



INSTRUMENT APPROACH CHART LEGEND

INDOAVIS[®]

These charts are for training purposes only
and not to be use for flight

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**INTRODUCTION TO INDOAVIS
AERONAUTICAL CHART
USER'S GUIDE**

English Version

**INSTRUMENT
APPROACH
CHART LEGEND**

INSTRUMENT APPROACH CHART LEGEND

FUNCTION

This chart shall provide flight crews with information which will enable them to perform an approved instrument approach procedure to the runway of intended landing including the missed approach procedure and where applicable, associated holding patterns.

Note.— Detailed criteria for the establishment of instrument approach procedures and the resolutions of associated altitudes/heights are contained in the Procedures for Air Navigation Services — Aircraft Operations (PANS-OPS, Doc 8168).

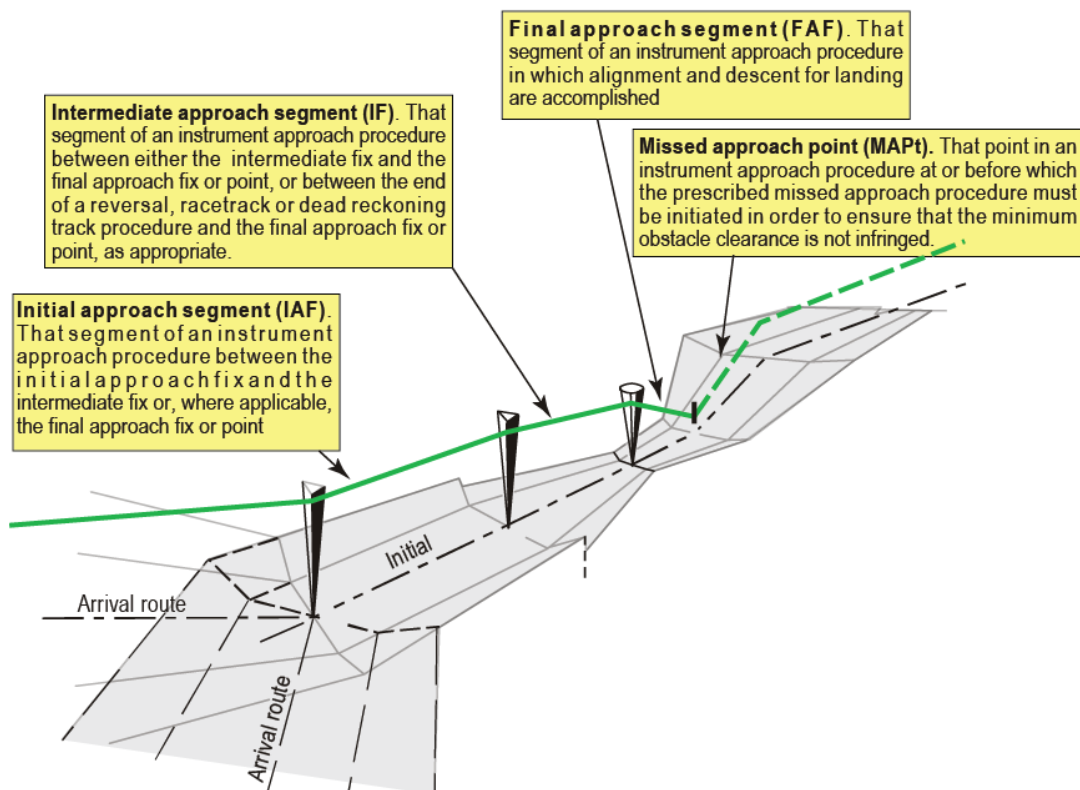
Anatomy of Instrument Approaches

In Indonesia, instrument approaches are developed by Directorate General of Civil Aviation (DGCA) in accordance with the publication AIP, and are published in the government publication.

