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**International Civil Aviation Organization
South American Regional Office**

**FIFTH WORKSHOP/MEETING OF THE SAM IMPLEMENTATION GROUP (SAM/IG/5)
REGIONAL PROJECT RLA/06/901**

Lima, Peru, 10 to 14 May 2010

Agenda Item 3: Implementation of performance-based navigation (PBN) in the SAM Region

(Presented by the Secretariat)

Summary
<p>This working paper presents the en-route (RNAV-5) PBN Action Plan, updated during the Fourth Meeting of the SAM Implementation Group (SAM/IG/4), for its revision and evaluation on the progress reached.</p>
References: <ul style="list-style-type: none">• Fourth Workshop/Meeting (SAM/IG/2) Report• En-route (RNAV-5) PBN Action Plan
ICAO Strategic objectives Strategic Objective C <i>Environmental Protection</i> Strategic Objective D <i>Efficiency</i>

1 Background

1.1 As it may be recalled, the SAM/IG/2, SAM/IG/3 and SAM/IG/4 Meetings, in due course reviewed the PBN Implementation Project - En-route short term (RNAV-5) PBN Action Plan for the SAM Region and the associated En-route (RNAV-5) PBN Action Plan. They introduced changes deemed pertinent, established responsible persons and dates for start/end of the different activities and adopted the action plan as guidance material to be followed by States.

2 **Analysis**

2.1 In view that the en-route (RNAV-5) PBN action plan contemplates tasks in charge of the designated persons responsible, with established dates for compliance, it is necessary to carry out a periodical revision, as a follow-up on the status of compliance of the tasks assigned to each one of the persons responsible for the SAM Implementation Group. To this end, **Appendix A** to this working paper shows the tasks that must be complied, on occasion of RNAV-5 implementation, foreseen for 18 November 2010 to be reviewed by this Fifth Meeting.

3 **Suggested action**

3.1 The Meeting is invited to:

- a) Take note of the information provided; and
- b) Review the progress reached and if such were the case, update the En-route (RNAV-5) PBN Action Plan shown in Appendix A to this working paper.

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APPENDIX A

**SHORT-TERM EN-ROUTE PBN ACTION PLAN (RNAV-5)
(GPIs 1, 4, 5, 7, 8, 10, 11, 12, 16, 21, 23)**

1. Airspace concept	Start	End	Responsible party	Remarks
1.1 Establish and prioritize strategic objectives (safety, capacity, environment, etc.)	June/2008	SAM/IG/2	SAM/PBN/IG (Project RLA/06/901)	Completed
1.2 Collect traffic data in order to understand traffic flows in a given airspace	June/2008	SAM/IG/4	SAM/PBN/IG (Project RLA/06/901)	Completed
1.3 Analyze the navigation capacity of the aircraft fleet	June/2008	SAM/IG/4	SAM/PBN/IG (Projects RLA/06/901 and RLA/99/901) States IATA	Valid During SAM/IG/4 Meeting, the database was analysed. Will continue to improve with the assistance of States.
1.4 Analyze ground-based means of communication, navigation (VOR, DME) and surveillance to meet navigation specifications and the navigation reversal mode	June/2008	SAM/IG/5	SAM/PBN/IG (Projects RLA/06/901 and RLA/99/901) States	Valid In process. During SAM/IG/4 initial information was presented (WP/35). The final result will be presented to SAM/IG/5.
1.5 Optimize airspace structure, reorganizing the network or implementing new routes based on the strategic objectives of the airspace concept, taking into account airspace modelling, ATC simulations (fast time and/or real time), live tests, etc.	SAM/IG/2	SAM/IG/4	SAM/PBN/IG (Project RLA/06/901) States IATA	Transferred. The meeting reviewed this task and decided that it was more appropriate to incorporate to the SAM Region ATS routes network optimization action plan (2.2.5 SAM Region ATS routes network optimization action plan)

2 Safety assessment	Start	End	Responsible party	Remarks
2.1 Prepare safety assessment execution using a qualitative methodology through the application of SMS	SAM/IG/2	SAM/IG/5	CARSAMMA Project RLA/06/901 Regional Office	Transferred. Transferred to the SAM Region ATS routes network optimization action plan (2.2.6 of the SAM Region ATS routes network optimization action plan).

3	Establish a collaborative decision-making process (CDM)	Start	End	Responsible party	Remarks
3.1	Coordinate planning and implementation requirements with air navigation service providers, regulators, users, aircraft operators and military authorities	SAM/IG/2	SAM/IG/4	SAM/PBN/IG States	States have published an initial AIC
3.2	Establish the implementation date	SAM/IG/1	SAM/IG/4	SAM/PBN/IG States	<p>Completed. 18 November 2009 was established as tentative date. States must analyse the feasibility of the tentative date in coordination with domestic operators and military authorities</p>
3.3	Establish the documentation format in the SAM PBN website	SAM/IG/1	SAM/IG/2	SAM Regional Office	Completed
3.4	Report planning and implementation progress to the corresponding Regional Office. Conclusion to present national plans at SAM/IG/4	SAM/IG/2	SAM/IG/4	SAM/PBN/IG States	<p>Completed. Eight SAM States presented a draft of their national PBN implementation plans and it was agreed that for 31 December 2009, States shall present the final version of the plan. The Secretariat was requested to as States that have not done so yet, submit their respective plans.</p>

