International Civil Aviation Organization

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

ASSESSMENT OF NON-STATE-APPROVED OPERATORS USING PACIFIC RVSM AIRSPACE BASED ON TRAFFIC SAMPLES FROM APRIL 2003 AND APRIL 2004

(Presented by the United States of America)

(Prepared by the FAA Technical Center)

Summary

This paper presents a comprehensive assessment of the identification of non-RVSM-approved operators using Pacific airspace where the RVSM is applied. Using actual Pacific traffic movement data collected during April 2003 and April 2004, the Pacific Approvals Registry and Monitoring Organization (PARMO) compared all observed air carrier aircraft operations flying between FL290 and FL390, inclusive, against the RVSM operational approvals noted in the approvals databases from the PARMO, Monitoring Agency for the Asia Region (MAAR), Caribbean/South American Regional Monitoring Agency (CARSAMMA), North American Approvals Registry and Monitoring Agency (NAARMO), North Atlantic (NAT) Central Monitoring Agency (CMA), and EUROCONTROL. The April 2003 traffic movement data used for this analysis were from the Anchorage Oceanic, Auckland, Brisbane, Nadi, Naha, Oakland Oceanic, Tahiti, and Tokyo Flight Information Regions (FIRs). The April 2004 traffic movement data used in this analysis were from the Anchorage Oceanic, Auckland, Naha, Oakland Oceanic, and Tokyo FIRs. By using the methodology explained in this paper, the PARMO identified potentially non-RVSM-approved operations and comprehensively summarized all cases of the identified operators and aircraft types. It reveals possible cases of non-RVSM approved operations, with some possible non-approved operations showing /W in Field 10 of the ICAO flight plans. The paper proposes that the PARMO provide a copy of this document to the appropriate Asia-Pacific State civil aviation authorities (CAAs), and that the CAAs investigate the RVSM approval status of the identified operators and aircraft that are under their jurisdiction.

1. Introduction

1.1. The Asia Pacific Air Navigation Planning and Implementation Regional Group (APANPIRG) established the PARMO as a safety oversight function to support RVSM implementation in the Asia Pacific Region (reference 1). The PARMO is a service provided by the United States Federal Aviation Administration's (FAA) Technical Center.

1.2. The PARMO serves as a regional monitoring agency (RMA) as is called for in ICAO Doc 9574. Among the duties and responsibilities of the PARMO (reference 2, Appendix L) is: "to provide the means for identifying non-RVSM approved operators using Asia/Pacific airspace where RVSM is applied; and notifying the appropriate State approval authority."

1.3. The purpose of this information paper is to present the PARMO examination of the State RVSM approval status of operators and aircraft observed in the sample of traffic movements collected in April 2003 and April 2004 from Pacific FIRs where RVSM is applied.

2. Background

2.1. As one of its major responsibilities, the PARMO maintains a database of Pacific RVSM approvals that have been granted by the appropriate State civil aviation authorities (CAAs) to the Pacific operators. The appropriate CAA notifies the PARMO when an RVSM approval has been granted. As these approvals are received by the PARMO, they are added to the Pacific RVSM Approvals Database.

2.2. In addition, the PARMO regularly acquires the latest versions of RVSM approvals databases maintained by the North Atlantic (NAT) Central Monitoring Agency (CMA), the Monitoring Agency for the Asia Region (MAAR), the North Atlantic Approvals Registry and Monitoring Agency (NAARMO), the Caribbean/South American Regional Monitoring Agency (CARSAMMA), and EUROCONTROL.

2.3. Each State approval in the combined approvals database identifies an aircraft by operator, type and registration number. The examination of approval status consisted of comparing the operator, aircraft type and, where provided, registration number of each flight in each FIR traffic movement sample to the entries in the combined approvals database. Those flights failing this match were then analyzed further in order to remove any possible coding errors in preparing the traffic samples. The flights still appearing to lack State RVSM approval were then the object of subsequent correspondence between the PARMO and the relevant State authorities and operators.

