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MINISTÉRIO DA DEFESA – COMANDO DA AERONÁUTICA
DEPARTAMENTO DO CONTROLE DO ESPAÇO AÉREO
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PBN INSTRUMENT APPROACH CHART (IAC) IDENTIFICATION

Period of validity: from 13 AUG 2020 to PERM

1 PRELIMINARY ARRANGEMENTS

1.1 PURPOSE

The purpose of this Aeronautical Information Circular (AIC) is to inform the change in the Instrument Approach Chart (IAC) naming convention from RNAV(GNSS) RWY XX to RNP RWY XX, as well as the introduction of the PBN Box.

1.2 SCOPE

The provisions set forth in this AIC shall apply to all units and partners of the Brazilian Airspace Control System (SISCEAB), and users who consult or make use, in their operational routine, of aeronautical information publications.

1.3 APPENDIXES

APPENDIX A – BRAZILIAN IMPLEMENTATION PLAN FOR CIRCULAR 353.

2 DEFINITIONS

NAVIGATION SPECIFICATION

A set of aircraft and aircrew requirements needed to support a navigation application within a defined airspace concept. The navigation specification defines the performance required by the RNAV or RNP system as well as any functional requirements such as the ability to conduct curved path procedures or to fly parallel offset routes.

PBN BOX

Additional remarks that will be used in the Instrument Approach Chart to indicate the applicable Navigation Specification (i.e. RNP APCH or RNP AR APCH) and other optional or additional requirements to fly the approach procedure, when applicable, e.g. RF functionality.

3 ABBREVIATIONS

GNSS – Global Navigation Satellite System

IAP – Instrument Approach Procedure

PBN – Performance-Based Navigation

PANS OPS – Procedures for Air Navigation Services – Aircraft Operations

NAVSPEC – Navigation Specification

4 BACKGROUND

The advent of Performance-Based Navigation (PBN) is having a major impact on all aspects of the aviation industry and associated professionals involved in PBN planning, implementation and execution. As part of a continuing effort to spot and correct inconsistencies resulting from the emergence of PBN, changes to the identification of Instrument Approach Charts (IAC) from RNAV(GNSS) RWY XX to RNP RWY XX are being introduced by ICAO via Circular 353 AN/209. This Circular was set forth to align the procedure approach chart identification with the designation of the navigation specification (NAVSPEC).

According to Annex 11, IAP must be identified by the sensor (or NAVSPEC) used to provide lateral guidance for the final approach segment. Under the PBN Manual (Doc 9613 AN/937), PBN IAP can be developed under two NAVSPEC: RNP APCH or RNP AR APCH. Since no RNAV specifications are applied for the approach procedures final approach segment, the change introduced shall align procedure approach chart identification criteria and the NAVSPEC applied for the final approach segment.

Another topic introduced by Circular 353 refers to the PBN Box, which will indicate the applicable NAVSPEC for each procedure segment and other optional or additional requirements to fly the approach procedure, when applicable, such as RF functionality.

In order to comply with ICAO provisions, DECEA will implement the changes present in the Circular 353 from July 2020 until November 2022. Refer to Item 5 and Appendix A for details.

4.1 STAKEHOLDERS INVOLVED IN THE CHANGES:

a) State regulatory authorities;

b) Air navigation service providers;

c) All airspace users including aircraft operators; general, business and military aviation, etc.;

d) Training organizations;

e) Airport authorities;

f) Military service providers;

g) Charting houses;

h) Database providers;

i) Instrument procedure design organizations;

j) Regional consultation groups (operational and technical);

k) Regional organizations and agencies;

l) Adjoining ICAO regions;

5 CHANGE IN THE APPROACH CHART IDENTIFICATION

Current PBN approach chart identification criteria do not match the designation of the RNP approach specifications published in the Doc 9613. For example, current RNP APCH IAP can be identified as RNAV (GPS) RWY XX or RNAV (GNSS) RWY XX. Current RNP AR APCH approaches are identified as RNAV (RNP) RWY XX. To address such inconsistency, ICAO published provisions for a coherent naming convention reflecting the navigation specification being used on the approach, either RNP APCH or RNP AR APCH. These changes are depicted in Table 1.

Navigation specification	Existing chart identification	New chart identification
RNP APCH	RNAV (GNSS) RWY 23	RNP RWY 23
RNP AR APCH	RNAV (RNP) RWY 23	RNP RWY 23 (AR)

Table 1 - Summary of chart identification changes

The identification must also include a parenthetical suffix when exceptional conditions occur as described in Table 2 (this table refers to Table III-5-1-1 in Doc 8168 (PANS-OPS).

