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Transition to the CNS/ATM Systems in the CAR and SAM Regions

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(Lima, Peru, 20.24 May 2002)

Agenda Item 4: Analysis of the Action Plan for RVSM Implementation in the CAR/SAM Regions, for its approval.

Analysis of the fleet based in the CAR/SAM Region

(Presented by IATA)

Summary

This working paper presents the estimated RVSM readiness status of the jet fleet based in the CAR/SAM Region by the last quarter of 2004.

1 Introduction

1.1 The jet fleet operating in the CAR/SAM Region can be divided in two major groups: a) The fleet based in the CAR/SAM Region and b) the fleet based outside of the Region. It is irrelevant to analyze the latter since by the last quarter of the year 2004, which is the proposed RVSM implementation date, it is expected that all surrounding regions of the CAR/SAM Region will be RVSM. Therefore, this working paper will analyze only the jet aircraft fleet based in the CAR/SAM Region.

2 Explanation of the Information Presented

2.1 During the last few years the main airlines based in the CAR/SAM Region, in order to be competitive, have been forced into a modernization of their fleet. Meanwhile, and paradoxically, the CAR/SAM Region is base for first generation aircraft such as SE210, B707, YAK40, BAC111, etc... However, it is important to analyze the existing and future jet fleet in the CAR/SAM Region in order to develop a plan of action.

2.2 The attachment to this Working Paper makes an inventory by country and by sub-region of the fleet based in the CAR/SAM Region. The information refers to the jet aircraft operated by companies registered in each country with a commercial purpose. The aircraft information presented in the attachment suits one or several of the following activities:

a) Scheduled airlines for passenger transportation.
b) Scheduled airlines for cargo transportation.
c) Charter airlines for passenger or cargo transportation.
d) Hospital aircraft.
e) Government or military airlines dedicated to passenger or cargo transport.
f) Taxi aircraft
g) Airlines dedicated to transportation of personnel for a particular activity, such as oil rigs, mineral industries, fisheries etc..
h) Aircraft dedicated to surveying and aerial photography.

2.3 It does not deal with the following categories:

a) Government or presidential aircraft used for official purposes.
b) Aircraft for military transport.
c) Aircraft privately owned.

2.4 The classification of the jet aircraft on the attachment is as follows:

2.4.1 Aircraft RVSM ready – Are those aircraft that are already certified by the State of Registration and have been operated in RVSM Regions. It mainly includes all the long-range fleet. They are: A340, A330, B747's, B777, DC10's, L-1011, MD-11.

2.4.2 Aircraft RVSM capable – Includes two categories:

2.4.2.1 Those aircraft that are RVSM ready, but are still pending for certification from the State of Registration; this includes A319, A320, B737-800, B737-700.

2.4.2.2 The second category includes aircraft from previous generations that need to undergo a modification bulletin. These bulletins normally require modification in the aircraft structure and/or its avionics equipment. The costs involved in these modifications are easily levered by the savings produced once the aircraft is operated in an RVSM environment. The aircraft that form this group are mainly MD8 series, B737-300/400/500/600, F100.

2.4.3 Aircraft non-RVSM. - All types of aircraft can be tailored and certified to operate in an RVSM environment. But when we make a cost/benefit analysis, the investment for the certification does not compensate the savings that the aircraft can yield during its remaining operational life. Therefore, we can assert that this group of aircraft is non-RVSM capable. This group is formed by B727-100/200, B737-200, F28, Yak-40, B707, DC8's, and some much older aircraft such as the SE210, or BAC111. We presume that these type of aircraft based in the CAR/SAM Region will be not modified.

2.4.4 Business aircraft – Three countries in the CAR/SAM Region are proficient in the usage of the so-called Business Jets. Therefore it is important to include this kind of aircraft in this study. This type of aircraft includes Cessna's, Learjet, Challenger, Dasoult Falcon and IAI series. The manufactures of these aircraft have already published bulletins for the necessary modification in order to certify them RVSM. It is considered that all these aircraft will be RVSM certified in the future. It is significant to cite that these aircraft easily reach FL410 and above, therefore can over fly the RVSM area.