3. Discussion

3.1. In order to evaluate operators for violations of RVSM operational approval requirements in the Pacific Region, knowledge of the operators using the Pacific airspace where RVSM is applied is required. An analysis of traffic movement data is necessary to identify the specific aircraft operators and the aircraft types that use the airspace. This information paper provides basic data on the Pacific operator and aircraft populations that were used for this analysis.

3.2. The need for Pacific traffic movement data was discussed at 18th and 19th Meetings of the Informal South Pacific ATS Coordinating Group (ISPACG/18 and ISPACG/19) (references 3 and 4). Those meetings reaffirmed that one PARMO safety oversight responsibility was to use the PARMO Approvals Registry in conjunction with records of aircraft operating in Pacific airspace where RVSM is applied in order to identify any operators and aircraft using the airspace without State RVSM approval. Accordingly, the meeting endorsed the collection of the sample of traffic movements requested by the PARMO.

3.3. The collection of the traffic movement sample was also coordinated with the Japan Civil Aviation Bureau (JCAB).

3.4. As a result of the requests for traffic movement data, six States provided traffic movement data to be examined by the PARMO, representing eight Pacific FIRs. Usable data was obtained from the United States FAA's Enhanced Traffic Management System (ETMS), from Airways Corporation of New Zealand, from Airservices Australia, from Service d'Etat de l'Aviation Civile (SEAC) (French Polynesia), Airports Fiji Limited, and from the Tokyo and Naha Area Control Centers (ACCs) in Japan.

3.5. ETMS data was obtained from FAA Technical Center sources. The data files include two files for each day – one for Anchorage Air Route Traffic Control Center (ARTCC) and one for Oakland ARTCC. The FAA ETMS data sample analyzed for this paper includes data for the periods from 1- 30 April 2003 and 1-30 April 2004; however, there were some missing days during these time periods.

3.6. Airways Corporation of New Zealand provided data from Auckland ACC. The data was collected each day from 31 March - 30 April 2003, and 31 March – 30 April 2004 and covers flights within the Auckland FIR.

3.7. Airservices Australia provided one month of data from the Brisbane FIR. The data was collected each day from the period of 1-30 April 2003.

3.8. One month of data for the Tahiti FIR was provided by SEAC. The data was collected each day from the period of 1-30 April 2003.

3.9. Tokyo and Naha ACCs provided data for the Tokyo and Naha FIRs of Japan. For Tokyo ACC, the data was collected each day from the periods of 1-30 April 2003 and 1-30 April 2004. For Naha ACC, the data was collected each day from 1-30 April 2003 and 1-30 April 2004.

4. Traffic Data Summary

4.1. The total number of all flights for each of the traffic movement samples from April 2003 and April 2004 is presented in Table 1. The counts in Table 1 include commercial operators (COM), general aviation (IGA), and State aircraft.

State	FIR	Total Number of All Flights April 2003	Total Number of All Flights April 2004
Australia	Brisbane	4,840	-
Fiji	Nadi	1,515	-
Japan	Naha	2,836	3,833
Japan	Tokyo	10,143	11,594
New Zealand	Auckland	6,634	5,249
French Polynesia	Tahiti	423	-
United States	Anchorage, Oakland	18,422	18,387

Table 1. Total Number of All Flights in Traffic Movement Data Collected by Pacific FIR

4.2. The total number of commercial flights for each traffic movement sample is presented in Table 2.

State	FIR	Total Number of COM Flights in April 2003	Total Number of COM Flights in April 2004
Australia	Brisbane	4,517	-
Fiji	Nadi	1,474	-
Japan	Naha	2,676	3,427
Japan	Tokyo	9,970	11,214
New Zealand	Auckland	6,583	5,080
Tahiti	Tahiti	402	-
United States	Anchorage, Oakland	17,111	17,437

Table 2. Total Number of Commercial Flights in Traffic Movement Data Collected by Pacific FIR

4.3. The total number of international general aviation (IGA) flights for each traffic movement sample is presented in Table 3.

