

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	DVOR/DME restriction due to obstacles surround DVOR/DME station, coverage check does not provide adequate signal 40 NM at required altitude in various areas as follows: <ul style="list-style-type: none"> - Radial 321°-030° altitude should not below 2 500 FT - Radial 031°-060° altitude should not below 4 000 FT - Radial 061°-120° altitude should not below 3 000 FT - Radial 121°-320° altitude should not below 4 000 FT
BETONG DVOR/DME	BET	113.1MHZ (CH 78X)	H24	054707.68N 1010838.65E		DVOR/DME restrictions, <ol style="list-style-type: none"> 1. Due to mountainous terrain surround DVOR/DME station, coverage check does not provide adequate signal to 40 NM at required altitude and distance in various areas as follows: <ul style="list-style-type: none"> - Radial 350°-020° altitude should not below 8 000 FT - Radial 021°-040° altitude should not below 6 500 FT - Radial 041°-060° altitude should not below 9 000 FT - Radial 061°-075° altitude should not below 15 000 FT - Radial 076°-349° unable to check due to border limit 2. Due to the out-of-tolerance 30Hz FM deviation ratio in the following areas: <ul style="list-style-type: none"> - Radial 130°-180° - Radial 320°-010°
BURI RAM DVOR/DME	BRM	117.2MHZ (CH 119X)	H24	151422.43N 1031531.59E	-	DVOR/DME restriction due to mountainous terrain surround DVOR/DME station, coverage check does not provide adequate signal clockwise orbit 40 NM at required altitude in various areas as follows: <ul style="list-style-type: none"> - Radial 091°-140° altitude should not below 3 500 FT - Radial 141°-240° altitude should not below 5 000 FT - Radial 241°-280° altitude should not below 4 000 FT - Radial 281°-090° altitude should not below 2 500 FT
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

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1	2	3	4	5	6	7
CHIANG RAI DVOR/DME	CTR	116.5MHZ (CH 112X)	H24	195653.65N 0995300.12E	-	DVOR/DME restriction due to mountainous terrain surround DVOR/DME station, coverage check does not provide adequate signal at the required altitude in various areas as follows: <ol style="list-style-type: none"> 1. 40 NM <ul style="list-style-type: none"> - Radial 141°-180° altitude should not below 5 000 FT - Radial 181°-210° altitude should not below 7 500 FT - Radial 211°-255° altitude should not below 9 000 FT - Radial 256°-265° altitude should not below 10 000 FT - Radial 266°-270° altitude should not below 9 000 FT 2. 20 NM (Due to border limited) <ul style="list-style-type: none"> - Radial 271°-340° altitude should not below 6 500 FT - Radial 341°-140° altitude should not below 5 000 FT
CHUM PHAE DVOR/DME	CMP	112.9MHZ (CH 76X)		163811.3N 1 015905.4E	-	DVOR/DME restrictions, <ol style="list-style-type: none"> 1. Due to mountainous terrain surround DVOR/DME station, during radial check found roughness and bends out of tolerance, DVOR/DME unusable on radial as follows: <ul style="list-style-type: none"> - Radial 102° distance between 9.5-10.5 DME at altitude 4 500 FT - Radial 223° distance between 11.0-12.0 DME at altitude 5 000 FT - Radial 273° distance between 13.0-14.0 DME at altitude 6 000 FT - Radial 343° distance between 6.0-8.5 DME at altitude 5 500 FT 2. Due to mountainous terrain surround DVOR/DME station, coverage check does not provide adequate signal to 40 NM at required altitudes and distances in various areas as follows: <ul style="list-style-type: none"> - Radial 001°-010° altitude should not below 5 500 FT - Radial 011°-080° altitude should not below 4 500 FT - Radial 081°-105° altitude should not below 7 000 FT - Radial 106°-120° altitude should not below 6 000 FT - Radial 121°-190° altitude should not below 5 000 FT - Radial 191°-230° altitude should not below 6 000 FT - Radial 231°-260° altitude should not below 8 000 FT - Radial 261°-310° altitude should not below 7 000 FT - Radial 311°-330° altitude should not below 8 000 FT - Radial 331°-350° altitude should not below 5 500 FT - Radial 351°-360° altitude should not below 6 500 FT

