



# Virtual Meeting ADS-B/ANP/1 (02 – 04 March 2022)

**Agenda Item 2**  
**Instructions for use of the Template of**  
**Volume III of the Regional Air Navigation Plan CAR/SAM ANP**



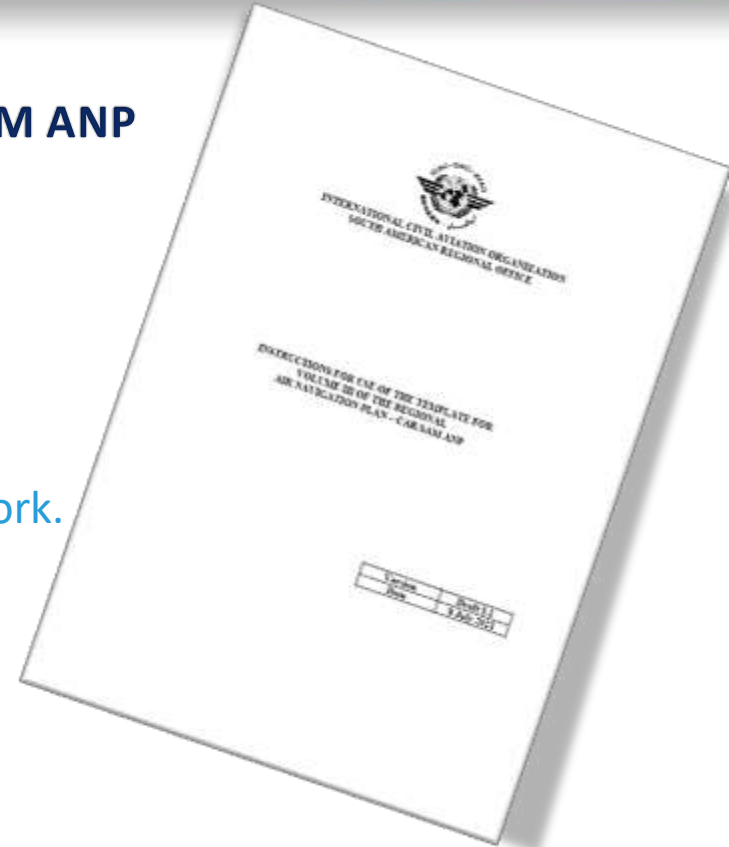


## Instructions for use of the Template of Volume III of the Regional Air Navigation Plan CAR/SAM ANP

- GANP 6<sup>th</sup> edition (web)
- How to use VOL III Templates



- Descriptions and procedures.
- Summary of performance framework.
- Available tools and application.





## Background

LINK: <https://www.icao.int/NACC/Pages/meetings-2021-pprc3.aspx>

Third GREPECAS Programmes and  
Projects review Committee (PPRC)  
Virtual Meeting (ePPRC/03)  
16 – 17 August 2021

MINUTE (PDF)  
Appendix F

DRAFT CONCLUSION ePPRC/03/08		PARTICIPATION OF STATES IN ACTIVITIES FOR THE ELABORATION OF ANP CAR/SAM VOLUME III	
<b>What:</b> That, States			<b>Expected impact:</b> <input type="checkbox"/> Political / Global <input checked="" type="checkbox"/> Inter-regional <input type="checkbox"/> Economic <input type="checkbox"/> Environmental <input checked="" type="checkbox"/> Operational/Technical
a) adopt the instructions for the use of template of air navigation regional plan – ANP CAR/SAM, Volume III;			
b) appoint or ratify their focal points/teams to act as counterparts to the Secretariat and communicate such nomination to the correspondent Regional Office by 20 October 2021; and			
c) ensure the active participation of focal points/task forces in the activities assisted by the Secretariat for the development of Volume III.			
<b>Why:</b>	Standardize the understanding and practical application of the six-step approach to performance-based planning by air navigation specialists from the States of the CAR/SAM Regions, in the process of filling out the Tables of Vol. III. Likewise, to obtain a homogeneous application of the Template of Vol. III and simplify the formulation of the Tables and texts.		
<b>When:</b> By 20 October 2021		<b>Status:</b>	<input checked="" type="checkbox"/> Valid / <input type="checkbox"/> Superseded / <input type="checkbox"/> Completed
<b>Who:</b> <input checked="" type="checkbox"/> States <input checked="" type="checkbox"/> ICAO <input type="checkbox"/> Other:			