Condition	Suffix	Example
Procedure has only an LPV line of minima	LPV only	RNP RWY 23 (LPV only)
Procedure has only an LNAV/VNAV line of minima	LNAV/VNAV only	RNP RWY 23 (LNAV/VNAV only)
Procedure has both LPV and LNAV/VNAV lines of minima but no LNAV minima	LPV, LNAV/VNAV only	RNP RWY 23 (LPV, LNAV/VNAV only)
Procedure has only an LP line of minima	LP only	RNP RWY 23 (LP only)

Table 2 - PBN approaches – parenthetical suffixes

6 INTRODUCTION OF PBN BOX

Procedures PBN have information necessary for compliance, whose disclosure is currently confusing and inhomogeneous among countries. In order to reduce such disparities and enable flight crews to easily access this information, ICAO introduced the PBN requirements box concept. With it, the PBN requirements and its additional and / or optional features will be represented directly on the chart, allowing flight crews to directly access it. Some of this information is shown in Table 3.

Navigation specification	Examples of additional requirements in PBN requirements box
RNP APCH	RF Required
RNP AR APCH	RNP < 0.3 Missed Approach RNP < 1
Advanced RNP	RNP < 1 in initial and intermediate segment
RNP 0.3	RF required

Table 3 - Examples of PBN requirements box

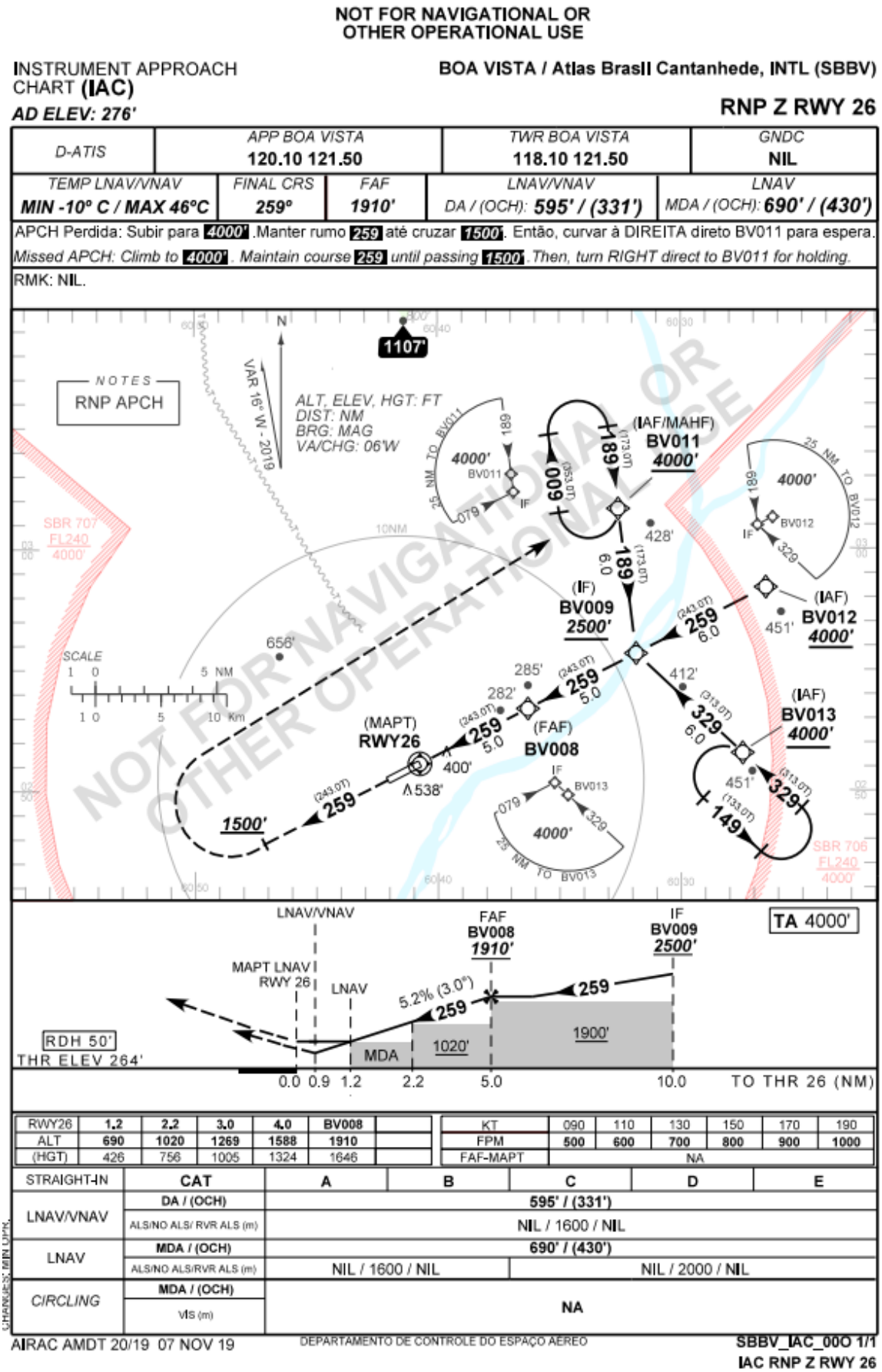

Figure 1 - Brazilian RNP APCH IAC example

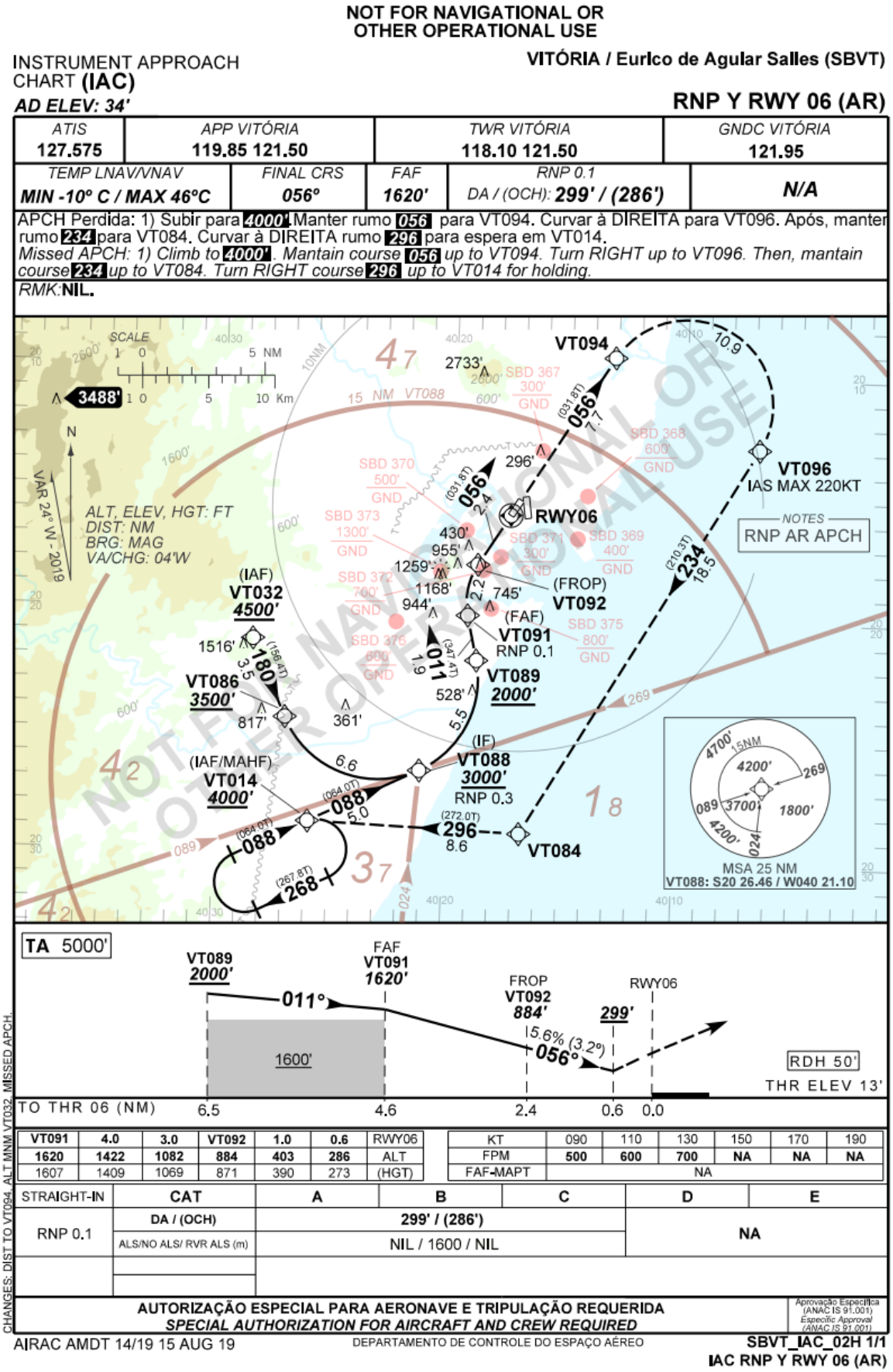

Figure 2 - Brazilian RNP APCH AR IAC example

7 IMPLEMENTATION PLAN

Considering the amount of procedure chart to be changed, ICAO has developed a global timeframe, coordinating each Region to implement the transition to the new chart identifications, in order to avoid overcharging the air navigation data providers. Appendix A details the DECEA's plan to complete the changes in approach chart identification and introduction of PBN Box in accordance with the slot provided for ICAO Regional Office at Lima.

