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**Agenda Item 34: Aviation safety and air navigation policy**

**ADS-B IMPLEMENTATION IN CHINA**

(Presented by the People's Republic of China)

**EXECUTIVE SUMMARY**

This paper presents Automatic Dependent Surveillance-Broadcast (ADS-B) implementation status in China.

<i>Strategic Objectives:</i>	This working paper relates to the Safety and Air Navigation Capacity and Efficiency Strategic Objectives.
<i>Financial implications:</i>	
<i>References:</i>	

## 1. INTRODUCTION

1.1 Automatic Dependent Surveillance-Broadcast ( ADS-B ) System is the infrastructure to provide safe and efficient surveillance services for Civil Aviation. Expediting the implementation of ADS-B system is one of the key tasks to improve current China ATM system and develop the next-generation air transportation system.

## 2. DISCUSSION

2.1 CAAC has published “ADS-B Implementation Plan for the Civil Aviation of China” on November, 2012, has revised on December, 2015. The plan consists of three major phases to implement ADS-B OUT service across China.

2.2 Phase 1: CAAC will provide initial ADS-B OUT operation service in some core airspace and routes firstly, especially in Non-Radar Surveillance routes in West China and South China Sea. 310 ADS-B ground stations and 10 ADS-B data centers is going to be deployed. Initial ADS-B operation will commence at the end of 2017.

2.3 Phase 2: From 2017 to 2020, the key task is comprehensive promotion of ADS-B out, and the safety assessment of ADS-B out.

2.4 Phase 3: From 2020 to 2025, A complete ADS-B operation surveillance system and information service system will be built to provide all-airspace surveillance means for air traffic and comprehensive ADS-B information services for airlines and strengthen the safety support capacity and service level of air traffic control and airlines. Up to now, phase 1 has already started, some ground stations has been deployed prior in Non-Radar Area and Oceanic Area and put into operation.

2.5 At the end of 2017(Phase 1), 310 ADS-B ground stations, 2 primary ADS-B data processing center, and 8 secondary ads-b data processing center are going to be deployed. the national ADS-B coverage in this phase is as below:

