Input Contribution to EACO WRC-23 Preparatory Meeting
Online Meeting 28 February 2022

Input Contribution xx

22-February-2022

GSOA

Agenda Item 1.8

Part A: Description
Agenda item 1.8 is 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;
Part B: Key Elements – the notables
UAS control and non-payload communication (CNPC) links have been under consideration at ITU-R since 2007. 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. UA CNPC links have been operating in segregated airspace under No. 4.4 of the Radio Regulations for several years, using FSS networks in geostationary orbit for CNPC links. Based on the experience gained from the operation of these links, technical, operational, and regulatory studies in response to WRC-15 Agenda Item 1.5 (Resolution **153 (WRC-12)**) were performed to assess the framework, under which conditions identified FSS spectrum could be used for UAS CNPC links. Based on the outcome of these studies, WRC-15 agreed on Resolution **155 (WRC-15)** ("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"). Studies on the protection of terrestrial services were performed in ITU-R in order to review the power flux density (pfd) limits given in Annex 2 of Resolution **155**. WRC-19 agreed to amend Resolution **155 (Rev.WRC-19)** accordingly, providing a new PFD mask in Annex 2 of Resolution **155 (Rev.WRC-19)**. Resolution **155 (Rev. WRC-19)** is a complex resolution, containing **19** resolves. The issue relating to unmanned aircraft systems (UAS) is the remit of two international organisations, namely the ITU and ICAO. ICAO is responsible for the Standards and Recommended Practices (SARPS) and this AI links the two organisations via resolves 18 which calls for WRC-23 "to consider the progress obtained by ICAO in the process of preparation of SARPs for UAS CNPC links" and "to review this Resolution".

Resolves 18 of Resolution **155 (Rev.WRC-19)** asks "to consider the progress obtained by ICAO in the process of preparation of SARPs for UAS CNPC links, to review this Resolution at WRC-23". Therefore WRC-19 established an agenda item 1.8 for WRC-23 and Resolution **171 (WRC-19)**.
There is a concern that because CNPC links have "safety of life" implications, CNPC links could have "super-primary" status within FSS applications. This should not be the case.
Defining the safety-of-life requirements related to the use of CNPC links for the operation of UAS should be the responsibility of ICAO under SARPs, and thus not part of any ITU regulatory text or requirements. In this regard, No. 4.10 of the Radio Regulations should not apply for CNPC links.

Part C: Current Status of Band

UAS CNPC is an application within the FSS and utilises spectrum allocated to the FSS.
In the case of WRC-23 Agenda Item 1.8, the spectrum under consideration is:

12.5 – 12.75 GHz (space-to-Earth)
14 – 14.47 GHz (Earth-to-space)
19.7 – 20.2 GHz (space-to-Earth)
29.5 – 30.0 GHz (Earth-to-space)

Allocation to services		
Region 1	**Region 2**	**Region 3**
12.5-12.75 FIXED-SATELLITE (space-to-Earth) 5.484A 5.484B (Earth-to-space) 5.494 5.495 5.496	**12.7-12.75** FIXED FIXED-SATELLITE (Earth-to-space) MOBILE except aeronautical mobile	**12.5-12.75** FIXED FIXED-SATELLITE (space-to-Earth) 5.484A 5.484B MOBILE except aeronautical mobile BROADCASTING-SATELLITE 5.493
14-14.25	FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.484A 5.484B 5.506 5.506B RADIONAVIGATION 5.504 Mobile-satellite (Earth-to-space) 5.504B 5.504C 5.506A Space research 5.504A 5.505	
14.25-14.3	FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.484A 5.484B 5.506 5.506B RADIONAVIGATION 5.504 Mobile-satellite (Earth-to-space) 5.504B 5.506A 5.508A Space research 5.504A 5.505 5.508	