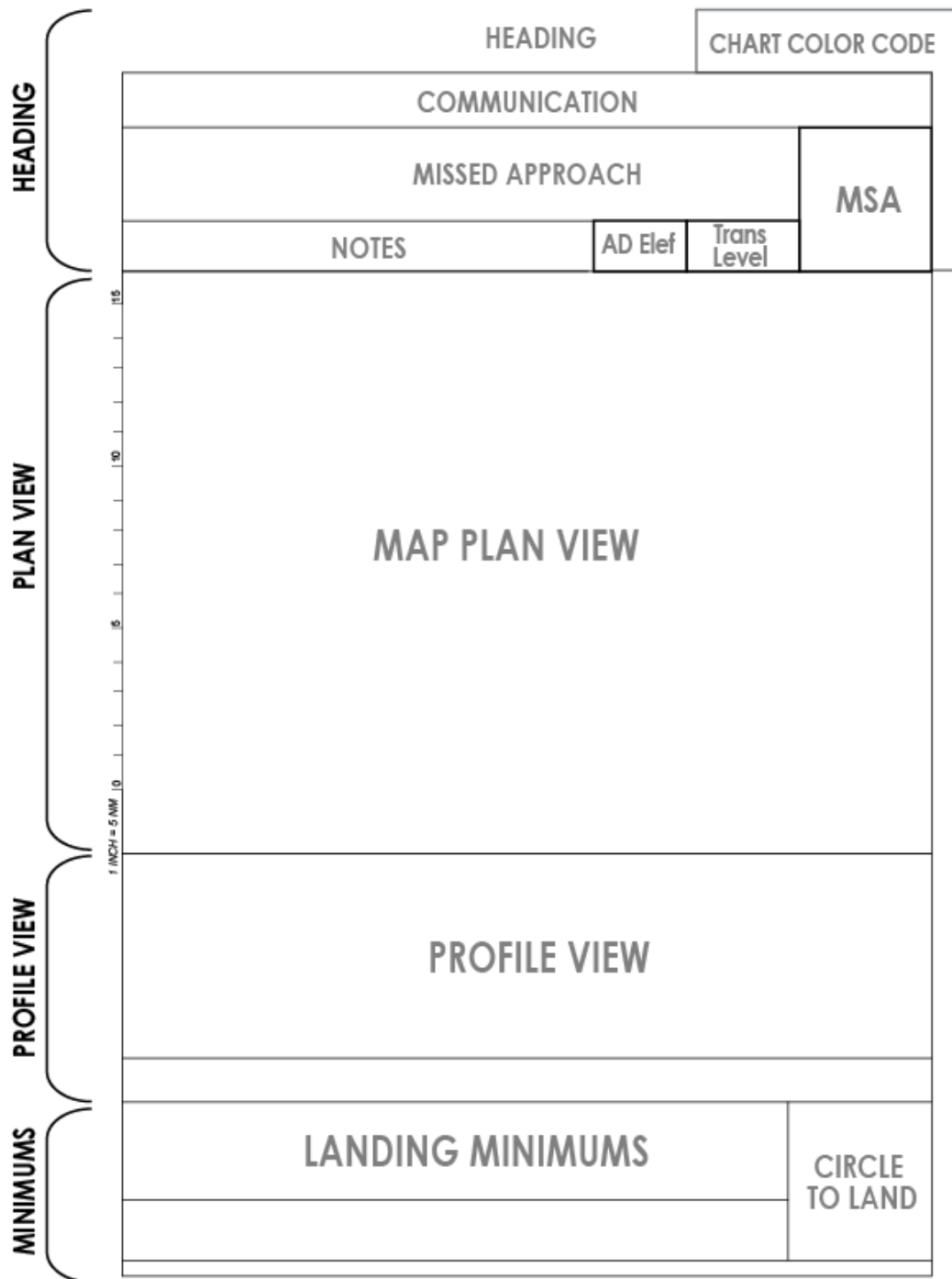
There are two broad categories of instrument approaches

- 1) Precision approaches and
- 2) Non-precision approaches.