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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 as follows: <ol style="list-style-type: none"> 1. 40 NM clockwise orbit <ul style="list-style-type: none"> - Radial 001°-170° altitude should not below 3 000 FT - Radial 171°-210° altitude should not below 7 000 FT - Radial 301°-340° altitude should not below 10 000 FT - Radial 340°-360° altitude should not below 3 000 FT 2. 30 NM clockwise orbit (Due to border limited) <ul style="list-style-type: none"> - Radial 211°- 300° altitude should not below 10 000 FT 3. Radial 341° distance 10.3 DME at altitude 4 000 FT found roughness out of tolerance

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1	2	3	4	5	6	7
KAMPHAENG SAEN DVOR/DME	KPS	114.5MHZ (CH 92X)	2300-1100	140956N 0995715E	-	
KHON KAEN DVOR/DME	KKN	114.9MHZ (CH 96X)	H24	162814.73N 1024716.07E	-	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 as follows: <ul style="list-style-type: none"> - Radial 001°-080° altitude should not below 2 500 FT - Radial 081°-220° altitude should not below 2 000 FT - Radial 221°-360° altitude should not below 3 500 FT
KHORAT DVOR/DME	KRT	113.7MHZ (CH 84X)	H24	145502.35N 1020823.32E	-	DVOR/DME restriction due to mountainous terrain surround DVOR/DME station, coverage check does not provide adequate signal clockwise orbit 40 NM at required altitude in various areas as follows: <ul style="list-style-type: none"> - Radial 081°-280° altitude should not below 5 000 FT - Radial 281°-080° altitude should not below 3 500 FT
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 as follows: <ul style="list-style-type: none"> - Radial 001°-180° altitude should not below 5 500 FT - Radial 181°-200° altitude should not below 7 000 FT - Radial 201°-340° altitude should not below 10 000 FT - Radial 341°-360° altitude should not below 15 500 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 as follows: <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

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LOEI DVOR/DME	LOY	115.9MHZ (CH 106X)	H24	172649.38N 1014323.12E	-	DVOR/DME restriction, 1. Unusable due to roughness out of tolerance – Radial 020° between 10-11 DME altitude 3 000 FT – Radial 243° between 7-8 DME altitude 6 000 FT and between 32-33 DME altitude 7 500 FT 2. 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: 2.1 40 NM orbit – Radial 030°-050° altitude should not below 10 000 FT – Radial 051°-100° altitude should not below 7 000 FT – Radial 101°-130° altitude should not below 10 000 FT – Radial 131°-200° altitude should not below 5 000 FT – Radial 201°-250° altitude should not below 12 000 FT – Radial 251°-270° altitude should not below 13 000 FT 2.2 20 NM orbit (Due to border limited) – Radial 271°-029° altitude should not below 4 500 FT
MAE HONG SON DVOR/DME	MHS	115.5MHZ (CH 102X)	H24	191910.73N 0975443.50E	-	DVOR/DME restrictions, 1. Unusable due to roughness out of tolerance – Radial 040° distance between 10.5-12.5 DME altitude 5 500 FT – Radial 085° distance between 5.5-7.5 DME altitude 7 000 FT – Radial 100° distance between 9.0-10.0 DME altitude 7 000 FT – Radial 120° distance between 9.5 - 10.5 DME altitude 7 500 FT 2. 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: – Radial 060°-080° altitude should not below 8 500 FT – Radial 081°-140° altitude should not below 13 000 FT – Radial 141°-190° altitude should not below 9 000 FT – Radial 191°-059° unable to perform due to border limited

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MAE SOT DVOR/DME	MST	116.7MHZ (CH 114X)	H24	164152.13N 0983229.68E	-	DVOR/DME restrictions, 1. Unusable due to roughness out of tolerance – Radial 104° distance between 6.0-13.0 DME altitude 5 500 FT – Radial 012° distance between 22.0-24.0 DME altitude 5 000 FT – Radial 124° distance between 32.0-34.0 DME altitude 6 600 FT 2. Due to mountainous terrain surround DVOR/DME station, coverage check does not provide adequate signal clockwise orbit 40 NM at the required altitude in various areas as follows: – 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 perform due to border limited
NAKHON PHANOM DVOR/DME	NKP	111.6MHZ (CH 53X)	H24	172317.87N 1043818.01E	-	DVOR/DME restriction due to mountainous terrain surround DVOR/DME station, coverage check does not provide adequate signal to 40 NM at required altitudes in various areas as follows: – Radial 181°-190° altitude should not below 2 500 FT – Radial 191°-260° altitude should not below 4 000 FT – Radial 261°-320° altitude should not below 2 500 FT – Radial 321°-180° unable to check (Due to border limited)
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: – 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
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: – 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

