



*International Civil Aviation Organization*

**The Second Meeting of the Regional Airspace Safety Monitoring Advisory Group  
(RASMAG/2)**

Bangkok, Thailand, 13 - 17 September 2004

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**Agenda Item 8: Any Other Business**

**IMPLEMENTATION OF 2 NM LATERAL OFFSET PROCEDURES  
IN THE NON-RADAR OCEANIC AIRSPACES OF THE ASIA/PACIFIC REGION**

(Presented by the Secretariat)

**SUMMARY**

ICAO State letter AN 13/11.6-04/85 dated 27 August 2004, introducing revised guidelines on the use of 2 NM strategic lateral offsets has been circulated to States and international organizations. This paper presents the guidelines and considers implementation on a common date by States as recommended by APANPIRG/15 and to be coordinated by the Regional Office.

**1. INTRODUCTION**

1.1 The use of lateral offsets as a safety measure to reduce the risk of collision in the event of loss of vertical separation was the subject of State letter AN 13/11.6-00/96 dated 3 November 2000, which provided guidelines on the subject. At that time, the guidelines allowed for the use of a 1 NM offset to the right of centre line where the minimum lateral separation was 50 NM in an RNP 10 non-radar environment.

1.2 The purpose of the guidelines developed by the ICAO Separation and Airspace Safety Panel (SASP) was to standardize procedures to reduce the likelihood of pilots inadvertently applying procedures different from those specified for the airspace in which they were operating. It was also necessary to ensure that the application of lateral offsets would not unduly increase the risk of loss of lateral separation between aircraft on adjacent tracks.

**2. DISCUSSION**

2.1 At APANPIRG/12 (August 2001) consideration was given to the practical application of existing ICAO guidelines on the use of lateral offsets in non-radar, oceanic and remote airspace, especially in areas where RVSM was applied. APANPIRG/12 recognized that the establishment of global lateral offset procedures for application by aircraft navigating using GNSS was becoming a significant safety concern and under Decision 12/9 tasked, as a matter of urgency, that the ATM/AIS/SAR Sub-Group develop lateral offset procedures for application in the Asia/Pacific Region, and in co-ordination with other regional planning groups and bodies concerned, develop global offset procedures

2.2 SASP undertook a review of the lateral offset guidelines in late 2001, and the guidelines were amended by State letter AN 13/11.6-02/21 dated 31 May 2002, to allow for the application of offset procedures of up to 2 NM right of centre line provided that a specific safety analysis for the particular airspace had shown that the proposed procedures would meet appropriate safety criteria. Further work was undertaken by SASP in this regard, with a view to obviating the need for specific safety analysis by States for particular implementations of 2 NM offset procedures.

2.3 APANPIRG/15 (August 2004) was informed that SASP had completed its work to provide global guidelines on the use of 2 NM lateral offsets to the right of centre line. In this regard, application of 2 NM lateral offset procedures achieved greater safety benefit than 1 NM offsets and also incorporated wake turbulence procedures. The 2 NM lateral offset procedures could also be applied where 30 NM lateral separation based on RNP 4 was implemented. A State Letter (ref AN 13/11.6-04/85) on the revised guidelines was issued by ICAO on 27 August 2004. ICAO Headquarters was progressing an amendment to the PANS—ATM (Doc 4444) to incorporate the lateral offset procedures, which includes the wake turbulence offset. The lateral offset procedures guidelines are provided in the **Appendix** to this paper.

2.4 APANPIRG/15 noted that when implementing 2 NM offset procedures, this should be done in a coordinated manner over contiguous airspaces. APANPIRG/15 under Conclusion 15/8 recommended that States in the Asia/Pacific Region implement the 2 NM lateral offset procedures in accordance with the ICAO guidance on a common AIRAC date to be coordinated by the ICAO Regional Office.

2.5 As the studies undertaken by SASP showed, the application of these procedures would result in an overall increase in the safety of operations in remote and oceanic airspace. Accordingly, all States responsible for the provision of air traffic services in such airspaces were urged by APANPIRG/15 to authorize the use of 2 NM lateral offsets right of centre line in accordance with the ICAO guidelines at the earliest opportunity. In implementing these procedures, it was anticipated that there would be minimal charting changes required and that training requirements for ATS personnel and flight crews would not be complex, although some adjustments may be required to automated systems (e.g. ATS route conformance warning parameters).

2.6 At the BBACG/15 meeting on 13-17 September 2004, States agreed that the lateral offset procedures should be implemented on AIRAC date 25 November 2004. However, at the RVSM/TF/22 meeting on 20-24 September 2004, the States and international organizations reviewed the implementation date recommended by BBACG/15, and considered that more time was needed to prepare for implementation and issue AIP Supplements and recommended that the implementation date should be on 20 January 2005. IATA emphasized the importance of States avoiding an ad hoc implementing especially over contiguous airspaces which could lead to confusion for operators. A draft AIP Amendment is provided in the Appendix.

