International Civil Aviation Organization

TWELFTH MEETING OF THE SOUTHEAST ASIA AND BAY OF BENGAL SUB-REGIONAL ADS-B IMPLEMENTATION WORKING GROUP (SEA/BOB ADS-B WG/12)

GuangZhou, China 8 – 10 November 2016

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

ADS-B EQUIPMENT CERTIFICATION AND LOCALIZATION IN CHINA

(Presented by China)

SUMMARY

This Information Paper presents the procedures of ADS-B equipment certification in CAAC to ensure the operational equipment compliance with ICAO SARPs and meeting the specific operational requirements of CAAC. The paper also describes the development of domestic ADS-B equipment.

1. INTRODUCTION

1.1 Communication, Navigation and Surveillance Systems are the infrastructure to provide safe and efficient services for civil aviation. To ensure the CNS equipment compliance with ICAO's SARPs and meeting the operational requirements, CAAC established the CNS equipment validation and certification system in 2002 and continued to improve it.

1.2 As ADS-B is a key element in ICAO ASBU and APAC Seamless ATM plan, it is considered a higher priority in China ATM system planning and implementation. ADS-B equipment is required to be certified by CAAC before operational use. Working procedure has been set up for the approval of ADS-B ground equipment.

2. DISCUSSION

2.1 China has gained rich experiences in ADS-B service through three ADS-B trial projects developed since 2011, and has been capable of providing both ADS-B based separation and ADS-B equipment maintenance. The lessons learned from these trials has been reflected in the relevant rules and technical manuals of CAAC.

2.2 ADS-B System is the infrastructure to provide safe and efficient services for Civil Aviation. To ensure the relevant equipment compliance with ICAO's SARPs and meeting the operational requirements, CAAC has also established the certification and validation process that cover the phases of system design, development, manufacture, quality control, after sales services, etc. It sets up the rules and procedures of certification and provides means of factory acceptance checking

and quality control system evaluation, design review and equipment factory testing, onsite stability and reliability testing to eliminate the potential defect issues at any stage of system development and production.

2.3 The certification and validation is based on ICAO SARPs, operational requirements and relevant technical specifications. Considering the safety of high density airspaces of China, CAAC has set up more strict criteria for testing and validation of ADS-B ground equipment. Some performance indexes have been increased to meet more sophisticated requirements in critical operation environment.

2.4 For safety consideration, the overall system architecture of ADS-B ground station is required to be dual redundancy backup, and for the antenna system, the equipment is required to have the capability of equipping omnidirectional antenna and directional antenna. These performance requirements, which are listed in both test requirement published by CAAC and technical specification requirements in the latest ADS-B implementation plan in China, could hardly be achieved even by those largest providers.

2.5 Along with the fast development of aviation industry in China, There are a number of domestic CNS equipment providers have been qualified and certified to provide both equipment and installation services to CAAC ADS-B projects. At present, all of the 6 manufacturers that officially certified by CAAC for ADS-B equipment are domestic, and all of the operational ADS-B ground stations installed are designed and produced by Chinese manufacturers.

2.6 It is proved that the levels of services provided by these equipment are satisfied and it significantly improves the flight safety and efficiency in the ADS-B implementation area in China. With the progress of ADS-B implementation, more ground stations are going to be deployed and put into operation, that will provide more efficient and robust surveillance capability in China airspace.

2.7 Besides operational ATM system, ADS-B equipment produced by Chinese manufacturers has also been adopted by domestic airlines for their aircraft tracking use. Meanwhile, a number of ADS-B equipment certified by CAAC have been deployed in other countries and regions around the world.

2.8 Recently in September 2015, the bid of ADS-B & MLAT project of Kenya Civil Aviation Authority, which involved with Thales, Indra, Selex, SAAB and ERA, was finally won by a Chinese manufacturer. The project will supply eight sets of ADS-B ground station to provide the surveillance data for ATC system and improve the current airspace surveillance situation. The surveillance range could cover the entire territory of Kenya. At present, the project had passed the factory acceptance test successfully and the site installation work is in progress.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

a) note the information contained in this Paper. Pay attention to ADS-B equipment localization in China; and

b) discuss any relevant matters as appropriate.

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