



International Civil Aviation Organization

North American, Central American and Caribbean Office

**Special Eastern Caribbean Communication, Navigation and Surveillance Meeting  
(S-E/CAR CNS)**

(Port of Spain, Trinidad and Tobago, 20 to 22 October 2004)

S-E/CAR CNS - WP/11

02/10/04

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**Agenda Item 4:            Surveillance Developments**  
**4.1            Surveillance Systems Implementation**

**DEVELOPMENT OF SURVEILLANCE SYSTEMS IN THE EASTERN CARIBBEAN**

(Presented by the Secretariat)

**SUMMARY**

This working paper reviews the implementation of the Eastern Caribbean surveillance implementation plan, likewise recommends the development of the surveillance systems.

**Reference :**

- Report of the GREPECAS/12 Meeting, Havana, Cuba 7 – 11 June 2004.

**1.            Introduction**

1.1            The GREPECAS/11 meeting, adopted Conclusions 11/49 – *Regional Guidelines on the planning and implementation of radar surveillance systems* and 11/50 – *Preliminary regional guidelines on automatic dependent surveillance systems*. Through this first conclusion, GREPECAS requested the development of the PSR and SSR Mode A/C radar surveillance systems, noting that no implementation requirements exist for SSR Mode S, and through the second conclusion the implementation of automatic dependent surveillance by contract (ADS-C) was mainly requested, specifying that the implementation date for the automatic dependent surveillance by broadcast (ASD-B) was not clearly foreseen.

1.2            Also, GREPECAS formulated Conclusion 12/48 – *SAC-ASTERIX code assignment plan for the CAR/SAM Regions*, this conclusion requested States, Territories and International Organizations of the CAR/SAM Regions to use the corresponding SAC-ASTERIX codes assigned in order to establish the identification of radar facilities to be used for radar data sharing as the plan shown in the Appendix X to the Agenda Item 3 of the GREPECAS/12 Meeting.

1.3            The GREPECAS/12 meeting also adopted the Conclusion 12/49, urging to the States, Territories and International Organizations, upon planning SSR data sharing, with the following considerations:

- a) send the ICAO Regional Office the boundary SSR coverage up to FL 250, for regional dissemination;
- b) extensively use the communications facilities available in intra/inter regional networks; and

- c) coordinate pertinent technical-institutional aspects or multilateral meetings.

1.4 Regarding the development of surveillance systems, the GREPECAS/12 Meeting reviewed and updated the Surveillance Systems Plan contained in Table CNS 4A of the CAR/SAM FASID. The **Appendix** of this paper shows the corresponding Eastern Caribbean part of the mentioned update table. But, bearing in mind that there are areas of high traffic density in the CAR/SAM Regions and that RVSM implementation requires improvement in the surveillance systems and the functioning of ACAS as a result, GREPECAS/12 agreed that it was necessary to study the inclusion in the Table CNS 4A of SSR in Mode S ground systems, which should be consistent with Mode S transponder requirement.

1.5 The GREPECAS/12 meeting also noted that in Table CNS 4A there are still no requirements for ADS-C and ADS-B surveillance functions. In this context, the Meeting took note of the need to include ADS requirements in the FASID.

## 2. Discussion

2.1 It seems that Eastern Caribbean States and Territories are carrying out a remarkable development in surveillance systems by the implementation of new surveillance radar system facilities, specially secondary surveillance radar (SSR) Mode A/C using monopulse technique, they are also implementing the radar data sharing. The Table CNS4A updated by GREPECAS/12 with the information available in that moment in the ICAO NACC Regional Office. Therefore, this paper suggests to the meeting reviewing and updating the Table CNS 4A. In addition, it is considered that RVSM implementation will make more critical the need of improving the surveillance systems, likewise, the development of the surveillance systems contributes to the ATM automation development.

2.2 In this process the following principal lines of development could be identified: increasing implementation of SSR facilities with monopulse techniques; extended use of Mode A/C; plans exist for Mode S implementation in continental airspace with high air traffic density. In oceanic airspace with low density, there are plans to implement ADS-C and in other airspace of high density, there are plans for implementing ADS-B.

2.3 Taking into account this development, the Meeting should request suggested actions that will contribute to an organized and feasible development among the different surveillance systems, including the introduction of SSR Mode S, as well as ADS-C and ADS-B.

## 3. Conclusions

3.1 Based on the background, in the execution of development programmes for surveillance systems in the Eastern Caribbean and the considerations expressed in this paper, the Meeting should direct its deliberations considering the following:

- a) Review the information on surveillance radar systems shown in the updated Eastern Caribbean part of the FASID Table CNS 4A, contained in the Appendix to this paper and thus recommend the amendment of the mentioned Table.
- b) Consider the feasibility of recommending the inclusion of SSR Mode S in the regional planning, taking into account operational considerations that has been issued by the E/CAR working Group.

- c) Evaluate the possibility of including ADS-C and ADS-B implementation plans in the corresponding E/CAR part of the FASID Table CNS4A.

#### **4. Suggested Action**

##### **4.1 The Meeting is invited to:**

- a) take note of the information presented in this working paper;
- b) based on the Appendix of this paper, analyze and recommend actions to develop surveillance systems in the Eastern Caribbean, updating the Table CNS 4A of the FASID ANP CAR/SAM completing and adding the information of PSR and SSR and adding a new plan of implementation to Mode S, ADS-C and ADS-B; and
- c) recommend other actions that may be consider appropriate.

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