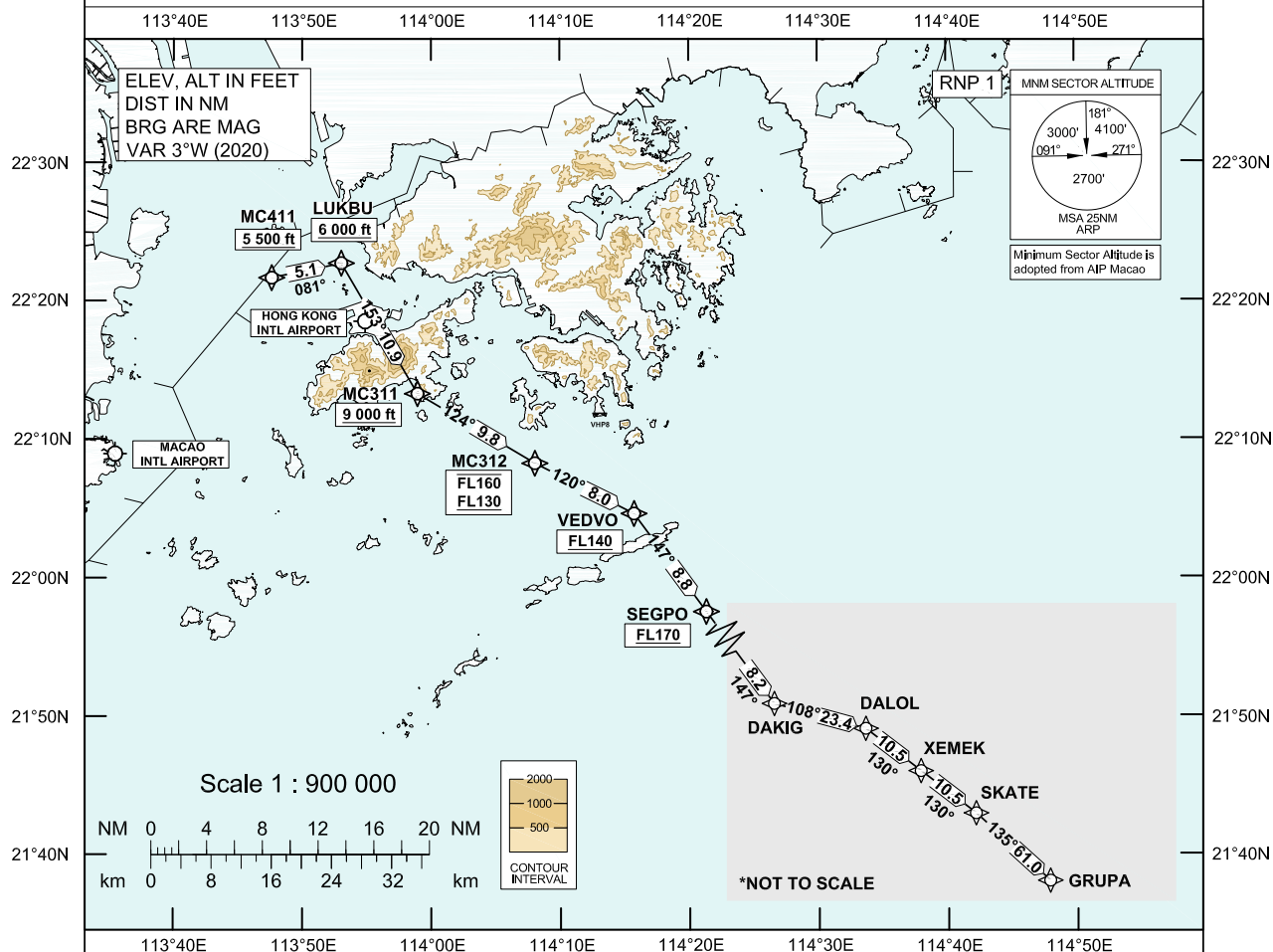


**STANDARD DEPARTURE CHART-
INSTRUMENT (SID) - ICAO**Transition Altitude 9 000 ft
HONG KONG DEPARTURE 122.0**MACAO / Intl (VMMC)
RWY 34
RNAV (GNSS) GRUPA 4T SID**

