



23<sup>er</sup> Reunión SAM/IG

# Circular 353 AN/209

# Plan de Implementación BRASIL



*FERNANDES JR – DECEA/BRASIL*



Departamento de Controle do Espaço Aéreo





*Organización de Aviación Civil Internacional*

Oficina Regional Sudamericana

Vigesimo Tercero Taller/Reunión del Grupo de Implantación

SAM (SAM/IG/23) - Proyecto Regional RLA/06/901

(Lima, Perú, 20 al 24 de mayo de 2019)

SAM/IG/23-NE/28

20/05/2019

**Cuestión 6 del  
Orden del Día:**

Otros asuntos

### **Plan de Implementación Circular 353 - Brasil**

(Presentada por Brasil)

#### **RESUMEN**

Esta nota de estudio presenta la iniciativa del Departamento de Control del Espacio Aéreo (DECEA), por medio de un grupo ad hoc del Grupo de Estudios sobre Planificación del Espacio Aéreo (GEPEA), para el desarrollo de un plan de implementación de la Circular 353 AN/209 “*Transition planning for change to instrument flight procedure approach chart identification from RNAV to RNP*” para los aeropuertos de Brasil.

## OBJETIVO

- ➔ Presentar la iniciativa del DECEA, por medio de un grupo ad hoc del GEPEA, para el desarrollo de un plan de implementación de la Circular 353 AN/209 para los aeropuertos de Brasil

## TEMARIO

- ➔ Overview Circular 353
- ➔ ¿Cuál la situación de Brasil?
- ➔ Acciones Sugeridas

# ICAO Circular 353-AN/209

## Transition Planning for IAC Identification Change

**Table 1-1. Summary of chart identification changes**

| <b>Navigation specification</b> | <b>Existing chart identification</b> | <b>New chart identification</b> |
|---------------------------------|--------------------------------------|---------------------------------|
| RNP APCH                        | RNAV (GNSS) RWY 23                   | RNP RWY 23                      |
| RNP AR APCH                     | RNAV (RNP) RWY 23                    | RNP RWY 23 (AR)                 |

# ICAO Circular 353-AN/209

## Transition Planning for IAC Identification Change

1.3.2 The identification must also include a parenthetical suffix when exceptional conditions occur as described in Table 1-2 (this table refers to Table III-5-1-1 in Doc 8168, *Procedures for Air Navigation Services — Aircraft Operations*, Volume II — *Construction of Visual and Instrument Flight Procedures*).

**Table 1-2. PBN approaches — parenthetical suffices**


| Condition   | Suffix              | Examples                         |
|---|---------------------|----------------------------------|
| 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)             |

