

ENR 4 AIDES/SYSTEMES DE RADIONAVIGATION

RADIO NAVIGATION AIDS/SYSTEMS

ENR 4.1 AIDES DE RADIONAVIGATION EN-ROUTE

RADIO NAVIGATION AIDS EN-ROUTE

Les aides à la navigation utilisées pour les opérations en cheminement libre (FRA) sont présentées selon leur fonction. Une aide à la navigation peut avoir une ou plusieurs fonctions dans un ou plusieurs volumes FRA. La fonction abrégée entre parenthèses est indiquée dans la colonne "Observations" après le volume FRA concerné.

NavAids used for Free Route operations (FRA) are categorized according their function. One nvaaid may have one or more functions in one several FRA volumes. The function is shown in column "Remarks" abbreviated in parentheses after the FRA volume concerned.

FRA (A)	Point de connexion d'arrivée FRA / FRA arrival connecting point
FRA (D)	Point de connexion de départ FRA / FRA departure connecting point
FRA (E)	Point d'entrée horizontale FRA / FRA horizontal entry point
FRA (I)	Point intermédiaire FRA / FRA intermediate point
FRA (X)	Point de sortie horizontale FRA / FRA horizontal exit point

Station	Service	ID	FREQ	HOR	Coordonnées Portée Coverage	ALT	Situation Location	Exploitant Operator	Observations Remarks
ABBEVILLE	DME	ABB	108.45 MHz Ch 21Y	H24	50°08'06.5"N 001°51'16.9"E 60NM FL500				
AGEN-Gaudonville	DME	AGN	114.8 MHz Ch 95X	H24	43°53'16.9"N 000°52'22.3"E 120NM(315°..75°) 100NM FL500	896 ft			FRA(I): LFFRASW; FRA(A): LFFRASW, LEPP, LERJ, LESO, LFBA, LFBD, LFBE, LFBM, LFBP, LFBT, LFBZ, LFCC, LFCG, LFCL, LFCN, LFCQ, LFCW, LFCX, LFDA, LFDB, LFDH, LFDJ, LFDX, LFMW; FRA(D): LFFRASW, LFBA, LFBD, LFBM, LFCC, LFCN, LFDA, LFDH, LFDJ
AJACCIO-Coti Chiavari	VOR- DME	AJO	114.8 MHz Ch 95X	H24	41°46'13.9"N 008°46'28.8"E 200NM(90°..270°) 100NM FL500	2142 ft			Fluctuation occasionnelle du signal VOR dans les secteurs sud, sud-ouest, ouest et nord- ouest du moyen. / Occasional fluctuation of the VOR signal in the southern, south- western, western, and north- western sectors of the navaid. FRA(IA): LFFRASE, LIRJ, LIRP, LIRS, LIQS, LFKB, LFKC, LIEA, LIEO, FL195- 660; FRA(ID): LFFRASE, LFKB, LFKC, LIEO, FL195-660
AMBOISE	DME	AMB	113.7 MHz Ch 84X	H24	47°25'44.1"N 001°03'52.0"E 80NM FL500	387 ft			Pas de VOR associé. No associated VOR. FRA(I): LFFRAN, FL305-660
ANGERS	DME	ANG	111.05 MHz Ch 47Y	H24	47°32'12.7"N 000°51'06.6"W 150NM FL500	304 ft			Pas de VOR associé. No associated VOR. FRA(I): LFFRAN, FL305-660
AVIGNON CAUMONT	NDB	CM	369 kHz	H24	43°54'29.8"N 004°54'19.4"E 20NM	160 ft	143°/750m DTHR 17		
AVIGNON Pujaut	VOR- DME	AVN	114.6 MHz Ch 93X	H24	43°59'43.3"N 004°44'47.0"E 60NM FL500	159 ft			FRA(D): LFFRASE, LFLU, FL195-660
AVORD	NDB	AVD	288.5 kHz	H24	47°07'14.4"N 002°47'58.6"E 50NM FL500	695 ft			
	TACAN	AVD	Ch 43X	H24	47°03'29.1"N 002°37'47.5"E 150NM FL600	578 ft			
BALE-MULHOUSE	VOR- DME	BLM	117.45 MHz Ch 121Y	H24	47°37'58.1"N 007°29'58.2"E 100 NM(270°..360°) 60NM FL500	886 ft	333°/1 NM THR 15		FRA(A): LFFRAE, LSMD, LSZH