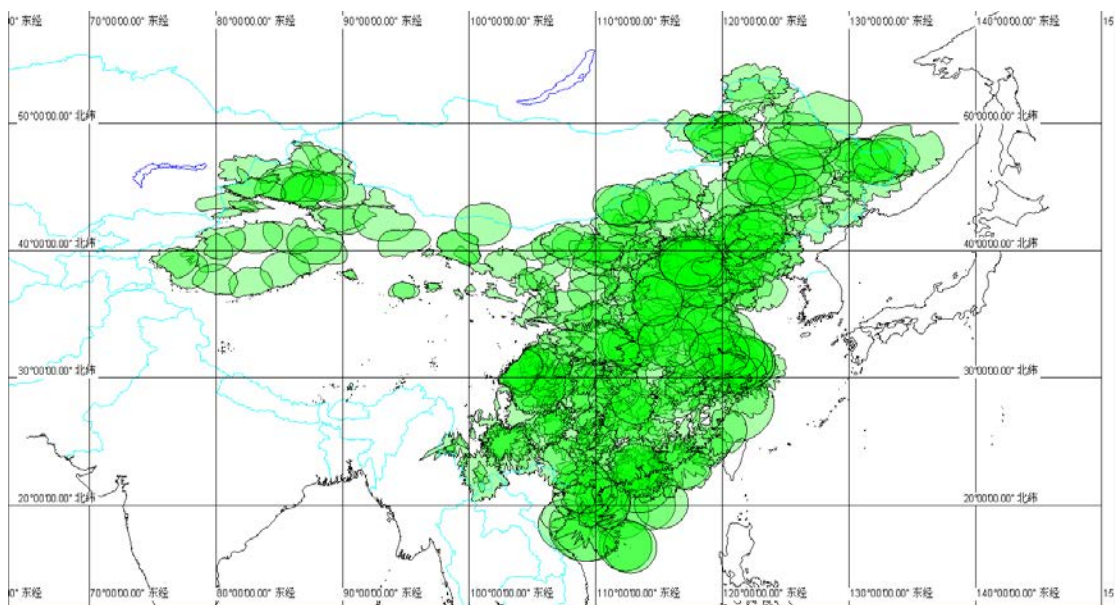


Figure 1: the national ADS-B coverage at 3300m

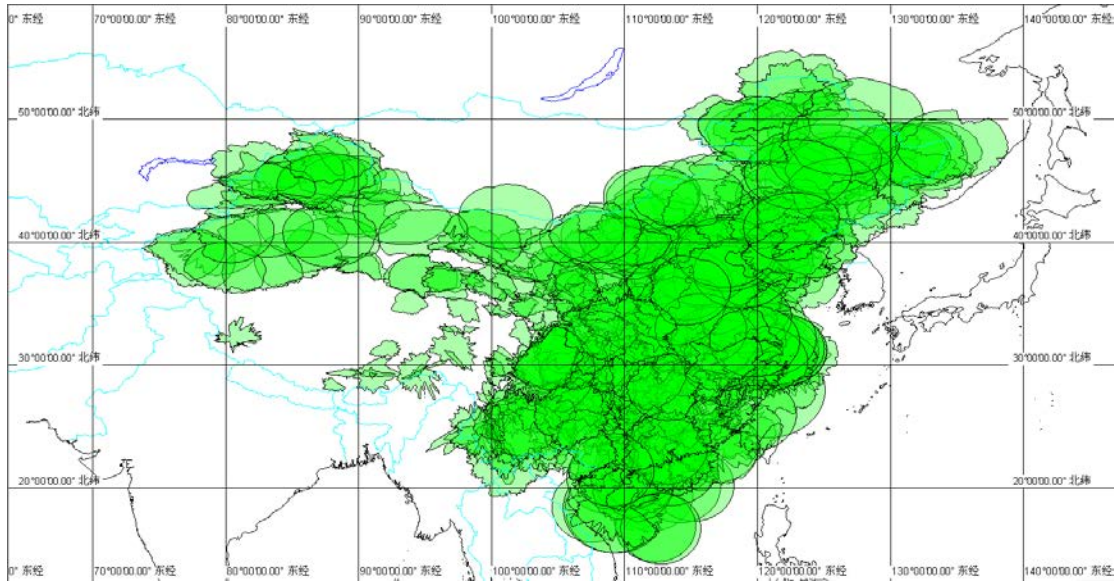


Figure 2: the national ADS-B coverage at 6600m

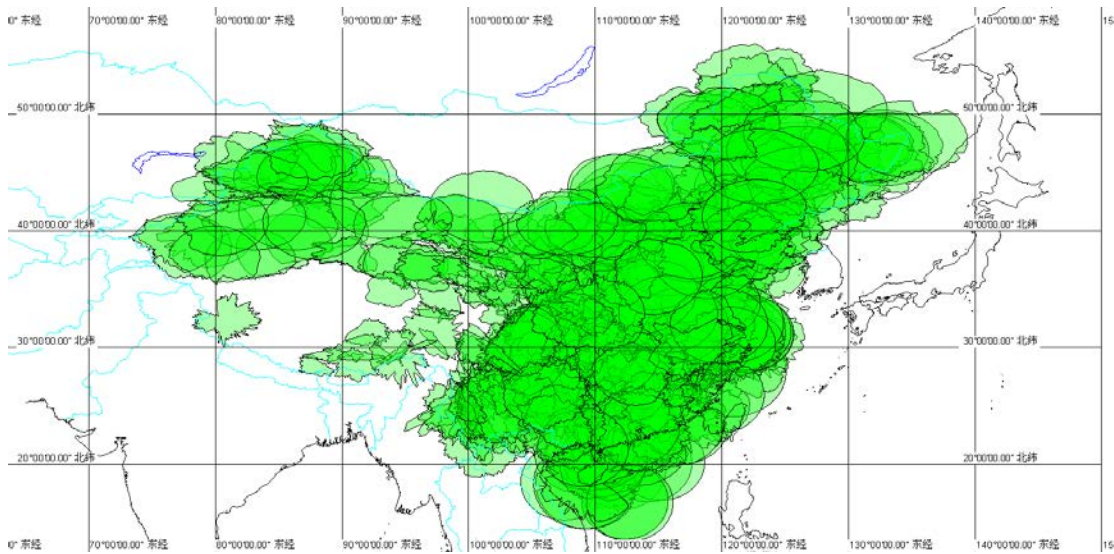


Figure 3: the national ADS-B coverage at 8400m

2.6 A set of rules and regulations in relation to ADS-B implementation has been published by CAAC. ADS-B ground station technical requirement and test requirement was published in 2012. Siting Criteria and Configuration Guidance for 1090MHz ADS-B Ground Station was published in 2013. The Minimum Operational Functionalities and Performance Standards for ADS-B Data Center and The Technical Specification for ADS-B Data Center were developed and published in 2014. Currently, the Flight Inspection Procedure for ADS-B Ground Station has been amended.

2.7 Three ADS-B projects have been completed for trials. Chengdu-Jiuzhai ADS-B evaluation and test project set up two ADS-B stations, Chengdu-Lhasa ADS-B surveillance project implemented 6 ADS-B stations. Sanyan flight information region (FIR) L642 and M771 routes ADS-B test project established one ADS-B ground station. After successful evaluation, 2011, Chengdu-Lhasa

route ADS-B trial has commenced since 18th May, 2011. ADS-B service over Sayan FIR(L642 and M771 routes) has been put into trials since 16th June, 2011, that improves the surveillance capability above South China Sea. According to these trials, CAAC published ADS-B ATS Manual in 2013. By 1st September, 2013, B213 Route has been put into ADS-B ATS Operation, the minimum separation has been reduced from 10min to 5min.

2.8 ADS-B System is the infrastructure to provide safe and efficient services for Civil Aviation. To ensure the relevant equipment's compliance with ICAO's SARPs and meeting the operational requirements, CAAC has established the validation and certification process that cover the phases of system design, development, manufacture, quality control, after sales services inspecting etc. It sets up the rules and procedures of certification and provides means of factory checking and quality control system evaluation, design review and factory testing, onsite stability and reliability testing to eliminate the potential defect issues at any stage of system development and manufacture. The validation and certification is based on ICAO SARPs, operational requirements and relevant technical specifications. Consider the safety of high density airspaces of China, CAAC has set up more strict criteria for testing and validation of ADS-B equipment.

2.9 Along with the enhancement of aviation industry in China, a number of CNS equipment developed by Chinese domestic manufactures have been certified and deployed, including ADS-B. At present, all of the operational ADS-B ground stations deployed in China are designed and produced by domestic manufactures. The services provided by this equipment improved flight safety and efficiency in China.

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