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| A close up of a sign  Description automatically generated | **World Radiocommunication Conference (WRC-23)Dubai, 20 November - 15 December 2023** |  |
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| PLENARY MEETING | **Addendum 8 toDocument 148-E** |
|  | **30 October 2023** |
|  | **Original: English** |
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| Iran (Islamic Republic of) |
| PROPOSALS FOR THE WORK OF THE CONFERENCE |
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| Agenda item 1.8 |

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 networks by control and non-payload communications of unmanned aircraft systems;

Introduction

Unmanned aircraft (UA) control and non-payload communication (CNPC) links are under consideration at ITU‑R in three consecutive conferences since WRC‑2012. The requirements of numerous unmanned aircraft system (UAS) applications for communications beyond line of sight will necessitate the use of safe satellite communications to provide all, or components of, the CNPC for UAS. WRC‑12 dealt with terrestrial and satellite spectrum requirements for the operation of unmanned aircraft systems in non-segregated airspace and ensured that sufficient spectrum is available in particular for terrestrial links.

The experience of using fixed-satellite service (FSS) for UA CNPC links for segregated airspace cannot be a basis for utilizing such links in non-segregated airspace, because the situation in the air space with no limitation of usage is totally different.

Up to now, Working Party (WP) 5B for more than 10 years and for 3 WRCs has developed several documents with regard to characteristics of stations in the space and terrestrial services and the protection of the terrestrial services as well. Meanwhile, some documents have been developed to provide characteristics of unmanned aircraft system control and non-payload earth stations for use with space stations operating in the FSS. These documents are all in an inconclusive manner due to various difficulties and problems raised in the CPM text.

The International Civil Aviation Organization (ICAO), which plays a crucial role in this agenda item, is going to develop the Standards and Recommended Practices (SARPs). According to the key principles developed for UAS SNPC links in WP 5B, in order to ensure the safety of flight of the UA, measures are required consistent with No. **4.10** of the Radio Regulations (RR) to ensure freedom from harmful interference. The second package of SARPs, scheduled to be completed by 2022, is expected to address the possible technical solutions for the FSS systems and the other relevant *resolves* of Resolution **155** **(Rev.WRC‑19)**. It should be noted that this work is still under development within ICAO. ICAO acknowledges that it is the states that are responsible for safety of life aspects of the use of UAS CNPC links. However, the basis on which ICAO is studying the required safety aspects referred to in RR No. **4.10** is unstable as the state of study in ITU‑R is also unstable and several fundamental issues are yet being discussed inconclusively.

There are several entities each being involved in parts of the tasks to be implemented in this agenda item. After lengthy discussion, ITU‑R came to the conclusion that there should be only one single responsible for all tasks. This responsibility is currently being studied to be assigned to the notifying administration of the FSS network with which the UAA/CNPC earth station communicate. However, due to the nature of the operation, the notifying administration of regular FSS networks/links will certainly be not in the position to apply RR No. **4.10** to any assignment pertaining in the link used for UAS CNPC as it would change the regulatory status of that commercial regular assignment with respect to other assignments. Consequently, many administrations believe that the issue of safety of flight is totally outside the possibility and capability of the notifying administration of the FSS network. This issue is one of the challenging elements of this agenda item. Moreover, in order that the above UAS CNPC function properly and efficiently the notifying administration of the FSS network with which UAS CNPC earth station communicates needs to accept to execute such overall responsibilities which are currently distributed among various players and in turn perform internally the coordination and management of the responsibilities with all key players involved in the execution of the operation.

It is totally unclear that whether the notifying administration of the FSS network with which the UAS CNPC communicates would be ready to accept such vast, huge and unclear responsibilities. Consequently from the technical elaborations currently supplied by WP 5B, the discussions on the principles for UAS CNPC operation such as what administration could and should take on what responsibility in association with UAS CNPC operation had not yet been completed and it was decided that it would be necessary to have such discussions completed before progressing on specific text for a Resolution.

