



International Civil Aviation Organization

**AUTOMATIC DEPENDENT SURVEILLANCE –
BROADCAST SEMINAR AND TWELFTH MEETING
OF AUTOMATIC DEPENDENT SURVEILLANCE –
BROADCAST (ADS-B) STUDY AND
IMPLEMENTATION TASK FORCE (ADS-B SITF/12)**



Kolkata, India, 15-18 April 2013

Agenda Item 6: Review States' activities and interregional issues on trials and implementation of ADS-B and multilateralism

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

(Presented by Indonesia, Singapore and Viet Nam)

SUMMARY

This paper updates the Task Force 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 flight efficiency and enhancing safety.

1. Introduction

1.1 At the ADS-B SITF/11 meeting held in April 2012, 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-1** of this working paper.

1.2 It was then updated that Singapore had received ADS-B data from the Indonesian islands of Matak and Natuna while Indonesia had also received ADS-B data from Singapore. It was also updated that Singapore and Viet Nam had signed an ADS-B collaboration agreement.

1.3 This paper serves to provide an update to the meeting on the significant progress since then. The updated timeline of tasks and milestones is attached at **Annex A-2**.

2. Discussion

2.1 The following progress was made since the last update to the Task Force.

Collaboration between Indonesia and Singapore

2.2 The communication links (both VSAT and submarine lines) for the ADS-B data between Singapore and Jakarta have been commissioned.

2.3 The VHF radio sets for both Matak and Natuna are being installed and the testing of some of these sets has commenced. They are expected to be fully tested by 1st half of 2013. The VSAT communication links for the VHF radio are currently being established and tested between Singapore and the Indonesian islands.

Collaboration between Singapore and Viet Nam

2.4 The ADS-B station in Con Son was installed late last year. The data is currently being sent to Singapore for technical evaluation.

2.5 The VHF station at Con Son is currently being installed and is expected to be ready for operational use by 2nd half 2013. Flight calibration will be conducted to determine the coverage of the station.

2.6 The ATM teams from both States have begun the initial round of discussions to improve traffic management for the ATS routes under the ADS-B coverage area of the South China Sea. Affected ANSPs (Hong Kong, China and Sanya) along the two major ATS routes (i.e. L642 and M771) will also be involved in future discussions to improve the capacity of the affected ATS routes.

2.7 An ADS-B safety assessment is currently underway and is expected to be completed by 1st half 2013. Operational trials of ADS-B equipped aircraft is planned to start in 2nd half 2013 on the two major routes identified above. The trials will eventually evolve to provide reduced separation for suitably equipped aircraft at FL290 and above in the mandated airspace. The operational implementation of ADS-B is expected to be on time with the AIC mandate. The timeline for the ADS-B implementation plan in Singapore FIR is shown in **Annex A-3**.

2.8 The scope of ADS-B operations in Singapore FIR is expected to increase with the expansion of ADS-B and VHF coverage in the future.

Combined Coverage

2.9 With the ADS-B data being exchanged, the picture of the combined data as shown on Singapore's display and Indonesia's display are as shown in **Annex A-4**.

Challenges

2.10 There are some observations and challenges that we experienced over the past one year. These are:-

- a) It is encouraging to note that the equipage has increased from 72% in 2012 to 83% in 2013. The equipage is expected to be further increased by the commencement of ADS-B operations;
- b) Some pilots are still using the IATA call-signs instead of the ICAO call-signs (e.g. OD123 instead of MXD123 and QZ123 instead of AWQ123);