State	FIR	Total Number of IGA Flights in April 2003	Total Number of IGA Flights in April 2004
Australia	Brisbane	273	-
Fiji	Nadi	21	-
Japan	Naha	55	39
Japan	Tokyo	60	117
New Zealand	Auckland	45	20
Tahiti	Tahiti	17	-
United States	Anchorage, Oakland	847	471

Table 3. Total Number of International General Aviation Flights in Traffic Movement Data Collected by Pacific FIR

4.4. The total number of State flights for each traffic movement sample is presented in Table 4.

State	FIR	Total Number of State Flights in April 2003	Total Number of State Flights in April 2004
Australia	Brisbane	50	-
Fiji	Nadi	20	-
Japan	Naha	105	367
Japan	Tokyo	113	263

State	FIR	Total Number of State Flights in April 2003	Total Number of State Flights in April 2004
New Zealand	Auckland	6	149
Tahiti	Tahiti	4	-
United States	Anchorage, Oakland	464	479

Table 4. Total Number of State Flights in Traffic Movement Data Collected by Pacific FIR

4.5. The percentages of commercial, international general aviation, and State aircraft found in the collected traffic movement samples are presented in Tables 5 and 6.

April 2003 Percent of Sample (%)			
FIR	**COM**	**IGA**	**State**
Brisbane	93.33%	5.64%	1.03%
Nadi	97.29%	1.39%	1.32%
Naha	94.36%	1.94%	3.70%
Tokyo	98.29%	0.59%	1.11%
Auckland	99.23%	0.68%	0.09%
Tahiti	95.04%	4.02%	0.95%
Anchorage, Oakland	92.88%	4.60%	2.52%

Table 5. Percentages of Commercial, International General Aviation, and State Flights in the Traffic Movement Data Collected by Pacific FIR in April 2003

April 2004 Percent of Sample (%)			
FIR	**COM**	**IGA**	**State**
Brisbane	-	-	-
Nadi	-	-	-
Naha	89.41%	1.02%	9.57%
Tokyo	96.72%	1.01%	2.27%
Auckland	96.78%	0.38%	2.84%
Tahiti	-	-	-
Anchorage, Oakland	94.83%	2.56%	2.61%

Table 6. Percentages of Commercial, International General Aviation, and State Flights in the Traffic Movement Data Collected by Pacific FIR in April 2004

5. Summary of Observed Pacific Traffic Without RVSM Operational Approval

5.1. For this analysis, the combined RVSM approvals database was formed using the March 2005 versions of the individual approvals databases received from the sources noted in paragraph 2.2.

5.2. The PARMO noted that, in both the 2003 and 2004 traffic samples, there were non-RVSM approved operations being conducted in Pacific airspace where RVSM is applied on an exclusionary basis. Certain airframes, identified as non-approved by the ATC units, were observed in both the 2003 and 2004 samples at frequencies consistent with regular airspace users. Since the samples contained operations in Pacific airspace where RVSM is applied on an exclusionary basis, the PARMO concluded that it was possible for ATC to provide adequate separation for these aircraft without disadvantage to RVSM-approved aircraft.

5.3. Table 7 presents a summary of the operations in the April 2003 Brisbane FIR traffic sample for which RVSM approvals were not found in the March 2005 combined RVSM approvals database. One of the aircraft, appearing 4 times in the sample, is registered in a State which does not provide regular updates of RVSM approvals to the PARMO.

Agency Name / Registration Number	Aircraft Type	Number of Operations in Sample
P2TAA	C550	4
VHNGA	WW24	9

Table 7. Operations in the Brisbane FIR Traffic Sample for Which RVSM Approvals Were Not Found

5.4. Table 8 presents a summary of the operations in the April 2003 Nadi FIR traffic sample for which RVSM approvals were not found in the March 2005 combined RVSM approvals database. The PARMO determined that the registration mark in the 2003 traffic sample for one aircraft, responsible for 2 operations in the sample, was not current. The remaining airframes in listed in Table 8, responsible for a total of 10 operations, were identified as non-approved by the ATC units. The PARMO has concluded that the ATC units were able to provide adequate separation for these operations without disadvantage to RVSM-approved aircraft.