Nineteenth Meeting of the CAR/SAM  
 Regional Planning and Implementation  
 Group - GREPECAS/19  
 Online, 27 – 29 October 2021

CONCLUSION GREPECAS 19/05		COMPLETION OF CAR/SAM AIR NAVIGATION PLAN (ANP) VOLUME III
<b>What:</b> That,  a) States adopt the "Instructions for the use of template of air navigation regional plan – ANP CAR/SAM, Volume III";  b) States appoint or ratify their focal points/work teams to act as counterparts of the Secretariat and communicate such nomination to the correspondent Regional Office by <b>30 November 2021</b> ;  c) States ensure the active participation of focal points/work team in the activities assisted by the Secretariat for the development of Volume III; and  d) States and Regional Offices complete the development and approval of Vol III in <b>the first semester of 2022</b> .	<b>Expected impact:</b> <input type="checkbox"/> Political / Global <input checked="" type="checkbox"/> Inter-regional <input type="checkbox"/> Economic <input type="checkbox"/> Environmental <input checked="" type="checkbox"/> Operational/Technical	
<b>Why:</b> To achieve a planning aligned with the Global Air Navigation Plan (GANP), according to the needs of efficiency, balance between demand and capacity of the States, to ensure interoperability of the air navigation services and facilities of the CAR/SAM Regions with the rest of the world, for an orderly and safe development of regional aviation and to be able to benefit from new technologies in a cost-efficiently manner.		
<b>When:</b> By 31 July 2022	<b>Status:</b> <input checked="" type="checkbox"/> Valid / <input type="checkbox"/> Superseded / <input type="checkbox"/> Completed	
<b>Who:</b> <input checked="" type="checkbox"/> States <input checked="" type="checkbox"/> ICAO <input type="checkbox"/> Other:		

<https://www4.icao.int/ganpportal/>

## MULTILAYER STRUCTURE OF THE GANP

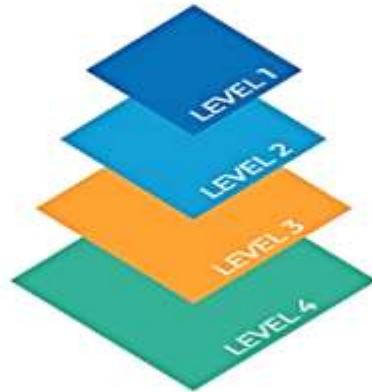
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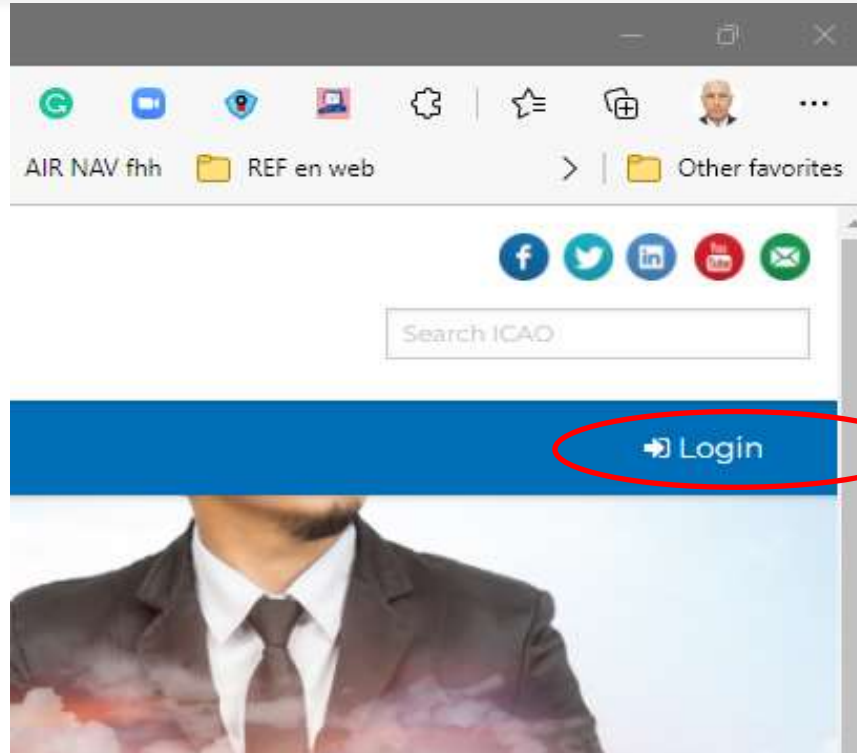
GLOBAL STRATEGIC

GLOBAL TECHNICAL

REGIONAL

NATIONAL





Please Login  
Activating  
AN SPA  
tool



## GLOBAL STRATEGIC



Provides high-level strategic directions for decision makers to drive the evolution of the global air navigation system towards a common agreed vision.