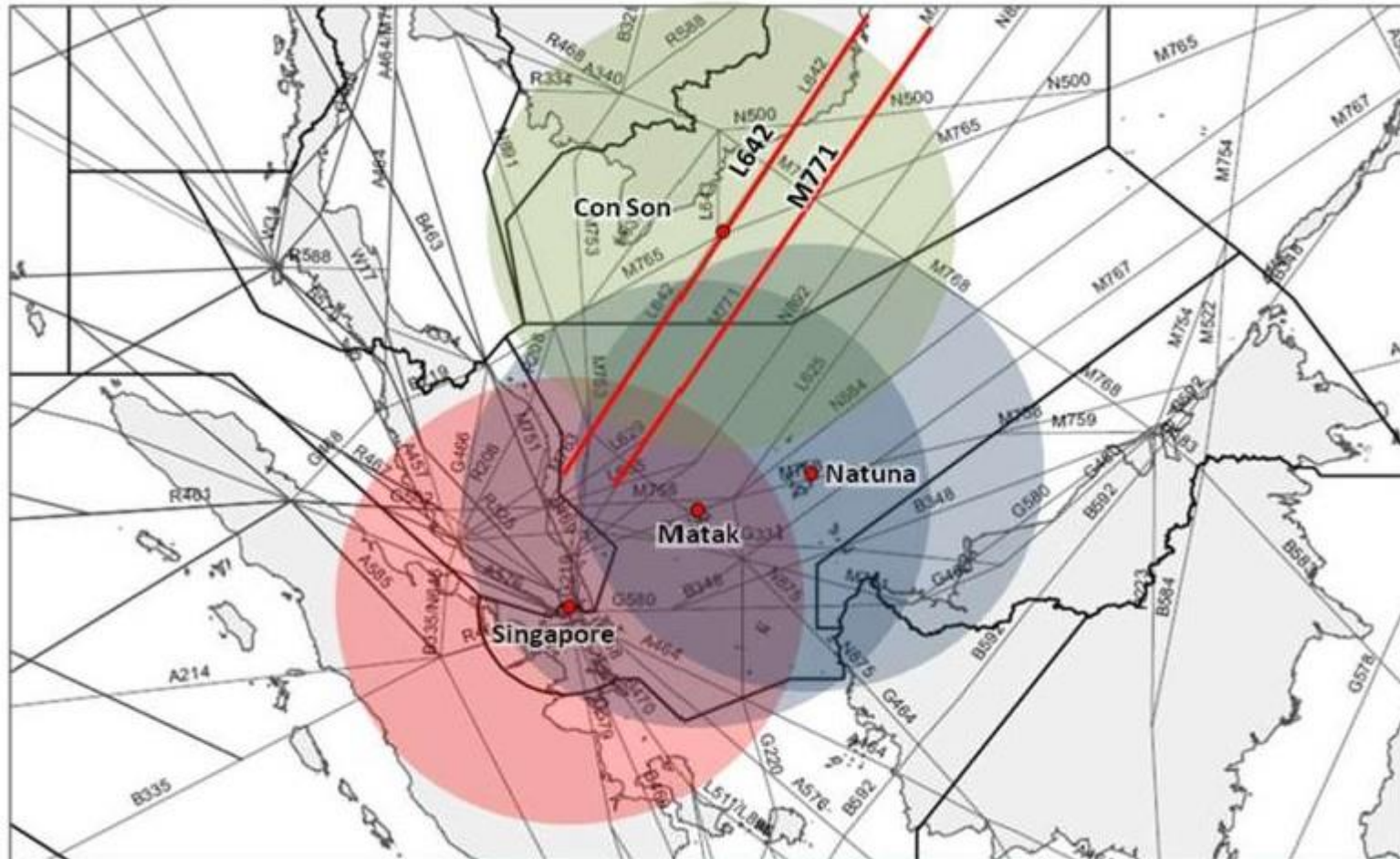
- c) Prolonged downtime of ADS-B stations (or their supporting systems) at remote islands probably due to difficulties in transportation of equipment;
- d) To date, not all airlines operating in the mandated airspace were granted operational approval for ADS-B operations (e.g. Jetstar and Tiger Airways).

3. Action by the Meeting

3.1 The meeting is invited to:

- a) note the progress of the project and the cooperation between the States involved in working towards enhancing safety and flight efficiency in this sub region;
- b) note the tasks and proposed milestones as shown in Annex A-2; and
- c) discuss any potential issues

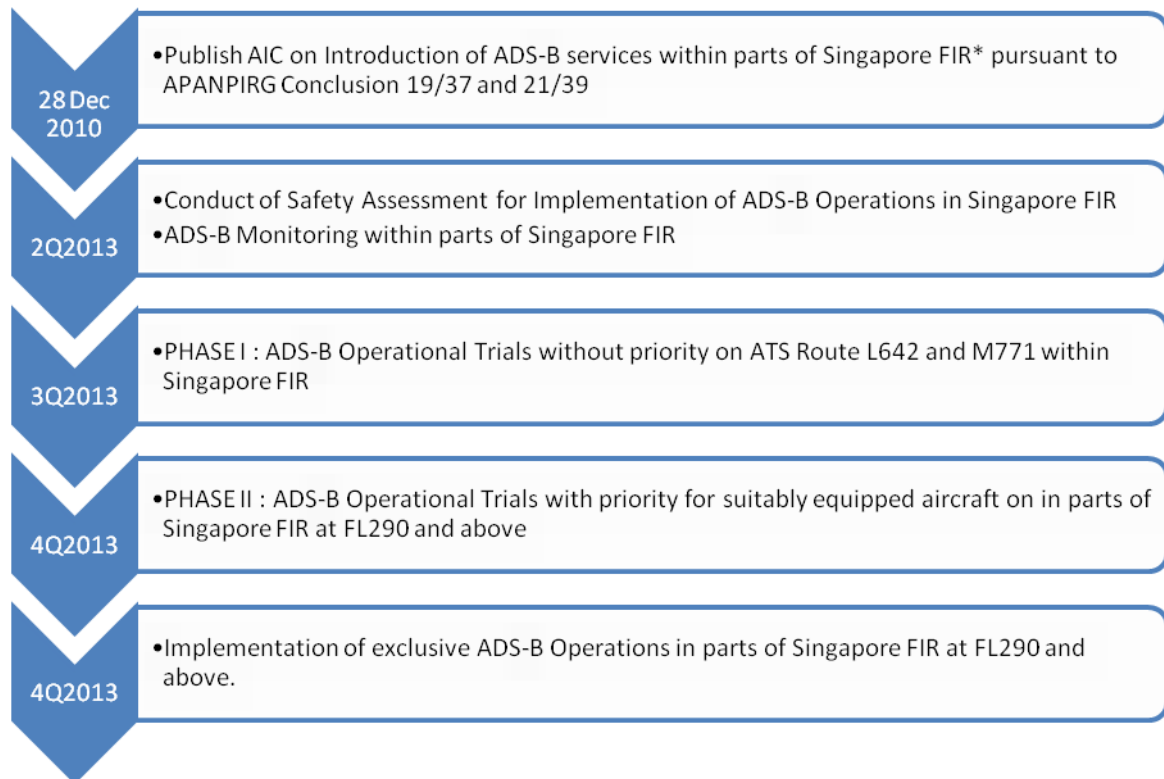
ADS-B Collaboration Project over the South China Sea Area