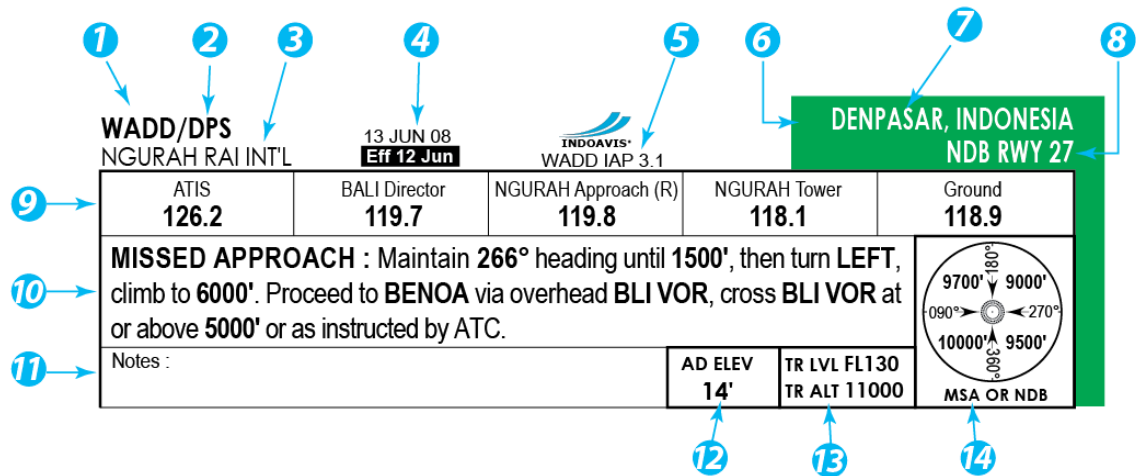
The Four Instrument Approach Segments



GENERAL CHART FORMAT
The four step of Indoavis chart layout



HEADING



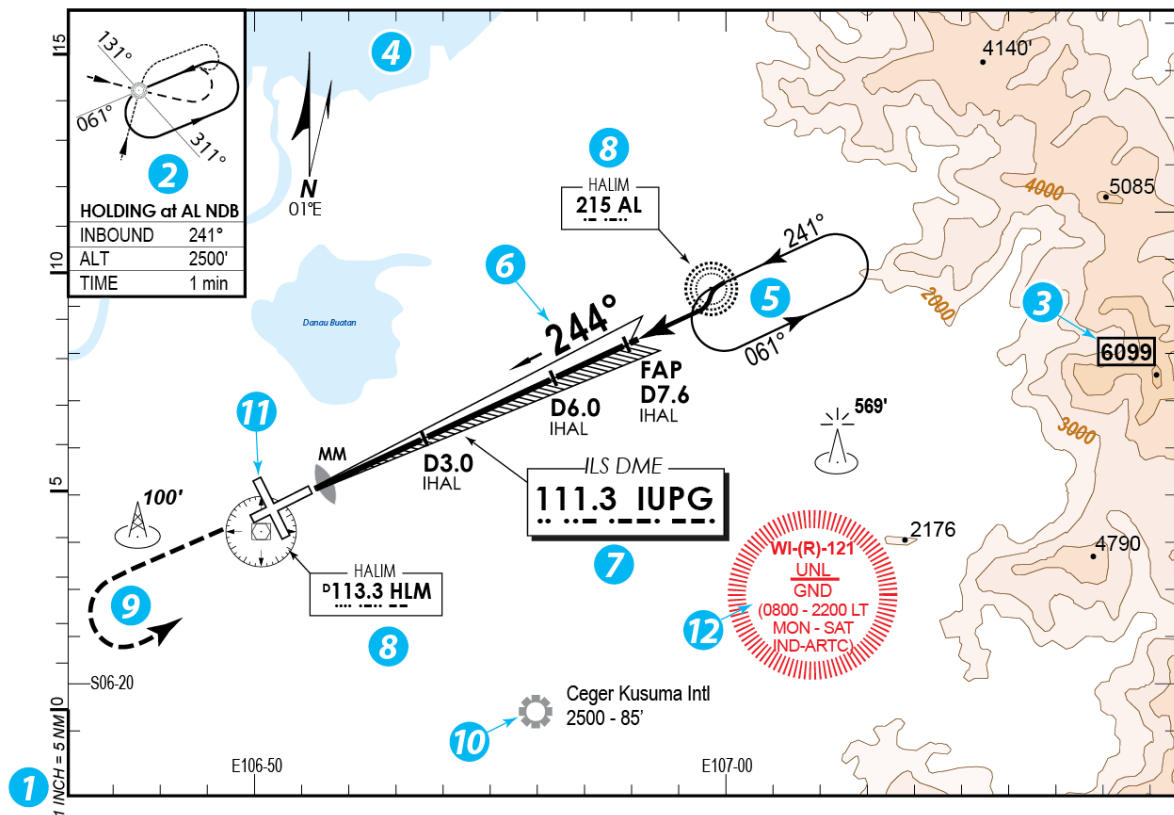
OVERVIEW OF HEADING FEATURES

- 1) ICAO Airport code identifier
- 2) IATA Airport code identifier
- 3) Airport name
- 4) AIRAC Date publication
- 5) Index number, Chart are sequenced by type
- 6) **Chart color code**, Individual INDOAVIS charts are identified on both the top color of the page by their procedure name (based on the NAVAIDs (Green is NDB, Blue is VOR or VOR/DME, ILS is Magenta and brown is GPS/GNSS)



- 7) Location City-Country name
- 8) Procedure Identification
- 9) **Communication frequencies**, Pilots typically refer to the next rows from top to bottom to set up and brief the approach. The communications section of the format is arranged horizontally in the top row.
 - a. ATIS : ATIS Arrival Frequency
 - b. DIRECTOR : Director Call and Frequency
 - c. APPROACH : Approach Control Call and Frequency
 - d. (R) : Radar available
 - e. TOWER : Tower Call and Frequency
 - f. GROUND : Ground Call and Frequency
- 10) Missed Approach instruction
- 11) Notes application to the approach procedure.
- 12) Aerodrome Elevation
- 13) **Transition Level (FL) (QNE) and Transition Altitude (FT) (QNH)**, Transition Level and Transition Altitude are provided for all areas in Indonesia.
- 14) **Minimum Safe altitude (MSA)** Altitudes are protected to a 25 Nautical mile radius unless special otherwise. Altitude depicted on (IAP, SID and STAR Chart) and identified as the minimum altitude which provide a 1.000ft obstacle clearance
 - a. Arrows on distance circle identify sector
 - b. Facility identifier

PLAN VIEW
Briefing Sequence



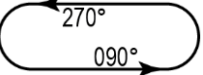


OVERVIEW OF HEADING FEATURES



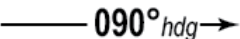
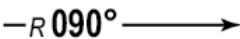
- 1) Scale Bar (inch / kilometers to Nautical miles)
- 2) Entry holding with fix point, altitude and time
- 3) Highest reference point with the plan view show in box
- 4) Drainage River and water features
- 5) Holding pattern, Holding pattern not part of the approach procedure.
- 6) Final approach course bearing is enlarged and made bold.
- 7) Primary navaid information enlarged and made bold and bold type and a shadow box for easy recognition.
- 8) Secondary navaid information
- 9) Missed approach track
- 10) Nearby Civil or joint Military airport
- 11) Airport
- 12) Restricted airspace The accompanying label indicated it as prohibited, restricted, danger, etc

APPROACH CHART LEGEND PLAN VIEW SYMBOLS














1. PROCEDURE TRACKS

	Approach procedure track
	Missed approach procedure track
	Holding track including bearing direction value.

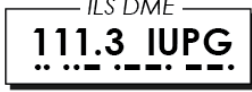


2. BEARING TRACKS

	Magnetic course
	True course
	Magnetic heading
	Magnetic radial









3. RADIO NAVIGATION AIDS

	LOC/LDA/SD F/MLS	Transmitter (Shown when installation is offset from its normal position off the end of the runway)
	LOC/DME	Collocated LOC and DME radio navigation aids
	VOR	VHF omnidirectional radio range
	NDB	Non-directional radio beacon
	TACAN	UHF tactical air navigation aid
	DME	Distance measuring equipment
	VOR/DME	Collocated VOR and DME radio navigation aids
	VORTAC	Collocated VOR and TACAN radio navigation aids
ILS Instrument landing system	ILS, LOC, LDA, SDF, MLS or KRM	 FRONT COURSE
	LOC	 BACK COURSE
	Elliptical	Radio marker beacon MM (Middle Marker)
	Bone Shape	OM (Outer Marker)
	Compass rose	4. Compass rose To be orientated on the chart in accordance with the alignment of the station (normally Magnetic North), 5. Compass rose to be used as appropriate in combination with the following symbols: (VOR, VOR/DME, TACAN, VORTAC)

