



**INTERNATIONAL CIVIL AVIATION ORGANIZATION**  
*A United Nations Specialized Agency*

---

# Point in Space Procedure Design Course

## APAC FPP – Beijing, China

(11-15 May 2026)



# Tentative Schedule



Date	09:00-10:00	Coffee Break	10:20-11:50	Lunch Break	13:20-14:30	Coffee Break	14:50-16:40
11/05/2026 Mon.	IFR Procedure Introduction M		Cat H IFR Specific Criteria (Departure and Approach) L		PinS Approach Concept M		Criteria for IFR PinS Approach Segments L
12/05/2026 Tue.	PinS Approach Visual Segment (Direct-VS) L		PinS Approach Visual Segment (Manoeuvring-VS) M		PinS Approach Proceed VFR L		Exercise for PinS Approach(Direct-VS) M
13/05/2026 Wed.	Criteria for IFR PinS Departure Segments M		PinS Departure Visual Segment (Direct-VS) L		PinS Departure Visual Segment (Manoeuvring-VS) M		Exercise for CATH Departure L
14/05/2026 Thur.	Exercise for PinS Departure(Manoeuvring-VS) L		PinS RNP APCH for LPV Minima M		Charting and Practice Sharing L		Progress Test
15/05/2026 Fri.	Evaluation		Evaluation				



North American  
Central American  
and Caribbean  
(NACC) Office  
Mexico City

South American  
(SAM) Office  
Lima

ICAO  
Headquarter  
Montreal

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) Office  
Bangkok

ICAO Asia Pacific Flight Procedure  
Programme (APAC FPP)

Co-located with ICAO APAC Regional  
Sub Office (RSO) in Beijing China

Let's **F**ocus/**P**ropose/**P**lan  
Together



**INTERNATIONAL CIVIL AVIATION ORGANIZATION**  
*A United Nations Specialized Agency*

---

# Criteria for IFR Departure Segments

ICAO APAC FPP Beijing



# CONTENTS



## 01. PinS departure concept

An introduction to the Point-in-Space departure procedure and its regulatory basis.

## 02. PinS departure

- Instrument phase
- Visual segment (03 & 04)

## 03. Proceed Visually

- Direct VS (Visual Segment): Straight-out tracking
- Manoeuvring VS: Turning and repositioning manoeuvres

## 04. Proceed VFR

Transition from Visual Flight Rules to instrument flight operations.

# PinS departure Concept

## Definition

A departure procedure designed for helicopters only that includes both a visual and an instrument segment.

## Visual Segment

Starts from the heliport/landing location (VFR segment) and ends at the **Initial Departure Fix (IDF)** at or above the **IDF Minimum Crossing Altitude (MCA)**.

## Instrument Segment

From IDF, the helicopter navigation specification defines the instrument trajectory, extracted from the RNAV database. Terminal mode is active to protect the flight path.

## Reverse PinS

PinS departure is called “Reverse PinS” if the IDF is the same reference point than the MAPt (PinS) of the approach.

# PinS departures : Types

## « proceed VFR »

From the heliport or landing location to the IDF, pilot can comply with VFR in the visual segment to see and avoid obstacles until crossing the IDF at or above the IDF MCA.

**No obstacle protection area** in the VFR segment. IFR clearance shall be obtained prior to reaching the IDF.

## « proceed visually »

Departing on an IFR clearance, a pilot can navigate by visual reference to see and avoid obstacles, with visibility sufficient to return to the heliport/landing location if they cannot continue visually to cross the IDF at or above the IDF MCA. Visual flight may be conducted **below minima required for VFR**.