Station	Service	ID	FREQ	HOR	Coordonnées Coordinates Portée Coverage	ALT	Situation Location	Exploitant Operator	Observations Remarks
BASTIA PORETTA	VOR-DME	BTA	114.15 MHz Ch 88Y	H24	42°34'24.9"N 009°28'29.4"E 80NM FL500	36 ft	340°/1170m THR 16		Fluctuation occasionnelle du signal VOR dans les secteurs Sud, Sud-Ouest, Ouest et Nord-Ouest du moyen. / Occasional fluctuation of the VOR signal in the southern, south-western, western and north-western sectors of the navaid. FRA(ID): LFFRASE, LFKF, LFKJ, LFKO, FL195-660
BIARRITZ PAYS BASQUE	VOR-DME	BTZ	114.15 MHz Ch 88Y	H24	43°27'59.9"N 001°30'37.0"W 100NM(315°..45°) 60NM FL500	276 ft	197°/223m THR 27		FRA(I): LFFRASW; FRA(AD): LFFRASW, LEPP, LERJ, LESO, LFBM, LFBP, LFBT, LFCN, LFDA
BORDEAUX MERIGNAC	VOR-DME	BMC	113.75 MHz Ch 84Y	H24	44°49'37.0"N 000°43'16.0"W 150NM(225°..315°) 100NM FL500	210 ft			ALT VOR 161 FRA(A): LFFRASW, LFBG, LFBH, LFCD, LFCH, LFCJ, LFCP, LFCY, LFDC, LFDK, LFDN, LFDP, LFDU, LFIV, LFOU, LFRJ, LFXB; FRA(D): LFFRASW, LFBG, LFBH, LFCD, LFCH, LFCJ, LFCP, LFCY, LFDC, LFDK, LFDN, LFDP, LFDU, LFIV, LFXB
BOULOGNE SUR MER	VOR	BNE	113.8 MHz	H24	50°37'29.2"N 001°54'25.6"E 70NM FL500	584 ft			
BOURSONNE	DME	BSN	114.85 MHz Ch 95Y	H24	49°11'17.9"N 003°03'23.5"E 60NM FL500				FRA(I): LFFRANE, FL195-660
BRAY SUR SEINE	DME	BRY	114.1 MHz Ch 88X	H24	48°24'25.2"N 003°17'41.2"E 100NM(45°..135°) 60NM FL500	289 ft			FRA(I): LFFRANE, FL195-660
BREST BRETAGNE	VOR-DME	BZH	110.65 MHz Ch 43Y	H24	48°26'31.4"N 004°26'39.1"W 130NM FL500	313 ft	252°/457 m THR 07R		
CAEN CARPIQUET	VOR-DME	CAN	114.45 MHz Ch 91Y	H24	49°10'23.5"N 000°27'19.0"W 80NM FL500	249 ft	287°/773 m THR 31		FRA(I): LFFRAN, FL305-660
CALVI SAINTE CATHERINE	NDB	CV	375 kHz	H24	42°34'37.1"N 008°48'23.7"E 25NM	71 ft	016°/2,2 NM THR 18		
CAMBRAI EPINOY	VOR-DME	CMB	112.6 MHz Ch 73X	H24	50°13'41.3"N 003°09'05.4"E 80NM FL500	299 ft			FRA(IA): LFFRANE, LFAC, EBBR, EBMB, EBAW, FL195-660; FRA(ID): LFFRANE, LFAC, LFAT, FL195-660
CANNES-Tanneron	VOR-DME	CNM	111.4 MHz Ch 51X	H24	43°33'37.3"N 006°52'15.4"E 60NM(225°..315°), 80NM(315°..45°) 40NM FL500	1595 ft			Fluctuation occasionnelle du signal VOR dans le secteur sud-est du moyen. / Occasional fluctuation of the VOR signal in the south-eastern sector of the navaid. Position GEO DME / DME GEO position : 43°33'35.9"N 006°52'12.4"E. DME ALT : 1600 ft. DME portée / coverage : - 72 NM jusqu'au / until FL500, - 120 NM jusqu'au / until FL100, - 26 NM en éloignement radial 129° / outbound RDL 129°.
CHAMBERY AIX LES BAINS	NDB	CH	346 kHz	H24	45°35'31.9"N 005°53'01.3"E 25NM	884 ft			
	VOR-DME	CBY	115.4 MHz Ch 101X	H24	45°52'54.8"N 005°45'26.3"E 80NM FL500	4783 ft			
CHARTRES La Loupe	VOR-DME	CHW	115.2 MHz Ch 99X	H24	48°28'48.0"N 000°59'13.4"E 180NM(135°..225°) 100NM FL500	732 ft			
CHATEAUDUN	VOR-DME	CAD	115.95 MHz Ch 106Y	H24	48°03'33.0"N 001°23'13.5"E 80NM (225°-315°) 40NM FL500				
CHATEAUROUX DEOLS	NDB	CTX	428 kHz	H24	46°56'11.8"N 001°48'04.1"E 50NM	605 ft	032°/4,35 NM THR 21		

