



*International Civil Aviation Organization*

**Fifteenth Meeting of the APANPIRG ATM/AIS/SAR Sub-Group  
(ATM/AIS/SAR/SG/15)**

Bangkok, Thailand, 25 – 29 July 2005

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**Agenda Item 7: Review developments relating to CNS/ATM implementation**

**APPROVAL OF AMENDMENT 43 TO ANNEX 11, AMENDMENT 29 TO ANNEX 6 PART I,  
AMENDMENT 24 TO ANNEX 6 PART II AND AMENDMENT 10 TO ANNEX 6 PART III**

(Presented by the Secretariat)

**SUMMARY**

This paper brings to the attention of the meeting the changes included in the recent Amendment 43 to Annex 11 - *Air Traffic Services*, and the recent Amendments 29, 24 and 10 to Annex 6 - *Operation of Aircraft* Parts I, II and III respectively. All amendments were adopted with effective date 11 July 2005 for an applicability date of 24 November 2005.

The paper highlights the introduction of Annex 6 and Annex 11 provisions in relation to the provision of height monitoring programmes for RVSM operations.

**1 INTRODUCTION**

1.1 On 2 March 2005, the ICAO Council adopted Amendment 43 to Annex 11 – *Air Traffic Services*. When adopting the amendment, the Council prescribed 11<sup>th</sup> July 2005 as the date upon which it will become effective and 24 November 2005 as the applicability date.

1.2 In adopting the amendments 29, 24 and 10 to Annex 6 - *Operation of Aircraft* (Parts I, II and III respectively), the Council also prescribed 11<sup>th</sup> July as the date upon which they would become effective and 24<sup>th</sup> November 2005 as the applicability date.

**2 DISCUSSION**

2.1 An ICAO State Letter (ref: AN 13/13.1-05/37) notifying the adoption of Amendment 43 to Annex 11 was issued on 24 March 2005 and is included as **Attachment 1** to this paper. The State Letter describes the nature and scope of the amendments to Annex 11. In particular, the Annex 11 amendment introduces a Standard that requires States to establish a monitoring programme for the monitoring of aircraft height keeping performance in RVSM airspace. Information in this regard is located in paragraph 4 e) of Attachment 1.

2.2 Complementary provisions have been added to Annex 6 which specify the responsibility of the relevant State authority to take prompt and appropriate action if the monitoring results indicate that the height keeping performance of a particular aircraft or an aircraft type group exceeds prescribed limits. The nature and scope of Amendment 29 to Annex 6, Part I *International Commercial Air Transport - Aeroplanes*, is included in the State Letter (ref: AN 11/1.3.18-05/28) reproduced as **Attachment 2** to this paper. Relevant information in regard to RVSM monitoring programmes is located in paragraph 4 of Attachment 2.

2.3 The new Annex 11 wording from Chapter 3 “Air Traffic Control Service” in regard to the requirement for height monitoring programmes in RVSM operations is as follows:

3.3.4.1 For all airspace where a reduced vertical separation minimum of 300 m (1 000 ft) is applied between FL 290 and FL 410 inclusive, a programme shall be instituted, on a regional basis, for monitoring the height-keeping performance of aircraft operating at these levels, in order to ensure that the implementation and continued application of this vertical separation minimum meets the safety objectives. The coverage of the height-monitoring facilities provided under this programme shall be adequate to permit monitoring of the relevant aircraft types of all operators who operate in RVSM airspace.

*Note.— The number of separate monitoring programmes should be restricted to the minimum necessary to effectively provide the required services for the region.*

3.3.4.2 Arrangements shall be put in place, through inter-regional agreement, for the sharing between regions of data from monitoring programmes.

