

*International Civil Aviation Organization*



**AUTOMATIC DEPENDENT SURVEILLANCE –  
BROADCAST SEMINAR AND ELEVENTH MEETING  
OF AUTOMATIC DEPENDENT SURVEILLANCE –  
BROADCAST (ADS-B) STUDY AND  
IMPLEMENTATION TASK FORCE (ADS-B SITF/11)**



Jeju, Republic of Korea, 24-27 April 2012

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**Agenda Item 7:      Development of Asia/Pacific Regional ADS-B implementation plan and  
sub-regional ADS-B implementation plan**

**ADS-B IMPLEMENTATION OVER THE  
SOUTH CHINA SEA AND THE BAY OF BENGAL**

(Presented by CANSO)

**SUMMARY**

This paper highlights a call to action by the recent 48<sup>th</sup> DGCA Conference to expedite ADS-B implementation in the region and requests the meeting to develop concrete plans for ADS-B implementation over the Bay of Bengal and to enhance ADS-B coverage over other parts of the South China Sea. Three possible projects were identified – one over the eastern part of the South China Sea and two over the Bay of Bengal.

**1.      INTRODUCTION**

1.1            At the 48<sup>th</sup> DGCA Conference in Noumea, CANSO reported on the progress of the initial phase of ADS-B implementation in the South China Sea and cited it as a concrete example of how close cooperation among neighbours can help us achieve our vision of a seamless sky. Such isolated success stories however need to be replicated elsewhere on more high density routes over the South China Sea, the Bay of Bengal and other parts of the region.

1.2            A paper by Hong Kong, China at the same conference highlighted the need for States to submit their ADS-B implementation plans and recommended a similar implementation framework for other high density routes in the region.

1.3 Discussions that followed led to the following Action Item from the 48<sup>th</sup> DGCA Conference:

**Action Item 48/4:**

Recognizing that the full benefits of ADS-B would only be achieved through harmonized implementation, the Conference urges States and Administrations to expedite ADS-B implementation and share with ICAO Regional Office their implementation plans

1.4 ADS-B has a vital role to play in helping the region achieve its vision of a seamless sky because there are still many busy airways which do not have radar coverage. If we plan ahead and coordinate well, ADS-B can transform ATM performance and deliver the required capacity and safety enhancement. But there are two factors that are crucial to success. First is the need for closer collaboration across national and airspace boundaries among States, the ANSPs and airlines; and secondly the need for strong commitment and follow-up action to translate the vision into reality.

**2. DISCUSSION**

2.1 Action item 48/4 of the DGCA Conference reflects the importance that the DGCA's of this region attach to early ADS-B implementation and the recognition that full benefits can only be reaped through harmonised implementation.

