



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				



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Together



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PinS Departure Visual Segment (Manoeuvring-VS)

ICAO APAC FPP Beijing





« Proceed visually » Manoeuvring VS

- **Take-off & Manoeuvring:** The pilot takes-off in a direction other than directly to the IDF and then visually manoeuvres to join the initial instrument segment at the IDF.
- **Visual Navigation Requirements:** The pilot shall navigate by visual reference to the earth's surface. Visibility must be sufficient to see and avoid obstacles, and to return to the heliport/landing location if visual flight is not possible.
- **Obstacle Protection:** This segment is protected by one sloping initial Visual OCS and one Visual OIS. *(Note: Protection is comparable to PinS approaches followed by a manoeuvring visual segment.)*
- **Segment Length:** Must permit climbing to the IDF MCA and accelerating to V_{mini} by the IDF. Minimum length is **1.00 km (0.54 NM)**.
- **Critical Altitude Rule:** IMC (Instrument Meteorological Conditions) must NOT be entered prior to crossing the IDF at or above the MCA.

« Proceed visually » Manoeuvring VS



Visual segment design gradient (VSDG)

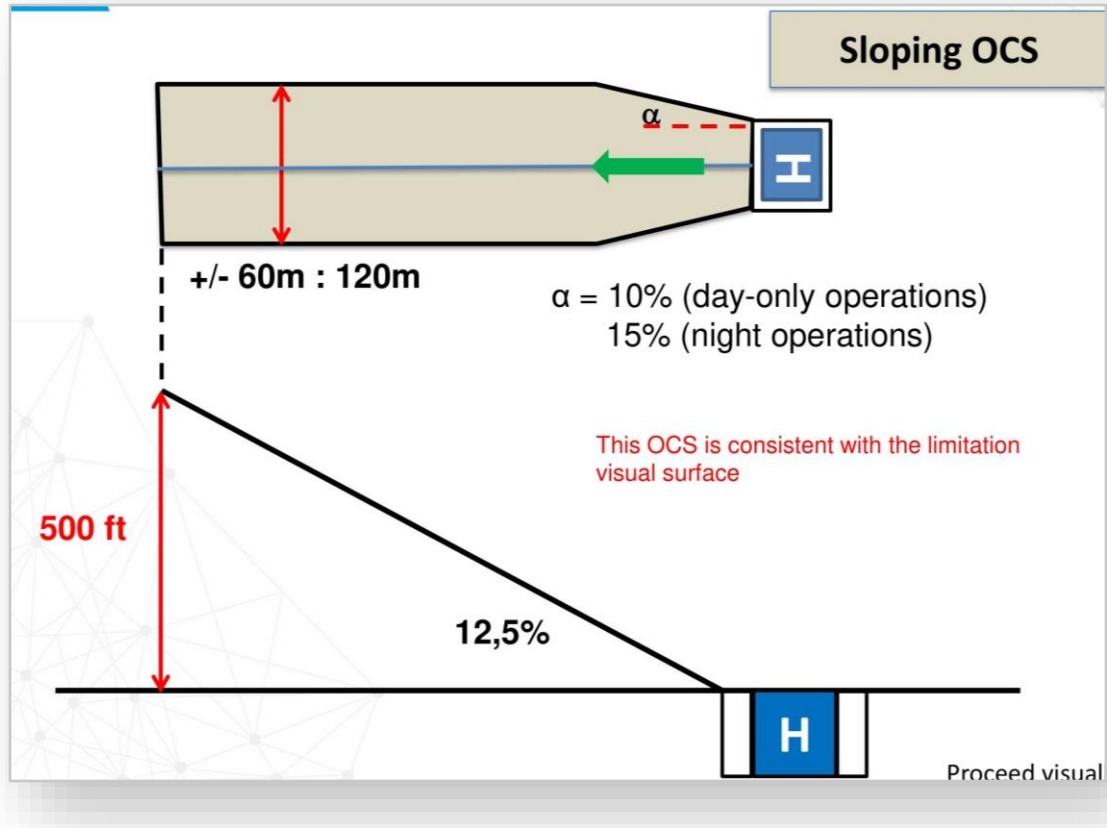
The nominal VSDG shall be **13.3%**. This is consistent with an obstacle clearance of **0.8%** above the sloping initial visual OCS (see 1.3.4.5). The VSDG shall not be less than 0.8% above the Annex 14 take-off climb surface.



