



Agenda Item 6: ATM Coordination (Meetings, Route Development, Contingency Planning)

IMPLEMENTATION OF UNIDIRECTIONAL PARALLEL TRACKS

(Presented by Hong Kong, China)

SUMMARY

Hong Kong, China has successfully introduced two unidirectional parallel tracks connecting A1/P901 IKELA and G86 KAPLI within the Hong Kong FIR through modification of the original single bi-directional track. The unidirectional parallel tracks have greatly enhanced operational safety and efficiency in the en-route ATC sectors. The benefits of the new tracks would be further optimised if they could be extended to adjacent FIRs.

1. INTRODUCTION

1.1 The Hong Kong FIR is located at the very heart of the busy APAC air route network. In summer 2019, more than 220 overflights predominantly transit the Hong Kong FIR within 3-4 peak periods daily between Southeast Asia and East Asia via air routes G86 KAPLI and A1/P901 IKELA. Despite air traffic number in the region has been greatly reduced since the outbreak of COVID-19 pandemic in early 2020, traffic volume is expected to rebound to pre-COVID-19 level in 2024 according to IATA's forecast. To capitalize on the period with reduced air traffic, Hong Kong, China has taken an initiative to modify the bi-directional track segment between waypoints IKELA and KAPLI within the Hong Kong FIR into a pair of unidirectional parallel tracks since June 2020.

2. DISCUSSION

Overview of the usage and structure of unidirectional parallel tracks

2.1 The track segment between IKELA A1/P901 and KAPLI G86 within the Hong Kong FIR is one with high traffic flow. It connects FIRs in Southeast Asia such as Bangkok, Cambodia, Hanoi...etc., with FIRs in East Asia namely Taipei, Fukuoka, Incheon...etc. As the Hong Kong FIR is situated about halfway along the route when aircraft are normally at cruising phase, Hong Kong ATC often received requests by pilots for climb to optimum level to improve fuel efficiency. This is particularly common for traffic departing from Hanoi, Sanya and Taipei FIRs.

2.2 However, requests for level change on the original single bi-directional track could not always be accommodated by ATC due to the high traffic density on such track. To address the issue and enhance operational efficiency of the single bi-directional track, Hong Kong Civil Aviation Department completed a series of evaluation and safety assessments and successfully modified the original single bi-directional track into a pair of unidirectional parallel tracks, 8

NM laterally apart, since June 2020.

2.3 As depicted in Figure 1, the green route on the southern side is available for eastbound traffic to Taipei FIR via KAPLI G86, whilst the purple route on the northern side is available for westbound traffic to Sanya FIR via IKELA A1/P901.

