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|  | ASIA-PACIFIC TELECOMMUNITY | Document No: |
| **The 2nd Meeting of the APT Conference Preparatory Group for WRC-23 (APG23-2)** | **APG23-2/INF-15** |
| 19 – 23 April 2021, Virtual/Online Meeting | 23 March 2021 |

Chairman, DG on AI 1.10

**brief on wrc-23 agenda item 1.10**

(Note: *This brief was developed for information purpose only. It does not necessarily express the view of APG-23*)

**Agenda Item 1.10:**

*to conduct studies on spectrum needs, coexistence with radiocommunication services and regulatory measures for possible new allocations for the aeronautical mobile service for the use of non-safety aeronautical mobile applications, in accordance with Resolution 430 (WRC 19);*

**Relevant Resolutions and Responsible/Contributing ITU-R Groups**

[*The texts in this section should be the same as CA251, CA251A1 and CA 251C1. Cut and paste*]

Example:

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| Resolution **430 (WRC-19)**  Studies on frequency-related matters, including possible additional allocations, for the possible introduction of new non-safety aeronautical mobile applications | *resolves to invite ITU‑R*  to conduct, and complete in time for WRC-23:  1 studies on spectrum needs for new non-safety aeronautical mobile applications for air-to-air, ground-to-air and air-to-ground communications of aircraft systems;  2 sharing and compatibility studies in the frequency band 22-22.21 GHz, already allocated on a primary basis to the mobile, except aeronautical mobile, service, in order to evaluate the possible revision or deletion of the “except aeronautical mobile” restriction while ensuring the protection of primary services in the considered frequency bands and, as appropriate, in adjacent frequency bands;  3 sharing and compatibility studies on possible new primary allocations to the aeronautical mobile service for non-safety aeronautical applications in the frequency band 15.4-15.7 GHz, while ensuring the protection of primary services in the considered frequency bands and, as appropriate, adjacent frequency bands;  4 definition of appropriate protection for passive services and radio astronomy allocated in adjacent bands from unwanted emission of AMS,  *invites the 2023 World Radiocommunication Conference*  to review the results of the ITU‑R studies and take appropriate actions,  *invites administrations*  to participate actively in the studies by submitting contributions to ITU‑R. |

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| **Responsible group** | **Contributing group** |
| **WP 5B** | **WP 3K, WP 3M, WP 4A, WP 5A, WP 5C, WP 7C, WP 7D** |

**1. Background Information**

The Agenda Item 1.10 was initiated by CEPT at WRC-19.

In the past 20 years, the number of aircraft equipped with sensors has grown significantly. The Agenda Item aims to accommodate the need for the increasing bidirectional low to high data rate communications between aeronautical stations and aircraft stations, or between aircraft stations. These new aeronautical communications are not related to safety of flights.

Relevant ITU-R Recommendations and Reports:

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| *Recommendations* | |
| [ITU-R F.758](https://www.itu.int/rec/R-REC-F.758/en) | System parameters and considerations in the development of criteria for sharing or compatibility between digital fixed wireless systems in the fixed service and systems in other services and other sources of interference |
| [ITU-R M.1730](https://www.itu.int/rec/R-REC-M.1730-1-200910-I/en) | Characteristics of and protection criteria for the radiolocation service in the frequency band 15.4-17.3 GHz |
| [ITU-R RA.517](https://www.itu.int/rec/R-REC-RA.517-4-200605-I/en) | Protection of the radio astronomy service from transmitters operating in adjacent bands. |
| [ITU-R RA.769](https://www.itu.int/rec/R-REC-RA.769-2-200305-I/en) | Protection criteria used for radio astronomical measurements |
| [ITU-R RA.1513](https://www.itu.int/rec/R-REC-RA.1513-2-201503-I/en) | Levels of data loss to radio astronomy observations and percentage-of-time criteria resulting from degradation by interference for frequency bands allocated to the radio astronomy service on a primary basis |
| [ITU-R RA.1631](https://www.itu.int/rec/R-REC-RA.1631-0-200305-I/en) | Reference radio astronomy antenna pattern to be used for compatibility analyses between non-GSO systems and radio astronomy service stations based on the epfd concept |
| [ITU-R RS.1028](https://www.itu.int/rec/R-REC-RS.1028-2-200305-W/en) | Performance criteria for satellite passive remote sensing |
| [ITU-R RS.1029](https://www.itu.int/rec/R-REC-RS.1029-2-200305-W/en) | Interference criteria for satellite passive remote sensing |
| [ITU-R RS.1813](https://www.itu.int/rec/R-REC-RS.1813-1-201102-I/en) | Reference antenna pattern for passive sensors operating in the Earth exploration-satellite service (passive) to be used in compatibility analyses in the frequency range 1.4-100 GHz |
| [ITU-R RS.1861](https://www.itu.int/rec/R-REC-RS.1861/en) | Typical technical and operational characteristics of Earth exploration-satellite service (passive) systems using allocations between 1.4 and 275 GHz |
| [ITU-R RS.2017](https://www.itu.int/rec/R-REC-RS.2017/en) | Performance and interference criteria for satellite passive remote sensing |
| [ITU-R S.1340](https://www.itu.int/rec/R-REC-S.1340-0-199710-I/en) | Sharing between feeder links for the mobile-satellite service and the aeronautical radionavigation service in the Earth-to-space direction in the band 15.4-‑15.7 GHz |
| [ITU-R S.1341](https://www.itu.int/rec/R-REC-S.1341-0-199710-I/en) | Sharing between feeder links for the mobile-satellite service and the aeronautical radionavigation service in the space-to-Earth direction in the band 15.4‑15.7 GHz and the protection of the radio astronomy service in the band 15.35-15.4 GHz |
| [ITU-R SA.509](https://www.itu.int/rec/R-REC-SA.509-3-201312-I/en) | Space research earth station and radio astronomy reference antenna radiation pattern for use in interference calculations, including coordination procedures, for frequencies less than 30 GHz |
| [ITU-R SA.510](https://www.itu.int/rec/R-REC-SA.510-3-201707-I/en) | Feasibility of frequency sharing between the space research service and other services in bands near 14 and 15 GHz - Potential interference from data relay satellite systems |
| *Reports* |  |
| [ITU-R M.2170](https://www.itu.int/pub/R-REP-M.2170-2009) | Compatibility analysis and results for radiolocation systems planned to operate in the 15.4 to 17.3 GHz band and aircraft landing system operating in the 15.4‑15.7 GHz band as well as the radio astronomy service operating in the adjacent band 15.35-15.40 GHz, FSS systems and aeronautical radionavigation systems |
| [ITU-R M.2229](https://www.itu.int/pub/R-REP-M.2229-2011) | Compatibility study to support line-of-sight control and non-payload communications links for unmanned aircraft systems proposed in the frequency band 15.4-15.5 GHz |
| [ITU-R M.2230](https://www.itu.int/pub/R-REP-M.2230-2011) | Frequency sharing between unmanned aircraft systems for beyond line of sight control and non-payload communications links and other existing and planned services in the frequency bands 13.25-13.40 GHz, 15.4-15.7 GHz, 22.5‑22.55 GHz and 23.55-23.60 GHz |
| [ITU-R RA.2131](https://www.itu.int/pub/R-REP-RA.2131-2009) | Supplementary information on the detrimental threshold levels of interference to radio astronomy observations in Recommendation ITU-R RA.769 |

WDPDN Recommendation ITU-R M.[15.4-15.7 GHz ARNS] Characteristics of and protection criteria for radars operating in the aeronautical radionavigation service in the frequency band 15.4‑15.7 GHz

**2. Information on on-going ITU-R Study**

During the two WP5B meetings held last year, a Working Document towards PDN Report ITU-R M.[NON-SAFETY AMS] has been initiated. Preliminary characteristics of systems in the possible new AMS allocation for non-safety of life application, various characteristics from ITU-R Recommendations of systems in the incumbent services, as well as recommended propagation models were merged in this document. Initial sharing studies were incorporated in this document with assumptions needed to be updated with the new preliminary characteristics.

The relevant materials could be found at <https://www.itu.int/md/R19-WP5B-C-0225/en>.

**3. Position of the Regional Group (if available)**

* ATU
* ASMG

Inviting ASMG administrations to study the actual uses in the bands 22-22.22 GHz & 15.4 -15.7 GHz.

Inviting ASMG administrations to study the possibility of support, taking into account the studies needed to be conducted with a view to set appropriate conditions to protect existing services.

* CEPT

CEPT supports that any modification of the RR should ensure appropriate protection for the EESS/SRS (passive) and the RAS (taking into account RR No. 5.149) allocated in adjacent frequency band from unwanted emissions of the AMS.

* CITEL
* RCC

The RCC Administrations consider that, when possible new allocations to aeronautical mobile service in the frequency band 15.4 – 15.7 GHz as well as possible remove of constraints for the use of the frequency band 22 – 22.21 GHz by aeronautical mobile service, it is necessary to:

- provide protection of primary services in the band and adjacent frequency bands;

- define unwanted emissions’ limits for station of aeronautical mobile service in the frequency bands 15.35-15.4 GHz and 22.21-22.5 GHz to protect EESS (passive) and radio astronomy service.

**4. Position of International Organizations (if available)**

* ICAO

To support ITU-R studies as called for by Resolution **430 (WRC-19)**.

To support, based on the agreed results of studies, new allocations to the aeronautical mobile service only for use by non-safety aeronautical mobile applications.

To ensure that any such modification does not adversely affect the status or provision of aeronautical safety services.

* IMO
* WMO

WMO supports studies to ensure protection of the EESS (passive) in the adjacent frequency band 22.21-22.5 GHz and possibly the 15.35-15.4 GHz band when its usage will have been assessed.

* IARU R3
* Etc…