Minimum Crossing Height (IDF)

The Minimum Crossing Height of the IDF for a PinS departure procedure with a manoeuvring visual segment shall not be less than **90 m (295 ft)** above the heliport/landing location elevation.

Manoeuvring VS



Sloping OCS (Obstacle Clearance Surface)

- **Width:** $\pm 60\text{m}$ (Total: 120m)
- **Angle α :** 10% (Day operations) / 15% (Night operations)
- **Note:** This surface is consistent with the visual surface limitations, ensuring obstacle clearance during the initial climb phase.

Manoeuvring VS : Manoeuvre area

Climb Requirements to IDF

Before manoeuvring towards the IDF, the pilot must climb initially along the **center line of the take-off climb surface** to reach the **greater** of the following two altitudes:

- Half of the IDF Minimum Crossing Height (IDF MCH / 2)
- 90 meters (295 ft) above the heliport/landing location elevation

After reaching this height, the pilot continues to climb and accelerate to cross the IDF at or above the **IDF MCA**(Minimum Crossing Altitude).

Definition of "Manoeuvre Area"

The *manoeuvre area* is the defined airspace that encompasses all possible flight paths satisfying the following conditions:

- All lines originate at the **IDF**.
- These lines connect to a designated **"turn area"**.
- The turn area is **symmetrically aligned** around the center line of the take-off climb surface.

Manoeuvring VS : Manoeuvre area

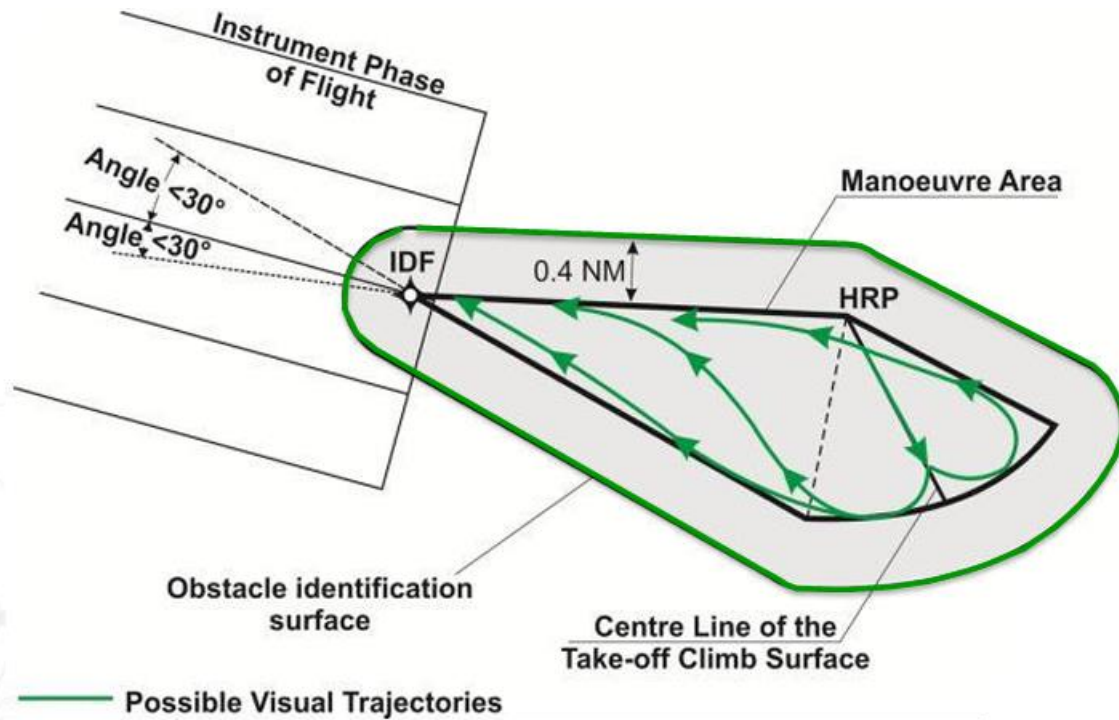
- r : Radius from HRP of the 'base turn area'
- α : Angle from centre line of the take-off approach

IDF MCH	300ft	400ft	500ft	600ft	700ft	800ft	900ft	>1000ft
r (NM)	0.8	0.8	0.8	0.8	0.9	1.0	1.1	+0.1 per 100ft(30m)
α (°)	50°	50°	50°	50°	45°	40°	35°	30° (Constant)

Note: Where operationally beneficial, the “turn area” can be extended by using wider angles on one or both sides of the centre line of the take-off climb surface to expand the manoeuvring area.