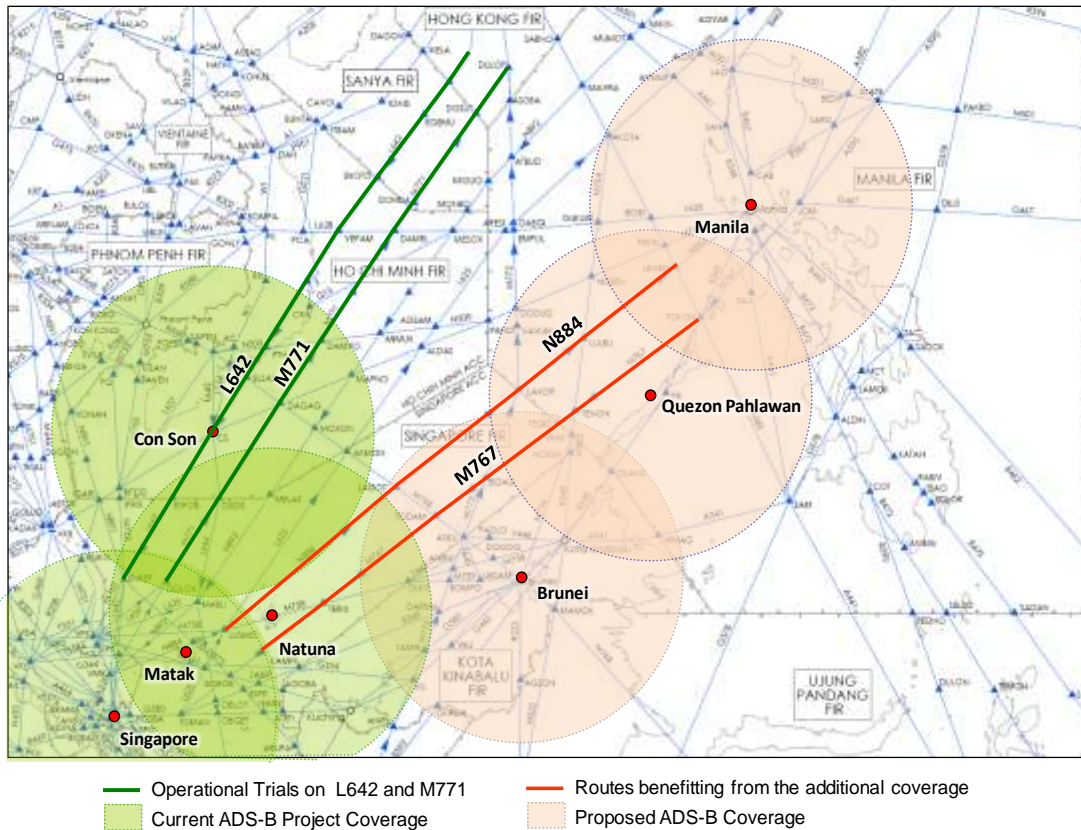
2.2 There is therefore an urgent need to focus on collaboration and implementation issues. In particular, we need to strengthen our efforts on the two high traffic density areas that we have been discussing in the last couple of years. These are the additional trunk routes over the eastern part of the South China Sea and the airspace over the Bay of Bengal.

**South China Sea**

2.3 We already have a good model for two trunk routes over the South China Sea viz. L642 and M772 where ADS-B operations is expected to begin in Dec 2013. However there has been little progress regarding the proposed expansion of ADS-B coverage to include two other routes in the eastern part of the South China Sea viz. N884 and M767. See Fig 1. This has been discussed at various regional ADS-B forums since 2010 unfortunately not much has come out of it.

2.4 It is therefore proposed that the relevant States viz. Singapore, Philippines and Brunei proceed to either meet together or bilaterally to discuss how they can move this project forward.