### 3. ACTION BY THE MEETING

3.1 The meeting is invited to:

- a) note the revised guidelines on the use of lateral offsets and the associated safety benefits (State letter AN 13/11.6-04/85 of 27 August 2004 refers); and
- b) review the proposed target date of 20 January 2005 for implementation.

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**STATE LETTER**  
**REVISED GUIDELINES ON THE USE OF STRATEGIC LATERAL**  
**OFFSETS**

Tel.: +1 (514) 954-8219 ext. 6711

Ref.: AN 13/11.6-04/85

27 August 2004

**Subject:** Revised guidelines on the use of strategic lateral offsets

**Action required:** As indicated in paragraphs 5 and 6

Sir/Madam,

1. I have the honour to invite your attention to the attached revised guidelines on the use of strategic lateral offsets as a safety measure to reduce the risk of collision in the event of loss of vertical separation. On 3 August 2004, the Commission approved the circulation of these guidelines to States and international organizations.
2. You will recall that the use of lateral offsets has been the subject of two previous State letters, AN 13/11.6-00/96 of 3 November 2000 and AN 13/11.6-02/21 of 31 May 2002. The guidelines contained in these letters were, in both cases, based on safety studies undertaken by the Separation and Airspace Safety Panel (SASP). Work has continued in the panel to evaluate the safety of the application of strategic lateral offsets in circumstances other than those permitted by the previous guidelines. As a result of these studies, it has been possible to develop revised guidelines which are less restrictive than the guidelines contained in the previous two State letters.
3. The previous guidelines restricted the offset to 1 NM to the right of track, and limited the use of offsets to global navigation satellite system (GNSS) equipped aircraft. The further safety analyses showed that, in oceanic and remote continental airspace under the conditions specified in the revised guidelines, the application of offsets of up to 2 NM right of track and the use of offsets by all suitably equipped aircraft were acceptable.
4. Annex 2 — *Rules of the Air*, Chapter 3, paragraph 3.6.2.1.1, states: “Unless otherwise authorized or directed by the appropriate air traffic control unit, controlled flights shall, in so far as practicable: a) when on an established ATS route, operate along the defined centre line of that route; or b) when on any other route, operate directly between the navigation facilities and/or points defining that route”. As a consequence, the application of strategic lateral offsets in controlled airspace requires authorization by the appropriate air traffic services (ATS) authority. This can be achieved by initial publication of the approved offset procedures by NOTAM, followed subsequently by their incorporation in the Aeronautical Information Publication (AIP).

**APPENDIX**

5. As it is desirable that offset procedures be standardized to the maximum extent possible, in order to reduce the likelihood of pilots inadvertently applying procedures different from those specified for the airspace in which they are operating, it is recommended that these strategic lateral offset procedures be implemented on a regional basis, after coordination between all States involved. Action should also be taken to incorporate the procedures and details of the airspace where the procedures will be applied in the *Regional Supplementary Procedures* (Doc 7030).

6. As the studies undertaken by SASP showed that the application of these procedures would result in an overall increase in the safety of operations in remote and oceanic airspace, all States who are responsible for the provision of air traffic services in such airspace are urged to authorize the use of strategic lateral offsets in accordance with these guidelines.

Accept, Sir/Madam, the assurances of my highest consideration.

Taïeb Chérif  
Secretary General

**Enclosure:**

Revised guidelines on the use of lateral  
Offsets and the effect on airspace safety

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## ATTACHMENT to State letter AN 13/11.6-04/85

**REVISED GUIDELINES ON THE USE OF STRATEGIC LATERAL OFFSETS AND  
THE EFFECT ON AIRSPACE SAFETY****1. INTRODUCTION**

1.1 These guidelines are based on studies carried out by the ICAO Separation and Airspace Safety Panel (SASP) to address airspace safety issues associated with pilots applying lateral offsets when operating aircraft with automatic offset tracking capability. The intent of offset procedures is to reduce the risk of collision due to a loss of planned vertical separation. The impact of the use of lateral offsets on overall airspace safety has been evaluated and SASP has carried out a technical analysis of safety-related issues. These guidelines are based on the results of this analysis and are provided to assist States and regional planning groups to identify air traffic services (ATS) routes and airspace where authorization of the use of strategic lateral offsets would enhance existing levels of safety.

1.2 The SASP studies took into account the effects of lateral offsets on the safety of parallel routes with a 60 NM route spacing where compliance with the minimum navigation performance specification (MNPS) is required; with a 50 NM route spacing where RNP 10 is specified; and a 30 NM route spacing where RNP 4 is specified, as well as in crossing track situations where navigational accuracies ranging from RNP 4 to RNP 20 were assumed.

