NZL), [INP-25](https://www.apt.int/sites/default/files/2021/11/APG23-3-INP-25_WP2_Kor_1.6_1.7_1.8_1.9_1.10_1.11.docx) (KOR), [INP-29](https://www.apt.int/sites/default/files/2021/11/APG23-3-INP-29_J-2_WP2_PRELIMINARY_VIEWS_ON_WRC-23_AGENDA_ITEMS_1.6_1.7_1.8_1.9_1.10_1.11_AND_RES.427.docx) (J), [INP-37](https://www.apt.int/sites/default/files/2021/11/APG23-3-INP-37_SNG_WP2_AI1.7_1.9.docx) (SNG), [INP-47](https://www.apt.int/sites/default/files/2021/11/APG23-3-INP-47_Iran-AI_1.7_1.8_1.11.docx) (IRN), [INP-52](https://www.apt.int/sites/default/files/2021/11/APG23-3-INP-52_VTN_WP2_PV_1.7_1.8_1.9_1.10_1.11.docx) (VTN).
* Information Documents APG23-3/[INF-01](https://www.apt.int/sites/default/files/2021/10/APG23-3-INF-01_Preliminary_WMO_Position_on_WRC-23_Agenda.docx) (WMO), [INF-15](https://www.apt.int/sites/default/files/2021/10/APG23-3-INF-15_ICAO-Position_for_ITU_WRC-23.docx) (ICAO), [INF-17](https://www.apt.int/sites/default/files/2021/11/APG23-3-INF-17_IARU_Views.docx) (IARU), [INF-18](https://www.apt.int/sites/default/files/2021/11/APG23-3-INF-18_GSMA_Views.docx) (GSMA Hong Kong), [INF-26](https://www.apt.int/sites/default/files/2021/11/APG23-3-INF-26_Briefing_on_AI1.7.docx) (DG Chair), [INF-37](https://www.apt.int/sites/default/files/2021/11/APG23-3-INF-37_ASMG_Preparation_for_WRC-23.pdf) (ASMG), [INF-39](https://www.apt.int/sites/default/files/2021/11/APG23-3-INF-39_Report_of_APM23-2.docx) (ATU), [INF-41](https://www.apt.int/sites/default/files/2021/11/APG23-3-INF-41_Status_of_CEPT_Preparation_for_WRC-23_and_RA-23.pdf) (CEPT).

**3. Summary of discussions**

**3.1 Summary of APT Members’ views**

**3.1.1 Australia - Document APG23-3/INP-08**

* Australia supports ITU-R studies for AMS(R)S in the frequency bands defined in Resolution 428 (WRC-19). Subject to these sharing and compatibility studies showing no adverse impact to the operation of existing VHF systems operating in the AM(R)S, Australia supports a new AMS(R)S allocation in the 117.975-137 MHz band to enhance the efficiency and capacity of aircraft operations.

**3.1.2 Thailand - Document APG23-3/INP-13**

* Thailand supports APT Preliminary View on agenda item 1.7 reached at APG23-2 Meeting. Thailand is also of the view that the studies shall take into account the protection of existing primary services/systems operating in this frequency band and in adjacent frequency bands.

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**3.1.3 New Zealand - Document APG23-3/INP-21**

* New Zealand supports the studies being conducted by ITU-R WP 5B within the 117.975-137 MHz frequency band and within the scope of Resolution 428. Sharing and compatibility studies should ensure existing primary services in that frequency band and in adjacent frequency bands remain protected while ensuring there is no adverse impact to systems in the Aeronautical Mobile (Route) Service (AM(R)S).

**3.1.4 Korea (Republic of) – Document APG23-3/INP-25**

* The Republic of Korea supports ITU-R studies defined in Resolution 428 (WRC-19) for a new AMS(R)S allocation for both the Earth-to-space and space-to-Earth directions in all or part of the frequency band 117.975-137 MHz. The Republic of Korea is also of the view that the studies shall take into account the protection of existing services operating in this frequency band and in adjacent frequency bands.

**3.1.5 Japan – Document APG23-3/INP-29**

* Japan supports ITU-R studies for a new AMS(R)S allocation in accordance with Resolution 428 (WRC-19) for the Earth to space and space to Earth direction.

**3.1.6 Singapore – Document APG23-3/INP-37**

* Singapore supports the ongoing ITU-R studies for a new AMS(R)S allocation for both the Earth-to-space and space-to-Earth directions in all or part of the frequency band 117.975-137 MHz, in accordance with Resolution 428 (WRC-19).

