



*International Civil Aviation Organization*

**Fourteenth Meeting of the APANPIRG ATM/AIS/SAR Sub-Group  
(ATM/AIS/SAR/SG/14)**

Bangkok, Thailand, 28 June – 2 July 2004

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**Agenda Item 3: Review and progress the tasks assigned to the ATM/AIS/SAR/SG by APANPIRG**

**CARRIAGE OF ACAS II AND  
PRESSURE-ALTITUDE REPORTING TRANSPONDERS**

(Presented by the Secretariat)

**SUMMARY**

This paper outlines, and seeks an update of, the current information held by the Asia/Pacific Regional Office regarding the status of the implementations by States of regulations pertaining to the carriage of ACAS II and pressure-altitude reporting transponders in the Asia/Pacific Region.

**1. INTRODUCTION**

1.1 The APANPIRG/14 meeting (4-8 August 2003) recalled that a survey was conducted by the Asia/Pacific Regional Office in August 2000 to obtain detailed information from States regarding the status of their implementation plans for the carriage and operation of pressure-altitude reporting transponders, and of the implementation plans for the carriage and operation of ACAS II. The information gained from the survey was updated on 15 June 2001 to include recent information provided by States. Since that time, although no additional survey has been undertaken, some States have advised the Regional Office of amendments for inclusion on the list.

1.2 APANPIRG/14 noted that the APANPIRG/12 meeting (20-24 August 2001, Bangkok, Thailand) had considered it necessary that the situation where States had not established the requirement for the carriage and operation of pressure-altitude reporting transponders specified as a Standard in Annex 6 be listed as a "Deficiency".

1.3 APANPIRG/14 also noted that from 1 January 2003, Annex 6 requires aeroplanes that have a maximum certificated take-off mass in excess of 15000 kg or that are authorized to carry more than 30 passengers to be fitted with ACAS II. Further, with effect from 1 January 2002, Annex 10, Volume IV requires all aeroplanes to be equipped with a pressure-altitude reporting transponder

**2. DISCUSSION**

2.1 The results of the June 2001 update were reviewed by APANPIRG/12 (20-24 August 2001) and the following information was noted:

- a) thirteen (13) States have already mandated the carriage and operation of **pressure-altitude reporting transponders**;
- b) six (6) have an implementation plan of the carriage and operation of **pressure-altitude reporting transponders**;
- c) one (1) indicates that there is no implementation plan of the carriage and operation of **pressure-altitude reporting transponders**;
- d) nine (9) have already mandated the carriage and operation of **ACAS but NOT ACAS II**; while two (2) have mandated the carriage of **ACAS II** specifically;
- e) nine (9) have a plan to mandate the carriage of **ACAS II** specifically on or earlier dates before the worldwide applicability date of Annex 6, i.e. 1 January 2003;
- f) one (1) has a plan to mandate the carriage of **ACAS II** specifically on dates after the worldwide applicability date of Annex 6, i.e. 1 January 2003;
- g) one (1) indicates that there is no implementation plan of the carriage and operation of **ACAS II**; and
- i) nineteen (19) States and Territories have not replied.

2.2 Subsequent amendments received from States were reviewed and updated during the APANPIRG/14 meeting as shown in **Appendix A** (transponder) and **Appendix B** (ACAS) to this paper.

2.3 Although the APANPIRG/13 meeting (9-13 September 2002) also re-emphasized the critical nature of these implementations, advice was given to the APANPIRG/14 meeting that twelve States in the Asia/Pacific Region were listed as not having implemented the Annex 6 requirements for carriage of ACAS II by 1 January 2003, and the APANPIRG/14 meeting urged those States to take necessary action to implement this requirement. The meeting was reminded of incidents that occurred recently whereby potential collisions were avoided by aircraft operating their ACAS and taking avoiding action.

2.4 The APANPIRG/14 meeting stressed that it was of critical importance that aircraft not equipped with a pressure reporting transponder should not be permitted to share airspace used by aircraft equipped with ACAS II. The performance of ACAS was totally dependant on all aircraft in the vicinity being equipped with pressure-altitude reporting transponders in order to detect conflicting traffic and for the ACAS II system to issue a Traffic Advisory (TA) or Resolution Advisory (RA). The meeting was reminded that ACAS II provides a proven independent safety net to prevent mid-air collisions. Operational monitoring programmes had highlighted in numerous actual events the significant contribution ACAS II made to improved flight safety.

