International Civil Aviation Organization

Thirtieth Meeting of the Regional Airspace Safety Monitoring Advisory Group (RASMAG/30)

Bangkok, Thailand, 14 – 17 July 2025

Agenda Item 5: Airspace Safety Monitoring Activities/Requirements in the Asia/Pacific Region

JASMA POST-IMPLEMENTATION SAFETY ASSESSMENT OF THE 12 NM LATERAL SEPARATION MINIMA USING ATS DATA LINK SERVICES IN FUKUOKA FIR OCEANIC AIRSPACE

(Presented by JASMA)

SUMMARY

This paper presents the post-implementation safety assessment of the 12 NM lateral separation minimum using ATS data link services applicable while one aircraft climbs/descends through the level of another aircraft in the Pacific Ocean airspace of the Fukuoka Flight Information Region (FIR).

1. INTRODUCTION

1.1 Japan Civil Aviation Bureau (JCAB) conducted a safety assessment regarding the application of 12 NM lateral separation minima in data link airspace of Fukuoka FIR and determined that by implementing specified mitigation measures, it could be operated safely with acceptable risks, and began trial operations on 13 June 2024.

1.2 During the trial operation, information on operational performance and status was collected, and a post-implementation safety assessment was conducted on 11 March 2025. The post-implementation safety assessment confirmed that the mitigation measures were functioning effectively, and it was decided that full operation would begin on 10 July 2025.

2. DISCUSSION

2.1 12 NM lateral separation minima in data link airspace in Fukuoka FIR may be applied between aircraft that meet certain application conditions.

2.2 Aircraft applicable conditions:

a) RNP4 approved

b) RCP240 and RSP180 approved

c) Use of data link services by CPDLC and ADS-C

2.3 Conditions for ATC operations:

a) Applicable only during climbing and descending of aircraft that meet the applicable aircraft conditions

b) Parallel (or non-intersecting) route

c) To instruct climbing or descending exceeding the altitude that the relevant aircraft cruises.

d) When applying together with offset instructions, confirm established on the offset route.

2.4 When a safety assessment before implementation was conducted based on these application conditions, two hazards related to air traffic control operations were identified. As a result of the risk evaluation, they were deemed acceptable with the implementation of mitigation measures. The identified hazards, their causes, and mitigation measures are shown in the **Table 1**.

Table 1: Summary of mitigation measures

Identified Hazards	Causes	Result of Analysis	Mitigation Measures
Inappropriate application of lateral separation by ATC	・Controller's error - Oversight of relevant aircraft flying block altitudes/climbing/descending - Forgot to confirm established on offset route ・Incorrect flight plan	Acceptable with mitigation	・The controller must check conditions of relevant aircraft before issuing a clearance. ・Controllers should create a list of relevant aircraft and manage them as necessary.
Incorrect instructions by ATC	・Controller's error - Oversight of relevant aircraft - Oversight of restricted airspace ・Input errors by ATC when issuing control instructions ・Operational errors by unfamiliar ATC	Acceptable with mitigation	・The controller must check conditions of relevant aircraft before issuing a clearance. ・Controllers should create a list of relevant aircraft and manage them as necessary.

2.5 To apply the 12 NM lateral separation minima, controllers must confirm that the application conditions described on 2.2 and 2.3 are met. The ATC system is possible to confirm aircraft applicable conditions automatically by flight plans. This was done by adding the letter “P” to the data block on the screen to distinguish between PBCS approval and non-approval, allowing controllers to visually determine this.

2.6 However, it was found that the ATC system could not determine whether the relevant aircraft was cruising, among the application conditions of 2.3. In other words, even if the relevant aircraft was climbing or descending, the ATC system would accept the application of the 12 NM lateral separation minima as long as the relevant aircraft did not exceed the altitude of aircraft the controller intended to instruct.

2.7 **Figure 1** shows examples of the automatic judgment before system upgrade. The red aircraft is the target aircraft that the controller intend to instruct, and the blue aircraft is the relevant aircraft. Ideally, the system should be expected to judge “not applicable” in all of these cases. However, in case 1 and case 2, the red aircraft do not exceed the altitude of the relevant aircraft(blue), so the system determines that 12 NM lateral separation minima is applicable. In case 3, the system judges “not applicable” correctly, because the red aircraft is instructed to exceed the planned altitude of the blue aircraft.