GANP STRATEGY

The global strategic level provides high-level strategic direction for decision makers to drive the evolution of the global air navigation system.

To this end, the global strategic level includes a common vision, global performance ambitions and a conceptual roadmap.



**GLOBAL TECHNICAL** ×

Supports technical managers in planning the implementation of basic air navigation services and new operational improvements in a cost-effective manner.



ASBUs & PF AN-SPA BBBs

**a. two global technical frameworks:**

- the **Basic Building Blocks (BBB) framework**, which outlines the foundation for a robust air navigation system by defining the essential air navigation services that shall be provided for international civil aviation; and
- an **updated version of the ASBU framework** for scalable implementation, which provides the aviation community with the performance benefits expected from the implementation of specific air navigation operational improvements.

**b. an associated performance framework**, which includes a catalogue of performance objectives and a list of key performance indicators; and

**c. a performance-based method** for implementation planning of air navigation operational improvements, including a catalogue of performance objectives and indicators.



## REGIONAL ×

Addresses regional and sub-regional needs aligned with the global objectives.



AFI ANP



APAC ANP



EUR ANP



MID ANP



NAM ANP



NAT ANP



CARSAM ANP

## NATIONAL ×

Development by States, in coordination with relevant stakeholders, of air navigation plans aligned with regional and global plans.



NANP  
TEMPLATE

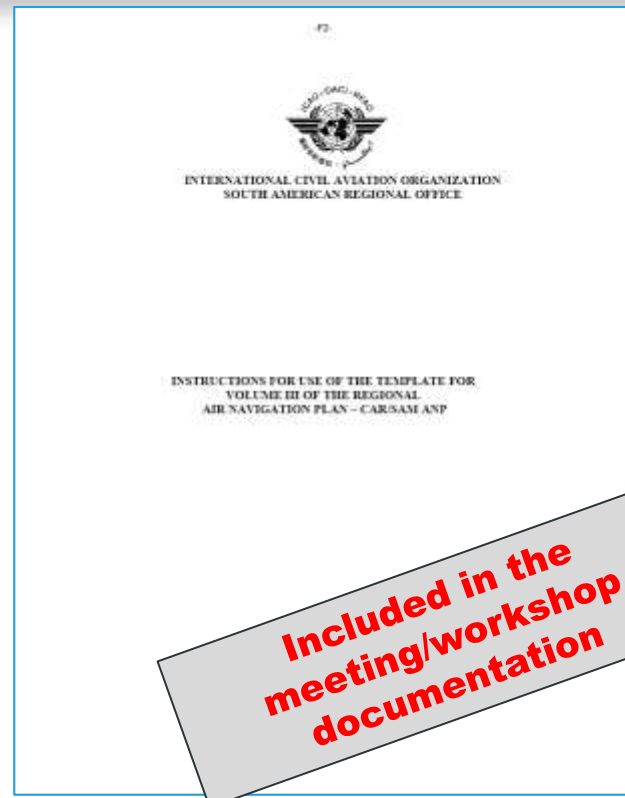


CBA  
CHECKLIST



## Instructions for use of the Template of Volume III of the Regional Air Navigation Plan CAR/SAM ANP

- Objectives
- VOL. III Template
- Six step method – Doc 9883
- Personnel and data requirements
- Key performance areas
- Key performance indicators
- ASBU framework
- Procedures: Planning and implementation in progress
- Formulation of the planning tables in Vol. III






## Appendixes and Attachment

- Appendix A - GANP KPI Overview
- Appendix B - GANP ASBU threads
- Appendix C - Regional SWOT analysis examples
- Appendix D - **ASBU elements of operational thread**
  
- Attachment - ANP VOL III TEMPLATE



## OBJECTIVES

- a. **Standardise** the understanding and practical application **of the six-step approach** to performance based planning, as stipulated in the GANP, by area navigation specialists of CAR/SAM States in the process of filling in the Tables of Vol. III.
- b. **Achieve** a homogeneous application of the **Vol. III template** and simplify the development of tables and texts.
-  c. **Complement** the **use of the GANP tools (AN-SPA, performance dashboard, etc.)**
- d. **Carry out an orderly transition** of the plans and activities under the RPBANIP and the SAMPBIP to the CAR/SAM ANP Vol. III.