6. RADIO NAVIGATION AIDS INFORMATION

ILS, LOC, LDA, SDF, MLS (primary)		Navaid facility boxes include facility name, identity, Morse code and frequency. The shadow indicates the primary facility. In VOR/DME and VORTAC facility boxes the letter "D" Indicate DME and "H" High Altitude when available.
VOR, VOR/DME (Primary)		
NDB (Secondary)		




7. AIRSPACE FIXES



	RPC	Reporting Point (Compulsory)
	RPR	Reporting Point (On-Request)
	RNAV	RNAV Point (Compulsory)
	RNAV	RNAV Point (On-Request)
	DME	DME Distance
	MB	Mileage Breakdown
	WPT	Flyover Waypoint
	WPT	Fly-by Waypoint
D3.0 IHAL	DME info	DME value Navaid name
SPADA S05 40.7 E107 54.6	FIX POINT Info	Fixes Point Name Coordinates are shown

8. ALTITUDE

<u>4000'</u>	MANDATORY	Mandatory altitude in line cross at.
<u>4000'</u>	MINIMUM	Minimum altitude in line cross at or above
<u>4000'</u>	MAXIMUM	Maximum altitude in line cross at or below
4000'	RECOMENDED	Recomended altitude




9. AIRPORT

	AIRPORT	Airport to the approach
	MILITARY	Nearby Military airport
	JOIN CIVIL MILITARY	Nearby Civil or joint Military airport



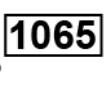

	HELIPORT	Heli Landing site A white letter H indicates an area reserved for take-off and landing helicopters.
	SEAPLANE	Military and Civil Seaplane Base

10. OBSTACLE


10.1 MAN-MADE STRUCTURES

	Tower Unlighted	Man-made structure.
	Tower Lighted	Man-made structure.
	Obstacle Structure	Unidentified man-made structure


10.2 TERRAIN HIGH POINTS

	Spot Elevation	Mean Sea Level (MSL) elevation at top of terrain high point/man-made structure.
	Spot Elevation	unsurveyed accuracy
	Spot highest elevation	Box indicates only the highest of portrayed terrain high point and man-made structures may exist which have not been portrayed.
		Generalized terrain contour information. The Gradient tints indicate the elevation change between contour intervals

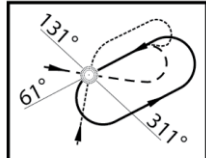
11. RESTRICTED AIRSPACE

	Restricted airspace. The accompanying label indicates it as prohibited, restricted, danger, etc. (T) Training, (A) Alert, (C) Caution, and Military Operations Areas.	
WI-(R)-121 <u>UNL</u> GND (0800 - 2200 LT MON - SAT IND-ARTC)	WI Country identifier WI : Indonesia, WS : Singapore WM : Malaysia YB : Australia (R) Restricted _____ → 121 designation number UNL Unlimited (Upper Limit) GND Ground (Lower Limit) 0800-2200 Hours active MON-SAT Day active IND-ARTC Controlling Agency	(A) Alert (T) Training (C) Caution (W) Warning (D) Danger (P) Prohibited (R) Restricted (TRA) Temporary Reserved Airspace (TSA) Temporary Segregated Area (MOA) Military Operations Area



12. MAGNETIC BEARING

 <p>N 01°E</p>	<p>Bearing magnetic variation Magnetic declination is the angle between magnetic north (the direction the north end of a compass needle points) and true north. The declination is positive when the magnetic north is east of true north. The term magnetic variation is a synonym</p>
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13. HOLDING ENTRY

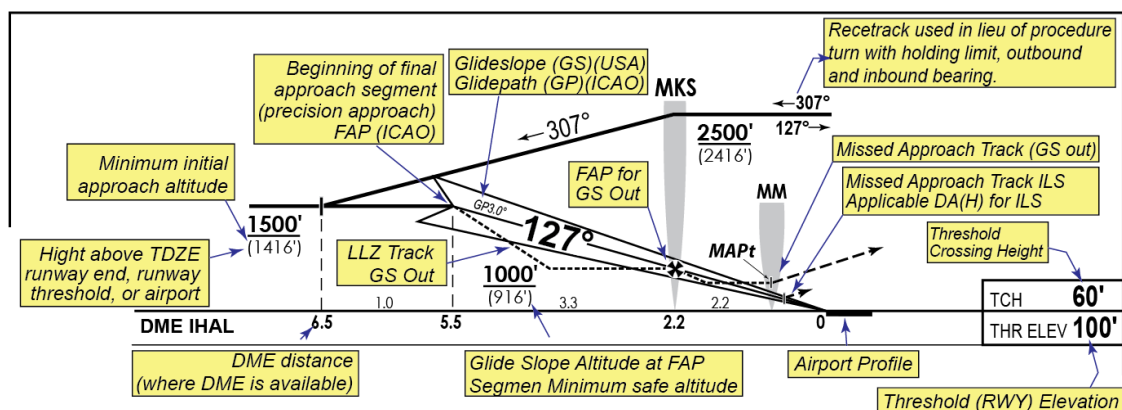
	<p>Type entry holding</p> <ul style="list-style-type: none"> • Holding Fix • Holding Inbound • Holding Altitude • Holding Time • Holding Speed <p>Notes :</p> <ul style="list-style-type: none"> • Holding Patterns are generally not charted to scale • Holding Pattern not part of the approach procedure. 												
<table border="1"> <tr><td colspan="2">HOLDING at AL NDB</td></tr> <tr><td>TRACK IN</td><td>241°</td></tr> <tr><td>LEVEL</td><td>FL140</td></tr> <tr><td></td><td>6000'</td></tr> <tr><td>TIME</td><td>1MIN</td></tr> <tr><td>SPEED LIMIT</td><td>220 KT</td></tr> </table>	HOLDING at AL NDB		TRACK IN	241°	LEVEL	FL140		6000'	TIME	1MIN	SPEED LIMIT	220 KT	
HOLDING at AL NDB													
TRACK IN	241°												
LEVEL	FL140												
	6000'												
TIME	1MIN												
SPEED LIMIT	220 KT												