Station	Service	ID	FREQ	HOR	Coordonnées Portée Coverage	ALT	Situation Location	Exploitant Operator	Observations Remarks
MARSEILLE PROVENCE	NDB	OB	395 kHz	HO	43°13'47.4"N 005°39'55.5"E 50NM	1562 ft			FRA(D): LFFRASE, LFMF, FL195-660
	VOR- DME	MRM	108.8 MHz Ch 25X	H24	43°22'38.4"N 005°19'35.2"E 60NM(270°.90°) 100NM FL500	771 ft	124°/5.6NM DTHR 31R		Fluctuation occasionnelle du signal VOR dans le secteur Sud du moyen. / Occasional fluctuation of the VOR signal in the southern sector of the navaid. FRA(IA): LFFRASE, LFLU, FL195-660; FRA(ID): LFFRASE, LFTH, FL195-660
MARTIGUES	VOR- DME	MTG	117.3 MHz Ch 120X	H24	43°23'10.7"N 005°05'12.6"E 200NM(135°.225°) 100NM FL500	650 ft			FRA(IA): LFFRASE, LFMS, LFNH, LFHO, FL195-660; FRA(ID): LFFRASE, LFMS, LFNH, LFLU, LFHO, LFMT, LFTW, LFNG, FL195-660
MELUN VILLAROCHE	VOR- DME	MLN	113.6 MHz Ch 83X	H24	48°27'20.8"N 002°48'47.8"E 40NM FL250	104.36 m			
MENDE-Nasbinals	VOR- DME	MEN	115.3 MHz Ch 100X	H24	44°36'30.1"N 003°09'44.7"E 100NM FL500	4514 ft			FRA(I): LFFRASW; FRA(A): LFFRASW, LFHO, LFME, LFMI, LFMS, LFMT, LFMU, LFTW; FRA(D): LFFRASW, LFBF, LFBO, LFBR, LFCI, LFCK, LFCR, LFLC, LFLW
MONTELMAR ANCONE	VOR- DME	MTL	113.65 MHz Ch 83Y	H24	44°33'17.8"N 004°46'47.5"E 100NM FL500	656 ft			FRA(IA): LFFRASE, LFMH, LFHP, LFLI, LFLY, LFLS, LFHV, LFXA, LFLM, LFHS, LFLC, LFHA, LFLJ, LFKA, LFHM, LFLG, LFBK, LFTW, LFMA, LFMY, LFML, LFMQ, LFNA, FL195-660; FRA(ID): LFFRASE, LFMH, LFHP, LFLB, LFLP, LFLI, LFLY, LFLS, LFHA, LFMT, LFTW, LFNG, LFMI, LFMA, LFMY, LFML, LFMQ, LFMV, LFNA, FL195-660
MONTMEDY-Dun sur Meuse	VOR	MMD	109.4 MHz	H24	49°23'28.5"N 005°07'27.9"E 100NM(45°.135°), 40NM(135°.225°) 60NM FL500	1076 ft			FRA(A): LFFRANE, LFJL, ELLX, EDFH, EDDR, ETAR, ETAD, EDSB, EDRZ, FL195- 660; FRA(D): LFFRANE, LFJL, LFST, LFSO, LFSN, LFQA, FL195-660
MONTPELLIER MEDITERRANEE	VOR- DME	FJR	114.45 MHz Ch 91Y	H24	43°34'42.1"N 003°58'29.0"E 80NM(225°.345°) 60NM FL500	7 ft	314°/868m THR 30R		FRA(EX): LFFRASW, FL195- 660 FRA(EXA): LFFRASE, LFMP, FL195-660; FRA(EXD): LFFRASE, LFMU, LFMP, FL195-660
MOULINS	VOR- DME	MOU	116.7 MHz Ch 114X	H24	46°42'24.4"N 003°37'54.0"E 80NM FL500	699 ft			FRA(I): LFFRAC; FRA(A): LFFRAC, LFOK, LFLA, LFQB, LFQA, LFGJ, LFSD, LFLC, LFLD, LFOA, LFGM, LFGN, LFHY, LFLN, LFLO, LFQF, LFHJ, LFHS, LFHV, LFHW, LFKL, LFKY, LFLG, LFLI, LFLM, LFLS, LFLU, LFLY, LFMH, LFXA; FRA(D): LFFRAC, LFLD, LFOA, LFOZ, LFOJ, LFOT, LFGJ, LFSD, LFOK, LFLA, LFQA, LFQB, LFHA, LFHQ, LFKM, LFLC, LFLV, LFLZ
NANCY OCHEY	TACAN	NAY	Ch 115X	H24	48°35'01.1"N 005°57'06.6"E	1063 ft			
NANTES ATLANTIQUE	VOR- DME	NTS	115.5 MHz Ch 102X	H24	47°09'39.1"N 001°36'46.7"W 100NM(315°.45°) 150NM FL500		251°/782 m DTHR 21		FRA(I): LFFRAN, FL305-660