# ICAO Circular 353-AN/209

## PBN BOX

Table 1-3. Examples of PBN requirements box

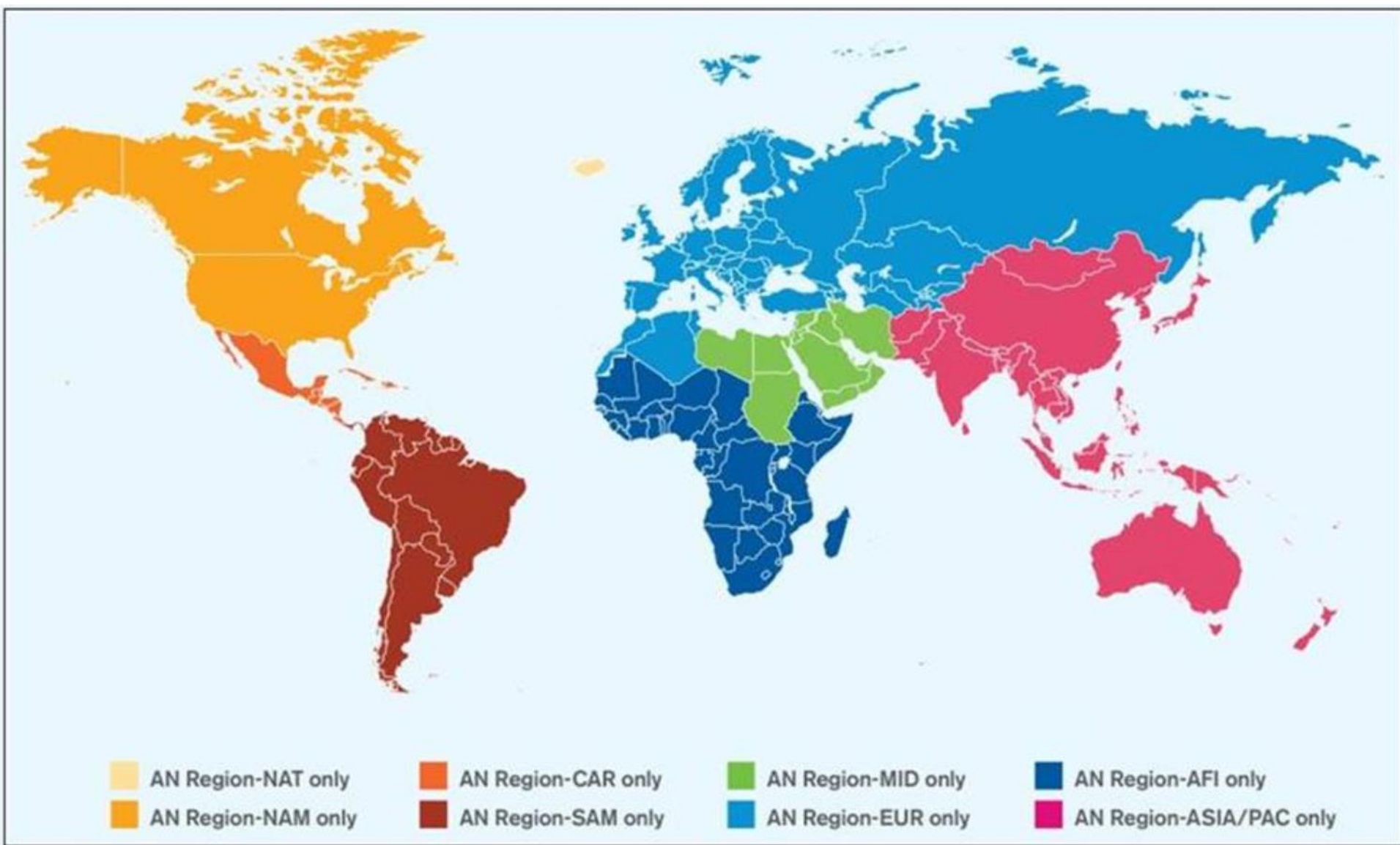
| Navigation specification | Examples of additional requirements in PBN requirements box |
|--------------------------|---|
| RNP APCH                 | RF required   |
| RNP AR APCH              | RNP <0.3<br>Missed approach RNP <1                          |
| Advanced RNP             | RNP <1 in initial and intermediate segment                  |
| RNP 0.3                  | RF required   |