4 ATC automated systems	Start	End	Responsible party	Remarks
4.1 Assess PBN implementation in ATC automated systems, taking into account amendment 1 to the PANS/ATM (FPLSG). Note: It is not a requirement for RNAV5 implementation	June/2008	SAM/IG/4	SAM/PBN/IG (Project RLA/06/901)	Completed According to the programme presented in ICAO guidelines (WP/09), it is not a requirement for the RNAV5 implementation. CNS/ATM sub-group will revise this issue.
4.2 Implement necessary changes in automated ATC systems	SAM/IG/2	TBD	States	Completed

5 Aircraft and operator approval	Start	End	Responsible party	Remarks
5.1 Analyze aircraft and operator approval requirements (pilots, dispatchers and maintenance personnel) in keeping with the PBN manual, and develop the necessary documentation.	June/2008	SAM/IG/2	Regional Project RLA/99/901-Regional Safety Oversight Cooperation System	Completed
5.2 Publish national regulations for the implementation of the RNAV-5 navigation specification	SAM/IG/2	SAM/IG/4	States	Valid There are some States in development process of their regulations, and for this reason, this task is pending.
5.3 Begin the approval of aircraft and operators	SAM/IG/3	SAM/IG/5	States	Valid This is a continuous task that States have initiated and shall continue to carry out upon requirement of operators
5.4 Establish and keep up to date a registry of approved aircraft and operators	SAM/IG/3	Permanent	CARSAMMA States Regional Office	Valid This is an activity being developed permanently by each on of the States.
5.5 Verify the operation of the continuous monitoring programme (aircraft and procedures)	Nov/2010	Permanent	States	Completed This is an activity being developed permanently by each on of the States and is considered in the surveillance plans.

6	Standards and procedures	Start	End	Responsible party	Remarks
6.1	Assess and, if applicable, publish the regulations on the use of GNSS.	June/2008	SAM/IG/2	SAM/PBN/IG (Project RLA/06/901) States	Completed
6.2	Finalize WGS-84 implementation	TBD	TBD	States	Completed States which have not done so, should provide the information
6.3	Develop an AIC model to report PBN implementation plans	June/2008	SAM/IG/2	SAM/PBN/IG (Project RLA/06/901)	Completed
6.4	Publish the AIC reporting PBN implementation plans	SAM/IG/2	SAM/IG/4	States	Completed States should publish on 9 April 2009
6.5	Develop an AIP Supplement model containing applicable standards and procedures, including the corresponding in-flight contingencies	SAM/IG/4	SAM/IG/5	SAM/PBN/IG (Project RLA/06/901)	RLA/06/901 should carry out this task
6.6	Publish the AIP Supplement containing applicable standards and procedures, including the corresponding in-flight contingencies	SAM/IG/5	SAM/IG/6	States	
6.7	Review the Procedural Handbook of the ATS units involved	SAM/IG/5	SAM/IG/6	States	
6.8	Update the letters of agreement between ATS units	SAM/IG/5	SAM/IG/6	States	
6.9	Develop an amendment to regional documentation, if necessary	SAM/IG/3	SAM/IG/4	SAM/PBN/IG (Project RLA/06/901)	RLA/06/901 should carry out this task
6.10	Submit a proposal of amendment to Doc. 7030, if necessary	SAM/IG/5	SAM/IG/6	SAM Regional Office	The Meeting considered that this task is associated to task 2.1 as included in the SAM Region ATS routes network optimization action plan. Therefore it was decided to eliminate it.

7. Training	Start	End	Responsible party	Remarks
7.1 Develop a training and documentation programme for operators (pilots, dispatchers and maintenance personnel)	SAM/IG/4	SAM/IG/5	Regional Project RLA/99/901	Completed The matters to be incorporated into each one of the training programmes of operators have been included in the corresponding advisory circulars
7.2 Develop a training and documentation programme for air traffic controllers and AIS operators	SAM/IG/4	SAM/IG/5	SAM/PBN/IG (Project RLA/06/901)	RLA/06/901 should execute this task.
7.3 Develop a training programme for regulators (aviation safety inspectors)	SAM/IG/4	SAM/IG/5	RLA/99/901 States	Completed The SRVSOP technical committee has proposed a training programme oriented to the authorities
7.4 Conduct training programmes	SAM/IG/5	SAM/IG/6	States	Valid Only some States have initiated this process.
7.5 Conduct seminars for operators, explaining plans and expected operational and economic benefits	SAM/IG/1	SAM/IG/6	States	Valid There is information that only some States have initiated the guidance process to users, and therefore all States are encouraged to implement the dissemination programme among such users.

8. Implementation decision	Start	End	Responsible party	Remarks
8.1 Assess the available operational documentation (ATS, OPS/AIR)	SAM/IG/5	N/A	States	
8.2 Assess the percentage of aircraft and operators (non-exclusionary airspace)	SAM/IG/5	N/A	States	
8.3 Analyze the results of the safety assessment	SAM/IG/5	N/A	States	
8.4 Publish trigger NOTAM	Nov/2010	N/A	States	

9. Performance monitoring system	Start	End	Responsible party	Remarks
9.1 Develop a post-implementation en-route operations monitoring programme	SAM/IG/4	SAM/IG/5	SAM/PBN/IG (Project RLA/06/901)	
9.2 Implement a post-implementation en-route operations monitoring programme	Nov/2010	Nov/2011	States	
Pre-operational implementation date	18 November 2010	N/A		SAM/IG/4 defined the tentative implementation date 18 November 2010.
Definitive implementation date	Nov/2011	N/A		