2.4.5 Aircraft on order – This group includes the orders placed by the airlines to the aircraft manufacturers. These orders span until the year 2004. All aircraft coming out from the factory are RVSM certified and will replace the oldest fleets of non-RVSM aircraft. This fact has been taken into consideration in computing the percentage of readiness of the CAR/SAM fleet for the year 2004.

3 Results of the Analysis.

3.1 The term "Percentage of RVSM Readiness", used in this working paper, is the estimated percentage of aircraft RVSM qualified by the last quarter of 2004. The annex presents an analysis of the RVSM readiness by country, by sub-regions, as well as the CAR/SAM Region as a whole. As a summary, we can say that the estimated percentage of readiness of the jet fleet based in the CAR/SAM region by the last quarter of 2004 will be:

a) Caribbean Sub-region :
68 jet aircraft RVSM
17 jet aircraft non-RVSM
Readiness percentage 80%

b) Central America, Mexico and Panama:
268 jet aircraft RVSM
76 jet aircraft non-RVSM
Readiness percentage 78%

c) South America Sub-region
562 jet aircraft RVSM
179 jet aircraft non-RVSM
Readiness 76%.

d) CAR/SAM Region as a whole
898 jet aircraft RVSM
272 jet aircraft non-RVSM
Readiness 76%

4 Discussion

4.1 It is worthwhile to recap that based on other RVSM Regions, aircraft non-RVSM are allowed to operate within RVSM airspace by previous request providing that it does not interfere with the RVSM traffic. For instance, a non-RVSM flight can be perfectly accommodated within a RVSM environment if it is operated during night-time hours when traffic is minimal or non-existing. This concept can be applied also in areas of low density of traffic.

4.2 Also it is important to state that once the CAR/SAM Region becomes RVSM, those airlines still operating non-RVSM, will be forced to schedule them to short-range flights. In short flights it is not necessary to reach FL290 to achieve an efficient flight.

4.3 As a direct result of this analysis it is possible to estimate that the following countries have already developed experience in the certification of aircraft for RVSM operations: Argentina, Brazil, Chile, Colombia, Cuba, Jamaica, Mexico, Peru, Trinidad & Tobago, Venezuela.

4.4 State aircraft used for government affairs or presidential flights were not included in this analysis since in other RVSM regions they are exempt from RVSM certification and it is presumed that the CAR/SAM Region will follow similar ruling.

5 Action Suggested

5.1 The Group is invited to analyze the information and use it if considered necessary in the development of an Action Plan for the implementation of RVSM in the CAR/SAM Region by the last quarter of 2004.

APPENDIX A

RVSM status of the aircraft jet fleet based in the CAR/SAM Region by the end of year 2001 and estimated status by 2004

CARIBBEAN	2001				2004		NOTES
	ready	capable	non-capable	business jet	orders or modifications	readiness percentage	
Anguilla						100%	
Antigua & Barbuda	5					100%	
Aruba	1		3			25%	(1)
Bahamas		1	4		4	100%	(2)
Barbados						100%	
British Virgin Islands						100%	
Cayman Islands			4		3	75%	(3)
Cuba	8	2	13			43%	(4)
Dominica						100%	
Dominican Republic						100%	
French Antilles		2	1		1	100%	(5)
Grenada						100%	
Haiti						100%	
Jamaica	7	13				100%	
Montserrat						100%	
Netherland Antilles		3				100%	
Puerto Rico				3		100%	
St Kits & Nevis						100%	
St Lucia						100%	
St Vicents & Grenadines						100%	
Trinidad & Tobago	4	10				100%	
Turks & Caicos						100%	
US Virgin Islands			1		1	100%	(6)
SUBTOTAL----------->	25	31	26	3	9	80%	