## NEW DESIGNATION (with PBN requirements box)

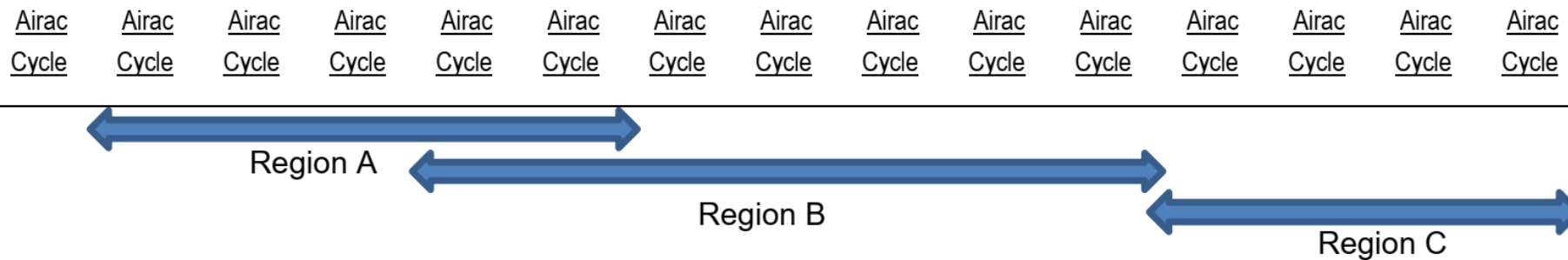
|                                  |                    |  |                        |  |                        |
|----------------------------------|--------------------|--|------------------------|--|------------------------|
| INSTRUMENT APPROACH CHART – ICAO | SBAS Ch 40123 W27A | AERODROME ELEV 30 m<br>HEIGHTS RELATED TO<br>THR RWY 27L - ELEV 20 m | APP 119.1<br>TWR 118.1 | DONLON/INTL (EADD)<br>RNP RWY 27L                    |                        |
| RNP APCH                         |                    |  |                        |  | ← Chart identification |
|                                  |                    |  |                        |  | ← PBN requirements box |
| INSTRUMENT APPROACH CHART – ICAO | SBAS Ch 40123 W27A | AERODROME ELEV 30 m<br>HEIGHTS RELATED TO<br>THR RWY 27L - ELEV 20 m | APP 119.1<br>TWR 118.1 | DONLON/INTL (EADD)<br>RNP Z RWY 27L (LPV ONLY)       | ← (LPV only)           |
| RNP APCH                         |                    |  |                        |  |                        |
|                                  |                    |  |                        |  |                        |
| INSTRUMENT APPROACH CHART – ICAO | SBAS Ch 40123 W27A | AERODROME ELEV 30 m<br>HEIGHTS RELATED TO<br>THR RWY 27L - ELEV 20 m | APP 119.1<br>TWR 118.1 | DONLON/INTL (EADD)<br>RNP Y RWY 27L (LNAV/VNAV ONLY) | ← (LNAV/VNAV only)     |
| RNP APCH                         |                    |  |                        |  |                        |
|                                  |                    |  |                        |  |                        |
| INSTRUMENT APPROACH CHART – ICAO | SBAS Ch 40123 W27A | AERODROME ELEV 30 m<br>HEIGHTS RELATED TO<br>THR RWY 27L - ELEV 20 m | APP 119.1<br>TWR 118.1 | DONLON/INTL (EADD)<br>RNP X RWY 27L (AR)             | ← (AR)                 |
| RNP AR<br>RF required            |                    |  |                        |  |                        |

Figure 1-1. Example of new PBN chart designation (with PBN requirements box)



