

ATS ROUTES
ENR 3.1 LOWER ATS ROUTES

Route Designator Significant Points Coordinates	Track (MAG) Dist (NM)	Upper Limit	Lateral Limits (NM)	Cruising Levels		Remarks Controlling Units
		Lower Limit		Odd	Even	
1	2	3		5		6
G460						
▲ KUCHING DVOR/DME (VKG) 012824.0N 1101820.7E	065° 245°					Controlling Authority : 1. VKG DVOR/DME to VBU DVOR/DME Kuching Control . 134.5 Mhz except Sibubintulu Control Zone. 2. VBU DVOR/DME to BRU DVOR/DME Kinabalu ACC . 128.3 Mhz except that part of AWY within a) Brunei TMA . Brunei Radar . 127.70Mhz b) Miri TMA . Miri Approach - 122.7 Mhz or 129.9 Mhz
▲ SIBU DVOR/DME (VSI) 021448.5N 1120012.2E	112 NM 048° 228°					
▲ BINTULU DVOR/DME (VBU) 030914.0N 1130048.0E	82 NM 047° 227°	FL 460 6 500 FT ALT	20			
▲ KADMO 041215N 1140808E	92 NM 047° 227°	MNM 7 000 FT				
▲ BRUNEI DVOR/DME (BRU) 045230N 1145254E	61 NM					
G580						
▲ NIMIX 012454N 1075924E	089° 269°					No Pre Departure Coordination (No PDC) arrangement : Flights departing from Sarawak to Singapore will be cleared to FL 260/FL280. Succeeding aircraft may be cleared to the same level, provided 10 minutes longitudinal separation using MNT exists and with no closing speed. Additional longitudinal separation shall be provided by ATC for faster aircraft behind. Controlling Authority : 1. NIMIX to SARVO Kuching ACC . 134.5Mhz 2. SARVO to BRU DVOR/DME Kinabalu ACC . 128.3 Mhz 3. BRU DVOR/DME to VJN DVOR/DME Kinabalu ACC . 126.1Mhz (except that part of ATS route within Brunei TMA . Brunei Radar . 127.70Mhz).
▲ ATETI (FIR BDRY) 012542N 1083000E	31 NM 089° 269°					
▲ KUCHING DVOR/DME (VKG) 012824.0N 1101820.7E	109 NM 052° 232°					
▲ PILAX 021850N 111226E	83 NM 052° 232°					
▲ SARVO 032630N 1125010E	110 NM 052° 232°	FL 460 6 500 FT ALT	20			
▲ MIRI DVOR/DME (VMI) 042016.0N 1135939.0E	88 NM 059° 239°	MNM 7 000 FT				
▲ BRUNEI DVOR/DME (BRU) 045230N 1145254E	62 NM 048° 228°					
▲ KOTA KINABALU DVOR/DME (VJN) 055358.8N 1160147.8E	93 NM					

Route Designator Significant Points Coordinates	Track (MAG) Dist (NM)	Upper Limit Lower Limit MNM FLT ALT Airspace Classification	Lateral Limits (NM)	Cruising Levels		Remarks Controlling Units
				Odd	Even	
1	2	3	4	5		6
M522						
▲ KOTA KINABALU DVOR/DME (VJN) 055357.3N 1160202.3E	008° 188°	FL 460 FL 135	20	↓		No Pre Departure Coordination (No PDC) arrangement :
▲ MAMOK (FIR BDRY) 040506N 1154712E	110 NM	MNM FL 140				Flights departing from aerodromes within Kota Kinabalu FIR via RNAV M754 will be cleared to FL270. Succeeding aircraft cleared to same level provided at least 10 minutes longitudinal separation using MNT with no closing speed. Controlling Authority : Kinabalu ACC . 126.1 Mhz
M646 (RNP 10)						
▲ OSANU (FIR BDRY) 074124N 1171736E	215° 035°	FL 460 FL 135		↓		LONGITUDINAL SEPARATION OF 10 MINUTES BETWEEN RNAV EQUIPPED AIRCRAFT APPLYING MACH NUMBER TECHNIQUE.
▲ KOTA KINABALU DVOR/DME (VJN) 055357.3N 1160202.3E	130.1NM	MNM FL 140				Controlling Authority : 1. OSANU to BRU DVOR/DME Kota Kinabalu ACC . 126.1Mhz 2. BRU DVOR/DME to DARMU Kota Kinabalu ACC . 128.3 Mhz 3. DARMU to KAMIN Kuching Control -134.5Mhz Except that part of AWY within Brunei TMA - Brunei Approach - 127.1Mhz NON-RNAV EQUIPPED AIRCRAFT CAN OPERATE ON THIS RNAV ROUTE AT FL280 OR BELOW (BELOW RVSM)
▲ BRUNEI DVOR/DME (BRU) 045230N 1145254E	228° 048°	FL 460 6 500 FT ALT				
▲ BRUNEI DVOR/DME (BRU) 045230N 1145254E	92.0 NM	MNM 7 000 FT				
△ 50 DME BRU 043437N 1140607E	249° 069°	FL 460 7 500 FT ALT				
△ SAKMA 042428N 1133955E	50.0 NM	MNM 8 000 FT ALT				
▲ DARMU 040139.0N 1124036.0E	28.0 NM	FL460 FL135				
▲ KAMIN (FIR BDRY) 023442N 1085536E	63.5 NM	MNM FL 140				
	241 NM			↑		

