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| **The 3rd Meeting of the APT Conference Preparatory Group for WRC-23 (APG23-3)** | **APG23-3/OUT-15** |
| 8 – 13 November 2021, Virtual/Online Meeting | 13 November 2021 |

Working Party 2

**PRELIMINARY VIEWs on WRC-23 agenda item 1.8**

**Agenda Item 1.8**

*to consider, on the basis of ITU R studies in accordance with Resolution* ***171 (WRC-19)****, appropriate regulatory actions, with a view to reviewing and, if necessary, revising Resolution* ***155 (Rev.WRC-19)*** *and No.* ***5.484B*** *to accommodate the use of fixed-satellite service (FSS) networks by control and non-payload communications of unmanned aircraft systems;*

**1. Background**

WRC-23 is to review and undertake a potential revision of Resolution **155 (Rev.WRC-19)** and No. **5.484B** in the frequency bands to which they apply.

The responsible group WP 5B has initiated the work by sending liaison statements to the contributing groups, WP 4A and WP 4B, as well as to WP 3M, WP 5A, WP 5C, and WP 7D to request information on technical/operational characteristics and protection criteria of services which they look over, and on propagation models.

So far, WP 5B has considered contributions, providing proposed amendments to the WD towards PDN Recommendation/Report ITU-R M.[UAS CNPC\_CHAR], which provides characteristics of unmanned aircraft system control and non-payload communications (UAS CNPC) earth stations for use with space stations operating in the fixed-satellite service. The WP 5B May 2021 meeting decided to request the Director BR to provide updated information and statistics on satellite networks in the MIFR meeting the requirements of Resolution **155 (Rev.WRC-19)**.

WP 5B has also considered contributions providing proposed amendments to the PDN Report ITU‑R M.[UA\_PFD] “review of power flux-density limits in accordance with resolves 16 of Resolution **155 (Rev.WRC-19)**” as well as proposals to upgrade this document to a draft new report to be submitted to SG 5 for approval. The WP 5B May 2021 meeting agreed not to update the status and noted that the characteristics of mobile services as well as those provided from the BR needs to be considered.

In response to its liaison statement to ICAO, WP 5B received a reply liaison statement from ICAO, informing about the status of its work on the international Standards And Recommended Practices (SARPs) associated with unmanned aircraft systems, termed remotely piloted aircraft (RPA) within ICAO and also provided excerpts of the SARPs. WP 5B noted that the first package of SARPs, of a more general nature, was approved by ICAO Council March 2021 and the second package, containing technical solutions, including the use of the FSS, due to be approved 2023.

The November 2020 meeting of WP 5B established a correspondence group (CG). At the May 2021 meeting of WP 5B, the CG presented a working document ([5B/261](https://www.itu.int/md/R19-WP5B-C-0261/en)) which addressed principles associated with UAS CNPC operation in the frequency bands identified in Resolution 155 (Rev. WRC-19). The meeting noted that the first two sections has reached conclusion, however, section 3 and onwards still had not been discussed. To be able to complete its work and deliver the draft CPM text on time, WP 5B has decided to continue the work of the CG on WRC-23 agenda item 1.8 between the May 2021 meeting and the next meeting of WP 5B in November-December 2021.

**2. Documents**

* Input Documents: APG23-2/INP-45(CHN), APG23-3/INP-8 (AUS), APG23-3/INP-21 (NZL), APG23-3/INP-25 (KOR), APG23-3/INP-29 (JPN), APG23-3/INP-47 (IRN), APG23-3/INP-52 (VTN).
* Information Documents: APG23-3/INF 15 (ICAO), APG23-3/INF-20 (CEPT), APG23-3/INF-39 (ATU).

**3. Summary of discussions**

**3.1 Summary of APT Members’ views**

**3.1.1 Australia – Document APG23-3/INP-8**

Australia supports progress of work on technical and regulatory issues under this agenda item.

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

New Zealand supports the studies currently being conducted by ITU-R Working Party 5B.

**3.1.3 Korea – Document APG23-3/INP-25**

The Republic of Korea supports ongoing studies in relation to Agenda Item 1.8 in accordance with Resolution **171 (Rev.WRC-19)**.

The Republic of Korea is of the view that, when reviewing No. **5.484B** and Resolution **155 (Rev.WRC-19)** for possible changes, it should be ensured that any potential changes to such regulatory provisions will not impact any other systems or services operating in accordance with the Radio Regulations.

**3.1.4 Japan - Document APG23-3/INP-29**

Japan supports ongoing studies being carried out by ITU-R WP 5B in relation to Agenda Item 1.8 in accordance with Resolution 171 (WRC-19).

**3.1.5 Iran- Document APG23-3/INP-47**

Iran supports to continue and accelerate the studies with regard to all those issues currently being discussed on "Principle Document" including but not limited to the interference management of the UAS CNPC links with regard to the space and terrestrial stations as well as the highly important safety of life aspects of UAS/ CNPC and clearly defining responsibilities of all key player, yet to be identified.

Iran is of the strong view that any identification of the frequency band for such highly safety service in FSS shall be based on the assurance of the protection of the current and future terrestrial and space services in an applicable manner as well as fully complies with ICAO SARPS, yet to be completed, finalized and made available to ITU.

**3.1.6 Viet Nam – Document APG23-3/INP-52**

Viet Nam supports studying on technical, operational, and regulatory aspects as indicated in Resolution **171 (WRC-19),** with a viewto revising Resolution **155 (Rev.WRC-19)** and No. **5.484B** to accommodate the use of fixed-satellite service (FSS) networks by control and non-payload communications of unmanned aircraft systems.

