



*International Civil Aviation Organization*

**Fourth Meeting of the Southeast Asia Route Review Task Force  
(SEA-RR/TF/4)**

Bangkok, Thailand, 22 – 26 November 2010

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**Agenda Item 2: Review of outcomes of related meetings**

**UNIDIRECTIONAL CROSSING ROUTES IN THE SOUTH CHINA SEA**

(Presented by the Secretariat)

**SUMMARY**

This working paper discusses the establishment of defined unidirectional crossing ATS routes in the South China Sea area to allow airspace users more access to optimum flight levels and provide ATC more flexibility.

**1. INTRODUCTION**

1.1 The use of unidirectional routing in the South East Asia (SCS) was extensively discussed during SEA-RR/TF/3 meeting. It was noted that the primary traffic flow that connects major airports in the northeast/southwest portions of the South China Sea (SCS) and beyond are crossed by several ATS routes which are presently bidirectional and are mostly of a shorter distance than routes on the major traffic flows. The meeting noted that the aircraft numbers on these crossing routes were far less than the primary traffic flow, yet had several odd and even levels allocated for use. By using the same levels for each pair of crossing routes, it would allow some of the present levels used on the crossing routes to be transferred to the primary routes to cope with the expected growth of air traffic on these major traffic flows.

1.2 The meeting should also note that the task force has already agreed that, where possible and feasible to do so, from a safety and operational jurisdiction point of view, the concept of unidirectional routing should be considered when devising any new route pattern or structure in the area under consideration by the task force.

**2. DISCUSSION**

2.1 At previous task force meetings, substantial discussion had taken place on a proposal to establish pairs of unidirectional routes to replace each of the present bidirectional crossing route structure. Each pair of routes would diverge within surveillance coverage to a lateral spacing of 50 - 60NM prior to crossing the primary traffic flow. Then once separated with the primary flow and also under surveillance coverage, converge back to a single route at a point to be defined. It was further agreed that further discussions on this initiative would be continued at this task force meeting. It was also agreed that traffic data which has been (and is continued to be) collected in the area, be used in the analysis process along with analyzing forecast traffic growth.

2.2 Four specific crossing routes had been considered in the establishment of parallel pairs of unidirectional routes crossing the major traffic flow. These are:

- a) M768 Brunei to TSN
- b) L628 Manila to PCA
- c) A461 Manila to Hong Kong
- d) B462/B348 Manila to Taipei

2.3 It was also considered that there were several other questions on other route proposals outside the main area of the major traffic flow and crossing routes, which could also be addressed in the same manner. Hence the SEA-RR/TF/3 meeting agreed to formulate three Small Working Groups (SWGs) with specific tasks of data collection and analysis, improvements to the major traffic flow, and establish unidirectional RNP10 routes crossing the major traffic flow in South East Asia.

2.4 The Philippines have already advised that they support the concept in the establishment of a unidirectional crossing route structure, which will allow airspace users more access to optimum flight levels and in turn, provide ATC more flexibility in selecting alternative flight levels. From an environmental perspective, this is also likely to result in reduced carbon emissions.

2.5 It was also noted that Malaysia supported the concept of the unidirectional crossing route structure, however in regard to M768 from Brunei to TSN, Malaysia would prefer that the additional route was implemented Northeast of the present M768 due to several conflicts with other routes in the area to the Southwest.

2.6 It should be noted that two common principles require agreement, so that aircraft are not required to change flight levels as they approach each pair of crossing routes. The allocation of flight levels to either the primary routes or the crossing routes should be harmonious across the whole route structure in the area under consideration. In addition, pairs of crossing routes should remain separated prior to and until clear of all primary routes. Taking these common principles into account, each of the crossing routes under review should be looked at singularly with respect to:

- a) position of each crossing route by either:
  - i) using the present route as one of the intended routes and establishing a new route either to the left or right of that route; or,
  - ii) deleting the present route and establishing two new routes either side of present route; or
- b) diversion and conversion points for each crossing pair.

2.7 Overall, the work programme in doing this task should also include the following:

- a) Introduction of RNP10 (RNAV10) horizontal separation where applicable.
- b) Unidirectional RNP10 (RNAV10) routes on the described crossing tracks
- c) Data collection and analysis on most project items to ensure that qualified data indicates a reason to proceed.
- d) Necessary safety related issues which are required to be addressed before implementation; and,
- e) Realistic target dates to complete all projects within the overall framework of the SEA-RR/TF.

### 3. ACTION BY THE MEETING

3.1 The meeting is invited to:

- a) Allocate this task to the Small Working Group (SWG) involved in route changes and enhancements;
- b) Develop procedures on a route-by-route basis for implementation of unidirectional crossing routes mentioned in paragraph 2.2 of this working paper, taking into consideration the principles and procedures suggested in paragraph 2.6;
- c) Introduction of RNP10 (RNAV10) horizontal 50NM separation where applicable.
- d) Take into account data collection and analysis of traffic loading on all route affected using the Traffic Sample Data (TSD) being collected;
- e) Decide on level allocation for primary and crossing routes
- f) Discuss necessary safety related issues which may need to be addressed before implementation;
- g) Set a target date for implementation of this complete project; and,
- h) Report back to the Plenary Session of the Task Force with results.

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