

ENR 4. RADIO NAVIGATION AIDS/SYSTEMS

ENR 4.1 RADIO NAVIGATION AIDS - EN-ROUTE

Name of station (VAR) VOR: Declination)	ID	FREQ (CH)	Hours of operation	Coordinates	ELEV DME Antenna	Remarks
1	2	3	4	5	6	7
BANGKOK DVOR/DME	BKK	117.7MHZ (CH 124X)	H24	135336.8N 1 003546.3E	16.58 M	Due to terrain surround DVOR/DME: <ul style="list-style-type: none"> - Radial 001°-009° beyond 40 NM should not below 2 500 FT - Radial 010°-049° beyond 40 NM should not below 2 500 FT - Radial 050°-209° beyond 40 NM should not below 3 000 FT - Radial 210°-229° beyond 40 NM should not below 2 500 FT - Radial 230°-320° beyond 40 NM should not below 3 000 FT - Radial 321°-360° beyond 40 NM should not below 2 000 FT
BURI RAM DVOR/DME	BRM	117.2MHZ (CH 119X)	H24	151422.43N 1031531.59E	-	
CHIANG MAI DVOR/DME	CMA	116.9MHZ (CH 116X)	H24	184558.06N 0985740.38E	318 M	DVOR/DME restriction due to mountainous terrain surround station coverage check does not provide adequate signal at required altitudes in various areas as follows: <ol style="list-style-type: none"> 1. Beyond 40 NM <ul style="list-style-type: none"> - Radial 350°-080° altitude should not below 8 000 FT - Radial 081°-180° altitude should not below 7 000 FT - Radial 181°-240° altitude should not below 9 000 FT 2. Beyond 20 NM <ul style="list-style-type: none"> - Radial 241°-349° altitude should not below 12 000 FT
CHIANG RAI DVOR/DME	CTR	116.5MHZ (CH 112X)	H24	195653.65N 0995300.12E	-	DVOR/DME restriction to mountainous terrain surround DVOR/DME station coverage check does not provide adequate signal to 40 NM at required altitudes and distance in various areas as following: <ul style="list-style-type: none"> - Radial 271° -340° at 20 NM ALT should not below 6 500 FT (Due to border limited.) - Radial 341° -140° at 20 NM ALT should not below 5 000 FT (Due to border limited.) - Radial 141° -180° at 40 NM ALT should not below 5 000 FT - Radial 181° -210° at 40 NM ALT should not below 7 500 FT - Radial 211° -240° at 40 NM ALT should not below 9 000 FT - Radial 241° -260° at 40 NM ALT should not below 12 000 FT - Radial 261° -270° at 40 NM ALT should not below 10 000 FT DVOR/DME unusable due to roughness on radial 340° distance between 7-9 DME at ALT 6 000 FT. DVOR/DME unusable due to roughness on radial 143° distance between 13 -15 DME at ALT 4 500 FT.
CHUM PHAE DVOR/DME	CMP	112.9MHZ (CH 76X)		163811.3N 1 015905.4E	-	

