



*International Civil Aviation Organization*

**THE TENTH MEETING OF THE SOUTH EAST  
ASIA AND BAY OF BENGAL SUB-REGIONAL  
ADS-B IMPLEMENTATION WORKING GROUP  
(SEA/BOB ADS-B WG/10)**



Singapore, 11 - 13 November 2014

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**Agenda Item 3: Review implementation and co-ordination activities and sub-regional implementation plans**

**UPDATE ON THE ADS-B COLLABORATION PROJECT IN THE SOUTH CHINA SEA**

(Presented by Indonesia, Singapore and Viet Nam)

**SUMMARY**

This paper updates the Working Group on the progress of the collaborative efforts of Indonesia, Singapore and Viet Nam to achieve a seamless ADS-B surveillance coverage over a portion of the South China Sea area with the eventual aim of improving safety, capacity and efficiency.

**1. Introduction**

1.1 At the ADS-B SITF/13 meeting held in April 2014, Indonesia, Singapore and Viet Nam updated the meeting on the ADS-B collaboration project over the South China Sea area. The purpose of the collaboration is to provide ADS-B coverage over a portion of the South China Sea area spanning two main ATS routes (L642 and M771). See **Annex A** of this working paper.

1.2 For the collaboration with Indonesia, it was then updated that Singapore had received ADS-B data from the Indonesian islands of Matak and Natuna while Indonesia received ADS-B data from Singapore. It was also updated that Indonesia shares with Singapore the VHF radios facilities installed on these islands.

1.3 For the collaboration with Viet Nam, it was updated that Singapore had received ADS-B data from Con Son. The VHF radio sets at Con Son for DCPC have also been commissioned and used operationally for ATS in Singapore FIR.

1.4 This paper serves to update the meeting on the significant progress since then and some issues encountered.

## 2. Discussions

### Technical Implementation

2.1 Following the last update, the VHF radio sets for DCPC at Matak and Natuna were commissioned. The maintenance programs were also put in place. These VHF radio sets are already in operational service.

2.2 The commissioning of the VHF radios at Matak and Natuna marks the end of Phase 1 of the South China Sea ADS-B collaboration project.

2.3 In the subsequent phases, there will be more collaboration projects to cover the remaining gaps in the South China Sea.

### Operationalization

2.4 The implementation of ADS-B under the collaboration project extended surveillance coverage on ATS routes L642 and M771 along with M753 and N892. Singapore and Viet Nam have agreed on a progressive phased approach to reduce longitudinal separation to allow airspace users to reap the full benefits of ADS-B surveillance on the respective ATS routes. The following phased approach to reduce longitudinal separation, for aircraft that are suitably equipped, is adopted;

- a) From the previous 50 NM to 40 NM on 12 December 2013;
- b) 30 NM commenced on 24 July 2014; and
- c) 20 NM planned for end of 2015.

### Issues faced – safety case

2.5 Singapore initially wanted to use ADS-B in both the radar and the non-radar environments. However, the consultant we engaged to write the safety case advised against the use of ADS-B within radar environment. This is because most aircraft are equipped with DO-260 avionics and according to ED-161, a separate study has to be conducted to verify that ADS-B data from DO-260 avionics can be used within radar environment. As such, the safety case only covered ADS-B in non-radar environment and on 12 December 2013, Singapore only operationalize ADS-B in the non-radar environment.

2.6 Singapore is now performing a study on the feasibility of applying ADS-B within high density and complex radar environment and hopes to operationalize it in future.

### Issues faced – different interpretation of Asterix CAT 21 ver 1.x

2.7 The Asterix CAT 21 version 1.x is designed to cater for both DO-260 and DO-260A avionics. There are slight differences in the interpretation of data for DO-260 and DO-260A avionics (i.e. NUC for DO-260 and NIC for DO-260A). The instructions for interpretation are written in the Asterix CAT 21 version 1.x document.

2.8 In the Asterix CAT 21 version 1.x, under field I021/210, the subfield ‘Version Number’ or VN is to indicate the type of avionics. As DO-260B was not available when the Asterix CAT 21 version 1.x was defined, only two types of avionics were defined in the document (i.e. VN=0 for DO-260 and VN=1 for DO-260A).

2.9 As DO-260B is available now, some of the ADS-B receiver manufacturers set VN=2 for DO-260B, when using the Asterix CAT 21 version 1.x, for practical reasons. According to them, interpretation of data fields for VN=2 should be the same as VN=1. However, some ATM automation system manufacturers insisted that the use of VN=2 does not comply with Asterix CAT 21 version 1.x. This will be a potential dispute when using Asterix CAT 21 version 1.x

**3. Action by the meeting**

3.1 The meeting is invited to:

- a) note the progress of the project and the collaborations between States involved in working towards enhancing safety, capacity and efficiency in this region;
- b) discuss any potential issues

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**Annex A**

**ADS-B Collaboration Project over the South China Sea Area**

