



**Agenda Item 2: Report of activities of the GESEA and Subgroups**

b) ATM implementation. Progress of the Subgroups

**REGIONAL GUIDANCE ON IMPLEMENTATION OF AIRSPACE CONCEPTS**

(Prepared by Brazil)

**SUMMARY**

This working paper aims to present to development of Part II (Implementation of airspace concepts) of the Airspace planning guidance manual for the SAM Region.

**References:**

- SAM/IG meetings
- GREPECAS/18 Meeting
- Doc 9613 – Performance-Based Navigation (PBN) Manual
- Doc 8168 – PANS-OPS/611, ICAO Volume I and II
- Doc 9992 – Manual on the use of performance based navigation (PBN) in Airspace Design
- ERNIP – European route network improvement Plan. Part I – Airspace design methodology guidelines
- ICA 100-44 (BRAZIL) – Conceito de Espaço Aereo.

**1. Background**

1.1. Airspace planning requires several competences and skills for the new operational scenario and the new en-route and TMA traffic to meet the strategic objectives established for a given airspace concept implementation project: collection and analysis of air traffic data; understanding of the geographical distribution of flows, air traffic mix and aircraft performance; definition of new arrival and departure flows for an aerodrome, definition of the route structure and air navigation procedures, among other aspects.

1.2. Airspace concept implementation projects are directly affected by airspace organization techniques and by the performance of the specialist responsible for airspace planning, since the development of operational scenarios, which describe the organization of airspace and air traffic, are directly related to the airspace planning activity. This is the main task to be developed for the professionals who perform it.

1.3. However, there is still no regional standard (or guide) on airspace planning, nor is there an adequate course of training for airspace specialist, which has created obstacles to the efficient implementation of airspace concepts in South America:

- a) Lack of alignment with international best practices;
- b) different TMA/CTRs structured with different airspace organization techniques;
- c) delays, rework and difficulties in the implementation of airspace concepts;
- d) dissatisfaction and disbelief of users in general (ATCO, pilots, airlines, etc.).

1.4. During the SAM/IG/25 meeting in November 2020, a proposal (Job Card) was approved for the formulation of regional standards and guidelines on airspace planning, as well as course and training for specialist for the development of this activity, in order to solve this important gap that currently exists with respect to airspace planning in South America.

## 2. Development of airspace planning guidance manual for the SAM Region

2.1. As part of the actions carried out through Project RLA/06/901, regarding the optimization of the airspace concepts implementation process in the SAM Region, the ICAO SAM Regional Office requested the mission of an ATM specialist to develop the tasks of the Job Card “Airspace Planning” of activity SG1/PANSOPS/01/2020 of the GESEA (Airspace Study Group) work plan 2022:

- a) Develop an airspace planning manual for the SAM Region containing, in its first part, the harmonized techniques for the organization of the airspace structure (trajectories, airspaces, FUA PBN concept, etc.);
- b) develop and deliver a workshop on airspace planning for specialist from the SAM Region States presenting harmonized techniques for organizing airspace structure (trajectories, airspaces, FUA, PBN concept, etc.);
- c) elaborate, as a second part of the manual, the text on implementation of airspace, concepts, containing harmonized guidelines and best practices in this area; and
- d) develop a training course for SAM Region specialist on airspace planning and project management of airspace concepts.

2.2. In 2022 the missions described in item a) and item b) above, dealing with airspace planning techniques, were developed. The “SAM Region airspace planning guidance manual, Part I: Airspace planning techniques” draft version 1.5 can be found at the following GESEA channel link (PDF version):

<https://oaci.sharepoint.com/:b:/r/sites/SAM-CAR-ANS-GESEA/Shared%20Documents/GESEA/1%20GESEA%20SECRETARIAT/%20%20G%20E%20S%20E%20A%20y%20SGs%20folders/S%20G%201%20PLAN%20ESP%20AER/2022%202023%20Mision%20MANUAL%20PLAN%20EA%20y%20TALLER/MANUAL%20trabajos%20INF%20mision/MANUAL%20GUIA/MANUAL%20MASTER/Gu%C3%ADa%20Regional%20PEA%20-%20Parte%201%20draft%201.5%20x%2028%20abril.pdf?csf=1&web=1&c=3JLS2w>

2.3. That year, the objective was to develop the Guidance manual on implementation of Airspace concepts, which should contain requirements and criteria concerning the implementation process of CEA projects: Planning phase, Design phase, Validation phase and Implementation phase.