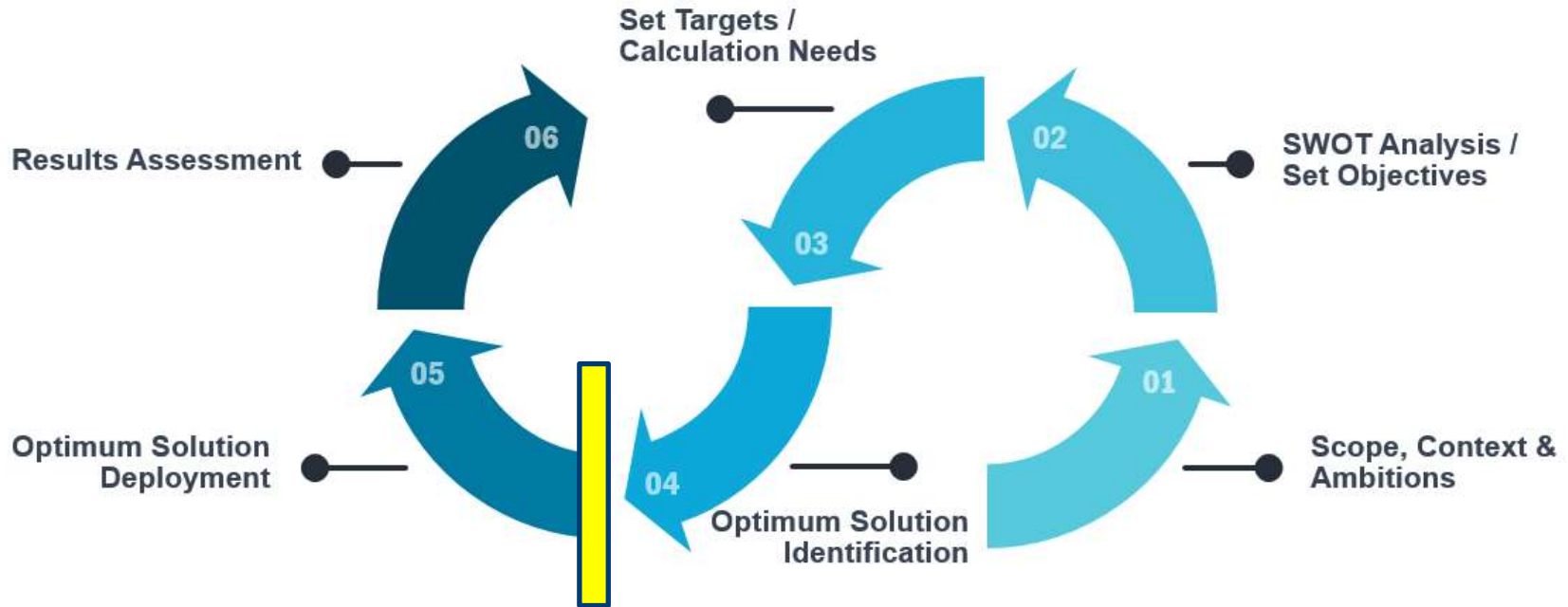
## VOL. III TEMPLATE

Is based on a printed format, which **describes a sequence of tables** that guide the insertion of planning data **of each State/Territory, linked to designated airspaces and international airports**, following the identification of air navigation performance optimisation objectives, leading to the definition of solutions derived from the ASBU framework or other regional initiatives.

**In the future**, this template will be prepared in electronic format by ICAO, with a view to automating the management and updating of data and the monitoring of implementation activities.