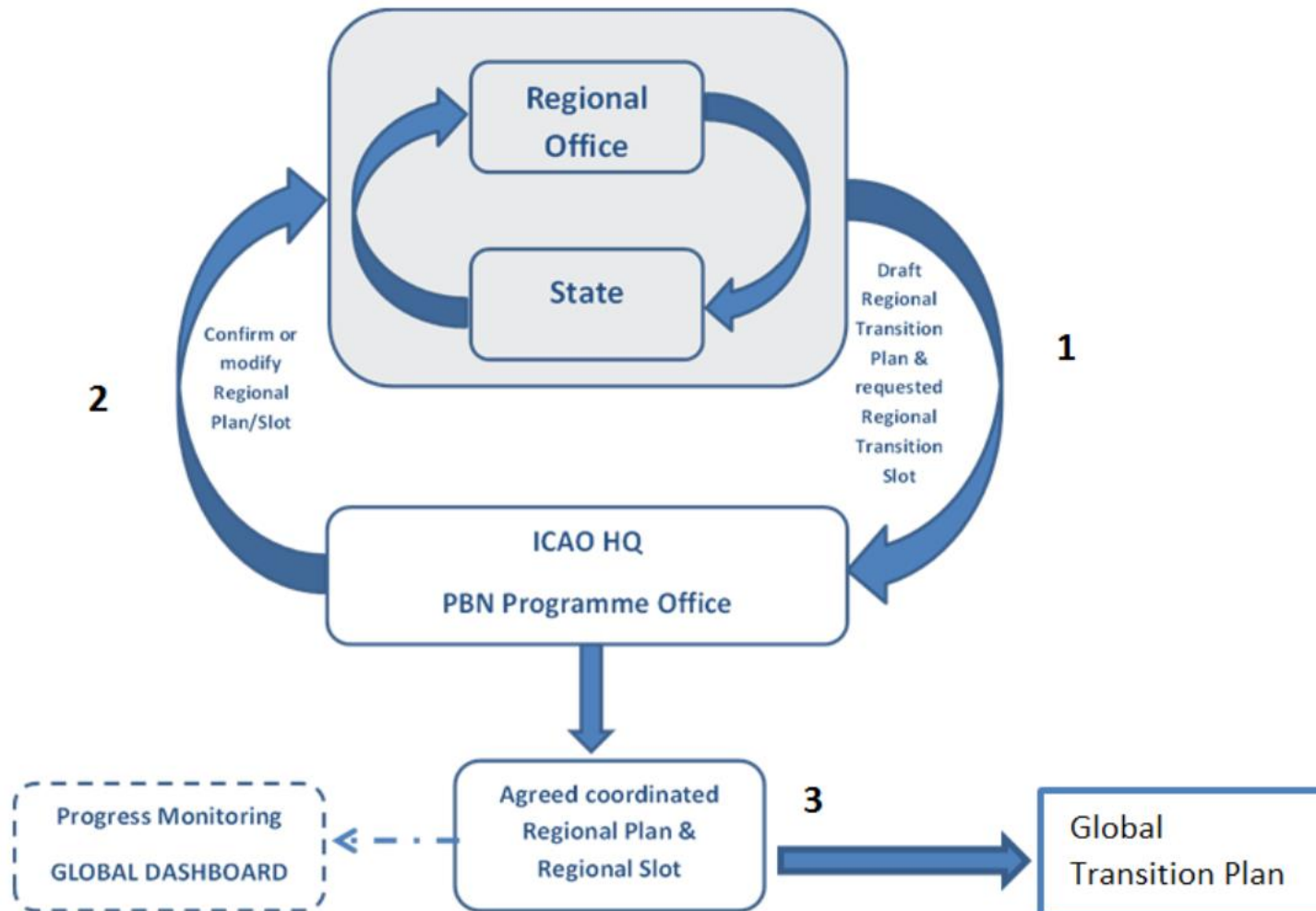
# ICAO Circular 353-AN/209

## Regional Slot

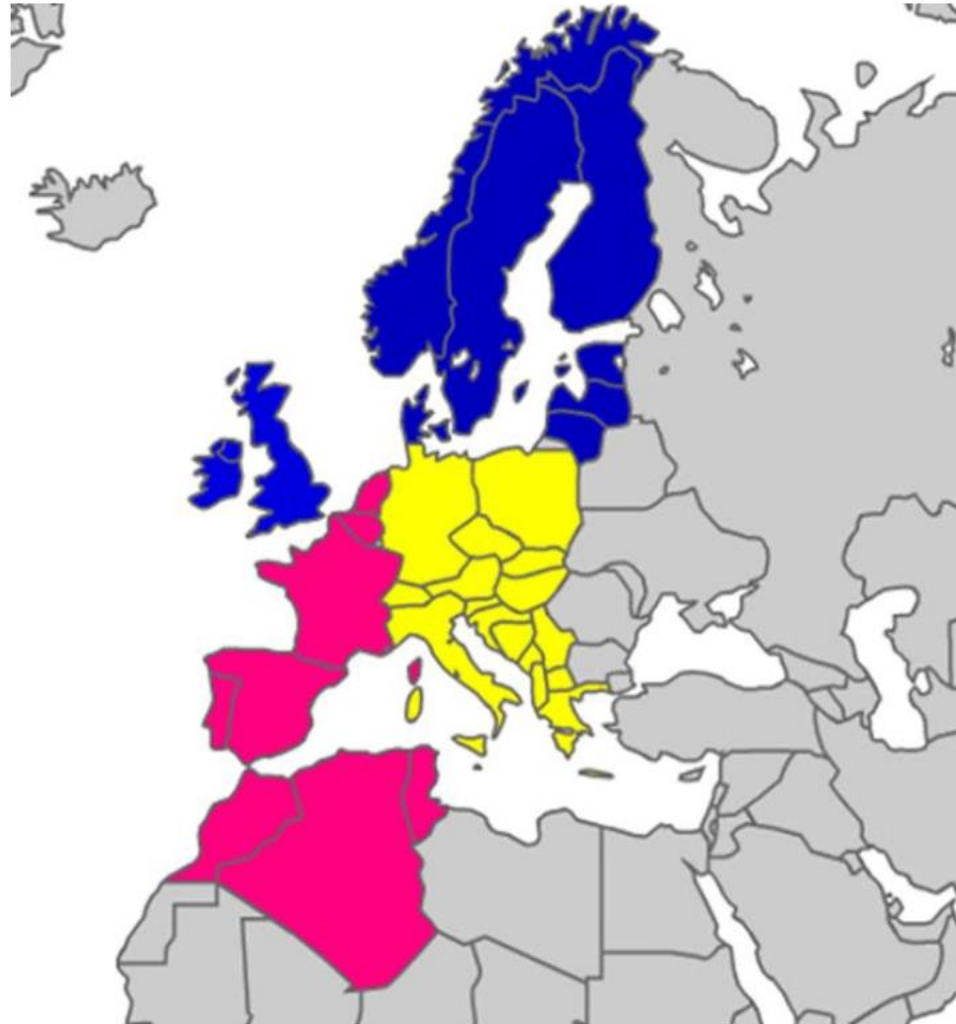


**Figure 3-2. Additional global considerations**

# Coordination Process



## State Slot (Ejemplo)



**Figure 4-1. Map equivalent of Table 4-1 State clusters within a region  
– example using ICAO EUR and MID**

**Table 4-1. State clusters and sequencing within a region – example using ICAO EUR Regions**

| SAMPLE of geographic clustering for ICAO EUR-NAT & MID Regions   | H2/2017   | H1/2018   | H2/2018 |         | H2/2019 |         | H2/2019 |         |
|--|---|---|---------|---------|---------|---------|---------|---------|
|  | Q3/4 2017   | Q1/2 2018   | Q3/2018 | Q4/2018 | Q1/2019 | Q2/2019 | Q3/2019 | Q4/2019 |
| AIRAC CYCLES <i>incl.&gt;&gt;</i>  | n/a   | n/a   | 7-9     | 10-12   | 1-3     | 4-6     | 7-9     | 10-12   |
| BLOCK 1: Denmark, Estonia, Finland, Ireland, Latvia, Lithuania, Norway, Sweden, the United Kingdom.  | ICAO REG OFFICES: Develop outline of regional transition plan | ICAO REG OFFICES: Stakeholder buy-in and transition plan finalization |         |         |         |         |         |         |
| BLOCK 2: Algeria, Andorra, Belgium, France, Luxembourg, Monaco, Morocco, the Netherlands, Spain, Portugal, Tunisia.  |   |   |         |         |         |         |         |         |
| BLOCK 3: Albania, Austria, Bosnia and Herzegovina, Croatia, Czech Republic, Egypt, Germany, Greece, Hungary, Italy, Malta, Montenegro, Poland, Slovakia, San Marino, Slovenia, Switzerland, the Former Yugoslav Republic of Macedonia. |   |   |         |         |         |         |         |         |