If the IDF MCH is more than 600 ft above heliport elevation, the radius (r) increases linearly by 0.1 NM for each additional 30 m (approx. 100 ft) above 600 ft.

Manoeuvring VS : OIS (Manoeuvre area + buffer)



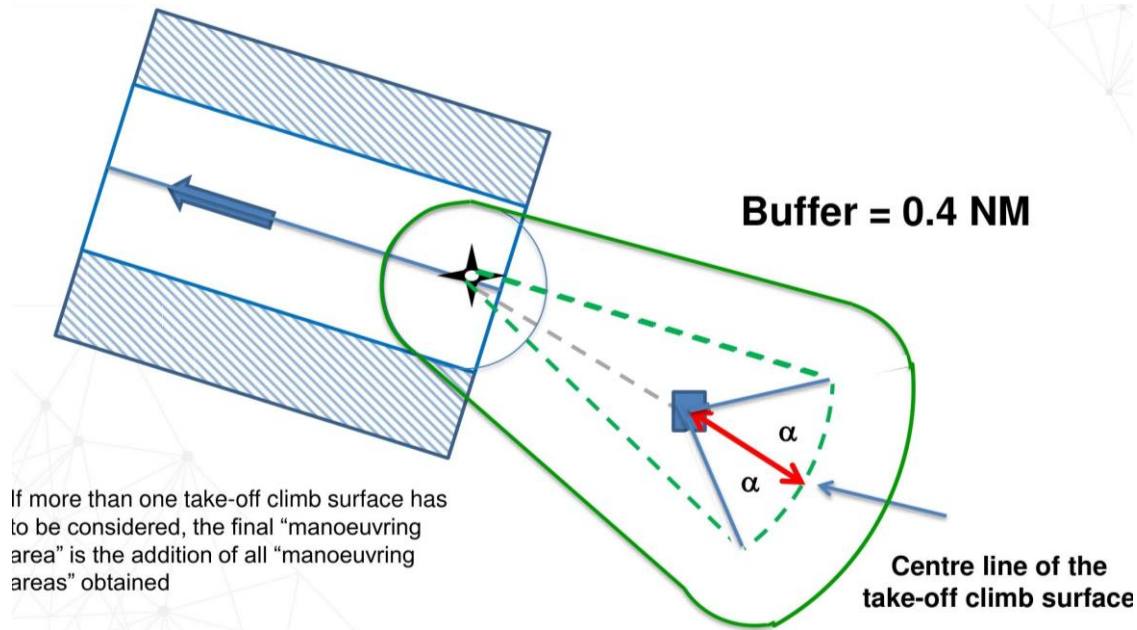
Key Principle

The Obstacle Identification Surface (OIS) encompasses the manoeuvre area plus a buffer.

The angle between the **initial instrument segment direction** after the IDF and the direction of the “extreme” visual trajectories (corresponding to the limits of the “manoeuvring area”) **shall be less than 30°** .

This ensures a smooth and safe transition from visual flight to instrument flight.

Manoeuvring VS : OIS (Manoeuvre area + buffer)



If more than one take-off climb surface has to be considered, the final "manoeuvring area" is the addition of all "manoeuvring areas" obtained

Buffer Zone Definition

The standard buffer zone is **0.4 NM**

Combining Multiple Surfaces

If multiple take-off climb surfaces are required to be considered, the final "manoeuvring area" is defined as the **sum/union** of all individual manoeuvring areas.