2.5 The APANPIRG/14 meeting, on reviewing the status of ACAS II implementation, recognized that TCAS Version 6.04a was not designed for an RVSM environment and it was not compatible with RVSM. However, ACAS II (TCAS Version 7.0) had improved capability and was compatible with RVSM operations.

2.6 In light of the above, APANPIRG/14 agreed that it was a matter of urgency that States implement Annex 6 requirements in regard to ACAS II and pressure-altitude reporting transponders especially in RVSM operations. The meeting formulated the following Conclusion:

**Conclusion 14/6 – Implementation of ACAS II and pressure-altitude reporting transponders in the Asia Pacific Region**

That, States in the Asia/Pacific Region as a matter of urgency implement ACAS II and pressure-altitude reporting transponders required by Annex 6 especially in view of RVSM operations.

**3. ACTION BY THE MEETING**

3.1 The meeting is invited to:

- a) note that from 1 January 2002, Annex 10 Volume IV requires all aeroplanes to be equipped with pressure-altitude reporting transponders;
- b) note that from 1 January 2003, Annex 6 requires aeroplanes in excess of 15,000kg maximum certificated take-off mass or that are authorized to carry more than 30 passengers to be fitted with ACAS II;
- c) note that States unable to comply with the Annex 10 and Annex 6 standards should lodge a report with the Regional Office in accordance with the APANPIRG Procedural Handbook - Uniform Methodology for the Identification, Assessment and Reporting of Air Navigation Deficiencies;
- d) note and review the information in the tables at Appendices A and B and update where necessary;
- e) consider ways to encourage those States which have not provided information to the Regional Office to do so, in order to ensure that an accurate record of the status of the implementation of pressure-altitude reporting transponders and ACAS II is available for consideration by APANPIRG/15; and
- f) consider any further actions required by States and/or ICAO to facilitate the implementation of pressure-altitude reporting transponders and ACAS II in the Asia Pacific Region.

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Carriage and Operation of ACAS and Pressure-Altitude Reporting Transponders

Editorial note: Changes are arranged to show "deleted text" using strikeout (~~text to be deleted~~), and "new text" in bold Italics (*new text to be inserted*).

**Airborne Collision Avoidance System (ACAS)**

State/Territory	Effective date (dd/mm/yy)	Required TCAS types	Applicable airspace	Applicable to		Aeronautical Publication
				turbine-engined aeroplanes of a maximum certified take-off mass in excess of 15000kg or authorized to carry more than 30 passengers engaged in international air transport operations	turbine-engined aeroplanes of a maximum certified take-off mass in excess of 5 700kg or authorized to carry more than 19 passengers engaged in international air transport operations	
Australia	1-Jan-00	Version 6.04 or greater until 1 Jan 2003, thereafter Version 7	All airspace within FIRs	YES	No plan	Civil Aviation Regulation and AIP
Bangladesh	1-Jan-03	Version 7				AIP will be published 09/2003
Bhutan						
Brunei Darussalam	1-Jul-01	Version 7	Brunei terminal control area	YES		
Cambodia	1-Jan-03	Version 7	All airspace within FIR	YES		AIP will be published
China	11-Jul-02	Version 7	At the specified 10 airports, and along ATS routes A461, A593 and A599	YES	YES (On 31 Dec 2003)	AIC 06/2001 and AIC 08/2001
	1-Jan-03	Version 7	All airspace within FIR	YES	YES (On 31 Dec 2003)	To be published