Station	Service	ID	FREQ	HOR	Coordonnées Portée Coverage	ALT	Situation Location	Exploitant Operator	Observations Remarks
NICE COTE D'AZUR	DME	NIZ	112.4 MHz Ch 71X	H24	43°46'14.3"N 007°15'15.8"E 200NM(135°..225°) 150NM FL500	2822 ft			
	NDB	MUS	428 kHz	H24	43°23'04.5"N 006°36'22.9"E 40NM	1500 ft			
NIMES GARONS	NDB	NG	354 kHz	H24	43°51'25.9"N 004°24'22.6"E 25NM	249 ft	353°/5,34NM THR 18		Situé à / Located at : NIMES COURBESSAC AD. FRA(A): LFFRASE, LFMI, LFMO, LFMU, LFMV, FL195- 660; FRA(ID): LFFRASE, LFMV, LFMO, LFMU, FL195-660
ORLEANS SAINT DENIS DE L'HOTEL	NDB	ORS	322 kHz	H24	47°56'14.6"N 002°14'33.5"E 25NM	432 ft	053°/3,45 NM THR 23		
PASSEIRY	VOR- DME	PAS	116.6 MHz Ch 113X	HO	46°09'49.4"N 005°59'59.7"E				
PERPIGNAN RIVESALTES	VOR- DME	PPG	116.25 MHz Ch 109Y	H24	42°45'01.7"N 002°52'01.7"E 100NM(45°..135°) 80NM FL500	151 ft	131°/603 m THR 15		ALT VOR 128 FRA(I): LFFRASW; FRA(A): LFFRASW, LEGE; FRA(D): LFFRASW, LFCI, LFMK, LFMT, LFMU
POITIERS BIARD	DME	PT	110.95 MHz Ch 46Y	H24	46°35'40.4"N 000°18'53.1"E 25NM FL250	461 ft	190°/375m THR 21		
	VOR	POI	113.3 MHz	H24	46°34'51.6"N 000°17'53.5"E 60NM FL500	424 ft	315°/213m THR 03		FRA(I): LFFRASW; FRA(A): LFFRASW, LFJR, LFOC, LFOD, LFOQ, LFOR, LFOT, LFOV, LFRM; FRA(D): LFFRASW, LFBG, LFJR, LFOD, LFRM
PONTOISE CORMEILLES EN VEXIN	VOR	PON	111.6 MHz	H24	49°05'45.9"N 002°02'09.2"E 60NM (314°..44°) 40NM FL500	318 ft	034°/1113m THR 04		FRA(I): LFFRAN, FL305-660
QUIMPER PLUGUFFAN	VOR- DME	QPR	117.8 MHz Ch 125X	H24	47°57'26.2"N 004°11'05.0"W 150NM FL500	315 ft	229°/1,53 NM THR 27		FRA(A): LFFRANW, LFRB, LFRJ, LFEC, LFRJ, LFRH, LFRV, LFRQ; FRA(D): LFFRANW, LFRB, LFRJ, LFEC, LFRJ, LFRO, LFRU, LFRH, LFRV, LFRQ
RAMBOUILLET-Les Bordes	DME	RBT	114.7 MHz Ch 94X	H24	48°39'14.2"N 001°59'39.2"E 110NM(135°..225°) 60NM FL500	604 ft			
REIMS	VOR	REM	112.3 MHz	H24	49°18'41.9"N 004°02'43.3"E 60NM FL500	335 ft			
RENNES SAINT JACQUES	VOR- DME	REN	109.25 MHz Ch 29Y	H24	48°04'08.9"N 001°44'30.1"W 150NM FL500	126 ft			FRA(I): LFFRAN, FL305-660
ROANNE	VOR- DME	ROA	110.4 MHz Ch 41X	H24	46°03'33.0"N 003°59'57.4"E 55NM	1079 ft	223°/465m THR 19		
ROLAMPONT	DME	RLP	117.3 MHz Ch 120X	H24	47°54'22.7"N 005°14'57.0"E 120NM(105°..165°) 60NM FL500	1490 ft			FRA(I): LFFRANE, FL195-660 FRA(I): LFFRAE, FL195-660
ROUEN VALLEE DE SEINE	VOR	ROU	116.8 MHz	H24	49°27'56.3"N 001°16'50.3"E 40NM FL250	560 ft	040°/5,9NM THR 22		
SAINT DIZIER ROBINSON	TACAN	SDI	Ch 87X	H24	48°38'13.2"N 004°53'21.1"E	447 ft	133°/507 m THR 11		
SAINT TROPEZ	VOR- DME	STP	116.5 MHz Ch 112X	H24	43°13'10.1"N 006°36'06.5"E 200NM(90°..270°) 60NM FL500	1089 ft			FRA(A): LFFRASE, LFMA, LFMI, LFML, LFMO, LFMQ, LFMV, LFMV, FL195-660
SAINTE LEOCADIE	NDB	SAL	418 kHz	H24	42°26'47.9"N 002°00'44.7"E 25NM				
SAVERNE	VOR- DME	SAV	110.45 MHz Ch 41Y	H24	48°47'46.5"N 007°26'52.7"E 60NM FL250	1021 ft			
SOLENZARA	TACAN	SZA	Ch 87X	H24	41°56'14.9"N 009°23'58.4"E 200/60 200NM FL500	10 ft	284°/476m THR 18		
STRASBOURG ENTZHEIM	VOR- DME	STR	115.6 MHz Ch 103X	H24	48°30'19.4"N 007°34'19.1"E 150NM(135°..225°), 60NM(045°..135°) 100NM FL500	577 ft			
TARBES	VOR- DME	TBO	113.9 MHz Ch 86X	H24	43°19'56.0"N 000°08'44.7"E 80NM FL500	1039 ft	037°/10,6 NM THR 20		FRA(I): LFFRASW; FRA(D): LFFRASW, LEPP, LERJ, LESO, LFBZ