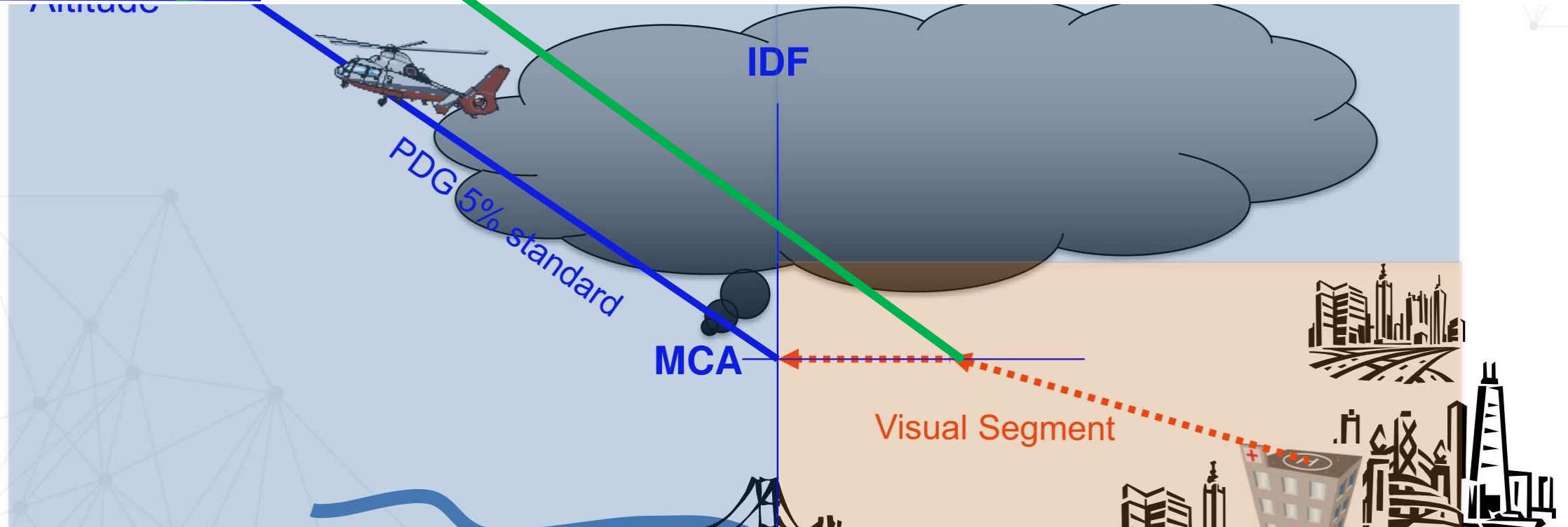
**2 types:** Direct visual segment | Manoeuvring visual segment

**Note:** “VFR” refers to specified minimum meteorological conditions established by the State for the airspace the operation is conducted in or the applicable operating regulation.

“Visual” refers to meteorological conditions permitting visual reference to the surface but not necessarily meeting specified minimum meteorological conditions for VFR operations.

# PinS Departure Concept

En-Route altitude



A helicopter departs the heliport (H) on a **visual segment** to the Initial Departure Fix (IDF). At the IDF (at the required MCA), the flight transitions to an **instrument segment** on a protected PBN route.

