



SAM/IG/3
WP/05
18/02/09

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

**THIRD WORKSHOP/MEETING OF THE SAM IMPLEMENTATION GROUP (SAM IG/3)
REGIONAL PROJECT RLA/06/901**

Lima, Peru, 20 to 24 April 2009

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

PBN EN-ROUTE ACTION PLAN (RNAV 5)

(Presented by the Secretariat)

Summary

This working paper proposes to the meeting a revision of the progress reached regarding the En-route PBN action plan (RNAV 5).

References:

- Second Workshop/Meeting of the SAM Implementation Group (SAM/IG/2)
- Project RLA/06/901; and
- En-route PBN Action Plan.

ICAO Strategic Objectives:

- A** *Safety*
- C** *Environmental Protection*
- D** *Efficiency*

1. Introduction

1.1 SAM/IG/1 Meeting agreed to Conclusion SAM/IG/1 - *CAR/SAM PBN Roadmap*, which indicates that ICAO SAM States, in implementing RNAV/RNP, take the pertinent actions to follow guidelines contained in the *CAR/SAM PBN Roadmap*.

1.2 It was also of the opinion that States must prepare their own PBN implementation plans including regional planning, as shown in the roadmap. These national implementation plans should count, among other matters, with the action plans, and include activities related, dates and responsible persons for each activity.

1.3 SAM/IG/2 Meeting, on the other hand, examined PBN Implementation Project – Short Term En-route operations for the SAM Region and the associated PBN en-route regional action plan (RNAV 5), introduced the changes deemed pertinent, established responsible persons and start/end dates for different activities and adopted it as guidance material to be followed by States.

2 Discussion

2.1 In view that the PBN en route action plan (RNAV-5) considers tasks in charge of previously defined responsible persons, with established compliance dates a periodical review of it becomes necessary so as to follow up on tasks complied with by each of the designated responsible by the Implementation Group. To this end, **Appendix A** to this working paper shows the tasks that should be complied with by the time of this third implementation meeting. This analysis should be carried out also taking as reference WP/02.

3 Suggested action

3.1 The meeting is invited to:

- a) Take note of the information provided herein; and
- b) Examine the progress achieved, and if applicable, update the PBN en route (RNAV-5) action plan that is 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/2	SAM/PBN/IG (Project RLA/06/901)	In process
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	In process. Survey sent to 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/3	SAM/PBN/IG (Projects RLA/06/901 and RLA/99/901) States	In process
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	Initial study presented in WP/04
2. Develop a performance measurement plan	Start	End	Responsible party	Remarks
2.1 Draft a plan to measure performance, including gas emissions, safety, efficiency, etc.	SAM/IG/2	SAM/IG/4	SAM/PBN/IG (Project RLA/06/901)	In process

2. Develop a performance measurement plan	Start	End	Responsible party	Remarks
2.2 Implement the performance measurement plan	Nov/2010	Permanent	SAM/PBN/IG (Project RLA/06/901) States IATA	No activity has been initiated

3 Safety assessment	Start	End	Responsible party	Remarks
3.1 Determine the methodology to be used to assess airspace safety and route spacing, based on the navigation specification, taking into account airspace modelling, ATC simulations (fast time and/or real time), live tests, etc.	SAM/IG/2	SAM/IG/4	CARSAMMA Project RLA/06/901	RLA/06/901 in order to provide guidance material to CARSAMMA
3.2 Develop a data collection programme to assess airspace safety	SAM/IG/2	SAM/IG/4	CARSAMMA Project RLA/06/901	RLA/06/901 in order to provide guidance material to CARSAMMA
3.3 Prepare the preliminary airspace safety assessment	SAM/IG/2	SAM/IG/4	CARSAMMA Project RLA/06/901	RLA/06/901 in order to provide guidance material to CARSAMMA
3.4 Prepare the final airspace safety assessment	SAM/IG/4	Nov/2010	CARSAMMA	