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1	2	3	4	5	6	7
CHUM PHON DVOR/DME	CPN	110MHZ (CH 37X)	H24	104240.21N 0992156.03E	5.50 M (18 FT)	DVOR/DME restriction, due to mountainous terrain surround DVOR/DME station, coverage check does not provide adequate signal clockwise orbit at the required altitude and distance in various areas as follows: <ol style="list-style-type: none"> 1. 40 NM <ul style="list-style-type: none"> - Radial 011°-020° altitude should not below 5 000 FT - Radial 021°-050° altitude should not below 4 000 FT - Radial 051°-100° altitude should not below 2 000 FT - Radial 101°-110° altitude should not below 4 000 FT - Radial 111°-190° altitude should not below 2 000 FT - Radial 191°-225° altitude should not below 4 000 FT - Radial 226°-230° altitude should not below 6 000 FT 2. 30 NM (Due to border limited) <ul style="list-style-type: none"> - Radial 231°-270° altitude should not below 5 000 FT 3. 20 NM (Due to border limited) <ul style="list-style-type: none"> - Radial 271°-010° altitude should not below 5 000 FT
HAT YAI DVOR/DME	HTY	115.3MHZ (CH 100X)	H24	065602.75N 1002316.47E	37.3 M	DVOR/DME restriction, due to mountainous terrain surround DVOR/DME station coverage check does not provide adequate signal to 40 NM at the required altitude in various areas as follows: <ul style="list-style-type: none"> - Radial 171°- 240° at 10 NM ALT should not below 5 000 FT - Radial 131°- 170° at 20 NM ALT should not below 4 000 FT - Radial 031°-130° at 40 NM ALT should not below 5 000 FT - Radial 241°- 270° at 40 NM ALT should not below 7 000 FT - Radial 271°- 300° at 40 NM ALT should not below 10 000 FT - Radial 301°- 330° at 40 NM ALT should not below 6 000 FT - Radial 331°- 030° at 40 NM ALT should not below 3 000 FT
HUA HIN DVOR/DME	HHN	113.3MHZ (CH 80X)	H24	123804.04N 0995704.23E	-	DVOR/DME restriction, due to terrain surround DVOR/DME station coverage check does not provide adequate signal 40 NM at required altitude in various areas: <ol style="list-style-type: none"> 1. 40 NM clockwise orbit flown from <ul style="list-style-type: none"> - Radial 001°-070° altitude should not below 4 000 FT (found roughness in tolerance, obstruction by condominium) - Radial 071°-170° altitude should not below 2 000 FT - Radial 171°-220° altitude should not below 5 000 FT - Radial 301°-360° altitude should not below 5 500 FT 2. 30 NM clockwise orbit flown from: <ul style="list-style-type: none"> - Radial 221°-300° altitude should not below 8 000 FT (Due to border limited)
KAMPHAENG SAEN DVOR/DME	KPS	114.5MHZ (CH 92X)	2300-1100	140956N 0995715E	-	

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1	2	3	4	5	6	7
KHON KAEN DVOR/DME	KKN	114.9MHZ (CH 96X)	H24	162814.73N 1024716.07E	-	
KHORAT DVOR/DME	KRT	113.7MHZ	H24	145502.35N 1020823.32E	-	287 MAG/3.7 NM
KRABI DVOR/DME	KBI	111MHZ (CH 47X)	H24	080627.19N 0985839.07E	-	DVOR/DME restriction, due to mountainous terrain surround DVOR/DME station coverage check does not provide adequate signal to 40 NM at required altitude in various areas: <ol style="list-style-type: none"> 1. 40 NM clockwise orbit flown from <ul style="list-style-type: none"> - Radial 001°-039° altitude should not below 3 500 FT - Radial 040°-270° altitude should not below 3 000 FT - Radial 271°-300° altitude should not below 5 000 FT - Radial 351°-360° altitude should not below 4 000 FT 2. 30 NM clockwise orbit flown from <ul style="list-style-type: none"> - Radial 301°-350° altitude should not below 7 000 FT
LAMPANG DVOR/DME	LPN	114.7MHZ (CH 94X)	H24	181635.87N 0993008.40E	-	DVOR/DME restriction, due to terrain surround DVOR/DME station coverage check does not provide adequate signal to 40 NM at required altitudes in various areas: <ul style="list-style-type: none"> - Radial 351°-070° beyond 40 NM should not below 6 000 FT - Radial 071°-130° beyond 30 NM should not below 6 000 FT - Radial 131°-320° beyond 40 NM should not below 6 000 FT - Radial 321°-350° beyond 30 NM should not below 6 000 FT
LOEI DVOR/DME	LOY	115.9MHZ (CH 106X)	H24	172649.38N 1014323.12E	-	DVOR/DME restriction, due to mountainous terrain surround DVOR/DME station coverage check does not provide adequate signal to 40 NM at the required altitude in various areas as follow; <ol style="list-style-type: none"> 1. 40 NM orbit <ul style="list-style-type: none"> - RDL 030-050° ALT should not below 10 000 FT - RDL 051-100° ALT should not below 7 000 FT - RDL 101-130° ALT should not below 10 000 FT - RDL 131-200° ALT should not below 5 000 FT - RDL 201-250° ALT should not below 12 000 FT - RDL 251-270° ALT should not below 13 000 FT 2. 20 NM orbit (Due to border limited) <ul style="list-style-type: none"> - RDL 271-029° ALT should not below 4 500 FT