1. Aircraft shall comply with the Macao RWY 34 SID procedure as published in the AIP Macao.
2. For RNAV (GNSS) SID, aircraft must be approved by State of Registry in accordance with ICAO RNP 1 standard or equivalent. Carriage of certified GNSS receiver is mandatory.
3. Aircraft that do not have approval or whose RNP 1 capability has been degraded shall use the Conventional Procedure described below.

**GRUPA 4T SID RWY 34****RNP 1 Procedure**

(Mandate procedure available to aircraft appropriately equipped and approved)

MC411 - LUKBU - MC311 - MC312 - VEDVO - SEGPO - DAKIG - DALOL - XEMEK - SKATE - GRUPA

Conventional Procedure

Departures shall enter Hong Kong airspace via MC411.

From MC411, direct to LUKBU, then to MC311, MC312, VEDVO, SEGPO, DAKIG, DALOL, XEMEK, SKATE and GRUPA.

CLIMB REQUIREMENT

Cross MC411 at or above 5 500 ft climbing to 6 000 ft. Cross LUKBU at 6 000 ft or above.

Expect further climb when instructed by ATC.

SPEED RESTRICTION

Aircraft shall fly at 250 KIAS or less below FL 110.

CHANGE: Revised procedure: revised frequency.

FMC Database Coding Reference for Macao RNAV_(GNSS) SID

TABULAR DESCRIPTION: GRUPA 4T Runway 34

Serial Number	Path Descriptor	Waypoint Identifier	Fly-over	Course °M (°T)	Magnetic Variation	Distance (NM)	Turn Direction	Altitude (ft)	Speed (KIAS)	Navigation Specification
Aircraft shall comply with the Macao RWY34 SID procedure as published in the AIP Macao										
01	TF	MC411	-	-	+3.0	-	-	+5500	-250	RNP 1
02	TF	LUKBU	-	081 (078)	+3.0	5.1	-	+6000	-	RNP 1
03	TF	MC311	-	153 (150)	+3.0	10.9	-	+9000	-	RNP 1
04	TF	MC312	-	124 (121)	+3.0	9.8	-	-FL160 +FL130	-	RNP 1
05	TF	VEDVO	-	120 (117)	+3.0	8.0	-	+FL140	-	RNP 1
06	TF	SEGPO	-	147 (144)	+3.0	8.8	-	+FL170	-	RNP 1
07	TF	DAKIG	-	147 (144)	+3.0	8.2	-	-	-	RNP 1
08	TF	DALOL	-	108 (105)	+3.0	23.4	-	-	-	RNP 1
09	TF	XEMEK	-	130 (127)	+3.0	10.5	-	-	-	RNP 1
10	TF	SKATE	-	130 (127)	+3.0	10.5	-	-	-	RNP 1
11	TF	GRUPA	-	135 (132)	+3.0	61.0	-	-	-	RNP 1

WAYPOINT LIST

GRUPA 4T RWY 34		
Waypoint Identifier	Coordinates (WGS-84)	
MC411	22 21 41.20N	113 47 37.58E
LUKBU	22 22 44.12N	113 53 01.50E
MC311	22 13 18.51N	113 58 56.18E
MC312	22 08 16.69N	114 08 02.37E
VEDVO	22 04 38.19N	114 15 43.05E
SEGPO	21 57 32.77N	114 21 18.59E
DAKIG	21 50 52.90N	114 26 33.33E
DALOL	21 44 36.90N	114 50 45.34E
XEMEK	21 38 16.17N	114 59 43.04E
SKATE	21 31 54.99N	115 08 39.94E
GRUPA	20 50 44.00N	115 56 59.00E