|  |   |   |         |         |         |         |         |         |
|  |   |   |         |         |         |         |         |         |
|  |   |   |         |         |         |         |         |         |
|  |   |   |         |         |         |         |         |         |

30 NOVEMBER 20xx

A State slot allocated by an ICAO regional office for affecting the RNP chart identification change, cannot be comprised of non-adjacent States (or State clusters) within the regional cluster.



# ¿Cuál la situación de Brasil?

¿Cuántas IAC RNAV tenemos?

¿Cuánto tiempo llevará?

¿Cuál es el plan?

<https://www.aisweb.aer.mil.br/?i=cartas>

BRASIL Serviços Participe Acesso à Informação Legislação Canais

DECEA Departamento de Controle do Espaço Aéreo Busca decea.gov.br

# ASWEB

Abreviaturas > Fale Conosco > Português (Mudar) > AMDT 38/18 Código ICAO

INÍCIO AERÓDROMOS > ESPAÇO AÉREO > NOTAM **CARTAS >** PUBLICAÇÕES >

## Aeródromos/TMA

Cartas Aeronáuticas INÍCIO > AERÓDROMOS/TMA

AMDT 11/10/18 Pacote Completo

Códigos ICAO  Tipo  Nome da Carta (Procedimento)  PE  Uso

263 resultados para consulta

<https://www.aisweb.aer.mil.br/?i=cartas>

Códigos ICAO

Tipo ✓

Nome da Carta (Procedimento) ✓

PE

Uso

Separados por vírgula

IAC (Carta de aproxir

RNAV

Todos

Ostensivo

Procurar

263 resultados para consulta

100 resultados por página

Pesquisar

Search...