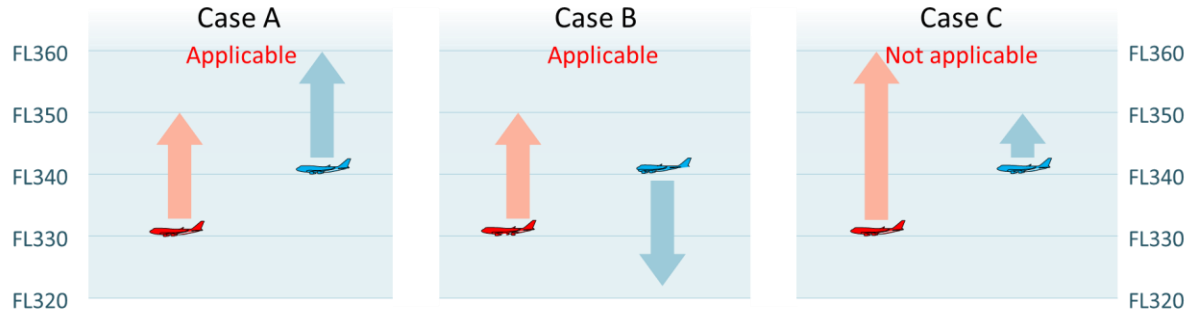

Figure 1: Examples of system judgement results
(In each case, 12 NM lateral separation minima is not applicable.)

2.8 Therefore, as a mitigation measure, it was decided that before controllers instruct with applying 12 NM separation minima, they would check to ensure that the relevant aircraft were not flying at block altitudes or climbing or descending.

2.9 In practice, during trial operation, controllers requested the system to make a prior judgment before instructing an offset that applied the 12 NM lateral separation minima, and the status of relevant aircraft was entered into a checklist to prevent hazards from becoming apparent.

2.10 However, this burdensome measure for controllers is only a temporary measure until the system is upgraded; the system was upgraded in October 2024, making it possible for controllers to be notified by displaying x-symbol meaning "not applicable" correctly on the screen when a relevant aircraft is flying at a block altitude or climbing or descending.

2.11 In the post-implementation assessment, we also verified other hazards for which mitigation measures were not required and confirmed that the situation has not worsened since the implementation of the 12 NM lateral separation minima. Therefore, we decided to terminate the trial operation and to implement full operation from 10 July 2025.

2.12 **Figure 2** shows the number of aircraft that have applied offset climbing and descent during the trial operation period from June 2024 to January 2025. Of those, the blue bars are those that have applied the 12 NM lateral separation minima. It appears that 97% of the aircraft that have applied offset have been applied with the 12 NM lateral separation minima.

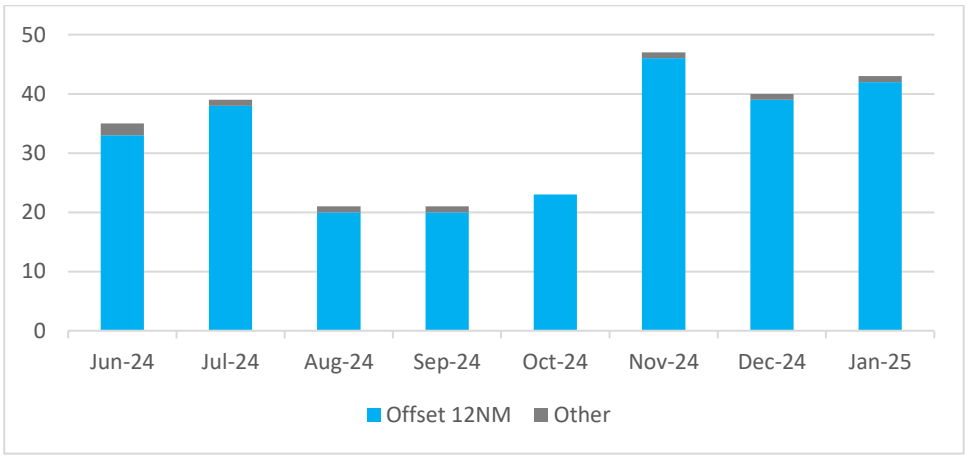

Figure 2: The number of approvals applied at 12 NM lateral separation minima

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

a) note the information contained in this paper.

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