International Civil Aviation Organization

Thirteenth Meeting of The Performance Based Navigation Implementation Coordination Group (PBNICG/13)

(Bangkok, Thailand, 14-16 October 2026)

Agenda Item 4: National PBN Regulatory Framework

PBN APPROACH PROCEDURES TO NON-INSTRUMENT RUNWAYS: DESIGN CONCEPT AND SAFETY ASSESSMENTS

(*Presented by India / Airports Authority of India*)

SUMMARY

This paper addresses procedural design challenges arising from the ICAO Annex 14 definition of a non-instrument runway, which permits instrument approaches to a point from which the approach continues in VMC. This paper provides Indian implementation examples and advocating for a standardized charting caution and a mandatory safety assessment framework. These procedures will improve the predictability, safety and increase accessibility to airports with non-instrument runways

1. INTRODUCTION

1.1 ICAO Annex 14 Vol I defines a non-instrument runway to explicitly accommodate aircraft flying an instrument approach up to a specific point, from which the remainder of the approach must be continued in Visual Meteorological Conditions (VMC).

1.2 This regulatory framework allows for the expansion of PBN network access without the requisite ground infrastructure normally associated with instrument runways.

1.3 However, ICAO Doc 8168 (PANS-OPS) does not currently provide a harmonized framework for defining the exact spatial geometry of this VMC transition point for fixed-wing aircraft, nor does it address the geometric conflict between underlying aerodrome obstacle safeguarding and procedure design visual surfaces.

2. DISCUSSION

Establishing the design criteria

2.1 To satisfy the Annex 14 requirement that the approach continues in VMC, a definitive spatial point must be established where VMC is mandated. This is conceptually analogous to the visual fix in an RNP Visual to Final (VPT) procedure, which is critical to assuring obstacle clearance and alignment during the visual segment.

2.2 VFR flight visibility requires 5 km. When mapped against a standard 3° descent gradient, a 5 km (approx. 2.7 NM) distance from the runway threshold intersects the glidepath at approximately 1000 ft Above Threshold Elevation (THR ELEV). Establishing 1000 ft above THR ELEV as the mandatory check point guarantees the aircraft has the required visibility to visually acquire the runway environment.

Implementation methodology and Regional Progress in India

2.3 In India, instrument approach procedures to non-instrument runways are designed only after detailed OLS surveys and an assessment of future obstacles (NOC obstacles). All such procedures are implemented following a rigorous safety assessment, flight validation, and regulatory approval. At present, this is being applied at licensed aerodromes where the runway continues to be classified as non-instrument due to limited aerodrome infrastructure
.

2.4 To further mitigate risk, controlled airspace, ATM, CNS, and MET infrastructure are provided to enhance safety. Periodic maintenance of IFPs and aerodrome surveys are conducted, and future obstacles are granted heights only after examination w.r.t. the IFP. PAPI OPS is also established and protected.

2.5 Aerodrome Operating Minima (AOM) below VMC for instrument approach to non-instrument runways are approved by the regulator on a case-to-case basis after examination of detailed safety risk assessment submitted by the airline operator. Additionally, the Obstacle Clearance Altitude (OCA) is also published for these procedures to provide protection to the aircraft in the event of encountering conditions below VMC after passing 1000 ft above threshold.

2.6 The Airports Authority of India (AAI) has successfully deployed this exact methodology to expand regional connectivity. Notable examples include the RNP Y RWY 24 (CAT A/B) approach at Jagdalpur Airport (VEJR), the RNP Y RWY 33 (CAT A/B) at Kangra Airport (VIGG), and the RNP RWY 04 (CAT A/B) approach at Agatti Airport (VOAT). These cases demonstrate the operational viability of this design concept.

Proposed Charting Caution

2.7 To ensure flight crews are explicitly aware of the aerodrome's non-instrument classification and the mandatory VMC transition, the following standardized chart note is applied to these procedures:

"CAUTION: Non-instrument runway, approach below 1000ft above threshold elevation shall be conducted in VMC."

2.8 This note acts as a procedural safeguard when conducting an approach on a non-instrument runway, reinforcing the immediate need for the ICG to adopt harmonized charting and safety assessment guidelines across the APAC region.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

a) Review the implementation methodology adopted by India for instrument approach procedures to non-instrument runways.

b) Discuss any relevant matters appropriate.

