International Civil Aviation Organization

A38-WP/97
TE/29
20/08/13

WORKING PAPER

ASSEMBLY — 38TH SESSION

TECHNICAL COMMISSION

Agenda Item 34: Air Navigation —Monitoring and Analysis

WRC-15 AGENDA ITEM 1.5 USE OF FSS FOR UAS COMMAND AND CONTROL

(Presented by the United States of America and Canada)

EXECUTIVE SUMMARY

Agenda Item 1.5 of the International Telecommunication Union Radio Communication Sector (ITU-R) 2015 World Radiocommunication Conference (WRC-15) calls for studies of the use of fixed-satellite service (FSS) systems for control and non-payload communications (CNPC) for unmanned aircraft systems (UAS).

The Twelfth Air Navigation Conference (AN-Conf/12) finalized two recommendations in relation to aviation frequency spectrum:

Recommendation 1/12 which states in part "*That ICAO … develop and implement a comprehensive aviation frequency spectrum strategy … which includes the following objectives: … clearly state in the strategy the need for aeronautical systems to operate in spectrum allocated to an appropriate aeronautical safety service*"; and

Recommendation 1/13 "*That ICAO support studies in the International Telecommunication Union Radio Communication Sector (ITU-R) to determine what ITU regulatory actions are required to enable use of frequency bands allocated to the fixed satellite service for remotely piloted aircraft system command and control (C2) links to ensure consistency with ICAO technical and regulatory requirements for a safety service.*"

To remove any risk that the two recommendations could be perceived as conflicting, this paper proposes that ICAO make a clear statement of support for the studies called for by WRC-15 agenda item 1.5.

Action: The Assembly is invited to:

a) RECOMMEND that Contracting States support studies in the International Telecommunication Union Radio Communication Sector (ITU-R) to determine what ITU regulatory actions are required to enable use of frequency bands allocated to the fixed-satellite service for remotely piloted aircraft system command and control (C2) links to ensure consistency with ICAO technical and regulatory requirements for a safety service.

Strategic Objectives:	This working paper relates to the Safety Strategic Objective
Financial implications:	none
References:	none

(3 pages)

1. INTRODUCTION

1.1 The International Civil Aviation Organization (ICAO) Twelfth Air Navigation Conference (AN-Conf/12) was held in November 2012. There was substantial discussion on future use of spectrum by aviation, resulting in two AN-Conf/12 Recommendations (1/12 and 1/13) relevant to International Telecommunications Union Radiocommunication Sector (ITU-R) World Radiocommunication Conference 2015 (WRC-15) agenda item 1.5 (AI 1.5).

1.2 The ITU is a specialist agency of the United Nations, and it convenes WRC's approximately every 3 to 4 years to agree, at treaty level, international frequency allocations. Those Conferences address agenda items that are set forth at the previous WRC. The next Conference is scheduled for November 2015, and has on its agenda AI 1.5: "To consider the use of frequency bands allocated to the fixed-satellite service not subject to Appendices 30, 30A, and 30B for the control and non-payload communications of unmanned aircraft systems (UAS) in non-segregated airspaces, in accordance with Resolution 153 (WRC-12)".

1.3 A significant increase of the worldwide use of UAS (termed Remotely Piloted Aircraft Systems (RPAS) in ICAO) is expected in the future. The seamless operation of those systems with piloted aircraft in non-segregated airspaces is becoming vital for the further development of UAS/RPAS applications that will fill many diverse requirements. The envisioned UAS/RPAS control and non-payload communications infrastructure will be composed of terrestrial and satellite components. At this time, the only fielded satellite systems capable of meeting the envisioned UAS/RPAS spectrum requirements operate within the fixed-satellite service.

2. DISCUSSION

2.1 As mentioned above, aviation use of radio spectrum in general, and WRC-15 AI 1.5 in particular, were discussed at AN-Conf/12. The Committee agreed that frequency spectrum is fundamental to aviation safety and aviation operations, and that it is essential that aviation maintains access to sufficient, suitably protected spectrum to support the current and future global Air Traffic Management system.

2.2 Based on its spectrum discussions, the Committee accepted three recommendations, two of which are of particular interest to AI 1.5:

> Recommendation 1/12 which states in part "*That ICAO … develop and implement a comprehensive aviation frequency spectrum strategy … which includes the following objectives: … clearly state in the strategy the need for aeronautical systems to operate in spectrum allocated to an appropriate aeronautical safety service"*, and
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> Recommendation 1/13 "*That ICAO support studies in the International Telecommunication Union Radio Communication Sector (ITU-R) to determine what ITU regulatory actions are required to enable use of frequency bands allocated to the fixed satellite service for remotely piloted aircraft system command and control (C2) links to ensure consistency with ICAO technical and regulatory requirements for a safety service."*

2.3 While both of these recommendations are clear when viewed on their own, there is the potential for confusion regarding support for ITU AI 1.5 studies when they are examined together. In particular, since the fixed-satellite service is not a safety service, Recommendation 1/12 could be read as

meaning that ICAO should not support the AI 1.5 studies. This interpretation however would be clearly at odds with Recommendation 1/13.

2.4 This possible discrepancy was recognized at AN-Conf/12, with the meeting report stating "the Committee agreed that it is important that States and ICAO support the on-going International Telecommunication Union Radio Communication Sector (ITU-R) preparatory studies on this issue to ensure that the safety of life concerns, if using a non-safety spectrum allocation, will be sufficiently addressed".

2.5 In order to preclude any further confusion on the issue, the Assembly is invited to provide clear guidance on the topic.

3. CONCLUSION

3.1 WRC-15 will consider a potential regulatory action to facilitate the use of fixed-satellite service spectrum for the command and control link for remotely piloted aircraft systems consistent with the safety of life aspects of such system operations. It is important that States and ICAO support the on-going ITU preparatory studies on this issue to ensure that the safety of life concerns, if using a non-safety spectrum allocation, will be sufficiently addressed.

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