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MAE HONG SON DVOR/DME	MHS	115.5MHZ (CH 102X)	H24	191910.73N 0975443.50E	-	DVOR/DME restriction, due to mountainous terrain surround DVOR/DME station, coverage check does not provide adequate signal to 40 NM at the required altitude in various areas as follow: <ol style="list-style-type: none"> 1. Radial 060°-080° beyond 40 NM should not below 8 500 FT 2. Radial 081°-120° beyond 40 NM should not below 11 000 FT 3. Radial 121°-180° beyond 40 NM should not below 9 000 FT 4. Radial 181°-059° unable to performed (Due to border limited.) DME unusable radial 080°-120° beyond 30 NM altitude below 10 000 FT DVOR/DME unusable due to roughness and scalloping on radial 040° distance between 10-12 DME, radial 119° distance between 8-10 DME and radial 090° distance between 8-9 DME.
MAE SOT DVOR/DME	MST	116.7MHZ (CH 114X)	H24	164152.13N 0983229.68E	-	DVOR/DME restriction, due to mountainous terrain surround DVOR/DME station coverage check does not provide adequate signal to 40 NM at the required altitude in various areas as follows: <ul style="list-style-type: none"> - Radial 000°-030° altitude should not below 7 000 FT - Radial 031°-060° altitude should not below 9 000 FT - Radial 061°-070° altitude should not below 10 000 FT - Radial 071°-120° altitude should not below 9 000 FT - Radial 121°-360° unable to fly (Due to border limited)
NAKHON PHANOM DVOR/DME	NKP	111.6MHZ (CH 53X)	H24	172317.87N 1043818.01E	-	DVOR/DME coverage restriction as follows: <ul style="list-style-type: none"> - Radial 181°-250° beyond 40 NM altitude should not below 3 500 FT - Radial 251°-320° beyond 40 NM altitude should not below 2 000 FT - Radial 321°-180° unable to check (Due to border limited.)
NAKHON RATCHASIMA DVOR/DME	NKR	110.2MHZ (CH 39X)	H24	145647.66N 1021840.35E	-	
NAKHON SI THAMMARAT DVOR/DME	NKS	117.4MHZ (CH 121X)	H24	083229.95N 0995648.67E	-	Due to mountainous terrain surround DVOR/DME station coverage check does not provide adequate signal to 40 NM at required altitudes is various areas: <ul style="list-style-type: none"> - Radial 001°-190° beyond 40 NM should not below 2 500 FT - Radial 191°-240° beyond 40 NM should not below 7 000 FT - Radial 241°-280° beyond 25 NM should not below 8 000 FT - Radial 281°-320° beyond 40 NM should not below 7 000 FT - Radial 321°-360° beyond 40 NM should not below 5 000 FT

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NAN DVOR/DME	NAN	115.7MHZ (CH 104X)	H24	184832.76N 1004657.31E	-	DVOR/DME restriction, due to mountainous terrain surround DVOR/DME station coverage check does not provide adequate signal to 40 NM at the required altitude in various areas as follows: <ul style="list-style-type: none"> - Radial 011°-110° at 20 NM should not below 8 000 FT - Radial 111°-160° at 20 NM should not below 6 000 FT - Radial 161°-180° at 40 NM should not below 6 000 FT - Radial 181°-330° at 40 NM should not below 7 000 FT - Radial 311°-010° at 40 NM should not below 8 000 FT
NARATHIWAT DVOR/DME	NTW	116.3MHZ (CH 110X)	H24	063138.24N 1014442.48E	-	DVOR/DME restriction, due to mountainous terrain surround DVOR/DME station coverage check does not provide adequate signal to 40 NM at the required altitude in various areas: <ol style="list-style-type: none"> 1. 40 NM clockwise orbit flown from <ul style="list-style-type: none"> - Radial 270°-290° altitude should not below 9 000 FT - Radial 291°-300° altitude should not below 4 000 FT - Radial 301°-020° altitude should not below 2 000 FT 2. 20 NM clockwise orbit flown from <ul style="list-style-type: none"> - Radial 021°-130° altitude should not below 2 000 FT - Radial 131°-270° altitude should not below 5 000 FT
PATTANI NDB	PT	201KHZ	H24	064718.45N 1010852.51E	-	
PHETCHABUN DVOR/DME	PCB	115.4MHZ (CH 101X)	H24	164033.66N 1011148.12E	-	DVOR/DME restriction, due to mountainous terrain surround DVOR/DME station coverage check does not provide adequate signal to 40 NM at the required altitude in various areas as follows: <ul style="list-style-type: none"> - Radial 061°-230° beyond 30 NM altitude should not below 6 500 FT - Radial 231°-320° beyond 30 NM altitude should not below 8 000 FT - Radial 321°-060° beyond 40 NM altitude should not below 7 500 FT
PHITSANULOK DVOR/DME	PSL	114.1MHZ (CH 88X)	H24	164613.34N 1001728.70E	-	DVOR/DME restriction, due to mountainous terrain surround DVOR/DME station coverage check does not provide adequate signal to 40 NM at the required altitude in various areas as follows: <ul style="list-style-type: none"> - Radial 001°-130° altitude should not below 5 500 FT - Radial 131°-260° altitude should not below 3 000 FT - Radial 261°-360° altitude should not below 5 000 FT