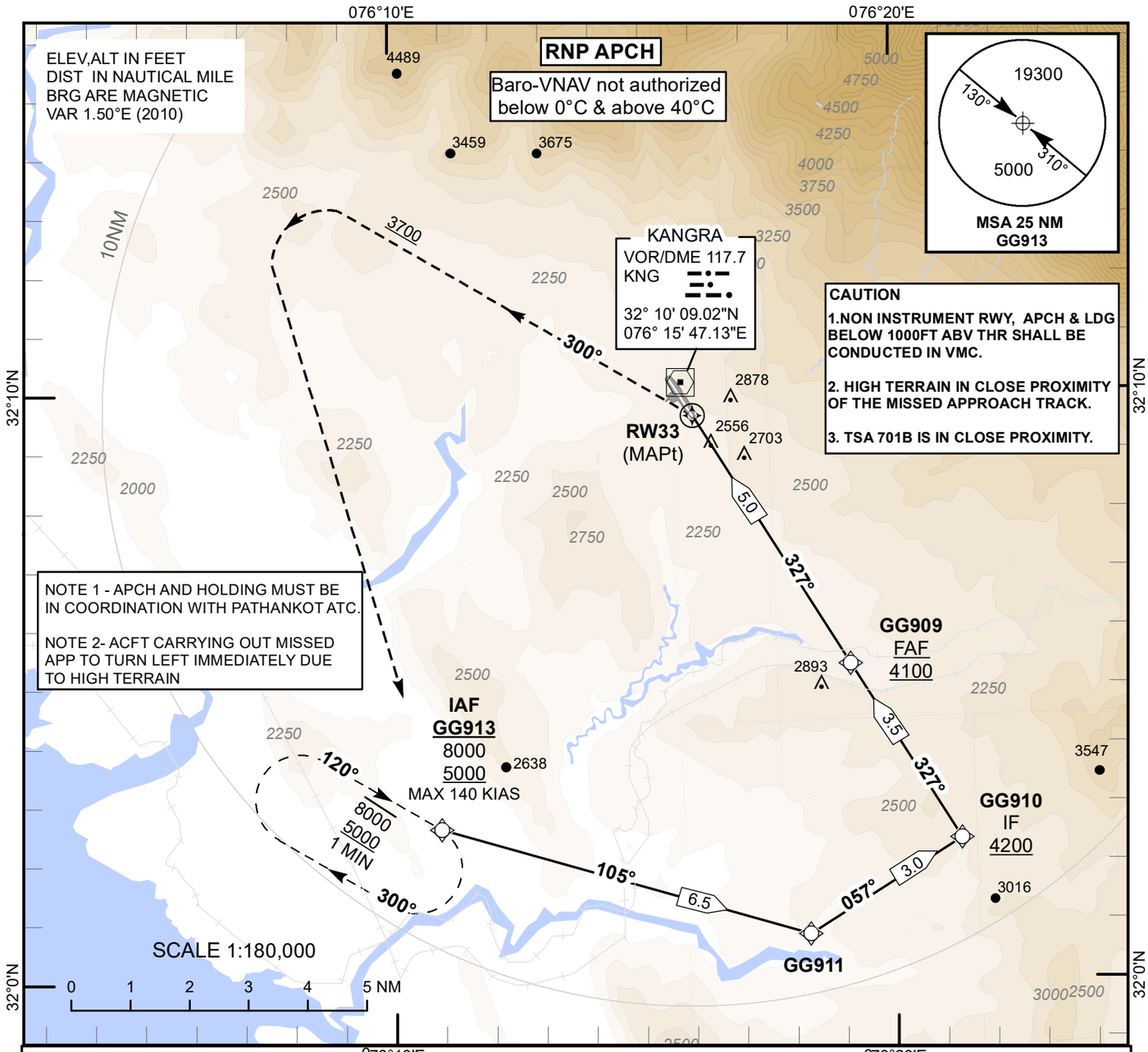
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INSTRUMENT APPROACH CHART