Route Designator Significant Points Coordinates	Track (MAG) Dist (NM)	Upper Limit Lower Limit	Lateral Limits (NM)	Cruising Levels		Remarks Controlling Units
		MNM FLT ALT Airspace Classification		Odd	Even	
1	2	3	4	5		6
M754						
▲ SUMLA (FIR BDRY) 080242N 1160054E	200° 020°	FL 460 FL 135 MNM FL 140	20	↓	↑	No Pre Departure Coordination (No PDC) arrangement : Flights departing from aerodromes within Kota Kinabalu FIR via RNAV route M754 will be cleared to FL270. Succeeding aircraft may be cleared to same level provided 10 minutes longitudinal separation using MNT exists with no closing speed. Controlling Authority : Kinabalu ACC . 126.1Mhz.
▲ VIDIP 054106N 1151003E	150NM 200° 020°					
▲ UKIBA 051849N 1150209E	24NM 200° 020°					
▲ BRUNEI DVOR/DME (BRU) 045230N 1145254E	28 NM					
M759						
▲ OLKIT (FIR BDRY) 045012N 1115118E	089° 269°	FL 460 6 500FT ALT	20	↓	↑	No Pre Departure Coordination (No PDC) arrangement : Flights departing from aerodromes within Kota Kinabalu FIR via RNAV route M759/M758 will be cleared to FL310. Succeeding aircraft may be cleared to same level provided 10 minutes longitudinal separation using MNT exists with no closing speed. Controlling Authority : Kinabalu ACC . 126.1 Mhz
▲ BRUNEI DVOR/DME (BRU) 045230N 1145254E	181 NM	MNM 7 000FT				
M768						
▲ BRUNEI DVOR/DME (BRU) 045230N 1145254E	131° 311°	FL 460 10 500 FT ALT	20	↓	↑	No Pre Departure Coordination (No PDC) arrangement :. Flights departing from aerodromes within Kota Kinabalu FIR via RNAV route M768 will be cleared to FL280. Succeeding aircraft may be cleared to same level provided 10minutes longitudinal separation using MNT exists with no closing speed. Controlling Authority : Kinabalu ACC . 126.1 Mhz. # except that part of ATS route within Brunei TMA . Brunei Radar . 127.70 Mhz.
△ TMA BDRY 041923.2N 1153036.1E	50 NM 131° 311°					
▲ MAMOK (FIR BDRY) 040506N 1154712E	22NM					

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		MNM FLT ALT Airspace Classification		Odd	Even	
1	2	3	4	5		6
M768						
▲ BRUNEI DVOR/DME (BRU) 045230N 1145254E	306° 126°	FL 460 6 500 FT ALT	20	↓	↑	No Pre Departure Coordination (No PDC) arrangement : Flights departing from aerodromes within Kota Kinabalu FIR via RNAV route M768 will be cleared to FL280. Succeeding aircraft may be cleared to same level provided 10 minutes longitudinal separation using MNT exists with no closing speed. Controlling Authority : Kinabalu ACC . 126.1 Mhz
▲ DOGOG 052518N 1140742E	56 NM 306° 126°	MNM 7 000 FT				
▲ ASISU (FIR BDRY) 055906N 1132046E	58 NM					
R223						
▲ BRUNEI DVOR/DME (BRU) 045230N 1145254E	181° 001°	FL 460 FL 135	20	↓	↑	Controlling Authority : Kinabalu ACC . 128.3 Mhz
▲ BUTAX 042613N 1145232E	26 NM 181° 001°	MNM FL 140				
▲ AGSON (FIR BDRY) 021500N 1145124E	131 NM					
W420						
▲ KOTA KINABALU DVOR/DME (VJN) 055358.8N 1160147.8E	038° 218 °	FL 460 8 500 FT ALT	20*	↓	↑	*Lateral Limits : 5NM either side of centerline from VNJ DVOR/DME to KUDAT funneling out at an angle of 7½° on either side fm VJN to 10 NM either side of centerline. 5NM either side of centerline fm VSN VOR/DME to KUDAT funneling out at an angle of 7½° on either side fm VSN to 10NM either side of centerline. The western boundary of Awy W420. VJN. KUDAT and the eastern boundary. VSN-KUDAT are joined by an arc of 10NM centred at KUDAT. Controlling Authority : Kinabalu ACC
▲ KUDAT 065430N 1165000E	77 NM 129° 309°	MNM 9 500FT FL 460 5 500 FT ALT				
▲ SANDAKAN DVOR/DME (VSN) 055421.8N 1180405.9E	96 NM	MNM 6 000FT				