14. ORIENTATION DETAIL

	Lake or large water areas		River
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APPROACH CHART LEGEND PROFILE VIEW

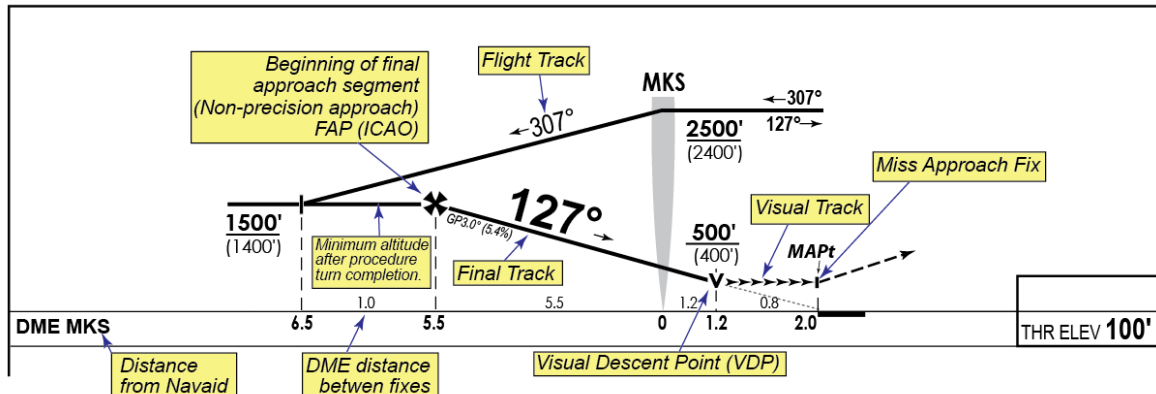
PRECISION APPROACH PROFILE (ILS with LOC (GP out), or with NDB Approach)



Type procedure for Precision approaches systems

- ILS Instrument Landing System
- MLS Microwave Landing System
- PAR Precision Approach Radar (Military)
- GPS (with vertical navigation via WAAS or EGNOS) - Global Positioning System
- LAAS Ground Based Augmentation System (GBAS) for (GNSS)
- JPALS Joint Precision Approach and Landing System
- GCA Ground-Controlled Approach (mostly military)

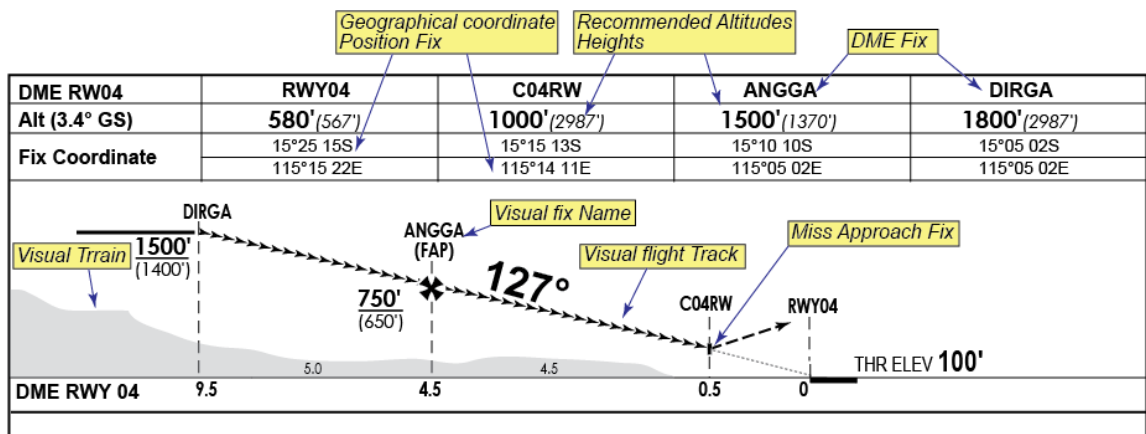
NON - PRECISION APPROACH PROFILE (LOC, VOR, VORTAC, NDB)



Type of Non-precision approaches systems





- Localizer (LOC)
- VOR / VORDME
- NDB, Non-Directional Beacon
- Localizer Type Directional Aid or LDA
- Simplified Directional Facility or SDF
- GPS - Global Positioning System
- TACAN
- SRA - Surveillance Radar Approach

NON - PRECISION APPROACH PROFILE (VISUAL APPROACH)





