



| ICAO

# INTERNATIONAL CIVIL AVIATION ORGANIZATION

A UN SPECIALIZED AGENCY

**PBN SID & STAR CHARTING ISSUES  
IN MID**

**PBN SG/8 (DOHA, QATAR, 12 - 13 DECEMBER 2023)**

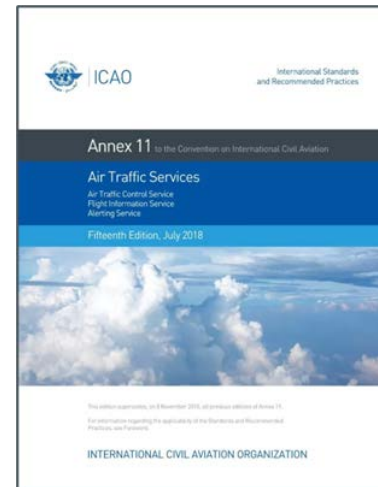


## SID & STAR Charts provisions

Material relating to the publication of charts is contained in Annex 4 : SID in Chapter 9 and STAR, in Annex 4, Chapter 10.



Material relating to the principles governing the identification of SID/STAR are contained in Annex 11, Appendix 3



# SID & STAR Charts provisions

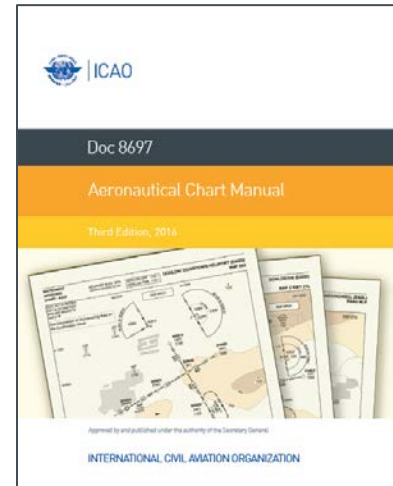
Chart 7 Standard Departure Chart — Instrument (SID) — ICAO  
Chart 8 Standard Arrival Chart — Instrument (STAR) — ICAO

The Specimen charts are available electronically in Adobe PDF format and provided separately in conjunction with the Aeronautical Chart Manual.

- Chart 01 Aerodrome Obstacle Chart Type A.en Adobe Acrobat Document
- Chart 12 Aerodrome Ground Movement Adobe Acrobat Document
- Chart.02.Aerodrome.Obstacle.Chart.Type.B.en Adobe Acrobat Document
- Chart.04.Precision.Approach.Terrain.en Adobe Acrobat Document
- Chart.05.enroute.black.and.white.en Adobe Acrobat Document
- Chart.05.enroute.colour.en Adobe Acrobat Document
- Chart.06.area.chart.black.and.white Adobe Acrobat Document
- Chart.06.area.chart.colour.en Adobe Acrobat Document
- Chart.07.Standard.Departure.S Adobe Acrobat Document
- Chart.08.Standard.Arrival.STA Adobe Acrobat Document
- Chart.09.IAC.black.and.white Adobe Acrobat Document
- Chart.09.IAC.colour.en Adobe Acrobat Document
- Chart.09.IAC.verso.en Adobe Acrobat Document
- Chart.10.Visual.Approach.en Adobe Acrobat Document
- Chart.11.Aerodrome.Chart.en Adobe Acrobat Document
- Chart.13.Parking.Docking.en Adobe Acrobat Document
- Chart.14.ATC.Sur.mnm.alt.en Adobe Acrobat Document
- Chart.15.IAC.Standard.en Adobe Acrobat Document
- Chart.15.IAC.verso.en Adobe Acrobat Document
- Chart.16.IAC.SBAS.Standard.en Adobe Acrobat Document
- Chart.16.IAC.SBAS.verso.en Adobe Acrobat Document
- Chart.17.IAC.GBAS.Standard.en Adobe Acrobat Document
- Chart.17.IAC.GBAS.verso.en Adobe Acrobat Document

No PBN SID & STAR Charts

Doc 8697  
Aeronautical Chart Manual





# Charting Navigation Specifications & Accuracies

## ✈ With the introduction of PBN

— Requirement to chart the relevant navigation specification and navigation accuracies was introduced.

✈ This requirement was not introduced comprehensively in ICAO Annex 4, PANS-OPS (Doc 8168), and Doc 8697.

— SL Ref.: SP 65/4-23/7 dated 20 January 2023 proposing amendments to Annex 4, PANS-OPS and PANS-AIM to improve related provisions by providing additional requirements, and improving guidance.