*Note.— Guidance material relating to vertical separation and monitoring of height-keeping performance is contained in the Manual on Implementation of a 300 m (1 000 ft) Vertical Separation Minimum Between FL 290 and FL 410 Inclusive (Doc 9574).*

#### RMAs for the Asia Pacific Region

2.4 APANPIRG has appointed three regional monitoring agencies (RMAs) in the Asia Pacific Region to monitor the height keeping performance of RVSM operations – the Pacific Approvals Registry and Monitoring Organization (PARMO) operated by the FAA for specified FIRs in the Pacific Region, the Monitoring Agency for the Asia Region (MAAR) operated by AEROTHAI for specified FIRs in the Asia Region and Airservices Australia for airspaces in the vicinity of Australia that lie outside the jurisdiction of PARMO.

2.5 The Second Meeting of the Regional Airspace Safety Monitoring Advisory Group (RASMAG/2, October 2004) had noted a number of disturbing issues that had been identified by PARMO and MAAR that required urgent follow up:

- a) missing traffic sample data;
- b) missing large height deviation reports;
- c) incomplete and non-reporting of State approvals registry data; and
- d) incomplete information on follow-up monitoring of aircraft height-keeping performance in accordance with the minimum monitoring requirements.

2.6 Accordingly, the RASMAG/2 meeting was concerned that some States had failed to fulfill their obligations towards ICAO safety requirements for ongoing operation of RVSM. The periodic review and updating of the safety assessments for RVSM airspace was an essential part of RVSM operations, along with the maintenance of the regional and global records of States' aircraft and operator RVSM approvals. The provision of monthly LHD reports (including "NIL reports" where applicable) was essential for determining operational errors that impact on RVSM safety. The absence or incompleteness of such data denigrates the integrity of the safety assessment results.

2.7 Despite RASMAG and the Regional Office informing the States that had not submitted the required data as described above and requesting them to submit as a matter of priority, MAAR was still not in receipt of sufficient data to undertake a suitable safety analysis in support of changes proposed to the South China Sea FLOS arrangements, resulting in the postponement of the RVSM FLOS review meeting originally scheduled for April until September 2005.

2.8 In regard to the above, the RASMAG/3 meeting held on 6-10 June 2005 addressed these matters as recorded in the meeting report which is presented under WP/20 to this meeting.

### **3 ACTION BY THE MEETING**

3.1 The meeting is invited to:

- a) note the nature and scope of Amendment 43 to Annex 11, with effective date 11<sup>th</sup> July 2005 for applicability date 24 November 2005, as described in Attachment 1 to this paper;
- b) note that a number of States have not been providing the required safety data as requested by the RMAs to undertake safety assessments in accordance with ICAO requirements for RVSM monitoring; and
- c) in regard to b), urge States concerned to comply with the RVSM monitoring requirements and fully cooperate with the RMAs.

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Ref.: AN 13/13.1-05/37

24 March 2005

**Subject:** Adoption of Amendment 43 to Annex 11

**Action required:** a) Notify any disapproval before 11 July 2005; b) Notify any differences and compliance before 24 October 2005

Sir/Madam,

1. I have the honour to inform you that Amendment 43 to the *International Standards and Recommended Practices, Air Traffic Services* (Annex 11 to the Convention on International Civil Aviation) was adopted by the Council at the eighth meeting of its 174th Session on 2 March 2005. Copies of the Amendment, the Resolution of Adoption and Note on the Notification of Differences are being sent to you under separate cover.

2. When adopting the amendment, the Council prescribed 11 July 2005 as the date on which it will become effective, except for any part concerning which a majority of Contracting States have registered their disapproval before that date. In addition, the Council resolved that Amendment 43, to the extent it becomes effective, will be applicable on 24 November 2005.

3. Amendment 43 arises from studies by the Secretariat with a view to updating current provisions to reflect technical advancements and evolving practices in States, and also from the Aeronautical Information Services/Aeronautical Charts (AIS/MAP) Divisional Meeting (1998). The subjects are given in the amendment to the Foreword of Annex 11, Thirteenth Edition, a copy of which is in Attachment A.

