International Civil Aviation Organization

INFORMATION PAPER

AN-Conf/13-WP/195
28/9/18
(Information Paper)
English and Chinese only[1]

THIRTEENTH AIR NAVIGATION CONFERENCE

Montréal, Canada, 9 to 19 October 2018

COMMITTEE A

Agenda Item 4: Implementing the global air navigation system and the role of planning and implementation regional groups (PIRGs)
4.3: Implementing ASBUs for performance improvement

THE IMPLEMENTATION OF THE AVIATION SYSTEM BLOCK UPGRADE IN CHINA

(Presented by China)

EXECUTIVE SUMMARY

This paper presents the China's efforts in the process of implementing the aviation system block upgrade and promoting the global air navigation system to move towards a unified vision for the future. In detail, the current situation of each module in the four performance improvement areas is briefly summarized and described.

1. INTRODUCTION

1.1 In 2012, the AN-Conf/12 launched the aviation system block upgrade (ASBU) plan, and the future features and development trend of air navigation system will be driven by the operation concept and performance improvement. Based on the unified vision of the global air navigation system and the development situation in China, the Air Traffic Management Bureau (ATMB) of CAAC formulated the Civil Aviation ATM Modernization Strategy (CAAMS) in 2016.

1.2 In the architecture of CAAMS, it not only proposed seven operational concepts in line with China's reality, including airspace organization and management, traffic flow collaboration management, high density airport operation, trajectory based operations, multiple mode separation management, civil-military joint operation and performance-based service, but also analyzed the overall development of China's civil aviation and air traffic management from six other aspects, including mission and vision, policies and regulations, overall goals, service capacity, infrastructure, construction projects. Therefore, China's implementation of ASBU is gradually implemented along with the overall promotion of CAAMS.

[1]English and Chinese versions provided by China

2. DISCUSSION

Performance Improvement Area 1: Airport Operations

2.1 APTA: At present, among the forty four airports served directly by ATMB, except Changchun, Harbin and Aksu airports, forty one airports have implemented PBN operation (Beijing, Guangzhou, Shenzhen, Hongqiao, Pudong, Kunming, Chengdu, Xi'an, Chongqing, Hangzhou, Zhengzhou, Wuhan, Xiamen, Changsha, Haikou, Qingdao, Nanjing, Tianjin, Dalian, Sanya, Guiyang, Hefei, Fuzhou, Jinan, Shenyang, Nanning, Shijiazhuang, Hohhot, Taiyuan, Nanchang, Guilin, Zhuhai, Xi'ning, Yinchuan, Lanzhou, Ningbo, Wenzhou, Zhanjiang, Hulunbuir, Shantou and Urumqi).

2.2 WAKE: Currently, it operates according to the standards issued by CAAC, and the current separation standards have been consistent with the current Standards of ICAO. Meanwhile, the research on the RECAT is in progress.

2.3 RSEQ: In the aspect of DMAN, busy areas such as north China, east China and middle south China have enabled regional airports to realize the capability of DMAN by implementing CDM, involving a total of thirty three airports nationwide. In the aspect of AMAN, Shenyang and Xi'an airports are already equipped with AMAN facilities, while Urumqi and Changsha airports are about to go into trial.

2.4 SURF: Among the forty four airports served directly by ATMB, there are sixteen airports (Beijing, Hongqiao, Pudong, Nanjing, Hangzhou, Xiamen, Xi'an, Chengdu, Kunming, Chongqing, Urumqi, Changsha, Guangzhou, Shenzhen, Wuhan and Zhengzhou) have reached A-SMGCS Level 2.

2.5 ACDM: Among the forty four airports served directly by ATMB, there are twenty five airports (Beijing, Pudong, Guangzhou, Kunming, Shenzhen, Chengdu, Xi'an, Chongqing, Hangzhou, Hongqiao, Nanjing, Zhengzhou, Xiamen, Wuhan, Qingdao, Changsha, Tianjing, Urumqi, Haikou, Guiyang, Dalian, Sanya, Harbin, Shenyang, Fuzhou) have equipped the airport collaborative decision-making system.

Performance Improvement Area 2: Globally Interoperable Systems and Data

2.6 FICE: All eleven flight information regions (FIRs) in China (Beijing, Shenyang, Shanghai, Guangzhou, Wuhan, Sanya, Kunming, Lanzhou, Urumqi, Hong Kong and Taipei) have realized at least one AIDC interface with adjacent units in the area, and there are forty two pairs of AIDC links among different ATC units.

2.7 DATM: According to the AIS-AIM roadmap, there are twenty one elements in three stages and China has completed P03, P04, P05 and P17 of stage 1, P08 and P11 of stage 2, and P16, P18 and P20 of stage 3.

2.8 AMET: All the forty four airports served directly by ATMB can provide basic weather forecast, airport warning and alarm services, and all equipped automatic weather observation system, satellite cloud image receiving system, civil aviation meteorological information system and AFTN system. All airports obtain WAFS data through civil aviation meteorological information system.

Performance Improvement Area 3: Optimum Capacity and Flexible Flights

2.9 FRTO: At present, PBN operation procedures have been announced for all traditional routes in China, and PBN operation can be implemented.

2.10 NOPS: Seven regional Air Traffic Management Bureaus in China have completed the construction and operation of regional ATFM system in an earlier period and the national ATFM system which named ATOM has been equipped at the Operational Management Center of ATMB.

2.11 ASUR: The Civil aviation air traffic surveillance services in China mainly through Radar and MLAT. At present, a nationwide automatic dependent surveillance — broadcast (ADS-B) monitor network project is under construction, which is expected to be completed by 2019.

2.12 ASEP: So far, there are no AIRB and VSA applications based on ADS-B IN in China.

2.13 OPFL: At present, there is no ITP application cases based on ADS-B IN in China.

2.14 ACAS: All civil aviation transport aircraft are equipped with ACAS for safety net.

2.15 SNET: All air traffic control automation systems have the function of conflict prediction, such as short-term conflict alert (STCA), area proximity warnings (APW) and minimum safe altitude warnings (MSAW).

Performance Improvement Area 4: Efficient Flight Path

2.16 CCO/CDO: The trial operation of CCO/CDO has been completed in Beijing and Guangzhou, and regularly operation is planned for the next step. Subsequently, the verification and approval and trial operation of the CCO/CDO will be carried out in Kunming, Hongqiao and Pudong.

2.17 TBO: At present, the main task of TBO is to improve the data link communication network. The coverage of the VHF data link communication network has been basically completed and the VDL Mode 2 network is still under construction. The routes of L888, Y1, Y2, Y3, Z1 and Z3 in western China have implemented CPDLC/ADS-C. All the forty four airports served directly by ATMB are fully equipped with DCL and D-ATIS. In addition, the research of the i4D verification flight program is under way.

3. CONCLUSION

3.1 In the foreseeable future, there remains a strong demand in China’s aviation market, which poses a huge challenge to ATMB of CAAC. We will accelerate the implementation of CAAMS and ASBU to ensure a smooth transition from the current system to the new air navigation system.

— END —