— Applicable on 28 November 2024

— The provision of PBN SID and STAR specimen charts is not included



## PBN SID & STAR Charting issues IN MID

- ➔ Survey conducted by the secretariat to collect SID/STAR data from States AIPs
- ➔ Review and extraction of information such Chart title and identification, PBN box (NAV Spec, sensors), RNAV/RNP naming, Database coding description
- ➔ Survey has shown the lack of harmonization in the way the PBN Information is published in SID/STAR Charts :
  - Chart Title
  - Chart Identification
  - PBN Box
- ➔ Examples are shared illustrating the lack of harmonization.



## Chart Title - ICAO provisions

*PANS-OPS PART III. Section 5, Chapter 1. Publication and charting — General.*

### 1.3 DEPARTURES AND ARRIVALS

1.3.1 *Chart titles.* Charts shall be titled in accordance with Annex 4, 2.2. The required navigation specification for any published procedure shall be published in the State AIP, either on the chart or in the ENR 1.5 section.

*Annex 4, Chapter 2. General specifications.*

### 2.2 Titles

**Note: There is no mention of PBN in the Chart Title**

The title of a chart and intended to satisfy the function of the Standard contained therein, except that such title shall not include “ICAO” unless the chart conforms with all Standards specified in this Chapter 2 and any specified for the particular chart.

*Doc8697, 7.9 Standard Departure Chart — Instrument (SID) — ICAO.*

The title must be “Standard Departure Chart — Instrument (SID) — ICAO”. Such title must not include “ICAO” unless the chart conforms with all Standards specified in Annex 4, Chapters 2 and 9. The chart title is placed at the top left corner of the chart in bold upper-case type.



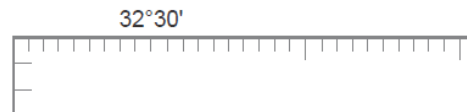
## Chart Title - Examples

**STANDARD DEPARTURE  
CHART - INSTRUMENT  
(SID) - ICAO  
RNAV**

DEP/ARR  
STANDARD RNAV  
ROUTES - ICAO

**RNAV STANDARD  
DEPARTURE CHART  
INSTRUMENT (SID) - ICAO**

**STANDARD DEPARTURE CHART —  
INSTRUMENT (SID) — ICAO**





## Chart Identification - ICAO provisions

*PANS-OPS PART III. Section 5, Chapter 1. Publication and charting — General.*

### **1.3.2 Chart identification**

1.3.2.1 The chart shall be identified in accordance with Annex 4, 9.5 for departures and 10.5 for arrivals and shall include the term RNAV or RNP, depending on the navigation specification.

*Annex 4, Chapter 9.*

### **9.5 Identification**

The chart shall be identified by the name of the city or town or area which the aerodrome serves, the name of the aerodrome and the identification of the standard departure route(s) — instrument as established in accordance with the *Procedures for Air Navigation Services — Aircraft Operations* (PANS-OPS, Doc 8168), Volume II, Part I, Section 3, Chapter 5.

*Doc8697, 7.9 Standard Departure Chart — Instrument (SID) — ICAO.*

The chart must be identified by the name of the city or town, or area, that the aerodrome serves, the name of the aerodrome, and the identification of the standard departure route(s) — instrument as established in accordance with the PANS-OPS, Volume II, Part I, Section 3.



# Chart Identification - Examples

**BAHRAIN INTL (OBBI)**  
**RWY 12L/30R**  
**KOBOK 1 ARRIVAL (RNAV1)**

**AMMAN/Marka Intl (OJAM)**  
**STAR RNAV (GNSS) RWY 06**

**DOHA/Hamad Intl. (OTHH)**  
**RNP RWY 16L**  
**ALVEN 2M /LUBET 1M /LUBET 1Y**  
**/TULUB 1M**

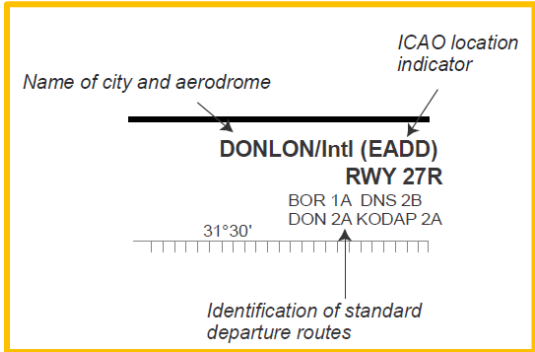
**AMMAN/Marka Intl (OJAM)**  
**SID RNAV (GNSS) RWY 24**

