International Civil Aviation Organization

WORKING PAPER

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English and French only

ASSEMBLY — 38TH SESSION

TECHNICAL COMMISSION

Agenda Item 34: Air Navigation — Monitoring and Analysis

REVISION OF THE ICAO POSITION FOR THE ITU WRC-15

(Presented by Canada)

EXECUTIVE SUMMARY

Working paper A38-WP/132 entitled "The Concept of Space-Based Reception of ADS-B" elaborates the expected benefits from extending the use of automatic dependent surveillance-broadcast (ADS-B) to encompass oceanic, polar and other remote regions, through the use of space-based reception of ADS-B data from aircraft. This innovative approach is being actively explored, with initial operational capability foreseen for 2017. Reception of already available aircraft transmissions at 1090 MHz by low earth orbiting satellites will require an appropriate allocation status in the International Telecommunications Union (ITU) Radio Regulations for regulatory protection of the aircraft to satellite uplink.

Preceding the 2012 ITU World Radiocommunication Conference (WRC-12), development work on the extension of ADS-B via satellite was not envisioned to require allocation status to the 1090 MHz uplink to the satellite; therefore a specific WRC-15 agenda item is not available to consider this regulatory requirement. One mechanism available to civil aviation to ensure consideration of the 1090 MHz allocation status at WRC-15 would be inclusion of specific mention in the ITU-R Bureau Director's Report to WRC-15. For similar reasons, the necessary protection for 1090 MHz aircraft to satellite uplink has not been addressed in the ICAO Position for the ITU WRC-15, which was promulgated in State letter E 3/5.15-13/57 dated 2 July 2013.

Action: The Assembly is invited to:

a) consider the important need for allocation status of the 1090 MHz aircraft to satellite uplink;
b) consider the benefits of ICAO disseminating this information to States;
c) consider the importance of highlighting to States the requirement for this subject be included in the ITU-R Bureau Director's Report to WRC-15; and
d) consider proposed additional text to be included in a revised ICAO Position for the WRC-15 highlighting the operational benefits of ADS-B via satellite, the need for appropriate allocation status of 1090 MHz and the need for this subject to be specifically mentioned in the ITU-R Bureau Director's Report to WRC-15.

[1] English and French versions provided by Canada.

(3 pages)

Strategic Objectives:	This working paper relates to the Strategic Objectives on *Safety*: Enhance global civil aviation safety; and *Environmental Protection and Sustainable Development of Air Transport*: Foster harmonized and economically viable development of international civil aviation that does not unduly harm the environment.
Financial implications:	Minimal, associated with the preparation and promulgation of a revised State letter.
References:	State letter E 3/5.15-13/57 dated 2 July 2013 A38-WP/132 - The Concept of Space-Based Reception of ADS-B, submitted by Canada

1. INTRODUCTION

1.1 As highlighted in Assembly working paper A38-WP/132, the operational benefits and enhanced safety which could be supported via space-based reception of ADS-B in remote airspace are foreseen to be considerable. Availability of aircraft position data in areas which have limited or no terrestrial infrastructure would clearly support a safer and more efficient air traffic management structure while also supporting achievement of ICAO's Strategic Objectives.

1.2 The ICAO Position on issues of critical concern to aviation which are on the agenda of the International Telecommunication Union (ITU) World Radiocommunication Conference (2015) (WRC-15) (herein referred to as the ICAO Position for the WRC-15) was developed with consideration to the protection of aeronautical frequency bands from non-aeronautical services seeking to share in the same or adjacent bands. The ICAO Position for the WRC-15 has great importance amongst all Contracting States for inclusion during development of their respective State positions to the WRC. In accordance with Assembly Resolution A36-25, it collectively provides a mechanism for aviation to achieve and maintain protection of adequate spectrum access for aeronautical system on a globally harmonized basis.