Tasks and Proposed Milestones
for the ADS-B Collaboration over the South China Sea

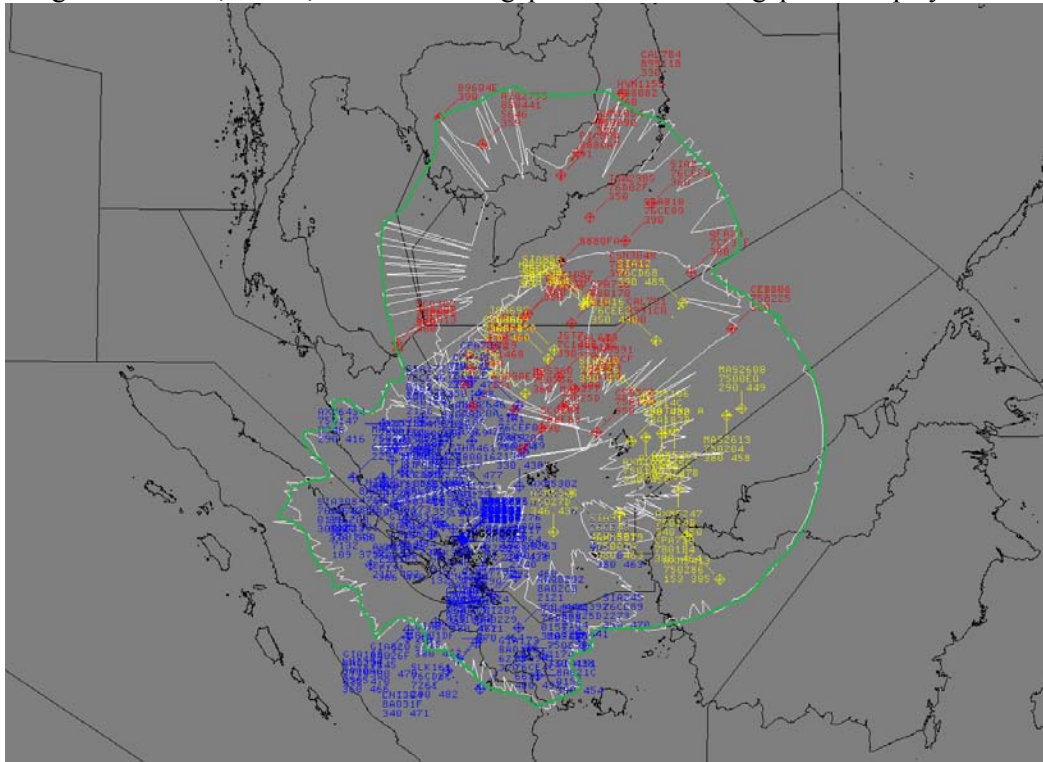
Item	Description	Status	Target Completion
A	Signing of ADS-B data and VHF radio facility sharing agreement		
	i) Between Indonesia and Singapore	Completed	
	ii) Between Viet Nam and Singapore	Completed	
B	Installation of ADS-B ground stations and links		
	i) Singapore	Completed	
	ii) Matak and Natuna	Completed	
	iii) Con Son	Completed	
C	Installation of VHF station and links		
	i) Matak and Natuna	In progress	1H 2013
	ii) Con Son	In progress	2H 2013
D	Signing of ATS Operational LOA between Ho Chi Minh and Singapore ACCs	In progress	2H 2013
E	Issue AIC on aircraft equipage mandate within Singapore FIR	Completed	
F	Technical Monitoring of ADS-B	In progress	2H 2013
G	Operational trial and Implementation	See Annex A-3	

ADS-B Operational Trial and Implementation
Within Singapore FIR



Combined Pictures

Coverage of Con Son, Matak, Natuna and Singapore as seen on Singapore's display



Combination of ADS-B data from Indonesia and Singapore as seen on Indonesia's display