2.4. The work was carried out between April 17 and 28, 2023, at the ICAO SAM Regional Office, located in Lima, Peru, which provided all the facilities, equipment and documentation necessary for the development of this task. Coordination was maintained at the times with the ATM/SAR Officer Mr. Fernando Hermoza, who gave guidance for the development of the work, as well as verified the daily progress.

2.5. The work of the Job Card “Airspace planning” is expected to be completed in August 2023 with the completion of a workshop on Airspace planning and project management of airspace concepts for specialists from the SAM Region.

### 3. **Activities performed**

#### *Work preparation and planning stage*

3.1. The work plan, objectives, project scope and deliverable: SAM Region airspace planning guidance manual, Part II, Implementation of airspace concepts.

3.2. In order to obtain this guide, the following documentation was consulted:

- ✓ International Civil Aviation Organization. Manual on the use of Performance Based Navigation (PBN) in airspace design. Doc 9992 AN/424. First Edition. 2013.
- ✓ International Civil Aviation Organization. Performance-Based Navigation (PBN) Manual. Doc 9613 AN/937. Fourth Edition. 2013.
- ✓ EUROPEAN COMMISSION. EUROCONTROL. European Route Network Improvement Plan (ERNIP). Part 1 – Airspace design methodology guidelines. Edition 2.6. 2022.
- ✓ BRAZIL, Comando da Aeronáutica. Department of Airspace Control. Coceito de Espaço Aéreo: ICA 100-44. [Rio de Janeiro], 2021.

#### *Development of the guide*

3.3. Work was carried out on the preparation of a guide on the implementation of airspace concepts to provide common techniques and criteria for the correct and harmonious implementation of new airspace concept projects. Content has been produced for the following phases on the implementation process:

- a) Planning phase;
- b) Design phase;
- c) Validation phase
- d) Implementation phase.

#### **Results**

3.4. At the end of the work period, the draft 0.0 “SAM Region Airspace planning guidance manual, Part II: Implementation of airspace concepts” was prepared, including all the topics listed in the previous item. A PDF version of the document is available at the following GESEA channel link:

[https://oaci.sharepoint.com/:b:/r/sites/SAM-CAR-ANS-GESEA/Shared%20Documents/GESEA/1%20GESEA%20SECRETARIAT/\\_%20%20G%20E%20S%20E%20A%20y%20SGs%20folders/S%20G%201%20PLAN%20ESP%20AER/2022%202023%20Mision%20MANUAL%20PLAN%20E%20y%20TALLER/MANUAL%20trabajos%20INF%20mision/MANUAL%20GUIA/MANUAL%20MASTER/Gu%C3%ADa%20Regional%20PEA%20-20Parte%202%20draft%200.0%20x%2028%20abril%202023.pdf?csf=1&web=1&e=mXBnIs](https://oaci.sharepoint.com/:b:/r/sites/SAM-CAR-ANS-GESEA/Shared%20Documents/GESEA/1%20GESEA%20SECRETARIAT/_%20%20G%20E%20S%20E%20A%20y%20SGs%20folders/S%20G%201%20PLAN%20ESP%20AER/2022%202023%20Mision%20MANUAL%20PLAN%20E%20y%20TALLER/MANUAL%20trabajos%20INF%20mision/MANUAL%20GUIA/MANUAL%20MASTER/Gu%C3%ADa%20Regional%20PEA%20-20Parte%202%20draft%200.0%20x%2028%20abril%202023.pdf?csf=1&web=1&e=mXBnIs)

3.5. The guidance manual developed was delivered to the ATM/SAR Officer of the Lima Office, Mr. Fernando Hermoza, and will also be sent to the GESEA General Coordinator as one of the deliverables of activity SG1/ PANSOPS/01/2020 of the 2022 Work plan of that group.

3.6. It is emphasized that the guide developed is a first version. Contributions are expected from other specialists, concerned working groups and SAM States to enrich the material so that it can be used to optimize the process of implementation of airspace concepts in the SAM Region.

3.7. Finally, it is important to highlight that the Guide for the implementation of airspace concepts will be the basis for a workshop on the same topic (Task 4 of the Job Card “Airspace Planning”), which is scheduled to be held in August 2023, in Lima, Peru. It is expected that, in addition to the training of specialists from the SAM Region, it will also be possible to receive suggestions and make improvements to the material developed, so that it remains in accordance with international practices and more adequate to the standards considered in the SAM States.

#### 4. **Suggested actions**

4.1. The Meeting is invited to review the information provided and make comments and/or suggestions that may assist in the process of developing the MAR Region airspace planning guidance manual.

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