4	Establish a collaborative decision-making process (CDM)	Start	End	Responsible party	Remarks
4.1	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
4.2	Establish the implementation date	SAM/IG/1	SAM/IG/4	SAM/PBN/IG States	States must analyze the feasibility of the tentative date in coordination with domestic operators and military authorities
4.3	Establish the documentation format in the SAM PBN website	SAM/IG/1	SAM/IG/2	SAM Regional Office	Completed
4.4	Report planning and implementation progress to the corresponding Regional Office	SAM/IG/2	SAM/IG/4	SAM/PBN/IG States	No information has been received on this regard
5	ATC automated systems	Start	End	Responsible party	Remarks
5.1	Assess PBN implementation in ATC automated systems, taking into account amendment 1 to the PANS/ATM (FPLSG).	June/2008	SAM/IG/4	SAM/PBN/IG (Project RLA/06/901)	Assign task to the Project GREPECAS assigned the task to CNS/ATM Subgroup
5.2	Implement the necessary changes in ATC automated systems	SAM/IG/2	TBD	States	

6	Aircraft and operator approval	Start	End	Responsible party	Remarks
6.1	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
6.2	Publish national regulations for the implementation of the RNAV-5 navigation specification	SAM/IG/2	SAM/IG/3	States	States should publish on April 2009
6.3	Begin the approval of aircraft and operators	SAM/IG/3	SAM/IG/5	States	
6.4	Establish and keep up to date a registry of approved aircraft and operators	SAM/IG/3	Permanent	CARSAMMA States	
6.5	Verify the operation of the continuous monitoring programme (aircraft and procedures)	Nov/2010	Permanent	States	
7	Standards and procedures	Start	End	Responsible party	Remarks
7.1	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
7.2	Finalize WGS-84 implementation	TBD	TBD		AIS provide information
7.3	Develop an AIC model to report PBN implementation plans	June/2008	SAM/IG/2	SAM/PBN/IG (Project RLA/06/901)	Completed
7.4	Publish the AIC reporting PBN implementation plans	SAM/IG/2	SAM/IG/3	States	States should publish on 9 April 2009

7	Standards and procedures	Start	End	Responsible party	Remarks
7.5	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)	
7.6	Publish the AIP Supplement containing applicable standards and procedures, including the corresponding in-flight contingencies	SAM/IG/5	SAM/IG/6	States	
7.7	Review the Procedural Handbook of the ATS units involved	SAM/IG/5	SAM/IG/6	States	
7.8	Update the letters of agreement between ATS units	SAM/IG/5	SAM/IG/6	States	
7.9	Develop an amendment to regional documentation, if necessary	SAM/IG/3	SAM/IG/4	SAM/PBN/IG (Project RLA/06/901)	
7.10	Submit a proposal of amendment to Doc. 7030, if necessary	SAM/IG/5	SAM/IG/6	SAM Regional Office	
7.11	Review practices and procedures to improve fuel consumption management and environmental protection	SAM/IG/1	Permanent	SAM/PBN/IG (Project RLA/06/901)	

8.	Training	Start	End	Responsible party	Remarks
8.1	Develop a training and documentation programme for operators (pilots, dispatchers and maintenance personnel)	SAM/IG/4	SAM/IG/5	Regional Project RLA/99/901	
8.2	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)	

8. Training	Start	End	Responsible party	Remarks
8.3 Develop a training programme for regulators (aviation safety inspectors)	SAM/IG/4	SAM/IG/5	States	
8.4 Conduct training programmes	SAM/IG/5	SAM/IG/6	States	
8.5 Conduct seminars for operators, explaining plans and expected operational and economic benefits	SAM/IG/1	SAM/IG/3	States	

9. Implementation decision	Start	End	Responsible party	Remarks
9.1 Assess the available operational documentation (ATS, OPS/AIR)	July/2010	N/A	States	
9.2 Assess the percentage of aircraft and operators (non-exclusionary airspace)	July/2010	N/A	States	
9.3 Analyze the results of the safety assessment	July/2010	N/A	States	
9.4 Publish trigger NOTAM	Nov/2010	N/A	States	

10. Performance monitoring system	Start	End	Responsible party	Remarks
10.1 Develop a post-implementation en-route operations monitoring programme	SAM/IG/4	SAM/IG/5	SAM/PBN/IG (Project RLA/06/901)	
10.2 Implement a post-implementation en-route operations monitoring programme	Nov/2010	Nov/2011	States	
Pre-operational implementation date	Nov/2010	N/A		
Definitive implementation date	Nov/2011	N/A		