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1	2	3	4	5	6	7
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 as follows: <ol style="list-style-type: none"> 1. 40 NM clockwise orbit flown from <ul style="list-style-type: none"> - Radial 271°-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 restrictions, <ol style="list-style-type: none"> 1. Unusable due to roughness out of tolerance on radial 277° distance between 7-9 DME altitude 5 500 FT 2. 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 351°-120° altitude should not below 5 500 FT - Radial 121°-270° altitude should not below 3 000 FT - Radial 271°-300° altitude should not below 5 000 FT - Radial 301°-350° altitude should not below 3 500 FT

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1	2	3	4	5	6	7
PHRAE DVOR/DME	PAE	111.8MHZ (CH 55X)	H24	180802.78N 1000958.35E	-	DVOR/DME restrictions, <ol style="list-style-type: none"> 1. Unusable due to roughness out of tolerance on radial 146° distance between 7.0-8.0 DME altitude 7 000 FT 2. 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° altitude should not below 9 000 FT - Radial 081°-160° altitude should not below 11 000 FT - Radial 161°-180° altitude should not below 8 000 FT - Radial 181°-350° altitude should not below 6 000 FT - Radial 351°-054° 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: 20 NM orbit <ul style="list-style-type: none"> - Radial 020°-040° altitude should not below 6 000 FT - Radial 041°-060° altitude should not below 12 000 FT - Radial 061°-120° altitude should not below 16 000 FT - Radial 151°-170° altitude should not below 9 000 FT 40 NM orbit <ul style="list-style-type: none"> - Radial 121°-150° altitude should not below 16 000 FT - Radial 171°-187° altitude should not below 12 000 FT - Radial 188°-230° altitude should not below 7 000 FT - Radial 231°-019° unable to fly due to border limited.

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1	2	3	4	5	6	7
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 clockwise orbit 40 NM at required altitude in various areas as follows: <ul style="list-style-type: none"> - Radial 011°-040° altitude should not below 9 000 FT - Radial 041°-050° altitude should not below 4 000 FT - Radial 051°-080° altitude should not below 6 000 FT - Radial 081°-240° altitude should not below 4 000 FT - Radial 240°-010° altitude should not below 5 000 FT
ROI-ET DVOR/DME	ROT	111.2MHZ (CH 49X)	H24	160700.59N 1034619.45E	-	Coverage orbit data refer from commissioning checked as follows: <ul style="list-style-type: none"> - 40 NM clockwise orbit flown from radial 001°-360° altitude should not below 2 000 FT - Airway W5 flown to 40 NM at 2 000 FT was checked and found satisfactory
SAKON NAKHON DVOR/DME	SKN	114.2MHZ (CH 89X)	H24	171250.89N 1040812.34E	-	DVOR/DME restriction due to mountainous terrain surround DVOR/DME station, coverage check does not provide adequate signal at required altitude in various areas as follows: <ol style="list-style-type: none"> 1. 30 NM orbit (Due to border limited) <ul style="list-style-type: none"> - Radial 000°-130° altitude should not below 2 100 FT 2. 40 NM orbit <ul style="list-style-type: none"> - Radial 131°-280° altitude should not below 5 500 FT - Radial 281°-359° altitude should not below 2 100 FT
SONGKHLA DVOR/DME	SKL	113.5MHZ (CH 82X)	H24	071119.65N 1003615.11E	-	Military facility
SAMUI DVOR/DME	SMU	117.6MHZ (CH 123X)	H24	093249.47N 1000342.27E	24 M	DVOR/DME restriction due to mountainous terrain surround DVOR/DME station, coverage check does not provide adequate signal at required altitude in various areas as follows: <ul style="list-style-type: none"> - Radial 000°-015° beyond 25 NM altitude should not below 4 000 FT - Radial 016°-040° beyond 25 NM altitude should not below 6 000 FT - Radial 041°-060° beyond 20 NM altitude should not below 11 000 FT - Radial 061°-070° beyond 25 NM altitude should not below 9 000 FT - Radial 071°-120° beyond 40 NM altitude should not below 11 000 FT - Radial 121°-180° beyond 40 NM altitude should not below 5 000 FT - Radial 181°-210° beyond 25 NM altitude should not below 8 000 FT - Radial 211°-260° beyond 20 NM altitude should not below 9 000 FT - Radial 261°-280° beyond 25 NM altitude should not below 7 000 FT - Radial 281°-360° beyond 40 NM altitude should not below 8 000 FT

