

ATS ROUTES
ENR 3.1 LOWER ATS ROUTES

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
G460						
▲ KUCHING DVOR/DME (VKG) 012824.0N 1101820.7E	<u>065°</u> 245°				↓	Controlling Authority : 1. VKG DVOR/DME to VBU DVOR/DME Kuching Control – 134.5 Mhz except Sibul/Bintulu 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 – 127.1Mhz b) Miri TMA – Miri Approach - 122.7 Mhz or 129.9 Mhz
▲ SIBU DVOR/DME (VSI) 021448.5N 1120012.2E	112 NM <u>048°</u> 228°					
▲ BINTULU DVOR/DME (VBU) 030914.0N 1130048.0E	82 NM <u>047°</u> 227°	<u>FL 460</u> 6 500 FT ALT	20			
▲ KADMO 041215N 1140808E	92 NM <u>047°</u> 227°	MNM 7 000 FT			↑	
▲ BRUNEI DVOR/DME (BRU) 045229N 1145308E	61 NM					
G580						
▲ NIMIX 012454N 1075924E	<u>089°</u> 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 – 127.1Mhz).
▲ ATETI (FIR BDRY) 012542N 1083000E	31 NM <u>089°</u> 269°					
▲ KUCHING DVOR/DME (VKG) 012824.0N 1101820.7E	109 NM <u>052°</u> 232°					
▲ PILAX 021850N 111226E	83 NM <u>052°</u> 232°					
▲ SARVO 032630N 1125010E	110 NM <u>052°</u> 232°	<u>FL 460</u> 6 500 FT ALT	20			
▲ MIRI DVOR/DME (VMI) 042016.0N 1135939.0E	88 NM <u>059°</u> 239°	MNM 7 000 FT				
▲ BRUNEI DVOR/DME (BRU) 045229N 1145308E	62 NM <u>048°</u> 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		Lateral Limits (NM)	Cruising Levels		Remarks Controlling Units
		MNM	FLT ALT		Odd	Even	
1	2	3		4	5		6
L649 (RNP10)							
△ DAKIX (FIR BDRY) 070854N 1145054E	49.5	FL460 FL135					Available only for flights departing from Brunei (WBSB). Labuan (WBKL and Miri (WBGR) to Hong Kong (VHHH) only. No PDC FL300 and FL380 applicable. Controlling Authority : Within Brunei TMA BRUNEI APPROACH FREQ 121.3MHZ Brunei TMA to DAKIX: KOTA KINABALU ACC FREQ 126.1MHZ
△ PARLU 061912N 1145136E	22.8	Class A					
△ DOTOK 055618N 1145200E	19.6						
▲ SKUD 053636N 1145218E	16.5						
△ AROBO 052000N 1145230E	27.4	FL460 A065					
▲ DVOR/DME (BRU) 045229N 1145308E		Class A					
M522							
▲ KOTA KINABALU DVOR/DME (VJN) 055357.3N 1160202.3E	008° 188°	FL 460 FL 135		20			No Pre Departure Coordination (No PDC) arrangement : 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
▲ MAMOK (FIR BDRY) 040506N 1154712E	110 NM	MNM FL 140					

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
M646 (RNP 10)							
▲ OSANU (FIR BDRY) 074124N 1171736E	215° 035°		FL460 FL135				<p>LONGITUDINAL SEPARATION OF 10 MINUTES BETWEEN RNAV EQUIPPED AIRCRAFT APPLYING MACH NUMBER TECHNIQUE.</p> <p>Controlling Authority :</p> <ol style="list-style-type: none"> OSANU to BRU DVOR/DME Kota Kinabalu ACC – 126.1Mhz BRU DVOR/DME to DARMU Kota Kinabalu ACC – 128.3Mhz DARMU to KAMIN Kuching Control – 134.5Mhz Except that part of AWY within Brunei TMA – Brunei Approach – 121.3 Mhz. <p>NON-RBAV EQUIPPED AIRCRAFT CAN OPERATE ON THIS RNAV ROUTE AT FL280 OR BELOW (BELOW RVSM).</p>
▲ KOTA KINABALU DVOR/DME (VJN) 055357.3N 1160202.3E	130.1NM		FL460 6500FT ALT				
▲ BRUNEI DVOR/DME (BRU) 045229N 1145308E	92.0 NM		MNM 7000FT				
△ 50 DME BRU 043437N 1140607E	50.0 NM		FL460 7500FT ALT				
△ SAKMA 042428N 1133955E	28.0 NM		MNM 8000FT ALT				
▲ DARMU 040139.0N 1124036.0E	63.5 NM		FL460 FL135				
▲ KAMIN (FIR BDRY) 023442N 1085536E	241 NM		MNM FL140				
M754							
▲ SUMLA (FIR BDRY) 080242N 1160054E	200° 020°						<p>No Pre Departure Coordination (No PDC) arrangement :</p> <p>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.</p> <p>Controlling Authority : Kinabalu ACC – 126.1Mhz.</p>
▲ VIDIP 054106N 1151003E	150NM		FL 460 FL 135	20			
▲ UKIBA 051849N 1150209E	24NM		MNM FL 140				
▲ BRUNEI DVOR/DME (BRU) 045229N 1145308E	28 NM						
M759							
▲ OLKIT (FIR BDRY) 045012N 1115118E	089° 269°		FL 460 6 500FT ALT	20			<p>No Pre Departure Coordination (No PDC) arrangement :</p> <p>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.</p> <p>Controlling Authority : Kinabalu ACC – 126.1 Mhz</p>
▲ BRUNEI DVOR/DME (BRU) 045229N 1145308E	181 NM		MNM 7 000FT				