# INSTRUMENT DEPARTURE

DREUX hospital heliport

SEGMENT TYPE

IDF

**MANOEUVRING VISUAL**

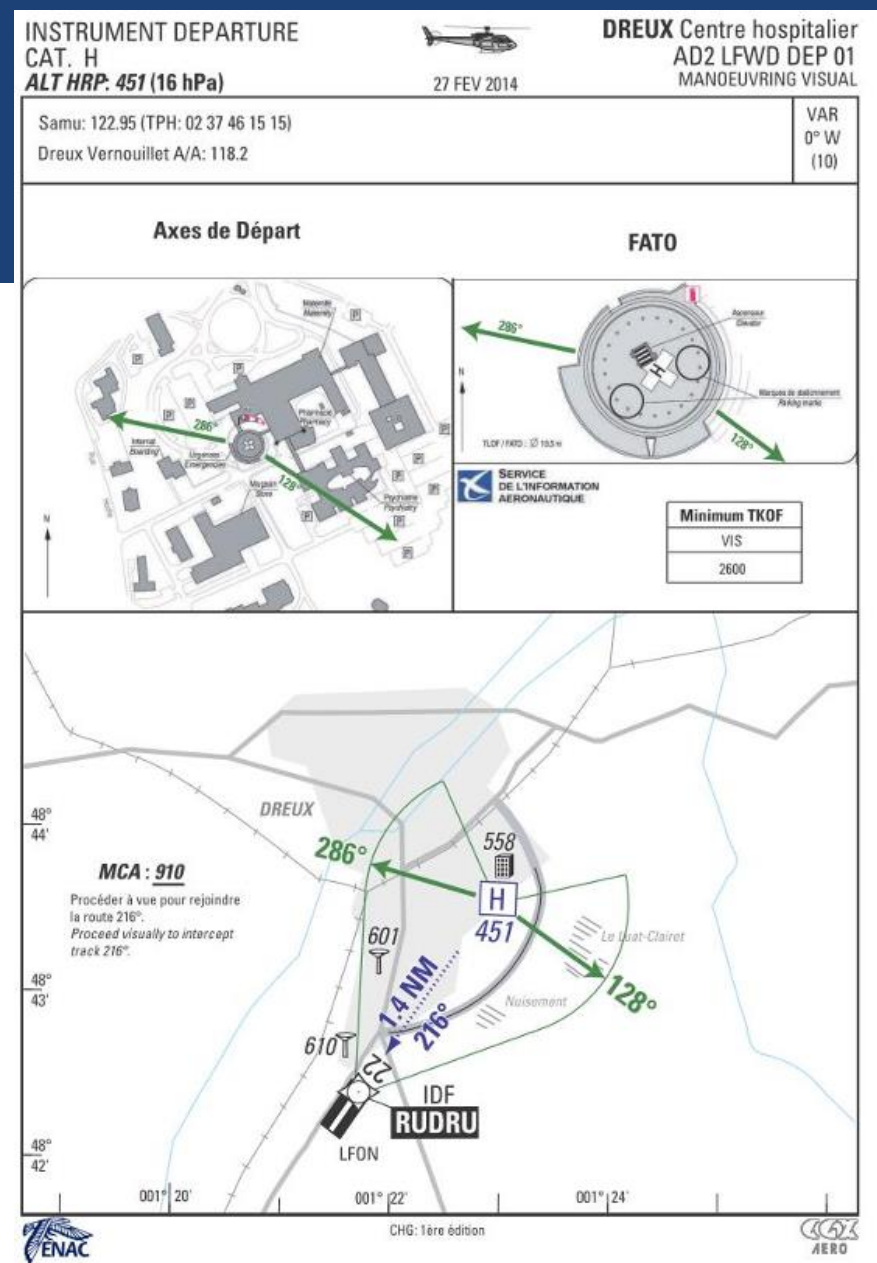
**RUDRU**

MCA:

**910**

MINIMUM TAKEOFF VISIBILITY

**2600 m**



# INSTRUMENT DEPARTURE

DREUX hospital heliport

## OPERATIONAL DATA

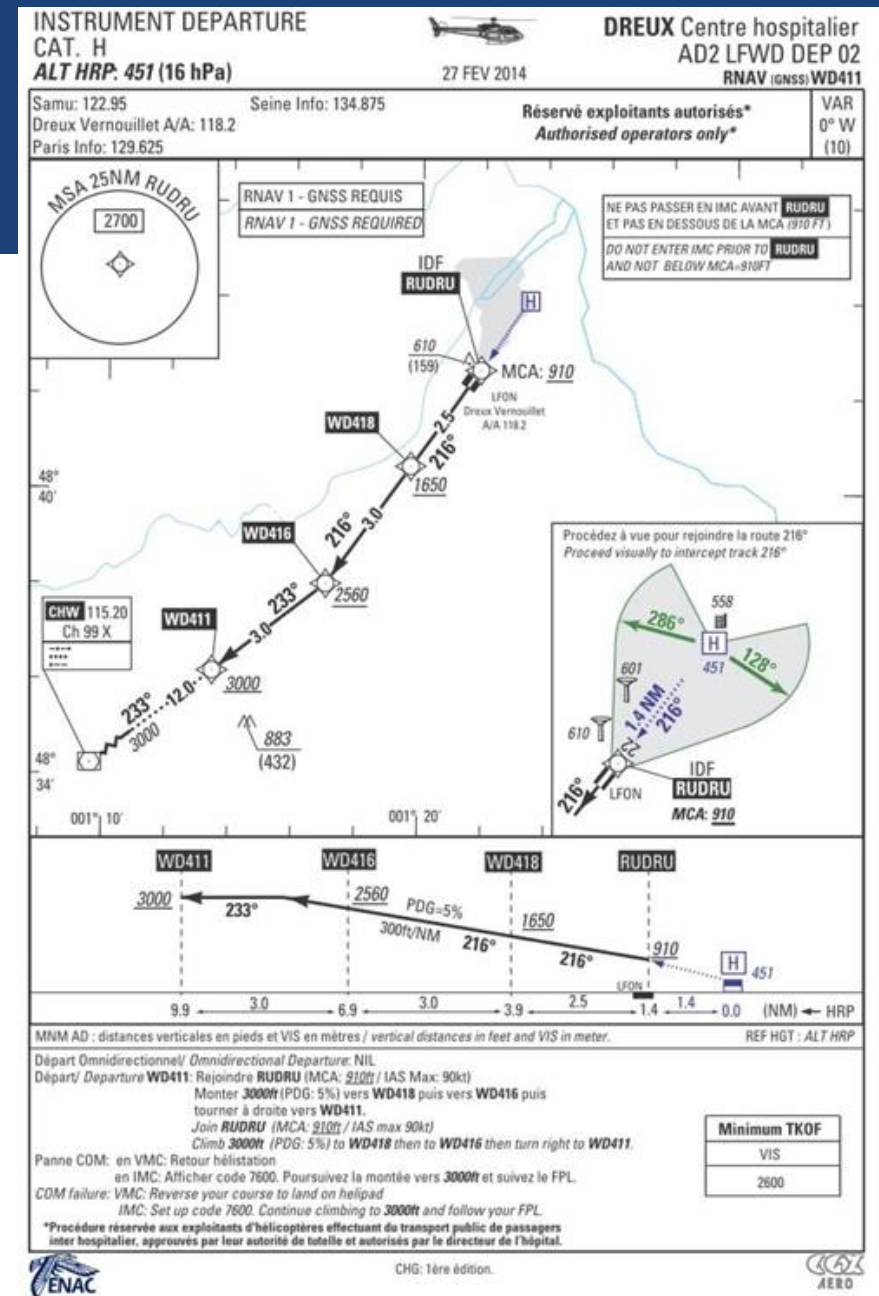
CAT.H ALT HRP.451 (16 hPa)