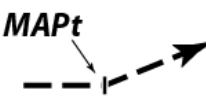



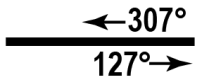


APPROACH CHART LEGEND PROFILE SYMBOLS

1. MARKER BAECON

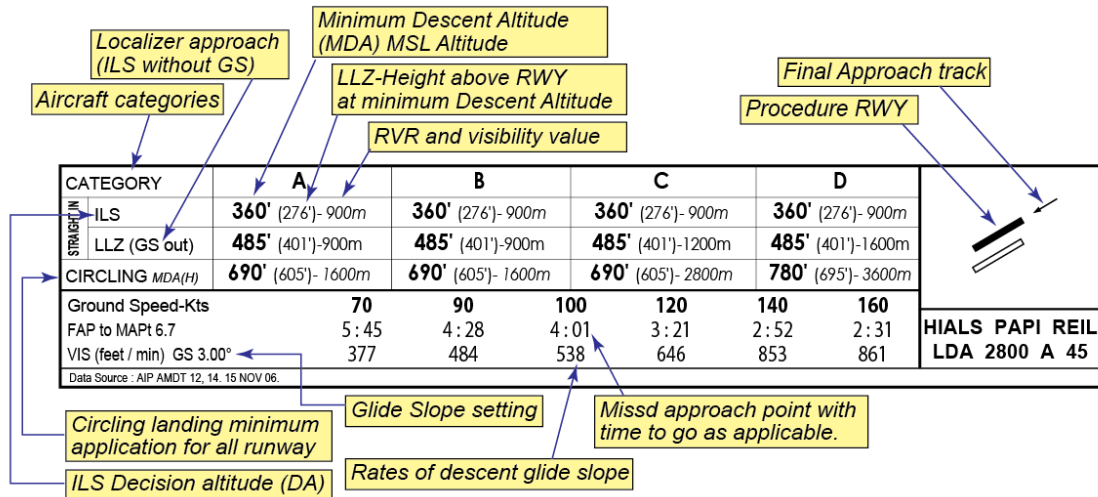
 MKS	Radio navigation aid (type of aid and its use in the procedure to be annotated on top of the symbol)	 OM	Radio marker beacon (type of beacon to be annotated on top of the symbol)
 5.5	DME fix (distance from DME and the fix use in the procedure to be annotated on bottom of the symbol)	 MKS 5.5	Collocated DME fix and marker beacon (distance from DME and the type of beacon to be annotated on top of the symbol)

2. TRACK SYMBOL

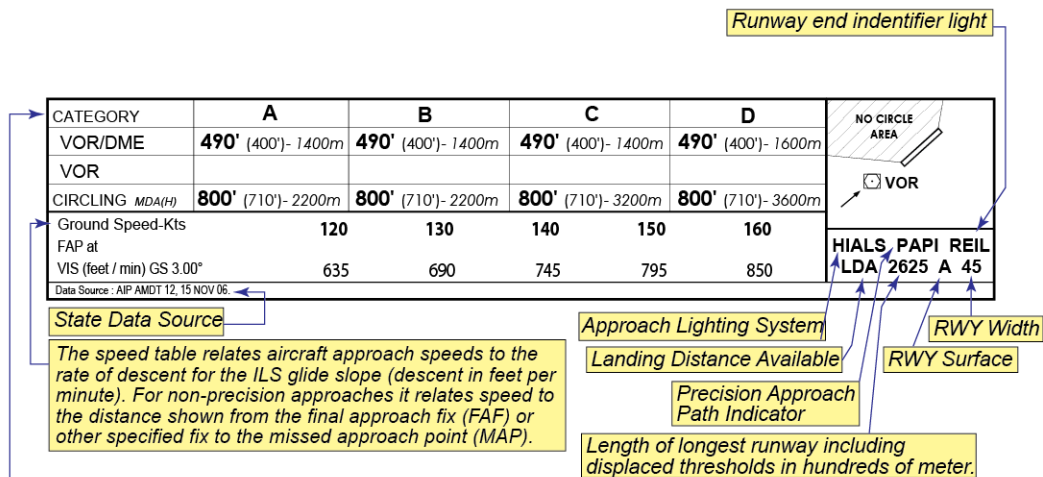
	Approach procedure flight track		Visual procedure flight track
	Missed approach track		Distance fixed
	Missed approach fix		Airport profile
	Final Approach Fix (FAP) (for non-precision approaches)		Visual Descent Point (VDP)
	Racetrack used in lieu of procedure turn with holding limit, outbound and inbound bearing.		

APPROACH CHART LEGEND LANDING MINIMUMS

PRECISION APPROACH PROFILE (ILS with LOC / GP out)



NON - PRECISION APPROACH PROFILE (LOC, VOR, VORTAC, NDB)



FLIGHT PROCEDURES (DOC 8168) PART III. APPROACH PROCEDURES

Aircraft Category	A	B	C	D	E	
SPEED (V _{at})	< 90kt (169km/h)	91/120kt (169/223km/h)	121/140kt (224/260km/h)	141/165kt (261/306km/h)	166/210kt (307/390km/h)	
Range of speeds for initial approach (kt)	120/150 (110*)	120/180 (140*)	160 / 240	185 / 250	185 / 250	
Range of final approach speed (kt)	70 / 100	85 / 130	115 / 160	130 / 185	155 / 230	
Max speed for visul maneuvering (Circling)	100kt (185km/h)	135kt (250km/h)	180kt (335km/h)	205kt (380km/h)	240kt (445km/h)	
Max speed for Miss approach	Intermediate	100kt (185km/h)	130kt (240km/h)	160kt (295km/h)	185kt (345km/h)	230kt (425km/h)
	Final	110kt (205km/h)	150kt (280km/h)	240kt (445km/h)	265kt (490km/h)	275kt (510km/h)





* Maximum speed for reversal and racetrack procedures.