Agency Name / Registration Number	Aircraft Type	Number of Operations in Sample
VHNGA	WW24	8
VHAJV	WW24	2
VHWZM	ASTR	2

Table 8. Operations in the Nadi FIR Traffic Sample for Which RVSM Approvals Were Not Found

5.5. Table 9 presents a summary of the operations in the April 2003 Naha FIR traffic sample for which RVSM approvals were not found in the March 2005 combined RVSM approvals database. The operator-aircraft type listed in Table 9, was registered in a State which does not provide regular updates of RVSM approvals to the PARMO.

Agency Name / Registration Number	Aircraft Type	Number of Operations in Sample
ABAKAN-AVIA (ABG)	IL76	1

Table 9. Operations in the April 2003 Naha FIR Traffic Sample for Which RVSM Approvals Were Not Found

5.6. Table 10 presents a summary of the operations in the April 2004 Naha FIR traffic sample for which RVSM approvals were not found in the March 2005 combined RVSM approvals database. The operator-aircraft type listed in Table 10, was registered in a State which does not provide regular updates of RVSM approvals to the PARMO.

Agency Name / Registration Number	Aircraft Type	Number of Operations in Sample
ANTONOV DESIGN BUREAU (ADB)	A12U	1

Table 10. Operations in the April 2004 Naha FIR Traffic Sample for Which RVSM Approvals Were Not Found

5.7. Table 11 presents a summary of the operations in the April 2003 Tokyo FIR traffic sample for which RVSM approvals were not found in the March 2005 combined RVSM approvals database. The 2 operations conducted by Flight International, Inc (IVJ) listed in Table 11 were identified as non-approved by the ATC units. The PARMO has concluded that the ATC units were able to provide adequate separation for these operations without disadvantage to RVSM-approved aircraft. The remaining operator-aircraft type in Table 11, was registered in a State which does not provide regular updates of RVSM approvals to the PARMO.

Agency Name / Registration Number	Aircraft Type	Number of Operations in Sample
ABAKAN-AVIA (ABG)	IL76	1
FLIGHT INTERNATIONAL, INC. (IVJ)	LJ36	2

Table 11. Operations in the April 2003 Tokyo FIR Traffic Samples for Which RVSM Approvals Were Not Found

5.8. There were no operations in the Tokyo FIR April 2004 traffic sample for which RVSM approvals were not found in the March 2005 combined RVSM approvals database.

5.9. Table 12 presents a summary of the operations in the April 2003 Auckland FIR traffic sample for which RVSM approvals were not found in the March 2005 combined RVSM approvals database. All of the operations listed in Table 12, were identified as non-approved by the ATC units. The PARMO has concluded that the ATC units were able to provide adequate separation for these operations without disadvantage to RVSM-approved aircraft.

Agency Name / Registration Number	Aircraft Type	Number of Operations in Sample
ASIAN EXPRESS AIRLINES PTY LIMITED (AXF)	B722	36
ALLCANADA EXPRESS LTD (CNX)	B722	4
VHJCR	LJ35	4
VHNGA	WW24	2

Table 12. Operations in the April 2003 Auckland FIR Traffic Sample for Which RVSM Approvals Were Not Found

5.10. Table 13 presents a summary of the operations in the April 2004 Auckland FIR traffic sample for which RVSM approvals were not found in the March 2005 combined RVSM approvals database. All of the operations listed in Table 13, were identified as non-approved by the ATC units. The PARMO has concluded that the ATC units were able to provide adequate separation for these operations without disadvantage to RVSM-approved aircraft.

Agency Name / Registration Number	Aircraft Type	Number of Operations in Sample
ASIAN EXPRESS AIRLINES PTY LIMITED (AXF)	B722	38
HVY	B721	7
VHAJJ	WW24	2
VHJCX	LJ35	3
VHJCR	LJ35	3

Table 13. Operations in the April 2004 Auckland FIR Traffic Sample for Which RVSM Approvals Were Not Found

5.11. There were no operations in the April 2003 Tahiti FIR traffic sample for which RVSM approvals were not found in the March 2005 combined RVSM approvals database.