1.3 The frequency 1090 MHz operates in a protected aeronautical band; accordingly, no compatibility studies are required with other systems or services. The aircraft ADS-B transmissions already exist, and are available for reception by space borne sensors on-board low Earth orbit satellites. Accordingly, as this involves the satellite reception of existing ADS-B signals in space, the only requirement is an appropriate frequency allocation status for the aircraft to satellite uplink at 1090 MHz. This could be achieved by assuring regulatory protection of the ADS-B signals in the uplink direction to the satellite in the ITU Radio Regulations on a global basis.

1.4 The upcoming ITU WRC-15 will review many agenda items that could impact aeronautical services. Assembly Resolution A36-25 requests active participation by aeronautical experts on their State delegations in support of the ICAO Position and objectives that is of high importance. The envisioned extension of the already proven ADS-B technology for reception by low earth orbiting satellites took place post-WRC-12. Accordingly, a specific agenda item is not available to undertake regulatory consideration by WRC-15. Considering that ADS-B is a proven technology, already operating in the air to air and air to ground direction in an allocation protected by the ITU Radio Regulations, Canada is of the view that addressing the need for an allocation for the 1090 MHz aircraft to satellite uplink should not be a complex matter at WRC-15. One mechanism that may offer the possibility for this to occur is specific mention of the allocation requirement and reasons in the ITU-R Bureau Directors Report to WRC-15.

1.5 Taking the foregoing into account, Canada proposes that the Assembly consider the benefit of revising the ICAO Position to WRC-15 to include proposing a change in the frequency allocation status for ADS-B to include protection for the aircraft to satellite uplink. Further, the Assembly is invited to consider the benefits if Contracting States would further be invited to take the necessary steps to encourage that the allocation requirement for the 1090 MHz uplink to the satellite be specifically mentioned in the ITU-R Bureau Directors Report to WRC-15.

1.6 The following text is proposed as a revision to the ICAO WRC-15 Policy and Position, to be inserted in an appropriate location after the current WRC-15 Agenda Item descriptions:

REVISION PROPOSAL

Considering the recent developments post ITU WRC-12 to extend ADS-B via satellite, the operational benefits and enhanced safety in remote airspace regions are foreseen to be considerable. Availability of ADS-B position data in remote oceanic, polar, or remote landmass areas that have limited or no terrestrial infrastructure would clearly support a more efficient airspace management structure while also supporting the strategic objectives of ICAO.

ICAO acknowledges the operational benefits of extended ADS-B via satellite that also support the realization of future strategic objectives. The benefits to global civil aviation are considered to be a significant step forward particularly as this technology will provide for a more efficient airspace management, reduced fuel burn, and optimum altitude availability in remote regions. It is foreseen that implementation of this technology will contribute to sustainable growth in the aviation industry for the foreseeable future while also bringing various efficiencies and objectives to realization.

The upcoming ITU WRC-15 will review many agenda items that could impact aeronautical services. In accordance with Assembly Resolution A36-25, active participation from aeronautical experts on their State delegations in support of the ICAO Position and objectives is of high importance.

ICAO further realizes that since a WRC-15 Agenda Item is not available to review the need for an appropriate allocation status of the 1090 MHz uplink from the aircraft to satellite, it should nonetheless be addressed if possible. Considering that ADS-B is a proven technology, already operating in the air to air and air to ground direction in an allocation protected by the ITU Radio Regulations, ICAO is of the view that addressing the need for an allocation for the 1090 MHz satellite uplink should not be a complex matter at WRC-15. One mechanism that may offer the possibility for this to occur is specific mention of the allocation requirement and reasons in the ITU-R Bureau Directors Report to WRC-15.

From this perspective, States are encouraged to recognize the operational benefits of ADS-B via satellite and to support the need for an appropriate allocation status of the 1090 MHz satellite uplink through specific mention in the ITU-R Bureau Directors Report. Since no compatibility studies are required, and it is a matter involving the satellite reception of existing ADS-B signals in space, ICAO would therefore encourage an appropriate inclusion in the Bureau Directors Report, and that as a minimum, WRC-15 may have the opportunity to consider an appropriate allocation status of the 1090 MHz aircraft to satellite uplink.

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