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WP/05
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International Civil Aviation Organization
South American Regional Office

FIRST WORKSHOP/MEETING OF THE SAM IMPLEMENTATION GROUP (SAM IG/1)
REGIONAL PROJECT RLA/06/901

Lima, Peru, 21 to 25 April 2008

Agenda Item 1: Optimization of the ATS routes structure in Terminal and en-route airspace and implementation of performance based navigation (PBN) in the SAM Region.

ACTION PLAN FOR THE IMPLEMENTATION OF RNAV/5 FOR EN-ROUTE OPERATIONS

(Presented by the Secretariat)

Summary

This working paper presents the action plan for PBN implementation for en-route phase.

References:

- GREPECAS/14 Report.
- AP/ATM/13 Report.

1 Background

1.1 Keeping in mind that en-route PBN implementation will involve more than one State/Territory/International Organization, it will be appropriate that the SAM implementation working group applies RNAV and RNP navigation specifications, as per the needs and requirements of each ATM homogeneous or main traffic flow areas.

1.2 States/Territories/International Organizations concerned must prepare their own PBN implementation plans, which include regional planning as shown in the roadmap. These national implementation plans shall have, among other issues, the action plans that include those activities related, dates and responsible of each activity.

2 **Discussion**

2.1 Taking into account the aforementioned, during the AP/ATM/13 Meeting, action plans were developed for PBN, en-route, terminal and approach processes.

2.2 The corresponding action plan to en-route phase as shown in **Appendix A** to this working paper, shall serve as model for the SAM PBN Implementation Group, as well as a guidance for States/Territories/International Organizations.

3 **Suggested action**

3.1 The meeting is invited to:

a) Take note of the information provided in this working paper, and

b) Consider the action plan model shown in Appendix A for PBN implementation corresponding to en-route phase.

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APPENDIX A

PBN en-route Action Plan
GPI 1, 4,5, 7, 8, 10, 11, 12, 16, 21,23

1.	**Airspace structure**	**Start**	**End**	**Remarks**
1.1	Collect air traffic data, in order to identify all possible improvements to traffic flows			
1.2	Analyse navigation capability of the fleet			
1.3	Optimise the current airspace structure in accordance with the implementation needs of PBN concept			
1.4	Reorganise the network or implement new routes based on the analysis of the PBN concept, as necessary			
1.5	Coordinate new airspace structure with the users, as necessary.			
2.	**Prepare Cost-Benefit analysis**			
2.1	Prepare Preliminary Cost-Benefit analysis			
2.2	Prepare Final Cost-Benefit analysis			
3.	**Airspace safety assessment**			
3.1	Determine which methodology shall be used to evaluate airspace safety and ATS routes depending on the navigation specification			
3.2	Prepare a data collection programme for airspace safety assessment			
3.3	Prepare preliminary airspace safety assessment			
3.4	Prepare final airspace safety assessment			

3.5	Determine and carry out ATC simulations, and report results to the ATM Committee, as necessary.			
4.	**Establish collaboration decision making (CDM) process**			
4.1	Coordinate implementation need s with ATS users, aircraft operators and military authorities			
4.2	Establish implementation date			
4.3	Establish the documentation format of CAR/SAM RNAV/RNP Website			
4.4	Report implementation progress to the corresponding Regional Office			
5.	**ATC Automated Systems**			
5.1	Evaluate the PBN implementation in the ATC Automated Systems			
5.2	Implement the necessary changes in the ATC Automated Systems			
6.	**Aircraft and operators approval**			
6.1	Be aware of the national implementation programme and of the required navigation specifications			
6.2	Analyse aircraft approval requirements, crews and operators requirements for en-route navigation specifications (terminal/approach areas) as established in PBN manual			
6.3	Publish process of operational approval			
6.4	Aircraft and operators approval (for each type of procedures and specification)			
6.5	Establish and keep up to date a registry of approved aircraft and operators			

6.6. Verify the operation within the continuous monitoring plan (aircraft and procedures)			
7. Standards and Procedures			
7.1 Evaluate regulations for GNSS use, and if such were the case, proceed to its publication.			
7.2 Develop and publish AIC notifying PBN implementation planning			
7.3 Publish AIP Supplement including applicable standards and procedures			
7.4 Review Procedural Manuals of the ATS units involved			
7.5 Update Letters of Agreement between ATS units			
7.6 Periodically review of the development regarding the actions for ACAS/TCAS Advisories for RNAV/RNP operations			
7.7 Develop regional documentation			
7.8 Inform the procedures to accommodate non-approved RNAV/RNP domestic aircraft, when applicable			
7.9 Identify transition areas and procedures, if necessary			
7.10 Conduct ATC simulations to identify the workload/operational factors, if necessary, and report the simulations activities to the ATM Committee			
7.11 Provide procedures to manage non-approved aircraft (including first delivery, humanitarian, maintenance flights, etc.)			
7.12 Revision of practices and procedures to improve fuel consumption management and environmental care			
8. Training			

8.1 Develop a training programme and documentation for dispatchers and maintenance			
8.2 Develop training programme and documentation for Air Traffic Controllers and AIS Operators			
8.3 Conduct training programmes (pilots, air traffic controllers, AIS operators)			
8.4 Hold seminars oriented to operators, indicating the plans and the operational and financial benefits expected			
9. Decision for implementation			
9.1 Evaluate operational documentation availability (ATS, OPS/AIR)			
9.2 Evaluate approved aircraft and operations (compliance of the % operations established - see 6.4)			
9.3 Implement regional improvements (RNAV, RNP, WGS-84, etc).			
9.4 Publish "trigger" NOTAM			
10. System Performance Monitoring			
10.1 Develop post-implementation en-route operations monitoring programme			
10.2 Execute post-implementation en-route operations monitoring programme			
Pre operational implementation date			
Definitive implementation date			