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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-39** |
| 19 – 23 April 2021, Virtual/Online Meeting | 19 April 2021 |

Chairman, DG on AI 1.9

**brief on wrc-23 agenda item 1.9**

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

**Agenda Item 1.9:**

*to review Appendix 27 of the Radio Regulations and consider appropriate regulatory actions and updates based on ITU‑R studies, in order to accommodate digital technologies for commercial aviation safety-of-life applications in existing HF bands allocated to the aeronautical mobile (route) service and ensure coexistence of current HF systems alongside modernized HF systems, in accordance with* ***Resolution 429 (WRC‑19);***

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

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| Resolution **429 (Rev.WRC‑19)**  Consideration of regulatory provisions for updating Appendix 27 of the Radio Regulations in support of aeronautical HF modernization | *resolves*  1 to identify any necessary modifications to Appendix 27 for the aeronautical mobile (route) service between 2 850 and 22 000 kHz noting recognizing c);  2 to identify any necessary transition arrangements for the introduction of new digital aeronautical wideband HF systems and any consequential changes to Appendix 27;  3 to recommend how new digital aeronautical wideband HF systems can be introduced while ensuring compliance with safety requirements and recognizing e);  4 to define the relevant technical characteristics and to conduct any necessary sharing and compatibility studies, taking account noting e), with incumbent services that are allocated on a primary basis in the same or adjacent frequency bands to avoid harmful interference in accordance with recognizing e);  5 to complete studies in time for WRC‑23,  resolves to invite WRC-23  to consider necessary changes to Appendix 27, on the basis of the studies conducted under resolves to invite ITU‑R above,  instructs the Secretary-General  to bring this Resolution to the attention of the International Civil Aviation Organization,  invites the International Civil Aviation Organization  to participate actively by providing aeronautical operational requirements and relevant available technical characteristics to be taken into account in ITU‑R studies. |

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| **Responsible group** | **Contributing group** |
| **WP 5B** | **WP 3L, WP 3M, WP 6A** |

**1. Background Information**

* Agenda Item 1.9 was proposed by the United States of America aviation community and had broad support at the WRC19. ICAO supports the work that may lead to changes and improvements to the Appendix 27.
* The HF spectrum has largely been broken up into repeating allocations throughout the range 3-30 MHz. These allocations have their conventional implementation arrangements and the traditional adoption of multiple 3 kHz channels (with a 2.7 kHz emission in the initial planning days) allowed for adjacent channel use, adjacent band use and service allocation replication across the HF domain. This is all to enable beyond line of site communications across all periods of the day, month, season and sunspot cycle.
* There is a new layer of technologies that enable higher data rates in the HF frequency range via aggregation of contiguous 3 kHz channels as well as aggregation of non-contiguous channels.
* Currently the Appendix 27 (Frequency allotment plan for AM(R)S) does not allow aggregation, however the aviation industry, in conjunction with manufacturers, wants to be able to implement this aggregation for wider applications within the aviation domain. This application, conventionally termed Wideband HF or WBHF is being implemented in a non-aviation domain within Australia by the Department of Defence. The regulations do not preclude the use of WBHF in some other services (maritime mobile service, for instance), but the current studies and implementation arrangements do not enable easy adoption of the new technologies in these allocations.
* The aviation community, including ICAO, are supporting the studies limited to Appendix 27 bands only, to enable early adoption of the newer WBHF technologies.

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

* To date, a work program has been discussed briefly within the Working Party, and a request for technical parameters. ICAO have provided a single set of technical parameters for one type of technology and have been requested to provide further parameters. At the 25th meeting of WP 5B (Nov 2020), a WD towards a PDN Report ITU-R M.[AERO-WIDEBAND-VHF] and the draft CPM text were initiated.
* Current documents undergoing work within WP5B are:
* [Annex 4](https://www.itu.int/dms_ties/itu-r/md/19/wp5b/c/R19-WP5B-C-0225!N04!MSW-E.docx) to Document 5B/225-E Chairman’s Report ***-*** *Working Document towards Draft CPM Text for WRC-23 agenda item 1.9*
* [Annex 5](https://www.itu.int/dms_ties/itu-r/md/19/wp5b/c/R19-WP5B-C-0225!N05!MSW-E.docx) to Document 5B/225-E Chairman’s Report **-** *Draft Work Plan for WRC-23 agenda item 1.9*
* [Annex 29](https://www.itu.int/dms_ties/itu-r/md/19/wp5b/c/R19-WP5B-C-0225!N29!MSW-E.docx) to Document 5B/225-E Chairman’s Report - *Working Document towards preliminary draft new report ITU-R M.[Aero-Wideband-HF]*

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

* **ATU** – N/A
* **ASMG** - Support the promotion of optimal use of the radiofrequency spectrum by introducing digital technologies for safety applications in the HF bands allocated to the aeronautical mobile service, provided that coexistence with current analogue system is ensured.
* **CEPT** - supports the modification of the Appendix 27 of RR that would allow new digital wideband HF systems including aggregating contiguous and/or not contiguous channels, if retained, while ensuring: • the protection of other primary services operating in band and in adjacent frequency bands, and • coexistence with existing aeronautical analogue voice and data HF systems.
* **CITEL** - An Administration supports studies called for by Resolution 429 (WRC-19) to accommodate new digital HF technologies.
* **RCC** - N/A

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

* ICAO – N/A
* IMO – N/A
* WMO – N/A
* IARU R3 – N/A