AERODROME ELEV 2527
Heights related to
THR RWY 33 ELEV 2466

VIGG TWR	120.100/118.050
PATHANKOT ATC	130.100/122.700
ALPHA MONITOR	119.700
NORTHERN CONTROL	125.100/123.050

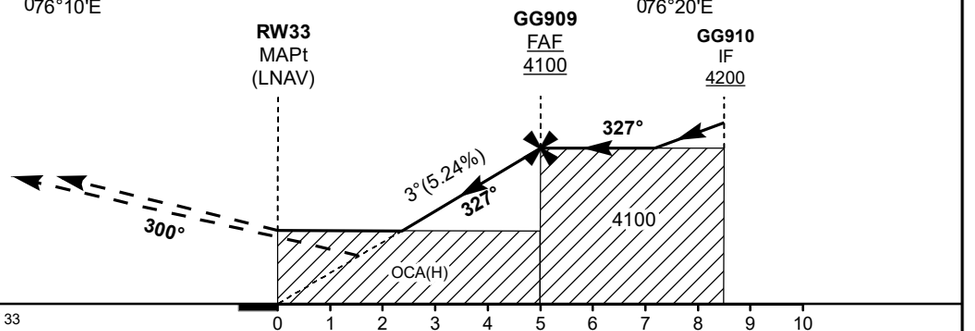
KANGRA(VGG)
INDIA
RNP Y RWY 33
(CAT A/B)



Transition Altitude 21000

MISSED APPROACH
Speed restricted to 130 KIAS MAX
Climb on track 300° to 3700ft
then climbing turn LEFT proceed
direct GG913 to join hold at
5000ft or as instructed by ATC.

TCH 50
THR Elev 2466



OCA(H)	A	B
LNAV/VNAV	3010(544)	
LNAV	3320(854)	

Distance/Altitude Information (LNAV)				
Distance to RW33	NM	5	4	3
Altitude	Ft	4100	3790	3470

Rate of Descent/Ground Speed Information					
Ground Speed	Kt	80	100	120	140
Rate of Descent (5.24%)	Ft/Min	425	530	635	745

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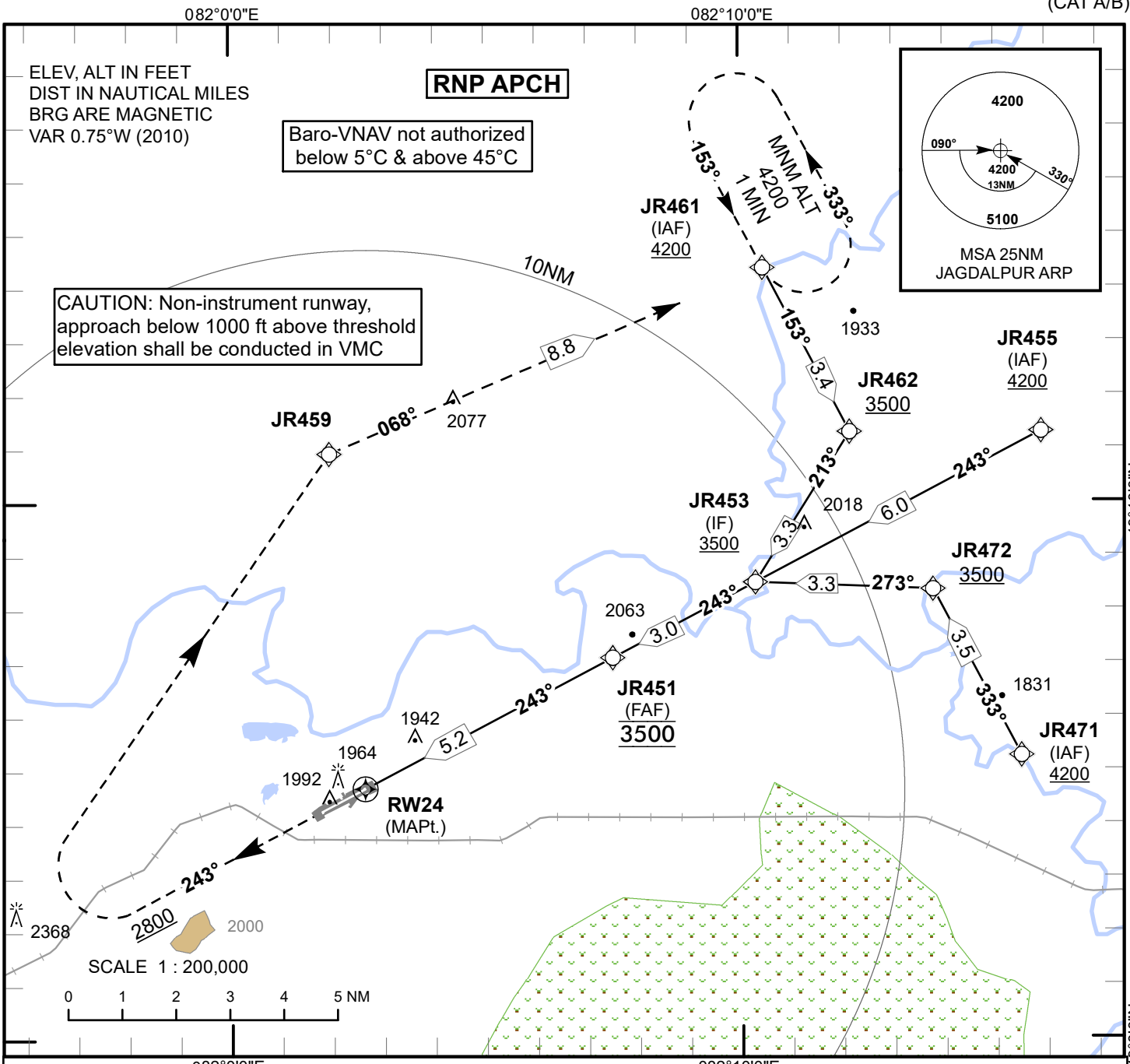
INSTRUMENT APPROACH CHART