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Hong Kong,China	1-Jan-00	Version 6.04 until 1 Jan 2003	All airspace within FIR	YES		AIP Hong Kong GEN 1.5-2
	1-Jan-03	Version 7	All airspace within FIR	YES	YES (on 1 Jan 2005)	AIC 02/01 dated 1 Feb 2001
Macau, China	1-Jan-00	Version 7	Controlled airspace within Macau ATZ	All fixed wing aircraft registered in Macau greater than 5700 kg or certified for more than 9 passengers seats.		AIC 07/99 dated 1 Dec 1999
Cook Islands						
DPR Korea						
Fiji						
France (French Polynesia)	23-Jan-03	Version 7	All airspace within FIR	YES	YES (on 1 Jan 2005)	AIP & AIC 010/00 dated 3 Aug 2000
(New Caledonia)	23-Jan-03	Version 7	All airspace within FIR	YES	YES (on 1 Jan 2005)	AIP & AIC 010/00 dated 3 Aug 2000
India	31-Dec-98	Any Version	All airspace within FIRs	Aeroplane having a maximum certified passenger seating configuration of more than 30 or maximum <u>payload capacity of more than 3 tonnes</u>		
	1-Jan-03	Version 7	All airspace within FIRs	Aeroplane having a maximum certified passenger seating configuration of more than 30 or maximum <u>payload capacity of more than 3 tonnes</u>		Civil Aviation Requirements, Section2, Series 'I', PART VIII, Revision2 dated 4 Dec 2000

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Indonesia						
Japan	4-Jan-01	Version 6.04 or greater *upgrading to Version 7 before 2003 is under consideration	Domestic airspace	YES	YES (on 1 Jan 2005)	AIP dated 4 Jan 1996
Kiribati						
<b>Lao PDR</b>	<b>1-Jan-03</b>	<b>ACAS II</b>	<b>All airspace within FIRs</b>	<b>YES</b>		<b>Notice to owner/operator No. 0401/DCA dated 15 May 2002</b>
Malaysia	1-Jan-03	Version 7	All airspace within FIRs	YES	YES	AIC 6/2000 dated 10 Mar 2000
Maldives	Jan-00	Version 7	All airspace within FIR	YES	YES (in Jan 2005)	Published on 14 Sep 1997
Marshal Islands						
Micronesia, Federated States of						
Mongolia	1-Jan-02		International routes	YES	No	To be issued in Dec 2000
Myanmar	1-Jan-03	Version 7	International routes	YES	No	Notice to owner T/42 dated 1 Sep 2000
Nauru						
Nepal	1-Jan-03	Version 7	Not specified	YES	YES (on 1 Jan 2005)	Flight Operations Requirements, Amendment Number 2 dated 18 Feb 2000

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New Zealand						Civil Aviation Rules regulating the carriage of ACAS in FIRs will be included in Civil Aviation Rules Programme for the fiscal year 2000/2001.
Pakistan	1-Jul-01	Version 6.04 or greater	All airspace within FIR	YES		AIP
Palau						
Papua New Guinea						
Philippines	31-Jan-01	Airspace defined by Air Transport Office (ATO)	20%			
	31-Jan-02		50%			
	31-Jan-04		ALL			
Republic of Korea	1-Jan-00	Version 6.04 or greater & Version 7 after Jan 2003	All airspace within FIR	YES	N/A	Aviation Law
Samoa	2000	Version 6.04 or greater & Version 7 for new installation after Jan 2002	All airspace within FIR	YES	YES (on 1 Jan 2005)	NOTAM will be issued
Singapore	1-Jan-02	Version 7	All airspace within FIR	YES	YES (on 1 Jan 2005)	AIC will be issued
Solomon Islands						
Sri Lanka	1-Jan-02	Version 7	All airspace within Colombo FIR	YES		Aviation Safety Notice issued 2002. AIC will be issued
Thailand	1-Jan-03	Version 7	All airspace within FIR	YES	YES (on 1 Jan 2005)	

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Tonga						
U.S.A.	31-Dec-95	Version 6.04 or greater	Within the territorial limit of 12 miles from the US coast	A passenger or combination cargo/passenger (combi) airplane that has a passenger seat configuration, excluding any pilot seat, of more than 10 seats		FAR, Part 121
Vanuatu	1-Jan-00	Version 6.04 or greater	All airspace within FIR	YES	N/A	Australia CAA Act 1998, Sbusection 9 (1)
<b>Viet Nam</b>	<b>Jun-03</b>	<b>Version 7</b>	<b>All airspace within FIR</b>	<b>YES</b>	<b>YES</b>	<b>NOTAM to be issued September 2003</b>

*Note: Blank indicates that no information has been provided.*