

**54th CONFERENCE OF
DIRECTORS GENERAL OF CIVIL AVIATION
ASIA AND PACIFIC REGION**

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**AGENDA ITEM 6: TECHNICAL AND REGIONAL
COOPERATION**

**CHINA CIVIL AIRCRAFT TRACKING AND
MONITORING SYSTEM**

(Presented by People's Republic of China)

SUMMARY

Global aircraft tracking system attracted world-wide attention in the wake of the disappearance of Malaysia Airlines Flight MH370 in 2014. CAAC attached great importance to this accident by taking active participation in the ICAO activities in such areas as concept of operations, normal aircraft tracking and location of an aircraft in distress. To be specific, China developed a roadmap for the implementation of “China Civil Aircraft Tracking and Monitoring System”, which was issued in June 2017. In 2016, China Civil Aviation Administration carried out normal aircraft tracking activities in line with requirements and provisions’ development by NATII, successfully conducted regional demonstration during June and July, and by the end of the year, had awarded corresponding operational certificates to 18 China airlines. Currently, CAAC is systematically promoting global aircraft tracking by means of ADS-B, satellite broadband communication, Beidou Navigation System, and other technologies in global aircraft tracking, and looks forward to conducting follow-up in-depth global cooperation.

CHINA CIVIL AIRCRAFT TRACKING AND MONITORING SYSTEM

1. INTRODUCTION

1.1 The disappearance in 2014 of Malaysia Airlines Flight MH370 attracted enormous attention from the world community to civil aviation safety. ICAO and other international organizations, in conjunction with the civil aviation authorities of various countries, industrial community and other international organizations, carried out a series of activities on how to implement global aircraft tracking.

1.2 ICAO successively assigned a series of working groups, including AHWG, NATII and NATII-2, which were designed to promote the capability of global aircraft tracking by improving concept of operations, Standards and Recommended Practices (SARPs) on normal aircraft tracking, among others. ICAO drafted GADSS concept of operations in 2015, and issued 39th and 40th amendments to Annex 6 in 2016, proposing standards and recommended practices and relevant specifications on normal aircraft tracking, location of an aircraft in distress, extended duration of CVR record, flight data recovery, etc.

1.3 Having been attaching great importance to aircraft tracking and monitoring, CAAC has been actively involved in the activities of several ICAO committees and maintaining close exchanges and cooperation with a broad spectrum of entities, including civil aviation authorities of other countries and industrial players, with a view to promoting the establishment of a civil aircraft tracking and monitoring system in China. As of now, significant results have been achieved in China with respect to normal aircraft tracking.

2. DISCUSSION

2.1 CAAC has prioritized the implementation of global aircraft tracking and monitoring activities, and set up a steering group in 2015 tasked with the establishment of a Civil Aircraft Tracking and Monitoring System in China, which promoted, via coordination, the implementation of global aircraft tracking and monitoring activities in China.

2.2 The steering group tasked with the implementation of a civil aircraft tracking and monitoring system in China developed in 2016 the corresponding Roadmap, which was issued in July 2017. The roadmap will be implemented in three phases, i.e. the beginning phase, short-term and long-term. The task for the beginning phase had been fulfilled by the end of 2016, which was to achieve the goal of conducting, using existing technologies, 4D/15 tracking of flights operating outside 9 of 11 China FIRs. In the short-term (2017-2020), the objective is to achieve seamless global flight tracking based on ATC information and new technologies, using such technologies as ground/satellite-based ADS-B and broadband aeronautical communication, and pay close attention to the relevant ICAO requirements on the location of an aircraft in distress. In the long-term (2021-2025), the implementation roadmap aims to establish a global aircraft tracking system based on independent intellectual property rights and develop relevant standards, providing technical support and service on global flight tracking for China and even other countries.

2.2.1 In May 2016, CAAC developed an advisory circular, i.e. a Guidance on the Implementation by Air Carriers of Aircraft Tracking and Monitoring Activities, in accordance with relevant NATII requirements, which was disseminated for public opinions and was officially issued in August 2016. According to the advisory circular, while air carriers in China operate aircraft with MTOW over 27 tons on scheduled or non-scheduled passenger flights outside the nine (Beijing, Shenyang, Shanghai, Wuhan, Guangzhou, Kunming, Lanzhou, Urumqi and Sanya) of the eleven Flight Information Regions in China, they are required to report automatically aircrafts' 4D tracking information (longitude, latitude, altitude, time) to the corresponding air carrier's ground monitoring system at an interval not exceeding 15 minutes. By December 2016, 18 air carriers of China operating international and regional flights had been approved the above mentioned supplemental operation certificates.

2.2.2 In June-July 2016, a 45-day Regional Demonstration on Normal Flight Tracking was organized by CAAC, which was participated by four airlines and was designed to evaluate the capability of the 4D/15 tracking of the airlines within their operation areas, identify the issues that might emerge, and find out mitigation and solutions. The regional demonstration covered 45 air routes in 13 operation areas, and the normal flight tracking was conducted using ACARS position reporting (VHF, SATCOM), ADS-B and third party tracking data services, processing a total of 440 thousand valid tracking report. An analysis of the regional demonstration showed that all the 4 airlines had already possessed the capability of conducting 4D/15 normal tracking and monitoring of aircraft operating within their operational areas, including over oceanic areas, and polar areas (POLAR-4, POLAR-3). The compliance rate of 4D/15 tracking in the regional demonstration exceeded 93%, and the compliance rate of 4D/15 tracking which can self-recover within 30 minutes exceeded 98%. In the meantime, the demonstration also finds some gap areas out of tracking coverage appeared on frequent basis. CAAC already informed air carriers in China of the need to implement appropriate risk evaluation and mitigation measures while operating around or even within these gap areas.

2.2.3 CAAC will centralize and monitor the status information related to the 4D/15 normal tracking by domestic airlines of their flight operation overseas.

2.2.4 In 2017, CAAC has already embarked on its capacity enhancement related to the seamless tracking of civil aircraft, by focusing on ADS-B and satellite broadband communication, and is expected to achieve the seamless tracking ability around the year 2020.

2.2.5 Meanwhile, CAAC is making efforts to promote the application in civil aviation of Beidou navigation system with independent intellectual property rights. Starting with application in general aviation, the system will be gradually applied in transport aviation by following the strategy of “the system serving monitoring purpose in the first stage and navigation purpose in the next stage”.

3. ACTION BY THE CONFERENCE

3.1 The Conference is invited to:

- a) note that (1) the Guidance on the Implementation by Air Carriers of Aircraft Tracking and Monitoring Activities, and (2) the Roadmap for the Implementation of a Civil Aircraft Tracking and Monitoring System in China issued by CAAC;
- b) note the fact that China civil aviation conducted normal aircraft tracking and monitoring by following the standards stricter than those adopted by ICAO, and gathered some experience in regional demonstration, data-based tracking performance evaluation and gap analysis. CAAC is keen on conducting follow-up in-depth exchanges with other countries in such areas as normal aircraft tracking, development of policy, as well as solutions and evaluations related to the location of an aircraft in abnormal condition or in distress;
- c) note the fact that CAAC looks forward to conducting in-depth cooperation with other civil aviation administrations in the application of Beidou satellite navigation system in civil aviation, particularly in the current implementation of monitoring and tracking in general aviation.

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