## SIX STEP METHOD – DOC 9883





## In the drafting phase:

Step 1: Define/review scope, context and general ambitions/expectations

Step 2: Identify opportunities, issues and set (new) objectives

Step 3: Quantify objectives

Step 4: Select solutions to exploit opportunities and resolve issues

**SWOT analysis  
Planning Tables  
(Airspaces and Airports)**

## In the management phase:

Step 5: Implement solutions

Step 6: Assess achievement of objectives

**Implementation  
Follow-up  
Management**



## Personnel and data requirements

The drafting of Volume III is done by GREPECAS State representatives, assisted by officers of the NACC and SAM Regional Offices.

State counterparts should have the authority and/or designate a working group (WG) within their Administration to coordinate the drafting of Volume III with all the stakeholders.

Such a group should be multidisciplinary in nature and have a coordinator to act as focal point (POC)



## Personnel and data requirements (2)

### Personnel

- a. Specialists and technicians from:
  - the CAA;
  - the air navigation service providers (ATS, ATFM, CNS, MET, AIM, SAR areas) and airports;
  - the State environmental agency;
  - the industry;
  - the users



### **Personnel and data requirements (3)**

- b. IT technicians and statisticians with expertise in business intelligence (BI) tools
- c. IT tools for efficient collection, analysis and management of air traffic data
- d. Collaborative arrangements with data originators to meet data quality requirements



## Personnel and data requirements (4)

### Data management

Data collection, processing (including quality assurance), storage and reporting in support of the performance-based approach. In practical terms, data management is about:

- a. how to set up the data acquisition process needed for performance monitoring;
- b. how to aggregate performance data and exchange the data among States and planning groups;
- c. how groups can best manage their information base in which performance data are stored; and
- d. how to organise performance evaluations.

## Key performance areas

## Eleven “KPA”

KPA	Ambition
ACCESS AND EQUITY	No aviation community member excluded or treated unfairly.
CAPACITY	Nominal capacity easily scalable with demand.
	Disruptive events do not interrupt service provision and do not significantly affect the performance of the system.
COST-EFFECTIVENESS	No increase of total direct ANS cost while maintaining the safety and quality of service.
	Significant increase of ANS productivity, irrespective of demand.
EFFICIENCY	Reduction of the gap between the flight efficiency achieved and the desired optimum trajectory of airspace users.
ENVIRONMENT	ANS-induced inefficiencies to be progressively removed to contribute to the global ICAO aspirational goals for CO <sub>2</sub> emissions.
	To benefit from achieved flight efficiency gains.
FLEXIBILITY	To absorb required changes to individual business and operational trajectories.
INTEROPERABILITY	Essential at an operational and technical level.
PARTICIPATION BY THE ATM COMMUNITY	Pre-agreed level of participation to make the maximum shared use of the air navigation resources.
PREDICTABILITY	No increase in ANS delivery variability including asset availability.
SAFETY	Zero ANS-related accidents and a significant (50%) reduction of ANS-related serious incidents.
SECURITY	Zero significant disruptions due to cyber incidents



## Key performance indicator (KPI) and metrics

 (Appendix A - GANP KPI Overview)

**Current/past performance, expected future performance**, as well as actual progress in achieving performance objectives is **quantitatively** expressed by means of key performance indicators - KPIs.

Measuring implementation through the GANP KPIs will enable States to:

- a. organise the preparation of the ASBU modules/elements for their implementation; and
- b. measure and document the efficiency benefits of the modules/elements implemented.



## ASBU Framework

The adoption of a globally **harmonised** performance management process for upgrading the air navigation system is needed **in order to achieve consistency of global, regional and national plans.**

For the purpose of these instructions, the adoption of **Block 0 (2013)** and **Block 1 (2019)** modules/elements will be analysed first and foremost.

However, if the necessary conditions and enablers are in place, planning for Block 2 (2025) could be undertaken (example; for system-wide information management - SWIM).



## Procedures: Planning and implementation in progress

### *Technology and information threads*

It must be noted that several ASBU modules/elements of the **Technology and Information** thread are currently in the process of implementation through GREPECAS programmes.

These modules/elements constitute the essential platform to ensure safety, efficiency and proper use of airspace capacity and services, in the context of the implementation of the operational thread.