4. The nature and scope of the amendment are as follows:

- a) as part of a comprehensive effort to improve runway safety, a review of related provisions was carried out and, as a result, the Note under Section 3.10 (Use of surface movement radar (SMR)) was revised and upgraded to a Recommended Practice in light of the specifications in Annex 14 — *Aerodromes* which are aimed at improving visual observation on the manoeuvring area so that air traffic controllers can provide a better service;

- b) the ability to record all air traffic control (ATC) communications is already provided for by most types of communications equipment. As these data have proven to be critical in many accident and incident investigations, thus leading to numerous safety benefits, a requirement to have them recorded wherever possible has been made. A provision that recorded data be retained for a period of at least thirty days is included in four separate paragraphs for consistency with Annex 10 — *Aeronautical Telecommunications*. Also, as many radar facilities are now capable of recording surveillance data, provisions have been upgraded to Standards;
- c) extensive amendments to Annex 1 — *Personnel Licensing*, Annex 6 — *Operation of Aircraft*, Annex 10, Annex 11 and the *Procedures for Air Navigation Services — Air Traffic Management* (PANS-ATM, Doc 4444) related to language proficiency requirements were adopted in 2003 which are expected to result in significant safety benefits in a range of aeronautical activity. An additional related paragraph in Annex 11 has been identified and amended;
- d) amendments to provisions regarding meteorological data have been updated to align them with Annex 3 — *Meteorological Service for International Air Navigation*;
- e) monitoring of aircraft height-keeping performance is one of the underlying assumptions of the safety studies on which reduced vertical separation minimum (RVSM) is based. In all regions where RVSM has been implemented, *Regional Monitoring Agencies* (RMAs) have been established by the appropriate Planning and Implementation Regional Groups (PIRGs) to undertake this function. An amendment to Annex 11 adds a requirement to establish such a monitoring programme. As a complement to this, it also adds to Annex 6 provisions specifying the responsibility of the relevant State authority to take prompt and appropriate action if the monitoring results indicate that the height-keeping performance of a particular aircraft or an aircraft type group exceeds the prescribed limits;
- f) when the provisions related to ATS safety management in Annex 11 were adopted in 2001, the date of 27 November 2003 was specified in paragraph 2.26.2 as the time from which the Standard would become applicable. Simultaneously, in order to introduce a requirement for safety management in Annex 11 applicable on 1 November 2001, a Recommended Practice was included as paragraph 2.26.3. Since the date of 27 November 2003 has passed, an editorial amendment to Standard 2.26.2 has been made and Recommended Practice 2.26.3 has been deleted; and
- g) consequential to the introduction in Annex 15 — *Aeronautical Information Services* of the common reference systems for air navigation, new definitions regarding calendar, datum and Gregorian Calendar have been included in Annex 11. Additionally, due to the introduction of electronic terrain and obstacle data specifications into Annex 15, the existing provisions in Annex 11 for obstacle data contained in Appendix 5 titled "Aeronautical data quality requirements" have been updated in order to align them with the new Annex 15 specifications. Accuracy and integrity requirements for obstacles in the terminal control area are included in Tables 1 and 2 of this Appendix.

5. In accordance with the decision of the 26th Session of the Assembly, I would like to bring to your attention the Organization's long-standing practice of providing documentation to States upon request. Accordingly, the relevant working papers on Amendment 43 to Annex 11 and corresponding minutes of the Council and the Air Navigation Commission proceedings can be made available. In light of the costs involved, however, only one copy of such documents will normally be provided.

6. In conformity with the Resolution of Adoption, may I request:

- a) that before 11 July 2005 you inform me if there is any part of Amendment 43, concerning which your Government wishes to register disapproval, using the form in Attachment B for this purpose. Please note that only statements of disapproval need be registered and if you do not reply it will be assumed that you do not disapprove of the amendment;
- b) that before 24 October 2005 you inform me of the following, using the form in Attachment C for this purpose:
  - 1) any differences that will exist on 24 November 2005 between the national regulations or practices of your Government and the provisions of the whole of Annex 11, as amended by all amendments up to and including Amendment 43, and thereafter of any further differences that may arise;
  - 2) the date or dates by which your Government will have complied with the provisions of the whole of Annex 11, as amended by all amendments up to and including Amendment 43.