**3.1.7 China (People’s Republic of) – Document APG23-2/INP-45**

China supports studies being conducted in ITU-R in accordance with Resolution 155 (Rev.WRC-19) and Resolution 171 (WRC 19) to make progress on technical, operational and regulatory aspects in relation to the implementation of Resolution 155 (Rev.WRC 19).

The frequency bands specified in resolves 1 of Resolution 155 (Rev.WRC-19) are also allocated to terrestrial and space services which are used by a variety of different systems. These existing services and their future development need to be fully protected, without the imposition of any additional constraints, from the operation of UAV/CNPC.

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

* It is worth to mention that this agenda item is a continuation of work from two previous WRCs (WRC-15 and WRC-19). There are considerable inconsistencies in the Resolution 155 (Rev.WRC-15) as well as Resolution 155 (Rev.WRC-19). This matter was raised at several meetings at WP 5B, in particular by ICAO. WP 5B decided to prepare a “principle document (5B/261)” indicating the objective of this agenda item. This principle document has been discussed at meetings of WP 5B as well as in the intersessional meetings between WP 5B meetings. Various elements yet to be raised at these meetings. Some progress has been made on this principle document however it has not yet been completed. Until this principle document is finalized no actual work in this agenda item could be started.
* This agenda item is very complex and a considerable number of points need to be further discussed and clarified in the principle document. Consequently, the work is behind schedule and may not be completed before the final date of submission of the Draft CPM text. Consequently, activities related to the drafting of the Resolution, either as a new Resolution or a revised Resolution 155, has not been started. Moreover, no action has been taken with respect to the CPM text. In addition, technical annexes to be attached to the CPM text or to the Resolution have yet to be finalized.

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

* APT Members support ongoing studies being carried out by ITU-R WP 5B in relation to Agenda Item 1.8 in accordance with Resolution **171 (WRC-19).**

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

None

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

* APT Members are encouraged to participate in relevant studies and submit their contributions to WP 5B and future APG meetings in relation with the item mention below.
* Taking into account section 3.2 above, considerable amount of work and efforts are required in order to prepare the CPM text and associated Resolution as well as technical annexes to the Resolution on this agenda item.

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

APG23-3)

**7.1. Regional group**

**7.1.1 CEPT** - **Document APG23-3/INF-20**

CEPT acknowledges the opportunities of the use of networks of the FSS for UAS CNPC links and CEPT is of the view that UAS CNPC links using FSS in non‐segregated airspace shall operate:

* + In accordance with ICAO SARPs (see resolves 3 of Resolution 155 (Rev.WRC‐19));
  + Under successfully coordinated assignments for FSS applications notified with class of earth station “UG” (see resolves 2 and 13 of Resolution 155 (Rev.WRC‐19)). CEPT is of the view that the safety aspects of UAS CNPC shall not have any impact on:
  + The existing terrestrial services and their current and expected applications (see resolves 8 of Resolution 155 (Rev.WRC‐19));
  + The relevant existing agreements reached during FSS satellite coordination process (see resolves 6, 7, and 9 of Resolution 155 (Rev.WRC‐19));
  + The future coordination of FSS networks during the application of provisions of Articles 9 and 11 of the RR (see resolves 9 of Resolution 155 (Rev.WRC‐19));
  + All cases which fall under RR 11.41 (see resolves 9 of Resolution 155 (Rev.WRC‐19)).

CEPT is of the view that:

* In order to ensure safety‐of‐flight operation of UAS, the administrations responsible for the operation of UAS CNPC links under the ICAO SARPs shall take the required measures on their side to ensure freedom from harmful interference to earth stations on board UA. (see resolves 7 and 13 of Resolution 155 (Rev.WRC‐19)).
* The pfd mask labelled as example b in Annex 2 of Resolution 155 (Rev. WRC‐19) is appropriate to protect the terrestrial services.
* The RR No. 5.149 for the protection of Radio astronomy from harmful interference in the frequency band 14.47‐14.5 GHz has to be taken into account (see resolves 17 of 155 (Rev.WRC‐19)).
* If the conditions for the safety operation of CNPC established by ICAO cannot be met with the existing FSS link as it stands, then this link should not be used for UAS

CEPT recognizes that ICAO is responsible for the safe operation of aircraft including UAS and is developing appropriate SARPs covering all aspects of safe operation of UAS including the required communication system.

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

The APM23-2 agreed to support the review and possible revision of Resolution 155 (Rev.WRC-19) and No. 5.484B in the frequency bands to which they apply. Specifically, support the application of safety of life standards with UAS CNPC links and ensure that the requirements of ICAO with respect to UAS CNPC links operations are considered, as well as ensure the protection of the current systems operating in terrestrial and space services without adversely affecting these services.

**7.2 International Organisations**

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

To support ITU-R studies, as called for by Resolutions **155 (Rev.WRC-19) and 171 (WRC-19)**.

To support the modification of No. **5.484B** and Resolution **155 (Rev.WRC-19)**.

ICAO is expecting that the decision of WRC-23 will result in a Resolution that:

* clearly provides primary status;
* removes any apparent inconsistencies;
* acknowledges that in accordance with the Annexes of the Convention of the International Civil Aviation Organization (ICAO), ensuring the safety-of-life aspects of the use of UAS CNPC is the role of the responsible States;
* provides sufficient information to support and/or validate safety cases; and
* ensures that safety cases do not need to be revisited as a result of future satellite co-ordination agreements.

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