



International Civil Aviation Organization

**Thirteenth Meeting of the APANPIRG
ATS/AIS/SAR Sub-Group (ATS/AIS/SAR/SG/13)**

Bangkok, Thailand, 23 – 27 June 2003

Agenda Item 4: Consider problems and make specific recommendations concerning the provision of ATS/AIS/SAR in the Asia/Pacific Region

**ENHANCEMENT OF AIRSPACE CAPACITY BETWEEN HONG KONG, TOKYO
AND BEYOND TO NORTH AMERICA**

(Presented by IATA)

SUMMARY

This paper presents a review of current longitudinal spacing applied between aircraft departing from Hong Kong and Taipei entering the airspace of Naha and Tokyo Area Control Centres (ACCs) bound for destinations in North America. The paper further requests the meeting to give consideration to ways in which the available airspace capacity can be enhanced in this area.

1.0 Background

1.1 The airspace capacity between Hong Kong, Taipei, Naha, Tokyo and beyond to North America is currently constrained by the application of 15-minute longitudinal spacing. This paper presents details of the constraint and suggests initiatives which will enhance capacity and thereby create operational efficiencies.

2.0 Discussion

2.1 In the early 1980s to mid-1990s, air routes from Hong Kong to Tokyo and beyond were subject to the application of fifteen (15) minutes longitudinal separation for aircraft flying at the same level. Due to weight versus performance considerations, these early model long haul aircraft (B747 & DC10s) were typically initially limited to FL290 and could very rarely reach FL330 in the early phases of flight. This meant that nearly all departures from Hong Kong were spaced 15 minutes apart. This was also the longitudinal spacing requirement across the North Pacific.

2.2 During this time period, radar coverage was incomplete between Hong Kong and Tokyo with both Taipei and Naha having areas of non-radar coverage. As radar coverage improved, the longitudinal spacing for aircraft terminating in Japan was reduced, first to 10 minutes and then to 5 minutes, which it largely remains at today. Some areas have transitioned to distance based spacing, an example being Naha where aircraft are handed over to Tokyo at 30 NM intervals if one or both aircraft terminate operations within the Tokyo FIR.

2.3 To manage workload Tokyo Area Control Centre (ACC) implemented a requirement whereby Naha ACC would space aircraft exiting Naha airspace and proceeding beyond Tokyo airspace to North America at a minimum of 15 minute intervals if aircraft were flying at the same level. Consequently Naha ACC, in their Letter of Agreement with Taipei ACC, also required 15 minutes

spacing for aircraft from Taipei airspace. This included Taipei and Hong Kong departures. Taipei ACC, in turn, in their Letter of Agreement with Hong Kong ACC also required 15 minutes spacing for departures from Hong Kong bound for North America. These restrictions have remained unchanged for 20 years.

2.4 However during the last 20 years:

- The number of air routes across the North Pacific has increased;
- Procedures have been developed for the general use of a 10 minute longitudinal separation standard;
- RVSM has been implemented;
- Radar coverage extends uninterrupted from Hong Kong all the way to approximately 200 NM east of Tokyo

2.5 It is considered appropriate to re-examine the need for 15 minutes spacing for departures from Hong Kong, particularly as this spacing only exists in order to address a potential need some 3 to 4 hours, depending on the route, after the commencement of flight. Procedures are currently available which would permit the use of 10 minutes spacing in this area. Given the performance of modern long haul aircraft, by the time non-radar separation is required, the aircraft concerned will have been in the air for a considerable period of time and should typically be able to accept higher levels so as to be afforded vertical separation.

2.6 Radar coverage now extends from Hong Kong to Tokyo and beyond. Therefore consideration should be given to implementing, for example, 5 minutes longitudinal spacing for aircraft at the same level, with Tokyo ACC arranging 10 minutes spacing, or a vertical alternative, if required, for transfer to the next ACC.

2.7 The current practice of providing considerably more than the minimum required spacing up to four hours before it is required for a particular airspace, creates increased workload at the originating airport and en-route while causing the loss of valuable airspace efficiency and consequent additional costs to the operators.

3.0 Action by the Meeting

3.1 Considering the current extent of radar coverage and plans for future reductions to longitudinal separation once automatic dependent surveillance is available in the Oakland and Anchorage Flight Information Regions, the meeting is requested to examine ways by which the airspace capacity can be enhanced for aircraft departing from Hong Kong and Taipei entering the airspace of Naha and Tokyo ACCs, bound for North America.

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