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				Od d	Even	
1	2	3	4	5		6
W421						
▲ SANDAKAN DVOR/DME (VSN) 055421.8N 1180405.9E ▲ LAHAD DATU (LHD) LOCATOR 050129.1N 1182010.7E	163° 343° 55 NM	FL 460 6 500 FT ALT MNM 7 000 FT		↓ ↑		Controlling Authority : Kinabalu ACC
W441						
▲ DOGOG 052518N 1140742E ▲ UKIBA 051849N 1150209E ▲ LABUAN DVOR/DME (VLB) 051724.0N 1151506.2E	097° 277° 55 NM	FL 460 FL 135 MNM FL 140	20	↓ ↑		Controlling Authority : Kinabalu ACC . 128.3Mhz
	097° 277° 13 NM					
W442						
▲ OLKIT 045012N 1115118E ▲ SAKMA 042428N 1133955E ▲ MIRI DVOR/DME (VMI) 042016.0N 1135939.0E	103° 283° 111 NM	FL 460 FL 135 MNM FL 140	20	↓ ↑		Controlling Authority : Kinabalu ACC . 128.3 Mhz
	103° 283° 20 NM	FL 460 8 500 FT ALT MNM 9 000 FT				

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		MNM FLT ALT Airspace Classification		Odd	Even	
1	2	3	4	5		6
W449						
▲ MIRI DVOR/DME (VMI) 042016.0N 1135939.0E	110° 290°	FL 245 4 500 FT ALT	20	↓	↑	Controlling Authority : Kinabalu ACC . 128.3 Mhz except within Miri TMA. Miri APP : 129.9 Mhz (P) :122.7 Mhz (S) Brunei Radar : 127.70 Mhz Mulu Twr : 129.200 Mhz (P) : 121.7 Mhz (S) Caution : Acft intending to hold over VZU DVOR/DME or DVOR must cross 8 DME VZU at 10000 FT or enter minimum holding pattern at 10000 FT due to high terrain east of VZU DVOR.
▲ 8 DME VZU 040449N 1144014E	43 NM	MNM 5 000 FT				
▲ MULU DVOR/DME (VZU) 040158.0N 1144743.0E	110° 290°	FL 245 9 500 FT ALT				
	8 NM	MNM 10 000 FT				
W450						
▲ LIMBANG DVOR/DME (VLG) 044750.0N 1150008.0E	245° 065°	FL 245 4 500 FT ALT	20	↑	↓	Controlling Authority : Kinabalu ACC . 128.3 Mhz except within Brunei TMA. Brunei Radar : 127.70 Mhz Within Miri TMA Miri APP : 129.9 Mhz (P) : 122.7 Mhz (S) Limbang Twr : 124.30 Mhz
▲ MIRI DVOR/DME (VMI) 042016.0N 1135939.0E	66 NM	MNM 5 000 FT				
W451						
▲ LIMBANG DVOR/DME (VLG) 044750.0N 1150008.0E	043° 223°	FL 245 4 500 FT ALT	20	↓	↑	Controlling Authority : Kinabalu ACC . 128.3 Mhz except within Brunei TMA Brunei Radar : 127.70 Mhz Limbang Twr : 124.30 Mhz
▲ KOTA KINABALU DVOR/DME (VJN) 055358.8N 1160147.8E	91 NM	MNM 5 000FT				

Route Designator Significant Points Coordinates	Track (MAG) Dist (NM)	Upper Limit Lower Limit MNM FLT ALT Airspace Classification	Lateral Limits (NM)	Cruising Levels		Remarks Controlling Units
				Od d	Even	
1	2	3	4	5		6
W452						
<p>▲ MULU DVOR/DME (VZU) 040158.0N 1144743.0E</p> <p>▲ 16 DME VZU 041740N 1145104E</p> <p>▲ BUTAX 042613N 1145232E</p>	012° 192°	FL 245 9 500 FT ALT	20	↓ ↑		<p>Controlling Authority : Kinabalu ACC : 128.3 Mhz except within Miri TMA Miri APP : 129.9Mhz (P) : 122.7 Mhz (S)</p> <p>Within Brunei TMA Brunei Radar : 127.70 Mhz Mulu Twr : 129.200 Mhz (P) : 121.7 Mhz (S)</p> <p>Caution : Acft intending to hold over VZU DVOR/DME or DVOR must cross 16 DME VZU at 10000ft or enter minimum holding pattern at 10000ft due to high terrain east of VZU DVOR</p>
	16 NM	MNM 10 000 FT				
	012° 192°	FL 245 7 000 FT ALT				
	9 NM	MNM 7 000 FT				
Y445						
<p>▲ LEDAM 045149N 1134706E</p> <p>▲ ASISU 055906N 1132046E</p>	339° 159°	FL 460 FL 195	20	↓ ↑		<p>Controlling Authority : Kinabalu ACC</p>
	72 NM					

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