Level OIS and ~~Level OCS~~ & Sloping OCS

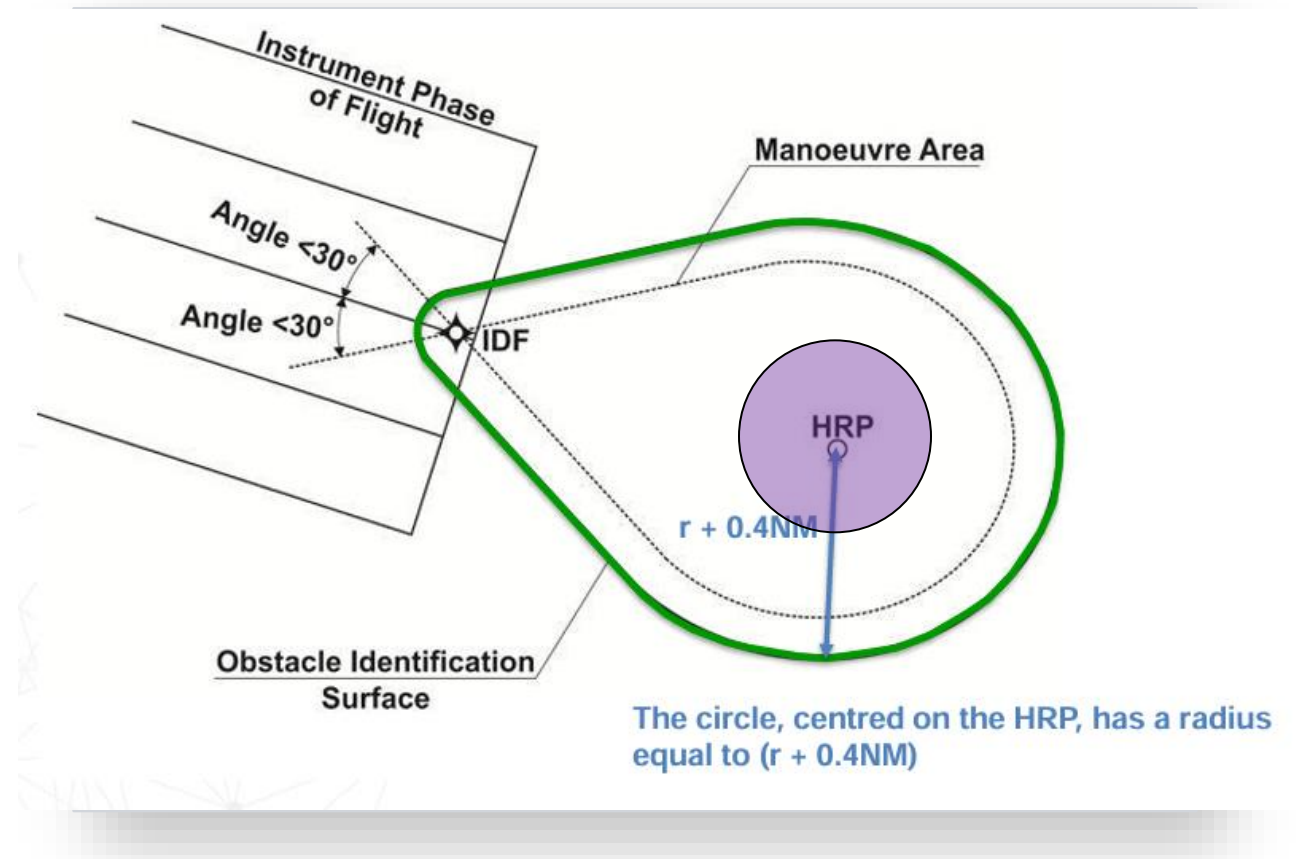
Manoeuvring VS : OIS (omni-directional take-off)