5.12. Table 14 presents a summary of the operations in the April 2003 Anchorage and Oakland Oceanic FIR traffic samples for which RVSM approvals were not found in the March 2005 combined RVSM approvals database. One of the operations listed in Table 14, appeared in other Pacific FIR April 2003 traffic samples, and had been identified as non-approved by the ATC units. The remaining operator-aircraft type pairs listed in Table 14 represent operations which took place on the Central East Pacific routes. The PARMO has concluded that the ATC units were able to provide adequate separation for all the operations listed in Table 14 without disadvantage to RVSM-approved aircraft.

Agency Name / Registration Number	Aircraft Type	Number of Operations in Sample
ATLANTA (ABD42P)	B747	2
BAY	F900	2
BAY	CL60	5
BAY	CL64	1
ALLCANADA EXPRESS LTD (CNX)	B727	2
BOMBARDIER AEROSPACE D/B/A BOMBARDIER BUSINESS JET SOLUTIONS, INC. (LXJ)	CL60	1
VHNGA	WW24	3

Table 14. Operations in the April 2003 Anchorage and Oakland FIR Traffic Sample for Which RVSM Approvals Were Not Found

5.13. Table 15 presents a summary of the operations in the April 2004 Anchorage and Oakland Oceanic FIR traffic samples for which RVSM approvals were not found in the March 2005 combined RVSM approvals database. Seven of the N-registered airframes were no longer current. Because of the age of the traffic sample, it is possible that the aircraft were approved when observed. One of the aircraft, appearing 1 time in the sample, was registered in a State which does not provide regular updates of RVSM approvals to the PARMO. The remaining operator-aircraft type pairs and airframes listed in Table 15 represent 29 operations which took place on the Central East Pacific routes. The PARMO has concluded that the ATC units were able to provide adequate separation for all the operations listed in Table 15 without disadvantage to RVSM-approved aircraft.

	Aircraft Type	Number of Operations in Sample
PRIVATAIR SA (PTI)	B737	2
PTP	B752	1
ACM AVIATION, INC. (BJT)	F900	4
ACM AVIATION, INC. (BJT)	CL60	3
D & D AVIATION (DDA)	GLF2	2
KAISER AIR, INC. (KAI)	GLF3	4
BOMBARDIER AEROSPACE D/B/A BOMBARDIER BUSINESS JET SOLUTIONS, INC. (LXJ)	CL60	11
N285TR	B737	2
N349US	B733	2
N394G	C441	1
N546NA	B752	2
N547NA	B752	2
N707BZ	B737	2
N711MC	GLEX	1
N724CL	B72Q	1
N890FH	F900	1
P2MBD	C550	1

Table 15. Operations in the April 2004 Anchorage and Oakland FIR Traffic Sample for Which RVSM Approvals Were Not Found

6. Conclusions

6.1. The meeting is invited to note the results of the assessment completed in this paper.

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References

1. Report of the Tenth Meeting of the Asia/Pacific Planning and Implementation Regional Group (APANPIRG), ICAO Asia and Pacific Office, Bangkok, August 1999.

2. Report of the Sixth Meeting of the ICAO Reduced Vertical Separation Minimum Implementation Task Force (RVSM/TF/6), Singapore, 10 – 14 April 2000.

3. “Specification for a Traffic Movement Sample to Support Examination of the State Reduced Vertical Separation Minimum (RVSM) Status of Operators and Aircraft Using Pacific Airspace Where the RVSM Is Applied”, Eighteenth Meeting Of The Informal South Pacific Air Traffic Services Coordinating Group (ISPACG/18), Nadi, Fiji, 25-27 Feburary 2004, WP/.

4. “Specification for a Traffic Movement Sample to Support Examination of the State Reduced Vertical Separation Minimum (RVSM) Status of Operators and Aircraft Using Pacific Airspace Where the RVSM Is Applied”, Nineteenth Meeting Of The Informal South Pacific Air Traffic Services Coordinating Group (ISPACG/19), Brisbane, Australia, 28 February – 3 March 2005, WP/.