| <input type="checkbox"/> | ↑↓ Localidade | ↑↓ Tipo | ↑↓ Carta  |              | ↑↓ Data    | ↑↓                | ↑↓ |
|--------------------------|---------------|---------|---|--------------|------------|-------------------|----|
| <input type="checkbox"/> | SBBR          | IAC     | RNAV(GNSS) X RWY 29L                                  | <b>BR03R</b> | 2018-09-13 | <a href="#">↓</a> |    |
| <input type="checkbox"/> | SBBR          | IAC     | RNAV(GNSS) Y RWY 29R                                  | <b>BR00D</b> | 2018-09-13 | <a href="#">↓</a> |    |
| <input type="checkbox"/> | SBGP          | IAC     | RNAV(RNP) Y RWY 20                                    | <b>GP00I</b> | 2018-09-13 | <a href="#">↓</a> |    |
| <input type="checkbox"/> | SBGM          | IAC     | RNAV (GNSS) RWY 17                                    | <b>GM00I</b> | 2018-08-16 | <a href="#">↓</a> |    |
| <input type="checkbox"/> | SBGM          | IAC     | RNAV (GNSS) RWY 35                                    | <b>GM00J</b> | 2018-08-16 | <a href="#">↓</a> |    |
| <input type="checkbox"/> | SBGR          | IAC     | IAC RNAV (RNP) W RWY 09R <b>SUP N153/18 e A094/18</b> | <b>GR03X</b> | 2018-08-16 | <a href="#">↓</a> |    |
| <input type="checkbox"/> | SBUA          | IAC     | RNAV GNSS RWY 05                                      | <b>UA00L</b> | 2018-07-19 | <a href="#">↓</a> |    |

<https://www.aisweb.aer.mil.br/?i=cartas>

|                          |      |     |                          |            |
|--------------------------|------|-----|--------------------------|------------|
| <input type="checkbox"/> | SBVT | AOC | AD 2 SBVT B              | 2018-09-13 |
| <input type="checkbox"/> | SBXX | OTR | PÁGINAS INICIAIS 13SEP18 | 2018-09-13 |

Mostrando de 1 até 29 de 29 registros

Anterior 1 Próximo

Baixar Cartas Seleccionadas

- Checklist Tempo Real
- Inserir/Destruir
- Páginas Iniciais

**TODOS LOS PROCEDIMIENTOS (IAC, SID, STAR)**

## TABLA DE IAC SID STAR

|      |      |      |  |            |
|------|------|------|--|------------|
| 1509 | SBSV | STAR | STAR LONEN 1A - TELIB 1A - TOKIL 1A - RWY 10 | 27.04.2017 |
| 1510 | SBSV | STAR | STAR LONEN 1B - TELIB 1B - TOKIL 1B - RWY 28 | 27.04.2017 |
| 1511 | SBSV | STAR | STAR RNAV ASUGA 1A RWY 10                    | 27.04.2017 |
| 1512 | SBSV | STAR | STAR RNAV ASUGA 1B RWY 28                    | 27.04.2017 |
| 1513 | SBSV | STAR | STAR RNAV MASTU 1A - UDESI 1A RWY 10         | 27.04.2017 |
| 1514 | SBSV | STAR | STAR RNAV UDESI 1B RWY 28                    | 27.04.2017 |
| 1515 | SBSV | STAR | STAR RNAV ZIPAR 1A RWY 10                    | 27.04.2017 |
| 1516 | SBSV | STAR | STAR RNAV ZIPAR 1B RWY 28                    | 27.04.2017 |
| 1517 | SBVT | STAR | RNAV ISILA 1A - SARLA 1A RWY 02              | 11.10.2018 |
| 1518 | SBVT | STAR | RNAV ISILA 1B - SARLA 1B RWY 06              | 11.10.2018 |
| 1519 | SBVT | STAR | RNAV ISILA 1C - SARLA 1C RWY 20/24           | 11.10.2018 |
| 1520 | SBVT | STAR | RNAV KIGOK 1A - MIKEM 1A RWY 02              | 11.10.2018 |
| 1521 | SBVT | STAR | RNAV KIGOK 1B - MIKEM 1B RWY 06              | 11.10.2018 |
| 1522 | SBVT | STAR | RNAV KIGOK 1C - MIKEM 1C RWY 20/24           | 11.10.2018 |
| 1523 | SBWL | STAR | RNAV BLOCK 1-DINER 1- LAP 1-PTL 1            | 12.11.2015 |
| 1524 | SBWL | STAR | MULSO 1A MUMLI 1A SRG 1A                     | 05.03.2015 |