The initial take-off can be performed in an omni-directional way

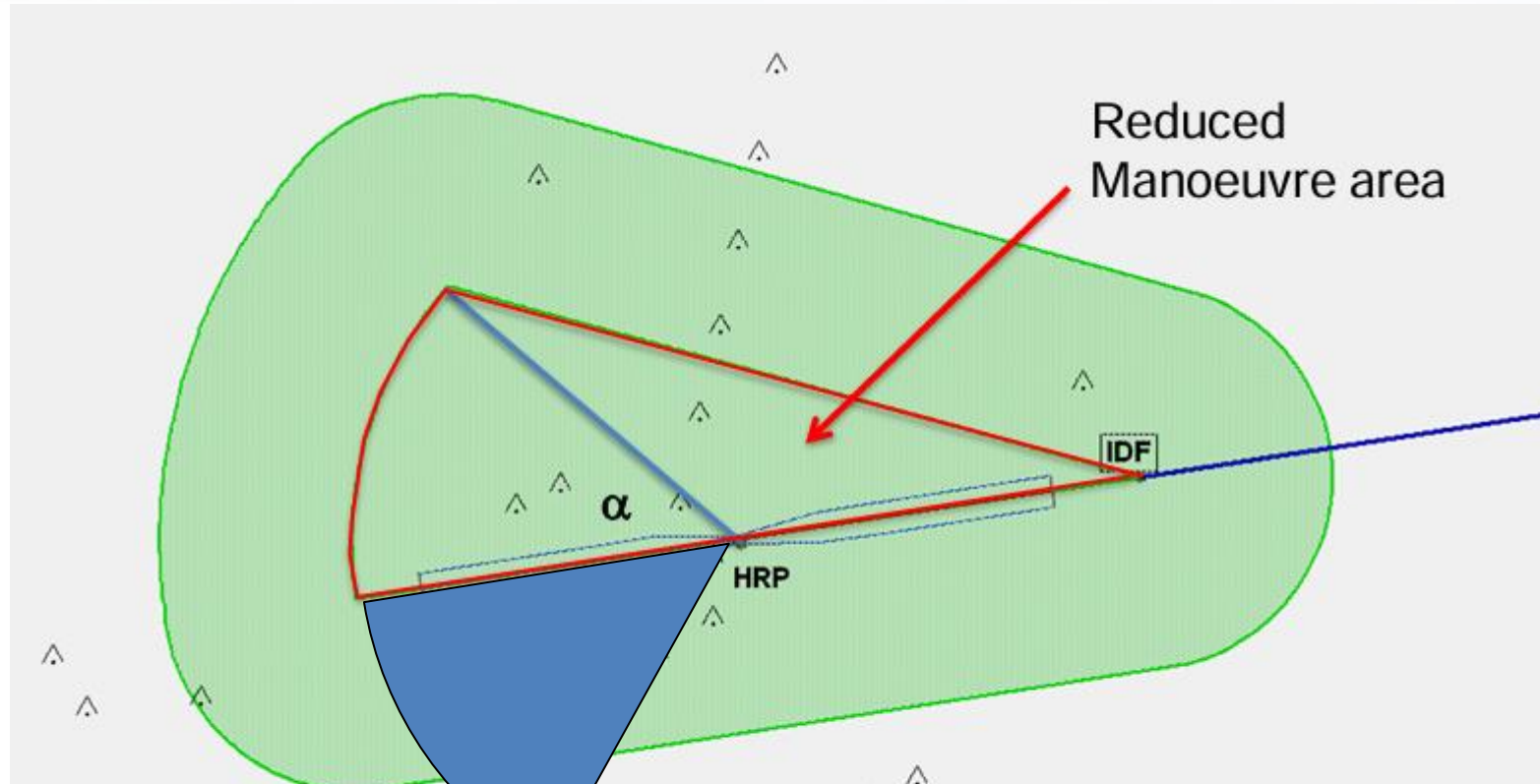
In some specific operational scenarios, the helicopter is not limited to a specific departure path. The manoeuvre area is defined as a circle:

- **The circle, centred on the HRP, with a radius equal to $(r + 0.4 \text{ NM})$**

This configuration ensures obstacle clearance is identified for all possible directions of departure.



Reduction of the manoeuvre area



TWO take-off axis. Reduction of the manoeuvre area (West departure: left turn prohibited)

OIS : Manoeuvre area + buffer



Obstacle Identification & Marking

Obstacles that penetrate the OIS surface must be:

- **Charted:** Included on all relevant aeronautical charts for flight planning.
- **Marked/Lighted:** Physically marked (with paint or markers) or equipped with aviation lighting, **when operationally feasible**, to enhance conspicuity.



OIS Height Determination

The OIS is a horizontal level surface whose height is the **maximum value** of:

1. $\frac{1}{2} \times$ IDF MCH (actual height of MCA above the landing location) **minus 150 ft**
2. **150 ft** above the elevation of the heliport/landing location

*IDF = Initial Departure Fix | MCH = Minimum Clearance Height |
MCA = Minimum Crossing Altitude*

Proceed VFR



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

This operation is based on State regulatory requirements for VFR.

There is no obstacle protection area provided in the VFR segment.

Crucially, an IFR clearance must be obtained prior to reaching the IDF.



Crucially, an IFR clearance must be obtained prior to reaching the IDF.

Since there is no obstacle protection area for this segment, IMC (Instrument Meteorological Conditions) must NOT be entered until after crossing the IDF.



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