



International Civil Aviation Organization

**FIRST MEETING OF THE SURVEILLANCE IMPLEMENTATION
COORDINATION GROUP (SURICG/1)**

Bangkok, Thailand, 21 - 22 April 2016

Agenda Item 5: Review the revised Surveillance Strategy for the Asia/Pacific Region

SURVEILLANCE STRATEGY FOR THE ASIA/PACIFIC REGION

(Presented by the Secretariat)

SUMMARY

This paper presents the Surveillance Strategy for the Asia/Pacific Region adopted by APANPIRG/24 and latest amendments were recommended by ADS-B SITF/12 meeting in 2013. Further recommended changes were proposed at CNS SG/19 meeting in July 2015.

1. INTRODUCTION

1.1 The CNS SG/(CNS SG/17) held at the ICAO Asia and Pacific Regional Office, Bangkok, Thailand in May 2013 reviewed and endorsed the proposed changes by ADS-B SITF/12 meeting to the regional Surveillance Strategy for Asia and Pacific Regions (Draft Conclusion 17/20). The revised surveillance strategy was adopted by APANPIRG/24 in June 2013 through Conclusions 24/47:

Conclusion 24/47 – Surveillance Strategy for the Asia/Pacific Region

That, the revised surveillance strategy for the Asia/Pacific Region provided in **Appendix J** to the Report on Agenda Item 3.4 be adopted.

1.2 The CNS SG/17 meeting reviewed the surveillance strategy and proposed some changes. As time constraints, the meeting referred the outcome of the meeting and proposed changes the SURICG/1 for consideration.

2. DISCUSSION

2.1 The CNS SG/19 meeting reviewed the surveillance strategy. There were several proposed changes which had been included in draft of revised surveillance strategy provided in **Attachment** to this paper.

2.2 New Zealand added that the current strategy does not recognise the need for contingency surveillance systems. This should be a strategic consideration for states and regions when implementing modernised surveillance systems. The strategy makes the statement that the adoption platform based surveillance options will facilitate a reduced reliance on primary radar. The residual reliance on primary radar will be different for each state as the likes of ADS-B technology has system wide implications. New Zealand will take cognisance of the strategy when implementing a modernised surveillance system to meet our specific needs.

2.3 Additionally, the CNS SG expressed a view that the use MODE S data (especially DAPS) from SSR's is desirable. That being the case then the use of such data has to be applicable to ADS-B ground systems as well. Providing such data to enhance both safety net processing and aircraft trajectory within the ATM needs to be provided by both systems to ensure completeness and consistency.

2.4 IATA recommended that the revised surveillance strategy should also consider the requirement for aircraft tracking as the new SARPs for aircraft tracking would soon become available.

2.5 Considering the proposed new SURICG being established, the CNS SG agreed to refer the surveillance strategy with comments by the meeting to the new SURICG for review as it would be one of the deliverables in the proposed draft TOR of the group.

3. ACTION BY THE MEETING

3.1 The meeting is invited to review **Attachment** – the Surveillance Strategy for Asia and Pacific Regions and make any further updates for consideration by CNS Sub-group.

REVISED SURVEILLANCE STRATEGY FOR THE ASIA/PACIFIC REGION

Considering that:

1. States are implementing CNS/ATM systems to gain safety, efficiency and environmental benefits, and have endorsed the move toward satellite and data link technologies;
2. The future air traffic environment will require increased use of aircraft-derived surveillance information for the implementation of a seamless automated air traffic flow management system;
3. The 11th Air Navigation Conference endorsed the use of ADS-B as an enabler of the global air traffic management concept and encouraged States to support cost-effective early implementation of ADS-B applications;
4. The 12th Air Navigation Conference endorsed the ICAO Aviation System Block Upgrades (ASBU) Framework with Modules specifying effective use of ADS-B/MLAT and associated communication technologies in bridging surveillance gaps and its role in supporting future trajectory-based ATM operating concepts. Cooperation between States is the key to achieve harmonized ATM system operations;
5. APANPIRG has decided to use the 1090MHz Extended Squitter data link for ADS-B air-ground and air-air applications in the Asia/Pacific Region, noting that in the longer term an additional link type may be required;
6. SSR and ADS-C will continue to meet many critical surveillance needs for the foreseeable future;
7. SARPs, PANS and guidance material for the use of ADS-B have been developed;
8. ADS-B avionics and ground systems are available;
9. Multilateration is a technology that can supplement SSR, ADS-B and SMR; and
10. ADS-B IN applications and equipment are now available in commercial airliners and ICAO ASBUs include ADS-B IN applications. ~~in Block 0, and Block 1. Block 2 and Block 3.~~

THE SURVEILLANCE STRATEGY FOR THE ASIA/PACIFIC REGION IS TO:

1. Minimize the reliance upon pilot position reporting, particularly voice position reporting, for surveillance of aircraft;
2. Maximize the use of ADS-B on major air routes and in terminal areas, giving consideration to the mandatory carriage of ADS-B Out as specified in Note 1 and use of ADS-B for ATC separation service;
3. Reduce the dependence on Primary Radar for area surveillance;

4. Provide maximum contiguous ATS surveillance coverage of air routes using 1090MHz Extended Squitter ADS-B, Wide Area Multilateration and Mode S SSR based on operational requirements;
5. Make full use of SSR Mode S capabilities where radar surveillance is used and reduce reliance on 4-digit octal codes;
6. Make use of ADS-C where technical constraint or cost benefit analysis does not support the use of ADS-B, SSR or Multilateration;
7. Make use of Multilateration for surface, terminal and area surveillance where appropriate and feasible. ;
8. Closely monitor ADS-B avionics developments such as Version 2 ES (*DO260B*) implementation and Spaced Based ADS-B application programs. At an appropriate time (circa 2016) APAC should review progress and consider development of transition plans where cost/benefit studies indicate positive advantages for the region; and
9. Carefully monitor ADS-B IN development and cost benefits to ensure that ASIA/PAC States are able to take advantage of ADS-B IN benefits when appropriate, through procedures, rules and ATC automation capabilities.

Note 1:

- a) *Version 0 ES as specified in Annex 10, Volume IV, Chapter 3, Paragraph 3.1.2.8.6 (up to and including Amendment 82 to Annex 10) and Chapter 2 of Technical Provisions for Mode S Services and Extended Squitter (ICAO Doc 9871) (Equivalent to DO260) to be used till at least 2020.*
- b) *Version 1 ES as specified in Chapter 3 of Technical Provisions for Mode S Services and Extended Squitter (ICAO Doc 9871) (Equivalent to DO260A);*
- c) *Version 2 ES (including provisions for new set of 1 090 MHz extended squitter (ES) messages and traffic information service – broadcast (TIS-B) being developed by the Aeronautical Surveillance Panel (ASP) and scheduled to be incorporated in Annex 10 Vol. IV - Surveillance and Collision Avoidance System as part of Amendment 86 with target applicable date in November 2013. (Equivalent to DO260B and EUROCAE ED-102A which were issued in December 2009).*