Vat - Speed at threshold base on 1.3 time stall speed V_{so} or 1.23 time stall speed V_{s1g} in the landing configuration maximum certificated landing mass.



RVR (RUNWAY VISUAL RANGE)

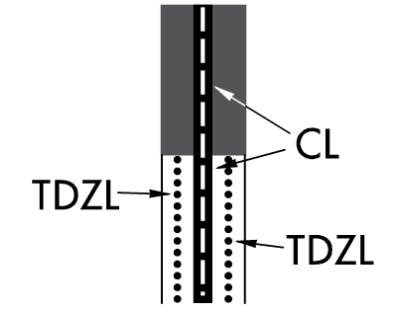
RVR (Metres)	RVR (Feet)	Visibility (Miles)	Comparable Values of RVR and Visibility
400	1600	1/4	The following table shall be used for converting RVR to ground or flight visibility. For converting RVR values that fall between listed, use the next higher RVR value: do not interpolate. For example, when converting 1800 RVR, use 2400 RVR with the resultant visibility of 1/2 mile.
800	2400	1/2	
1000	3200	5/8	
1200	4000	3/4	
1400	4500	7/8	
1600	5000	1	
2000	6000	1 1/4	

APPROACH LIGHTING SYSTEM

	HIAL CAT-1	High Intensity Approach Lighting Category-1
	HIAL CAT-2	High Intensity Approach Lighting Category -2
	SHIAL	Simple High Intensity Approach Lighting
	LIAL	Low Intensity Approach Lighting

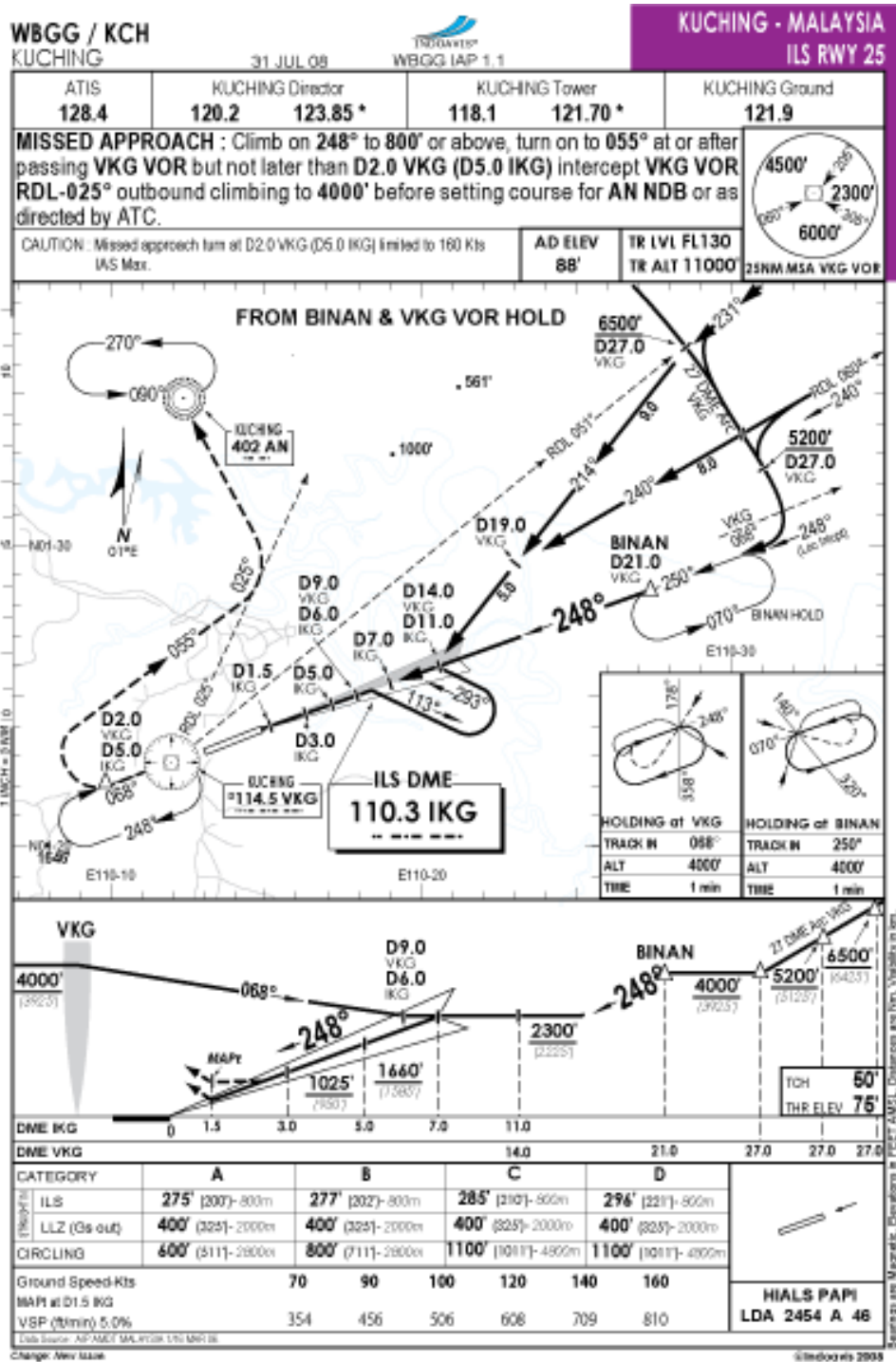
For a 3.00° glideslope the nominal eye height over the runway threshold is 49' (15m) For an increase in eye height over the runway threshold is required to provide adequate wheel clearance, then the approach may be flown with one more fly down lights visible.