7. With reference to the request in paragraph 6 a) above, it should be noted that a registration of disapproval of Amendment 43 or any part of it in accordance with Article 90 of the Convention does not constitute a notification of differences under Article 38 of the Convention. To comply with the latter provision, a separate statement is necessary if any differences do exist, as requested in paragraph 6 b) 1). It is recalled in this respect that international Standards in Annexes have a conditional binding force, to the extent that the State or States concerned have not notified any difference thereto under Article 38 of the Convention.

8. Guidance on the determination and reporting of differences is given in the Note on the Notification of Differences which, as mentioned above, is being sent to you under separate cover.

9. Please note that a detailed repetition of previously notified differences, if they continue to apply, may be avoided by stating the current validity of such differences.

10. I would appreciate it if you would also send a copy of your notifications, referred to in paragraph 6 b) above, to the ICAO Regional Director accredited to your Government.

11. As soon as practicable after the amendment becomes effective, on 11 July 2005, replacement pages incorporating Amendment 43 will be forwarded to you.

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



Taïeb Chérif  
Secretary General

**Enclosures:**

- A — Amendment to the Foreword of Annex 11
- B — Form on notification of disapproval of all or part of Amendment 43 to Annex 11
- C — Form on notification of compliance with or differences from Annex 11

**Under separate cover:**

Copy of Amendment 43 to Annex 11 with the associated Resolution of Adoption and Note on the Notification of Differences (to be dispatched on or about 25 March 2005)

**AMENDMENT TO THE FOREWORD OF ANNEX 11, THIRTEENTH EDITION**

*Add* the following at the end of Table A:

<i><b>Amendment</b></i>	<i><b>Source(s)</b></i>	<i><b>Subject</b></i>	<i><b>Adopted/Approved Effective Applicable</b></i>
43	Secretariat; Aeronautical Information Services/ Aeronautical Charts (AIS/MAP) Divisional Meeting (1998)	Definitions; use of surface movement radar; ATS requirements for communications; meteorology information; height-keeping performance by aircraft; ATS safety management; electronic terrain and obstacle data.	2 March 2005 11 July 2005 24 November 2005

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Ref.: AN 11/1.3.18-05/28

24 March 2005

**Subject:** Adoption of Amendment 29 to Annex 6, Part I

**Action required:** a) Notify any disapproval before  
11 July 2005; b) Notify any differences and compliance  
before 24 October 2005

Sir/Madam,

1. I have the honour to inform you that Amendment 29 to the *International Standards and Recommended Practices, Operation of Aircraft — International Commercial Air Transport — Aeroplanes* (Annex 6, Part I to the Convention on International Civil Aviation) was adopted by the Council at the eleventh meeting of its 174th Session on 9 March 2005. Copies of the Amendment, the Resolution of Adoption and Note on the Notification of Differences are being sent to you under separate cover.

2. When adopting the amendment, the Council prescribed 11 July 2005 as the date on which it will become effective, except for any part concerning which a majority of Contracting States have registered their disapproval before that date. In addition, the Council resolved that Amendment 29, to the extent it becomes effective, will be applicable on 24 November 2005.

3. Amendment 29 arises from:

- a) the Separation and Airspace Safety Panel (SASP), and in part from a Secretariat review of the *Regional Supplementary Procedures* (SUPPs, Doc 7030); and
- b) the recommendations of the sixth meeting of the Operations Panel, and the Separation and Airspace Safety Panel.

The subjects are given in the amendment to the Foreword of Annex 6, Part I, Eighth Edition, a copy of which is in Attachment A.