## TABLA DE IAP PBN (Circular 353)

| Localidade <input type="text"/> | Tipo <input type="text"/> | NavSpec <input type="text"/> | PNA <input type="text"/>              | RWY <input type="text"/> | Regional <input type="text"/> | Atualizada <input type="text"/> | FPDAM <input type="text"/> |
|---------------------------------|---------------------------|------------------------------|---------------------------------------|--------------------------|-------------------------------|---------------------------------|----------------------------|
| <a href="#">SBAC</a>            | <a href="#">RNAV</a>      | <a href="#">RNAV</a>         | <a href="#">RNAV (GNSS) RWY 09</a>    | <a href="#">09</a>       |                               |                                 |                            |
| <a href="#">SBAC</a>            | <a href="#">RNAV</a>      | <a href="#">RNAV</a>         | <a href="#">RNAV (GNSS) RWY 27</a>    | <a href="#">27</a>       |                               |                                 |                            |
| <a href="#">SBAE</a>            | <a href="#">RNAV</a>      | <a href="#">RNAV</a>         | <a href="#">RNAV (GNSS) RWY 17</a>    | <a href="#">17</a>       |                               |                                 |                            |
| <a href="#">SBAE</a>            | <a href="#">RNAV</a>      | <a href="#">RNAV</a>         | <a href="#">RNAV (GNSS) RWY 35</a>    | <a href="#">35</a>       |                               |                                 |                            |
| <a href="#">SBAN</a>            | <a href="#">RNAV</a>      | <a href="#">RNAV</a>         | <a href="#">RNAV (GNSS) Z RWY 06L</a> | <a href="#">06L</a>      |                               |                                 |                            |
| <a href="#">SBAN</a>            | <a href="#">RNAV</a>      | <a href="#">RNAV</a>         | <a href="#">RNAV (GNSS) Y RWY 24R</a> | <a href="#">24R</a>      |                               |                                 |                            |
| <a href="#">SBAN</a>            | <a href="#">ILS</a>       | <a href="#">RNAV</a>         | <a href="#">ILS Z RWY 24R</a>         | <a href="#">24R</a>      |                               |                                 |                            |
| <a href="#">SBAQ</a>            | <a href="#">RNAV</a>      | <a href="#">RNAV</a>         | <a href="#">RNAV GNSS RWY 17</a>      | <a href="#">17</a>       |                               |                                 |                            |
| <a href="#">SBAQ</a>            | <a href="#">RNAV</a>      | <a href="#">RNAV</a>         | <a href="#">RNAV GNSS RWY 35</a>      | <a href="#">35</a>       |                               |                                 |                            |
| <a href="#">SBAR</a>            | <a href="#">RNAV</a>      | <a href="#">RNAV</a>         | <a href="#">RNAV (GNSS) RWY 11</a>    | <a href="#">11</a>       |                               |                                 |                            |
| <a href="#">SBAR</a>            | <a href="#">RNAV</a>      | <a href="#">RNAV</a>         | <a href="#">RNAV (GNSS) RWY 29</a>    | <a href="#">29</a>       |                               |                                 |                            |
| <a href="#">SBAU</a>            | <a href="#">RNAV</a>      | <a href="#">RNAV</a>         | <a href="#">RNAV (GNSS) RWY 22</a>    | <a href="#">22</a>       |                               |                                 |                            |