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PHRAE DVOR/DME	PAE	111.8MHZ (CH 55X)	H24	180802.78N 1000958.35E	-	DVOR/DME restriction due to mountainous terrain surround DVOR/DME station coverage check does not provide adequate signal to 40 NM at the required altitude in various areas as follows: <ul style="list-style-type: none"> - Radial 055°-080° at 40 NM altitude should not below 9 000 FT - Radial 081°-160° at 40 NM altitude should not below 11 000 FT - Radial 161°-180° at 40 NM altitude should not below 8 000 FT - Radial 181°-350° at 40 NM altitude should not below 6 000 FT - Radial 351°-054° at 40 NM altitude should not below 6 500 FT
PHUKET DVOR/DME	PUT	116.9MHZ (CH 116X)	H24	080654.83N 0981822.69E	16.72 M	DVOR/DME restriction, due to mountainous terrain surround DVOR/DME station coverage check does not provide adequate signal to 40 NM at the required altitude in various areas as follows: <ul style="list-style-type: none"> - Radial 360°-030° altitude should not below 5 500 FT - Radial 031°-170° altitude should not below 9 000 FT - Radial 171°-220° altitude should not below 7 000 FT - Radial 221°-359° altitude should not below 3 000 FT
RANONG DVOR/DME	RAN	113.4MHZ (CH 81X)	H24	094643.18N 0983502.11E	-	DVOR/DME restriction, due to mountainous terrain surround DVOR/DME station coverage check does not provide adequate signal to 40 NM at the required altitude in various areas as follows: <ul style="list-style-type: none"> - Radial 020°-120° altitude should not below 14 000 FT - Radial 121°-170° altitude should not below 11 000 FT - Radial 171°-200° altitude should not below 6 500 FT - Radial 201°-019° unable to fly (Due to border limited.)
RAYONG DVOR/DME	RYN	112.5MHZ (CH 72X)	H24	124648.3N 1014041.7E	-	DVOR/DME restriction, due to mountainous terrain surround DVOR/DME station coverage check does not provide adequate signal to 40 NM at the required altitude in various areas: <ul style="list-style-type: none"> - Radial 011°-030° beyond 40 NM should not below 6 000 FT - Radial 031°-050° beyond 40 NM should not below 3 000 FT - Radial 051°-080° beyond 40 NM should not below 5 000 FT - Radial 081°-010° beyond 40 NM should not below 3 000 FT
ROI-ET DVOR/DME	ROT	111.2MHZ (CH 49X)	H24	160700.59N 1034619.45E	-	
SAKON NAKHON DVOR/DME	SKN	114.2MHZ (CH 89X)	H24	171250.89N 1040812.34E	-	DVOR/DME restriction due to mountain terrain surround as follows: <ul style="list-style-type: none"> - Radial 000°- 130° beyond 30 NM altitude should not below 2 100 FT - Radial 131°- 280° beyond 30 NM altitude should not below 5 500 FT
SONGKHLA DVOR/DME	SKL	113.5MHZ (CH 82X)	H24	071119.65N 1003615.11E	-	Military facility