**List 1.- Technology modules/elements essential for the CAR/SAM Regions**

## Examples

<i>ASBU - Block/element</i>	<i>Description</i>	<i>Thread</i>
<b>ASUR</b>	<b>Alternative surveillance</b> Initial ground surveillance capability	<b>Technology</b>
ASUR-B0/1	Automatic dependent surveillance - broadcast (ADS-B)	
ASUR-B0/2	Multilateration cooperative surveillance systems (MLAT)	
ASUR-B0/3	Cooperative surveillance radar downlink of aircraft parameters (SSR-DAPS)	
ASUR-B1/1	Reception of aircraft ADS-B signals from space (SB ADS-B)	
<b>COMI</b>	<b>Communication infrastructure</b> Improvement of AMS and AFS telecommunication infrastructure	<b>Technology</b>
COMI-B0/1	Aircraft communication addressing and reporting system (ACARS)	
COMI-B0/2	Aeronautical telecommunication network / Open systems interconnection (ATN/OSI)	
COMI-B0/3	VHF data link (VDL) Mode 0/A	
COMI-B0/4	VHF data link (VDL) Mode 2 Basic	



## Examples

<b>COMS</b>	<b>Communication services/systems</b> Improvement of AMS and AFS communication services and systems	<b>Technology</b>
COMS-B0/1	CPDLC (FANS 1/A & ATN B1) for domestic and procedural airspace	
COMS-B0/2	ADS-C (FANS 1/A) for procedural airspace	
COMS-B1/1	PBCS approved CPDLC (FANS 1/A+) for domestic and procedural airspace	
COMS-B1/2	PBCS approved ADS-C (FANS 1/A+) for procedural airspace	
COMS-B1/3	SATVOICE (incl. routine communications) for procedural airspace	
<b>NAVS</b>	<b>Navigation systems</b> Improvement of air navigation systems	<b>Technology</b>
NAVS-B0/1	Ground-based augmentation system (GBAS)	
NAVS-B0/2	Satellite-based augmentation system (SBAS)	
NAVS-B0/3	Aircraft-based augmentation system (ABAS)	
NAVS-B0/4	Navigation minimal operating networks (Nav MON)	
NAVS-B1/1	Extended GBAS	



## *Operational threads*

GREPECAS must maintain and enhance the results of its programmes and projects related to **PBN implementation, based on the APTA module**, which is associated to the mandate of ICAO Assembly Resolution A37-11, as well as the improvement of DCB, which involves the implementation of **ATFM, FUA, FRTO and A-CDM** (in airspace or airports that require it).

Likewise, there are operational modules associated to GASP safety improvement initiatives, including APTA and SNET.



**List 3.- Essential modules/elements of the operational category**

Examples

<i>ASBU - Block/element</i>	<i>Description</i>	<i>Thread</i>
<b>ACDM</b>	<b>Airport collaborative decision-making</b> Improved airport operations through airport CDM	<b>Operational</b>
ACDM-0/1	Aiport collaborative decision-making information sharing (ACIS)	
ACDM-0/2	Integration with ATM network function	
ACDM-1/1	Airport operations plan (AOP)	
ACDM-B1/2	Airport operations centre (APOC)	
<b>APTA</b>	<b>Airport accessibility</b> Optimisation of PBN-based instrument approach procedures	<b>Operational</b>
APTA-B0/1	PBN approaches (with basic capabilities)	
APTA-B0/2	PBN SID and STAR procedures (with basic capabilities)	
APTA-B0/3	SBAS/GBAS CAT I precision approach procedures	
APTA-B0/4	CDO (Basic)	
APTA-B0/5	CCO (Basic)	
APTA-B0/6	PBN helicopter point-in-space (PinS) operations	
APTA-B0/7	Performance-based aerodrome operating minima - Advanced aircraft	
APTA-B0/8	Performance-based aerodrome operating minima - Basic aircraft	
APTA-B1/1	PBN approaches (with advanced capabilities)	
APTA-B1/2	PBN SID and STAR procedures (with advanced capabilities)	
APTA-B1/3	Performance-based aerodrome operating minima - Advanced aircraft with SVGS	
APTA-B1/4	CDO (Advanced)	
APTA-B1/5	CCO (Advanced)	