The plan was developed based on Circular 353 AN/209, where more detailed information can be found about other important requirements for the stakeholders like the hazards, risks and mitigation measures related to its implementation.

Change will be performed from July 2020 until November 2022. During the transition period there will be charts with the old identification - RNAV(GNSS) or RNAV(RNP) - and the new identification RNP or RNP (AR). Stakeholders should take it into consideration and actions shall be taken to avoid misinterpretation by flight crews in the selection of the right PBN approach procedure.

7.1 DEVELOPMENT OF THE STRATEGY

Requirements and standards to be adopted in the implementation of the change are the following:

7.1.1 CHANGE PRIORITIES

The changes on the procedure chart will be implemented according the following priority:

a) major terminal areas;

b) regional airports; and

c) other airports.

7.1.2 TIMEFRAME

The implementation of the changes in the SISCEAB will be made in accordance with the list presented in Appendix 1. This will help all stakeholders to conduct their own activities related to the change to be made (training of pilots and ATCOs, communication to State operators, awareness of data houses, etc.).

7.1.3 NUMBER OF PROCEDURES

See Appendix A.

7.1.4 PHRASEOLOGY

No significant changes are expected. Wording in brackets, if exists in the identification, should not be used in the communications.

Example:

- IAC RNP RWY 13L: Cleared for RNP approach runway 13 left;

- IAC RNP Y RWY 09R (AR): Cleared for RNP YANKEE approach runway 09 right.

7.1.5 OPERATING MINIMA BOX AND FLIGHT PLAN (FPL)

No changes expected in operating minima box and Flight Plan (FPL) standards.

7.1.6 TRAJECTORY DIFFERENTIATION CRITERIA (IAP IDENTIFICATION WITH THE USE OF LETTERS)

It will be used letters to differentiate RNP APCH and RNP AR APCH to the same threshold. This will mitigate the risk of misselection of the procedure.

Example:

- IAC RNP Z RWY 09R;

- IAC RNP Y RWY 09R (AR).- IAC RNP X RWY 09L;

- IAC RNP W RWY 09L (AR).

7.1.7 PROCEDURES FOR THE SAME TERMINAL AREA (TMA)

The changes provided in ICAO Circular 353 should be implemented for all procedures of the same TMA simultaneously to avoid the use of different standards of procedures depiction in the same area, which could lead to errors of interpretation.

8 FINAL ARRANGEMENTS

8.1 This AIC shall enter into force on the date of its publication.

8.2 Cases not provided for in this AIC shall be settled by the Head of the Operations Subdepartment of the Department of Airspace Control.

APPENDIX A – BRAZILIAN IMPLEMENTATION PLAN FOR CIRCULAR 353

TMA/AD	Number of IFP	QUARTER
CURITIBA (TMA SP) FIR	35	Q3/20
CURITIBA FIR	30	Q4/20
CURITIBA FIR	35	Q1/21
CURITIBA FIR	35	Q2/21
CURITIBA FIR	35	Q3/21
BRASÍLIA FIR	30	Q4/21
BRASÍLIA FIR / AMAZÔNICA FIR	30	Q1/22
AMAZÔNICA FIR	25	Q2/22
AMAZÔNICA FIR / RECIFE FIR	30	Q3/22
RECIFE FIR	30	Q4/22
TOTAL	**315**	

This plan can be modified, at DECEA's discretion, to address unforeseen situations or to improve the organization of the workflow for the implementation of the new IAC identification.