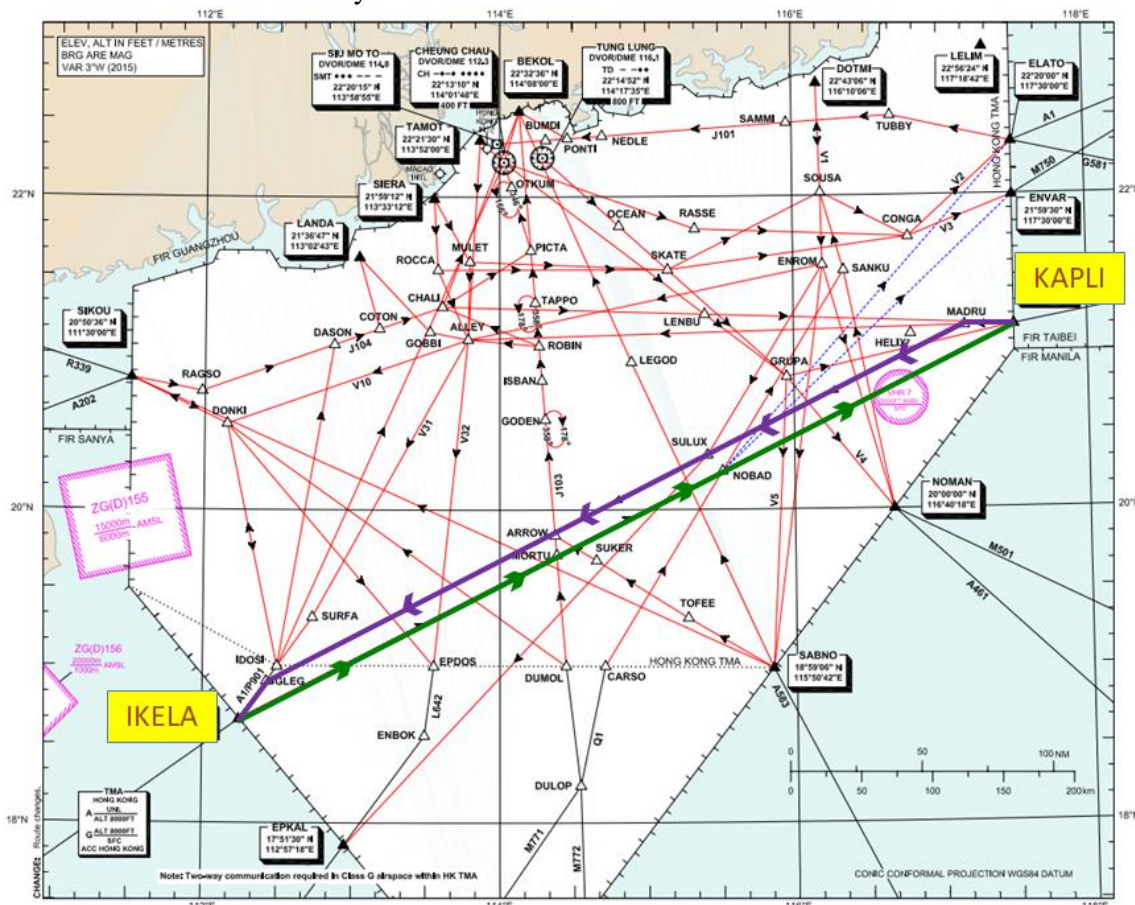


Figure 1 – New Parallel Tracks between A1/P901 IKELA and KAPLI G86

Benefits of the unidirectional parallel tracks

2.4 Establishment of the unidirectional parallel tracks has greatly enhanced the operational safety and efficiency in the en-route sectors of the Hong Kong FIR. With the traffic formerly on reciprocal tracks now segregated into two unidirectional streams 8 NM laterally apart under full radar surveillance, the potential conflict between aircraft climbing and descending through opposite direction traffic has been effectively mitigated. The new track system also enhances the situation awareness of air traffic controllers, which in turn enables them to make more accurate traffic assessment when considering level change requests, hence operational safety as well as efficiency are further enhanced.

Benefits of extending the unidirectional parallel tracks into adjacent FIRs

2.5 The pair of unidirectional parallel tracks would reap more operational benefits if they could be extended beyond the Hong Kong FIR into Sanya FIR. The concept of the proposed new parallel routes (with an additional FIR transfer point) is shown in Figure 2 below and the following paragraph.

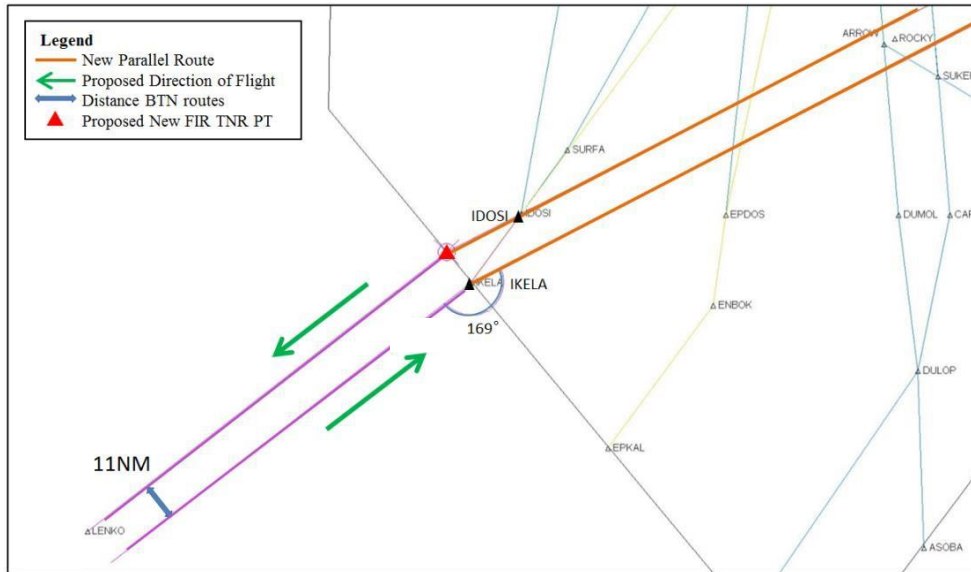


Figure 2 – Proposed Extended Unidirectional Parallel Tracks and FIR Transfer Point

2.6 In this proposal, westbound traffic would continue on the segregated parallel track to a newly established transfer point at the Hong Kong/ Sanya FIR boundary, eliminating the need of resuming back to the single bi-directional A1/P901 southwest of IKELA. The benefit of such arrangement will be particularly apparent in turbulent condition whereby the potential threat posed by severe turbulence to aircraft on reciprocal tracks can be enormously mitigated, hence flight safety can be further enhanced.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

- a) note the information contained in this paper.
- b) discuss any relevant matters as appropriate.