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1	2	3	4	5	6	7
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	1. Route coverage checked on bearing 021° from THS to PR altitude 9 000 FT flown to 57 NM found satisfactory 2. Coverage 50 NM clockwise orbit data refer from commissioning checked as follows: <ul style="list-style-type: none"> - Bearing 041°-100° at altitude 4 000 FT - Bearing 101°-190° at altitude 2 000 FT - Bearing 191°-040° at altitude 5 000 FT DME: Paired with NDB Freq. DME Coordinates 171408.27N 0994906.89E
TAKHLI NDB	TL	350KHZ	H24	151633.45N 1001751.11E	-	
TAK NDB	TK	332KHZ	H24	165358.24N 0991507.91E		Output 25 watts 1. Route coverage checked and result found satisfactory as follows: <ul style="list-style-type: none"> - Bearing 098° from TK to PL altitude 7 000 FT flown to 56 NM - Bearing 254° from TK to MS altitude 7 000 FT flown to 36 NM 2. Coverage 15 NM clockwise orbit data refer from commissioning checked as follows: <ul style="list-style-type: none"> - Bearing 001°-360° at altitude 3 500 FT
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 at the required altitude in various areas as follows: <ol style="list-style-type: none"> 1. 20 NM orbit <ul style="list-style-type: none"> - Radial 081°-130° altitude should not below 6 000 FT 2. 40 NM orbit <ul style="list-style-type: none"> - Radial 131°-350° altitude should not below 4 000 FT - Radial 351°-030° altitude should not below 6 000 FT - Radial 031°-080° altitude should not below 7 000 FT

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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	-	DVOR/DME restriction <ol style="list-style-type: none"> 1. Due to obstacles surround DVOR/DME station, coverage check does not provide adequate signal clockwise orbit at required altitude in various areas as follows: <ol style="list-style-type: none"> a) 40 NM <ul style="list-style-type: none"> - Radial 111°-155° altitude should not below 3 000 FT - Radial 156°-165° altitude should not below 7 000 FT - Radial 166°-200° altitude should not below 5 000 FT - Radial 201°-070° altitude should not below 3 000 FT b) 30 NM (Due to border limit) <ul style="list-style-type: none"> - Radial 071°-110° altitude should not below 2 000 FT 2. During 6 NM orbit (CW) found 30 Hz. AM modulation is fluctuated within 29%-40% between radials 170°-190°. Notify to grounds maintenance, the problem may have occurred from surround obstructions close to the DVOR/DME stations. <ol style="list-style-type: none"> a) Ground maintenance action and flight check requirement verifies on radial 175° altitude 2 000 FT, distance 5-20 NM found the 30 Hz. AM modulation is fluctuated within 25%-35%. But found the DME unlock beyond 10 NM. b) DVOR/DME UBL, Azimuth unusable 170°-190° (CW) beyond 10 NM altitude 2 000 FT
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

Name of station (VAR) VOR: Declination)	ID	FREQ (CH)	Hours of operation	Coordinates	ELEV DME Antenna	Remarks
1	2	3	4	5	6	7
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 clockwise orbit 40 NM at required altitude and distance in various areas: <ul style="list-style-type: none"> - Radial 101°-170° altitude should not below 2 000 FT - Radial 171°-250° altitude should not below 6 000 FT - Radial 251°-320° altitude should not below 8 000 FT - Radial 321°-050° altitude should not below 8 000 FT - Radial 051°-100° altitude should not below 4 000 FT