**SAYUN /Sayun Intl. (OYSY)**  
**RWY 07**  
**NABUP 1A - NADAK 1A - XALTA 1A - ASLAB 1A**  
**IVINA 1A - XAGAG 1A - DEMNA 1A**

**KUWAIT / Kuwait Intl**  
**STATE OF KUWAIT**  
**RNAV (GNSS) SID RWY 15L/15R**

**TEHRAN/IMAM KHOMAINI**  
**RNAV1 RWY 29R**  
**RADAL 3X**  
**BOXAM 2X**

**ASWAN / ASWAN**  
**RNAV (VOR/DME or GNSS)**  
**RWY 17**



**ABU DHABI / Intl.**  
**RNAV 1 STAR RWY 31L/R**

**RAFIC HARIRI INTL' BEIRUT**  
**BALMA 1R - KUKLA 1R - ELIKA 1R - LEBOR 1R**  
**RNAV (GNSS) STAR RWY 21**



# PBN Box - ICAO provisions

Nav Specification  
Sensor Limitations  
Functional Requirements

Example

RNAV 1  
GNSS required  
RF required

1.3.4 *Chart notes.* Additional procedure requirements shall be provided as chart notes. PBN items shall be separated out and published in a PBN requirements box on the plan view of the chart immediately below the chart identifier. The PBN requirements box shall include the identification of the navigation specification used in the procedure design, any navigation sensor limitations and any required functionalities that are described as options in the navigation specification, that is, not included in the core navigation specification as follows:

- a) Navigation specification:
  - RNAV 5
  - RNAV 1
  - RNP 1
  - Advanced RNP (RNP navigation accuracies shall be specified, e.g. RNP 2, RNP 1)
  - RNP 0.3
- b) Navigation sensor limitations, e.g.:
  - GNSS required
- c) Functional requirements:
  - RF required.

## PBN Box - Examples

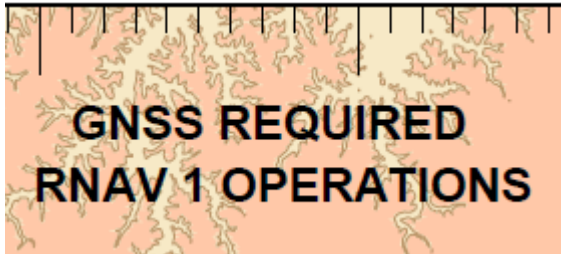
**RNAV-1 REQUIRED**

**RNP 1**

**RNAV 1 (GNSS) REQUIRED**

**GNSS required**

**RNAV-1  
GNSS REQUIRED**



**GNSS REQUIRED  
RNAV 1 OPERATIONS**

**NOTE:  
DME/DME required**

**RNAV 1 WITH  
GNSS REQUIRED**



## PBN Requirements Box - Issues

- ✈ No PBN box – Information provided elsewhere;
  - NAVSPEC/Sensors indicated in the Title or identification of the chart, database coding table or AD2.22
  
- ✈ PBN box
  - NAVSPEC only
  - Sensor limitation only :
    - Charts with all sensors required, or
    - Charts with no sensor limitation in area where DME/DME (RNAV1) is not available
    - Charts with DME/DME only (are they not valid for GNSS?)



## Lack of harmonization - room for improvement

- ✈ The lack of harmonization in SID/STAR charts can pose challenges for AUs. It might be confusing for pilots and ATC.
  
- ✈ Some common issues associated with the lack of harmonization :
  - Different ways of publishing PBN information,
  - Charts can be confusing,
  - Information is not easy to find,
  - DME/DME sensor acceptability is one of the most difficult things to evaluate.
  
- ✈ Harmonization is crucial for promoting safety, efficiency, and standardization
  
- ✈ There is a need for ongoing efforts to promote harmonization and consistency in the publication of PBN SID/STAR charts:
  - ICAO Standards and Guidance
  - Regular Reviews and Updates
  - Training and Awareness



The following Draft Decision is proposed:

**Draft Decision 8/X: PBN SID and STAR Charting Ad Hoc Working Group**

*That a PBN SID and STAR Charting Ad Hoc Working Group ,*

*a) be established to develop guidance/Specimen of PBN SID and STAR Charts, in coordination with the AIM Sub Group.*

*b) be composed of:*

— *Chairpersons of the PBN SG and the AIM SG*

— *AAAA*

— *BBBB*

— *CCCC*

— *ICAO Secretariat*

*c) present their outcome to the PBN SG/9 and AIM SG/11 meetings.*

## Action by the meeting

The meeting is invited to:

- a) take note of the information provided in this presentation;
- b) discuss the PBN SID & STAR Charting issues in MID Region; and
- c) endorse the proposed Draft Decision.



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