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
M768						
▲ BRUNEI DVOR/DME (BRU) 045229N 1145308E	<u>306°</u> 126°	<u>FL 460</u> 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 <u>306°</u> 126°	MNM 7 000 FT				
▲ ASISU (FIR BDRY) 055906N 1132046E	58 NM					
M768						
▲ BRUNEI DVOR/DME (BRU) 045229N 1145308E	<u>131°</u> 311°	<u>FL 460</u> 10 500FT 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 # except that part of ATS route within Brunei TMA – Brunei Radar – 127.1Mhz
△ TMA BDRY 041923.2N 1153036.1E	50 NM <u>131°</u> 311°	MNM 11 000 FT				
▲ MAMOK (FIR BDRY) 040506N 1154712E	22 NM					
R223						
▲ BRUNEI DVOR/DME (BRU) 045229N 1145308E	<u>181°</u> 001°	<u>FL 460</u> FL 135	20	↓	↑	Controlling Authority : Kinabalu ACC – 128.3 Mhz
▲ BUTAX 042613N 1145232E	26 NM <u>181°</u> 001°	MNM FL 140				
▲ AGSON (FIR BDRY) 021500N 1145124E	131 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	
W420							
▲ KOTA KINABALU DVOR/DME (VJN) 055358.8N 1160147.8E ▲ KUDAT 065430N 1165000E ▲ SANDAKAN DVOR/DME (VSN) 055421.8N 1180405.9E	$\frac{038^\circ}{218^\circ}$ 77 NM	<u>FL460</u> 8500FT ALT MNM 9 500FT	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	
	$\frac{129^\circ}{309^\circ}$ 96 NM	<u>FL 460</u> 5 500 FT ALT MNM 6 000FT					
W421							
▲ SANDAKAN DVOR/DME (VSN) 055421.8N 1180405.9E ▲ LAHAD DATU (LHD) LOCATOR 050129.1N 1182010.7E	$\frac{163^\circ}{343^\circ}$ 55 NM	<u>FL 460</u> 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	$\frac{097^\circ}{277^\circ}$ 55 NM	<u>FL 460</u> FL 135 MNM FL 140	20	↓	↑	Controlling Authority : Kinabalu ACC – 128.3Mhz	
	$\frac{097^\circ}{277^\circ}$ 13 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
W442						
▲ OLKIT 045012N 1115118E	103 ° 283°	FL 460 FL 135	20	↓		Controlling Authority : Kinabalu ACC – 128.3 Mhz
	111 NM	MNM FL 140				
	103 ° 283°	FL460 8500FT ALT				
▲ SAKMA 042428N 1133955E	20 NM	MNM 9000FT	↑			
▲ MIRI DVOR/DME (VMI) 042016.0N 1135939.0E						
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 : 127.1 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.
	43 NM	MNM 5 000 FT				
	110 ° 290°	FL 245 9 500 FT ALT				
▲ 8 DME VZU 040449N 1144014E	8 NM	MNM 10 000 FT	↑			
▲ MULU DVOR/DME (VZU) 040158.0N 1144743.0E						
W450						
▲ LIMBANG DVOR/DME (VLG) 044750.0N 1150008.0E	245 ° 065°	FL 245 4 500 FT ALT	20	↓		Controlling Authority : Kinabalu AA –128.3Mhz except within Brunei TMA Brunei Radar : 127.1 Mhz Within Miri TMA Miri APP : 129.9Mhz (P) : 122.7Mhz (S) Limbang Twr : 124.30Mhz
	66 NM	MNM 5 000 FT				
▲ MIRI DVOR/DME (VMI) 042016.0N 1135939.0E			↑			

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		MNM FLT ALT Airspace Classification		Odd	Even	
1	2	3	4	5		6
W451						
▲ LIMBANG DVOR/DME (VLG) 044750.0N 1150008.0E	<u>043°</u> 223° 91 NM	<u>FL 245</u> 4 500 FT ALT MNM 5 000FT	20	↓	↑	Controlling Authority : Kinabalu ACC – 128.3 Mhz except within Brunei TMA Brunei Radar : 127.1 Mhz Limbang Twr : 124.30 Mhz
▲ KOTA KINABALU DVOR/DME (VJN) 055358.8N 1160147.8E						
W452						
▲ MULU DVOR/DME (VZU) 040158.0N 1144743.0E	<u>012°</u> 192° 16 NM	<u>FL 245</u> 9 500 FT ALT MNM 10 000 FT	20	↓	↑	Controlling Authority : Kinabalu ACC – 128.3 Mhz except within Miri TMA Miri APP : 129.9Mhz (P) : 122.7 Mhz (S) Within Brunei TMA Brunei Radar : 127.1 Mhz Mulu Twr : 129.200 Mhz (P) : 121.7 Mhz (S)
▲ 16 DME VZU 041740N 1145104E	<u>012°</u> 192° 9 NM	<u>FL 245</u> 7 000 FT ALT MNM 7 000 FT				
▲ BUTAX 042613N 1145232E						
Y445						
▲ LEDAM 045149N 1134706E	<u>339°</u> 159° 72 NM	<u>FL 460</u> FL 195	20	↓	↑	Controlling Authority : Kinabalu ACC
▲ ASISU 055906N 1132046E						

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