CENTRAL AMERICA AND MEXICO	2001				2004		NOTES
	ready	capable	non-capable	business jet	orders or modifications	readiness percentage	
Belize						100%	
Costa Rica		5	7		7	100%	(7)
El Salvador		29	8		14	100%	(8)
Guatemala			8		5	62%	(9)
Honduras			1			0%	(10)
México	5	98	124	59	46	73%	(11)
Nicaragua						100%	
SUBTOTAL----------->	5	132	148	59	72	78%	

SOUTH AMERICA	2001				2004		NOTES
	ready	capable	non-capable	business jet	orders or modifications	readiness percentage	
Argentina	13	29	66	24	18	64%	(13)
Bolivia		3	12			20%	(14)
Brazil	47	175	49	61	67	100%	
Chile	18	5	30	2	29	98%	(15)
Guyana		1				100%	
Guyane						100%	
Paraguay						100%	
Colombia	9	18	41	4	16	49%	(16)
Ecuador			12	1		8%	(17)
Surinam						100%	
Panama		8	14		4	55%	(12)
Peru	2	3	39	4		19%	(18)
Uruguay			4			0%	(19)
Venezuela	1		46			2%	(20)
SUBTOTAL----------->	90	242	313	96	134	76%	
GRANDTOTAL------>	120	405	487	158	215	77%	

1) Aruba – 3 B707F belonging to a Belgium airlines, status is unknown
2) Bahamas – 2 B737-200 from Bahamasair used for flights to USA, will be replaced of upgraded. 2 B727 from Laker Airways have Bahamian registration but are based in Fortlauderdale, must be also upgraded
3) Cayman Island – Cayman Airways has three B737-200 that are use on flights to USA, therefore they must be upgraded or replaced.
4) Cuba – Cubana de Aviacion and other airlines have 13 Yak-40, maybe they will be used below Fl290 or in domestic flights.
5) French Antilles- Air Caraibes has a B737-200, for local flights and to flight to Miami, the airline is replacing the B727-300 fleet with ERJ-145.
6) US Virgin Island – There is a B727-200 registered, since US Virging Island is under San Juan FIR this aircraft will be upgraded or replaced.
7) Costa Rica – LACSA part of the TACA group, owns 7 B737-200, they will be replaced by an order make by TACA of 27 A320-200.
8) El Salvador – Taca is replacing its B737-200 with A320-200
9) Guatemala – Aviateca is part of the TACA group and replacement of its fleet is in progress. The State has registered 2 BAC-111 and 1 YAK-40.
10) Honduras – The State has a YAK-40 registered.
11) Mexico – The two leaders airlines are in the process of replacing 38 aging aircraft. The Mexican Civil Aviation has forbidden operations of aircraft Stage I since 2004, this will make obsolete a large percentage of the aging fleet.
12) Panama – COPA is in the process of replacing 10 B737-200. DHL owns 4 B727-200F, unknown intentions.

13) Argentina – The Aerolineas Argentinas/Austral group owns 39 B737-200, unknown intentions. Dinar owns 5 DC9. It is presumed that due to the geographical situation of Argentina the area south of Buenos Aires could be utilized as a non-RVSM airspace.
14) Bolivia – Old fleet, intentions unknown.
15) Chile – 3 DC8-71F used for routes to USA, these aircraft will be grounded or upgraded.
16) Colombia – Aerorepublica is replacing the aging DC9 for MD80 series. There are 3 DC8-71F used for route to USA that will be replaced or upgraded. ACES is in the process of converting its whole fleet in to A320-200.Large percentage of the non-RVSM aircraft are old generations cargo aircraft.
17) Ecuador – Ecuador fleet is mostly used for domestic flights of short range, therefore operations underneath of FL290 will not affect financially the operation of the local airlines.
18) Peru – Aerocontinente owns 23 aircraft old generation, intentions are to renew fleet although there is not a schedule established.
19) Uruguay – 3 B737-200 from PLUNA moistly used to short flights, intentions unknown.
20) Venezuela - Domestic airlines with 14 B727 3 B737-200, 28 DC9, intentions unknown.