Station	Service	ID	FREQ	HOR	Coordonnées Portée Coverage	ALT	Situation Location	Exploitant Operator	Observations Remarks
THIERS	DME	TIS	117.5 MHz Ch 122X	H24	45°52'54.6"N 003°33'12.9"E 60NM FL250	2258 ft			FRA(EX): LFFRASE, FL195-660 FRA(EX): LFFRASW, FL195-660, EVEN FL for entering aircraft, ODD FL for exiting aircraft
TOULOUSE BLAGNAC	VOR- DME	TOU	117.7 MHz Ch 124X	H24	43°40'51.0"N 001°18'35.3"E 120NM(195°.255°) 70NM FL500	574 ft			FRA(I): LFFRASW; FRA(A): LFFRASW, LFBA, LFBD, LFCK; FRA(D): LFFRASW, LFBM, LFCG, LFCL, LFCQ, LFCW, LFCX, LFDB, LFDH, LFDX, LFMW
TOUSSUS LE NOBLE	VOR	TSU	108.25 MHz	H24	48°45'13.4"N 002°06'08.5"E 100NM(134°.314°) 80NM FL500	547 ft	043°/386m THR 07L		FRA(I): LFFRAN, FL305-660
TROYES BARBEREY	VOR	TRO	116 MHz	H24	48°15'04.4"N 003°57'47.3"E 60NM FL500	861 ft			FRA(IA): LFFRANE, LFQA, LFOJ, LFOZ, LFPG, LFPB, FL195-660

PAGE LAISSEE INTENTIONNELLEMENT VIDE / Page intentionally left blank