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WORKING PAPER

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**Eighth Eastern Caribbean Network Technical Group (E/CAR/NTG/8) and  
Sixth Eastern Caribbean Radar Data Sharing Ad hoc Group (E/CAR/RD/6)**  
Saint George's, Grenada, 3 - 5 September 2018

**Agenda Item 4: Surveillance Sharing Activities**  
**4.2 Surveillance Sharing Update: Antigua and Barbuda, Barbados, Sint  
Maarten and Trinidad and Tobago**

**RECOMMENDATIONS FOR ADS-B IMPLEMENTATION**

(Presented by the Secretariat)

<b>EXECUTIVE SUMMARY</b>	
This paper presents a summary of the benefits identified by NAM/CAR/SAM regions to implement ADS-B.	
<b>Action:</b>	The suggested actions are presented in Section 3.
<i>Strategic Objectives:</i>	<ul style="list-style-type: none"><li>• Safety</li><li>• Air Navigation Capacity and Efficiency</li></ul>
<i>References:</i>	<ul style="list-style-type: none"><li>• NAM/CAR/SAM Meeting/workshop on the Implementation of Automatic Dependence Surveillance –Broadcast (ADS-B), Lima, Peru, November 2017.</li><li>• Doc 8733 - Caribbean and South American Regions</li></ul>

**1. Introduction**

1.1 Note the importance of planning specific safety, efficiency, or capacity improvements based on the requirements of airspace users and air navigation service providers (ANSPs). Requirement-based planning ensures the selection of the appropriate technologies and that all stakeholders, including the regulator, understand and agree on the required performance for communication and ATS systems and on-board avionics.

1.2 States must follow the Global Air Navigation Plan (GANP), its technological roadmaps, the ICAO ASBU methodology, and the NAM/CAR and SAM regional performance-based plans, taking them into account when developing their national air navigation plans.

1.3 When implementing ADS-B, the States should consult and ensure the participation of all Stakeholders as a priority to obtain the benefits of implementation.

1.4 When implementing management projects, States should include in their feasibility and risk analyses the aeronautical infrastructure and operations with each of the adjacent FIRs, in order to ensure standard, harmonized and efficient coordination.

1.5 In their strategic planning, States should define surveillance data requirements (speed, precision, routes/levels, etc.) in order to define minimum technical/operational requirements to be met, and subsequently define the surveillance technology best suited to meet their needs (radar, ground-based ADS-B, space-based ADS-B, multilateration). This information would support the decision whether or not to eliminate radars and determine future investments in technology.

1.6 It is recommended that, when conducting the risk analysis for selecting a new technology, States include the risk analysis of both its implementation and lack of implementation to ensure that projects to be executed include all risk factors when selecting new surveillance technologies.

1.7 Based on the ATM operational concept of achieving seamless paths, and in order to meet the regional goals of ASBU Block 0, and taking into account the mandatory use of ADS-B in North America as of 1 January 2020, States make the necessary efforts to plan for the implementation of ADS-B and define whether mandatory actions should be established.

1.8 For obtain benefits of ADS-B technology, all aircraft in designated airspace should be equipped with the ADS-B OUT system. To this end, States should analyses whether a mandate would be required to ensure fleet uniformity.

1.9 Benefits derived from ADS-B implementation in terms of surveillance coverage and operation, and cost reduction, compared with the implementation of conventional and Mode-S radar systems were identified for States that implemented ADS-B.

1.10 States must conduct an analysis of their ATS infrastructure and determine whether it is capable of ADS-B management, directly integrated in the ATS system, without the need for conversion of surveillance protocols, thus offering optimum surveillance data management to operational personnel.

1.10 The participants noted that the commitment of system providers (Vendors) is required for the implementation of solutions that ensured compatibility and easy integration of ADS-B systems. In this sense, providers were requested, when implementing new projects in the Region, to assist States in ensuring standardization, harmonization and integration of systems.

1.11 The regulator may need to change the wording of ATS regulations to allow for the use of both ADS-B and radar. The regulator will need to certify aircraft and operators. The technical and maintenance personnel of operators and ANSPs will need to learn new systems and procedures. Coordination and operational arrangements with neighboring ANSPs may need to be updated. Taking into account the experiences shared at the meeting, the participants concluded that States should start developing legislation/regulations on the use of ADS-B in each State.

1.12 Taking into account the importance of consulting all stakeholders and having comprehensive and strategic plans for ADS-B implementation.

## **2. Discussion**

2.1 Each of the States has similar or different civil aviation organizational infrastructure, its users both internal (Civil Aviation Directorates, regulators, service providers, etc.) and external (airlines, neighbouring states, others) are an important part in the planning of implementation of the ADS-B and all technologies. States should identify all interested parties as participants in the planning and development of the implementation of the ADS-B.

2.2 Development regional goals, States must ensure that they are integrated into the same vision to ensure that they make the same decisions regarding the validation and certification of aircraft, the regulation to be implemented and standardization. Different visions, different requirements in each FIR is an operational problem.

2.3 The satisfaction of a need does not mean that the same solution applies to everyone. States must ensure that they carry out analyses of the implementation of technologies, cost-benefit analysis, and the risks of either implementing or not implementing a technology.

2.4 It is necessary that states analyse this information and identify key factors for their analysis and planning of ADS-B implementation

## **3. Suggested actions**

3.1 The meeting is invited to:

- a) Take note of the information provided; and
- b) Agree to any other actions as deemed appropriate