4. The requirement for all aircraft to hold an approval for operations in reduced vertical separation minimum (RVSM) airspace, and the responsibility of States with regard to the issuance of these approvals, are specified in Annex 6, Parts I and II — *International General Aviation — Aeroplanes*. However, the height-keeping performance criteria on which the approvals should be based have, until now, been specified only in the SUPPs of the regions which have implemented RVSM. For the approvals to be valid globally, it is necessary that all States apply the same criteria when issuing approvals. To ensure standardization, the proposed amendment adds new appendices to Parts I and II of Annex 6, containing the height-keeping performance criteria. Additionally, because monitoring of height-keeping performance was the underlying assumption on which RVSM was based, the amendment introduces new provisions in Annex 6, Parts I and II specifying the responsibility of the relevant State authority to take prompt and appropriate action if the monitoring results indicate that the height-keeping performance of a particular aircraft or an aircraft type group exceeds the prescribed limits. A complementary amendment to Annex 11 — *Air Traffic Services* requires, for airspace where RVSM is applied between FL 290 and FL 410 inclusive, the establishment of a Regional Monitoring Agency (RMA) and the sharing of data obtained through the monitoring process.

5. The amendment concerning the operation of aircraft includes the following five distinct issues that involve both safety and efficiency improvements for the operation of aircraft:

- a) under some conditions, particularly in busy terminal airspace, flight crew workload associated with single pilot operations under instrument flight rules (IFR) or at night may exceed the capability of single pilots. To address this issue, new Standards and Recommended Practices are introduced for these operations that specify additional operating requirements and equipment carriage requirements;
- b) safety and efficiency improvements afforded by the reliability of modern turbine engines enable single-engine turbine-powered aeroplanes to replace multi-engine aeroplanes for commercial operations under instrument meteorological conditions or at night. This amendment introduces new provisions relating to the operational approval of these operations which provide for safety and economic benefits to operators;
- c) the suitability and integrity of electronic navigation data products used in air navigation is vital to ensure the safety of operations. This amendment introduces new provisions for appropriate controls to be put in place by States and operators accordingly;
- d) crosswind and tailwind values specified in aeroplane flight manuals are maximum values demonstrated during certification, and are not necessarily suitable for operational purposes because they are neither operating limitations (unless stipulated in the limitations section of the flight manual) nor manufacturer guidelines. To provide an appropriate margin of safety under all operating conditions, the amendment requires operators to specify crosswind and tailwind limits in their operations manuals; and
- e) the safety and efficiency of modern flight simulators enables pilot-in-command recent experience requirements to be met in a simulator, instead of in the aeroplane. Applicable since 25 November 2004, Annex 1 — *Personnel Licensing* provides for a type rating limiting the privileges to act as a pilot only during the cruise phase of flight (cruise relief pilot). This amendment updates the recent experience requirements for

pilot-in-command and co-pilot, and introduces such requirements for cruise relief pilot accordingly.

6. In accordance with the decision of the 26th Session of the Assembly, I would like to bring to your attention the Organization's long-standing practice of providing documentation to States upon request. Accordingly, the relevant working papers on Amendment 29 to Annex 6, Part I and corresponding minutes of the Council and the Air Navigation Commission proceedings can be made available. In light of the costs involved, however, only one copy of such documents will normally be provided.

7. In conformity with the Resolution of Adoption, may I request:

- a) that before 11 July 2005 you inform me if there is any part of Amendment 29, concerning which your Government wishes to register disapproval, using the form in Attachment B for this purpose. Please note that only statements of disapproval need be registered and if you do not reply it will be assumed that you do not disapprove of the amendment;
- b) that before 24 October 2005 you inform me of the following, using the form in Attachment C for this purpose:
  - 1) any differences that will exist on 24 November 2005 between the national regulations or practices of your Government and the provisions of the whole of Annex 6, Part I, as amended by all amendments up to and including Amendment 29, and thereafter of any further differences that may arise; and
  - 2) the date or dates by which your Government will have complied with the provisions of the whole of Annex 6, Part I, as amended by all amendments up to and including Amendment 29.

8. With reference to the request in paragraph 7 a) above, it should be noted that a registration of disapproval of Amendment 29 or any part of it in accordance with Article 90 of the Convention does not constitute a notification of differences under Article 38 of the Convention. To comply with the latter provision, a separate statement is necessary if any differences do exist, as requested in paragraph 7 b) 1). It is recalled in this respect that international Standards in Annexes have a conditional binding force, to the extent that the State or States concerned have not notified any difference thereto under Article 38 of the Convention.

