INTERNATIONAL CIVIL AVIATION ORGANIZATION

TWENTY SEVENTH MEETING OF THE ASIA/PACIFIC AIR NAVIGATION PLANNING AND IMPLEMENTATION REGIONAL GROUP (APANPIRG/27)

Bangkok, Thailand, 5 to 8 September 2016

Agenda Item 3: **Performance Framework for Regional Air Navigation Planning and Implementation**

3.2: **ATM**

ARRANGEMENT AFFECTING ADJACENT FLIGHT INFORMATION REGIONS (FIRs) DURING TRANSITION TO THE NEW AIR TRAFFIC MANAGEMENT SYSTEM IN HONG KONG, CHINA

(Presented by Hong Kong, China)

SUMMARY

This paper focuses on the possible impacts of implementation of the new Air Traffic Management System in Hong Kong on adjacent FIRs. The arrangements of switching over to the new systems and the possible measures to regulate air traffic entering Hong Kong FIR are presented. The understanding and support from all working counterparts are essential for the success of this important step in the enhancement of Hong Kong ATC operation.

Strategic Objectives:

A: ***Safety*** *– Enhance global civil aviation safety*

B: ***Air Navigation Capacity and Efficiency****—Increase the capacity and improve the efficiency of the global aviation system*

1. INTRODUCTION

1.1 In an effort to manage the increasing regional demand for air navigation service, the Civil Aviation Department (CAD) of Hong Kong, China has launched several initiatives to upgrade the civil aviation infrastructure. One important project is the replacement of air traffic control systems. The scope of the project consists of replacement and relocation of all ATC and supporting equipment namely, Aeronautical Information Management Centre (AIMC), Aeronautical Communications Centre (ANC), Air Traffic Control Centre (ATCC), Aerodrome Control Tower (Tower) and Rescue Coordination Centre.

1.2 The new ANC and AIMC have commenced operation in October 2015 and December 2015 respectively. The target implementation date of the remaining core system - Air Traffic Management System (ATMS) in the new ATCC and Tower is Oct/Nov 2016.

1.3 A detailed transition plan has been worked out to ensure a safe and orderly flow of air traffic during the implementation of the new ATMS and the transition of ATC operations to the new facilities.

2. DISCUSSION

2.1 ATC Communication Networks

2.1.1 The major communication networks supporting inter Area Control Centre (ACC) coordination include Inter Area Speech Circuit (IASC), ATS Inter Facility Data-Link Communication (AIDC) and telephone lines. Switchover of these networks may interrupt the data / information flow. ATC operation needs to be safeguarded.

2.1.2 IASC is the most frequently used direct communication network between ACCs. The switching of the IASC network will be conducted internally and should be transparent to counterparts during the cutover to the new ATMS.

2.1.3 AIDC has been in operation in Hong Kong for a number of years. The technical arrangement for testing and switching over of the AIDC network is in progress. During the ATMS cutover, AIDC networks will be patched to the new ATC facilities. To minimize the risk of data loss during the switchover process, AIDC operation may be suspended for a defined period before and after cutover. When AIDC is not available, all transfer of control messages for flights will be coordinated verbally via IASC.

2.1.4 Telephone lines serve as an effective means of coordination between ACCs. Similar to IASC, the switching of telephone lines will be performed internally and should be transparent to all counterparts. The telephone numbers of Hong Kong ATCC and Tower will remain unchanged.

2.2 Regulating air traffic operating within Hong Kong FIR during transition period

2.2.1 CAD recognizes that, despite detailed transition planning and a comprehensive training program for ATC controllers, a period of consolidation of skills, procedures and new operating techniques is necessary to ensure the highest level of safety is maintained and to cater for any unexpected issues during the cutover and in the initial stage of transition.

2.2.2 Regulation of traffic demand is considered necessary to avoid any unexpected surge of traffic causing unacceptable ATC workload. As such, appropriate Air Traffic Flow Management Measures (ATFM) will be imposed during the 4 ATFM phases – Strategic, Pre-tactical, Tactical and Post- Operations.

2.3 **Strategic** – Traffic operating at Hong Kong International Airport (HKIA)

2.3.1 A temporary reduction of scheduling capacity has been imposed at HKIA during the initial transition period at the beginning of the Winter 2016 scheduling season. The hourly Runway Acceptance Rate has been reduced from 68 to 60 movements per hour in peak hours and by a lesser extent in off-peak hours between 0000 UTC and 1559 UTC. Overall the scheduling reduction is approximately 7% of daily movements. The scheme was announced to operators and IATA in April 2016 and both have expressed support for the measure. Operators have been cooperative in consolidating/cancelling/rescheduling flights during the slot allocation process thus far.

2.4 **Pre-Tactical** – ATFM Daily Planning

2.4.1 Daily demand/capacity determination will be made as per normal however the maximum capacity of terminal holding ATC sectors will be reduced during the initial period. This will affect the overall holding/delaying capacity of the Hong Kong FIR and result in traditional ATFM measures being imposed earlier than normal if traffic demand and capacity imbalance is determined. Every effort will be made to impose such restrictions prior to aircraft becoming airborne within the nominal 4 hour ATFM horizon from Hong Kong.

2.5 **Tactical** – Handling of daytime and night-time traffic overflying Hong Kong FIR

2.5.1 If required, tactical ATFM measures for traffic transiting the Hong Kong FIR during the peak daytime hours will be issued generally in the form of traditional Minutes-in-trail (MINIT)/ Miles-in-trail (MIT).

2.5.2 Unless there are compounding capacity regulation measures issued from downstream ACCs, it is not envisaged that significant ATFM measures should be required during the daytime; avoidance of traffic bunching is the main goal. In this respect, usage of MIT based on surveillance spacing of approximately 10NM would be the preferred method.

2.5.2 During the night-time, the specific issue of large number of overflying traffic passing through the Hong Kong FIR, mainly from South-East Asia to North-East Asia via Airway A1, will require a different ATFM approach.

2.5.3 Flights transiting Hong Kong FIR which originate from a limited number of designated aerodromes may be subject to ATFM measures in the form of Minimum Departure Interval (MDI). This is considered more effective and efficient for operators and ATC than a single MINIT measure compounding back along the common airway.

2.5.4 Trials during night time shadowing operations have shown that a MDI of 8 to 10 minutes from the major concerned airports can reduce the bunching of traffic and also offer the benefit of operators being able to achieve their optimum levels leaving the Hong Kong FIR. Affected aerodromes will be notified as soon as possible regarding the details of the ATFM measure. Details of the ATFM will also be announced by NOTAM in due course.

2.6 **Post-Operations**

2.6.1 ATC operations after cutover will be closely monitored and the traffic regulating measures will be constantly reviewed. It is envisaged that such safeguarding measures can be removed approximately one month after cutover.

2.7 Hong Kong CAD endeavors to provide quality air traffic services to facilitate a safe, orderly and expeditious flow of air traffic under all circumstances. Switchover of ATC operations to the new ATMS may affect adjacent ACCs to a certain extent, especially during the initial transition period, CAD will endeavor to limit the impacts on neighbouring ATC units as much as possible. The understanding and support from adjacent ACCs and affected States is essential for the successful implementation of the new ATMS in Hong Kong.

3. ACTION BY THE MEETING

3.1 The Meeting is invited to note the information contained in this paper.

3.2 Support and cooperation of adjacent ACCs and affected States is sought.

3.3 Hong Kong CAD will separately discuss the detailed ATFM arrangements with relevant ANSPs through a side meeting to be arranged during the APANPIRG/27 period.

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