**3.1.7 Iran – Document APG23-3/INP-47**

* This Administrations has no objection to a new primary allocation of all or part of the frequency band 117.975-137 MHz to AMS(R)S to develop aeronautical VHF communications systems for both Earth-to-Space and Space-to-Earth directions provided that unacceptable interference shall not be caused to the services to which the band is currently allocated as well as to the additional allocation aeronautical mobile (OR) service on a primary basis operating in adjacent frequency bands.

**3.1.8 Vietnam – Document APG23-3/INP-52**

* Viet Nam supports the ITU-R studies to consider a possible primary allocation to AMS(R)S in the Earth-to-space and space-to-Earth directions in entire or portions of the frequency band 117.975-137 MHz while ensuring no adverse effect on the allocation of the existing services and their future development.
* Viet Nam is of the view that new AMS(R)S allocation is limited to implement internationally standardised aeronautical systems.
	1. **Summary of issues raised during the meeting**

None.

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

APT Members support ITU-R studies defined in Resolution **428 (WRC-19)** for a new AMS(R)S allocation for both the Earth-to-space and space-to-Earth directions in all or part of the frequency band 117.975-137 MHz, while taking into account the protection of existing services operating in this frequency band and in adjacent frequency bands.

APT Members support the new AMS(R)S allocation that is limited to the relaying of aeronautical VHF air traffic management communications in accordance with international Standards and Recommended Practices and procedures established in accordance with the Convention on International Civil Aviation.

APT Members are of the view that unacceptable interference shall not be caused to the services to which the band is currently allocated as well as to the additional allocation of the aeronautical mobile (OR) service on a primary basis operating in the bands 132-136 MHz and 136-137 MHz.

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

None.

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

None.

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

APG23-3)

**7.1 Regional Groups**

**7.1.2 ATU** - **Document APG23-3/INF-39**

* ATU administrations are invited to support the ITU-R ongoing technical studies and regulatory procedures in order to improve/enhance the aeronautical communications in oceanic and remote areas, while ensuring the protection of the existing radio communication services, without imposing any operational constraints on existing VHF aeronautical systems or other services operating at the adjacent frequency bands.

**7.1.2 ASMG** - **Document APG23-3/INF-37**

* Support ongoing regulatory studies and procedures with the aim of strengthening aviation systems over remote areas and oceans while ensuring that existing services and existing aviation systems are protected and that no operational restrictions are imposed on them.

**7.1.1 CEPT** - **Document APG23-3/INF-41**

* CEPT supports a new primary allocation to AMS(R)S in the Earth‐to‐space and space‐to‐Earth directions in all or part of the frequency band 117.975‐137 MHz while:
	+ limiting the use of the frequency bands covered by the new AMS(R)S allocation to internationally standardised aeronautical systems;
	+ ensuring protection of AM(OR)S service in the band 117.975‐137 MHz;
	+ ensuring protection of services in adjacent bands and not constraining these services.
* CEPT is of the view that in‐band coexistence between AM(R)S and AMS(R)S and adjacent‐band coexistence between ARNS and AMS(R)S around 117.975 MHz will be ensured through frequency planning and coordination work.

**7.2 International Organisations**

**7.2.1 WMO** - **Document APG23-3/INF-01**

None.

**7.2.2 ICAO** - **Document APG23-3/INF-15**

* To support ITU-R studies and the definition of relevant technical characteristics as called for by Resolution 428 (WRC-19).
* To support a global allocation to the aeronautical mobile-satellite (route) service for both the Earth-to-space and space-to-Earth directions in the frequency band 117.975-137 MHz and that the use of the allocation be limited to the relaying of aeronautical VHF air traffic management communications.
* To support that those systems shall operate in accordance with international Standards and Recommended Practices and procedures established in accordance with the Convention on International Civil Aviation.
* To ensure that any change to the regulatory provisions and spectrum allocation resulting from this agenda item do not adversely impact the operation of existing VHF systems in the band 117.975-137 MHz operating in the AM(R)S, including regional usage of terrestrial VHF, nor require any changes to aircraft equipage or to existing installations.

**7.2.3 IARU** - **Document APG23-3/INF-17**

None.

**7.2.4 GSMA Hong Kong** - **Document APG23-3/INF-18**

None.

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