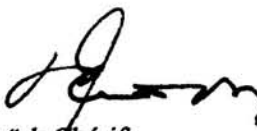
9. Guidance on the determination and reporting of differences is given in the Note on the Notification of Differences which, as mentioned above, is being sent to you under separate cover.

10. Please note that a detailed repetition of previously notified differences, if they continue to apply, may be avoided by stating the current validity of such differences.

11. I would appreciate it if you would also send a copy of your notifications, referred to in paragraph 7 b) above, to the ICAO Regional Director accredited to your Government.

12. As soon as practicable after the amendment becomes effective, on 11 July 2005, replacement pages incorporating Amendment 29 will be forwarded to you.

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



Taïeb Chérif  
Secretary General

**Enclosures:**

- A — Amendment to the Foreword of Annex 6, Part I
- B — Form on notification of disapproval of all or part of Amendment 29 to Annex 6, Part I
- C — Form on notification of compliance with or differences from Annex 6, Part I

**Under separate cover:**

Copy of Amendment 29 to Annex 6, Part I with the associated Resolution of Adoption and Note on the Notification of Differences (to be dispatched on or about 24 March 2005)

## AMENDMENT TO THE FOREWORD OF ANNEX 6, PART I, EIGHTH EDITION

Add the following at the end of Table A (page xx):

<i>Amendment</i>	<i>Source(s)</i>	<i>Subject</i>	<i>Adopted/Approved Effective Applicable</i>
29	Sixth meeting of the Operations Panel and the Separation and Airspace Safety Panel	<ul style="list-style-type: none"> <li>a) new definitions related to reduced vertical separation minimum (RVSM) operations and cruise relief pilots;</li> <li>b) new Standards 4.9.1 and 4.9.2 concerning single pilot operations under instrument flight rules (IFR) or at night;</li> <li>c) an exception to the operating limitations in 5.1.2 for approved single-engined turbine-powered aeroplanes;</li> <li>d) new Standards 5.4.1 and 5.4.2 specifying requirements for approval of commercial operations by single-engine turbine-powered aeroplanes in instrument meteorological conditions (IMC) or at night;</li> <li>e) new Standard 6.22 specifying aeroplane equipment requirements for single pilot operations under instrument flight rules (IFR) or at night;</li> <li>f) amendments to 7.2.4 regarding flight levels for reduced vertical separation minimum (RVSM) operations, and new Standards 7.2.5, 7.2.6 and 7.2.7 specifying the responsibility of the relevant State authority to take prompt and appropriate action if the monitoring results indicate that the height-keeping performance of a particular aircraft or an aircraft type group exceeds the prescribed limits;</li> <li>g) new Standards 7.4.1 and 7.4.2 concerning operator management of electronic navigation data products;</li> <li>h) amendments to Standards 9.4.1 and 9.4.2 concerning recent experience of the pilot-in-command, co-pilot and cruise relief pilot;</li> </ul>	9 March 2005 11 July 2005 24 November 2005

<i><b>Amendment</b></i>	<i><b>Source(s)</b></i>	<i><b>Subject</b></i>	<i><b>Adopted/Approved Effective Applicable</b></i>
		<ul style="list-style-type: none"> <li>i) amendments to Standards 9.4.3.5 and 9.4.3.6, concerning area, route and aerodrome qualifications of the pilot-in-command;</li> <li>j) new Standard 9.4.5.1 requiring States to specify requirements applicable to single pilot operations under the instrument flight rules or at night;</li> <li>k) a new Recommended Practice 9.4.5.2, specifying pilot-in-command experience and training requirements for single pilot operations under the instrument flight rules or at night;</li> <li>l) amendments to Appendix 2, regarding the contents of operations manuals in relation to area, route and aerodrome qualifications of the pilot-in-command, and maximum crosswind and tailwind operating limits; and</li> <li>m) a new Appendix 3 regarding the height-keeping performance criteria for operations in RVSM airspace.</li> </ul>	

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