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| **World Radiocommunication Conference (WRC-15) Geneva, 2–27 November 2015** |  |
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| Russian Federation/Norway/Netherlands (Kingdom of the)/ United Kingdom of Great Britain and Northern Ireland | |
| Proposals for the work of the conference | |
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| Agenda item 1.5 | |

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)**;

Resolution **153 (WRC‑12)**: 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 in non-segregated airspaces

Introduction

Unmanned aircraft, also commonly referred to as remotely piloted aircraft, are aircraft that are capable of being flown by remote control via a communication link by a pilot who is either located on the ground or in another vehicle. Application of this technology varies widely from the traditional aviation roles such as air transport, surveying and crop spraying to new applications such as parcel delivery. However perhaps the greatest application will be in disaster relief and emergency response in areas where it would be too hazardous to deploy a manned aircraft (e.g volcanic activity, forest fires etc.)

To date, unmanned operations have been limited to segregated airspace, because it has not been possible to demonstrate equivalence to manned aviation. However the goal is to allow unmanned aircraft access to all airspace. In order to achieve this goal there are a number of challenges that aviation will have to overcome including the specification and provision of suitable control and non-payload communication links, including spectrum support.

Previously the 2012 World Radiocommunication Conference, based on Report ITU-R M.2171[[1]](#footnote-1) made a number of changes to the Radio Regulations in the frequency range 5 000-5 150 MHz to facilitate both terrestrial and satellite communication for unmanned aircraft. During that Conference the potential use of frequency bands allocated to fixed-satellite service not subject to Appendices 30, 30A and 30Bwas also discussed. However it was acknowledged that whilst these frequency bands could provide useful additional capacity, the current regulatory provisions were not compatible with the provision of an aeronautical safety service. As a result this agenda item was established to identify the additional regulatory provisions that would be required to allow use by an aeronautical safety service and the feasibility of those provisions.

In the absence of a clear technical requirement from ICAO or provisions that meet ICAO’s requirements, studies in the ITU have focused on identifying the theoretical performance capabilities of existing fixed satellite communication links and the regulatory provisions required to protect the other incumbent services. Additionally these studies have identified a discrepancy between the proposed operational use and the definitions of an aircraft earth station[[2]](#footnote-2) and the fixed-satellite service[[3]](#footnote-3) which have not been resolved. Not resolving this discrepancy may result in CPNC links in non-segregated airspace not being able to be operated in a regulatory environment consistent with a safety service.

However, no method of resolving this discrepancy has emerged in the studies which would avoid potentially destabilizing the frequency coordination process for fixed-satellite networks.

In the light of this situation, these countries propose No Change and suppression of   
Resolution 153 (WRC-12).

Proposals

ARTICLE 5

Frequency allocations

NOC RUS/NOR/HOL/G/133/1

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

**Reasons:** The use of the frequency bands allocated to the fixed satellite service not subject to Appendices 30, 30A and 30B for the control and non-payload communications links of unmanned aircraft systems is inconsistent with the provision of an aeronautical safety service for the following reasons:

• The definition of an aircraft earth station and the fixed satellite service are inconsistent, which may result in CPNC links in non-segregated airspace not being able to be operated in a regulatory environment consistent with a safety service.

• The power and geographical restrictions that would be required in order to protect or avoid placing constraints on incumbent services would effectively make the operation of the unmanned aircraft earth station secondary to all other services in the relevant frequency bands which is inconsistent with the provision of a safety of life service

• The power and geographical restrictions referred to above would not be consistent with unconstrained access to the airspace and would place unacceptable constraints on air traffic control.

• The interference and protection envelopes associated with operation of the fixed-satellite service are not clearly defined and in some cases subject to confidential agreements which calls into question the derivation of an auditable safety case based on operation under those circumstances.

Additionally, no method has emerged which would both meet these concerns and at the same time avoid potentially destabilizing the frequency coordination process for fixed-satellite networks.

SUP RUS/NOR/HOL/G/133/2

RESOLUTION 153 (WRC‑12)

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 in non-segregated airspaces

**Reasons:** This resolution is no longer required.

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1. Report ITU-R M.2171 Characteristics of unmanned aircraft systems and spectrum requirements to support their safe operation in non-segregated airspace. [↑](#footnote-ref-1)
2. Aircraft earth station: A mobile earth station in the aeronautical mobile-satellite service located on board an aircraft. [↑](#footnote-ref-2)
3. Fixed-satellite service: A radiocommunication service between earth stations at given positions, when one or more satellites are used; the given position may be a specified fixed point or any fixed point within specified areas; in some cases this service includes satellite-to-satellite links, which may also be operated in the inter-satellite service; the fixed-satellite service may also include feeder links for other space radiocommunication services. [↑](#footnote-ref-3)