**Fig 1 : Proposed ADS-B coverage for additional high density routes over the South China Sea**



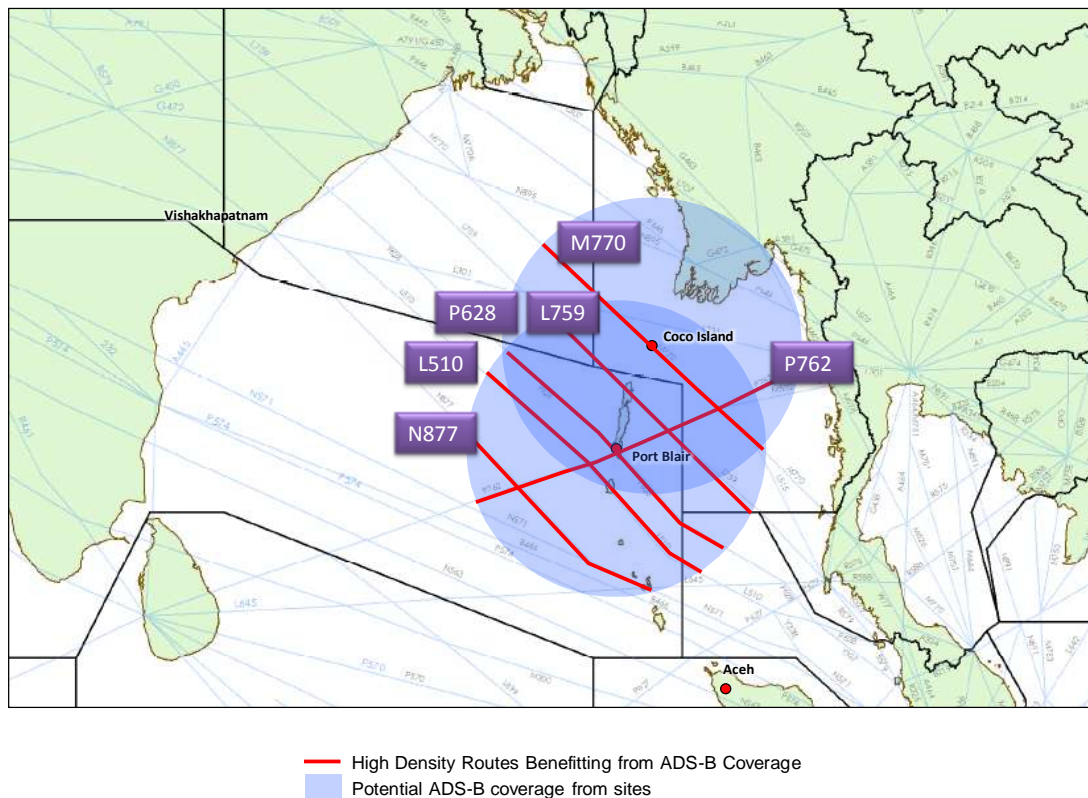
Bay of Bengal

2.5 For the Bay of Bengal airspace we could identify two low hanging fruits where ADS-B stations have been or will be installed soon. India has announced plans to install ADS-B at 14 locations viz. Jaipur, Lucknow, Calicut, Agartala Trivandrum, Ahmadabad, Guwahati, Port Blair, Nagpur, Mangalore, Coimbatore, Cochin, Varanasi and Amritsar while Myanmar has informed CANSO that it had awarded tenders for ADS-B stations at the following sites: Coco Island, Sittwe and Yangon. Under its 2<sup>nd</sup> phase in 2012/2013, DCA Myanmar planned to install three more ADS-B stations at Lashio, Myeik and Kwathaung.

2.6 CANSO has presented some possible ADS-B data sharing initiatives that could reap immediate benefits at the recent ICAO meeting in Chennai (SEA/BOB ADS-B WG/7) and would like to suggest that for a start, we focus on the following two projects:

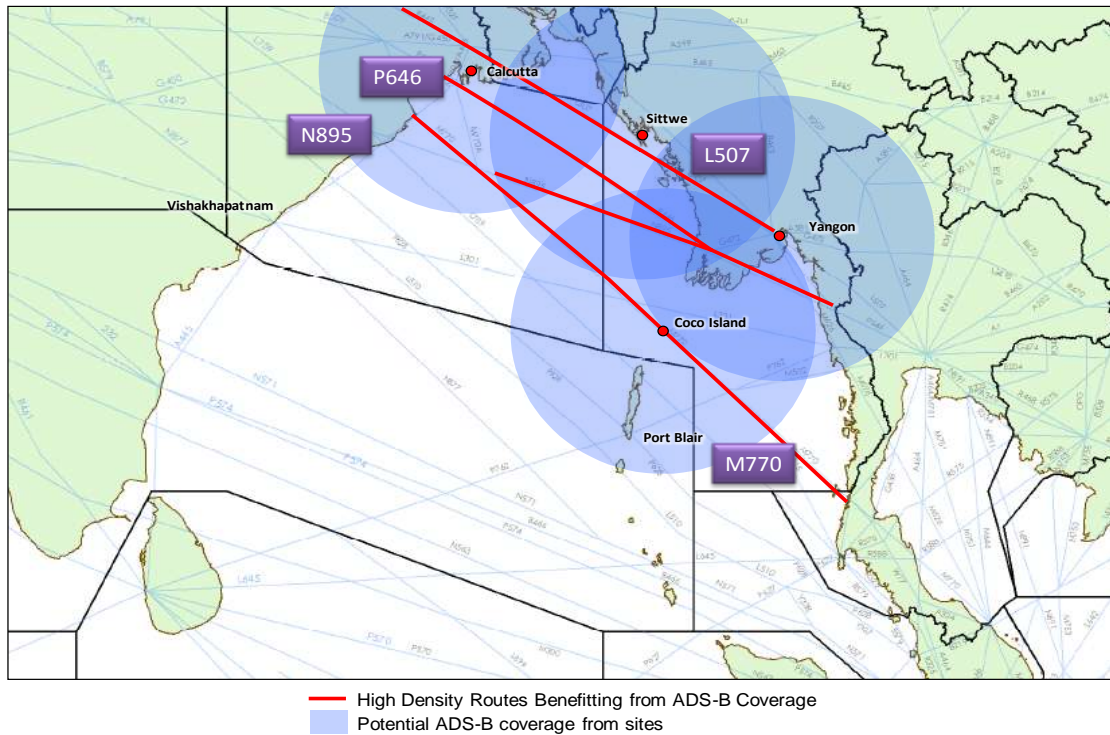
- (a) ADS-B and data sharing involving the ADS-B stations at Port Blair and Coco Island. With surveillance coverage on the crossing points of these routes, the flight level allocation on airways L510, L759, M770, N877, P628 and P762 could be optimised to cater for higher volume of traffic. Current procedures require 15mins lateral separation at crossing points. With ADS-B, surveillance separation can be applied leading to greater efficiency and increased airspace capacity. See Fig 2

**Fig 2: Proposed ADS-B data sharing between Port Blair and Coco Island**



- (b) ADS-B data sharing among ADS-B stations at Yangon, Coco Island, Sittwe and Port Blair. If an ADS-B station can be installed at Calcutta (or if there is existing radar coverage), and coupled with the planned ADS-B stations we can potentially achieve end to end ADS-B coverage for several airways over the northern part of the Bay of Bengal. With ADS-B data and VHF communications sharing similar to the South China Sea it would be possible to significantly increase airspace capacity and reduce flight delays on airways L607, M770, N895 and P646. See Fig 3.

**FIG 3: Proposed ADS-B data sharing among Port Blair, Coco Island, Yangon, Sittwe and Calcutta**



### Implementation Plan

2.7 The benefits of ADS-B have been discussed at many forums but what is required, as is evident in the initial project for the two routes over the South China Sea, is a strong focus on implementation coupled with concerted action and close cooperation by the relevant parties.

2.8 The initial project over the South China Sea provides a good working model for others to emulate and there is no need to reinvent the wheel. To kick-start discussions and provide a frame work for follow-up actions, it is proposed that the States concerned discuss and agree on an interim plan based on a typical implementation programme as shown in the Appendix A to this paper.

### **3. ACTION BY THE MEETING**

3.1 The meeting is invited to:

- a) Note the call by the 48<sup>th</sup> DGCA Conference to expedite ADS-B implementation;
- b) Note that the full benefits of ADS-B implementation could only be achieved through harmonized implementation; and
- c) Discuss and agree on follow up actions required for the proposed expansion of ADS-B coverage and data sharing for the South China Sea and the two ADS-B data sharing proposals for the Bay of Bengal.

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**APPENDIX A**

**Typical Programme Milestones**

Milestone	Target date for Party 1	Target date for Party 2
Agree in principle to share data from sites. Nominate sites and objectives.		
Sign data sharing agreement		
Commission ADS-B ground stations. Different dates for different ground stations possible		
Test inter FIR ADS-B data link		
Commissions inter FIR ADS-B data link		
Commence testing of ADS-B data from other FIR		
NOTAM/AIC for ADS-B use for situational awareness		
Installation of VHF radio for other party		
Test VHF inter FIR link		
Complete LOA for operational use		
Commission ADS-B & VHF service		