1.3 In accordance with Annex 2 — *Rules of the Air*, intentional deviation from the centre line of an ATS route requires authorization. Annex 2, Chapter 3, paragraph 3.6.2.1.1, states:

“Unless otherwise authorized or directed by the appropriate air traffic control unit, controlled flights shall, in so far as practicable:

- a) when on an established ATS route, operate along the defined centre line of that route; or
- b) when on any other route, operate directly between the navigation facilities and/or points defining that route.”

1.4 As a consequence of this, the implementation of strategic lateral offset procedures requires authorization by the appropriate ATS authority.

**2. AIRCRAFT NAVIGATION PERFORMANCE AND AIRSPACE SAFETY**

2.1 ICAO separation minima, including lateral route spacings, are based on the assumption that aircraft operate on the centre line of a route. In general, unauthorized deviations from this requirement could compromise safety. However, the use of highly accurate navigation systems (such as global navigation satellite system (GNSS)) reduces the magnitude of lateral deviations from the route centre line and consequently increases the probability of a collision if a loss of vertical separation between aircraft on the same route occurs.

**APPENDIX**

2.2 By using offsets to provide lateral spacing between aircraft, the effect of this reduction in random lateral deviations can be mitigated, thereby reducing the risk of collision. These guidelines provide information on how such a strategic lateral offset procedure should be implemented.

2.3 As the application of strategic lateral offsets, limited in magnitude and direction as prescribed in these guidelines, has the potential to reduce the risk of collision due to a loss of planned vertical separation, ATS authorities are encouraged to authorize the use of such offsets in oceanic and remote continental airspace.

**3. IMPLEMENTATION CONSIDERATIONS FOR ATS AUTHORITIES**

3.1 The following considerations shall be taken into account when planning authorization of the use of strategic lateral offsets in a particular airspace:

- a) strategic lateral offsets shall only be authorized in en-route oceanic or remote continental airspace. Where part of the airspace in question is within radar coverage, transiting aircraft should normally be allowed to initiate or continue offset tracking;
- b) strategic lateral offsets may be authorized for the following types of routes (including where routes or route systems intersect):
  - 1) uni-directional and bi-directional routes; and
  - 2) parallel route systems where the spacing between route centre lines is not less than 55.5km (30 NM);
- c) in some instances it may be necessary to impose restrictions on the use of strategic lateral offsets, e.g. where their application may be inappropriate for reasons related to obstacle clearance;
- d) these offset procedures should be implemented on a regional basis after coordination between all States involved;
- e) the routes or airspace where application of strategic lateral offsets is authorized, and the procedures to be followed by pilots, shall be promulgated in aeronautical information publications (AIPs); and
- f) air traffic controllers shall be made aware of the airspace within which strategic lateral offsets are authorized.

**4. LATERAL OFFSET PROCEDURES TO BE APPLIED BY PILOTS**

4.1 In the application of strategic lateral offsets, pilots should take the following points into consideration:

- a) offsets shall only be applied in airspace where this has been approved by the appropriate ATS authority;
- b) offsets shall be applied only by aircraft with automatic offset tracking capability;

- c) the decision to apply a strategic lateral offset is the responsibility of the flight crew;
- d) the offset shall be established at a distance of one or two nautical miles to the right of the centre line relative to the direction of flight;
- e) the strategic lateral offset procedure has been designed to include offsets to mitigate the effects of wake turbulence of preceding aircraft. If wake turbulence needs to be avoided, one of the three available options (centreline, 1 NM or 2 NM right offset) shall be used;
- f) in airspace where the use of lateral offsets has been authorized, pilots are not required to inform air traffic control (ATC) that an offset is being applied; and
- g) aircraft transiting areas of radar coverage in airspace where offset tracking is permitted may initiate or continue an offset.

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**DRAFT AIP AMENDMENT**

**IMPLEMENTATION OF STRATEGIC LATERAL OFFSET PROCEDURES**

- X. STRATEGIC LATERAL OFFSETS IN OCEANIC AIRSPACE**
- X.1 Offsets are only applied in the oceanic (or remote continental) airspace in the XXX FIR.
- X.2 Offsets are applied only by aircraft with automatic offset tracking capability.
- X.3 The following requirements apply to the use of the offset:
- a. The decision to apply a strategic lateral offset is the responsibility of the flight crew.
  - b. The offset shall be established at a distance of one or two nautical miles to the right of the centre line relative to the direction of flight.
  - c. The strategic lateral offset procedure has been designed to include offsets to mitigate the effects of wake turbulence of preceding aircraft. If wake turbulence needs to be avoided, one of the three available options (centreline, 1NM or 2NM right offset) shall be used.
  - d. In airspace where the use of lateral offsets has been authorized, pilots are not required to inform air traffic control (ATC) that an offset is being applied.
  - e. Aircraft transiting areas of radar coverage in airspace where offset tracking is permitted may initiate or continue an offset.

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