



Agenda Item 6: Other business

Verification protocol to airspace design implementation based on PBN

(Presented by Uruguay)

SUMMARY	
The object of this working paper is to present a Project Guide in order to establish a verification Protocol about PBN Implementation, trying to comply these responsibilities concerning the operational surveillance related to the airspace reorganization	
References:	
<ul style="list-style-type: none">• Safety Oversight Manual Doc. 9734• Performance -based Navigation Manual Doc 9613• Manual on the use of Performance Base Navigation Doc 9992• Safety Management Annex 19	
ICAO strategic objectives:	<i>A - Safety</i> <i>B - Air navigation capacity and efficiency</i> <i>D – Air transport economic development</i> <i>E – Environmental protection</i>

1. Introduction

1.1 The Global Air Navigation Plan (Doc. 9750) established that PBN implementation should be the top priority of Planning and Implementation Regional Groups (PIRGs) as well those of States.

1.2 In such sense States have committed, by signing the Bogota Declaration, which establishes specific goals about PBN implementation in accordance with 37th ICAO Assembly Resolution A37-11, as well other goals that would provide users a more efficient and safe airspace.

1.3 Safety oversight is defined as a function by means of which States ensure effective implementation of safety-related Standards and Recommended Practices (SARPS) and associated procedures contained in the Annexes to the Convention on International Civil Aviation and related ICAO documents.

2. Discussion

2.1 Critical elements (CE) are essentially the safety defence tools of a safety oversight system and are required for the effective implementation of safety-related policy and associated procedures.

2.2 According to Annex 19, Ap. 1 par. 6, State shall implement documented processes and procedures to ensure that the personnel and organizations performing an aviation activity meet the established requirements, before they are allowed to exercise the privileges of a licence, certificate, authorization and/or approval to conduct the relevant aviation activity.

2.3 Moreover, provisions of Doc. 4444 - PANS-ATM require that an ATS safety operational management system includes among other things:

- ➔ Operational safety assessments concerning implementation of airspace reorganization, introduction of new equipment, systems or installations as well as new or modified ATS procedures.

2.4 It is of essential importance, in order to be able to implement an effective and balanced new airspace concept, that States verify planning, design, validation, pre-implementation processes and keep monitoring the post- implementation, in order to guarantee the efficiency and operational safety.

3. **Suggested action:**

3.1 The Meeting is invited to:

- a) take note of the information provided in **Appendix A**;
- b) Analyse and duly contribute in order that the document (Guide Procedure to implementation PBN inspection) can be approved and apply same for States to carry forward the mentioned process.

**VERIFICATION PROTOCOL
TO AIRSPACE DESIGN IMPLEMENTATION BASED ON PBN**

References	Questions	Orientation	Impl State	Obs
Doc. 9613 Part B Navigation based on performance concept Chapter 1 Introducing the implementation process 1.2.1	1. On the PBN implementation project organization, were the phases fulfilled correspondingly?	Detail the process and phases developed.		
Doc. 9613 Part B Navigation based on performance concept Chapter 2 Process 1 2.2.1 Process 1 Information	2. Was the airspace concept defined with enough details to be able to identify and could the navigation functions be supported?	<ul style="list-style-type: none"> • Show the inputs supplies to Process 1 such as: 1.) Strategic objectives 2.) The operational needs based on airspace users 3.) The rules referred to environmental mitigation 		
Doc. 9613 Cap.2 2.3.1 Doc.9992 2.2.2.2	3. Did you define the Team?	<ul style="list-style-type: none"> • Detail integration • Detail the selection criteria 		
Doc.9613 Chap.1 Step 1 Formulate airspace concept	4. Which were the factors that had been included to establish the airspace concept?	<ul style="list-style-type: none"> • Detail factors 		
Doc. 9613 Chap.2 Process 1	5. What was considered by the Team to establish the airspace concept?	<ul style="list-style-type: none"> • Show the analysis and the determination about operative requirements, • Show the methods to communicate to airspace users the requirements and availability (contingency) about service • Show transition plan to the new air space concept 		
Doc. 9613 Step 1 Formulate the concept Rec 2 Airspace requirements	6. How were airspace requirements identified?	<ul style="list-style-type: none"> • Show the air traffic increase statistics • Show the compilation data • Flows and composition of same • Surveillance evaluation, communications and navigation infrastructure available in airspace 		

Doc. 9613 Rec 3 – Approach requirements	7. Were there considered the existing capacity about regional aircrafts?	<ul style="list-style-type: none"> • Show fleet analysis. • Evidence the approach type determinations required about the fleet 		
Doc. 9613 Rec4 – Others requirements Doc.9992 2.2.1Agreements operational requirements	8. Show what other requirements were considered	<ul style="list-style-type: none"> • Show the environmental factors that could require considerations and adaptation. • Any impact foreseen about flight plan presentation or treatment. 		
Doc. 9613 STEP 2 Fleet evaluation existing and capacity about navegation infrastructure aids available	9. How did you determinated the application type feasible to the users?	<ul style="list-style-type: none"> • Airplanes fleet capacity evaluation • Navegation infrastructure aids evaluation 		
Doc. 9613 Step 3 Actual System Surveillance Evaluation and ATS communications and ATM System	10. Considering that an air traffic system is the result of CNS/ATM, and the available capacities, did you elaborate an evaluation o its availability?	<ul style="list-style-type: none"> • Show availability evaluation about communications between the aircraft and the air transit services provider • Show surveillance infrastructure evaluation about ATS that is available to support the operation 		
Doc. 9613 Chapter 2 Specifications identification	11. Concerning the output of Process 1, what did the planners consider about the revision of one or more possible specifications?	<ul style="list-style-type: none"> • Show the evidences about revisions if they were any 		
Doc. 9992 2.3 Design Fase 2.3.1.8	12. Was there a close cooperation among all interested parties involved in the design process?	<ul style="list-style-type: none"> • Show the interactive character in the different activities. Ex: CNS/ATM restrictions if any 		
Doc. 9613 3.2 Process 2 Information	13. Was there a Safety Operacional Plan to the Implementation Plan before beginning with the validation phase?	<ul style="list-style-type: none"> • Show risk evaluation • SMS Members • Safety Documents 		
Doc. 9992 2.4 Validation Fase 2.4.2.3	14. Was the Validation Process complied?	Show how: a) air space modelling b) reduced time simulation (FTS) c) real ATC trials; d) flight simulation		

Doc.9613 3.3.1.1	15. In reference to the general airspace concept and design, did the project objectives were achieved?	<ul style="list-style-type: none"> • Verify the ATM operations evidence on the new airspace • If any weak points were identified, show mitigations measures • Show the control about every procedure in an independent form to guarantee the comply of design criteria 		
Doc. 9992 2.3 Implementation Face 2.5.1.2	16. Which were the factors that had been considered to decide about the implementation?	Show the evidence of the selection of factors considered decisive		
Doc. 9992 2.5.3 Becoming aware and instruction materials	17. What kind of training were done to ATCOs?	<ul style="list-style-type: none"> • Show registered training evidence • Show if were considered the FFHH 		
Doc.9613 3.3.3.3	18. Once validated and inspected the procedures, were there published on national AIP jointly with the changes made on routes, waiting areas or airspace structure	<ul style="list-style-type: none"> • Evidence AIRAC or amendment AIP 		
Doc. 9992 2. 2.5.4 Implantation	19. Did you elaborate a procedure on implementation planning?	<ul style="list-style-type: none"> • Show the PBN Implantation Plan 		
Doc.9992 2.5.5	20. Have you planned an evaluation about the operational safety system for the post-Implantation?			