**RNAV 1 - GNSS REQUIRED | IDF RUDRU**

## INSTRUMENT PHASE

*“Proceed visually to intercept track 216°”*

Transition point from visual segment to instrument flight rules (IFR) navigation.



# IFR procedure: Main characteristics

## IDF vs. DER

- The Initial Fix (IDF) is functionally comparable to the Departure End of Runway (DER).

*Note: IDFs are generally charted as a 'fly-by' waypoint. A 'fly-over' designation is only for specific operational reasons.*

## Start & Gradient Rules

- The instrument flight procedure begins at the IDF at the specified **Minimum Crossing Altitude (MCA)**.

If the minimum Path Gradient (PDG) along the trajectory is greater than 5%, this value must be clearly annotated on the instrument chart.

## PinS Departure Rules

For PinS (Point-in-Space) departure procedures with a manoeuvring visual segment:

The **Minimum Crossing Height (MCH)** of the IDF must be at least **90 m (295 ft)** above the elevation of the heliport or landing location.

# Criteria for IFR trajectory



## Max IAS in departure

The maximum indicated airspeed (IAS) applicable to the departure is either:

- **90 kt**
- **70 kt** “speed limitation annotated on the chart”

## Navigation Specs

The following navigation specifications apply to PinS (Point-in-Space) departures:

- RNAV 1 / RNAV 2
- RNP 1 / RNP 0.3
- A-RNP (Advanced RNP)

## IDF Tolerance (RNAV 1 Ex.)

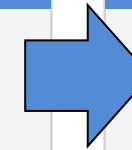
IDF (Initial Departure Fix) tolerance values depend on the navigation specification used. Example for RNAV 1:

- ATT (Along-Track): 0.8 NM
- XTT (Cross-Track): 1.0 NM
- BV (Buffer Value): 0.35 NM
- ½ AW (Alert Width): 1.85 NM

## Next Waypoint (½ AW)

The ½ Alert Width (½ AW) varies based on the distance from the IDF:

- < 15 NM from IDF: **1.85 NM**
- < 30 NM from IDF: **2.2 NM**
- > 30 NM from IDF: **4.0 NM**  
(with XTT=2 NM, BV=1 NM)



# PDG and MOC

## Procedure Design Gradient (PDG)

The standard PDG value is **5.0%** for the departure procedure..