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1	2	3	4	5	6	7
SAMUI DVOR/DME	SMU	117.6MHZ (CH 123X)	H24	093249.47N 1000342.27E	24 M	
SURAT THANI DVOR/DME	STN	110.6MHZ (CH 43X)	H24	090746.24N 0990805.09E	-	DVOR/DME restriction, due to mountainous terrain surround DVOR/DME station coverage orbit 40 NM as follows: <ul style="list-style-type: none"> - Radial 001°-070° altitude should not below 1 500 FT - Radial 071°-090° altitude should not below 3 500 FT - Radial 091°-150° altitude should not below 5 000 FT - Radial 151°-190° altitude should not below 1 500 FT - Radial 191°-360° altitude should not below 4 000 FT - Radial 227° distance approximate 10-13 DME out of tolerance roughness and scalloping
SUKHOTHAI NDB DME	THS	292KHZ (CH 40X)	H24	171406.81N 0994919.23E	181.03 FT	DME: Paired with NDB Freq. DME Coordinates 171408.27N0994906.89E
TAKHLI NDB	TL	350KHZ	H24	151633.45N 1001751.11E	-	
TAK NDB	TK	332KHZ	H24	165358.24N 0991507.91E	-	
TRANG DVOR/DME	TRN	116.6MHZ (CH 113X)	H24	073032.17N 0993733.67E	-	DVOR/DME restriction, due to mountainous terrain surround DVOR/DME station coverage check does not provide adequate signal to 40 NM at the required altitude in various areas as follows: <ul style="list-style-type: none"> - Radial 150°- 350° at 40 NM altitude should not below 4 000 FT - Radial 351°- 020° at 40 NM altitude should not below 6 000 FT - Radial 021°-150° at 20 NM altitude should not below 6 000 FT
TRAT NDB	TRT	384KHZ (CH 36X)	H24	121628.10N 1021850.08E	-	NDB restriction, due to NDB 50 NM orbit coverage data found as follows: <ul style="list-style-type: none"> - Bearing 001°-130° unusable due to border limited - Bearing 131°-320° altitude should not below 5 000 FT - Bearing 321°-360° altitude should not below 8 000 FT
UBON DVOR/DME	UBL	112.7MHZ (CH 74X)	H24	151442.71N 1045157.30E	-	Coverage orbit data refer from commissioning checked: <ul style="list-style-type: none"> - Radial 071°-110° at 30 NM altitude should not below 2 000 FT (Due to border limited) - Radial 111°- 070° at 40 NM altitude should not below 2 000 FT

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UDON DVOR/DME	UDN	114.3MHZ (CH 90X)	H24	172304.20N 1024630.05E	-	DVOR/DME restriction, due to mountainous terrain surround DVOR/DME station coverage check does not provide adequate signal at required altitudes in various areas as follows: <ol style="list-style-type: none"> 1. 20 NM orbit (Due to border limited) <ul style="list-style-type: none"> - RDL 331°-030° ALT should not below 2500 FT 2. 40 NM orbit <ul style="list-style-type: none"> - RDL 031°-090° ALT should not below 3000 FT - RDL 091°-190° ALT should not below 4000 FT - RDL 191°-220° ALT should not below 5000 FT - RDL 221°-330° ALT should not below 4000 FT 3. The airways were checked and result found satisfactory <ul style="list-style-type: none"> - Airway W15 on RDL 097° flown to 40.1 NM ALT 4000 FT - Airway W4 on RDL 143° flown to 50.0 NM ALT 4000 FT
U-TAPAO DVOR/DME	BUT	110.8MHZ (CH 45X)	H24	124000.02N 1010001.71E	6 M	DVOR/DME restriction, due to mountainous terrain surround DVOR/DME station coverage check does not provide adequate signal to 40 NM at the required altitude in various areas: <ol style="list-style-type: none"> 1. 40 NM orbit flown from <ul style="list-style-type: none"> - Radial 041°-090° altitude should not below 3 500 FT - Radial 091°-110° altitude should not below 4 500 FT - Radial 111°-200° altitude should not below 2 000 FT - Radial 201°-240° altitude should not below 4 000 FT - Radial 321°-040° altitude should not below 4 500 FT 2. 25 NM orbit flown from <ul style="list-style-type: none"> - Radial 241°-280° altitude should not below 2 500 FT - Radial 281°-320° altitude should not below 3 000 FT