14.3-14.4 FIXED FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.484A 5.484B 5.506 5.506B MOBILE except aeronautical mobile Mobile-satellite (Earth-to-space) 5.504B 5.506A 5.509A Radionavigation-satellite 5.504A	**14.3-14.4** FIXED-SATELLITE (Earth-to-space) 5.457A 5.484A 5.484B 5.506 5.506B Mobile-satellite (Earth-to-space) 5.506A Radionavigation-satellite 5.504A	**14.3-14.4** FIXED FIXED-SATELLITE (Earth-to-space) 5.457A 5.484A 5.484B 5.506 5.506B MOBILE except aeronautical mobile Mobile-satellite (Earth-to-space) 5.504B 5.506A 5.509A Radionavigation-satellite 5.504A
14.4-14.47	FIXED FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.484A 5.484B 5.506 5.506B MOBILE except aeronautical mobile Mobile-satellite (Earth-to-space) 5.504B 5.506A 5.509A Space research (space-to-Earth) 5.504A	
19.7-20.1 FIXED-SATELLITE (space-to-Earth) 5.484A 5.484B 5.516B 5.527A Mobile-satellite (space-to-Earth) 5.524	**19.7-20.1** FIXED-SATELLITE (space-to-Earth) 5.484A 5.484B 5.516B 5.527A MOBILE-SATELLITE (space-to-Earth) 5.524 5.525 5.526 5.527 5.528 5.529	**19.7-20.1** FIXED-SATELLITE (space-to-Earth) 5.484A 5.484B 5.516B 5.527A Mobile-satellite (space-to-Earth) 5.524
20.1-20.2	FIXED-SATELLITE (space-to-Earth) 5.484A 5.484B 5.516B 5.527A MOBILE-SATELLITE (space-to-Earth) 5.524 5.525 5.526 5.527 5.528	
29.5-29.9 FIXED-SATELLITE (Earth-to-space) 5.484A 5.484B 5.516B 5.527A 5.539 Earth exploration-satellite (Earth-to-space) 5.541 Mobile-satellite (Earth-to-space) 5.540 5.542	**29.5-29.9** FIXED-SATELLITE (Earth-to-space) 5.484A 5.484B 5.516B 5.527A 5.539 MOBILE-SATELLITE (Earth-to-space) Earth exploration-satellite (Earth-to-space) 5.541 5.525 5.526 5.527 5.529 5.540	**29.5-29.9** FIXED-SATELLITE (Earth-to-space) 5.484A 5.484B 5.516B 5.527A 5.539 Earth exploration-satellite (Earth-to-space) 5.541 Mobile-satellite (Earth-to-space) 5.540 5.542
29.9-30	FIXED-SATELLITE (Earth-to-space) 5.484A 5.484B 5.516B 5.527A 5.539 MOBILE-SATELLITE (Earth-to-space) Earth exploration-satellite (Earth-to-space) 5.541 5.543 5.525 5.526 5.527 5.538 5.540 5.542	

Part D: Conclusion of the results of studies, if any

ITU-R WP 5B is the working party responsible for WRC-23 Agenda Item 1.8.
Progress within the Working Party is extremely slow. At its twenty-seventh meeting held from 29 November-10 December 2021, WP 5B received 3 input contributions in respect of CPM text for agenda item 1.8.
The 3 input contributions were introduced, but were not discussed, and there is no agreement on the contents.
WP 5B will hold its next meeting from 29 March to 8 April 2022. The workplan for this meeting is:

- Review liaison statements received from contributing Working Parties and/or ICAO.
- [Consider report from correspondence group on AI 1.8.]
- Finalize principles for UAS CNPC operation to be used in revising Resolution **155 (Rev.WRC-19)**.
- Continue work on revision of Re solution **155 (Rev.WRC-19) or development of new Resolution.**
- Continue working document towards draft CPM text.
- Liaise with those Working Parties contributing to the studies under this agenda item, including sharing preliminary results of such studies, if needed.
- Continue work on protection of terrestrial services (Annex 2 of Res **155 (Rev.WRC-19)**)
- Revise work plan, if necessary.

Part E: Options and Associated Implications

In the studies conducted under Agenda Item 1.8, some of the principles agreed for operation of UA earth stations and UAS CNPC systems in regular FSS bands include:

- ICAO has the responsibility to ensure safety of flight and have developed provisions in this respect;
- ITU is not responsible for the safety of flight;
- The FSS allocations in the frequency bands in question have no safety status;
- UAS CNPC operation under an FSS network does not change the status of the FSS network or its associated earth stations, including the UA earth stations, from that obtained through the regular application of the Article 9 and 11 procedures for the FSS network;
- UAS CNPC operation using FSS networks in the frequency bands in question does not have a safety status;
- UAS CNPC operation shall not seek any additional protection from that coordinated for the associated FSS network;
- UAS CNPC operation shall not lead to any additional coordination requirements;
- UAS CNPC operation shall not have any adverse impact on coordination on later submissions for FSS networks and UAS CNPC shall not be used as an excuse to seek more protection in bilateral coordination discussions.

Part F: Proposed African Common View and/or Position

It is recommended that EACO Member States, consider proposing to ATU that African Administrations, in developing their positions on Agenda Item 1.8, adopt the principles contained in Part E above.

Part G: Recommendations and Way Forward
RR No. 5.484B makes reference to Resolution **155 (Rev. WRC-19)** which is intended to provide regulatory provisions for operation of UA earth stations in the selected regular FSS bands. However, in its current state, this Resolution lacks several key provisions to enable operation of UA earth stations. Consequently, Resolution **171 (WRC-19)** is prescribing the required review of **Resolution 155 (Rev. WRC-19)** as well as RR No. 5.484B. In respect of most WRC agenda items, NOC is a default method that doesn't require any mentioning in the CPM Report. But, in respect of Agenda Item 1.8, because of the current RR **No 5.484B** and Resolution **155 (Rev. WRC-19)**, NOC is not an option. Therefore, if no method is identified that meet the principles referred to in Part E above, it would be necessary to suppress RR **No. 5.484B** and Resolution **155 (Rev. WRC-19)** as well as Resolution **171 (WRC-19).**