## Minimum Obstacle Clearance (MOC) 1

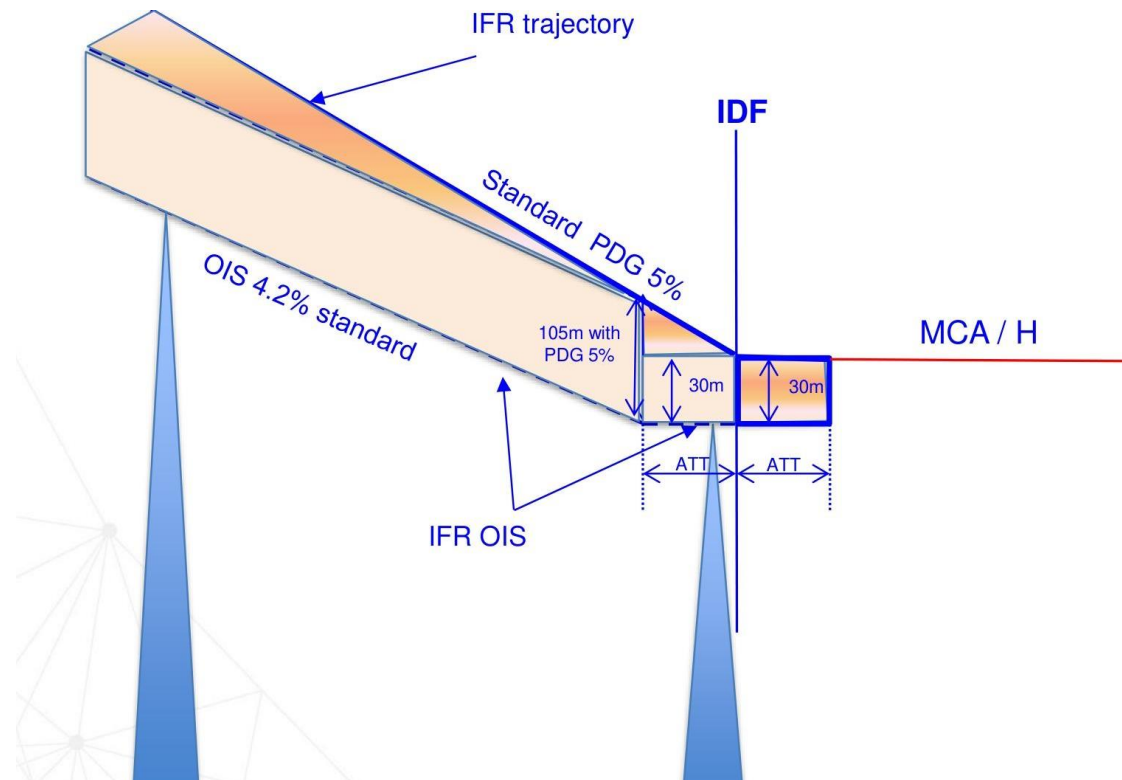
- **-ATT (IDF):**Fixed clearance of **30 meters**.
- **+ATT (IDF):**Increased by the PDG value multiplied by the horizontal distance traveled **30m + [PDG x (distance from IDF)]**.

## Minimum Obstacle Clearance (MOC) 2

- **Outside the ATT area :**Increased by **0.8%** of the distance from the latest IDF until en-route MOC is achieved.

**FORMULA: Total MOC = 30m + [ PDG × ATT ] + [ 0.8% × Distance(from Latest IDF) ]**

# PDG and MOC



## Visualizing Departure Clearance

This diagram illustrates the protected volume expansion along the departure path:

- **Starting Point (-ATT of IDF):** MOC = 30-meter until IDF.
- **MOC Growth after IDF :** The MOC expands **by PDG** along the path.
- **Gradient > (+ATT of IDF) :** MOC as 0.8% increase rate, from the MOC at latest IDF

**REMARK:** Instead of increasing the PDG above the 5% standard beyond the IDF, raising the IDF's Minimum Crossing Altitude (MCA) is a valid alternative to ensure the required obstacle clearance on subsequent departure legs.



North American  
Central American  
and Caribbean  
(NACC) Office  
Mexico City

South American  
(SAM) Office  
Lima

ICAO  
Headquarter  
Montreal

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) Office  
Bangkok

ICAO Asia Pacific Flight Procedure  
Programme (APAC FPP)

Co-located with ICAO APAC Regional  
Sub Office (RSO) in Beijing China

End