	PAPI	Precision Approach Path Indicator	PAPI is normally installed on the LEFT side of the runway
	T-VASI	Visual Approach Slope Indicator	VASI is normally installed on the LEFT side of the runway. VASI may be installed on the RIGHT side or BOTH sides of the runway

	TDZL	Runway touchdown Zone
	CL	Runway centerline light

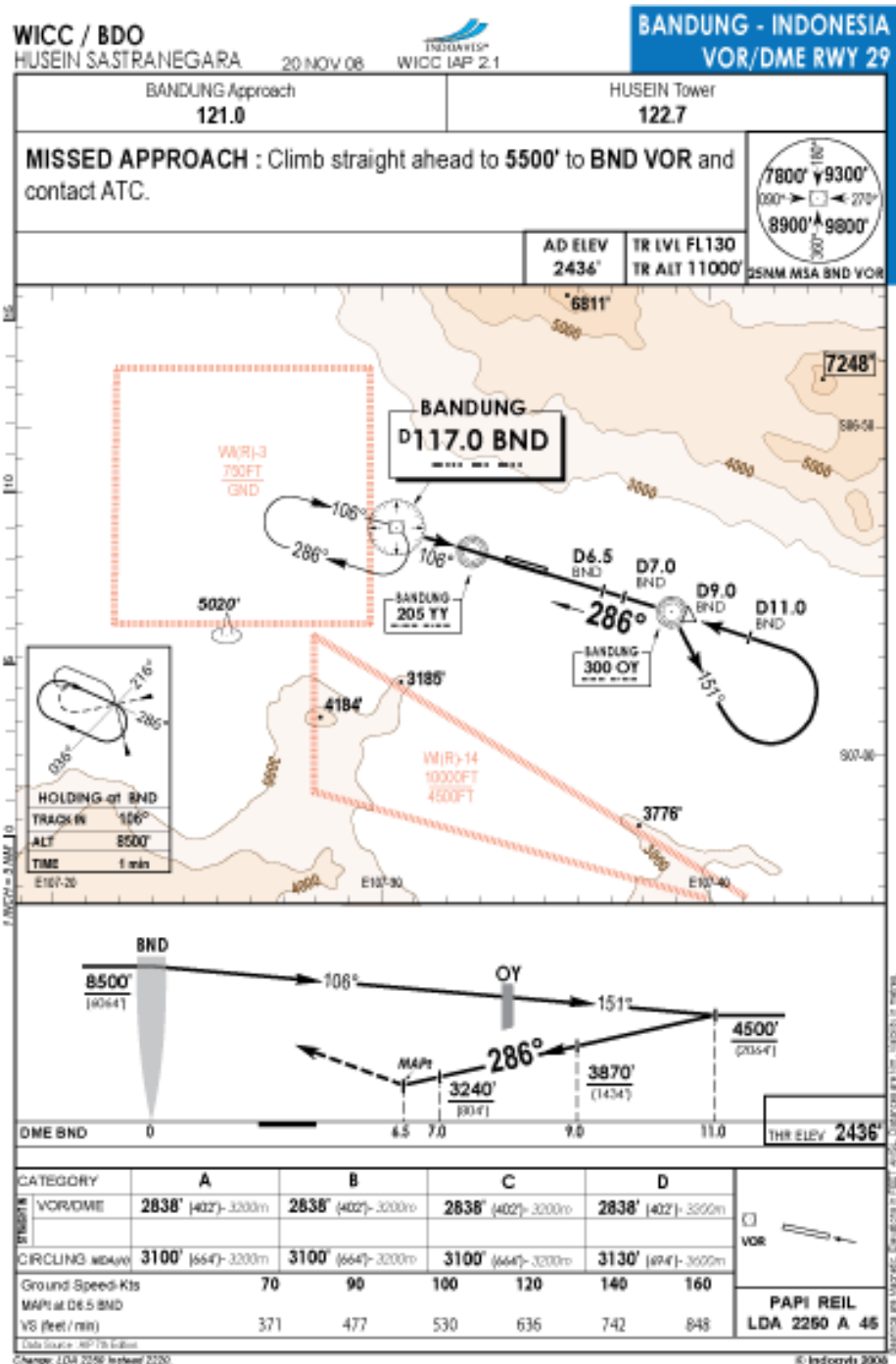
**INSTRUMENT APPROACH CHART
ILS RWY-25 PROCEDURE
WBGG- KUCHING, MALAYSIA**

SAMPLE ONLY NOT FOR NAVIGATION USE.!



**INSTRUMENT APPROACH CHART
VOR/DME RWY-29 PROCEDURE
WICC - BANDUNG, INDONESIA**

SAMPLE ONLY NOT FOR NAVIGATION USE.!



**INSTRUMENT APPROACH CHART
NDB RWY-36 PROCEDURE
WAMM- MANADO, INDONESIA**

SAMPLE ONLY NOT FOR NAVIGATION USE.!