In contrast with other agenda items, the NO change is not a viable option to satisfy agenda item as it would not be consistent with the text and language in the title of agenda item. The current Resolution **155** **(Rev.WRC‑19)** is not implementable due to several inconsistencies, shortcoming and contradictions, some of which were raised by ICAO and some administrations. The only option that was before ITU‑R was to revise the Resolution for which no agreement was reached. The preamble of the draft resolution has not yet been discussed. As for the operative (*resolves* parts) only some elements were briefly discussed and partially agreed. The remaining parts including several Annexes to the Resolution were not discussed at all. In CPM23-2 there would be no time to complete the non-discussed and non-agreed parts since there would be extremely intense discussions which would be out of the available time of the CPM23-2 to do so. Therefore, possible solution for this complicated Resolution is to suppress that together with the suppression of Resolution **171** **(WRC-19)** and corresponding footnote RR No. **5.484B**.

It should be emphasized that the interference management of frequency assignments and implementation of the RR are matters to be dealt with by ITU administrations. For which there are no clear arrangements and no conclusions. However, as it has been indicated in the output of ITU‑R, there is no clear idea how that interference management mechanism which does not currently exist would be implemented. There is also an ambiguity regarding the level of interference to the receiving stations of such links which has not yet been clarified in the Resolution.

Two methods to satisfy WRC‑23 agenda item 1.8 have been identified:

– Method A proposes to suppress RR No. **5.484B** together with Resolution **155 (Rev.WRC-19)** as well as Resolution **171 (WRC-19)**;

– Method B intends to revise Resolution **155 (Rev.WRC-19)** in accordance with Resolution **171 (WRC-19)** and consequently suppress Resolution **171 (WRC-19)**. In addition, this Method contains the revision of RR No. **5.484B** as an option.

Proposals

The Administration of Iran (Islamic Republic of) firmly supports Method A for the reasons given in the section above. Namely proposes to suppress RR No. **5.484B** together with Resolution **155 (Rev.WRC-19)** as well as Resolution **171 (WRC-19)**.

ARTICLE 5

Frequency allocations

Section IV – Table of Frequency Allocations
(See No. 2.1)

SUP IRN/148A8/1#1612

5.484B

SUP IRN/148A8/2#1613

RESOLUTION155 (REV.WRC‑19)

Regulatory provisions related to earth stations on board unmanned aircraft which operate with geostationary-satellite networks in the fixed-satellite
service in certain frequency bands not subject to a Plan of Appendices 30,
30A and 30B for the control and non-payload communications of
unmanned aircraft systems in non-segregated airspaces\*

SUP IRN/148A8/3#1614

RESOLUTION 171 (WRC‑19)

Review and possible revision of Resolution 155 (Rev.WRC‑19) and
No. 5.484B in the frequency bands to which they apply

**Reasons:** Resolution **171 (WRC-19)** is requiring a review and possible revision of Resolution **155 (Rev.WRC-19)** since this in its current state does not enable operation of UA earth stations. This agenda item stems from agenda item 1.3 of WRC-12 and agenda item 1.5 of WRC-15 and consideration of the matter of WRC‑19 which resulted in Resolution **171 (WRC-19)**. After more than ten years of extensive studies, there are still key problems that have not been resolved, in particular the contradiction between the safety nature of the operation of UAS and the non-safety status of the fixed-satellite service.
The FSS frequency bands identified in *resolves*1 of Resolution **155 (Rev.WRC-19)** are heavily congested and interference is a regular occurrence, also into FSS networks that has completed all the frequency coordination. The communication link of the UAS CNPC via FSS consequently can be interrupted by various forms of interference and is therefore not sufficiently robust. This could negatively impact the ability to achieve the required service quality needed for safe operation and could even render it impossible to use. The interruption of the CNPC link would be an incident affecting the safety of aviation, including the safety of people.
With no satisfactory solution identified for the operation of UA earth stations, it therefore would be necessary to suppress RR No. **5.484B** together with Resolution **155 (Rev.WRC-19)** as well as Resolution **171 (WRC-19)**.

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