## IAC RNAV EN BRASIL

| TIPO               | NÚMERO         |
|--------------------|----------------|
| <b>RNAV (GNSS)</b> | 219            |
| <b>RNAV (RNP)</b>  | 25             |
| <b>ILS (RNAV)</b>  | 50             |
| <b>PINS (RNAV)</b> | 11             |
| <b>LOC (RNAV)</b>  | 05             |
| <b>TVD (RNAV)</b>  | 04             |
| <b>HEL (RNAV)</b>  | 02             |
|                    |                |
| <b>TOTAL</b>       | <b>316 IAC</b> |

## ¿CUÁNTO TIEMPO LLEVARÁ?

→ Difícil estimar/predecir:

>> Identificación + PBN Box es simple... pero...

- Muchas IAC “antiguas” >> revisión total

- Rutina de diseño y Proyectos PBN no pueden “parar”

- Proveedores de base de datos tienen limitaciones

## IAC RNAV EN BRASIL

|                    |                |
|--------------------|----------------|
| <b>TOTAL</b>       | <b>316 IAC</b> |
| <b>STATUS</b>      | <b>NÚMERO</b>  |
| <b>ACTUALIZADA</b> | 72             |
| <b>FPDAM</b>       | 219            |

## ¿CUÁL ES EL PLAN?

- Dividir en bloques/fases >> grupo de AD o TMA
- Empezar por los más simples
- Cambiar todos los procedimientos del TMA

## IAC RNAV EN BRASIL

| <b>FIR BRASIL</b>    | <b>NÚMERO</b>  |
|----------------------|----------------|
| <b>FIR BRASÍLIA</b>  | 49             |
| <b>FIR CURITIBA</b>  | 110            |
| <b>FIR RECIFE</b>    | 49             |
| <b>FIR AMAZÔNICA</b> | 49             |
| <b>SRPV-SP</b>       | 59             |
|                      |                |
| <b>TOTAL</b>         | <b>316 IAC</b> |

# PROPUESTA DE PLAN DE IMPLEMENTACIÓN - BRASIL

| FIR              | IAC        | BLOQUE | MES (4 SEM) | PERIODO              |
|------------------|------------|--------|-------------|----------------------|
| FIR AMAZÔNICA    | 49         | 01     | 6.0         | JAN/JUN<br>2020      |
| FIR RECIFE       | 49         | 02     | 6.2         | JUL 2020<br>JAN 2021 |
| FIR BRASÍLIA     | 49         | 03     | 5.4         | FEB/JUL<br>2021      |
| SRPV-SP          | 59         | 04     | 5.6         | AGO 2021<br>JAN 2022 |
| FIR CURITIBA (5) | 63         | 05     | 5.9         | FEB/JUL<br>2022      |
| FIR CURITIBA (6) | 47         | 06     | 3.9         | AGO/NOV<br>2022      |
| <b>TOTAL</b>     | <b>316</b> |        | <b>33</b>   | <b>2.9 AÑOS</b>      |

**PANS-OPS >> 2022 !!**

## ¿CUÁL ES EL PLAN?

- Adecuar las normas internas (MACAR, CIRCEA, etc)
- Adecuar herramientas (FPDAM, etc)
- Entrenar pilotos y ATCO
- Coordinar con proveedores
- AIC para divulgar la información
- Coordinar con ANAC

**ATENDER EL PLAN REGIONAL !!**

## REUNIÓN IFPP CICLO 14

- El tema no estaba en la agenda
- IFPP quiere cambiar la fecha 2022
- Los proveedores no alcanzan
- Qué están haciendo los Estados?

## ACCIONES SUGERIDAS

- ➔ GESEA/SG2/GT Circular 353 >> bajo SG2
- ➔ Designar asesores y el relator del GT Circular 353
- ➔ Plan de Implementación SAM



## OBJETIVO

- ➔ Presentar la iniciativa del DECEA, por medio de un grupo ad hoc del GEPEA, para el desarrollo de un plan de implementación de la Circular 353 AN/209 para los aeropuertos de Brasil

## TEMARIO

- ➔ Overview Circular 353
- ➔ ¿Cuál la situación de Brasil?
- ➔ Acciones Sugeridas

# CIRCULAR 353 AN/209 PLAN DE IMPLEMENTACIÓN BRASIL



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