## Examples

NOPS	Network operations Optimise air traffic flow management	Operational
NOPS-B0/1	Initial integration of collaborative airspace management with air traffic flow management	
NOPS-B0/2	Collaborative network flight updates	
NOPS-B0/3	Network operation planning basic features	
NOPS-B0/4	Initial airport/ATFM slots and A-ACDM network interface	
NOPS-B0/5	Dynamic ATFM slot allocation	
NOPS-B1/1	Short-term ATFM measures	
NOPS-B1/10	Collaborative trajectory options program (CTOP)	
NOPS-B1/2	Enhanced network operations planning	
NOPS-B1/3	Enhanced integration of airport operations planning with network operations planning	
NOPS-B1/4	Dynamic traffic complexity management	
NOPS-B1/5	Full integration of airspace management with air traffic flow management	
NOPS-B1/6	Initial dynamic airspace configurations	
NOPS-B1/7	Enhanced ATFM slot swapping	
NOPS-B1/8	Extended arrival management supported by the ATM network function	
NOPS-B1/9	Target times for ATFM purposes	



<i>ASBU - Block/element</i>	<i>Description</i>	<i>Thread</i>
<b>SNET</b>	<b>Ground-based safety networks</b> Improved efficiency of ground-based safety networks	<b>Operational</b>
SNET-B0/1	Short-term conflict alert (STCA)	
SNET-B0/2	Minimum safe altitude warning (MSAW)	
SNET-B0/3	Area proximity warning (APW)	
SNET-B0/4	Approach path monitoring (APM)	
SNET-B1/1	Enhanced STCA with aircraft parameters	
SNET-B1/2	Enhanced STCA in complex TMAs	

# Formulation of the planning tables in Vol. III

## STEP 1: DEFINE/REVIEW SCOPE, CONTEXT AND GENERAL AMBITIONS /EXPECTATIONS

### Scope

- Time period: Immediate planning of achievements that can support aviation recovery in the CAR/SAM Regions in the short term (2021 - 2024) is foreseen, with a changing scenario expected in that period, depending on the evolution of the pandemic.
- Key performance areas: The 11 KPAs of the GANP are analysed.
- Geographically: CAR/SAM airspace, within the scope of airports, terminal control areas (TMAs) and en-route segments.
- Operations under consideration: Air traffic operating under IFR.

### Context

#### Ambitions and expectations

The general expectation of States, industry, ANSP providers, airports, and the ATM community at large is to improve the system, aiming to support the initiatives deployed for the reactivation and recovery of regional aviation in face of COVID 19.

The area navigation system must also be strengthened in order to show resilience to temporary disruptions or loss of capacity, and environmental protection aspects must be analysed.



## 13 Tables, examples

**Table 1**

State	FIR(s)	TMA(s)		NOTES
		ICAO Indicator	Name	



## STEP 2: IDENTIFY OPPORTUNITIES, ISSUES AND SET (NEW) OBJECTIVES



Appendix C contains an **example** of a SWOT analysis.

List of performance objectives for KPAs and selected KPIs

**Table 7**

**(Examples)**

*Note.- The performance objective is selected from Appendix D. Also, refer to the GANP Catalogue of performance objectives.*

<b>KPA</b>	<b>Focus areas</b>	<b>Performance objective</b>	<b>Notes</b>
Capacity	Capacity, performance and utilisation	Reduce approach minima (ceiling and visibility)	
Capacity	Capacity, performance and utilisation	Increase arrival rate	

**List of KPIs and KPAs**  
**Table 8 (Examples)**

**STEP 3:**  
**QUANTIFY**  
**OBJECTIVES, SET**  
**GOALS AND**  
**CALCULATE**  
**REQUIREMENTS**

KPA	Performance objective	KPI	Definition
Capacity	Reduce approach minima (ceiling and visibility)	KPI10 Airport peak throughput	The 95th percentile of the hourly number of operations recorded at an airport, in the “rolling” hours sorted from the least busy to the busiest hour. Can be computed for arrivals, departures or arrivals+departures.
Capacity	Increase arrival rate	KPI10 Airport peak throughput	

## Baseline performance for the selected KPIs

**Table 9**  
**(Examples)**

FIR /TMA/AIRPORT	BASELINE KPIs (2019)					Operations measured [units]
	KPI10	KPIxx				
Airport XYZA	12 ACFT/ h					

## Annual performance targets and requirements

Table 10

(Examples)

FIR /TMA/AIRPORT	TARGETS [KPIs]					Notes
	KPI10	KPIxx	KPIxx	KPIxx	KPIxx	
Airport XYZA	18 ACFT/ h					KPI10 increase "x" ACFT / hour or % annual improvement