AERODROME ELEV 1842ft

HEIGHTS RELATED TO
THR RWY 24 ELEV 1797 ft

TWR 118.150

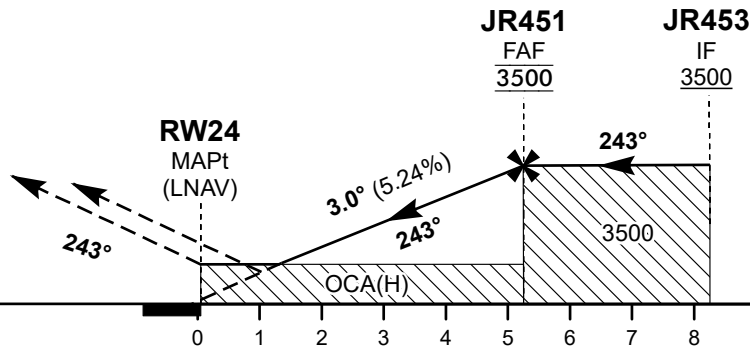
JAGDALPUR(VEJR)
INDIA
RNP Y RWY 24
(CAT A/B)



Transition Alt 6000

MISSED APPROACH

Climb straight ahead, passing 2800 ft,
climbing turn right direct to JR459,
turn right to JR461 to join hold
at 4200 ft or as instructed by ATC.



			Distance/Altitude Information							
OCA(H)	**A**	**B**	Distance to RW24	(NM)	5.2(FAF)	5	4	3	2	
LNAV/VNAV	2160(363)		Altitude	(FT)	3500	3440	3130	2810	2490	
LNAV	2250(453)			Ground Speed / Rate of Descent Information						
			Ground Speed	(KT)	80	100	120	130		
			Rate of Descent FAF-MAPt 3.0° (5.24%)	(FT/Min)	425	530	635	690		