**STEP 4: SELECT SOLUTIONS TO EXPLOIT OPPORTUNITIES AND RESOLVE ISSUES**

Solutions based on ASBU elements/modules or regional initiatives to exploit opportunities (associated to the KPI)

**Table 11**

(Examples)

FIR /TMA/AIRPORT	KPI or metric	ASBU elements / Regional initiatives	Start	End	Notes
TMA	Metric: ADS B system installed	ASUR-B0/1 Automatic dependent surveillance - broadcast (ADS-B)	2021	2025	Essential technology element
Airport	Metric: Digital terrain data set available and published	DAIM-B1/3 Provision of digital terrain data sets	2021	2025	Essential information element
Airport	KPI10 Airport peak throughput	APTA-B0/1 PBN approaches (with basic capabilities)	2021	2023	Essential operational element
Airport	KPI10 Airport peak throughput	APTA-B0/2 PBN SID and STAR procedures (with basic capabilities)	2021	2023	Essential operational element
Airport	KPI10 Airport peak throughput	RSEQ-B0/1 Arrival management	2023	2025	Performance objective, Increase arrival rate

**STEP 5: IMPLEMENT SOLUTIONS**  
(For reference only)

Status of implementation of selected ASBU improvement or Regional Initiatives

**Table 12**  
**(Examples)**

FIR/TMA /AIRPORT	ASBU elements / Regional Initiatives	Start	End	Status of implementation	Notes
Airport XYZA	APTA-B0/1 PBN approaches (with basic capabilities)	2021	2023	<i>In progress</i>	.
Airport XYZA	APTA-B0/2 PBN SID and STAR procedures (with basic capabilities)	2021	2023	<i>In progress</i>	
				<i>100% completed</i> <i>1% - 99% in progress</i> <i>0% planned</i> <i>Delayed*</i>	<i>*Delayed means that implementation is or will be delayed beyond end date</i>

**STEP 6: ASSESS  
ACHIEVEMENT OF  
OBJECTIVES  
(For reference only)**

Performance benefits derived from the implementation of selected ASBU improvements or Regional Initiatives

**Table 13  
(Examples)**

FIR/TMA/AIRPORT	ASBU elements / Regional Initiatives	KPI			Notes
		KPI10	KPIxx	KPIxx	
Airport XYZA	APTA-B0/1 PBN approaches (with basic capabilities)	15 ACFT/h			2022: half of the expected improvement was achieved
	APTA-B0/2 PBN SID and STAR procedures (with basic capabilities)	15 ACFT/h			2022: half of the expected improvement was achieved

**TABLE OF CONTENTS**

PART 0 — Introduction.....

PART I — General Planning Aspects (GEN).....

PART II – Performance Management Planning and ANS Implementation (PMP) .....

    Table PMP III-1 – Strengths, weakness, opportunities and threads in the (NAME) Region

    Table PMP III-2 – List of performance objectives by KPA for the (NAME) Region

    Table PMP III-3 – List of KPIs by performance objective and KPA for the (NAME) Region

    Table PMP III-4 – Performance baseline within the (NAME) Region

    Table PMP III-5 – Performance targets and needs within the (NAME) Region

    Table PMP III-6 – Selected ASBU Elements / Operational Improvements for the (NAME) Region

    Table PMP III-7 – Status of deployment of the selected operational improvements of the ASBU elements / Operational Improvements for the (NAME) Region

    Table PMP III-8 – Performance benefits accrued form the implementation of the selected ASBU elements / Operational Improvements for the (NAME) Region

    Table PMP III- (NAME Region) - 1 – List of CTA/TMA in the (NAME) Region

Attachment - ANP VOL III TEMPLATE



*QUESTIONS?*

*Thank you.*



- North American Central American and Caribbean (NACC) Office  
Mexico City
- South American (SAM) Office  
Lima
- ICAO Headquarters  
Montréal
- Western and Central African (WACAF) Office  
Dakar
- European and North Atlantic (EUR/NAT) Office  
Paris
- Middle East (MID) Office  
Cairo
- Eastern and Southern African (ESAF) Office  
Nairobi
- Asia and Pacific (APAC) Sub-office  
Beijing
- Asia and Pacific (APAC) Office  
Bangkok



**THANKS**