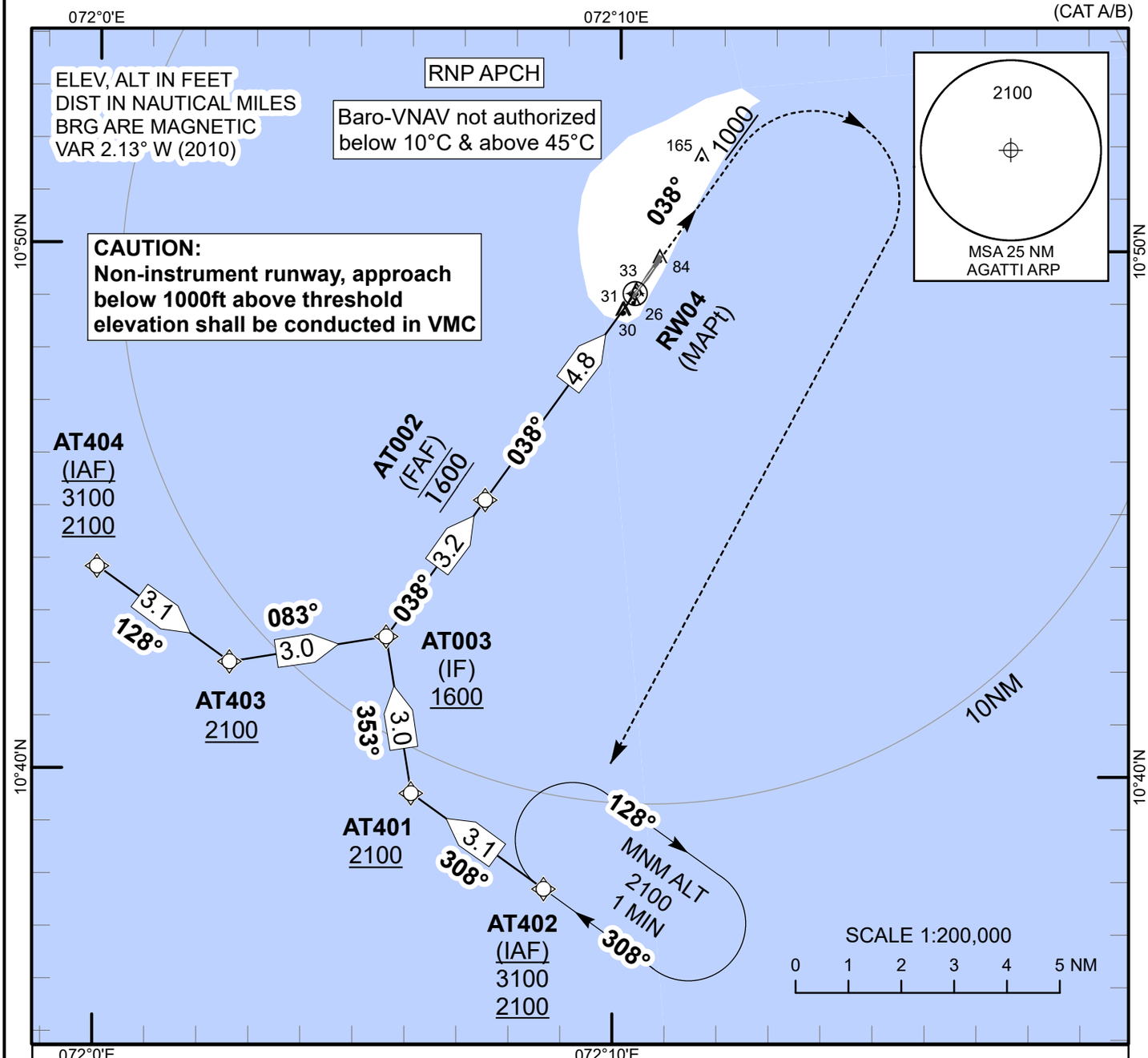
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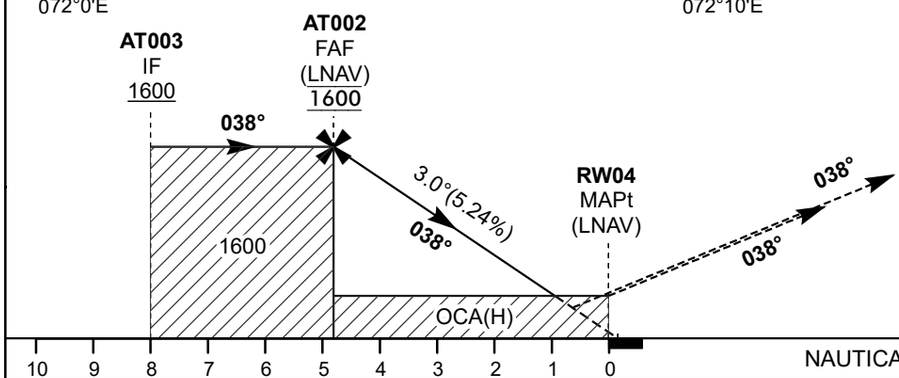
INSTRUMENT APPROACH CHART

AERODROME ELEV 12 ft
HEIGHTS RELATED TO
THR RWY 04 - ELEV 10 ft

TWR 122.300/118.700

AGATTI(VOAT)
INDIA
RNP RWY 04
(CAT A/B)





Transition Altitude 4000

MISSED APPROACH
Climb Straight passing 1000 ft, climbing turn RIGHT, proceed direct to AT402 and join hold at 2100ft or as instructed by ATC.

TCH 50

THR ELEV 10

OCA(H)			Distance/Altitude Information						
Acft Category	A	B	Distance to RW04	NM	4.8(FAF)	4	3	2	1
LNAV/VNAV	261(251)		Altitude	Ft	1600	1340	1020	700	380
			Rate of Descent/Ground Speed Information						
LNAV	360(348)		Ground Speed	Kt	80	100	120	140	
			Rate of Descent (5.24%)	Ft/Min	425	530	635	745	

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